national

SAFETY NEWS

annual safety equipment issue

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NSC-150

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SAFETY NEWS

Eighteenth Annual Safety Equipment Issue

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NATIONAL
SAFETY NEWS

MARCH 1954

Constant Improvement

YEARS ago a well-known automobile had for its advertising slogan, "Constant improvement, but no yearly models."

That could be said about safety equipment. As with men's clothes, the changes from year to year are not conspicuous. Many of the items listed in our First Safety Equipment Issue in 1937 would still be acceptable according to today's standards. But there has been a great increase in the number of products and services available.

Progress has been steady. Modern equipment is lighter, more comfortable, and better looking as research in the laboratory and experience on the job have pointed to improvements. Developments in metallurgy and plastics have found applications in safety, directly or indirectly.

The ever-increasing tempo of industry and the number of new and hazardous materials that have been introduced have presented a continuing challenge to safety and operating men and to the manufacturers of safety equipment.

Personal protective equipment offering greater protection and comfort have been among the accomplishments but safety's achievements do not stop there. The modern factory has better lighting and ventilation. There are improved personal services, including facilities for keeping clean. Mechanical equipment for handling material is relieving human muscles of fatiguing loads. And the benefits of brighter, more cheerful workplaces is more than psychological.

* * *

And speaking of improvements, an important one has been made in this issue. The type is a size larger than has been used in the past few equipment issues, which should be as welcome to readers and proofreaders as to the editors. The number of editorial pages has been increased proportionately.

The Equipment Issue is a reference work, concisely written, to contain as much basic material of general application as space permits. More detailed information on many of the subjects will be found in other publications listed in the bibliographies in each section.

Unfortunately, it has not been possible to list all available sources of information on accident prevention, occupational hygiene and fire protection. In addition to the books and periodicals specifically devoted to these fields, much up-to-date information will be found in magazines serving industry in general and those dealing with particular industries and trades.

It will be noticed that National Safety Council's *Accident Prevention Manual for Industrial Operations* heads the list of reference works for each section. This useful book of more than 800 pages has an important place in the libraries of most safety men. The editors consulted it frequently in the preparation of this issue.

Not the least important part of this issue is the classified sections which presents a comprehensive directory of manufacturers and products. Inquiries on items not listed are welcomed by the National Safety Council.

The Employee Is a Customer

Treating him like one will win acceptance of protective equipment

WHETHER the employee is issued safety equipment at the company's expense or whether he pays for it out of his own pocket, getting him to use it on the job is a sales proposition.

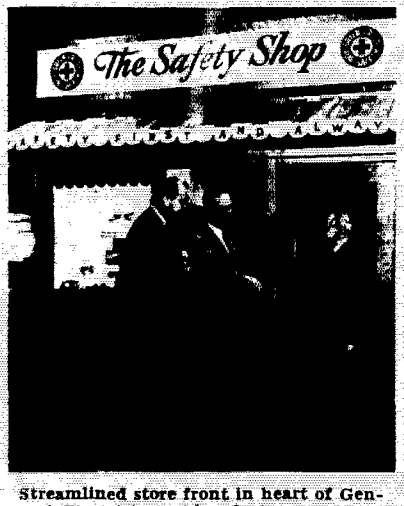
First of all, the stockroom should be clean and orderly. Good light and ventilation help. The appearance of the stockroom is particularly important in the case of new employees who often get their first impression of the company when they are sent to the store to be equipped with protective equipment.

Adequate supplies of various items in a well-assorted range of sizes should be kept in stock. A competently supervised marker system is usually satisfactory for assuring adequate supplies. When a new employee—or an old one, for that matter—is sent to the store for essential equipment for his job and is told that there is none in stock, his attitude toward equipment is likely to be affected.

It is equally unfortunate if the equipment issued is ill-fitting. It will be uncomfortable and offer reduced protection, in addition to building up resentment in the employee.

The attendant is scarcely less important than the store and its stock. He should know the equipment and make friends for the safety program by being friendly to the employee customers and taking pains to see that they are satisfied. If safety shoes are carried in stock, he should be able to do a competent job of fitting.

Employee at Tyrone, Pa., mill of West Virginia Pulp and Paper Co. gets outfitted at the company's central safety supply store.



Streamlined store front in heart of General Electric's turbine factory at Schenectady. It calls attention to office of safety supervisor. Display window contains safety glasses, shoes and other equipment.

During recent years there has been a trend to provide each employee with individual protective equipment. The common drinking cup long ago disappeared from the modern factory. So has the community pair of goggles over the grinding wheel. Experience has shown that employees will accept and wear protective equipment more readily if the equipment is individually furnished and kept clean.

The first step in the program of personal protection is a comprehensive survey of the entire plant. This should establish complete records of the equipment required to protect employees in various operations. Changes in operating conditions and other variable factors should be watched since these will result in changed requirements.

Establishing requirements for protective equipment and acquainting supervision and men with these requirements can be done effectively. Following are suggested methods of approach:

1. Equipment can be specified for an entire area—e.g., anyone entering an acid manufacturing plant must wear chemical goggles, or all personnel working in warehouses must wear safety shoes.

2. Equipment can be required by general categories—e.g., personnel handling *any acids* must wear rubber gloves and chemical splash-proof goggles.

3. Where a large number of potentially hazardous materials may be handled infrequently, a schedule can be established with the specific requirements for each category of chemicals. Orders are coded so that the supervisor can refer to this schedule and make sure that all personnel handling the material are adequately protected.

This procedure is particularly desirable where the hazardous properties of chemicals vary widely. Nothing is so likely to lower employee morale as requiring them to be overly protected when handling innocuous materials.

Most operations in chemical plants should be surveyed and a combination of the above steps utilized. Em-

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What's the Exposure?

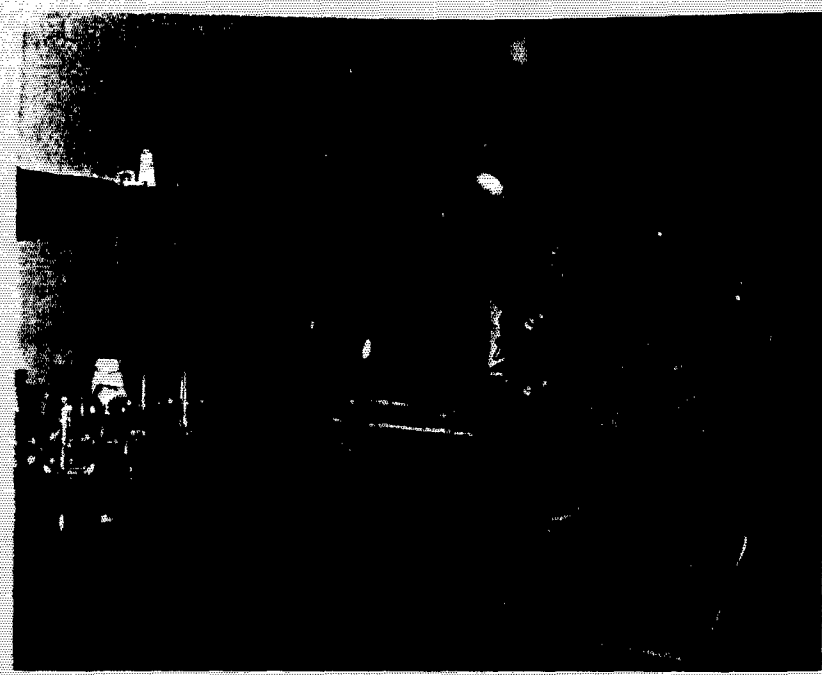
Maintaining healthful working conditions requires a thorough knowledge of environmental agents and basic control methods

DOING the world's essential work involves exposure to a variety of environmental agents—some of them harmful—as well as to the more dramatic hazard of accidents. Occupational hygiene programs aim to forestall the possible effects of these agents.

Recognizing and appraising the hazard and applying corrective measures requires a knowledge of the chemical and physical properties of these agents, their physiological effects, and basic engineering control measures. There are varying classifications, the one used here having been compiled by J. J. Bloomfield, of the United States Public Health Service.

Environmental agents may be divided into three groups:

1. Chemical
2. Physical
3. Biological



Frequent surveys are needed to maintain healthful working conditions. Here a laboratory technician is making a dust count.

Chemical agents are the ones encountered most frequently in industry. They are of two main types: (1) Gaseous, and (2) Particulate.

Gaseous contaminants consist of materials which are gases at ordinary temperature and pressure. Examples are carbon monoxide, sulfur dioxide, ammonia, hydrogen sulfide, hydrogen cyanide, and hydrogen fluoride.

Vapors represent the gaseous state of materials that are normally liquid. Examples are volatilized benzol, carbon tetrachloride, petroleum, acetone, alcohol, and other organic solvents.

Gaseous contaminants become mixed intimately with air and become an integral part of it. Stratification may result from the difference of specific gravity of contaminant and air but once the two are thoroughly mixed there is no significant separation.

Particulate matter may consist of either solid or liquid particles, and is usually classified as dust, fumes, mist and fog. Dusts are solid particles generated by grinding, crushing, rapid impact, and blasting.

Fumes, a term often used loosely to describe any air contaminant, are solid particles formed by condensation, as occurs on burning metals. Mists are liquid particles generated by disintegration of a liquid, as by atomization. Fogs are liquid particles formed by condensation of moisture on dust nuclei.

Particulate matter does not form an intimate mixture with air; it is merely held in suspension. It therefore tends to settle. Whether it is deposited near its source or travels a great distance depends on the size of the particles and their tendency to agglomerate and absorb moisture. Particle size plays a significant role in the length of time the particles stay suspended in air, the distance they travel, and their entry and retention in the respiratory tract.

Dusts may be divided into two groups—organic and inorganic. The organic may be subdivided into natural and synthetic. Natural organic dusts include wood, grain, cotton, feathers, pollens, hair, bacteria, and fungus. Examples of synthetic organic dusts are plastics and numerous organic chemicals.

Inorganic dusts may be classified as siliceous, which include free silica and the numerous silicates, and nonsiliceous, which include metallic compounds and numerous inorganic chemicals.

Fumes are most commonly encountered as metal oxides formed by burning metals or heating them to high temperatures. They also may be formed by volatilization of solid organic materials, or by the reaction of chemicals, as hydrochloric acid or ammonia. They tend to flocculate more readily than dust and then settle because of increased particle size.

Mists are likely to be formed when air or gas is passed through a liquid. The spray produced by a sneeze may be considered a mist.

Fogs are produced when the air contains substances which attract moisture, such as acid gases.

Sources of Contamination

In determining sources of atmospheric contamination by chemical agents, one must consider not only the raw materials being used, but also the processes and conditions. If carbonaceous material is being used in founding operations, carbon monoxide may be produced. Other hazardous by-products may be formed similarly.

Association of operations must also be considered. Sodium cyanide,

for example, should not be used in the vicinity of acids, since hydrocyanic acid may be formed. Phosgene and other chlorine compounds have been produced when degreasers using trichlorethylene have been operated near open flames. Compounds with low vapor pressure may be used safely at ordinary temperatures but become hazardous if the operation is carried on at elevated temperatures.

In an industrial hygiene survey, analysis of atmospheric samples is essential. Type of sample, number taken, and accuracy of analysis will depend on the primary purpose of the survey. If the purpose is to locate the source of contamination or check control measures, satisfactory results may be obtained through a few samples and relatively simple analysis.

However, if data are needed for legal purposes, for correlation with codes, or for evaluation of health hazards, careful and thorough sampling should be carried out to obtain an over-all measure of the exposure and accurate analytical methods should be used.

Physiological Effects

The action of a chemical agent on the body may be classified as local or systemic. Local action means the effect due to direct contact with the skin. Systemic action refers to effects produced after absorption of the chemical into the blood stream. It also includes effects due to irritation of the respiratory tract.

Chemical agents producing injury by direct contact with the skin may be classified as primary irritants and specific irritants. Primary irritants are such compounds as acids, alkalis and corrosive salts, which will injure practically every skin if there is sufficient concentration and length of contact.

These injuries may range from mild irritation to severe chemical burns. Usually included among primary irritants are organic solvents which remove the fat from the skin, causing it to chap and crack, opening the way to secondary infection.

Specific irritants affect hypersensitive persons. Some persons are naturally sensitive to certain chemical compounds, and others become sensitive as the result of contact. In such persons, only a small amount of material may be sufficient to produce a severe skin reaction. It has been estimated that approximately two-thirds of all occupational diseases in the United States are dermatoses.

Conjunctivitis may be produced by many chemical agents. An outstanding example is hydrogen sulfide which will cause conjunctivitis in concentrations that would cause systemic poisoning only after long exposure.

Systemic action is caused by chemical agents gaining entrance to the body through: (1) Ingestion, (2) Skin absorption, and (3) Inhalation.

Poisons may be ingested in two main ways: (1) Handling food or tobacco with contaminated hands, and (2) Particles being deposited on the moist surfaces of the mouth and throat in the process of breathing and subsequent swallowing.

Some compounds will penetrate intact skin rapidly enough to produce serious poisoning. Many other compounds are absorbed through the skin but at such a slow rate of absorption that serious or even mild poisoning is rare. Of the compounds that are gases under ordinary conditions of temperature and pressure, hydrogen cyanide is the only one known that is absorbed rapidly enough to produce serious poisoning.

Of compounds that normally are liquid, examples of those known to cause serious poisoning by absorption through the skin are: Aniline, nitrobenzene, nitroglycerine, pheol, and tetraethyl lead. Many other liquids are absorbed through the skin, including most organic solvents, but many of these are absorbed so slowly that the hazard is minor compared to that of inhalation of vapor.

The most important route of absorption is inhalation. Materials may be taken into the lungs as gases, vapors, or particulate matter. The amount of material inhaled will depend on the concentration of the contaminant and the volume of air breathed.

Evaluation of the effect of inhalation requires information on:

1. Rate of absorption
2. Distribution in various body tissues and fluids
3. Rate of elimination
4. Fats in the body
5. Effects on normal body constituents
6. Pathological changes
7. Diagnostic signs and symptoms

Acute effects—those produced by a single short exposure—are usually recognized. They may be considered an accident due to some unusual circumstance. However, in some cases symptoms are delayed for hours, even though a single exposure may cause death. Oxides of nitrogen, for example, exert such action.

Chronic Effects

Most important to industrial hygienists are the chronic effects, produced by repeated daily exposures to relatively low concentrations. The effect of a substance depends not only on the concentration but also on the length of exposure.

The human body can destroy, eliminate or detoxify a certain amount of any material without measurable damage. The problem, therefore, is to control conditions so that harmful amounts of the contaminant are not present under conditions that will permit their contact with or absorption into the body. Much research has been directed toward determining maximum allowable concentrations, permissible concentrations, or hygienic standards of exposure. Many of these have been published by the American Standards Association.

Tables which list the MAC values for many substances have been established through one or more of the following procedures:

1. Laboratory tests on animals
2. Laboratory tests on human subjects
3. Field investigations

Criteria used in establishing the limits are based on

1. Pathological effects
2. Slight physiological effects which apparently do not injure health but impair coordination and reaction time.
3. Discomfort or sensory effects.

HAZARD SPOT CARD

For Job Planning and Instruction

WORK AREA

Footing: uneven ☐ obstructed ☐ slippery ☐
Cramped quarters ☐
Exposure to traffic ☐
Insecure piles or overhead material ☐
Inadequate illumination ☐ glare ☐
Temperature: too hot ☐ too cold ☐
Exposure to gases ☐ dust ☐ fumes ☐
Hazards from nearby operations ☐

MACHINERY

Point of operation: cutting ☐ shearing ☐ punching ☐ abrading ☐ flying material ☐
Power transmission: shafts ☐ belts ☐ gears ☐ pulleys ☐ electrical conductors ☐
Unsafe starting and stopping mechanisms ☐

TOOLS

Wrong tool for the job ☐
Tool in unsafe condition ☐
Tool placed in unsafe position ☐

HANDLING MATERIAL

Material or objects: heavy ☐ unwieldy ☐ rough ☐ sharp ☐ hot ☐ corrosive ☐
Unsafe handling equipment: trucks ☐ conveyors ☐ hoists ☐ containers ☐

Safety Instruction Card No. 775.

Ready for Disaster

Whether the menace is hostile aircraft, disruptive materials in industry, or nature on the rampage, the same measures will conserve life and property

CREATION of a strong defense organization within our industrial plants is an essential part of the plan for the defense of the nation.

Protection of industrial production is essential to survival in the event of war. A disaster control plan is actually a plan to be carried out in an emergency to control the effects of disaster and to restore the plant as quickly as possible.

Such measures are also valuable in peace. They help to control panic, loss of life and destruction should a tornado, flood, explosion or conflagration strike the area. In many such disasters, industrial organizations have rendered notable service to plant and community through first aid, rescue work and fire fighting.

First of all, management is responsible for organizing civil defense groups in plants. However, the local civil defense organization should be contacted before the organizing actually takes place. A plant civil defense plan which is not closely tied in with the local plan will not be efficient.

A good place to start in organizing the group is with an employee-management committee, if one exists. If not, such a committee should be formed.

A detailed national plan has been set out in the Federal Civil Defense Administration publication, "Civil Defense in Industry and Institutions." Following is an outline of the steps to be taken:

1. Choosing the coordinator is the first step. In every plant there is an individual with executive ability, who has the confidence of both management and employees, who can take complete charge of the situation. There can be no divided authority. For specialized information and guidance he can call upon outside consultants, such as representatives of casualty and fire insurance underwriters.

2. Make a survey of plant buildings and shelter requirements. A manual issued by the FCDA, "Methods for Determining Shelter Needs and Shelter Areas," tells what to look for and what to avoid:

1. Any area selected as potential shelter should be in the center of the building, away from outside exposure. "Outside" includes courts and light shafts.

2. Areas should be in a part of the building that is structurally compact, with close spacing of columns and short-span beams.

3. They should be out of direct line with doors, windows and hallways exposed to the outside.

4. Walls and doors surrounding the area should be free of glass.

5. There should be at least one interior stairway, not adjoining an outer wall.

6. Areas should contain no furnaces or boilers, and no large steam, water or gas pipes.

7. The ceiling should not be of the hung or suspended type, or have heavy lighting fixtures or plaster ornaments.

8. The area should be as free as possible of furniture, stored merchandise or equipment of any kind.

9. There should be no safes, banks of filing cabinets or heavy machinery on the floor above.

Not many areas meet all these requirements so it may be necessary to pick the best space available. Hallways, corridors, fire stairs, rest rooms and elevator lobbies in the center of buildings are good locations, if free of glass.

3. Select, train and assign emergency protection personnel. These include wardens, police, firemen, engineering and rescue workers, medical and welfare workers. Local civil defense organizations have conducted many such training courses. The state of New York has an excellent school. The FCDA has a staff college at Olney, Md., and a training school at Ogontz, Pa.

4. Make a floor plan showing branch control rooms, first-aid stations or cabinets, fire extinguishers and other equipment, elevators, stairs, emergency lights and exits, and a general traffic plan within the plant.

5. Post directional and information signs, including evacuation instructions, in offices and other places of assembly.

6. Provide emergency supplies in shelter areas, such as first-aid kits, water supplies, and emergency lighting. All persons assigned to civil defense tasks should be provided with civilian defense identification, such as arm bands.

Exit drills should be held frequently and include all employees. The first few drills should be announced in advance. When routine procedures have been established, drills should come at irregular intervals without warning. These drills

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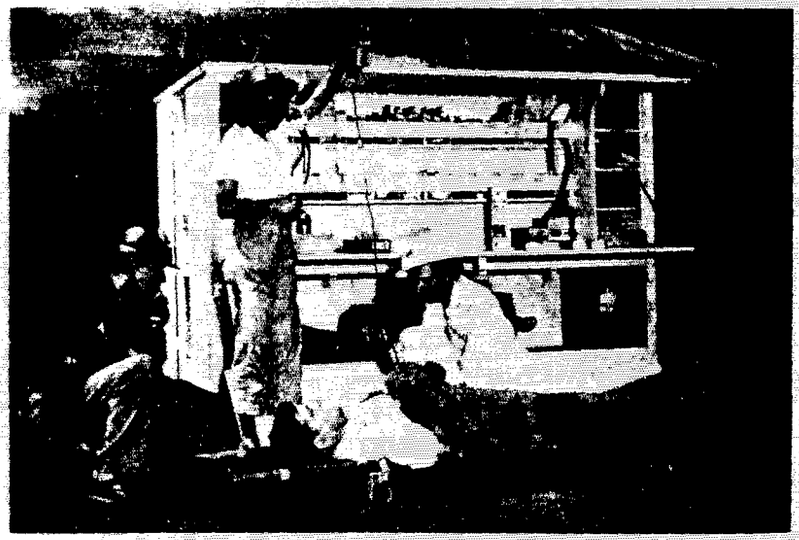
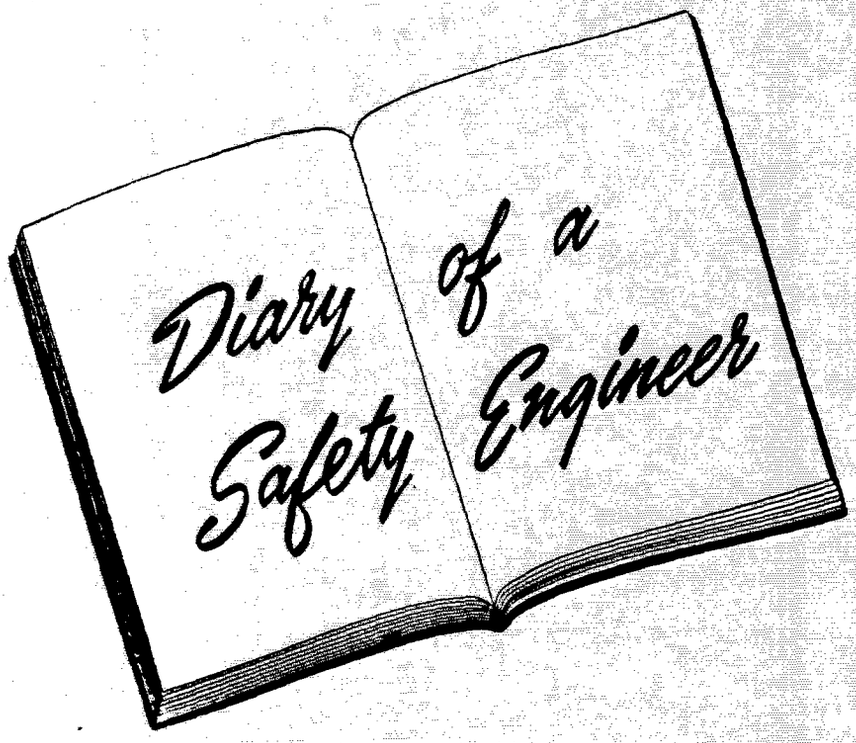


As part of its program of Civil Defense preparedness, Consolidated Vultee has built and installed several of these mobile first-aid stations at the San Diego Division. Civil defense drills are held.



Dream of Utopia

(Fiction)

By BILL ANDREWS

March 10, 1954

The income tax form was complete by ten o'clock tonight. I wrote the small check for the balance due, sealed the envelope, and put it on my hat for morning mailing.

Sue was knitting quietly in her chair, so I got a book and lay on the sofa to read and get the jumble of calculations out of my mind. Naturally enough, I went to sleep, and this is the dream I dreamed:

It was some other mid-March, certainly not 1954's. I had another income tax blank before me, and also another form, not governmental.

The government tax form had big black letters on the top, reading, "This Is The Price of Stupidity." And the other form was headed, "This Is The Price of Wisdom."

And I knew in some way just what was meant. For the income taxes were almost as high as they are now, but they went, not for hugh military budgets, but to pay for our past wars. And the other blank—the crisp, white, gleaming blank, was for my voluntary contribution to the cause of health and safety for the year.

I knew also that all over America people were filling out these two forms, the one demanded by law and the other demanded by the feeling of human decency.

As I finished with the forms and put them in their respective envelopes, I thought of the plant I worked in, the community I lived in, the nation to which I owed my love and allegiance.

I remembered something that must have happened recently. It had been like a court hearing, with the president of the company in the judge's seat, the defendant and his counsel at one table, and myself as prosecutor in another. A witness had just been sworn in, and I rose to examine him. "Did you, on March 2, observe the defendant?" I asked.

"Yes, sir."

"Did he instruct an employee to repair the lathe?"

"Yes, sir."

"What precautions did he take to safeguard the employees?"

"He instructed Jack—the employee, I mean—to throw and lock out the switch, to wear his goggles, to check on the shape his tools were in, and to report if any were defective."

"Did the employee do these things."

"Yes, except that he had mislaid his key for the padlock for the switch, so he simply inserted the padlock in the switch without locking it."

"And what did the defendant do when he saw this violation of safe practices?"

"He did not see it."

"Why?"

"He went for a cup of coffee after he gave the instructions."

There was a subdued gasp of horror from the audience, and the judge pounded with his gavel. The defendant was pale when I stared at him accusingly.

I turned back to the witness. "What happened?"

"Nothing, sir. Nobody removed the padlock or attempted to turn the switch. The repair job was completed without incident."

"But what could have happened as a result of this action."

"Another employee might have removed the padlock, started the lathe, and caused injury to the repairman."

I said, "That is all." I turned to the judge. "Mr. President, the prosecution rests."

The defendant was on his feet shouting, "Mr. President, no one was hurt. I didn't mean any wrong. I've been a good foreman for 10 years and nothing like this ever. . . ."

The judge's gavel pounded again. "Silence," said our president. "Absence of an accident is no excuse. If another man had been as negligent as you, we would have had an accident and disgrace to the company. I sentence you to have one middle-sized black mark put on your safety performance record."

And the defendant screamed, "No, not that! Think of my family. The children won't be able to hold up their heads. Please, mercy, sir, mercy!"

"Did you have mercy on the man you almost allowed to be mained? Go and earn back your self-respect in loyal safety performance."

* * *

And then came another memory. Sue had just come back from her bridge club, and she said, "Dear, I heard the most terrible bit of gossip about Mrs. Smith. You'd never believe it."

I laughed. "Now, don't tell me she's been caught driving when drunk?"

Sue flushed. "You don't have to use such obscene language. What if the children heard you? Of course not—nobody does that now. But it's still bad enough. She was driving 23 miles an hour down East Fourth yesterday."

I was puzzled. "The speed limit

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Eighteenth Annual Safety Equipment Issue

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Planning the Safe Plant

LOCATION, design and layout of an industrial plant affect safety and health of the workers as well as economy and efficiency in operation. Attention to these details in pre-planning will avoid building into the plant many hazards that may cause accidents, fires, and occupational diseases.

In the larger companies, plans are checked by the safety and medical departments. It is also advisable to have them approved by state and municipal officials. Compliance with laws and regulations may save costly changes in the finished buildings.

Standards for structures and equipment are contained in various codes compiled and published through the American Standards Association.

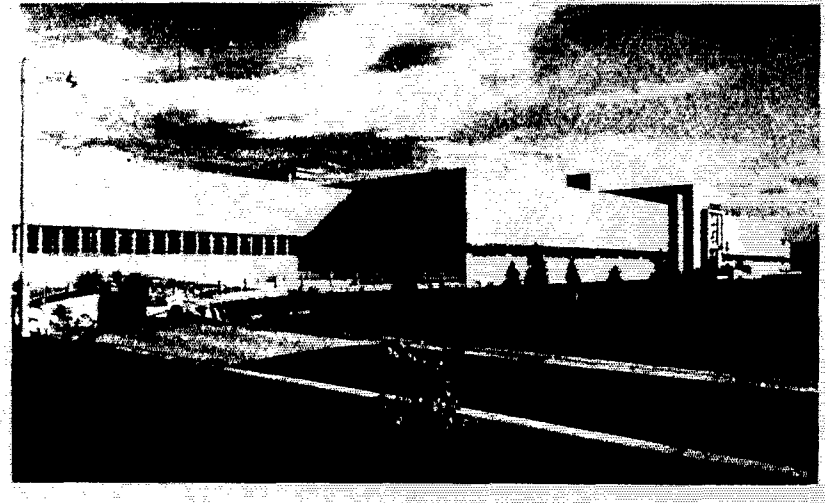
Remodeling an existing plant also offers opportunities for improving safety and health conditions. It has been estimated that some 75 per cent of the industrial buildings in the United States are more than 25 years old. Layout, ventilation, lighting, sanitary facilities and methods of handling materials can often be improved without prohibitive expense.

Important features to be checked in the planning stage include:

1. Site
2. Transportation facilities
   - Docks and wharves
   - Railroad
   - Highways and plant roadways
3. Exits and other wall openings
4. Walkways, floors, stairs, ramps, platforms
5. Storage facilities:
   - Flammable and explosive materials
   - Harmful substances
   - Raw materials
   - Finished products
   - Yard storage
6. Electric wiring and installation
7. Illumination
8. Mechanical handling equipment:
   - Cranes
   - Conveyors
   - Industrial trucks
9. Elevators
10. Boilers and pressure equipment
11. Ventilation
12. Fire Control
13. Health and Safety
    - Water
    - Waste disposal
    - Medical and first aid service
    - Personal protective equipment distribution and repair facilities
14. Personal service facilities:
    - Parking
    - Food service
    - Rest rooms
    - Employment
    - Training

Visualizing the finished plant. In planning the layout, each operation can be visualized and provided for. The simplest method is by maps and drawings. More effective are block templates and 2-dimensional templates.

Scale models, ¼" to the foot, provide a realistic 3-dimensional picture of the plant. Various arrangements can be made, and it is possible to study a manufacturing process quickly and easily. Operations may



Distinctive architecture and attractive landscaping are characteristic of the Upjohn Company's plant. A driveway extending underneath the building is used by company-operated buses to take employees to and from the plant. Employees entrance is on the underground concourse. (The Austin Co.)

be combined or simplified and the sequence changed.

Standards for templates and models are being developed by a committee of the American Society of Mechanical Engineers.

"Controlled Conditions." The windowless plant, independent of the outdoors for light and ventilation, and the conventional type of building both offer certain advantages. From the standpoint of safety and employee health, satisfactory conditions are possible with either type.

General Factors

Type of industry is the major factor in plant requirements. Even plants in the same industry may have individual problems that involve special planning. Among these are use and handling of flammable, explosive or toxic materials, or unusual problems of materials handling and storage.

The site. Location of the plant is often influenced by the manufacturing processes. Smoke, odors, fumes, dust and noise are among the factors which may conflict with zoning regulations in some areas.

Proximity of raw materials, markets and labor are prime considerations in choosing the site.

Space for future requirements is another factor. If ample room is available, expansion can be carried on at lower cost and less interruption to production.

The site should provide adequate outdoor storage. Where flammable and explosive materials are stored, legal minimum distances must be maintained between storage facilities and other property.

Fire prevention codes also specify minimum distances between buildings, depending on size, types and occupancies of buildings.

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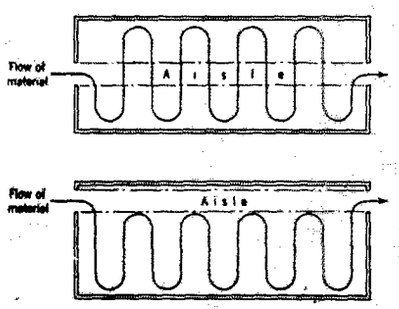


Top: Conventional layout with aisle running through middle. Flow of material zig-zags back and forth across aisle in moving from machine to machine. Lower sketch shows same area with aisle at side. This permits full use of manufacturing space without having material cross aisle. (Gaudreau, Rimbach and Associates)

Lighting the Workplace

Recessed fluorescent continuous troffer lighting provides general illumination of more than 45 footcandles in Sinclair Refining Company's Research Laboratory. Metal acoustic tile is used in ceiling. Grease proof asphalt tile on floor and glaze tile walls aid maintenance. (The Austin Co.)

PRODUCTION, safety and personal comfort require good lighting. The effect on the individual's morale and his attitude toward his job are scarcely less important.

Industrial processes have been growing more complex, throwing increasing burdens on the eyes. Labor costs have increased and the investment per worker is greater. These demands have stimulated lighting research with a goal of better working conditions and greater efficiency.

To enable the human eye to function effectively, the lighting system must:

1. Illuminate the work surface to a point of brightness which enables the worker to see easily and accurately and to work at an efficient speed without eyestrain and unnecessary fatigue.
2. Illuminate the room generally so that all sections are free from excessive contrasts, harsh glare and disturbing shadows, and contribute a pleasant atmosphere.
3. Supply light of right color and quality to permit quick and accurate judging of appearance details.

There are two seeing zones in which brightness should be controlled. The first is the "task zone," which includes the job and immediate surroundings. Here the work should be illuminated adequately, shadows eliminated or diffused, reflections from surfaces avoided.

The other and larger zone is the rest of the room. When a worker looks up from his work, he should not face glare from lighting fixtures or from a bright wall or ceiling. Trying to adapt the eyes from light to darkness several hundred times each day results in much wasted energy.

Visual conditions are reasonably good if the surrounding area has a brightness at least one-third that of the task. It should not be brighter than the task itself.

Higher illumination levels throughout the work area and surfaces finished in colors with high light reflectance reduce glare by reducing the contrast between adjacent surfaces. Light colors on ceilings, walls, floors and machines, kept bright by regular cleaning and repainting, reflect a high percentage of light.

Some directional and shadow effects are desirable in general lighting to accentuate the depth and form of solid objects, but harsh contrasts should be avoided. Clearly defined shadows, not too deep, are helpful in some operations, as in textile inspection.

Illumination Levels

Recommended levels of light for a wide variety of operations will be found in many reference books. One of the most comprehensive works on lighting is the *IES Lighting Hand-*

book. Much useful information is also contained in manuals published by manufacturers of lamps and fixtures.

Existing levels are determined from readings with a light meter at the spot where light is needed. This device gives a direct reading of the number of footcandles.

General lighting. The minimum amount of light required for an area is termed general lighting. This has been defined as a uniform distribution of the light to produce approximately equivalent seeing conditions throughout an interior.

Localized general lighting sources are usually arranged 10 feet or more above the work. Their purposes are to prevent too great a contrast in brightness between the more highly lighted work area and the adjacent areas, to provide sufficient light for general safety and protection, and to provide light for ordinary visual needs.

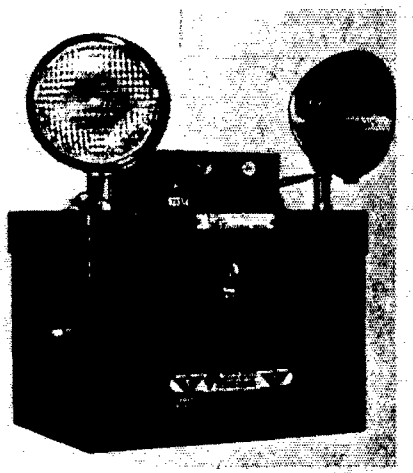
For general overhead lighting, levels range from 5 footcandles for inactive storage and passageways to 100 footcandles for high-speed production and highly skilled work.

To insure adequate levels, even where conditions are favorable, the system should be designed to give initially at least 25 per cent more light than the recommended minimum.

Where dirt collects rapidly and systematic maintenance is not provided the initial value should be 50 per cent above the minimum.

Supplementary lighting. Some difficult seeing tasks require more light than can be obtained economically by overhead general lighting. For such work supplementary fixtures are used.

Two types of equipment meet most needs. One uses small concentrating projectors to increase the light on the work and provide directional quality.



Emergency lighting unit powered by storage battery. (General Scientific Equipment Co.)

Another type is the large area, low brightness area, such as fluorescent desk or bench lamp. It can provide either general lighting for a small area or extra light for critical work, such as inspection.

Supplementary lamps should be shielded, louvered or mounted to prevent glare.

Artificial Light Sources

Three common sources are: (1) Filament lamps; (2) Fluorescent lamps; (3) Mercury vapor lamps.

Filament (incandescent) lamps are available up to 1500 watts for general and special service. There is a type for almost every industrial, public and domestic need. For many purposes low first cost and convenience may offset the higher efficiency of other light sources. No auxiliary equipment is needed; merely a standard socket and available current.

Quality of light is pleasing and most colors look well under it.

Fluorescent lamps have high efficiency and long life. Heat output is low—about one-fourth that of filament lamps with comparable light output. Low brightness and good light distribution make possible installations which provide adequate illumination of good quality.

For a given lighting level more fluorescent units are needed than for incandescent or mercury systems.

Fluorescent lighting is particularly suited for large areas. Fixtures should not be mounted too low For high mounting applications a fluorescent system is sometimes more economical than either mercury or incandescent lamps.

In spite of low surface brightness, bare fluorescent lamps are too bright for eye comfort. Louvres or translucent panels improve diffusion and reduce glare.

Mercury vapor discharge lamps are highly efficient light producers, with high output per watt, long life and low operating and maintenance costs. Small size and high intensity makes it possible to obtain high lighting levels with a relatively small number of units.

Mercury lamps are available in a wide range of sizes and wattages. They require auxiliary equipment which makes the cost high. After a power interruption they take five to eight minutes to restart. To avoid the hazard of temporary darkness

High bay fixtures in steel mill. Mercury vapor lamps may be used alone or in combination with incandescent lamps. (Westinghouse)

a combination mercury filament system may be installed.

For high bay mounting where areas are large and maintenance difficult, mercury lamps offer definite advantages.

For rough work, as in steel mills and foundries, they may be used alone. Where color discrimination is important, alternate fixtures of mercury and incandescent lamps are used. A new color-improved type gives the same effect as when equal wattages of mercury and filament lamps are combined.

Reflectors. Lamps used without reflectors waste light and may cause excessive glare. Many types adapted to the light source and location are available. Factors to be considered in choosing the unit are:

1. Distribution of light and suitability for the interior.
2. Efficiency of light output.
3. Sturdiness of construction.
4. Adaptability if more light is desired.
5. Economy of cleaning and replacement.

Lamps with reflectors built into the bulb are advantageous where dust, fumes and other conditions make maintenance difficult or costly. The internal reflecting surface is not subject to depreciation and light is diffused through the bottom of the bulb. Reflectorizer lamps are available in both filament and mercury vapor types.

Natural Light

Whether to design a plant to make full use of natural light or to depend largely or wholly on artificial light, is primarily an economic problem. Light of satisfactory quality and

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Industrial Floors

FLOORS must be strong enough structurally to support both static and moving loads. They must also withstand the impact and abrasion of foot and wheel traffic and falling objects.

The floor surface must offer good traction and resistance to slipping under normal use.

For most requirements there is a variety of satisfactory flooring materials. Sometimes a compromise between the best material and the installation cost may be necessary.

General requirements. Various operations make special demands on the floor but the following specifications, or a reasonable compromise, are desirable:

1. *Strength*—Sufficient to carry four times the expected static load or six times the moving load.
2. *Resistance to slipping*—Not slippery nor likely to become slippery through wear or contact with other materials.
3. *Durability*—Must stand up under normal traffic and wear evenly without developing holes and splinters.
4. *Maintenance*—Easy to keep sanitary and in repair.
5. *Fire resistance*—Important in most industrial property.
6. *Comfort*—Resilience and low heat conductivity.
7. *Quietness*—Another aid to reducing fatigue.
8. *Initial cost*—Often the deciding factor.

Flooring Materials

Each material has its limitations. Some with a high rating for durability and resistance to slipping may be too expensive for general use. These are often usable for limited special areas where a sure footing or resistance to chemical or abrasive action is important.

The accompanying table will serve as a guide in selecting flooring. It does not include all types of flooring or all problems concerning their use. Manufacturers have devoted much research to these problems and have considerable data available.

Smooth, hard surfaces, like concrete, are susceptible to chipping and abrasion. Trucks with steel wheels and heavy falling objects are destructive to the surface. Rubber tires are easier on floors as well as on the ears.

Concrete is suitable for a wide variety of industrial uses, interior and exterior. It is one of the best materials for damp locations, but does not withstand acids. The floor should be graded to avoid spots where liquids can collect.

Drains with strainers are needed where the surface is cleaned by flushing or where there is danger of flooding.

A durable roughened surface, resistant to cracking and dusting, can be obtained by a wood float finish to a mixture of pea gravel, sand and cement. Too smooth a surface is slippery when wet and is actually more tiring to the feet than a rougher one.

Hardening compounds or sealers can be applied to prevent dusting.

Concrete floors can be made conductive and non-sparking with surfacing compounds containing nonferrous metallic aggregate. This treatment also makes the floor more wear resistant.

For repairing holes and cracks some compounds are superior to concrete. Patching with concrete, even when well done, may crack out under heavy loads.

For painting, a general purpose floor enamel may be used but finishes prepared especially for concrete are more durable. New concrete should be treated with zinc sulphate solution to neutralize alkalinity.

Concrete provides a rigid and substantial base for resilient types of flooring.

Where men must stand in one position for long periods, resilient non-slip mats are an aid to comfort. Men who move about in their work are less likely to complain about floors being cold or hard. Footwear also has a bearing on comfort.

Asphalt (hot mastic) is non-dusting, elastic, odorless, and easily repaired. Problems of application restrict its use indoors.

Asphalt is resistant to weather and moisture but is affected by oils, solvents, acids and alkalis. It stands up well under traffic but ordinary grades soften at temperatures above 95 degrees F.

Harder grades of asphalt remain firm up to 158 degrees F. There are also acid-resisting grades.

Asphalt emulsion, sold under various trade names, is made into a mortar with sand and cement and laid cold about one-half inch thick. It is used extensively for patching. On a substantial wood base it will carry moderate traffic; with a concrete base it will take heavy trucking. The surface is somewhat harder than the hot mastic type. Both types are affected by oils and solvents.

Mastic flooring of other types usually has a resin binder. The materials are generally resistant to oils, solvents and alkalis, but the manufacturer should be consulted about the exposure. These materials are relatively high in price and

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COMMON FLOORING MATERIALS FOR INDUSTRIAL USES

AREA	Concrete	Asphalt hot mastic	Asphalt emulsion	Wood block	Wood plank	Asphalt tile*	Greaseproof asphalt tile	Resin binder mastic	Linoleum*	Terrazzo	Rubber tile	Ceramic tile*	Metal plates	Grating
Floors on grade	X		X	X	X	X								
Floors below grade	X					X	X							
Suspended floors			X		X	X	X	X	X	X	X			X
Driveways	X	X	X											
Ramps and loading docks	X		X	X	X									
Manufacturing areas	X		X	X				X						
Warehouses	X		X	X										
Stair treads	X					X			X	X			X	X
Offices						X			X		X			
Laboratories						X	X		X	X	X			
Cafeterias							X		X					
Washrooms	X					X				X	X	X		
Food processing	X						X					X		
Corridors	X								X	X				
Platforms, catwalks					X								X	X

* Also available in conductive grades for explosion-hazardous areas

Planning a Safe Plant

—*From page 10*

Considerable space for storage of coal and other bulky materials and for disposal of solid wastes are needed in some industries.

Decentralization of industry and erection of new buildings in outlying locations often brings transportation problems, particularly where transit service is inadequate. Employee car pools have become a recognized method of transportation. Some companies operate private buses, either free or at a low fare.

The working day really begins when the employee leaves home for the days work and ends when he returns home at the end of the shift. Tardiness and absenteeism increase when getting to and from work is difficult. Management is also concerned about traffic hazards en route.

The effect of a new plant on traffic and parking conditions should also be considered. Many an industry otherwise unobjectionable as a neighbor may be unwelcome because of the congestion and hazard created.

Topography. Ground may be high or low, level or sloping, dry, swampy, or undermined. All of these factors must be considered in the plants. Normal drainage and the possibility of floods or washouts during heavy rains must also be considered.

On ground likely to be flooded, multi-story buildings have advantages. Upper floors provide a safe place to which valuable equipment and products may be moved.

Waste disposal. Waste and sanitary sewer location is determined chiefly by location of buildings, lay of the land, and maintenance needs. Sufficient manholes or other openings for maintenance should be planned.

Sewers should not be located where leakage might contaminate drinking water sources. In some instances it may be necessary to treat waste material before running it into streams or otherwise disposing of it. In other instances it may be necessary to install special sewerage systems. Federal as well as state and municipal laws may govern waste disposal.

Climate. In colder regions there are problems of ice and snow removal. Keeping the plant warm may make ventilation complicated and expensive.

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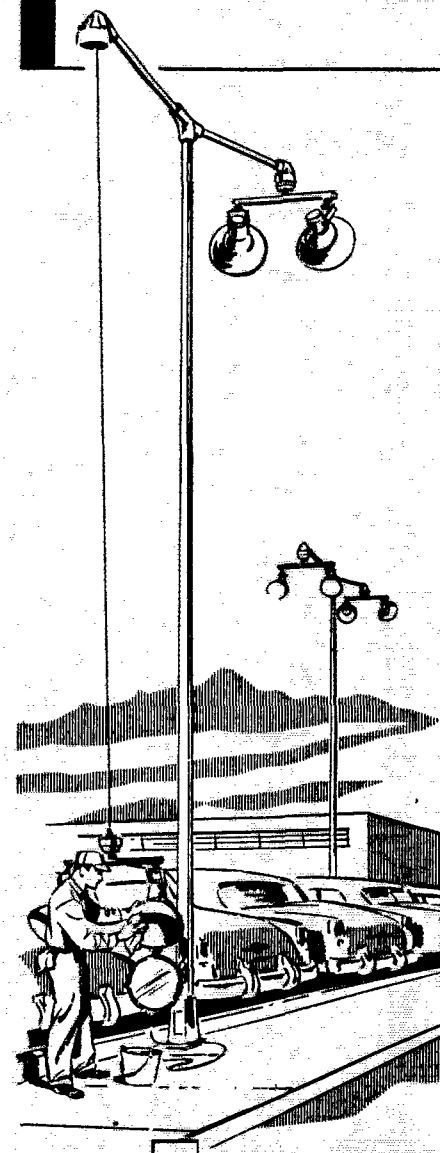
NEW METAL POLE UNITS PROVIDE GREATER ECONOMY, EFFICIENCY AND SAFETY FOR OUTDOOR LIGHTING SYSTEMS



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permit rapid . . . safe . . . efficient ground-level maintenance for pole-mounted pendant or flood-type luminaires. These newly developed metal pole units eliminate all climbing and electrical hazards . . . reduce servicing time and costs to absolute minimum . . . feature decorative as well as functional qualities.

Supplied as complete packages ready for wiring and erecting, "Servisafe" metal pole units incorporate the patented THOMPSON disconnecting and lowering hanger mechanism. This device permits lowering and repositioning of luminaire with minimum effort.

Both single and double-arm models can be furnished with a variety of new steel and aluminum poles. Single-arm brackets for walls and wood poles also are available.

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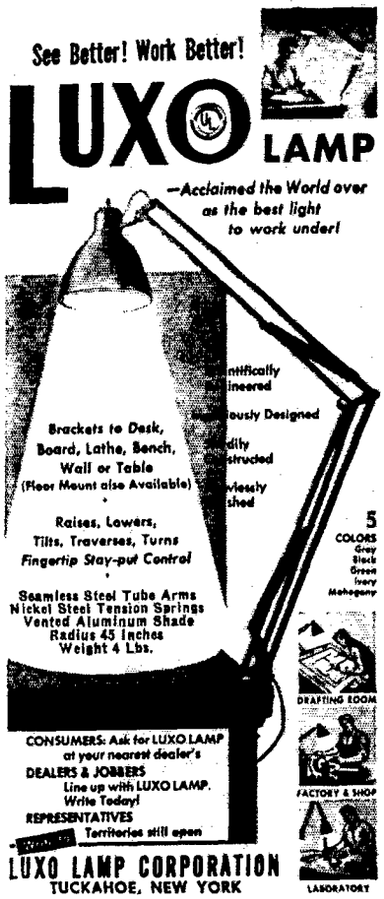

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3865 N. Milwaukee Ave., Chicago 41, Ill.

Planning a Safe Plant

—*From page 13*

In warmer and drier climates some material may be stored outdoors; in others, covered storage may be necessary.

Roof loads of ice and snow and strong winds also affect building design. Where storms of hurricane intensity are frequent, roof anchorage is important. Insurance companies have useful data regarding losses through windstorms and lightning in various sections of the country.

Prevailing winds also affect design and location of smokestacks.

Appearance of the plant—both inside and out—is important. Employee and community relations are influenced by the looks of a factory, and customers often judge the product by the plant. The housekeeping program should include the entire property.

Landscaping should be planned for economical maintenance. With power mowers and sweepers a small force can take care of a large lawn if it is not broken up by shrubbery and flower beds.

Decorative floodlighting has been employed by companies with distinctive buildings and well-kept grounds.

Protective lighting safeguards life and property, particularly in times of emergency. Fences high enough and strong enough to deter trespassers are also important in plant protection.

Entering and leaving the plant. Separate entrances and exits should be provided for pedestrians, vehicular traffic and railroad traffic. Entrance and exit gates should be not less than 35 feet from property line structures which might obscure vision. Gates for vehicular traffic should be arranged so that drivers will have a clear view of cross traffic when leaving the premises.

Passenger loading and unloading facilities should be arranged to avoid traffic hazards and reduce the physical effort required to reach the plant. If the plant is on a main highway, space should be provided where buses can at least pull off to the side for loading and unloading.

Where highway traffic is heavy and a large number of employees must be handled, an underpass or overpass will avoid congestion and delay in getting to and from the plant.

Some companies bring buses right into the plant. The buses are driven down a ramp to a central location. From there employees reach their jobs through passages below the main production floor.

Parking. The parking lot is an indispensable part of today's plant. It should receive consideration in all plans. If it is necessary to cross a busy thoroughfare to reach it, an underpass or bridge may be needed. Separate entrance and exit facilities should be provided.

Guides and marking aid in proper use of the parking area.

Building Trends

High construction costs are stimulating the search for economical materials and methods. Newer building materials, which meet severe performance tests, are sometimes barred by local building codes. Work on standardization of building codes is being conducted by the American Standards Association and other organizations.

One-story plants are preferred in many locations where land values are not excessive and there is plenty of room for expansion. Advantages of one-story construction are:

1. Lower construction costs.
2. Freedom from stairs and elevators.
3. Ease in routing and handling heavy and bulky equipment.
4. Better lighting and ventilation.
5. Ease in isolating hazards.
6. Efficient handling of materials.
7. Ease of supervision.
8. Lower operating and maintenance costs.
9. Better possibilities for landscaping—an asset where the plant is in a conspicuous position near a main highway or an airport.

Roofs. Keeping the roof flat, or with few projections, reduces con-

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struction costs. Monitor and sawtooth constructions are becoming less popular although they are effective in admitting natural light to the center of the building. With modern light sources simulating natural light, daylight has become less important.

Materials Handling

General facilities for moving materials in and out of the plant are railroads, highways, water and air. In a few cases all types may be used but more than two are seldom needed.

Loading docks should be planned with consideration for traffic outside and within the plant. Railroad sidings and roadways within the plant add some of the problems of railroading and highway traffic to manufacturing operations.

Transportation with material-handling equipment within the plant includes plant railways (standard and narrow gauge), motor vehicles, power trucks and tractors, hand trucks, cranes, conveyors and elevators.

Studies of the flow of materials through the plant, from the time they are received until they are shipped out as finished products, will often reveal ways to eliminate unnecessary handling as well as hazards. Adequate clearances between vehicles and fixed structures must be provided. This is particularly important in laying out plant railways and driveways.

Machine Layout

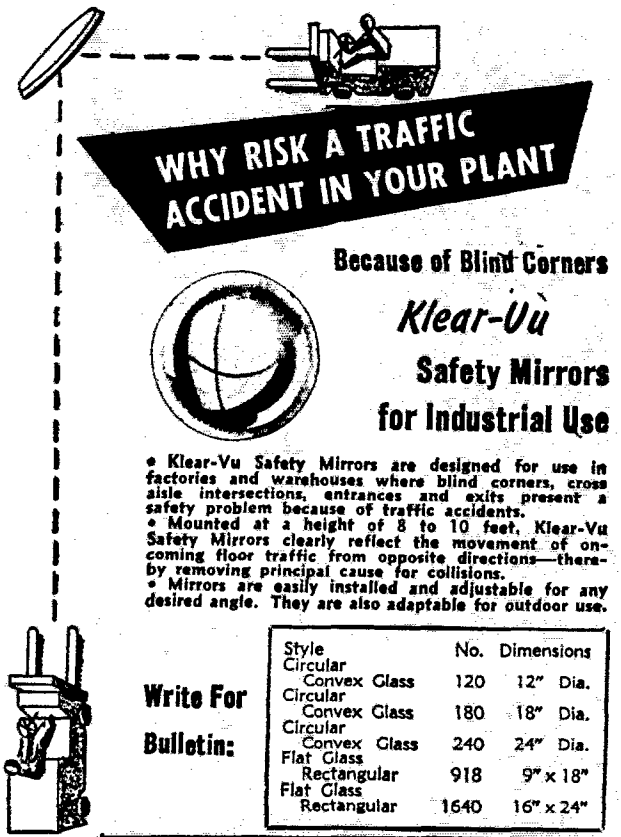
Machines should be located so that each operator will have enough space to handle the material without interference from other workmen or from machines. It should not be necessary to stand in or near aisles where he will be menaced by traffic or interfere with it.

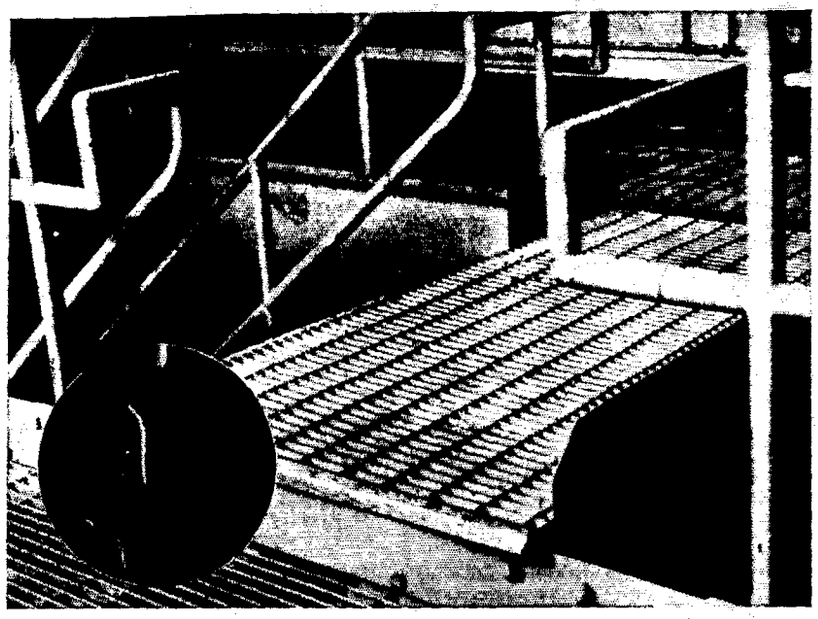
Movement of both persons and materials should fit smoothly into the general scheme of traffic.

In continuous line operation, where machines are frequently served by conveyors, little or no intermediate storage space for materials is necessary. In other types of operation added space for storage of raw and finished materials is essential.

Work and storage space. Space for the full needs of equipment and operators and for the movement and storage of materials should be provided.

Insufficient headroom is often a hazard. "Temporary" installations of pipe lines, equipment supports,





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overhead conveyors and other installations that might cause head bumps can often be avoided. Elevation drawings should be studied to determine the exact location of equipment that might cause trouble.

A vertical clearance of at least 7 feet should be provided, especially over aisles, passageways and stairways. Where this is not practicable, overhead obstructions should be marked by contrasting paint or padded to reduce possibility of injury.

Storage space must be adequate to avoid confusion, bad housekeeping, fire hazards, overloaded floors, and damage to stock.

At unloading platforms ample space is needed for handling and storage of incoming materials.

Supplies, tools, safety equipment, small parts, and equipment not used frequently are often neglected in allotting storage space. This makes maintenance difficult, particularly with such items as personal protective equipment, ladders, and hoisting equipment.

Hazardous materials. Flammable, toxic or corrosive materials require special precautions in storage. These include solvents, paints, oils, explosives, compressed gas containers, acids and alkalis. Storage of such materials is covered by codes.

Safe access to all parts of the plant should be provided. Stairways, rather than portable or fixed ladders, should be used wherever possible.

Stairs for general use should be convenient to the areas served. They should be equipped with standard handrails and there should be no obstructions at top or bottom.

In-plant traffic. Planning for the movement of power trucks and tractors, hand trucks and tractors in and about buildings requires provision for adequate clearance in aisles, corridors, passageways, and at corners and curves.

Aisleways should be wide enough to permit trucks to pass one another without crowding and without endangering persons working at machines.

Sufficient width should be maintained for free movement of fire apparatus. For one-way traffic, aisles should be not less than two feet wider than the widest vehicle loaded. For two-way traffic, aisles should be not less than three feet wider than twice the width of the widest vehicle loaded.

Clearance must also be provided for overhead cranes and conveyors. At least 24 inches of clearance

should be allowed the highest points of cranes and overhead trestles and other overhead fixtures. Also, 24-inch clearance should be allowed between any part of the crane and wall, column or other stationary structure.

Cross aisles should be avoided at tops and bottoms of ramps and inclines. If possible, aisle and ramp should be in a straight line.

Pedestrian traffic. Aisles should be proportionately wider to accommodate rush traffic flow to such points as time clocks, lunchrooms and exit gates. Some companies provide main aisles up to 20 feet wide and cross aisles not less than 8 feet wide.

Where foot traffic parallels railways or other fixed-track carriers, adequate clearance should be provided to allow the aisle edge to be marked by a distinctive line on the floor. Aisles should always be clearly marked by painted lines or otherwise.

Gates, warning signals or signs, and barricades should be provided. Where volume of traffic is heavy, underpasses and overpasses for both vehicular and pedestrian traffic should be considered.

Protection Against Wind

No section of the country is immune to damage from windstorms, nor is the menace limited to any season. Tornadoes, cyclones and hurricanes are more frequent in the milder months while destructive blizzards cause heavy damage in the northern sections during winter.

Roof coverings, copings and flashings are especially vulnerable to wind damage. In addition, outside structures such as stacks, ventilators, canopies, signs and cranes should be designed and anchored to resist wind, and good maintenance should be provided.

Wood and steel-deck roofs need special anchorage to resist lifting by strong winds. Standard roof anchorage is designed to resist gust velocities of 90 mph. In most cases this will protect against minor tornadic storms and reduce the extent of damage outside the vortex of a severe tornado.

The vortex of a tornado rarely strikes a plant but there are many storms severe enough to tear off outside structures and plank-on-timber of joisted roofs that are not anchored on. Such forces are encountered in severe gales and thunder squalls as well as in minor tornadoes and in zones on the edges of the vortex of a major tornado.

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Stairs and Ramps

STAIRS AND RAMPS are important arteries of traffic in plants where operations are conducted on more than one level. Three types of permanent passageways between different levels are: (1) Stairs (2) Ramps or inclines (3) Fixed ladders.

The following general limitations apply:

Stairs are used where the grade is between 20 and 50 degrees from the horizontal. Preferred angle is 30 to 35 degrees.

Ramps and inclines should slope as little as possible: 15 degrees is the recommended maximum.

Fixed ladders are for grades over 50 degrees where stairways are not practicable. Use of ladders as a substitute for stairways is prohibited in some states.

Stairs

Long stair flights should be avoided. Landings every tenth or twelfth tread are recommended.

For grades between 7 and 20 degrees, a combination of stairs and level landings may be used.

Treads and risers. Ratio between depth of stair treads and height of risers determines the angle or pitch of the stairs, which should be between 30 and 38 degrees from the horizontal. Tread depth and riser height must be constant for each flight.

Winders should be avoided. Wedge-shape treads make it more difficult to ascend or descend safely.

Treads must be deep enough that, in descending the stairs, the ball of the foot does not project beyond the nosing and the heel does not strike against the riser above.

Building Exits Code, A9.1, specifies that treads of new stairs shall not be less than 9½ inches, exclusive of nosing. The Code also states that no stairs with a tread of less than 6 inches, exclusive of nosing, shall be permitted.

Stairs subjected to severe use, as in public buildings, should have treads with a durable non-slip surface. Materials used for original installation or repairs include abrasive metal, steel with extruded patterns, grating, plastic compounds, rubber and fabric with abrasive surface.

Risers should not be more than 8 inches nor less than 5 inches in height. Greater or less height will cause one to take an unnatural stride which may result in a serious fall.

Railings and handrails. *ASA Code on Floor and Wall Openings, Railings and Toe Boards, A-12,* requires that every flight of stairs having four or more risers shall be equipped with standard stair railings or standard handrails as specified.

Ramps and Runways

Ramps and runways are preferable to stairways when it is practicable to use them. They should be built to the least slope possible. Maximum recommended slope is 15 degrees. A rise of more than 1 foot in 10 is prohibited in industrial plants in some states.

For wood ramps materials used in construction should meet the requirements for scaffolds. Width should be adequate for traffic and open sides should be protected with standard railings 42 inches high.

Toeboards should be installed where the ramp extends over a work place or passageway. Cleats 16 inches apart are needed on steep inclines.

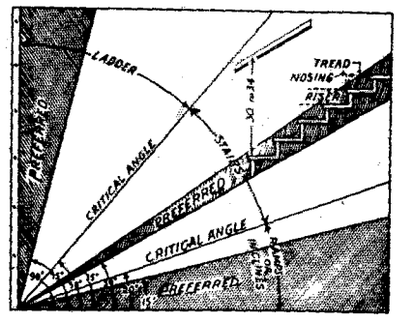
Planks should not overlap. The length of the plank should run the long way of the ramp. Ramps used for wheelbarrows should have an odd number of planks with no cleats on the center plank. The width should be not less than 3 feet.

Concrete ramps are recommended for heavy traffic. Anti-slip surface is obtained by rough floating or incorporated in the finish coat. Hardeners and troweling should be avoided.

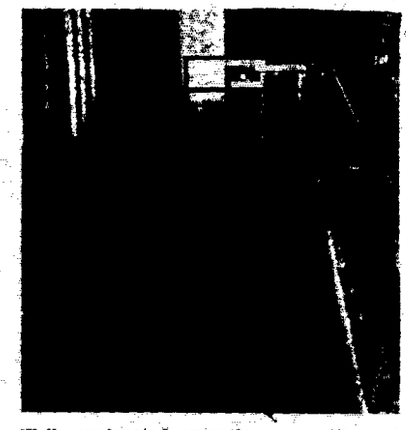
When the concrete surface has been worn smooth, it can be roughened by scrubbing with dilute nitric or muriatic acid. The surface is then hosed to remove all traces of acid.

Ramps used by heavy vehicles, such as power trucks and heavy-duty hand trucks, should have solid curbs as well as handrails.

Ramps included as part of aisles or traffic routes should be as wide as the aisle to avoid bottlenecks.



Preferred angles for ramps, stairs and ladders.



Well constructed concrete ramp with curb and guard rails. A runner of abrasive-coated fabric or rubber makes hand trucking easier.

Splinters, nails, irregularities and breaks in the surface should be repaired immediately. Cracked or pitted concrete can be resurfaced with one of the numerous flooring compounds on the market.

Outdoor ramps and platforms should be kept clear of snow and ice in winter. If ice cannot be removed immediately, sand or cinders may be applied to give traction. In cold climates radiant heating installed in the concrete is often a good investment.

Stairway Accident Facts

In an analysis of stairway accidents made by the National Safety Council, a simple "misstep" was the chief act resulting in injury. In one out of three cases employees tripped when they did not step far enough, or when they overstepped, in descending stairways. Running and haste contributed to one accident in five. Failure to use hand rails, carrying too heavy loads, and handling objects unsafely were responsible for other accidents.

Unsafe conditions were reported in half of these accidents, slippery surfaces representing 50 per cent of this total. Unsafe design or construction (exclusive of hand rails) was second in importance, other defects of maintenance third, absence of hand rails fourth, and poor housekeeping fifth. In most cases, water or ice on the steps was responsible for the slippery condition, but in some cases tread surfaces, worn smooth by long use, had not been renewed.

Two-thirds of the accidents were falls; in the other cases, persons suffered strains, sprains or dislocations when they attempted to recover their balance, or were injured when they struck against objects such as posts, walls and equipment.

Plant Housekeeping

HOUSEKEEPING is involved in every phase of plant operation. Attention to its numerous details brings benefits in productive efficiency, sanitation, health, control of accident and fire hazards, and employee morale, as well as an improved appearance.

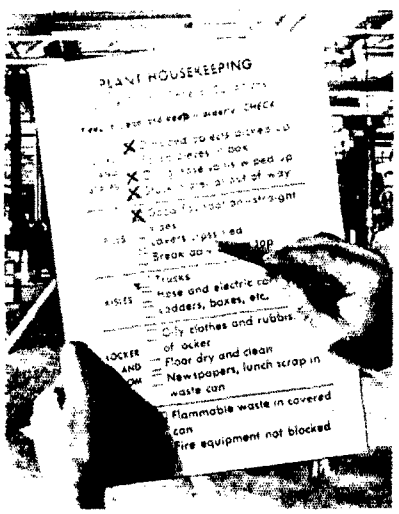
The housekeeping program includes the entire premises, indoors and out.

Maintaining order and cleanliness is the combined responsibility of management, supervision and employees. The best program cannot succeed without the support of everybody, and this requires constant stimulation.

The plant. A well-designed, well-built plant is easier to keep clean and free from disorder and hazards. Some essentials are:

1. Aisles of ample width, clearly marked.
2. Ample room to work.
3. Adequate and convenient storage for materials and tools.
4. Materials-handling equipment and methods that avoid congestion.
5. Ventilation to remove air contaminants—at the source where possible.
6. Floors and walls that require a minimum of maintenance.
7. Good lighting—well distributed artificial light; effective use of available daylight.
8. Personal service facilities—clean, up-to-date washrooms, lockers, and an inviting place where employees may eat lunch.

Organization. Maintaining orderly and hygienic working conditions requires an adequate crew of able-bodied men. They should be trained in their duties and provided with the necessary equipment and supplies.



Equipment

Vacuum cleaners. Heavy duty types are available in several models. Their usefulness is increased by a variety of attachments. In addition to floor cleaning, they are useful for removing dust from corners and from places overhead.

Where dust sources are close together, a piped system may be practical. Cleaning implements are attached to inlets located at frequent intervals. Some hotels and office buildings use this type of dust removal.

For most industrial uses, portable vacuum cleaners are more satisfactory. Usually the dust sources are widely scattered and portable equipment meets all requirements.

Floor machines of several types can handle heavy jobs of floor cleaning. With them, floors can be scrubbed or dry-cleaned, waxed and polished. Like vacuum cleaners, floor machines can be obtained with a variety of attachments.

Crusts of dirt, oil and metal cuttings can be removed with revolving wire brushes much more quickly and thoroughly than by hand spudding.

For finer finishing, steel wool rolls can be used. A vacuum pick-up for collecting dust is an essential feature of dry operations. Suction in connection with a scrubber damp-dries the floor quickly. Scrubbing, rinsing and drying can be done with a minimum of interruption to production.

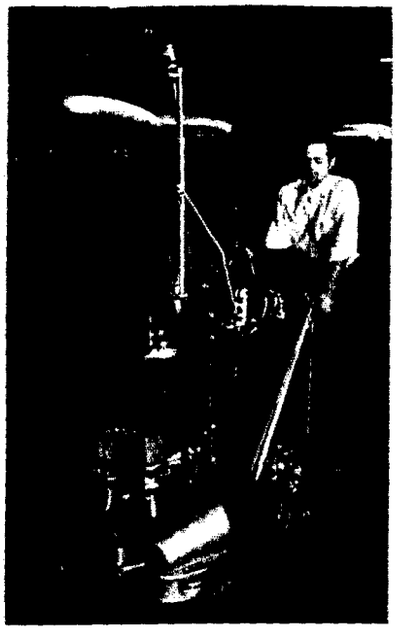
Floor machines may be purchased or rented. Some manufacturers have service men who will train plant maintenance crews in cleaning methods.

Power sweepers are time and labor savers where large areas must be swept and the litter is relatively light. Some models are also used for sweeping up leaves and litter from the plant grounds and driveways.

Brooms, brushes, mops, etc., are needed in all plants to supplement mechanized equipment. Tools of good quality are more durable and efficient and they encourage better work.

For dry sweeping, a wide cotton mop or a hair broom may be used. Oily mops may leave a dust-catching film.

Magnetic sweepers are used for picking up ferrous chips, filings,



Floor machines are available in many types and sizes. This one applies detergent, scrubs, rinses, and damp-dries the floor by vacuum. Machine is self-propelled. Speed is adjusted by pressure on clutch lever. (Finnell System)

nails and tacks from factory floors, drives and walks, where such material might cause a fire, explosion or personal injury hazards. This type has a rotary non-electric magnet which is removed from the unit for clearing it of accumulated metal.

A larger power-driven model is used outdoors where large areas must be swept. These can be used to remove nuts, bolts and other ferrous objects around hangars and on runways to keep them from being sucked into jet engines.

Aisle marking. Wide clear aisles are signs of a well-kept plant. White lines are constant reminders to keep them free from obstruction and to pile stock within designated areas. The lines can be renewed quickly, neatly and economically with an aisle-marking machine.

Plastic film tape in white and colors is also used for marking aisles and storage areas. It is said to be durable and resistant to moisture and most chemicals used in industry. Lines can be changed and damaged parts replaced easily.

White, which has been adopted for highway traffic lines, is preferred for floor marking within the plant.

Trash containers at convenient locations throughout the plant help to keep litter off the floor. Containers with self-closing lids are best, particularly where oily rags and waste are stored. Containers may be painted a distinctive color to call attention to their presence.

Steam-cleaning units, which deliver jets of steam and cleaning solution under pressure, are used for cleaning many types of processing and fabricating equipment and removing stubborn deposits of dirt from floors, walls, and ceilings.

These units are available in both stationary and portable models.

Smoking areas are now provided in most plants. Receptacles which will not tip and spill their contents should be provided for cigaret butts and pipe ashes.

Supplies

Development of more efficient cleaning materials has kept pace with improvements in mechanical cleaning equipment. Much research has gone into the development of cleaning methods. Manufacturers can furnish helpful data on housekeeping and maintenance problems.

Detergents. Basically, water does the cleaning. But water alone is not always effective. It needs the aid of a detergent—soap, an alkali cleaning agent, or one of the newer synthetics. Soap is a detergent, but not all detergents are soaps.

There are three types of dirt: (1) Water soluble matter; (2) Oils and greases; (3) Inert solids.

A cleaner removes dirt by dissolving, emulsifying or suspending it.

Soap is one of the oldest cleaners and a most useful one. When used with hard water soap can be saved by the use of water softeners. Its worst defect is the formation of curds in hard water.

Synthetic detergents are derived from sources other than fats. Petroleum and coal-tar derivatives, and by-products of certain industries provide the raw materials. These cleaners are effective when used with hard water.

Alkalis, such as washing soda, soluble silicates and various phosphates, form the third class of cleaning materials. Compounds of these are marketed under a variety of trade names. They are useful for some types of cleaning where soap is not desirable. When used on floors they do not form a slippery film.

Care of Floors

Floors of all types have longer life if properly cared for. A protective coating of some type is desirable.

Hardwood flooring in its natural state dries out and cracks and splinters under traffic. Scrubbing raises the grain of the wood and excessive moisture causes it to swell and warp. For protective coatings, sealers, enamels and varnish are used. Sealers penetrate the wood and produce a durable finish.

Concrete, while resistant to moisture, has a tendency to dust under traffic. This can be checked by treating with a sealer. If color is desired, a penetrating dye or a floor enamel may be used.

Linoleum, asphalt tile and rubber tile have an impervious and decorative surface. Care consists of cleaning and preserving this surface. As little water as possible should be used in cleaning.

Wax protects the surface and preserves appearance. It makes regular maintenance easier by keeping dirt on the surface instead of being ground into the floor.

Water emulsion (self-polishing) wax can be used safely on all types of floors. Buffing waxes contain solvents which injure asphalt and rubber. Either type may be used on vinyl plastic floors.

Self-polishing waxes are considerably less slippery than buffing waxes. Tests have been made to determine the frictional resistance of various floor finishes on different types of floors. However, it has not been found possible to give any finish a rating which would apply for all surfaces and all conditions.

For floor scrubbing, the cleaner should do the work without leaving a slippery film. Soap is permissible for such surfaces as concrete, common brick, wood block and mastic. For marble and smooth tile a cleaning powder that does not leave a slippery residue should be used.

Strong alkalis and coarse abra-

—To page 24

Compact vacuum cleaner which will operate in narrow aisles. (U. S. Hoffman Machy. Corp.)

Portable Ladders

EVERY industrial and mercantile establishment has operations which involve getting from one level to another. Where frequent access to any location is necessary, stairways, ramps or fixed ladders are desirable.

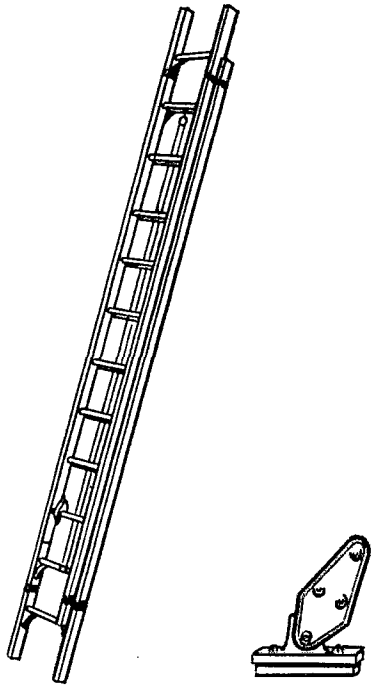
For occasional access to different points, portable ladders are needed. They are particularly important in maintenance and construction work.

Few accidents are caused by ladders of defective construction. However, ladders which are too light or otherwise unsuited to the job are sometimes purchased. Neglect and abuse of well-built ladders, and unsafe practices by the user are frequent accident causes.

In selecting ladders, a reliable guide is the *American Standard Safety Code for Portable Wood Ladders, A14.1-1952.* Ladders built according to code specifications are plainly labeled.

Metal ladders are not covered at present by an American Standard Code. However, those marketed by reliable manufacturers meet exacting tests. The Metal Ladder Manufacturers Association, organized in 1949, has established standards for this equipment.

Subcommittees of the American Standards Association have been organized to formulate drafts of standards for Metal Ladders and Fixed Ladders.



Two-section extension ladder and ladder shoe.

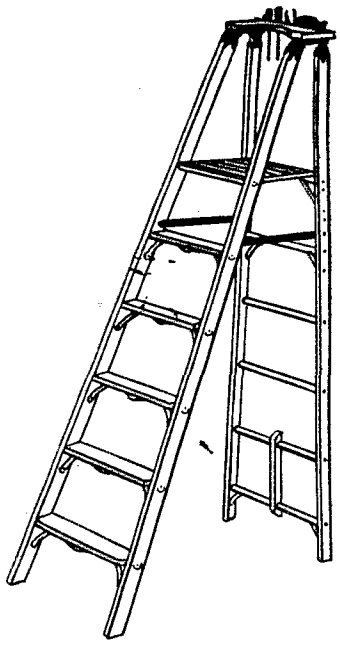
Definitions

Following are types of ladders commonly used in industry as defined in the American Standard Safety Code, 1952 revision:

1. *Step Ladder.* A self-supporting portable ladder, non-adjustable in length, having flat steps and a hinged back. Its size is designated by the over-all length of the ladder measured along the front edge of the side rails.
2. *Single Ladder.* A non-self-supporting portable ladder, non-adjustable in length, consisting of but one section. Its size is designated by the over-all length of the side rail.
3. *Extension Ladder.* A non-self-supporting portable ladder adjustable in length. It consists of two or more sections traveling in guides or brackets so arranged as to permit length adjustment. Its size is designated by the sum of the lengths of the sections measured along the side rails.
4. *Sectional Ladder.* A non-self-supporting portable ladder, non-adjustable in length, consisting of two or more sections so constructed that the sections may be combined to function as a single ladder. Its size is designated by the over-all length of the assembled sections.
5. *Trestle Ladder.* A self-supporting portable ladder, non-adjustable in length, consisting of two sections hinged at the top to form equal angles with the base. Size is designated by the length of the side rails measured along the front edge.
6. *Extension Trestle Ladder.* A self-supporting portable ladder, adjustable in length, consisting of a trestle ladder base and a vertically adjustable single ladder, with suitable means for locking the ladders together. Size is designated by length of trestle ladder base.
7. *Special-Purpose Ladder.* A portable ladder which represents either a modification or a combination of design or construction features in one of the general purpose types of ladders previously defined, in order to adapt the ladder to special or specific uses.
8. *Trolley Ladder.* A semi-fixed ladder non-adjustable in length, supported by attachments to an overhead track, the plane of the ladder being at right angles to the plane of motion.
9. *Side-Rolling Ladder.* A semi-fixed ladder, non-adjustable in length, supported by attachments to a guide rail, which is generally fastened to shelving, the plane of the ladder being also its plane of motion.

Materials and Construction

Wood, which meets the requirements of weight and strength at moderate cost, is the most widely used material. Acceptable kinds and grades of wood are listed in the Code.



Platform or safety ladder.

Ladders may have either spreading or parallel straight lines. They may have sides flaring at the base to increase stability, and converging at the top for specific uses.

Light Metals. Alloys of aluminum and magnesium alloys are light in weight and resistant to moisture. In case of overload there is deflection warning instead of sudden breakage. Prices are higher than for wooden ladders.

Metal ladders should be examined for sharp edges and burrs on the side rails and for soft metal rivets that might shear off under load.

Metal ladders are conductors of electricity and should not be used around electrical equipment. Decals or painted warnings against such use should be carried on all metal ladders.

Single, extension, stepladders, platform ladders, and planks, stages and hangers are available in light metals.

Types of Ladders

Single ladders, extension ladders, stepladders and platform ladders are to be found in most every industrial plant. Telescoping ladders and towers, which are actually small, portable scaffolds, are useful where much work must be carried on at high levels.

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Scaffolds and Staging

SCAFFOLDS and staging of various types are used in construction and maintenance work. The two terms are synonymous, the former being used in the construction industry and the latter principally in shipbuilding.

Accidents involving scaffolds are usually serious because they involve falls of men or materials from high levels. Principal causes include defective materials, improper construction, unsafe practices and physical disabilities of the individual.

Men who work at high levels should be carefully selected for the job.

Many of the accidents involving structural failure occur with scaffolds built on the job with substandard lumber and poor workmanship.

Types of Scaffolds

Many types of scaffolds are in use, including some designed for certain trades. The principal types are:

1. Tubular steel
2. Portable
3. Swinging
4. Suspended
5. Built-up wood

Tubular steel scaffolding is used on large construction jobs where it will be in use for considerable time and where work is carried on at great heights. This type of scaffolding may be purchased or rented. When rented, the contract usually includes erection and dismantling.

Steel scaffolds have low wind resistance and are non-combustible, except for the wood planks. Dismantling is less hazardous than tearing down wood scaffolding. Interchangeable parts facilitate erection and dismantling.

Tubular steel scaffolding erected for 82-foot addition to Bethlehem Steel Company's Lackawanna plant. Protective wire screen around working area at top rises with top course of scaffolding.

All steel members should be rustproofed by cleaning and repainting after each job.

Tubular steel scaffolds for use inside buildings are frequently mounted on casters. When casters are included, the base section should be made rigid by additional bracing to tie the bottoms of the upright tightly together. Caster locks should be provided to prevent movement while in use.

Portable scaffolds. Maintenance work in industrial plants and in public buildings is made quicker and safer by portable metal work stands and towers. They provide a broader platform than the platform ladder, permitting more than one man to work and providing more space for tools.

Some types of portable towers are telescoping while others have fixed heights. In addition to the models with four casters, there are work stands of the wheelbarrow type easily moved by one man.

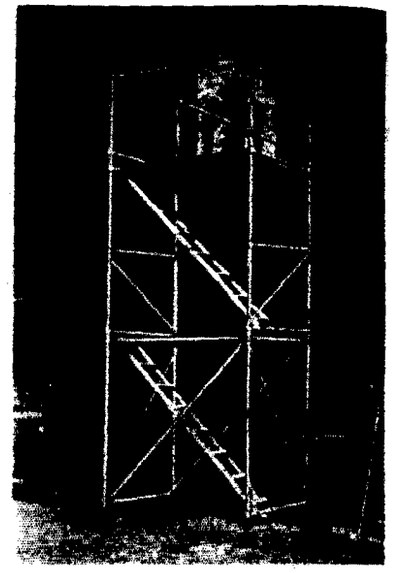
Swinging scaffolds are useful for painting, tuck-pointing, window glazing and washing, and other operations where the scaffold height must be adjusted frequently as the work progresses.

A swinging scaffold should be securely hung from eaves, cornices, or other reliable support, with hooks of adequate strength. Anchorage should be carefully inspected before the hooks are placed.

Ropes should be of the best grade manila not less than ¾ inch, on at least six-inch blocks. Steel cable should be not less than 5/16 inch. Steel cable is wound on a drum, not pulled by hand.

Suspended scaffolds are supported by outrigger I-beams attached to the frame of the building. They are recommended for use on buildings more than five stories high which have a frame to provide the overhead support. The scaffold is raised and lowered by steel cable operated by a winch.

The shackles or beam clamps holding the cables should be securely fastened to the outriggers with a stop bolt in the outer end of each outrigger. Cables should be securely fastened to the outriggers and to the putlogs which carry the platform or to the hoisting machines.



Stairway type of aluminum portable scaffold. (Patent Scaffolding Co.)

Built-up scaffolds. Wooden scaffolds are temporary structures and workmanship and materials are often substandard. Attempted economies frequently result in scaffold failures accompanied by serious injuries, if not by fatalities.

Lumber for scaffolding should be inspected on delivery and stored where it will be protected from weather.

Specifying a particular grade of lumber may not be practicable since no one grade will be available in all localities. Names also have different meanings in different sections.

Spruce, fir, longleaf yellow pine, Oregon pine; or wood of equal strength should be used. Material should be straight grained, free from knots, checks, cracks, decay or other defects.

Only the strongest species and grades should be used. In general, the heavier and denser woods are strongest.

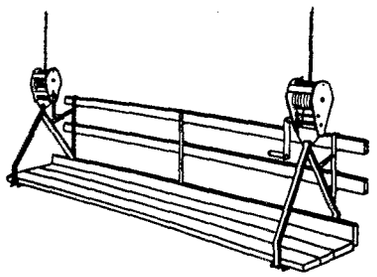
Species and grades of lumber recommended for scaffold planks include:

1. Douglas Fir — select structural plank.
2. Southern Pine — merchantable structural longleaf plank and dense structural square edge and sound plank.
3. Larch — structural plank.
4. Norway Pine — select common.
5. Eastern Spruce — select common.
6. Tamarack—select structural plank.

The structural grades of lumber should be used for scaffold planking wherever possible. Where these are

not available, each individual plank should be carefully inspected.

No planks of less than 2-inch nominal thickness (1⅝ inch dressed) or less than 8-inch nominal width (7½ inches dressed) should be used.



Swing scaffold supported by steel cable operated by hand winch.

Railings and toeboards. Most codes require railings on scaffolds more than 12 feet high but railings are desirable on lower scaffolds. A top rail should be 36 to 42 inches above the floor with an intermediate rail half way between the top rail and the walkway surface.

Toeboards are needed to prevent tools or materials from falling.

Overhead protection, consisting of planking heavy enough to stop any falling object, should be provided for scaffolds when men are working overhead. This protection should be not more than 9 feet above the working platform.

Sidewalk bridges. Where construction or repair work is carried on over sidewalks, protection for pedestrian traffic is needed. Sidewalk bridges of adequate strength are provided by the companies furnishing sectional steel scaffolding.

Ladder-jack scaffolds are used chiefly by painters and electricians. They should not be used at a height of more than 22 feet above ground or floor. An unsupported span should be not more than 10 feet.

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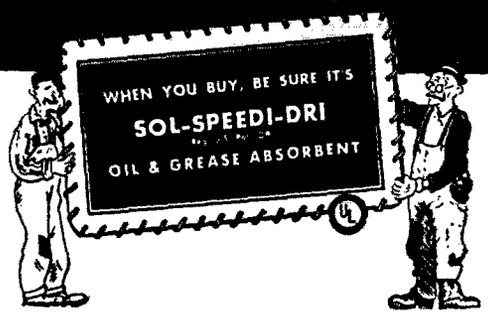

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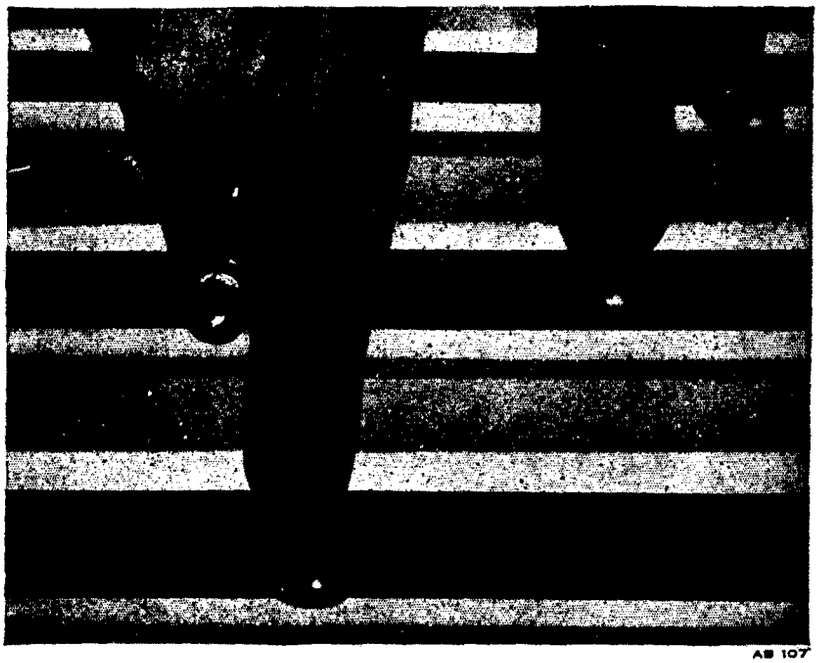

AB 107

Yes, Feralun treads, floor plates and thresholds take the pounding of heavy traffic in stride because this economical flooring material is *cast to last!* No matter where you put Feralun—on stairs, steps, walkways or ramps—it assures two-fold benefits:

1 It protects against slips and falls.
2 It keeps doing this vital safety job for the life of the building.

Reason? Feralun consists of a special cast iron matrix with a diamond-hard abrasive imbedded in the walking surface. Gripping action is provided by the abrasive, not by the scoring or indentations in the metal. ● Get the full story on Feralun. Find out why millions of feet of this long-lasting anti-slip flooring are now in use.

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AMERICAN ABRASIVE Safety Floorings

AMERICAN ABRASIVE METALS CO.
460 COIT STREET, IRVINGTON 11, NEW JERSEY

Housekeeping

—*From page 20*

sives are injurious to many types of floors, and usually milder cleaners will be effective.

Floor coating and finishing materials are listed by Underwriters Laboratories in three classes. Materials listed have been found to have slip-resistance characteristics of not less than 0.5 as determined by the static friction test method of U. L.

1. Floor Treatment Materials (FTM):
   1. Water-base materials.
   2. Fillers, sealers, varnishes, and similar materials.
   3. Detergents.
   4. Abrasive-grit-bearing liquids.
   5. Waxes, other than water base.
   6. Sweeping compounds.

(The Gas and Oil Equipment List lists materials according to fire hazard classification.)

2. Oil and Grease Absorbents (OGA).

3. Walkway Construction Materials (WCM)

Includes floor plates and stair treads made of:
   1. Natural stone.
   2. Composition
   3. Abrasive-grit surfaced materials.

Oil absorbents. Around machines and other places where oil and grease accumulate, hazardous and unsightly conditions develop. Oil spills should be cleaned up promptly. Use of a non-combustible absorbent compound makes it easier to keep floors clean.

Specially constructed testing device to determine anti-slip qualities of floor coatings. It measures the distance traveled by a felt pad on the waxed floor before it gives way. (Westinghouse)

Absorbents are available in two types—one for oils and grease; the other an all-purpose absorbent where water and other liquids are present. They are much more effective than sawdust, waste or rags.

Tests by Underwriters' Laboratories have rated the effectiveness of these compounds in absorbing oil and grease and from the standpoint of fire safety. They are not subject to spontaneous heating unless the absorbed oil has that quality.

Oil-soaked garments, shoes, ropes and belts can be dry cleaned by burying in the compound.

Disinfectants and deodorants are useful, particularly for washrooms and garbage cans. They are not substitutes for detergents.

Odors may indicate either unsanitary conditions or merely a nuisance. They should be removed if possible but a deodorant may be needed at times.

Sweeping compounds keep down dust from sweeping. Compounds are listed by Underwriters' Laboratories in two classifications: Class I—Noncombustible; Class II—Slow burning. Tests include combustibility, behavior on heating, and spontaneous heating characteristics.

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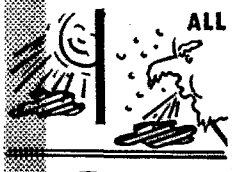

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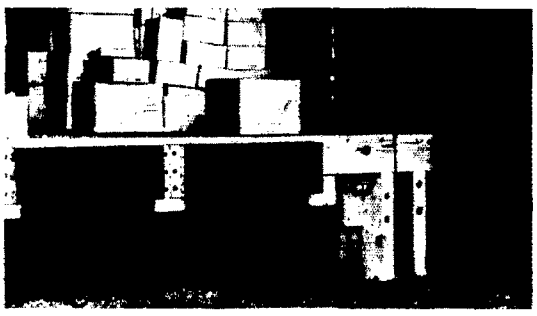

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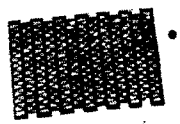

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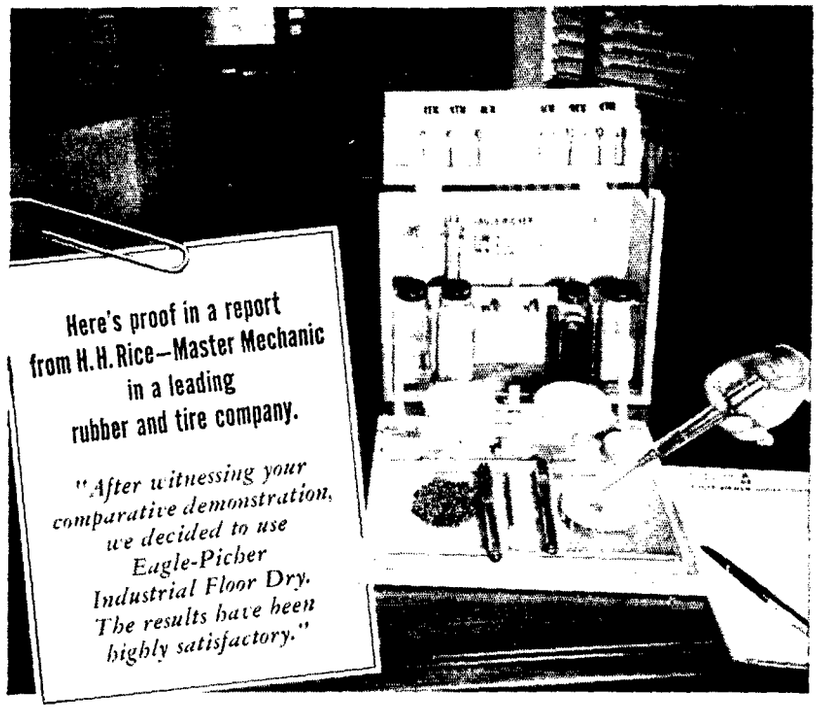
There's a big difference *in floor absorbents*



You, too, can witness the difference in floor absorbents! With his portable laboratory, your Eagle-Picher man will analyze your floor absorbent *right in your office.* You may actually conduct the test yourself! Without obligation, of course.

Here's what the test shows—

- The amount of oil and water absorbed for given bulk.
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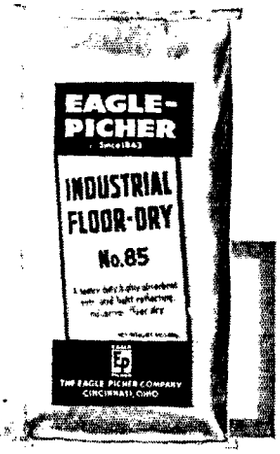
- The amount of coverage you're getting.
- The benefits of your absorbent in terms of safety and reflective ability.

You'll see that Eagle-Picher Floor-Dry is insoluble, chemically inert and non-combustible . . . that it combines light weight for exceptional coverage with light color for brighter, safer working areas. Write today for the full story.



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Floors

—*From page 12*

are used principally for patching and for resurfacing limited areas.

Ceramic tile is frequently used where oils, acids or alkalis are present and in food product plants where floors must be washed frequently.

Asphalt tile is a resilient material suitable for offices, stores and light manufacturing areas. It is available in several grades—industrial, standard, greaseproof, conductive, and grease-proof-conductive. It is moisture resistant but susceptible to indentation. It is lower in price than most types of flooring. It is non-slippery in its normal state and can be kept in good condition with non-slip floor finishes.

Linoleum is quiet and comfortable underfoot. It is used in office, laboratories and workrooms, where cleanliness is important. Heavy gauge linoleum will withstand loads up to 75 pounds per square inch without permanent marking. Since highly polished linoleum is extremely slippery, the choice of a finish is important.

Rubber is resilient and has high dielectric strength which is undesirable where static electricity is a problem. Conductive types of rubber flooring are suitable for such locations. Abrasive rubber flooring is useful for stair treads, elevator sills, thresholds.

Vinyl plastic, usually in tile form, is durable and decorative but higher in price than most materials. It resists acids, alkalis and most organic

Many types of compounds for patching or resurfacing floors are available. (DuPont).

solvents. The surface is nonporous and easy to keep clean.

Wood block is used for heavy duty general purpose floors. A floor of this type is durable, relatively noiseless and comfortable under foot and does not become slippery. Blocks laid on a smooth, rigid base will stand ... under heavy trucking and are not likely to crack. Blocks should be impregnated with creosote for resistance to dampness.

Blocks should be set in high melting point pitch. Ordinary pitch or tar filler may stick to wheels and shoes in hot weather.

Wood plank. Hard, close-grained wood provides a floor that is comfortable and reasonably durable under foot traffic. Under moist conditions, boards have a tendency to swell and buckle. A heavy sub floor makes the surface flooring more resistant to moisture and traffic. Under heavy wheel traffic, boards may loosen or break frequently, causing hazardous conditions and excessive maintenance. A penetrating floor seal protects the surface and makes cleaning easier.

Fabric surfacing. Heavy fabric coated with mineral grains is used indoors and out for stair treads, ramps and around machines. The material can be applied to concrete, metal or wood. It is backed with adhesive which adheres to the surface under pressure. It wears well and is resistant to water, oil and weather.

Steel plates are serviceable for platforms, stair treads, floors, hatchways. They wear well and are easily

—*To page 28*

Installation of flooring materials in research laboratory used for testing floor maintenance products. Materials are rubber, Koroseal, vinyl, asphalt tile, greaseproof asphalt tile, linoleum, cork, wood block, quarry tile, slate, marble and terrazzo. (Wyandotte Chemicals Corp.)

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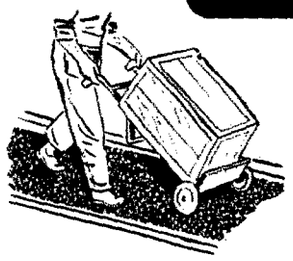

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R-MIR-DEK applies with square edge trowel to all types of floor surfaces. It may be thinned for spraying, and brush type formulas are also available.

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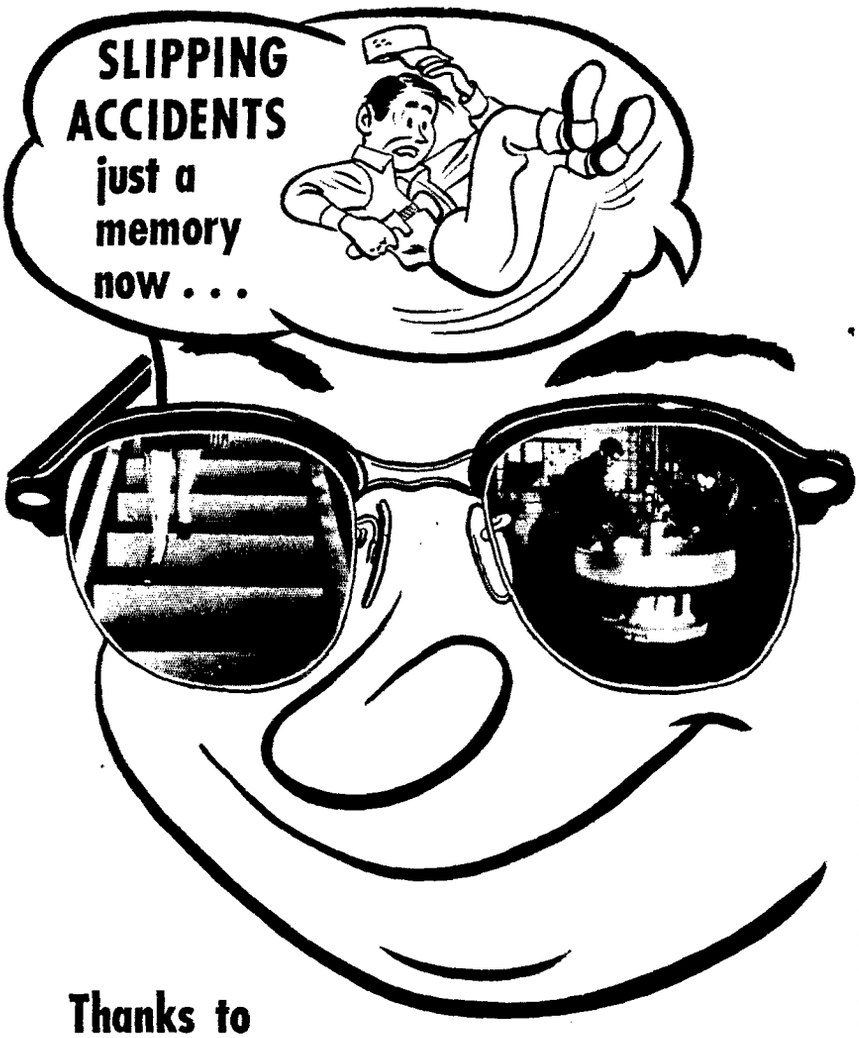

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Floors

—*From page 27*

cleaned but are highly conductive of heat and are noisy.

Plates with checkered extruded patterns offer good traction and resistance to slipping. When worn, plates can be roughened with a welding torch.

Steel plates are also used over ducts which carry electric circuits or pipe lines. They are easily assembled and can be removed for servicing equipment underneath.

Magnesite is suitable for light traffic. It must be laid on a rigid base. It should not be used where there is excessive moisture or hydrostatic pressure, as in basements. It is resistant to oil. A coating of bituminous paint is necessary to protect metal surfaces in contact with magnesite since it corrodes some metals.

Terrazzo floors are durable and easily maintained. The mixture can include abrasive aggregates to provide a non-slip surface. Sealers make it impervious to most acids. Where there is excessive foot traffic, as in building lobbies, rubber mats reduce slipping hazards and protect the surface.

Lead is used for floors exposed to acids and as insets or mats for secure footing in operation of woodworking machines or other places where the results of a slip and fall would be unusually serious. Lead is conductive of heat, nonsparking and quiet.

Zinc is nonsparking and sometimes used in such locations as compounding rooms where fire and explosion hazards exist. Zinc is attacked more readily by acids and alkali.

Cork tile is quiet and resilient and has high anti-slip and insulating

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Note that a cigarette, continuing to burn itself out, has no effect whatsoever on an oil-soaked pile of ZORBALL!

Wyandotte ZORBALL proves *skidproof, FIREPROOF!*

SAFETY is FIRST with ZORBALL!

Wyandotte ZORBALL prevents skidding, slipping—and gives maximum protection against fire hazard!

Recent impartial laboratory tests have borne out the noncombustible nature of ZORBALL. Samples of ZORBALL, in these exacting tests, would not burn or even evolve combustible vapors!

Another sample of ZORBALL, saturated with cutting oil, burned for only one second after the test flame was removed. The flame was only ⅛ inch high and did not spread beyond the area heated by the test flame!

ZORBALL will also stop slipping and skidding on icy steps, walks, loading docks, roads, etc.

ZORBALL resists breakdown . . . refuses to cake or mud even under heavy traffic conditions . . . is the safest, lowest "use-cost" floor absorbent known. Call in your Wyandotte representative for proof of ZORBALL'S safety and economy. *Wyandotte Chemicals Corporation, Wyandotte, Mich. Also Los Angeles 12, Calif.*

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ratings. In dry locations it stands up well under light traffic. It is expensive for most industrial uses but it will reduce damage to dropped tools and materials.

Abrasive metal plates are used for thresholds, elevator sills, stair treads, and other locations where appearance and a durable, non-slip surface are essential. Plates with abrasive particles incorporated in the surface are available in both steel and non-ferrous metals.

Conductive floors of several types are important in the control of static electricity where explosives are manufactured or where flammable gases, dusts and vapors may form explosive mixtures. Conductive floors ground static electricity and stray currents.

Grille floors and gratings are often used for platforms, catwalks, stair treads, fire escapes, and over floor openings. They offer a sure footing and are practically selfcleaning.

Office Layout

FOR EFFICIENCY, convenience and safety, good layout is important in the office as well as in the factory. Many of the same principles of workflow apply to both.

Light, ventilation, washrooms and other employee services are important for any type of employment.

Housekeeping is important from the standpoint of appearance of surroundings and the consequent effect on morale, as well as for health and avoidance of slipping and tripping hazards.

The following basic details should be considered:

1. Work should flow through the office with a minimum of backtracking.
2. Transportation distance of work should be at a minimum. If possible, desks should be so arranged that each worker will receive his work from the person behind or beside him.
3. Employees using the same machine should be grouped.
4. Noisy machines should be segregated wherever possible. Even where noise is not considered excessive, sound-absorbing materials on ceilings may be desirable.
5. Desks should face in the same direction, unless two employees are working together, in which case they may face each other.
6. Employees should not face windows, unshielded lamps, or other source of glare.
7. If the office depends largely on daylight, employees engaged in the most exacting visual work should be located nearest the windows. North

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"That's right! Red Ink because you're wasting money on improper materials and unnecessary labor.

"Red Ink because your faulty maintenance is saddling you with hidden costs.

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"And each time the wax hardens, your floors get slippery. Remember when your secretary slipped and sprained her ankle? You hired temporary help during the four days she was out. You were paying *two salaries* for one job.

"Then one of your key workmen slipped and missed two weeks. *He* was compensated for lost time, but *you* forfeited a contract because without him you couldn't meet a shipping date.

"Your casualty insurance rates are way above average because you've had so many claims."

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LEGGE Polishes cut your material and labor costs right off the bat—because one application stays on your floors *far longer*. Only rarely do LEGGE Polishes need stripping. And they cut all other costs down to a whisper because their co-efficient of friction means *safer* walking surfaces. Many hospitals and industrial establishments report an end to slip-accidents on their polished floors. You save on absenteeism, production bottlenecks and, very likely, on your insurance premiums.

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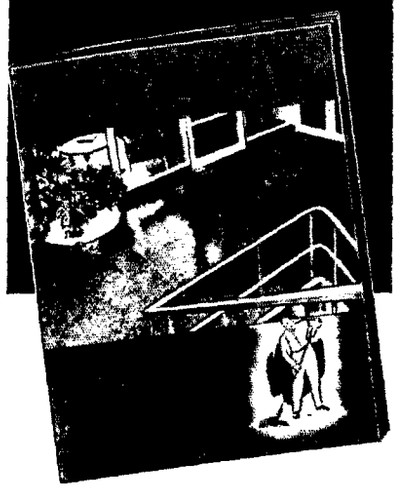
How to remove
FLOOR STAINS



get this helpful booklet for your maintenance men!

Here's a booklet your maintenance men will find invaluable day after day . . . saving time . . . saving trouble . . . saving expensive floors. It tells how to remove stains from all types of floors. The methods are easy to understand, directions are simple to follow. It tells what to do, *what to avoid.* Cleaning materials are described and complete directions for their use given.

This complete and useful handbook has been needed for years. Now it is yours free on request. There is no obligation. Mail coupon below or write us on your letterhead today.

HUNTINGTON LABORATORIES

HUNTINGTON LABORATORIES, INC.
Huntington, Indiana

☐ Please send my copy of the handbook, "How to Remove Stains from Floors."
☐ I'd like to see your representative soon.

NAME TITLE

ADDRESS

CITY STATE

light is preferred by artists and draftsmen. With modern lighting systems, this has become less important.

8. Those who have frequent callers should be near entrances.

9. Employees should be placed in front of or around the person having supervision over them.

10. Aisles should be at least 4 feet wide.

11. For desks facing in the same direction, distance between the back of one desk and the front of another should be at least 3 feet.

12. Files should be placed against walls or railings, if possible.

13. Exceptionally heavy equipment should be placed against walls or columns.

14. Private offices, where necessary, should be planned to avoid cutting off natural light and ventilation from persons in adjoining rooms. In offices with controlled conditions of light and ventilation, this problem is not important.

15. Floor maintenance should be given special attention. Floor finishes should be selected for anti-slip qualities.

16. Electric outlets and extension cords should be arranged to avoid tripping hazards.

17. Glass doors should be painted with some conspicuous design near eye level to prevent persons walking into them.

Floor Accident Facts

Reports from four states show that falls on the same level (mostly falls on floors) cause approximately 9 per cent of all compensated work injuries.

With all falls ranking second nationally among the important types of accidents (handling objects is the only type more prevalent) it is interesting to note that in these states nearly 50 per cent of all falls were those on the same level.

Working surfaces were most frequently mentioned in falls on the same level. Analysis of working surface accidents in New York State showed that the principal surfaces were: Inside floors 34 per cent; outside surfaces 18 per cent; stairs 16 per cent; ladders 9 per cent; scaffolds, ramps, etc., 8 per cent; other 15 per cent. For each of the first three types of surfaces (inside floors, outside surfaces, and stairs) the principal conditions contributing to the accidents were, in the order of their importance, slipperyness, loose objects, and defective, rough or uneven conditions of the surfaces.

On inside floors, slippery conditions contributed to 47 per cent of the injuries. In more than half of these cases, the floors were wet or muddy, while in most of the remaining cases, the floors were oily, greasy, soapy or otherwise messy. Loose objects which presented tripping hazards contributed to 38 per cent of the accidents; and defective, rough or uneven floor conditions contributed to most of the remaining accidents.

Bursting at the Seams with Economy

Reg. U.S. Pat. Off.

CAL-FLOR-DRY

is saving money for employees and management every year. It completely eliminates accidents caused by slipping on oily and greasy floors. Also eliminated are their high costs of lost time, and medical care. More and more Safety and Maintenance Engineers specify Cal-Flor-Dry.

120% Absorption Ratio

Cal-Flor-Dry absorbs 120% of its own weight in oils (including soluble), grease and other liquids. It covers 32% more floor space per pound than other materials. Yes, by test and use, it goes farther by the pound, by volume, and by the dollar.

Safe for Machinery

In addition to its over-all economy, Cal-Flor-Dry is always uniform in granulation. It is non-abrasive and therefore safe for machinery, precision tools and delicate surfaces. It does not ball-up on wheels and casters—nor mush-down when water-soaked. Cal-Flor-Dry is still doing its job, after others have been swept away and replaced.

Good Business

Attention Jobbers: Invoices show that a great many jobbers double their business in absorbents after they switch to Cal-Flor-Dry. We cooperate with national advertising, comprehensive sales kits for salesmen, inventory stocks in strategic locations and introductory offers. Repeat business makes turnover profitable. Write for full details.

There's a lot left in the bag after others are empty.

SEE YOUR JOBBER SALESMAN, OR WRITE DIRECT

The FLOR-DRY Company

2318 Wycliff St. St. Paul 14 Minn

Pittsburgh COLOR DYNAMICS®

Machine shop of Dravo Corporation after being repainted according to COLOR DYNAMICS. This steel-framed structure, 483 feet long by 138 feet wide, is located on Neville Island, near Pittsburgh, Pa.

"One Of The Best Things That's Happened In Our Plant!"

Dravo Corporation's workers and management agree enthusiastically that functional use of color improves working conditions and increases productivity ...*Yet it costs no more* than normal maintenance painting!

AN OUTSTANDING EXAMPLE of the improvement in productivity and morale that results from the use of Pittsburgh COLOR DYNAMICS is the huge machine shop of Dravo Corporation, builders of heavy industrial equipment.

The activities in this shop include all machining and assembly operations required to produce individualized mechanical assemblies for river tow-boats, shipyard cranes, ore bridges and similar heavy machinery.

This plant was repainted according to COLOR DYNAMICS. The beneficial effects of this painting system are best described in these words of a Dravo Corporation spokesman:

"As the dull, drab gray was replaced by the modern, functional colors Pittsburgh carefully engineered for our requirements, workers enthusiastically commented, 'This is one of the best things that's happened in our plant!'

"Thus COLOR DYNAMICS provides a 'lift' for management-employee relations through improvement that can be seen, felt and appreciated. Further, there are dollars-and-cents advantages resulting from higher productivity at lower costs.

"Visitors constantly remark on the improved appearance. Therefore, we feel that COLOR DYNAMICS has enhanced customer as well as employee relations.

"Periodic painting of buildings and equipment is a maintenance necessity. That's why we consider these benefits from painting the COLOR DYNAMICS way as a highly desirable and worthwhile bonus."

Ask For Color Engineering Study Of Your Plant—It's FREE!

• Why not test the practical value of COLOR DYNAMICS in your plant—on a machine or two, or in a whole department? Send for our free book which explains how you can use this painting system simply and easily.

• Better still, call your nearest Pittsburgh Plate Glass Company and ask to have a representative give you a color engineering study of your plant, or any part of it, without cost or obligation. Or mail coupon at right.

Send For Free Book

Pittsburgh Plate Glass Co., Paint Div.
Department NSN-34, Pittsburgh 22, Pa.

☐ Please send me a FREE copy of your booklet, "Color Dynamics."

☐ Please have representative call for Color Dynamics Survey without obligation on our part.

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*County*_____ *State*_____

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PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

Copr. 1953 Pittsburgh Plate Glass Co., Pittsburgh, Pa.

HILD MAINTENANCE EQUIPMENT

For Scrubbing and Maintaining Floors of All Kinds and for Scores of Other Dust-Control and Clean-Up Jobs

HILD Wet-and-dry Heavy-duty Vacuums

Two sizes. The larger size, Model 155 with 55 gallon tank and capacity for 40 gallons recovered liquid, is pictured in the large illustration at right. The smaller size, Model 115 with 15 gallon tank and capacity for 10 gallons recovered liquid, is shown below.

Both models are always ready for any clean-up job . . . wet or dry . . . without change of filter or other adjustment. Moisture or dust in the vacuum air-stream can cause no damage to the specially designed HILD Bi-Pass Motor. Numerous attachments equip the HILD Vacuum to do scores of clean-up jobs . . . to "sweep floors with air" . . . to remove dust from stock bins, overhead pipes, beams and shelves . . . to drain coolant sump tanks, etc.

HILD Heavy-Duty Vacuum—Model 215 for Dry Clean-up Only

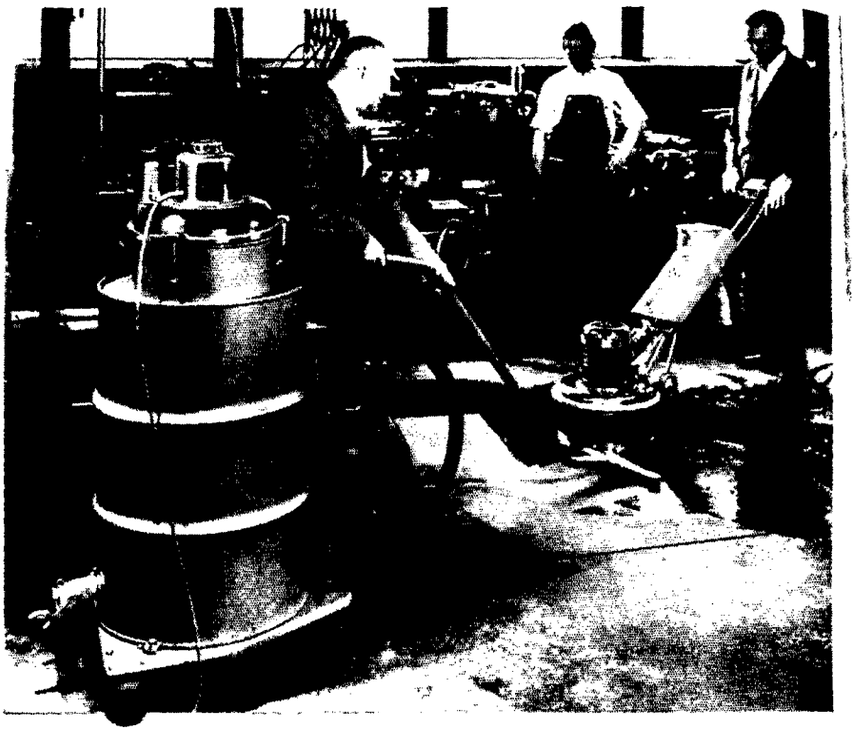
Specially designed for dry clean-up work. A real, heavy-duty vacuum, but economically priced below the cost of wet-and-dry vacuums. Easy to handle, tracks perfectly at the slightest tug on the hose. Uses same attachments as HILD Wet-and-Dry Vacuum, above. Hi-speed motor develops powerful suction . . . sufficient for closed water-lift of 68 in.

HILD Floor Machines

Made in two types . . . plain handle or tank type to carry 3 gallons of soap and water in the tank mounted on the handle. Both types used with easily interchangeable attachments to scrub, wax, polish, buff, sand, grind or steel-wool floors of all kinds. Self-propelling, handles adjustable to operator's height. HILD Safety Switch in handle. Continuous duty motors, multiple transfer gears. Extra strength built in at all strain points.

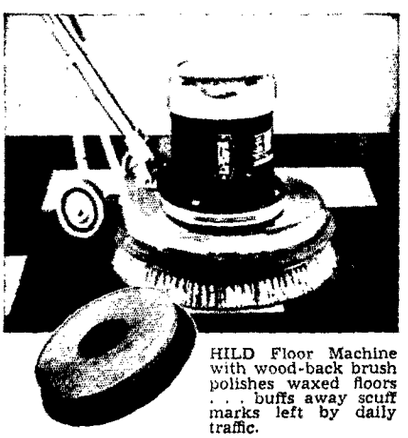
FOUR HUSKY MODELS

	Motor H.P.	*Brush Spread*
Model "VA"	½	14 in.
Model "C"	½	16 in.
Model "UC"	¾	19 in.
Model "D"	1	19 in.

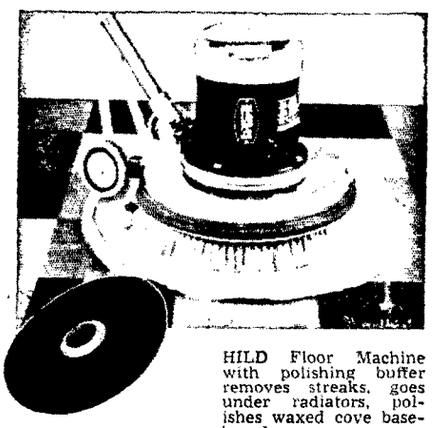


90 SECOND CLEAN-UP—Two men operating as a team with HILD Equipment can scrub *and dry* floors under and around machinery . . . while operator steps aside for 90 seconds or less. Hild Equipment goes right up to machine pedestals . . . removes oil and grease that cause slip hazards . . . leaves no slippery film of moisture.

HILD FLOOR MACHINES ALSO MAINTAIN OFFICE FLOORS



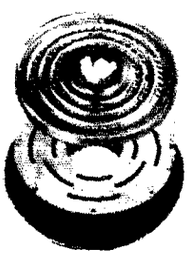
HILD Floor Machine with wood-back brush polishes waxed floors . . . buffs away scuff marks left by daily traffic.



HILD Floor Machine with polishing buffer removes streaks, goes under radiators, polishes waxed cove baseboards.

Patented HILD Shower-feed Brush now made with quick-change Refill Blocks.

When bristles become worn the old block is detached from the permanent aluminum brush back . . . by merely removing eight screws. A new HILD Refill Block is attached in five minutes or less. You are spared the bother and delay of sending brushes out for refilling. This feature available only on HILD Model "C" and "UC" Shower-feed Floor Machines.



HILD System
MAINTENANCE EQUIPMENT & SUPPLIES

Write today for FREE CIRCULARS

HILD FLOOR MACHINE COMPANY

740 W. Washington Blvd., Dept. NS-3, Chicago 6, Ill.

Factory Branches:

250 E. 43rd St., New York 17, N.Y. • 4271 W. Third Ave., Los Angeles 5, Calif.

MELFLEX Molded Rubber SAFETY step and floor coverings have a resilience with an extremely durable resistance against abrasion. This combination for SAFETY, SERVICE and LOW MAINTENANCE does not exist in other types of covering materials. Rubber is a natural "frictioning" agent . . . Its cushioning "give" coupled with its natural body friction produces a slip-resistance that is effective throughout its long service life. The weight and flexibility of molded rubber installed on steps and floors assures lowest maintenance costs because it conforms better to sub-surface stresses, unevenness and resists moisture . . . Molded Rubber coverings can be applied easily to any base material with Melastic Water-Proof Cement.

HEAVY DUTY SAFETY TREADS FOR EVERY TYPE OF INSTALLATION — IN BLACK OR MARBLEIZED COLORS — MELFLEX Molded Rubber SAFETY Treads are designed with a grid surface and a nosing that fits snugly over step edge . . . They can be supplied for either curved or square nose steps in black ($\frac{1}{4}$" thick) or marbleized colors ($\frac{1}{2}$" thick). These treads are molded in one piece to fit steps up to 20" deep x 72" wide in black, and up to 60" wide in marbleized colors. All treads are supplied trimmed to fit your step specifications. They can be applied to wood, concrete, tile or metal steps with Melastic Water-Proof cement for permanent water-proof bond. No other holding devices are necessary. Step risers can be supplied to match treads in ribbed or plain surface rubber runners.

MEL-ISLE RIBBED RUNNER FOR AISLES, LOCKER ROOMS, RUNWAYS — IN BLACK OR COLORS . . .
Runners of Heavy Duty MEL-ISLE ribbed molded rubber are extremely long-wearing under constant traffic abrasion. They provide a "self cleaning" action to assure a constantly SAFE walking surface. Supplied in $\frac{1}{4}$" and $\frac{1}{2}$" thicknesses in black or marbleized colors — 36" wide and in continuous lengths up to 25 yards. Here is a runner for maximum durability and service life in corridors, halls, runways, lockers.

LINK MATS — CUSTOM MADE FOR ANY SIZE AREA . . .
Link Mats provide best type of mat for many industrial installations. Entrances, lobbies, hallways can use colored rubber links woven in patterns . . . Safety mats of black rubber links, marbleized colored links or tire fabric links can be used effectively to cushion standing workers. MELFLEX Link Mats can be supplied in many different types for many different service requirements. Standard sizes are available, or they can be custom-made for any size area. Mats are $\frac{1}{2}$" thick and extra durable.

Send This Coupon Today for Complete Information and Prices . . .

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MELFLEX PRODUCTS CO., Inc.
L. E. Warford, Pres.
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MELFLEX PRODUCTS COMPANY, Inc.
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Name _____

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Color in the Plant

COLOR applied scientifically, chiefly through the medium of paint, makes these important contributions to efficient operation and better working conditions:

1. Conservation of light
2. Improved visibility
3. Pleasant and restful surroundings
4. An incentive to better housekeeping
5. Identification of fire and accident prevention equipment and hazards
6. Instructional and warning signs

Psychology of color. Certain colors are known to arouse definite mental and emotional responses. Familiar colors and the usual reactions to them are:

1. Yellow—Cheering and stimulating.
2. Blue—Cool; desirable where temperatures are high.
3. Green—Restful to the eyes. Blue-green gives a sensation of coolness. Yellow-green has more warmth.
4. Red—Danger, excitement.
5. Orange—A bright, warm color which should be used with discretion.
6. Violet and purple—Rich colors implying luxury.

Background Colors

Color schemes which conserve light yet provide more cheerful and attractive interiors than the old plan of mill white for ceilings and upper walls and "practical" colors for dados and machines have been developed by paint companies.

Sharp contrasts in bright and dark areas cause eyestrain because of the continual adjustment of the eye.

White is widely used for ceilings because it reflects more light—80 to 88 per cent. For rooms with low ceilings, or where people frequently look up at them, as in hospital rooms, cream, ivory or sky blue, is preferable to dead white.

Colors of high reflectance are also suitable for overhead networks of girders, pipes and other equipment.

Soft tints, such as light gray, pale green and light blue, are suitable for sections of walls in the range of vision. Soft gray, for example, is restful and does not show dust.

A dado the height of work benches and machines, or about one-third the height of the wall, makes stains, soil and marks less conspicuous. It may be a deeper tone of the color used on the upper wall but should not be too dark.

Floors should have a reflectance value of 25 per cent or more. For machines, desks, and benches, 25 to 40 per cent is suggested.

Point of Operation

To make it easier to see the work and to avoid injury, paint is used to spotlight the point of operation. The body of the machine is painted in one color and the working areas in a lighter tint.

Four shades of gray, ranging from light to dark, are standard colors for machines. Critical parts should stand out in cream, light tan, or other light contrasting colors.

Light sources and color. Type of light source should be considered in selection of colors. Incandescent lamps tend to reduce strength and intensity of color because of a slight yellowing effect of the light.

Fluorescent light is of three types—white, daylight and soft white. Daylight units give a bluish hue and can be used with blue, green and blue-violet. White and soft white units produce a warm light suitable for ivory, cream, beige, rose and tan.

Neutral gray can be used with incandescent, fluorescent or mercury light.

Color for Identification

Safety codes for the use of standard colors for identification of equipment and hazards have been developed by the American Standards Association. *Safety Color Code for Marking Physical Hazards and the Identification of Certain Equipment Z53.1—1945* specifies uniform colors for marking physical hazards, for indicating the location of safety equipment, and for identifying fire and other protective equipment.

Red is recommended for identification of fire protection equipment, and for walls or supports on which extinguishers are mounted; flammable liquid containers (except shipping containers) on which the name of the contents should be stenciled; lights at barricades and danger signs; emergency stops on machines such as rubber mills, wire blocks and flat work ironers; and emergency stop buttons for electrical switches.

PAINT REFLECTION VALUES
(Per cent)

White	**88**
Ivory	**69**
Cream	**67**
Sky blue	**65**
Pale green	**59**
Buff	**52**
Aluminum	**41**

Above values are only approximate since colors vary with different paint manufacturers.

Yellow has high visibility and is recommended for marking hazards that may result in slipping, falling, and bumping into objects. Solid yellow and stripes and checks of yellow and black, may be used to attract special attention. Top and bottom treads of stairways, low beams and pipes and crane hooks are places where yellow may be used.

Black and yellow stripes are often used on mobile equipment, such as tractors and industrial locomotives.

Green in combinations with white, such as a green cross on a white background, is used to designate the location of first-aid and safety equipment. Location of stretchers, gas masks, and bulletin boards is identified by this color.

Black and white, in stripes or checks, are used for housekeeping and traffic markings.

Orange has high attention value. It is designated as the basic color for designating dangerous parts of machines or energized equipment. It emphasizes such hazards when enclosure doors are open, or when gear, belt or other guards around moving equipment are open or removed, exposing unguarded hazards.

Blue is for warnings, such as painted barriers, flags, etc. These should be located conspicuously at the starting point or power source of machinery.

Purple is the basic color for designating radiation hazards. Yellow should be used with purple for markers such as tags, labels, signs and floor markers.

Piping Systems

Use of the basic colors of red, yellow and green in a simplified plan for piping systems is recommended in ASA Code A-13, 1928. *Scheme for the Identification of Piping Systems.* Orange, blue and purple are also used by some companies although these colors have not yet received official approval.

Contents of pipes are classified as follows:

Red	Fire protection
Orange or Yellow	Dangerous
Green	Safe
Blue	Protection materials
Purple	Valuable materials

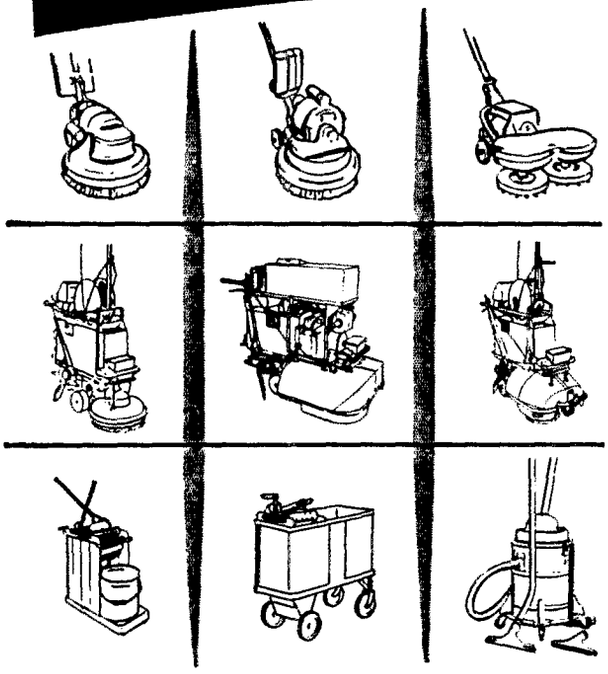
—*To page 38*

Keep your floor-maintenance men happy . . .

with Job-Fitted EQUIPMENT!

Choose from the COMPLETE Finnell Line

More than a score of models and sizes permits selection of the equipment that's exactly right for your job!



However much a maintenance man may want to do a good job, and at the same time show savings in labor costs, he's *stymied* if the machine is too small, or too large, or is otherwise unsuited to the job. Different floors and areas call for different care and equipment. That's why *Finnell makes more than a score of floor-maintenance machines.* From this complete line, it is possible to choose equipment that is correct in size as well as model . . . that provides the maximum brush coverage consistent with the area and arrangement of the floors.

Finnell makes *Conventional Polishing-Scrubbing Machines* in both concentrated and divided-weight types, each in a full range of sizes . . . a *Dry-Scrubber*, with self-sharpening brushes, for cleaning grease-caked floors . . . *Combination Scrubber-Vac Machines* for small, vast, and intermediate operations, including gasoline as well as electric models . . . *Mop Trucks* . . . *Vacuum Cleaners* for wet and dry pick-up, including a model with By-Pass Motor. In addition, *Finnell* makes a full line of fast-acting *Cleansers* for machine-scrubbing . . . *Sealers* and *Waxes* of every requisite type . . . *Steel-Wool Pads*, and other accessories *— everything for floor care!*

In keeping with the *Finnell* policy of rendering an individualized service, *Finnell maintains a nation-wide staff of floor specialists and engineers. There's a Finnell man near you* to help solve your particular floor-maintenance problems . . . to train your operators in the proper use of *Finnell Job-Fitted Equipment and Supplies* . . . and to make periodic check-ups. For consultation, demonstration, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 2203 East St., Elkhart, Ind. Branch Offices in all principal cities of the United States and Canada.

FINNELL SYSTEM, INC.

Originators of Power Scrubbing and Polishing Machines

Everything FINNELL for Floor Care

BRANCHES IN ALL PRINCIPAL CITIES

Canfield

OIL-SPUNJ

OIL & GREASE ABSORBENT

It's Your Best Buy!

COVERS MORE FLOOR AREA

CANFIELD OIL SPUNJ, light in weight, spreads up to 50% farther. Pound for pound costs less to use.

CLEANS OILY, SLIPPERY FLOORS

Regardless of type of floor surface . . . wood, metal, concrete etc., CANFIELD OIL SPUNJ absorbs soluble oil • lube oils, grease, acids • chemicals and all other liquids quickly and economically . . . assures a clean dry, skid-proof surface.

PROTECTS AGAINST FLASH FIRES

CANFIELD OIL SPUNJ will smother flash fires . . . keep fires from spreading . . . provide extra protection for your plant.

WRITE FOR SAMPLES AND PRICES

CANFIELD OIL CO
General Offices:
CLEVELAND 27, OHIO
Bulk and Package Plants: Cleveland O., Jersey City, N. J. Memphis Tenn., Coraopolis, Pa.

Color

—*From page 36*

Color may be applied the entire length of the pipe or in bands 8 to 10 inches wide near valves, pumps, and at repeated intervals along the line. The name of the specific material is stenciled in black at readily visible locations at valves, pumps, and similar places.

Color stripes painted at the edges of the color bands may also be used to identify the exact contents of lines, but this is less satisfactory than stenciled identifications. Labels for marking piping, which conform in color and size of letter to the code, are on the market.

Acids and alkalis cause many paints to change color. Paints exposed to moisture and chemical action should be carefully selected.

Types of Paint

Paints, enamels and lacquers provide a medium for the practical application of color. Industrial finishes are often subject to severe exposures and many types of paint have been developed for special needs.

Floor coatings. Synthetic enamels and rubber base floor coatings give better service on concrete than ordinary floor enamels and are more resistant to moisture, acids and alkalis.

Light-colored floors conserve light. They may be stippled with darker colors to avoid glaring contrasts.

A painted concrete floor often seems more resilient under foot than one of bare concrete. The thin film of paint may help physically but the psychological effect is important.

Water-thinned paints. Cold water paints (synthetic resin and rubber base types) are satisfactory for some industrial interiors. They can be applied with spray-coating equipment. They are washable and serviceable where not exposed to weather and dampness.

Rubber base paints are more durable and will stand considerable washing.

Luminescent materials (paint, tape and plastics) become luminous in complete darkness after exposure to natural or artificial light.

Fluorescent materials glow only while exposed to ultraviolet light. There is no usable afterglow. These materials are used where it is desirable for the eyes to be adapted to darkness, as in instrumental dials, night flying and driving, and where electric power is available for producing light. They enable the operator to observe readings without glare or eye fatigue.

Phosphorescent materials glow after exposure to light and remain luminous after the light is extinguished. They are observed best under total or near-total darkness. The low intensity of the glow makes them suitable only for close viewing in darkness.

Reflecting coatings and buttons are effective where headlights, flashlights, cap lamps and similar sources of light are available.

Rust prevention. Paints which form a tight bond with clean metal offer considerable protection against rust and corrosion. When rust has started, ordinary paint is ineffective because corrosion continues under the paint film. Rust-sealing coatings, both clear and pigmented, are often helpful.

Controlled Smoking

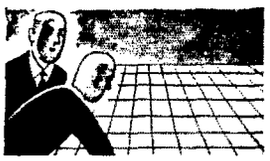
Smoking, in moderation, undoubtedly contributes something to morale of those accustomed to it. The effect on production is not easy to evaluate. Some managements hold that any absence from plant machinery, other than necessary short absences, is objectionable. Others see little economic harm if the absence is confined to brief periods during which processing equipment is maintained in normal operation.

The relation of smoking to the fire hazard is important. Where no smoking is permitted, the fire hazard is minimized. Where there is failure to empty pipes, or careless disposal of cigarettes, cigars, and matches before entering operating departments, the hazard, of course, is much greater. Smoldering pipes in pockets present a greater danger than cigarettes. Smoking in production departments, particularly where flammables or combustibles are exposed, should not be tolerated.

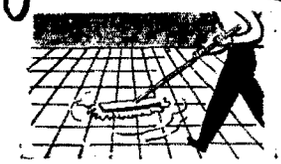
Adequate supervision of smoking areas is essential to satisfactory operation, whether indoors or outside, and whether in continuous or intermittent use. The degree of such supervision varies according to local conditions. In many instances, employee cooperation is excellent and little supervision is needed.

Continuous supervision is usually necessary in zones marked off in building areas or yards. Physical segregation from manufacturing departments is widely favored and the trend is toward small smoking rooms conveniently located for the majority of employees.

Why make a Safe Floor Slippery?



Hours of labor time are spent in treating expensive floors for slip-resistant beauty.



When an oily floor dressing is chosen that softens the wax film or leaves an oily residue.

A slippery floor condition results that may cause costly accidents.

the new, safe way to daily dust up!

Leaves Floors Cleanly Fresh and Dust-Free

Will Not Soften Wax Film
Leaves No Oily Residue
Won't Decrease Frictional Resistance

Make a Date

with the Hillyard Maintaineer to demonstrate HIL-SWEEP on your floors

There's nothing on the market to compare with Hil-Sweep for daily maintenance. Clear, transparent, clean-smelling, Hil-Sweep picks up dust, leaves a lustre-new look with no harmful effect on your surface treatment. Surface treatment lasts longer. You save labor-time in sweeping and daily maintenance of your floors. Mail coupon below for a demonstration. Advice and help are free.

. . . on your staff not your payroll

Branches in Principal Cities

Hillyard Chemical Co., St. Joseph, Mo.

.....Please give me full information on Hil-Sweep.

.....Please have the Hillyard Maintaineer make a Hil-Sweep demonstration on my floors. No charge.

Name.....Title.....

Institution.....

Address.....

City.....State.....

And Here are Other Good Reasons Why HIL-SWEEP is "Sweeping" the Country

- Hil-Sweep is non-injurious to asphalt tile . . . the result of years of research to develop a maintainer that would be safe for daily care of resilient and all other types of floors.
- Rags saturated with Hil-Sweep will not burn, eliminates fire hazard in use or spontaneous combustion of mops in storage. No flash point.
- Contains no emulsified oils, leaves no oily residue to darken, discolor, soften or bleed colors.
- Spray it or sprinkle it on brush, mop or dust cloth.
- Won't load mop. After using simply shake out and brush or cloth is ready to use again. Saves on laundry and dry cleaning bills.
- Imparts a pleasant aroma where used.

THE SAFETY LIBRARY

Books, Pamphlets and Periodicals of Interest to Safety Men

Compiled by Ruth Parks, Librarian, NSC

The Amateur Doctor

What to Do Until the Doctor Comes, by William Bolton, M.D. Published by The Reilly & Lee Co., Chicago, 1953. 145 pages, $2.00.

One of the standard reference volumes on our bookshelf when I was a young boy on the farm was a family "Doctor Book" which purported to give valuable advice on the diagnosis and treatment of all the ills to which the human form is heir. Reading "What to Do Until the Doctor Comes" filled me with nostalgia for the hours I spent with this volume absorbing, surreptitiously, that little bit of information which is said to be a dangerous thing.

"What to Do Until the Doctor Comes" is actually misnamed. It is not a volume on the emergency treatment of acute conditions. It is really the old fashioned Doctor Book with the herbs and simples taken out. The advice which it gives on the diagnosis and treatment of a wide variety of medical conditions is probably good and not very dangerous although suggestions for the home treatment of conditions such as carbuncles, impetigo or tonsilitis seem to be questionable judgment.

As a series of 135 little homilies on health subjects the book may justify itself. It should not be bought with any expectation that it will help with a first-aid program.

F. A. Van Atta.

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Accident Frequency, Place of Occurrence and Relation to Chronic Disease. Published by U. S. Public Health Service. 1953, 65p. For Sale by the Superintendent of Documents, Washington 25, D. C. 35c (Public Health Monograph No. 14).

Aeronautics

Obstruction Marking and Lighting. Published by Civil Aeronautics Administration. 1953, 42p. For sale by the Superintendent of Documents, Washington 25, D. C. 30c.

Chemicals

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Investigations of Explosibility of Ammonia Nitrate. By J. J. Burns and others. Published by U. S. Bureau of Mines. 1953, 19p. Available from the Bureau, Publications Distribution Section 4800 Forbes St. Pittsburgh 13, Pa. Free (Report of Investigation 4994).

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Loading and Bracing of Ammunition Explosives and Dangerous Articles in Trucks and Trailers. Published by Department of the Navy. 1953, 65p. For sale by the Superintendent of Documents, Washington 25, D. C. $1.25 (OP 1965).

Fire Protection

Standards of the NBFU for the Storage and Handling of Combustible Fibres. Published by National Board of Fire Underwriters 85 John St. New York 7. 1953, 19p. Free. (NBFU Pamphlet No. 44.)

Foremen

How a Supervisor Can Be Successful in Preventing Accidents. Published by Marsh & McLennan, 231 South LaSalle St. Chicago. 1953, 19p. Free.

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Occupational Disease Reporting, by Victoria M. Traska. Published by U. S. Public Health Service. 1953, 80p. For sale by the Superintendent of Documents, Washington 25, D. C. 40c (PTTS. Publication No. 288).

Liquefied Petroleum Gas

L. P. Gas—Safe Handling and Use. Published by Association of Casualty and Surety Companies, 60 John St. New York 38. 1953, 60p.

Mines

Development of Permissible Requirements for Safe Underground Diesel Haulage, by M. A. Elliott and R. S. Jones. Published by U. S. Bureau of Mines. 1953, 12p. Available from the Bureau, Publication Distribution Section, 4800 Forbes St. Pittsburgh 13, Pa. Free. (Information circular 7673.)

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Some Theoretical Aspects of Industrial Accident Causation—the Accident Sequence, by Henry A. Hepburne. *Occupational Safety and Health* July-Sept. 1953, p. 113.

Aeronautics

Traffic Control of Airplanes. by Albert H. Clarke. *Municipal Signal Engineer* Nov.-Dec. 1953, p. 20.

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Profits and Safety, by J. Dewey Dorsett. Best's Insurance News. *Fire and Casualty* Dec. 1953, p. 43.

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Fire Protection

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Food Industry

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Safety Commands Respect. Mechanization Dec. 1953, p. 84.

Trucks

Safety Program for Industrial Truck Operation. By W. A. Meddick. *Pacific Factory* Dec. 1953, p. 62.

Textile Industry

Hazards and Protection in the Finishing Processes of Textile. Sentinel (Factory Mutual Association) Dec. 1953, p. 4.

Women in Industry

Safety for Women in Industry. By Ellen M. McAinsh. *Safety* Dec. 1953, p. 17.

Little Susie watched her mother smear cream on her face. "What's that for, mother?" she asked.

"That's to make me beautiful," her mother answered.

Susie left the room and returned a few minutes later as the cream was being removed. She watched till the process was complete, then shook her head.

"Didn't work, did it, mother?" she said.

Ladders

—From page 21

Step ladders are available in lengths up to 20 feet. Three types are listed by the Code:

I—4 to 20 feet, heavy duty
II—4 to 12 feet, medium duty
III—3 to 8 feet, light duty

More substantial construction is, of course, specified for the longer, heavier duty ladders.

Stepladders should be constructed so that the front section will have level treads when in the open position.

For some operations the rung-back type of stepladder permits a helper to assist from the back of the ladder.

Each stepladder should be equipped with a spreader or locking device of sufficient size and strength to hold the front and back sections securely in the open position.

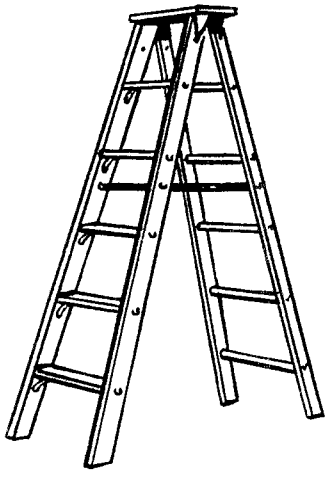
A bucket shelf is useful for many maintenance jobs. It should support a load of 25 pounds and be fastened so that it can be folded up when the ladder is closed.

Platform (safety) ladders are a development of the stepladder. They provide a solid working platform guarded on three sides. They are particularly useful on jobs at fixed heights where the work requires considerable freedom for the worker.

Safety ladders are usually built for heavier duty than the ordinary step ladder.

Height to platform ranges from 3 to 18 feet, over-all height being two feet more.

Single ladders up to the maximum length of 30 feet specified by the Code are available. For sizes larger than 24 feet, extension ladders are



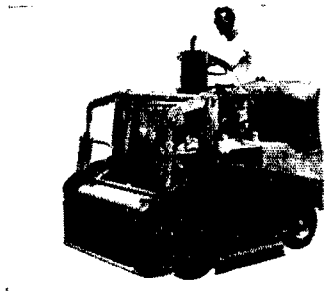
Rung-back stepladder.

New HEAVY-DUTY TENNANT MACHINES HELP YOU SAVE 35% to 80% in FLOOR CLEANING COSTS!

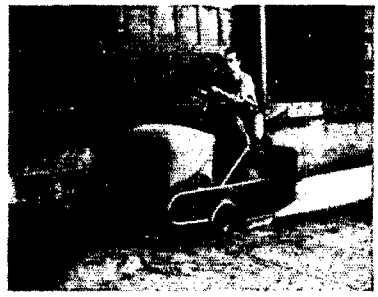
These new machines are typically TENNANT—designed for tough round-the-clock jobs . . . built to save you 35% to 80% in cleaning costs. And they're engineered for extra *years of service.*

You'll like their new power, speed and convenience—for pulverizing grease-caked grime . . . power sweeping . . . high speed dry-cleaning . . . and many special uses. Gas, electric or battery-powered; 8" to 48".

WRITE TODAY for details. We'll gladly estimate your plant's savings.

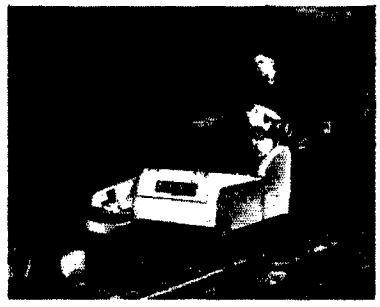


MODEL R SCARIFIER for cleaning grease-caked aisles. Moves with traffic. Faster than 6 to 18-man crew! Cleans 36" path; dumps hydraulically.



MODEL 75 SWEEPER—New! Pays for itself in about 1 to 6 months. Sweeps 100,000 sq. ft. per hour. Has instant reverse; dumps in 30 seconds.

MODEL K MACHINE—A proved time-saver. Cleans 16" path. Pulverizes and picks up in 1 operation; leaves clean, fast-trucking surface. Has many uses. Gas or electric models, to 7.3 hp.



MODEL 24 SWEEPER—The low-cost sweeper with big sweeper capacity. Cleans 24" to 36" path (with sidebrush); speeds 2 to 8 mph. Efficient brush and vacuum system, automatic clutch.

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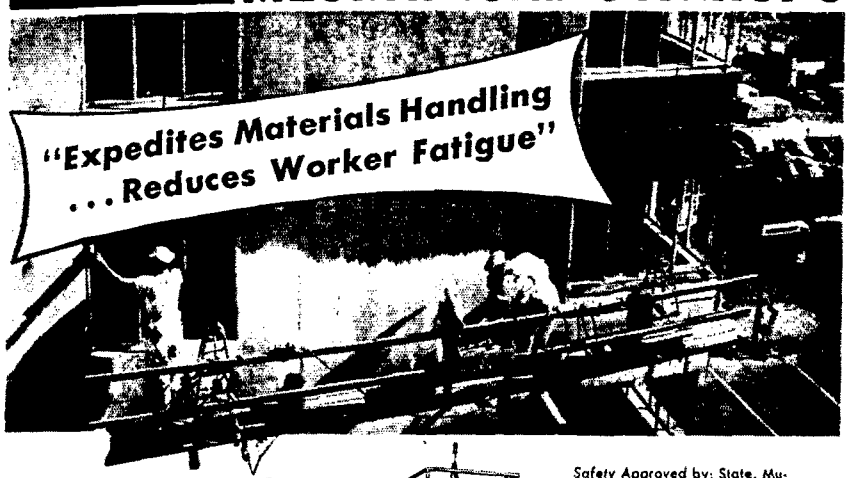

Safety Approved by: State, Municipal, and Corporation Safety Boards and Certified Engineers.

Say these users

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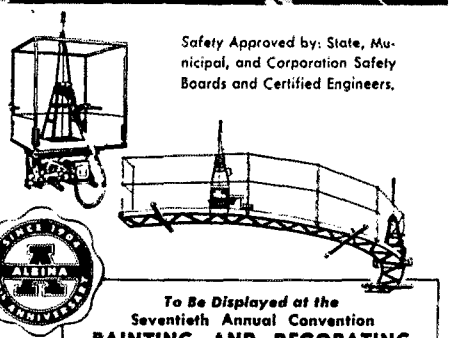
Pacific Gas & Electric Co., San Francisco, Calif.
Eastman Kodak Co., Rochester, N.Y.
W. P. Fuller Co.
Ford Motor Co., Detroit, Mich.
Western Waterproofing Co., St. Louis, Mo.



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ALUMINUM MASTER PLATFORM

designed for Industrial Maintenance Requirements

Platform area 14 x 19 inches constructed of special hat shaped sections with knurled top surface. Braces lock platform in working position. Guard rail top is recessed permitting workman to stand comfortably in center of platform. Rear legs as near vertical as consistent with good safety practice. Side rails of new heavy extruded sections — steps have shoe gripping type serrations — reinforced braces throughout — corrugated rubber feet. A new measure for industrial ladder Safety.

ALSO—A COMPLETE LINE OF INDUSTRIAL LADDER PRODUCTS

LOUISVILLE LADDER COMPANY
1101 W. OAK ST.— DEPT. 38 — LOUISVILLE 10, KY.
LOUISVILLE Safe-Height ALUMINUM PRODUCTS

preferred for convenience in storage and transportation.

Sectional size of side rails varies with the length of the ladder and diameter of rungs increases with the width of the ladder between side rails.

Diameter of rungs should be not less than 1⅛ inches. Holes for rungs may extend through the side rails or be bored to give at least 13/16 of bearing to the rung tenon.

Oilers' ladders should be provided with hooks at the top so the ladder may be securely fastened to overhead shafting.

Extension ladders. Two-section extension ladders up to 60 feet in length are recognized by the Code. Specifications for dimensions of side rails and type of wood permitted vary with the length of the ladder.

Minimum overlap for ladders up to and including 36 feet is 3 feet; from 37 to 48 feet, 4 feet; from 49 to 60 feet, 5 feet.

Smaller side rails on rung-type ladders are acceptable when reinforced by steel wire running the length of the side rails and securely fastened to them.

Locks must be positive in action. Guide irons must be securely attached to the ladder and so placed as to prevent the upper section from tipping or falling out while raising, lowering, or in use.

Rope and pulley for raising and lowering, while not mandatory, are desirable.

Trestle ladders of the "A" type (with a center section which slides up and down) are used in maintenance work. These ladders are commonly used in pairs with a stage between them or in sets of four with two stages and with planks from stage to stage.

Points to be considered in selecting extension trestles are guides of adequate length, strong locks of the sliding section, and a safety spreader.

Telescoping ladders are mounted on rubber tired ball-bearing wheels with floor locks. Maximum height of working platform is 15 feet. When down, it will go through an ordinary door or into an elevator.

Telescoping towers reach still greater heights. These portable units can be extended up to 49 feet. The man on the platform controls the travel through an electric push-button system. Another push-button control is located on the frame below but the man above can lock the platform in place by pressing a safety button. Outriggers give stability.

Chain and rope ladders are designed for emergency use as a means of escape in case of fire or explosion, and for rescue work where rigid ladders cannot be used. These are not a substitute for permanent fire escapes.

Crow's nest ladders. For many outdoor maintenance jobs the "crow's nest" ladder mounted on a truck is used. It is an extension platform ladder, securely mounted on the vehicle, which can be rotated in a complete circle and elevated at various angles from 45 to 72 degrees from the vertical.

This device permits working over parked vehicles and is used for such jobs as tree trimming, servicing street lights, police and fire alarm signals, inspecting overhead lines, connecting house services, and general emergency work. It can be lowered into compact form for traveling.

Accessories

Ladder shoes. Whenever a portable ladder is used on anything but dry ground, there is always danger of the feet slipping. To overcome this hazard, several types of ladder shoes have been devised. In general, they grip the surface either by sharp points or by friction.

One type of sharp point is the metal spike; another is the abrasive shoe. The friction type includes those shoes which depend upon frictional resistance for the gripping qualities, such as cork, lead, and rubber or neoprene with interwoven cord.

Another type made of cotton asbestos material and interwoven wire combines the two principles. Suction cups are used in still another type.

Ladder shoes become less effective through wear, especially when exposed to oil and grease on the floor. Consequently, they should be inspected regularly.

Stabilizers. When a ladder is used on an uneven surface hydraulic stabilizers attached to the feet keep a ladder firm and steady. These can be attached to any straight or extension ladder.

Maintenance

Inspection. Among things to look for are: Loose rungs or steps; screws, bolts and other metal parts broken or missing; cracked, or broken uprights, braces, steps or rungs; slivers; worn or damaged shoes.

All ladders found defective should be marked and taken out of service until defects have been corrected. If beyond repair they should be destroyed promptly.

Records of the conditions of all ladders should be kept.

Storage. Ladders should not be stored where they will be exposed to weather, nor near radiators, stoves or steam pipes.

Protective Coatings

Two coats of linseed oil or spar varnish will increase resistance to weathering.

Painting is now permitted by the ASA Code, if ladders are inspected before painting by experienced inspectors acting for the purchaser and ladders are not for resale. Transparent coatings, however, are still preferred by many users.

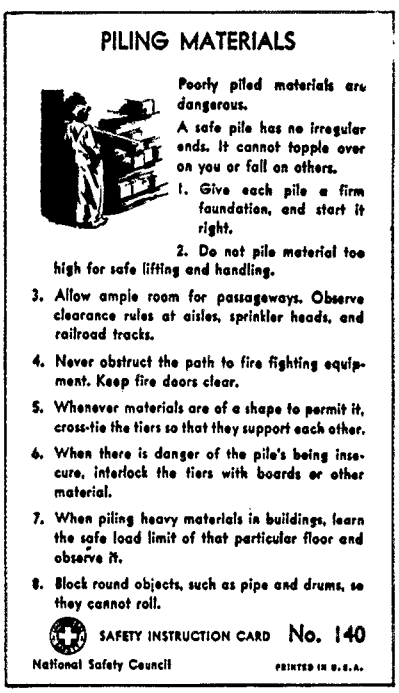
Wood preservatives, which consist of toxic chemicals in non-aqueous solution, prolongs the life of wood exposed to weather or in contact with the ground. They offer special protection at the joints or rung holes and tenons. Preservatives of the NSP type (non-swelling, paintable) do not interfere with subsequent painting and varnishing.

Ladder Accident Facts

Disabling injuries from ladder accidents total about 40,000 yearly according to information from labor departments of nine states. Within these states, ladder accidents varied from 1.7 per cent of all accidents to 2.5 per cent, with an average of 1.9 per cent.

The principal causes of ladder accidents are revealed in a study of 140 cases made by the National Safety Council. In one-third of the cases, workers were climbing or descending improperly. In another third, the ladders were not securely fastened. In the remaining cases, workers used defective ladders, the wrong type of ladder, placed them in unsafe positions, or worked unsafely while on them.

Most accidents in the climbing and descending classification occurred while workers were descending. These were due principally to failure to take a firm grip on the side rails or rungs, and failure to set foot squarely on the next rung before transferring the weight to that foot. Climbing or descending while carrying loads, and such hasty actions as running up and down ladders and jumping from them, were other factors.



Magnetic Separators Remove Tramp Metal

Tramp iron and steel in conveyor systems may strike sparks in the presence of combustible fibers, flammable chemicals or explosive dusts. These can be removed by properly installed magnetic separators. Their use also minimizes mechanical damage and simplifies maintenance.

Processes which use separators include grinding, cutting or crushing of materials, working of combustible fibers, removal of ferrous particles from food products, separating ferrous from non-ferrous materials, and recovering tramp metal in mixtures.

Magnetic separators are of two general types—electro magnet and permanent magnet. Selection of the type and form to be used on any application requires expert advice.

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Housekeeping, Sanitation, Personal Services

National Safety Council

Accident Prevention Handbook for Industrial Operations.

Floors, Slippery—Data Sheet D-Gen. 1.

Cleaning with Hot Water and Steam—Data Sheet D-Gen. 32.

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Your Floors Can Be Safer—Apr. 1952, p. 36.

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Sanitation Is the Way We Live—Louis A. King, Jr., Jan. 1954, p. 78.

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Drinking Fountains, Specifications for—Z4.2-1942.

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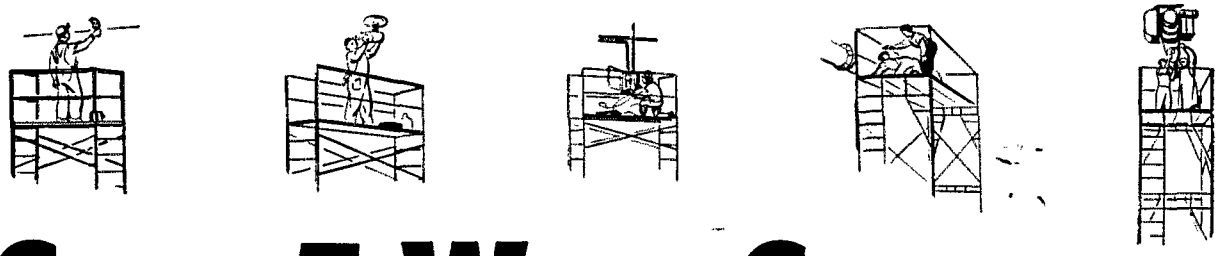

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Simplify plant maintenance. "Trouble Saver" Steel Scaffolds assure greater economy and safety.

- **Scaffolding erecting and dismantling time is sharply reduced.**
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- **Less labor is required for any job.**
- **Convenient, efficient scaffolding cuts material waste.**

"Trouble Saver" Scaffolding is available in types and sizes for every maintenance need — *indoors or outside.* Write for Bulletin PSS-24 and Catalog M.

"TROUBLE SAVER" Rolling Scaffolds

Left: A typical "Trouble Saver" industrial rolling scaffold, equipped with casters, used for repairs and painting.

Right: "Trouble Saver" LADDER SCAFFOLDING — can be quickly put together from ladder units, 3', 5', 6'-6" or 10' high. Extension bases, 3', 4' or 5' wide are used for working at greater heights.

"TROUBLE SAVER" Adjustable STEEL TRESTLES

- **SAFE**
- **STRONG**
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Details of the quickly adjustable "Trouble Saver" Steel Trestles.

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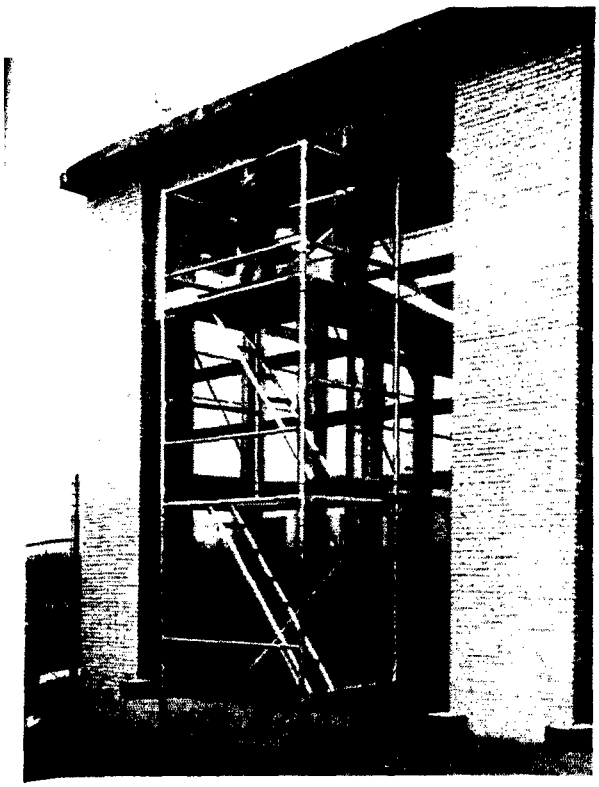


PAINTING, washing windows, building repairs and general maintenance are safely speeded with this lightweight, mobile "Fold-A-Way"* Aluminum Scaffold at a New Jersey Turnpike Building. These Scaffolds are easily erected in a few minutes time, without acrobatics. Wheels and swivels are easily locked. Underwriter's Laboratories approved. (* Trademark)

MACHINE REPAIR and other beyond-arm-reach maintenance is safely handled with a "Gold Medal" Platform Step-ladder. Workman stands on a firm, steady platform. Approved by Underwriters' Laboratories.

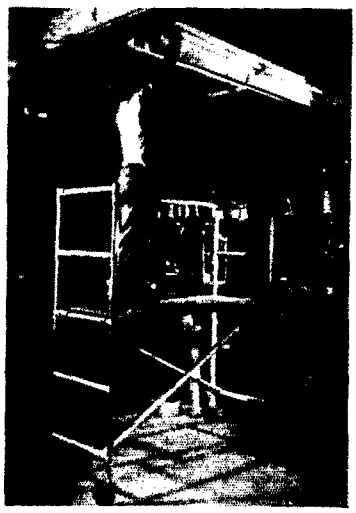
FIRE-SAFE TUBELOX® Steel Scaffolding has practically no size or height limitation—is widely used for construction and repairs. Easily erected on uneven terrain, it conforms to any contour.

How to Keep Costs Down On Overhead Work

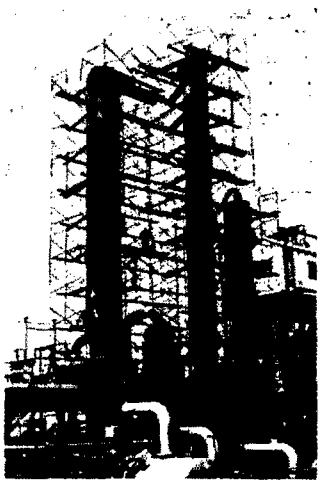
WHEN MAINTENANCE goes above floor-level the increased risks can be costly—in lives as well as dollars! —unless you provide efficient platforms that place men where they can work quickly, easily and safely.

Avoid trouble—use this safety check-list to match your equipment to each off-the-floor job: 1. Is work within ladder range? 2. Is there a wall for support or bracing? 3. Is area below work suitable for giving support? 4. Is frequent shifting of equipment necessary? 5. Must people and machines be under work area? 6. Will the scaffold or ladder carry the load?

You can keep overhead job costs and risks under control with Patent Scaffolding Co. Ladders and Scaffolds. PS can supply you with the right equipment for any off-the-ground work, because PS has the only complete line. That's why it pays to remember—when it comes to scaffolding, come to PS. Write for free bulletin G-205.

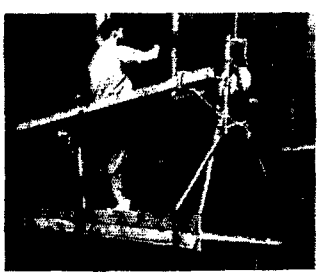


REPLACING FLUORESCENT lamps becomes a safe, fast job with this Aluminum Ladder Scaffold. Ladder frames are available from 4 ft to 6 ft high, with spans from 6 ft to 10 ft. The 29-in. over-all width of these Ladder Scaffolds is ideal for use in aisles and other limited-space areas. Approved by UL.



"TROUBLE SAVER"® Sectional Scaffolding provides safe platforms for men working at Koppers Co. refinery, Port Acres, Texas. It is erected from pre-fabricated 5-ft frames. Approved by UL.

"GOLD MEDAL"® Junior Scaffolds are ideal for outside painting, washing windows and general medium-duty work. Available in steel or aluminum. 100 to 200 ft of cable. Raised by ratchet lever. Approved by Underwriters' Laboratories.



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To help you solve any scaffolding problem, PS offers a complete nation-wide engineering service—available locally. See the Yellow Pages in your 'phone book for the nearest Patent Scaffolding office or representative handling "Gold Medal" Scaffolds.

Light

—*From page 11*

quantity can be obtained from either source.

Side windows alone are inadequate for lighting extensive areas, even in bright daylight. Sawtooth, monitor or skylight windows take full advantage of natural light but add to the cost of construction and maintenance.

Glare may be subdued by glazing windows with refracting or diffusing glass which will alter the direction of light and improve its distribution, particularly to distant parts of the room.

Translucent coatings for windows on the sunny side of buildings are also helpful in reducing glare.

Reflection of daylight from sources outside a building can often be utilized. Light colors for faces of structures, walls of courts, and sawtooth roofs are helpful. These surfaces should be kept clean and free from sources of glare.

Sudden transition from bright to dim areas in a plant is hazardous. While the pupil of the eye is adjusting itself to the dimmer light there is a period of semi-blindness. Gradations of light at the approaches to areas of different intensity will avoid this trouble.

Special Lamps and Fixtures

Where lighting equipment is required for special uses or subjected to abnormal conditions, many types of lamps and fixtures are available.

Glow lamps are used as signal, pilot and night lights. They are not practical for general illumination.

Vibration-resisting lamps give greater service where ordinary lamps would have a short life because of excessive vibration.

Weather-resistant lamps are used for outdoor lighting in industrial plants, docks, athletic arenas, etc. They stand exposure to rain, sleet and snow without cracking.

Explosion-resistant fixtures are used where dusts, gases, fumes and vapors may create a hazardous atmosphere.

Infrared lamps, available in types and sizes up to 1000 watts, are used for baking, drying and heating processes, as well as for therapeutic use.

Maintenance

Efficient lighting requires a systematic maintenance program. Equipment may meet all requirements when installed but dust and grime immediately start reducing light output.

The first step in a maintenance schedule is to check illumination periodically with a light meter. When light has decreased to 75 per cent of its original value, the lamps and reflectors should be washed with warm water and a detergent containing no free alkali.

Group replacement of lamps, both filament and fluorescent, is often practicable and desirable. The saving in cost of replacing a large number of lamps at one time is greater than the value of the remaining light output of the lamps. Point of replacement is usually 60 to 80 per cent of the rated lamp life.

Disconnecting hangers permit lowering fixtures to the ground or floor for cleaning, relamping and repair. Much climbing is eliminated.

Emergency Lighting

Where failure of the power system might endanger life, an emergency lighting system is desirable. In some states it is required under certain conditions.

Searchlights, stationary or portable, which can be concentrated on critical areas, are often desirable for outdoor use.

Portable systems, mounted on trucks, can be moved to the scene of a fire or accident to aid fire-fighting and rescue work.

Outdoor Lighting

Outdoor lighting for safer night work or to detect trespassers is required by most industrial plants.

—*To page 50*

Sink Our Slobs!

WE HEAR A LOT of yacking about housekeeping—but, what is it?

I suppose the grass roots lie where Mom bats Junior for smearing jam on the wall; or berates Dad for flicking ashes on the rug; or climbs on Susy for cluttering up the bathroom with rinsed out unmentionables; or dispossesses our little carpenter dog for doing odd jobs around the house.

In the country areas of Europe, I saw cattle and other domestic animals using portions of the house used by the family—with the standard manure pile outside the door which the kids seemed to like to play in. No matter, I bet Mom flipped her babushka when one of those cows forgot its manners in the living room.

Driving along a stream running through a village in Japan, I saw a little boy dirtying it up in the outskirts, a lady washing clothes in it a little further along and another lady washing dishes in it a bit later. What else, I don't know.

As for myself, I get lost when my wife starts cleaning house. Of course, I have laid down a 14-carat ultimatum that no such goings-on will be tolerated while the lord and master is present—but, the best-laid plans sometimes go astray.

Basically, not many of us like to be around a "garbaged-up" place. The stomach always creeps a little when the spoon slides out of our fingers at the "greasy spoon" chow house. Most of us have a little claustrophobia when we have things piled high around us. We feel more lightfooted, freer and more uninhibited when we have room in which to move around. We all like that Saturday night feeling, when everything is clean and in its place.

We pride ourselves in being civilized—top drawer type characters—but you can walk into any occupational location in the country and find a slob who hasn't risen above his foreign country cousin. Of course, they say **you** can build up an immunity against most anything—but that protects only you. What about the other guy?

The guy we have to look out for is the character who complains about his wife's housekeeping. "Yeh, everytime I go to spit in the sink, it's full of dirty dishes!"

This slob doesn't give a damn for nothing or nobody.

Anybody you know?

ROBERT D. GIDEL, *Senior Engineer, Industrial Department, National Safety Council*

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Dream of Utopia

—From page 7

there is 25," I said. "What's so bad about that?"

Sue looked at me in tolerance for my ignorance. "It was 3:30 in the afternoon, and there was snow on the ground. School had just let out only four blocks away, and the skidding coefficient was at least triple normal."

I let the enormity of the situation sink in. "Are you really sure about the facts?" I asked.

"We have it from the police chief's maid who told Eleanor. I mean, dear, what's the world coming to when right in our own circle there are people like that. I couldn't bear to have that woman in my house if it's true."

I nodded. "It's pretty vile, for sure. But we ought to check up first. We can't crucify a woman on hearsay."

She agreed. "But if it's true, she should be ridden out of town on a rail."

I said, "You're absolutely right, dear. That kind of behavior can't be tolerated these days."

* * *

Finally, I thought of my last trip to Washington for conferences in the department of accident prevention. After the sessions the safety secretary—he's of cabinet rank—suggested that we might like an escorted tour of the city.

And that tour took us to the Pentagon, that strange and deserted structure by the Potomac. And we went through what seemed to be miles of corridors until we came to the one old man who still works there, doodling away at drawings of guns and submarines and bombs. We knew the government kept him on the payroll just to remind citizens of the Old Days, yet I think most of us were deeply shocked when he rose from his desk and started to tell us how many people the newest bomb could kill, if we ever made any.

We couldn't even laugh. It was too horrible. We just blushed for shame and turned and went away quietly. It completely spoiled my day.

* * *

Then Sue shook me and suggested that I do my snoring in bed. I got up groggily and started to the bedroom. Suddenly my eye fell on her knitting needles left in the seat of the easy chair.

"Lord, woman, what will the neighbors say if they see that," I said.

"Huh?" said Sue.

And then I was fully awake.

"Sorry, dear," I said. "I was in the wrong century—the next century."

And, by her look, I think Sue was also convinced I had gone insane.

Study Reveals High Accident Costs

Accidents gouge a staggering sum from the American pocketbook each year. Experts can only estimate the ultimate annual price.

To uncover concrete facts concerning the cost of emergency treatment for accident victims, in the Greater Cleveland (Ohio) area, the Cleveland Hospital Council conducted a recent survey of the 22 general hospitals in Cuyahoga County.

This survey, first of its type in America, was financed by the National Safety Council and the Greater Cleveland Safety Council.

Researchers studied emergency treatment records for 1952. The investigation brought to light several startling revelations.

Home and public accidents accounted for 62 per cent of the accident victims given emergency treatment. This figure was much higher than officials had anticipated.

Traffic accidents totaled a surprising low of 14 per cent.

Industrial (on-the-job) injuries made up 24 per cent of the list.

One in every 11 accident victims were hospitalized—4,188 by home and public accidents, 2,014 by on-the-job injuries, 1,865 for traffic injuries.

Accident patients accounted for 74,107 emergency room cases. Of this casualty total, 45,702 were hurt in home or other non-traffic accidents, 17,568 were injured on the job. Traffic raised the accident victim total by 10,834.

Close to 10 per cent of all available hospital beds were required to care for the 8,067 accident casualties who needed further treatment once they were released from the emergency room.

The cost of emergency room service for accidental injuries was $1,619,000. This breaks down to $348,162 for traffic accidents, $868,000 for treatment of injuries suffered in home and public accidents, and $402,838 for industrial accidents.

Harold H. Gorman, president, Greater Cleveland Safety Council, said the survey, comprehensive and thorough as it is, does not include the cost of many home and industrial accidents where the injuries are treated by family or plant physicians.

Based on the latest population estimate for the Greater Cleveland area, hospital services for accident victims, in 1952, cost a minimum of $1.13 for each resident of Cuyahoga County.

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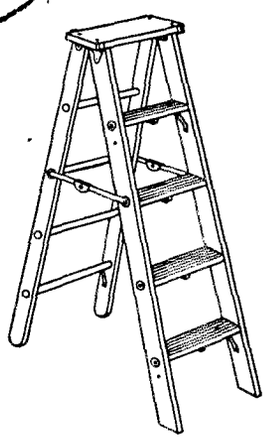
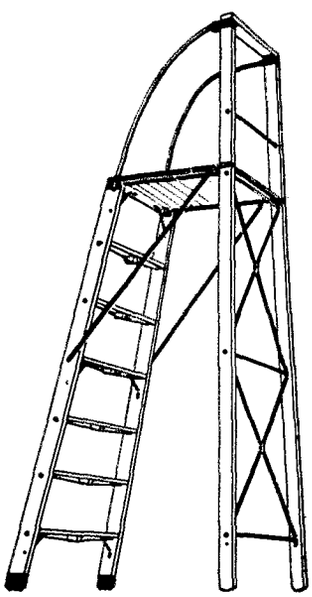
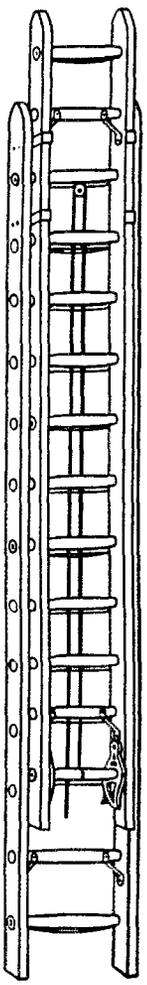


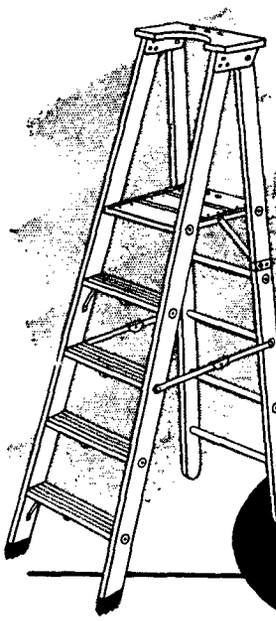
DAYTON Fig. 200 is a well constructed step ladder built for heavy industrial use to stand maximum abuse. Can be supplied with fully rodded back for extremely heavy duty jobs. Bucket rack optional. All hardware zinc plated. Sizes 4' to 16'.



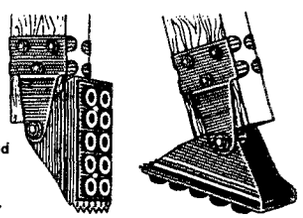
DAYTON Type A is constructed of tested airplane spruce, reinforced with rigid steel supports for great strength, lightness of weight. Handrails of steel guard large roomy platform for added safety. These famous ladders can be set up instantly, are easy to carry and fold compactly for storing. Automatic locking feature insures safety while ladder is in use. Standard rubber safety shoes no extra cost. Sizes 3' to 12' to platform.

DAYTON Fig. 102, a strong ladder for general industrial use. 1-5/16" x 2¾" side rails (available 1⅜" x 3¼" side rails if desired—DAYTON Fig. 100). Three truss rods and four dowel braces per section for extra safety. Available with spring locks, rope and pulley if desired. All hardware is zinc plated. Sizes 16' to 40'.





DAYTON Type H, an extremely rugged type ladder, designed and built to meet the demand for a platform ladder with mill wright (rung) type back construction. Tool shelf on top. Ladder shoes standard equipment. Folds absolutely flat for easy storage. Features include pinch-proof type spreaders —corrosion resistant zinc hardware—slip proof treads. Sizes 4' to 16' to platform.



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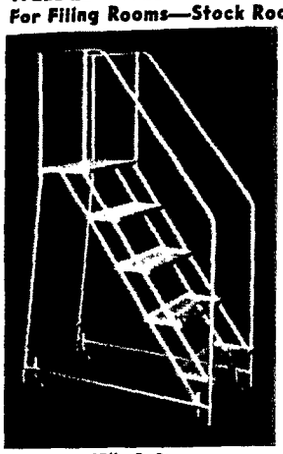

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Personals

HAROLD E. VANN has been appointed safety engineer, Safety Services, Health & Safety Department, General Electric Company. Mr. Vann will establish his office at 570 Lexington Avenue, New York. His primary responsibility will be in the areas of electrical and testing safety with company wide responsibility.

Mr. Vann began his career at the General Electric Company as a test engineer at Schenectady Works after graduating from Alabama Polytechnic Institute with a degree in mechanical engineering. Following his test engineer assignment he transferred to the Generator Design section of the Large Steam Turbine Department. From this assignment he was transferred to the Steam Design section of the Large Steam Turbine Department.

Mr. Vann is the author of several technical papers and has been active in the field of company educational programs.

PAUL G. AGNEW

DR. PAUL G. AGNEW, for many years associated with standardization, died January 8. He was 72 years old.

Dr. Agnew was born in Hillsdale County, Mich., July 3, 1881. He was a graduate of Hillsdale College and continued studies at the University of Michigan and Johns Hopkins, receiving a Ph.D. from the latter in 1911. From 1916 to 1919 he was a physicist on the staff of the National Bureau of Standards at Washington.

In 1919 he joined the staff of the American Standards Association (then the American Engineering Standards Committee) in New York. In 1947 he retired as vice-president and secretary, continuing as a consultant until 1952.

Dr. Agnew was a member of many technical and scientific societies and contributed many papers on standardization and related subjects.

JOHN N. BUCHANAN

JOHN N. BUCHANAN, 45, died January 16, at St. Joseph's Hospital, Newton Falls, Ohio.

He had recently been appointed safety training department manager at Ravenna Arsenal, Inc., a subsidiary of Firestone Tire and Rubber Company.

Mr. Buchanan was born September 22, 1908, in Bergholz, Ohio. He first worked at Ravenna from 1942 to 1950 for the Atlas Powder Company. Prior to returning to the arsenal in April, 1952, he was an officer on the Erie Railroad police force.

Light

—*From page 46*

Where work is done outdoors after dark, levels must necessarily be higher than those needed chiefly for plant guards to spot intruders and detect unusual activities and conditions.

Light sources should be shielded and aimed so that the area can be seen clearly. Light can be directed to form a "glare barrage" in the direction from which intruders might approach the plant.

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JOHNSON LADDER SHOE Co.
Eau Claire, Wis.

Ventilation

VENTILATION has been defined as the process of supplying air to or removing it from any space. This may be accomplished by either natural or artificial means.

This involves provision for general air requirements for the health and well being of occupants. Where processes are not injurious to health general ventilation is satisfactory. It is also satisfactory where dilution of the air contaminant will keep the concentration below permissible limits for continuous exposure.

Where toxic materials are handled, removal of air contaminants at their source is necessary.

Air conditioning means control of physical and chemical properties of air. It includes control of temperature and humidity as well as air motion and removal of contaminants.

Heating and humidifying the workroom air in winter and cooling and dehumidifying it in summer are involved. Summer comfort air conditioning is provided in theaters, restaurants and stores for customer appeal, and in an increasing number of offices.

Air conditioning is important where the product requires uniform temperature and humidity and freedom from dust. The needs of the product are not necessarily those best suited to personal comfort.

With air conditioning and modern lighting the plant is independent of climate. The building may be windowless or fixed sash windows may be used for psychological reasons.

General Ventilation

Ventilation is often made more expensive and complicated by the necessity of maintaining a comfortable temperature in the room. Exhausting impure air is usually practicable but in cold weather it may be difficult and expensive to warm large volumes of incoming air.

Natural ventilation is adequate for some buildings housing non-hazardous operations. Air circulation is aided by doors, windows, roof ventilators and monitors. The number of outlets should be planned for hot weather when the temperature difference inducing the draft is at the lowest point.

Air intakes should be located so that incoming air is properly tempered and does not cause uncomfortable drafts in cold weather.

Artificial general ventilation requires properly located inlets and outlets. Air coming into the room must be uncontaminated and discharge points should be located to avoid recirculation.

When the contaminant is heavier than air, openings at floor level permit its escape.

Fans and blowers. Both portable and stationary types are useful for increasing circulation of air which affords relief from heat. They are

Six centrifugal type fans pull 225,000 cfm of air through the electrostatic air cleaner at right and deliver it to paint room. (Westinghouse)

not substitutes for exhaust ventilation where air contaminants should be removed.

For moving large volumes of air blowing is more efficient than suction.

Devices for air circulation become less effective as temperature and humidity rise.

Caution should be used in air movement, particularly with velocities over 200 fpm. When relatively cool air is blown over workers at high velocity objectionable drafts are created.

Dust and Gas Problems

Dust problems are usually more difficult than control of gases, vapors, mists and fumes. Dusty operations tend to project particles so that the hood must provide velocities sufficient to draw them into the exhaust system.

Exhaust hoods should be enclosed as completely as possible or the hood should be located to take advantage of the directional effects of the dust flow.

Dust removal systems generally require higher air velocities and ducts of heavier gauge metal than those designed for gases.

Control Measures

Where there is a definite source of air contamination, general ventilation alone is seldom sufficient. Control measures involve three steps:

1. Identifying the substance and locating its source.
2. Atmospheric sampling to determine nature and extent of contamination.
3. Engineering control measures.

Control at the source may involve one or more of these measures:

1. Isolation or enclosure of the hazardous operation.
2. Local exhaust ventilation.
3. Operational changes involving substitution of process or materials.

Isolation confines the operation to a definite location. Exposure of workers is either eliminated or restricted to a few selected, trained and equipped operators.

Examples of combining exhaust ventilation with isolation and enclosure are: sandblasting rooms, shakeout and tumbling-barrel operations in foundries, dry mixing, and mixing of volatile liquids.

Processes creating excessive heat, humidity or noise should also be isolated wherever possible.

Local Exhaust Systems

Local exhaust systems are an important means of occupational disease control. Their purpose is to create a sufficient movement of air to withdraw contaminants at point of origin and convey them to a safe point for disposal.

An exhaust system consists of four major parts:

1. Hoods or enclosures near source of contaminant.
2. Piping to connect hoods into system.
3. Collection equipment.
4. Fan.

Each part has its independent function but all must be designed to work together efficiently.

The exhaust hood is the most important part of the system. It should enclose the process as completely as possible. Air velocity decreases approximately with the square of the distance from the hood opening.

Air velocity for effective control varies with the process and material exhausted. Generally speaking, the better the enclosure and design of the hood, the less need for high velocities.

Hoods or enclosures may be in the form of booths, canopies, lateral hoods, downdrafts through grill openings below the process, or slot-type hoods. The object in each instance is to remove the contaminant without drawing it through the breathing zone of the operators and with minimum interference with processing.

Efficiency of hoods can be increased by addition of flanges.

Ducts connect the hoods to the central fan, distribute the air flow in direct proportion to the requirements of each inlet, and maintain adequate pipe velocity to convey the contaminant to the point of discharge.

Painters and carpenters working in the engine room of a 60-ton floating crane under construction at Dravo's Neville Island shipyard. Fresh air is introduced by venturi-type air movers. Other devices, not shown, exhaust dust and fumes from scaling and painting. (Mine Safety Appliances Co.)

The system should be balanced so that each hood draws the proper amount of air. When this condition has been obtained, all means of adjustment should be permanently fixed. The areas of branch pipes and main ducts can be calculated to give the correct air velocities throughout the system.

Material used for ducts must resist abrasive action of dust or corrosive effect of gases and vapors.

Sharp turns in ducts should be avoided. They take extra power and cause a large pressure drop.

Traps with clean-out gates should be provided at the bottom of vertical runs, and clean-out gates at regular intervals on the bottom side of horizontal runs.

Fans should have a capacity slightly higher than calculated requirements to allow for leakage in the system, accumulation of material on fan blades, and similar difficulties.

Where the contaminant is hot and has a natural tendency to rise and the operation can be provided with an effective enclosure type hood, natural draft ventilation is often satisfactory.

Disposal of Contaminants

Equally as important as collecting the air contaminants is its proper disposal. Gases, vapors and mists may often be discharged to the outside atmosphere at a point where they will not recirculate around the premises in harmful concentrations.

Dusts, both harmful and nuisance, require the use of dust collectors in the system.

Recirculation of air from exhaust systems is not generally desirable, particularly when the air has contained gas or fumes. Where only nuisance dusts are involved, recirculation after cleaning is often permissible.

Recirculation is not desirable when dusts containing lead, silica, asbestos, and others, are handled.

Air coming from the cleaning device must fall within the permissible range for toxic or flammable dusts.

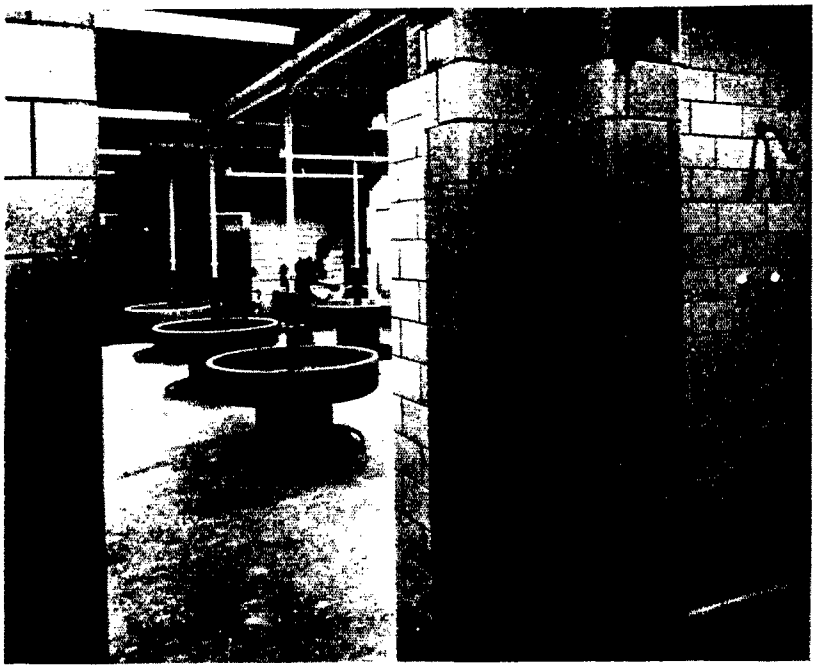
Dust Collectors

Methods of removing dust from the air exhausted by the system include:

1. Filtration
2. Electrical precipitation
3. Wet collectors
4. Dynamic precipitation
5. Supersonic flocculation

—*To page 69*

Washrooms and Lockers



Showers for employees at Link-Belt Company's Colmar plant are adjacent to lavatory and toilet rooms on mezzanine above shop offices where lockers are also located. Salt-glazed tile simplifies maintenance. (The Austin Co.)

FACILITIES for personal cleanliness, comfort and convenience are conspicuous factors in good working conditions. Adequate and well-maintained washrooms, toilets and lockers encourage better attitudes and attract desirable workers.

Attention to these requirements in planning industrial and commercial buildings will insure sufficient space and convenient location. Otherwise they may have to be fitted later into less suitable space.

Many plants have outgrown their original facilities. A survey of present equipment checked against the number of employees will show whether additions are needed. Also, equipment should be examined critically by modern standards of sanitation and appearance.

Assistance in planning new quarters or modernizing existing equipment is offered by many manufacturers of washroom equipment and supplies.

Higher standards of sanitation and lower maintenance costs can be achieved at little extra cost when buildings are planned. Dirt catching cracks and corners and dust collecting surfaces can be avoided. Floors and walls of easily cleanable material can be specified.

Location. Depending on the size and type of plant and its operations, lockers, lavatories and toilets may be in one central location or scattered through the plant.

In smaller plants, washrooms and lockers are usually near the entrance.

Toilets should not be more than 200 feet away from any work place. In multi-story buildings, one on each floor is desirable. If that is not practicable, they should not be more than one floor above or below the work place.

Washrooms in large one-story buildings usually are scattered throughout the building. Where there are many small isolated buildings, as in chemical plants and railroad yards, or where much of the activity is outdoors, a separate building may house all these facilities.

Accommodations should be located so that employees will not have to cross highways or railroad tracks to reach them.

Washing Facilities

Max. No. Persons Using Facilities at One Time	No. Washing Facilities
15	1
30	2
50	3
For each additional 25 persons	1 additional

Note: Where circular fountains are used, 17 inches of outside rim equals one lavatory.

When lockers and washrooms of a large plant are near the main entrance, small rooms with lavatories and toilets are often scattered through the plant. This saves the workers' time and makes it possible to close the main room during working hours, lessening danger of theft and requiring less supervision.

Separate washrooms and lockers are desirable for departments where there is exposure to excessive dust, dirt, heat, vapors, or moisture. These need more lavatories or shower baths than cleaner departments.

Offsetting the advantages of scattered facilities, is the higher cost of installation and maintenance. Centralized toilet and washing facilities are often preferable where women are employed. In some plants a full-time attendant may be needed.

In some large plants with underground passageways connecting buildings and departments, personal service facilities are often located along them, conserving space for manufacturing operations. Another space-saving method is to locate them on balconies.

Light. Fixtures should provide sufficient light in all parts of the room. Walls, ceilings and partitions should be light in color to conserve light and encourage cleanliness.

Ventilation. Unless the washroom has sufficient outside windows for natural ventilation, forced ventilation will be needed.

Floors, and walls to a height of at least six inches, should be of impervious material, such as glazed tile or concrete. Walls should form a tight joint at the floor level, or there should be a cove base at least six inches high.

Wash Fixtures

Group washing equipment. In industrial plants, institutions, schools and other establishments where facilities must be provided for large groups, circular wash fountains are the most frequent choice.

Eight to 10 users can be accommodated at a 54-inch circular fountain and 5 to 6 at a 36-inch unit. Fewer valves and plumbing connections mean additional economies in installation and maintenance.

Economy of water is another advantage. Several persons washing at a circular fountain use little more water than one at an individual basin. Each user washes in clean running water of regulated temperature. A foot or hand-controlled mechanism regulates the flow.

Semi-circular units 36 or 54 inches wide mounted against a wall are

used for narrow or irregular washrooms.

Precast stone and marble are the most frequently used materials. Some models are also available in enameled iron and stainless steel.

Individual basins of vitreous china or enameled iron make an attractive installation where comparatively small groups are to be accommodated.

Mixing faucets, rather than separate faucets for hot and cold water, are recommended. Hot and cold handles should be plainly marked, with the hot water valve always on the left side. Thermostatic control of water temperature is a desirable safeguard.

Stoppers should not be used. Faucets should permit washing in running water.

Where low first cost is a consideration, enameled troughs may be used. Over these are hot and cold water pipes with mixing faucets spaced not less than 24 inches apart. Double-width troughs, or single-width troughs back to back, save space.

Spray heads at basins or troughs encourage a thorough job of washing. They should be high enough above the trough to permit washing head, arms and shoulders under the spray.

Showers are needed in many industries, particularly where operations are hot or dirty, or where toxic materials are used. Requirements depend upon nature of the processes. They range from one shower to every five men to one for every 15 men.

Shower installations may be of the compartment or the circular multi-stall type.

Floors and approaches should be of slip-resistant material, such as concrete with an abrasive surface. A curb 4 inches high should be erected around shower stalls to keep water within the enclosure.

Painting the curb a contrasting color helps to prevent tripping.

Fungous infections. Warm moist air in shower rooms offers ideal conditions for propagation of the fungi that cause "athlete's foot." Floors and shower stalls should be scrubbed daily as a general sanitation measure. Disinfection by germicides is also helpful.

Preparations for toughening the skin, antiseptic foot powders, and careful drying of the feet are among the preventives used. Pans of antiseptic solution at the entrance of the shower stalls have been found ineffective for killing fungi.

Emergency showers. Quick-acting showers should be installed at convenient locations where caustics, acids and other corrosives are handled.

Skin Cleansers

Skin cleansers may be classified as soaps, sulfonated oils, and synthetic detergents.

Powdered soaps are more economical than cakes. These consist principally of powdered hard soap and a water softener, to which a scrubbing agent may be added. Corn meal, the most commonly used scrubber, may be coarse or fine. Most of these soaps can be used with hard water.

Liquid soaps are generally satisfactory where a scrubber is not desired. They are frequently used in office washrooms and in first-aid rooms.

Soap should contain no free alkali and should show a low pH in dilute solution. This can be determined before purchasing.

Sulfonated oils are useful for dry and soap-sensitive skins. They are frequently used where workers are exposed to the defatting action of petroleum oils and organic solvents.

Synthetic detergents of several types, gentle but effective in their action, are being used in many industries. They are particularly useful for removing oil, wax and tar.

Waterless skin cleansers are a recent development. They are said to be non-irritating but effective in removing grease and grime. Dispensers which include a receptacle for waste towels are portable and can be set up quickly where needed and without plumbing connections. Dispensers for paper towels can be attached.

Use of naphtha, carbon tetrachloride, turpentine and other organic solvents for skin cleaning should be avoided. Some are toxic, some are flammable, and all have a drastic defatting action. If they must be used to remove substances such as lacquer, which resist other cleansers, emollient creams help to offset loss of natural skin oils.

Germicidal cleansers. Ordinary soaps and synthetic detergents remove transient bacteria from the surface but are not effective in reducing those embedded in the skin. Many germicides, such as phenol compounds, have been tested as ingredients of skin cleansers but required high concentrations that made them unsuitable for daily use.

A promising recent development is hexachlorophene which has been incorporated in soaps and detergents used for medical, surgical and deodorant purposes.

Space Allowed for Toilet Facilities

(Minimum Floor Space—Square Feet)

Closets	16
Lavatories	12
Urinals	12

Hand creams, removable with soap and water, protect the skin against irritating substances on the job. (Boyer Campbell Co.)

Drying the Skin

Paper towels meet sanitary requirements and are economical and convenient. Dispensers should be kept filled and receptacles for used towels provided.

Recessed waste receptacles take one more object off the floor, improving the appearance of the washroom and making cleaning easier.

Mechanical hot air driers are acceptable from the hygienic standpoint. They are foot operated and may be of the pedestal type or recessed into the wall. Equipment should be well grounded and the electrical connection permanently installed without extension cords or plugs.

Towel services are used by some establishments, usually stores and offices. For industrial use, individual towels kept in lockers may not be changed often enough and they may come in contact with soiled work clothes.

Toilets

Toilets should be partitioned off from washrooms and lockers. Partitions of enameled metal are attractive in appearance and easy to keep clean. These partitions may be suspended from the ceiling or fastened on the walls.

Wall-mounted toilets save floor

The Most Important Safety Development in Exhaust Fume Control . . . Death to Carbon Monoxide and Hydrocarbons

The OCM Catalytic Exhaust

A Houdry Catalyst Development

(1) Connection to engine exhaust manifold. Cubic inch displacement of engine determines number of catalytic units needed. Almost any size engine can be equipped. Tested and listed by Underwriters Laboratories. OCM is strong—rupture-proof under explosion. • (2) Venturi or air inlet connected directly to exhaust manifold flange. Introduces fresh air into exhaust gas stream to provide necessary oxygen. • (3) Fresh air filter prevents contamination—keeps foreign matter from entering exhaust system. • (4) Catalytic units here eliminate carbon monoxide, hydrocarbons, fumes and odors. Units give 2000-2500 hours of trouble-free service—can then be quickly, economically replaced. OCM Exhaust imposes no more back pressure than standard muffler—often less. A thermocouple connected with pyrometer on instrument panel keeps constant check on catalyst efficiency. Non-leaded gasoline must be used.

A death sentence for two killers — a proven answer to one of industry's most critical problems — that's what the OCM Catalytic Exhaust means to you today.

You know the deadly risk of carbon monoxide wherever gasoline-powered equipment is used indoors. The hydrocarbons in exhaust fumes are even more dangerous. Now, with the OCM Exhaust, both these threats to life and health can be easily, economically ended.

Now, with the OCM Exhaust, you can operate lift trucks, tow trucks, loaders, auxiliary generators — *any type of machinery run by an engine burning non-leaded gasoline* in even the most closely confined areas—continuously, efficiently, *safely*. And *without the cost of extensive ventilation systems.*

The OCM Catalytic Exhaust eliminates 95% or more of the carbon monoxide—99% of the hydrocarbons — from any engine in which you use non-leaded gasoline. Connected to the engine exhaust manifold, strong, compact catalytic units "burn out" harmful, foul-smelling fumes and odors before they reach the air you breathe.

Think of the significance. The exhaust fume problem is great and growing. Now, with the OCM Exhaust, you can have cleaner, safer air inside your plant. For your employees this means an end to fume-caused headaches, eye irritation and nausea — perhaps serious undermining of health. For *you* it means all the advantages of higher employee productivity and morale.

Easily Installed By Your Own Mechanics

The OCM Catalytic Exhaust is designed to replace the standard gasoline engine muffler. It is available as original equipment from leading concerns such as *Clark Equipment Co.*— or can be fitted right on your present gasoline engines. Your own mechanics can install it quickly, easily, without changing clearances.

The OCM Catalytic Exhaust is today a proven success — used by many of the country's biggest industries.* Developed by the noted inventor, Eugene Houdry, who discovered the catalytic cracking process and who has given half a lifetime to catalytic research, the OCM is the most important safety development in exhaust fume control ever produced. Wherever *you* operate gasoline-powered equipment indoors — even part time — you have a real, a critical, need for the OCM Catalytic Exhaust. Write now for complete technical information and name of nearest supplier.

* *Names of users on request*

NOTE. This company makes catalysts for air pollution control and waste heat recovery in drying ovens, incinerators, oil refineries, and many other industrial operations. Write for details.

OXY-CATALYST, Inc.
WAYNE, PA.

Send in the coupon below for new illustrated folder on the OCM Catalytic Exhaust, and complete technical information.

OXY-CATALYST, Inc., Wayne, Pa.
Send me complete tech... on the OCM Catalytic Exhaust and ... supplier.

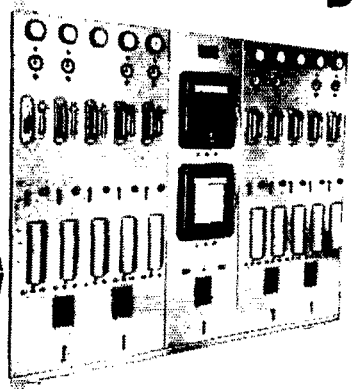
Name_____

Firm Name_____

Street_____

City_____

1 TALLER & COOPER'S ADVANCED CARBON MONOXIDE DETECTOR



The finest CO safeguard in the world. Operates continuously without supervision. Accurately detects CO in all ranges, and in concentrations as small as 0.05 parts CO in 10,000 parts of air. Can automatically control ventilation systems and reduce power waste by turning on fans only when needed, turning them off when danger is past. Designed for long periods of trouble free, heavy duty operation.

Come to BOOTHS 116-117, see and operate this equipment

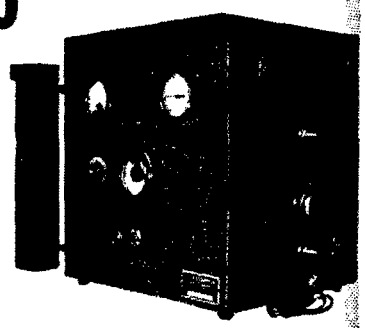
●

ALSO ON EXHIBITION TALLER & COOPER's new continuous Hydrogen Analyzer

●

2 TALLER & COOPER'S PORTOCO

A small, compact unit for protection in enclosed areas. May be moved from place to place to spot-check CO concentrations, or operated continuously at a permanent location. Indicates when and where fans should be turned on. Can also automatically control fans. Offers the highest dependability and accuracy at the lowest cost.



With slight modifications can be used [illegible] against combustible and explosive [illegible]

Write for Bulletin 207 and full details.

TALLER & COOPER, INC.

ENGINEERS • MANUFACTURERS

85 FRONT STREET • BROOKLYN 1, N. Y.

SPECIAL PURPOSE INSTRUMENTATION

cleaning easier and quicker. The oval-rim type of toilet with open-front plastic seat is most widely used. Foot-operated flush valves are favored by many.

The flushing mechanism should be rugged since employees often kick the handle instead of operating it by hand. Flush valves should be equipped with vacuum breakers to avoid back siphonage.

Minimum number of toilets specified by American Standard Code Z-4.1:.

No. persons	No. toilets
1- 9	1
10- 24	2
25- 49	3
50-100	5
Over 100	1 for each additional 30 persons

Toilets should be not more than 200 feet from any work place; preferably less than 150 feet.

Facilities for men and women should be plainly marked.

Urinals should be placed throughout the plant in convenient locations to avoid loss of time. One urinal for each 40 men is usually sufficient. Automatic flush valves use more water but are more effective in maintaining cleanliness since many persons seem reluctant to touch hand-operated valves.

Floors of toilet rooms should be of impervious materials, smooth and free from cracks. Tile and concrete are satisfactory. Floor drains permit frequent flushing.

If possible, toilet rooms should have outside windows for light and ventilation. State or municipal regulations usually contain provisions for ventilation.

Switches for lights, electric driers or other equipment should be located so they cannot be operated by a person in contact with piping or other grounded conductor. In pull-chain fixtures the chain should be interrupted by an insulating link close to the fixture.

In plants where eating rooms are close to toilet rooms, covered receptacles for disposal of waste food should be provided in the lunchrooms. Eating lunches in the toilet room should not be permitted.

Cuspidors should be provided where needed and cleaned at least daily. The disposable type requires less handling.

Lockers

A well-equipped locker room is an aid to orderly habits and often to health.

—*To page 74*

All these are Bradleys

DUO-WASHFOUNTAINS

Many prefer the two-person foot-controlled *sanitary* Duo-Washfountain for the smaller washrooms, and at cafeteria entrances, in laboratories, schools, office buildings, etc.

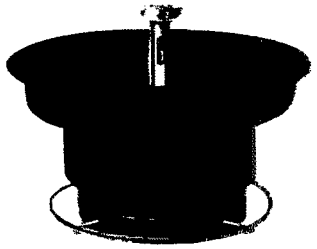
The Duo has no faucets to touch—the sprayhead supplying clean tempered running water. The bowl is self-flushing and water is not wasted since supply is automatically cut off when foot is removed from control pedal.

- **All Provide Maximum in Sanitary Washing Facilities**
- **All Provide Economies in Installation Costs, Space and Water Consumption**
- **Standardize on Bradleys**

WASHFOUNTAINS

Full circle 54-in. Bradleys accommodate up to 10 persons simultaneously. Model shown is pre-cast material. 36-in. models (up to 6 persons) also made.

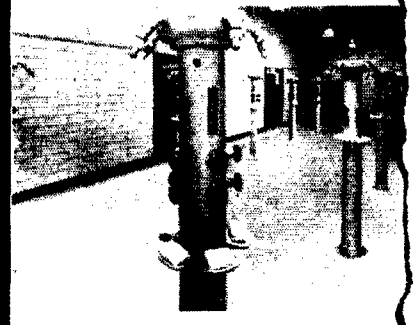
Wall type half circle Washfountains are made in 54-in. and 36-in. diameters both pre-cast, porcelain enamel and stainless steel.



Bradley Enameled Iron Washfountains are produced in white or forest green, full circle or wall type semi-circular. Stainless steel models—also in full and semi-circular types, 36" and 54" diameters.

MULTI-STALL SHOWERS

Bradley Multi-Stall Showers come in 3- and 5- stall units. Three piping connections only are required to serve all stalls—one each for hot and cold water, and one for drain.



Without stall partitions, Bradley Column Showers provide still lower cost shower facilities.

Standardizing washing facilities by means of Bradley Washfountains and Showers has been growing rapidly throughout industry. Besides savings in space, installation costs and water consumption, Bradleys provide maximum washing facilities in the *most sanitary* manner.

In addition to the larger up-to-10 person Washfountains for general plant use, the two-person DUO with foot-control is fast becoming popular for the smaller clerical and executive washrooms.

To complete the line, Bradley furnishes Showers in 3- and 5-stall units to care for all shower requirements. Complete information on the Bradley line is found in our well illustrated Catalog 5204. BRADLEY WASHFOUNTAIN CO., 2237 W. Michigan Street, Milwaukee 1, Wisconsin.

BRADLEY *washfountains and showers*

Write for Catalog 5204

Distributed Through Plumbing Wholesalers

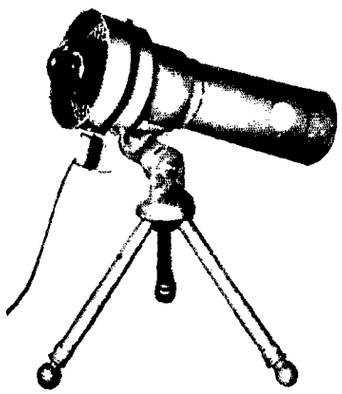
COPPUS "BLUE RIBBON" VENTILATORS

Identified by the Blue Band

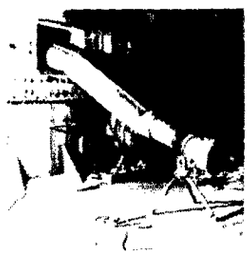
FOR WORKERS'

- Safety
- Health
- Comfort
- Efficiency

VANO® Design "A" VENTILATOR

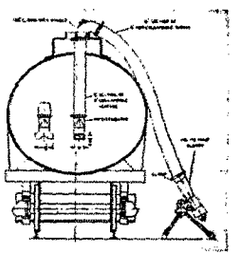


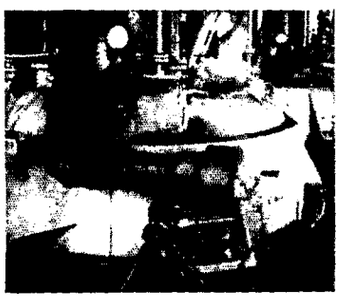
Vano Design "A" cooling interior of furnace, supplying fresh air through 10 feet of "Ventube" to provide safety and comfort during repair work.



Vano Design "A" delivering fresh air to cable manhole, expelling sewer gas, making entrance safe in a few minutes.

Vano Design "A" Ventilator plus a few accessories feeds large air volume into tank car, driving out fumes, stagnant or hot air for workers' safety and comfort.





Vano Design "A" supplying fresh air in Reactor Room of Synthetic Rubber Plant.

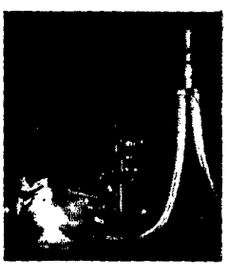
Vano Design "A" Ventilator supplying fresh air to men working in wing compartments, fuselages, etc.

Powered by a ½hp motor, and equipped with the exclusive Coppus axial-flow propeller-type fan, this general-purpose blower delivers 1500 CFM of fresh air. It supplies ventilation for tanks, tank cars, drums, vats, underground cable manholes, pipe galleries, airplane wing compartments and fuselages, and other confined places. Weighs only 103 lbs. Uses 8"-diameter flexible canvas tubing ("Ventube").

VANO DESIGN "C" VENTILATOR-EXHAUSTER

Vano Design "C" equipped with 8" discharge tubing removing welding fumes.

Vano Design "C" equipped with two suction lines removing welding fumes for operators' safety.



For withdrawing welding fumes from confined places or directly from the welding rod ...or for expelling fumes or hot air from enclosed vessels. You can get it with 8" suction inlet for 8" non-collapsible tubing ...or with multiple inlet nozzles for 5", 4" or 3" suction hose. The discharge outlet takes 8" "Ventube". Powered by a ½hp motor, it weighs only 85 lbs.

COPPUS ENGINEERING CORP., 123 PARK AVENUE, WORCESTER 2, MASS.
Please send information on the Blowers that clear the air for Action.

- ☐ in tanks, tank cars, drums, etc.
- ☐ in underground cable manholes.
- ☐ in aeroplane fusilages, wings, etc.
- ☐ on coke ovens.
- ☐ on steam-heated rubber processes.
- ☐ on boiler repair jobs.

COOLING:

- ☐ motors, generators, switchboards.
- ☐ wires and sheets.
- ☐ general man cooling.
- ☐ around cracking stills.
- ☐ exhausting welding fumes.
- ☐ stirring up stagnant air wherever men are working or material is drying.

(Write here any special ventilating problem you may have.)

NAME.....

COMPANY.....

ADDRESS.....

CITY.....

COPPUS "BLUE RIBBON" PRODUCTS—*Designed for Your Industry, Engineered for You*

Skin Infections

SKIN DISEASES are the most common occupational ailments. It has been estimated that they are responsible for as much as 60 per cent of all compensation claims for occupational diseases.

No occupation seems to be exempt and even many normally harmless substances can irritate some skins.

There are two general types of industrial skin infections: (1) Primary irritant dermatitis: (2) Sensitization dermatitis.

Primary irritation dermatitis. Practically all persons suffer skin irritation from acids, alkalis, irritant gases and vapors, and physical agents, such as heat, cold and friction. Brief contact with a primary irritant in high concentration or prolonged exposure to a lower concentration results in skin inflammation. Allergy is not a factor in these conditions.

Sensitization dermatitis is the result of skin sensitivity to a given substance. This form requires a definite period of sensitization. During this period the offending substance causes no response unless there is contact with concentrations high enough to cause primary irritation. Once sensitization develops, even small amounts of the material may cause symptoms.

Some substances can produce both types of dermatitis. Among them are organic solvents, formaldehyde and chromic acid.

Oil Dermatitis

Cutting oils and compounds are frequently involved where cutting and turning of metals is performed. The condition starts with irritation of the skin by continuous contact with the oil, forming comedones or blackheads. These comedones later become infected to form oil pimples or boils.

Dirty workers working in dirty oil form a combination that often results in serious conditions. Some types of skin are more susceptible than others, but anyone will develop the condition with sufficient exposure.

If other precautions are taken, use of protective creams will help, primarily by making it easier to cleanse the skin.

Keeping machines and the area around them free from loose oil is the basis of any program for the control of oil dermatitis.

To prevent excessive deterioration of oil it should be replaced and the machine thoroughly cleaned after each 120 hours of use, or oftener. The oil may be reclaimed or replaced, depending on which is cheaper.

If reclaimed, it may be sterilized by heat during the process. Caution should be used in adding germicides to oil. Most of them are irritating to the skin if used in excessive amounts.

Oil dermatitis occurs most often on the fronts of the thighs and the back of the neck, where the clothing rubs, also on forearms and wrists where direct contamination is heaviest. Men working in the area must keep clean and not wear oil-soaked clothing.

Men should be encouraged to bathe daily at the end of the shift. A shower with warm water, mild soap or detergent, and a soft brush is helpful in the control of dermatitis. It is also effective for other types of primary irritation dermatitis.

Predisposing factors. In investigating causes of occupational skin

DUST COLLECTORS
give you more positive
industrial dust control!

The AEROTEC INTEGRAL is a highly efficient mechanical collector developed to give you the most effective industrial dust control! In many applications the high efficiency of the AEROTEC INTEGRAL permits the return of cleaned air to the room, appreciably reducing heat loss.

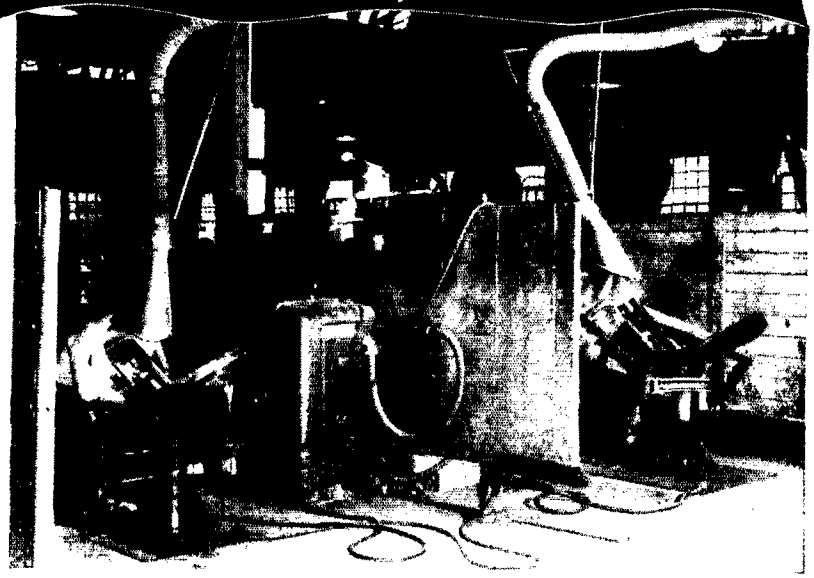
Only AEROTEC offers you high collecting efficiency over a wide range . . . constant pressure drop . . . no fire hazard since all materials used in construction are non-combustible . . . long life . . . self-cleaning collecting elements . . . easy maintenance—only periodic removal of dust from hopper or bin.

Why not let one of our representatives help you solve your dust-collection problems? Call or write him today!

Project Engineers
THE THERMIX CORPORATION
Greenwich, Conn.
(Offices in 38 Principal Cities)

Manufacturers
THE AEROTEC CORPORATION
Greenwich, Conn.

RUEMELIN *Welding Fume Collectors*



Illustrating Ruemelin Fume Collectors in action. Part of a group of sixteen collectors at plant of Sterling Wheelbarrow Co., Milwaukee.

Collects fumes at the source! Counterbalanced inlet hood stays in working area automatically. Hoods have great lateral and vertical range for table, positioner or floor use. Thousands in every day service. Write for bulletin 37-E.

RUEMELIN MFG. CO.
MFRS. & ENGRS. • SAND BLAST & DUST COLLECTING EQUIPMENT
3885 NORTH PALMER STREET • MILWAUKEE 12, WISCONSIN, U. S. A.

disorders, the following should be considered:

1. Race of patient.
2. Type of skin.
3. Age.
4. Sex.
5. Degree of perspiration.
6. Personal habits of cleanliness.
7. Pre-existence of skin disorders and allergic states.
8. Diet.

General precautions. The primary objective is to prevent contact with the irritant or reduce it as much as possible. Use of enclosure and mechanical methods of handling will reduce skin contacts.

Personal protective equipment, such as gloves, aprons, and face shields, and protective creams are a second line of defense. Careful housekeeping around the process is also essential.

Personal cleanliness, which shortens the contact of the material with the skin, is at least as important as personal protective equipment.

Attempts to determine which individuals are especially sensitive to contact with these materials, by patch tests or otherwise, are of doubtful value.

Controlling Air-Borne Bacteria

Control of air-borne bacteria in industrial and public buildings has been the subject of much research. In addition to the personal health aspect, control of such bacteria is sometimes required by manufacturing processes.

Ultra-violet radiation and chemical bactericides have been found capable of destroying bacteria, although practical methods of application impose numerous difficulties.

Ultra violet radiation using low-pressure mercury lamps with ultra violet transmitting glass or quartz envelopes will destroy many micro-organisms. Application is by irradiating the upper air stratum of a room, beaming or screening to provide a narrow barrier of protective light, or inserting a radiation source in an air duct.

Radiations of adequate intensity are dangerous to eyes and skin. Lamps should not be in the range of vision.

Chemical bactericides are also used, propylene glycol being the most effective under most conditions. Effective concentrations are odorless and non-toxic to human beings. Use of chemical bactericides requires close control of humidity in the area to be protected.

Food Service

IN-PLANT FEEDING has become firmly established in industry. While plant cafeterias and canteens have been in operation for many years in the larger companies, more and more smaller concerns have been providing facilities for food service on a smaller scale.

Originally planned to provide a fairly substantial meal in the middle of the shift, industrial food service now includes the morning and afternoon "coffee breaks," which are helpful in avoiding fatigue.

Two important developments have aided in the extension of food service to smaller concerns. (1) Vending machines now dispense almost anything that can be packaged, including hot drinks. (2) Sanitary disposable paper utensils eliminate dishwashing and breakage, and maintaining a staff of employees.

Types of Service

Food services for industry are of four main types:

1. Cafeterias preparing and serving hot meals.
2. Canteens or lunchrooms dispensing sandwiches and other packaged foods and hot and cold beverages. A few hot dishes may be included in the menu.
3. Mobile canteens circulating through the plant.
4. Box lunch services.

Management. In larger plants, food service may be operated by the company, often at a loss. The deficit, if any, is charged to employee good will.

In smaller establishments the more common practice is to engage an industrial caterer to provide food service. Foods are prepared in a central kitchen and transported to the plant in vacuum containers, although coffee may be prepared on the spot. The company provides the quarters, with any necessary dish-washing facilities. It avoids the investment in kitchen space and equipment and maintaining the necessary staff.

In some plants food service is under the supervision of the safety department. Whether operated by the company or by a concessionaire, constant supervision is desirable to maintain standards of quality and sanitation.

Location. Convenience for employees and efficiency of supply and operation are points which often decide the location of the lunchroom. In many plants the lunch hour has been shortened to allow employees to leave earlier and quick service is important.

Wholesome and palatable food eaten in clean, pleasant surroundings have both physical and psychological benefits. Lighting and ventilation of the lunchroom should receive careful attention.

In many plants lunchrooms are used for safety meetings and other gatherings for business or pleasure.

Canteens offer less elaborate menus

—*To page 62*

More than 2,400 hot pre-packed meals are served daily during three lunch periods at this carry-out canteen counter. (Factory Stores)

YOU CAN COUNT ON THE *Complete* PAX LINE

Whatever your cleaning problem, you can count on one of the many PAX Products to fill your need exactly. You can count on it for safety, quality, efficiency and the most for your money. Pick the PAX Product you need from the complete PAX Line—and count your savings, too!

PAX-LANO-SAV HEAVY DUTY Granulated Skin Cleanser has been awarded the Seal of Approval of the Committee on Cosmetics of the American Medical Association.

ACCEPTED COMMITTEE ON COSMETICS AMERICAN MEDICAL ASSOCIATION

PAX-LANO-SAV HEAVY DUTY is the most popular skin cleanser used in the industrial field. Its lively but gentle granules get really dirty hands clean in a hurry. PAX-LANO-SAV Emollient blended into every granule gives plus protection.

When you specify any PAX Product you get as an extra dividend the experience, ability and special know-how of our PAX Research and Testing Laboratory, acquired through more than a quarter-century of continuous research and development.

LOOK for the PAX ROOSTER

Your Assurance of a Superior Product

Distributed Nationally Through PAX Warehouses and Jobber Stocks. Write for the Name of Your Nearest Distributor.

Food Service

(From page 60)

than cafeterias, but investment in equipment and operating costs are considerably lower.

Where only limited quarters are available for lunchrooms, a schedule of staggered lunch hours for different departments is sometimes arranged.

Workers who bring lunches from home and those who patronize box lunch services should have a clean place to eat. Eating in the work places is permissible when operations do not create any health hazard. Locker rooms may be used if clean and well ventilated.

Drinking water should be provided in all rooms assigned for eating purposes.

Sanitation

Strict cleanliness in the kitchen is most important. Patrons who get a glimpse of the kitchen should be reassured by what they see.

All perishable food and beverages should be kept under refrigeration except when being prepared or served. Preemployment and periodic physical examinations for employees are important health measures.

Dishwashing. Clean dishes can be obtained with either hand or machine washing, although lower bacteria counts on utensils are obtained by machine.

Hand dishwashing requires a two- or three-compartment sink, provision for scraping dishes and disposing of scrapings, prerinsing arrangement, adequate water-heating facilities, an effective detergent, trained personnel and capable supervision. Baskets for utensils make it possible to use hotter water than the hands could endure.

Most codes require a bacterial rinse for dishes after washing. This can be accomplished by immersion in water of at least 170° for at least two minutes. A chlorine solution of 100 parts or more per million is also effective.

Drying with towels, while not expressly prohibited, is not recommended.

Newer types of dishwashing machines are efficient and easier to keep clean. Most models now have devices to maintain the temperature of recirculated wash and rinse water.

Helpful information for planning and operating food service facilities are often obtainable from local and state health departments and from publications of the U. S. Public Health Service.

See also: *Rodent and Insect Control.*

Vending machines. Conveniently located coin-operated vending machines provide such items as cookies, candy bars, sandwiches and soft drinks. Some machines dispense hamburgers, frankfurters and coffee heated by electronic devices. Machines should incorporate recommended principles of sanitary design.

Beverages are dispensed either in bottles or in paper cups. The latter method avoids the problem of lost and broken bottles.

Plastic cups, plates and tumblers reduce the cost and hazard of breakage. Some types withstand the high temperatures of dishwashing machines.

Paper utensils for both hot and cold foods and drinks are popular for smaller lunchrooms and canteens and for restaurants handling take-out orders. They avoid the health hazard of poor dishwashing and loss through breakage.

Receptacles should be provided for disposal of used utensils.

Vending machines are usually operated by a coin that leaves a small margin of profit (which has almost disappeared on some lines). Frequently the profit goes to the employees' welfare or recreation fund.

Nutrition

An employee cafeteria has an opportunity to help workers follow recommended diets. It can offer daily specials that will encourage choice of proper food.

Diets recommended by nutrition experts include the "Basic 7" foods:

1. Green and yellow vegetables, raw, cooked, frozen or canned.
2. Oranges, tomatoes, grapefruit, raw cabbage or salad greens.
3. Potatoes and other vegetables and fruit—raw, dried, cooked, frozen or canned.
4. Milk and milk products, fluid, evaporated, dried milk or cheese.
5. Meat, poultry, fish or eg[g]s, dried beans, peas, nuts, or peanut [b]utter.
6. Bread, flour and cereals, [w]hole grain or enriched.
7. Butter or fortified margarine.

Rest periods. Principal meals are served in the middle of the work shift but there is growing appreciation of the value of mid-morning, mid-afternoon snacks as a contribution to comfort and efficiency.

Snacks are made possible in a growing number of plants by passes of 10 to 15 minutes to go to the lunchroom. In other plants mobile snack bars are wheeled through working areas, giving employees a chance for refreshment and relaxation.

Recommended Areas for Lunchrooms

Max. No. Persons Using Lunchroom at One Time	Square feet per Person
Less than 25	8
25 to 74	7
75 to 149	6
150 to 500	5
More than 500	4

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Rodent and Insect Control

RATS, mice and insects are responsible for an annual toll of destruction and spoilage that runs into millions of dollars. In addition, these pests are carriers of many diseases.

Ratproof construction helps to keep rodents out of buildings but adequate control measures must cover a wide area. Rodents must be routed out of burrows and hiding places under lumber, scrap and trash piles.

Materials should be stored on racks 8 inches above the floor with 18 inches between rows. Outdoors, materials should be stored on racks 18 inches above the ground and with at least 18 inches between rows.

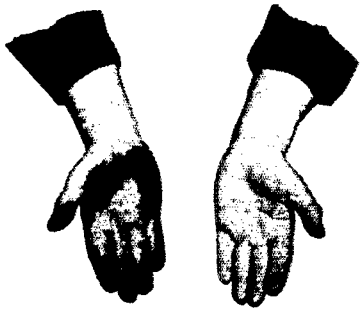
Permanent control measures are based on the fact that rodents cannot exist without food, water and shelter. This makes good housekeeping vital, inside buildings and in the yard as well.

Scraps from the kitchen and from employees lunches should be placed in covered metal containers. Spilled grain should be swept up daily.

Extermination. Temporary control consists of removing the existing rat population by means of traps, gases or poisons. Their natural enemies, such as dogs and ferrets, are not always dependable. This step should precede permanent measures to pre-

—To page 65

. . . eliminate dust with WESTONE!



Dramatic proof of ANTISEPTIC WESTONE'S effectiveness. The hand at left was rubbed across an ordinary untreated section of floor. The hand at right was rubbed over a section which had been treated with dust-controlling ANTISEPTIC WESTONE.

Sweeping only rearranges dust. As a matter of fact, sweeping and floor traffic are the main dust spreaders—not open doors and windows as you might think. And dust is damaging. It spreads many harmful disease bacteria that often cause absenteeism. It affects precision apparatus and delicate finished products. Makes store merchandise, office and institutional floors unsightly.

ANTISEPTIC WESTONE CONTROLS DUST. Loosens and picks it up from floors, bins, shelves, furniture. Seals floor surfaces. Improves their appearance. Holds down subsequent dust so traffic can't raise it. Its antiseptic properties inhibit growth of bacteria.

ANTISEPTIC WESTONE is economical. It works as fast as a man can walk. One man can do the work of three in maintaining floors. And it goes a long way. One gallon covers 4,000 square feet. Interested? Check the coupon.

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I'm interested in:

☐ A FREE leaflet on WESTONE.

☐ A talk with a West expert about my special floor problems. No sales pitch. No obligation. Just discussion and a demonstration if I want it.

ACTAMER:

Remarkable New Soap Antiseptic Helps Reduce Absenteeism... Cuts Skin Bacteria 97%

You can help keep plant employes on the job by helping them reduce skin disorders. How? Keep washrooms supplied with soap containing ACTAMER, Monsanto's new bacteriostat.

Regular use of soap containing Actamer reduces resident skin bacteria by as much as 97%, thus cutting the chances of skin infections. Control of skin bacteria is important because *60% of all occupational disease compensation cases are based on skin disorders.*

Industrial soaps with Actamer — bar, liquid or powder — are now available. Write us for a list of suppliers. Organic Chemicals Division, MONSANTO CHEMICAL COMPANY, P. O. Box 478, St. Louis 1, Mo.

Actamer: Reg. U. S. Pat. Off.

MONSANTO
CHEMICALS — PLASTICS

Serving Industry . . . Which Serves Mankind

Insects and Rodents

—From page 62

vent the rat's migration to other premises.

Calcium cyanide, applied to rat burrows with a foot-pump duster, is an effective poison. It should be used only out of doors. Indoor applications may not provide sufficient moisture to liberate cyanide, thus creating a delayed hazard.

Carbon monoxide from gasoline engine exhaust, chloropicrin and methyl bromide are also effective. Manufacturers of rodent killers provide directions for using them.

Lethal fumigant gases, applied by licensed exterminators, are sometimes effective in controlling infestation.

Red squill has long been a popular and effective rat killer. It acts only as an emetic on other animals but rats cannot vomit and death results.

Warfarin, a more recently introduced rat killer, is also relatively harmless to most other animals and to human beings. It is used in establishments handling food products where more toxic remedies would be highly dangerous.

Barium carbonate, phosphorus or arsenic compounds, thallium sulfate, ANTU, and sodium fluorosilicate (1080) are also widely used. The latter two poisons must be used with particular caution since no antidote for them has yet been discovered.

All poisons, except red squill, should be handled with rubber gloves. The user should avoid breathing the dust. Manufacturer's directions should be followed.

Insecticides

In agriculture and in some industries, such as food products, a constant fight must be waged against insects. For farm and garden the traditional poisons such as lead arsenate, Paris green and nicotine sulphate have been supplemented by much safer products such as rotenone, pyrethrum, and DDT.

All insecticides, however, should be handled with caution. The user should avoid inhaling dust or spray of any kind and allowing any of it to remain on the skin. For extensive use, protective clothing and gloves and a respirator may be desirable.

Lethal fumigant gases are used for exterminating weevils, moths, beetles and other insects. Carbon disulfide has been used for controlling weevils in grain but it has the serious drawbacks of being highly toxic and highly flammable. Fumigation should be done only by licensed fumigators.

Heat and Humidity

EXCESSIVE HEAT, whether due to climate or to manufacturing processes, provides some of industry's most complicated and expensive problems. The loss of productive efficiency at high temperatures is serious and human health and comfort are affected to a greater or lesser degree.

Accident rates are also influenced by the lack of alertness caused by excessive heat and humidity.

When temperatures approach 90 degrees, especially when accompanied by high humidity and lack of air movement, the human body rapidly loses its ability to compensate for atmospheric conditions. Individuals vary considerably in their susceptibility to heat but it is good economics to cool the air of work spaces as much as possible in summer and to protect workers exposed to heat-producing processes.

Avoiding the ill effects of heat and humidity requires close attention to working conditions by the employer and observance of reasonable precautions by the worker. Even where comfortable air conditioning is not practicable much can often be done to improve conditions.

Good ventilation is one of the most important items. Keeping the air in circulation by general mechanical ventilation is helpful and spot cooling by fans often affords increased comfort. However, when the wet bulb temperature of the surrounding air is higher than that of the body, blowing air over the worker does not cool him, it makes him feel more uncomfortable. In industries such as hot mines and in glass plants, steel mills and other hot industries, it is frequently useless to blow cold air over workers unless it is cooled and dehumidified.

In hot industries there are many operations in which the atmosphere cannot be kept below maximum suggested temperatures. Radiation from nearby hot objects is another source of discomfort. Heat received through radiation can be decreased by means of shields, insulation where fans would be ineffective.

Adequate washroom facilities and plenty of cool, pure drinking water also contribute to health and comfort in hot surroundings.

Work clothing. For general conditions of heat and humidity, clothing should be porous, light in weight and allow air to circulate around the body. For exposure to local sources of intense heat and infra red and ultra violet radiation, special protective garments are needed. Leather is widely used, and for more severe exposures, asbestos and wool are needed.

Acute Ailments

Exposure to extreme heat, especially when accompanied by physical exertion, may result in heat cramps, heat exhaustion, or heatstroke. Knowledge of correct first aid treatment for each type of ailment is important. All cases should receive medical attention.

Heat cramps are due to excessive loss of salt and moisture from the body. They come suddenly and may involve skeletal or intestinal muscles. Even if the moisture of the body is replaced by drinking plenty of water, loss of salt may cause heat cramps.

Heat cramps are relieved in a few hours by proper treatment but soreness may persist for several days.

Heat exhaustion is a shock-like state also resulting from loss of salt and moisture. Symptoms are pallor, relatively low temperature, weak

Heat Accident Facts

Data from the National Office of Vital Statistics show that male death rates due to excessive heat tend to increase sharply with age. This is particularly true after age 65. A high year for excessive heat deaths, such as 1936, accentuates these facts when compared with a more temperate year—1950.

Male Deaths due to Excessive Heat

	1936		1950	
Age	*Deaths*	*Rate**	*Deaths*	*Rate**
25-44	456	2.39	28	.13
45-64	1,309	10.48	43	.28
65 and over	1,261	31.73	16	.27

* Deaths per 100,000 population. Source: National Office of Vital Statistics.

pulse, a feeling of restlessness or anxiety, and sometimes unconsciousness. It is a much more severe condition than heat cramps and is occasionally fatal. A person with either condition should be given salted water, if conscious, and put under medical care as quickly as possible.

Heatstroke (also known as sunstroke) is caused by exposure to an environment in which the body is unable to cool itself sufficiently. It is not necessarily the result of exposure to the sun. As a result, body temperature rises, and the heat-regulating mechanism breaks down.

Symptoms are severe headache, flushed face and high temperature, visual disturbances and loss of consciousness. Death may occur within a few hours, but if timely treatment is available the patient has a good chance of recovery. One of the aftereffects is inability to withstand heat.

In general, the same precautions will help to prevent or minimize all types of disability due to heat.

Serious exposures include boiler and engine rooms, foundries, steel mills and glass plants. Seasonal heat hazards are found in construction work, public utility, highway and railroad maintenance, and farming.

Sunburn can be painful and dangerous. In strong sunlight, the head should be covered and exposure of the skin kept at a minimum. Tan should be acquired gradually. Treatment is the same as for any other type of burn.

SAFEGUARDS FOR HOT JOBS

1. **Good ventilation**
2. **Adequate washroom facilities**
3. **Drinking water**
4. **Salt tablets**
5. **Fans and blowers**
6. **Shields and insulation for protection against radiant heat.**
7. **Suitable clothing.**

Use of Salt

Maintaining the salt in the body at an adequate level enables men to work at strenuous occupations where temperatures are unavoidably high. For sedentary workers, normal use of salt with food may be sufficient, but those whose jobs require greater physical exertion may not take enough by this method.

Dispensing. The most convenient and popular method for providing salt is in tablet form. The 10-grain size is more frequently used, and it may be obtained either as pure salt or in a combination of 70 per cent salt and 30 per cent dextrose. Tablets containing dextrose are more palatable and more easily assimilated by many persons.

For those who find difficulty in taking even a moderate amount of salt, enteric-coated tablets are available. These pass through the stomach intact and dissolve in the intestines.

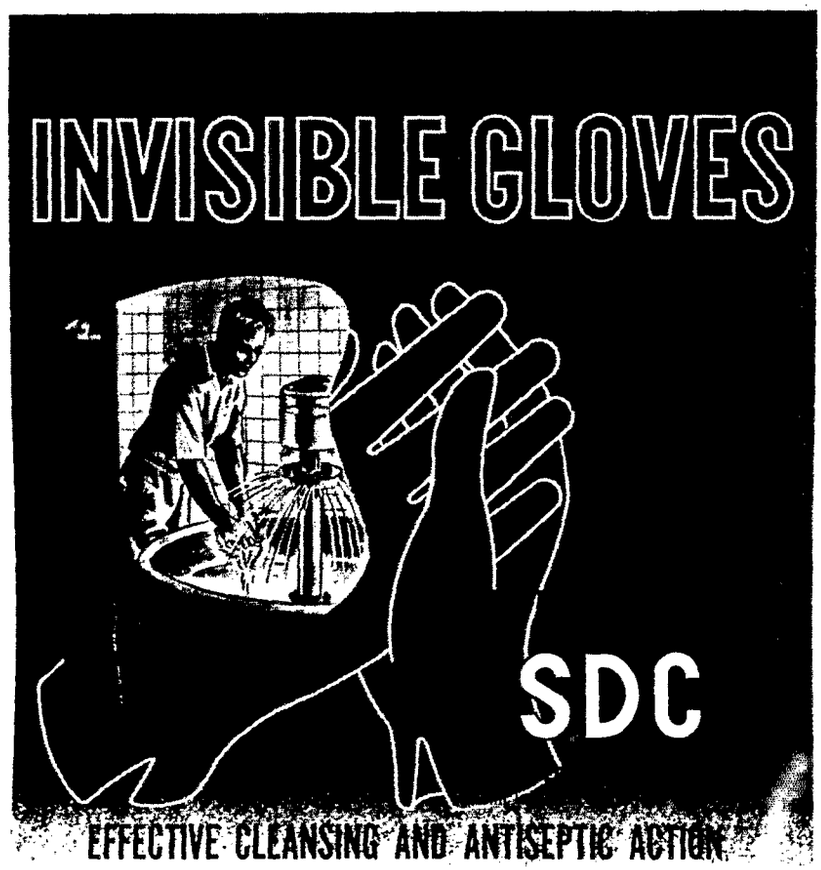
In most plants, a dispenser for salt tablets will be found beside the drinking fountain. Dispensers are made in several styles and sizes.

The drink of water is as important as the salt. A full glass of water (eight ounces) should be taken with each tablet.

Another method is to add salt to the water. This is practicable where the drinking water is not used in the industrial processes. Concentrations of from .1 to .5 per cent, depending upon the temperatures and nature of the work, are used in some plants.

Use of salted drinking water should be under medical supervision.

Caution. Persons with kidney or heart disease or high blood pressure



The answer to industrial dermatitis is effective cleansing combined with antiseptic action. Vestal—SDC (Skin Degerming Cleanser) provides both. It cleans efficiently, removing irritants such as cutting oils, lubricating oil, chemicals and solvents; it provides antiseptic protection against secondary infections arising from cuts, abrasions and chemical irritation . . . promoting quick healing of injured skin without crippling, infectious complications.

Daily hand washing with Vestal—SDC forms an invisible but protective film on the skin. For SDC contains the antiseptic agent, Hexachlorophene, which remains on the skin after the hands are rinsed and dried. This antiseptic film provides a continuous barrier to infection and disease transmission.

Vestal—SDC lathers instantly; quickly cleans heavily - soiled hands.

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should seek medical advice on the use of salt. However, such men should not be placed on jobs where they would be exposed to high temperatures or heavy manual work.

Controlling Noise and Vibration

EXCESSIVE noise in a workplace is more than an annoyance; it can be a definite occupational hazard, causing permanent impairment of hearing. Individual tolerance of noise varies but continued exposure causes nervous tension and fatigue.

Level of Sound. The unit of measuring sound is the decibel. The decibel scale is strictly a physical scale. It does not measure the frequency, which also affects the sensation felt by the ear.

In general, the higher frequencies or pitch, of sound are more trying to the ear.

Between zero and 10 decibels is the threshold of audibility.

From 10 to 75 decibels is within the comfortable hearing range.

Noise above 90 decibels is considered injurious to the hearing and nervous system. At 120 it becomes acutely painful.

Noise Makers. Here are some noise levels recorded at three feet from various machines:

Punch presses—96-103.
Drop hammers—99-101.
Hydraulic press—130.
Automatic riveters—95-99.
Lathes—80.
Automatic screw machines—93-100.
Airplane riveting guns—94-105.
Airplane propeller grinding—100-105.
Looms—94-101.
Wood planers—99-110.
Wood saws—100.

The accumulated effect of smaller noises may also create an excessive total.

Measuring levels. Where noise is present more or less continuously it is recommended that operations be tested with an approved sound meter. If a meter is not available, it may be assumed that noise is excessive where it is necessary to carry on conversation by shouting.

Methods of Control

Substitution of a less noisy process, such as welding for riveting, is sometimes possible. But in most operations there are four methods of attack:

1 Isolate vibrating machines by putting them on damping mounts of rub-

GREATER PERSONNEL PROTECTION THAN EVER BEFORE

safety engineers, industrial hygienists, industrial engineers and production men are

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F.O.-128

(low toxicity—high flash)

and are safe-guarding personnel from nausea, vomiting, abdominal cramps, headaches, dizziness, jaundice, loss of memory and the more harmful effects on the lungs and the liver.

Combined with the exceptional safety features is the extreme **CLEANING AND DEGREASING** effectiveness of **F.O.-128.**

ADVANTAGES OF F.O.-128

- Minimized toxicity- fifteen times more safe than carbon-tetrachloride.
- High flash point reduces fire hazards.
- Will not produce dermatitis.
- Perfect for cleaning electrical and mechanical equipment without damage to surfaces or insulated components.
- Zero residue on drying.
- May be used in process cleaning for pre-paint or pre-plate operations.

WRITE TODAY for information on this and other FINE ORGANICS' "SAFE-TEE" Solvents. *Representatives in Principal Cities:*

Write to Dept. "C" for FREE technical bulletin "How to Clean Electric Motors."

*See July 1952 issue of Industrial Hygiene and Occupational Medicines

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ber, cork, springs, or other material.
2. Enclose noisy operations in insulated rooms.
3. Apply acoustical treatment to walls and ceilings.
4. Maintain machinery to avoid noise from worn and loose parts.

Frequently it is necessary to use a combination of measures.

Keeping floors in good condition and free from bumps is helpful. Rubber tires on trucks also make operations quieter.

Personal Protection. Where noise cannot be reduced to a comfortable level at the source, ear plugs or stopples often afford considerable relief. These are made of plastic, rubber or wax.

Stopples properly made and fitted have reduced noise from 25 to 30 decibels while permitting ordinary conversation. See Section 4, Hearing Aids.

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Drinking Water

HEALTH and efficiency, as well as physical comfort, require an adequate supply of pure drinking water. It can be provided at a moderate cost in any industrial plant.

Drinking facilities should be conveniently located and inviting in appearance. Workers will not drink enough water unless it is clean, cool and palatable. Attractiveness of fixtures is also important, particularly for women employees.

In providing for the needs of workers, the following should be considered:

1. Number of persons to be served.
2. Type of work—light or strenuous.
3. Temperature of workroom.
4. Purity of water.
5. Temperature of water.
6. Design of fixtures.
7. Location of outlets.

One outlet for each 50 employees has been suggested as a minimum. More will be needed if temperature is high or work involves physical exertion.

If outlets are too far apart workers will not drink enough water or they will spend too much time away from work. It should not be necessary to walk more than 50 feet for a drink.

A supply of drinking water should be provided in all rooms assigned for eating purposes. Drinking water facilities should not be installed in toilet rooms.

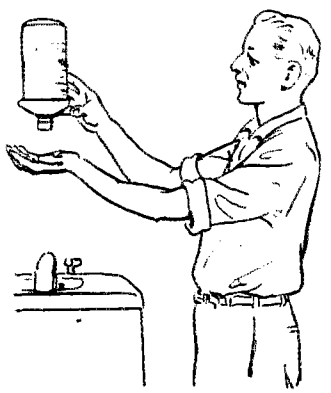
Water supply. Pure water is an important responsibility of every city, and health departments maintain a close watch over the water supply. But when the plant is located outside the city limits, and for temporary operations such as construction, public utility and oil-field work, the employer must supervise the water supply. It should be analyzed regularly.

If unapproved or "service" water is used for industrial processes or for fire protection, signs should be posted warning against its use for drinking. Care must be taken to avoid possibility of cross connections between the two systems.

Sterilization. Water of questionable purity can be made safe for drinking by chlorination or boiling. Compounds for sterilizing water, some in convenient tablet form, are available.

Filtration is desirable for removal of sediment but it will not destroy harmful bacteria.

Temperature of water. For workers who perform heavy manual labor, from 50 to 55 degrees F. is recommended. For office workers, restaurant patrons and others who are less active, the temperatures may be as low as 45 degrees.



Drinking water and salt tablets are aids to health and comfort in hot weather

Methods of Dispensing

Two approved methods of dispensing drinking water are: (1) Drinking fountains of approved design; (2) Paper cups provided at the outlet.

Drinking fountains with individual cooling units are more suitable for many types of industry than a central cooling system. Fountains should conform to specifications of the ASA Code Z 4.2. Important features are a diagonal jet, which (1) prevents the water falling back on the nozzle, (2) a guard to keep the user's lips away from it.

If ice is used for cooling it should be in a separate compartment without direct contact with the water.

Older installations in factories, offices, stores and public buildings which do not conform to hygienic standards can often be modernized at reasonable cost.

Desirable accessories in drinking fountains are line strainers and pressure regulators. An outlet for filling glasses is also useful, particularly for office use.

A dispenser for salt tablets should be located near the drinking fountain.

Hazardous locations. For use where flammable gases, vapors and dusts may be found, explosion-proof fountains are available.

Paper cups should be kept in dustproof containers and receptacles provided for used cups. The container must be kept filled or workers will salvage old cups.

Maintenance. A cuspidor or sand urn at the fountain will prevent much discarded chewing gum, tobacco, etc., being deposited in the fountain bowl. Regular cleaning of porcelain and metal keeps the fixtures attractive and sanitary.

Maintenance of drinking fountains must be watched to prevent unsightly and unsanitary conditions. A few employees will need reminding of the importance of habits of cleanliness and education is easier when accompanied by a good housekeeping program.

Isolated Jobs

Portable containers. For many jobs remote from the city water mains, as in construction work, public utility and railroad maintenance, in mines and other isolated working places, an open water bucket too often is the means of supplying drinking water, with one cup or dipper serving the entire crew.

Portable coolers, with dispensers for paper cups, are particularly useful on temporary jobs where employees must work at a distance from a source of pure water. The container should have a tight-fitting cover.

Portable drinking fountains provide another method. One model uses a hand pump to maintain pressure. Slight pressure on a valve releases a jet of water at an angle, as in approved permanent installations, and a guard prevents lips from coming in contact with the nozzle. Insulation keeps water cool for several hours.

Vacuum bottles may be provided for individual use by employees in remote or hard-to-reach places, such as crane cabs.

Salt tablets in individual packages should be available in hot weather.

Ventilation

—From page 52

Filters are the oldest and simplest way of removing dust. They are porous mediums through which dust-laden air is drawn. Some filters are designed to collect dust in the form of a layer on the upstream surface. This is characteristic of cloth and paper filters. The thicker types, such as those of metal mesh treated with oil, have greater dust-holding capacity.

A filter should have these characteristics:

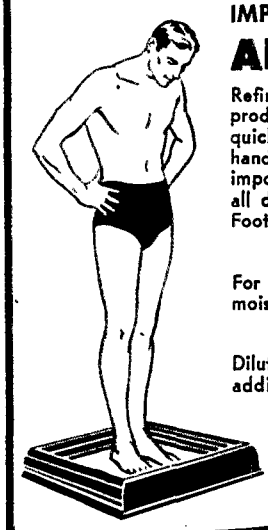
1. Low initial resistance to air flow.
2. Reasonable length of service.
3. Efficiency under changes of temperature and humidity.
4. Low flammability.
5. Reasonable replacement cost or ease of cleaning.
6. Low maintenance cost.
7. Freedom from odors.

Electrostatic precipitation. This method is highly efficient, particularly for fine dusts which are difficult to remove by other methods. It offers low resistance to air flow. First cost and maintenance cost are relatively high.

Precipitators have comparatively low efficiency in collecting large particles moving with considerable force. For high concentrations of dust they generally require precleaners. They are valuable when the manufacturing process requires a practically dust-free atmosphere.

A combination of viscous filter and electrostatic precipitation with a self-cleaning feature on some models is

COMPLETE PROTECTION AGAINST
ATHLETE'S FOOT
at moderate cost!



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ALTA-CO POWDER

Refinements and improvements in essential ingredients and production methods make Dolge's famed ALTA-CO more quickly soluble, more agreeable generally and better to handle. Dissolved economically in water for the all-important foot bath, ALTA-CO kills *in less than a minute* all different species of fungi commonly found in Athlete's Foot. Non-irritating; harmless to towels.

ALTA-CO FOOT POWDER

For dusting feet after shower or other exposure to moisture.

H.D. FUNGICIDE FLOOR WASH

Diluted 1 to 300 in water, this powerful wash provides additional protection against Athlete's Foot on surfaces where fungi are commonly found.

Ask your DOLGE SERVICE MAN about money-saving offer on the DOLGE FOOT TUB.

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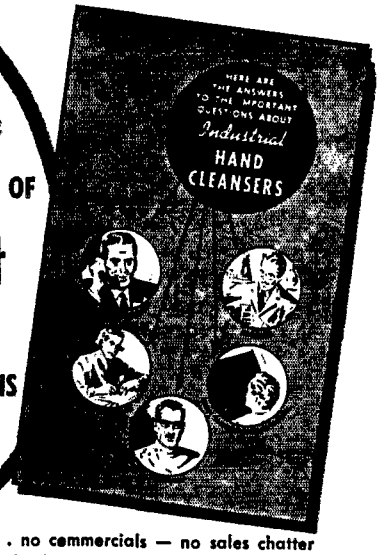

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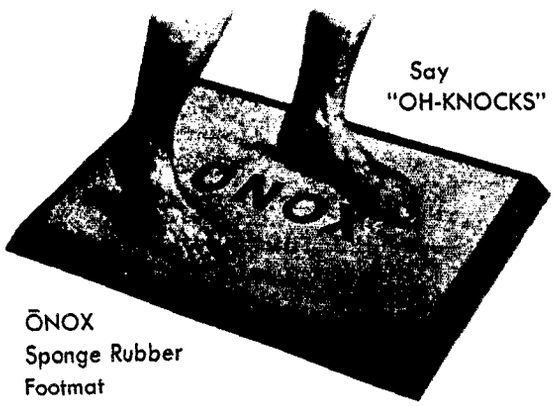
74% USE ŌNOX®
TO STOP ATHLETE'S FOOT



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Footmat

74 of the 100 Largest Manufacturers use ŌNOX SKIN-TOUGHENER

Modern research has upset old theories about Athlete's Foot control. Skin specialists have proved that the best way to prevent Athlete's Foot is to improve the condition of the skin. *That's what ŌNOX does.* ŌNOX mineral salts toughen the skin and make it resistant to fungus growth.

No splash • No mess • No waste • Odorless
Easy to maintain • Nothing to get out of order
Men like ŌNOX • Relieves tired, aching feet

60 DAY TRIAL OFFER
We will ship your trial order for any amount of ŌNOX and footmats. *You pay nothing* unless fully satisfied after 60 days' use.

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NEW—DIFFERENT ECONOMICAL
SANITARY 95% GLASS AND PLASTIC
STRONG—SIMPLE FOOL-PROOF

The last word in salt tablet dispensers. Holds 750 10-grain tablets. Price $2.50 each, Postpaid.

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DIVISION OF
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STEELEVILLE, ILLINOIS

available. It solves the problem of dust capacity and of heavy particles.

Cyclones. A cyclone consists of an outer cylinder fitted with an inverted cone-shaped hopper and an inner concentric cylinder which serves as a discharge duct. Air from the main duct of the exhaust system, under high velocity, enters the large chamber where the air is given a circular motion. The heavier particles are thrown to the outer wall by centrifugal force and fall along the wall. Air escapes through the top.

Cyclones are most effective for large particles, such as sawdust, shavings, heavy lint, etc. After passing through them, air cannot be returned to the workroom without further filtering. Cyclones are relatively inefficient for removing small particles.

Dynamic separators combine fan and collector in one unit. In form this type of separator is somewhat like a cyclone, but the centrifugal separating action is performed by the revolving blades. It is more efficient than the cyclone.

In some types water spray is introduced with the dust at the inlet. Wet collection increases efficiency for fine dusts.

Wet collectors use several devices for obtaining contact of water with the exhausted air so that dust particles form a sludge. One type consists of sprays or water curtains through which dust-laden air is drawn. These are efficient collectors for many types of dust. An impor-

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tant application is in the prevention of dust explosions from grinding aluminum or magnesium.

Supersonic flocculation. Suspended dust is passed through a field of supersonic vibrations, inaudible to the human ear, generated by a high-frequency siren. Vibration flocculates the fine particles, and the aggregates are then collected by cyclones or other measures for collecting relatively coarse particles.

General Safety Measures

Personal protective equipment is needed where exposure is occasional or where complete protection is not practicable. Removal of the hazard at its source should remain the objective.

Sanitation and housekeeping must receive constant attention. Otherwise equipment will lose its effectiveness and unhygienic conditions develop.

Supervision and training of employees, particularly in hazardous operations, is important. Workers exposed to toxic substances should receive frequent physical examinations.

Medical control is seldom successful as a primary method of control, but is an important check on other methods. Maintenance of engineering control is sometimes inadequate and symptoms of absorption of toxic materials by a worker may be the first real warning. The safety department should be notified of the introduction of new materials and processes so that possible hazards may be assessed and safeguards provided.

Specialized Applications of Air Conditioning

Operators of overhead traveling cranes are often subject to extreme heat and humidity, as well as to gases, vapors and dusts from operations below.

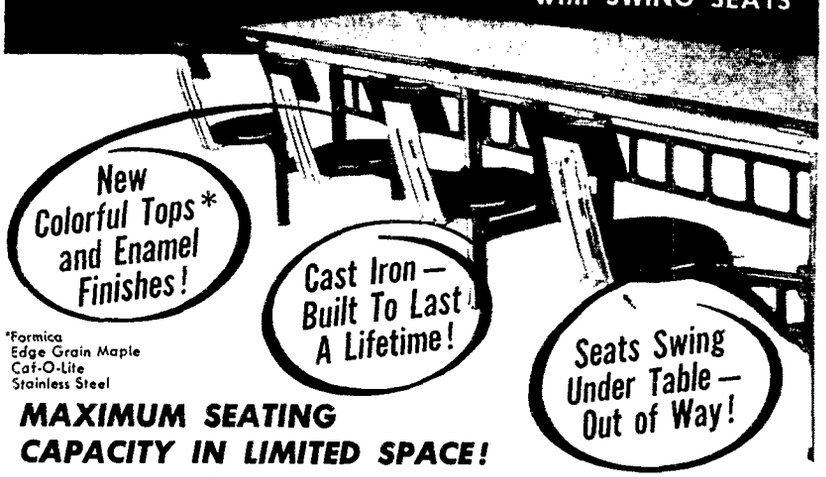
To improve conditions, cab coolers have been designed. These coolers are self-contained units which need only an electrical connection. They supply clean air, cooled and dehumidified to the cab.

Locomotive cranes, which often must operate in excessively hot locations, can be provided with similar equipment.

These units can also be used to heat the cab in cold weather.

For pulpits and other control locations in steel mills where heat, dirt or fumes create uncomfortable new hazardous conditions, similar equipment has been designed.

INDUSTRIAL AND INSTITUTIONAL
SECTIONAL TABLES
with SWING SEATS



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Edge Grain Maple
Cat-O-Lite
Stainless Steel

MAXIMUM SEATING CAPACITY IN LIMITED SPACE!

Colorful tops and wide range of enamel paint finishes add attractive new color to industrial and institutional dining rooms and recreation rooms. Units in varying lengths seat 4 to 24 people. Attached seats (with or without backs) swing under table to eliminate crowding, noise and confusion of loose chairs and tables. Ideal for industry, schools, hospitals and institutions.

WRITE TODAY For NEW Catalog!

Illustrates complete line together with outstanding installation photos and complete engineering specifications. Sent free of charge.

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THE CHICAGO HARDWARE FOUNDRY CO.
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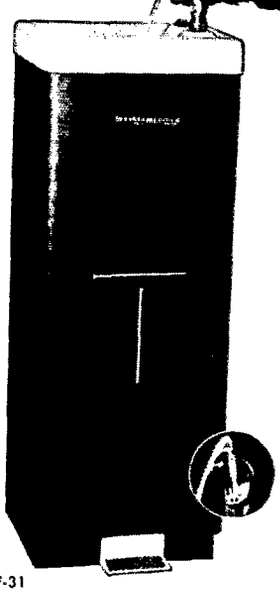
COOLER FOUNTAIN NEWS

VITREOUS CHINA TOPS NOW AVAILABLE

Popular 15-inch Line of Halsey Taylor Cooler Fountains now with Vitreous China Tops



Industrial users of Electric Coolers prefer the space-saving 15-inch size. Therefore, it's welcome news to know that Halsey Taylor now furnishes this popular size with Vitreous China Tops.

Gleaming vitreous china is always easy to keep clean, and—with the Halsey Taylor distinctive two-stream projector — these coolers are the most hygienic and health-safe you can buy.

See our catalog in Sweet's or write!

Stainless Steel Tops Also Available in 15-inch Cabinets or Cafeteria Models

THE HALSEY W. TAYLOR CO., Warren, Ohio

Halsey Taylor
COOLER FOUNTAINS

F-31

Accidents in 1953

Preliminary estimates show 1,000 fewer fatalities. Home deaths down; other classifications practically unchanged

THERE WERE approximately 15,000 deaths from work accidents in 1953, no change from 1952. However, both increases and decreases were recorded for individual industries.

Reductions of 100 were recorded for the mining and quarrying, and trade industries. The construction and service industries each had 100 more deaths than in 1952. Manufacturing, agriculture, transportation, and public utilities had the same number of fatalities as in the previous year.

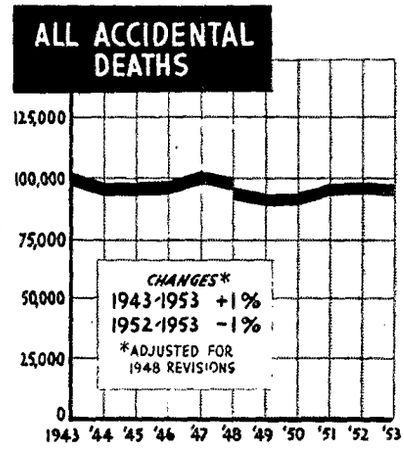
Nonfatal injuries also totaled the same as in 1952—2,000,000. Permanent impairments numbered about 85,000 each year.

Employment in all industries during 1953 was about 1 per cent greater than in 1952. In manufacturing alone, employment rose 5 per cent.

Accident rates cannot be computed at this time on a national basis, but preliminary information indicates that the all-industry frequency rate probably was unchanged from 1952. Nonfatal injuries, as noted above, numbered the same both years. The number of workers rose slightly, but average hours worked decreased a little.

Accident Costs

Wage loss, medical expense, and the overhead cost of insurance for work accidents in 1953 amounted to about $1,500,000,000. The so-called "indirect" costs also amounted to about $1,500,000,000, including such items as time lost by workers other than the injured, interference with production schedules, property damage, and partial disability due to



accidents which did not result in lost time. Total costs thus were about $3,000,000,000.

Off-The-Job Accidents

In addition to work accidents, the nation's productive capacity was lowered by off-the-job accidents to workers. The 1953 death toll from these accidents was approximately 34,000 and the injury total about 2,600,000. Accidents to workers, on and off the job, thus totaled 49,000 deaths and 4,600,000 injuries. The time lost during the year from these accidents, and from less serious injuries and indirect losses, amounted to approximately 315,000,000 mandays.

Industrial Commission Records

Deaths reported to Industrial Commissions in 22 states during 1953 totaled 7,196, only 31 fewer than were reported in 1952. Increases of 1 to 23 per cent were recorded in 8 states, and decreases of 1 to 32 per cent in 12 states. Two states reported no change from 1952.

	1953	1952	Per Cent Change
Totals for 22 states	7,196	7,227	0
Alabama	93	119	—12
Arizona	89	91	— 2
California	1,074	1,130	— 5
Connecticut	63	65	— 3
Florida	163	160	+ 2
Georgia	162	132	+23
Idaho	66	89	—26
Illinois (11 Mos.)	335	334	0
Kentucky	80	117	—32
Massachusetts	561	473	+19
Missouri	69	101	—32
Nebraska	74	82	—10
New York	1,716	1,679	+ 2
North Carolina	130	131	— 1
Oregon	128	155	—17
Pennsylvania	862	320	+ 5
South Carolina	93	80	+16
Texas	615	591	+ 4
Virginia	235	233	+ 1
Washington	206	205	0
West Virginia	242	305	—21
Wisconsin (10 mos.)	140	135	+ 4

Railroad Accidents

Deaths of railroad employees on duty, except those occurring more than 24 hours after the injury, numbered 225 in the first nine months of 1953, a decrease of 13 per cent from 1952. Injuries with more than three days' disability numbered 14,727, or 2 per cent fewer than in 1952.

Coal Mine Accidents

Deaths in coal mine accidents during the first 11 months of 1953 totaled 427, or 14 per cent less than in the same months of 1952, according to a preliminary report of the U. S. Bureal of Mines. This is the lowest 11-month death total on record. Incomplete information indicates that falls of roof or face continued to be the outstanding type of accident, followed by haulage accidents.

Fire Loss

The 1953 value of property destroyed by fire was $925,000,000, according to the National Board of Fire Underwriters. This was 17 per cent more than the comparable 1952 total. In 1952, more than half the loss from building fires was in industrial and business establishments.

THE NATIONAL ACCIDENT FATALITY TOLL

	1953	1952	Per Cent Change
All Accidents	95,000	96,000	— 1
Motor-vehicle	38,300	38,000	+ 1
Public non-motor-vehicle	17,000	17,000	0
Home	28,000	29,000	— 3
Work	15,000	15,000	0

Note: The motor-vehicle totals include some deaths also included in the work and home totals. This duplication amounted to about 3,300 deaths in 1953 and 3,000 in 1952. All figures are National Safety Council estimates.

Working Women

WOMEN workers in America today, according to the Bureau of the Census, reach the surprising total of 19,000,000 — approximately 30 per cent of all workers.

Two thirds of employed women are found in domestic and personal services and in the manufacturing and trade groups. Except for a few prohibited occupations they can do practically any work that a man can do, although their employment at some occupations is not desirable.

During World War II women served as welders, riveters, truck drivers, lathe operators, blast furnace topmen, and in other occupations previously considered unsuitable for female workers.

Experience has shown women are exceptionally proficient at the following types of work:

1. Work requiring care, patience, alertness, good eyesight, and use of light instruments.
2. Work requiring manipulative dexterity and speed. They prefer jobs which permit the individual to set her own tempo and to work in a sitting position.
3. Work requiring skill but not too much strength, either in handling parts or setting up machines.

Placement Pointers

Ten pointers for successful placement of women workers are offered by the Women's Bureau of the U. S. Department of Labor:

1. Sell the idea of women workers to present staff, foremen and men workers, if they are not already accustomed to women on the job.
2. Survey jobs to decide which are suitable for women.
3. Adapt jobs to fit smaller frames and lesser physical strength of women. (Generally about 60 per cent the strength of men.)
4. Provide service facilities in the plant to accommodate the anticipated number of women.
5. If the number of women employed justifies it, appoint a woman personnel director and the head of a woman counselor system.
6. Select women carefully and for specific jobs.
7. Develop a program for induction and training.
8. Maintain good working conditions.
9. Supervise intelligently.
10. Give women equal opportunity with men.

Accident frequency and severity rates are generally lower among women than among men employees although the difference may be due in part to the fact that jobs on which women are employed are generally less hazardous. Most states have enacted legislation regulating working conditions for women.

These regulations place restrictions on weight lifting, night work, employment in certain occupations, industrial homework, and employment immediately before and after childbirth.

Provisions found in some state laws cover maximum daily and weekly hours, days of rest, meal periods, rest periods and seating. Recommended standards for maintaining health and efficiency have been published by the U. S. Women's Bureau.

Many women in industry suffer disabling injuries and more women are injured in machinery accidents than in any other way. This may be due in part to the physical differences in men and women. These differences are not always taken into account when operations are set up and guards are adjusted for the latter. Frequent injuries occur in connection with punch presses, power cutting, and sewing and knitting machines.

When women are placed in machine jobs ordinarily done by men, it is important that adjustments be made at all points of operation. Guards should be set close enough that women's smaller hands cannot enter the openings. Height of benches, distances away from piece parts, and foot pedals or hand controls should be reset to conform to the generally shorter stature and reach of women.

Injuries sometimes result because personal protective equipment for women is neglected. Women require the same safety features in protective clothing and equipment as men, but greater attention to appearance is important, as many women will resist the use of garments that are unnecessarily ugly.

Although this may seem merely a feminine foible, thoughtful safety men have capitalized on vanity as a means of promoting the safety program. Suppliers recognize this and offer safety clothing and equipment styled so it will be acceptable to women.

Work clothing for women should be comfortable and appropriate to the job and, wherever possible, should be attractive—again for psychological reasons. Suitable dresses, uniforms and smocks are available and, where skirts are a hazard, slacks and coveralls are used.

Women's work shoes should conform to standards that apply to men —adequate in weight, comfortable and well-fitting—and should be equipped with safety toes where hazards so indicate. High heels should be discouraged, since women usually are more susceptible to falls than men.

Feminine Foibles

Two hazards peculiar to women are to be considered where moving machinery is involved—the wearing of jewelry, and loose, flowing hair. These are overcome by the use of hair nets or caps, and by establishing a rule that no jewelry can be worn on the job.

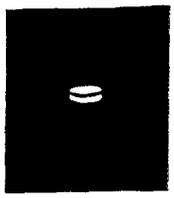
Stature and strength of women must be considered when jobs are assigned and work operations are laid out.

Particular attention should be paid to lifting. Women should be trained in proper lifting methods, just as men workers are, and their limitations must be remembered. The Women's Bureau reports that a gun factory, after thorough tests in an excellent job analysis, set the weight limit at 18 pounds in repeated operations, with a top limit of 35 pounds for occasional lifting.

Many changes in work operations to prevent fatigue for women workers have proved doubly profitable because of increased efficiency. Redesigning job methods to permit sitting in a rubber products plant operation enabled 16 girls to do the work formerly done by 20. An aircraft plant suspended an air-operated wrench, too heavy for a woman to lift, and she found she could then operate two simultaneously, instead of one handled previously by a man.

Sanitary facilities are important

—*To page 78*



a little thing like a salt tablet* can prevent a big thing like accidents

It's an established fact that as the heat curve goes up, so does the accident rate. Salt sweated out must be replaced, or else your workers become easy victims of *heat fatigue*. When this happens, carelessness results and costly accidents can occur.

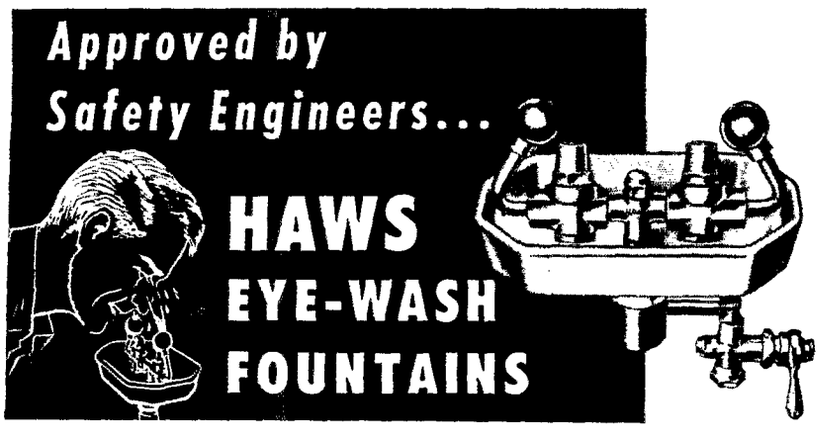
***Morton Yellow Impregnated Salt Tablets** combat this safety threat easily, safely and inexpensively. Their controlled action gives *immediate* relief *without causing nausea,* as each salt crystal is thoroughly impregnated by a special patented process that controls the tablet's rate of dissolving. In this way, salt is replaced *immediately,* but at a *gradual* rate.

Morton Patented Impregnated Salt Tablets are included in a new Disposable Dispenser. A plastic and a heavy-duty aluminum dispenser are also available, as are plain salt tablets.

If your local safety equipment distributor cannot supply you, write:

MORTON SALT COMPANY
Dept. N-A13, 120 So. La Salle St.
Chicago 3, Illinois

Approved by Safety Engineers...



HAWS EYE-WASH FOUNTAINS

• • • offer a way to more adequately protect employees' eyesight and avoid costly insurance claims... by providing a *safe* method for workers to flush injurious chemicals and particles from their own eyes *immediately*—before greater damage can be done!

And, wherever there is danger of workers' hands, face or clothing being contaminated by acids or caustic chemicals—install HAWS Emergency Drench Shower Equipment.

Cost is negligible. Ask your plumbing contractor, or write *today* for complete information.

HAWS

HAWS DRINKING FAUCET CO.
1439 FOURTH STREET • BERKELEY 10, CALIFORNIA

Washrooms and Lockers

—*From page 56*

Exposure to toxic substances calls for extra precautions to prevent dangerous materials being carried away on clothing. Separate lockers prevent contact between street and work clothes. They should preferably be in separate rooms with shower stalls between them.

In such plants supervised washup periods and shower baths are important safeguards.

Sloping tops prevent their use for storage. Dust is conspicuous and easier to remove than with flat-topped lockers.

Built-in lockers extending to the ceiling avoid dust-catching surfaces.

Lockers should be at least four inches off the floor to permit flushing the floor without wetting the contents of the lockers.

Forced ventilation supplied through perforations in the bottom of the lockers or through louvers in the doors is helpful in removing odors. If the work is heavy or wet, circulation or heated air through the lockers is desirable.

Lockers in which oil-soaked clothing, waste, or newspapers are kept create a serious fire hazard. Lockers should have solid, fire-resisting sides and backs, but doors should have louvers for ventilation. Employees should not be permitted to leave clothing or rags saturated with oil or paint in lockers. Locker rooms should be fire-resistant, separated by fire walls from the main building.

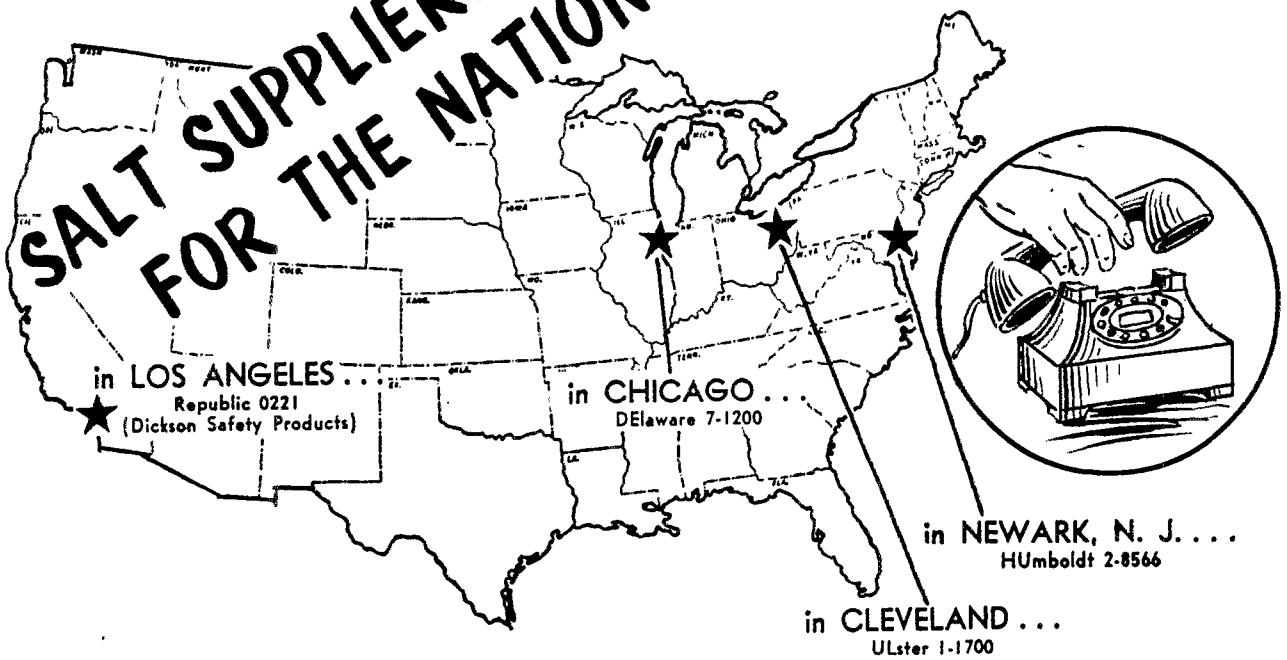
Baskets and hangers on elevating chains are used instead of lockers in some industries, such as mines and foundries. Damp work clothing can be dried out between shifts and the drying is often hastened by steam coils at the ceiling. Such an arrangement conserves floor space.

Rest Rooms

A rest room should be provided in all establishments where 10 or more women are employed. Where there are fewer women and a separate room is not available, suitable space, properly screened, should be provided.

For 10 women, minimum space is 60 square feet, with at least 2 square feet for each additional woman employee. For less than 100 women at least one bed or couch should be provided; for 100 or 250 workers, 2 beds, and 1 bed for each additional 250 workers.

SALT SUPPLIERS FOR THE NATION



CLEAR PLASTIC

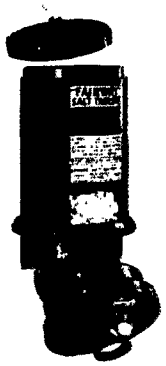
The attractive, sanitary, low-cost dispenser that has captured the fancy of industrial buyers and men-in-the shop . . . the Fairway "Crystal" dispenser. Tablets are sealed in at our plant . . . and there is no re-filling . . . no servicing! Cost of the "Crystal" is so low, the dispenser is discarded when empty. Available in 500 or 1,000 tablet size.

Write today for information on the "Crystal" dispenser.

ALL-METAL

Guaranteed five years against mechanical failure, StaSafe metal dispensers are rugged . . . sanitary . . . and easy to operate. Made of corrosive-resistant alloy, they are designed for the heavy demands of busy plants. They come equipped with lock and key.

Write in today for information on StaSafe "Midget" (600 tablet cap.) and "Junior" (1,500 tablet cap.) dispensers.



OPAQUE PLASTIC

Fairway moisture, dust and corrosion resistant dispensers minimize the danger of contamination.

Quick-Lock-Top makes re-filling a pleasure . . . in just seconds a new supply of tablets is ready for use. No wasted time . . . no stoppage in the supply of salt when it's needed the most.

Write in today for information on Fairway "Midget" (350 tablet cap.) and Fairway "Junior" (1,500 tablet cap.) dispensers.

FAIRWAY SALT TABLETS

Fairway Enteric Coated salt tablets meet all rigid government specifications!

This coating prevents the tablet from dissolving prematurely and causing the all-too-familiar sickness and ill effects suffered by many.

Enteric coated salt tablets are available in pure salt or combination tablets containing salt and dextrose.

Write in today for price list and bulletin on all Fairway salt tablets.

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2952 CRENSHAW BLVD.

Wire from Washington

By HARRY N. ROSENFIELD
Washington Counsel, National Safety Council

SAFETY on the nation's highways and airways seems to have had special interest for the members of Congress during the early weeks of the Second Session of the 83rd Congress.

Highways

The basic legislative fact confronting Congress in connection with highways is that under present law the Federal excise tax on gasoline falls back from its present rate of 2c to 1½c, on April 1, 1954. The President, in his State of the Union Message and in his Budget Message, recommended that this gasoline excise tax, among others, "be continued at present rates, so that maximum progress can be made to overcome present inadequacies in the interstate highway system" and in order "that an expanded highway program can be undertaken."

Another factor of some importance is the report which is due by March 1, 1954 from the Commission on Inter-Governmental Relations set up by Congress. The President revealed, in his State of the Union Message, that this Commission is likely to make recommendations on the financing of highway construction as one of the major items in its study of Federal aid to the states.

In the Congress itself, bills have already been introduced in this general area. H.R. 7179 (Dondero) would continue in effect the taxes on gasoline and diesel fuel at the present rate of 2c per gallon.

Another and supplementary approach is represented by four bills concerning the amount of Federal grants to states for highway construction. H.R. 7124 (Mack) and H.R. 7207 (Scudder) would authorize an increase of 50 per cent in Federal highway grants. This would mean an increase of $287,500,000. The sponsor's stated purpose of the bill is to implement the President's recommendation to retain the excise tax on gasoline at 2c, by preventing the diversion of gas-tax revenues to non-highway purposes. H.R. 7678 (Watts) would increase Federal highway grants by $250,000,000 annually for two years.

In the Senate, Senator Case, Chairman of the Senate Public Works subcommittee on roads, introduced S. 2859, to increase Federal aid for highways to slightly more than one billion dollars a year for two years, an increase of $188,000,000 annually. This bill would also make administrative funds available to the Bureau of Public Roads for safety engineering. It also would authorize the Commissioner of Public Roads to assist in carrying out "the action program of the President's Highway Safety Conference and to cooperate with State highway departments and other agencies in this program to advance the cause of safety on the streets and highways."

Motor Vehicles

Several regulatory bills were introduced. H.R. 7287 (Cole) would forbid the use or shipment in interstate commerce of motor vehicles intended for highways, unless such vehicles were equipped with speed governors limiting the speed to 65 miles per hour.

H.R. 7468 (Bennett), H.R. 7471 (Cederberg) and H.R. 7513 (Bentley) would amend the Interstate Commerce Act to authorize the regulation, for purposes of safety, of motor carrier transportation between points in foreign countries, insofar as such transportation takes place within the United States.

Marine Safety

S. 2818 (Bricker) deals with the biennial inspection of hulls and boilers of cargo vessels, and H.R. 7066 (Ray) provides for additional safeguards to assure the safety of persons carried for hire on motorboats not exceeding 65 feet in length.

Industry

H.R. 7553 (Elliott) would set up a Commission on the Coal Industry, composed of 13 members, to investigate "the conditions and problems of the coal industry," and to report to the President and the Congress, within one year, its recommendations for "a healthy and progressive coal industry." The Commission would be specifically authorized to study "the existing and prospective employment conditions of coal miners, including . . . safety factors."

Congressional Investigations

The Senate has passed S. Res. 173 making $115,000 available to the Senate Committee on Interstate and Foreign Commerce "to make a full and complete study and investigation" of, among other matters, civil aeronautics, domestic surface transportation and maritime matters. Committee plans for this study have not yet been released.

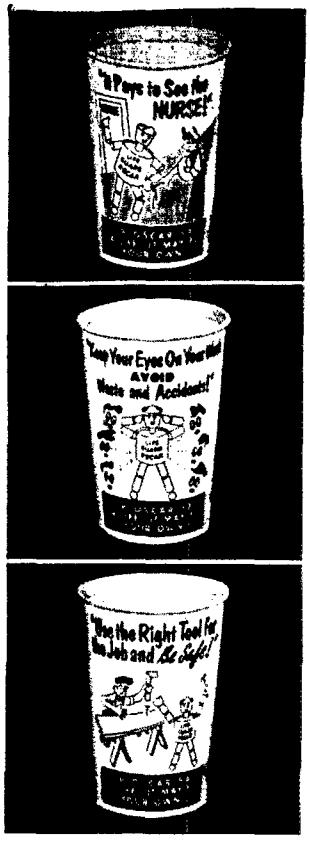
Airplanes

Legislative attention seems to have been focused on reorganization of Federal agencies in this field. S. 2647 (McCarran) is a 177-page bill completely redrafting the Civil Aeronautics Act of 1938. It would create an independent Civil Aeronautics Authority of seven members appointed by the President, with Senate confirmation, and also an independent Air Safety Board of five members, also appointed by the President, with Senate confirmation. This bill is more extensive than the earlier S. 8 introduced by the same sponsor. The Committee on Interstate and Foreign Commerce announced that the first of public hearings on S. 2647 will be held on March 1. On the floor of the Senate, this same Senator protested the abolition of the position of Aviation Safety Division Chief in the CAA.

H.R. 6895 (Hinshaw) would abolish the Civil Aeronautics Board and substitute for it a Civil Aeronautics Commission of five members, to be independent of the Secretary of Commerce. It would also abolish the position of Administrator of Civil Aeronautics and substitute in its place an Undersecretary of Commerce for Air Services, who would have responsibility, subject to the Secretary of Commerce, for all the functions and duties of the Secretary relating to aeronautics, air commerce, airports and navigational aids.

The Civil Aeronautics Board's Draft Release 53-25, indicates its proposal to amend the Civil Air Regulations by making it mandatory to install by September 30, 1954, high intensity, anti-collision lights on all aircraft weighing more than 12,500 pounds, and requiring the use of such lights from sunset to sunrise. The Board feels this precaution would "contribute materially to the safety of night operations."

The CAB invited comments on



How to put SAFETY on every worker's lips

You can't repeat your safety messages too often. And a good way to get in several extra licks a day is to use Continental's Safety Slogan hot drink cups. Each attractive cup delivers two practical safety messages that are brief, right to the point, and not a bit preachy. And these messages reach your worker at snack or meal times when he is relaxed and friendly.

QUICK DATA: Safety slogan cups are available in 6-, 8-, and 12-oz. sizes. Made of virgin pulp with double-wrapped sidewalls that won't leak... keep hot liquids really hot. Series of three cups (two messages to each cup) packed in rotation for variety.

Safety engineers from many plants where Safety Slogan cups are regularly used tell us these little messages from "Oscar the Life-Guard" are particularly acceptable to workers.

They can help you put your points across too. Ask your paper jobber for full details or write Continental today.

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SAVE 85%*
Of Needless Washroom Expense

NEW, FASTER DRYING
Sani-Dri
Provides CLEAN, SANITARY SERVICE

*No Towel Costs ...Less Maintenance

Save up to 85% of washroom costs with new, faster drying Sani-Dri hand and hair dryers. No buying and storing of paper towels . . . no monthly service fee for cloth towels. Sani-Dri reduces maintenance overhead and provides 24-hour, automatic drying without mess and clutter. Washrooms are more sanitary with no towel waste and no fire hazard. All Sani-Dri models carry the Underwriter's seal of approval and **full 2 year guarantee!**

Only Sani-Dri—The Original Electric Dryer, Offers So Many Exclusive Features!

No other dryer offers all the advantages of Sani-Dri. No other dryer gives you as complete a line of models to choose from for your particular washroom requirements.

HERE'S PROOF You, too, Can Save with Sani-Dri!

WRITE TODAY FOR NEW ILLUSTRATED FOLDER!

Manufactured and Guaranteed By
THE CHICAGO HARDWARE FOUNDRY CO.
"Dependable Since 1897"
1034 Commonwealth Avenue, No. Chicago, Ill.

these proposed amendments, and received them from nine manufacturers, airlines or associations. These comments ranged from approval to disapproval. Some comments suggested deferment of the effective date in order, among other reasons, to enable further work on problems of design and installation of satisfactory lights. The Board has the matter under consideration.

Government Reorganization of Safety Functions

Reorganization of the structure and functions of the Federal Government is under study by several official commissions established by the Congress or the Executive branch of the government.

One unofficial report recently issued on this general subject devoted a good deal of attention to the organization of safety functions within the Federal establishment. The Temple University Survey of Federal Reorganization was organized, and privately financed, in order to bring the first Hoover Commission report up to date "and to prepare guidelines for continued reorganization in the new Administration." It was set up as a bridge between the first Hoover Commission on government reorganization, which operated under the Truman administration, and the present Hoover Commission On Organization of the Executive Branch of the Government, which is operating under the present administration.

The Temple University Survey made a series of recommendations which would affect federal agencies involved in one way or another with safety:

1. *Air Safety:* The Survey recommends that all functions relating to air safety should be transferred from the Civil Aeronautics Board to the Civil Aeronautics Administration, except that the Board should retain responsibility for the investigation of major aircraft accidents, and that the Board should be authorized, in an appeals procedure, to review the CAA's actions in connection with air safety rules. The Survey's rationale for this recommendation is as follows: "There is considerable confusion in the orderly process of safety regulation and investigation which this change would probably cure and at least improve."

2. *Motor and Railroad Safety:* The Survey recommends transfer of motor carrier safety functions and railroad safety from the Interstate Commerce Commission to the Department of Commerce. Its justification for this proposal is that these functions "are essentially executive, not regulatory . . . (and) not suitably performed by the board type of organization." The survey suggests that "motor carrier functions [of the Interstate Commerce Commission] be tied into related activities of the Bureau of Public Roads [of the Department of Commerce]. Closer liaison with state highway and vehicular bodies would also be possible."

3. *Industrial Safety:* The Survey recommends (a) transfer of the Division of Industrial Hygiene from the Public Health Service to the Department of Labor; (b) consolidation into one bureau within the Labor Department of three presently separate bureaus, the Bureau of Labor Standards, the Women's Bureau and the Bureau of Apprenticeship; and (c) creation within the Department of the Interior of a Minerals Service, which would consolidate and abolish the separate identities of six present bureaus including the Bureau of Mines.

4. *Federal Transportation Services:* The Survey recommends the creation of a unit called the Federal Transportation Services in the Department of Commerce, under the jurisdiction of an Under Secretary for Transportation. This new unit would include the CAA, the Bureau of Public Roads, the Maritime Administration and Maritime Board, the Coast Guard, the National Advisory Committee for Aeronautics, the Office of Transportation and the Defense Air Transportation Administration.

At the request of President Eisenhower, the Temple University Survey report was submitted to the President's Advisory Committee on Government Organization. Although privately organized, the Survey's recommendations may therefore have more than unofficial status.

Working Women

—*From page 73*

to the morale of women workers. Properly equipped rest rooms, toilets and showers are necessary to their comfort and health, and of course, mirrors must not be overlooked.

Work and Pregnancy

With many married women at work, the effect of work on pregnancy is receiving much consideration. The problem also involves questions of social adjustment. Individual cases may need specific advice and treatment.

In general, it is not considered desirable to employ women in occupations that involve heavy lifting and other strenuous work, or continuous standing or moving about. Occupations involving exposure to toxic materials are also considered extra hazardous during pregnancy. Work with serious injury hazards to others that require a good sense of body balance should be avoided. Pregnant women should have opportunity for prenatal care and sufficient rest before and after delivery.

Have you any HOT FOODS to move today!

PORTABLE
AERVOID
REG. U. S. PAT. OFF.
Vacuum Insulated
HOT FOOD, SOUP and COFFEE CARRIERS
BEGIN WHERE COOKING KETTLES AND COFFEE URNS LEAVE OFF

When you have hot foods, hot soup, hot coffee to be serviced a distance from your kitchens . . . THAT'S WHERE PORTABLE AerVoiD VACUUM INSULATED HOT FOOD AND LIQUID CARRIERS COME IN.

AerVoiDs begin where cooking kettles and coffee urns, leave off. They provide a means by which the output of stationary cooking equipment can readily be transported and serviced at points distant from your kitchens . . . expediting service, saving time, money, labor.

AerVoiDs cost but a fraction of the cost of urns, steam tables, cooking kettles. Made of stainless steel, sanitary, high vacuum insulation (exclusive with AerVoiDs) that insures thermal efficiency to keep foods hot for servicing even miles from a central kitchen and with high retention of all the essential food elements and flavors as demonstrated by laboratory tests.

Not being anchored to one location, portable AerVoiDs open up immense new possibilities in expediting mass feeding. The only "complete line" of portable hot food servicing equipment on the market . . . sizes and types to feed thousands or just a few.

Experienced mass feeding consultants to help you without cost.

Write for illustrated price list N-54 Compare. See how much less portable AerVoiDs cost . . . how much you can save.

VACUUM CAN COMPANY
19 SOUTH HOYNE AVENUE
CHICAGO 12, ILLINOIS

Work Furniture

WELL-DESIGNED work furniture prevents much unnecessary fatigue. Work surfaces should be of correct height. Chairs should be adjusted to the needs of the individual.

Alternate periods of sitting and standing at work reduce fatigue. Since this is not always practicable, furniture should be planned for maximum comfort and efficiency.

Work benches. Height of work surfaces, such as benches, machines, tables and assembly lines is determined by whether the workers sit or stand. Another factor is whether hands or eyes are more important to the operation.

Tilted or recessed tables facilitate some types of work.

Seating. Height relationship between seat and work is important. Workers differ quite widely in height and proportions and seat height should be adjusted accordingly.

Following are essential qualities for factory chairs:

1. Is it comfortable?
2. Is it safe?
3. Is it easily adjustable?
4. Is it economical to maintain?

A chair should provide back support. Without it the worker uses much energy just sitting erect. The back rest supports the back between the lower ribs and the hips.

A deep form-fitting seat, of the tractor, bucket, or western saddle type, is better than one that is flat

Hand-propelled rotary magnetic sweeper removes small particles of iron and steel from floors. (Eriez Manufacturing Co.)

EYE WASHING FOUNTAIN

SAVE EYES!

Leading industrial doctors advise immediate washing with plenty of running water as the best first aid treatment for any chemical in the eyes. Records prove that washing with water for ten minutes or more, close to the accident, is necessary to reduce or eliminate eye damage.

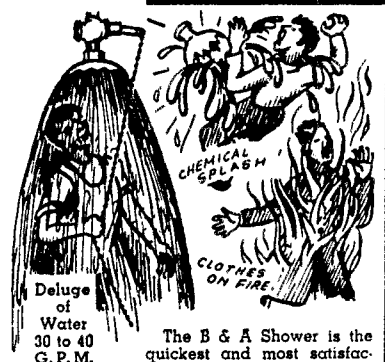
Forehead operation leaves hands free to open eyelids so water can be directed wherever chemicals might be lodged. Sanitary white baked enamel bowl is resistant to most fumes.

Over 500 industrial plant installations have been made to date.

Write For Details.

VALVE
Chain Operated
Quick Action
Self-Closing

NEW EMERGENCY SHOWER



The B & A Shower is the quickest and most satisfactory way to saturate a worker with gallons of water the instant an accident occurs, to prevent a disfiguring burn—even a fatality.

Special shower head, no holes to clog—can be used where unfiltered water prevails.

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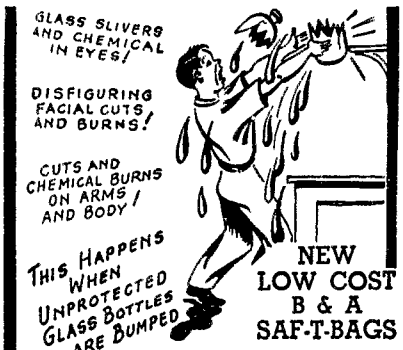


NEW LOW COST B & A SAF-T-BAGS

5 PINT
1 GALLON
5 GALLON

are widely used for the safe handling of glass bottles containing harmful chemicals; also the storage and recovery of expensive serums, biologicals, and other costly products.

Painful cuts, disfiguring burns, loss of eyesight, or even a fatality, do result from corrosive liquid splash and flying glass when unprotected bottles shatter.

Write For Details.

BENSON & ASSOCIATES, INC.
P. O. Box 7542, Dept. N.S., Chicago 80, Ill.

or slightly curved. The seat should not touch the tendons and blood vessels on the back of the leg just above the knee.

Too soft a seat is not desirable. Contour is more important than upholstery.

Edges and corners should be rounded to avoid damage to clothing or injury to persons.

Foot rungs shorter than the foot spread of the chair lessens possibility of tipping, particularly on the higher chairs.

A posture chair must be adjusted to the individual's need or most of its benefits will be lost. The user should also be taught to sit properly.

Fire Protection for Windowless Plants

Plants without exterior windows introduce new problems in fire fighting. These are more complicated in multi-story buildings with combustible floors and roofs.

Lack of access and delay in use of hose streams from outdoor hydrants may hamper extinguishment when there are no windows. Another difficulty is lack of ready means of smoke ventilation.

Automatic sprinklers would extinguish an ordinary fire as in any other building. But, if the fire is shielded, or if sprinklers happen to be shut off, serious consequences are likely.

Continuing liberation of heat and smoke make it difficult to locate and attack a fire. This is further complicated when the lighting system is put out of service. If the fire reaches the stage where the building cannot be entered, and if the building has combustible floors and roof, destruction is almost certain.

Air-conditioning equipment should be arranged so that it can be used for smoke ventilation in case of fire. This is contrary to recommended practice for buildings of conventional construction, where air-conditioning fans are shut down at the start of a fire, and the area vented by opening doors and windows.

To ventilate by the air-conditioning system, it is necessary to provide: (a) louvers in outside walls which will open at low positive pressures; (b) fire dampers in return duct systems arranged for automatic closing by thermostats or photo-electric cells in case of fire. With such an arrangement and fans running, smoke will be forced out through the louvers.

Additional exits for personnel means of access for firemen and h streams may be necessary. Am standpipes for 2½-inch hose in st wells or just inside fire escape cess doors, and water-flow alar on all sprinkle risers should provided.

Fire brigades, both company an city, should be well drilled an should know what to expect fighting fires in windowless, air-conditioned areas. Their equipme should include smoke masks an portable lights.

Handling Chemicals

Acids, alkalis and other corrosive require a variety of specialized handling apparatus. Devices include buckets, dippers, funnels, pitchers, pumps and carboy inclinators.

Bags for carrying bottles of corrosive liquids lessen the risk of accidental breakage. The bag is of padded impermeable, acid-resistant material. Containers for bottles are available commercially.

Materials used for equipment include rubber, neoprene, stainless steel, and certain types of plastic. These materials are of many types which differ quite widely in resistance to corrosives.

the ECONOMICAL *solution to your smoking problem*

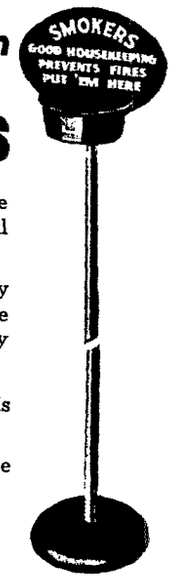
SIPCO DUNKING STATIONS

No matter what you are now using as industrial smokers to solve your plant smoking problem, SIPCO DUNKING STATIONS will do a better job—at less cost!

Why? Because SIPCO DUNKING STATIONS are specifically built from heavy, rust proof cast aluminum for hard industrial use —and abuse! They need not be replaced periodically because they will last a lifetime!

Cigars, cigarets, matches, etc. are doused immediately. There is no smoldering—no fire hazard.

SIPCO DUNKING STATIONS are the perfect solution—the economical solution to your plant smoking problem!



YOUR PLANT SHOULD CONSIDER THESE ADVANTAGES

- Sipco Dunking Stations are the safest industrial smokers made—were specifically designed for this purpose.
- Sipco Dunking Stations promote the cause of Good Housekeeping and neatness by providing employees with the first suitable industrial smoker.
- Sipco Dunking Stations reduce wasted time caused by "sneak smoking."
- Sipco Dunking Stations will fit in perfectly whether you permit smoking in restricted areas or over your entire plant.

Unit No. 1—Heavy cast aluminum canister, attractive metal sign, upright and heavy weighted base for use on floor aisles, etc.

Unit No. 2—Same as Unit No. 1, except without base and upright. For walls, columns, etc.

Unit No. 3—(Not Illustrated) Canister alone, with mounting bracket.

Write Now for Illustrated Folder Which Gives Complete Details!

STANDARD INDUSTRIAL PRODUCTS CO.

116 SOUTH GARFIELD AVE., DEPT. S, PEORIA, ILLINOIS

Eye Conservation

INDUSTRIAL operations expose eyes to a variety of hazards. Flying objects, splashes of corrosive liquids and molten metals, dusts, and harmful rays, are among the causes of eye injury.

Injuries to the eyes result in a high degree of disability and often disfigurement. Cost per injury from the standpoint of medical treatment and compensation is high, and total cost to employers and employees is heavy.

Some eye hazards can be controlled at the source by means of enclosed processes and shields on equipment. Many eye injuries, however, are caused by casual flying particles in occupations considered non-hazardous.

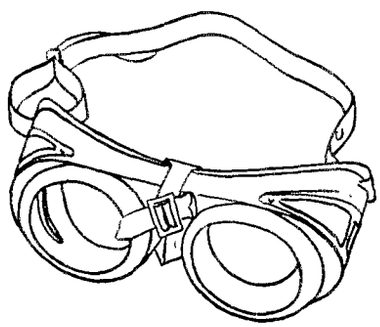
For this reason, some companies require eye protection for all employees and for visitors. Many of these companies have reported substantial savings through eyes saved. Few accident prevention activities have produced such measurable results as eye protection.

Better Vision

A complete program of eye conservation includes both protection against injury and correction of visual defects which reduce efficiency and increase liability to accident.

Visual surveys. For pre-employment examinations and periodic re-examinations there are devices which indicate the visual status of the individual. Manufacturers of this apparatus have prepared systems which use the data obtained from the tests in determining the fitness of the employee for various occupations.

These tests may be given by trained laymen. Their purpose is to detect visual defects, not to prescribe correction. Those needing corrective lenses are referred to refractionists (ophthalmologists or optometrists) to be fitted with glasses.



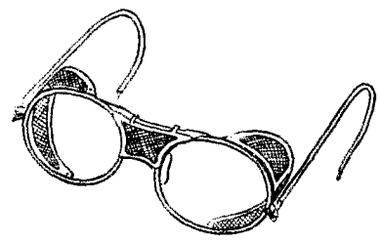
Cup type goggles for heavy duty.

In prescribing corrective lenses for safety goggles or for ordinary spectacles, the refractionist should be familiar with the job. It is particularly important to know the distance of the working level from the eye.

Corrective lenses. For visual defects, the wearer may have the correction ground in heat-treated lenses, or cover goggles may be worn over spectacles.

For most cases corrective goggles are preferable for optical reasons as well as convenience. Most prescriptions can be ground in protective glass.

Cover goggles are often preferred where a near-sighted person requires deep minus lenses. These would be excessively thick at the edges and too thin for adequate protection at the center. Cover goggles also have advantages where the correction is complicated and expensive lenses would be subject to pitting on the job.



Spectacle type goggles with sideshields.

Familiar types of cover goggles are the cup type with heat-treated glass lenses and the wide-vision type with plastic lenses.

Types of Protection

General types of protective equipment for eyes and face include:

1. Goggles (safety glasses)
2. Face shields
3. Welding masks and helmets
4. Acid hoods

These devices are available in many types for practically every occupation. The protective medium may be heat-treated glass, transparent plastic, wire screen, or light-filtering glass.

Heat-treated lenses in spectacle frames, or cup goggles offer basic protection. The nature of the job and its eye hazards determine the specifications.

Spectacle goggles are worn for light or moderately heavy work, such as grinding, machine work and assembling where working positions are not too close.

The frame must be rigid enough to hold the lenses in proper position in front of the eyes. The nose bridge should be adjustable, or goggles should be available in enough sizes to fit various faces.

Side shields of metal or plastic provide protection against light objects flying from the side. They should be used where operations are close together, or where employees work together on the same operation.

Cup goggles are used for heavy grinding, machining, chipping, riveting, work with molten metals, and similar operations.

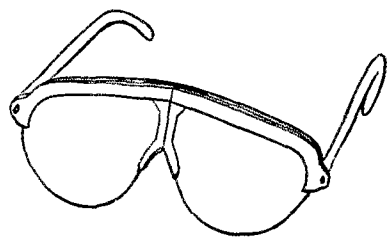
The cup should be wide enough to protect the eye socket and distribute the impact from any blow over a wide area. The cup should be flameproof, corrosion resisting, and nonirritating to the skin.

Mask-type goggles, with frames of soft vinyl or rubber, offer protection against splashes of corrosive chemicals and exposure to fine dust. This type is obtainable with lenses of heat-treated or untreated glass or acid-resistant plastic. Some types may be worn over spectacles. The ventilated types are less troubled by fogging.

Dust goggles, leather mask type, for non-corrosive dusts, are made with heat-treated, untreated or filter lenses. Wire screen ventilators around the eye cup provide air circulation.

Miners' goggles of corrosion-resisting wire screen are used for work underground and in other locations where fogging is a serious problem. The screen is coated a dull black to reduce reflection.

Plastic lenses have qualities of optical glass in light transmission and freedom from distortion. They are light in weight and resist fogging. They are useful for spotwelding, as molten metal does not adhere to plastic as readily as to glass. They withstand considerable impact but are marred or scratched more easily than glass.



Plastic spectacles for light duty.

—*To page 94*

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Protective Occupational (Safety) Clothing —L18-1944 Series.

Protective Occupational Footwear, Men's and Women's—Z41-1944 Series.

Identification of Gas Mask Canisters— K13.1-1950.

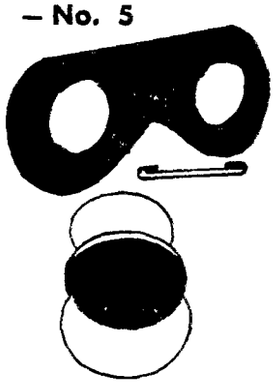
TYPES OF EXPOSURE (National Bureau of Standards Handbook H24)	TYPES OF PROTECTION									
	CUP GOGGLES	SPECTACLES	SIDE SHIELDS	PLASTIC EYE SHIELD	PLASTIC FACE SHIELD	WIRE SCREEN SHIELD	FILTER GOGGLES	RUBBER GOGGLES	HOODS	HELMETS
Heavy impact, large particles—Chipping, calking, some riveting operations, sledging in quarries.	X		X							
Moderate impact, protection from dust and small flying particles—Scaling and grinding metals, stone dressing where quartz is not involved, some woodworking operations.		X	X	X	X					
Metal sparks and spatter—Electric spot and butt welding where there is no exposure to excessive energy or excessive glare.			X	X	X					
Splashing metal—babbitting, pouring lead joints for pipes, casting hot metal, dipping in hot metal baths.	X			X	X	X				
Splashing liquids—Handling acids and caustics, dipping in galvanized tanks, some japanning operations.	X				X			X	X	
Reflected light and glare—Long exposure to light reflected from snow, water, roads, etc.; incidental glare from furnaces, working near acetylene welding, etc.	X	X	X				X			
Injurious radiant energy—moderate reduction in visible radiant energy—Oxyacetylene welding and cutting.	X									
Injurious radiant energy—Large reduction of visible radiant energy.										X

WATCHEMOKET STAC-VENT eye SAVERS

New! WELDING GOGGLES

Soft Vinyl Frame form-fits face for greater comfort, better protection.

MODEL 492 — No. 5



Illustrated is Model 492 with No. 5 Shade perfectly matched glass filter lenses. Lens Holder (right) is of heavy flexible opaque plastic with lens packets which hold lenses tight in perfect position for best vision. Lenses are easily removed and replaced. A Position Lock Bar secures lens holder in frame.

Eye-Savers perfectly matched lenses are Standard 50 mm Federal Specification Glass Filters available in shades No. 3, 4, 5 or 6. Hard plastic cover lenses .020" thick protect the glass filters and wearer inside and out. Outside cover lens is easily changed without disturbing the lenses.

The New Light-Tight STAC-VENT ventilation which drafts-off moist air from inside the goggle to eliminate fogging now permits adaptation of these modern, safer soft vinyl frame Eye Savers to welding applications.

SAFER because the soft vinyl form-fits comfortably to the contours of the face and nose — closing all gaps.

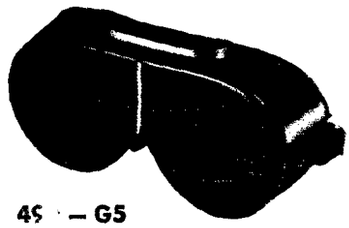
MORE COMFORTABLE because of light weight and soft fit next to the skin and because cover goggle design provides easier vision.

MORE FLEXIBLE because lenses are easily changed or replaced, because lens holder is easily replaced. And Stac-Vent Eye Savers are wide enough to fit over the largest prescription frames.

FOR STAND-BY PROTECTION IN ARC WELDING AREAS

MODEL 490 STAC-VENT

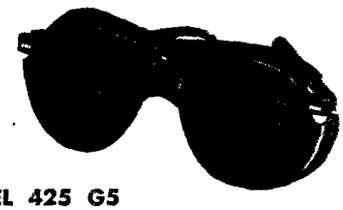
Opaque black, soft vinyl frame furnished with replaceable (interchangeable with lens holder) medium green (G3) or dark green (G5) methacrylate lens. These lenses are shatterproof, will not pit, and will resist heavy impact (.080" thick). Methacrylate Eye Saver lenses absorb sufficient ultra-violet rays to provide protection in welding areas, but not for direct arc welding. Also sufficient to provide full protection from the less intense glare of gas welding or cutting. Lightweight — comfortable — Low Cost Protection.



MODEL 49 — G5

MODEL 425 "VISOR-TUC"

Almost 100% protection in a light weight comfortable spectacle with over-eyes visor protection and semi-cup side shield protection. Furnished with medium green (G3) or dark green (G5) methacrylate lenses (same as above). Ideal for wearing under welding helmet and for working in welding areas. Replaceable lenses snap-in-out; available in clear and light green shatterproof methacrylate as well. Retrax temple telescopes to perfect fit and easy comfort. "Visor-Tucs" weigh slightly over an ounce.



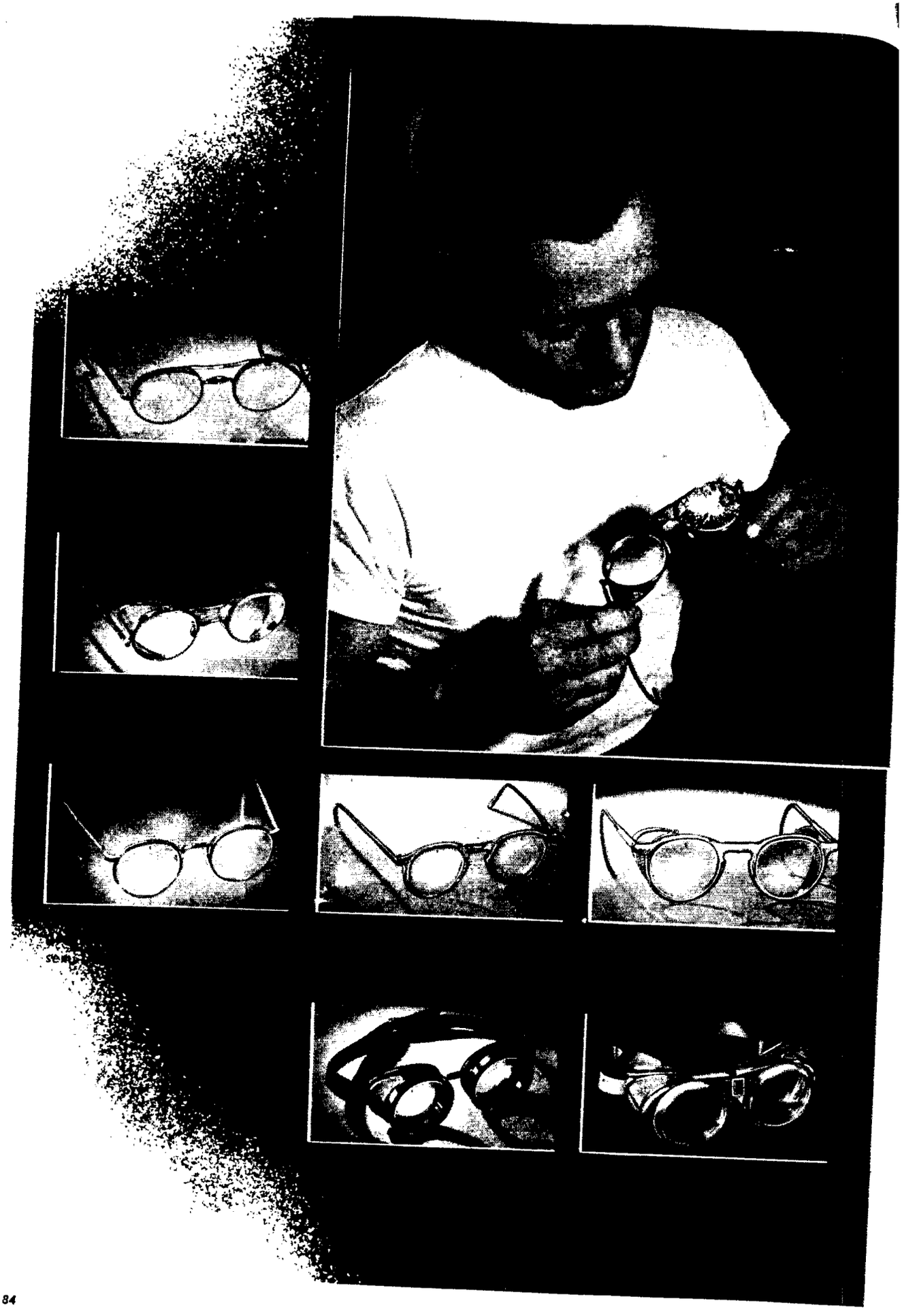
MODEL 425 G5

See Your Authorized Eye Savers Supplier, or write direct for full Information on the New MODEL 492 and other modern Eye Savers

Quality Eye Protective Equipment ***Made by the Leaders in Plastics***

WATCHEMOKET OPTICAL CO., INC.

234 West Exchange St., PROVIDENCE 3, R. I. ***In Canada: Levitt-Safety Limited, Toronto 10, Montreal 26***



It could have been his eye...

BAL-SAFE LENSES MAKE THE DIFFERENCE

Your foresight may save a man his eyesight.

The accident blow is sudden! Whether the result is an injured eye, or merely a cracked lens —it happens in a flash. Then the person responsible for eye safety is either *on the spot*—or to be congratulated.

Safety directors who specify Bausch & Lomb Bal-SAFE lenses rest assured they're providing the *most dependable eye protection available.*

Impact resistance to an extraordinary degree is built into Bal-SAFE lenses through a precision controlled heat treating process that radically changes and strengthens the glass structure. Every lens exceeds the U.S. Bureau of Standards requirements for impact resistance. Of finest quality ophthalmic glass, coming from the world-famous Bausch & Lomb Glass Plant, they're made to the same rigid specifications as regular ophthalmic lenses.

For workers who wear or need prescription glasses, professionally prescribed Bal-SAFE lenses ground to individual requirements increase safety, comfort and efficiency. Swift, accurate, dependable laboratory service is available in your area.

The Bausch & Lomb representative in your area will be glad to show you the complete line of Bausch & Lomb Safety Eyewear. Call him today, or write for catalog: Bausch & Lomb Optical Company, 90327 Smith Street, Rochester 2, N. Y.

BAUSCH & LOMB

SINCE B&L 1853

SAF-I-SPECTACLE
(Acetate frame)
SAF-I-SPECTACLE
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SAF-I-SHIELD
SAF-I-CHIPPER
GOGGLES
SAF-I-WELDERS
GOGGLES
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TUFFY
APRONS
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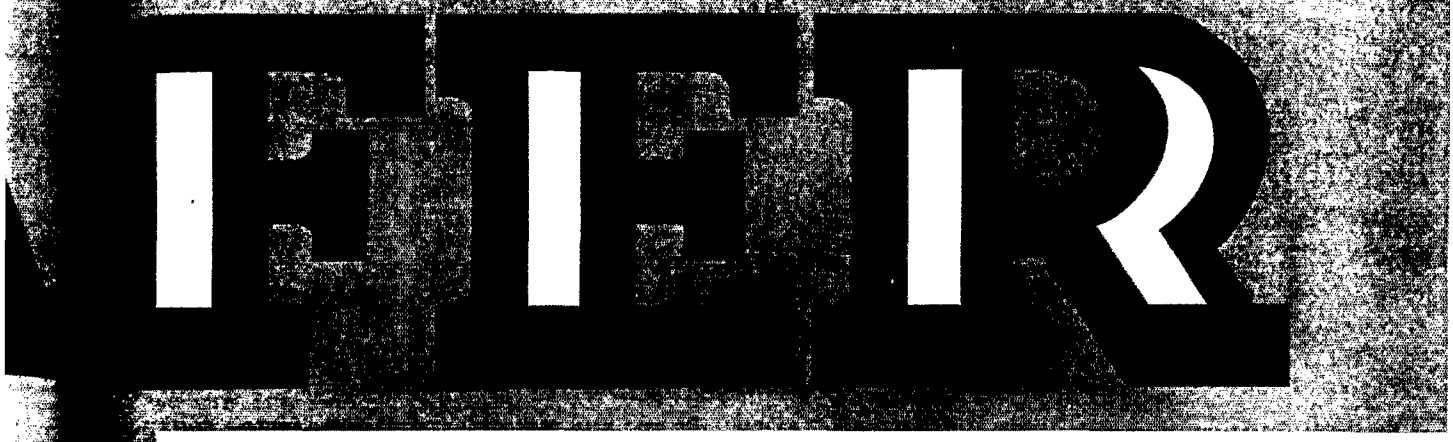
NOW! A Complete Line of Head and Eye Protection for Every Job!



Because Workers Wear Them!

There's one simple, practical reason why USSSCO equipment helps so many plants set safety records. That is because workers will wear USSSCO equipment!

Every USSSCO item is painstakingly designed, carefully manufactured and exhaustively tested to assure the most desirable combination in safety equipment . . . protection *plus* comfort.

Comfort is the key to safety because it guarantees worker acceptance. As a pioneer in the use of lightweight plastics, USSSCO has long demonstrated its understanding of this vital fact. Its continuous search for greater protection with greater comfort is your assurance that USSSCO will always be working for you to make safety work.

If you have any safety problems, solve them today by writing for complete information on USSSCO equipment, or contact your nearby USSSCO sales office listed in the classified section of your telephone directory.

Working for You to Make Safety Work

UNITED STATES SAFETY SERVICE CO.

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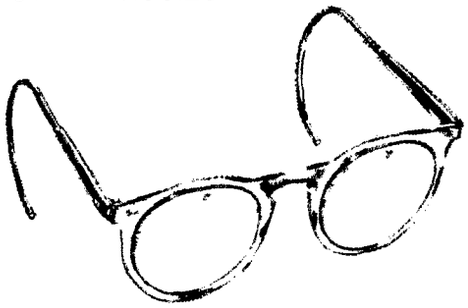
IN CANADA ... MONTREAL

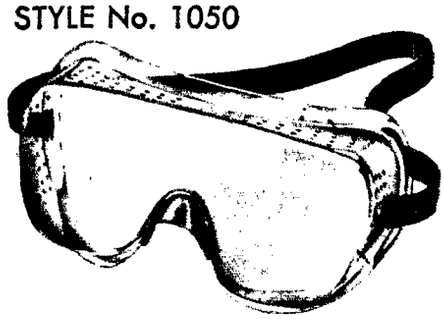
Welsh-Guard

Acetate Frame Spectacle Goggles
STYLE No. H20



Welsh-Guard

Featherweight Plastic Goggles
Clear and Green
STYLE No. 1050



LSH

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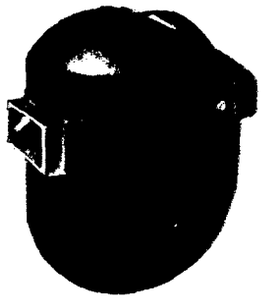
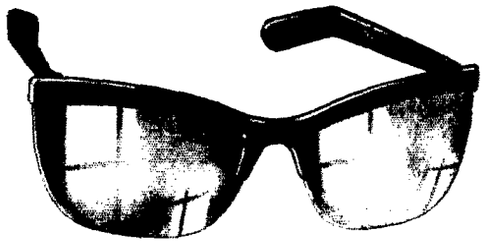


Welsh-Guard

Welders Fiberglass Helmet
STYLE No. 700-3-C



Welsh-Guard

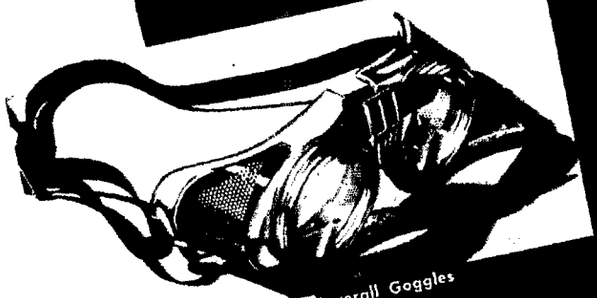
Featherweight Plastic Goggles
Clear and Green
STYLE No. 1060

with Welsh-Guards"

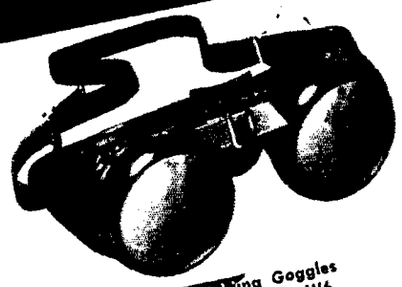
1925

WELSH MANUFACTURING COMPANY
11 Magnolia Street • Providence, R. I.

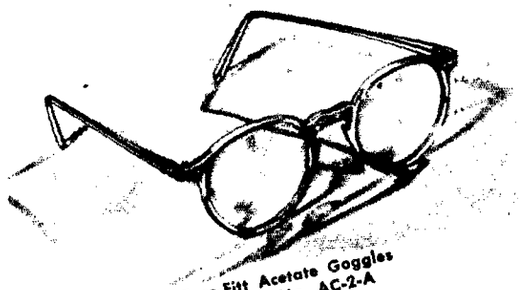
If it's a KIMBALL goggle— your eyes are SAFE!



Face-Fitt Molded Coverall Goggles
Catalog No. CTO-1-C

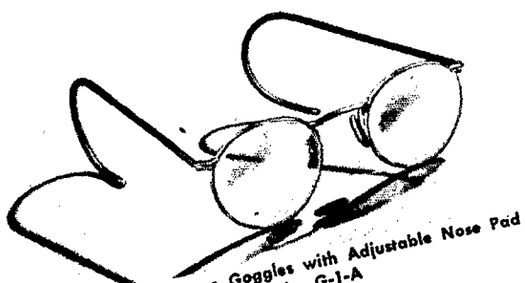


Coverall Welding Goggles
Catalog No. CWO-1-W6

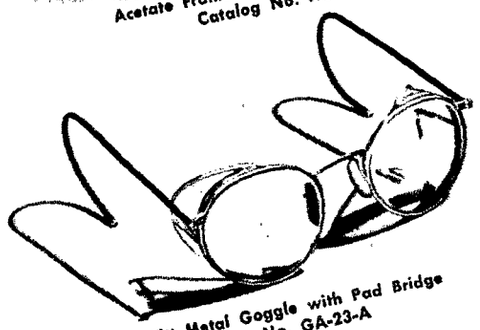


Face-Fitt Acetate Goggles
Catalog No. AC-2-A

Acetate Frame Goggle with Side Shields
Catalog No. AC-23-A



Face-Fitt Metal Frame Goggles with Adjustable Nose Pad
Catalog No. G-1-A



Face-Fitt Metal Goggle with Pad Bridge
Catalog No. GA-23-A

Look at your goggles — Do they have a Ks etched in the lens? If they do, you can go about your work secure in the knowledge that your eyes are getting the finest protection against industrial hazards that modern science can devise.

Other KIMBALL Safety Products

EYE PROTECTION: Spectacle Goggles, Welding Goggles, Composition Goggles, Sideshields.

HAND PROTECTION: GLOVES: Welder's, Asbestos, Steel Stitched. MITTENS: Welder's, Asbestos, Steel Stitched.

BODY PROTECTION: CLOTHING: Wool, Flame-Proofed Cotton. LEGGINS and SPATS: Leather, Asbestos, Flame-Proofed Cotton.

APRONS: Leather, Asbestos, Flame-Proofed Cotton.

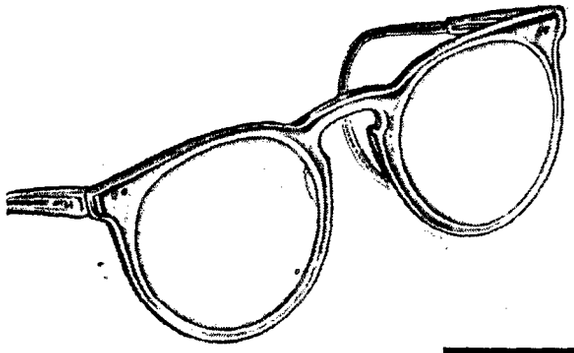
Kimball SAFETY PRODUCTS COMPANY

9310 Wade Park Avenue • Cleveland 6, Ohio

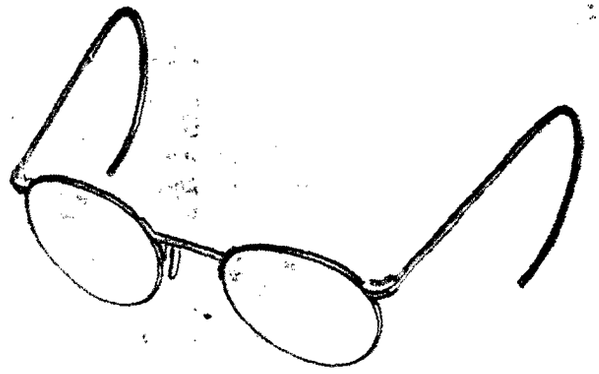
WHETHER YOU USE PLASTIC OR METAL FRAMES

Depend on **PENOPTIC** SAVE WITH SAFETY

SPECTACLE TYPE SAFETY GOGGLES



707 SERIES



220 SERIES

Model 707 — *With flexible cable temples.*
Model 707S — *Side shields; cable temples.*
Model 707P — *Spatula temples, wire reinforced.*
Model 707C — *Rocker pads; cable temples.*
Model 707R — *Rocker pads; spatula temples.*

Model 220 — *Rocker pads; basic frame for series.*
Model 220W — *With wire screen side shields.*
Model 220C — *With clear acetate side shields.*
Model 220G — *With green acetate side shields.*
Model 220L — *With leather side shields.*

The many combinations of Penoptic spectacle type safety goggles fill the eye protection needs of many industrial operations. Both the plastic and metal frame goggles are constructed to meet the most rigid tests. The clear or green safety lenses exceed all Federal Lens Specifications for protection from impact and glare hazards. All models are quick to win worker acceptance with their distinctive personal appearance, light weight and many other comfort features. Penoptic's manufacturer-to-you distribution lowers your cost of worker protection and assures a closer association with the people directly responsible for product performance.

For Full Information And Prices Write Direct To Pennsylvania Optical Co., Reading, Pa.

PENOPTIC SALES REPRESENTATIVES IN THESE AREAS

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Order Direct and Save!

PENNSYLVANIA OPTICAL COMPANY

READING, PENNSYLVANIA

Known For Fine Ophthalmic Products Since 1886

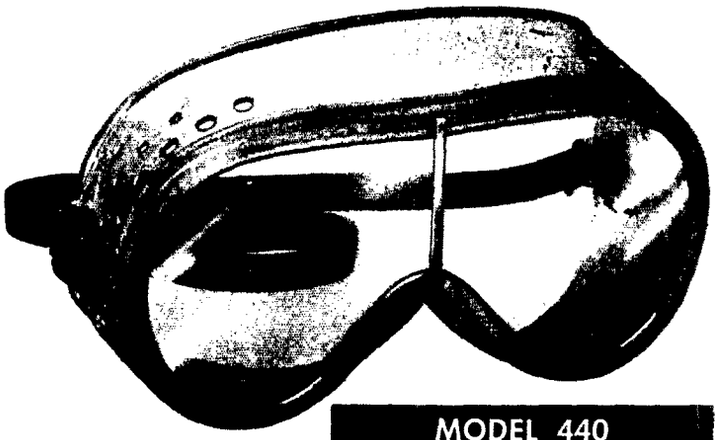
YOU GET COMFORT PLUS BETTER EYE PROTECTION

WATCHEMOKET eye SAVERS

Shatterproof

METHACRYLATE LENSES ARE SAFER

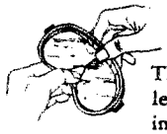
Eye-Savers exclusive methacrylate lenses never shatter or splinter with impact, do not pit from sparks. Clear and colored lenses absorb 96 to 100% of all harmful ultraviolet rays. Green lenses absorb sufficient infra-red for complete protection from a weld arc three feet away.



MODEL 440 with Methacrylate Lens FOR HEAVY IMPACT

SOFT VINYL FRAME — FITS OVER LARGEST PRESCRIPTION GLASSES

Extra-soft plastic frame with soft nose flange form-fits snugly, yet comfortably, around facial contour . . . closes the gaps around nose and cheeks.



EXTRA WIDE REPLACEABLE LENS

The optically perfect, shatterproof methacrylate lens provides full protection against the heaviest impact. Lens is extra wide for picture-window vision. Improved metal lock bar holds lens tightly in frame. Frame acts as bumper to prevent scratching lens when laid face down.

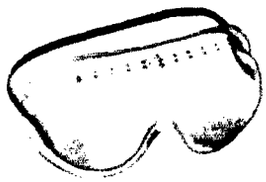
VENTILATION AND COLOR STYLES

Available with *standard ventilation* shown in Model 440 (above) or *screen ventilation* shown in Model 441 (left) or *no ventilation.* Lens colors: Clear or light, medium and dark green.

MODEL 441 with Acetate Lens FOR LIGHT IMPACT

Contains all the features of Model 440 except the lens is laminated acetate – optically perfect – light and comfortable to wear.

CHEEPEE



This low-cost, one piece acetate goggle provides safe, light-weight, comfortable eye protection. Exceeds federal specifications. Available in clear or medium green.

METHASPEC Model 55

Here is a low cost, shatterproof methacrylate eye shield, ideal for a visitor's goggle. Easy lens angling and Retrax temple adjustments assure perfect fit. Available in clear or light or medium green.

Quality Eye Protective Equipment ***Made by the Leaders in Plastics***

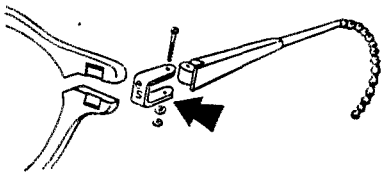
WATCHEMOKET OPTICAL CO., INC.

232 West Exchange St., Providence 3, R. I.

In Canada: Levitt-Safety Limited, Toronto 10, Montreal 26

QUALITY AT LOWER COST *WITH THE EYE SAVERS LINE!*

SPLIT-JOINT Model 80
for Plano or Prescription



SPLIT JOINT SPREADS APART FOR EASY LENS REPLACEMENT

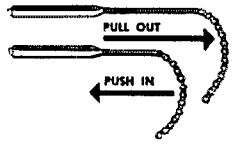
No need for special heaters. A simple operation, and lenses are quickly removed and easily inserted. All parts are standard and replaceable at low cost.

DOUBLE NOSE-BRIDGE DESIGN GIVES EXTRA STRENGTH

Bridge fits comfortably ON the nose at the geometric center between the eyes. No adjustment is needed. One size eliminates extra stock.

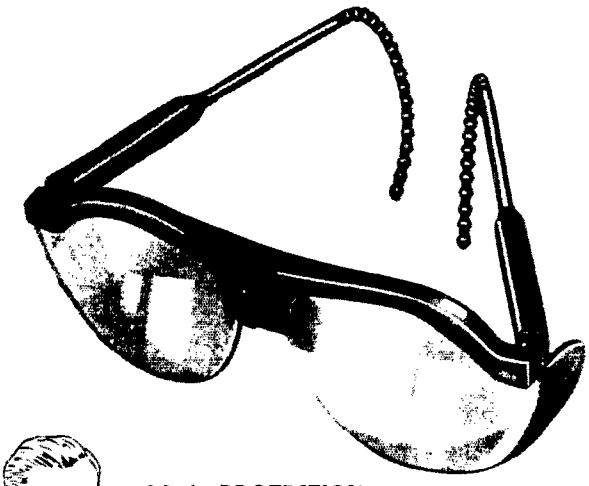
TWO FRAME SIZES AVAILABLE to hold 45 x 48 mm and 42 x 44 mm standard safety lenses. **RETRAX TEMPLES** shown below are standard.

EYE SAVERS "RETRAX" TEMPLES are easily adjusted to fit any head.



All Eye-Savers Spectacles are available equipped with new, light weight plastic Retrax temples that telescope in or out for perfect fitting. Plastic "ball-chain" hook design fits comfortably over the cartilage in back of ears and is self ventilating.

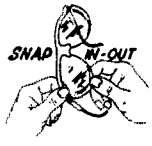
TUC-AWAY Model 415
for Lightweight Comfort



90% PROTECTION THAT'S WORN 100% OF THE TIME

Tuc-Away featherlight design is easy to wear . . . comfortable and attractive. Shatterproof, optically perfect, methacrylate lenses provide safe protection. Universal nose-bridge fits every face.

THREE LENS STYLES EASILY REPLACED: Snap-out, Snap-in



All methacrylate lenses absorb 96 to 100% of harmful ultra-violet rays. Available in clear or infra red absorbing light, medium or dark green.

Available in lens styles shown below.

SEMI-CUP LENS for side and bottom protection

FULL 1" SIDE SHIELD for complete side protection

REGULAR SIDE SHIELD for minimum side protection

RETRAX TEMPLES are standard on the Tuc-Away. Model 415 (Plastic Retrax) Model 412 (Metal Retrax). Also available with club temple Model 410.

Obtain complete details from your nearest authorized EYE SAVERS Jobber or write direct. New catalogs and prices are now available.

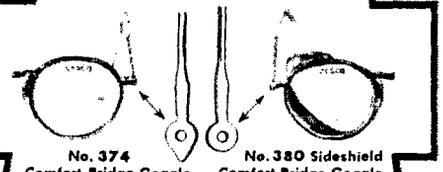
Quality Eye Protective Equipment ***Made by the Leaders in Plastics***

WATCHEMOKET OPTICAL CO., INC.

232 West Exchange St., PROVIDENCE 3, R. I. ***In Canada: Levitt-Safety Limited, Toronto 10, Montreal 26***

CESCO RIGHT... before your Eyes!

NEW Temples



No. 374 Comfort-Bridge Goggle

No. 380 Sideshield Comfort-Bridge Goggle

Now, CESCO Comfort-Bridge Goggles have new symmetrical tip temples which are interchangeable—right or left.

These new temples are better looking and have greater strength at the end-piece joint where breakage usually occurs. That's because the flat bar of the temple is at a right angle to the tip.

Attractive flesh-colored plastic insulators are easy to replace. Closed end keeps shaft from poking through. Workers like to wear CESCO Safety Goggles with these new temples. Repairs are easier, service costs lower. They're "*RIGHT... before your Eyes.*"

Send TODAY for CESCO literature

CHICAGO EYE SHIELD COMPANY · 2306 Warren Boulevard, Chicago 12, Illinois

CESCO FOR SAFETY

OFFICES IN: Atlanta, Birmingham, Boston, Buffalo, Cincinnati, Cleveland, Columbus, Dallas, Detroit, East Orange, Houston, Indianapolis, Kansas City, Knoxville, Little Rock, Los Angeles, Mexico City D. F., Milwaukee, Montreal, Peoria, Philadelphia, Pittsburgh, Salt Lake City, San Francisco, Spokane, St. Louis, St. Paul, Toledo, Tulsa, Wichita

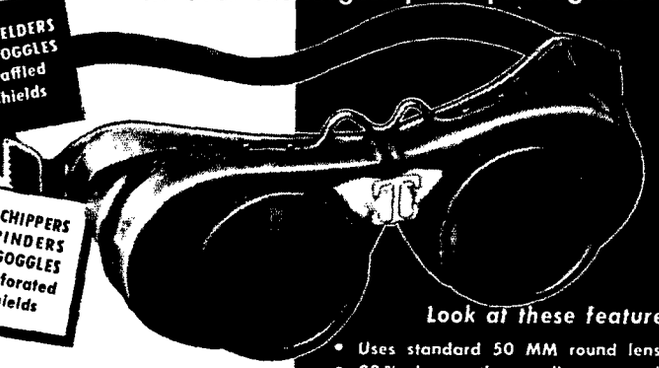
the "greatest" EYE protection and comfort

EYEGARD IMPERIAL COVER GOGGLES

fit over the largest prescription glasses

#500 WELDERS COVER GOGGLES with baffled side shields

#501 CHIPPERS AND GRINDERS COVER GOGGLES with perforated side shields



Look at these features

- Uses standard 50 MM round lenses
- 22% larger than ordinary goggles
- More ventilation through cup slots — no fogging of lenses
- Feather-weight aluminum rims and side shields
- Face shaped contour to fit snugly, comfortably
- Available with or without metal adjusting top bar

New Eyegard Imperial Goggles provide the maximum in protection and comfort . . . the most desirable features of any cover goggles on the market today.

Compare their quality and design . . . then compare their cost and see why you get more for less with Eyegards. Avoid substitution, insist on Eyegard Imperial Goggles. Write for literature and prices.

AMERICAN INDUSTRIAL SAFETY EQUIPMENT COMPANY

3501 LAKESIDE AVENUE CLEVELAND 14, OHIO

Division of The Burdett Oxygen Company, Cleveland, Ohio

Eye Conservation

—*From page 82*

Important considerations. Ease of cleaning and sterilization is essential. Most types on the market meet these requirements.

Goggles should be fitted as close to the eyes as possible without touching the eyelashes to give the widest possible angle of vision.

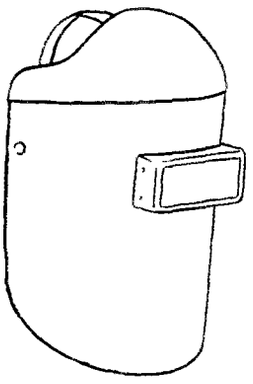
Minimum permissible size for oval lenses is 44.5 mm. in the vertical dimension and 48 mm. in the horizontal. Round lenses should be 50 mm. in diameter.

Lenses should have no appreciable distortion or prism effect.

Strength of heat-treated lenses (resistance to impact) should conform to specifications of the Federal Standard Stock Catalog, the Government's official purchasing guide, Specification GGG-G-G-501B.

Harmful Rays

Glass which filters out harmful ultraviolet and infrared rays is available in many types of goggles, face shields and helmets. These filter lenses are worn for welding and cutting, furnace and boiler observation and other operations where there are high temperatures and excessive glare.



Welding helmet.

Didymium glass is used for protection against bright yellow encountered in glass blowing and similar operations. It is also useful for some precision operations in laboratories.

Melter's goggles of cobalt blue glass come in spectacle and cup types in graded shades. Lenses with color in the upper half and clear glass in the lower half are also obtainable.

Sun glasses are not effective ray-filter glasses for most industrial ex-

posures. They are designed for protection against discomfort caused by sun glare. The better glasses conform to optical standards but many of the cheaper ones show considerable distortion.

Welding helmets provide protection for the eyes and face under the severe conditions of arc welding. They are attached to headgear so they can be raised for placing the work. Impact goggles worn under the helmet provide protection when the helmet is raised. Helmets are made of dielectric fiber resistant to sparks, molten metal and flying particles, and having low heat conductivity. Replaceable cover glass protects filter plate.

Some helmets have a lift-front glass holder which permits rapid inspection of work without removing helmet.

Welding hand shields are used on operations where a helmet is not practical, and on tack welding, set-up work, inspection and time study work. Construction is similar to welding helmets.

Filter Lenses. The following shade numbers are listed in National Bureau of Standards Handbook H24:

No. 3—For protection against glare or reflected light, spot welding operations, light brazing.

No. 4 or No. 5—Light acetylene cutting and burning.

No. 6—General acetylene welding, or welder's helper or set up on arc welding.

No. 8—Heavy acetylene welding or cutting, or very light arc welding.

No. 10—Arc welding up to 250 amperes.

No. 12—Arc welding of more than 250 amperes, atomic hydrogen welding.

No. 14—Carbon arc welding.

Goggles are available in shades up to No. 8; higher numbers in helmets.

Heat-treated cover lenses can be provided to protect filter lenses against pitting and scratching. Heat-treated filter lenses are also available.

Face Shields

Face shields of transparent plastic give eye and face protection on such jobs as metal sawing, working with chemicals, buffing, sanding, light grinding, bottle manufacturing, etc.

They should not be used for welding, heavy grinding to severe impact is necessary. Shields may be worn over spectacles.

Wire mesh screens are used for pouring low-melting point metals, as in babbitting. The mesh stops splashes of metal and allows better ventilation than a solid shield.

—*To page 97*

ACID . . . the most grueling test of a face shield! Here as in many plants all over the country, the most dangerous jobs are met by men wearing StaSafe Face Shield No. 5.

IT TAKES MORE THAN A SALESMAN

Once a worker slips on a face shield it has to prove itself. No amount of arguing by the man who sold it is going to make that shield do a better job or make it more comfortable.

Yes, the mark of a good face shield is acceptance on the job . . . and that's where you will find StaSafe Face Shields . . . on the job . . . doing the job.

Sweeping full face protection and floating comfort are the marks of StaSafe Shield No. 4. Friction swivels and spring retaining clips provide instant adjustment and speedy replacement of acetate front

Featuring a sturdy fiber half-dome, StaSafe Face Shield No. 5 slams the door on flying particles. Ratchet headgear on StaSafe Face shields allows immediate, positive fitting to any one of 32 fractional head sizes.

StaSafe Face Shield No. 15 (shown here) and No. 14 (without fiber half-dome) are mounted on a Hinged-Offset headgear . . . they can be adjusted to both the head size and to the bump on the back of the head.

STANDARD SAFETY EQUIPMENT COMPANY

232 WEST ONTARIO STREET CHICAGO 10, ILLINOIS

NEWARK 4, N. J. 597 BROADWAY

CLEVELAND 10, OHIO 855 EAST 152nd ST.

LOS ANGELES 16, CAL. 2952 CRENSHAW BLVD.

SEECLOTH

CLEANS AND MISTPROOFS

WHAT SEECLOTH IS:

SEECLOTH is a chemically treated fabric which when rubbed on glass both cleans and prevents fogging or misting. It has found use in industry as a convenient method for cleaning and preventing the fogging of goggles of workers who must protect their eyes in various industrial operations.

ECONOMICAL:

It is the most convenient and economical method known for this purpose. One piece (8" x 9") will last for a number of months when used on goggles or glasses.

INCREASES WORKER SAFETY:

The fact that the worker has the means for preventing misting of his goggles right on the job increases the safety of the operation since it reduces the temptation to continue to work with misted glasses. He can fogproof them without leaving his work.

HOW TO USE SEECLOTH:

All that is necessary is to wipe the dry or very slightly moistened glasses with the dry **SEECLOTH** and thus mistproof the glasses for a considerable period.

OTHER USES:

SEECLOTH has also found use in preventing misting of the inside of windshields in foggy or damp weather. Here also all that is necessary is to rub the dry or very slightly moistened glass surface with the dry **SEECLOTH.** Mist will then not form on the area that is rubbed. Other applications include its use on spectacles, mirrors, windows, etc.

HOW SEECLOTH IS PACKAGED

3" x 8" pieces (not individually packaged). Suitable for eyeglasses and may be kept in the case with the glasses. 8" x 9" pieces (individually packaged in 3½" x 6" polyethylene envelopes). Suitable for goggles and masks and fits easily in the pocket of coveralls. 16" x 18" pieces (individually packaged in 5" x 10" polyethylene envelopes). Suitable for automobile windshields, household use, etc., and fits comfortably in the glove compartment of a car or in the drawer of a kitchen cabinet.

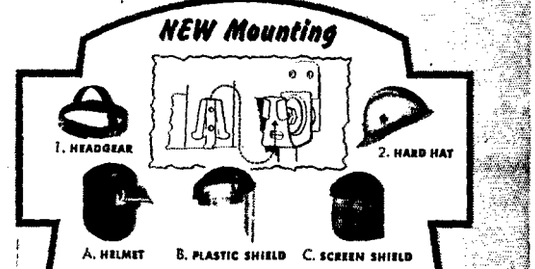
In addition to the standard sizes listed above, **SEECLOTH** will be cut to special sizes on order and is also available by the yard —36" wide.

HYGIENE RESEARCH, INC.

684 BROADWAY, NEW YORK, N. Y.
2704 S. HILL ST., LOS ANGELES, CALIF.
Samples on request. Write Dept. N54-1.

CESCO *RIGHT... before your Eyes!*

NEW Mounting



Assemble Your Own Combinations

Items A, B and C can be used with either items 1 or 2 illustrated above so you can make six different combinations. The old-fashioned way you would buy a helmet and headgear, a shield and headgear, and so on until you had six combinations (twelve items) to do the same thing these five separate pieces will do.

Save buying extra parts... save money. On your next order specify CESCO interchangeable helmets and face shields.

They're—*"Right... before your Eyes."*

Send TODAY for CESCO literature

CHICAGO EYE SHIELD COMPANY · 2306 Warren Boulevard, Chicago 12, Illinois

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OFFICES IN: Atlanta Birmingham, Boston, Buffalo, Cincinnati, Cleveland, Columbus, Dallas, Detroit, East Orange, Houston, Indianapolis, Kansas City, Knoxville, Little Rock, Los Angeles, Mexico City D. F., Milwaukee, Montreal, Peoria, Philadelphia, Pittsburgh, Salt Lake City, San Francisco, Spokane, St. Louis, St. Paul, Toledo, Tulsa, Wichita

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"SAFEPRON"

NO STRINGS OR SNAPS
"DON'T BE TIED TO AN APRON"

SLIPS ON - PULLS OFF

BLUE DENIM—$2.00 EA.
(Sanforized)

ACID PROOF—$3.50 EA.
(No Pockets)

29"x40"—Plus Postage
Pat'd. U. S. and Canada

MFG. AND SOLD BY

GEO. H. BOWMAN, JR.
SALEM, OHIO, U.S.A.

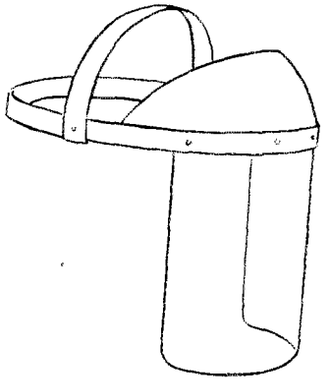
Sweatbands, worn across the forehead in hot, humid locations, help prevent fogging of goggles and spectacles.

Non-fogging compounds, applied to the lenses, help to keep the glass clear.

Hoods and Helmets

Hoods (loose-fitting) and **helmets** (rigid frame) of various types are worn to protect the face and head against hazards which do not involve heavy impact.

These are equipped with windows but goggles may be worn underneath. If toxic fumes, dusts or gases are encountered, an air line should be supplied. As these hoods are rather warm, an air line may also be desirable for comfort.



Plastic face shield.

Fabric hoods protect the wearer from nuisance dusts, paint spray, etc.

Fire-resistant duck and asbestos hoods are used for varying degrees of exposure to heat, as in furnace and burning operations and fire fighting.

Hoods and helmets of rubber, neoprene, plastic film, and fabric impregnated with rubber or plastic provide protection against splashes of acids, caustics, organic solvents, etc. Not all of these materials are resistant to all exposures and the manufacturer should be consulted.

Administering the Program

Supply and Distribution. In some companies the supply is kept in the main supply department. In larger plants a supply of goggles and repair parts may be kept in each shop.

Some operate goggle carts with trained attendants who make the rounds, cleaning, adjusting, repairing and replacing goggles on the job.

Fitting goggles. Prescription glasses should be fitted by a refractionist but fitting plano goggles also requires training and experience. Many optical companies offer instruction in this work. Unless goggles are fitted properly there will be opposition to eye protection.

Cleaning and sterilizing. Both goggles and spectacles become smudged and facilities for cleaning them on the job are desirable. Stations which dispense cleaning liquid and tissues encourage frequent cleaning.

Goggles kept in stock and reissued to other employees should be cleaned and sterilized at frequent intervals. Goggles worn only by one person should receive the same care.

Good Vision

Near acuity. Ability to focus and see well with both eyes separately at a distance of 15 inches. This is the distance at which most machine and office work is done.

Distance acuity. Ability to focus eyes for a distance of 20 feet or more. This is necessary for crane operators, jeep and truck drivers; railroading, for example.

Adequate field of vision. Ability to see to both sides, and up and down, while focusing on a small target.

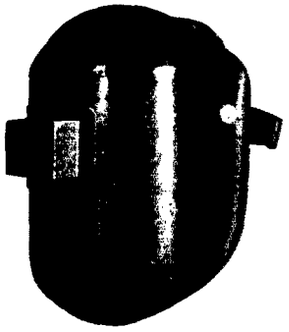
Depth perception. Ability to judge space relationship. This is important for accuracy in almost any job.

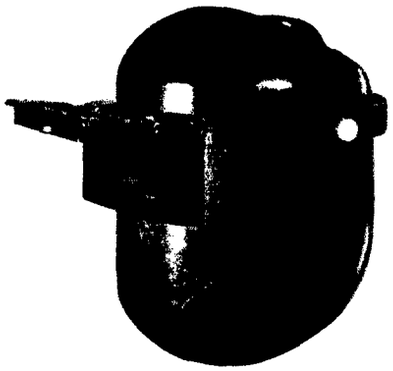
Jackson for Safety

JACKSON Arc Welding HELMETS

High-compression molded of glass fiber thermosetting plastic, one-piece helmet shells hold their shape, resist high heat, high voltage, moisture and weld spatter.

• Extruded plastic headgear has padded sweatband and adjustable friction pivots that will permit helmet to float down without jolting, or stay in any desired position.





Stationary Front Helmet H-1 has light metal lens holder. Cover glass is replaced from the front by sliding it out, without disturbing other parts.

Lift-Front Helmet, type H-2, permits work inspection without raising entire helmet. Plastic lens holder has hinged door held by coil springs. Filter lens has cover glass, while a second clear glass stays in place when lift-front is opened.

JACKSON UNIGOGGLE type W-60

The first one-cup headrest goggle made for gas welding, cutting and brazing. Plastic lens frame bears gently but firmly against face.

• Goggle pulls forward and up to clear various prescription glasses now used. It's worn slightly lower than other goggles for comfort.

• Lens is standard 2 x 4¼" size in shades from 3 through 6, protected by a cover glass. Both are easy to replace.

Sold world-wide through distributors and dealers. For greater safety in the welding shop, use Jackson's famous insulated arc welding electrode holders and cable connectors.

JACKSON
PRODUCTS, INC.
WARREN • MICHIGAN

tion of equipment which is seldom used.

The following items of training and maintenance are important:

1. Train each person in putting mask on and adjusting it rapidly to his face.

2. Have each person wear it long enough to become accustomed to the breathing resistance and to putting it on and taking it off.

3. Repeat training at regular intervals.

4. Set up a card for each mask to indicate date of latest inspection and replacement of canister and amount of use, if any, which canister has had.

5. Replace canisters at least annually, even if they have not been used.

6. When a canister is replaced, examine facepiece, harness, hose, and headbands for leaks or deterioration. Replace defective parts.

7. Canisters are ordinarily supplied with seals to keep out air until they are placed in service. Remove seals when canister is placed in service.

8. Store mask in a place accessible to hazardous area, and as cool and dry as possible.

9. If mask is for emergency use only, canister should be replaced after use.

—To page 126

Eye, Head and Respiratory Protection — Definitions

National Bureau of Standards Handbook H24

Protector. A device placed in front of or over the eyes, face or head to afford protection from the hazards in industrial processes or from the natural elements.

Goggles. An optical device worn in front of the eyes, whose predominant function is protection to the eyes only.

Face Mask. A device worn before the eyes and a portion or all of the face, whose predominant function is protection to the eyes and face.

Helmet. A rigid device worn by the operator which shields the eyes, face and neck, and a portion or all of the other parts of the head and is held in place by suitable means.

Hood. A non-rigid device which completely covers the head, neck and portions of the shoulders so as to exclude dust and flying particles.

Shield. A device to be held in the hand, or supported without the aid of the operator, whose function is protection to the eyes and face.

Gas Mask. A device to be worn on the face, and so arranged that the inhaled air is drawn entirely through a canister which cleans it chemically.

Supplied-Air Respirator. A device designed to supply the wearer with air suitable to breathe while surrounded by a contaminated atmosphere, and to prevent the latter from being inhaled.

Hose Mask. A supplied-air respirator having a tight-fitting facepiece to which is attached a hose through which air may be forced by a blower, and through which the wearer can inhale whether the blower is operating or not.

Air-Line Respirator. An air-line respirator is a supplied-air respirator designed to be connected by a hose to a supply of fresh air under positive pressure sufficient to maintain a continuous flow into the facepiece.

Filter Respirator. A device designed for the wearer to inhale the surrounding atmosphere after it has passed through a filtering medium to remove the impurities. The filtering medium may chemically absorb or mechanically obstruct the impurities.

Cartridge-Type Respirator. A filter respirator whose filtering equipment is carried in one or more cartridges mounted on the facepiece. Such a respirator may be a mechanical filter respirator, a chemical filter respirator, or a combination of both.

ACME . . . *the only Gas Mask with the* "PICTURE WINDOWS"

You never have that "jammed-in" feeling, wearing the Acme Full-Vision Gas Mask. Its patented, larger lenses are like picture windows, giving you full natural vision for that safe, unconfined feeling. When you walk, you can actually see your toes without bobbing your head. This factor alone makes Acme outstanding among gas masks . . . well worth looking into.

Write for the complete story on Acme Gas Masks for all occupational hazards.

ACME PROTECTION EQUIPMENT COMPANY
3037 West Lake Street, Chicago 12, Illinois

CESCO RIGHT... before your Eyes!

Approved by Bureau of Mines

Organic Vapor Respirator No. 99
• New CESCO twin 85 cc absorbent cartridge respirator has positive acting inhale-exhale valves which prevent rebreathing or exhausting through cartridges. Valves replaced without tools. Cartridges replaced by unscrewing retaining caps. B of M approval No. 2307.

Converts to Dust Respirator No. 96
• Replace vapor cartridges with CESCO filter pads to make No. 96 Dust Respirator. Treated wool-felt filters use entire frontal surface, provide maximum efficiency, little breathing resistance. B of M approval No. 2167.

Dual Purpose Saves Money
• CESCO Respirators have contoured facepiece for snug, comfortable, leakproof fit. You buy only one respirator and elements as desired.

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CHICAGO EYE SHIELD COMPANY • 2306 Warren Blvd. • Chicago 12, Ill.

CESCO FOR SAFETY

OFFICES IN: Atlanta, Birmingham, Boston, Buffalo, Cincinnati, Cleveland, Columbus, Detroit, East Orange, Houston, Kansas City, Knoxville, Little Rock, Los Angeles, Mexico City, D. F., Milwaukee, Montreal, Philadelphia, Pittsburgh, Salt Lake City, San Francisco, Spokane, St. Louis, St. Paul, Toledo, Tulsa

Scott AIR-PAK

Cool, fresh AIR

in hazardous atmospheres!

Why take chances in explosive atmospheres when you can be assured of perfect safety with the Scott AIR-PAK. Breathe cool, fresh AIR with confidence and comfort.

It goes on and is ready for action in seconds. Just turn on the valve and you're ready to go. No complicated training or practice is necessary.

Other exclusive AIR-PAK features include a large-dial easy to read gage for constant, dependable check of remaining air supply. Cool air absolutely prevents lens fogging. The AIR-PAK is the most economical all-purpose breathing protection available. Operates for as little as 50c per hour with no waste.

For complete information write today!

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211 ERIE STREET LANCASTER, N. Y.

Canada: Safety Supply Co., Toronto — Branches in principal cities
Export: Southern Oxygen Co., 15 West 57th Street, New York 19, New York

Ear Protectors

CONTROL of harmful noise at the source by use of sound absorbing materials, isolation of noisy machines, or revision of processes should be the ultimate goal. Where this is not immediately practicable ears can be protected to a considerable degree by well designed and fitted plugs or stopples.

To keep out noise effectively, a stopple must close the ear completely with an air-tight seal. Since human ear canals differ considerably in size and shape, this is extremely difficult.

Materials used for stopples must be comfortable, nontoxic, and non-irritating. A rigid material is not satisfactory unless molded to the individual ear. Otherwise, the pressure needed to make a tight seal soon causes considerable discomfort.

Ear protectors available commercially give a satisfactory degree of noise exclusion and fair comfort. Soft rubber, neoprene and vinyl plastic are the materials commonly used, the latter two being resistant to the action of ear wax.

To overcome the problem of getting a snugly fitting stopple without uncomfortable pressure points, individually fitted ear molds have been developed. To make the mold a plaster cast is made in the ear. The cast is then used to prepare a lucite plug which can withstand a heavy blow, will not shatter, is nonflammable and has a relatively low coefficient of expansion.

With a lucite mold, loud noises are reduced 30 to 40 decibels, although ordinary conversational tones are heard without difficulty.

Another form of ear mold is made by placing soft plastic directly in the ear canal where it is allowed to harden. After it is withdrawn

TO CONSERVE EYES

1. Make periodic surveys of work areas for eye hazards.

2. Provide type of protection suitable for the job — goggles, shields, masks, hoods, etc.

3. Make provision for corrective lenses for those who need them.

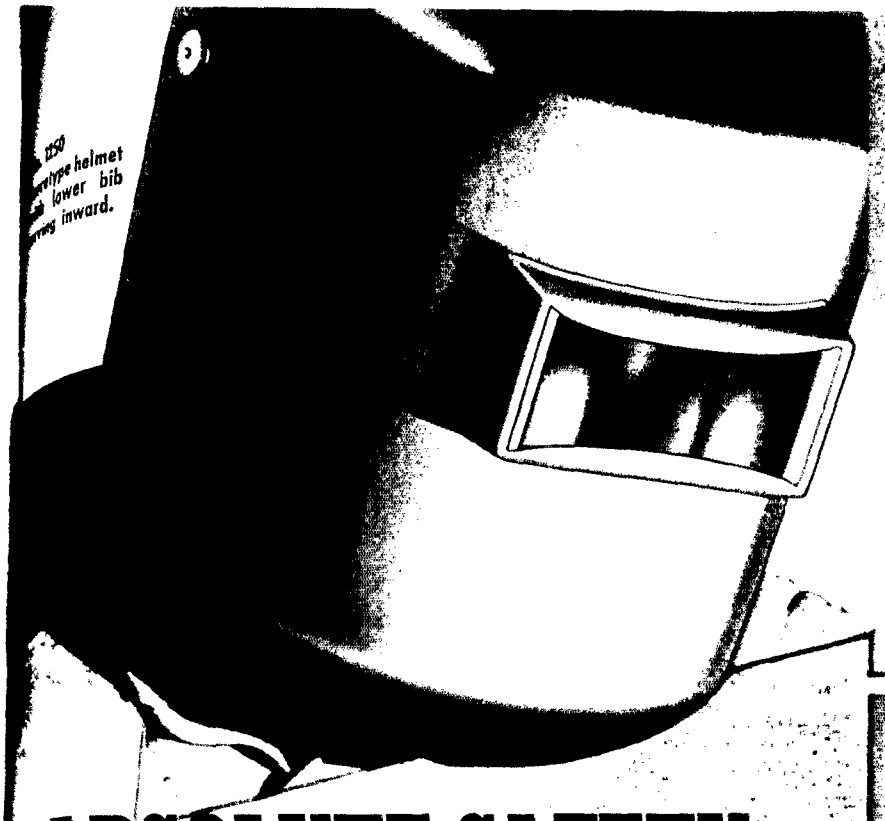
4. Provide goggle-adjusting service and encourage employees to keep their goggles in adjustment.

5. Be sure that all those in the work area have goggles, including employees from other departments.

6. Encourage employees to report foreign bodies in the eye immediately for medical treatment.

7. Supervisors should wear goggles for their own protection as well as to set an example to employees.

8. Insist on eye protection for visitors as well as for workers.



ABSOLUTE SAFETY... COMPLETE COMFORT

Dockson Helmets and Handshields are your finest protection buy

RUGGED AND DEPENDABLE—Dockson Helmets and Handshields give you complete protection against sparks, flash, and dangerous rays of arc welding.

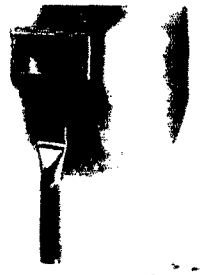
BUILT FOR BETTER SERVICE—Dockson Helmets and Handshields are leak-proof, shock-proof, and are equipped with Federal Specification Plates.

LIGHT-WEIGHT AND ROOMY—Dockson Helmets give you real comfort—eliminate fatigue, strain, and restlessness of hot, heavy, uncomfortable protection.

Designed, for over 30 years, with the welder in mind, Dockson Helmets incorporate these safety-comfort features: adjustable, cushioned headgear; form-fitting chin rests; spring pivot to hold shield in any position and allow easy raising and lowering.

LONG LIFE AT LOW COST—No rivets to tear, burn out, or loosen. One piece, formed, heavy-gauge fiber sheet assures you these Dockson Helmets and Handshields are built to last.

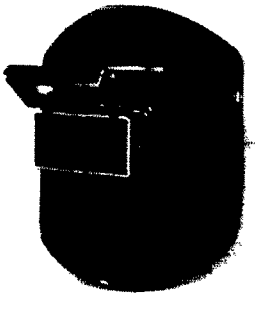
Whatever your needs—there is a Dockson "Better-Built" Helmet or Handshield to do the job—SAFELY AND COMFORTABLY.



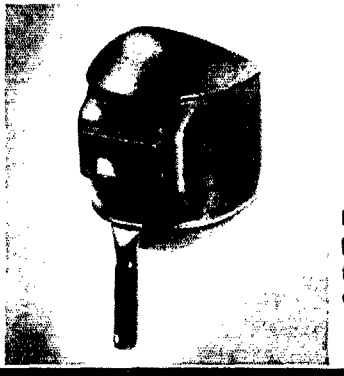
No. 1225
Turretype handshield—built for long life.

M-1250-80
Cap and helmet—for use where falling objects are hazards.

No. 1235
Turretype handshield—face piece extends straight downward.



No. 1750
Herculite construction—moisture-proof, nonwarping, lightweight.



No. 1525
Handshield—of the Herculite construction.

Dockson CORPORATION
3839 WABASH AVENUE, DETROIT 8, MICH.

from the ear, surplus material and sharp edges are trimmed off. The inner end of the mold is coated with rubber and heat treated.

An expendable type of ear mold consists of a mixture of wax and cotton. The pellet is softened by manipulating with the fingers before insertion in the ear. The mold is discarded when soiled.

The simplest and least effective form of ear protector is a wad of cotton. It lowers sound 10 to 15 decibels, depending on how efficiently it is packed into the ear canal. However, even this reduction is sufficient on some jobs to bring the noise down to a safe level.

Ear plugs also protect the ear canal, drum and middle ear from injury caused by entrance of foreign bodies. This is a hazard in welding and chipping of the weld metal.

Hearing Aids

Deaf persons can work with normal efficiency and safety in many jobs. In other occupations, however, deafness may be a handicap and a hazard to the individual and his fellow workers. Salvaging the skills of persons with defective hearing is an important phase of vocational rehabilitation.

Many persons with varying degrees of deafness have been helped by hearing aids. For best results these devices require careful fitting and service at intervals after fitting.

The American Medical Association maintains a list of hearing devices which meet essential requirements. Helpful information is also contained in National Bureau of Standards Circular 516, *Selection of Hearing Aids.*

Audiometric examinations are useful in measuring progressive loss of hearing. When hearing has suffered from exposure to excessive noise, an employee may be transferred to quieter surroundings.

Plastics Aid Safety

Plastics are filling an important role in industry and in the home. Their safety uses are important. For years they have been doing a good job against hazards from chemicals, falling objects, dust, gases, fumes and other injurious agents.

One reason for the popularity of plastics is their resistance to deteriorating agents. Plastics that will do a particular job most effectively can be selected from hundreds of compounds, from flexible materials like neoprene to the rigid types.

Natural materials ordinarily offer limited resistance. Rubber does not stand up well to oils, acids, sunlight, etc., and prolonged wear next to the skin may produce irritation. Untreated fabrics are flammable and readily affected by acid.

Protection from specific dangers, as certain types of acids, is not possible with any natural substance. It is, however, usually possible to compound a plastic that will successfully resist any particular hazard. Compounds can be made impervious to oils and acids, highly resistant to breakage, non-conducting, heat and cold proof. It is often possible to combine several of these qualities in one compound.

These products can be rendered non-toxic and odorless, and can be molded to exceptionally close tolerances, reducing production difficulties and lowering expense.

Articles of safety equipment in which plastics have been employed to perform a particular job include transparent eye and face shields, chemical-proof garments of plastic-coated fabric for the hazardous work, body and head; respirators and dust masks, containers for first aid kits; lancets, syringes and other instruments used in first treatment.

New improved KIMWIPES

KIMWIPES*—industry's favorite disposable wipes—now better than ever

Here are the *new* 5″ x 9″ Kimwipes—now improved to meet your goggle wiping needs to a "T"! Manufacturing advances make them even more lint-free, more efficient than ever before—and at a far lower price. They're in a new modern looking carton—it serves just *one* at a time! Get *new* Kimwipes today—the scratch-proof way to clean safety goggles and face masks. Don't forget that Kimwipes come in the 15″ x 18″ size for your other wiping needs. Get your sample now!

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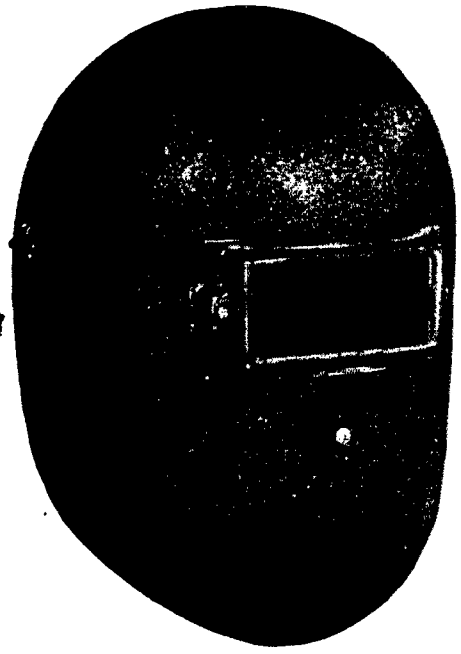
Announcing the NEW amazing SELLSTROM *Fiber Glass* WELDING HELMET

The only helmet with these advanced features



Because of its greater strength and water resistance, the new Sellstrom No. 230 Fiber Glass Helmet should outlast 5 ordinary fiber helmets. It is available with either the Standard Front Loading Plate Holder, as shown above, or the new "S" Lift Front Plate Holder shown below.

Your Choice of Headgear

The Sellstrom No. 230 Fiber Glass Helmet may be fitted with either the Standard Headgear No. WMXK shown above or the new Sel-O-Matic "M" model headgear shown at the right — which can be easily adjusted with one hand while the helmet is on the head.

1. 400% Stronger Than Ordinary Helmet

An 8 ounce steel ball, dropped from a height of 5 feet onto the Sellstrom Fiber Glass Welding Helmet, merely bounced from the helmet. The same ball, dropped from the same height onto an ordinary fiber helmet, cracked it.

2. A Better Insulator from Heat

Made of Fiber Glass, the perfect insulator, this Sellstrom Helmet transmits less heat than ordinary helmet — keeps face cooler.

3. More Resistant to Moisture

After immersion for 48 hours in salt solution of 160°F., the Fiber Glass Helmet absorbed less than ½ ounce of moisture. Holds its shape indefinitely.

4. Lightest Helmet of Its Kind

5. Choice of Plate Holders and Headgear

TEST A SAMPLE—Satisfaction Guaranteed!

Let us ship you a sample Sellstrom No. 230 Fiber Glass Helmet equipped with the famous Sel-O-Matic headgear and the new "Lift Front" plate holder on a 30 day memo, with the understanding that if you are not entirely satisfied, you can return it for credit. We will also give you the name and address of a nearby dealer who can supply your future requirements. The price—no higher than for an ordinary quality helmet. Send for your sample today!

Ask your dealer or write us for a copy of this 60 page buying guide to more than 300 Eye and Face Safeguards.

Mr. Dealer: The interchangeability of headgears and plate holders for this new Sellstrom Fiber Glass helmet means maximum profit and minimum inventory for you. Write for details!

sellstrom safeguards

SELLSTROM MANUFACTURING COMPANY
Dept. [illegible] Chicago 22, Illinois

Respiratory Protection

RESPIRATORY equipment protects the worker against inhalation of air contaminants. These range from relatively harmless "nuisance" substances to toxic dusts, vapors, mists and gases.

Removal of contaminants at the source and enclosure of processes helps to keep down concentrations of harmful substances in the workroom air. However, leaks and breakdowns may occur, and there are operations where exposure is brief or infrequent. For such contingencies, personal protection should be provided.

The worker's air intake may be safeguarded by three principal methods:

1. Mechanical filters to remove dusts and mists.
2. Absorption or chemical reaction to remove gases and vapors.
3. Supplied air.

Types. Four general types of respiratory equipment are:

1. Canister gas masks.
2. Chemical cartridge respirators.
3. Filter respirators.
4. a. Supplied air equipment (hose masks and air-line respirators.)
   b. Self-contained apparatus supplying oxygen or air.

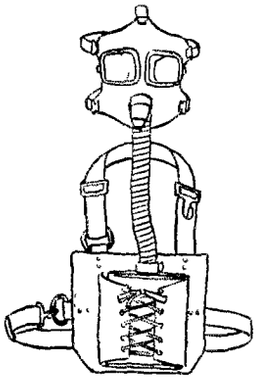
Each type of equipment has a definite field of usefulness, as well as limitations. Manufacturers and dealers want to know the type of exposure when equipment is ordered.

Approval. Equipment which meets accepted standards carries the label of the Bureau of Mines. Approval specifies type of exposure as well as design and construction.

Gas Masks

A gas mask consists of a face piece connected by a flexible tube to a canister. Inhaled air is drawn through the canister which cleans it chemically. No one chemical yet discovered will remove all contaminants, so the canister must be chosen for the exposure.

The nearest approach to complete protection is the universal mask for protection against combinations of acid gases, organic vapors, ammonia, carbon monoxide and smokes. It should be remembered, however, that as the number of gases increases, the service time of the canister decreases.



Canister gas mask.

Canister gas masks with full face piece are for emergency protection in atmospheres immediately dangerous to life. Their effectiveness is limited to concentrations of 2 per cent by volume, except for ammonia for which the limit is 3 per cent.

Characteristics. Types of gas masks, their identifying colors and uses are:

- A. White—Acid gases, such as hydrogen sulfide, sulfur dioxide, chlorine, hydrocyanic acid.
- B. Black—Organic vapors, such as aniline, benzene, ether, gasoline, carbon tetrachloride, chloropicrin.
- C. Green—Ammonia gas.
- D. Blue—Carbon monoxide.
- AB. Yellow—Combination acid gas and organic vapor.
- ABC. Brown—Combination acid gas, organic vapor and ammonia gas.
- N. Red — Universal — Acid gases, organic vapors, ammonia, carbon monoxide and smokes.

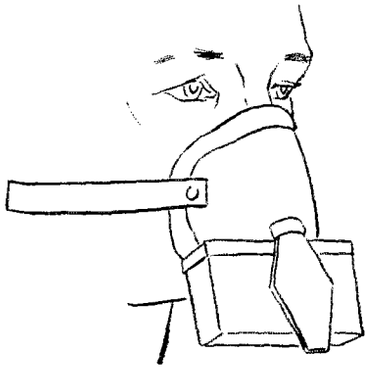
Cartridge Respirators

Chemical cartridge respirators usually have a half-mask face connected directly to a small container. Chemicals are similar to those used in gas masks.

Cartridge respirators are used only for non-emergency situations —for atmospheres which are harmful only after prolonged or repeated exposures.

Filter Respirators

Protection against any form of particulate matter can be provided by a mechanical filter respirator of proper design. Major items to be considered are resistance to breathing offered by the filter element, adaptation of face piece to faces of various shapes, and fineness of particles to be filtered out.



Filter respirator.

ASA Code Z-2 requires that the complete respirator show a resistance not in excess of 50 mm. of

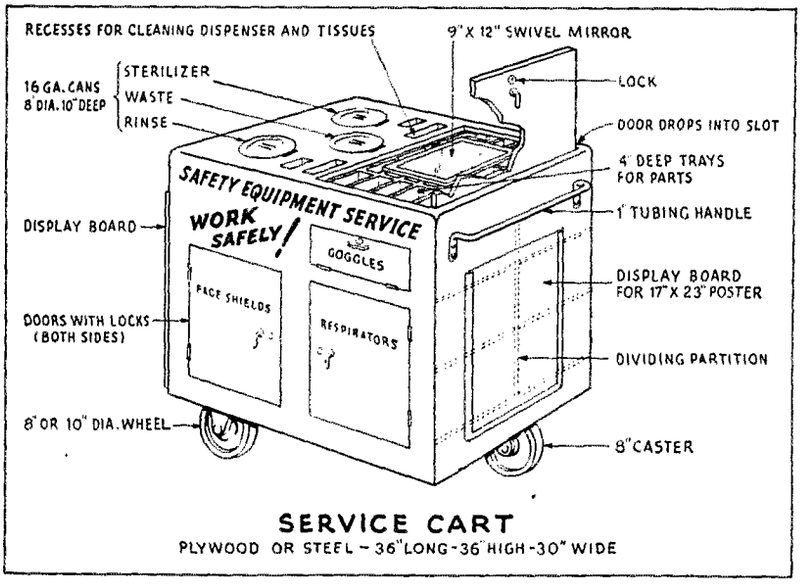


Diagram of mobile service cart for cleaning, sterilizing and adjusting goggles, face shields and respirators on the job.

Air-Line Respirators

Air-line respirators, connected to compressed air-lines, provide essentially the same protection given by hose masks. They are not intended for atmospheres immediately hazardous to life where the wearer could not escape if failure of the air supply required him to remove the respirator.

This respirator differs from the hose mask mainly in two features: It has a hand-operated, quickly detachable coupling connected to the belt or body harness so that the operator can connect to a compressed air hose, also a flow-limiting device with capacity to permit air flows only between 2 and 20 cubic feet per minute.

A trap and filter installed in the compressed air line ahead of the masks to separate oil, water, scale, or other extraneous matter from the air stream is desirable.

An air-pressure regulator in the line is required if air is supplied at a pressure in excess of 25 pounds per square inch, also a pressure release valve which will operate if the regulator fails.

Supplied-air respirators are the most desirable for operations requiring continuous use of a respirator. Other types may give adequate protection, but they offer breathing resistance and are consequently more fatiguing.

To obtain clean air, the compressor intake must be kept away from

Hose mask for irrespirable atmospheres.

all sources of contamination. The compressor should be well maintained. It must not run too hot, as dangerous amounts of carbon monoxide can be produced by decomposition of lubricating oil.

Air supplied suits. Sometimes rescue or emergency repair work must be done in atmospheres extremely corrosive to the skin and mucous membranes, in addition to being acutely poisonous. For these conditions, complete suits of impervious material with breathing equipment are available.

If a hose line is used, it should be connected to the suit itself as well as to the helmet. It is fatiguing and dangerous to wear such a suit for a long period unless it is well ventilated.

Abrasive Blasting

Abrasive blasting requires not only an adequate supply of filtered air, but also mechanical protection for the head and neck. This protection can be supplied either by an

Abrasive blasting helmet.

impregnated cloth hood or by a helmet of some rigid material. It should be covered both inside and outside with a plastic material, such as soft rubber, to increase both comfort of wearer and resistance to abrasive.

A window of transparent material, suitable for optical use, protected from the abrasive by a 30- to 40-mesh fine wire screen should be provided. Both window and protective screen should be readily replaceable.

Self-Contained Apparatus

For work in atmospheres immediately hazardous to life at distances more than 150 feet from the source of fresh air, self-contained oxygen-breathing apparatus should be used.

The two principal types of self-contained apparatus are: (1) Compressed air or compressed oxygen type; (2) Internal generation type which produces oxygen by reaction of chemicals in the canister with the moisture in exhaled breath.

Care of Equipment

A central station for care and maintenance of respiratory equipment is desirable where many respirators are in use. Such a unit can also handle distribution and maintenance of other items of personal protective equipment.

Each employee should be provided with two respirators and either a locker or a hook at the central station. Respirators should be branded or tagged with a number to indicate the employee to whom it is assigned.

The respirator should be turned in to the central station at the end of each shift to be cleaned and sterilized, and repaired if necessary.

Where the maintenance crew works several shifts, one respirator per employee may be sufficient. Usually, however, it is necessary to have one complete unit in the process of cleaning while the other is being worn.

Atomic Suit

Juvenile space cadets will probably cast envious eyes on this General Electric atomic attire now in vogue at the huge plutonium-producing plant at Richland, Wash., operated by G. E. for the Atomic Energy Commission.

Plastic, balloon-like suit provides protective barrier against radiation in "hot" areas and permits a man to determine extent of contamination and do clean-up and maintenance work in such areas.

"Train" in rear is a flexible plastic tunnel leading from suit to entrance port in wall. It provides air and serves as an entrance and exit passage. Air mask worn is used only if, by accident, the suit becomes torn or punctured.

Suit and tunnel remain inflated because air inside contaminated area is at lower pressure than air outside. Pressure differential assures that any flow of air will be into the contaminated area rather than out.

Training in Use of Respiratory Equipment

Respiratory equipment is often used under conditions of strain and excitement. Those who will have to use it should therefore be trained thoroughly. Regular inspection is also necessary to avoid deteriora-

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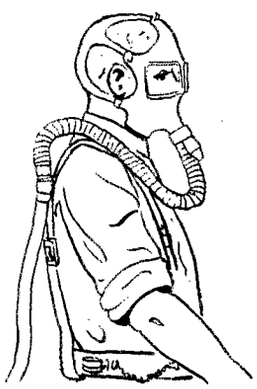

Hose mask for irrespirable atmospheres.

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Abrasive blasting helmet.

impregnated cloth hood or by a helmet of some rigid material. It should be covered both inside and outside with a plastic material, such as soft rubber, to increase both comfort of wearer and resistance to abrasive.

A window of transparent material, suitable for optical use, protected from the abrasive by a 30- to 40-mesh fine wire screen should be provided. Both window and protective screen should be readily replaceable.

Self-Contained Apparatus

For work in atmospheres immediately hazardous to life at distances more than 150 feet from the source of fresh air, self-contained oxygen-breathing apparatus should be used.

The two principal types of self-contained apparatus are: (1) Compressed air or compressed oxygen type; (2) Internal generation type which produces oxygen by reaction of chemicals in the canister with the moisture in exhaled breath.

Care of Equipment

A central station for care and maintenance of respiratory equipment is desirable where many respirators are in use. Such a unit can also handle distribution and maintenance of other items of personal protective equipment.

Each employee should be provided with two respirators and either a locker or a hook at the central station. Respirators should be branded or tagged with a number to indicate the employee to whom it is assigned.

The respirator should be turned in to the central station at the end of each shift to be cleaned and sterilized, and repaired if necessary.

Where the maintenance crew works several shifts, one respirator per employee may be sufficient. Usually, however, it is necessary to have one complete unit in the process of cleaning while the other is being worn.

Atomic Suit

Juvenile space cadets will probably cast envious eyes on this General Electric atomic attire now in vogue at the huge plutonium-producing plant at Richland, Wash., operated by G. E. for the Atomic Energy Commission.

Plastic, balloon-like suit provides protective barrier against radiation in "hot" areas and permits a man to determine extent of contamination and do clean-up and maintenance work in such areas.

"Train" in rear is a flexible plastic tunnel leading from suit to entrance port in wall. It provides air and serves as an entrance and exit passage. Air mask worn is used only if, by accident, the suit becomes torn or punctured.

Suit and tunnel remain inflated because air inside contaminated area is at lower pressure than air outside. Pressure differential assures that any flow of air will be into the contaminated area rather than out.

Training in Use of Respiratory Equipment

Respiratory equipment is often used under conditions of strain and excitement. Those who will have to use it should therefore be trained thoroughly. Regular inspection is also necessary to avoid deteriora-

DUPOR No. 4

For nuisance dusts and fumes. Weighs only 4 oz.

$2.00

DUPOR No. 40

U.S.B. of M. Approved. Has 40 sq. in. filters for Type A dusts.

$3.00

DUPOR No. 46

U.S.B. of M. Approved for Type A and Lead dusts.

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DUPOR No. 1

Miniature nose mask for nuisance dusts and fumes.

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DUPOR No. 24

U.S.B. of M. Approved. Has 24 sq. in. filters for Type A dusts.

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Wear a Genuine

DUPOR

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Respirator

light weight · greater visibility · no blind spots
face cloth for personal sanitation · panorama view
controlled breathing · exclusive patented features

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South Bend, Indiana

DUPOR No. 10

Chemical cartridges. For organic and inorganic gases.

$5.00

DUPOR No. 20

Double sponge, for cool, water-washed breathing.

$2.50

DUPOR Automatic

With sponge filter for water-cooled breathing.

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DUPOR Smoke Mask

Equipped with "Nod & Shake" fog-proof, gas-tight goggles.

$5.00

COVER'S "Nod & Shake" GOGGLES

Gas-tight, fog-proof Wear with any respirator.

$2.00

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- **Dependable, tested safety equipment — backed by one of the oldest names in safety**
- **Experienced advice on safety problems • Careful attention to all orders**
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EVERYTHING FOR INDUSTRIAL SAFETY

THE SAFETY WARDROBE

HATS, CAPS HELMETS

	Sparks	Hot Materials	Heat	Hot Liquids	Moisture	Acids & Alkalis	Slips & Falls	Falling Objects	Flying Particles	Electric Shock	Cuts & Abrasions	Dermatitis	Explosives	Machinery
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Asbestos	X	X	X											
Plastic-Rubber				X	X	X				X		X		
Cotton-Wool	X		X									X		X
Metal								X	X		X			
Plastic	X							X	X	X	X			

COATS, APRONS WAIST PROTECTION

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Asbestos	X	X	X											
Chrome Leather	X	X		X					X		X			
Plastic				X	X	X				X		X		X
Rubber				X	X	X				X		X		X
Canvas-Fiber									X		X			X
Chemical Resistant						X								
Reflective Fabric				X										

SLEEVES WRISTLETS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Asbestos	X	X	X											
Chrome Leather	X	X		X					X		X			
Flameproofed Duck	X	X	X						X					X
Plastic				X	X	X						X		
Rubber				X	X	X				X		X		
Chemical Resistant						X								
Reflective Fabric				X										

GLOVES, MITTENS HAND PADS FINGER GUARDS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Asbestos	X	X	X											
Chrome Leather	X	X		X					X		X			
Rubber				X	X	X				X		X		
Plastic-Rubber Coated Fabric				X	X	X						X		
Metal Mesh											X			
Cotton-Canvas											X			

PANTS, KNEE PADS LEGGINGS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Asbestos	X	X	X											
Chrome Leather	X	X		X					X		X			
Flameproofed Duck	X	X	X						X					X
Fiber-Metal	X							X	X		X			X
Plastic				X	X	X						X		
Rubber				X	X	X				X		X		
Chemical Resistant						X								
Reflective Fabric				X										

SHOES, BOOTS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Steel Toe Caps								X			X			X
Non-Skid Shoes					X		X							
Wooden Soles		X	X	X	X	X	X				X			
Chrome Leather	X	X	X	X										
Rubber				X	X	X				X		X		
Conductive Rubber													X	

what's overhead won't worry you...

YOU'RE SAFE WITH THE

NEW SUPER-TOUGH

WILLSON SAFETY HAT

THE NEW WILLSON SAFETY HAT gives you effective, comfortable head protection in areas of overhead hazards. It is entirely new in design, material and method of manufacture . . . tough as metal and more resilient! It has been field-tested for over two years. Here are some other outstanding features of the new Willson Super-Tough* Safety Hat . . .

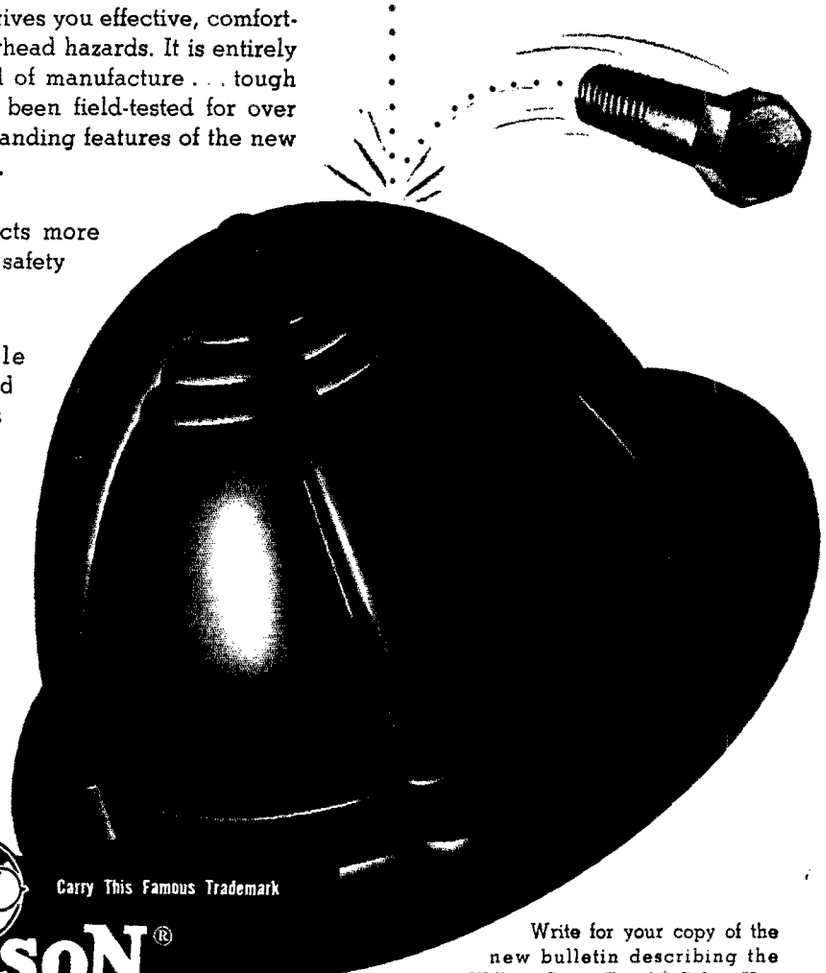
streamlined contour—deflects objects more effectively and provides a greater safety "pocket" inside

new suspension design—adjustable "hammock" headband is suspended *inside* at 6 points. No exposed rivets or lacing—r · holes through hat.

comfortably cool—space between headband and shell provides ample air circulation for wearer

five colors—green, red, yellow, brown or white...to provide job or company identification.

Passes all required tests with an extra margin of safety!



More than 300 Safety Products Carry This Famous Trademark

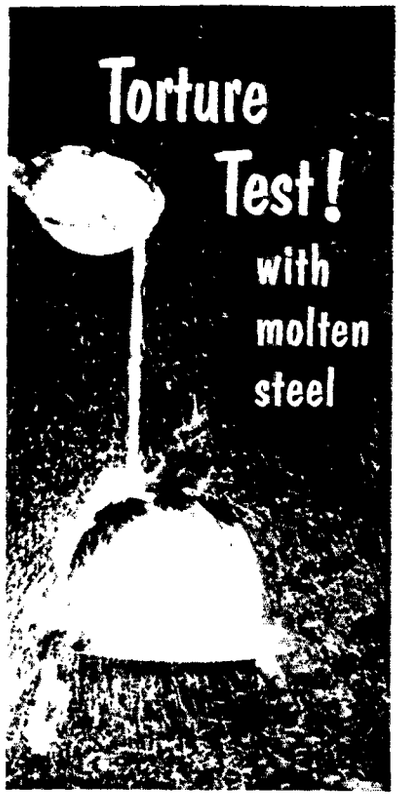
WILLSON®

Established 1870

Write for your copy of the new bulletin describing the Willson Super-Tough* Safety Hat

*Trademark

WILLSON PRODUCTS, INC., 205 Washington Street, READING, PA.



Steel, molten at 3000° F., was poured over a Bullard Fiberglas Safety Hat. The white hot metal did not pierce any part of the hat. Proof of the extra margin of safety built into all Bullard Fiberglas Hats and Caps.

Hat after test

BULLARD
FIBERGLAS SAFETY HATS AND CAPS

Test-Proven SAFER!

Exceeds all standard industrial tests: impact, dielectric, moisture and is self-extinguishing. Lighter, more comfortable to wear, with adjustable headband. Your choice of permanent molded colors at no extra cost.

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High speed photographs of a 3-lb. pipe wrench dropped from 14 ft. prove that Bullard's *exclusive* ribbed crown construction gives an added margin of safety, and exceeds standard 40 foot pound drop tests.

BULLARD ALUMINUM SAFETY HATS & CAPS

Only metal safety cap manufactured. Flared brim protects ears and neck, but does not interfere with carrying or working in close quarters.

Weighs only 12 ounces. Universal headband can be adjusted to any standard size in two minutes.

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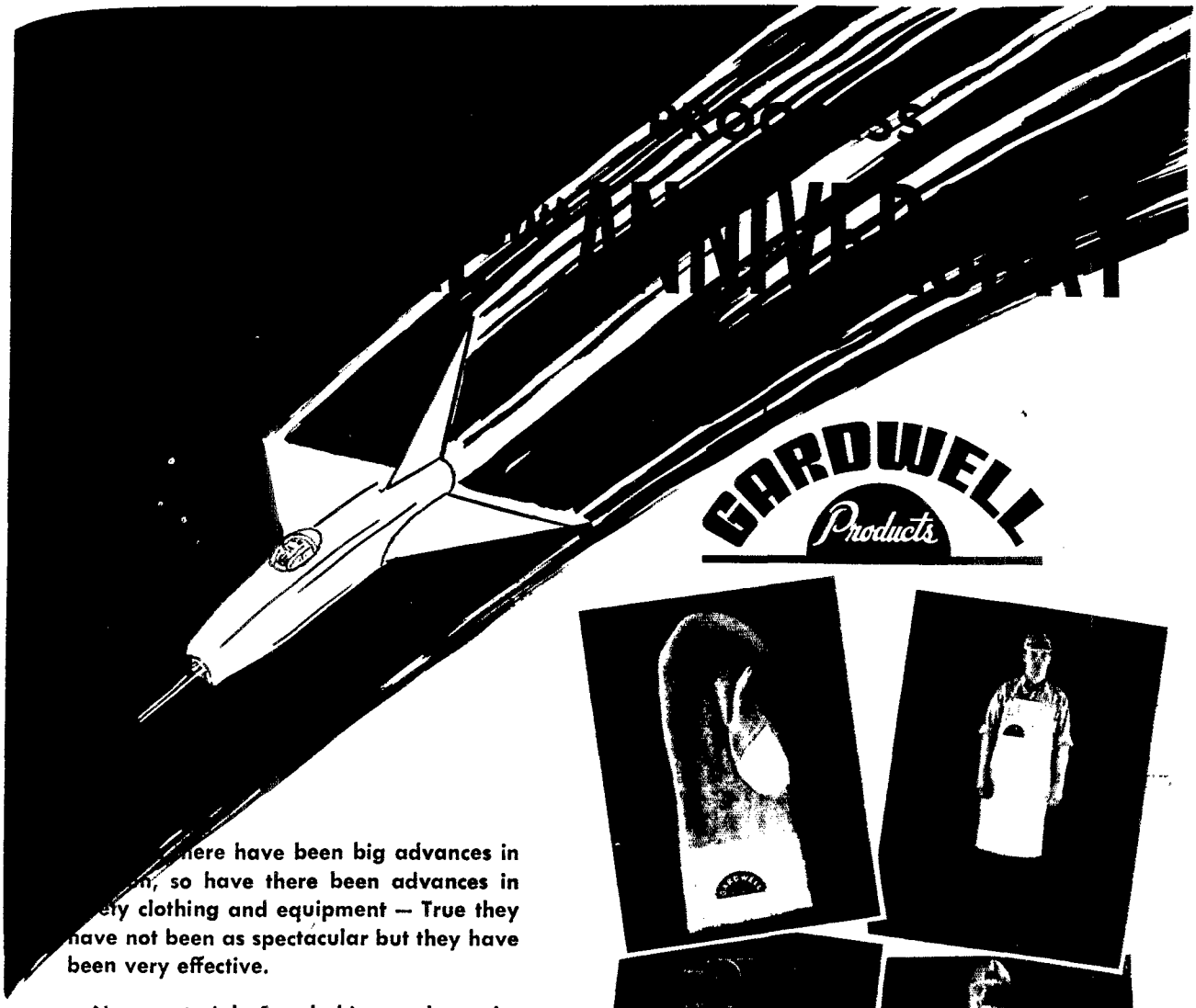

GARDWELL Products

...here have been big advances in ...n, so have there been advances in ...ty clothing and equipment — True they ...have not been as spectacular but they have been very effective.

New materials for clothing such as the various synthetics; new items such as plastic face shields; new ensembles like the asbestos suits for airplane rescue work, tunnel kiln servicing, etc. — these are just a few of the many advances in safety clothing and safety techniques.

You may be sure that *Safety Clothing & Equipment* Co. will be pioneers in every improvement that will give better protection and better service to the users of GARDWELL PRODUCTS.

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Safety CLOTHING AND EQUIPMENT Co.

DESIGNERS AND MANUFACTURERS

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Head Protection

PROTECTIVE HATS are needed on jobs where heads are menaced by falling objects. These hats are widely used in the mining, lumbering, construction, shipbuilding and petroleum industries, and for certain occupations in other industries.

Protective hats are also useful where there is danger of bumping the head against overhead structures.

Resistance to impact is the most important essential for these hats. They must also be fire resistant and impervious to moisture. Where contact with electricity is possible, the material should be non-conductive.

Types. A hat with a brim all the way around provides the most complete protection for the head, face, and back of the neck. For confined spaces where a brim might be in the way, the cap type may offer adequate protection.

Some models have brackets to support welding masks or miners' cap lamps.

Materials. Laminated plastic molded under high pressure is widely used. It is resistant to impact and to effects of water and oil. Dielectric strength is high.

Glass fiber impregnated with resin is a recently introduced material. It has a high strength-weight ratio, high dielectric strength and resistance to moisture.

Hats which glow in the dark, due to a phosphorescent pigment, are obtainable on special order.

Aluminum alloy meets all requirements for resistance to impact and moisture but is low in dielectric strength. Metal hats should not be worn where there is danger of electrical contact.

Weight. Not more than 14½ ounces for the complete hat is specified by Federal Specification No. 367A. The specification also lists several tests which hats must pass. These include moisture, impact and electricity.

The hard outer shell of the hat is supported by a cradle or hammock which keeps the shell away from the head and cushions it against blows.

Cradle and sweatband should be replaceable because of deterioration when exposed to perspiration for long periods. This is also important for sanitary reasons, especially when the hat is worn by more than one person. The shell can be sterilized by any of the common methods.

For cold weather a winter lining may be attached to the hat. This lining is made of water-resistant cloth to protect head, neck and ears.

Where the wearer may be exposed to strong winds on such locations as bridges and oil derricks, a chin strap is useful.

An eyeshield of transparent plastic can be attached to some types of hats. It is hinged under the peak and lies flat against the peak when not in use.

Work caps. Where protection against impact is not required, light cloth caps are worn to protect the hair against paint splashes, dust, oil and other non-corrosive substances.

Recently introduced are work caps of heavy Kraft paper treated with neoprene, and a flame retardant. The material is water-repellant and resistant to acids and alkalis. Cost is about 30 per cent less than most cloth caps.

Disposable work cap of neoprene-treated paper. On most jobs it will last as long as a cloth cap and costs less. (Du Pont).

Colors. With some manufacturers, hats are now available in seven standard colors—white, gray, red, green, blue, brown and black. Other colors are available on special order. Color is permanent because it goes all the way through the material.

Special colors are sometimes ordered, or stock hats painted, to match the color used by the company on vehicles, in advertising, etc. Distinctive colors and designs are also used to designate the wearer's department or trade. This is often done in large plants where certain areas are restricted to authorized employees.

For Women Workers

Women are seldom employed in occupations where protective hats are required. Their hair, however, provides a problem around moving machinery. Much effort has been expended in designing headwear that provides adequate protection and is reasonably attractive in appearance.

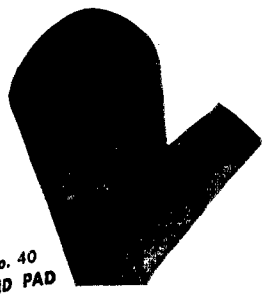
Scalping is likely to occur at points where hair may come in contact with rotating parts, or where enough static is produced by the machine to lift the hair.

Enclosing the machine may be practicable in some operations but women who work around such machinery should wear caps which cover the hair completely. Hair covering is also desirable from the standpoint of cleanliness in many occupations.

Hair covering should be made of

—*To page 120*

Each man has his own protective hat identified by his name or monogram.



No. 40
HAND PAD

Tough chrome leather; open back for coolness. Also made steel reinforced. Many styles of leather and asbestos hand pads for every job.

No. 660-4
GLOVE

Steel-Grip Chrome side split leather general purpose work glove. Steel sewn throughout — practically rip proof. Thumb patched and strapped for longer wear and protection. Choice of 2" or 4" cuff.

No. 492
HALF JACKET

Chrome side split leather welder's half jacket. Also made in asbestos and flameproofed duck. Small, medium and large sizes. Extra large and jumbo on request. Complete line of welder's clothing, gloves and mittens.

No. 347
LEGGING

Chrome side split leather wrap around legging. Easy on—easy off. Also made in asbestos and flameproofed duck, as well as spring type design in all materials.

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THE KIND YOU REALLY NEED

Only Quality Safeguards can actually protect a workman. Steel-Grip Safeguards are and have been real values and top quality for over 40 years.

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1. **Keeps on the alert to detect new hazards brought on by changes in industry.**

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Try Industrial Steel-Grip Safeguards for your industrial safety needs—see if they are not more protective, easier to wear, more comfortable, longer lived, contributive to better worker performance—the kind of safety apparel you really need.

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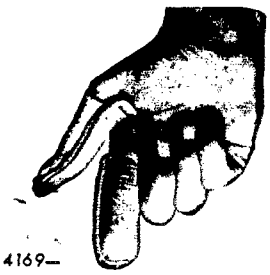
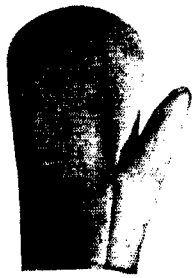


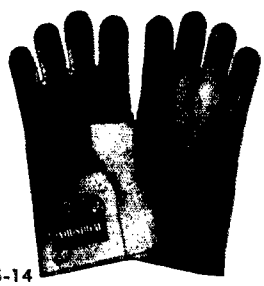
No. 14169—
OPEN END FINGER GUARD

Eliminate minor, but costly, finger injuries by using Steel-Grip finger guards on burring, grinding, buffing, sanding, assembly, machine and punch press operations. Choice of materials. Sizes for men and women. (U.S. Patents 2,351,906 and 2,461,872.)



No. W3-9
WOVEN-GARD

Woven-Gard closed end mitt. For lower temperature jobs where asbestos is not required. Highly oil absorbent. Resists cuts and abrasion. Complete line of Woven-Gard hand spats, arm guards, closed end mitts and aprons.



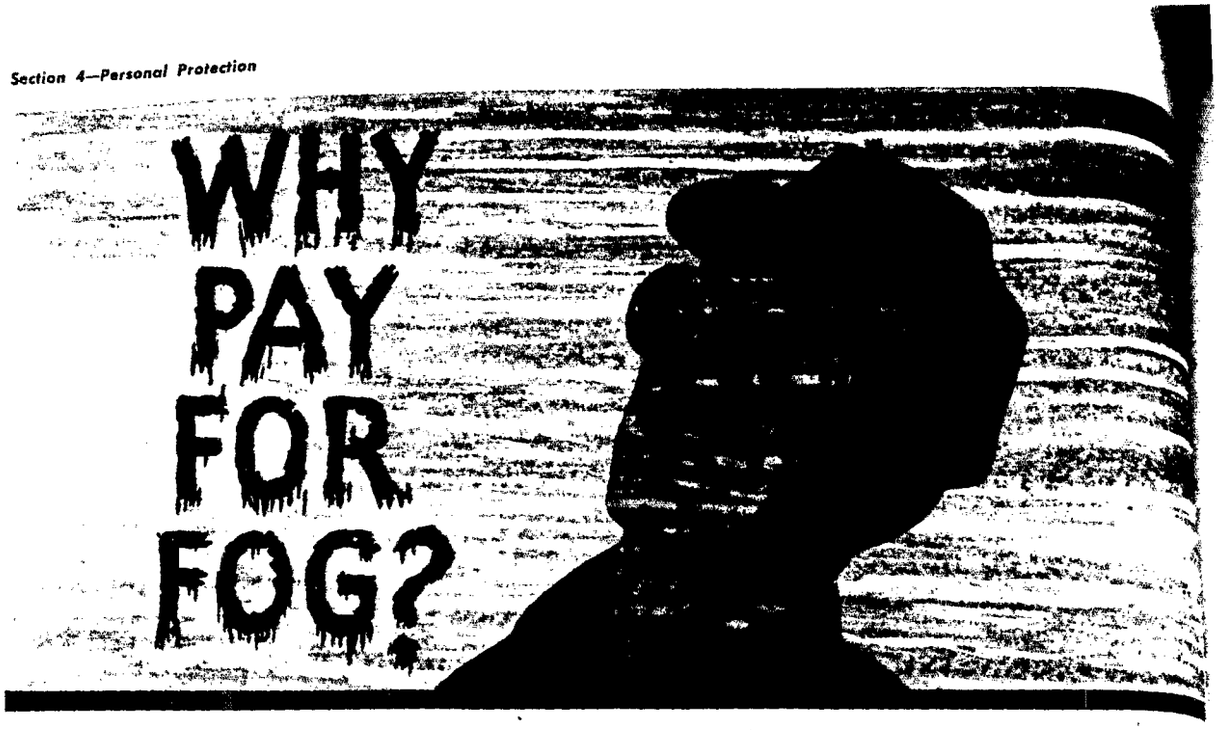
No. 225-14
ASBESTOS GLOVE

Asbestos glove. 14" length. Underwriter's 2½ lb. per sq. yd. asbestos with tough chrome side split leather reinforcement over entire palm, face of all fingers, well around small finger. Thumb seam entirely away from wearing zone. Full line of asbestos gloves and mittens, plain and leather reinforced. Your choice of lined or unlined. 11", 14" and 23" standard lengths. Special lengths on request.

DYNEL CLOTHING

Dynel chemical resistant clothing. Coats, Pants, Shirts, Laboratory Coats and special designs to order. We manufacture a complete line of industrial safety clothing in your choice of leather, asbestos, flameproofed duck and Dynel.

See you at New York Safety Show . . . Booths Nos. 9-10-11



Every time your workers stop to clear fog from their safety eye wear;
Every time safety goggles are perched uselessly on caps;
Every time a lens is scratched in cleaning;
—It costs you money.

You can eliminate this cost with K-LENS-M Liquid Method of lens cleaning. Fog that interferes with vision can steal production time all along the line wherever there is humidity, body heat or temperature extremes. K-LENS-M Lens Cleaner and K-LENS-M Anti-Fogging Liquid have proved for more than a decade to be the most effective and most economical way to combat this loss.

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Safer for glass and plastic a.g.

Quicker acting—longer lasting m.s.

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Costs less per day than anything tested F.R.

Big help to eye-protection program R.I.

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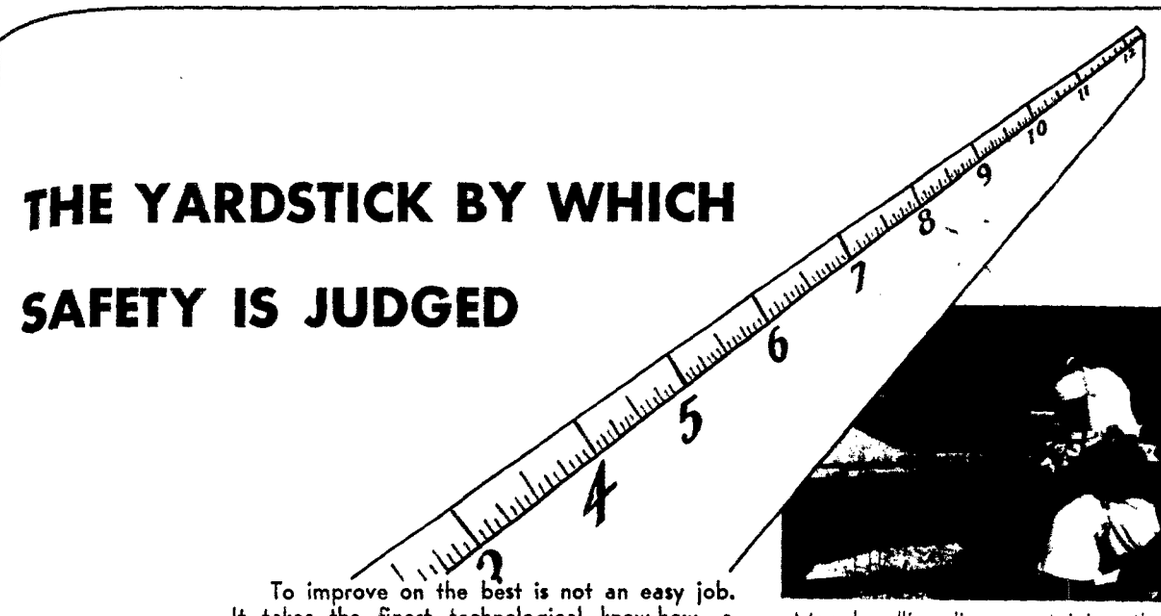
THE **WILKINS** CO., INC. CORTLAND 1, N. Y.

Liquid Lens Cleaner
Lint-free Lens Tissues
Anti-Fogging Liquid
Dispenser Cabinets
Anti-Fogging Station

K-LENS-M REG U.S. PAT. OFF.

THE YARDSTICK BY WHICH SAFETY IS JUDGED



Men handling lines containing the most corrosive chemicals used in industry, wear Gra-lite clothing. This large petrochemical plant found Gra-lite superior to all others for this tank draining job.

To improve on the best is not an easy job. It takes the finest technological know-how, a broad practical experience, and most important of all — the proper facilities.

Several years ago we brought all these factors together under one roof. We equipped and fully staffed a complete, modern safety research laboratory to provide the best in protective garments.

Among the results of our research program have been: vastly improved garment compounds, armored seams, cast soles, and the adding of days, weeks, months and sometimes years to garment life. These and many other developments have combined to make StaSafe Gra-lite and Neoprene garments "The Yardstick by Which Safety is Judged".

You can't fool the man in the lab... he knows chemicals. That's why he insists on Gra-lite when the danger is the greatest and the best in protection is needed. The way Gra-lite shrugs off many chemicals makes it his favorite.

A study in adventurous living! The man in this photo is filling a tank car in a chemical processing plant. He works in constant peril of a line leak or break. Yet he works without fear of injury . . . Gra-lite coveralls and hood provide tested and proven protection.

Designed for the dirtiest and grimiest jobs, StaSafe Neoprene garments were planned from the drawing boards to last longer. Don't be afraid to send them to the laundry . . . they come back again and again to give top notch protection.

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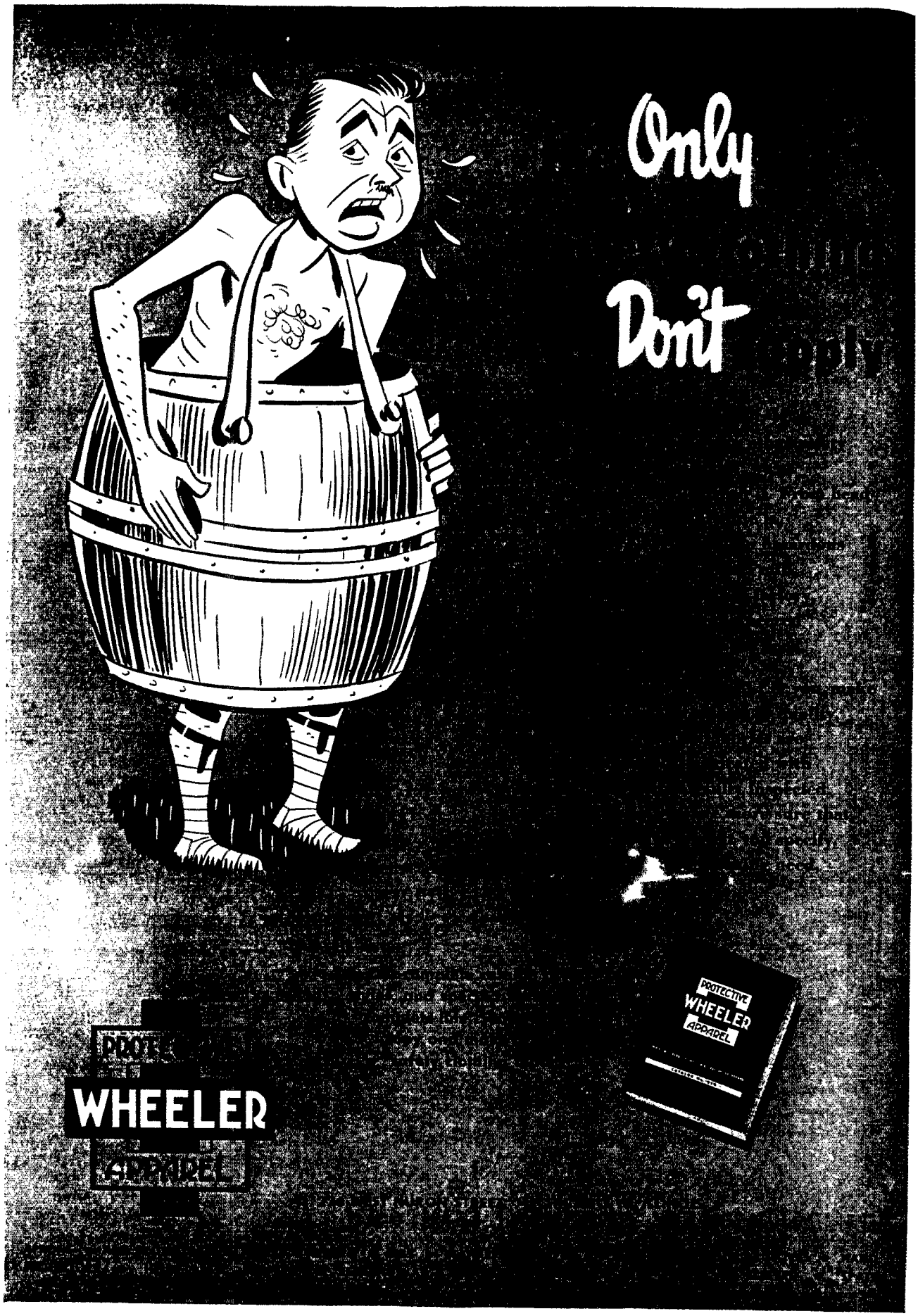
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Don't
PROTECTIVE
WHEELER
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APPAREL

NEW *Heavy-Duty GLOVES

* Hood's new Heavy-Duty neoprene-coated gloves were designed especially for use in plants when heavy objects with sharp edges are handled.

They have an extra-heavy coating to give longer wear, yet, due to a unique process, they remain flexible.

Hood Heavy-Duty gloves *proved* their durability in on-the-job wear tests in a radiator factory—they were still usable after several pairs of ordinary gloves had worn out.

Hood makes a complete line of industrial rubber and plastic gloves. Write today for our new illustrated catalog featuring the Hood Glove Guide, which shows you "how to choose the RIGHT glove for EACH job".

HOOD RUBBER CO.,
Watertown, Mass.

HEAT RESISTANT GLOVES — ALL-LEATHER

For Temperatures Up to 800 Degrees F.

Pliable — Durable — Comfortable — Economical

These all-leather, heat resistant gloves, developed after nearly ten years of research, are made from soft, flexible leather impregnated with insulating and refractory materials. They are both pliable and comfortable and possess remarkable wearing qualities along with a resistance to high temperatures. The gloves are designed with an inseam construction on the palm which avoids undue contact with the threads, thereby adding considerably to their life span. The inner lining is made from a soft selected leather and is sewn into the tips of the fingers, thus avoiding separation of the plies upon removing the glove from a perspiring hand.

The Heat's off when you wear ALL-LEATHER GLOVES

Full Information Upon Request

LIBERTY PROTECTIVE LEATHERS Inc.

BOX 987
GLOVERSVILLE, N. Y.

Safety-minded people should keep these circumstances in mind. They can look at the situation from a humanitarian angle, thinking of the troubles the unsuspecting self-doctor can cause himself. They can look at it from the standpoint of human relations, and the ills the self-doctor can cause others. Or they can look at it from the standpoint of pure materialism—profit and loss, dollars and cents, loss of man-hours and material.

From any point of view, the final analysis must be the same. If state legislatures, through action or inaction, encourage self-diagnosis and self-correction of visual deficiencies, the cause of safety will inevitably suffer from their shortsightedness.

The Employee Is a Customer

—From page 3

ployees should be instructed as to the precise equipment required during the various stages of operations.

The first step in any program of personal protection is the preparation of a list of approved equipment for various operations. Equipment should be selected on the basis of design, performance, reliability of the manufacturer, and compliance with accepted standards.

It is desirable to standardize items throughout the plant as far as possible. It is also good policy to review the list periodically, revising it when improved equipment becomes available.

Company policies vary considerably in the matter of charging employees for personal equipment. Items not likely to be used by employees off the job, such as respirators and plano goggles, are generally furnished without charge, although the employee held responsible for taking reasonable care of them. In some companies employees occasionally borrow protective equipment for work around home, which is generally regarded as evidence of safety mindedness.

With some items, such as safety shoes and prescription goggles, the company absorbs part of the cost. Employees generally take better care of property in which they, as well as the company, have a financial interest.

Low cost items used in considerable quantities can be issued most conveniently at the various manufacturing areas. More expensive and specialized equipment should be stocked and issued at a central point, so that a minimum stock may be maintained. Authorization for its

Here's Inexpensive Forearm Protection

JOMAC SAFETY SLEEVES

Tough Jomac® Safety Sleeves give wrist and forearm protection against burns, cuts, lacerations —and at low cost! They're washable. They will outwear many pairs of ordinary gauntlet gloves. They can be used with any style of work glove. Also available in red, flame-resistant material. Write for new illustrated Jomac Work Glove catalog. C. WALKER JONES CO., Dept. D, Philadelphia 38, Pa. *Plants in Philadelphia, Pa., and Warsaw, Ind.*

JOMAC

INDUSTRIAL GLOVES

outwear ordinary gloves by 700%

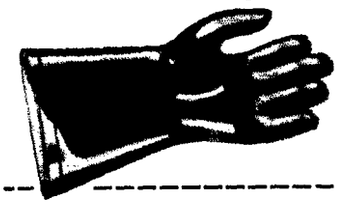
40% to 70% cost-saving with Edmont work gloves

job-fitted to your needs

NEOX (reinforced neoprene) coated gloves fit widest range of work

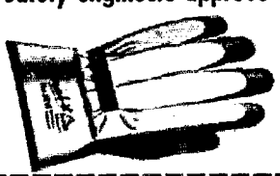
Never before a glove so equally resistant to abrasion, cutting, oil, acids, solvents, caustics, degreasants and heat. Good flexibility and grip. All Edmont coatings are bonded to strong fabric linings for comfort and snag-resistance. Full coated or palm coated.

"Redmont" NEOX gloves for heaviest duty service and safe grip



Non-slip finish, cured *into* 30% thicker red NEOX coating, grips wet or greasy surfaces as well as dry. Longest wearing, safest of all liquid-proof gloves. Seamless wearing surface, extra wide thumb span, curved fingers.

Safety engineers approve white-fabric lined, rubber-coated Grab-its



Tough, flexible, rough-textured natural rubber, bonded to sturdy white fabric lining, gives positive non-slip grip, wet or dry. Outwear ordinary canvas gloves up to 10 times. Far safer, too.

Grapplers grip even in grease; outwear other plastics 50%

Coated with DUROX, a leather-like reinforced plastic that retains its grip when wet, is extremely resistant to abrasion, oil and coolants, and stays flexible. Perfect fitting, too. Note wing thumb and curved, pre-flexed fingers.

Hand-fitting Monkey Grips far outwear leather, ordinary plastics

Special Edmont vinyl coating is second only to "DUROX" in wearing qualities and grip. Same wing thumb and pre-flexed finger design as "Grappler" gloves; fit the hand *all over*.

Make this FREE TEST to cut your costs, improve safety. Send us a brief description (on business letterhead) of your operations, materials handled, and temperature condition. Without cost we will recommend the best glove for the condition and forward samples for testing on the job.

Edmont Manufacturing Company, 1205 Walnut Street, Coshocton, Ohio

World's largest maker of coated industrial gloves

Edmont.

Edmont job-fitted gloves

withdrawal should come from worker's immediate supervisor who is in a position to watch its use and check needless waste.

From the standpoint of morale as well as health, it is desirable to clean, sterilize and repair equipment as needed, and always before use by another person.

Some plants have an employee who moves throughout the operating areas, cleaning, sterilizing and adjusting safety devices, such as goggles and respirators.

Other items can be cleaned and repaired more conveniently at a central point where spare parts are available. Manufacturers are invariably glad to furnish instructions for maintenance of equipment.

If the company provides employees with adequate, comfortable equipment, teaches them how to use it, and maintains it in a clean and sanitary condition, the program will be on a sound basis.

Head Protection

—From page 112

fabric sufficiently durable to withstand repeated laundering. Design should be simple so that pressing may be done by machine.

Flame resistant material should be used if worn near spark or flame.

Caps with peaks provide warning before the head comes in contact with a moving object. They should be provided in a sufficient variety of head sizes or with a sufficient range of adjustment to fit all persons.

Hair nets or **turbans,** preferred by many women, are not considered sufficient protection around moving machinery. Sometimes their use is a compromise with feminine taste.

Leg, Foot and Toe Accident Facts

According to the experience of compensation commissions of eight states, one out of every eight injuries and 12 per cent of the compensation awarded were charged to leg accidents.

Foot injuries were 8 per cent of cases and claimed 6 per cent of compensation, while injuries to toes were 4 per cent of injuries and 2 per cent of compensation.

Disabling toe injuries alone have been estimated to total 80,000 in 1952.

Handling objects and falling objects were the chief sources of injuries to these parts of the body, while falls were indicated to be the source of about one-fourth of the leg injuries.

Approximately 3 per cent of toe injuries reported to the Pennsylvania Department of Labor and Industry in 1951 were charged to lack of proper shoes.

Hands and Arms

FINGERS, hands and arms are involved in more than one-third of all reported industrial injuries. No parts of the body are more exposed to cuts, scratches, bruises, and burns in the course of the day's work.

Finger movement is necessary for practically all work and this makes protection difficult. For the forearm semi-rigid protectors are often practicable.

Finger stalls, gloves, mittens, and hand pads are made of a variety of materials to protect hands against cuts, abrasions and hot objects.

Some common materials and their uses are:

Canvas, the least expensive and least durable material, is satisfactory for light work. Duck and terry cloth are also used for handling objects which are not excessively hot.

A heavy twisted weave fabric is used for "hot mill" gloves. This material is also quite durable for handling rough objects.

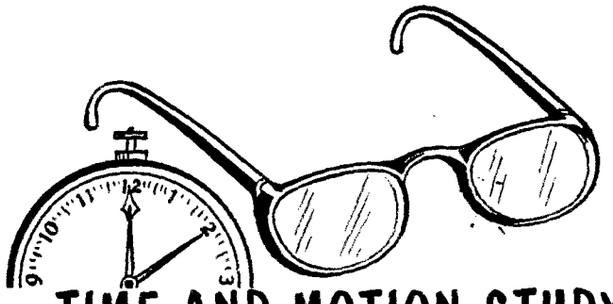
Leather is more expensive and more durable for most jobs. It offers greater protection against cuts and abrasions.

Chrome leather is used where there is exposure to sparks or molten metal. However, no animal or vegetable material will stand continued excessive heat.

Metal staples in gloves, mittens and hand leathers give increased protection when handling sharp or rough objects. Metal-studded gloves should not be worn around electric apparatus.

Asbestos is used where hands must be protected against extreme

Work gloves of heavy twisted loop pile fabric protect the hands against rough, sharp and hot objects. (C. Walker Jones Co.)



TIME AND MOTION STUDY
THAT WOULD ROCK THE NATION

During the hot summer months, a worker must stop frequently to remove his goggles or glasses . . . take out his handkerchief . . . mop his forehead . . . wipe his goggles . . . replace his goggles . . . put his handkerchief back . . . and resume work.

With dozens or even hundreds of workers doing this several times an hour, the expense is staggering. In some cases it adds up to hundreds of dollars a week in lost time.

You can turn this wasted time into efficient output . . . simply by using StaSafe Koolpads. With one of these cellulose sponge headbands dampened, then slipped on, the man who wears glasses can comfortably concentrate on production.

Write today for Bulletin No. 30 and a sample Koolpad

STANDARD SAFETY EQUIPMENT COMPANY
232 WEST ONTARIO STREET CHICAGO 10, ILLINOIS
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LICHTMAN
J.L.&S.
LEATHERS
NEWARK, N.J.

For Best Results
INSIST ON
LICHTMAN
Heat Resistant
LEATHER
For Protective Clothing

No Time Wasted!

WHEN WORKERS WEAR

STASAFE

WINDSOCKS

The Safety Hat Liners That Need No Installation

9" length $2.64 Doz.

11" length $3.00 Doz.

Windsock is a throw-away type head covering that's easy to use. Inexpensive—it actually costs less than the *time alone* spent by a worker in installing or in removing a permanent type liner. Warm, lightweight and snug-fitting. Windsock puts an end to those chilly drafts that whistle between the safety hat shell and cradle.

Write for Descriptive Bulletin No. 52

STANDARD SAFETY EQUIPMENT COMPANY

232 West Ontario Street, Chicago 10, Illinois

Win the Germ War!

Use PIONEER Stanzoils®

Only a liquid-tight glove gives positive physical protection from chemicals and germs that cause hand dermatitis. Also protects products from contamination by hands.

PIONEER *milled* neoprene stands extra hours of use in contact with oils, acids, caustics, detergents and solvents—has higher tensile, greater tear resistance than any other oil-resistant rubber.

Super-safe grip creates confidence, speeds work—handles wet slippery objects as if dry.

32 PIONEER styles, weights sizes and colors. Send for Stanzoil catalog—shows quickly how to select best, most economical glove for each job.

Stanzoil N-30 Whitecaps lightweight neoprene, sanitary white. Non-slip grip, curved fingers. Length 10½".

The PIONEER Rubber Company

237 TIFFIN ROAD • WILLARD, OHIO

STANZOIL

Quality Gloves for 35 Years

heat, as in steel mills, heat treating plants, welding, galvanizing, glass manufacturing, etc.

Asbestos gloves may be obtained unlined or with wool lining for added comfort and protection.

Heat-repelling mittens of aluminum-coated fabric between two layers of asbestos, jersey lined, offer unusual protection against heat. These mittens are reversible.

Rubber, neoprene and vinyl films are suitable for chemical laboratories and plants where acids, and other corrosives are handled.

Neoprene and vinyl are particularly useful where petroleum products and some organic solvents are handled. Synthetic films vary in their resistance to chemicals and the manufacturer should be consulted about exposures.

Fabrics coated with rubber, neoprene or vinyl are used for light cleaning operations. They offer greater protection against abrasion than uncoated fabric.

When rubber or plastic gloves are worn for long periods, a lightweight cotton liner is desirable. If no liner is available, talcum powder should be shaken into the gloves before wearing.

Rubber, plastic and asbestos gloves should be long enough to come well above the wrists. Gauntlets should be equipped with locking devices to assure a snug fit about the wrists. Sleeves should be kept rolled down, leaving no skin exposed.

Metal mesh gloves are used in meat and other cutting. They should fit snugly.

Linemen's gloves. Rubber gloves worn by linemen and others engaged in electrical work are of a special type made to exacting specifications. They should be tested regularly and discarded when found worn, cracked or punctured.

For line work, overgloves of leather are worn to protect the rubber against damage.

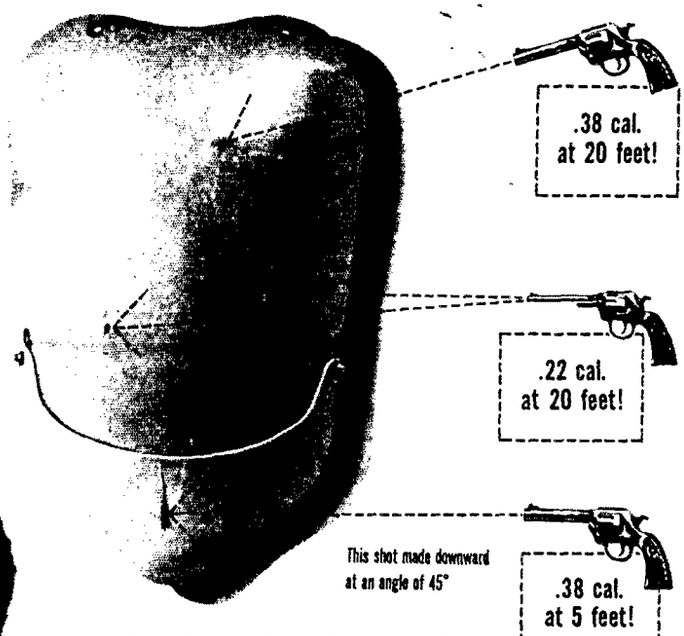
Generally, gloves should not be worn when operating revolving machinery. An exception is buffing and polishing on high-speed lathes where parts become too hot to handle with bare hands.

Wrist and Arm. Gauntlets offer some protection to the wrist, and arm protectors guard the forearm against light blows. The materials, depending on the protection required, include duck, wool leather, rubber, plastics, and asbestos.

Finger stalls may be used where a complete glove is not necessary.

THE NEW McDonald SHOK-VEST

provides complete protection for men operating high speed cutting and milling machines



Four bullets of .22 and .38 caliber were fired at close range as shown on the above photograph. Note that none of these missiles—even at high velocity—was able to penetrate the Shok-Vest. X-ray examination shows bullets still embedded in the light, but super-tough armor.

Developed by Lockheed safety engineers, the McDonald Shok-Vest provides complete torso and groin protection—so effectively that even a .38 caliber bullet fired at close range cannot penetrate this laminated glass-cloth vest. The Shok-Vest is light in weight (less than 3 lbs.) and only ¼" thick. Comfortable to wear—but absolutely does not restrict working freedom. Hinged groin protector allows complete freedom for operator when standing, bending or stooping.

WRITE FOR BULLETIN AND PRICES

F-McDonald COMPANY

MANUFACTURERS AND DISTRIBUTORS OF INDUSTRIAL *Safety* EQUIPMENT

5721 WEST 96th ST., LOS ANGELES 45
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FLAME RESISTANT

for Greater Safety

THE NEW

NEOPRENE APRON

Protect workers against hazards of fire, acids, caustics, oil, etc. Prevent loss of man hours. Save a life. Resists heat —absolute safety when working with combustibles, liquids or sparks.

THE KENNEDY

"Veki" Safety Cap

POSITIVELY COVERS

ALL HAIR

Style No. 75-GN. Combination twill with mesh back. Adjustable elastic-made to fit all head sizes. Workers can get *all* their hair in this cap—it's preferred nationally.

SPECIAL CLOTHING
MADE TO YOUR SPECIFICATIONS

Also manufacturers of Leather Aprons, "Chem-Tex" Plastic Aprons, Fire Resisting Duck and Asbestos Aprons, Welding Curtains.

WRITE DEPT. N-3 for complete information

RELY ON KENNEDY—
"We are pledged to safety"

V. E. KENNEDY—INGALLS CO.
3735 NORTH 35TH STREET
MILWAUKEE 16, WISCONSIN

LEADING MANUFACTURER OF SAFETY GARMENTS

HOLCOMB PROTECTION

PRODUCTS INCLUDE

GLOVES	SLEEVES	FOUNDRY LEGGINGS	JUMPER SUITS
SPATS	HATS	FOUNDRY BLANKETS	OVERSHOES
HELMETS	PANTS	FINGER PROTECTORS	CURTAINS
MITTENS	COATS		KNEE PADS
ARM PROTECTORS	MASKS		HAND PADS
	APRONS		

MADE IN ASBESTOS — LEATHER — FIREPROOFED DUCK

HOLCOMB SAFETY GARMENT CO.
118 North Jefferson Street Chicago 6, Illinois

These are available in combin... of one or more fingers. Mate... used are rubber, leather, plas... duck, asbestos, and metal mesh.

Hand leathers, or hand pads, a... often more satisfactory than glov... for protection from heat, abrasion o... splinters. They can be made heavie... and less flexible than gloves. The... should not be worn around movi... machinery.

Protective Creams

Creams are helpful in protecting the skin against many irritants when safety clothing is not practicable. These products are made in water-soluble and water-resistant types, each in several grades for differing exposures.

Water-soluble creams are used for protection against cutting oils, paints, lacquers, varnishes, etc.

Water-resisting applications are used where the cutting oil, cooling lubricant, or other irritant has a water content of more than 10 per cent. These can be removed with soap and warm water.

To be effective, coatings should be renewed frequently. They are not intended for protection against highly corrosive substances.

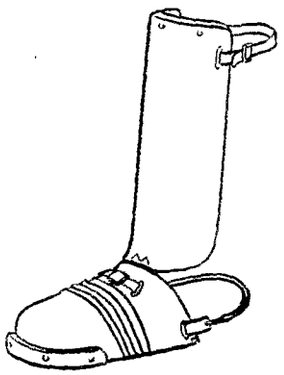
Leg Protection

PROTECTION for the legs is required in certain industries against the hazards of hot materials, corrosive substances, blows from sharp tools or heavy objects, and bites of poisonous snakes.

Protective garments vary from waist-length leggings to spats. For some occupations the extra protection of the longer types is desirable.

Materials commonly used are:

1. *Asbestos* for protection against molten metal, severe heat and heavy sparks.
2. *Chrome-tanned leather* for less severe exposure to splashes and sparks.
3. *Fire-resistant duck* to ward off light splashes and sparks.



Combination foot guard and shin guard.

N-35 Light weight neoprene. Curved fingers. Sizes 7, 8, 9.

↑**N-51** Heavy weight neoprene. 14" length. Sizes 9, 10, 11.

NL-34 Neoprene coated, elastic knit lined. Non-slip grip. Small, medium, large.

↑**N-54** Heavy neoprene. Curved fingers. 14" length. Sizes 9, 10, 11.

When employees hands are comfortable and properly protected by the *right* gloves for the job:

- there are fewer work stoppages
- injury claims decrease
- work goes faster, production increases

—all at lower per hour glove cost to your plant!

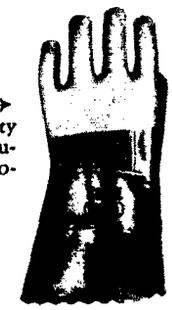
Long-wearing liquid-tight neoprene Stanzoil industrial gloves resist damage from acids, oils, solvents, caustics. 32 styles, weights, sizes, colors. New PIONEER catalog shows you *at a glance* how to select the most efficient and economical gloves for each operation. It pays you to write for your copy today.

N-31 milled neoprene. Light weight. 10½" length. Sizes 7, 7½, 8, 8½, 9

→ **N-32** Medium weight neoprene. 11" length. Sizes 10, 11

← **N-36** Medium weight neoprene. Curved fingers. 11" length. Sizes 10, 11.

→ **R-28** Extra duty twin-lined insulating style. Neoprene coated.



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17 E. 23rd Street

For Safety

Guardi-Ann Hat

U.S. PATENT NO. 2,562,966

Combines utmost protection and style. Exclusive patented features found in no other hat.

Write for Free Sample or Order Direct from us

$15.00 dz.

CHIC MAID HAT MFG. CO., Inc.
630 HIGH STREET
BUFFALO 11, N. Y.

4. *Rubber, neoprene* and *plastic* for work with acids, alkalis and hot water.

5. *Lightweight alloys* or *fiber* for protection against blows from axes, adzes, and heavy objects.

Men who work with molten metal use leggings designed to be removed instantly in an emergency. The leggings should have flares to protect the instep, and should be free from projecting buckles and clasps.

Shinguards of metal or fiber may be obtained separately or combined with footguards which cover the instep.

Chrome leather, when new, is less resistant to hot metal splashes and sparks. With use it acquires a tougher surface. It has been recommended that the operator keep out of the line of fire as much as possible until the garment has been broken in.

Knee pads are worn on jobs which require continuous kneeling.

Poisonous snakes are a hazard in some regions. Construction, petroleum, public utility and farm workers are among those most exposed. Bites received by a standing person are invariably below the knee. High boots are frequently worn, but more effective protection is provided by fiber leggings. Coverings of waterproofed duck protect the leggings against long wet grass.

RUBBER SUPER MP QUALITY PRODUCTS

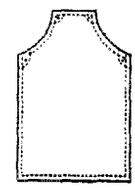
Protect With The Best

PROTECT WITH MILLER

- ★ APRONS
- ★ GLOVES
- ★ PITCHERS
- ★ CARBOY TILTERS
- ★ FOOTWEAR
- ★ HOSE
- ★ LEGGINGS
- ★ BUCKETS
- ★ TUBING
- ★ CLOTHING
- ★ MATS & MATTING
- ★ FUNNELS
- ★ DIPPERS

Largest Stocks In New York City
Immediate Delivery

SPECIAL ITEMS MADE TO YOUR SPECIFICATIONS



For Complete Information Send for Catalog No. 101 N.S.

MILLER PRODUCTS COMPANY, INC.

33NS Warren St., New York 7, N. Y.

Designed for
PROTECTION

Styles illustrated
50-20 Jacket
51-05 Pants
53-15 Hat

BUILT FOR WEAR

Sawyer's "FROG" ® BRAND
CLOTHING

can take it!

Tough — wears like iron, takes endless snagging, scraping, chafing and still gives full protection.
Rotproof — not affected by oils or chemicals — will not blister, crack or peel.

Waterproof — made with top quality base fabric, first saturation-coated, then coated on the inside as well as on the outside with specially blended Neoprene Latex.

Many styles — in black, yellow or Hunter's green
Write for catalog

THE H. M. SAWYER & SON CO.
Cambridge, Mass.

Respiratory Protection

—From page 105

Filters should be replaced when clogged, and the used ones discarded. Canisters should be replaced at regular intervals as recommended by the Bureau of Mines. Even when not in use they lose their effectiveness with time.

Cleaning and disinfecting. All parts, except canisters and cartridges, should be cleaned after use. Face pieces, air lines and hose may be washed with soap and water, rinsed in clear water, and dried.

All respiratory devices should be disinfected before being passed from employee to employee. Methods of disinfection include:

1. Immersion in solution of quaternary ammonium salt detergent. This material is not injurious to skin or to rubber.

2. Subjection to a moist atmosphere of antiseptic gas, such as formaldehyde, for 10 minutes.

3. Immersion for 10 minutes in a solution of formalin made by dissolving 1 part of 40 per cent formaldehyde in 9 parts of water.

Parts should be rinsed thoroughly after sterilizing to remove traces of disinfectant, then dried.

Elastic head bands may be damaged by sterilizing but they should be washed with soap and water. Bands should be replaced when the respirator is transferred to another employee.

Occupational Disease Facts

The incidence of occupational diseases is considered greater than records indicate, since the effects of these diseases are reportable only when disability becomes evident.

In a recent year 5 per cent of the compensation claims approved by the Wisconsin Industrial Commission were for occupational diseases. The amount of compensation paid was 4 per cent of the total.

The New York State Workmen's Compensation Board reported occupational diseases as 3 per cent of all cases. About 6 per cent of the compensation paid was assigned to occupational diseases.

The seriousness of occupational disease is quickly apparent. The average disease award in New York was for 80 weeks, compared to 34 weeks for all other cases. In Wisconsin the average disease award was 16 weeks, compared to 14 weeks for accidents. If dermatitis cases are excluded the average New York disease award rises to 146 weeks, and the average Wisconsin award to 26 weeks.

EMALFON*
—SINGER'S *Patented*
INSULATED GLOVE

A new kind of glove—so different it's patented—ideal on hot jobs that do not exceed 700 degrees. Made with three thicknesses of material: Outer layer of terry cloth, treated to make it flame-resistant; inner layer of all-wool for added insulation; third layer (next to skin) of soft, fleeced cotton. This combination gives flexibility and long wear.

In many cases it has replaced asbestos gloves at a big saving. Fine for extra warm welding jobs.

If not available from your safety equipment dealer, write us for information and prices.

NEW CATALOG—just off the press!
*Trade Mark Reg. U. S. Pat. Off.
Patent No. 2,650,365

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GLOVE MFG. CO.
860 W. WEED ST. CHICAGO 22
"Work Gloves That Sing"

APRONS THAT PROTECT

- **Flame Resistant**
- **Acid Resistant**
- **Grease & Oil Resistant**

OTHER SAFETY FIRSTS

Welders' Curtains, Gloves, Hand Pads for Steel and Glass Handlers.

ALL BASCO — QUALITY PRODUCTS
Send for our FREE catalog.
What are your needs?
Write for Samples and Prices.

ASSOCIATED
BAG & APRON COMPANY
2650 W. Belden Ave., Chicago 47, Ill.

Multi-Tenant Buildings

BUILDINGS shared by several tenants must impose restrictions which do not confront companies which have sole occupancy. Fellow tenants and the building management, as well as the company's own personnel, must be considered.

Tenants of these buildings are usually smaller concerns engaged in mercantile and light manufacturing operations. Often the buildings are located in built up districts. Traffic and parking may cause difficulties.

Zoning regulations may restrict some types of operations and approval of buildings and facilities should be secured.

Mutual responsibilities for maintenance and services should be understood by tenant and management.

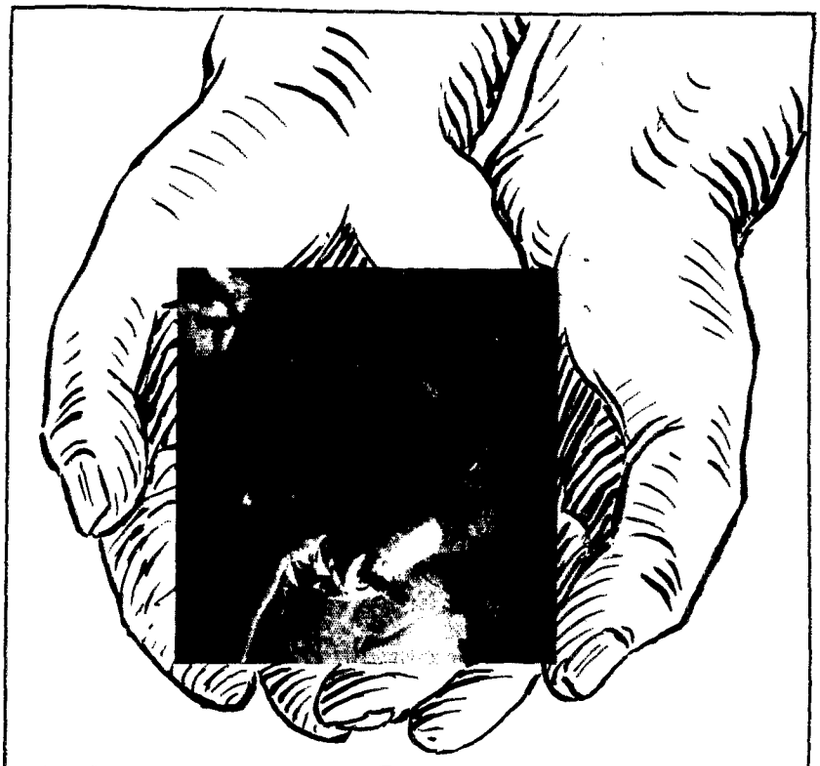
The following should also be checked:

1. Floor load capacity.
2. Plant protection
   - Type of building construction
   - Exits
   - Fire alarms and fire-fighting apparatus
   - Emergency lighting equipment
   - Watchman service
   - Proximity to hazardous operations
3. Electric wiring—Is it adequate and safe for light and power requirements?
4. Ventilation and exhaust—To protect health of employees and avoid creating a public nuisance.
5. Elevators — Location and provision for operation and maintenance.
6. Personal service facilities
   - Wash and rest rooms
   - Neighboring restaurants and possibilities for in-plant feeding.
7. Public transportation and parking.
8. Possibilities for expansion.

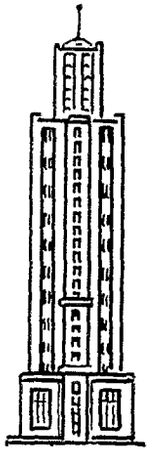
Waterproof Covers

Waterproof covers are often needed to protect material and equipment against water damage in case of fire. They are also useful for other emergencies such as leaks in piping or when rain enters through broken windows or torn roofing during severe windstorms.

In addition to the familiar tarpaulin, waterproof covers of vinyl plastic sheeting are used for some purposes. These covers are nonconductors of electricity and are transparent enough for easy visibility of work to be done. They are sometimes used by public utility companies for protecting linemen's repair work. They are also used for covering boats and trucks and for other specialized uses.



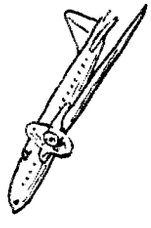
INDUSTRY TREMBLES



American industry is a big, powerful moving force capable of creating 100-story skyscrapers, fifty-thousand-ton warships, 200-passenger aircraft, and atom bombs by the score. Its heart is as big as all outdoors and its friends are as numerous as the sands on a beach.

But every once in a while, its mighty arms tremble and its massive heart skips a beat . . . and the cause of it all is a little man . . . but a very important man . . . the welder.

American industry herself is a tribute to the welder's efforts. Still, when he moves into the shop for a repair job, American industry — as big as she is — holds her breath . . . for the welder brings with him a shower of sparks and the almost constant threat of fire.



After the recent disastrous fires, we placed our full research facilities on the problem of the welder and his sparks . . . and have developed a simple system to control these sparks and globules of hot metal.

Write to us at one of the addresses shown below and we will send you information on Stasafe developments designed to help American industry protect herself against the sparks from her favorite son . . . the welder.

STANDARD SAFETY EQUIPMENT COMPANY

232 WEST ONTARIO STREET CHICAGO 10, ILLINOIS

NEWARK 4, N. J.. 597 BROADWAY
CLEVELAND 10, OHIO 855 EAST 152nd ST.
LOS ANGELES 16, CAL. 2952 CRENSHAW BLVD.

STA SAFE HAIRGARDS

for Cooler, More Comfortable Hair protection

ALL MODELS ARE:

- **Adjustable**
- **Lightweight**
- **Safe**

Designed for safety, StaSafe Hairgards guard against scalping and possible infection from oil mist and dust. They are available in a wide variety of attractive styles and color combinations.

For Full Information write today for Hairgard Bulletin No. 53

makers of STA SAFE *Products*

STANDARD SAFETY EQUIPMENT CO.
232 WEST ONTARIO STREET · CHICAGO 10, ILLINOIS

FOR SAFETY and PROTECTION
FROM THE WET · GREASE · OILS · ORDINARY ACIDS

TOWER'S
FISH BRAND
*NEOPRENE

These sturdy, durable, 100% DuPont **NEOPRENE** garments give that extra service to those who require protection from greases, oils, and most acids. There is a TOWER protective garment especially adaptable for every type of industrial activity. We will be glad to recommend the garment which best meets your individual requirements.

**A chemical rubber product of the DuPont Company*

For folder of styles and detailed information write Department NS.

NEOPRENE RUBBER*

TOWER'S FISH BRAND

A. J. TOWER CO.
24 SIMMONS ST. BOSTON, MASS.

TOWER'S ARROW BRAND

Advance wo... gloves fit the job!

SWING THUMB No. 3062 WELDER'S GLOVE

No. 2396A STEEL REINFORCED LEATHER GAUNTLET

No. 1250 ASBESTOS GLOVE

...here's an Advance... for the need. Advance gloves ... recognized by industry and ... alike as the superior work ... because they are designed ... specific job applications.

High quality materials, exacting workmanship and Advance mass-production techniques insure you of a product that you can depend on for quality and wearability at low cost.

Three styles of these economical, longer wearing gloves are shown above. For the complete story on the Advance line of work gloves and safety clothing for *all* industries, write today for the latest catalogue.

ADVANCE GLOVES

"A better work glove for every purpose"

ADVANCE
GLOVE MANUFACTURING CO.
902 W. Lafayette Blvd.
Detroit 26, Mich.

Foot Protection

FOOTWEAR for the industrial worker must protect the feet against moisture and hot substances, rough surfaces and sharp objects underfoot, and falling objects. Shoes must be durable, properly fitted and comfortable. Many types of industrial shoes meet these requirements.

Footguards, supplementing safety shoes for more severe exposures, protect the instep as well as the toes.

Safety shoes. As generally used, the term means shoes with reinforced toecaps. These are available in a variety of styles for men and women.

Steel toecaps are specified for most occupations because of their ability to resist heavy blows.

Fiber and plastic are used for shoes worn around electric equipment where resistance to impact is less important than insulation.

Standards. American War Standards, Z41 Series, of the American Standards Association, are still the accepted guide for purchasers of safety shoes for men and women.

Specifications call for a well-constructed, durable work shoe with the toe reinforced with a steel cap. The cap is supported on a flange resting on the sole. It must support a static load of 2500 pounds and resist the impact of a 50-pound weight dropped one foot. When subjected to either test, the inside of the toecap must not come closer than one-half inch from the upper surface of the sole.

Strength requirements for shoes for both men and women are identical.

Shoes meeting these requirements bear an identification stamp on one shoe of each pair. The stamp indicates the type of shoe according to the code classification.

Distribution

To secure acceptance of foot protection, safety shoes must be comfortable and properly fitted. Purchasing must also be made convenient.

Many of the larger companies maintain well equipped stores with a wide range of lasts and sizes and trained attendants to fit the shoes. Shoes are sold at cost and employees may buy them on the payroll deduction plan. Safety shoes are sometimes awarded as contest prizes.

Smaller plants are not always in a position to stock an adequate range of sizes or provide expert fitting service. Many companies have made arrangements with local shoe dealers whereby employees may purchase shoes through payroll deduction.

A mobile shoe service is offered by dealers in some areas. A truck equipped as a shoe store is manned by an experienced fitter who is responsible for all adjustments. A variety of styles and a full range of sizes are carried. Periodic visits are arranged and between visits shoes can be obtained quickly on special order.

This service is rendered on a moderate mark-up basis and the plant can charge the employee any part of the cost.

It is desirable for a worker to have more than one pair of safety shoes so they can be rotated. Shoes will last longer and be easier on the feet. The wearer will also have a pair available while the other is being repaired.

Many companies encourage purchase of safety shoes for dress. They know that the buyer's feet will be protected when the shoes end their days on the job.

Types of Shoes

Safety shoes, generally, are well made on lasts designed for comfort. They are available in many types and styles, some suitable for street wear. The protective toecap does not add appreciably to the weight or cost of the shoe.

General purpose shoe. The most widely used type is the blucher, in high cut or oxford styles. It is available in a wide range of sizes, widths and lasts, ranging from rugged, heavy-duty styles to those suitable for street wear. It is the basic type, with certain differences in detail for special occupations.

Foundry shoes. An early type of safety shoe was the foundry shoe with elastic panels at the sides. There is no opening on the instep where molten metal or hot sand can penetrate and the shoe can be pulled off quickly in an emergency. This model is furnished with steel box toe.

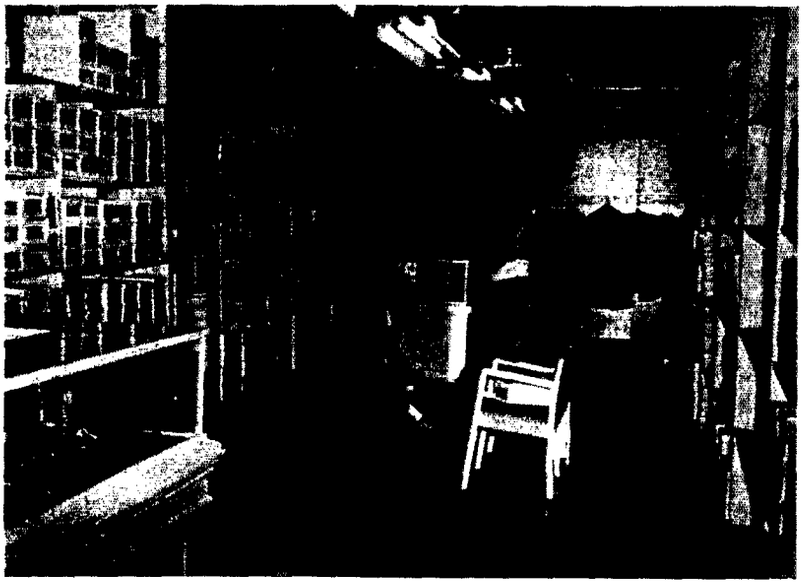
Spark-proof shoes. Shoes with brass hooks and eyelets and brass nailed heels are worn in some industries where sparks from iron or steel might ignite flammable gases.

Shock-resisting shoes. Some are non-metallic with fiber box toes; others have steel box toes which are partially insulated. These shoes are designed for work around electric current. They are also worn by those handling flammable materials, by workers in explosives plants, and in grain products refining operations.

Conductive shoes are designed to ground body static and prevent its building up in the body to the point where it could cause a spark.

The conductivity of these shoes is affected by other conditions. Wool, natural silk and nylon socks act as insulators to the body; cotton, lisle

To page 142



An adequate range of styles and sizes, expert fitting, and an attractive stockroom promote safety shoe sales. (John Morrell & Co.)

COMING EVENTS

In the Field of Safety

Mar 7-9, Louisville, Ky.
Southern Safety Conference and Exposition (Kentucky Hotel). W. L. Groth, executive director, P. O. Box 8927, Richmond 25, Va.

March 10-11, Philadelphia, Pa.
Twentieth Annual Philadelphia Regional Safety and Fire Conference and Exhibit (Bellevue-Stratford Hotel). Walter W. Matthews, managing director, Philadelphia Chamber of Commerce Safety Council, Architects Building, 17th and Sansom Sts., Philadelphia 3.

Mar. 17-18, Indianapolis, Ind.
Central Indiana Safety Conference and Exhibit (Claypool Hotel). Jack E. Gunnell, director, Indianapolis Safety Council, 320 N. Meridian St., Indianapolis 11, Ind.

Mar. 22-23, Boston
33rd Annual Massachusetts Safety Conference and Exposition. (Hotel Statler). Edgar F. Copell, president, Massachusetts Safety Council, 31 State St., Boston 9, Mass.

Mar. 24, Madison, Wis.
Wisconsin Canners' Safety Institute.

March 29-30, Dallas, Tex.
Annual Texas Safety Conference. (Baker Hotel). J. O. Musick, general manager, Texas Safety Association, 830 Littlefield Bldg., Austin, Tex.

March 29-31, Los Angeles
First Annual Southern California Safety Congress. (Ambassador Hotel). Joseph M. Kaplan, secretary-manager, Greater Los Angeles Safety Council, 610 South Main St., Los Angeles 14, Calif.

Mar. 30-Apr. 1, Pittsburgh, Pa.
Twenty-ninth Annual Western Pennsylvania Safety Engineering Conference and Exhibit (Hotel William Penn). Harry H. Brainerd, executive manager, Western Pennsylvania Safety Council, 605 Park Bldg., Pittsburgh 22, Pa.

Apr. 5-6, Toronto, Ont.
Industrial Accident Prevention Associations, Annual Convention (Royal York Hotel). R. G. D. Anderson, general manager, 600 Bay St., Toronto 2, Ont.

Apr. 5-9, New York
Twenty-fourth Annual Greater New York Safety Conference and Exposition (Statler Hotel; Convention, April 5-9; Exposition, April 6-9). Paul F. Stricker, executive vice-president, Greater New York Safety Council, 60 East 42nd St., New York 17.

Apr. 14-16, Charleston, W. Va.
Twentieth Annual West Virginia Statewide Safety Conference. Charles Hopkins, managing director, West Virginia Safety Council, Inc., 316-17 Masonic Building, Charleston 1, W. Va.

Apr. 20-22, Buffalo, N. Y.
Fourteenth Western New York Safety Conference and Exhibit (Hotel Statler). Eugene C. Hohlstein, executive secretary, Blaw-Knox Co., Buflovak Equipment Div., 1543 Fillmore Ave., Buffalo 11.

Apr. 20-22, Detroit, Mich.
Michigan Safety Conference (Sheraton-Cadillac Hotel). Jerry E. Moore, executive secretary, c/o Corporate Service Inc., 2210 Park Ave., Detroit 1, Mich.

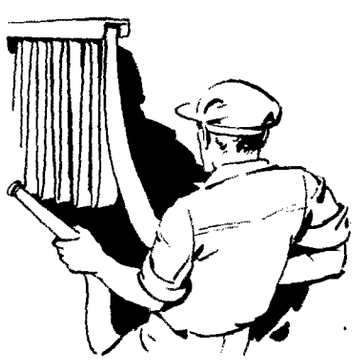
Apr. 20-22, Columbus, Ohio
Twenty-fourth All-Ohio Safety Congress and Exhibit (Deshler-Hilton Hotel). James H. Fluker, superintendent, Division of Safety and Hygiene, Industrial Commission of Ohio, Columbus 15, Ohio.

Apr. 27-28, Fort Wayne, Ind.
Northeastern Indiana Safety Conference and Exposition. Ivan A. Martin, manager, Safety Council, Chamber of Commerce, Fort Wayne 2, Ind.

Apr. 27-29, St. Louis, Mo.
Central States Safety Conference. (Hotel Chase). Reyburn Hoffman, secretary-manager, The Safety Council of Greater St. Louis, 511 Locust St., St. Louis, Mo.

Apr. 29, Prairie du Chien, Wis.
Southwest Regional Conference, Wisconsin Council of Safety.

Apr. 30-May 1, Boulder, Colo.
Colorado Joint Governor's Teen-Age and Adult Traffic Safety Conference. (University of Colorado). H. A. Storey, executive director, Colorado Highway Safety Council, Room 302, State Capitol Bldg., Denver 2, Colo.



May 4-6, Washington, D.C.
The President's Conference on Occupational Safety. William L. Connolly, director, Bureau of Labor Standards, United States Department of Labor, Washington 25, D.C., or Chas. F. Alexander, manager, Industrial Department, National Safety Council, 425 North Michigan Ave., Chicago 11.

May 4-6, Raleigh, N. C.
Twenty-fourth Annual North Carolina Statewide Industrial Safety Conference (Sir Walter Hotel). H. S. Baucom, safety director, North Carolina Industrial Commission, Raleigh.

May 5, Bethlehem, Pa.
Twenty-seventh Annual Eastern Pennsylvania Safety Conference. (Hotel Bethlehem). H. A. Seward, secretary-treasurer, Lehigh Valley Safety Council, 602 E. 3rd St., Bethlehem, Pa.

May 6-7, Baltimore, Md.
Annual Governor's Safety-Health Conference and Exhibit (Lord Baltimore Hotel). Joseph A. Haller, director of safety, State Industrial Accident Commission, Equitable Bldg., Baltimore 2, Md.

May 13, Sheboygan, Wis.
Fox River Valley and Lakeshore Regional Conference, Wisconsin Council of Safety.

May 18, Janesville, Wis.
Rock River Valley Regional Conference, Wisconsin Council of Safety.

May 20, Kenosha, Wis.
Southeast Lakeshore Regional Conference, Wisconsin Council of Safety.

May 20-21, Seattle, Wash.
Forest Products Safety Conference. (New Washington Hotel). Robert L. Gilmore, c/o Rayonier Incorporated, P. O. Box 539, Hoquiam, Wash.

May 27-28, Toronto, Ont.
Annual Meeting, Mines Accident Prevention Assn. (King Edward Hotel). S. W. McIntosh, secretary, 320 Bay St., Toronto 1, Ont.

June 8, Wausau, Wis.
Wisconsin River Valley Regional Conference, Wisconsin Council of Safety.

June 9, Eau Claire, Wis.
Northwest Regional Conference, Wisconsin Council of Safety.

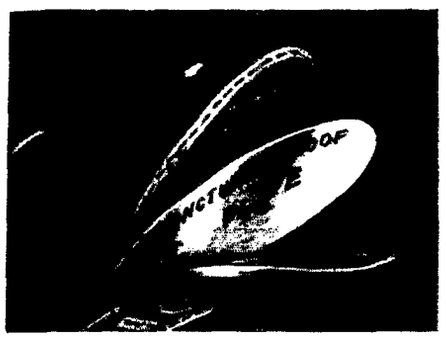
Sept. 14-16, Cleveland, Ohio
Sixteenth Annual Ohio State Safety Conference and Exhibit (Hotel Carter). Carl L. Smith, executive secretary, 2073 East Ninth St., Cleveland 15, Ohio.

Sept. 16-17, York Harbor, Me.
Twenty-seventh Annual Maine State Safety Conference (Marshall House). A. F. Minchin, secretary, Maine State Safety Conference, Department of Labor and Industry, Augusta, Maine.

Oct. 18-22, Chicago
42nd National Safety Congress and Exposition (Conrad Hilton Hotel). R. L. Forney, general secretary, National Safety Council, 425 North Michigan Ave., Chicago 11.

NEW! NON-SLIP puncture proof STEEL TOE SAFETY SHOES

FLIGHT DECK BOOTS WITH TRI-VAC SOLES AND HEELS— U.S. NAVY STANDARD ISSUE FOR PERSONNEL HANDLING AIRCRAFT ABOARD NAVY CARRIERS



PUNCTURE PROOF *Protection!*

Never before available in safety shoes! Thin, flexible, lightweight stainless spring steel plate underneath outsole. Gives you more protection—

- **SAFETY IN FRONT**
- **SAFETY UNDERNEATH**

FLEXIBILITY PLUS

Even with steel plate, shoe is extremely flexible. Pliant-requires "no breaking in."

UNDERNEATH PROTECTION

Sharp metal fragments with jagged ends, spikes, nails, glass, etc., cannot penetrate steel plate.

Another **RICO** *Exclusive!*

NEW, PATENTED TRI-VAC NEOPRENE SOLES AND HEELS PROTECTS FROM ALL

WET, OILY, ICY SLIPPING HAZARDS!

NO. S-484, CHUKKA STYLE
(Illustrated above)

Non-marking Brown Tri-Vac Neoprene Soles and Heels, brown waterproof upper leather, patented welt-sealing process, dacron stitched, genuine rawhide laces, bellows tongue.

FREE CATALOG ON REQUEST

"Safety Shoes for Every Job in Industry"

RICO

RECORD INDUSTRIAL COMPANY

Dept. NT, 3301 ARCH ST. • PHILADELPHIA 4, PA.

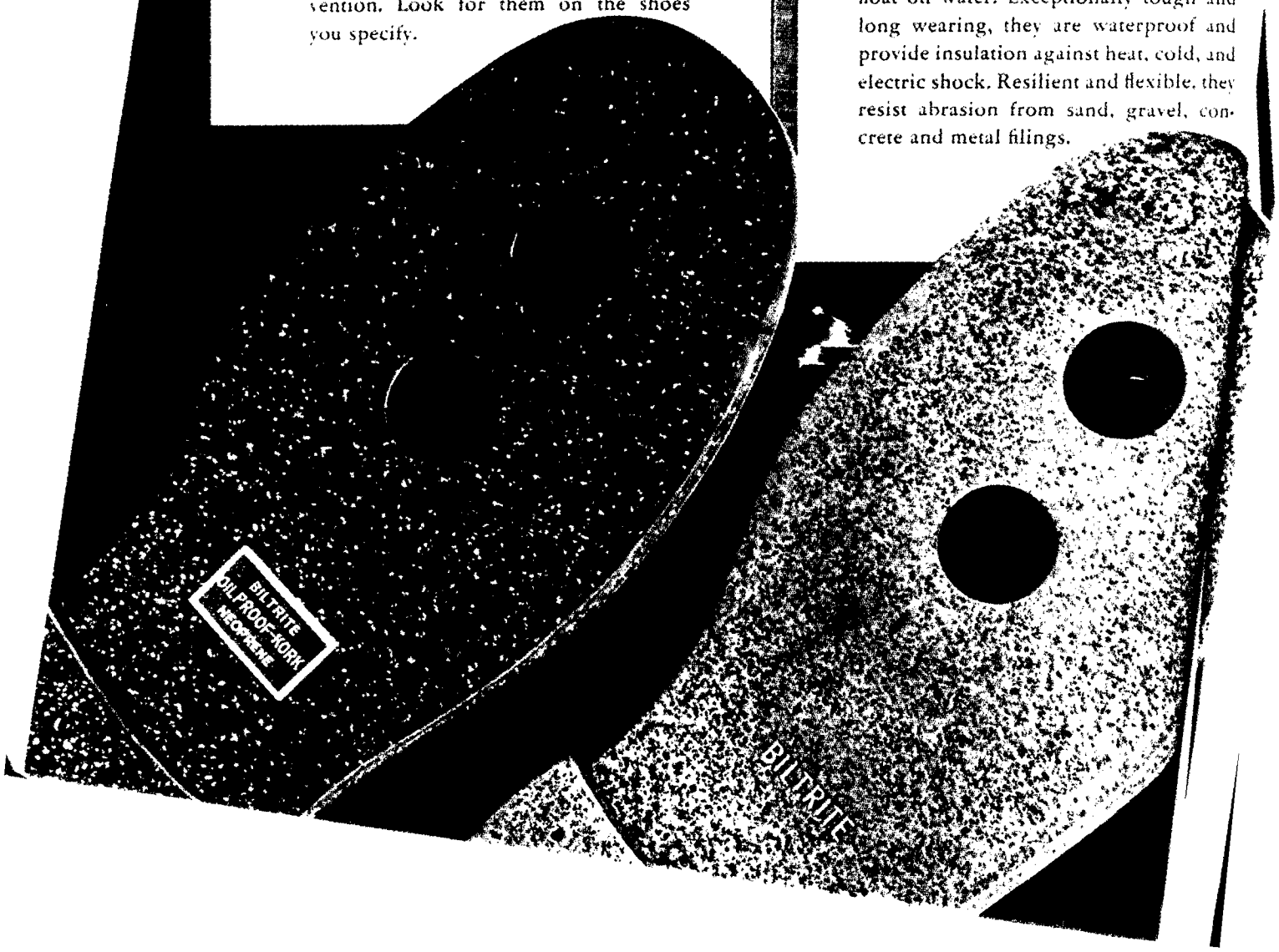
Safety SOLES WITH THE SURESTEP

NEOPRENE-CORK Safety Soles

Biltrite SURESTEP Neoprene-Cork Safety Soles have maximum resistance to oil, grease, chemicals and acids—plus the lightness and flexibility for long-wearing comfort. The twin green safety plugs, also of oilproof Neoprene, add to the non-slip protection so essential to accident prevention. Look for them on the shoes you specify.

FLOATING CORK Safety Soles

Rugged and massive in appearance, Biltrite SURESTEP Cork Safety Soles are not cellular—yet are so light they actually float on water. Exceptionally tough and long wearing, they are waterproof and provide insulation against heat, cold, and electric shock. Resilient and flexible, they resist abrasion from sand, gravel, concrete and metal filings.



Safety SHOES

GREEN SAFETY PLUGS

NEOPRENE
Safety Soles

Biltrite Neoprene Oilproof Composition Soles have long been famous for premium quality and unusual long wear. Now they are improved still further with the twin SURESTEP Green Safety Plugs. Engineered specifically for the industrial trade, and for the approval of exacting industrial safety engineers, all Biltrite SURESTEP Safety Soles have matching heels of identical materials.

From the World's Largest Producer of Soling Materials

BILTRITE
HEELS AND SOLES

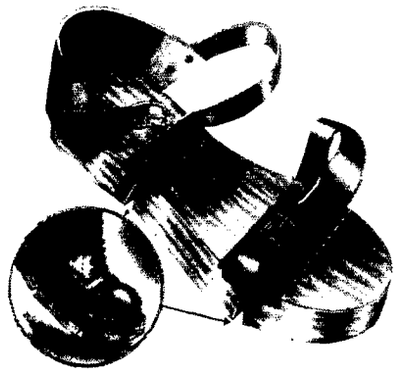
AMERICAN BILTRITE
RUBBER COMPANY

CHELSEA 50, MASS. • SHERBROOKE, QUEBEC, CANADA

AFFILIATES . . . BILTRITE RUBBER COMPANY, CHELSEA 50, MASS. • AMERICAN TILE & RUBBER CO., TRENTON 2, N.J. • PANTHER-PANCO RUBBER CO., CHELSEA, MASS. • AMERICAN TILE & RUBBER CO. (CANADA) LTD., SHERBROOKE, QUEBEC • PANTHER RUBBER CO., LTD., SHERBROOKE, QUEBEC, CANADA

I KNOW I'M SAFE... with WOODEN SOLES!

HOT FOOT SANDALS



WOOD SOLES THAT BEND

Stock No. 351

An improved REECE "HOT FOOT" SANDAL with two strong sole leather hinges provides real insulation for those hot jobs. Straps on quickly over any shoe. Sizes: Small—Medium—Large.

No. 300.....One Hinge Sole
No. 500.....Pavers Sandal
No. 555.....Hinged Heel

ACID PROOF

Stock No. 7711

Reece Acid-Shoe withstands extreme caustics. Canvas uppers impregnated with neoprene. "Perfect Rocker" Wood Sole—Lightweight. Sizes—5-13. No half sizes.

No. 7704-S—Same as above with built in STRONG STEEL TOE.

SHOWER SANDALS

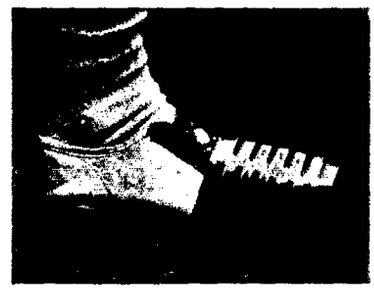
Stock No. 809

PROTECT FROM "ATHLETE'S FOOT"

No. 440.....Perfect Rocker
No. 809.....Perfect Rocker
No. 140.....Platform Rocker
No. 180.....Platform Rocker

Sizes—5 to 13 Incl. or small, medium, large, lightweight, sanitary protection.

FOR BROKEN TOES



REECE ORTHOPEDIC SHOE

No. X175-CG-Men's No. X173-CG-Women's for BROKEN FOOT BONES—CRUSHED TOES SMOOTHLY finished WOOD SOLE

with AIRFOAM insole acts as splint.. Keeps injured foot immobile. Keeps a man on the job despite injuries. Fits over bandages. Easily stocked—no lefts—no rights. Also available without foot guard.

SIZES — SMALL-MEDIUM-LARGE

Write Today for Complete Catalog

They Insulate They are Puncture Pro

STRONG STEEL TO

No. 504-S—Double duty for safe- with this Reece "Perfect Rocker" Wooden Sole and Steel Toe Shoe . . . made with durable leather uppers.

Keeps the feet at body temperature, regardless of room or floor conditions.

Sizes—5-13—No half sizes.

No. 501-S—Same as above with waterproof leather for those wet jobs.

...FOR THE FOUNDRY

Stock No. 511-C. G.

Reece Corrugated Footguard has great strength, is lightweight, can be attached to any Reece "Perfect Rocker" Wood Sole Boot or Shoe. Also protects from hot sand and boiling liquids.

Sizes—5-13—No half sizes.

REECE WOODEN SOLE SHOE CO.

There is no substitute for Reece Wooden Soles

Dept. NS—M-54 Columbus, Nebraska

IT'S THE NEW

NEO COMP®

SOLES & HEELS

NEW TREAD DESIGN

Greater wear and greater slip-resistance is afforded by the wider, longer and deeper tread design of the new Neo-Comp sole. Well spaced lug design reduces pick-up of foreign material.

NEW YELLOW PLUG

An easy-to-identify mark that you can depend on for greater comfort, safety and wear. It denotes a quality sole made of oil-resistant duPont Neoprene—"Look for the Yellow Plug before you buy."

NEW 18-14 IRON

Now Neo-Comp soles are available in 18-14 as well as straight 14 iron thickness. Greater wear-better balance is assured by this new 18-14 iron sole. Available in brown, black or natural with straight breast 13 washer matching heel.

"Sell 'em the Shoe with the sole for the job"

WRITE FOR SAMPLES TODAY

Address a card to the Industrial Division, Gro-Cord Rubber Co., 217 N. Jackson St., Lima, Ohio—Ask for a pair of the new Neo-Comp soles with matching heels. They will be gladly furnished at no cost to you.

GRO-CORD RUBBER CO.
LIMA, OHIO

Canadian Plant
GRO-CORD RUBBER CO. of CANADA LTD
Tillsonburg, Ontario

Safety Shoe Specialists

JAMES H. CHILDS, JR.
Sales Manager

CHARLES E. G
Pittsburgh, P

HARVEY
Hon

CALL UPON THEIR KI

Safety shoe experience is at your call when you consult any of these fine Iron Age representatives. These friendly people operate in all important industrial centers. They have been thoroughly trained to tailor and install safety shoe programs to meet any individual plant requirement. But their first consideration is the foot health, comfort and safety of your employees. Sure, they represent Iron Age and handle the style and value leaders in the safety shoe industry. But Iron Age believes in service first. That's why ours is the fastest growing line.

H. D. MELTON
Huntington, W. Va.

NORTON BAK
Birmingham, Al

ALBER
Ho

Ask us to have the Iron Age representative in your locality survey your operation without obligation. He will impartially recommend the stock of safety shoes that will best suit your needs; styles that will appeal most and give you improved rate of employee coverage.

JACK H. TOLBERT
Houston, Texas

FRANK DONLEY
Springfield, Ill.

CHARLES E. KRENK
Elizabeth, N. J.

Iron Age Division
H. Childs & Co., Inc. Pittsburgh 12, Pa.

No. 622

No. 625

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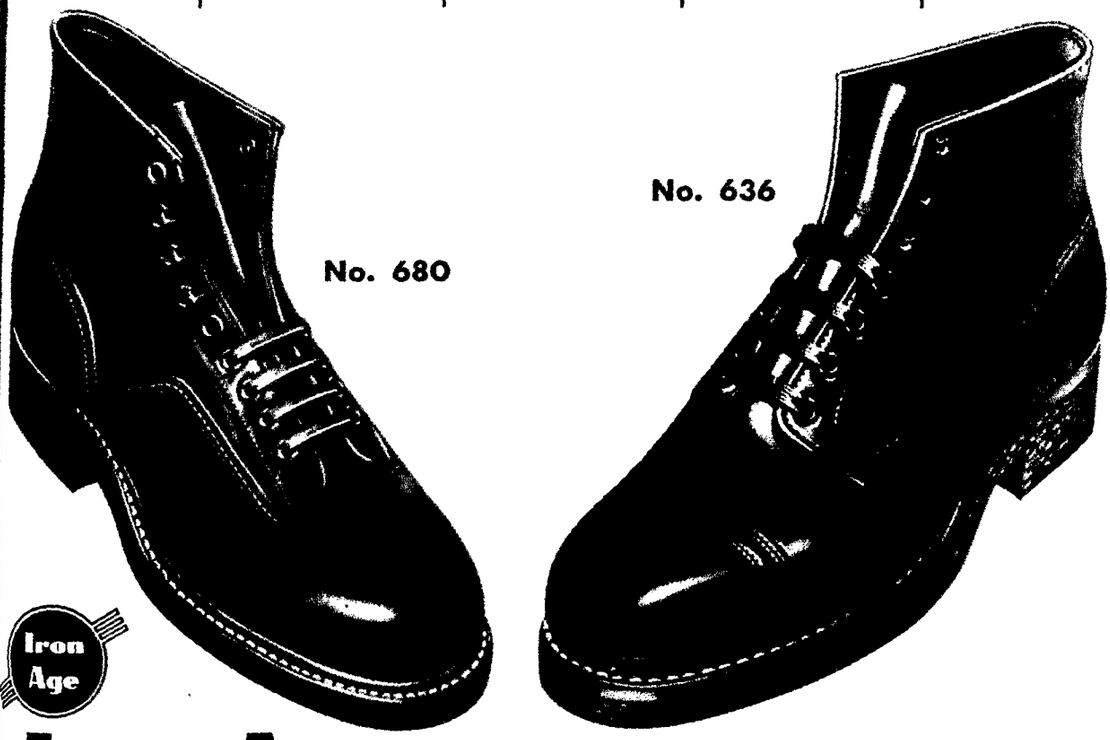


Iron Age

Iron Age STEEL TOE Safety Shoes

The Safety Shoe For Industrial America

A scientifically engin
material has made the soles of
as important as the protective
prene—a synthetic rubber wi
remarkable characteristics—has
standard of work shoe and saf
service and comfort, giving unpre
wear and protection under the m
ishing conditions.

By their very chemical nature, none
types of Bearfoot Neoprene Soles a
ject to the usual deterioration from
with sunlight, oxygen, oils, greases,
acids and industrial chemicals. Besid
safety factor involved, this charac
results in remarkably long service li
these soles in fields where rubber or
position soles deteriorate rapidly.

All Bearfoot Neoprene Soles pro
excellent insulation for the foot ag
temperature extremes. In addition to
important protection for the wearer,
soles do not break down under heat,
giving an indefinitely long service li
foundries, road-building and roofing w
and other industries where high temp
tures destroy shoe bottoms quickly.

All types of Bearfoot Neoprene Soles
phenomenal wear. Neoprene Type "S"
a DuPont development fabricated on
nally into a shoe sole by Bearfoot — h
a unique resistance to abrasion and o
wears any other soling material of
kind known to us. Also, through its hi
density and toughness, Type "S" Neopre
is highly resistant to cutting, giving ex
protection and longer wear in industri
where sharp grit and hot or cold me
chips cut ordinary soles to ribbons. Oth
types of Bearfoot Neoprene Soles a
"micro-cellular" in construction, using d
ferent forms of Neoprene and containi
countless perfect little nitrogen-fill
"bubbles" to make a thicker, lighter s

WHAT IS A SAFETY SHOE?

It used to be a shoe with a protective toe

Now it is a shoe with a NEOPRENE SOLE and a protective toe

for soft, cushiony comfort. These soles
outwear any other micro-cellular soling
material known to us.

All types of Bearfoot Neoprene Soles offer
unusual protection against slipping. Lab-
oratory tests—made on many different
flooring surfaces, both dry and coated with
water, oil and other substances—show
Type "S" Neoprene has a squeegee action
and gives maximum traction.

Bearfoot Neoprene Soles are made in four
types. On the chart at right are compared
both their characteristics and those of con-
ventional work soles also fabricated by
The Bearfoot Sole Co., Inc.

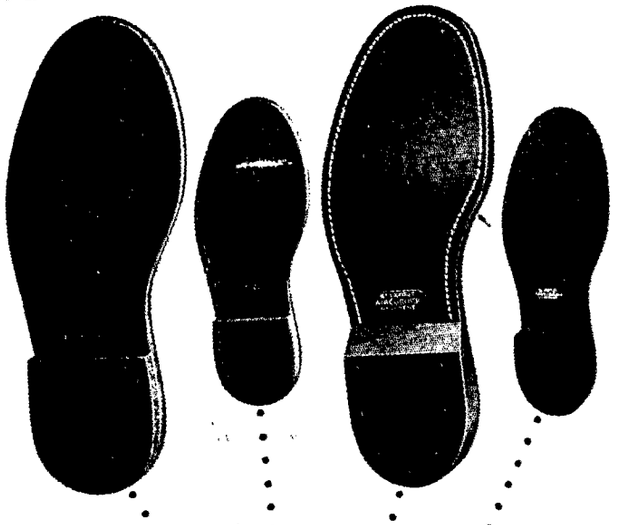
Bearfoot SOLES

A TRUSTED NAME ON SHOE BOTTOMS SINCE 1924

Bearfoot NEOPRENE SOLES

...PROVED THE IDEAL SAFETY SOLES FOR EVERY INDUSTRY

which of these four soles is best for your workers?



COMPARISON CHART OF BEARFOOT WORK AND SAFETY SOLES

RESISTANCE TO	BEARFOOT COMPOSITION WITH CORK	BEARFOOT AIROLITE NUCLEAR SOLE	BEARFOOT NEOPRENE TYPE "S"	BEARFOOT NEOPRENE NITROCREPE	BEARFOOT NEOPRENE AIRCUSHION	BEARFOOT NEOPRENE AIRCUSHION CORK
WEAR	3	3	1	2	2	2
HEAT DETERIORATION	3	3	1	2	2	2
CUTTING (Metal Chips, Grit, etc.)	3	3	1	3	2	2
SLIPPING	2	4	1	Design 3 Nap 2	Design 3 Nap 2	2
OIL, CAUSTICS, CHEMICALS	4	4	1	2	1	1
INSULATION VALUE (Electrical)	All Bearfoot Neoprene Soles are non-conductive. Neoprene is accepted as a standard for electrical wire insulation and is considered the best material for this purpose.					
INSULATION VALUE (Heat and Cold)	3	4	2	1	1	1
WEIGHT	3	3	4	1	1	1
CUSHION COMFORT	3	4	3	1	2	2

PICK THE RIGHT SOLE

Bearfoot Type "S" Neoprene features longest wear, highest resistance to slippage and to cutting and abrasion by sharp grit and chips. The other three types of Bearfoot Neoprene are micro-cellular soles, featuring light weight, soft floating comfort and massive good looks while still maintaining a very high rating on endurance and safety. All types of Bearfoot Neoprene Soles are fully flexible, are supplied in attractive colors, and maintain their shape and profile edge indefinitely without spreading or deterioration.

KEY: 1=Superior; 2=Excellent; 3=Good; 4=Fair

low available on ALL famous brand safety shoes

THE BEARFOOT SOLE CO., INC.

WADSWORTH, OHIO

BOSTON: 183 ESSEX STREET
J. M. Calvin, Manager

★

MILWAUKEE: 1225 WATER STREET
C. R. Gage, Manager

★

ST. LOUIS: 1602 LOCUST STREET
F. E. Alston, Manager

No matter what kind o
in foot safety... Lehigh

THIS ONE'S A DILLY—an all-felt, plastic-bottomed "Parka" boot developed to prevent frostbite common in mines and lumber camps. 7-layer toe construction includes aluminum foil liner that reflects body heat and acts as vapor-barrier. To be worn with rubbers, or 4-buckle arctic in deep snow.

WRITE FOR THIS TODAY ⟶

MUCKER—a brand new type of steel-toe safety work boot developed by Lehigh for engineers, oil field workmen and all others who get into muck and sludge. Levis or regular pants can be tucked inside or worn outside. Loose fitting top is cooler, easier than laced-up boots.

HIGH WIRE ARTIST—specially designed for linemen. Built up heel hooks the pole step—steel plate and extra leather wedge under the arch keep feet from going to sleep on narrow rungs. Note extra flap at instep to resist scraping against pole; ease pressure of climbing spikes.

a problem you've got knows the answer:

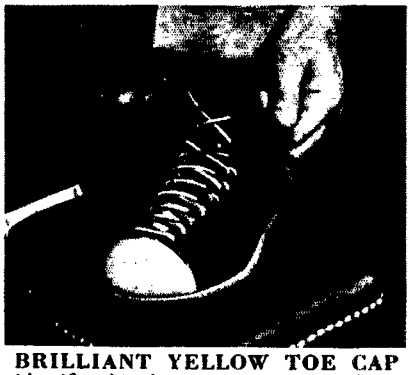
Free display poster

Your employees will find it easy to order the best safety shoe for any job—from this poster in your safety or stores depts. Shows all 57 different styles that Lehigh makes, with complete details. You can order one pair or hundreds, as you need them. Size 39¼ x 24"—no advertising.

LEHIGH
SAFETY SHOE COMPANY

GENERAL OFFICES; *shipping and receiving address:*
FIRST and MINOR STREETS, EMMAUS, PA.

SPORT SHOE? Try and tell this one from any ordinary crepe-soled oxford! But the sole is Neoprene crepe that resists oil, grease, heat and abrasion, and inside is steel toe that withstands impacts up to a ton. Your men will like this smart way to save on two-in-one shoes for dress and work.



BRILLIANT YELLOW TOE CAP identifies this shoe in atomic energy plants so it can't be worn outside dangerous radiation areas. A simple change to adapt one of Lehigh's most popular work shoes to a highly specialized industrial hazard. What's yours?

TOO WET FOR SHOES—TOO HOT FOR BOOTS? Creameries, dairies, packing plants needed an in-between safety shoe for wet-floor departments. So Lehigh came up with this light-weight, ankle-hugging boot that keeps feet dry and safe—helps to prevent bone-breaking skids and falls.

SAFETY

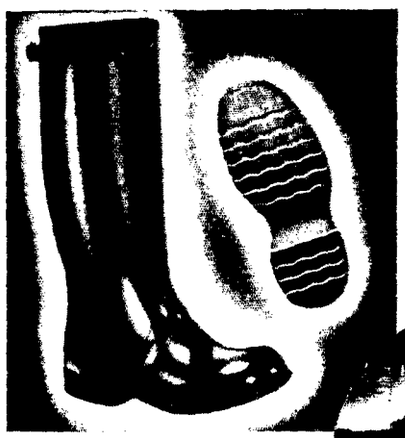
COMFORT

LONG WEAR

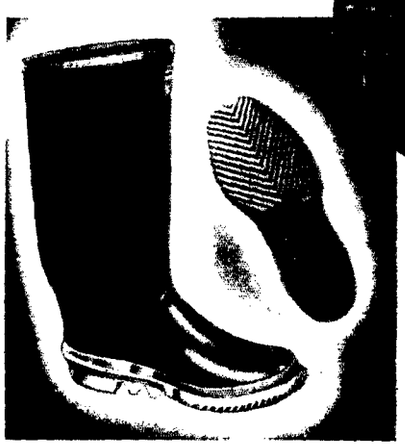
with TOP NOTCH

INDUSTRIAL

FOOTWEAR



OILACE COVERALL All neoprene, net lined short boot with adjustable knee strap and black neoprene non-skid design outsole. Also available, a Neoprene 12" Snugfit Boot and a regular Neoprene Short Boot.



WORKIN 6" all rubber work shoe with the appearance of a leather shoe, DURATEST non-skid design outsole, cushion insole. Steeltoe or plain.

BAR-FLEX SHORT All black industrial boot with white Bar-Flex outsole, the patented outside arch and heel for more comfort and traction. Also available, the regular Industrial Boot in all heights, and a popular price Utility Boot.

TOP NOTCH INDUSTRIAL BEACON FALLS CONN DURATEST SOLE

BEACON FALLS RUBBER FOOTWEAR

BEACON FALLS, CONNECTICUT

Foot Protection

—*From page 129*

or rayon are satisfactory. Foot pow der also serves as an insulator. T floor as well as the shoes must be conductor.

Rubber footwear. Where wor must be done in deep mud or a water, rubber boots contribute t health, comfort and safety. Rubbe boots are available with steel boo toes.

Soles and Heels

Leather is comfortable and du rable for normal conditions. Oak leather will not give satisfactory service where heat is excessive or where the shoe is subjected to continuous dampness. Chrome tanned leather is more resistant to heat.

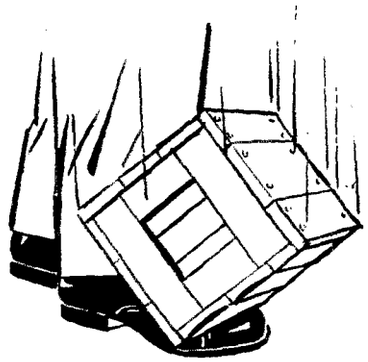
Rubber is resistant to moisture, alkalis and most acids. It deteriorates quickly when exposed to grease, oil, solvents, some acids, or excessive heat.

Neoprene is resistant to moisture and to grease, oil and solvents that would ruin rubber. It stands up well against cutting and abrasion.

Cord soles and heels of rubber or neoprene, similar in construction to automobile tires give good traction under severe conditions for many years.

Cork blended with the rubber or neoprene is an excellent material. Slip resistance is good and the soles are light and flexible. Cork also helps to insulate the feet against heat or cold.

Wood soles are used for extreme conditions of heat, dampness, oil, acids or caustics underfoot. They are popular in steel mills, foundries, and other hot operations. They also afford protection against nails, broken glass, scrap metal, and other sharp objects.



Wooden-soled shoes can be obtained with steel toecaps or with guards which cover toes and insteps. Where shower baths are used, paper slippers or wooden sandals are sometimes provided to reduce the danger of foot infection. Paper slippers are destroyed after one use; sandals must be disinfected frequently.

Foot Guards

Where unusually heavy objects are handled, feet may need more protection than shoes with reinforced toes. For such work, there are foot guards of heavy gauge, flanged and corrugated metal.

The guards are strapped on over the shoes and protect the instep as well as the toes.

With the flange resting on a firm floor surface, foot guards should stand an impact of at least 300 foot-pounds without being dented sufficiently to damage the shoe underneath or injure the foot.

Foot guards are also made with soles of rubber or calked steel to minimize slipping hazards.

Combination shin-foot guards, with an aluminum alloy shin protector hinged to the foot guard, are available.

Records for each employee customer should be kept. A 3 x 5 inch card shows name, department, payroll number, and details of each transaction. These include date, stock number, size, width, price, and payment. On the reverse side of the card, such information as history, details of foot trouble, and other comments may be recorded.

If the Shoe Doesn't Fit

Misfitted shoes are a frequent source of discomfort and disability, both on and off the job. In industry it has been estimated that 65 per cent of the men and 75 per cent of the women suffer from foot ailments.

Comfortable and apparently correct shoes are responsible for a surprisingly large number of cases. Although the shoe may feel comfortable, it may be so constructed that it upsets the normal balance of the foot.

Short shoes are among the worst offenders. When too short from the heel to the ball of the foot they can cause more trouble than shoes which are too narrow.

Shoe lasts that do not allow for normal foot movement within the shoe cause much foot fatigue.

Much of the success of any safety shoe program will depend on the fit and comfort provided.

Comfortable, Low Cost Protection

STASAFE

TOE CLIPS

These heavy gauge steel caps are designed to protect the toes against injury caused by dropping heavy loads or sharp objects on the foot. Reinforced for greater resistance to impact, they offer lightweight, comfortable protection at an economical price.

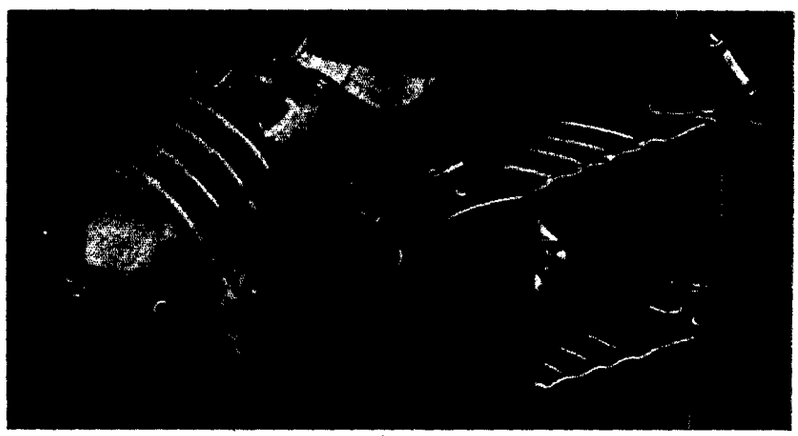
Fits on the outside of any square toed shoe. May be ordered with removable attachment for intermittent wear or fastened to the shoe permanently.

Write for Bulletin No. 51

STANDARD SAFETY EQUIPMENT COMPANY

232 West Ontario Street, Chicago 10, Illinois

ARE YOU FULLY PROTECTING THE FEET OF YOUR EMPLOYEES?

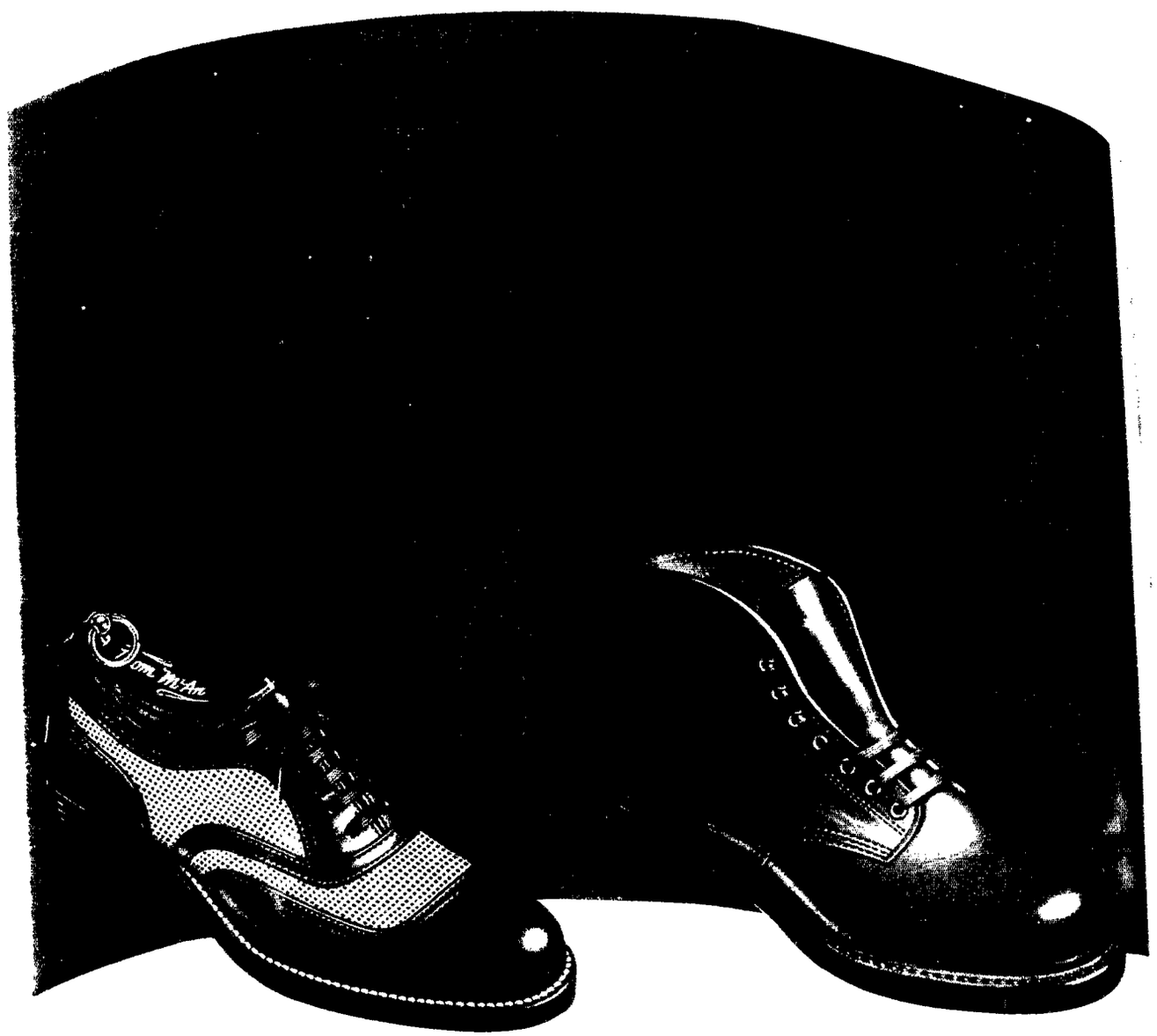


"SANKEY" IMPROVED FOOT GUARD

"SANKEY" FOOT GUARDS consist essentially of a metal shield to be worn over the shoe whenever the foot is in danger of being either crushed or cut. The metal shield is designed to furnish a maximum amount of protection to the entire front of the foot—not merely the toes alone, but also to the instep against hazards from falling, rolling or flying objects, or from accidental tool blows. Write for a trial pair. For additional information about "SANKEY" Foot, Toe and Leg Protective Guards please write the ELLWOOD SAFETY APPLIANCE CO., 219 Sixth St., Ellwood City, Pa.

Foot Guard Equipped With Anti-Skid Full Sole

YOU NAME THE JOB we've

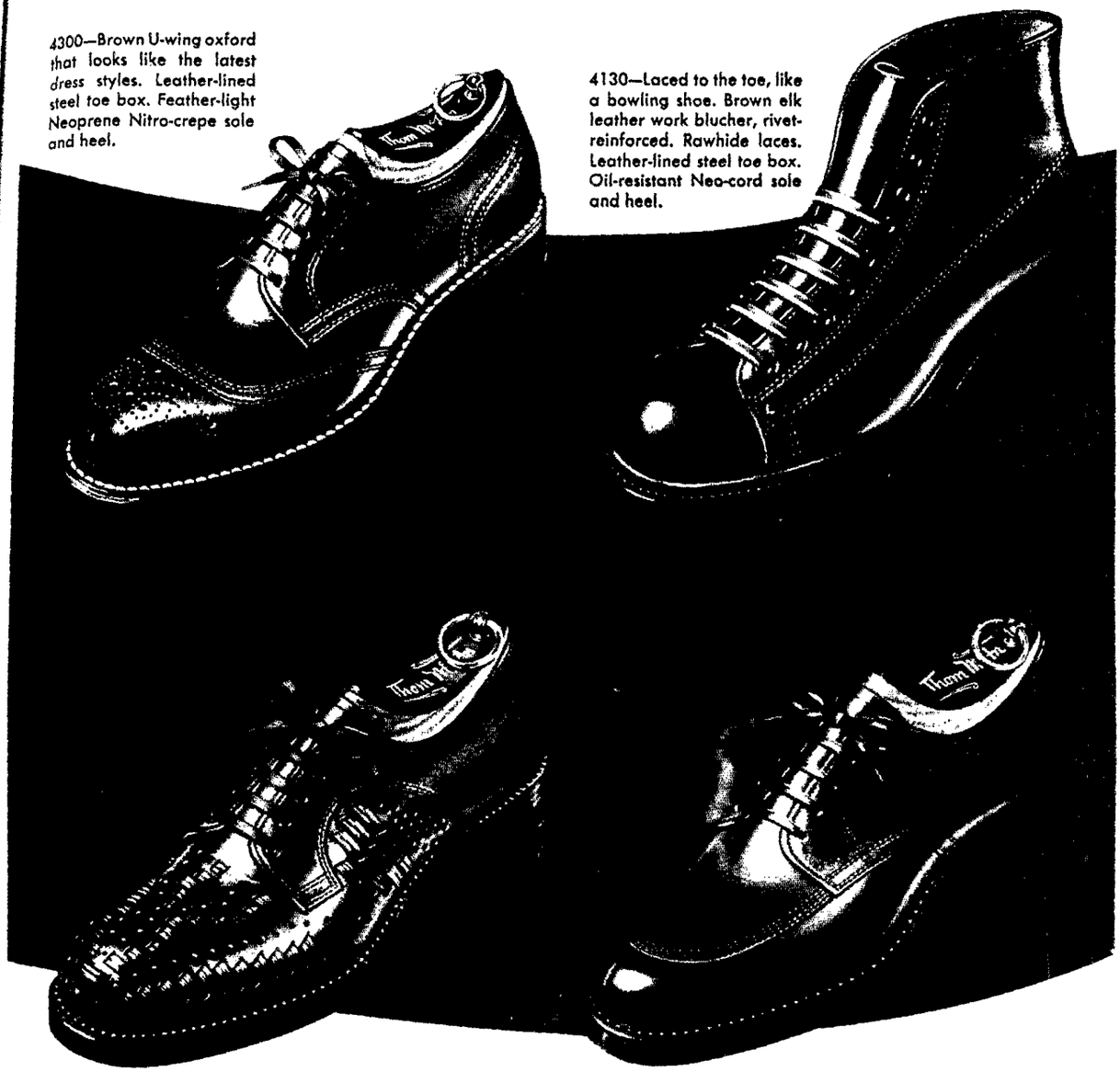


Thom McAn
SAFETY SHOES
A DIVISION OF MELVILLE SHOE CORPORATION

s got the shoe!

4300—Brown U-wing oxford that looks like the latest dress styles. Leather-lined steel toe box. Feather-light Neoprene Nitro-crepe sole and heel.

4130—Laced to the toe, like a bowling shoe. Brown elk leather work blucher, rivet-reinforced. Rawhide laces. Leather-lined steel toe box. Oil-resistant Neo-cord sole and heel.



SOLD 2 WAYS **1. At Thom McAn stores. 2. Direct to your plant.**
Write today for details of this last-named service and Thom McAn's 4-way employee purchase plan, plus descriptions of the full line of Thom McAn Safety Shoes to . . .

THOM McAN SAFETY SHOE DIVISION
25 West 43rd Street, New York 36, N. Y.

HY-TEST

H302
Men's Brown Side Moccasin Type Blucher Oxford, Leather Sole, Half Rubber Heel.

H767
Men's Brown Glove Plain Toe Blucher featuring Cushion Insole with Arch and Metatarsal Pad, Neoprene Air Cushioned Cork Sole and Heel.

New styles

H310
Men's Ruddy Color Plain Toe Blucher Oxford featuring Three-Way Arch Comfort Pad, Leather Sole, Half Rubber Heel, Storm Welt.

H763
Men's Brown Glove Blucher, Brown Neo-Cord and Resist-Oil Full Double Sole, Whole Brown Neo-Cord Heel.

H772
Men's Brown Glove Plain Toe Blucher. Brown Resist-Oil and Ply Belting Full Double Sole, Brown Resist-Oil Wedge Vulcanized Heel, Welted Heel Seat.

H780
Men's Brown Glove Moulders Nullifier, Brown Neocork Sole, Whole Brown Neocork Heel, Hub Goring.

New comfort

H406
Men's Brown Side and Brown Nylon Mesh Blucher Oxford, Leather Sole, Half Rubber Heel.

WHY SETTLE FOR LESS?

...Buy HY-TEST

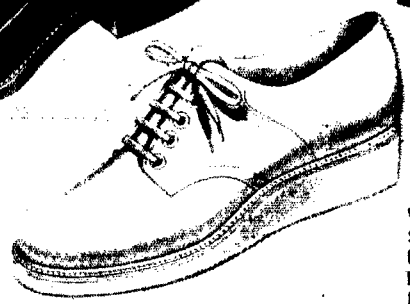
"SHOOTS THE WORKS"

with the LARGEST ADDITION TO ITS LINE

H313
Men's Brown Calf Tip Blucher Oxford featuring Three Way Arch Comfort Pad, Leather Sole, Half Rubber Heel, Storm Welt.

New features

H813
Women's Brown Side Pump, Vitalized Leather Sole, 8/8 Heel with Rubber Top Piece, Leather Base.



H821
Women's White Saddle Plain Toe Blucher Oxford, Natural Neoprene Nitrocrepe Sole, Whole Natural Neoprene Nitrocrepe Flat-tred Heel.

H425
Men's Brown Grain Side Cord Butted Tip Blucher Oxford, Leather Sole, Half Rubber Heel, Storm Welt.

HY-TEST
ANCHOR FLANGE
Safety Shoes

DIVISION OF
INTERNATIONAL SHOE COMPANY
ST. LOUIS 3, MO.
PHILADELPHIA 23, PA.

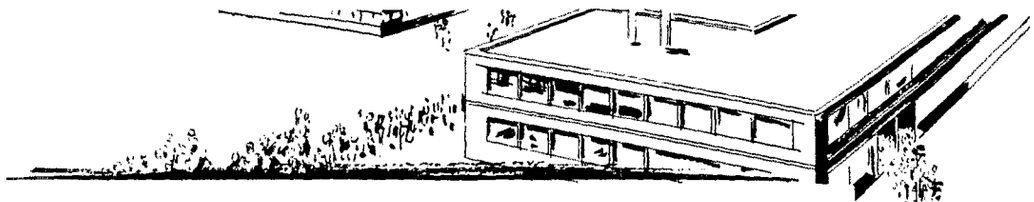
H430
Men's Brown Side Medallion Wing Tip Oxford, Leather Sole, Half Rubber Heel.

Write for Catalog-Broadside

HY-TEST
INTERNATIONAL SHOE COMPANY
SAFETY SHOES

and get the *Best!*

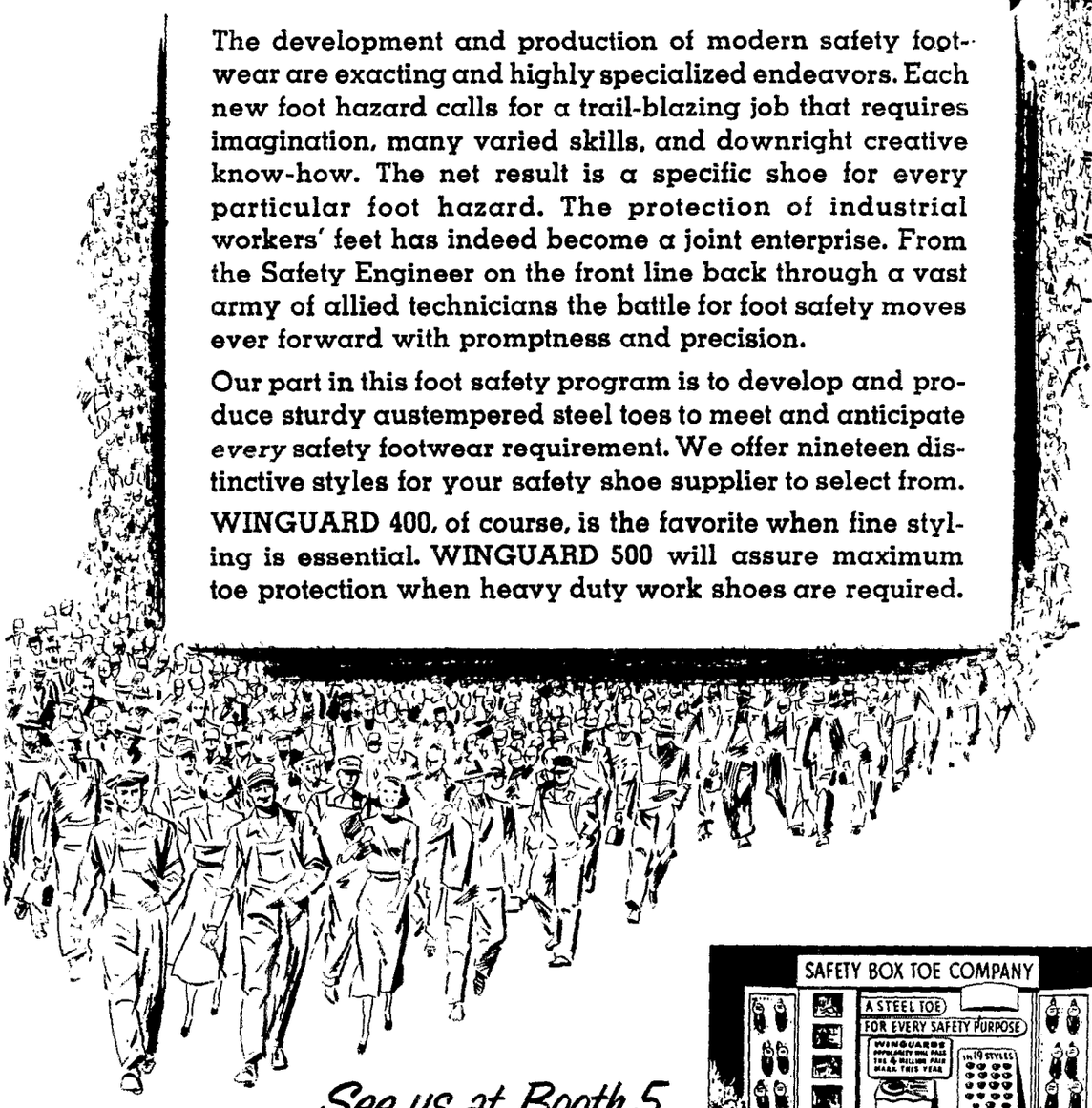
SAFETY BOX TOE COMPANY



The development and production of modern safety footwear are exacting and highly specialized endeavors. Each new foot hazard calls for a trail-blazing job that requires imagination, many varied skills, and downright creative know-how. The net result is a specific shoe for every particular foot hazard. The protection of industrial workers' feet has indeed become a joint enterprise. From the Safety Engineer on the front line back through a vast army of allied technicians the battle for foot safety moves ever forward with promptness and precision.

Our part in this foot safety program is to develop and produce sturdy austempered steel toes to meet and anticipate *every* safety footwear requirement. We offer nineteen distinctive styles for your safety shoe supplier to select from.

WINGUARD 400, of course, is the favorite when fine styling is essential. WINGUARD 500 will assure maximum toe protection when heavy duty work shoes are required.



See us at Booth 5

Greater New York Safety Council
24th ANNUAL
Safety Convention and Exposition
April 5, 6, 7, 8, 9, 1954

812 STATLER BUILDING • BOSTON

SELLING AGENTS: **BECKWITH MANUFACTURING COMPANY, DOVER, N. H.**

WRIGHT-GUHMAN COMPANY, ST. LOUIS, MO. BECKWITH BOX TOE, LTD., SHERBROOKE, P. Q., CANADA LENNART LJUNGQVIST, TIBRO, SWEDEN

Safety Belts and Harness

WHEREVER men work at high levels, in closed spaces where the air may be irrespirable, or where there is danger of being buried by slides of loose material, safety belts and harness with life lines are needed.

Occupations in which safety belts are used routinely or occasionally include: linemen, window cleaners, structural steel and bridge workers, cranemen, shipbuilders, forestry workers, miners, mechanics, painters, and workers entering tanks, bins and underground passages.

In selecting equipment, two types of use must be considered—"normal" and emergency.

Normal use involves comparatively light stresses applied during regular work. These stresses rarely exceed the static weight of the user.

Emergency use means stopping a man when he falls. This may subject every part of the belt to an impact loading many times the weight of the wearer..

Types of Equipment

Several types of belt and harness have been developed for various occupations. Most familiar of these are the lineman's belt and safety strap and the window cleaner's belt.

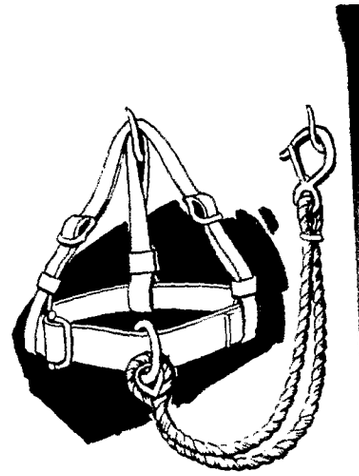
Belts of these types are built for extra severe use. Belting material and hardware have both received much study. The belts are usually serially numbered and dated so that records of age and condition may be kept.

For many occupations a lighter belt will provide ample protection against falls. These may be of the simple body type or the harness type. Both have dees to which a lanyard is attached. The harness type distributes the shock over the shoulders, back and waist instead of concentrating it at the waist.

Body harness with lanyard attached worn by workers in certain locations expedites their rescue if they should be overcome by gas or vapors, buried by falls of loose materials or injured in confined spaces.

Wherever the work requires a supplied-air respirator, harness and life line should also be used.

If long free falls are possible, the harness should be designed to distribute the impact force over the legs and chest as well as the waist.



The longer the free fall, the greater the impact force exerted upon harness and lanyard. It is therefore advisable to tie off the line as short as movements of the worker will permit.

Materials. Leather and cotton or linen webbing belts are furnished by most manufacturers.

Well tanned and well oiled leather is not easily attacked by most chemicals but it should not be left in contact with them. Regular cleaning after use is important.

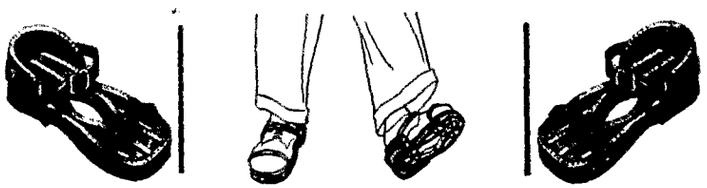
—To *page 158*

FOR SURE-GRIP TRACTION ON SLIPPERY SURFACES . . .

FOR COMFORT ON HOT, COLD OR WET FLOORS . . . USE

SKIDMASTER

Skidmasters are non-skid sandals worn over the shoes to provide sure footing on slick surfaces, and insulate the feet against the discomfort of working on hot, cold or wet floors. Skidmasters stand up under rough usage. Steel mills, laundries, breweries, dairies, cold storage houses—hundreds of industrial users find them practical insurance against hazardous floor conditions.



Promote Safety in Your Plant—Write Today for Bulletin No. 50

STANDARD SAFETY EQUIPMENT CO.

232 West Ontario Street, Chicago 10, Illinois

BONE-DRY STEEL TOE SAFETY SHOES

The most famous name in outdoor footwear

Special Bone-Dry construction for most comfortable safety shoe ever built. Workers wear them with pleasure the year 'round . . . stronger! Cost less to wear. Write for complete . . . trated folder.

BONE-DRY SHOE MFG. CO.

TACOMA, WASH. NEOSHO, MO.

ACCIDENT PREVENTION MANUAL

"most complete safety reference ever published"

A summation of the 38-year safety experience reported to the Council by many hundreds of its industrial members. It is the standard reference for anyone with substantial safety responsibility.

The 2nd Edition, published in 1951, contains 812 pages—50% more than the previous edition—completely revised, with 12 new sections added. Each of the 26 sections are also published as SAFETY MANUAL REPRINTS—separate 32-page 6" x 9" pamphlets—to permit low-cost distribution of pertinent material throughout an organization.

SAFE PRACTICES PAMPHLETS

"supplementing the ACCIDENT PREVENTION MANUAL"

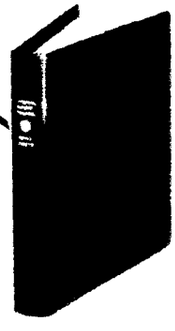
Detailed studies of important accident and health problems, 8½" x 11", 4 to 8 pages in length. The 51 pamphlets comprising the revised general set have been selected for their continued use as supplements to the 2nd Edition of the ACCIDENT PREVENTION MANUAL FOR INDUSTRIAL OPERATIONS. Pamphlets formerly published but not listed in the index on the following three pages have been discontinued in favor of the new SAFETY MANUAL REPRINTS.

The GENERAL PAMPHLET SET is in a 1½" three-ring binder. The SPECIAL INDUSTRY PAMPHLET SET (not included in the Safetyman's Library) is in a 1" three-ring binder. Selected pamphlets in both sets may be ordered individually in any quantity.

DATA SHEETS

"concise, reliable solutions to your problems"

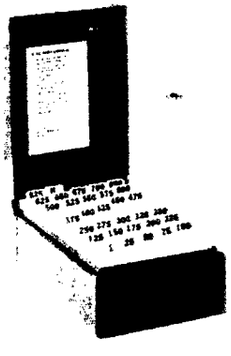
Each DATA SHEET gives you the most authoritative information possible on a specific subject—including the experience of many companies which have dealt with the subject and assisted in preparing the data. They are 8½" x 11" in size; 1 to 8 pages in length. Complete sets of DATA SHEETS are now available in two 1½" three-ring binders—indexed for easy reference. Selected DATA SHEETS may be ordered in any quantity.



DETAIL SHEETS

"show how to build it faster—cheaper—safer"

Eliminate guesswork and long explanations. DETAIL SHEETS are the easy, time-saving way to build safety devices on the job. They are simple working drawings that any competent workman can follow. May be ordered as a set, complete with three-ring binder, or by individual sheets. 8½" x 11", 1 to 4 pages in size.



SAFETY INSTRUCTION CARDS

"the handiest file of safety check lists you've ever seen"

These 3" x 5" cards are concise check lists of safe practices and accepted methods of performing specific operations. They are invaluable for preparing job analyses, writing speeches and articles, planning safety meetings.

The Complete Set consists of approximately 735 cards, including motor transportation and off-the-job safety subjects, a 2-way index, a set of numerical dividers and a metal file case. The smaller Industrial Set contains approximately 500 cards of interest to all industry, plus the Special Industry cards that pertain to the purchaser's operations. A Non-Industrial Set also may be ordered as a separate item. See Service Guide 5.2 for a listing of the subjects included in the three sets.

The combined index of SAFETY MANUAL REPRINTS, SAFE PRAC- →

ACCIDENT RECORDS Section 25★
Report forms, accident analysis chart, use of reports, accident investigation, computing rates, accident analysis, accident costs.
ACCIDENT RECORDS AND ANALYSIS 21◆
Acetic Acid ..... D-Chem. 29●
Acetone ..... D-Chem. 23●
Acid Measuring, Diluting and Transfer Device ..... 112■
Acid Plant ..... D-210●
Acid, Removing from Carboys (rev. 11-39) ..... D-Chem. 9●
Air Compressors and Receivers, Cleaning ..... D-Me. 14●
Aircraft Ground Fuel Servicing Fire Hazards ..... D-A. 4●
Air Hose Coupling Hooks ..... 55■
Airplanes, Electrical Grounding of ..... D-A. 1●
Air Terminal Vehicular Traffic Safety Guide ..... D-A. 3●
Alligator Shears, see Shears
Amyl Acetate ..... D-208●
Aniline ..... D-Chem. 24●
Antimony and Its Compounds ..... D-Chem. 22●
Arsenic and Its Compounds ..... D-Chem. 13●
Asphalt ..... D-215●
Atmospheric Conditions in Underground Structures ..... D-250●
Autoclave Safety Device, Quick Opening ..... 139■
Automotive Equipment Operators on Airport Ramps ..... D-A. 2●
Auxiliaries, see Slashers
Babbitting Bearings ..... D-Me. 24●
BACK INJURIES ..... HPP. 17◆
Barrel Skids, Adjustable Stand ..... 32■
Barrels, Tumbling ..... D-Gen. 18●
Barricades, Fence ..... 22■
Barricades, Horse ..... 21■
Barricades & Warning Devices for Highway Construction Work ..... D-Con. 6●
Benzene (Benzol) ..... D-Chem. 47●
Blasting, Electric Power Circuits ..... D-Min. 10●
Blasting, Stray Currents in Electric ..... D-Min. 2●
Bleaching Compounds, Textile ..... D-T. 1●
Blow Torches and Plumbers' Furnaces, Gasoline ..... D-Gen. 6●
BOILERS Section 3★
Purchase and installation, auxiliaries, safety appliances, placing in service, types of fuel, operating in service, taking out of service, emergencies.
Bonding Clamps for Pipe Lines ..... 118■
Boring Machines, Wood—and Hollow Chisel Mortisers ..... D-W. 6●
Boring Mills, Horizontal Metal ..... D-Me. 6●
Boring Mills, Vertical Metal ..... D-Me. 8●
Bottle Carrier for Corrosive Liquids ..... 71■
Bottles and Broken Glass ..... D-F. 2●
BOX MANUFACTURING, PAPER (Rev. 1936) ..... PP-2◀
Bridge Painting ..... D-RR. 2●
Bromine ..... D-Chem. 21●
Buildings, Cleaning Exterior Walls of ..... D-Gen. 12●
Bulldozers, see Motor Graders

Cadmium ..... D-Chem. 42●
Calender Rolls, Handling (rev. 4-49) ..... D-PP. 2●
Can Opener, Pneumatic ..... 30■
Capacitors ..... D-Pu. 3●
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Anyone involved with safety needs a copy of this eye-opening fact book.

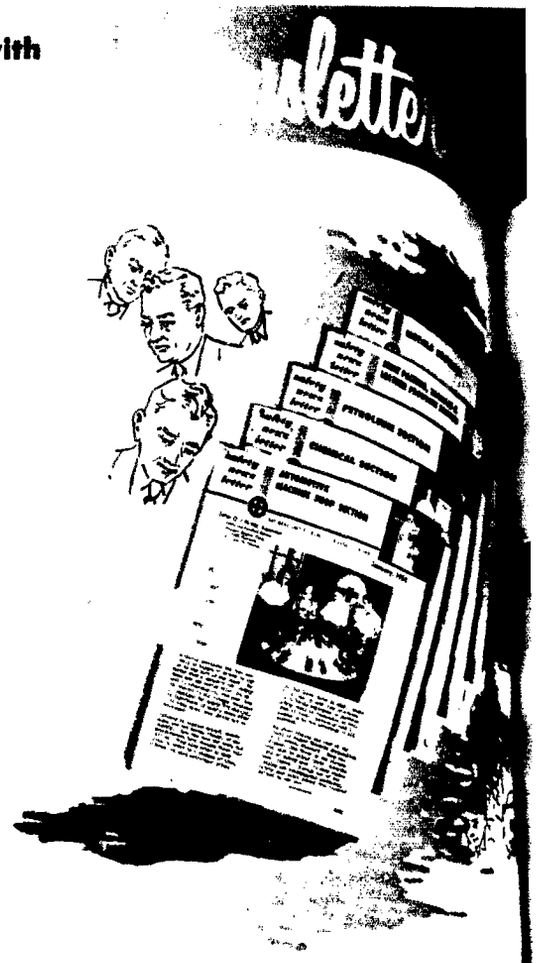
ACCIDENT RATES PAMPHLETS

These pamphlets review the accident experience of about 200 industries and about 30 general groups annually. The pamphlet for your industry will enable you to compare your company's accident frequency and severity rates with those of other companies doing similar work. Size 5½" x 8½".

LIST OF PAMPHLETS

Automobile
Chemical
Construction
Food (Food, Tobacco)
Foundry
Iron and Steel Products (Sheet Metal, Misc. Iron and Steel Products)
Lumber and Woodworking
Machinery and Electrical Equipment
Meat Packing and Leather
Mining and Quarry
Miscellaneous (Office, Miscellaneous Manufacturing, etc.)
Motor Transportation Fleets
Non-Ferrous Metals and their Products
Pulp and Paper (Pulp and Paper, Printing and Publishing)
Petroleum
Public Utility (Electric, Gas, Communications, Misc. Utilities)
Rubber
Service (Laundry, Hotel, Mercantile etc.)
Steel
Stone, Clay and Glass Products
Textile
Transportation (Transit, Air Transport, Marine and Warehousing and Storage)
Transportation Equipment (Shipbuilding, Aircraft, and Railroad Equipment)

Keep your management group informed with



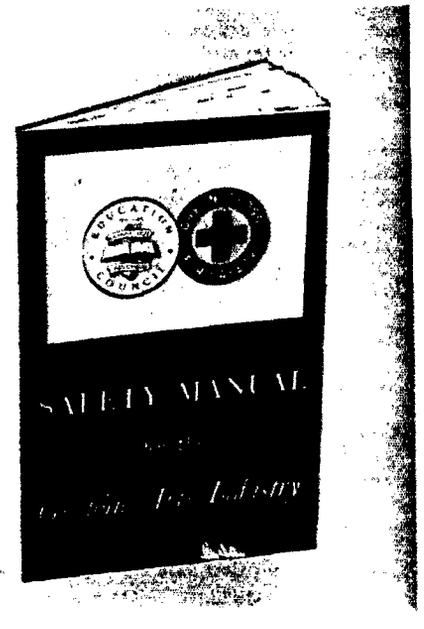
Newsletters are the safety idea swap shops for the Council's 28 occupational Sections. Edited by volunteers from each Section, they provide you with a valuable source of information slanted to your own operations—new methods and equipment, novel safety promotional stunts and gadgets, recent technical developments, plus news of Section meetings, projects, people.

Monthly Newsletters are particularly helpful to organizations with diversified operations or scattered locations. You can select Newsletters to match specific operations; address subscriptions directly to key personnel at each location—your nurses, plant managers, training personnel, maintenance foremen, transportation supervisors, and safety engineers. Four pages, 8 3/8" x 10 7/8". Newsletters are published monthly by the following Sections:

- Aeronautical Industries
- Air Transport
- Automotive and Machine Shop
- Cement and Quarry
- Chemical
- Coal Mining
- Commercial Vehicle
- Construction
- Electrical Equipment
- Fertilizer
- Food
- Glass and Ceramics
- Hospital Safety Service
- Marine
- Metals
- Meat Packing, Tanning and Leather Products
- Mining (other than coal)
- Occupational Health and Nursing
- Petroleum
- Power Press and Forging
- Printing and Publishing
- Public Employee
- Public Utilities
- Pulp and Paper
- Railroad
- Rubber
- Textile
- Transit
- Wood Products

HANDBOOK OF ACCIDENT PREVENTION

Where safety is a part-time job—as with your foremen and other key personnel—the Handbook is just the condensed safety guide you need. It's brief, yet covers the essentials of a sound safety program: inspections, records, material handling and storage, fire prevention and control, training, personal protective equipment, and other important subjects. Use the HANDBOOK OF ACCIDENT PREVENTION to broaden the understanding of safety through your organization; back up your part-time safety people with a reliable source of information. 96 pages, 5 7/8" x 8 3/4".



SAFETY MANUAL FOR THE GRAPHIC ARTS INDUSTRY

The first complete, authoritative manual for the Graphic Arts Industry. Shows how to stop accidents, gives the how to, whys, and results of successful safety programs in the printing industry. Explains what stopping accidents will mean in terms of production, efficiency, worker morale and reduced costs. 96 fact-filled pages, 6" x 9".

Transactions of the National Safety ...

The Congress is the annual safety idea free-for-all. Literally hundreds of years of successful accident prevention experience back up the speakers and panel members who participate. Condensed, and published in 34 pamphlet-size sections, they are ideal for distributing throughout an organization.

Safety men find the TRANSACTIONS Set a rich source of ideas from other industries which can be adapted to their own programs; as reference material for speeches, articles and bulletins.

SAVE 45%

To encourage more widespread knowledge of the various fields of safety, the Complete Set of 34 volumes may be ordered for little more than ½ the cost of the individual volumes.

LIST OF VOLUMES

General Sessions and Detailed Index to all Volumes.
Aeronautical Industries
Air Transport Industry
Automotive and Machine Shop Industries
Cement and Quarry Industries
Chemical Industries
Coal Mining Industry
Construction Industry
Electrical Equipment Industry
Farm Safety
Food Industry
Glass and Ceramics Industry
Home Safety
Industrial Subject Sessions (Sponsored by ASSE)
Maritime Industries (Marine Section)
Meat Packing, Tanning and Leather Industries
Metals Industry
Mining Industry
Motor Transportation Industry (Commercial Vehicle Section)
Occupational Health and Nursing Section
Petroleum Industry
Power Press and Forging Operations
Printing and Publishing Industry
Public Employment (Public Employee Section)
Public Utilities Industries
Pulp and Paper Industry
Railroad Industry
Rubber Industry
School and College Safety
Textile Industry
Traffic Safety
Transit Industry
Wood Products Industries
Early Morning Sessions

PUBLIC SAFETY MAGAZINE

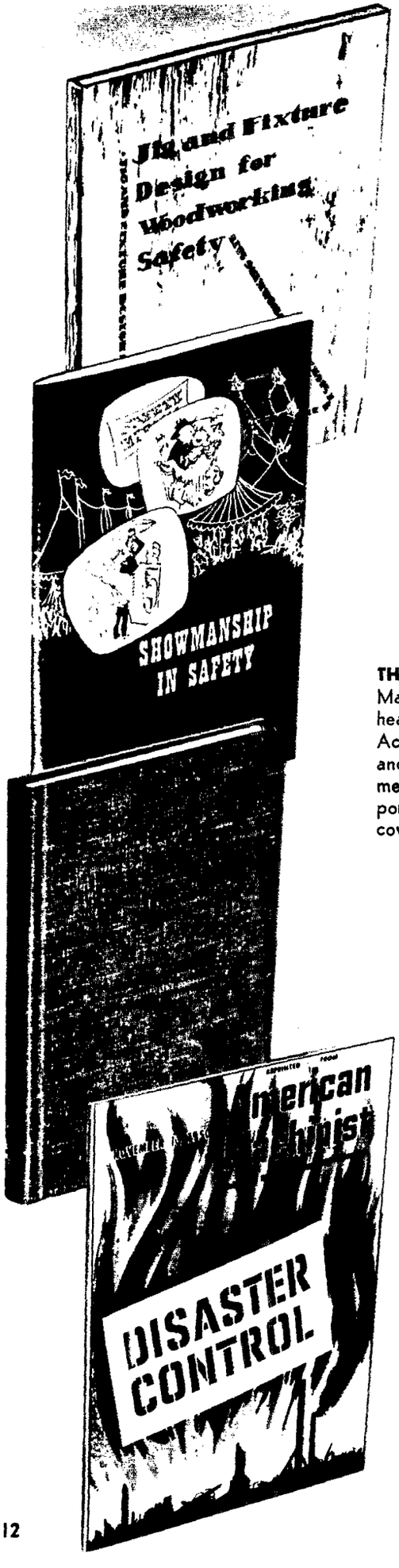
PUBLIC SAFETY is the best single source of up-to-the-minute information in the traffic safety field. Its 40 or more pages feature stimulating articles by fleet and traffic safety experts, current accident statistics, news of accident prevention, reviews of new safety publications, etc.

FLEET SAFETY MANUAL

The Fleet Safety Manual shows you how to organize and conduct an effective safety program. It consists of eight parts and supplementary material in a rich maroon loose-leaf binder. The sections include information on: Fleet Safety Program—a general discussion of accident prevention techniques and how they may be organized into a safety program; Selection of Drivers; Driver Training; Accident Reports and Records—a recommended system of recording and analysis including sample forms; and many other specific subjects.

SAFETY IN QUARRY OPERATIONS

An all-new edition of the well known safety manual for the quarry and related "open pit" industries is now available. This authoritative manual provides all the basic information for setting up and operating an effective safety program. Included are sections on safety organization and accident investigations, technical discussions on drilling, safe storage and use of explosives, quarry railways, truck transportation in quarries, and use of mechanical equipment. 48 pages, 6" x 9".



JIG AND FIXTURE DESIGN FOR WOODWORKING SAFETY
A new and extremely comprehensive book for supervisors dealing with all types of woodworking jigs and fixtures. Provides a complete description of the various kinds of jigs and fixtures with precise instructions on how to build—how to use them. Includes 61 excellent drawings. 104 pages, 8½" x 11".

SHOWMANSHIP IN SAFETY
Here are 160 of the brightest, most unusual and most successful safety promotional ideas of the last 40 years. Old or new, you're bound to find loads of attention-getting gimmicks for publicity stunts, pepping up safety meetings, getting bulletin boards looked at. Season your safety program with some of these novel interest builders and you'll have your workers talking and thinking safety even on their own time. 2 colors, 64 pages, 5½" x 8".

THE WOMAN ON THE JOB
Management will welcome this new survey on the health and safety problems of women in industry. Accidents and occupational diseases, gynecological and other physical problems, job clothing, placement, training and supervision are some of the important subjects covered. Green and pink hard-cover book with illustrations. 96 pages, 6" x 9".

OFF-THE-JOB SAFETY KIT
A packet prepared by the Off-The-Job Safety Committee to help safety men put across a program to both management and employees. Contains about 85 items—booklets, instruction cards, planning material, sources of help, posters, etc. Write for information.

DISASTER CONTROL
Handbook reprinted from the American Machinist dealing with the control of disasters that may befall a plant. Explains steps that should be taken to avert a disaster, what to do in case of an emergency, and how to speed the task of getting back into production if a disaster occurs. Covers in detail the problems of organization for plant protection, bombing, panic, sabotage, cyclones and earthquakes, floods, fire, pestilence, rescue and first aid. 40 pages, 8¼" x 11¼".

SAFETY BELL RINGERS
Brand new edition
A brand new edition containing 1000 safety slogans. Catchy phrases to use in safety talks, slogans to pep up a safety program, the right saying to help put across an idea so that it makes an impression. Slogans are divided by subjects such as fire prevention, general slogans, etc. 32 pages, 6" x 9".

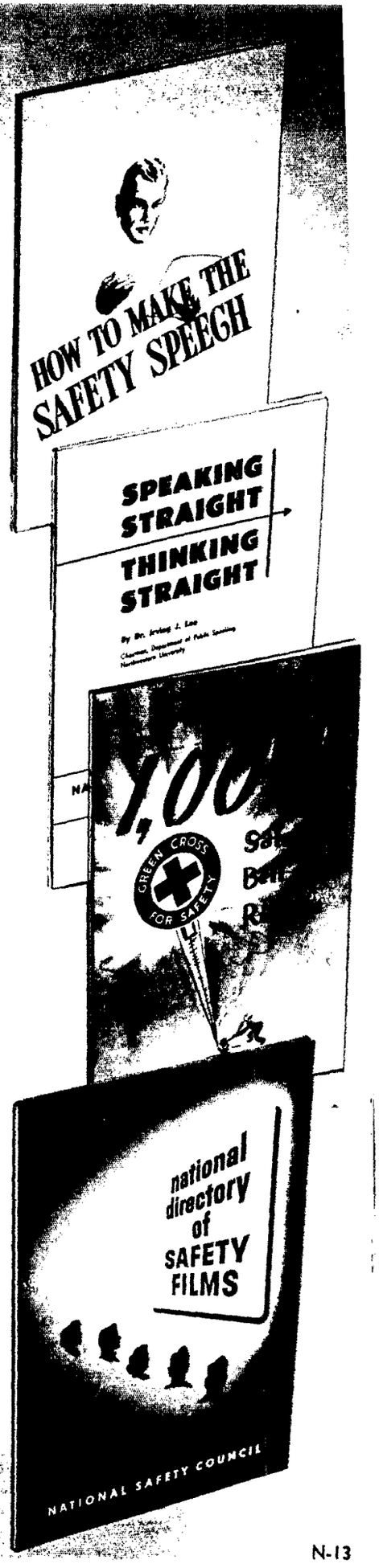
SPEAKING STRAIGHT—THINKING STRAIGHT
Four lectures on public speaking given at the 1946 Safety Congress by Dr. Irving J. Lee, Professor, School of Speech, Northwestern University. 24 pages, 5½" x 8½".

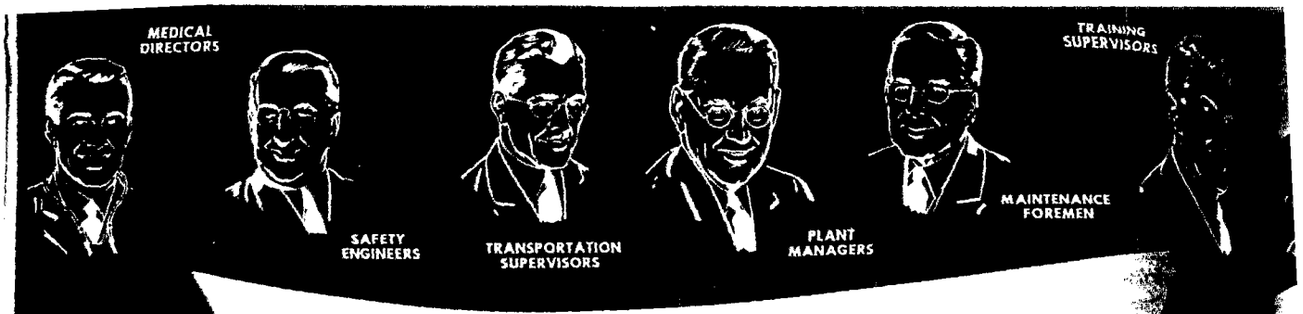
HOW TO MAKE THE SAFETY SPEECH
A handy booklet presenting the fundamentals of speech making. Shows safety men, supervisors and foremen how to put safety talks across to large and small groups. 64 pages, 5½" x 8½".

HOTEL SAFETY SERVICES
The Council publishes a number of items designed for hotels, restaurants, and similar service industries. Write for information.

HOSPITAL SAFETY SERVICE
The American Hospital Association and the National Safety Council offer an accident and fire prevention service especially designed for AHA members. Through this service, hospitals obtain the basic materials and techniques needed for a sound, practical program to combat personal injury, fire, equipment damage, and other accident losses. Write for information.

NATIONAL DIRECTORY OF SAFETY FILMS
A comprehensive listing of 963 motion pictures and slidefilms, both sound and silent, for safety education within business and industry, on the farm, in homes, and on the streets and highways. Sources and basis of availability shown for each film. 48 pages, 8" x 11"





Administrative Units

Supply essential safety information to the right people . . . in balanced quantity on the right subjects . . . all the year around

WHAT THEY ARE An Administrative Unit is a cream-of-the-crop combination of monthly, annual, and special Council materials selected to provide a balanced information service for the key men in your safety program. Each Unit includes copies of know-how publications, such as a safety manual, and subscriptions to news-type publications, such as the NATIONAL SAFETY NEWS and News Letter. When ordered as a Unit, these publications cost at least 10% less than they would if purchased individually.

HOW THEY WORK The Unit provides the subscriber with a background of safety information, and keeps him up to date with safety engineering and program developments. The Unit permits participation in Council Sectional activities. The Unit keeps subscribers informed about new Council services and materials. Unit holders receive all Council Service Guides, announcements, and literature describing new safety aids, as well as samples of many of the new publications.

WHO NEEDS THEM – "A" Units are for full-time safety supervisors. "B" Units are for people with substantial safety responsibility: personnel directors, industrial training supervisors, plant engineers, insurance engineers and inspectors, part-time safety supervisors of installations with 100 to 400 employees. "C" Units are for people with incidental safety responsibility: medical directors, chiefs of plant protection, maintenance foremen, part-time safety supervisors of installations with less than 100 employees. In addition to the eight Units described below, there are many other Units for people interested in various fields of safety. Information on these Units will be sent on request.

HOW TO ORDER

When ordering Units, be sure to specify: name and title of the individual, company name, street address, city, zone, and state, type of Unit desired, choice of sections. You'll find a list of Council sections under "News Letters" on page N-10.

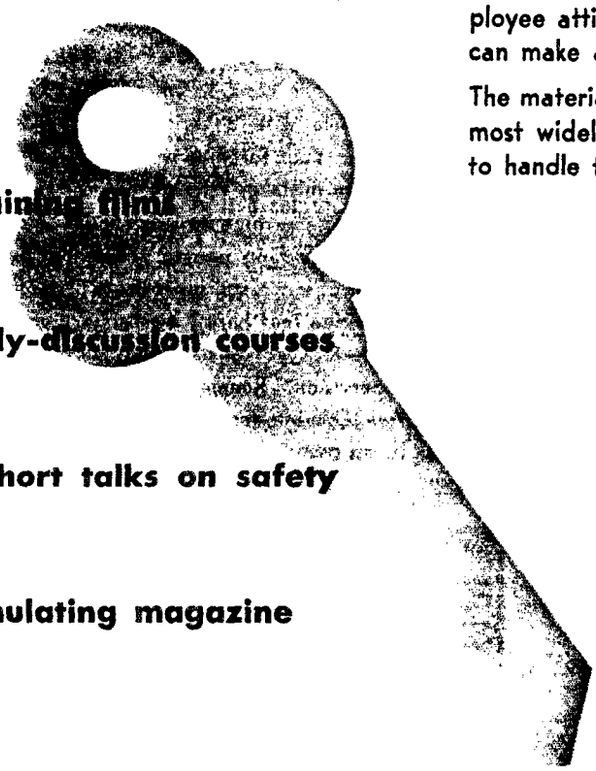
TYPE OF ADMINISTRATIVE UNITS	General	Industrial			Transportation			Construction
	AA-1	A-1	B-1	C-1	A-2	B-2	C-2	B-11
Services Included:								
1. National Safety News, monthly	1	1	1	1	1	—	—	1
2. Public Safety Magazine, monthly	1	—	—	—	1	1	1	—
3. Sectional Enrollment and monthly News Letter	3	3	2	1	3	2	1	1
4. Industrial Supervisor, monthly	1	1	—	—	—	—	—	1
5. Accident Rates pamphlet, annually	2	1	1	—	1	1	—	1
6. Manuals, as issued								
a. Accident Prevention Manual	1	1	1	—	—	—	—	—
b. Handbook of Accident Prevention	—	—	—	1	—	—	—	—
c. Fleet Manual, large	1	—	—	—	1	1	—	—
d. Fleet Manual, small	—	—	—	—	—	—	1	—
e. Construction Job Manual	—	—	—	—	—	—	—	1
7. Congress Transactions, annually								
General	1	1	1	1	1	1	1	1
Subject Sessions	1	1	1	1	1	—	—	1
Section Meetings	3	3	2	1	3	2	1	1
8. National Safety Calendar, annually	1	1	1	1	1	1	1	1
9. Accident Facts, annually	1	1	1	—	1	1	—	1
10. Technical releases for your industry, as issued	1	1	1	1	1	1	1	1

Supervisor Training

KEYS to a successful safety program

Your supervisors and foremen are the management people nearest the accident firing line. They give most of the job instruction; they are responsible for keeping equipment in safe condition—spotting hazards before they become accidents. Their approach to human relations influences employee attitudes. How well these vital jobs are carried off can make a BIG difference in your accident experience.

The materials shown on the next seven pages are among the most widely used by American Industry to equip foremen to handle their safety responsibilities effectively.



27 training films

2 study-discussion courses

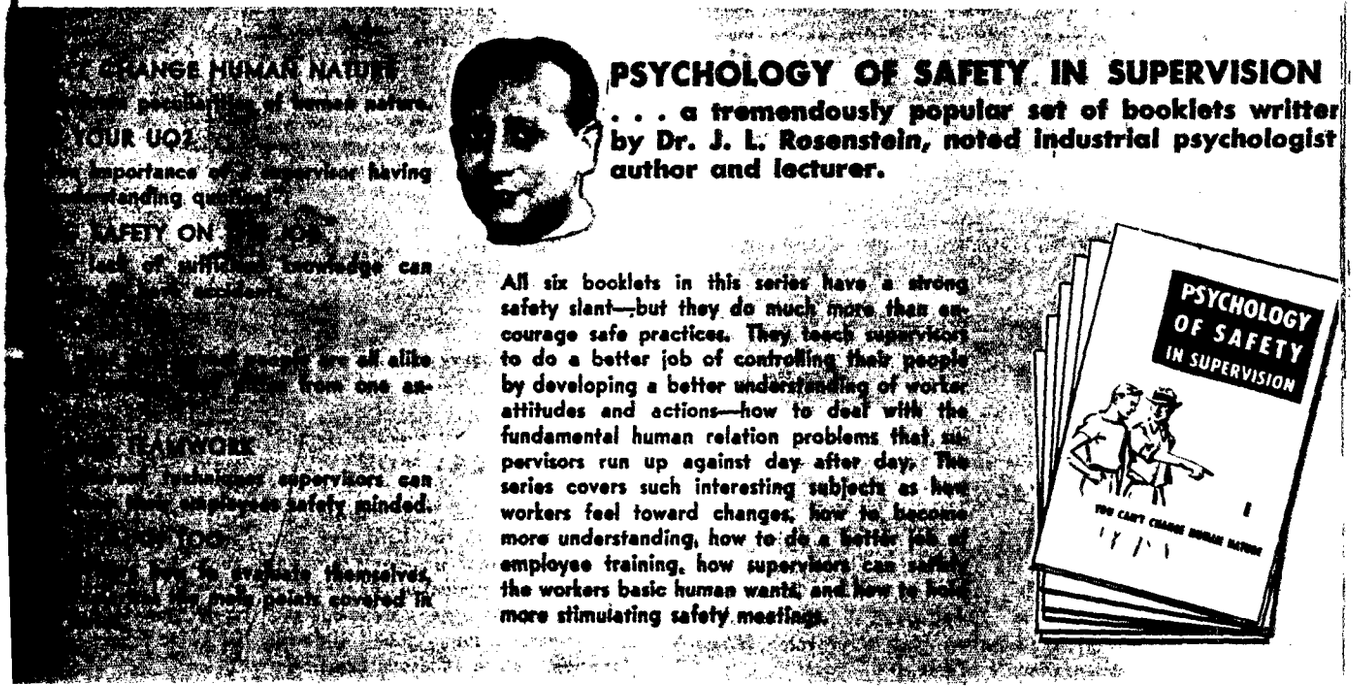
266 short talks on safety

a stimulating magazine

They teach your foremen the fundamentals of accident prevention as it relates to their jobs.

They build interest in your program by showing foremen how safety boosts production and improves morale.

They give your foremen a basic understanding of human relations, and show how to use this knowledge on the job.



PSYCHOLOGY OF SAFETY IN SUPERVISION

. . . a tremendously popular set of booklets written by Dr. J. L. Rosenstein, noted industrial psychologist author and lecturer.

All six booklets in this series have a strong safety slant—but they do much more than encourage safe practices. They teach supervisors to do a better job of controlling their people by developing a better understanding of worker attitudes and actions—how to deal with the fundamental human relation problems that supervisors run up against day after day. The series covers such interesting subjects as how workers feel toward changes, how to become more understanding, how to do a better job of employee training, how supervisors can satisfy the workers basic human wants, and how to hold more stimulating safety meetings.

Here's O'GRADY again!

to pass along some of his hard-earned secre
of "SUPERVISING FOR SAFETY"

Though popular Gustave G. O'Grady, the safety skeptic of "A Gray Day for O'Grady" does the talking, the ideas he dramatizes belong to Dr. Arthur Secord, well-known lecturer on human relations from the faculty of Brooklyn College. Yes, this brand new foreman training series is based on Dr. Secord's "standing room only" presentation at the Early Morning Sessions of the 1952 Congress.

In three narrative-style films, foreman O'Grady develops the Secord formula with a series of revealing "boss-worker" episodes. Your foremen will laugh when they see some of their own mistakes through O'Grady's eyes, but they'll learn at the same time how to become more effective in the art of handling people. Each film deals with one specific trait of successful supervisors. Together, they drive home the idea that happy workers are less likely to have accidents—that worker happiness depends a lot on intelligent supervision. Running time is 12 minutes for each film. Available in either 35mm sound slidefilm (Class I Films) or 16mm sound motion picture (Class V Films).

FRAGILE—HANDLE FEELINGS WITH CARE

After studying the discontented attitudes of some of his employees, O'Grady reaches the decision that as supervisor, a really important part of his job is to consider the feelings of his employees. He realizes that each worker wants to know the "reasons why" for rules, or changes that are made. The supervisor must give employees recognition for their ideas, take their requests into consideration, and give his men an occasional pat on the back. ✣

CALL 'EM ON THE CARPET

Confronted with the problem of trying to correct some of his men, O'Grady realizes there is no standard method of reprimanding. Each worker is different—each must be treated as an individual. He learns too that he should "cool off" before he "sounds off". That it's best to correct a man in private, explain the reasons for his instructions, work in a compliment when it's deserved. It's always hard to correct a worker, but there is always a better way than the old fashioned tongue-lashing. ✣

IT'S AN ORDER

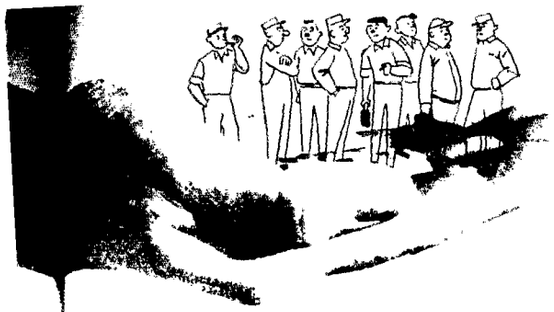
O'Grady is having accident trouble at the plant when he receives a note from management listing instructions on "how to give an order." He is indignant at this suggestion, but after a series of humorous misunderstandings, O'Grady decides that maybe there's more to giving orders clearly than he realized. He re-reads the list of instructions: say what you mean, make written orders clear not too many orders at once, show by doing, explain why. When he thinks back over the days happenings, it becomes obvious that he's been missing a lot of these check points. ✣

PICK YOUR SAFETY TARGET

Shows foremen how to analyze their accidents, act on the evidence. It gives them a simple, workable system for classifying accidents, interpreting the facts, translating them into action. Combined cartoons and live shots. 13 minutes. 35mm sound slidefilm in full color (Class III Film). 16mm sound-motion picture in color (Class VI Film) or black and white (Class V Film). ✣

A GRAY DAY FOR O'GRADY

O'Grady learns the hard way—by almost losing his chance to promotion—that accidents are very much his business. The film shows him how a couple of recent accidents tied up his time, brought production to a near standstill and spiraled his department's cost. 13 minutes. 35mm sound slide-film (Class I Film). 16mm sound motion picture (Class V Film). ✣



"Human Factors In Safety"

shows supervisors how to UNDERSTAND and USE basic human traits in building a Better Safety Program

Here's how to make your supervisor a dynamic part of your program. Give them this complete film training course that shows how understanding basic human behavior and putting it to use can make Better Safety Supervisors . . . Better Production Men . . . Better Builders of Employee Morale.

Human Factors In Safety is a set of six 35mm sound slidefilms with Leader's Manual. Each film covers one important part of the complex art of handling people. They include tips on breaking in new workers, keeping experienced workers on their toes, gaining and keeping employee respect, cooperation and loyal support.

The course is entertaining, instructive, effective—a film series that will make your foremen sit up and take notice, because they all want to learn more about the fascinating subject of handling people.

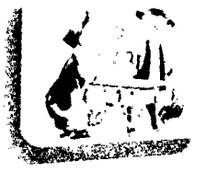
Complete set includes an attractive tan leatherette carrying case. Running time of each film is 15 minutes and are Class I Films, except Safety Case Histories which is 30 minutes, and a Class III Film.

THE SECRET OF SUPERVISION

—sets the stage for the other five films. In story form, it illustrates why workers respond enthusiastically to one supervisor, while they resent and rebel against another. It explains that the films to follow show how to be boss and still be liked—the art of handling people.

TEACHING SAFETY ON THE JOB

—shows supervisors how to prepare and give job safety instructions. The four steps of good job training illustrated are: PREPARE—tell the worker what he has to learn and why; PRESENT—demonstrate how the job is done; APPLY—let the worker try it; TEST—spot check until the worker masters the job.



PEOPLE ARE ALL ALIKE

—explains that all normal people want the same things: a feeling of belonging to the crowd, recognition for good work, knowledge of what goes on, the ability to talk things over with the boss, and pride in their jobs. With the help of Ditzen's cartoons, the film shows how supervisors can satisfy these basic wants—get their men to work with them.

EVERYBODY'S DIFFERENT

—points out that while people have many things in common they also differ from one another in personality, ability and background. The film—a Bruce Shanks cartoon special—shows supervisors what allowances to make for these differences . . . how to handle the rough guy, the show-off, the loud-mouth, the daydreamer, and the practical joker.

TEAMWORK FOR SAFETY

—suggests way for supervisors to make safety interesting and important to their workers. Holding stimulating meetings, encouraging suggestions from workers, using safety literature to good advantage, getting the workers to inspect for hazards . . . are some of the techniques discussed.

SAFETY CASE HISTORIES

—the first safety sound slide of its kind! It presents case histories of accidents that actually happened. After each, the film is stopped so the audience can discuss what caused the accident, and how it could have been prevented. This unusual way of giving the audience a chance to show what they've learned is a wonderful wind-up for a great training course.

SEE PAGE N-46 FOR INDEX AND PRICES

Safety Management for Foremen

the complete Safety Training film course that makes your foremen the "SPARK-PLUGS" of your safety program

Here's the proven way to get your foremen actively behind you and your company program. Build your foremen training sessions around this series of ten 35mm sound slidefilms with Leader's Manual. They contain all the fundamentals of accident prevention. They sell your foremen on safety . . . show them what and how to teach your workers. How a safety program is organized, the important part the foremen plays, and how the program boosts production and employee goodwill are all fully explained in the course.

Safety Management For Foremen have been acclaimed the most popular safety films ever produced. More than 2,000 sets are now in use—and the Council's files are filled with unsolicited letters in their praise. Hundreds of executives have written in to say that these films have done more than any other training aid to develop the safety knowledge and training ability of their supervisors.

The set is packed in a sturdy leatherette carrying case. Running time of each film is 20 minutes. All are Class II Films.

FOLLOW THE LEADER

Gives a step-by-step description of how a safety program is organized. Assigning safety responsibility, analyzing accident records, holding safety meetings, inspecting, guarding machinery, training employees—are a few of the subjects discussed.

CAUSE AND CURE

Shows how to analyze an accident to determine its real causes. The film covers ten unsafe acts and eight unsafe conditions every foreman should be on the lookout for.

GUARD DUTY

Pictures effective guards for common power machines, and points out that it's up to foremen to see that these guards are kept in place.

SAFETY IS IN ORDER

Good housekeeping from the foreman's angle. Some of the points stressed are: pick out a place for everything and insist that everything be kept in its place; a minimum of raw material on the floor; aisles clear; supervise piling of material; every man keeps his own work area clean.

RIGHT DRESS

It's up to your foremen to see that each of their workers has the right dress for his job. Every foremen should be familiar with the common types of protective equipment pictured in Right Dress; namely, goggles, masks, hoods, gloves, hand pads, wrist and arm protectors, ear stopples, metal foot guards, safety shoes, aprons, respiratory equipment, and safety belts.

DOCTOR'S ORDERS

Your workers' attitude toward first aid depends on your foremen. Doctor's Orders sells your foremen on the importance and value of prompt first aid. The film also discusses the value of regular physical examinations, and of accident reports on every first aid case.

BRAIN BEATS BRAWN

Improper handling of material causes one-fourth of all reported injuries in industrial plants. Brain Beats Brawn teaches your foremen how to prevent these injuries—teaches them the best material handling practices. The film gives detailed instructions on lifting and covers other material handling hazards.

STOP, LOOK AND LISTEN

This film pictures a typical safety inspection committee at work—shows exactly what to look for when making a plant inspection. "Stop and think about safety long enough to look for unsafe conditions, and listen to safety suggestions" is the committee's slogan.

PRINCIPLES AND INTEREST

To sell safety to workers, your foremen must create an active interest in the subject. Principles and Interest discusses ways in which this can be accomplished: posters, contests, inspections, safety meetings, awards, payroll enclosures, publicity in the plant paper, etc.

PRODUCTION WITH SAFETY

"It takes less time to prevent accidents than to have them" is the theme of this film. And the accident case histories presented in the film prove the point. They give specific examples of how safety increases production and cuts costs. The film also shows your foremen how to give effective, on-the-job safety training.

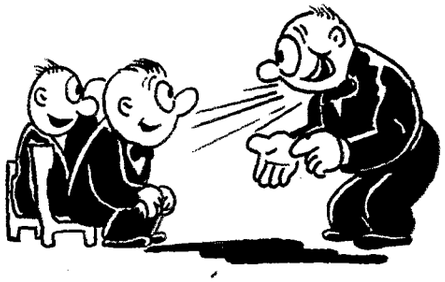
Speaking of Safety

shows your supervisors how to put across ideas to their workers

Supervisors and foreman are the vital link in communicating management ideas to workers. Make it easier for your men on the line to speak up for safety. Help them talk persuasively, with more confidence and conviction by showing this tested set of training films.

You don't have to be a speech training expert to put on this course. The easy-to-follow Leader's Manual which accompanies the set provides detailed plans for a series of six meetings and practice sessions. Anyone who can thread a sound slide projector and lead an informal discussion meeting can do an effective job—yes, even learn himself as he is exposed to these six practical lessons.

Dr. Irving J. Lee, Professor of Public Speaking, Northwestern University prepared this series in the same easy-moving convincing style so well remembered from his presentations at the Early Morning Sessions at the Congress. It consists of six 35mm sound slidefilms and Leader's Manual packed in an attractive leatherette carrying case with two-sided records for use with either manual or automatic projectors. Running time is 13 minutes for each film. (Class I Films).



THE POWER OF SPEECH

An introduction to the films to follow. It lists some of the occasions when foremen and supervisors may be called upon to give a speech, explains the difference between a formal speech and a working speech, and discusses the purpose of a speech, both from the audience and speaker standpoints. The film then outlines the subject matter of the other films in the series.

BUTTERFLIES IN YOUR STOMACH

Describes "that strange feeling that hits you the moment you stand up to talk," explains the physiological reactions that cause stage fright, and shows how to overcome it.

THE KEY TO GOOD SPEAKING

Outlines four methods of preparing a speech, discusses the advantages and disadvantages of each, then explains which method is recommended and why. The film gives a step-by-step description of how to prepare a typical safety speech by using the recommended method.

SEE PAGE N-46 FOR INDEX AND PRICES

ON YOUR FEET

Explains what to do physically when you get up to talk; how to stand; the purpose of moving around and how to do it effectively; what to do with your hands; where to look.

NOW YOU'RE TALKING

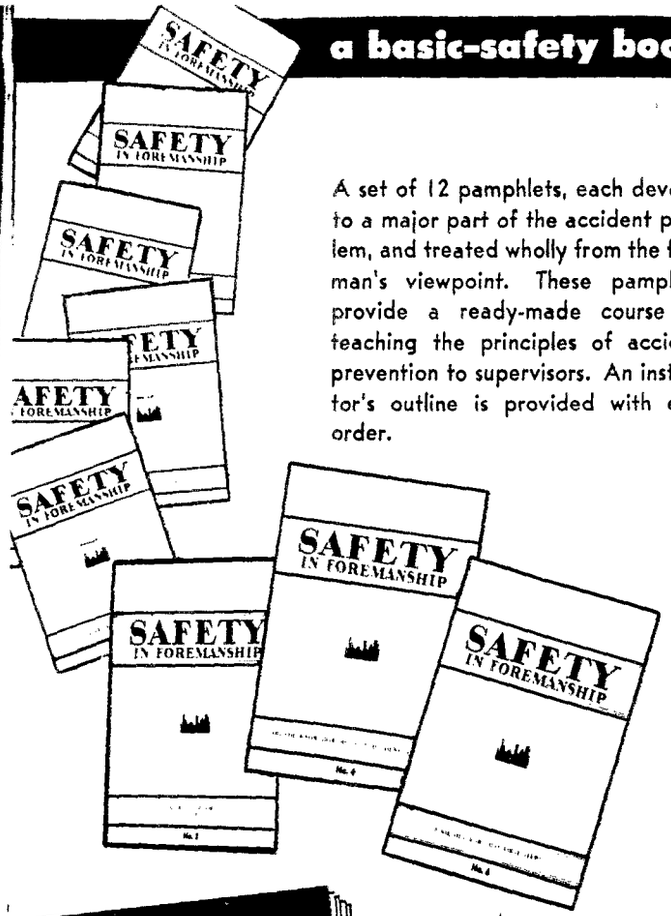
Discusses the actual speech making: how loudly you should talk; your vocabulary, and how to phrase your ideas; your attitude—why it is important not to "talk down" to your audience . . . how friendliness, sincerity, and enthusiasm can make your speech a success.

RING THE BELL

Shows how to hold the attention of your audience from beginning to end. It explains how to "break through the ice"; the value of demonstrations, scale models or mockups, films and still pictures, graphs, charts, and diagrams; how to illustrate a point by telling a personal experience, a humorous story, or by using comparisons.

a basic-safety booklet course

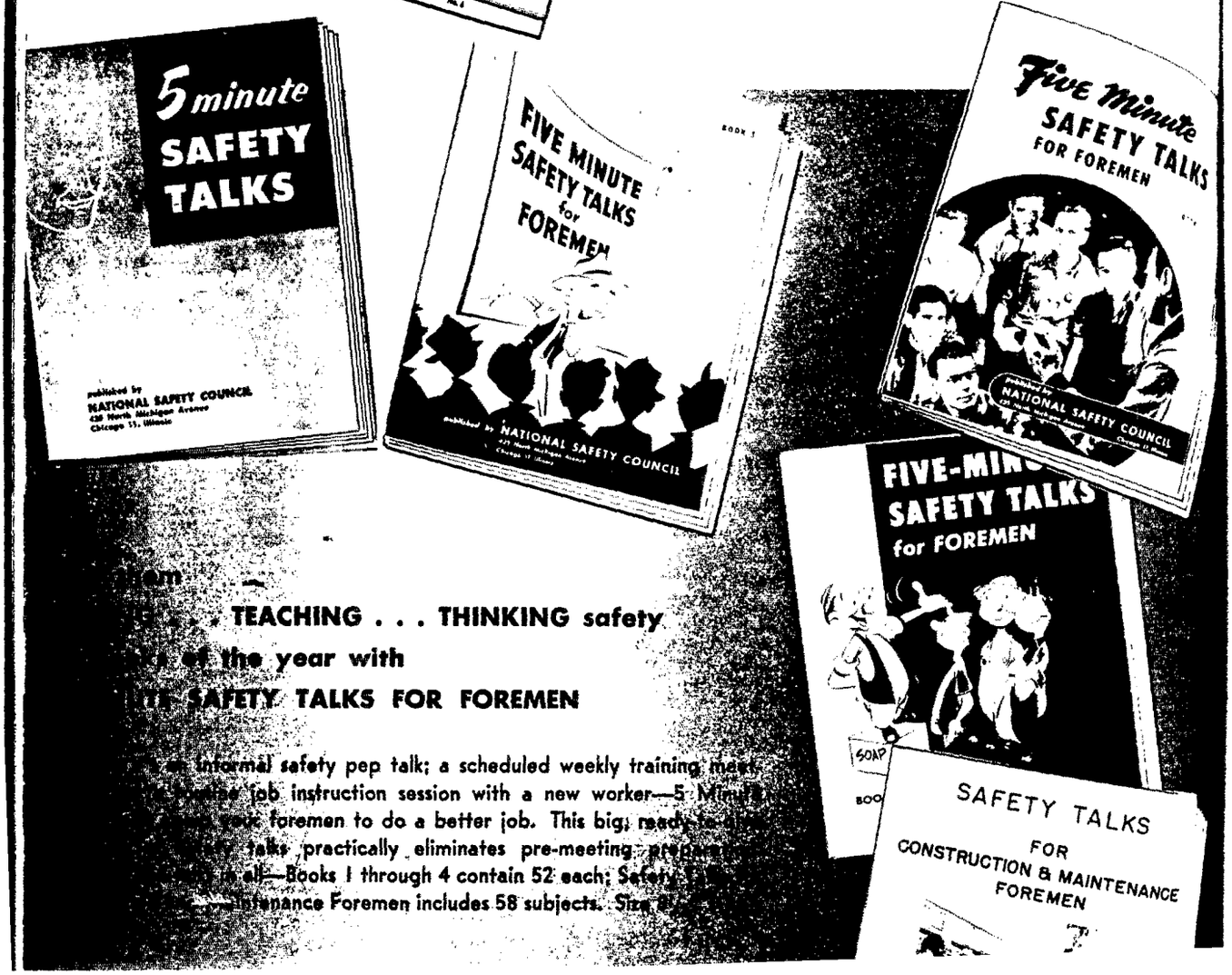
...TY IN FOREMANSHIP



A set of 12 pamphlets, each devoted to a major part of the accident problem, and treated wholly from the foreman's viewpoint. These pamphlets provide a ready-made course for teaching the principles of accident prevention to supervisors. An instructor's outline is provided with each order.

Each is 6" x 9" in size with from four to eight inside pages of swift-moving, narrative-style safety discussion. Booklet No. 1 is an introduction to the booklets to follow. The others are:

2. "The Foreman's Opportunity—Production With Safety" (foremen's responsibility for the safety of workers)
3. "Have You Thought About This?" (the human suffering caused by accidents)
4. "Do You Know How Much An Accident Costs?"
5. "Safeguards—Why and How"
6. "Look Out For That First Step!" (safety instruction for the new worker)
7. "Are You Following Through?" (enforcement of safety instructions)
8. "What Accident Statistics Tell The Foreman"
9. "Why And How To Be A Good Housekeeper"
10. "Detecting And Correcting Unsafe Conditions"
11. "After An Accident—What?"
12. "What About Fire In Your Department?"



...TEACHING . . . THINKING safety

...of the year with

...SAFETY TALKS FOR FOREMEN

...informal safety pep talk; a scheduled weekly training meet... job instruction session with a new worker—5 Minute... your foremen to do a better job. This big, ready-to-... talks practically eliminates pre-meeting preparation... all—Books 1 through 4 contain 52 each; Safety ... Maintenance Foremen includes 58 subjects. Size ...

Don't let your Foremen draw a line between

SAFETY and PRODUCTION

Month in and month out, the INDUSTRIAL SUPERVISOR sells the idea that safety IS one of TODAY'S production problems . . . that efficient production depends on safe methods.

The SUPERVISOR backs up the do it today motivation with practical "what to do" and "how to do it" tips that make the job look a lot less formidable. Ready-made safety talks, supervisor checklists, down to earth human relations articles and many other stimulating features combine to make the SUPERVISOR a once a month shot in the arm for 124,000 supervisory personnel. Your foremen, too, will read, use—and it if they're like so many others—save every issue. So make sure each of them receives a personal copy next month.

16 PAGES
5½" x 8½"

Here are just a few titles of articles that appeared in recent issues of the INDUSTRIAL SUPERVISOR

HUMAN RELATIONS—

- Psychology and the Supervisor (a series of 16 articles based on notes from Dr. J. L. Rosenstein's "One-Day Course in Human Relations for Supervisors")
- Playing Favorites
- How Well Can You Get Along With People?
- Attitudes and Safety
- Give Them the Glad Hand
- Psychology vs. Enforcement

SELLING THE IDEA TO FOREMEN—

- Little Things Spark Safety Program
- It Can Be Done
- Why Safety?
- Safety Effort Paying Off

CASE HISTORIES—

(A continuing series of actual problem and solution experiences submitted by SUPERVISOR readers.)

TRAINING—

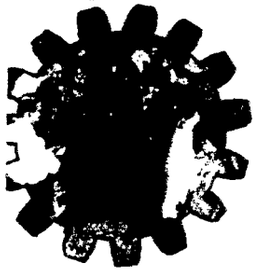
- Train 'Em for Safety
- The Spirit of Training
- How to Read a Speech Aloud
- Gadgets Get Interest
- How Well Do You Tell?

FIVE MINUTE TALKS—

- Protect Your Toes
- Know Your Job
- Job Clothing
- A Matter of Habit
- Emergency First Steps
- Fire Prevention
- Don't Fall For It
- Accidents Are Caused

No advertising . . . nothing to sell but
BETTER PRODUCTION WITH SAFETY

Employee Training



for practical job safety instruction

to shape sound worker attitudes

to win better cooperation

to stimulate and hold employee interest

A well-planned, continuous use of employe education publications and promotional mate rials is a basic part of any safety program It adds impact to your safety training—make it easy to give; easy to take on the receiving end. It sharpens the meanings of your safety rules; shows workers why they should be observed. Most of all, these materials do the daily reminding job to keep employees thinking . . . selling themselves on doing it the SAFE way.

Most of the Council's major publications are described on the next 20 pages. For detailed lists of additional materials, refer to these sources: Directory of Occupational Safety Posters; Safety Instruction Cards—Service Guide 5.2; Safety Incentives—Service Guide 9.1; National Directory of Safety Films (lists films available from NSC and other sources).

CODE

B—Booklet
F—Film
L—Leaflet
M—Monthly Publication
T —Illustrated Safety Talk
S —Safetygraph

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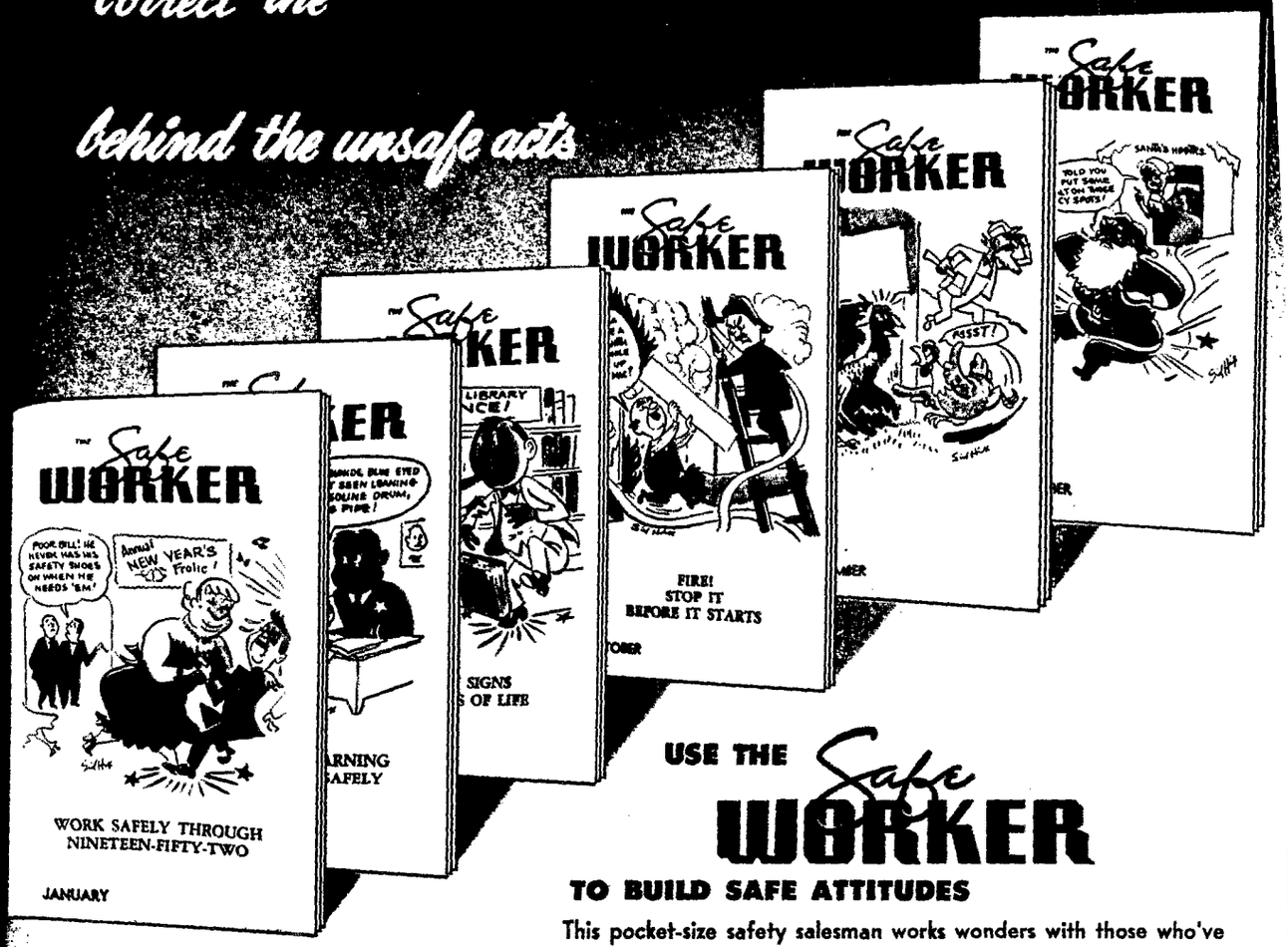
Correct the

behind the unsafe acts



USE THE Safe WORKER

TO BUILD SAFE ATTITUDES

This pocket-size safety salesman works wonders with those who've been told and TOLD—but haven't been sold. It feeds your workers a regular diet of the soundest safety psychology you've ever seen. With cartoons, humor and homey philosophy it shows how foolish it is to fight safety . . . and how it profits a worker to do every job the one right way—the safe way. Yet it's done in such pleasant fashion that 96 out of 100 employees take SAFE WORKER home for their families to enjoy!

With your name imprinted on the cover, SAFE WORKER becomes your own company safety magazine.

It's published monthly
16 pages
3⅜" x 5⅞" in size.

Safe RAILROADER

This popular magazine for railroad workers is now published monthly in a new 8-page format. Patterned after the SAFE WORKER, it makes liberal use of cartoons, common sense safety rules and humorous stories to win employee interest. It is suitable for all railroad men—engineers, firemen, trainmen, shop and maintenance of way personnel.

Safe DRIVER

A big package of safety in capsule form, it influences drivers to accept responsibility for equipment, encourages good driving habits, sells drivers on the benefits of safety. It is written in language drivers understand and believe. They enjoy the cartoon illustrations and like the common sense approach to safe driving. 16 pages, 3⅜" x 5⅞".

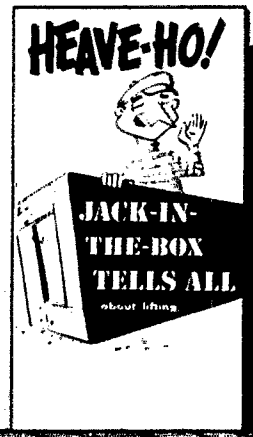
. . . and here is a NEWCOMER!

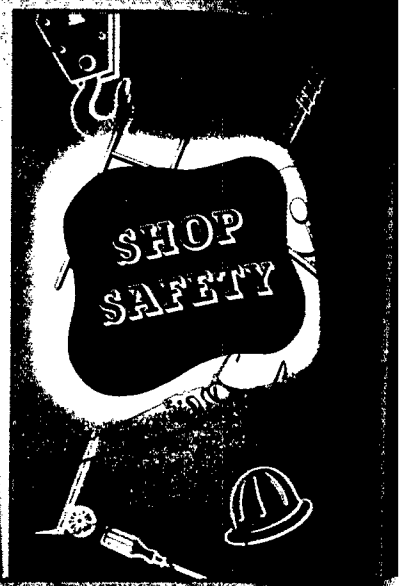
the SAFE Builder

Yes, here's the construction industry's own employee monthly magazine—aimed at the specific hazards, unsafe practices and attitudes peculiar to the industry and its workers. The early-bird contractors that have already climbed on the BUILDER bandwagon have given it a big vote of confidence. Write for sample copy and full details of the new, flexible ordering procedure.

N-2

EMPLOYEE TRAINING BOOKLETS



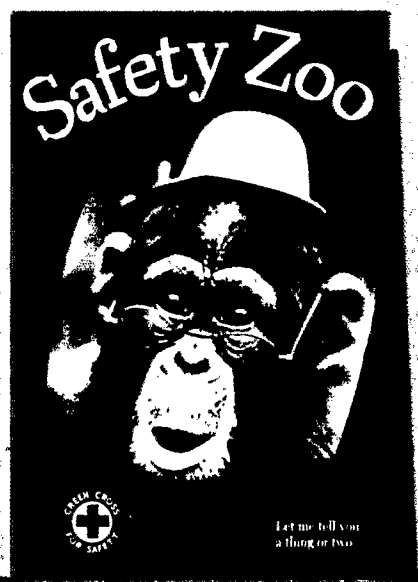


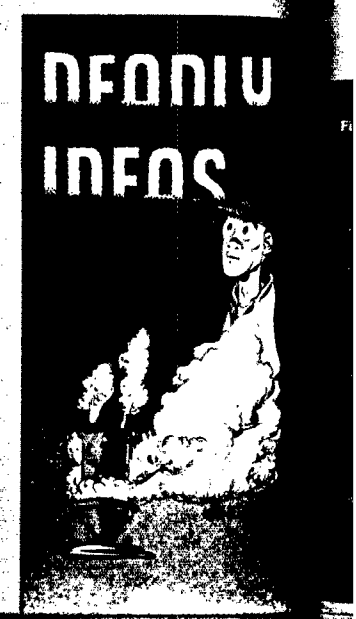
SHIP SHAPE
A nautical-theme booklet that shows the importance of good housekeeping. Amusing cartoons impress the need for cleanliness, proper storage of tools and materials and fire prevention to reduce accidents. 16 pages, 3" x 5½".

THE FALL GUY
Stresses the hazards that cause falls in industry: poor housekeeping, failure to use handrails, unsafe ladder practices, undue haste, hitching rides, lack of attention, makeshifts and faulty equipment. 16 pages —3" x 5½".

HEAVE HO!
One of the most complete and effective lifting stories you can give your workers. It takes them through material handling from start to finish, from sizing up the job to actual lifting techniques. Cartoon illustrated, 12 pages, 3" x 5½".

SHOP SAFETY
An illustrated safety manual for workers. Deals with protective clothing, hand and power tools, materials handling, machinery, plus many other safety measures. 32 pages, 5¼" x 8¼".





AREN'T PEOPLE FUNNY?
Illustrates a number of common human foibles and faults that can lead to accidents. It shows in humorous fashion the relationships between attitudes and unsafe behavior, spotlighting various unsafe characters. 16 pages—3" x 5½".

SAFETY ZOO
Pokes fun at human foibles with an amazing collection of animal photos combined with clever captions. Safety committeemen and foremen will especially enjoy it. 32 pages, 5½" x 8".

SO HELP ME!
A sprightly safety rule booklet jam-packed with no-accident tips, eye catching safety cartoons and lilting safety jingles. An inspirational memory refresher highlighting the tried and true safety precautions. 20 pages—3" x 5¼".

DEADLY IDEAS
A new comic type booklet in full color. It routs out seven foolish attitudes that hamper accident prevention . . . blasts them with a double-barreled charge of logic and lampoon. 16 pages, 4 x 9".

W TO PREVENT FALLS
ed with many safety do's-don'ts that prevent falls to jumping, hitching rides, ying on stairs, incorrect use ladders, running. Cartoon trations with serious text. ages, 3⅞" x 8".

THE SAFETY REGISTER
A basic rule booklet for all hotel employees. Brief copy combines with clever stick-figure illustrations to drive home idea that the safe way is the easy way to get things done. 16 pages, 3" x 5".

THE MAN WITH THE BADGE
Shows safety committeemen how to deal with committee problems, tips on conducting safety inspections, committee meetings, getting along with supervisors and workers. Cartoon illustrations. 64 pages, 4" x 6½".

I JUST GAVE MY SEAT TO A LADY
A collection of safety cartoons by Walt Ditzen. 120 pages of humorous and enjoyable safety training. Fine souvenir for safety dinners or plant rallies that workers will enjoy for months. 4½" x 6½".

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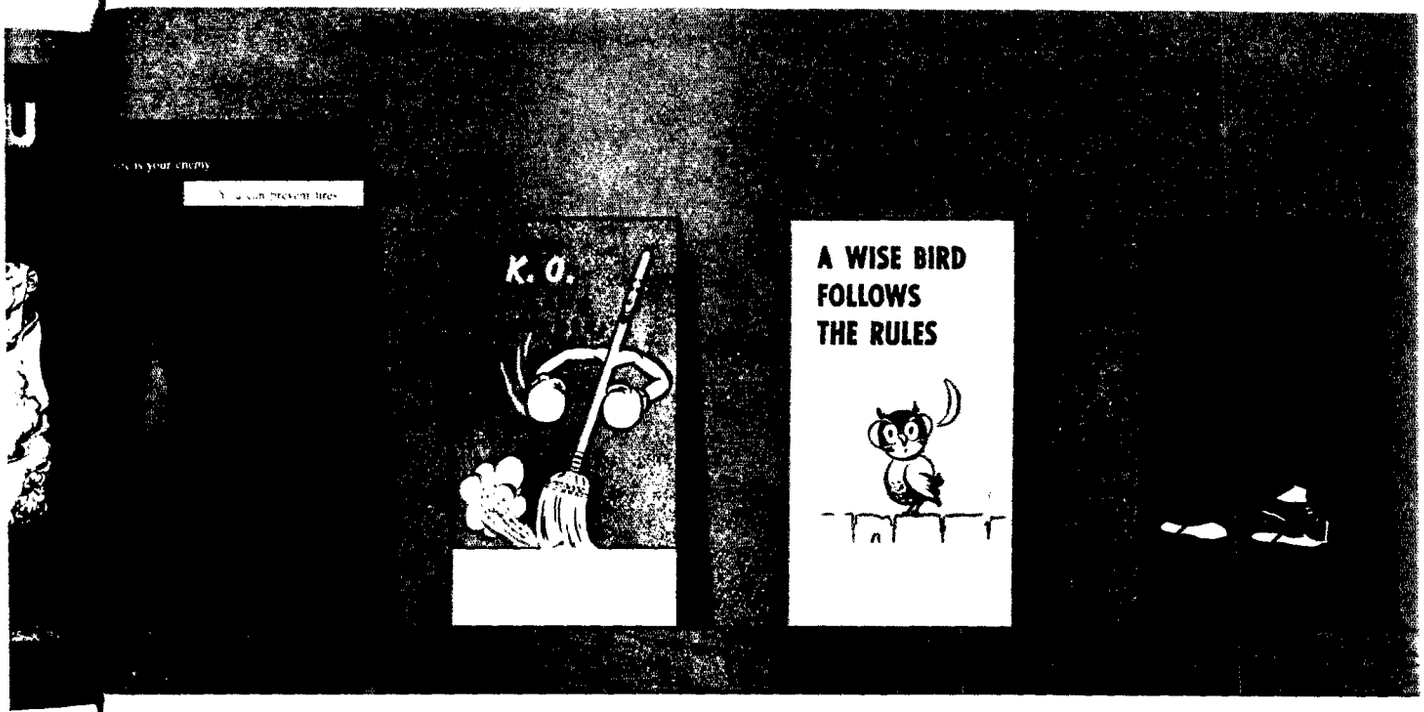

FIRE WISE
matic pictures and copy cribe the causes and cures fire. Hits at poor housekeeping, improper handling of ents, faulty electricity, man-de fires—shows workers how be fire-safe. 16 pages, 4" x

K. O. DIRT AND DISORDER
Sells workers on plant housekeeping. Colorful cartoons and light-touch writing drive home important points in keeping the plant clean, neat and orderly . . . free from accident and fire hazards. 16 pages—3" x 5½".

A WISE BIRD FOLLOWS THE RULES
Answers a basic need in safety programs — showing workers why rules exist, who makes them, and how they are formulated. Clever cartoons and copy give workers a better slant on the safety program. 16 pages—3" x 5½".

STEPS TO SAFETY
A personal checklist of sound safety rules that apply to any worker on any job—and off-the-job, as well. The straight-from-the-shoulder approach portrays the safety program as the personal concern of each employee. Cartoons on all its 16 pages. 3" x 5½".

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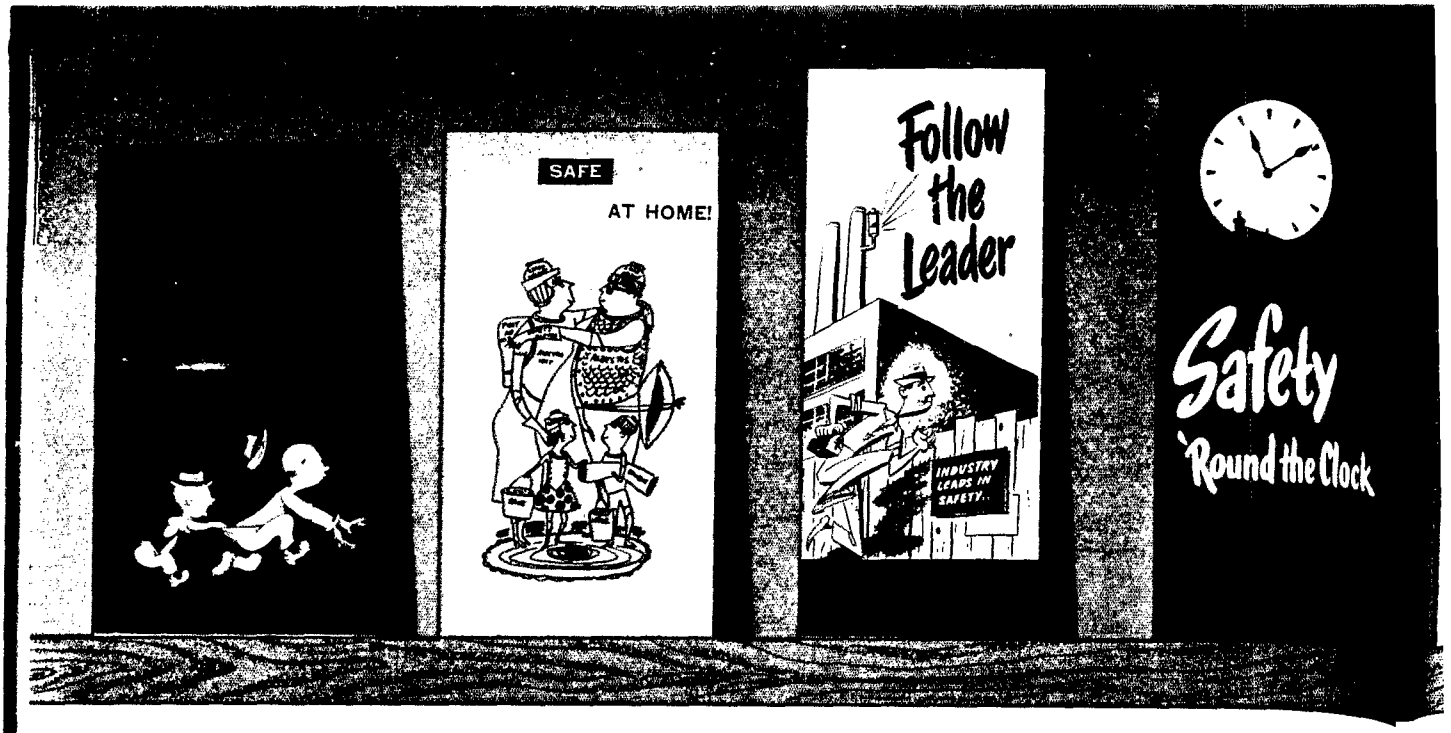


HOLD EVERYTHING!

Deals with accidents in the home, on the street, at play, on summer vacations. Includes an interesting self-test for checking hazards in the worker's home, and a "What's Wrong With This Picture?" traffic quiz. 16 pages—4" x 7".

SAFE AT HOME

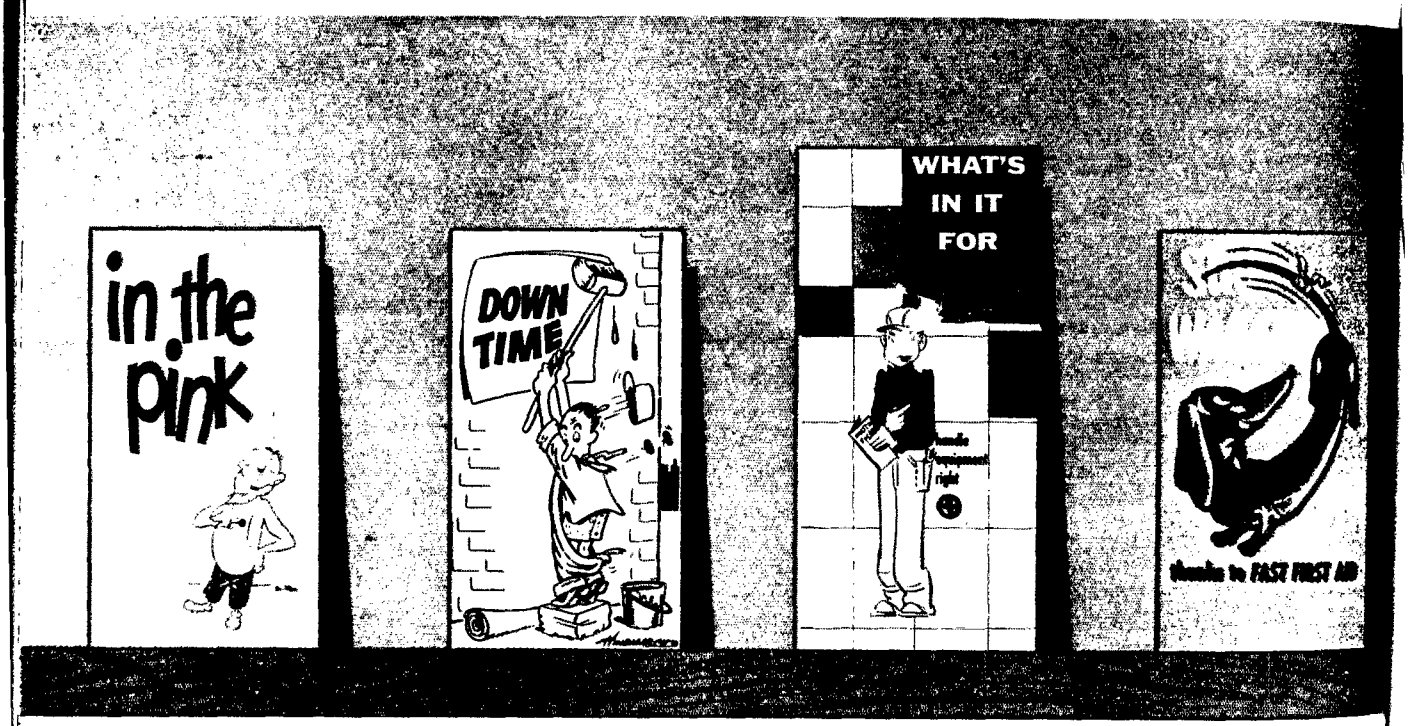
This all new edition is packed with suggestions for eliminating hazards in every room of the house. Lists safe practices and danger signals and includes section on safety for children and the aged. 2-color, 16 pages, 4" x 7¼".

FOLLOW THE LEADER

Re-teaches the cardinal points of job safety, shows the worker how these same points can protect him while off the job, and impresess him with the great job industry does in keeping him safe while at work. 8 pages —3¼" x 8"

SAFETY 'ROUND THE CLOCK

Extends interest in safety to the home and to the worker's family. It gives hour by hour hints on home safety, from the time to rise until the cat is put out for the night. Cartoon illustrated. 8 pages—3½" x 8".



IN THE PINK

A Ditzen cartoon-illustrated booklet presenting basic rules for good health, with a fresh approach. Covers posture, sleep, eye and foot care, weight, cleanliness, and first aid. 16 pages, 3" x 5⅜".

DOWN TIME

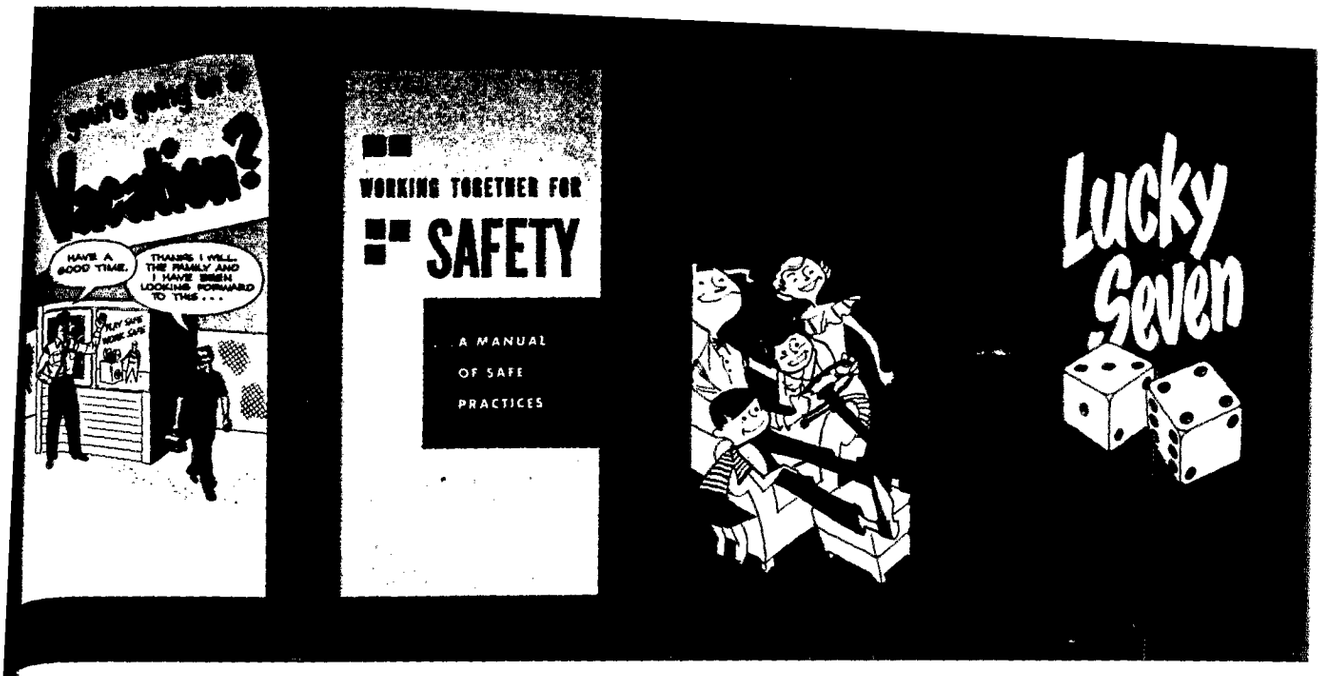
Crammed with helpful facts that keep workers healthy and on the job. Deals with personal housekeeping, proper diet, relaxation and medical care. Fun to read, with lots of cartoons. 16 pages, 3" x 5½".

WHAT'S IN IT FOR ME?

A brand new booklet that points out to the worker the personal advantages of practicing safety. Proves that it's not where he works, but how he works that makes for good safety records. Humorous illustrations, serious text. Full color, 16 pages, 4" x 9".

STILL WAGGIN'

Encourages workers to get prompt first aid no matter how minor the scratch or injury. It is a new approach on the value of first aid, with amusing cartoons and short factual pointers. 16 pages—3" x 5½".



SO YOU'RE GOING ON A VACATION

An attractive, readable booklet for vacation bound employees. Presents safety tips on motoring, swimming, hunting and camping. Shows workers how to have fun while avoiding vacation hazards. Full color, 8 pages, 4" x 8".

WORKING TOGETHER FOR SAFETY

Handy manual of safe practices for workers. Covers general safety regulations, special operations, fire prevention, lifting and carrying, piling, health and many other topics. Ideal for orienting new employees, and as a safety refresher for older employees. 2-color illustrations, 32 pages, 4" x 7".

YOUR 10,000 MILE LIVING ROOM

A new slant on safety. Common sense captions drive home the need for courtesy, safe speed, good manners and safe practices to prevent costly accidents both at home and on the road. 12 pages, 3" x 6".

THE DRIVER'S LUCKY SEVEN

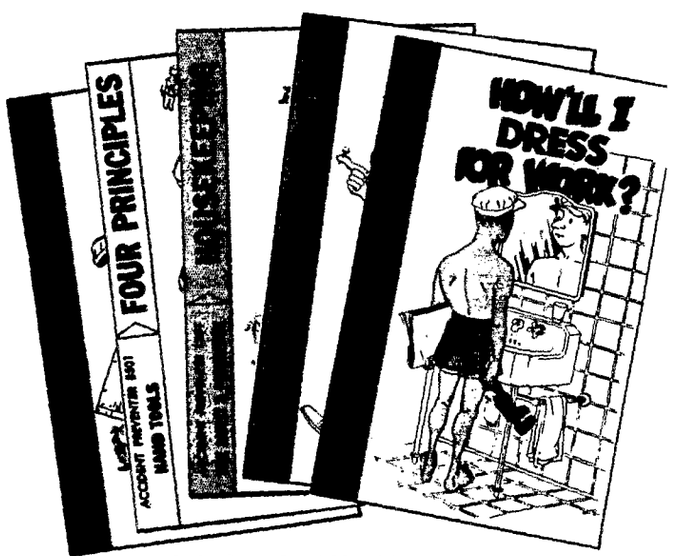
Shows that driving a car needn't be a gamble. You can make your own luck by: keeping the car safe; holding down speed; stopping, looking and listening; being in shape to drive; passing with care; and other steps. 8 pages—3½" x 8"

FIRST AID REMINDERS

This set of nine leaflets is designed for quick reference in emergencies, and for effective first aid instruction. Size 3½" x 6¼", 4 to 6 pages, in attractive colors.

Titles are:

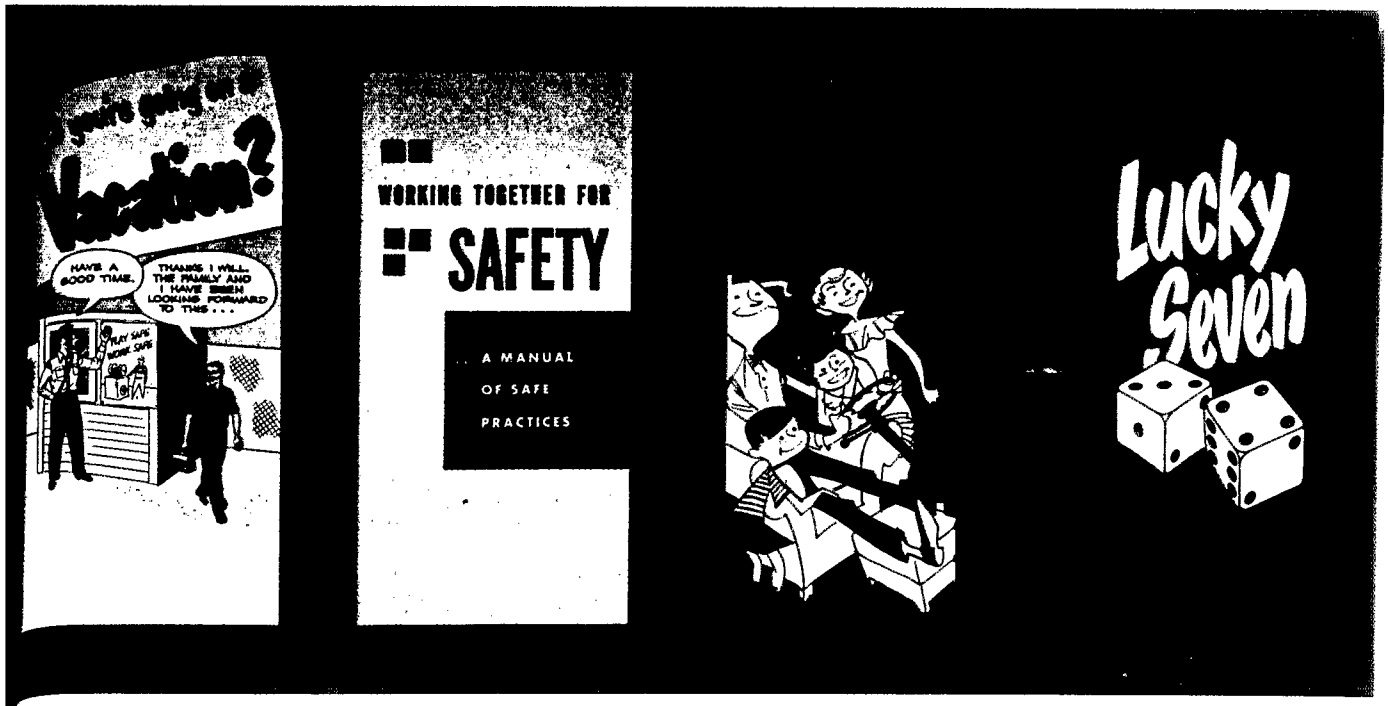
- What To Do For a Wound-For Shock
- What To Do For Bleeding
- What To Do For A Broken Bone
- What To Do For Heat Cramps, Heat Exhaustion, Sunstroke and Fainting
- What To Do For Poisoning
- Artificial Respiration (Schaffer)
- Artificial Respiration (Armlift)
- What To Do For Bruises, Sprains, and Strains — How To Move An Injured Person
- What To Do For Burns and Scalds



Introducing! the ACCIDENT PREVENTERS . . .

. . . a brand new series of employee training tools. Each colorful leaflet in this continuing series pinpoints a specific operation or safe practice. Accident Preventers teach safety with lots of pictures—few words. Each subject is introduced with a humorous cartoon cover; the safety lesson being developed in a sequence of straight illustrations. Printed in 2 colors, 4 pages, 3" x 5". The first 5 subjects are:

No. 101 LIFT SAFELY
No. 201 HOUSEKEEPING PREVENTS FIRE
No. 301 WEAR SAFE CLOTHES
No. 401 GET FIRST AID FAST
No. 501 THE FOUR PRINCIPLES OF HAND TOOL SAFETY



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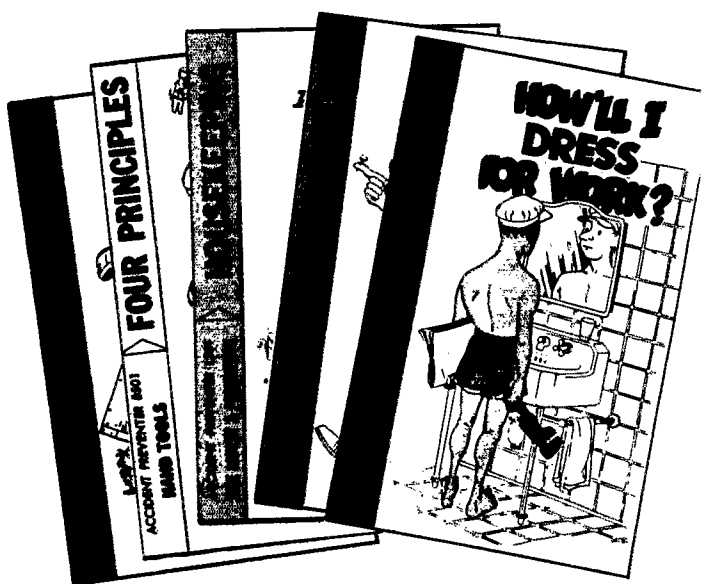

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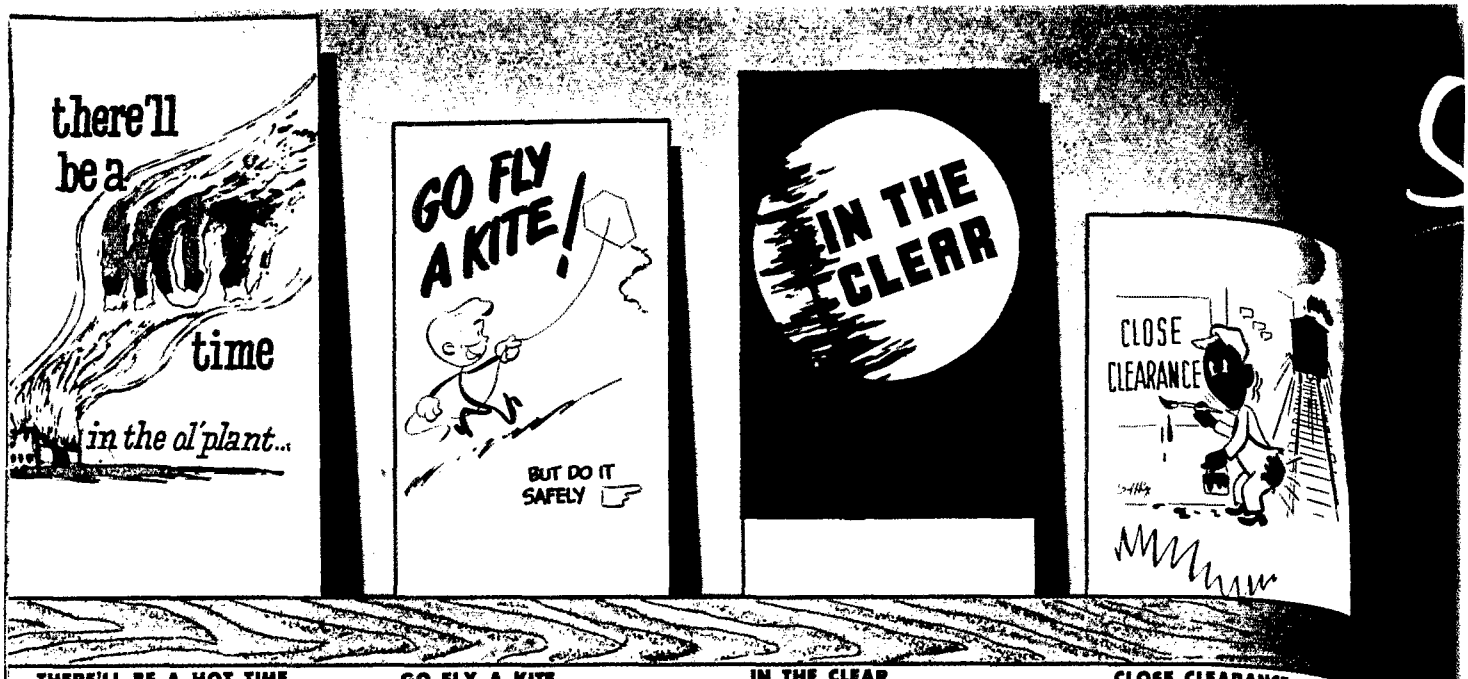
No. 401 GET FIRST AID FAST
No. 501 THE FOUR PRINCIPLES OF HAND TOOL SAFETY



THERE'LL BE A HOT TIME IN THE OL' PLANT

Convincing booklet showing workers the importance of observing basic fire rules. Humorous cartoons point out that "act first—think last" workers cause fires in plants. Includes tips on what to do in case of fire, and "tell-at-a-glance" fire extinguisher chart. Full color, 16 pages, 4" x 7".

GO FLY A KITE

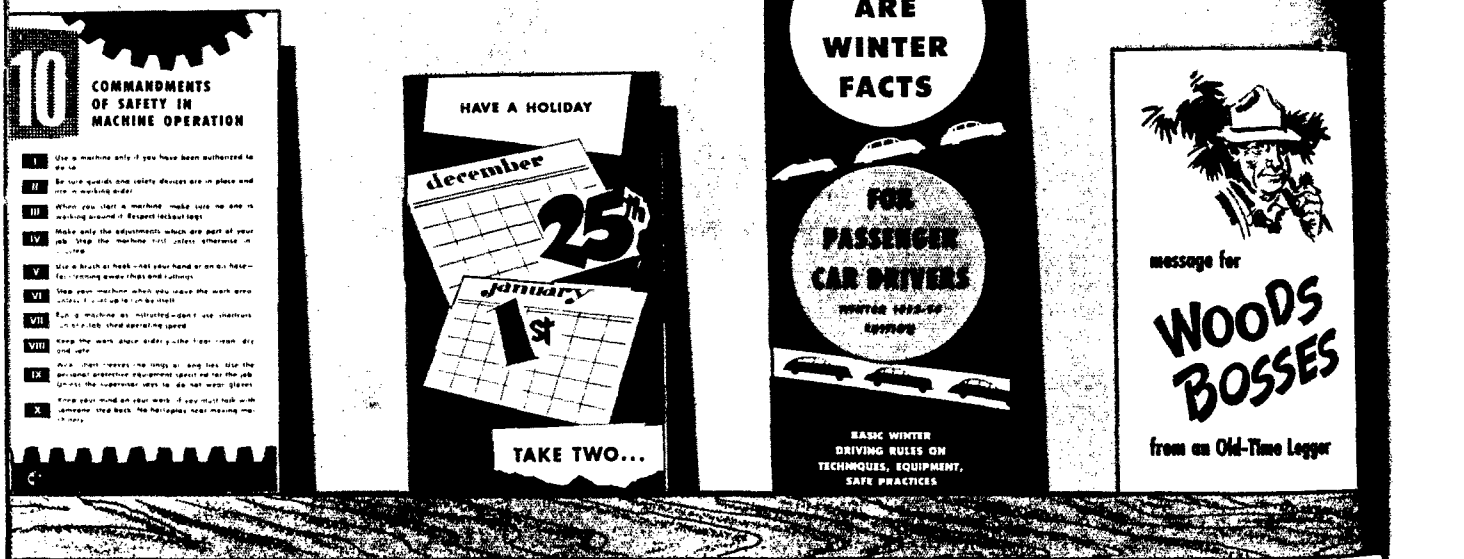
Cleverly illustrated 3-color leaflet designed especially for school children and their parents. Warns against hazards of flying kites near power wires, of climbing trees and utility poles, and of using metallic kite strings. Written in language a child can understand. 4 pages, 4" x 5".

IN THE CLEAR

A booklet written especially for loggers, on how to prevent accidents in the logging industry. Clever "wrong-way" illustrations combined with serious text warns against hazards such as slipping, falling trees, improper handling of materials, and accidents due to saws, axes and moving machinery. 2-color, 8 pages, 4½" x 8".

CLOSE CLEARANCE

A collection of all-time favorite Sid Hix cartoons from the Safe Railroader. Use this novel attitude builder to pep up safety meetings or as a favor at company parties. 32 pages, 4" x 5"



10 COMMANDMENTS OF SAFETY IN MACHINE OPERATION

An attractively designed list of the ten fundamental safety rules for machine operators. Printed in 2 colors on light card stock. Handy 4" x 7" size. With each 100 ordered, one 9¼" x 10¾" reproduction is included (free of charge) for display on shop bulletin board or another prominent place in the shop.

HAVE A HOLIDAY

A holiday send-off leaflet that does double duty — expresses warm holiday wishes and reminds workers to return to the plant safe and sound both at Christmas and New Years. Cleverly illustrated in 2 colors. 4 pages, 3" x 5⅛"

HERE ARE WINTER FACTS FOR PASSENGER CAR DRIVERS

Gives passenger car drivers the special facts and suggestions needed to deal with winter driving hazards. Explains the effect of temperature on stopping distance, how to start and stop on ice and snow, the use of chains and special tires. Prepared by the Committee on Winter Driving Hazards. 2-color, 16 pages, 3¾" x 8½".

MESSAGE FOR WOODS BOSSES

Written in the language of loggers, this booklet gives the woods boss the basic principles of how to prevent accidents in the saw log and pulpwood logging industry. Gives pointers on how to handle men successfully. Available in both English and French versions. 2-color, 12 pages, 3½" x 6".

Safety Decals

Safety decals attached to machine frames, guards, fuse boxes and fire doors constantly remind workers to observe safe practices and follow instructions. These colorful decals conform to ASA specifications. Order by letter and number code. Available only in size 2" x 3½".

A Green Cross for Safety emblem printed in white letters on green ground, with the words "MEMBER NATIONAL SAFETY COUNCIL" underneath in green. For use on office doors or windows. Emblem is available in 2" and 3½" sizes.

SAFETY DECALS

- S- 1—Sound Warning at Corners and Aisle Crossings
- S- 3—Do Not Talk To or Distract Operator
- S- 4—Before Starting Be Sure Everyone Is In the Clear
- S- 5—No Riders
- S- 6—Keep Tools in Safe Condition and in Proper Place After Use
- S- 7—Keep Floor Clean Around This Machine
- S- 8—First Aid Kit
- S- 9—Only Authorized Persons May Change Fuses or Make Repairs
- S-10—Keep This Space Clear
- S-11—Deposit Waste Material Here
- S-13—Avoid Falls. Walk—Do Not Run—Use the Handrail
- S-14—Please Keep Your Locker Clean

CAUTION DECALS

- C- 1—Shut Off Machine When Not in Use
- C- 2—Fire Door—Do Not Block
- C- 3—Shut Off Engine Before Refueling
- C- 4—To Be Operated Only by Authorized Employees
- C- 5—Pull and Lock Switch Before Oiling, Adjusting or Repairing Machine
- C- 6—Use Brush to Remove Chips
- C- 7—Stop Machine Before Making Adjustments
- C- 8—Use Fuse Puller to Remove Fuses
- C- 9—Do Not Operate Without Guards
- C-10—Keep Guards in Correct Adjustment
- C-13—Ground Equipment Before Use
- C-14—Do Not Use Near Electrical Equipment
- C-17—Do Not Open While Machine Is in Motion

DANGER DECALS

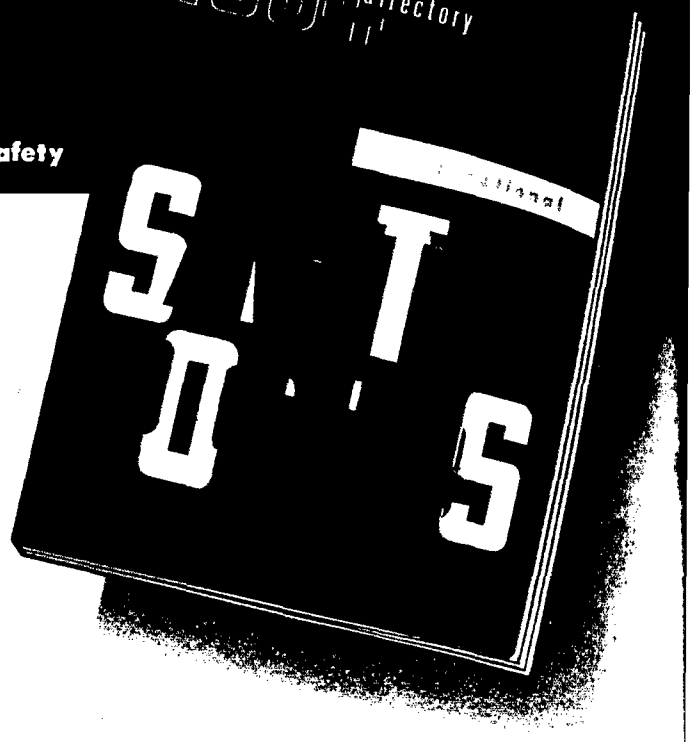
- D- 1—Do Not Wear Gloves While Operating This Machine
- D- 2—High Voltage
- D- 4—Keep This Guard in Place
- D- 6—Wear Goggles While Operating This Machine
- D- 7—Flammable—Keep Flames and Heat Away
- D- 8—Corrosive Liquids—Use Personal Protective Equipment
- D- 9—220 Volts
- D-10—440 Volts
- D-12—No Smoking
- D-13—Wear Goggles in This Area
- D-14—Oxygen—Keep Oil and Grease Away
- D-15—Acid
- D-16—Caustic
- D-17—Replace Guard Before Using Machine

FIRE DECALS

- F-1—For Wood, Paper, Textiles and Rubbish (Class A Fires) Not Electrical Equipment
- F-2—For Wood, Paper, Rubbish and Burning Liquids (Class A & B Fires) Not Electrical Equipment
- F-3—For Burning Liquids (Gasoline, Oil and Paint and Electrical Equipment) (Class B & C Fires)
- F-4—Sprinkler Valve—Do Not Close Unless Authorized

Posters

the mass advertising and selling aids for safety

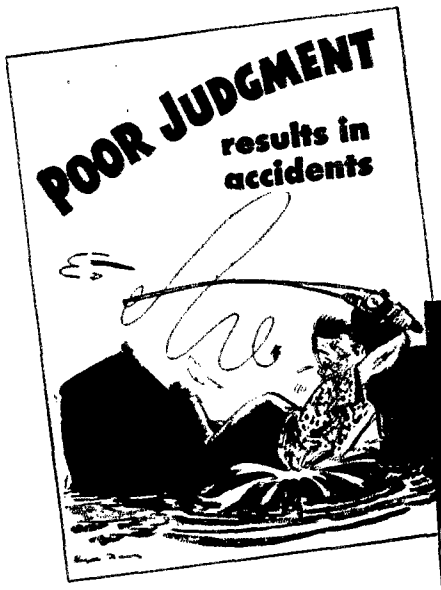


POSTERS SELL YOUR SAFETY PROGRAM BECAUSE

- ★ they are aimed straight at the sources of trouble—the underlying worker attitudes and the acts that lead to accidents
- ★ they bring interest, color and impact into your program
- ★ they cash in on the three basic rules for good advertising — Timeliness, Repetition and Continuity
- ★ they reach your entire audience many times each day at a low, low cost—driving safety messages home at the time and place they can do the most good

The Council's DIRECTORY OF OCCUPATIONAL SAFETY POSTERS illustrates 744 poster in miniature, covering safety, fire prevention and health, classified and indexed for easy reference.

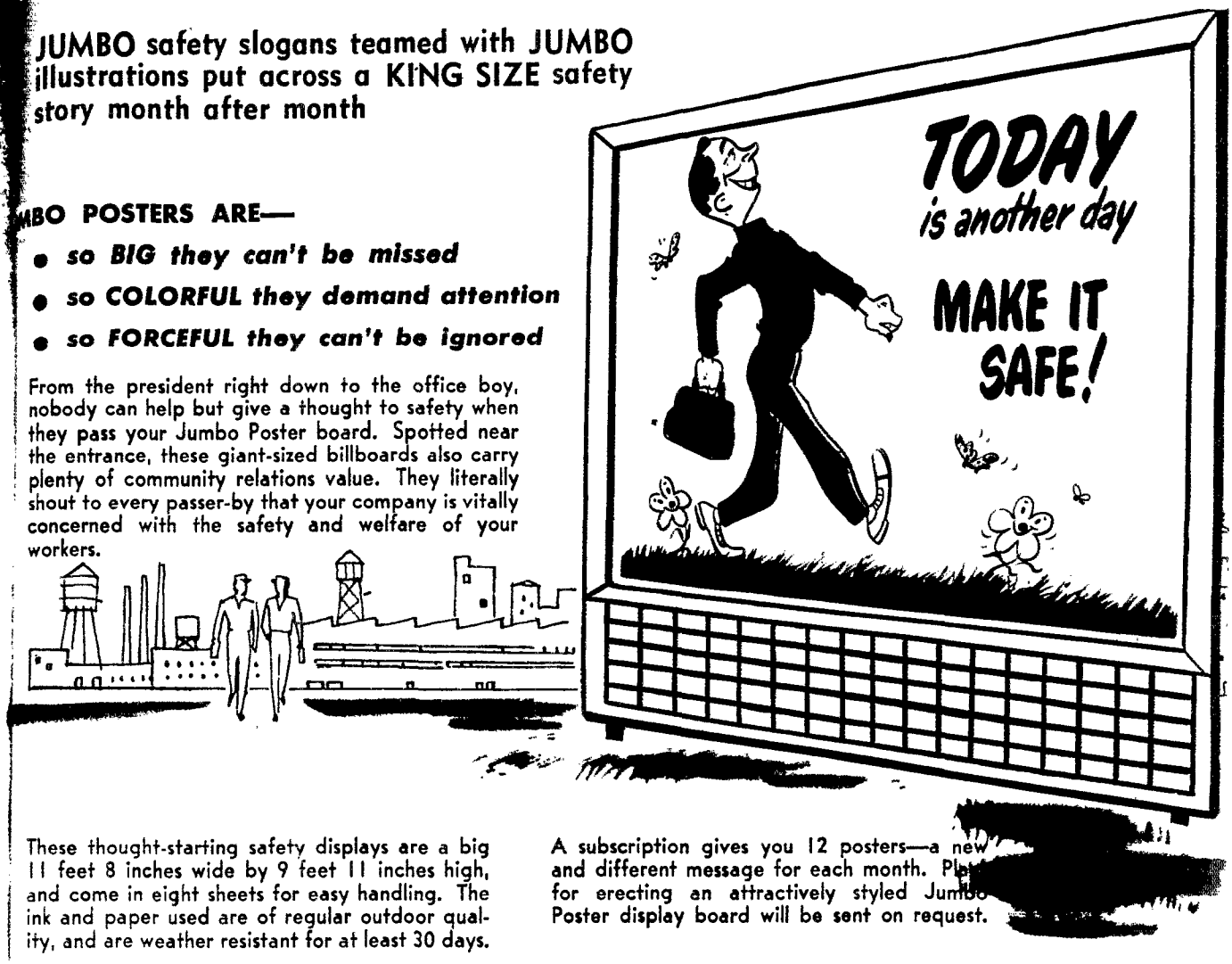
Posters are produced in four sizes: "A" size, 8½" x 11½"; "B" size, 17" x 23"; "C" size, 25" x 38"; and the 8-sheet Jumbo described on the facing page. One "C" poster and one Jumbo poster are produced each month, and are shown in the NATIONAL SAFETY NEWS along with other new posters produced during the year. All posters shown in the Directory and the NEWS are available throughout the year.



Those who do not wish to select their own posters may have them selected by Council staff engineers, and shipped automatically each month. Staff engineers make selections each month to provide specialized automatic poster service for 56 different types of operations. See the DIRECTORY OF OCCUPATIONAL SAFETY POSTERS *for a complete explanation of automatic poster service, or write the Council for information.*

BIGGEST ... safety!

JUMBO safety slogans teamed with JUMBO illustrations put across a KING SIZE safety story month after month



MBO POSTERS ARE—

- ***so BIG they can't be missed***
- ***so COLORFUL they demand attention***
- ***so FORCEFUL they can't be ignored***

From the president right down to the office boy, nobody can help but give a thought to safety when they pass your Jumbo Poster board. Spotted near the entrance, these giant-sized billboards also carry plenty of community relations value. They literally shout to every passer-by that your company is vitally concerned with the safety and welfare of your workers.

These thought-starting safety displays are a big 11 feet 8 inches wide by 9 feet 11 inches high, and come in eight sheets for easy handling. The ink and paper used are of regular outdoor quality, and are weather resistant for at least 30 days.

A subscription gives you 12 posters—a new and different message for each month. Pl... for erecting an attractively styled Jumbo Poster display board will be sent on request.

"C" SIZE POSTERS

This 25" x 38" poster does the same job inside the plant as the Jumbo poster does outside—it advertises your safety program. It tells everyone, every day, that safety is a top priority matter in your company. Twelve new "C" size posters are released each year—one per month. Each is previewed in the NATIONAL SAFETY NEWS. May be ordered on annual subscription or individually.

POSTER FRAMES

Black enameled metal frames, made to fit "A" and "B" size Council posters. Frames are large enough to accommodate cardboard backing and a glass or plastic sheet in front of the poster.

POSTER ELECTROS

You may obtain electrotypes of any poster illustrated in one color in the poster directory or in the NATIONAL SAFETY NEWS. Order by poster number. 1⅞" x 2¾".

PATROL ENCLOSURES

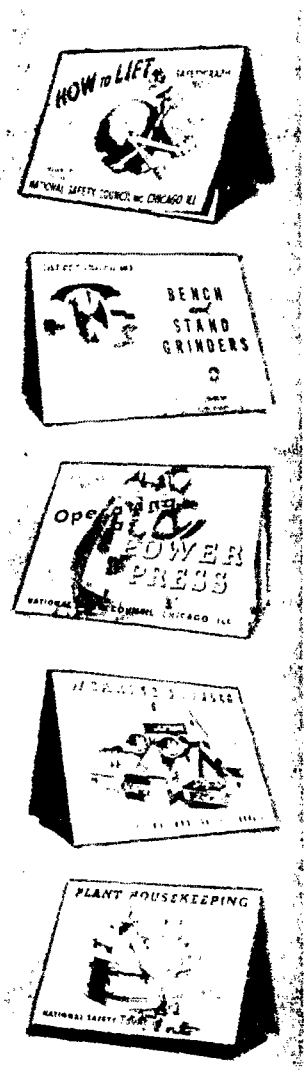
Miniature black and white reproductions of safety posters. Select 12 different posters from those shown in one color in the poster directory or in NATIONAL SAFETY NEWS. Enclosures are printed 12 to a sheet; then cut to 1¾" x 2½" size. Minimum order—1200 enclosures (100 sheets). Quantities of each of the miniatures selected must be identical. When more than one group of 12 are ordered, each group of 12 is priced as an individual order. See Directory of Occupational Safety Posters for details.

Teaching Safety is a cinch when yo

SAFETYGRAPH

Safetygraphs are illustrated safety talks complete within themselves, ready for use at a moment's notice. They consist of from 12 to 16 large (18" x 24") spiral bound picture pages with a complete safety talk, instructions, questions and answers and summary. They employ the tested training method of 1) tell them, 2) show them, 3) let them try, 4) discuss the "reasons why", 5) test their knowledge, 6) review the essential points.

Give the talk as it's written, omit parts to shorten it, or stretch it out by using all the demonstrations, questions and group participation suggestions in the instructions. You'll find the SAFETY-GRAPH one of the most popular and effective visual aids available for training small groups.



1 **HOW TO LIFT**
Teaches workers efficient and safe procedures for lifting, handling, and carrying materials. The rules stressed are: keep hands clear; get a good grip; have a good footing; bend your knees; keep the load close to you; get help for heavy or awkward loads.

2 **BENCH AND STAND GRINDERS**
Discusses eye protection around grinders; spacing for work rests; work pressure; exploding wheels; over-heating; checking for damage; checking speed ratings when changing wheels; ring-testing for defects; hood adjustments; dressing wheels; excessive vibration.

3 **OPERATING A POWER PRESS**
Emphasizes guarding—types of guards, and why the operator should use them. Also discussed are: use of sticks to remove pieces that are caught; special tools to insert and remove work; preventing damage to dies; proper dress; handling stock parts.

4 **WEARING GOGGLES**
Is a head-long attack on complaint about wearing safety goggles. It shoots holes in time-worn excuses like: "they're too heavy"..."this job'll only take a minute." With humor and logic, it wins over non-believers and reconverts backsliders who have been careless about wearing goggles.

5 **PLANT HOUSEKEEPING**
Stresses it's up to workers to wipe up grease, put scrap in a box, keep the work place clear, and lockers clean. It discusses the safe way to stack materials: start foundations; keep piles straight; cross-tie layers; stepback of tall piles; keep aisles and fire exits clear.

6 **LADDER SAFETY**
Teaches the four primary rules of ladder safety: 1. Select the right ladder; 2. Inspect it before use—look for weakness or faulty repairs; 3. Secure it—place at proper angle, use non-slip feet, or lash; 4. Use properly—climb the safe way, secure tools.

7 **USING FIRE EXTINGUISHERS**
Explains the classes of fires, what type of extinguisher to use for each, and how to use it. It also discusses what to do in case of fire. The safetygraph is most effective when used in a two-part course, part 2 being outdoor demonstrations of extinguishers on actual fires.

8 **ACCIDENTS DON'T HAPPEN**
Gets right down to the grass root of safety—to the basic principle that accidents don't happen, they are caused. It discusses unsafe conditions and unsafe acts, cites specific instance of each type, and shows how each accident could have been prevented.

9 **COMMON HAND TOOLS**
Shows how to avoid hand and finger injuries caused by hammers, wrenches, chisels, knives, files, and screw drivers. The four ways to prevent hand tool accidents are: use the right tool; use a tool in good condition; use it the right way; keep in a safe place.

10 **PREVENTING FIRE**
Explains how it can be prevented by controlling two of the three fire components—heat and fuel. It discusses the major sources of heat in industrial fires; electricity; smoking, and the types of fuel involved in most industrial fires—greasy rags, flammable liquids, etc.

11 TOE PROTECTION

Is a persuasive presentation of the facts about safety shoes. It examines all the common objections to wearing safety shoes, and proves that each is based on unfounded prejudice or lack of information. It also shows some off-the-job uses for safety shoes.

12 ELECTRICAL HAZARDS

Sums up important points to remember about electricity and electrical equipment. 1. Use good equipment. 2. Don't overload circuits. 3. Keep away from live conductors. 4. Ground an electrical tool before use. Discusses the common causes of electrical burns and injuries.

13 INDUSTRIAL POWER TRUCKS

Discusses parking, loading, inspecting trucks, and safe driving practices. Illustrates the wrong ways to use a truck. Covers operating in close quarters, the safe way to approach and enter an elevator, etc. Drives home the main causes of plant truck accidents.

14 ONLY A SCRATCH

Goes to work on how to get workers to use first-aid on little injuries. Shows how to treat different types of wounds such as punctures, lacerations, and incisions. Sells workers on the idea that protecting themselves against infection is a sign of good sense.

15 WANTED—SAFE WORKERS

An informal session on what makes a safe worker. Deals with the worker who understands his job and does it well, and with the fellow who learns the hard way. Covers, in story style, how to act at work, and dress at work. Stresses cooperation between fellow workers.

16 FALLS

Shows that falls are one of the most serious sources of industrial accidents. It covers everything from plunging down unguarded elevator shafts to stumbling over objects. Shows how to prevent falls and discourages the use of makeshift equipment and horseplay.

17 DOES YOUR ACCIDENT SHOW?

Attacks the employee's attitudes which lead to accidents. It shows employees the reasons why people pull boners that can lead to injury: being "safety lazy," failure to follow rules, horseplay, distractions, failure to think, not feeling up to par.

18 MY ACHING BACK

Treats the subject of back injuries—why and how they happen. The drawings show how the back functions, and what happens when it is strained or twisted. An effective way to drive home the proper ways to lift, and the need for securing help in lifting.

19 STATIC SPARKS AND FLAMMABLE LIQUIDS

It spares no punches in showing your workers how static sparks are caused, how they ignite flammable liquids, how to bond against these dangers. The information will sink in, take hold, and help every time workers transfer flammable liquids.

20 OFF-THE-JOB SAFETY

Doesn't mince words. It is designed to help stop the off-the-job accident toll, at home, in recreation and in traffic. It illustrates hazards to watch out for, and makes workers stop, think and watch their step—and play it safe off-the-job.

21 SAVE YOUR OWN SKIN

Discusses the causes and dangers of dermatitis. It shows workers how to protect their skin; the need for protective clothing, and for keeping it clean and in good condition; discourages the use of solvents, and encourages the use of protective creams, and first aid for all skin infections.

22 CHEMICAL SPILLS AND SPLASHES

Emphasizes the dangers of liquid chemicals, their safe handling and transporting. It instructs workers to clearly identify them; how to empty drums, carboys and tank cars; what to do when chemicals are spilled, splashed on workers, or if they are overcome by chemical vapors.

23 TWO METHODS OF ARTIFICIAL RESPIRATION

Large line drawings and clear-cut instructions simplify the job of teaching the Arm-Lift and Hip-Lift methods of artificial respiration. Safetygraph #23 is the only available visual training aid covering these methods, which are now officially accepted by virtually every national organization concerned with artificial respiration.

24 RAMP SAFETY

Covers a wide range of ramp equipment —fork lifts, cargo conveyors, passenger loading stands, tractors and freight carts, air conditioners and fuel trucks. Pertinent points in safe fueling operations, cargo handling and general ramp procedure are brought to light. Suitable for refresher training or indoctrination of new aviation personnel.

25 TWO-WHEEL HAND TRUCKS

Shows the correct use and handling of a two-wheel hand truck. It discusses how to load and unload materials, difficult loads, the proper way to lift materials, careful procedure at corners and intersections and the proper use of hand trucks on inclined surfaces.

101 WHY BACK INTO TROUBLE?

An illustrated safety talk for commercial truck drivers. It gets down to actual cases and teaches drivers when and why to avoid unnecessary backing, hazards to look for, curb parking hazards, how to back safely, and tells the safe backing speeds.

102 YOUR MARGIN FOR SAFETY AT INTERSECTIONS

Contains suggestions for commercial vehicle drivers on how to prevent accidents at intersections. It warns to be suspicious of all intersections, to avoid sudden stops, to obey traffic signals, how to make left turns, and to be on the alert for pedestrians.

TRAINING FILMS

Trainees learn as much as 55% faster, and remember up to 70% more—and longer—when films are used to help teach. This means that you can cut down new-worker safety training time, give fewer refresher courses, and still get bettter results by using films.

Each National Safety Council film has been carefully planned to do a specific job in your safety program—to serve as an effective discussion springboard for supervisor and worker meetings.

All fundamental and general interest films are designed to cut across industry lines. Specific industry backgrounds are minimized; emphasis is on safe practices—not environment.

35mm Sound Slidefilms

All of the films described on the following six pages consist of a 35mm filmstrip and a 33⅓ RPM recording. Fifteen of these films are also produced in 16mm sound-motion, a listing of the titles is shown on page N-41. All 35mm sound slidefilms released since 1948 (marked with this symbol ✠) can be shown with either a standard projector or the new automatic 30-50 low frequency models. One side of the sound slidefilm recordings uses an inaudible signal to automatically advance each picture in synchronization with the narration.

Previews and Rentals

Individual films and film sets may be previewed prior to purchase. Preview service charge is waived if the film is retained. The preview charge is NOT a rental fee. It is necessary to offset the Council's expense in rendering a preview service—the packing, postage and return inspection charges billed the Council by its various film producers for each shipment; replacement costs for lost or damaged films; and, the clerical and administrative cost of processing each order. Both Rental and Preview charges are par week or fraction thereof exclusive of time in transit.

Preview and rental service is available only within the continental limits of the U.S.A. unless the member agrees to pay air-mail postage both ways. Canadian members may obtain all Council-produced films for either rental or preview from the Canadian Film Institute, 142 Sparks Street, Ottawa 4, Ontario, Canada.

Replacements

Filmstrip or record replacements may be purchased at ¼ the price listed for the complete film if the damaged record or film is returned with the order. Otherwise cost of replacement is ½ the price listed for the complete film. Replacement footage for all 16mm motion pictures is available at laboratory cost.

2 BRAND NEW FILMS

IF YOU TOOK YOUR FAMILY TO WORK WITH YOU

Proves that a worker's family plays an important part in his attitude towards safety on the job. The film evolves about a day in the life of Jerry Reynolds and his son Butch. Jerry keeps imagining he sees Butch watching him do things that violate the safety rules. He is reminded of how he scolds Butch for doing the same type of unsafe things at home. As the day progresses, Jerry becomes more and more safety conscious. He realizes that even though Butch was not present physically, the boy was on his mind all day—that he should practice safety on the job just as though his family were with him—waiting for him to break some of the rules he's been preaching to them. 13 minutes. Black and white. (Class I Film). Also 16mm sound-motion picture (Class V Film). ✠

TAKE TIME TO LIVE

Shows the worker how, by allowing himself just a few minutes more each day he can be relaxed and happy at the end of the day, instead of being worn to a nub. The central character in the film is Horace, the worker who is always in a hurry. He gets up late, doesn't have time for breakfast, trips on his way out, runs for the bus—and with all the rushing is late to work. By contrast, the scene changes to show Horace getting up on time, enjoying his breakfast, leaving for work in a normal fashion—and arriving on time. The film proves that nine out of ten accidents in the home or on the street are caused by rushing. Figures from an actual test prove that allowing only 5 minutes more a day will prevent hurrying and give a worker time to get to and from work with ease and safety. 12 minutes. Black and White. (Class I Film). Also 16mm sound-motion picture (Class V Film).✠

"PERSONAL SIDE OF SAFETY"

S

corrects unsafe attitudes by helping your workers to ANALYZE and UNDERSTAND themselves

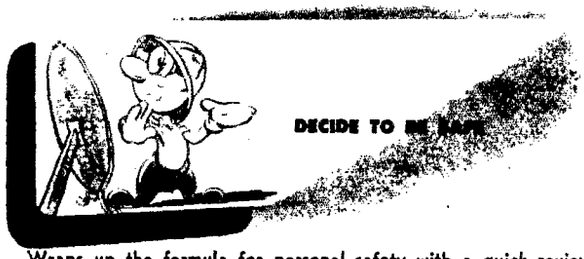
With a front-door approach and stair step logic, PERSONAL SIDE OF SAFETY reduces this complex attitude business to easily understood fundamentals. The five films build a convincing formula for personal safety that shows a worker that no one can keep from getting hurt if he doesn't help. He must know his job and know himself; be the master of his habits and emotions; believe in the power of safety; WORK AT IT! The message is believable because each worker sees himself in the humorous cartoon sequences and actual work scenes. It's painless training at its best.

Explains the steps in developing a new habit pattern; how to erase an unsafe habit. Each routine task is accomplished largely by one or more of the habit sequences we form. It's as easy to build safety into your habits as it is to do things unsafely. 15 minutes. (Class II Film).

Emphasizes that award winning safety records don't "just happen." They are the results of careful planning and hard work. They are the accomplishment of the individual worker who adopts a "be safe" attitude for himself and towards his fellow workers. 15 minutes. (Class II Film).

Enlarges on the idea of self understanding. Shows how feelings and emotions can undermine determination. Explains how to recognize the danger signals in time—make your emotions work for instead of against you. 15 minutes. (Class II Film).

This film s ws that you've got to mix deter ination with knowledge a d experience. KNOW YOUR JOB—be thoroughly aware of the possible hazards; how to avoid them. KNOW YOURSELF—the personal peculiarities that make for accidents; how to control them. 15 minutes. (Class II Film).



Wraps up the formula for personal safety with a quick review of the key points made in the previous films. To make it all work, it explains, each of us has to underline our efforts with determination—a sincere decision to be safe. 15 minutes. (Class II Film).

In most plants the industrial nurse is the safety man's star salesman. Your workers will learn and laugh as the accident-wise Miss Miller proves to skeptical Sam that accidents DON'T just happen. She shows him that accidents aren't funny—that they can be stopped by using a little common sense. She first softens him up by showing him some "scare" pictures of major accident injuries; then follows up by explaining why they happened. By the end of the day, Sam's converted. 13 minutes. (Class I Film). Also 16mm motion-picture (Class V Film).

A humorous story of the worker who won't go home after a series of nerve-shattering home accidents. It takes a lot of doing, but the boss finally convinces him that he CAN take the plant safety program home with him; stop home accidents just like they do on-the-job. The film touches on all phases of home safety from housekeeping, ladders and electricity to lifting and home repairs. 13 minutes. Full color (Class III Film). Also 16mm sound-motion in full color (Class VI Film) or black and white (Class V Film).

the 10 film worker

EVERYTHING you need to run a complete course in safety fundamentals.

Ten of the sound slide films produced by the Council have been selected for use, in a series, as a basic safety training course for workers. By progressing step-by-step through the course, workers obtain a well-rounded fund of safety knowledge in amounts they can absorb and remember. The course can be put on easily, and with practically no time-consuming preparation. With the leader's manual provided for each subject, anyone can do an effective job. The set is packed in a sturdy leatherette-bound carrying case.

FIFTEEN MINUTES TO GO

Dramatically compares the odds of getting an infection in a small cut or scratch with "Russian Roulette". They're in your favor, but would you take the chance. You'd have nothing to gain—everything to lose. Actual photos of wounds, burns, and scratches before and after infection lends the realism that will convince your workers that they're playing it smart if they invest "15 minutes" to get immediate medical attention. 15 minutes. (Class I Film)

SAFE HANDLING OF MATERIALS

One-fourth of all industrial accidents involve handling of materials. Every worker—regardless of industry—lifts, carries, or handles some type of material every day. Whether it's an office or a heavy steel foundry, the same fundamental problem exists; the same simple precautions apply. With simple illustrations this film leads your worker through all the safe material handling "do's"...backs them up with pictures of accidents that can happen if you ignore them. 15 minutes. (Class I Film)

NO LAUGHING MATTER

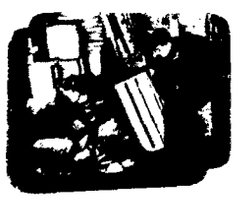
Here's a film that covers falls from every angle. The scene is a film studio where a group of safety experts are meeting to discuss a training film on fall prevention. As the plan session progresses, each man describes the fall hazards peculiar to his industry—how to prevent them. Clever flash-back illustrations show how to stop falls in every work situation: trucks and trailers, ladders, scaffolds, elevator shafts, stock piles, stairs. Emphasizes the importance of keeping the work area clean; eliminating oil and grease on floors. 15 minutes. (Class I Film)

WHAT'S YOUR SAFETY I. Q.?

Aimed squarely at one of your hardest-to-get-at problems—the off-the-job safety of your workers. Using the popular "what's wrong with this picture" technique, this film gets your workers to thinking...talking about safety in the home, in traffic, and at play. After each set of pictures is flashed on the screen, the audience is given 15 seconds to spot the safety errors. They then check their answers as the narrator identifies the hazards; explains how to avoid them. 15 minutes. (Class I Film) Also 16mm sound motion. (Class V Film)

CAUSE FOR ALARM

Gives a step-by-step description of what to do in case of fire; how to turn in an alarm—then what to do while you're waiting for the professional fire-fighters. In simple terms, it explains what fire is; how they start. It shows workers how to recognize the difference between Class A, B, and C fires; the types of extinguishers—when and how they should be used. 13 minutes. (Class I Film). Also 16mm motion picture (Class V Film).



FREIGHT HANDLING SAFETY

Shows the worker how to lift, carry, and pile materials; how to safely operate a hand-truck. The main emphasis is on freight car and motor truck unloading hazards: the safe way to open a freight car door; lowering the dock plate into position and anchoring it; how to guard against "sleepers." The film is in story form and features a luckless cartoon character named Happy Jack whose exploits will hold your workers' interest. 11 minutes. (Class I Film) Also 16mm motion picture. (Class V Film)

r raining course

KEEP IT CLEAN

Sells the idea that it's easy to keep the plant ship-shape if everyone cooperates—does his small part of the job. Presents an easy-to-follow housekeeping checklist keyed to a series of before and after shots of typical plant scenes. Emphasizes that a clean plant makes the job easier, safer, a lot more pleasant. 15 minutes. (Class I Film)

EASY ON THE EYES

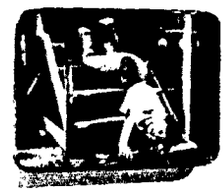
If you're having trouble enforcing your goggle rules, here's a two-fisted film that will open their eyes. It leads with a dramatic, emotional appeal that shows what it means to be blind or lose the sight of an eye. After this impact, your workers will be an attentive audience to the job-by-job explanation of the type of eye protection required; the three easy rules for eye safety. 20 minutes. (Class I Film) Also 16mm sound motion. (Class V Film)

STOP THE FIRE THIEF

Shows workers how to prevent fires before they start. Actual fire scenes, illustrating how costly and terrible fire can be, lead into a discussion of what can be done to root out the hazards encountered with: flammable liquids, electricity, hot slag, sparks, friction, etc. 13 minutes. (Class I Film) Also 16mm sound motion. (Class V Film)

SAFE IN HAND

Consists of two parts. Part I, Machinists' Tools, shows how to pick the right tool for the job; how to use each safely. Covers all the common hand tools. Part II, Maintenance Tools, discusses the heavier tools used by plant maintenance crews. 12 minutes for each part. (Class I film)



LEARN AND LIVE

No matter how specialized your operations, your company rule book probably includes the 10 fundamental safety rules discussed and illustrated in LEARN AND LIVE. Too often when workers read these rules they get little out of them; they are unable to visualize from a few words on a printed page what can happen if the rules are ignored. This film lifts these rules from your book and brings them to life with action shots showing how and why they are applied. 15 minutes. (Class I Film)

CAUSE AND CURE

. . . he was just careless . . . the floor was slippery . . . the grinding wheel broke . . . he disobeyed instructions—these are just a few of the answers too many foremen give when asked why an accident happened. Accidents have definte causes; just as definite cures. This film shows—with actual case histories—how supervisors and workers can root out accidents before they happen; what to look for and how to correct it. 17 minutes. (Class II Film)

MY EYE DEAL

Color cartoon film that combines giggles with goggles. Tells the humorous story of Herkimer and how he learned—by a near miss—the value of wearing safety goggles. Here's 10 minutes of good entertainment with a moral that your workers won't soon forget. (Class III Film)

WOODWORKING MACHINES

Covers all phases of safety in woodshop work from guards and machine operation to housekeeping and eye protection. Gus, an old safety-wise woodworker, takes two new safety committee recruits on a machine-by-machine tour of the plant. With actual demonstrations, he shows them the importance of guards; how they work, as well as the safe practices to follow in using saws, splitters, jointers, shapers, and planers. 17 minutes. (Class I Film)

LABORATORY GLASSWARE

Most laboratory accidents are caused by improper handling of glass equipment. This film shows the simple precautions to observe: wear gloves, fire-polish sharp edges, don't try to force glass into the wrong size rubber hose, loosen tube from stopper before you try to take it out, clear solvents from glassware before using, clamp equipment carefully, clean up broken glass immediately. 10 minutes. (Class I Film)

GIANT HANDS OF INDUSTRY

Points out that the two main causes of crane accidents are failure to use correct hand signals and failure to keep in the clear. Explains the three basic movements of a crane; the standard hand signals for each. The film goes on to give other safety tips: don't overload—check load-limit charts, how to place sling hooks, balancing long objects, and how to use hand hooks to guide load. These points are driven home by showing accidents that happened when someone "forgot." 15 minutes. (Class I Film)

CONSTRUCTION EQUIPMENT SAFETY

A dozen common mistakes account for three out of four accidents with construction equipment. Among the safety rules covered are: keep equipment a safe distance from power lines, make sure everyone is clear before you move machinery, block suspended parts before repairing or moving. A must film for all tractor, crane, dragline, shovel, and truck users. 20 minutes. (Class I Film)

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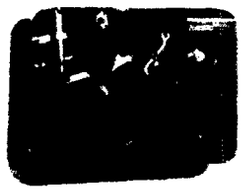
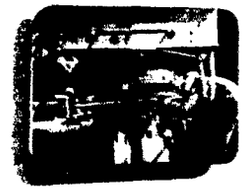


MEN AND MOTIVE POWER

Shows that while railroad roundhouse is a busy place, it can be a safe place too, if everyone observes the fundamental safety rules. It explains that moving engines and cars are one of the biggest hazards; tells workers to look both ways before crossing tracks, don't cut between or under cars. Shows how to work safely on top of tanks and boilers, in cabs, and on ladders and scaffolds. Stresses trip and slip hazards on floors; need for housekeeping. Film concludes with a discussion of shop tools, mechanical material handling equipment, protective equipment, importance of first aid. 15 minutes. (Class IV Film)

MEN OF MAINTENANCE

Deals with the diversified safety problems of the men who construct and maintain the roadbeds, buildings, bridges, and signals. Maintenance work is hazardous; demands extra precaution. Film stresses the safe practices relating to motor track cars: operation, inspection, emergency signal equipment, loading and placing of tools, getting the car on and off the track. Also discusses the safe use of all the basic tools and equipment: adzing machines, pneumatic stamping machines, ballast cleaning machines, wrenches, claw bars, jacks, and tongs. Shows how to lift and carry rails and ties; the need and use of protective equipment. 15 minutes. (Class I Film)



KEEP 'EM ROLLING

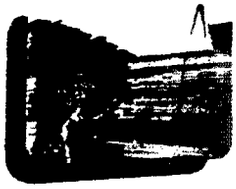
There's a lot of behind-the-scenes preparation before freight cars get the go-ahead signal. Here's a film that will tell your car men both the big things and the little things they have to do to protect themselves and others from injury. The film stresses the precautions necessary in working near moving cars; use of blue warning flags; how to safely cross between cars. Also discusses the use of jacks and blocks; handling of coil springs; fall hazards; use of burner's torch, sledges and other tools; lifting with cranes and hoists. 15 minutes. (Class I Film)

SAFELY WE WORK

Long years of experience have established the safe ways of doing every job in railroading. Moving quickly from point to point, the film is aimed at the fundamentals you want your new workers to learn. Explains how to get on and off a moving car; how to climb freight and tank cars; how to ride the top of a car or on the still step of a box car or gondola. Points out the warning signs in territory where car riding is prohibited; the safe use of hand, power, and air brakes; how to walk across or between tracks—many other vital safe practices. 15 minutes. (Class VIII Film)

OPERATING HEAVY DUTY TRUCKS SAFELY

Here's a brand new training film covering the highly specialized operation of heavy earth-moving trucks. With on-the-job photographs, it covers all the hazards the operator will encounter; the safe practices that must be observed in driving over roadways, dumping, towing, and loading. The film is suitable for construction companies, quarries, and all types of open-pit operations. It's an excellent indoctrination film for new drivers; an effective refresher for your experienced men. 12 minutes. (Class I Film)



SAWMILL SAFETY

A mill superintendent's tour of the plant with a new worker sets the stage for a job-by-job summary of safety in all phases of sawmill operations. He is shown the precautions the head sawyer, dogger, and tail sawyer must take—how their jobs affect the safety of every man on the crew. He's then shown the pond and what's done there to prevent injuries. Back in the mill, the superintendent emphasizes the importance of keeping guards in place; the safe practices in using or working near edgers, cutoff saws, small pull saws, planers, piling machines, and carriers. The need for prompt first aid, housekeeping, personal protective equipment are also stressed. 17 minutes. (Class I Film)

TIMBER

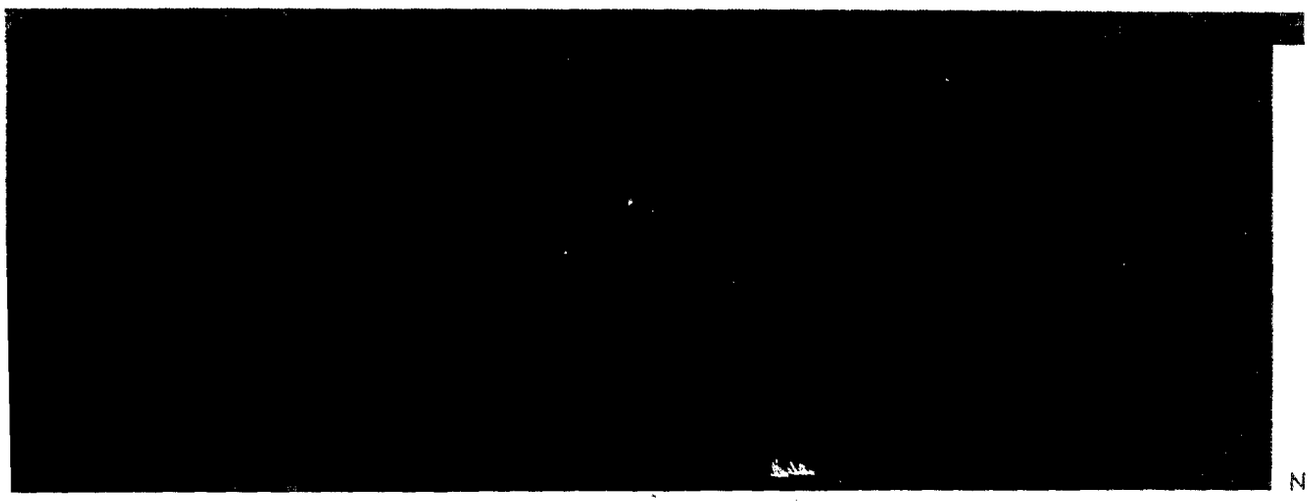
A logging company's safety committee proves "there's something to this safety business" to the skeptical, old-time logger. Using a check list of the chief causes of logging accidents, the committee draws upon the experience of its members to explain the common sense precautions for each operation. Falls are the number 1 problem, but they could be eliminated if: the men would walk only on firm, big logs; look out for loose bark; not try to jump too far from log to log; watch their step. They then move on to the safe practices in using axes and saws; how to avoid injuries from widow makers, rolling logs, lines and gear, cats and trucks. 17 minutes. (Class I Film)

MINUTE MEN

Dramatizes the hazards involved in the work of utility company linemen—the safety precautions they must observe. "Service with Safety" is the slogan of the utilities industry, and they back it up with extensive safety training. The film goes on to illustrate a typical training program—the safe practices stressed. Covers: how to safely climb a wooden pole, how to work on top of the pole, the use and care of protective equipment such as rubber gloves and safety belts, how to use a grounding stick, instruction in artificial resuscitation. 20 minutes. (Class I Film)

PACKED WITH SAFETY Covers the safety problems peculiar to meat packing operations, and also touches on the basic safety subjects: housekeeping, first aid, lifting, ladder safety, and electrical hazards. The film features a "gremlin" character called Axie Dent, and his running battle with a safety-wise superintendent who is trying to explain the basic safety rules to his men. Covers the care and use of knives and meathooks, steel mesh gloves, special machinery, meat trees, how to handle a load. 15 minutes. (Class VIII Film)

WOVEN WITH SAFETY The safety committee of a large textile mill meets to discuss their over-all accident problem. By the time they break up they're agreed that it's the little things that cause most of the accidents; that they can be stopped if the mill workers will heed the fundamental rules: never clean, repair, or adjust the parts of a machine while it is moving; keep guards in place; keep knives and scissors where they belong; lift properly; get first aid promptly; don't wear loose clothing near machines. 15 minutes. (Class I Film)



N

MOTOR TRANSPORTATION

SMOOTH OPERATION

Driving a truck in city traffic needn't be a nerve-fraying ordeal. The secret is smooth operation—the skillful coordination of driver, vehicle and traffic. Sudden stops, starts and turns are apt to catch other drivers off guard. Make your moves g-r-a-d-u-a-l-l-y after proper signaling and a quick check of the rear view mirror. A sportsmanlike attitude leaves you relaxed and smiling at the end of the day. 16 minutes. (Class I Film). Also 16mm motion version (Class V Film).

DEFENSIVE DRIVING

Tells your drivers that preventing accidents is not so much the knack of squeezing out of tight places as it is the ability to dodge trouble BEFORE they get into it. Keep your equipment in safe condition, follow at a safe distance, stop slowly, use hand signals, consider others. 20 minutes. (Class I Film).

IF IT HAPPENS

Three important things to remember if you have an accident: 1. keep the accident from getting worse—set out flares; 2. record all the facts—get all names, addresses, license numbers, etc.; 3. get your vehicle back on the job as soon as possible. 20 minutes. (Class I Film).

P. U. D. DRIVER WINS AGAIN

The story of a typical day in the life of a pick-up and delivery driver—how he resists the temptation to ignore the safety rules. Points out that the real professionals are the best drivers on the road. They check their trucks every morning, they look both ways before entering traffic and at intersections, they stay within the posted speed limit, make their turns from the proper lanes, follow at safe distances, are courteous to other drivers. 20 minutes. (Class I Film).

PILOTS OF THE HIGHWAY

Moves from the first interview to the day the new man becomes a full-fledged "pilot of the highway". An excellent indoctrination film that covers all the safety fundamentals; gives the "why" behind your careful training efforts. Covers emergency maintenance, vehicle inspection, I.C.C. speed regulations, road signs standard hand signals. 20 minutes. (Class I Film).

THE PROFESSIONAL SAFE DRIVING SERIES

—5 safety psychology films aimed squarely at experienced drivers

Wilbur Shaw, President of the Indanapolis Speedway Corporation and three-time winner of the 500 mile classic, narrates this popular film series that dramatizes the whys and hows of safe driving. Shaw demonstrates that the right kind of practice, sensible health habits, concentration and correct mental attitude are as necessary to keep a professional driver from having accidents as to keep a professional athlete in winning form. Big name baseball, bowling and golf stars contrast the fine points of their sports with the skill and finesse the "pro" drivers rely on to maintain their safety records.

SKILL IS YOUR BUSINESS

Wilbur Shaw illustrates that with relaxed coordination, professional driving skill can become automatic—can be maintained day after day regardless of adverse traffic conditions or unexpected emergencies.

THE CHAMP BECOMES DEAF AND BLIND

Lloyd Mangrum points out that the ability to shut out distractions makes the difference between a championship golfer and a duffer—and that concentration is just as important to pro drivers as it is to pro golfers.

NINETY-DAY FLASH

Paul Richards, White Sox Manager shows how a slight miscalculation repeated often enough can become a disasterous habit, and how a small driving error, repeated frequently will lead inevitably to accidents.

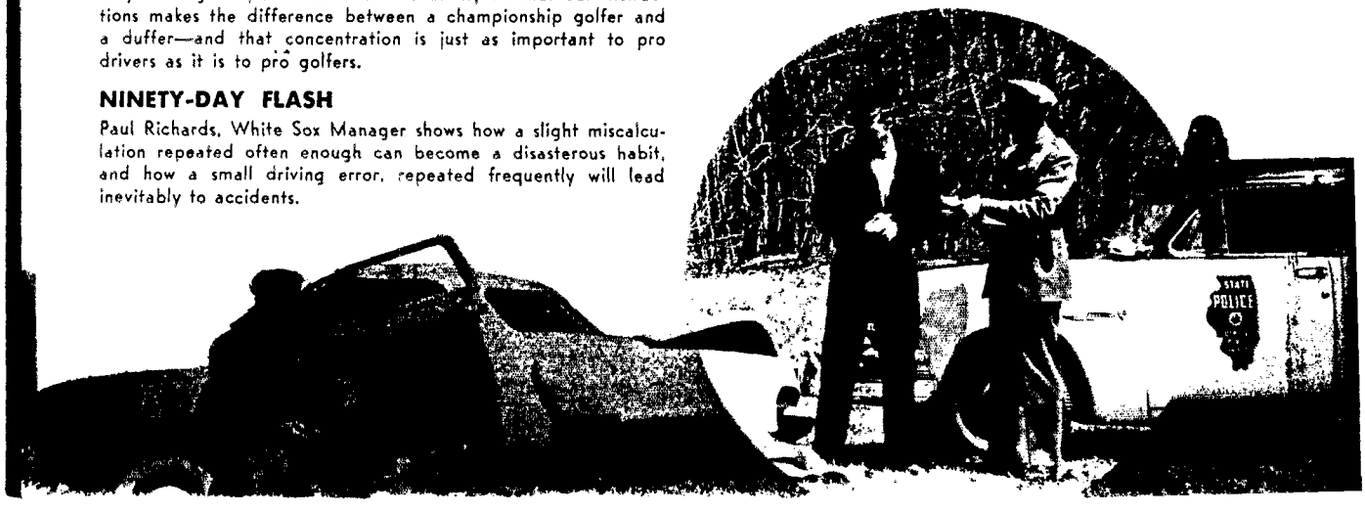
WATCH YOUR HANDICAP

Ned Day, long-time bowling champion explains that drivers, like professional bowlers, can handicap their performances through lack of sleep, improper food and health habits. The film correlates clean living habits with clean driving records.

TAKE A LOOK AT THE ODDS

The concluding film in the series shows that the right attitude towards safety is the best insurance against accidents—proves that the odds are always in favor of the driver who plays it safe.

Available in color or black and white. Running time of each film, 10 minutes. 16mm—Black and white (Class V) 16mm—Color (Class VI).



8 35mm SOUND SLIDEFILMS

Reissued by popular demand

FIRE—The careless flip of a match causes a large plant to burn down; puts hundreds of men out of work. An appeal for caution on the part of every employee. 25 minutes (Class I).

GRIME DOESN'T PAY—Dramatizes importance of good housekeeping in preventing accidents. 20 minutes (Class I).

HANDLE WITH CARE—Illustrates safe practices and precautions in using hand trucks. 20 minutes (Class I).

MINUTE MEN—A specialized training film for utility company employees. Presents basic safety rules for linemen, boiler room, substation and meter department personnel. 20 minutes (Class I).

OPEN FOR INFECTION—Warns against neglecting even the smallest scratch—why prompt first aid is important. 25 minutes (Class I).

RULES FOR TOOLS—Explains 4 basic rules for hand tools: right tool for job, in good condition, used properly, stored safely when job completed. 20 minutes (Class I).

SAFE ALL AROUND—Shows workers how to spot lethal hazards present in their own homes; how to correct them. 18 minutes (Class I).

THE FALL GUY—Points out that falls are one of the biggest causes of lost time accidents in most industries. Shows types of falls—how to avoid them. 25 minutes (Class I).

5 mm Motion Pictures

SAFE AS YOU MAKE IT

Combines sound safety training with amusement park thrills by contrasting the safety of the high rides with the hazards of the safe-appearing things we encounter every day. For all their speed, amusement park rides are safer than many of the little things of daily living. Amusement park operators can't afford to take risks—and neither can we. Each individual must observe the simple safety rules, weed out the hazards and not take foolish chances. This fast moving film captures interest—sells safety with the speed of the "Flying Turns". 10 minutes. (Class V Film).

FOR SAFETY SAKE

An excellent training film for all workers that use portable power tools. Shows how to use, inspect and maintain drills, grinders, saws and other electric hand tools with emphasis on the basic safety precautions. 15 minutes, all motion. (Class V Film).

An Accident Happens to Sam
13 minutes (Class V Film). See page N-35

A Gray Day For O'Grady
13 minutes (Class V Film). See page N-16

Cause For Alarm
13 minutes (Class V Film). See page N-36

Easy On The Eyes
15 minutes (Class V Film). See page N-37

Freight Handling Safety
11 minutes (Class V Film). See page N-36

If You Took Your Family To Work With You
13 minutes (Class V Film). See page N-34

Personal Side of Safety Series
Set of five 13 minute films (Class IV Films). See page N-35

Pick Your Safety Target
13 minutes—black & white or color. See page N-16. Black & white (Class V Film). Color (Class VI Film).

Smooth Operation
16 minutes (Class V Film). See page N-40

Stop the Fire Thief
13 minutes (Class V Film). See page N-37

Supervising for Safety Series
Set of three 12 minute films (Class V Films). See page N-16

Take Time to Live
12 minutes (Class V Film). See page N-34

What's Your Safety I.Q.?
15 minutes (Class V Film). See page N-36

You Can Take It With You
13 minutes—black & white or color. See page N-35. Black & white (Class V Film). Color (Class VI Film).

Rental Films

Rental service is available only within the continental limits of the U.S.A. unless the member agrees to pay airmail postage both ways. Rental limit is two weeks unless special arrangements are made through the Council's Membership Department. Rental rate is $5.00 per week or fraction thereof. User pays return shipping charges.

INDUSTRIAL

The Safety Sleuth
—accident causes

Eye Accidents
—eye protection in underground mining

Diagnosis Danger
—hospital safety program

Use And Care Of Hand Tools
(series of six films; rent singly)
Wrenches
Pliers and Screwdrivers
Chisels
Hammers
Punches, Drifts, and Bars
Hack Saws

Breath Of Life
—tree-top resuscitation

MOTOR TRANSPORTATION

The Operator And Safety
—city bus operators

The Truck And The Driver
—city trucks

They Drive In Safety
—indoctrination film for commercial drivers

It's A Big Job
—streetcar and city bus operations

Caution At The Cross Roads
—intersection hazards

Danger In Reverse
—how to back safely

Too Close For Comfort
—following too close

Too Fast For Conditions
—gear speed to road conditions

Wrong Side-Suicide
—crossing the centerline

What Happened?
—accident reporting

Looking For Trouble
—vehicle maintenance

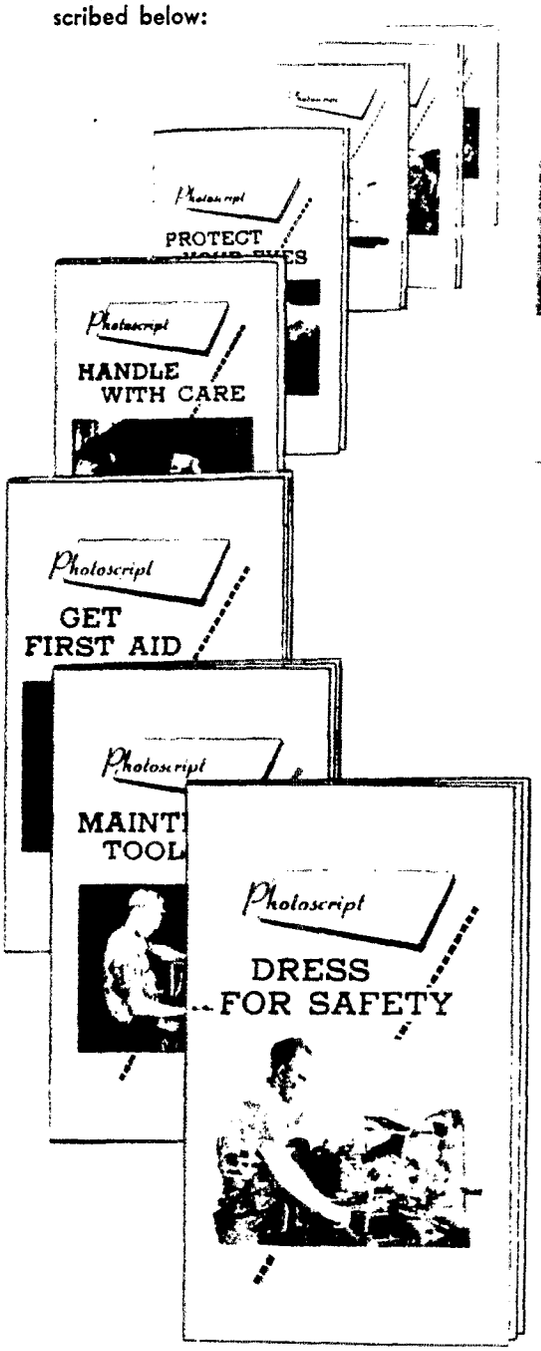
Split Second Survival
—avoiding highway emergencies

Mind Your Manners
—avoiding accidents through courtesy

Dark Daze
—after dark hazards

Photoscripts

Photoscripts put safety across to your workers with realism. They're short, brief, to the point—they're convincing and easily understood. Actual photos drive home a story that sticks. Handy pocket size makes them ideal for payroll enclosures, handout literature, or mailings. Twelve Photoscript booklets are available as described below:



A CLEAN PLANT

A clean plant is safer, more efficient, a better place to work. This photoscript points out that plant housekeeping is the responsibility of each worker.

PREVENT FIRE

Pictures common fire causes—how they can be spotted and eliminated. Stresses importance of knowing where emergency fire equipment is and how to use it.

GET FIRST AID

Stresses the importance of immediate first aid for ALL injuries. Tells workers that a minor scratch—untreated—can result in a crippling injury; never take a chance.

DRESS FOR SAFETY

Stresses clothing that fits you and your job, and the need for special protection on special jobs. Covers goggles, hard hats, safety shoes, gloves, etc.

LEARN SAFETY

Presents the ten basic rules for the prevention of personal injury. Discusses unnecessary chances, horseplay, handling material safely, first aid, safe clothing, good housekeeping, etc.

FALLS

Falls rank second only to automobile accidents as a cause of accidental death. This photoscript pictures ten safety rules for avoiding falls; eliminating fall hazards.

MACHINISTS HAND TOOLS

Presents four easily-followed rules for eliminating hand tool accidents; 1. The right tool; 2. In good condition; 3. Used correctly; 4. Kept in a safe place.

HANDLE WITH CARE

Presents practical tips on lifting, carrying and piling. Stresses importance of wearing gloves and protective foot gear when lifting.

MAINTENANCE TOOLS

Drives home the A B C's of handling tools. It shows how to prevent accidents by using them correctly, keeping them in good condition, and in the proper place.

PROTECT YOUR EYES

Illustrates the two good reasons for wearing safety glasses—both your eyes. Gives the prescription for eye safety; wear the right glasses, make sure they fit, and keep them clean.

FREIGHT HANDLING

Covers such standard procedures as how to lift; how to carry; how to pile materials; how to operate hand trucks; unloading hazards, and dock plates.

CONTROL OF FIRE

What to do when fires start. It explains the different classes of fires, pictures the various types of extinguishers, how to use them, and on which type of fire.

Safety TRAINING INSTITUTE

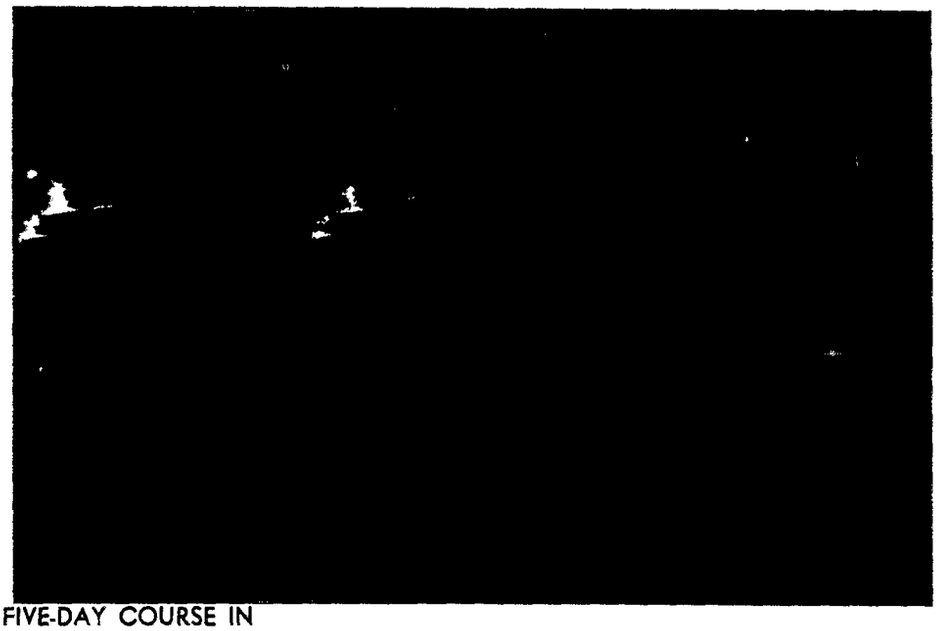
FIVE-DAY COURSE IN

FUNDAMENTALS OF INDUSTRIAL SAFETY

The aim of this course is to give practicing safety men a broad view of the whole job, an understanding of the principles of industrial accident prevention, and practical help for their day-to-day operations.

Though the course is particularly valuable for new-comers to safety work, it offers the experienced safety man a stimulating opportunity to view his activities with a new perspective—to re-evaluate some of the things he's known, pick up new ideas, and talk over specific problems with instructors and other class members. Each student receives a 45-page detailed course outline and a kit of reference materials for follow-up safety. Fully half of the 1300 graduates have had two or more years experience before attending. Their job titles have ranged from foreman to vice-president for industrial relations.

The 1954 courses will be held at the Council's Chicago offices March 15-19, May 10-14, June 7-11, November 15-19, December 6-10.



FIVE-DAY COURSE IN

SAFETY MANAGEMENT TECHNIQUES

This advanced course is for safety men who feel they have sufficient knowledge of the fundamentals, and for those who have completed the basic course. It is taught by Council staff members as well as outside specialists in the fields of writing, speaking, psychology, visual aids and photography. Held April 12-16, 1954.

NATIONAL SAFETY COUNCIL *Services*

CONSULTATION SERVICE

The Council's staff of engineers, safety technicians and industrial hygienists are at your command by mail, wire or phone. They are equipped to give you unlimited assistance in planning and running a successful program of accident prevention.

LIBRARY SERVICE

The world's biggest collection of safety information—thousands of publications, articles, photographs, illustrations on every conceivable safety subject—is yours to use. Material on any subject will be mailed to you on request.

AWARD SERVICE

The Council evaluates each organization's occupational accident prevention record on a sound statistical basis. The Award of Honor, Award of Merit, Certificate of Commendation, and President's Letter are given in recognition of various degrees of progress.

EMPLOYEE PUBLICATIONS SERVICE

The Council will keep you supplied with safety publicity material for company magazines, newspapers, and bulletins. Mats and proofs of safety cartoons and a monthly newsletter containing safety news items of general interest are yours for the asking.

NATIONAL SAFETY CONGRESS

The biggest annual event in safety—a week of talks and discussions by the country's leading safety authorities—exhibits of safety equipment. Chicago plays host to the 12,000 delegates in mid-October each year. You can send any number of representatives to learn about the latest safety developments, and to meet and exchange ideas with safety men in your industry.

SECTIONAL ACTIVITIES

Part of the income from Council dues and publications covers the costs involved in developing safety codes and safe operating procedures for your industry and other technical studies.

Intra-industry contests are also supported by dues. These sections sponsor annual contests: Aeronautical Industries, Chemical, Commercial Vehicle, Food, Glass, Marine, Meat Packing, Metals, Pulp & Paper, Petroleum, Printing & Publishing, Public Utilities, Rubber, Tanning & Leather, Textile, Transit, and Wood Products. Any Council member or Federal installation qualified under rules established by the sponsoring section may compete by submitting a simple monthly report. Entrants compete only with organizations of their own size which have similar operations. Each month you receive a report of your standing. If you win, there's a handsome trophy that's yours to keep. Contest rules and report forms are sent on request.

STATISTICAL SERVICE

The information maintained on accident frequency and severity in 200 industries permits you to check your standing and the progress of your program against the records of other organizations doing similar work. Charts and tables are prepared on unsafe acts, agencies of injury and unsafe conditions that lead to accidents.

PUBLIC INFORMATION SERVICE

Due to the ever expanding publicity activities and services directed to newspapers, magazines, radio and television stations throughout the country, the American worker and his family receive an average of at least two safety messages a day.

PERSONNEL BUREAU

The Council maintains a confidential file of safety men who are interested in changing jobs. If you need a safety director or engineer, the Council can help you find the right man for the job.

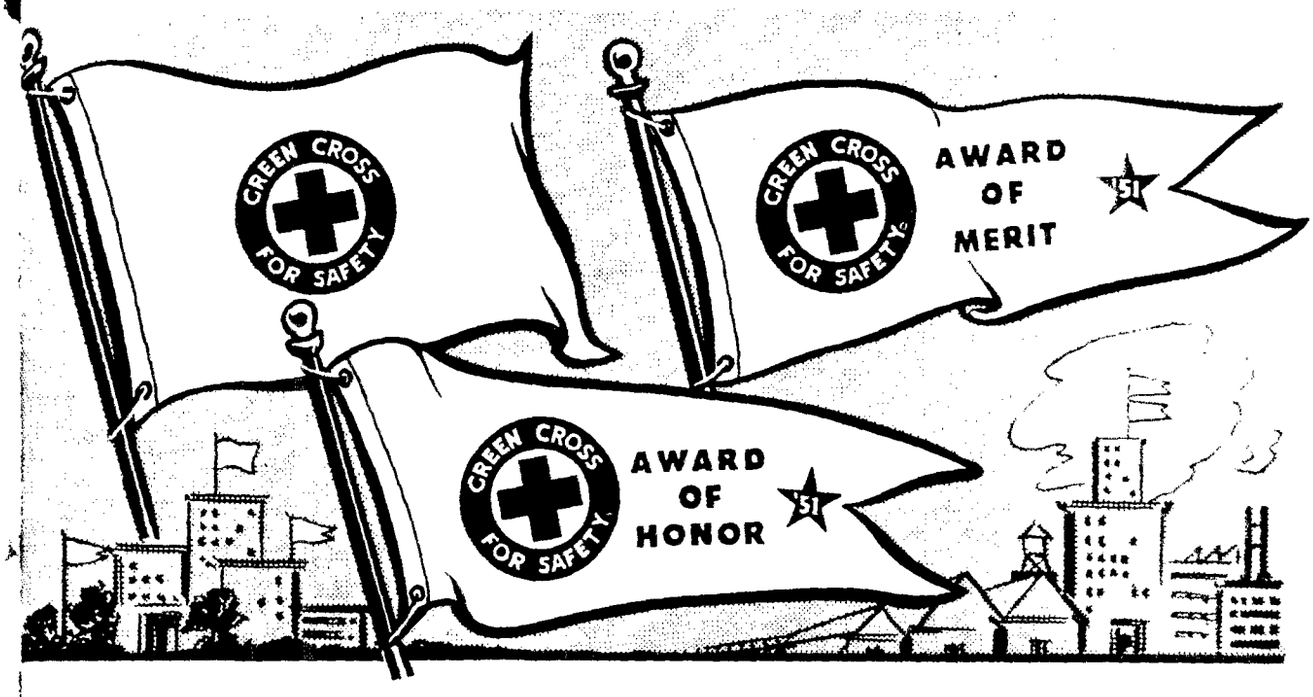
SPEAKERS BUREAU

A file of both volunteer and professional speakers is maintained to place you in contact with persons qualified to give safety talks to any type of audience.

PUBLICATIONS SERVICE

More than 4,000 items produced by the Council for promoting accident prevention are available to members and Federal installations at nominal rates—in most cases at 40% to 50% of the established non-member rates.

Flags and Pennants

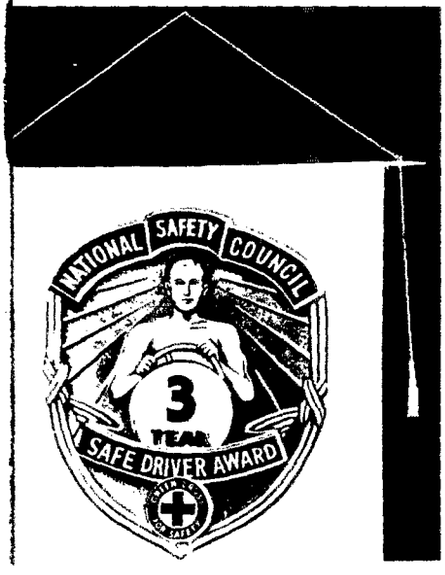


GREEN CROSS FLAG

Flown at half-staff, this SAFETY FLAG is a mournful announcement of a lost-time accident. Run to the top on accident-free days, it's a symbol of life free from the tragedies of accidents. Or award it to the department with the best record for the month. Any way you choose to use it, this FLAG adds drama and color to your program. Made of heavy-duty white sheeting, with the safety emblem centered on both sides in permanent color. 4' x 6'. Flameproofed on request.

AWARD PENNANTS

Available only to Award of Honor or Award of Merit winners, this attractive pennant is made of white, extra-heavy nylon. The safety emblem is of green nylon, anchor-stitched on both sides of the pennant. Pennant points are quilt-stitched to resist fraying due to wind whipping. 3' x 6'.
Organizations which have won the Award of Honor or the former DSS Award in previous years may order stars showing the year each award was earned. Additional stars are also available for Award of Merit pennant.



SAFE DRIVER AWARD BANNER

Dress up your award presentation ceremony with this striking banner. The award emblem is shown in three glowing colors on a white satin background, edged with rich 2" gold bullion fringe. 40" x 41". Sold only to members receiving Complete Motor Transportation Service.

SAFETY DESK FLAG

Miniature silk flag — 4" x 6" — on a jet black 10" staff with 1¾" base. The safety emblem is in emerald green on a white ground. Also effective as a banquet table decoration.

AWARD DESK PENNANTS

Give your award "in plant" publicity with attractive, miniature, white silk reproductions of the Award of Honor or Award of Merit. Pennant is 3" x 6", on a black 10" staff with 1¾" base. Lettering in green. Available to Award winners only.

INDEX AND PRICE LIST

Write for quotations on quantities of 5,000 or more. Non-member prices are double these member prices, except items marked with asterisk (*).

MEMBER PRICES	1 to 9	10 to 99	100 to 999	1,000 to 4,999	Page #
Accident Analysis Chart, pads of 50, ea.	$ 1.05	$ 1.00	$ 0.90	$ 0.85	9
Accident Facts*, ea.	.75	.65	.55	.50	9
Accident Preventers, any selection, ea.	.10	.05	.025	.02	27
5,000 to 9,999, $.019; 10,000 to 19,999, $.018; 20,000 or more, $.017					
Accident Prevention Manual, ea.	9.00	8.50	8.00	8.00	5
Section Reprints, ea.	.75	.60	.50	.45	5
Accident Rates Pamphlets, ea	.35	.35	.29	.29	9
Accident Record Forms, Industrial					9
IS-1A, IS-3, IS-5A, IS-7, IS-8, ea.	.06	.023	.017	.015	
IS-6 (pads of 100), ea.	.35	.35	.35	.35	
Administrative Units—AA-1	23.00	—	—	—	14
A-1	17.50	—	—	—	
B-1	14.00	—	—	—	
C-1	8.50	—	—	—	
A-2	18.00	—	—	—	
B-2	11.00	—	—	—	
C-2	7.00	—	—	—	
B-11	14.00	—	—	—	
Aren't People Funny?, ea.	.12	.07	.06	.045	24
5,000 to 9,999, $.04; 10,000 to 19,999, $.035; 20,000 or more, $.03					
Award Pennant—Honor or Merit, ea.	18.50	16.00	16.00	—	45
Additional Stars, ea.	.50	.50	.50	—	45
Be Fire Wise, ea.	.17	.12	.08	.06	25
5,000 to 9,999, $.05; 10,000 to 19,999, $.045; 20,000 or more, $.04					
Close Clearance, ea.	.20	.15	.11	.09	28
5,000 to 9,999, $.085; 10,000 to 19,999, $.08; 20,000 or more, $.075					
Committee Badge, ea.	.75	.60	.55	.53	51
Personalized, ea. (plus die charges)	—	.65	.60	.55	51
Dash Cards, sets ea.	.69	.58	.44	.40	50
Dash Stickers, set of 12, ea.	.75	.60	.50	.47	50
Data Sheets, any selection, ea.	.17	.13	.08	.07	5
Current Set, including binders, ea.	19.50	18.00	17.50	17.50	
Binders, 1½", ea.	3.00	3.00	3.00	3.00	
Deadly Ideas, ea.	.20	.10	.08	.06	24
5,000 to 9,999, $.055; 10,000 to 19,999, $.05; 20,000 or more, $.045					
Decalcomanias, any selection, ea.	.12	.07	.058	.046	29
Defensive Driving, Bus or Truck, ea.	.17	.10	.08	.058	50
Detail Sheets, any selection, ea.	.12	.09	.08	.07	5
Current set including binder, ea.	10.20	9.50	9.00	9.00	
				100	
	1 only	2 to 49	50 to 99	or more	
Disaster Control, ea.	Free	.50	.40	.35	13
				1,000 to	
	1 to 9	10 to 99	100 to 999	4,999	
Down Time, ea.	.12	.07	.06	.045	26
5,000 to 9,999, $.04; 10,000 to 19,999, $.035; 20,000 or more, $.03					
Driver Letter, subscription, ea.	.52	.40	.29	.26	49
Driver Memo Pads, set of 48 pads, ea.	7.50	7.25	7.00	—	49
Driver's Lucky Seven, ea.	.10	.06	.045	.035	27
5,000 to 9,999, $.03; 10,000 to 19,999, $.028; 20,000 or more, $.026					

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Expert Driver Award Certificates, ea.	1.25	1.00	.75	.75	49
Fall Guy, The, ea.	.12	.07	.06	.045	24
5,000 to 9,999, $.04; 10,000 to 19,999, $.035; 20,000 or more, $.03					
FILMS	Single copy	2 to 9 copies	10 or more copies	Rental or Preview	
Class I Films, ea.	$ 20.50	$ 19.50	$ 18.40	$ 5.00	
Class II Films, ea.	14.50	13.70	12.90	5.00	
Class III Films, ea.	32.50	31.00	30.00	5.00	
Class IV Films, ea.	40.00	38.00	37.00	5.00	
Class V Films, ea.	53.00	50.00	47.00	5.00	
Class VI Films, ea.	95.00	91.00	87.00	10.00	
Class VII Films, ea.	9.00	8.50	8.00	5.00	
Human Factors in Safety, 35mm set (6 films), ea.	115.00	109.00	103.00	7.50†	17
Personal Side of Safety, 35mm set (5 films)* ea.	70.00	65.00	63.00	7.50†	35
16mm set (5 films)* ea.	190.00	180.00	175.00	10.00†	35
Professional Driving Series,					
16mm Black & White set (5 films), ea.	245.00	235.00	230.00	10.00†	40
16mm Color set (5 films), ea.	425.00	410.00	400.00	20.00†	40
Safety Management for Foremen, 35mm set (10 films), ea.	115.00	109.00	103.00	10.00†	18
Speaking of Safety, 35mm set (6 films), ea.	115.00	109.00	103.00	7.50†	19
Supervising for Safety, 35mm set (3 films), ea.	58.00	55.00	52.00	7.50†	16
16mm set (3 films), ea.	145.00	138.00	133.00	10.00†	16
Worker Film Training Series,					
35mm set (10 films), ea.	178.00	172.00	167.00	10.00†	36
Any 9 films in series	167.00				
Any 8 films in series	149.00				
Any 7 films in series	130.00				
Any 6 films in series	115.00				
Any 5 films in series	98.00				

† Preview service charge for sets only. Individual films from sets may be previewed or rented for the service charge specified for the film Class (See Classes I to VII, above). Preview and rental rates are per week or fraction thereof. User pays return shipping charges.

First Aid Reminders, set of 8, ea.	.33	.24	.16	.12	27
Any selection, ea.	.07	.05	.035	.026	
Fleet Safety Manual, ea.	8.50	8.00	8.00	8.00	11
Individual Parts, ea.	.85	.75	.70	.63	11
Follow the Leader, ea.	.10	.06	.045	.035	26
5,000 to 9,999, $.03; 10,000 to 19,999, $.028; 20,000 or more, $.026					
Foremen's 5 Minute Safety Talks, Book I, II III, & IV, ea.	1.70	1.50	1.45	1.35	20
For Experts Only, ea.	.23	.21	.17	.15	49
Go Fly a Kite, ea.	.10	.03	.02	.012	28
Green Cross Electros,* ½", ⅝", ea.	.75	.69	.69	.69	51
¾", 1", ea.	1.38	1.20	1.20	1.20	
1½", ea.	2.00	1.90	1.90	1.90	
Green Cross Flag.* ea.	9.00	8.50	8.00	8.00	45
Handbook of Accident Prevention, ea.	1.50	1.25	1.00	.90	10
Have a Holiday, ea.	.15	.05	.025	.015	28
5,000 to 9,999, $.014; 10,000 to 19,000, $.013; 20,000 or more, $.012					

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	1 to 9	10 to 99	100 to 999	1,000 to 4,999	Page #
Driver's Lucky Seven, ea.	.10	.06	.045	.035	27
5,000 to 9,999, $.03; 10,000 to 19,999, $.028; 20,000 or more, $.026					
Heave-Ho! ea.	.12	.07	.06	.045	24
5,000 to 9,999, $.04; 10,000 to 19,999, $.035; 20,000 or more, $.03					
Here Are Winter Facts for Passenger Car Drivers,* ea.	.15	.10	.08	.06	28
Hold Everything* ea.	.17	.12	.08	.06	26
5,000 to 9,999, $.05; 10,000 to 19,999, $.045; 20,000 or more, $.04					
Hospital Safety Service,* ea.	10.00	—	—	—	13
How To Be A Smooth Operator, ea.	.17	.10	.08	.058	50
How to Make the Safety Speech, ea.	.65	.63	.58	.58	13
How to Prevent Falls, ea.	.10	.06	.045	.035	25
5,000 to 9,999, $.03; 10,000 to 19,999, $.028; 20,000 or more, $.026					
I Just Gave My Seat to a Lady, ea.	.29	.23	.21	.18	25
Industrial Supervisor, subscription, ea.	1.80	1.70	1.65	1.60	21
Subscription billed monthly, ea.	.18	.16	.145	.135	
In the Clear, English, ea.	.15	.09	.07	.05	28
French, ea.	.15	.08	.06	.05	28
In the Pink, ea.	.17	.09	.07	.05	26
5,000 to 9,999, $.045; 10,000 to 19,999, $.04; 20,000 or more, $.035					
Jig and Fixture Design for Woodworking Safety,* ea.	1.75	1.50	1.20	1.10	12
Jumbo Posters—see Posters					
K. O. Dirt & Disorder, ea.	.12	.07	.06	.045	25
5,000 to 9,999, $.04; 10,000 to 19,999, $.035; 20,000 or more, $.03					
Man With the Badge, The, ea.	.60	.45	.40	.35	25
Meritorious Service Award Pins, ea.	.70	.58	.55	.54	51
Message to Woods Bosses, English, ea.	.10	.09	.08	.073	28
French, ea.	.15	.14	.13	.12	28
National Directory of Safety Films,* ea.	.75	.65	.55	.50	13
National Safety News, subscription, ea.	5.50	5.00	4.60	4.40	3
Non-member prices, ea.	7.50	6.90	6.30	6.00	
(add $1.00 for foreign, except Canada & Pan American Union)					
News Letters, subscription, ea.	1.15	1.00	.85	.85	10
No Accident Award Pins, Enamel, ea.	.65	.53	.50	.49	51
No Accident Award Buttons, Metal					
Bronze (1 to 4 years) ea.	.4	.31	.28	.27	51
Silver Plated (5 to 9 years) ea.	.40	.32	.29	.28	51
Gold Plated (10 to 40 years) ea.	.42	.33	.30	.29	51
(Add 20% Fed. Excise Tax on silver & gold)					
Off The Job Safety Kit,* ea.	1.00	—	—	—	12
Payroll Enclosures, 1st 100 sheets	11.50	—	—	—	31
Additional 100 sheets, ea.	1.95	—	—	—	
Personalized Committee Badge, ea. (plus die charges)	—	.65	.60	.55	51
Photoscripts, any selection, ea.	.12	.07	.06	.045	42
5,000 to 9,999, $.04; 10,000 to 19,999, $.035; 20,000 or more, $.03					
Poster Directory,* ea.	.50	.40	.35	.35	30
Poster Electros, ea.	3.45	3.45	3.15	3.15	31
Poster Frames, "A" size, ea.	1.15	1.00	.90	.90	31
"B" size, ea.	1.70	1.40	1.15	1.15	31
POSTERS					
"A" size, any selection, ea.	.12	.08	.055	.045	30
5,000 to 9,999, $.04; 10,000 to 19,999; $.035; 20,000 or more, $.032					
"A" size, all one poster, ea.	.12	.07	.05	.04	30
5,000 to 9,999, $.035; 10,000 to 19,999, $.032; 20,000 or more, $.029					
Have a Holiday, ea.	.15	.10	.08	.06	28
5,000 to 9,999, $.014; 10,000 to 19,000, $.013; 20,000 or more, $.012					
"B" size, any selection, ea.	.20	.19	.16	.13	30
5,000 to 9,999, $.10; 10,000 to 19,999, $.085; 20,000 or more, $.075					
"B" size, all one poster, ea.	.20	.17	.15	.12	30
5,000 to 9,999, $.095; 10,000 to 19,999, $.08; 20,000 or more, $.07					
"C" size, ea.	.50	.40	.35	.30	31
subscription (12 posters), ea.	4.00	3.50	3.00	2.50	31
Jumbo Posters, subscription, (12 Posters), ea.	54.00	51.00	48.50		31
subscription, billed monthly, ea.	5.40	5.10	4.85		
Motor Transportation Poster Sets					49
1 to 4 sets, ea. $7.68					
5 to 49 sets, ea. $6.48					
50 to 999 sets, ea. $5.16					
Psychology of Safety in Supervision Set, ea.	1.05	1.00	.90	.85	15
Public Safety,* subscription, ea.	4.00	3.80	3.45	3.45	11
(add $.50 for foreign, except Canada and Pan American Union)					
Safe at Home,* ea.	.17	.09	.07	.05	26
5,000 to 9,999, $.045; 10,000 to 19,999, $.04; 20,000 or more, $.035					
Safe Builder—same prices as Safe Railroader					23
Safe Driver—same prices as Safe Worker					23
Safe Driver Award					49
Safe Driver Award Banner, ea.	17.50	16.00	16.00	—	45
Safe Driver Award Shoulder Patch, ea.	.50	.40	.35	.30	49
Safe Practices Pamphlets, any selection, ea.	.45	.40	.35	.33	5
Set, in binder, ea.	19.50	18.00	17.50	17.50	5
Binder only, ea.	2.50	—	—	—	5
Safe Railroader, subscription, ea.	.44	.39	.29	.25	23
5,000 to 9,999, $.24; 10,000 to 19,999, $.23; 20,000 or more, $.22					
Subscription, billed monthly, ea.	.05	.039	.026	.022	23
5,000 to 9,999, $.021; 10,000 to 19,999, $.02; 20,000 or more, $.019					
Single issues, ea.	.05	.039	.029	.025	23
5,000 to 9,999, $.024; 10,000 to 19,999, $.023; 20,000 or more, $.022					
Safe Winter Driving Facts for Truck Drivers,* ea.	.20	.15	.12	.09	50
Safe Worker, Subscription (12 issues), ea.	.70	.66	.50	.42	23
5,000 to 9,999, $.40; 10,000 to 19,999, $.37; 20,000 or more, $.35					
Subscription billed monthly, ea.	.07	.066	.046	.036	23
5,000 to 9,999, $.034; 10,000 to 19,999, $.032; 20,000 or more, $.03					
Single issues, ea.	.07	.066	.05	.042	23
5,000 to 9,999, $.04; 10,000 to 19,999, $.037; 20,000 or more, $.035					
Safety Bell Ringers, ea.	.35	.29	.23	.23	13
Safety Contest Trophy, ea.	25.00	23.00	22.00	22.00	51
Safety Desk Flag,* ea.	1.00	.70	.60	—	45
Safetygraphs, complete, ea.	11.55	10.90	10.55	10.30	32
Safetygraph, only any selection, ea.	8.00	7.60	7.25	7.00	32
Safetygraph Easels only, ea.	3.55	3.30	3.30	3.30	32
Safety in Foremanship, sets, ea.	1.95	1.70	1.50	1.45	20
Safety in Quarry Operations, ea.	1.25	1.00	.90	.80	11
Safety Inspection Checklist, pads of 50, ea.	1.05	1.00	.90	.85	9
Safety Instruction Cards, any selection, ea.	.05	.025	.019	.017	5
Complete set with file case & guides, ea.	12.65	12.10	11.55	11.00	5
Industrial Set including file case and guides, ea.	8.25	7.70	7.15	6.60	5
File case & guides only, ea.	2.20	2.10	2.00	2.00	5
Safety Lapel Pins,* ea.	.47	.35	.32	.31	51

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Safetyman's Library, ea.	65.00	—	—	—	4
Safety Manual for the Graphic Arts Industry, ea.	2.50	—	—	—	10
Safety Manual Reprints, ea.	.75	.60	.50	.45	5
Safety Patch,* ea.	.50	.35	.25	.20	51
Safety Register, ea.	.15	.09	.08	.06	25
Safety Reprints—see Special Releases					
Safety 'Round the Clock,* ea.	.10	.06	.045	.035	26
5,000 to 9,999 $.03; 10,000 to 19,999, $.028; 20,000 or more, $.026					
Safety Talks for Construction & Maintenance Foremen, ea.	1.70	1.50	1.45	1.35	20
Safety Training Institute					43
Fundamentals of Industrial Safety, $60.00					
Safety Management Techniques, $90.00					
Safety Zoo, ea.	.20	.16	.12	.09	24
5,000 to 9,999, $.08; 10,000 to 19,999, $.075; 20,000 or more, $.07					
Ship Shape, ea.	.12	.07	.06	.045	24
5,000 to 9,999, $.04; 10,000 to 19,999, $.035; 20,000 or more, $.03					
Shop Safety, ea.	.29	.23	.17	.16	24
Showmanship in Safety, ea.	1.25	1.00	.90	.85	12
So Help Me! ea.	.17	.09	.07	.05	24
5,000 to 9,999, $.045; 10,000 to 19,999, $.04; 20,000 or more, $.035					
So You're Going on a Vacation, ea.	.12	.07	.06	.045	27
5,000 to 9,999, $.04; 10,000 to 19,999, $.035; 20,000 or more, $.03					
Speaking Straight, Thinking Straight, ea.	.29	.23	.23	.23	13
Special Releases— 1 or 2 pages, ea.	.10	.04	.03	.03	
4 pages, ea.	.10	.07	.06	.05	
6 pages, ea.	.15	.09	.08	.07	
8 pages, ea.	.15	.11	.09	.08	
10 pages, ea.	.20	.13	.11	.09	
12 pages, ea.	.20	.15	.13	.11	
16 pages, ea.	.20	.17	.14	.12	
18 pages, ea.	.25	.19	.15	.13	
Steps to Safety, ea.	.12	.07	.06	.045	25
5,000 to 9,999, $.04; 10,000 to 19,999, $.035; 20,000 or more, $.03					
Still Waggin', ea.	.12	.07	.06	.045	26
5,000 to 9,999, $.04; 10,000 to 19,999, $.035; 20,000 or more, $.03					
Ten Commandments in Machine Operation, 4" x 7", ea.	.10	.05	.03	.02	28
9¼" x 10¾", ea.	.30	.25	.20	.18	28
There'll Be a Hot Time in the Ol' Plant, ea.	.12	.07	.06	.045	28
5,000 to 9,999, $.04; 10,000 to 19,999, $.035; 20,000 or more, $.03					
Transactions, sets, ea.	6.90	6.30	5.70	5.70	11
What's In It for Me? ea.	.20	.10	.08	.06	26
5,000 to 9,999, $.055; 10,000 to 19,999, $.05; 20,000 or more, $.045					
Wise Bird Follows the Rules, A, ea.	.12	.07	.06	.045	25
5,000 to 9,999, $.04; 10,000 to 19,999, $.035; 20,000 or more, $.03					
Woman on the Job, The, ea.	2.50	2.00	1.90	1.80	12
Working Together for Safety, ea.	.20	.15	.11	.09	27
5,000 to 9,999, $.085; 10,000 to 19,999, $.08; 20,000 or more, $.075					
You Factor in Accident Causes, The, Bus or Truck, ea.	.17	.10	.08	.058	50
Your 10,000 Mile Living Room,* ea.	.10	.04	.03	.025	27
5,000 to 9,999, $.022; 10,000 to 19,999, $.021; 20,000 or more, $.02					

CONDITIONS AND TERMS

Prices shown in this catalog are effective February 15, 1954, payable U. S. Funds. They are subject to change without notice.

All prices shown are based on a single order for delivery in one shipment to one destination (one shipment per month on annual subscriptions). Quantities are not cumulative over a period of time, or for a number of locations, to obtain quantity prices.

All prices unless otherwise shown are pre-paid destination within the United States and Canada and Pan American Union. Customs charges will not be paid by the Council. An additional charge equal to 4% of the order will be made on shipment to foreign countries.

Terms of payment on all invoices are 30 day net, except quantity calendar purchases. Annual subscriptions payable in advance.

Remittance should accompany all orders totalling one dollar or less to conserve labor and speed up handling of the order.

Single copies of monthly publications—12 issues annually—can be purchased at 1/10 the annual subscription rate.

Special sorting or packaging, trimming to special sizes or other special handling of publications will, wherever possible, be performed as requested. Service charges will be made for the cost of such work.

IMPRINTING CHARGES

Imprinting can be done on all Council publications (outside front and back covers only) provided there is sufficient space and a light background color.

In general, imprinting is limited to three lines. On large posters, imprinting is limited to the right hand half of the lower margin. It is understood that a quantity within 4% above or below the quantity requested will constitute an acceptable delivery on any order requiring imprinting.

Imprinting at time of publication:

Safe Driver, Safe Worker, and all other publications imprinted at time of publication (except calendars), regardless of quantity—per lot or per month on monthly publications.....$3.50

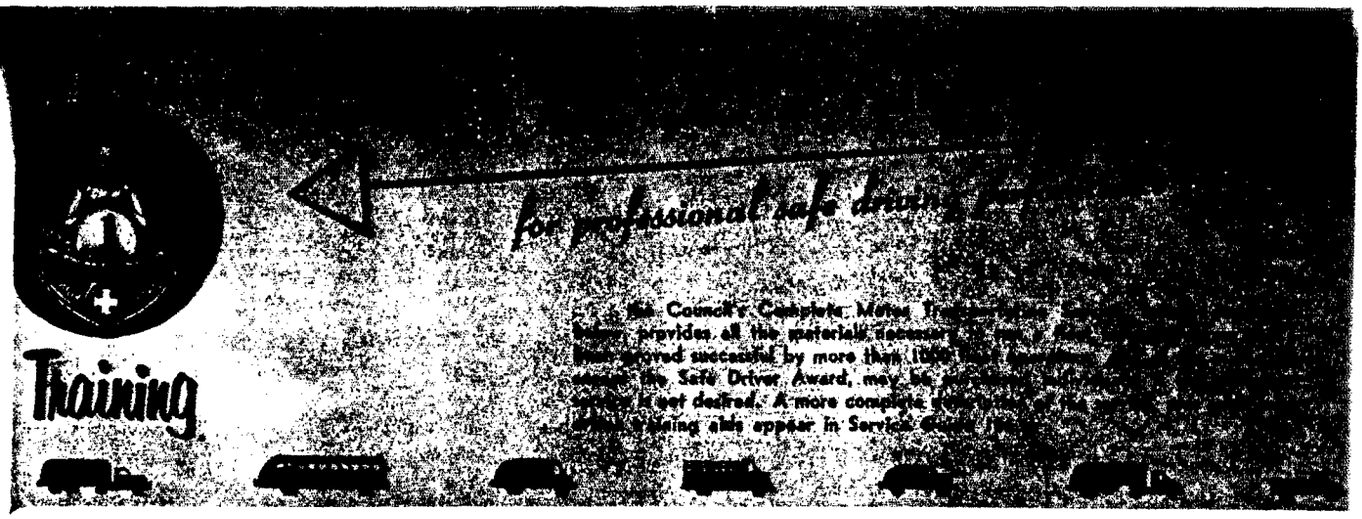
On monthly publications, the per lot-per month charge of $3.50 is effective only when the imprint remains the same during the period of subscription.

Imprinting after publication:

Large posters (17"x23")—1st 1,000 or fraction.....$10.00
additional 1,000 or fraction.....7.50

Other publications imprinted after publication, where space permits
1st 1,000 or fraction.....$7.00
additional 1,000 or fraction.....3.00

NATIONAL SAFETY COUNCIL 425 North Michigan Ave., Chicago 11, Ill.



SAFE DRIVER AWARD

Recognized as the national standard for safe driving achievement—the most valued award a professional driver can receive. Qualified drivers employed by organizations using the Complete Motor Transportation Service receive this gold plated award each year; it cannot be purchased. In three styles—cap or lapel pin, and key chain—with an individual certificate.

SAFETY POSTER SETS

Popular, colorful, driver safety posters from the world's largest collection. Each poster presents driver situations in a new, attention-getting approach with special emphasis on important safe driving fundamentals. They are slanted to season, weather and the specific needs of fleet operators. Available in two sizes: large (17" x 23") and small (8½" x 11½"). A set consists of two different large and two different small posters mailed each month for a year. Sets should be ordered to provide a weekly change of posters on each bulletin board for drivers.

FLEET SAFETY MEMOS

2. Fleet Safety Posters, 1950.
3. Publicity Procedure When Presenting Safe Driver Awards, 1950.
10. Protective Coloring for Commercial Vehicles, 1950.
13. Safety Meetings for Commercial Drivers, 1950.
18. Investigating Commercial Vehicle Accidents, 1950.

EXPERT DRIVER AWARD CERTIFICATES

A new award certificate for exceptional safe driving performance. Available in blue for 5 year Safe Driver Award Winner, silver for 10 year Award Winner, and gold for 15 year Award Winner. Name of winner will be hand lettered on certificate if requested. Available only to members receiving the Complete Motor Transportation service. 8" x 10", suitable for framing.

DRIVER LETTERS

Individual monthly letters on Council letterheads. Short, to-the-point safety messages . . . informal, friendly reminders on the normal high frequency and high severity accident causes, and seasonal hazards. They are cleverly cartooned and written in the driver's everyday language.

FOR EXPERTS ONLY

A booklet that sells drivers on keeping a perfect no-accident record. Gives the rules for qualifying for the National Safety Council Safe Driver Award, and stresses the safety measures that must be taken to stay clear of the situations that cause accidents. 24 pages, 5½" x 8½".

DRIVER MEMO PADS

Every memo you give your drivers is a safety reminder when you use these handy-size memo pads. Each sheet features a miniature safety poster. Available in sets of 48 pads; each pad bearing a different poster design. 25 sheets to a pad, size 4" x 4½".

OTHER FLEET MATERIALS SHOWN IN THIS SERVICE GUIDE

Driver Training Materials

HOW TO BE A SMOOTH OPERATOR
A new booklet revealing the secret of smooth operation—the skillful coordination of driver, vehicle and traffic. Points out how it will prevent accidents, spare the driver's nerves and stretch the life of his vehicle . . . leave him relaxed and pleased with his job at the end of a day. 24 pages, 3" x 5".

THE YOU FACTOR IN ACCIDENT CAUSES
Aimed at the basis, underlying personal factors that cause transportation accidents. Its 24 pages strike home with every YOU factor from temper to worry. The cartoons invite reading and the hard hitting text spares no punches in showing drivers how important these factors are in accident causes. 3⅝" x 5½". Specify choice of Truck or Bus edition.

DEFENSIVE DRIVING
Two popular 24-page booklets filled with sound tips on good driving, backed up with cartoon illustrations picturing the folly of aggressive or sloppy driving habits. Designed to convince drivers that preventing accidents is not so much the knack of squeezing out of tight spots as it is the ability to anticipate and avoid such situations in the first place. 3" x 5". Specify choice of Truck or Bus edition.

SAFE WINTER DRIVING FACTS FOR TRUCK DRIVERS
Summarizes the basic facts, safe practices and equipment information on winter driving hazards. Treats such important subjects as speed, braking, steering, jackknifing, and traction. Prepared by the Committee on Winter Driving Hazards. Charts and illustrations throughout. 2-color, 24 pages, 3¾" x 8½".

DASH STICKERS
A new type of ever-present safety reminder that adheres to any type of surface! They are bright, 4-color safety ads that keep drivers on their toes. Carefully chosen subject matter makes them equally effective for truck drivers, bus operators and passenger car drivers. 3" x 6". Sold only in sets of 12 different stickers.

DASH CARDS
Colorful, illustrated cards to keep drivers safety-awake when they are behind the wheel. The 3" x 6" cards slip into metal holders fastened to the dash. Subscription includes 24 cards printed on both sides—enough for 4 changes per month. Metal holders are free with each set. Specify choice of Truck or Bus sets when ordering.

Awards and Emblems

New **SAFETY CONTEST TROPHY***

An attractive award plaque to reward the best safety record in inter-department or inter-organization contests. Solid bronze casting. 6" x 7½" on an 8" x 10½" walnut plaque. Space for engraving inscription.

New **SAFETY LAPEL PIN**

(K) The Green Cross for Safety emblem, ⅜" diameter, gold finish with sparkling green and white enamels. Clutch back pin.

MERITORIOUS SERVICE AWARDS

A striking new award with gold lettering and laurel wreath and accented with red, green and white jeweler's enamels. The three legends illustrated, (F), (G), (H), are carried in stock. Nickel-silver joint, pin and safety catch. Pins with your company name in outer band or another legend in center can be made. Write for details and prices.

COMMITTEE BADGE

(I) A handsome emblem of service in glittering green and white hard-fired enamel. The outline and lettering has a polished gold finish; the entire badge is protective coated. Nickel-silver joint, pin and safety catch. 1" diameter.

Personalized COMMITTEE BADGE

(J) An inexpensive way to produce your own company badge. Top and bottom panels are die struck and enameled with any title or company name for an initial die charge of $20.00 per panel ($40.00 for both panels). Die charges will not be repeated on subsequent orders. No charge is made for use of stock "COMMITTEE" die in top panel.

SAFETY PATCH

The Green Cross for Safety emblem for use on jackets, sweaters, shirts, caps, etc. Handsomely embroidered in washable green and white silk. 2½".

GREEN CROSS ELECTROS

An electrotype of the safety emblem suitable for use on letterheads, booklets, and in advertising. May not be used directly or by implication to indorse or approve a commercial product. Members may use the words: "Member, National Safety Council" in conjunction with this registered trademark. Mats and proofs of the emblem in ½", 1" and 2" sizes, free.

New **Enameled NO-ACCIDENT AWARD PINS***

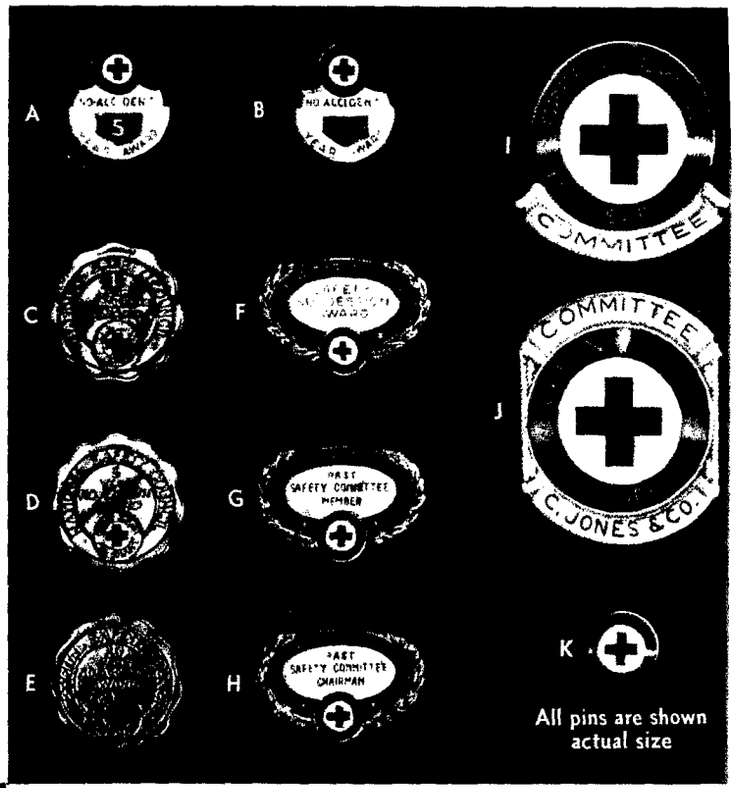
(A) An outstanding new design in green, red and white jeweler's enamels with gold edges and lettering. Pins showing all years, 1 to 40 are stocked. Nickel-silver joint, pin and safety catch.

New **Personalized AWARD PINS**

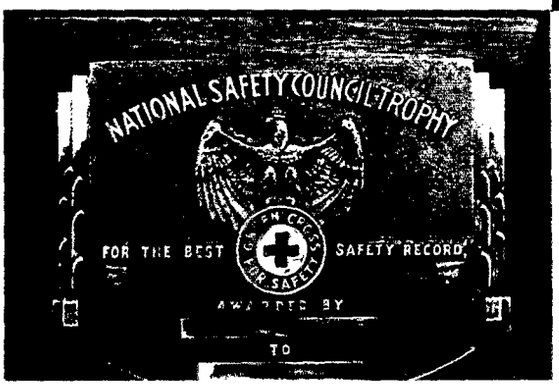
(B) This style permits you to display your own company name in gold letters against a green enamel background, with any selection of years, 1 to 40. A die service charge of $25.00 is made on the initial order.

Metal NO-ACCIDENT AWARD BUTTONS*

A low cost pin made of jeweler's bronze with a sturdy screw-post back. One to 4 year awards are bronze color (C); 5 to 9 year awards are silver plated (D); 10 to 40 year awards are gold plated (E).



All pins are shown actual size



*** NOTE:**

*** NOTE:**

Sold only to Council members and U. S. Government Installations. In ordering, please submit brief description of the plan for use, including the basis for determining who will receive awards.

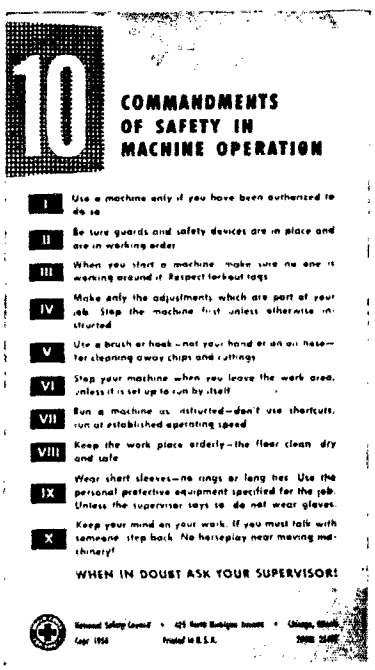
Award pins may be given according to your own rules, but may not be used as driver awards.

GREEN CROSS
FOR SAFETY

WHAT'S NEW IN NATIONAL SAFETY COUNCIL SERVICES *

Machine Safety

Several months ago the Council's publication for foremen, the *Industrial Supervisor* magazine, offered cash prizes totaling $100 for the best "Ten Rules of Safety in Machine Operation." Although the contest required considerable thought and effort, hundreds of entries poured in. A committee of safety experts chose the winners.



In order to give publicity to these rules, a composite list of the best entries has been prepared. These "Ten Rules of Safety in Machine Operation" are now available in handy pocket size for distribution to workers and also on heavy cards suitable for posting.

Operation Safety

Have you ever thought of child pedestrian safety as part of your off-the-job safety program?

Child pedestrian safety belongs in your program on two counts. First, a company is naturally interested in the welfare of its employee's children. Second, any public spirited company is interested in the welfare of all the children in the community.

In addition to the humanitarian aspect, such concern is good business. Safeguarding employee's children shows tangible results, for an employee often loses time from work when his child has an accident. Even though he may come to work, the parent's efficiency is lowered by worry over the ailing youngster. And it's obvious that a company's interest in the children of the community is good public relations.

The place to start reducing your community's child pedestrian accident toll is through the people in your own plant—by educating your employees to give children a break in traffic. And Operation Safety's April leaflet can help you.

This leaflet features Sammy Sorehead, a character whose highway antics no one would want to imitate.

Sammy's the irritable type. Everything annoys him. But kids on the street are his pet peeve. He expects youngsters to act like adults and he penalizes them when they don't. He's one of the reasons why so many children become statistics.

The leaflet urges readers to see that there's no similarity between their own highway conduct and that of this horrible example. It gives some common-sense rules for drivers to follow.

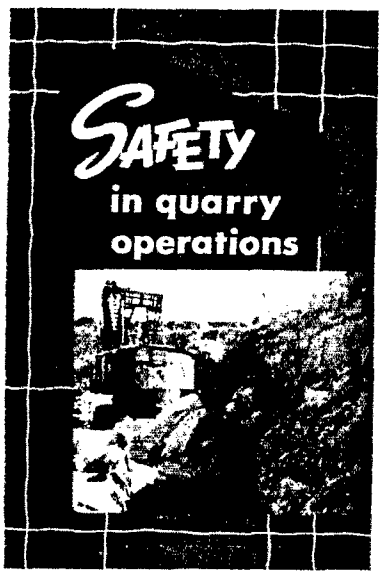
Give "Sammy Sorehead" wide circulation in your plant. Place the leaflets wherever they are likely to be seen or picked up by employees. Handout boxes and bulletin boards are excellent spots. Distribution with pay checks, house organs or any company literature is also a good way of getting them in circulation.

For prices and complete information on this leaflet and on the entire Child Pedestrian and Bicycle Safety program, write to Operation Safety, National Safety Council, 425 N Michigan Avenue, Chicago 11, Illinois.

Quarry Safety

The Council's new booklet, *Safety in Quarry Operations*, provides quarries and related industries with the basic information needed to build and maintain an effective safety program.

The booklet is a complete revision of an earlier one, and covers organizational topics such as safety committees, accident investigation and records, and medical and first aid facilities. Specific physical problems



are discussed, such as scaling the face, ingress and egress from pits, drilling, etc. Extensive sections also are included on explosives, railway and truck transportation and many other topics.

The publication contains excerpts from American Standard Quarry Safety Code M-28. Council data sheets—particularly those relating to the prevention of accidents from falling rock and the operation of heavy duty trucks—have been drawn upon for safe practices.

The 40-page *Safety in Quarry Operations* has a two-color cover, and is illustrated with both photographs and diagrams. It is available to Council members at $1.25 each and to non-members at $2.50.

* Look to this page each month for latest news about NSC services. Address requests for additional information, samples or prices to the Membership Department.

For a Successful Poster Program

JUMBO POSTER for APRIL 1954

The Jumbo poster, issued monthly, is designed for outdoor use and is available to members on annual subscription but is not stocked. Its actual size is 9' 11" by 11' 8".

0067-A 8½x11½

This new four color poster is illustrative of the 72 four color posters shown in the 1954 Poster Directory.

0136-C 25x38

Above new "C" poster, issued monthly, is indicative of the other two color posters—shown in one color on the following pages and in the 1954 Poster Directory.

ON THE BEAM!

THE new 1954 Directory of Occupational Safety Posters will help keep your safety program "***on course.***" ***It contains miniatures of 744 posters—topnotch selections on a great variety of subjects.*** Additional copies are available at 50 cents each —write to Membership Dept., National Safety Council.

Posters miniatured on this and the following pages are NEW. Excepting the Jumbo poster (left, upper), all will be in stock throughout 1954. Those posters shown in one color on the following two pages are actually printed in two or more colors.

For a more successful poster program: first make your selections from the brand new posters shown on these pages ***and then*** from the hundreds of illustrations in the 1954 Directory.

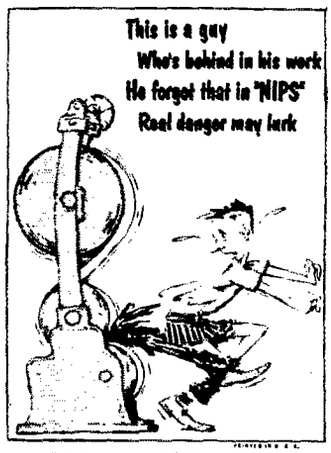
Electrotypes of poster miniatures on this page are not available, nor can payroll inserts be supplied.

Posters below are printed in two or more colors

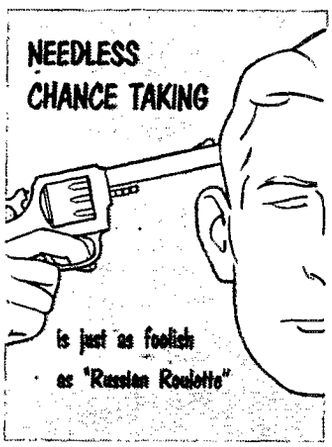
(Available only in sizes indicated)

0087-A 8½x11½

9973-A 8½x11½

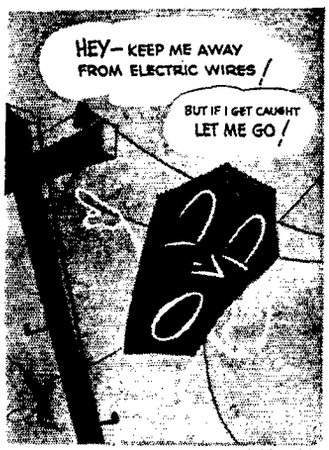


0066-A 8½x11½



0128-A 8½x11½

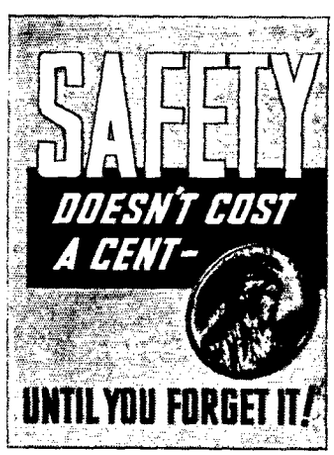
0105-B 17x23



0117-A 8½x11½

0122-A 8½x11½

0103-B 17x23

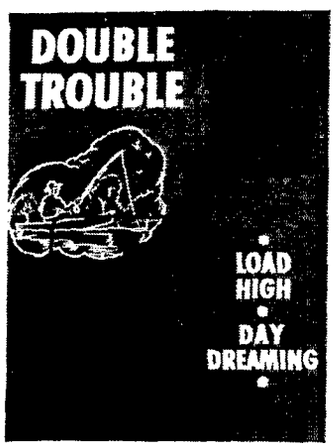


0096-B 17x23

Electrotypes of payroll inserts can be furnished in all poster illustrations shown above.

Posters below are printed in two or more colors

(Available only in sizes indicated)



NATIONAL SAFETY COUNCIL

0119-A **8½x11½**

NATIONAL SAFETY COUNCIL

0098-A **8½x11½**

NATIONAL SAFETY COUNCIL

0116-B **17x23**

NATIONAL SAFETY COUNCIL

0107-B **17x23**

NATIONAL SAFETY COUNCIL

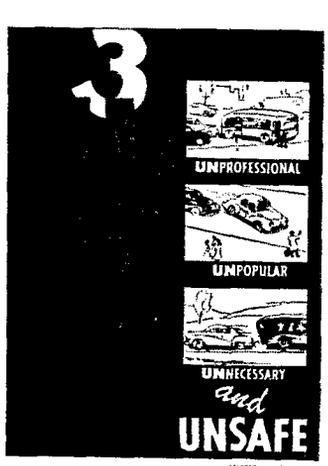
0126-A **8½x11½**

NATIONAL SAFETY COUNCIL

0125-A **8½x11½**

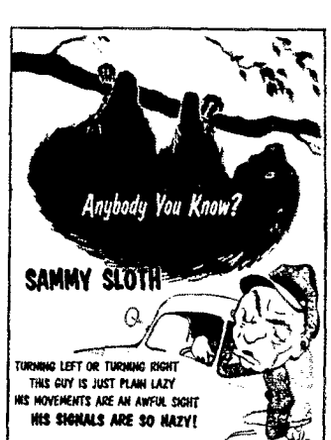
NATIONAL SAFETY COUNCIL

V-0118-B **17x23**



NATIONAL SAFETY COUNCIL

V-0130-B **17x23**



NATIONAL SAFETY COUNCIL

V-0129-A **8½x11½**

Electrotypes of payroll inserts can be furnished in all poster illustrations shown above.

First Aid Men Prove Their Value

Where a plant operates around the clock and where operations are scattered, men with first aid training render valuable service. The program of the Marathon Corp. at Menasha, Wis., was described in a recent News Letter of the Industrial Nursing Section by Lilian Schipferling, R. N.

The plant is engaged in the manufacture of paper and conversion of paper board into food wrapping and packaging products. The plant operates around the clock, rotating shifts weekly. Nurses are on duty from 8:00 a.m. to 4:00 p.m. This leaves 15 hours a day without nurse service. A trial period with a nurse on duty on the second shift did not prove satisfactory.

To provide first-aid care during the hours when a nurse was not present, a program of training first-aid attendants was started. The goal was to have one or two trained men on each shift in each department.

Training was done first by authorized Red Cross instructors, and later by our charge nurse who became an authorized instructor. The Red Cross Standard Course was taught, plus the standing orders for first aid attendants, authorized by our medical advisor. At the completion of the training, sessions were held in the first-aid department treating actual plant injuries under the nurse's direct supervision.

First-aid trainees are selected by supervisors and the personnel department. Classes run for two hours each, usually one hour of lecture and demonstration and one hour of actual practice. Frequent quizzes keep the men alert and check the quality of instruction. Twenty-two hours are required to obtain the Red Cross Standard Certificate, which is given to those completing the course and a small first-aid kit is presented to each attendant for his personal use at home.

The classes are held at change of shift time, and trainees are paid to attend. Arrangements are made with supervisors to have the partners of the trainees who are on shift replace them on the job during classes.

To vary the classes, numerous training aids are used. Motion pictures, magazine articles, bulletins and pamphlets from various sources help. The local Red Cross Chapter is anxious to help in obtaining material.

Once trained, the attendants, both men and women, are issued a key to a small locked first-aid box which

Cut Down Accidents!

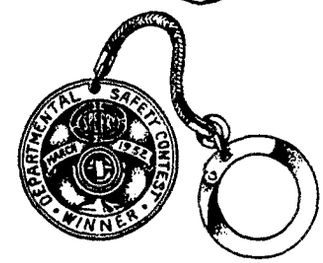
New Safety Records Achieved WITH OUR Complete Incentive Program

Recognition must be given to all whether a member of a winning group or an accident-free worker in a losing group. This may be achieved through the use of group awards supplemented by individual safety awards.

Designs and Quotations submitted without obligation

Catalogs Free Upon Request

Write for free sample of our 1½" Celluloid Pledge Button



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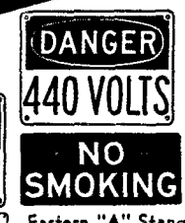
NEW YORK 38, N. Y.



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Eastern Metal Signs give you these Advantages
Immediate Delivery—over 1200 Types in Stock
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Long Lasting—Double baked enamel
Economy—Low cost; easy to install and maintain

Eastern "A" Stand pictured above won't blow over. Wide angle-iron base and frame locks in place. Free-swinging sign unit folds compactly for easy carrying and storage. *Protect Your Workmen* with the Eastern "A" Stand.

Eastern Metal also makes all Industrial Safety, Directional Signs, and special warning signs such as Eastern "Iron Cop."

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Send for illustrated folder and price list.

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3190 E. 65TH ST. • CLEVELAND 4, OHIO

is in their department. They also have access to the first-aid rooms, should more equipment than the simple items in the box be needed. After treating an injury a report is made out covering the name of injured, his department, time of treatment, type of injury, treatment given, how injury occurred, whether the injured was instructed to report to a nurse or sent to a doctor, the name of the doctor, and the signature of the first-aid man.

This information aids the nurse in following up on night cases the following day. The attendant may refer a patient to his doctor if, in his opinion, it is necessary. Usually he will advise the patient to see the nurse on the following day and she continues treatment. On minor injuries of the one-treatment type this may not be necessary.

The first-aid boxes are maintained by the nurse who checks them frequently and keeps them clean and supplied.

Recently some new oxygen resuscitation equipment was installed in the first-aid rooms and all attendants were trained in its use. Refresher courses are scheduled each year for those attendants whose Red Cross certificates run out and, since men are transferred to other departments at times, for new attendants to fill vacancies. This necessitates one or two training courses each year and a refresher course.

The results of the program have been more than satisfactory. The attendants totaling 125, now serve 2,500 employees. Of an average of 2,750 first-aid visits and treatments per month, the first-aid attendants handle an average of 300 treatments or nearly 11 per cent.

Employee reaction has been good. Records are well kept, due to thorough follow-up by the nurses. The situation is complicated by the local setup which consists of three separate manufacturing plants plus some operations away from the main plants.

The company has two fully equipped first-aid rooms with a nurse in attendance and a charge nurse over all. The attendants are the means of extending prompt first-aid service to all parts of local operations.

A by-product of the program is the benefit to families of the attendants and to organizations of which they are members and who use their services at picnics, athletic events, and other gatherings.

Further evidence of the success of the program has been the interest shown by neighboring plants who have sought the company's help in setting up training programs of their own.

New York Regulates Explosive-Powered Tools

Use of explosive powered tools, which employ blank cartridges to drive metal pins or studs into concrete, will be regulated by the State Labor Department after March 1 under the terms of a new Industrial Code Rule prepared and approved by the Board of Standards and Appeals.

The new code requires registration and approval of all tools by the State Labor Department's Board of Standards and Appeals, minimum qualifications for operators and adequate maintenance and storage standards for the tools. The code also prescribes correct operating methods while using them, and prohibits their use in driving studs into steel.

Hazards of the machine include accidental discharge, ricochet, explosive atmospheres, and going completely through the work surface and hitting somebody on the other side.

Since World War II many industries have used these machines for such purposes as cutting various sizes and types of cable, splicing or attaching terminal fittings to cables, removing and tightening rivets, joining pipe, and driving solid-or-hollow-threaded steel studs.

Award Emblems

SERVICE

Recognize your veteran employees—increase loyalty—reduce labor turnover. Show your appreciation for years of loyal service with a Metal Arts Service Award Emblem.

SAFETY

Fewer Accidents mean more manpower, less lost time. Encourage safety with our Safety Emblems. Emblems can be applied to tie clasps, money clips, lighters, etc.

QUOTA CLUB

Start a Quota Club and watch your sales increase. Your salesmen will be proud to earn the right to wear an emblem with your company name.

SUGGESTION

Augment your cash award with a distinctive emblem. Promote competition among your workers. Increase labor, material and method savings.

Advertising Specialties
Name Plates
Plaques

WRITE FOR OUR BROCHURES

METAL ARTS CO., Inc.
747 Portland Ave., Dept. 10, Rochester 21, N.Y.
Offices in Seattle, San Francisco, Los Angeles, Washington, D.C., Philadelphia, New York City

Winter Fires

With cold weather come numerous fire hazards. Here are some typical winter fires reported to the Factory Insurance Association:

Salamander ignites tarpaulin. A contractor, closing in a section of wall under construction, used tarpaulins on outside of building to protect brick masons. A coke-fired salamander placed under the tarps for heating purposes ignited tarpaulins, damaging roof structure and walls.

Frozen Hydrant. Electrical breakdown resulted in a fire in an oil-fired heat treating furnace. Employees telephoned the alarm and attempted to extinguish flames with first aid equipment. The first public hydrant to be tried was found frozen. A lead of 1500′ of 2½″ hose was required before a line could be put into operation.

Neglected System Freezes. In an unheated warehouse protected by a dry pipe sprinkler system, the condensate froze in an exposed low point. The pipe burst, subsequently tripping the dry valve.

Presence of ice in the alarm line resulted in failure of the water motor gong to notify the night watchman that the dry system had operated. In the morning, a routine check-up by a plant inspector, revealed not only the flooded dry valve but ice throughout the entire system which was attributable to freezing temperatures in the building.

In order to thaw out piping, it was necessary to dismantle the entire system, carry pipe and fittings into heated areas for thawing and then reassemble the system, replacing split pipe, fittings that had burst and frozen sprinkler heads. An excess pressure test revealed further defects requiring immediate correction before the system could be placed in service.

Plan World Committee On Occupational Health

The World Medical Association, representing 700,000 physicians of 46 national medical societies, has announced plans to establish an International Committee on Occupational Health for the benefit of industrial workers everywhere.

Dr. Louis H. Bauer, New York, secretary-general of the World Medical Association, said the international committee will be made up of physicians who are members of the W.M.A.

At an initial meeting in New York recently, more than 60 industrial health leaders in the United States explored the feasibility of embarking on such a program and urged the W.M.A. to do so.

Industrial health leaders, representing medicine, industry, and government, pledged support of the new movement at the New York meeting because it was felt that every country with any degree of industrialization has industrial health problems.

Dr. Bauer listed these immediate objectives of the International Committee on Occupational Health after it is appointed:

1. To formulate and promulgate standards for better medical and health services to employed groups.

2. To prepare a report on the relation of the physician to these major components of industrial health: administrative relationships, health counseling and health education, preventive medicine workmen's compensation, rehabilitation, medical care, and environmental hygiene.

3. To meet with representatives of other international industrial health groups, such as the International Labor Organization and the World Health Organization, to define specific objectives, spheres of action and working relations.

4. To sponsor a discussion at an early session of the World Medical Association, independently or in conjunction with other agencies, to bring into focus its own program with that of existing international bodies.

"In this way," Dr. Bauer said, "the medical practitioner everywhere—individually and through his professional organizations—can understand more clearly the health problems of the worker and his employer. Industrial health is directly allied with public health in every country since a workman must be kept healthy 24 hours a day if he is to do an efficient job."

Paper Containers Carry Safety Thoughts

Among the media for spreading safety slogans and other reminders are various types of paper products.

Paper cups bearing safety reminders, for example, are now being produced by several companies for plant canteens and cafeterias and industrial caterers. These often carry the Green Cross for Safety emblem, which has high attention value.

Paper napkins imprinted with safety messages are also used in some plants.

For customer distribution, paper bags and wrapping paper and pressure sensitive tape may also carry slogans.

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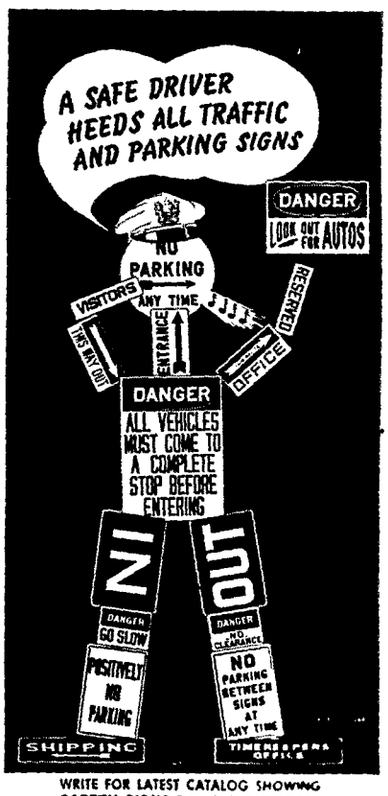
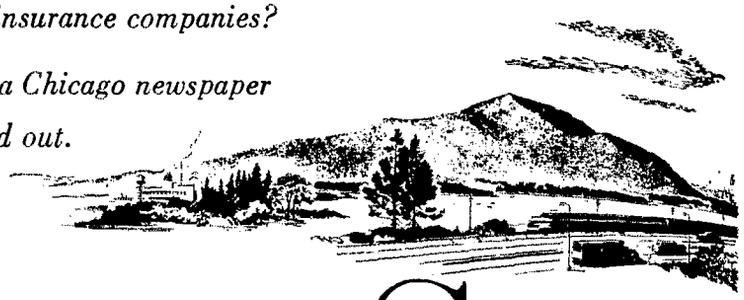


What is there about Wausau, Wisconsin, that makes it the ideal home for one of the world's most important insurance companies?

Employers Mutuals of Wausau invited a Chicago newspaper columnist to visit its hometown and find out.



Wausau Story

By **PHIL HANNA**, *Business Columnist of The Chicago Daily News*

THE conductor on the train knew Wausau. "Good town," he said. "Wausau people are like Texans—they wouldn't want to live anywhere else."

I soon began to see why. My first visit was in Anton Paszek's barber shop. "We're too big now," said Anton, "for everyone in town to *know* everyone else. But you won't find many places that beat Wausau for people *liking* each other and giving each other a hand."

At Ploss' Drug Store, Baumann's Hardware, everywhere I went, I heard more about the good spirit of this city.

Even the "coffee break" in Wausau is a special thing. A company president, or even a chairman of the board, will sit around the table with his employees, relaxing together over a cup of coffee and talking over common problems.

I heard one story that gave me a good slant on Employers Mutuals. The Company's Board Chairman, Mr. H. J. Hagge, had a birthday some time back. The high school band went over and played "Happy Birthday To You!" under his window. That means to me that Mr. Hagge must be a good person to know. And it means that this company he has headed for many years must be a good one to do business with.

It's only natural that Employers Mutuals would take on some of that "Wausau Personality" I found everywhere on my visit. Business is people—and Wausau people are the right kind.

Mr. Hanna drops into Ploss' Drug Store, talks with George Marsh (at cash register) and H. W. Genrich. On his visit to Wausau, Mr. Hanna went about freely, on his own, with a photographer.

Employers Mutuals of Wausau are "good people to do business with."

There's a little bit of Wausau on the sidewalks of New York—and in 88 other cities where this Company has offices. We write all lines of fire and casualty insurance—everything but *life* insurance. Our largest line is workmen's compensation. We have two reputations, born and raised in Wausau, that we aim to hold. *The first* is that we'd rather prevent than just pay for an accident. Our accident-prevention program, second to none, means lower insurance costs to policyholders. *The second* is claim service. Handled direct by our branches, this service is unexcelled in the insurance field for care and fairness, with a signal record for prompt payments.

Employers Mutuals *of* Wausau

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President
Republic Steel Corporation

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"Every one of us at Republic Steel is proud of the results of our Payroll Savings campaign: 96.7 per cent of our employees saving systematically from each pay in U. S. Savings Bonds. These results were possible only because all 68,344 of us at Republic were part of an enthusiastic team. We feel that this is the best way we can demonstrate our appreciation of the efforts to have a sound dollar and a stable economy."

• 96.7% of Republic Steel's 68,344 employees—over 66,000 men and women—are enrolled in the Payroll Savings Plan.

• These 66,000 members of Republic's "enthusiastic team," as Mr. White so aptly terms them, are investing more than $16,000,000 per year in U. S. Savings Bonds.

• In addition to building personal security, these men and women of Republic are making a very important contribution to America's "efforts to have a sound dollar and a stable economy."

Certainly Republic Steel's Payroll Savings record is outstanding—one of the best in the country. But it is not unique. Other companies have comparable records, measured in percentage of employee participation, or in annual Savings Bond purchases.

In every company with a high percentage Payroll Savings Plan you will find that the president or top executive appreciates the importance of the Plan and what it means to personal and national security. He knows that 45,000 companies have Payroll Savings Plans . . . that 8,000,000 employees of these companies are investing more than $160,000,000 per month in Savings Bonds . . . that the cash value of Savings Bonds held by individuals today is more than 36 billion dollars—and rapidly mounting, thanks largely to the steadily increasing family of Payroll Savers. He is 100% behind his company's Payroll Savings Plan. and everybody in the company knows it. He takes personal pride in watching employee participation grow to 60%, 70%, 80%, or, perhaps, the high 90's.

If you are not making this important contribution to America's effort for a sound dollar and a stable economy, a wire or letter to Savings Bonds Division, U.S. Treasury Department, Washington, D. C., will bring prompt cooperation from your State Director. He will show you how easy it is to join Mr. White and thousands of other executives as a Savings Bond Salesman for Uncle Sam, with a company Payroll Savings Plan that you can be proud of.

The United States Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, the Advertising Council and

NATIONAL SAFETY COUNCIL

Company and A.A. Rehabilitate Drinkers

Approximately two out of every three problem drinkers in the employ of E. I. du Pont de Nemours & Company have been rehabilitated in the last 10 years through cooperative efforts of the company's medical department and Alcoholics Anonymous, the company reports.

Dr. Thomas H. Hogshead, Wilmington, medical supervisor in the company's employee relations department, told the 14th annual Congress on Industrial Health that some 350 workers were restored to usefulness at a cost of less than $100,000.

Dr. Hogshead said the gains cannot be measured, but he pointed out that it costs the company an estimated $2,000 to train a chemical or textile machine operator, $5,000 to train a supervisor and $25,000 a year to maintain an already trained research chemist.

Problem drinking received little attention in industry until the arrival of Alcoholics Anonymous on the scene in 1935. The du Pont program now includes prevention, treatment and rehabilitation, built around and centered on A.A. fellowship.

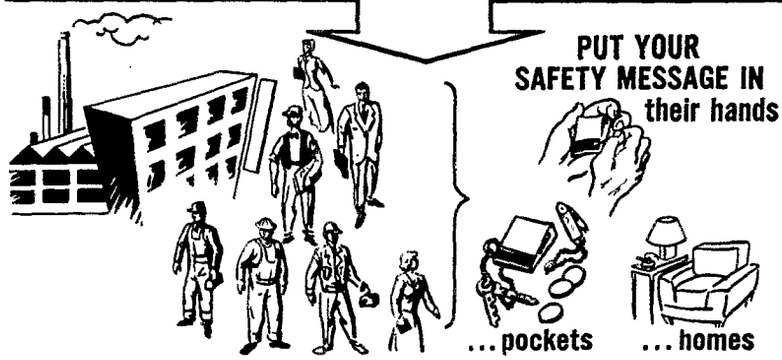
"In association with Alcoholics Anonymous, the program is assisted by an understanding and energetic company policy," Dr. Hogshead said. "However, the company in no way attempts to influence A.A. policy and there are no groups within the company."

Du Pont's medical facilities as well as many community facilities are used in attacking the problem, but always with active association in A.A. as the immediate goal, he reported. Cases requiring hospitalization are referred to institutions understanding the company's program. Those cases arising in plants outside the Wilmington area are directed to du Pont approved institutions in their localities.

Five full-time physicians in the du Pont company assist in an educational program which points out that alcoholism is a disease and can be treated. In the central office, two full-time psychiatrists are alert to the problem of alcoholism in their routine work.

In the Wilmington offices, there are three A.A. members who devote much of their time and effort to the problem drinker.

DON'T LET YOUR EMPLOYEES WALK OUT ON YOUR SAFETY PROGRAM



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When your employees hear the closing whistle they walk out of the plant and right out on your carefully planned safety program. They are on their own for the next 16 hours. Have you ever thought of this fact? An off-the-job accident can cost you just as much money as an on-the-job accident. Why not send your safety message home with the workers? If you can accomplish a 24 hour selling job on safety you have reached the pinnacle of safety management.

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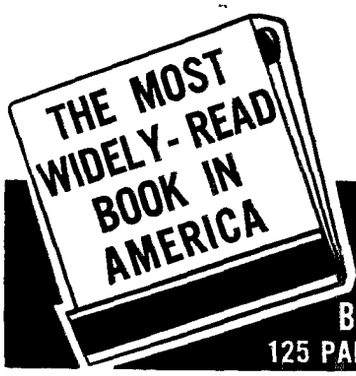

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Can Your Employees Answer These?

Here's a quiz on fire safety used at the Chicago printing plant of R. R. Donnelley & Sons Company:

1. Where is the closest fire extinguisher from your working station?
2. How many kinds of fire extinguishers are there in your department?
3. What kind of extinguisher would you use on:
   (a) an electric motor fire?
   (b) a cotton bale fire?
   (c) a rag can fire?
   (d) a paper fire?
   (e) a card fire?
4. Where are the sprinkler head valves in your department located?
5. What should you do if a man's clothes catch on fire?
6. Where do you put empty extinguishers for refilling?
7. Who refills extinguishers and where is it done?
8. Who returns the filled extinguishers to their proper storage place?
9. How are CO_2 extinguishers checked for full charge?

This short quiz can tell you how well informed your employees are concerning fire safety. Spring it on your men or supervisors at the next safety meeting.

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CESCO

Lite-Specs

Cup-type Goggles

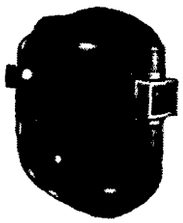
Spectacle-type Goggles

Plastic Frame Goggles

Cover Goggles

Approved Respirators

Coverlite Goggles



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Approved Respirator Hood

Face Shields

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Guardian Safety Equipment Co.
427½ Moreland Avenue, N. E.

BIRMINGHAM, ALA.
Guardian Safety Equipment Co.
4215 1st Ave. No.

BOSTON, MASS.
General Equipment Corporation
261 Franklin Street

BUFFALO, N. Y.
The Watson Company
1443 Main Street

CHICAGO, ILL.
Universal Safety Equipment Co.
5115 Diversey

CINCINNATI, OHIO
Williams & Co., Inc.
3231 Fredonia Avenue

CLEVELAND, OHIO
Williams & Co., Inc.
3700 Perkins Avenue

COLUMBUS, OHIO
Williams & Co., Inc.
851 Williams Avenue

DALLAS, TEXAS
Guardian Safety Equipment Co.
900 Jefferson Tower Bldg.

DETROIT, MICH.
Averill Equipment Company
19225 Conant Avenue

EAST ORANGE, N. J.
Guardian Safety Equipment Co.
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INDIANAPOLIS, IND.
Averill Equipment Company
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Safety, Incorporated
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Safety Equipment Distributing Co.
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Fire Appliance & Safety Co.
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LOS ANGELES, CALIF.
Guardian Safety Equipment Co.
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Williams & Co., Inc.
1109 S. Preston Street

MILWAUKEE, WIS.
Universal Safety Equipment Co.
3155 S. 7th Street

PEORIA, ILL.
Universal Safety Equipment Co.
116 S. Garfield

PHILADELPHIA, PA.
Guardian Safety Equipment Co.
214 S. 45th Street

PITTSBURGH, PA.
Williams & Co., Inc.
901 Pennsylvania Avenue

ST. LOUIS, MO.
Safety, Inc.
2606 Olive Street

ST. PAUL, MINN.
Continental Safety Equipment, Inc.
1551 Selby Ave.

SALT LAKE CITY, UTAH
Universal Fire & Safety
Equipment Co., Box 1587

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Guardian Safety Equipment Co.
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Spokane Safety Appliances
W. 314 Pacific Ave.

TOLEDO, OHIO
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Guardian Safety Equipment Co.
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CHICAGO EYE SHIELD COMPANY • 2306 Warren Boulevard, Chicago 12, Illinois

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KEYHOLE BRIDGE — Strong, lightweight

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*FX9200 model furnished with adjustable nose pads for hard-to-fit workers.

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KNAPP SAF-TEST SAFETY SHOES

WITH THE *Original Aerotred* CUSHIONED INNERSOLE

STYLE K-56
HAND WOVEN
BROWN
STOUT, OIL-TREATED
LEATHER SOLES
Sizes 5 to 14, Widths B to EE

Designed for SAFETY
Built for . . COMFORT
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BROWN WITH
BROWN NEOPRENE
"CORK-GRIP"
SOLES STITCHED
WITH DACRON
Sizes 5 to 14
Widths A to EEE

STYLE K-54
BROWN VEAL
WITH NEOPRENE
"CUSH-N-CREPE"
SOLES AND HEELS
Sizes 5 to 14
Widths A to EEE

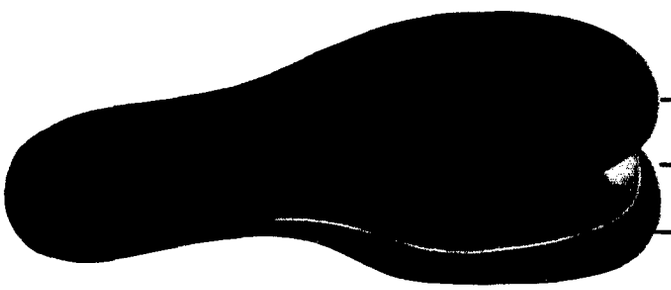
"RUBBERHIDE" *Safety* INNERSOLES

FOR RUBBER WORK SHOES AND BOOTS

"RUBBERHIDE" Safety Innersoles provide low-cost maximum protection against foot injuries due to punctures by nails or other sharp-pointed underfoot objects. They make rubber shoes and boots more thoroughly *punctureproof* than the heaviest leather soles, and will last longer than the shoes and boots themselves.

NAILS CAN'T GET THROUGH . . .

. . . even when jumped on! This protection means actual SAVINGS . . . eliminates lost time because of foot injuries . . . contributes to lower compensation insurance rates.



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ONE-PIECE, FLEXIBLE SPRING STEEL

SHEET OF RUBBERIZED CANVAS...

Foot Contoured — Flexible — Light Weight

Each "Rubberhide" Safety Innersole consists of a solid sheet of high-tensile spring steel between a layer of top-grade sole leather and a sheet of rubber-impregnated canvas . . . the three inseparably bonded together. Made and stocked in all Rubber Boot and Rubber Work Shoe sizes.

Safeguard your employees with "RUBBERHIDE" Safety Innersoles. $2.25 per pair, prepaid. Mail the coupon today!

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Please ship following "RUBBERHIDE" Safety Innersoles, at $2.25 pair, prepaid.

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(Give Number of Pairs of Each Size Wanted)

Company.....

Address.....

City..... Zone..... State

☐ Charge ☐ Check Attached ☐ Send C O D.

Safety Clothing

SAFE CLOTHING may be any type of clothing that is clean, in good repair and suitable for the job. Most garments offer some protection against minor hazards.

Safety clothing refers to specific garments designed for certain hazardous jobs where ordinary work clothes do not provide sufficient protection.

Proper fitting is essential in all work clothing. Long, loose sleeves and neckties may get caught in machinery. Trouser cuffs may cause tripping.

Clothing soaked in oil or flammable solvent is ignited easily. Both flammable and non-flammable solvents may cause skin irritation. Cleanliness is also an important aid to morale.

Laundered overalls, coveralls, aprons, smocks, and other garments are furnished by companies for occupations where extreme cleanliness is necessary because of the product or because of health-hazardous processes.

Exposures that require special protective garments include moisture, high temperatures, hot or corrosive substances, flying particles, sharp or rough edges, etc. *See chart on page 108 for types of garments and materials for various hazards.*

The following are essential in all work clothes:

1. Adequate protection.
2. Comfort and freedom of movement.
3. Durability.
4. Appearance.

Flameproofed garments resist hot sparks thrown off by scarfing torches.

Appearance of clothing is particularly important with women employees but men are not indifferent to it.

Standards. Specifications established by the Federal Government have provided widely used standards for many years. During the war the American Standards Association approved a series of *War Standards for Protective Occupational Clothing —Series L18.* These are still accepted standards.

Specifications cover protection against sparks, molten metal, infrared and ultra-violet rays, and limited impact forces. Details of pattern, design, workmanship and range of sizes are also included.

Protective Materials

Asbestos is preferred for protection against intense heat and flame. Many garments are made of this material, including complete suits for fire-fighting and rescue work.

Airplane crash fires have focused attention on protection for firefighters and rescue crews. These suits use not only insulating material against conductive heat but also a radiation barrier of reflective material, such as aluminum foil. Suits of this type have been developed by the U. S. Air Force.

Wool clothing should be worn under asbestos garments where intense heat is encountered.

Leather of various grades is used for protective garments. Chrome-tanned leather affords protection from sparks, molten metal splashes, and infra-red and ultra-violet rays. Leather, however, deteriorates under continued exposure to heat. For severe exposure, asbestos should be used.

Leather provides protection against limited impact. Padded leather or fabric aprons and hard fiber or metal protectors for the abdomen absorb much of the force of hard blows.

Leather reinforced by metal stitching or wire staples is resistant to cuts and abrasion.

Impervious materials of many types provide protection against dust, vapors, mists, moisture and corrosive liquids. They are useful in handling materials which would cause dermatitis or burns. This type of material includes rubber, neoprene and vinyl films and fabric coated with them.

What the safely dressed construction worker should wear is modeled at Carnegie Institute, Pittsburgh in an exhibit of medieval safety armor and modern safety armor. Equipment was supplied by Dravo Corp. whose safety director, Gerard O. Griffin, is adjusting life belt on model. Other equipment includes safety shoes, protective gloves, eye shield and hard hat.

Rubber is widely used because it resists acids, caustics and other corrosive substances. Garments of rubberized fabric are used when handling low concentrations of acids and non-caustic liquids and for protection against weather. Rubber's high dielectric strength makes it useful for protective equipment where electricity is used.

Neoprene has numerous applications in safety equipment. It forms a tough durable film resistant to oils, solvents, acids and alkalis. It has high dielectric strength.

Flame-resistant duck, a lightweight fabric, is quite strong and will outwear ordinary material used in work clothes. For protection against extreme heat, asbestos should be used.

Water-resistant duck is recommended in exposures to water and non-corrosive liquids. It combines strength and durability with light weight.

Vinyl plastic has many uses in safety equipment. For some garments the plastic is rolled or calendered onto fabric. For others the strong pliable film is used without backing.

Synthetic fabrics, such as dynel, orlon and vinyon, are used for durable work clothing. These fabrics resist acids, caustics, mildew, abra-

—*To page 161*

INDUSTRIAL HEALTH

Abstracts of current literature on Industrial Hygiene, Medicine, and Nursing

BY F. A. VAN ATTA
Industrial Department, NSC

Tuberculosis in Industry

Tuberculosis Control in Industry, by Harold A. Vonachen, M.D., Milton H. Kronenberg, M.D., and Dan Morse, M.D. Industrial Medicine and Surgery 23:9-12 (January, 1954).

TUBERCULOSIS CONTROL in industry is of importance chiefly because the industry is usually located in the urban areas where the incidence of tuberculosis is usually relatively high and where there is, consequently, the maximum probability of getting employees with undiscovered cases of active tuberculosis.

Since the X-ray is the only effective way of finding tuberculosis cases, pre-employment X-rays should be used on all prospective employees. This should be done both as a protection to fellow workers who will be protected from contagious disease, as a protection to the company and the insurance companies, and, finally, as a protection to the prospective employee who has a chance to have his case diagnosed and gotten under treatment while it is still in a minimal and curable stage.

At the Caterpillar Tractor Company, between 1947 and 1952, 65 cases of active tuberculosis and 10 cases of pleural effusion were discovered in just under 65,000 pre-employment X-rays. In addition to these, there were discovered 103 arrested and inactive cases of tuberculosis and 22 cases which required further diagnostic procedures.

All of the 103 arrested cases and most of the 22 suspected cases were permitted to work in the company but they were kept under medical supervision and kept out of types of employment which would be apt to cause a flare-up of their tuberculosis. They were also required to have periodic X-rays throughout the period of employment.

To check up on the possible cases of tuberculosis developing within the group of employees, it would be desirable to have annual X-rays. This is being done in some industries but not in all. In Peoria, the State Health Department has provided mass X-ray surveys from time to time, and Caterpillar employees have had an opportunity to be X-rayed in 1944, 1947, and 1951.

In the 1944 survey, 22 active cases of tuberculosis were found among 13,000 employees; in 1947, there were 2 cases among 16,000 employees; and in 1951, one case among 23,000 employees who volunteered to have an X-ray. The 23,000 X-rayed in 1951 represented 96% of all the available personnel.

Caterpillar cases of tuberculosis have shown a greater decrease than in other industries in the same area who also have the mass X-ray surveys. The reason for this is probably the pre-employment X-rays which Caterpillar has had since late in 1945.

When X-ray surveys are made, there should be no reluctance to hire inactive and arrested cases of tuberculosis. Such a refusal to hire people who have been in the tuberculosis sanitarium has long been one of the most severe handicaps in tuberculosis control. Of the 103 arrested and inactive tuberculosis cases hired by Caterpillar over the six year period, only 3 have broken down and all of these have been off temporarily and then returned to work.

One reason for this is the highly organized rehabilitation departments now existing in the Peoria area which gets people ready to go to work prior to being discharged from the sanitarium and the sheltered work shop where they start out on a restricted schedule of activity and work up to the ability to do a full day's work.

An effective job placement system is of the greatest importance in handling arrested cases of tuberculosis. They should not be where there is excessive dust from any cause, whether or not it is silica dust and they should not be expected to do heavy lifting, pushing or pulling, or any other heavy labor, although really heavy labor has almost disappeared from most large industries. It is necessary that they not be transferred from job to job without consulting the medical department.

The final part of a good tuberculosis control program is tuberculosis health education for all employees. There should be pamphlets available for employees and occasional articles on tuberculosis control in the plant publication and materials available through the local tuberculosis control association should be distributed by the management and posted on bulletin boards from time to time.

Cases of tuberculosis found either in mass surveys or in pre-employment surveys should, of course, be reported to the local community tuberculosis control associations and every effort should be expanded to get them under observation and treatment as soon as possible.

Labor's Medical Plans

Union Health Centers, by the Committee on Medical Care for Industrial Workers of the Council on Medical Service and the Council on Industrial Health of the American Medical Association. The Journal of the American Medical Association 154:361-363 (January 23, 1954).

UNION HEALTH CENTERS are a comparatively recent development in the United States, although the earliest one, that of the International Ladies Garment Workers Union in New York City was organized in 1913. This was the only union health plan in existence for about 25 years. The present rather large union interest in health plans arose in 1942 when the price and wage freeze attendant on World War II essentially altered the wage increases, but increased benefits for workers in the form of health and welfare services. These services could be added on to the extent of not more than five per cent of the payroll.

The interest in health plans has remained active even since the wage controls have been discontinued.

—*To page 161*

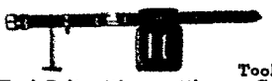
Bashlin's *Linemen's Choice*

SAFETY EQUIPMENT

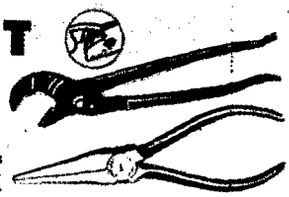
Lightwe... Champion... climbers ... remova... gaff. Stock.

Chippewa Boot—6 to 11 and ... with 16" top. With or without ... Padding. Stock.

Semi-Floating Safety Tool Belt — 20 Styles — Full Range of Sizes. Stock.



Tool Belt with or without holster with tape sling, hammer loop, snap. Stock.



Tool Buckets —Canvas, fibre top, leather bottom 12" —16" Depth. Stock.

Chan-Nel-lock gripping tongue and groove Pliers. Stock.

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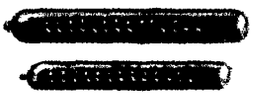
Safety Straps—24 Styles Finest Leather, Bashlin Craftsmanship. Stock.



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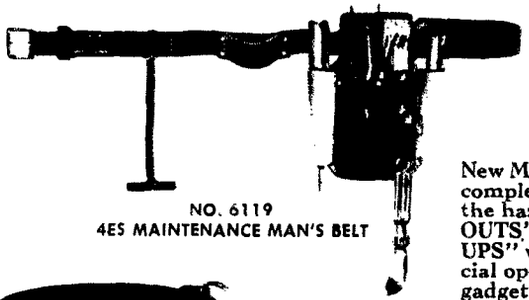
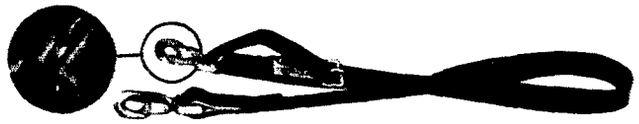


NO. 6119
4ES MAINTENANCE MAN'S BELT



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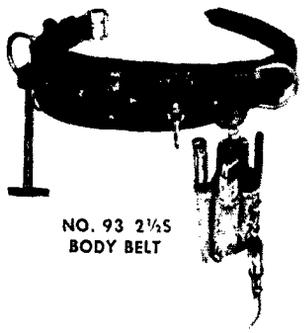
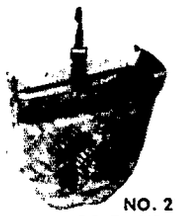
NO. 2MC
WEB BODY BELT



NO. 93 2½S
BODY BELT

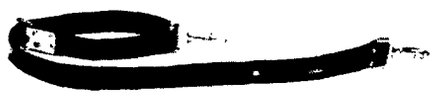
a *Miller* original

NO. 6-7-8
NEVER-SLIP PLIER GRIPS



NO. 21W
BOLT AND NUT BAG

NO. 406
WINDOW CLEANER'S BELT



L SERIES SAFETY STRAPS

WRITE FOR CATALOG ON COMPLETE LINE

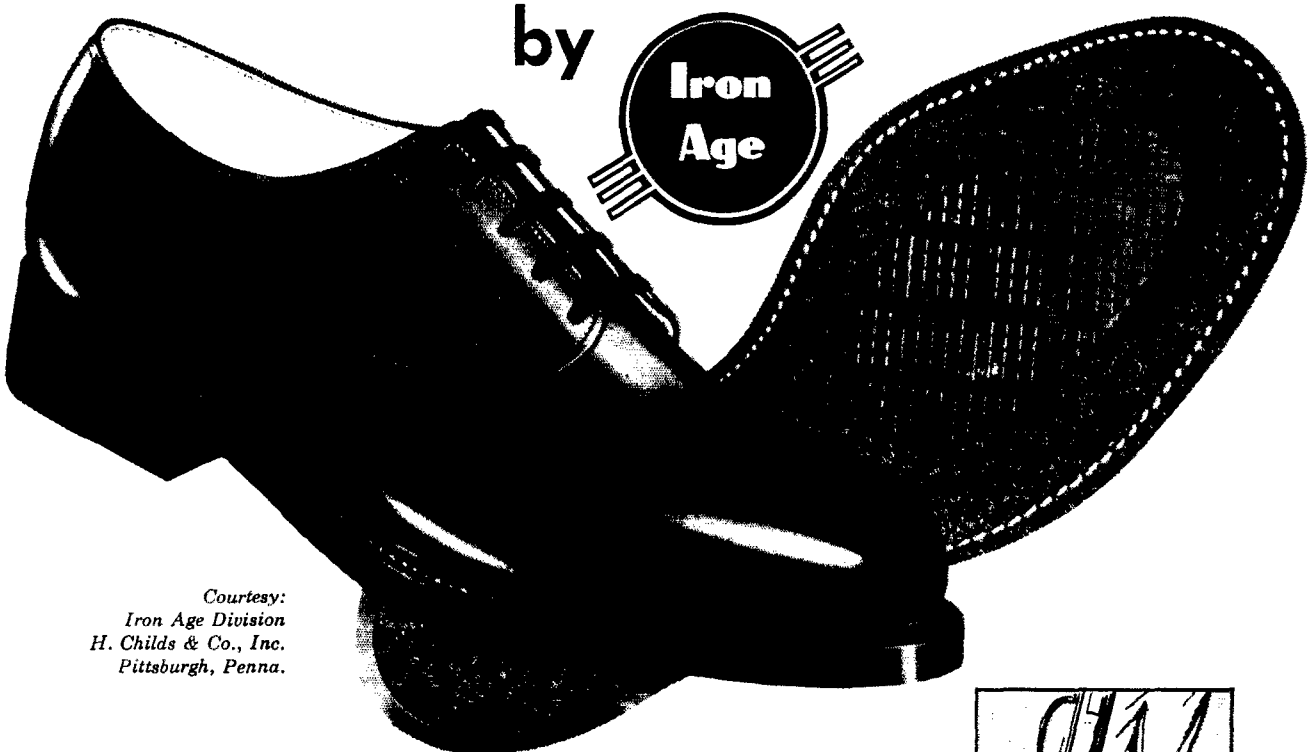
Miller EQUIPMENT CO. INC.

Thirteenth Ave., FRANKLIN, PA.

IN CANADA: SAFETY SUPPLY CO., TORONTO

NEOPRENE SOLES

add smart appearance and long wear to "Black Beauty" safety oxfords by Iron Age



Courtesy:
Iron Age Division
H. Childs & Co., Inc.
Pittsburgh, Penna.

With their trim neoprene soles and glistening black dress leather uppers, "Black Beauty" oxfords live up to their name in appearance . . . and make a name for themselves on the job. Steel toes, storm welts, and stitching of "Dacron"* give lasting safety and comfort. And the sturdy neoprene soles take the roughest duty in stride.

There's a strong sales story in the durability of neoprene soles. They provide a high degree of abrasion resistance. And, because they resist deterioration from heat, oils, greases, and most chemicals, they retain their resistance to abrasion giving long-lasting service. Through the most rugged conditions, neoprene soles remain firm and tough . . . flexible and resilient . . . cushion and support the foot with every step.

Safety shoes today are leading a double life—as work shoes *and* street shoes. No wonder so many designers specify Du Pont neoprene for soles that wear longer, look neater and sell better.

**Du Pont's registered trade-mark for its polyester fiber*

Flexible and comfortable

Tough and durable

DU PONT NEOPRENE

The rubber made by Du Pont since 1932

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BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

SEND FOR FREE BOOKLET

E. I. du Pont de Nemours & Co. (Inc.)
Rubber Chemicals Division NS-3, Wilmington 98, Del.

Please send me your booklet which contains information about neoprene soles . . . descriptions of neoprene's unusual properties and superior qualities.

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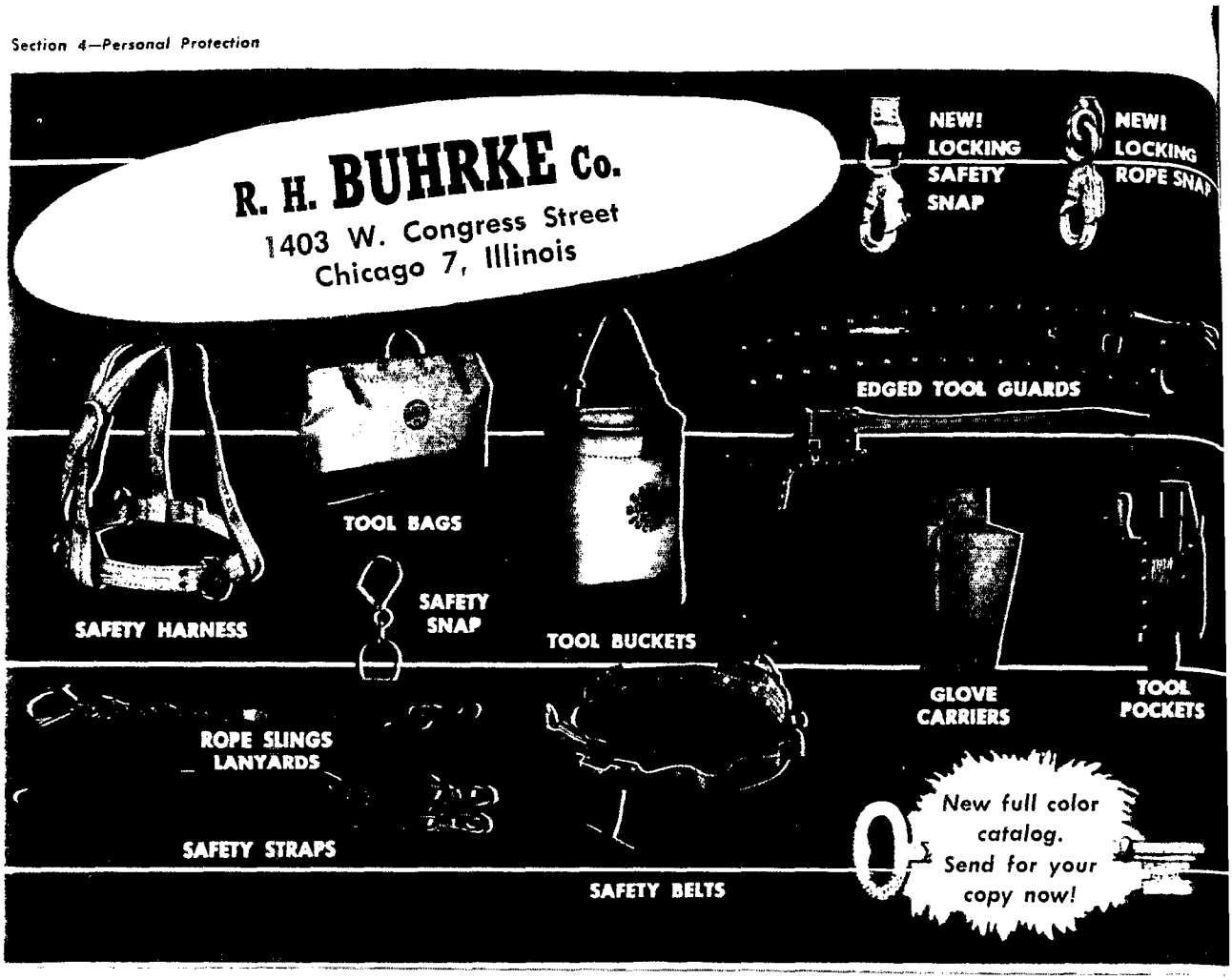


Do you have a "Pet"

We will immediately design or duplicate any belt in any quantity to your exact needs.

Submit your sketches and specs to:

INDUSTRIAL SAFETY BELT CORPORATION
51 CHATHAM ST.
PITTSBURGH, PENNA.

Safety Belts

—*From page 150*

Leather $\frac{1}{4}$ inch thick and $1\frac{1}{2}$ inches wide will have an ultimate strength of about 500 pounds. This is adequate for lifting a man out of a tank or bin.

Webbing will stand more heat than leather, and when soaked in water will dry out in its natural condition. Friction buckles can be used with webbing, avoiding the loss of strength at buckle holes.

Belts intended to check a fall demand strength proportionate to the possible distance of fall and weight of body. A 2" by $\frac{1}{4}$" leather belt would probably arrest the fall of a window washer at 6 feet. It might break at a 10-foot fall.

For a comfortable margin of safety, a window cleaner's leather belt should be at least 3" by $\frac{1}{4}$", or the equivalent.

Special types of webbing are available for certain uses. It can be wax treated to resist paint and mildew. For the chemical and petroleum industries webbing impregnated with neoprene resists acid conditions.

Quick release from a safety belt may be desirable in case of fire. Petroleum workers, for instance, use belts with a quick release buckle which can be disengaged instantly by a single motion of the hand.

Belts for some occupations contain loops and pockets for light tools.

Collapsible canvas tool buckets are also needed on some jobs so the worker may have his hands free while climbing. Edge tools should be protected by guards while being carried.

Shock absorbers incorporated in harness and lanyards reduce the severity of impact. This decreases both the possibility of injury to the wearer and failure of the equipment.

Lanyards. A $\frac{1}{2}$-inch manila rope has an ultimate strength of 2,600 pounds.

Nylon rope is some[what] stretchy than manila w[ith] it to absorb shock and [is] It has high tensile str[ength] dry, is tough, flexible, easy to handle—is resis[tant] ture and mildew and [rot] wet.

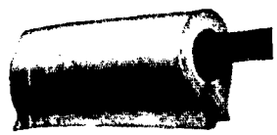
Unolyn, another sy[nthetic]

W. H. SALISBURY & CO.

MORGAN AT KINZIE STREETS ★ EST. 1855 ★ CHICAGO 22, ILLINOIS

MANUFACTURERS OF RUBBER PROTECTIVE EQUIPMENT FOR LINEMEN AND OTHER HIGH VOLTAGE WORKERS

INTERLOCKING LINE HOSE



Completely surrounds the wire with a thick wall of rubber having high dielectric strength. Locks itself in place but is easy to apply or remove.

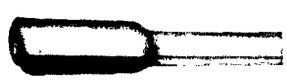
Sizes: 5/8", 1", 1 1/4", 1 1/2" inside diameter.

Lengths: 3', 4 1/2', 6'.

RUBBER INSULATOR HOODS

Used in conjunction with Line Hose to cover conductors as they pass over insulators. Inward extending flanges prevent accidental dislodgement. Compact construction. Convenient to handle.

CONNECTOR-END LINE HOSE



Standard Line Hose with built-on connector-end for joining to additional lengths or for covering enlarged wire taps, leads on stud type transformers, etc. Sizes same as standard line hose.

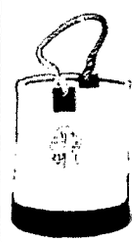
LINEMEN'S RUBBER BLANKETS

Indispensable for covering odd shaped equipment. Made of best grade rubber with long-life and high dielectric qualities. Sizes 36"x36" and 36"x27". Also available with "Snap-Button" and eyelets.

SNAP-BUTTON RUBBER JACKETS

Highest quality small size rubber blanket, 22"x22", equipped with Salisbury hard rubber button fasteners and used to cover dead ends or other similar hazards that require securely fastened protection.

LINEMEN'S TOOL BAGS



Non-metallic canvas bags properly shaped and constructed for safety in raising heavy tools and supplies to men on poles or other elevated places. Sizes 8"x 14" or 12"x16" for tools and 7"x48" for line hose.

LINEMEN'S RUBBER SLEEVES

Protect the arms and shoulders from accidental contact with "hot" equipment. Held in place by adjustable rubber strap across the shoulders. Made in chromium plated molds to insure high voltage resistance, smooth surface and long life. Regular and extra large sizes.

NON-SPILLABLE P. B. COMPOUND POTS

Provide a safe and convenient means to carry insulating paint and brush. Being made of semi-hard synthetic rubber, they are non-conducting, non-breakable and are unaffected by the usual P. B. compound used.

LINEMEN'S GLOVE BAGS

Necessary for glove protection in storage and transportation and useful, when properly labeled, for personal identification. Made of heavy waterproof duck, sturdy and durable. Snap hook and "D" ring attached. Size 8" wide, 15" long.

LINEMEN'S RUBBER GLOVES

Best grade steam-cured gloves, carefully made to meet all standard specifications. Furnished in curved or straight finger style. Standard gloves are rated at 10,000 volts, 14"-16", 18" lgths.; 15,000 or 20,000 volt gloves are available. All sizes and half sizes from 9 to 12.

RUBBERCUFF PROTECTOR GLOVES

Similar to our standard all-leather protector glove with the addition of a full-length molded rubber cuff. Rubber cuffs do not increase current creepage to the forearm. They prevent costly snags in gauntlets of linemen's rubber gloves which are required to extend beyond ordinary leather protectors. Furnished in several sizes to fit perfectly over rubber gloves.

ALL-LEATHER PROTECTOR GLOVES

Worn over rubber gloves to protect them from injury. Made of specially tanned Grade "A" buffed horsehide and carefully designed to fit perfectly over rubber gloves. Soft and pliable under all conditions. Do not become slippery when wet. Band-top or gauntlet styles. All sizes.

A DEVICE FOR EVERY ELECTRICAL HAZARD

SWITCHBOARD MATTING

Made especially to provide insulation from possible ground in front of switchboards or other electrical equipment. Rated at 40,000 volts and meets the A. S. T. M. specifications. Widths 24", 30", 36", 48". Any length.

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- Static Resisting Rain Coats
- Electric All-Rubber Rain Coats
- Industrial Rubber Rain Coats
- Linemen's Rubber Boots
- Linemen's Rubber Hats
- Cotton Liner Gloves
- Marshall Tagging Device
- Elbow Length Sleeves
- Slotted Side Blankets
- All-Rubber Cable Bandages
- Blanket Canisters
- Blanket Clamp Pins
- Linemen's Sleeve Containers
- Cable End Test Caps and Separators

★ SEND FOR CATALOG L-4 ★

ELECTRICIAN'S INSULATING STOOLS

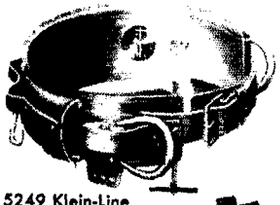
Designed to provide a safe, low platform for men with hazardous tasks in substations, underground vaults and power plants. Size 18" x 12" x 8" high. Guaranteed.

... he's safe and sure with

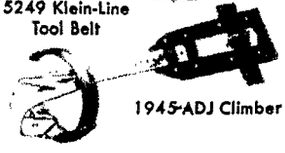
KLEINS

201-NE Plier

5233 Klein-Kord Safety Strap
Also Available in Nylon



5249 Klein-Line Tool Belt



1945-ADJ Climber

1628-3BH Klein Chicago Grip

"Since 1857"

If you've ever been up on a pole fifty feet off the ground—you *know* why the lineman prefers equipment bearing the familiar Klein trademark. For instance—

Klein Climbers take him up and down in safety—provide sure footing while he works.

Klein-Kord Safety Straps provide maximum safety on every job—the red center unmistakably signals when the strap should be replaced.

Klein-Line Tool Belts give the safety, comfort and convenience necessary for fast, efficient work.

Klein Pliers help linemen to do any wiring job better and quicker.

Yes, Kleins are the year-round favorites for safety and service—made by a company with a reputation for quality "Since 1857."

ASK YOUR SUPPLIER
Foreign Distributor:
International Standard Electric Corp., New York

If you have not received your copy of the Klein Pocket Tool Guide, write for one. It will be sent to you without obligation.

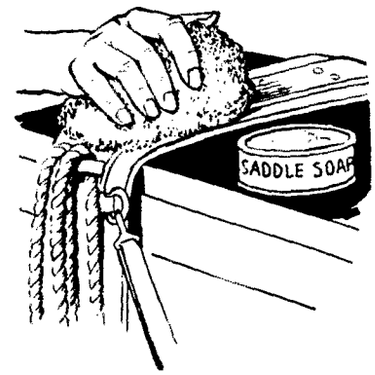
Mathias Established 1857 KLEIN & Sons Chicago, Ill., U.S.A.

3200 BELMONT AVE., CHICAGO 18, ILL.

has shown remarkable ability for absorbing impact force. It elongates with constant resistance up to five times the original length. However, after being subjected to severe strain it will not return to its original length and should not be used again.

Care of Belts

Dust should be brushed off carefully so as not to scratch the belt. A leather belt should then be washed with warm water and saddle soap or castile soap. It should be rinsed in



Regular cleaning and oiling prolongs the life of safety belts.

clean warm water and allowed to dry in room temperature.

Leather belts should be treated with neatsfoot, castor, soybean or a compound oil, to prevent drying out, not a mineral oil. Leather should never be exposed to excessive heat.

Webbing belts may be washed in soapy water, rinsed and dried by moderate heat. They are not damaged by any temperature up to the boiling point of water. The manufacturer of the belt should be consulted about the dressing.

Belts should be inspected before use by the employees wearing them. Every one to three months they should be carefully inspected by a trained individual.

Leather belts must be watched carefully for cuts or scratches on the skin side of the hide. A deep cut on the skin side warrants condemning the belt.

Fabric belts should not be used if the outer plies are cut or worn through. All belt hardware should be checked and replaced if it shows signs of wear. If the belt is riveted, each rivet should be examined separately.

Life lines should be washed with mild soap and water and dried in circulating air. They should not be exposed to high temperatures. Rope should be kept in open coils and never bent sharply.

Safety Clothing

—*From page 154*

sion and tearing. They stand up well under repeated laundering.

Aluminized duck and drill are used for garments where radiated heat is a problem.

Flameproofing for cotton garments is desirable in some occupations. Newer flameproofing materials are said to withstand repeated launderings.

Welder's Clothing

Protective clothing is as much a part of the arc welder's equipment as the helmet and goggles. Cotton shirts and dungarees worn in warm weather can be ignited quite easily. Garments of chrome-tanned leather may prevent serious burns.

Welders' leather garments include overalls, pants, chaps, aprons, jackets, sleeves, gloves, mittens and spats.

Garments should be of good quality leather, solidly constructed. Fastenings must prevent gaping and should be so designed that the wearer can get out of the garment quickly. There should be no turned-up cuffs or other projections to catch hot metal. Pockets should be equipped with flaps.

Industrial Health

—*From page 155*

Some 16 million industrial workers are now provided with health and welfare benefits of some sort, mostly through the usual insurance procedures. The major exception to the insurance procedures is the plan of the United Mine Workers of America, which pays physicians and hospitals directly for their services to the members, and the various union health centers which mostly provide diagnostic services for union members and, in some instances, for their dependents.

This committee report describes 12 of the centers and goes into considerable detail of their organization and operation. They include both CIO and AF of L unions and are located throughout the United States, although mostly in the east and middle west. The committee report is simply a classification of the plans according to history, membership, objectives, facilities, financing, budget and operating costs, administration, business and professional personnel, benefits and preventive medical aspects of the service. No attempt is made to evaluate the plans in any way at this time.

The International Ladies Garment Workers Union Health Centers has a number of branches throughout the country, of which six are included in this report. The only other one which has branches is the Sidney Hillman Centers in New York and Philadelphia. The others are the American Federation of Labor Medical Service Plan in Philadelphia, the Labor Health Institute in St. Louis, the Hotel Trades Health Center in New York and the United Auto Workers Health Institute in Detroit.

After the founding of the International Ladies Garment Workers Health Center in 1913, the next development was the United Automobile Workers Health Institute started in 1942. Half of the total plans were founded in 1950, 1951 and 1952.

The International Ladies Garment Workers Union Health Center was also unique in that it was originally financed entirely by the contributions of the union members. Employer contributions were brought in gradually by collective bargain-

THE SOLUTION TO AN OLD INDUSTRIAL PROBLEM

Contact Dermatitis

VEREX—a general purpose barrier cream widely used in both the office and the plant in the mechanical, textile, chemical, rubber and process industries—protecting the skin against coolants, dirt, grease, inks, cement, sulphur, dust, carbon black, etc. Protects against casual contact with poison ivy. Soothing to the skin. Washes off with soap and water.

CLEREX—a gel which protects the skin against organic solvents. Forms a continuous, strong elastic skin-adherent film which does not interfere with tactile sensation. The film is insoluble in all anhydrous organic solvents, such as the hydrocarbons (benzine, benzol, toluene, gasoline, varsol, turpentine, kerosene, solvent naphtha), the chlorinated hydrocarbons, nitriles, and the polymerizable monomers (styrene, acrylonitrile, and unsaturated esters for producing polyester resins). Used in making and using paints, varnishes, plastics, polyester resin—fiber-glass compositions, lacquers, inks, and in metal degreasing using trichlorethylene. Washes off with soap and water.

H-R CREAM is a modification of CLEREX (having a vanishing cream base) also used for solvent protection.

HYDREPEL-A is a protective cream which forms a film on the skin, protecting it against water solutions. A plasticized ethyl cellulose-castor oil composition in a vanishing cream base, it adheres to the skin in spite of washing with soap, detergents and water. It resists weak acids, alkalis, aldehydes and water solutions of salt and other water soluble compounds. It may stay on the skin for long periods if desired—without removal. Easily removable by an alcohol solution—HYDREPEL REMOVER.

HYDREPEL-S is a protective composition useful against more severe exposure than HYDREPEL-A. Here a plasticized ethyl cellulose-castor oil composition in a vanishing cream base is combined with a suitable silicone oil to reinforce its resistance to a variety of reagents. Because of greater cost, recommended only where HYDREPEL-A does not meet required exposure conditions. Easily removable with HYDREPEL REMOVER.

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Literature and Samples on request. Write Dept. N54-1.

IF YOUR EXPOSURE IS HIGHLY IRRITATING SOLVENTS

PLY No. 9 GEL

PROTECTS AGAINST DERMATITIS

It's a proven fact. Actual tests show Ply No. 9 Gel effective against chemicals causing dread Dermatitis.

This non-irritating gel, developed and thoroughly tested over a period of years under actual working hazards, is completely transparent, spreads easily and becomes invisible on the skin.

Ply No. 9 Gel contains the ingredient "Milbex" to prevent spotting or corroding of highly finished metals due to acid deposits from perspiration or any moisture caused by handling.

With Ply No. 9 Gel the worker no longer need fear the most commonly used acids, resins and solvents. Whatever the hazard, Milburn has developed a specific Ply Cream to combat it.

FREE! WRITE FOR THIS VALUABLE BOOK!

"The Answer to Industrial Dermatitis"

SPECIFY PLYGLOV FOR 10 TIMES THE WEAR

Plyglovs can reduce your work glove costs as much as 75% — will outwear up to 10 ordinary pairs. Plastic coated to protect hands from industrial liquids.

THE MILBURN CO.
DETROIT 7, MICH.
PLY
The Standard of Perfection in Protection

ing through the years. Most of the other centers are financed in whole or in large part by contributions from the employers. The Labor Health Institute of the United Auto Workers is now unique in that it is the only union health plan which receives no contributions from management.

In all of the centers, with the exception of the Labor Health Institute, the union membership is equivalent to health center membership. In the Labor Health Institute, eligibility includes both the workmen and their dependents, and their dependents are not yet covered by collective bargaining agreements. In this instance, the number of members enrolled represents only about half of those eligible.

Among the 12 union health centers studied, 317 union locals, of which 170 are in the Labor Health Institute, are represented and the members covered number 703,324. The number of members actually seen at a center during a year generally ranges between a third and a quarter of the members with the extreme range being between the International Ladies Garment Workers Union center in Minneapolis, which served nearly half of its members in 1952, and the United Automobile Workers Labor Health Institute which served only 22 per cent of its eligible members during a year.

The centers usually emphasize diagnostic services for ambulatory patients and some treatment in clinics for ambulatory patients. The Hotel Trades Health Center includes hospital services and the Labor Health Institute provides hospital service and some home care.

It is obvious from the buildings and equipment which have been put into these centers that an earnest attempt is being made to provide the most modern and complete facilities for good clinical service. The centers are generally well equipped and housed in space adequate to the number served.

The United Automobile Workers Health Institute is financed by a flat rate per member levied on the local unions, the rate decreasing as the distance of the local from the institute increases. This center has no year to year limitation on expenditures but the other union health center plans operate on a budget basis. This budget varies from one to five per cent of the total payroll of the locals involved. Some of the plans have a reserve fund and the others are generally planning one as soon as their initial indebtedness is paid off.

Four of the 12 centers studied have only union representatives on their boards of directors. The 8 remaining centers have both union and management represented on the boards of director and the Labor Health Institute is unique in that, in addition to management and union board members, it also has two public representatives on a 25 member board which elects a six member executive committee to operate the institute. Each of the centers has a medical director for medical administrations and most of them have business managers, either on a full or part time basis. On the average, one office worker is employed in the center for each 1200 members.

Most of the physicians are on a part time basis. The largest staff of full time physicians is at the New York International Ladies Garment Workers Union center which has 10. Few of the others have more than one full time medical practitioner in addition to the medical director. Payments to the physicians are usually a flat rate per hour, although several have graduated schedules of fees, depending upon the length of service at the center, and one has different rates for general practitioners and for specialists.

The primary objective of all of the centers is to provide a complete ambulatory diagnostic service. The completeness varies, of course, with the size of the center. A few of the centers provide some therapeutic care and some are planning or providing some hospital service.

Several of the centers operate their own pharmacies and prepare prescriptions at cost or at a reduced rate. All of the centers cooperate with the members' private physicians in sending them reports on tests or examinations and several have invited local physicians to use their diagnostic facilities. All of them are interested in preventive care, the method varying with the resources of the center. All the centers emphasize the importance of regular check-ups and one is experimenting with multiple screening and with a mobile unit for visiting the various plants.

So far the centers are usually on an insurance basis, but the Union Health Centers are gaining, primarily on the basis of the argument of the high cost of medical care and the exclusion of diagnostic services from most medical insurance policies. The centers concentrate on diagnosis, but expansion has in-

B R E C K

FOUR WAYS TO PROTECT SKIN FROM INDUSTRIAL DERMATITIS

BRECK pH7 PROTECTIVE CREAM protects the hands against irritants such as lubricating oils, cutting compounds, tar, greases, rubber dust, aromatic and hydrocarbon solvents, fiberglass, paint and iron dust. It forms a non-sticky, invisible film over the skin. Breck pH7 Protective Cream is easily applied. It is easily removed with Breck Hand Cleaner or soap and water.

BRECK WATER RESISTANT CREAM protects the skin against the action of water and water solutions such as liquid coolants, emulsified cutting oils, mist and spray from alkali baths and plating solutions, cement and lime. It covers the skin with a light, protective film which is not slippery or sticky. Breck Water Resistant Cream has a pH value of 8.

BRECK HAND CLEANER helps eliminate the use of harsh, gritty, highly alkaline or defatting hand cleaners. It does a thorough cleansing job, yet is mild and non-irritating to the skin.

BRECK WORK CREAM is used after exposure to degreasing materials and at the end of a day's work. It substitutes fatty materials for the natural skin oils which have been removed. In this way Breck Work Cream helps keep the hands smooth, pliable and lubricated.

A Breck Industrial Preparations Booklet will be forwarded to you upon request.

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cluded treatment in the home and possibly in the hospital and may go further in that direction.

One of the major problems at the moment for most of them is insufficient utilization, partly because of difficulty in visiting the center during working hours. Several of the centers are planning to permit or do permit the members' families to use the center in order to increase utilization.

A New Occupation in Wise Owl Club

Safety, like politics, makes strange bedfellows. The Wise Owl Club, industrial eye safety organization, has just enrolled its first rat poisoner.

Membership in the Wise Owl Club, sponsored by the National Society for the Prevention of Blindness, is open to workers who have actually saved their eyesight by having worn proper eye protection when otherwise blinding accidents took place. Most members qualify at drills, presses, lathes or other machines of movement.

Early this year, however, when Franklin Delano Rosa was removing prebait stations from a stone wall at the Lihue Plantations, Kauai, Territory of Hawaii, a stone loosened and he pitched forward, head foremost. The safety goggles he was wearing struck against a sharp protruding rock and saved him from what Koon Ye Ching, plantation director, says would certainly have been lost vision.

James E. O'Neil, director of industrial services for the National Society for the Prevention of Blindness, enrolled Rosa as the 5,123rd Wise Owl. Details concerning establishing a Wise Owl chapter may be obtained by writing Mr. O'Neil at the National Society's headquarters, 1790 Broadway, New York 19.

High Voltage Equipment

Special tools and protective equipment have been developed for linemen and generating station employees. Operating conditions vary but certain items are standard.

Tools used near energized equipment should be designed for the job and insulated to minimize the danger of short circuits in the equipment and shock to the operator. Insulation on tools alone, however, is not adequate protection near high voltages.

Items in common use include:

Linemen's rubber gloves
Leather protector gloves
Rubber line hose and blankets
Linemen's line hose and safety straps
Climbers
Rubber coats
Tool pouches
Tool buckets
Fuse pullers
Switch sticks
Insulated stools
Switchboard mats

Regular and thorough inspections should be provided for all protective equipment. Any article found defective should be replaced immediately.

Brooms, brushes and other cleaning equipment used around energized equipment should be free from metal. Insulating handles of tools should be kept clean and dry and only non-conducting preservatives used on them. Metal ladders should not be used in such locations.

In emergencies where areas are wet, wood platforms, insulated stools or rubber boots should be worn by maintenance workers.

See *Specifications for Rubber Protective Equipment for Electrical Workers*, ASA Series J6.

Help to Prevent Wasteful Absenteeism and Costly Compensation Claims

Guard Workers' Skin with

PRACTI-KREME

or

PHLO®

Packed in 8 and 16 fl. oz. jars and 1 and 6 gal. cans.

Packed in 8 and 16 fl. oz. jars and 1 gal. cans.

By keeping the skin clean, Practi-Kreme checks dermatitis before it starts. When applied before exposure it provides a flexible, fat-based coating over the skin; excludes paints, solvents, resins, dusts and other non-water based irritants. Then, moistened and rubbed to a lather after work, Practi-Kreme cleans soil out of deep pores, leaves nothing to irritate on the skin surface. Depend on PRACTI-KREME . . . an effective skin protector and cleaner for over fifteen years.

New Phlo, the neutral skin protector is now fortified with silicones. This cream is a mild protector rich in lanolin — pure white and smooth — for workers not requiring the double-duty cleansing action of Practi-Kreme. Phlo just as effectively bars bacteria, irritants and soil. Allows normal skin breathing, protects without clogging. And new Phlo partakes of the fine qualities of magic silicones: water-repellency, adhesiveness, non-toxic and non-sensitizing chemical inertness. Try it . . . you'll be convinced that new PHLO should be in daily use at your plant.

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Protect workers' hands—reduce time costs with Du Pont "PRO-TEK." This hand cream shields the skin against grease, grime, paint and insoluble cutting oils. It's easily rubbed on hands and arms by workers before starting the job. At wash-up time, "PRO-TEK" washes off quickly, cleanly with plain water—takes all the grime along. It saves job time . . . maintains production efficiency . . . and boosts morale.

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CADET LABORATORIES WORCESTER 5, MASS.

Gloves Solve "Burning Problem"

When things got too hot to handle at the Heintz Manufacturing Company's metal stamping plant in Philadelphia, they did what many another company has done when confronted with an accident problem—they called on a manufacturer for advice.

Heintz found that workmen were receiving minor burns through canvas work gloves while handling formed metal parts. While few burns were serious enough to cause lost time, they were reducing press shop efficiency.

Since canvas gloves were not providing adequate protection, Heintz tried asbestos gloves. They prevented burns but did not stand up under rough use.

Then Heintz called on a Philadelphia glove manufacturer, C. Walker Jones Company. They recommended a heavy duty type of hot mill glove. The material is a thick, twisted loop pile fabric, resembling turkish toweling, which owes its insulating qualities to thousands of tiny air cells.

Tests showed that gloves of this material would prevent burns in most of the operations. They also had a cushioning effect against rough and sharp objects. And with extra heat-resisting lining they offered good protection in operations where intense heat was generated.

It was also found that the twisted loop pile fabric gave far greater wear than asbestos. Although they cost twice as much as ordinary canvas gloves they wore four times as long.

Processing from 1,000 to 1,500 tons of steel per week, Heintz protects some 3,800 employees from hand, finger and forearm injuries. More than a dozen types of gloves are purchased, in addition to finger guards, hand pads, and arm guards. Each job analysis designates safety requirements for the job.

Heintz found that twisted pile fabric gloves can be reconditioned from three to six times. Reversible gloves, any two of which make a pair, offer economies in reconditioning since no time is wasted matching gloves. Reversible gloves also give longer service than single palm gloves.

In industries where hand protection is a problem, the practice of furnishing work gloves to employees without cost is growing. When employees buy their own the tendency is to buy the cheapest without regard to protection and durability.

Find Fatigue Cures

THERE ARE on-the-job cures for the tired feeling that sometimes comes at the end of the day's work. Industry is finding them with medical research and engineering know-how. Dr. Lucien Brouha of Du Pont's Haskell Laboratory recently told the conference of the Society for the Advancement of Management and the Management Division of the Society of Mechanical Engineers.

Research has made it possible to evaluate and classify many jobs according to fatigue potential and the physiologist can do this without cumbersome equipment. Increases in an individual's pulse rate and temperature following muscular exertion and the time it takes these reactions to start back toward normal levels can be relied upon to measure the amount of physical stress caused by work and the fatigue it induces.

When the plant physiologist starts to ferret out fatigue and its causes on a particular job, he records the pulse rate of workers at rest three times at one-minute intervals, immediately following the work period. He determines pulse increases caused by exertion and the rates at which the pulse returns toward "resting levels." Body temperatures are measured during the same four-minute rest period.

Whenever a change in job practices is made, heart rate and body temperature measurements can be used to determine whether the modifications have been effective in reducing stress of the work, Dr. Brouha observed.

Similar studies, which indicate physical aptitudes for certain kinds of work, have assisted in selection of employees. And it has been possible to evaluate the relation to fatigue of age and sex of the workers, their state of nutrition, and exposure to certain toxic chemicals.

"Failure to drink plenty of cool water in hot weather promotes fatigue and, moreover, a man's thirst is not a reliable indicator of how much water he needs," Dr. Brouha said.

Physiological tests have been used to determine amounts of water workers required to replenish body fluids lost through perspiration. Workers then have trained themselves to drink fixed amounts at regular intervals, much as a sick man with a fever "forces" liquids. Men working in hot areas who did not drink enough water have run temporary "fevers" of 100° F. and higher.

The procedure is repeated throughout the working shift. If average rise in pulse and temperature is found to be progressive or if recovery to "resting level" is too slow at any time during the shift, the physician knows that something about job activity or working conditions is causing employees to draw too heavily upon physical reserves.

On some jobs, fatigue has been reduced by lowering heat and humidity, by increasing ventilation and by evolving a schedule of rest periods adequately spaced and of sufficient duration. When high heat and humidity in the plant cannot be remedied, satisfactory physiological recovery cannot be achieved unless workers rest at regular intervals in an air-conditioned room where temperature and humidity are controlled at a comfortable level.

In other instances, studies of working stresses have determined where mechanization would be most efficient in reducing fatigue or the extent to which work crews should be increased. Sometimes the working position of the body is such as to tax muscles which do not produce mechanical work but merely help to maintain balance. In one case, fatigue was markedly reduced by building a platform so that employees could work at waist instead of shoulder height.

It was emphasized that it is not an easy task to redesign job methods and practices which will take fatigue out of work without costly disruption of production schedules. "It has to be done patiently," Dr. Brouha said, "by trial and error and with close collaboration of physiologist and industrial engineer."

Ready for Disaster

—*From page 6*

will uncover weakness in planning, coordination and communication. After each drill the coordinator can hold a meeting with key personnel to discuss weak spots.

In general, the functions of the plant protective services are:

1. To direct workers to safety.
2. To rescue trapped persons.
3. To render first aid.
4. Repair damaged water mains and utility lines.
5. Fight fires.
6. Maintain morale.
7. Prevent panic.
8. Maintain order and discipline.
9. Demolish unsafe structures.
10. Remove debris.
11. Perform necessary welfare duties.
12. Effect emergency restoration of plant so production may be resumed.

The head of each protective service in the plant is responsible for training workers in his organization. In planning a training schedule he should cooperate with municipal departments and with the local civil defense organization.

Because of the devastating effects of an atomic attack, it is advisable for an individual trained in one service to receive training in other services as well. A rescue worker, for example, might be able to put training in fire fighting to good use.

Teams of each protective service should be trained with teams of other services to assure coordination of activities. Training should be as realistic as possible. It should reproduce conditions likely to arise before, during and after an emergency.

The protective services should also engage in combined training exercises with the local civil defense organization. The plant's protection organization must be well integrated with that of the surrounding area to function at peak efficiency in an emergency.

The purpose of the program is to save lives and property and keep the wheels of production turning. There will be no running for the hills if bombs should start falling. People will have to take shelter where they work, and when the attack is over, they will come out, do whatever rescue work and fire fighting is necessary, clean up the mess and go back to work.

Hand and Arm Accident Facts

The 1952 total of disabling injuries, compensable and non-compensable, for fingers alone was estimated at 320,000. Data from eight state compensation commissions indicate the following relative frequency of injuries to fingers, arms and hands:

Finger injuries totalled 16 per cent of the cases, and were awarded 13 per cent of the compensation.

Arm injuries included 9 per cent of the cases, and 12 per cent of the compensation.

Hand injuries were 9 per cent of the cases, but received only 6 per cent of the compensation.

Injuries to fingers, hands and arms made up three-fifths of the compensated permanent disabilities according to reports from four state industrial commissions.

Handling objects, machine operation, and use of hand tools were the major sources of finger and hand injuries.

Modern Handling Methods

MATERIALS HANDLING has been defined as "the science and art of conveying, elevating, hauling, transporting and handling materials from one location to another."

Materials handling also includes storage and warehousing of materials while in process, in the finished state, and awaiting distribution.

Modern handling methods have been planned to tie in with production methods. To meet these needs, a great variety of handling devices has been developed. By taking the strain off human muscles and reducing exposure to hazardous processes, mechanical equipment has contributed much to improved safety conditions in industry.

Where large quantities of materials move in more or less continuous flow in fixed paths, conveyors, traveling cranes, railroads and elevators are used.

When goods move intermittently between many points in plant and yard without regard to fixed limits, mobile trucks of many types and tractors and trailers are employed.

Every plant needs portable types of equipment. In the smaller plant they may serve all handling needs. In the larger plant they are useful auxiliaries to fixed systems.

Basic equipment. This discussion will be concerned chiefly with portable equipment in common use, including:

1. Wheelbarrows
2. Hand trucks
3. Hand lift trucks
4. Powered hand trucks
5. Industrial power trucks
6. Hoists
7. Cranes
8. Conveyors
9. Slings and accessories—wire rope, fiber rope, and chain
10. Miscellaneous equipment — Skids, pallets, steel strapping, grabs, tote boxes, bridge plates, dollies, etc.

Load-Bearing Parts

Wire rope, chain and fiber rope are important wherever loads are lifted or hauled. These products are built to meet exacting specifications and their capacities are listed according to size, material and type of construction.

Slings made of these materials, and their accessories, such as hooks, rings, etc., can be obtained from manufacturers planned to meet the needs of every hoisting job.

These parts are subjected regularly to heavy loads, sometimes overloads. They should be selected for the needs of the job and kept serviceable by regular inspection and maintenance.

—To page 179

Palletized loads are easily handled with fork trucks. Packages are securely tied with steel strapping. Note fire doors. (American Wheelabrator Co.)

On Cranes of All Types, The

Tuffy Team

Will Run Longer!

Now, there is no need to monkey with a lot of different rope constructions trying to find a hoist line and sling combination that will give you the most service. This pair of special purpose constructions will handle your crane work as it never was handled before.

Oldest of this tough work-team is Tuffy Slings. From the very start they set new standards of service life throughout industry—continue to set records in keeping sling cost down and the safety record clear. The reason? An entirely new patented 9-part machine braided wire fabric construction so flexible you cannot materially damage the fabric when kinking and knotting, and so tough that users asked for a hoist line to match in wearability.

Newest of the hoisting team is Tuffy Hoist Line. It's a new rope construction, specially designed for the special purpose of hoisting on any and all cranes. Designed into it is flexibility, wearability and extra toughness to absorb load shocks. Taken out of it is every undesirable feature which many months of laboratory research and testing and many more months of field testing uncovered in other rope constructions used for hoist lines.

Just length, diameter and "Tuffy Hoist Line" is all you need to say! No complicated specifications, no chance for confusion! Get *extra* hoisting service at no extra cost with Tuffy Hoist Line!

Tuffy SLINGS

48-Page Handbook and Riggers' Manual, sent to you on request! Write today for handbook and complete information on Tuffy Hoist Line.

Be Sure...Be Firm
Tell Your Distributor Tuffy Hoist Line...
and the diameter and length—that's all he needs to know! For slings, specify Tuffy, sling type, diameter, length and fittings. Or buy Tuffy Braided Wire Fabric on the reel if you do your own rigging. Remember, your distributor can *always* supply the Tuffy you need!

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Specialists in High Carbon Wire, Wire Rope and Braided Wire Fabric

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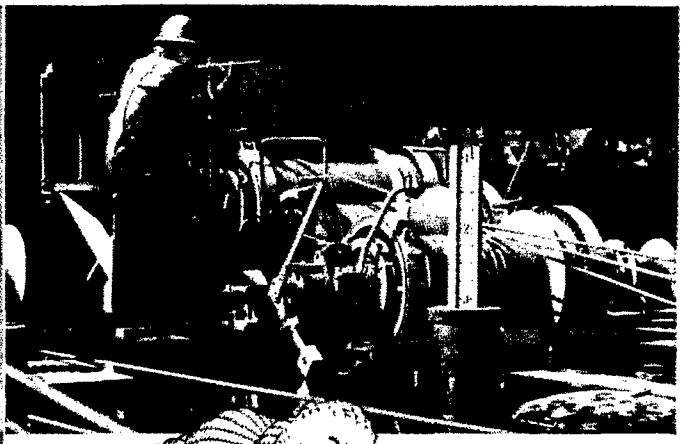
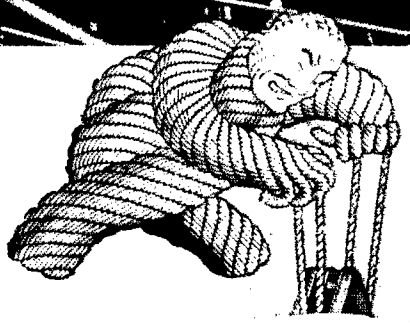




A NEW

Tuffy®

HOIST LINE

Designed to Out-perform Any Rope Construction You've Ever Used For Crane Hoisting!

No doubt you've used several different rope constructions on different crane hoisting operations. Now, there is an entirely new construction for crane hoisting purposes which gets you out of complicated specifications in ordering and enables you to keep your reserve rope stock down to the very minimum.

Tuffy Hoist Line is now on the market because no other rope construction could stand up to it through many months of testing in the unmatched Union Wire Rope laboratory. More months of field testing, under tough operating conditions, proved to machine operators the superiority of Tuffy Hoist Line over the best rope constructions they had ever used for Crane Hoisting.

That is the best way for you, too, to see how much longer Tuffy Hoist Line will run on your clamshells, derricks and cranes. All your distributor needs besides the name *Tuffy* is the diameter and length.

Tuffy DOZER ROPE

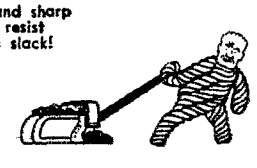
Increase your dozer rope service by mounting a 150' reel of Tuffy on your dozer. Feed through only enough to replace section damaged on the drum. Available in ½" and 9/16".

Tuffy SCRAPER ROPE

Flexible enough to withstand sharp bends . . . stiff enough to resist looping and kinking when slack!

Tuffy DRAGLINES

Maximum abrasive resistance, extra flexibility! Rides better on grooves, hugs drum when casting!



Braided Slings easily handle 186-ton forging

This would be called a big lift by any yardstick, since the rough forging shown in the photo weighed 372,000 lb—186 tons. It was over 26 ft long. Its bulk and dimensions combined to make the handling job a real problem, one that was solved by using Bethlehem braided slings.

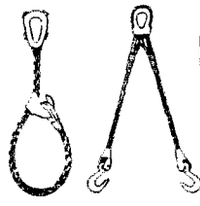
The slings were among the largest ever produced by the Bethlehem shops. Needless to say, they were made with the utmost care. This, however, is typical of all the slings that Bethlehem manufactures, whether they're small, or tremendously big ones like those in the picture.

Very few lifts are the same in all details, but there's always a Bethlehem sling for the job, whatever the lift involves. Call us for slings of any classification—grommet, braided, single-part, bridle, or special—and we can supply them tailored exactly to your needs.

And don't forget, if there are some lifting jobs requiring study in your particular layout, Bethlehem will gladly help you work them out—right in your plant where the problem exists. Feel perfectly free to consult with our engineers, who are especially well qualified to serve you in matters involving slings.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation



BETHLEHEM WIRE ROPE SLINGS

MAKE THE TOUGH LIFTS EASY

BETHLEHEM STEEL

Industrial Trucks and Tractors

WHEELED VEHICLES of many kinds, both hand and power operated, keep goods moving in factories, warehouses, docks and railroad terminals. There are types for every hauling or lifting job.

Wheelbarrows are useful for hauling and dumping bulk materials. They can be used where a two- or four-wheeled vehicle could not be maneuvered. Bodies of aluminum and magnesium alloys and rubber tires have made them lighter and easier to handle.

Hand trucks. The two-wheeler, designed for handling bags, drums, barrels, cartons, beverage cases, etc., comes in a variety of sizes and types. It can be equipped with brakes.

Hand platform trucks are available in several designs with capacities for 150 to 2,000 pounds. They are usually designed to be pushed by one of the end racks. They are suitable for short hauls.

Hand lift trucks. The load, supported on platforms or skids, is raised enough for horizontal movement and pulled by hand power. These are useful where loads are relatively light and distances short.

Power Trucks

Power units for moving materials are operated by gasoline engine or storage battery. The type of truck used should comply with fire protection regulations for the location.

Powered hand truck. Similar to hand lift truck. Power for operation is supplied by storage battery. A motor mounted on the forward wheels supplies power for hauling. The truck is controlled by a walking operator.

Platform truck. Used for hauling baggage, mail, and packages of railroad stations and steamship piers. In industry it hauls tote boxes and miscellaneous materials. Loading is by hand.

Low-lift platform truck. Platform elevates just enough for horizontal movement. It picks up loaded skids, moves and sets them down in other locations without manual handling or use of other handling equipment.

High-lift truck. A load-carrying truck, with lifting mechanism designed to permit tiering one load upon another. Brakes give operator control of lifting device and platform at all elevations.

Fork truck. A cantilever type self-loading truck with vertical uprights and elevating mechanism. Forks require less clearance than platforms and may be used with shallow pallets as well as skids. Double-faced pallets afford wider load distribution, which is an advantage in tiering.

Canopy guards. Where fork truck operators are exposed to danger from falling objects, the truck is required by code to be equipped with a canopy guard, strong enough to support a capacity load and have no opening larger than the smallest package carried.

Powered hand truck controlled by walking operator. Power for hauling is supplied by storage battery. (Barrett-Craven Co.)

Scoop trucks shovel loose materials and elevate and dump them into hoppers or bins.

Ram trucks handle wire and strip metal in large coils. Roll-handling trucks for handling newsprint or other paper are equipped with a cable drum with two cables. Hooks on the cables hook over the ends of a rod which serves as an axle for the roll.

Crane trucks equipped with boom, cable and drum, with special lifting hooks, spreaders and slings are used for moving heavy unit loads and objects too large to be handled on truck platforms or forks.

Portable elevators (tiering machines or stackers). The portable elevator consists of an upright frame to which is mounted a platform that can be raised or lowered. It is moved from place to place manually. The hoisting mechanism can be either manually or power operated.

Portable elevators are used in warehouses for piling and storing materials. They should be equipped with a braking device to permit the safe lowering of the platform and a ratchet lock or dog should be provided to lock the platform in position during loading and unloading.

Safeguards include limit stops for top and bottom travel limits on the hoisting cable drum, as well as for the shipper rope, if one is provided. When in use, casters should be lifted off the floor.

Tractors and trailers are used where large quantities of materials must be moved over relatively long distances, as at freight terminals and piers. Loading and unloading is done manually or by crane or other external means.

Power Truck Operation

Which end of an industrial power truck is the front? Which is the rear? This has been a frequent point of disagreement among manufacturers and users.

Most manufacturers prefer to call the platform part of the truck the front, and many users follow the same practice. Points in favor of this method of operation are:

1. The operator is facing his controls and can act quickly in an emergency.
2. He can watch the load on the platform better in negotiating narrow passageways and aisles.
3. He has a better chance of escape in case anything goes wrong.

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Wire Rope

WIRE ROPE provides high tensile strength and moderate flexibility for heavy lifting and haulage and for supporting rigging. It is serviceable under varying weather conditions but it should not be exposed to excessive heat or corrosive substances nor dragged over abrasive surfaces.

In selecting wire rope, the following should be considered:

1. Size
2. Construction
3. Grade
4. Equipment on which rope is to operate
5. Handling, installation and maintenance of rope.

Constructions

Wire rope is manufactured in a variety of constructions, each designed for certain service conditions.

In designating construction, the first numeral identifies the number of strands in the rope, the second, the number of wires in each strand. This is followed by a term describing the geometric arrangement of wires in each strand, e.g., 6 x 19 Filler Wire.

The 6 x 19 construction is the most generally useful. As the number of wires per strand increases, flexibility and reserve strength increase but ability to withstand abrasion decreases. A 6 x 7 construction has higher resistance to abrasion but less flexibility.

The core serves as a foundation for the strands. Three types of cores are used: (1) fiber; (2) independent wire rope, and (3) wire strand. Fiber gives elasticity to the rope and is adequate for normal operating conditions.

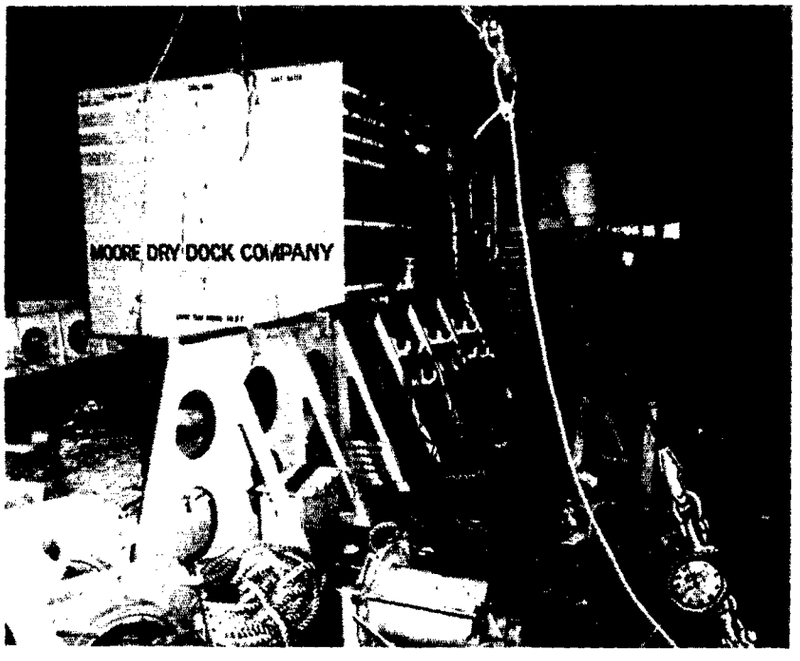
Metal cores are used where maximum strength and minimum stretch are important, or where heavy loads or overwinding on a drum causes excessive pressure of strands against the core, or temperature is sufficient to dry out a fiber core.

Type of Lay. There are two general methods of laying up rope: (1) Regular lay in which the wires in the strands are laid in the opposite direction to that of the strands in the rope, so that on the outside of the rope the wires lay approximately parallel to the rope axis; (2) Lang lay rope, in which the wires and strands are laid in the same direction.

Regular lay rope is standard for most applications. It is easier to handle during installation and less susceptible to kinking.

Lang lay rope has good flexibility and high resistance to abrasion and fatigue.

Wire rope is made either right or left lay. In most cases it makes little or no difference which type is used. Right lay is standard.



Dynamometer for proof-testing hoisting equipment. (W. C. Dillon & Co.)

Rope Grades

Rope wires are usually made of the following materials and designated by their names. (Minimum tensile strengths are quoted from Federal Specifications RR-571 a.)

Improved plow steel. Has higher strength and toughness and more wear resistant properties. Most frequently selected for heavy duty service, as in deep shafts and on excavating machinery. Minimum tensile strengths, 218,000-244,000 p.s.i.

Plow Steel. Strength about 15 percent less than improved plow steel. Serviceable for haulage, hoisting, logging and miscellaneous service. Minimum tensile strengths, 190,000-212,000 p.s.i.

Mild Plow Steel. Combines toughness with pliability, making it capable of undergoing repeated impact stresses. Used principally for cable tool drilling. Minimum tensile strengths, 165,000-184,000 p.s.i.

Cast Steel. Where strength is not the controlling factor, its pliability is important in long fatigue life. Resistant to acid mine water. (Not listed in Federal Specifications.)

Traction Steel. Used in hoisting ropes for traction type elevators. High resistance to bending fatigue and minimum abrasive action on sheaves and drums. Minimum tensile strength, about 160,000 p.s.i.

Iron. Low tensile strength (about 70,000 p.s.i.) but very ductile. It has been used principally in elevator service where it is being replaced by traction steel.

Corrosion-resisting metals. Where corrosion is a factor, stainless steel, bronze and monel metal are frequently used. All-metal ropes are preferred to fiber core ropes.

Stainless steel is used in marine operations on aircraft, and where rope is exposed to alkali, acids of an oxidizing nature (such as nitric), neutral brine, food products, and temperatures damaging to carbon steel ropes.

Bronze has strength slightly in excess of iron rope. It is used frequently in marine service.

Monel metal is used where rope is exposed to marine atmospheres, acids of a reducing nature (such as sulfuric, muriatic and hydrofluoric), neutral brines, food products, pickling solutions, and aromatic chemicals.

Corrosion-resisting ropes are furnished in complete assemblies and slings with fittings attached. Temperature, humidity, nature and con-

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Load-Bearing Chain

STRENGTH and flexibility, resistance to abrasion, heat, shock, wear and corrosion are qualities which make chain suitable for heavy hoisting and haulage jobs. It should be remembered, however, that not all types of chain meet the requirements of specific jobs.

Conditions under which chain will operate should be considered in selecting types. Impact loading factors should be considered and allowance made for bumpy craneways, rapid lifts and sudden stops. Heat, corrosive atmosphere, and unnatural strains also affect the selection.

Specifications for various types of chain have been compiled by the American Society for Testing Materials. The safe load may be determined from tables issued by the manufacturer.

Safe working load means the maximum load which should be applied to a chain in direct tension.

Breaking loads are merely of theoretical interest. They are misleading to the user and apt to promote unsafe practices.

Proof test means the actual test in pounds applied to the chain and attachments before leaving the factory. Proof test figures should not be considered as safe working loads. These tests are followed by visual link-by-link inspection by experienced inspectors.

Types of Chain

Conditions of use are important and the manufacturer should be consulted about applications for the various types.

Following are types commonly used in industrial operations:

Wrought iron chain (crane or dredge) has high resistance to shock fatigue and corrosion. This chain has close links and is used for slings, hoists, cranes, power shovels, and marine purposes where human life and property depend on its endurance.

Welded steel chain (low carbon) is made in three common types: Proof Coil, BBB, and Steel Loading.

Proof Coil is used principally for towing, binding, logging and similar operations. Links are comparatively long. Proof coil chain is not suitable for lifting or for slings.

BBB Coil is a higher grade than proof coil, with safe working load approximately 25 per cent greater. Shorter links give greater flexibility. BBB coil chain is not suitable for lifting or for slings.

Steel loading chain has a tensile strength approximately 50 per cent higher than BBB. It is used in the logging industry for binding and loading logs and in oil fields for handling pipe and heavy equipment.

High test chain (high carbon) is heat-treated to give it high tensile strength and resistance to impact loads. Tensile strength is approximately double that of ordinary steel chain. Ductility is moderate. Where resistance to wear is most important, it permits use of smaller and lighter chain.

Alloy steel chain (general purpose) has exceptional strength for weight and size. It is resistant to some types of corrosion. It is frequently used where maximum tensile strength and resistance to abrasion is required, with reasonable resistance to impact.

Special purpose alloy chain is considerably higher in cost and is used on high temperature operations and where resistance to the action of corrosive substances is required.

Stainless steel is high in tensile strength, fair in elongation, but low in impact resistance. It is used chiefly for ornamental installations and nitric acid pickling.

Monel has fair tensile and impact strength and elongation. It is resistant to sulphuric and hydrochloric acid solutions but not to nitric.

Bronze has good elongation and fair resistance to impact, but low tensile strength. It is resistant to sulphuric and hydrochloric acid solutions but not to nitric.

Specialized types of chains have been developed for certain industries, such as those used in marine operations.

Finishes are sometimes added to chains to provide added protection from corrosion or for decorative effect.

Nickel alloy steel hoisting chain is approximately twice as strong as iron chain of the same size. It meets ASTM elongation requirements for iron crane and proof coil chain. It can be used over a wider range of temperature and is relatively immune to failure resulting from fatigue stresses and cold working of the metal.

Impact resistance in heat-treated alloy steel chains does not increase in proportion to the strength of the chain. Under full working load they will fail under impact before a fully loaded wrought iron or heat-treated carbon chain will fail.

Because of wear and impact factors, some chain manufacturers recommend that link size of sling chains should not be greatly reduced when using alloy steel chains of high strength as compared with wrought iron chain. Longer life and increased factor of safety justify increased cost.

Storage. When not in use, each chain should be hung on a rack or placed in a neat pile on a dry floor or platform where it will not create a tripping hazard. Exposure to corrosive fumes or liquids should be avoided.

Safe Loads. Some plants stamp on a metal tag attached to each chain the safe vertical load which may be lifted with that chain. A better way is to stamp the safe load, or a reference number, on the ring or hook. Stamp marks should not be placed on links where they might form points of weakness.

The useful life of all material handling equipment, particularly rope and chain, is shortened by overloading, jerking, and neglect of the maintenance details recommended by the manufacturer.

Chain Slings

Chain slings are furnished complete with all attachments made to proper dimensions and of material specified for various uses with ample factor of safety.

Rings and hooks are as important as the chain itself and should receive the same attention in inspection and maintenance.

A hook bent by overloading should not be repaired and put back into service. The stress of bending weakens metal so that its future strength is unreliable.

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Safer Lifts—S. N. Morrison, Nov. 1950, p. 34.

Crossover Bridges

Where loading docks are separated by railroad tracks, crossover bridges are needed. Some are of the drawbridge type; others are mounted on four pillars that can be raised or lowered quickly by push-button control.

Fiber Rope

FIBER ROPE is widely used for block and tackle work, for suspending scaffolds and staging, in marine operations, and for life lines and lanyards. It can be tied and spliced easily and its flexibility adapts it to many uses.

The best fibers have good tensile strength and resistance to weather and abrasion. For heavy loads, wire rope furnishes the required strength with less bulk.

Fiber rope should never be exposed to high temperatures or to acid splashes or fumes. Sharp bends should be avoided. Where a sling passes over sharp edges pads should be used to protect the rope.

Rope should not be kept in stock for long periods. Vegetable fiber deteriorates with age, even under favorable conditions. When rope is used only at long intervals, age should be considered in its use and retirement.

Natural Fibers

Manila fiber is standard for tensile strength and durability. A good grade of manila rope, when new and clean, is hard but pliant, yellowish in color with a silvery pearl luster. When drawn through the hands, it has a smooth, almost silky feel.

Sisal is the next best fiber. Strength varies from 65 to 80 per cent of manila. Sisal rope has a yellowish color, with sometimes a slight greenish tinge. It lacks the gloss and smoothness of good manila. Sisal fibers are stiff with a tendency to splinter.

Mexican sisalana (henequin) lacks the strength of high quality sisal but has been used to some extent during the shortage of better grades of rope. Strength is about 60 per cent of manila.

American hemp fiber is much softer than manila. It has a dark gray color. It is not highly resistant to abrasion but when tarred it will give fair service on some jobs. Strength is about 80 per cent of manila.

Jute and cotton are not recommended for handling material or other uses where strength and durability are needed. Strength about 50 per cent of manila.

Synthetic Fibers

Ropes of synthetic fibers are coming into wider use. They are more expensive than natural fibers, which restricts their use.

Nylon has a high rating for tensile strength, toughness, flexibility and durability. It is easy to handle.

Nylon rope has a higher tensile strength, wet or dry, than natural fibers and does not show marked deterioration when frozen. Melts at 480 degrees F., it can be readily destroyed by fire but it does not ignite and burn with flame. It is resistant to rot, mildew and alkalies but is damaged by acids.

Unolyn has shown desirable qualities for life lines. It has unusual ability to absorb impact force but does not return to its original length after being subjected to severe strain. It is not suitable for hoisting or haulage.

Glass fiber. High strength when dry but low resistance to flexing and abrasion. Poor performance when wet reported.

Saran. Resistant to rot and many chemicals. Practically unaffected by aging, direct sunlight and moisture. Only moderate resistance to abrasion and temperature.

Care of Rope

Rope loaded over 75 per cent of its breaking strength will be permanently injured. Such damage can be detected by examination of inside threads which will be broken in proportion to the overload.

Kinking is highly destructive to rope. It may cause hidden damage that will result in failure when the rope is again put under strain. Kinking is more likely to occur when rope is wet.

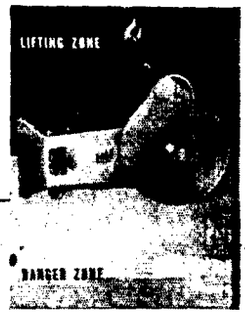
New ropes should be uncoiled by laying the coil on the floor with inside end down; then reach down through the center of the coil and pull this end up, unwinding the coil counter-clockwise. If the rope uncoils in the wrong direction, the coil should be turned over and the end pulled out on the other side.

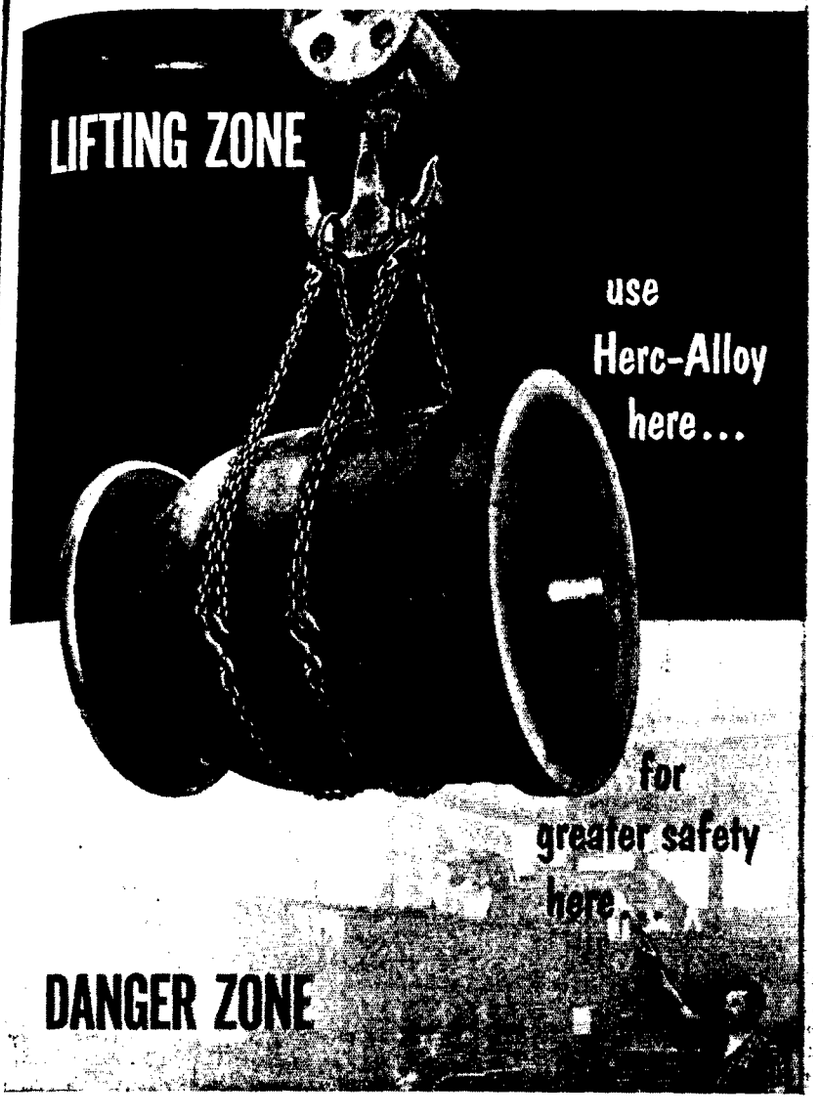
Sometimes ropes become kinked after use. One method of removing these kinks is to open up the coil and recoil left-handedly. When the coil is completed, the free end is brought through the coil and the rope is then coiled right-handedly.

Uncoiling the rope and stretching it out in a single length is another

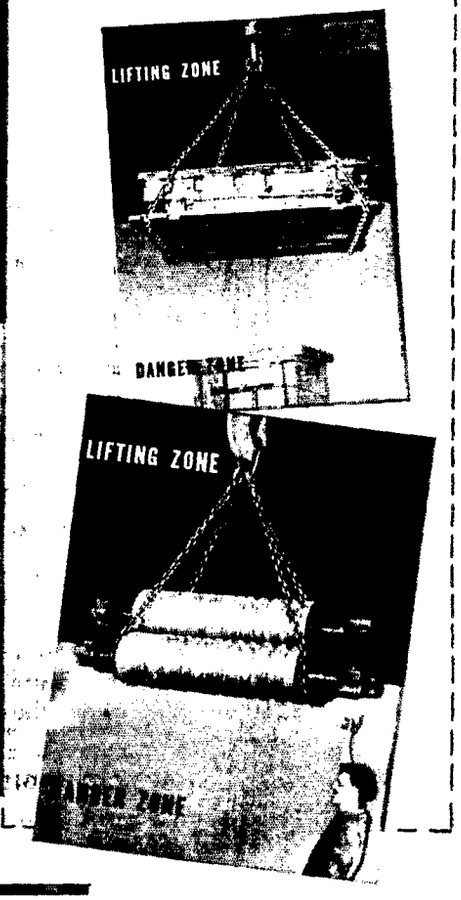
—To page 176

In plant after plant HERC-ALLOY Sling Chains ...in the Lifting Zone





give extra protection to men and materials in the Danger Zone



For Maximum Safety in your plant...

SPECIFY HERC-ALLOY SLING CHAINS

HERC-ALLOY ...is the original alloy steel chain

In addition to an extra margin of safety, the special analysis heat treated alloy steel in Herc-Alloy Sling Chains offers two secondary advantages: One is lighter weight that reduces worker fatigue. The other is a longer life that reduces chain costs. A trial of Herc-Alloy Sling Chains in your plant will demonstrate these benefits to your complete satisfaction.

Write for Data Book

CM HOISTS AND CHAIN

COLUMBUS McKINNON CHAIN CORPORATION

TONAWANDA, NEW YORK
DISTRICT OFFICES: NEW YORK, CHICAGO, CLEVELAND
In Canada: McKINNON COLUMBUS CHAIN LIMITED, ST. CATHARINES, ONTARIO

ACCO Registered* WIRE ROPE SLINGS

A STANDARD OF QUALITY

●"ACCO *Registered*" is the registered trademark applied by American Chain and Cable Company to slings of the highest grade, but it is more than just a trademark.

"ACCO *Registered*" is a definite specification of quality in both material and design.

To be "ACCO *Registered*," a wire rope sling must meet the following specifications:

1. **It must be made from high strength "Green Strand" wire rope.**
2. **All parts of the finished sling must have a breaking strength equal to the catalog strength of the sling body.**
3. **All fittings and attachments must withstand a proof-test equal to at least two times the rated capacity without permanent distortion.**
4. **Actual field service tests of each design.**

As evidence of compliance with these requirements each sling is given a metal identification tag and is accompanied by a Certificate of Proof Test and Registry.

What does ACCO REGISTRY mean to you?

It means that you can equip your shop with "lifting tools" and be confident that their designs and materials are specifically selected for the highest efficiency by trained engineers who spend all their time on slings.

It means that you can be sure that your men, materials, and machines are given the highest protection against injury during lifting operations.

Where can you get ACCO REGISTERED SLINGS?

To make ACCO *Registered* Slings immediately available for your requirements, American Chain and Cable Company, Inc. has appointed one of the best industrial supply houses in your community as an ACCO *Registered* Sling distributor. Selection for such appointment is made on the basis of the distributor's desire to serve you, his grasp of your problems, and his willingness to maintain in his stock sizes and types of slings you need.

See your ACCO *Registered* Distributor or write to us for literature and his name.

*Trademark Registered

ACCO TRADE MARK

Wire Rope Sling Department
AMERICAN CHAIN & CABLE

Wilkes-Barre, Pa., Chicago, Denver, Houston, Los Angeles, New York, Odessa, Tex., Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.

Fiber Rope

—*From page 174*

method of unkinking where space permits.

Rope should be stored in a dry place where it will not be exposed to high temperature and where air may circulate through the coils.

Rope deteriorates very quickly if it becomes saturated with water and is not properly dried. Alternate wetting and drying will also cause rapid deterioration.

When lengths of rope must be joined, they should be spliced, not knotted. A well-made long splice will retain up to 90 per cent of the strength of the rope; a knot only 50 per cent.

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Inside That Coil of Rope—A. R. Hatch Feb. 1948, p. 38.

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Handbook of Rigging—W. E. Rossnagel McGraw Hill.

Manila Rope—Federal Specifications TR 601.

Wire Rope

—*From page 172*

centration of corroding chemicals should be considered in selecting equipment.

Wire Rope Slings

Wire rope slings are widely used for heavy lifting. Wire rope should not be used, however, where there are sharp bends over an unyielding surface. Tension of outside strands may cause serious injury to the rope.

Where a load has sharp corners, pads should be placed between the load and the sling.

The maximum load can be lifted when all legs of the sling are in a vertical position. The smaller the angle formed between the legs of the sling and the horizontal, the greater the tension on the legs and the less weight which can be lifted.

Proper selection and attachment of fittings have much to do with rope life and safety. Principal connections and attachments are:

Babbitt or zinc socketed connections
Wedge sockets
Swedged attachments
Thimble with clip connections
Three-bolt clamp connection
Spliced eye and thimble connection

When slings are to be used for special purposes the advice of the manufacturer should be obtained.

Preformed Wire Rope

A preformed wire rope is one in which each individual strand, and at the same time each individual wire,

is permanently formed into the helical shape it will assume in the finished rope. Some advantages of preformed rope are:

1. Higher resistance to bending fatigue.
2. Greater flexibility.
3. Less susceptible to kinking and therefore easier to install.
4. More equal distribution of load on each strand and wire.
5. More resistant to whipping and vibration.
6. Hugs small drums better and winds more uniformly and smoothly.
7. Operates over sheaves with less rotation around its axis, with less wear on rope and sheaves.
8. May be socketed with less danger of unbalancing the lay of the rope below the base of the socket.
9. Does not unravel when seizings are removed from ends of rope.
10. When outer wires break through fatigue, they do not protrude or "porcupine." This reduces risk of injury in handling.

Since broken wires are less conspicuous in preformed rope, greater care is needed in inspection. However, broken ends separate slightly, permitting detection.

Strength and other qualities are the same for preformed and nonpreformed rope of the same size, grade and construction.

Causes of Failure

When wire rope fails to give the expected service, the reason is seldom a defect in the construction of the rope. Following are some of the more common causes:

1. Use of rope of incorrect size, construction or grade.
2. Allowing rope to drag over obstacles.
3. Lack of proper lubrication.
4. Sheaves and drums of inadequate size, causing short radius bends.
5. Overwinding or crosswinding on drums.
6. Sheaves and drums defective or out of alignment.
7. Ropes jumping sheave flanges.
8. Effects of heat, moisture, or acid fumes.
9. Improper fittings.
10. Permitting ropes to untwist.
11. Kinking.
12. Severe overloads, reverse bends, and other excessive stresses.
13. Internal wear caused by grit penetrating between strands and wires.

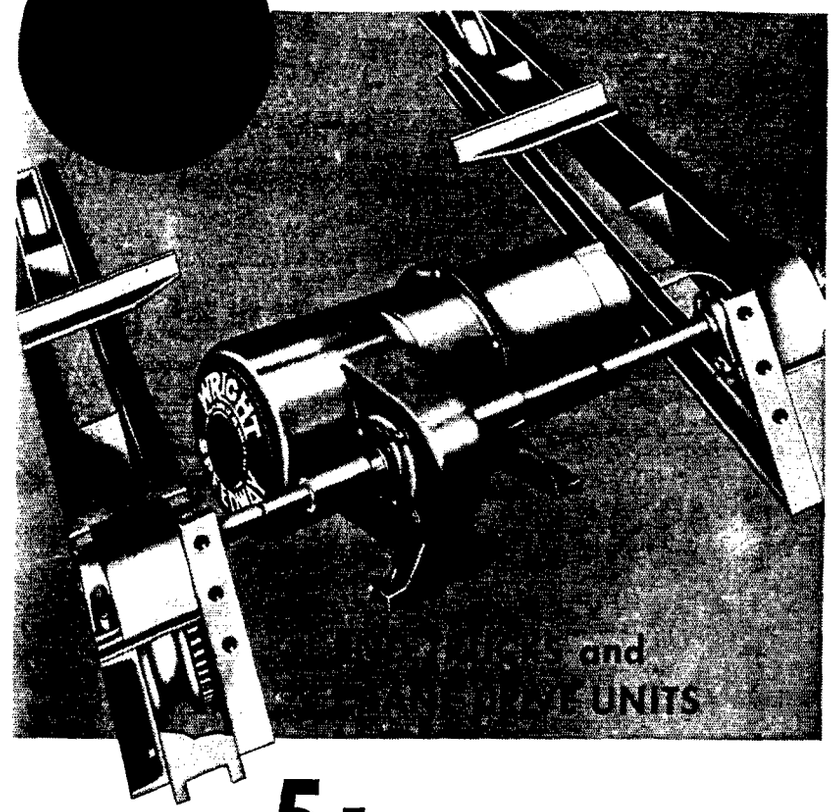
How to Order

When ordering wire rope, the following information should be furnished:

1. Length.
2. Diameter.

—*To page 178*

WRIGHT HOISTS



5 Features that Reduce Service Costs

• Here is a crane drive unit made for indoor or outdoor service. It can be furnished with single-speed fluid drive control or variable speed control. Horsepower ratings from ½ to 5. Numerous output shaft speeds.

MAINTENANCE-SAVER FEATURES

1 Motor • Squirrel cage or slip ring, fully enclosed with sealed ball bearings. Designed for crane service. Easily removed end bell permits quick servicing of motor.

2 Speed Reducer • Heat-treated alloy steel gears. Ball bearing gear shafts. Sealed oil-bath housing has fill and drain plugs which permit mounting in any of three positions. Sleeve couplings permit close-quarter mounting.

3 Control by pendant push button station. On single speed motors: Magnetic reversing type controller, interlocked to prevent short-circuiting. On variable speed motors: Controller provides gradual acceleration or deceleration with 5 speeds in either direction.

4 Brake • Contracting shoe-type "drag" brake. Accessible, easily adjusted. Solenoid released. Has wide torque limits.

5 End Trucks • Heavy structural steel welded construction. Double flange chilled tread crane wheels. Rail sweeps provided.

When you buy a hoist, remember—
PURCHASE PRICE + MAINTENANCE = TOTAL COST
See your WRIGHT *Distributor today or write us for literature and prices*

ACCO

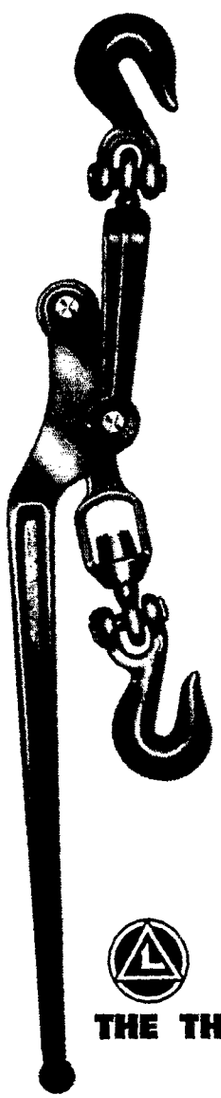
Wright Hoist Division
AMERICAN CHAIN & CABLE

TRADE MARK

York, Pa., Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.

There's never been anything like

LAUGHLIN'S Load Binder



BRAND NEW
new design, new economy, new convenience.

MORE USEFUL
one binder does the work of two.

GREATER SAFETY
drop forged strength plus non-slip locking.

HERE'S THE STORY:

The new LAUGHLIN LOADBINDER is a sturdy, drop forged, heat treated steel unit available in two sizes, each of which can use four different hook sizes. You buy only one handle assembly, attach two Laughlin clevis grab hooks to fit your chain. Change hooks in a jiffy with pliers or screwdriver.

Stronger, too, because swivel tongue swings on end of slotted jaw, won't spread under strain. Safe, because a positive cam lock action keeps it shut.

#1 Binder: U.T.S. 22,000 Lbs. Hook sizes: ¼", 5/16", 3/8", 7/16" | **#2 Binder:** U.T.S. 32,000 Lbs. Hook sizes: 3/8", 7/16", ½", 5/8"

Laughlin Clevis Grab Hooks are stocked by leading Industrial Supply, Wholesale Hardware, Oil Field, and other Distributors. Ask your distributor for information about the new loadbinder, or write for 4-page folder. It has complete description, specifications and users' comments. For a complete listing of 1500 types and sizes of Laughlin wire rope and chain fittings, ask also for our Catalog 155.

THE THOMAS LAUGHLIN COMPANY
33 Fort Street, Portland, Maine

Wire Rope

—*From page 177*

3. Construction—Number of strands; Number of wires per strand; Arrangement of wires in strand, such as Seale, Filler Wire, etc.

4. Type of Fabrication—If preformed rope is desired, it should be specified. Otherwise, non-preformed rope will be furnished.

5. Finish—Galvanized finish should be specified if required. Otherwise bright rope is usually furnished.

6. Grade—Improved plow steel, Plow Steel, Iron, etc.

7. Lay—Regular Lay Right Lay to be furnished unless otherwise specified. Lang Lay or Left Lay is furnished on request.

8. Core—Specify fiber core, independent wire rope core, or wire strand core.

9. Lubrication—Type of lubricant should not be specified unless there are unusual service requirements. Each construction and grade of rope is treated with a lubricant adapted to that particular rope for a wide range of service conditions.

10. Use for which rope is intended.

Wire Rope Lubrication

All wire rope should be treated at regular intervals with a lubricant to keep it pliable and to prevent rust. Pound for pound, wire rope probably has more bearing surface (inside the rope) than any other equipment, so the importance of lubricating is obvious.

Idle wire ropes are most susceptible to damage by rust. It is important to see that they are well lubricated when not in service.

The best lubricants are those furnished by manufacturers and dealers especially for lubricating wire rope.

Lubricants which meet specifications are free from acids and corrosives and have good penetrating qualities. They do not cake, gum or ball-up if contaminated with dirt or metal particles.

Lubricant may be applied with a brush. It should be brushed on slowly, carefully and frequently because it is difficult to get complete coverage and penetration.

A more effective method is a simple three-sheave trough. It should be firmly fixed near the reel

Wire Rope Strength

Grades	Breaking Strength (Lbs.) of 5/8" Rope
Iron	12,500
Traction Steel	23,000
Mild Plow Steel	24,600
Plow Steel	28,300
Improved Plow Steel	32,600

or drum and the rope run through the lubricant not faster than 30 feet a minute.

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Modern Methods

—*From page 167*

Unit Loading

Assembly of loads on skids, pallets or trailers to be moved from one part of the plant to another means less handling and more pieces per each handling. To move the load, it is only necessary for the truck to slide the platform or fork under the skid or pallet or to hook a tractor to the trailer.

A skid is a platform elevated from the floor by legs, casters or special attachments.

A pallet is a development of the platform skid. The most common type is the double-faced wooden pallet with sufficient clearance between top and bottom to insert the forks of a fork truck for moving.

Steel strapping provides a secure method of fastening some types of bundled materials for shipping and for reinforcing packing cases. Workers need training in application and removal and should wear goggles and leather palm gloves for the work. Equipment available from suppliers should be used for applying and removing strapping.

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Hoists and Portable Cranes

A HOIST is a mechanical device, suspended from overhead, used for raising or lowering loads through a vertical plane. Common types of hoisting apparatus include:

1. Block and tackle
2. Hand chain hoist
3. Electric hoist
4. Air-operated hoist
5. Portable floor cranes
6. Jib cranes

Block and tackle. Blocks threaded with fiber or wire rope are used for suspending scaffolds, raising objects, and other industrial purposes. When used to lift heavy materials or to hold loads suspended, as on heavy duty scaffolds, wire rope should be used.

Hand chain hoists may be used where overhead cranes cannot be installed on account of lack of head room. They also handle heavy pieces at machines. One hoist may handle the work at one or more machines.

Steel is recommended for load-sustaining parts. It withstands sudden shock better than cast iron and is much lighter in weight for equal strength. Chain should be of best quality steel and should be welded.

Each hoist should be equipped with a braking device which automatically locks the load when hoisting is stopped.

Chains and sheaves should be lubricated at intervals, depending on atmospheric conditions.

Electric hoists range in capacity from ⅛ ton to 20 tons. They are faster than hand hoists and less fatiguing for large loads. The light duty hoist uses link chain for lifting. The heavy duty type uses wire rope.

Limit stops prevent the hoist from traveling too far in case the operating handle is not released in time.

Air hoists operate on compressed air. They are used where sparks from electric equipment might be a hazard, or where smoothness of operation is important. The air hoist is limited in travel because of dependence on the air lines.

Grabs, grips and tongs of several types have been developed for use with overhead handling equipment, such as cranes, monorails, hoists, etc. Some can handle a variety of objects while others are more specialized.

Portable floor cranes or hoists are mounted on wheels that can be moved from place to place, either by hand power or under their own power. These raise and lower loads in a vertical line. They will not rotate around a fixed point.

Portable cranes are useful in plants where overhead belting, shafting, etc., prevent the use of overhead cranes, and where service is not frequent enough to justify more expensive equipment. The lifting mechanism usually consists either of a winch with wire rope and block, or a chain hoist, operated by hand or by electric power.

Hoists operated by electric power should be effectively grounded to prevent shock in case of short circuit.

Jib cranes lift, lower and rotate loads within the circle covered by a rotating arm or jib upon which runs a trolley. The jib is usually supported from a wall or column. A hoist, hand-operated air or electric, is suspended from the trolley. A substantial stop at the end of the jib arm prevents the trolley running off.

Basic Principles in Handling Material

Handle materials in large units. A two-wheel hand truck is better than a man's hands. A four- or six-wheel hand truck is better than either. A fork-truck pallet combination is the most efficient system for many jobs.

Avoid rehandling. Every time you pick up materials and put them down again, it costs money and offers opportunities for accident. Arrange your system to handle goods as little as possible.

Balance men and equipment. Assign no more men and no more equipment to a job than needed. Equipment sets the pace for men, not men for equipment.

Select equipment suited to the job. Study operations. Find out what equipment is needed and standardize on that. Nature of facilities, floor load capacity, ceiling height, volume of material to be handled, intermittent or steady flow, commodity characteristics, and strength of package all have to be considered.

Move materials in a straight line. Flow of materials should always be toward destination. Lay out work areas so that back and cross hauling are held to a minimum.

In storage, items with greatest activity should be warehoused nearest to entrances and exits.

Conveyors

WHERE material moves in continuous flow, power-operated and gravity conveyors eliminate much handling and many opportunities for injury.

Principal types are roller, chute, belt, chain, portable, screw, pneumatic, monorail, and overhead trolley.

For efficient and economical operation, fixed systems require thorough study of the plant's manufacturing and material-handling problems before installation.

Gravity conveyors are of two general types—chute and roller.

Power-driven conveyors should be equipped with emergency stopping devices located at convenient points.

Crossover bridges with adequate handrails should be placed where needed. Side boards along edges and at turns of overhead conveyors and screen guards under high runs protect workers and equipment from falling material.

Portable conveyors, mounted on wheels or casters, can be moved where needed and are time, labor and back savers for short jobs. Both gravity and power-driven types are available. They are made in roller, belt and bucket types for handling packages and loose materials. They are often used at warehouse, dock, shipping platforms, coal yards, and sand and gravel pits.

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Safer!

NO SLIPPAGE with a NEWCO Wire Rope CLAMP!

Holding Efficiency 95% to 100% of Catalog List: Simple to Install

It's safe! It's strong! The Newco Wire Rope Clamp and Thimble bearing surface is five to ten times greater than a pressed steel thimble. Eye opening larger than that of standard thimble. Users report greater holding efficiency than "U" bolt type clips. Reduces down time. Maximum protection to wire rope. Simple to install, no special tools needed. Lasts up to *three times longer!* Used by leading companies throughout the nation. Names on request. Compare the Newco Wire Rope Clamp with any other on the market . . . and you'll choose Newco.

Here's the Secret!

Locking construction, patented by Newman, automatically *forces clamp to hold tighter when load gets heavier.* IMPOSSIBLE TO SHEAR BOLTS OFF, because wire rope pressure pushes keying sections closer, preventing movement of bolts up and down.

TEAR OUT, MAIL COUPON NOW FOR ALL THE FACTS!

wire rope NEWCO CLAMP

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Dept. 102, 205 Westport Road, Kansas City 11, Mo.

☐ Rush me all the facts: specifications, details, prices on the Newco Clamp.

Name _____

Firm _____

Address _____

City _____ Zone _____ State _____

Truck Operation

—*From page 171*

Points in favor of the operator riding ahead of the load are:

1. He will be more careful to avoid hitting anything because injury is more likely to occur.
2. He can see ahead much better.
3. He can negotiate corners and have a better clearance. He is in a better point of observation, particularly at blind corners.

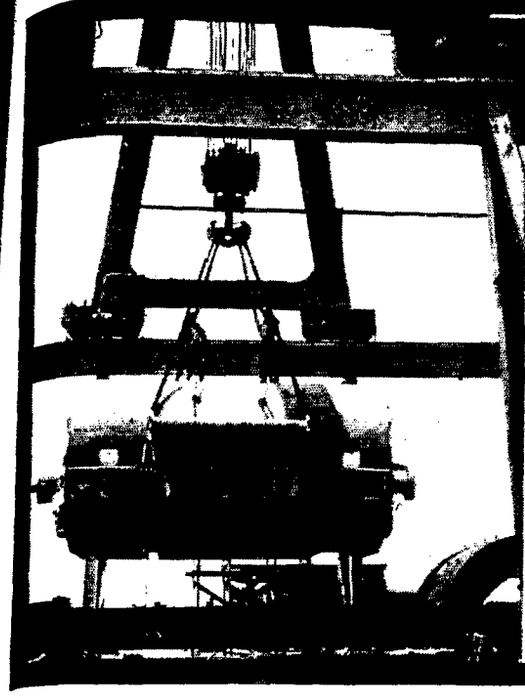
This difference brings out the need for standardization of controls. Manufacturers have varying ideas of what controls should be used, and, consequently, in some plants, the operator may be confused because he is required to operate a truck with one type of control and then change to another truck with a different system.

A good start toward uniformity would be standardization of the warning signal button. Some manufacturers, at the present time, use a foot button, some a finger button, others a button which the operator depresses with his knee or thigh.

It is generally agreed that some sort of operating platform guard is necessary. Some companies prefer merely a bumper type guard, while others prefer a higher guard which comes almost to the knees of the operator. A third group prefers a guard which shields the operator to his waist.

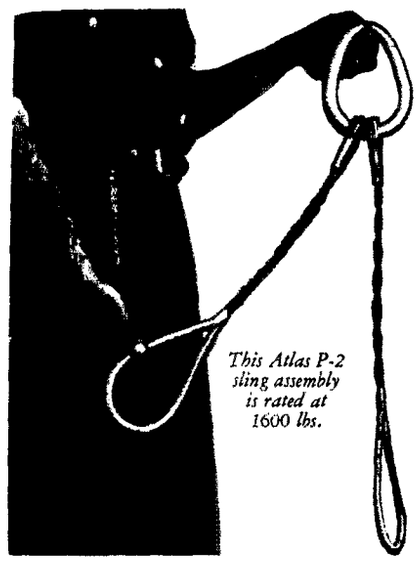
Such guards should be completely enclosed in the back, leaving one or both sides open so that the operator may easily climb in or out.

Guards are usually made of heavy sheet metal and are sometimes reinforced with an angle iron frame. In addition to the sheet metal guard, an angle iron is sometimes placed around the outside of the guard to allow about two inches clearance between the guard and anything it may bump against. This additional guarding will prevent the operator from getting his fingers mashed be-



Another job well done with Macwhyte Slings!

408,600-LB. GENERATOR SAFELY HANDLED WITH MACWHYTE ATLAS BRAIDED SLINGS



This Atlas P-2 sling assembly is rated at 1600 lbs.

Macwhyte slings are available for any load regardless of size. Our experience on thousands of applications is yours for the asking. Just write to Macwhyte Company, Sling Dept., Kenosha, Wis.

Macwhyte 8-Part Atlas Type 1 Round-braided Wire Rope Sling.

Safe installation of a $2,000,000 generator at the Valley Steam Plant of Los Angeles' Department of Water and Power required expert handling and finest rigging.

That's why Macwhyte Atlas Round-braided Wire Rope Slings were chosen to unload and install the largest and heaviest single freight shipment ever handled by the Southern Pacific Railroad. Lift was made with a 180-ton Moffett Crane using Macwhyte's Monarch Whyte Strand Wire Rope.

Macwhyte's *balanced* braiding gives Atlas Slings greater flexibility, longer life, resists spinning and kinking. Macwhyte slings and wire rope offer better service on any lifting job, large or small. Recommendations will be promptly made on request.

MACWHYTE SLINGS

Complete line of slings to fit your needs!

Three types of body are available: Atlas Round-Braided, Drew Flat-Braided, Monarch Single-Part. All are made to order in any size for any job. Suggestions for slings to meet your needs are promptly available.

READY now—new Circular Number 5308 showing strengths and safe-loads at various angles plus many sling designs. Ask for 5308.

MACWHYTE COMPANY
KENOSHA, WIS.

See the hundreds of slings in Macwhyte Sling Catalog S-8

MACWHYTE COMPANY
2902 Fourteenth Ave., Kenosha, Wisconsin

Manufacturers of Internally Lubricated PREformed Wire Rope, Braided Wire Rope Slings, Aircraft Cable, Safe-Lock Assemblies, Monel Metal and Stainless Steel Wire Rope.

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You get all 4

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— Economy
— Dependability
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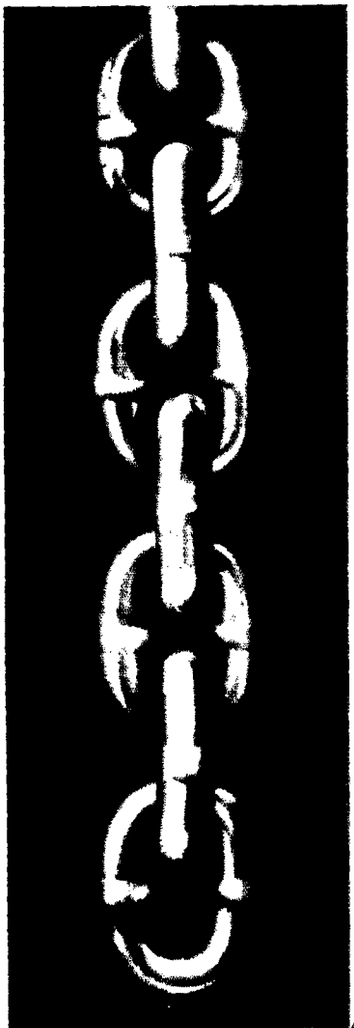

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tween the guard and any object it might strike.

Education of power truck operators is a most important step. Only by constant education and by programs of strict enforcement can speeding and reckless driving be curbed.

Fire Hazards of Industrial Trucks

Industrial trucks, whether ram, fork or crane type, can be powered by gasoline engines, gasoline-electric power units, or storage batteries. These power plants present a definite fire hazard.

Each industrial truck should be equipped with a 2½-pound carbon dioxide extinguisher; a 4-pound gas-pressured dry chemical extinguisher, or a 1-quart vaporizing liquid extinguisher. The sizes listed are the smallest approved for industrial use.

Gasoline trucks should be refueled in a safe location, away from storage and manufacturing areas—preferably outdoors. The engine should be shut off during refueling and care exercised to avoid spilling fuel or overflowing the tank.

Collisions also cause damage. In two instances on record lift trucks broke sprinkler pipes, causing heavy damage to stock.

Hand Truck Accident Facts

While hand trucks are not normally considered a serious industrial hazard, they are a controllable source of injury and, as such, merit consideration.

A recent study of hand truck accidents which were reported to the National Safety Council showed that in 3 out of 5 cases unsafe conditions were contributing causes; in 9 out of 10 cases the injured person was working unsafely. One-fourth of the injuries were attributed to failure to wear safety shoes. Defective equipment was involved in one-sixth of the cases; narrow or congested aisles were indicated in nearly 1 out of 6 accidents.

Principal unsafe acts were pulling trucks that should have been pushed, and pulling trucks while facing the load and walking backward. Other unsafe acts included placing hands on load instead of on handles, braking truck by placing a foot on wheel, and operating too fast.

Timber Storage

(Forest Products Laboratory)

SERIOUS losses from decay in wooden structures are due to infection of timbers with wood-destroying fungi while in storage. These losses can be greatly reduced by keeping lumber yards in a sanitary

condition. Following are some precautions:

Store on well-drained ground, removed from possible dangers of floods and standing water.

Remove debris, keep down weeds. All rotting debris scattered about yards should be collected and burned. In yards already filled in to considerable depths with sawdust and other woody debris the situation can be improved by a heavy surfacing with soil, slag, or similar material. Weeds should be cut away from piles to allow ventilation.

Use proper foundations. Provide ventilation beneath stacks. Solid foundations should never be used. In humid regions stock should be piled at least 18 to 24 inches from the ground.

Wood blocking used in direct contact with wet ground should be protected by application of creosote or other germicidal oils or replaced by concrete, brick, or other durable materials. Treated skid timbers are also advantageous.

Slope lumber piles. Foundations should be built so that the piles will slope approximately 1 inch to every foot of length.

Avoiding close piling in the open. In most regions lumber should not be close piled in the open, but should be "stuck" with crossers at least 1 inch thick. Lateral spacing is also desirable. Roofing of cover boards on the piles should extend for several inches in front and back.

"Stickers." Instead of throwing "stickers" about on the ground to become infected with decay, they should be handled carefully and when not in use piled on sound foundations and kept as dry as possible. If pine saturated with resin, or heartwood of such durable species as white oak or red gum is employed, danger of infection is greatly decreased.

Keep sheds dry and well aired. In storage sheds the necessity for piling higher from the ground is apparent. Sheds should be tightly roofed and siding should not be run down below the bottom of the foundation sills. Free air circulation should be allowed from all sides beneath enclosures. Only thoroughly dry stock should be stored in close piles under cover.

Check fungous outbreaks. Should fungous outbreaks occur in sheds not constructed to meet sanitary needs, the infected foundation timbers should all be torn out and replaced with wood soaked in a fungicidal solution, or by concrete or brick.

New foundations should be constructed to keep lumber well off the ground, and soil and timber adjacent to the infected area should be sprayed or painted with a germicidal solution of a water-soluble salt, such as sodium fluoride, mercuric chloride, zinc chloride, or copper sulphate.

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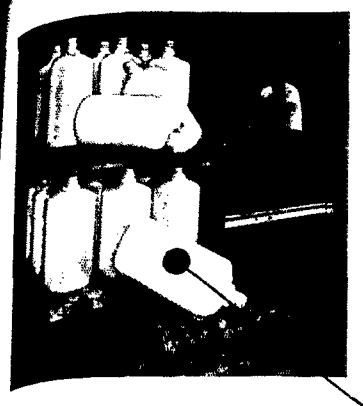

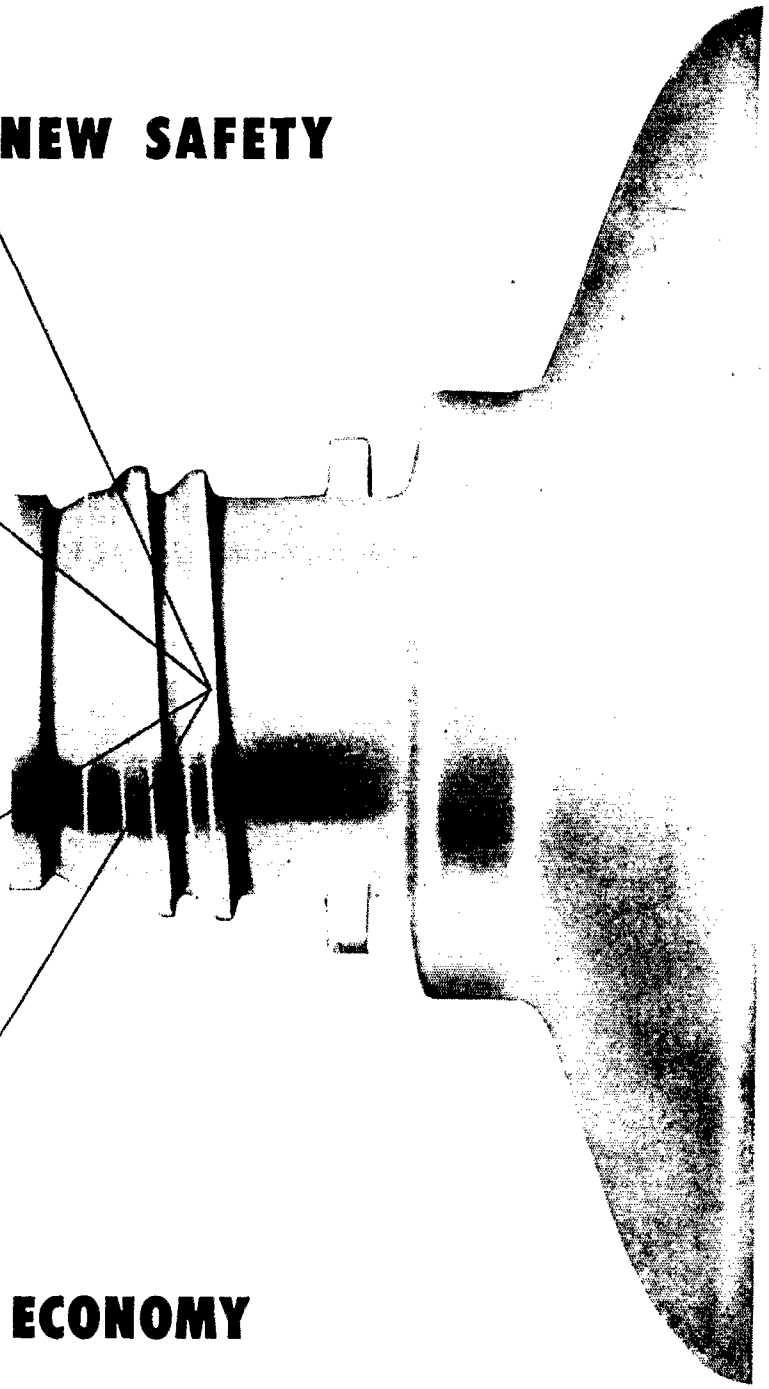

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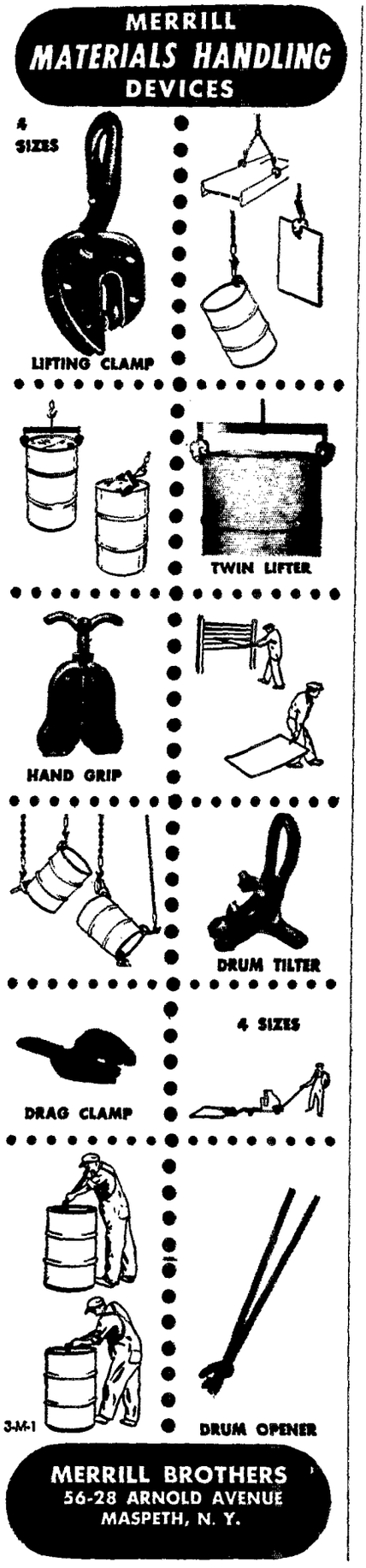


Accessories for Manual Handlin

IN SPITE OF the development of power equipment for handling material, much manual handling is still necessary. There are numerous accessories which make the work safer and easier, if these devices are kept in good condition and used correctly.

Hooks are used for handling logs, lumber, crates, boxes and barrels where the object will not be damaged. Hooks should be inspected daily and kept sharp. If a hook is carried in the belt, the point should be covered. The worker should be trained to use the hook so that it will not glance off hard objects.

Bars. The point or edge of a crowbar should be kept sharp and position of hand and body should minimize the chance of pinching or falling if the bar should slip or the object move suddenly.

Car movers, not crowbars, should be used to move cars on steel rails. When two men are needed for the job, two car movers should be used. More than one man should not try to work with the same mover.

Rollers are used for moving heavy, bulky objects. The principal hazard is that fingers or toes may be pinched or crushed between roller and floor, and when the direction of the roller is changed. A sledge or bar, not the hand or foot, should be used to move the rollers under the load.

Hand trucks, wheelbarrows, and dollies. These devices are on the borderline between mechanical and manual equipment. Even simple equipment should be inspected regularly and kept in good repair. Axles should be kept well lubricated. Repair and maintenance records should be kept to show the condition of each piece of equipment.

The type of truck most suitable for the work should be used. No one type of truck is suitable for handling all types of loads.

On a two-wheeled truck, the center of gravity of the load should be placed well forward so that the weight lies on the axle and not on the handles. Two-wheeled trucks may have brakes so that the worker need not hold the truck with a foot on the wheel or axle.

Two-wheeled trucks and wheelbarrows may be equipped with knuckle guards to protect the hands from jamming against door frames or other obstructions.

Tongues of flat trucks may be provided with counterweights, springs, or hooks to hold them vertical when not in use. Otherwise workers should be trained to leave handles in a position that will not cr tripping hazard.

To decrease the hazard t wheels should be as far unde truck as possible. Wheel guards m be installed on some types of tru

Four wheel trucks should pushed, not pulled, particularly w the truck is going down an incli

Handling Specific Objects

Drums and barrels can be handle more safely on an incline with rope or other tackle to control their motion. The drum or barrel should be snubbed with a rope, one end of which is securely fastened to the platform from which the object is to be lowered. The rope should then be passed around the drum and the operator can lower the load gradually.

Sheet metal should be handled with leather gloves, hand leathers, or gloves with metal inserts. Bundles of sheet metal should be handled with power equipment.

Sheet glass should be handled with gloves or hand leathers, and wrists and forearms should be covered with long leather sleeves. A leather or canvas apron and guards to protect feet and ankles should also be worn.

Large panes of glass should be handled by two or more men, using canvas slings and padding to protect head, neck and shoulders. Where large panes are carried a considerable distance, an A-frame truck should be used.

Lifting Limits

Physical differences among individuals make it impractical to set up safe lifting limits for all workers. Height and weight do not necessarily indicate physical strength.

State codes limiting the load a worker may be required to lift differ widely. Each employer should know the provisions of his own state code.

The following weights have been set up by the U. S. Department of Labor as within the safe limits for male and female workers required to perform continuous or repetitive lifting operations:

Male—50 pounds in compact form.

Female—25 pounds in compact form.

Heavy objects, like lathe chucks, dies and other jigs and fixtures, should be stored at approximately waist height.

Where lifting must be done continuously, even though the weights may be within safe limits, mechanical handling equipment may reduce fatigue and speed up work.

Guarding the Machine

MACHINERY is involved in approximately one-fifth of all compensated occupational injuries. The severity of these injuries is indicated by the fact that 25 per cent of all permanent disabilities result from machinery accidents.

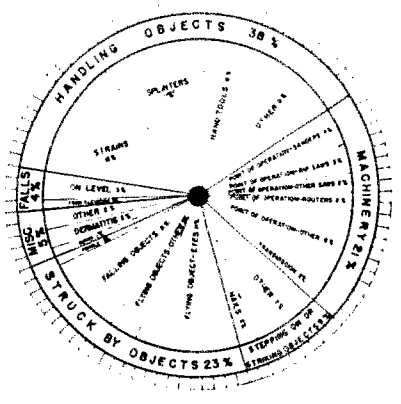
Much attention has been given to machine guarding and many types of effective safeguards have been developed. Progress, however, has been handicapped by the variety of machines and the operations performed on them as well as by lack of uniformity in requirements of various states. There are few machines which cannot be guarded, but when safety interferes with production there is a serious obstacle to overcome.

Some operations can be guarded effectively with guards available commercially. Others require custom-built guards developed through extensive study of the job by both operating and safety departments.

Among the machines involved frequently in accidents are woodworking machines, such as circular saws, jointers and planers, and power presses.

The majority of machine accidents occur at the point of operation—the area or point on a machine at which work, such as forming, cutting, etc., is performed on material being processed. Individual motor drives for machinery have eliminated much hazardous power transmission equipment and improved lighting and housekeeping.

Many machines are quite safe for normal operation. It is quite unnecessary for an operator to place his hands in the danger zone but sometimes it is done. Guarding, therefore, must be planned to protect the individual against his own lapses as well as against the normal hazards of the job.



Analysis of workmen's compensation accidents in the furniture industry. (Kemper Insurance)

Most machines are now built with moving parts enclosed, presenting a trim, streamlined appearance as well as greater safety. Pressure lubrication reaches remote bearings without exposing the oiler to hazard. Housekeeping is also improved.

Color is a safeguard. Highlighting the point of operation with light tints which stand out against the darker background of the machine enables the operator to watch the work with less effort on the eyes. Strong colors which give warning when a guard is missing are also helpful.

Where built-in guards are not practicable, as in the case of older machines, or machines requiring special guards, standard types of commercial guards are recommended. Guards for such machines as power presses, circular saws, paper cutters, and others, are designed to fit most sizes and styles of machines.

A guard which interferes seriously with output is not likely to be popular with either the operator or the management. Planning a guard, therefore, should be done in cooperation with the supervisor and the operator.

Guard design must often be approved by state factory inspectors and insurance engineers. Since state codes are not uniform and at best represent only minimum requirements, the codes and recommendations of the American Standards Association are the best guides.

Point of Operation

Guarding the point of operation effectively is usually more complicated than enclosing power-transmission apparatus.

Point-of-operation guards are installed at those parts of machines where cutting, shaping or forming is performed, and at other points where there may be a hazard to operators inserting or manipulating stock.

Guards should protect operators both from moving machine parts and from moving materials. This may be done by safeguards of the following types:

1. Mechanical feeding and ejecting.
2. Two-hand control devices.
3. Redesign of machine parts so that

it is impossible for the operator to get into the danger zone.

4. Devices that interrupt movement of tools or machines while any part of the body is in the danger zone.
5. Devices that pull or push hands away from the danger zone.
6. Barricades, covers, hood guards and other enclosures.
7. Interlocking devices.

Power Presses. Automatic feeding and ejecting devices, enclosure guards, sweep guards, hand or arm "pull-back" guards, and stroke limitation, are among the means used to control the hazard of operation.

Few guards provide 100 per cent protection. For instance, an automatic or dial feed may make it unnecessary, but not impossible, for an operator to place his hands in the danger zone. But frequently an operator cannot resist the impulse to straighten a misplaced part just before it passes under the ram.

Automatic feed should be supplemented by a substantial enclosure which isolates the point of operation. This provides much safer operation, especially on slow-moving presses.

Machine parts are sometimes adjusted to minimize the hazard of operation, as in limiting the stroke on a press so that the fingers cannot enter between the dies.

Die design. On punch and forming presses it is frequently necessary to install guards of a different type for each set of dies used. For this reason, enclosure guards should always be considered integral parts of the dies.

Hood enclosure and cover guards are used on woodworking machines and many other types of equipment. Frequently, such guards are automatic in action. Others are of rigid construction.

Nip hazards, such as rubber mills, calender rolls, dough breaks, and others, can be protected by sensitively adjusted controls that operate dynamic brakes when contacted by any part of the operator's body. These guards stop the machine in the shortest possible time.

Two-hand controls are frequently installed on power presses, bakery machinery, guillotine paper cutters, and other types of equipment where barrier guards are not practicable.

Interlocking devices prevent operation of the starting control when the cover or barricade is not in place. These are used on centrifugal extractors, dough mixers, tumblers, and some types of pressure vessels.

Photoelectric guards. The photoelectric relay consists of a beam of light. When this is broken by the press operator's hands the start or completion of the ram stroke is prevented. The photoelectric relay responds instantaneously, is completely automatic, takes up little space, is easily installed and economical to maintain. Against these advantages are comparatively high installation cost and limited uses.

On presses with friction clutches, the ram travel stops immediately when the light beam is broken. This method is not effective on presses with positive clutches because the ram will continue its stroke until the end of its cycle. The guard should be operated from a closed electric circuit so that current interruption will automatically prevent the press from tripping.

Radioactive guards have been used on some power press operations. The operator wears radioactive wrist bands. When his hands are in the protected area, the radioactive units are detected by Geiger tubes, and the press will not operate. Radioactive materials are within safe limits.

Power Transmission

Power transmission apparatus includes shafting, belting, pulleys, gears, starting and stopping devices, and other moving parts of equipment used in the mechanical transmission of power. Also included are prime movers, intermediate equipment, and other machines.

Power transmission parts, particularly in modern installations, contribute a relatively small proportion of the total number of injuries. Nevertheless they can cause permanent disabling injuries and should not be neglected.

MECHANICAL APPARATUS INSPECTION

Check the points listed below. Make recommendations to cover unsatisfactory conditions so that they can be corrected promptly.

POWER TRANSMISSION ENCLOSURES OR GUARD RAILS	OK
Pulleys, flywheels	☐
Gears, sprockets, chains	☐
Belts: vertical, horizontal	☐
overhead horizontal	☐
Belt shifters	☐
Keys, setscrews, collars, couplings	☐
Shafting	☐
Clutches	☐
Lubrication facilities	☐
CONTROLS	
Electrical starting devices	☐
Lockout devices	☐
Tripping devices: foot, hand	☐
POINT OF OPERATION GUARDS	
In place	☐
Condition satisfactory	☐
Correct adjustment	☐

SAFETY INSTRUCTION CARD No. 778
National Safety Council PRINTED IN U.S.A.

Individual motor drives and modern designs with moving parts enclosed have eliminated much guarding on the job. However, some guards must still be added when machines are installed.

Materials for Guards

Sheet metal, perforated metal, expanded metal, heavy wire mesh or bar stock may be used for most types of guards.

Transparent plastic is used where inspection of moving parts is necessary and the strength of metal is not needed.

Shatter-proof glass is used in similar situations, particularly where illumination of guarded parts is essential and the flexibility of plastic is not required.

Where flying particles may mar safety glass or plastic, the surface may be protected by replaceable glass covers.

Wooden guards are relatively low in strength but are sometimes used where splashes and fumes from corrosive substances would attack iron or steel.

Aluminum or other soft metals may be used where resistance to rust is essential, or there is possibility of damage to the machinery from iron or steel.

Feeding tools. Several types of feeding tools have been developed for use on presses with automatic feeds or enclosed guards. These tools are made of soft metal, aluminum or magnesium. They include pushers, pickers, pliers, tweezers, forks, and suction disks. These tools are not substitutes for guards and should be used only in conjunction with two-hand trips or pull-back guards.

Supervision. Frequent checks should be made to see that instructions are observed and that safety devices are functioning.

Operators occasionally make safety devices ineffective in an attempt to speed up production or make operation easier. This is especially frequent with two-hand controls. Operators should be warned of the hazards involved and instructed in the use of safety devices.

REFERENCES
Machine Operation

National Safety Council

Inspection and Maintenance of Power Presses—Data Sheet D-Me. 18

Individual Die Guards and Adjustable Press Barriers—Data Sheet D-Me 37

Press Brakes—Data Sheet D-Me 38

Accident Prevention Manual for Industrial Operations.

National Safety News

Taming the Saw—L. H. Reineke July 1950, p. 24.

Punch Presses Can Be Guarded R. F. Thuma, Jan. 1950, p. 24.

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Electric Equipment

ELECTRICITY for power and light has contributed much to modern industry in efficiency, cleanliness and safety.

The flexibility of electric power permits installation of motors on individual machines, or for driving groups of machines. This makes it possible to dispense with shafting, belts and other transmission equipment which require extensive guarding and interfere with light, ventilation and housekeeping.

Installation, maintenance and use of electric equipment have introduced new hazards but these are well known and effective control measures can be applied.

Rules for the use of electric equipment are given in numerous publications, including the *National Electrical Safety Code*, which deals with prevention of injuries, and the *National Electrical Code*, which deals with fire protection.

Electrical equipment which bears the approval label of recognized testing laboratories has passed exacting tests and can be used with confidence.

Installation. All electrical work should comply with applicable codes.

Transformers, control boards, starting rheostats, and other apparatus should be placed where there is the least danger of accidental contact with energized conductors. All exposed current-carrying parts should be further protected by enclosures, railings or special guards.

Motors should be mounted so as not to interfere with normal plant traffic. Non-enclosed type motors should be located in areas relatively free from dust, moisture, or corrosive vapors.

Isolating equipment. When practicable, transformers, control boards and other accessories should be placed in special rooms to which only authorized persons have access.

If a separate room is not feasible, enclosures should be built around equipment having exposed conductors. Enclosures made of metal should be effectively grounded.

Barriers may be used to prevent accidental contact with electrical equipment. Frames may be made of wood, rolled metal shapes, angle iron or pipe. Filler may be of wood strips, sheet metal, perforated metal, expanded metal, wire mesh, or shatter-proof transparent material.

Some protection can be obtained by elevating wires and current-carrying parts at least eight feet above any working level to which employees (other than qualified electricians) have access.

Where long metal parts, such as rods, bars and pipes are handled, partial enclosures or barriers should be provided to prevent contact with overhead electrical installations.

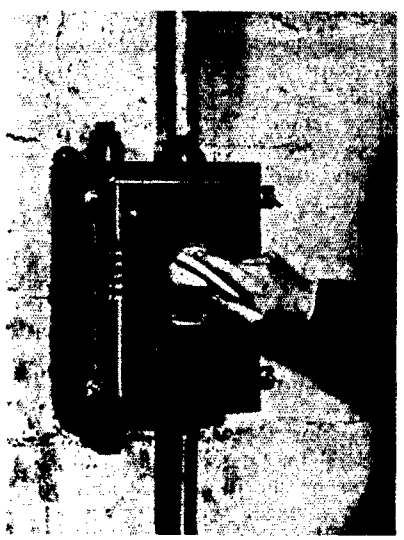
Warning signs should be displayed near exposed current-carrying parts, especially high-voltage installations.

Many standard machine-guarding practices apply to electric equipment, but there are certain hazards peculiar to electricity. Particular attention should be given to the National Electrical Safety Code and the National Electrical Code.

Protective grounding is necessary for exposed non-current-carrying metal parts if the equipment is supplied by means of metal-clad wiring, when installed in a wet location, and when it operates with any terminal at more than 150 volts to ground. Parts to be grounded include motor frames, cranes, cases of transformers and oil switches, wiring conduit, and metal lamp sockets.

Frames of all portable motors which operate at more than 50 volts to ground should be grounded.

Motors should be of the type and size required for the load and for conditions under which they must operate. Overloading over long periods, use of non-approved motors in areas containing flammable vapors or dusts, and defective wiring should be avoided.



Lead-plated sheet steel enclosures for safety switches and circuit breakers designed for outdoor use and other applications where atmospheres are humid, dust-laden or corrosive. (General Electric Co.)

Motor windings should be protected from metal particles, dirt, dust, lint or other material which may damage the windings or become ignited.

In areas containing flammable dust and gases, motors designed for hazardous locations should be installed. The National Electrical Code should be followed.

Grounded metal enclosures are recommended for starting rheostats, switches, fuse panels, and other operating accessories. In some devices, both switch and fuses are enclosed in a cabinet so arranged that the switch can be operated without opening the cabinet. The switch is interlocked through a cam so that the fuses are inaccessible until the switch is opened.

Another type of enclosed switch permits the door of the cabinet to be opened with a key, even though the switch is closed. With either type of cabinet, it is possible to padlock the door open or closed, and the switch can be padlocked in the open position.

Maintenance and repair work. When repair work is being done on motors, their controlling devices, or the machinery they drive, the circuit should be de-energized by opening the necessary switches and locking them in the open position.

If a switch cannot be locked open, it should be blocked and a tag attached showing that the switch is to be closed only by the man whose name appears on the tag. Warning signs should be displayed.

Wiring depends upon type of building construction, size and distribution of electrical load, exposure to dampness or corrosive vapors, location of equipment, and other factors. For most plant conditions, rigid metal conduit, effectively grounded, is most satisfactory.

Other methods which may be used under certain circumstances include armored cable, non-metallic sheathed cable, flexible metal conduit (BX), raceways, and open wiring on insulators. National and local wiring codes should be observed.

Over-Current Devices

Fuses or circuit breakers should be installed in every circuit. Protection of this kind, both for personnel and for equipment, is important. These devices open the circuit automatically in the event of excessive current flow due to accidental ground, short circuit, or overload.

Types of fuses include:

A link fuse is a strip of fusible metal between two terminals of a

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Hand and Power Tools

HAND TOOLS of various types are used in even the smallest shops. Since their use involves accidental contact with cutting edges or severe blows, they are responsible for numerous injuries on the job.

Estimates of the percentage of disabling injuries caused by hand tools range from 5 to 15. While many of the injuries involve only first-aid treatment, these slow down work and offer chances for infection.

Hazards are increased by selection of the wrong tools for the job, neglect of maintenance, and the idea that anybody can use them.

Portable power tools have the hazards of hand tools increased by high speed operation and more severe blows. With electric tools there is also the hazard of shock.

Types of Tools

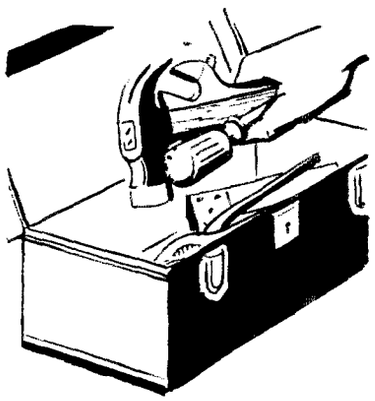
Tools commonly used in industry are of the following general types:

1. **Metal Cutting**—Cold chisels, marking tools, bull chisels, hack saws, tin snips, cutters.
2. **Wood Cutting**—Chisels, gouges, saws, axes, adzes, hatchets, knives, brad awls.
3. **Lifting**—Levers, crowbars, jacks, hooks, shovels.
4. **Torsion**—Wrenches of various types, pipe tongs, screwdrivers, pliers.
5. **Striking**—Hammers, sledges, mauls, picks, punches.

Some tools belong in more than one classification. An ax, for example, is both a cutting and a striking tool.

Accident causes. One or more of four primary causes are responsible for injuries with hand tools. Following are examples:

1. A wrong or improvised tool—a file or screwdriver for prying; a wrench for hammering.



2. A defective tool—a burred chisel head; a dull saw or knife; a split maul handle; a tool of poor quality.
3. Tools incorrectly used—striking two hard-surface tools together; failing to take practice swing with sledge to adjust for clearance; pulling on pliers in line with face.
4. Tools not put away—wood chisel loosely laid in tool box; hammer left on edge of machine; knife left on table.

Selection. Tools for both routine and special work should be kept in stock or readily available. High grade tools are the best buy and the difference in initial cost is offset by longer life, reduced upkeep and lessened risk of accident.

Suitable arrangements should be made and responsibility placed for the purchase, handling and care of tools. The purchasing department should be kept informed of tool performance as a guide to future purchases.

Alloy steels have strength and toughness combined with light weight which justifies the higher cost for some jobs. Alloys are used for hammers, wrenches, screwdrivers, wood working tools, pliers, rivet sets, saws, knives and punches.

Some alloys offer resistance to mushrooming, and chipping but no tool should be subjected to unnecessarily rough use.

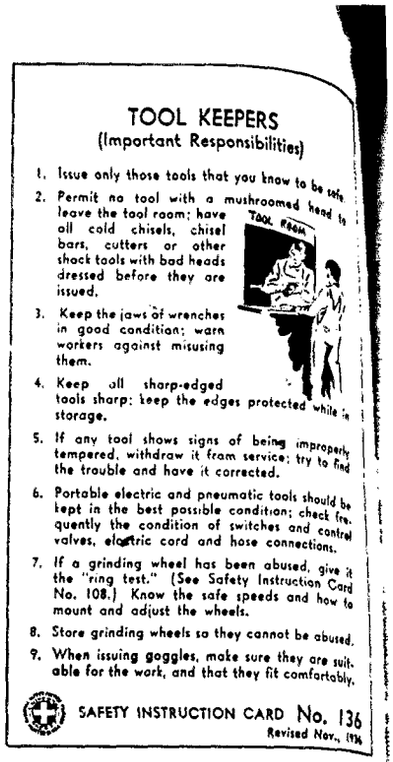
Non-ferrous hammers or mallets should be used for striking tempered or case-hardened tools. These hammers are usually made of copper, lead, bronze, brass, rawhide, or wood.

Handles. With hammers, sledges, axes, picks, etc., the greatest strain is where wood and metal join. An adequate supply of good handles should be kept in the toolroom. These should be straight-grained wood, free from slivers. Hickory, ash and maple are preferred. Handles should be fitted by an experienced person.

Insulated tools. For working around electric equipment, tools with insulated handles are frequently used. These provide desirable protection but are not a substitute for rubber gloves and other protective devices.

Marking tools. Steel stamps and holders for stamping identification marks on machine parts and other metal surfaces are available in alloys which resist mushrooming and do not chip readily.

Car movers. For moving cars on rails, car movers which do not slip readily are available. When two men are needed to move a car two car movers should be used. Ordinary crow bars should not be used.



The Tool Room

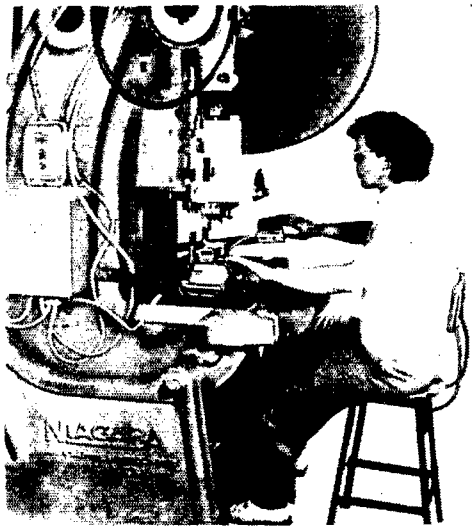
Centralized tool control facilitates uniform inspection and maintenance of tools. Special equipment, such as exhausted grinders and welding equipment permit uniformly good maintenance. Protective equipment, such as goggles, can be recommended and issued with the tools.

Centralized control also makes it possible to keep effective records on tool failure and helps locate unsafe conditions and unsafe acts. Tools are exposed to less damage than with scattered storage.

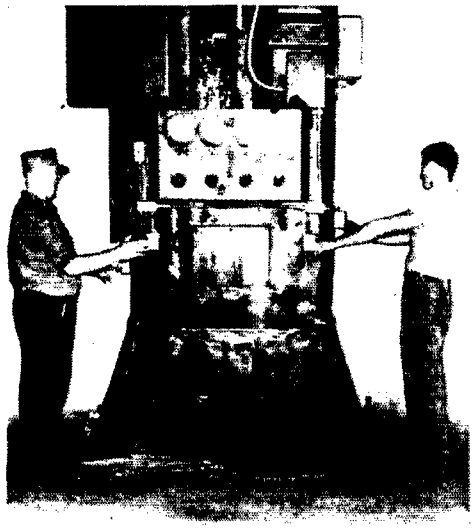
A procedure can be set up so that the attendant can send tools in need of repair to a department equipped for reconditioning.

Some companies issue to each employee a set of numbered checks at the time of employment. These are exchanged for tools at the supply

—To page 202



Two-hand **MICRO** trip control on punch press. It is controlled by feather-touch actuation of both switches at the same time.



MICRO trip and selector control. Requires actuation of four hand switches by the two operators. Can be set for operation by one to four switches.

MICRO trip users report up to 20% increased production from power presses—with *SAFETY*

• MICRO trip electrical clutch controls provide instantaneous electrical response. Their light-touch actuation reduces operator fatigue. They permit operators of punch presses, power shears, hydraulic presses and other power machines to work with complete freedom from worry.

MICRO trip cannot be "cheated." It is a two-handed tripping device so designed as to prevent tying, wedging or otherwise securing one switch so as to operate with one hand only. Any component failure automatically breaks the clutch operating circuit. It affords complete protection to machine operators and set up men.

MICRO trip also may be used with single switch control in circumstances where one hand is otherwise occupied. It is also ideal for multiple operator installation. Electrical signal systems can be tied in with MICRO trip. MICRO trip permits single stroke control for positive mechanical clutch machines and automatic cycling control for hydraulic, pneumatic or friction clutch machines.

Send for MICRO trip catalog today. Write to MICRO, Freeport, Illinois, for name of distributor nearest you.

MICRO trip provides automatic cycling control on huge paper cutter. Operator holds two switches until cut is made.

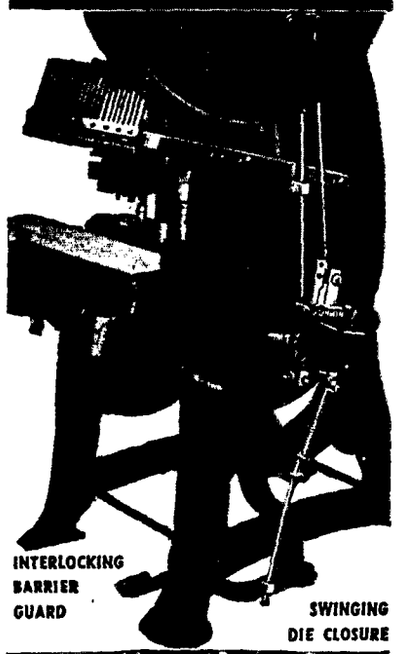
MICRO

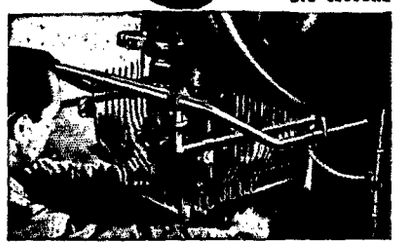
MAKERS OF PRECISION SWITCHES

FREEPORT, ILLINOIS

A DIVISION OF
MINNEAPOLIS-HONEYWELL REGULATOR COMPANY

JUNKIN
SAFETY GUARDS





Your SUREST Protection Against Press Accidents

JUNKIN safety guards prevent press accidents, afford maximum protection, increase press production, lower insurance costs and generally improve plant morale. Make an investment in safety now and investigate Junkin Safety Guards for primary and secondary punch press operations. Write for free catalog "The Key to Protection".

JUNKIN
JUNKIN ENGINEERED SAFETY
SAFETY APPLIANCE CO.
101 S. FLOYD ST.
LOUISVILLE 2, KENTUCKY

Guarding the Machine

—*From page 188*

Electronics in Plant Operation—W. A. Black, Jan. 1954, p. 24.
Radioactive Press Guards—James H. Leacock, Aug. 1953, p. 32.
American Standards Assn.
Mechanical Power Transmission Apparatus, Safety Code for—B15-1953.
Compressed Air Machinery and Equipment, Safety Code for—B19-1938.
Power Presses and Foot and Hand Presses, Safety Code for—B11.1-1948.

Machine Guard Accident Facts

Reports from compensation authorities in Iowa and Pennsylvania indicate that unguarded or inadequately guarded machines are frequently involved in work accidents. However, detailed investigation of individual accidents shows that guard deficiencies are more frequent than shown in these state reports.

Special reports on more than 500 punch press accidents show the following distribution of unsafe mechanical or physical conditions:

Guard deficiencies	378
Press deficiencies	97
Poor design	10
Unsafe dress	10
Improper or no hand tools	16
Other	27
Undetermined	52
Total	590

Of 378 cases of deficient guarding, in 254 there were no guards, or guards were inadequate, incomplete, or out of adjustment. In 171 of these cases the press itself was involved; in the remaining 83 cases tools or dies were not sufficiently guarded.

Power saws are one of the most frequently used machines, and one of the most hazardous. The lack of, or removal of guards, and improper use of guards are the foremost accident factors. Other important causes of accidents include failure to use push sticks in feeding material and removing material from around the blades, and use of machines by other than regular operators.

The most frequent single unsafe practice in the operation of all machinery is failure to stop the machine before adjusting, repairing or cleaning. The danger of contact with moving parts has been fully demonstrated by the frequency with which accidents of this type occurred. In a recent analysis of metal working lathe accidents, for example, cleaning or adjusting lathes with power on was a factor in 25 per cent of the reported injuries.

Lubrication

MODERN MACHINES operate at high speeds on countless bearings which need proper lubrication at frequent intervals. New lubricants and new lubricating systems had to be developed to meet industry's needs.

Lack of lubrication contributes to the danger of fire or machine failure by causing excessive heat or damage to the surfaces of moving parts.

Over-oiling also creates hazards. If oil drops or is splashed on motor bearings, it deteriorates the insulation, exposing live conductors. These will arc, causing fires or electrically charge ungrounded surfaces.

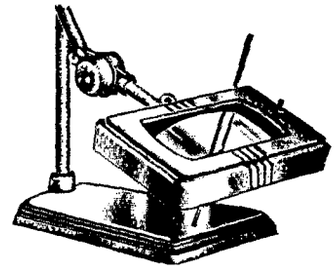
A survey of the plant should be made to determine lubrication requirements and the information should be entered on the machinery records. Machinery then should be checked for missing fittings and oil cups and plugged oil holes.

Automatic lubrication is safer and more efficient than direct application of oil or grease to bearings by use of an oil can or grease gun.

Automatic oilers are of the following types:

Capillary oilers
Wick oilers
Ring and chain oilers
Gravity feed oilers
Pump feed oilers
Cartridge lubricators

Machines with hundreds of remote bearings can be served efficiently



Secure PERFECTION in PRODUCT by using an ILLUMINATED MAGNIFIER now available in many sizes and enlargements. *With the data on your INSPECTION or safety problems, our engineers with 40 years of experience can solve them.*

THE SURTY MANUFACTURING CO.
4136 W. Kinzie Chicago 24
Headquarters for ALL POINT OF OPERATION GUARDS

Operator confidence soars—and so does production—with the Schrader Press Control. For this control is definitely a two-hand device. It is designed so that the hands that feed the die must also operate the press. Both hands must be used simultaneously for each operation of the press and cannot stray into the danger zone when the ram comes down.

This *increased safety* of Schrader's Press Control lets operators build a worry-free rhythm that puts new speed in your presses in just a short time.

What's more, Schrader Controls end the fatigue common with mechanical foot pedal operation—a Schrader-

Reduce Danger Here

equipped press can be run as easily as an ordinary typewriter.

Wherever you have a power press—or any machine with a mechanical clutch—there's a chance to increase safety . . . boost operator confidence and thus increase production with a Schrader Control.

Let us help you decide what will best fit your needs. Write, describing the machines you plan to equip—or fill out the coupon below.

Schrader
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control the air

Air Cylinders • Operating Valves • Press & Shear Controls • Air Ejection Sets • Blow Guns • Air Line Couplers • Air Hose & Fittings • Hose Reels • Pressure Regulators & Oilers • Air Strainers • Hydraulic Gauges • Uniflare Tube Fittings

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Division of Scovill Manufacturing Company, Incorporated
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I am interested in more information on.....

Name_____ Title_____

Company_____

Address_____

Do your present safety tools give you these four advantages?

SAFE—Berylco Safety Tools aren't half safe—they're absolutely safe, because they're made of beryllium copper and are non-sparking in the presence of explosive or inflammable liquids, gases and dusts. Nonmagnetic and noncorrosive, they are also ideal for chemical or marine use.

TOUGH—Beryllium copper is a high-performance material so rugged that it is used for bearings in hard-working machine tools. Berylco Safety Tools have the strength of mild steel. They resist heavy impact, retain their cutting edges for a long time, outlast cheap tools by far.

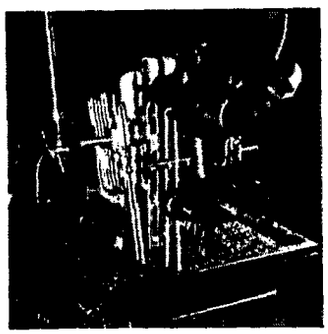
HANDY—Because of the great strength of beryllium copper, Berylco Safety Tools are better designed—and thus easier to use—than safety tools made of less sturdy materials. Ordinary safety tools are given strength through size; workmen like to use easy-to-handle Berylco tools.

LOW COST—Berylco Safety Tools are competitive with steel tools of equal quality, yet the pennies you spend on *them* may save you dollars in plant damage or lost production time. Remember, too, initial cost doesn't include replacement cost; you replace Berylco tools less often than cheap tools.

BERYLCO

Here's another important advantage of Berylco Safety Tools. They're sold by regional warehouse distributors the country over. For the name of the one nearest you—and for a complete, illustrated catalog of over 400 tools—write THE BERYLLIUM CORPORATION, Dept. 4B, Reading 14, Pa.

SAFETY on MILLING MACHINES



SEARJEANT

NEW ENCLOSURE-TYPE GUARD

Made for easy adjustability, the Searjeant Enclosure Guard on your milling machines will serve both safety and production. . . . Safety is assured because this Guard eliminates the hazards of exposed cutters and of operators being caught and pulled into the cutters. . . . Because of this increased safety, production is increased: no need to stop cutters while changing pieces; pieces can be changed closer to rotating cutters; operators work with greater confidence—and, therefore, greater speed.

Other Guards Made by Searjeant:

- Single & Double Sweep Guards
- Adjustable Basket Guard
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- Non-Repeat Mechanisms

SEARJEANT METAL PRODUCTS, INC.
10 Pittsford Road Mendon, N. Y.

and economically by centralized systems. Clean oil or grease is supplied under pressure from the central pumping unit to every bearing.

The lubricant is renewed as often as the machine and operation require, which may be once or twice each shift or several times an hour.

On some systems an indicator signals the delivery of the correct amount of oil to each bearing.

With a central pressure system there is no need to stop the machine for lubrication and the hazardous job of crawling over the machines is eliminated.

Pressure lubrication systems require the use of special greases. No single lubricant has been found best for all types of machines.

For Older Installations

On older machines addition of an automatic system may not be practical. Other measures will help to improve lubrication and reduce the hazard to the oiler. One or more of these methods may be used for reaching remote bearings:

1. A service platform or runway giving access to several bearings. Moving parts of machinery should not project over platforms; if this is unavoidable, these parts should be enclosed.
2. A small car suspended from an overhead I-beam enables the oiler to travel parallel to the line shaft, and reach bearings with his oil can or grease gun.
3. Long-spout gravity flow or force-feed oil cans enable the oiler to stand in the clear. Some of these have spouts long enough to reach overhead line shaft bearings from the floor.
4. Oil reservoirs at individual bearings with control devices operated by hand poles.
5. Extension pipes on bearings where grease or oil cups are in the danger zone. These may not be practical in cold places where low temperatures make it difficult to force oil or grease through the pipes.

Electric Equipment

—*From page 189*

fuse block. If exposed, it may scatter hot metal when it blows.

Explosion fuses are used in central stations, power houses or on overhead lines. When they blow, the gases generated aid in quenching the arc.

Plug fuses are used on circuits which do not exceed 30 amperes at not more than 150 volts to ground. The type which cannot be bridged inside the holder is recommended.

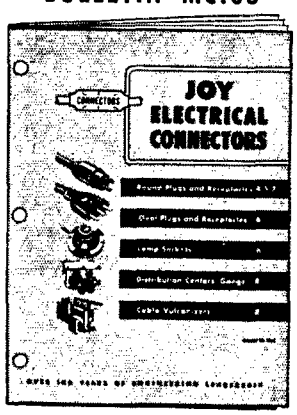
Cartridge fuses have fusible metal strips enclosed in fiber tubes. Those

Safety is no accident

When JOY *electrical connectors are on the job*

In Industry . . . metallic dust, grime, moisture and careless handling are dangerous enemies of electrical connector performance. Constantly present around most installations they quickly try to increase resistance, crack insulation, fray wiring and corrode contacts, thereby shortening the life span and reducing the safety of electrical connectors. Fortunately, JOY plugs and receptacles are little affected by these conditions. Vulcanized to their cable as one-piece molded Neoprene units, they can't crack . . . won't lose shape . . . and require no special consideration to insure a long life of safe, efficient service. Hundreds of styles and sizes are now available for Industrial needs. So *for safety's sake* remember JOY when you next need electrical connectors . . . and in the meantime ask for your free copy of Bulletin MC108. It provides valuable additional information on Industry's favorite plugs and receptacles.

BULLETIN MC108



M.E. 253.1

MORE THAN 100 YEARS ENGINEERING LEADERSHIP

JOY MANUFACTURING COMPANY
HENRY W. OLIVER BUILDING, PITTSBURGH 22, PENNSYLVANIA
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Consult a Joy Engineer

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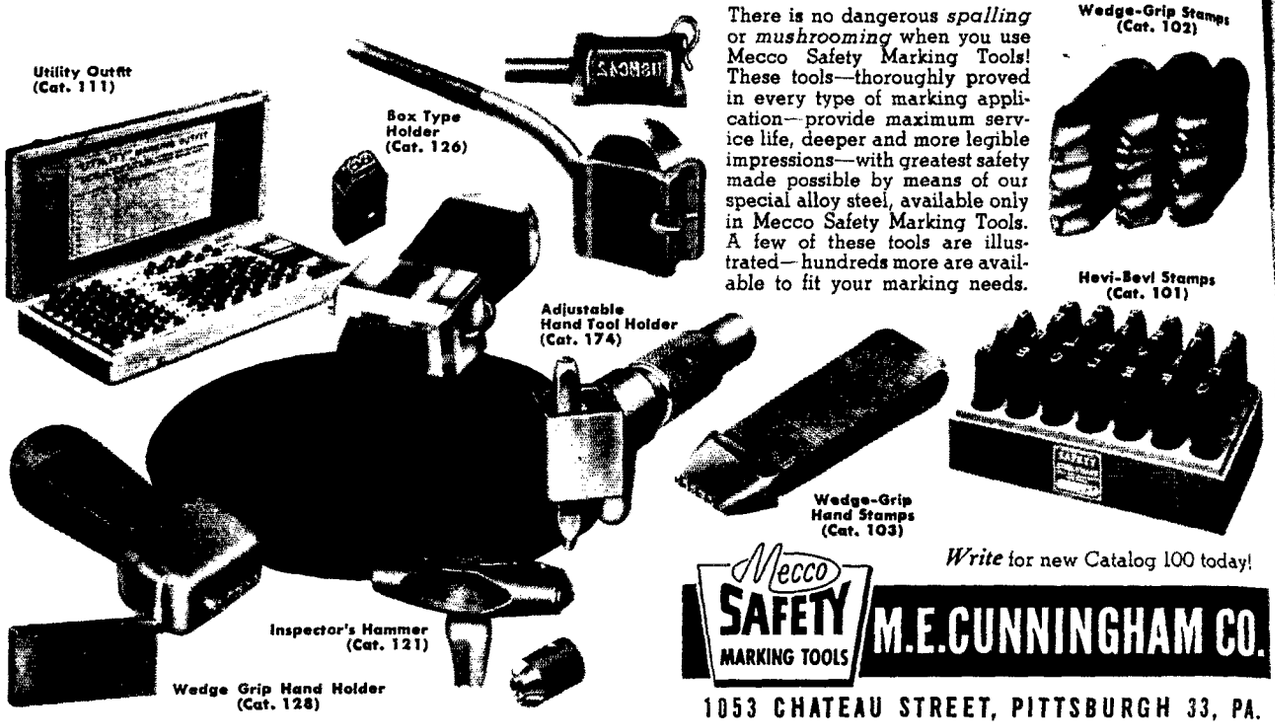
SAFETY MARKING TOOLS

GIVE BETTER IMPRESSIONS! LAST LONGER!

There is no dangerous *spalling* or *mushrooming* when you use Mecco Safety Marking Tools! These tools—thoroughly proved in every type of marking application—provide maximum service life, deeper and more legible impressions—with greatest safety made possible by means of our special alloy steel, available only in Mecco Safety Marking Tools. A few of these tools are illustrated—hundreds more are available to fit your marking needs.



Write for new Catalog 100 today!

Mecco SAFETY MARKING TOOLS

M.E.CUNNINGHAM CO.

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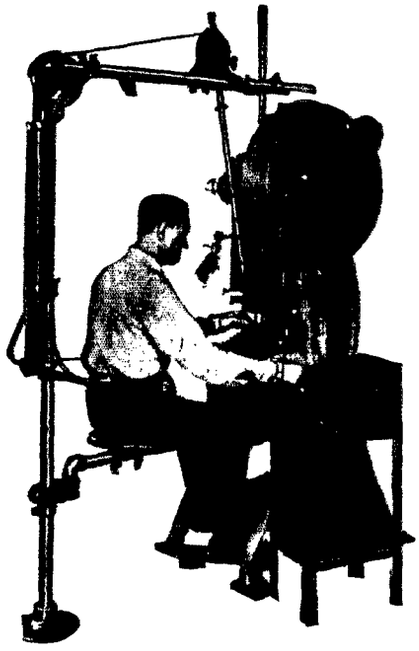


THE NEW AND IMPROVED

POSSONS POSITIVE DEVICE

assures

Positive Safety
Fast Production
Smooth Operation

A type for every kind of press. Meets all safety requirements. More than 30,000 in use! *Write today* for catalog and names of users near you.

THE POSITIVE SAFETY MFG. CO.

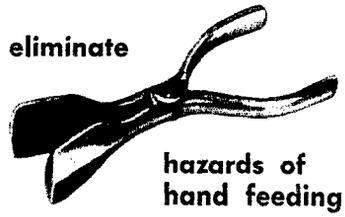
4403 Perkins Avenue, Cleveland 3, Ohio

IN CANADA: SAFETY SUPPLY CO., TORONTO

OSBORN

SAFETY PLIERS

eliminate



hazards of hand feeding

And they eliminate another hazard too: shattering. That's because Osborn pliers are made of Osmolloy—the aluminum alloy that flattens instead of shattering under impact. That means double protection: to workers' hands . . . to expensive dies. Remember: one ruined die pays for hundreds of Osborn pliers.

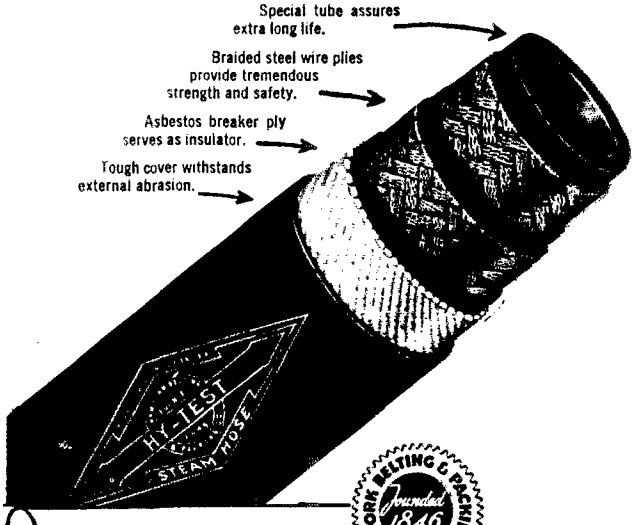
Ask for folder #553 showing dozens of Osborn safety pliers.

OSBORN Manufacturing Co.

Dept.-NS • Warsaw, Indiana

ELIMINATE This Hazard!

Here's why HY-TEST® steam hose spells SAFETY...



NYB&P's *HY-TEST* hose is built so that it just can't burst and spray out superheated steam—steam that can badly scald and *even kill!*

This unique steam hose is reinforced with several rubber-encased plies of closely-woven braided *steel wire* that positively prevent sudden failure—at working pressures up to 200 pounds! After long and severe service, harmless seepage through these blowout-proof plies provides ample warning of the need for replacement.

Add to this safety feature a specially-compounded steam-resistant inner tube, a breaker ply of spiraled asbestos cord that keeps the outer surface cool, and an extra tough, abrasion-resistant cover and you have a super-service, super-safe hose for superheated steam: HY-TEST steam hose!

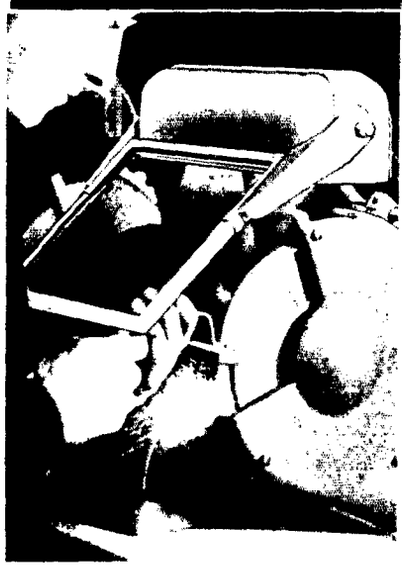
Such advanced industrial rubber products as Gilmer "Timing"® Belts, Resistorip Conveyor Belting and HY-TEST Hose are available only from NYB&P Distributors. For name of your nearest distributor, write us . . . or phone PRescott 7-6940, Passaic, N. J.

NYB&P

NEW YORK BELTING & PACKING CO. 1 Market St., Passaic, N. J.

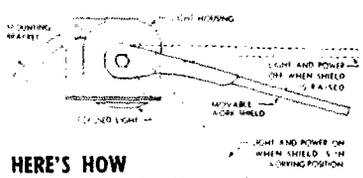
America's Oldest Manufacturer of Industrial Rubber Products

JUNKIN
ELECTRO-LOCK SHIELD



The Shield Which Commands Operator Safety

The position of the Junkin Electro-Lock Shield is controlled by mercury switches. Interlocking power and light circuits will not permit the machine to operate unless the shatter-proof shield is in a completely protective position. Affords perfect visibility, and protects the operator from flying particles. Write for free bulletin No. 103.



HERE'S HOW THE ELECTRO-LOCK SHIELD OPERATES
—permits clear view of work, still providing maximum protection

JUNKIN
ENGINEERED SAFETY
SAFETY APPLIANCE CO.
101 S. FLOYD ST.
LOUISVILLE 2, KENTUCKY

which indicate when the fuse is blown and the refillable types in which fusible elements may be replaced are available.

Insulated fuse pullers should be kept on hand for pulling and replacing fuses. It is a code requirement that fuses be protected by a switch which will deenergize the fuses when opened. If the fuse is not protected by a switch, the supply end of the fuse should be pulled out first, and in replacing, the supply end should be inserted last.

Circuit-breakers are used in high voltages or large current capacity circuits, and are becoming more common in many kinds of circuits. They may be instantaneous in operation, equipped with timing devices, manually or power operated.

Switches

Types of switches in use include snap switches, knife switches, enclosed externally operable air-break switches, and oil switches. Those designed for controlling individual motors and machine tools and for lighting and power circuits are of the enclosed type.

Open-knife switches are undesirable because of exposure of live parts and because of the arc formed when the switch is open. It is advisable, therefore, to enclose knife switches in grounded metal cabinets having a control lever extending through a slot in the cover.

Oil switches have contacts which operate while submerged in oil. They are especially desirable in circuits of 750 volts or more and may be used also in lower voltage circuits.

Snap switches, such as pushbutton or toggle types, usually have live parts enclosed. Flush switches should be installed in metal boxes, and surface switches used in open wiring and moulding work should be mounted on porcelain or plastic subbases. These switches should indicate whether the circuit is open or closed.

Snap switches are preferable to key or pull-chain sockets. Key sockets, if used, should be of porcelain, plastic, or other non-conductive material. Pull-chains should contain non-conductive links.

Protection against accidental shock from live electric parts, such as switchboards, fuse panels and control equipment is obtained by insulating the floor area within reach of live parts.

For low-voltage exposures, dry wood floors without metal parts, or insulating mats, may be used. Mats should be non-conductive, moisture resistant, and able to withstand

and Reduce Danger of Costly Accidents with the

M & M
RAIL CLAMP

. . . It will not slip! Its safe performance has been proven in heaviest industries—steel mills, foundries, shipyards, mines, quarries and cement plants.

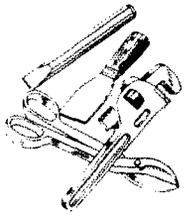
The M & M Rail Clamp will give years of safe, economical service. Body is electric furnace steel casting; lugs and wedges are highest grade drop forgings. Simple construction saves time in positioning and moving up.

Why not give employees in your plant this low-cost extra protection and at the same time reduce danger of costly derailments. Order an M & M Rail Clamp and see how well it performs for you.

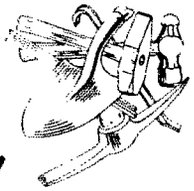
SAFETY FIRST SUPPLY COMPANY
425 Magee St.
Pittsburgh 19, Pa.

Ampco* Safety Tools

A low-cost way to prevent high-priced fires

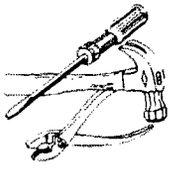


For tools with cutting edges or gripping teeth — specify Ampco beryllium Copper Tools.



How to select the proper *Safety Tool*

For tools subject to impact and/or torque — specify tools of Ampco Metal.



For jobs in the vicinity of acetylene and similar gases — specify Ampco Monel* Tools.

*T. M. International Nickel Co.

ALL fires are costly — in property damage, in lowered employee morale, in interrupted production. And the best way to fight a fire is not to let it start. That's why a small investment pays off in real fire protection, when you provide Ampco Safety Tools for use in hazardous locations.

Ampco Safety Tools are approved and recommended by Factory Mutual Laboratories and other leading safety authorities for use wherever there's a special fire hazard — spray booths, paint lockers, gasoline-storage areas, etc.

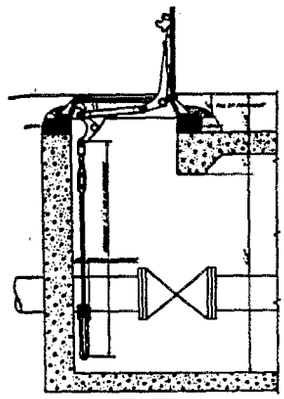
The Ampco Safety Tool line is the largest available anywhere. From more than 400 items select the right tool for practically every one of your jobs. Order today — to take advantage of reduced insurance rates and greater employee safety.

*Reg. U. S. Pat. Off.

AMPCO METAL, INC.
DEPT. NS-3
MILWAUKEE 46, WISCONSIN
West of the Rockies, it's Ampco Burbank Plant, Burbank, Calif.
In Canada, Safety Supply Co., Toronto, Ontario

AMPCO®

T-9



● **The Wachs Safety Counterbalanced Vault Cover can be opened with ease and safety by one man. To open, merely insert the combination Key-Handle, give it a half turn and open the cover with one hand. The counterbalance weights that make lifting the cover a one handed job also hold it in an upright, protective position while a man is below. Designed and manufactured to withstand the heaviest traffic, many of these units have given trouble free service for over 40 years under the most rugged conditions. Several leading utility companies have had them in use for this period of time.**

Write today for descriptive literature showing dimensions, weights, construction, prices, etc.

THE E. H. WACHS COMPANY
Manufacturers of Engineers' Valves and Machinery since 1883
1525 NORTH DAYTON STREET · CHICAGO 22, ILLINOIS

What Is He Using to Prevent Serious Injury?

The Prescott Safety Tool

Those who have been using dangerous, old-fashioned hand, foot and bar methods of closing hopper bottom car doors with latch-type locks should be provided with this protective tool. It will prevent many ruptures, strained backs, and smashed fingers. Write today for free folder.

The Trumbull Mfg. Company
WARREN, OHIO

mechanical abuse in service.

Cords, Sockets, Lamps

Extension cords should be of the type listed by Underwriters' Laboratories and labeled to show compliance with all requirements of the National Electrical Code. They should be inspected regularly. Kinking or excessive bending of cords should be avoided.

Ordinary lamp cord should not be used where it will be exposed to mechanical wear or to moisture—never for extension lamps in boilers, tanks, or on damp or metal floors.

Cord for portable tools and equipment is made in several grades. Rubber-sheathed cord should be used with tools and lamps in boilers, tanks and other grounded enclosures.

For heating devices, such as electric irons and water heaters, the cord has an insulating covering containing flame-proofing material such as asbestos fiber. It resists high temperature but not dampness.

Sockets should be of porcelain, non-conducting plastic, or rubber covered. Ungrounded metal-shell sockets are not recommended.

Extension lamps are sometimes used under conditions where a shock of 110 volts might be fatal. Safe cords and lamp holders must be provided and maintained in good condition. Handles should be of non-conducting material and there should be no metallic connection between the lamp guard and the socket shell.

Miniature voltage. Portable transformers which step the lamp voltage down to 6 volts are frequently used where the shock hazard is serious.

Training. The safety program should include thorough training of all employees who install or operate electrical equipment. In addition to instruction on the hazards of electricity they should be trained in arm-lift, back-pressure method of resuscitation. Distribution employees should also know the pole-top method.

REFERENCES
Electricity

National Safety Council

Accident Prevention Manual for Industrial Operations.

Grounding Portable Electric Equipment—Data Sheet D-Gen. 42.

Methods of Locking Out Electric Switches—Data Sheet D-Gen. 41.

Scientific Facts Concerning Electrical Hazards—Safety Reprint Gen. 4.

National Safety News

Electricity and the Human Body—W. B. Kowenhoven, Feb. 1951, p. 30.

Your Electric Equipment—D. L. Beeman, Nov. 1948, p. 24.

Low Voltage, High Hazard—Herbert Heinrich, Oct. 1953, p. 122.

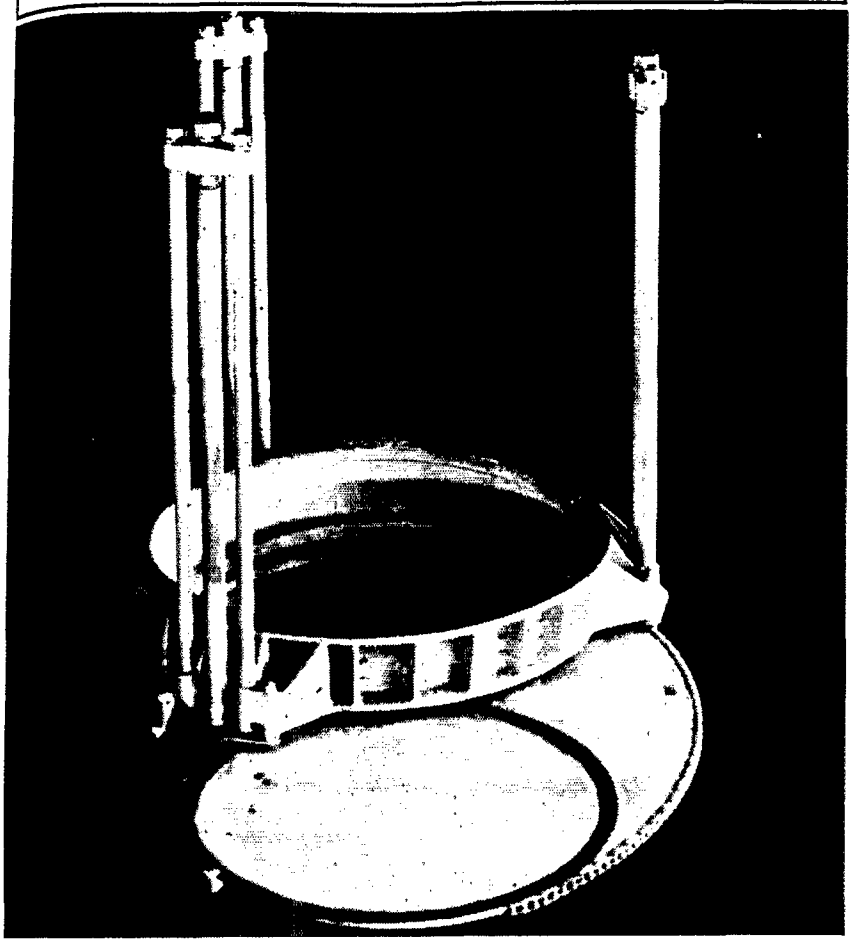
American Standards Assn.

National Electrical Code—C1-1951 (National Board of Fire Underwriters Pamphlet No. 70).

National Electrical Safety Code—C2-1947 (NBS Handbook H30).

(Advertisement)

HOW A FORCE OF NATURE IMPROVES STEEL MILL SAFETY



Designed to protect men and equipment, this heavy duty Bailey Valve was produced for one of the nation's major steel makers. Although its diameter is 120" and its weight is close to 42,000 lbs., it is precisely machined to assure a tight, positive gas seal.

AN UNFAILING force of nature—the linear expansion and contraction of steel—is being used to increase steel mill safety. This powerful force, applied to Bailey Thermal Expansion Goggle Valves, provides a safe, dependable means of positive shutting off large gas mains in emergencies or for repairs.

The Function of Goggle Valves

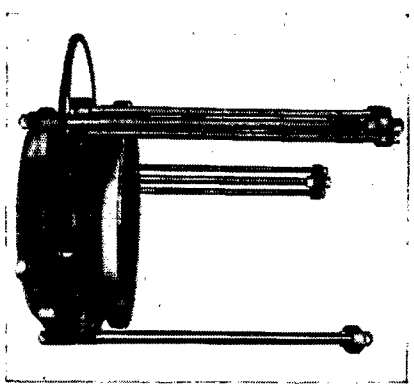
Ranging in diameter from 36" to 120", this type of valve long has been industry's standard method for controlling gas in the large mains for blast furnaces, gas washers and boilers. They take their name from one of their component parts—a large, moveable plate shaped like a pair of aviation goggles. This plate has one "goggle" open, the other of solid steel. When a gas main is in operation, the open goggle allows gas to flow through it freely; when the gas is to be shut off, the plate is moved until the closed goggle blocks the main, forming a tight, leak-proof seal.

These valves are in service on an Elex Precipitator. In this view the goggle plates are in the open position.

BAILEY THERMAL EXPANSION GOGGLE VALVES

Safety and efficiency in closing the larger sized gas mains are provided by Bailey Thermal Expansion Goggle Valves. In them, the powerful force of linear expansion and contraction of three steel tubes is used to free or clamp the goggle plate—providing an absolutely gas-tight seal.

In operation, steam is passed into the tubes, which are spaced evenly around and perpendicular to the rigid steel flanges of the valve. The resulting expansion frees the heavy goggle plate so it may be swung to the open or closed position. When the steam is shut off, contraction of the tubes takes place, closing the flanges tightly against the goggle plate. Since both sides of the plate are machined to conform to the machined edges of the valve flange, Bailey Valves are leak-proof in both open and closed positions.



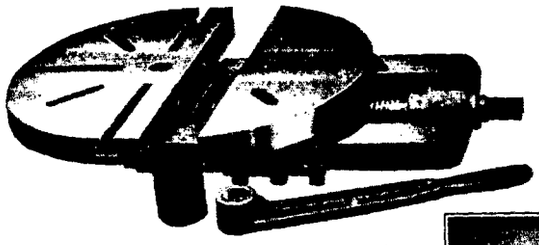
Bailey Thermal Expansion Goggle Valves are produced in diameters from 36" to 120".

Sound design and precision manufacture are combined in these valves to assure the ultimate in safety and reliability. They have been thoroughly proved on the gas mains of blast furnaces, gas washers and boiler plants. Bailey Thermal Expansion Goggle Valves are completely dependable in hot or cold, dirty or clean gas mains.

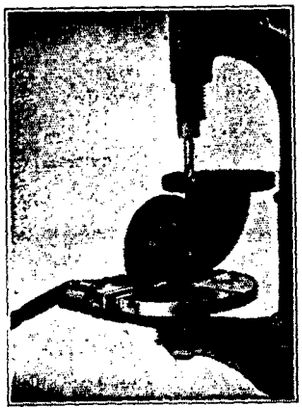
WILLIAM M. Bailey COMPANY

1221 Banksville Road
Pittsburgh 16, Pa.

Try the MODERN SAFETY DRILL TABLE



Under Our FREE TRIAL OFFER



For Faster, SAFER Work

Combines a drill table, a vise, a set of parallels and V block. No more lost fingers, from hand held jobs that slip. No more 30 minute set-ups for a 1 minute drilling operation. Made in 6 sizes, from 8" to 28" dia. We guarantee each Safety Drill Table will save its cost on labor alone in 6 months, to say nothing of plant down time when vital maintenance is delayed even a few minutes.

WRITE FOR FREE FOLDER

Shows many typical set-ups, and use on radial drills. Complete specifications on all models. Covers MONEY BACK GUARANTEE and 30 DAY FREE TRIAL OFFER.

MODERN MACHINE TOOL CO.
Jackson, Michigan

Save Money! Save Fingers!

Cost of Amputated Fingers

It pays to keep fingers out of presses!

AIR BLAST VALVES
Eject parts at each stroke of Press. PRICE **$29.00**

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PRES-VAC SAFETY FEEDERS
Blanks are fed to a press from a safe distance of 14 inches. PRICE **$35.00**

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Speed with Safety

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4165 RAVENSWOOD AVENUE
CHICAGO 13, ILLINOIS
District Offices: DETROIT and CLEVELAND

Hand and Power Tools

—*From page 190*

room. By this system the attendant knows where each tool is and can call it in for inspection at regular intervals.

In companies with jobs at several locations it is not always practicable to maintain a tool supply room. In such cases the foreman should inspect all tools frequently and take out of service those found defective. A check list for tools considered most hazardous is helpful.

Some workmen prefer to use their own tools rather than those furnished by the company. Privately owned tools should be subject to the same inspection as those owned by the company.

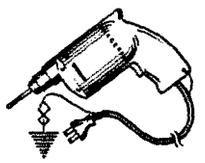
Carrying Tools

Tools should never be carried where they might interfere with using both hands while climbing. A strong bag, bucket, or other container should be used for hoisting or lowering tools.

Chisels, screw drivers and pointed tools should never be carried edge or point up in the pocket. They should be carried in a tool box or cart, in a carrying belt like those used by electricians and steel workers, in pocket tool pouch or in the hand with points and cutting edges away from the body.

Display boards are often used for maintenance and repair tools and do much to encourage return of tools. In other plants, racks or bins which can be moved to the work area are

PORTABLE ELECTRIC TOOLS



1. Use only equipment that is in good condition. Take good care of it.
2. Be sure the tool is properly grounded.
3. Report the following unsafe conditions:
   Defective or broken insulation on cord.
   Improper or poorly made connections to terminals.
   Broken or otherwise defective plug.
   Loose or broken switch.
   Brushes sparking.
4. Do not overstrain the tool, thus overloading the motor.
5. Never use a portable electric tool in the presence of flammable vapors or gases, unless it is designed for such use.

SAFETY INSTRUCTION CARD No. 91
National Safety Council PRINTED IN U.S.A.

used. These require periodic checking to see that tools are in good repair.

An individual workman's tools should be kept in a box or rack convenient to his work area. The box should have designated places for such things as wire brushes, chisels, saws and knives to avoid exposing sharp edges.

Inspection. Permissible wear limits for tools should be set up as a guide for inspection when they are returned to the crib. Lacking such standards, the attendant or inspector should be qualified to pass on the condition of the tool for future use.

Periodic inspections of all tool operations are needed to insure efficient control. Inspections should include housekeeping in the tool crib, tool service, number of tools in the inventory, handling procedure, and condition of tools in general.

Maintenance and repair require adequate facilities, such as work benches, vises, forge or furnace for hardening and tempering, tempering baths, repair tools, grinders, goggles and adequate lighting. Repairs should be done by trained men.

An adequate supply of repair parts should be kept on hand.

Non-Sparking Tools

Where hand tools may strike a spark and ignite flammable dust, gas or vapor, non-ferrous tools are widely used. These tools are made of such metals as aluminum, bronze, brass and beryllium-copper.

Tools made of these alloys include hammers, chisels, punches, prybars, screw drivers, scrapers, spatulas, picks and shovels. Special tools of any type can be made to order.

Substances easily ignited include gunpowder, lint, TNT, carbon disulfide and ethyl ether.

Being softer than steel, non-ferrous tools are less likely to break off fragments from the metal being worked on by the tool.

With continued use, these tools may become impregnated with particles of foreign substances which may cause sparks if not removed.

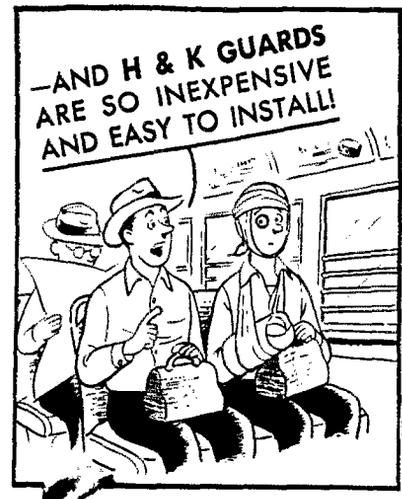
Non-ferrous alloys are more expensive than steel and these special tools are used only where there is an explosion hazard.

Portable Electric Tools

General classifications of hand-operated power-driven tools are:

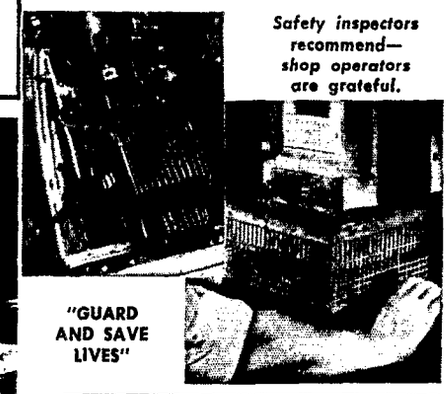
1. Abrasive tools, such as disk and portable belt sanders, polishers, and bench and flexible shaft grinders.

—*Next page*

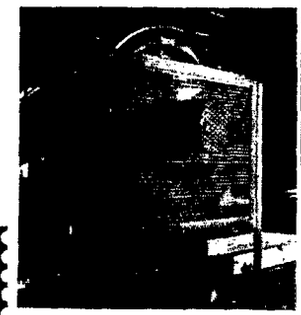


H & K
Standardized
SAFETY GUARD PARTS

make guard building so easy. With our perforated angles, bands and gussets the sturdy frame is quickly assembled and mounted on our detachable floor posts and sockets. Then our peforated sheet, which provides fine visibility and a smooth easily cleaned surface, covers the frame and from then on limbs and lives may be saved. Standard steel strips, 5" and 6" wide with slots 3/8" wide punch press guards are easily and inexpensively formed.



Safety inspectors recommend—shop operators are grateful.



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Harrington & King PERFORATING Co

5645 Fillmore Street, Chicago 44, Illinois
114 Liberty Street, New York 6, New York

SAFETY EQUIPMENT FOR ALL INDUSTRIES

M&M RAIL CLAMPS

Used for car stops, on loading platforms, temporary sidings, cars on grades and traveling cranes.

THIS The Dangerous Way OR **THIS** THE SAFE WAY

Used and recommended by leading Steel Companies, Manufacturing Plants, Mines, Grain Elevators, Cement Plants and Quarries.

WRITE FOR BULLETIN NO. 4

IPCO *Safety Equipment for all Industries*

INDUSTRIAL PRODUCTS COMPANY

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2. Drills.
3. Saws and other cut-off tools, routers, etc.
4. Assembly tools, such as screw drivers, nut runners and tappers.
5. Hammers.
6. Sheet metal shears.
7. Fans.

Portable electric tools are generally designated as:

Light duty, for intermittent use on light work.

Special duty or **standard duty**, for slightly heavy work or fairly continuous operation.

Heavy duty, for continuous operation and production service or for heavy work.

Safety switches, which operate the motor only while the switch is held in the closed position by the operator, should be used.

Three possible methods of preventing electric shock to the operator are: (1) Prevent electric contact with the shell; (2) Use non-conductive material for the shell and all parts which the operator may handle; (3) Ground the shell by means of a third wire or [illegible] grounding.

Grounding is generally consi[dered] the most practical method of guarding the operator against [shock]

REFERENCES
Tools, Portable Hand and Power

National Safety Council
Accident Prevention Manual for Industrial Operations.
Hand Knives—Data Sheet D-Gen. 34.
Powder-Actuated Hand Tools—Data Sheet D-Gen. 34.

National Safety News
Maintaining Electric Hand Tools—Jos. A. Hill, Feb. 1950, p. 30.
When You Use Portable Electric Tools—B. B. Ramey, Apr. 1948, p. 20.
Check It to Check Your Accidents—George MacDonald, Feb. 1953, p. 34.

Hand Tool Accident Facts

Hand tools were responsible for [illegible] per cent of all compensated work injuries, according to reports from Labor Departments of nine states. Cuts or lacerations were the type of injury in half of the cases.

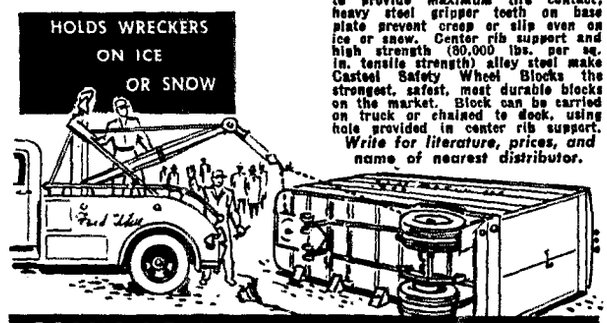
Surveys by the New York State Department of Labor shows that 44 per cent of compensated hand tool cases were permanent partial disabilities, 55 per cent temporaries, and less than 1 per cent permanent total and death. A worker other than the one injured was using the tool in one out of 17 accidents. It was also shown that the principal

Safety ALLOY STEEL
WHEEL BLOCK
HOLDS ANY TRUCK, TRAILER

Large size Wheel Block available for Extra Heavy Duty.

Stop Accidents...Reduce Insurance Rates with Positive...Safe CASTEEL WHEEL BLOCKS!

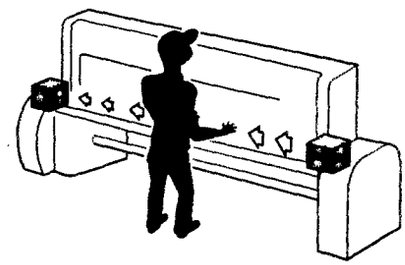
Casteel Safety Wheel Blocks will prevent accidents and damage due to movement or shifting of parked trucks, trailers or tractors—can be used to anchor any round object during storage, shipment or use. Also widely used on tow trucks to provide additional holding power during winching operations. Lightweight, tough, indestructible. Casteel Wheel Blocks have a wide curved tread plate to provide maximum tire contact; heavy steel gripper teeth on base plate prevent creep or slip even on ice or snow. Center rib support and high strength (80,000 lbs. per sq. in. tensile strength) alloy steel make Casteel Safety Wheel Blocks the strongest, safest, most durable blocks on the market. Block can be carried on truck or chained to dock, using hole provided in center rib support. *Write for literature, prices, and name of nearest distributor.*



CALUMET STEEL CASTINGS CORP.
1646 Summer Street • Hammond, Indiana

Safety Guard for Shears and Presses

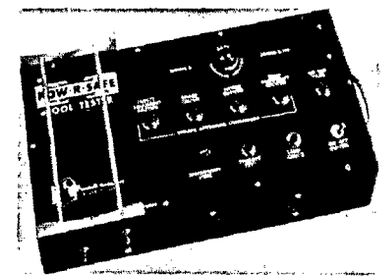
A Safety Application of the "Electric Eye"



If operator's hands are too close to blade or die during the closing stroke, machine is automatically stopped. Curtain of Light equipment available from 1-inch (illustrated above) to 12 inches height. Fail-safe circuit, foolproof operation. Bulletin with full information is available.

ELECTRONIC CONTROL CORPORATION
1573 E. Forest Avenue Detroit 7, Michigan

New... Improved
POW-R-SAFE
TOOL TESTER



- **Instantly, Accurately Detects Unsafe Conditions in Electric Tools, Extension Cords**
- **Stops Accidents BEFORE They Can Occur**

Fendall POW-R-SAFE Tool-Testers prevent accidents and injuries caused by electrically defective tools. The New Model B, featuring one-button operation, automatically safety-checks tools in only 7 seconds. Other models also available. Send for full details NOW!

FENDALL COMPANY
4631 N. Western Ave., Chicago 25, Ill.

factor in hand tool injuries, 76 per cent, was the glancing or slipping of the tool in use.

Hand tool injuries reported in Pennsylvania in 1951 indicate that of unsafe mechanical conditions involved, defective tools were reported for half of the accidents, while the majority of the remaining cases involved hazardous arrangements or procedures.

The Circular Saw

The circular saw is one of the most useful of woodworking power tools, and it is also the most dangerous. It causes more permanent disabilities than any other machine in the industry.

Rim speed of a circular saw should not exceed 12,000 fpm, unless the saw has been manufactured or hammered for a higher speed and is so marked. When turning at high speed the teeth are almost invisible.

Following are important points in guarding:

1. The saw must be equipped with a hood that will cover the saw to at least the depth of the teeth.

2. The hood must automatically adjust itself to the thickness of the material being cut and remain in contact with it, unless the hood is in a fixed position. Then the space between the bottom of the guard and the material must be no more than half an inch.

3. Exposed parts of the saw blade under the table must be guarded.

4. There should be a clear view of the saw at the point of operation.

5. Guards should be designed and constructed to avoid vibration.

6. All teeth should be even in length.

7. The blade should not be lumpy or warped.

8. The depth, size and shape of the gullets should be such as to let all sawdust discharge freely. The bottom of the gullet should be round.

9. The cut in the wood should be a trifle wider than the thickness of the saw blade.

10. A saw must be discarded if it has a crack longer than 5 per cent of the diameter, unless the diameter is reduced to eliminate the crack and the tension is corrected.

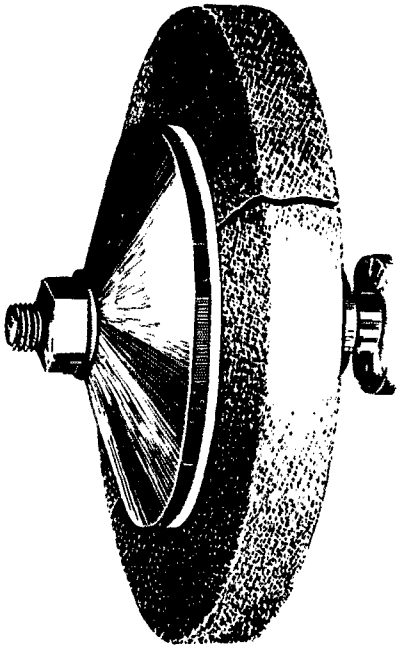
Swing Cut-Off Saws

1. Swing cut-off saws must have a device to return the saw automatically to the back of the table when released at any point. Fiber

THE STORY *of the* BROKEN GRINDING WHEEL!

A whirling grinding wheel can tell its own story of havoc when it explodes . . . But in this case Perks Safety Washers do the telling!

A test conducted in the Sta-Safe laboratory used the new neoprene faced Perks Safety Washers and an 8″ grinding wheel cracked in two places. At 5,000 RPM—an outer surface speed of 12,500 feet per minute — Perks Safety Washers held the wheel intact!



Standard Safety does *not* recommend to you the use of broken grinding wheels—even with Perks—but Standard Safety does recommend Perks Safety Washers as a precaution against possible tragedy in your company. Perks Safety Washers are easily installed on any size grinding wheels. Keep your equipment and personnel safe-guarded. Write now for Bulletin No. 54 containing complete information about Perks Safety Washers.

STANDARD SAFETY EQUIPMENT CO.

232 W. Ontario St., Chicago 10, Illinois

For Greater Safety be sure it's

ACRO Safety Parallels

For Drilling, Tapping, Counterboring, Milling & Grinding.

ACRO SAFETY PARALLELS
Support Dies & Jigs Speed Up Work. Give your hands greater freedom around the machine.

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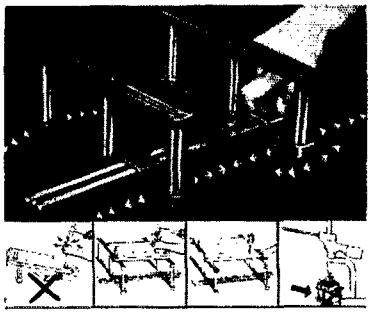
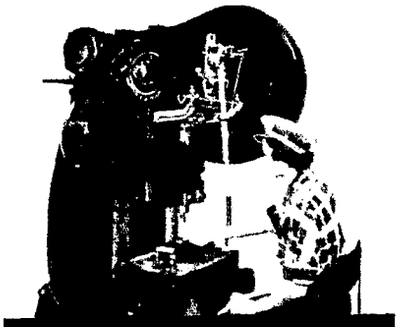
(Some jobber territories open.)



SAFE AND ECONOMICAL

JERICO 4744 W. Lake Street, Chicago 44, Illinois



Power Press Guards

Protect Operators • Increase Production

Wiesman cam-action press guards enable operators to work at top speed without fear of accident. Guarding is effective and completely automatic . . . does not hamper operator's vision or movement. For all sizes and styles of presses. Used by hundreds of firms. Inexpensive . . . easy to install.

Over 30,000 sold

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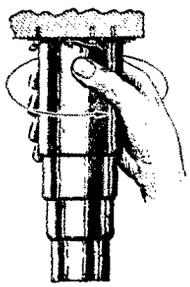
Guide Pin Covers



PROTECT OPERATOR AND GUIDE PINS

Effectively guard against injury to operator, die and press on operations where bushings leave the guide pins. Protect pins and bushings from chips and dirt when entire pin and bushing are covered. Inexpensive, easy to attach.

Felt Oiler Ring in top units provides POSITIVE lubrication.

WRITE TODAY FOR DESCRIPTIVE FOLDER AND PRICE LIST

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rope or cord must not be used in the device for this purpose.

2. Limit chains, positive stops or table extensions must be provided to prevent the saw from swinging beyond the front edge of the table.

3. Where it is possible to pass behind a swing cut-off saw, the rear of the saw must be completely housed when the saw is in its back position. The housing must include the swing frame as well as the saw.

Manual-Feed Ripsaw

1. A hand-feed ripsaw must be equipped with a splitter or spreader to prevent pinching or binding. It must be slightly thinner than the saw kerf and slightly thicker than the saw disc.

2. Anti-kickback devices of steel should be designed and installed so as to be effective for material of all thicknesses.

Announce Development of New Acoustical System

A method for reducing noise in large industrial areas, through the combined use of aluminum panels and glass fiber insulation, has been introduced. Perforated, corrugated aluminum panels are suspended on aluminum angles to form a ceiling; then, the glass fiber insulation either is placed directly on top of the panels or is separated from the panels and attached above them to existing ceiling, to leave space for ventilating ductwork or other installations. The system has been tested by Riverbank Acoustical Laboratories, Geneva, Ill., and by a number of industrial installations, one of them an aircraft plant.

The technique, known as the Reynolds Lifetime Aluminum Acoustical System, was introduced by Reynolds Metals Company, and is being distributed through Elof Hansson, Inc., New York.

The combination of aluminum panels and glass fiber insulation absorbs sound at all frequencies and provides an efficient fire-resistant acoustical system of pleasing modern design.

The system can readily be installed in old buildings, covering up utilities, fixtures, and pipes. Also claimed for the system is ease of maintenance. The lightweight panels and blanket, weighing less than one-half pound per square foot, can quickly be pushed up or removed from their supports to provide unlimited access to utilities. If necessary, the ceiling also can be inexpensively changed to conform to a new floor plan.

In addition to providing a noise-reduction coefficient of up to .95, one of the highest on record for any acoustical material, the glass fiber blanket offers these important features: It is non-combustible, moisture-repellent, and automatically provides efficient thermal insulation. As a result of its insulating qualities both summer cooling and winter heating costs are greatly reduced.

The system can be installed either by suspending the rustproof, non-staining panels from the roof, framing or truss work by wires or metal straps, or by direct attachment to the existing ceiling. When the glass fiber blanket is separated from the aluminum panels, the ceiling is adaptable to air conditioning systems.

The aluminum panels are of .024-inch thickness, and are available in six or eight-foot lengths with 33¾-inch width to give net coverage of 32 inches. The six-foot panels provide 16 square feet nominal net coverage and the eight-foot panels 21⅓ square feet coverage.

The glass fiber blanket comes in thicknesses varying from ½" to 2" and can be mounted with various backings to meet specific needs.

Installation is done by a nation-wide chain of experienced franchised acoustical contractors.

THE BERGMAN
Safty-Spanner
a helper you can trust
MADE OF THE TOUGHEST ALUMINUM-MAGNESIUM ALLOY
WILL NOT
DAMAGE VALVES
MAKE SPARKS
MAKE BURRS
SLIP OFF

18 INCH
WEIGHS ONLY
2 LB. - 13 OZ.
Developed by the men who use them daily!

The Bergman SAFTY-SPANNER CO.
927 BUTLER ST., TOLEDO 5, OHIO

Defense Against Fire

SAFEGUARDING life and property against fire depends upon four fundamental principles:

1. Fire prevention engineering.
2. Early detection and extinguishment.
3. Limiting damage due to fire and fire extinguishment.
4. Prevention of personal injuries from fire or panic.

Causes. The majority of fires in industry can be traced to four general causes:

1. Open flames and high temperatures —stoves, furnaces, ovens, lamps, welding and cutting, dryers, heated pipes and surfaces, matches, smoking.
2. Friction—hot bearings, belts, cutting, grinding, drilling.
3. Electricity—defective wiring, static electricity, arcs, sparks, heat resistance.
4. Chemical reactions — spontaneous ignition, use of reagents, acids, oxidizing agents.

Incendiary fires. These may be the acts of enemy agents, individuals with grievances, and trespassers who try to cover up theft or are merely careless with fire. A general tightening up of plant protection measures and careful identification of employees are sometimes needed. In some cases, establishment of restricted areas may be desirable.

Regional offices of the Federal Bureau of Investigation are ready to work with industry in the prevention of subversive activities.

Planning Protection

The first step is a survey of the plant — its layout, manufacturing processes, materials handled, storage methods, and fire protection facilities.

With this information, plans can be made for improving structure and layout, installing additional or different equipment where necessary, and training employees in methods of prevention and extinguishment.

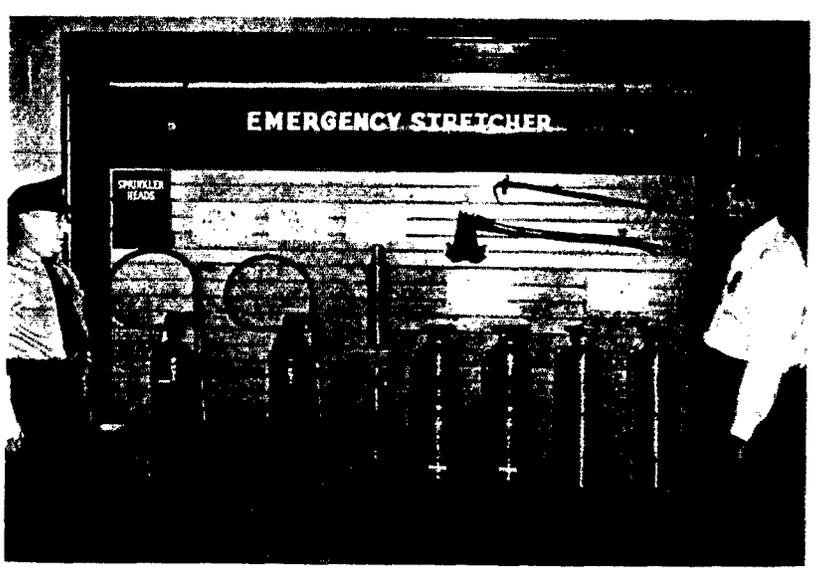
The municipal fire department should have a prominent place in all plans. Its members should be familiar with the plant and its problems. They can also give helpful suggestions on training and equipping plant fire brigades.

The plant should not depend on the city fire department alone. Even under the best conditions, it takes time for outside apparatus to reach the fire, and in times of emergency the department may be busy elsewhere.

In many plants, fire protection is one of the responsibilities of the safety department. Even in larger plants where there is a division of duties, the safety department has an important part in any program involving protection of life and property.

Plant organization for fire-fighting may range from a few trained employees with hand extinguishers to a full-time company fire department rivaling those of some cities.

Fire squads. The first step for any plant is to organize fire squads. A squad may consist of five or six men in each department. They should act as inspectors, reporting and cor-



First-aid fire extinguisher boards are located in each section of Eaton Manufacturing Company's Axle Division plant. Carbon dioxide, foam, vaporizing liquid, and soda acid extinguishers are mounted on boards, with instructions on what type of fire they are to be used on. (Walter Kidde & Co.)

recting conditions which might cause fires. They should be taught the use of extinguishers, by actual demonstration of equipment on small fires, where practicable.

Men so trained will keep their heads in an emergency. They put out many fires before they do any serious damage, and also help to prevent panic.

Fire brigades. For the larger plant, hydrants and hose systems are basic items of protection and they need trained men to use them. Members of department squads can be members of the plant fire brigade.

These men should be familiar with all details of the plant, its protective system and water supplies. They should be drilled frequently in handling hose streams, which is no job for an amateur. Each man should have a definite task. Some should be assigned to protecting goods and machines from water damage.

Private fire departments. Some plants whose buildings and grounds cover a large area have full-time fire departments with motorized equipment. The department supervises the whole plant protection program and is trained in specialized techniques of fire fighting.

Any program of fire protection should be in operation around the clock, not the main day shift alone.

Watch service. Watchmen are vital to the protection of industrial property. They discover and correct fire hazards, detect the outbreak of fire, extinguish incipient fires, and call help promptly when needed.

The watchman should be a mature, able-bodied man who is loyal and dependable. During periods when the regular working force is absent the safety of the plant depends to a large extent upon him.

The watchman should be familiar with all parts of the fire protection system, including sprinkler systems, valves, drains and fire pumps. He should know how to operate extinguishers.

Recorded hourly rounds for watchmen are recommended for most plants. Approved watch clock or supervisory systems give a record of calls at each station.

Fire prevention engineering. Conditions responsible for starting fires and causing them to spread rapidly are avoided by fire-resistant construction, isolation of hazards, good housekeeping and power storage for combustible materials.

First step in the control of fire hazards is recognition that they exist. The services of a qualified fire prevention engineer will be helpful in planning for both prevention and protection.

Extinguishing Methods

There are many types of apparatus designed for a variety of risks, but all extinguishers are based on one of two fundamental methods of quenching fires: (1) Bringing the temperature of burning material below the kindling point; (2) Depriving burning material of oxygen which supports combustion.

Water Supplies. Water is the most widely used and effective extinguishing medium for most types of fires. Important exceptions are those with electrical equipment, flammable liquids, and in materials where water damage would be excessive.

In determining supply requirements, structural conditions and processes must be considered and the number of streams that might be required to cope with a blaze.

Pumping equipment should be able to supply enough streams at adequate pressure. Allowance should be made for pumps out of service for repairs and for continuity of pumping in event of power failure.

Hydrants should be located throughout the plant area so as to give adequate coverage of all buildings, and preferably not more than 50 feet from any building.

Systematic maintenance is essential. When hydrants are installed, attention should be given to drainage to minimize the danger of freezing in cold weather. Hydrants should be kept clear of snow and a thawing device provided.

Standpipe and hose provide effective protection inside buildings when used by men trained in handling heavy streams. They are a valuable auxiliary to the city fire department. Piping should be of sufficient size for buildings of more than four stories.

Couplings. All outside hydrant nipples and hose couplings should be of the American Standard 2½-inch fire hose thread.

For outside use, 2½-inch single-jacketed rubber-lined hose is ordinarily used. It is flexible and light in weight. Double jacket hose is used principally for the rougher service in municipal fire departments.

Rubber-covered hose is sometimes needed where there is exposure to fumes or corrosive liquids. Neoprene has been found superior to natural rubber for fire hose.

The 1½-inch hose is useful for small fires and for wetting down fires after the blaze is under control. It can be handled easily by one or two men.

Playpipes and nozzles. Standard underwriters' playpipes throw an effective stream but are difficult to handle, particularly on ladders. The short rigid playpipes with strap and ladder hook, with shut-off nozzles to prevent excessive water damage, are more suitable for plant use.

—*To page 214*

Types of Fires

Fires have been classified by underwriters and manufacturers in three main groups.

Class A. Fires in ordinary combustible materials, such as wood, paper, textiles, and rubbish. They require quenching or cooling effects of water or solutions containing large proportions of water.

Class B. Fires in flammable liquids, such as gasoline, solvents, oil, grease, paint, varnish and lacquers, where blanketing or smothering effect is essential.

Class C. Fires in electric equipment, such as motors, generators, and switch panels. These require a non-conductive, extinguishing agent.

Fires in motor vehicles, aircraft and motorboats have the same problems of extinguishment as Class B but equipment must be portable. Extinguishing agents must be nonfreezing.

FIRE PREVENTION CHECKLIST

Fire Extinguishing Apparatus

In proper place ☐ Clearly marked ☐
Unobstructed ☐ In working order ☐

Housekeeping

Premises free of combustible materials ☐ Safe storage of flammables ☐
Metal containers for oily rags ☐ No leaks and drippings of flammables ☐
No accumulations of rubbish ☐ Passageways clear of obstacles ☐

Electrical Equipment

No bare wiring or badly worn insulation ☐ Motors and tools free of dirt and grease ☐
Ground connections clean and tight ☐ No lights near combustible materials ☐
Fuse and control boxes clean and closed ☐ No poor splices ☐
No makeshift wiring ☐

Heat and Flame

No Smoking areas clearly indicated ☐ Gas jets off ☐
No gas leaks ☐
Ashes kept in metal containers ☐ Hot pipes clear of combustible materials ☐

Safety Instruction Card No. 237.

First-Aid Extinguishers

PORTABLE extinguishers can be brought into action in the vital minutes before the company or city fire brigades can reach the blaze. Their prompt use by employees has prevented a vast amount of damage by both fire and water.

Effectiveness of extinguishers depends on:

1. Right type for the risk. The wrong type may actually spread a fire, or create other hazards.
2. Correct location. If the employee must go too far to reach one, or if the access is blocked, valuable minutes may be lost.
3. Regular inspection and maintenance. Apparatus is subject to deterioration and misuse.
4. Training of employees. The best extinguisher is useless if the user is untrained in emergency procedure.

Types and Uses

Common types of extinguishers are:

1. Soda-acid
2. Vaporizing liquid
3. Carbon dioxide
4. Foam
5. Dry chemical
6. Gas cartridge
7. Hand pump

Some extinguishers are available in both hand and wheel types. The wheel type is highly mobile and extra extinguishing capacity is needed for severe exposures.

For Class A Fires Only:

Soda acid extinguisher is filled with a solution of bicarbonate of soda. A bottle in the top contains sulphuric acid. When the extinguisher is turned upside down, the chemicals mix, forming a gas which propels a stream of water.

Most extinguishers of this type have a capacity of 2½ gallons. They provide a stream of 30 to 40 feet lasting about one minute.

Gas cartridge extinguishers look much like the soda-acid. They operate the same way except that when inverted they must be bumped on the floor. This drives a pin into the cartridge, releasing the compressed gas which forces water through the hose. The extinguisher may contain either plain water or water with an anti-freeze chemical added.

Pump tank is made in 2½ and 5 gallon sizes. Plain water or a non-freezing solution can be used. Hard pumping will force a stream 30 to 40 feet. It is difficult to use while being carried. Somebody else can refill it while it is in use.

For Class A and Class B Fires:

These extinguishers are suitable for use on Class A fires in ordinary combustibles and Class B fires in flammable liquids. They should not be used for fires in electrical equipment.

Foam extinguisher is shaped like the soda-acid and is operated the same way. In the outer part of the extinguisher is a solution of water, bicarbonate of soda and a foam making ingredient. Inner chamber contains water and aluminum sulphate.

When the extinguisher is turned upside down the chemicals mix and force out a foaming stream. The extinguisher contains 2½ gallons of liquid and generates eight times that amount of foam.

Foam extinguishers also come in 10-, 20 -and 30-gallon wheeled units.

Loaded-stream extinguisher looks and operates like the gas cartridge type. Instead of water it contains a special solution of an alkali-metal salt.

For Class B and C fires:

These are the only extinguishers which may be used safely on Class C fires (electrical equipment) as well as flammable liquid, or Class B, fires. They do not contain water.

Vaporizing liquid extinguisher, one-quart size, is one of the most familiar types. Carbon tetrachloride is the extinguishing agent. It is operated by pumping the handle. In contact with heat the liquid turns into a heavy vapor which blankets and smothers fires. In addition, vaporizing liquid works effectively on Class A fires. Range is about 20 feet and stream lasts 45 seconds.

Larger units of ½- to 3-gallon capacity are operated by stored gas or air pressure.

Carbon dioxide extinguisher discharges gas through a horn-like nozzle by operating a hand wheel, squeeze grip or trigger type mechanism. These extinguishers are available in a wide range of sizes, containing from 2 to 750 pounds of carbon dioxide. The larger units are mounted on wheels. The gas is non-corrosive and leaves no residue.

Successful operation requires a close approach to the fire.

Dry chemical extinguisher operates by squeezing a handle or turning a handwheel at the top, which punctures a cartridge of carbon dioxide in the neck of the extinguisher. This forces bicarbonate of soda out through the hose. The powder is treated to prevent caking.

The 15-, 20-, 25- and 30-pound sizes have a range of 10 to 12 feet. The 140- and 300-pound extinguishers can discharge a stream 35 to 45 feet or a fan shaped stream of shorter range.

Approval. Approved extinguishers carry the label of Underwriters' Laboratories and/or Factory Mutual Laboratories. Such extinguishers bear an instruction plate giving directions for inspecting and recharging, also the type of fire (Class A, B or C) for which the equipment is recommended, and its unit rating.

Only approved extinguishers should be purchased. One essential is adequate capacity. A vaporizing liquid extinguisher must contain not less than one quart of the extinguishing agent to meet recognized standards.

Placement. An extinguisher may be useless if an employee must spend valuable minutes looking for it, or if it is blocked by piles of materials. Here are six recommended rules:

1. Locate extinguishers close to likely fire hazards but not so close that they will be in the fire zone should fire occur.
2. Place extinguishers so access to them will not be blocked by fire.
3. Install enough extinguishers to deal with any blaze which may be expected, the rapidity with which it might spread, intensity of heat, etc.

—*To page 214*

FASTER

MORE EFFECTIVE... MORE DEPENDABLE

FIRE-STOPPING POWER

ANSUL
Chemical Company
FIRE EQUIPMENT DIVISION • MARINETTE, WISCONSIN

ANSUL

FIRE EXTINGUISHING EQUIPMENT

FASTER . . . A short, quick downward motion of the puncture lever pressurizes the extinguisher and it is ready for instant use.

MORE EFFECTIVE . . . Even the inexperienced operator gets near-expert results because of the ease of operation and handling. In addition ANSUL *"PLUS-FIFTY"* Dry Chemical has greater fire-killing power.

MORE DEPENDABLE . . . Exclusive ANSUL-ENGINEERED design features include water-tight and corrosion-resistant construction, easy, on-the-spot recharge without special tools and other exclusive Ansul developments which insure greater dependability.

FIRE-STOPPING POWER . . . ANSUL FIRE EXTINGUISHERS have the highest ratings for fire-stopping power ever awarded any type of class B and C fire extinguishing equipment.

Send for File No. B-208. You will receive a variety of helpful printed matter. Included is our latest catalog which describes Ansul Extinguishers of all sizes — from the small Ansul Model 4 to Ansul Piped Systems and Ansul 2000 lb. Stationary Units.

OFFICES AND DISTRIBUTORS IN PRINCIPAL CITIES IN THE U. S. A., CANADA AND OTHER COUNTRIES

ANSUL PROVIDES THE MOST COMPLETE LINE OF DRY CHEMICAL FIRE EXTINGUISHING EQUIPMENT

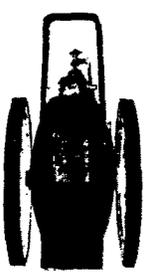
HAND PORTABLES

MODEL 4-C

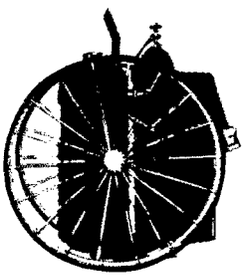
MODEL 20-B

MODEL 30-B

NEW WHEELED PORTABLES



MODEL 150-B

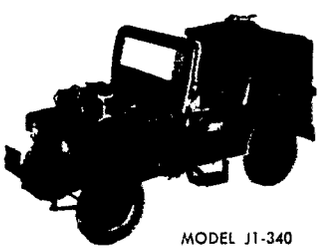


MODEL 350-B

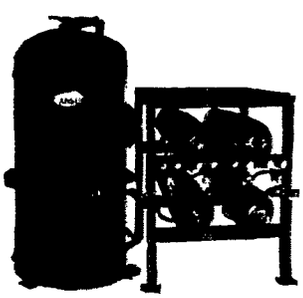
In Ansul's complete line of Fire Extinguishing Equipment there is a model of just the right size to adequately protect nearly every type and area of class B and C fire hazards in, or around, your plant. And, more important, even the largest capacity wheeled portable and stationary equipment by Ansul, is designed for quick, easy, one-man operation.

Ansul Fire Extinguishers are designed for maximum effectiveness even when used by inexperienced employees. They are easy to operate and can be quickly recharged "on-the-spot." No special tools are required for recharging, inspection or maintenance. In addition, all Ansul Equipment is water-tight and corrosion-resistant for longer, trouble-free service.

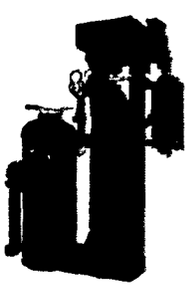
TRUCK MOUNTS, TRAILERS AND FIRE TRUCKS



MODEL J1-340



MODEL S-2000-B



PIPED SYSTEM

STATIONARY EXTINGUISHERS AND PIPED SYSTEMS

ANSUL *Chemical Company*

FIRE EQUIPMENT DIVISION • MARINETTE, WISCONSIN

MANUFACTURERS OF DRY CHEMICAL FIRE EXTINGUISHING EQUIPMENT, REFRIGERATION PRODUCTS, INDUSTRIAL AND FINE CHEMICALS AND LIQUEFIED GASES

Automatic Protection

AUTOMATIC DEVICES which detect fire, sound alarms, and put out fires guard life and property 24 hours a day. This protection is most needed when the plant is shut down at night or on week ends and holidays but it is valuable in supplementing human watchfulness when men are at work.

Automatic plant guards are of two types:

1. Fire detection and alarm systems.
2. Sprinkler and chemical extinguishing systems.

Signal Systems

Signal systems of various types detect fires and give alarms, and supervise sprinkler systems, water supplies, and watchmen's service.

Signal systems are operated on three main plans:

1. Central station system. Signals are transmitted to an independent central station where they are recorded and proper action for the emergency taken. The central station may serve several companies.

2. Proprietary system. Similar to a central station but controlled and operated by the owner of the protected property.

3. Local system. Owned and operated by the protected company but does not have an operator constantly on duty at a central station.

Detectors and Alarms

Fire detection and alarm devices operate on the mechanical, pneumatic-electric, straight electric, and electronic principles. Some of the newer types are based on some form of electronics in conjunction with thermostats. These are more sensitive than the earlier types.

Electronic devices have been installed on ships where air samples from the cargo holds are drawn through a cabinet past an electric eye or gas analyzer which detects smoke instantly and sounds an alarm. Detectors similar to the marine type can be used in many industrial locations.

Where fires may start slowly and smolder for some time, photoelectric equipment often detects smoke before heat-actuated devices are affected.

Watchmen's supervisory systems transmit and record signals made at watchmen's key stations. This system is frequently combined with fire alarm systems. A plant guard's failure to check in at any station along his route is promptly recorded at the control desk or panel.

Such supervision has checked many incipient fires, prevented many robberies and brought aid to watchmen rendered helpless by accident or sudden illness. It has also prevented much water damage by sprinklers.

Watch service. Watchmen are vital to the protection of industrial property. They discover and correct fire hazards, detect the outbreak of fire, extinguish incipient fires, and call help promptly when needed.

The watchman should be a mature, able-bodied man who is loyal and dependable. During periods when the regular working force is absent the safety of the plant depends to a large extent upon him.

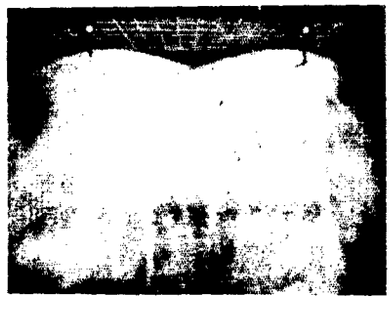
The watchman should be familiar with all parts of the fire protection system, including sprinkler systems, valves, drains and fire pumps. He should know how to operate extinguishers.

Recorded hourly rounds for watchmen are recommended for most plants. Approved watch clock or supervisory systems give a record of calls at each station.

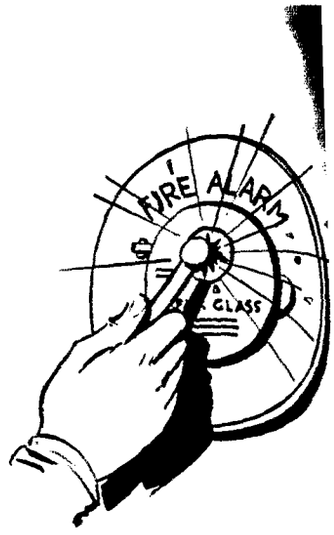
Automatic Sprinklers

Sprinklers go into action automatically soon after a fire breaks out, deluging the area below. They operate in heat and smoke and control fires that could not be reached by other means. Since their introduction in 1875 they have played an important part in reducing industrial fire losses.

Over a period of years, insurance records show that more than 95 per cent of fires in sprinklered buildings were extinguished or held in check by sprinklers.



Well-designed spray sprinklers give good lateral and downward coverage. (Automatic Sprinkler Corp. of America)



In the few cases where sprinklers have failed to function when needed, the fault has rarely been due to the sprinkler mechanism. Deficient water supply, freezing, defective dry pipe valves, foreign material in the system, corrosion, obstruction of sprinkler heads by stock piles, or paint on the sprinkler heads are among the causes.

The sprinkler head contains a fusible plug which melts and releases the water when a predetermined temperature is reached. Valves control distribution of water to all parts of the system.

Various types of heads are available for use under a wide range of temperature conditions.

Wet-pipe systems are used where there is no danger of pipes freezing. Water is maintained under pressure right up to the sprinkler heads and operation is immediate.

Dry-pipe systems are used where there is danger of pipes freezing. Air under pressure instead of water, is maintained in the pipes. Opening of a sprinkler head releases the air pressure, resulting in the operation of a valve admitting water to the system. There is a slight delay between the opening of the sprinkler head and the discharge of water.

After a fire, sprinkler heads should be replaced promptly.

Sprinkler supervision. Sprinkler systems include devices to give automatic alarms when the sprinklers operate. These devices detect:

1. Open or closed position of control valves.
2. Flow of water in sprinkler systems, indicating fire or leakage.
3. Water levels and temperatures in gravity and pressure tanks.
4. Air pressure in dry-pipe systems and pressure tanks.
5. Fire pump steam pressure.
6. Voltage of supply for electric fire pumps.

—*To page 218*

Long range, solid cone of Rockwood WaterFOG snuffs out fire.

"Little Mo" knocks 'em down

He *likes* to go to blazes.

"Little Mo" — a small fire truck that's packed to the hilt with Rockwood fire-fighting equipment — streaks to fires, knocks 'em down and quenches them in seconds. Can be operated by one man, if necessary!

In the test above, fuel in a pit under the tank cars was set on fire — and more fuel poured on top of the cars from pipes. This, too, was ignited and the blaze given a minute's start. In rushed "Little Mo" — and out went the fire in 45 seconds, choked off by Rockwood WaterFOG from Rockwood's Remote Manual Control Turret. What's more, 10 inches of water still remained in "Little Mo's" 200-gallon booster tank, after the fire was out.

Thanks to Rockwood portable fire-fighting equipment, even a small truck like "Little Mo" can battle fires with powerful efficiency. The Turret Nozzle, alone, discharges solid water stream, WaterFOG, FogFOAM, solid FOAM, "Wet" solid water, and "Wet" WaterFOG! Rockwood engineers water to cut fire losses.

Leading manufacturers of fire trucks will install Rockwood Fire Fighting Products at your request.

It's Loaded! "Little Mo's" equipment includes: 4 stage centrifugal pump with electric primer, 200-gallon booster tank, Rockwood Dual Suction Proportioning System for FOAM and "Wet", Rockwood Remote Manual Control Turret controlled from within cab, Rockwood Ground Sweep Nozzles, Rockwood Remote Control Ball Valves, 2 Hannay reels with 200 feet of high pressure hose with new Rockwood High Pressure Handline Nozzle on each reel.

ROCKWOOD SPRINKLER COMPANY

ROCKWOOD *Engineers Water . . . to Cut Fire Losses*

SEND FOR THIS INFORMATIVE BOOKLET

ROCKWOOD SPRINKLER COMPANY
Portable Fire Protection Division
72 Harlow Street
Worcester 5, Mass.

Please send me your illustrated booklet on Rockwood fire-fighting products.

Name.....
Title.....
Company.....
Street.....
City.....
Zone.....State.....

Defense Against Fire

(From page 208)

Adjustable spray and straight stream nozzles (for both 2½- and 1½-inch hose) give water curtain protection for firemen and blanketing effect. They also provide solid streams for penetration.

Water spray (fog) nozzles are effective for oil fires. Water fog, owing to its low conductivity, can be used safely on electrical fires. Its effective range is limited to a few feet but this can be offset to some extent by using applicator pipes of varying lengths.

Foam-generating equipment is used where large quantities of flammable liquids are stored. For some exposures permanent generating equipment should be installed.

Foam systems may be either automatic or manual in operation. There are two types of foam, chemical and mechanical.

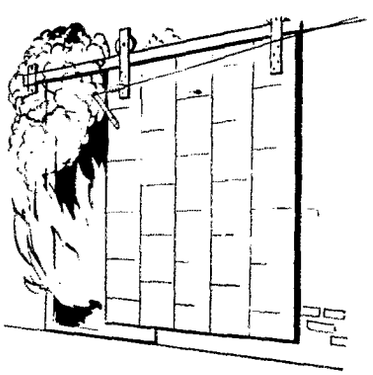
Chemical foam is formed by a chemical reaction in which masses of bubbles of carbon dioxide gas and a foaming agent produce an expanded froth.

Mechanical foam consists of bubbles of air produced when air and water are agitated mechanically with a foam solution.

Several types of foam nozzles now available produce foam to combat different types of fires.

Limiting Fire Areas

Fire Doors and Shutters. For large buildings, fire-resistive partitions with fire doors are important in confining fire to a limited area. Several types of doors with varying degrees of resistance have been approved by testing laboratories.



Fire doors are helpful in confining fires to a limited area. They should either close automatically or be closed by a heat-actuated device in case of fire.

Fire doors should either close automatically each time they are opened or be closed by a heat-actuated device if fire should break out. The most common device is the fusible link.

The releasing device should be located where it will be affected quickly by heat passing through the doorway and it should be protected against mechanical injury.

Where flash fires may occur, quick operating devices are preferable, except for doors used as exits.

Fire shutters are used for windows where there is an exposure hazard from adjacent buildings. Shutters may be of the swing type (tin clad or steel) or rolling steel. The latter type can be installed where space is too limited for swinging shutters.

Sliding shutters are not recommended where snow and ice might interfere with their operation.

Sources of Information

Specific and accurate advice on fire problems may be obtained from fire insurance carriers, local insurance inspection bureaus, municipal fire departments, National Fire Protection Association, National Board of Fire Underwriters, Underwriters' Laboratories, Associated Factory Mutual Laboratories, and other recognized agencies.

Extinguisher

—From page 209

4. Mark locations conspicuously.
5. Identify each unit for the type of fire it is designed to combat.
6. Protect extinguishers from traffic.

Marking locations. Contrasting backgrounds make extinguishers conspicuous in the excitement of a fire. Methods include:

1. Painting a large red or white background on the wall.
2. A large red spot on the floor under the extinguisher.
3. Vertical red bands with yellow borders down a wall or column where equipment is placed.
4. Lights of distinctive color which do not conflict with exit lamps.

Recharging. Commercial carbon tetrachloride should not be used for vaporizing liquid extinguishers. It may cause deterioration of the shell and interior mechanism. Vaporizing liquid furnished by manufacturers

Extinguishers should be mounted at proper levels for easy handling, depending upon their size and weight.

is treated to remove impurities and to depress the freezing point.

Before recharging soda acid and foam extinguishers, the shells and all parts should be thoroughly rinsed with warm water.

Protection from Freezing. Carbon dioxide, vaporizing liquid and dry chemical extinguishers will not freeze.

Soda-acid and foam extinguishers should be installed in heated cabinets.

Gas cartridge extinguishers, pump tanks and fire pails use calcium chloride solutions.

Flameproofed Fabrics

In some cities and states, textile fabrics used in places of public assembly must be flameproofed. The flameproofing process also increases resistance to weather and mildew.

Textiles may be purchased already treated or customers may send their own fabrics to the mills for flameproofing.

Flameproofing materials are available in proprietary compounds or under their chemical names. Ingredients include ammonium sulphate or phosphate, ammonium chloride, borax and boric acid. They are usually applied to the fabric in saturated solution.

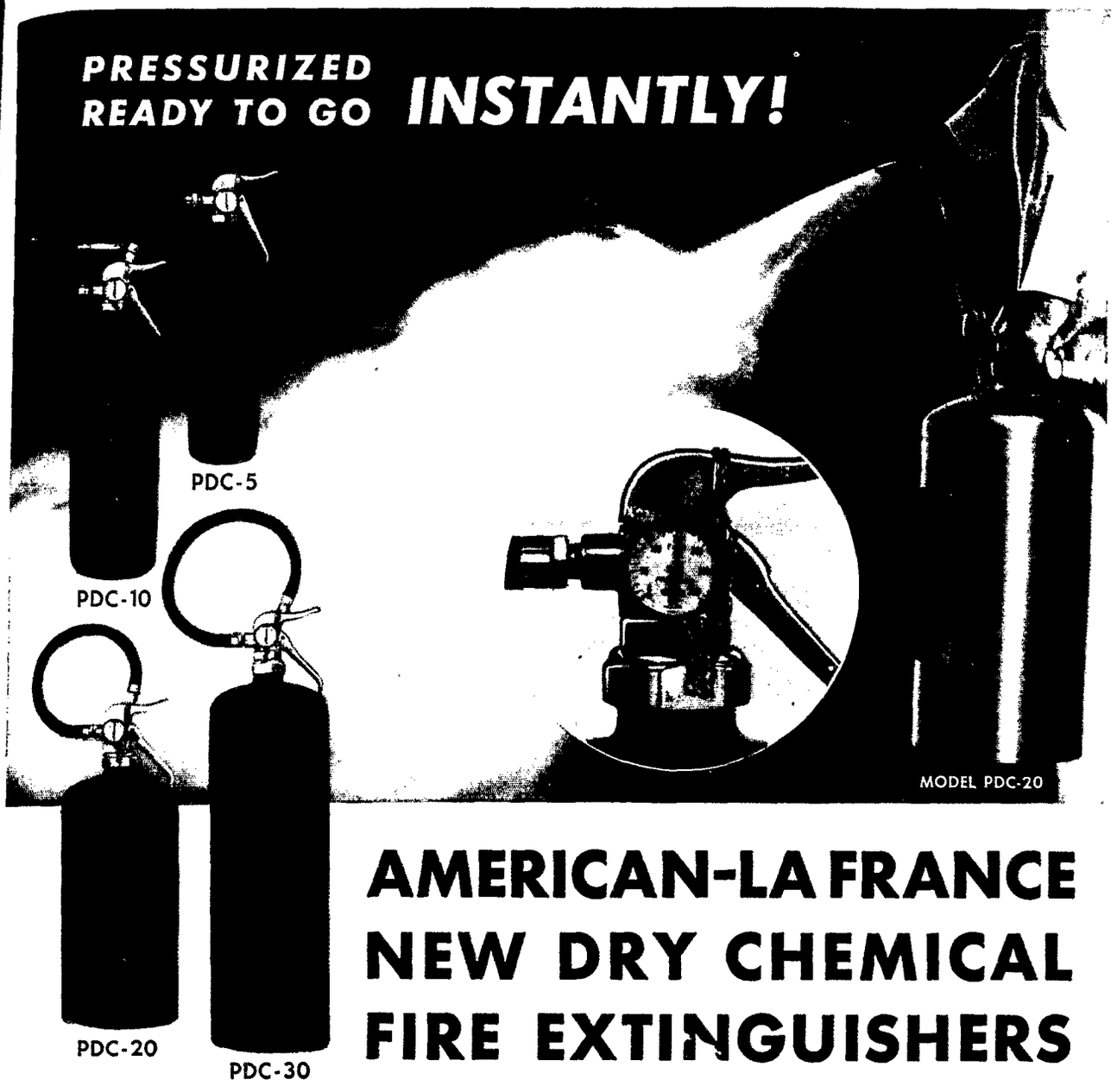
Detailed information, including materials, methods of tests, standards, etc., may be obtained from the following sources:

Textile Research Institute: Fireproofing of Textiles.

National Fire Protection Assn.: Recommended Requirements for Flameproofing of Textiles.

National Safety Council: Data Sheet DT-2, Fire Retardant Treatment for Fabrics.

National Bureau of Standards: Circular C 455, Flameproofing of Textiles.



AMERICAN-LA FRANCE NEW DRY CHEMICAL FIRE EXTINGUISHERS

When fire hits, these new American-LaFrance Dry Chemical models are ready to stop it. Simply pull pin and squeeze lever. No gadgets to operate, no last minute pressurizing from a gas cartridge or cylinder, no inverting, no bumping, no shut-off nozzle on the hose needed. They're ready to go!

Their fire-smothering efficiency is aided by a scientifically designed Discharge Nozzle which fans the Dry Chemical downward in wide pattern and with great density. Their 150 (plus 25 minus 0) psi. air (or nitrogen) pressure maintains uniform duration of the Dry Chemical discharge pattern.

A glance at valve gauge indicates whether unit is in operating order. When partially operated, the extinguisher can be left standing without loss of air pressure, for use on a possible reflash.

The American-LaFrance Dry Chemical Valve is completely new also. It is ruggedly built. No special tools needed. Contains few parts. Equipped with Safety Relief Valve. Complete valve and siphon tube assembly removes as a single unit for recharging. They're water-tight, and noncorrosive. Tested for vibration and for operation at temperatures from minus 40° F. to plus 150° F. A Moisture Trap provides for pressurizing with air. Write for free illustrated literature.

AMERICAN-LAFRANCE-FOAMITE Corporation
ELMIRA·NEW YORK·U.S.A.
IN CANADA, LAFRANCE FIRE ENGINE & FOAMITE LTD., TORONTO

ALFCO

Static Electricity

SPARKS resulting from accumulations of static electricity are a common source of fires. They are particularly dangerous in atmospheres where there may be flammable vapors, gases and dusts.

The hazard is most severe in cold, dry weather. In warm, humid weather most surfaces have a film of moisture which helps to draw off static charges.

Static charges result from friction between small particles, or from contact and separation of two unlike substances, one or both of which are nonconductive.

Flow of gasoline or other flammable liquids through hose, or dust-laden air through non-conductive passages may produce static charges.

Static electricity is generated on dry belts, particularly on rubber or leather belts by the contact and separation of belt and pulley. Excessive accumulation of static charges can be prevented by use of conductive rubber belting.

Belts can be grounded with sharp pointed metal combs or metallic tinsel static collectors which are grounded.

Where highly flammable vapors may be present, combs are not recommended. Chain drive or conductive rubber belts with metal pulleys should be used. Conductive belt dressings are helpful if they are renewed frequently.

Grounding shafting. Shafting and metal pulleys should be grounded with carbon, brass or spring brushes or contacts.

Powdered materials. Finely divided materials falling through the air or blown through pipes may generate static electricity and ignite explosive mixtures of dust and air. Machines should be bonded and grounded at a number of points.

Safety can being filled with flammable liquid. Wire bond connects storage drum with can being filled. It is also advisable to have bonding wire or receiving container grounded.

Humidity maintained at or above 60 per cent at 70 F. helps to prevent accumulation of static charges. High humidity is obtained by special humidifiers or steam jets installed on blower type heaters.

Ionization of air is also used. Ionized air contains electrically charged particles which conduct static charges to grounded parts of machines. Ionization methods include gas flames, discharges of high potential electric current, and radiation from radioactive material. These methods require expert installation and maintenance and may involve fire or health hazards.

Body static charges may create a hazard in areas which contain highly flammable dusts, gases and vapors. Shoes with conductive soles or heels help to drain off the charges. Their conductive value is reduced by foot powders and by wool, silk or nylon socks. Cotton and rayon are safer.

Conductive floors should be installed in hazardous locations. Ordinary wax and other nonconductive floor finishes reduce the value of grounding measures.

How Many Extinguishers?

In determining the number of portable units required, recommendations of state or local authorities or insurance carrier should be followed. Following are suggestions for exposures of varying severity:

Class I—Light hazard. Small amounts of combustibles and only small incipient fires anticipated.

This class includes offices, schools (exclusive of trade schools and shops), public buildings, etc.

Units shall be so located that a person will not have to travel more than 50 feet to the nearest unit. At least one unit shall be required for each 5,000 square feet of floor area.

Class II—Moderate Hazard. Ordinary combustible occupancies, where incipient fires of average severity may be anticipated.

This class includes department stores, warehouses, miscellaneous manufacturing of average hazard, etc.

Units shall be so located that a person will not have to travel more than 50 feet to the nearest unit. At least one unit shall be required for each 2,500 square feet of floor area.

Class III—Extra Hazardous. Where because of character or quantity of combustibles, extra severe incipient fires may be anticipated.

This class includes woodworking, paint spraying and dipping operations, etc.

Units shall be so located that a person will not have to travel more than 50 feet to the nearest unit, plus additional units as directed by the inspection department having jurisdiction. At least one unit shall be required for each 2,500 square feet of floor area.

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Your Company's Future May Depend on THE RIGHT PROTECTION

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AER-O-FOAM

The only Foam to carry this seal!

THERE'S NO second chance with fire. So guard your flammable-liquids risks with *fire-tested* AER-O-FOAM. This is the foam that is tested on actual oil or solvent fires—every batch of it. Its tough blanket of fire-killing foam has *already* extinguished a fire when you buy it!

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JUST OUT—"Foam Fire Protection," illustrated booklet on what Foam is, what it does, how it works. Yours free.

NATIONAL FOAM SYSTEM INCORPORATED

Headquarters for Foam Fire Protection — WEST CHESTER, PA.

Spontaneous Ignition

WHEN the temperature of combustible material is raised to the kindling point and ignition occurs with no outside source of heat, the process is called "spontaneous ignition."

This type of combustion may be divided into two classes: **acute** cases which occur suddenly and explosively, and **chronic** cases where heat generates slowly until ignition takes place.

Most substances subject to acute ignition are well known. Examples are dry yellow phosphorus, which ignites on exposure to air, and quicklime, sodium, potassium and calcium carbide which heat when exposed to moisture.

Some materials may be stored for long periods, processed, packed and shipped with no signs of heating. The first warning may be the discovery of smoke. Uncertainty increases the hazard.

Before spontaneous ignition can occur there must be material that will burn, moisture, oxygen, and a certain minimum temperature. Presence of impurities in the combustible material may affect the danger of heating.

At ordinary temperatures some combustible substances oxidize slowly and under certain conditions reach their ignition point. These include vegetable and animal oils and fats, coal, charcoal, and some finely divided metals.

Rags and waste saturated with linseed oil or paint often cause fires. In such cases there is a large surface of combustible material exposed without means for generated heat to escape.

Best preventives are total exclusion of air or good ventilation. With small quantities of material, the former method is practicable. With large quantities, such as storage piles of bituminous coal, both methods have been used effectively.

Temperatures above 140 F are considered dangerous in coal piles. If temperatures rapidly approach or exceed that figure, it is advisable to remove the pile or rearrange it to provide better circulation of air.

Some agricultural products are susceptible to spontaneous ignition. Sawdust, hay, grain, and other plant products such as jute, hemp and sisal fibers, may ignite, especially if exposed to heat or to alternate wetting and drying. Circulation of air, removal of external sources of heat, and storage in smaller quantities are desirable precautions.

Fires in iron, nickel, aluminum, magnesium and other finely divided metals are sometimes attributed to spontaneous ignition. This is believed to result from oxidation of cutting or lubricating oils, or possibly from chemical impurities.

Detailed procedure for prevention and extinguishment of fires in materials subject to spontaneous heating have been recommended by the NFPA Committee on Spontaneous Heating and Ignition. These are found in National Board of Fire Underwriters publications, *Preventing and Extinguishing Fires in Soft Coal*, Bulletin No. 30, and *Spontaneous Ignition and its Prevention*, Bulletin No. 51.

Automatic Protection

—*From page 212*

Special Systems

For special risks, automatic systems employing carbon dioxide, foam or water spray nozzles may be installed.

Carbon dioxide is particularly desirable where the system operates in an enclosed space and the value of the contents is high and subject to water damage. Carbon dioxide is discharged manually or by means of heat-actuated devices.

Devices are also provided for closing shutters, doors, windows and dampers and stopping blowers to confine the extinguishing gas. These systems are suitable for spaces containing electric equipment or flammable liquids.

Foam installations are suitable for tanks and operations involving flammable liquids but not for electric fires. They are usually arranged to operate automatically with provision for manual operation.

Water spray systems are used to protect oil-filled electric equipment, such as transformers, oil switches and oil piping and open tanks of flammable liquids. To be effective, water spray systems require expert installation.

Metal Fires

Ordinary extinguishers are ineffective for fires in magnesium, powdered aluminum, zinc, sodium, or potassium. For such fires an extinguishing powder known as G-1 has been developed. This is available in 40-pound pails and 325-pound drums. It is usually appl
layer at least 1½ inches d

Where large amounts are
a wheeled applicator holdi
pounds of powder can be use
powder is discharged by an e
impeller through a hoze and n

Flammable Liquids

FLAMMABLE LIQUIDS are divided into three classes by the National Fire Protection Association according to flash points, closed-cup test:

Class I. Below 25 F:

Ethyl ether, acetone, carbon disulfide, gasoline, benzol, collodion.

Class II. 25 to 70 F:

Amyl acetate, ethyl alcohol, toluol, ethyl acetate, varnish.

Class III. 70 to 200 F:

Stoddard solvents, kerosene, amyl alcohol, creosote oil, turpentine, fuel oil.

Portable containers for Class I and Class II liquids should be painted red.

Safety cans, painted red and with self-enclosing spouts are available

Danger of poisoning
Danger d'intoxication
Peligro de intoxicacion

Dangerous radiations
Radiations dangereuses
Radiaciones peligrosas

Danger of ignition
Danger d'inflammation
Peligro de inflamacion

Danger of explosion
Danger d'explosion
Peligro de explosion

Danger of corrosion
Danger de corrosion
Peligro de corrosion

Symbols for marking dangerous goods in international traffic proposed by the United Nations. Symbols will carry explanations in English, French and Spanish, although they are intended to identify the risks graphically without printed text.

As never before...

Today we are all aware of the disastrous and far-reaching effects of a major industrial fire. Owners . . . management . . . employees . . . customers . . . almost every one suffers, in one way or another, when a serious fire strikes.

Could it happen to your plant? Now is the time to take a long, close look at your plant's fire protection measures. Remember, the local fire protection ordinances normally only set minimum standards. Compliance with these ordinances is no guarantee of fully adequate firesafety.

One way to be absolutely sure of the efficiency of your plant's fire protection facilities is to call in an expert C-O-TWO Fire Protection Engineer. He is ready and willing to help you with any or all industrial fire hazard problems.

There is a personal sense of responsibility inherent with C-O-TWO Fire Protection Engineers that assures you of fully adequate firesafety... a definite plus in your behalf. Whether it's fire detecting or fire extinguishing . . . portables or built-in systems . . . C-O-TWO means top quality backed by experienced engineering that results in operating superiority for you at all times.

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Dry Chemical Type Fire Extinguishers
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in several types in 1 pint to 5 gallon capacity. The larger sizes are equipped with flame arresters to prevent flashbacks.

If several different flammable liquids are handled in one department, stripes or distinct lettering should be placed on the cans to avoid mixing liquids.

Containers for Class III liquids should be painted green with the warning label on the sides: "Flammable liquid—Keep fire away. Store outside building."

Containers should be kept clean so that the color and lettering will not be obscured.

Tank cars, storage tanks, tank trucks, connecting pipes and hose lines and filling nozzles should be interconnected with a bonding wire before an attempt is made to open connections during loading or unloading.

When flammable liquids are poured from one container to another, the lip of one container should rest on the edge of lip of the other. The two should be kept in contact during pouring and the receiving vessel should rest on a grounded surface.

Transfer pumps of approved design should be used when quantities of flammable liquids are handled. These pumps are self-priming and equipped with flame arresters and protected openings for pressure and vacuum relief.

Fire-Safe Construction

Fire-resistant construction is essential for any industrial or commercial building. Some types of construction can survive a fire with only minor structural damage. Building materials should be non-combustible wherever practicable, although all available materials may be damaged by extreme heat. Walls and openings should be planned to prevent rapid spread of fire.

For non-hazardous occupancies heavy plank roofs and floors are permissible. Heavy timbers are slow burning.

Wooden walls, joisted quick-burning floors and roofs, and inaccessible combustible spaces should be avoided.

Hazardous processes should be cut off by fire walls or fire-resistant partitions. If hazards are particularly severe they should be housed in separate buildings.

Explosion hazards require explosion-venting windows or other means of relieving pressures to minimize structural damage.

If building or contents are combustible, large areas can be subdivided by fire walls, with openings protected by fire doors. This will help to limit damage in a single fire.

Important buildings with combustible roofs and floors should be separated by as much yard space as possible.

For buildings of more than one story, stairways, elevator wells, conveyors and chutes should be enclosed with fire-resistive walls. Fire doors should be installed at openings to prevent spread of fire to other floors.

Blank walls, fire shutters, or wired glass windows offer protection against exposure fires. Open sprinklers are an additional safeguard.

Maintenance Work

Maintenance crews need thorough training in accident prevention. Their work involves a complex and constantly changing set of conditions rather than a set pattern of activity.

In addition to the regular tools, the maintenance man is concerned with ladders, gloves, masks, goggles, safety shoes, protective hats, safety belts, respirators, rope, chains and other items of equipment.

The training program should include first aid and life-saving techniques. Where irritating, toxic or corrosive dusts, gases, vapors and fluids are present, training should include the characteristics of these substances and methods of controlling hazards.

Men must be trained to inspect rope, chains and hoists and to discard items that show excessive wear.

At the start of any job not of a routine nature, the crew should be called together to discuss the problems involved and methods of doing the work safely. If the job is especially complicated or hazardous, the safety director may be called on to assist in the planning.

Scale models may be constructed to determine clearances, methods of moving, and sequences of action.

Tools and tackle should be inspected for wear and defects before use. When special tools can be designed to make a job safer, the engineering department should be consulted for design and specifications.

Safe Storage

Fires in storage areas are responsible for a high percentage of the total loss in fires in industrial plants. While fires do not occur as frequently as in manufacturing areas the damage per fire is often higher.

Suggestions for safe storage include:

1. Keep storage out of manufacturing areas.
2. Keep storage from below manufacturing processes unless the building is non-combustible and floors are watertight.
3. Storage rooms need sprinklers if either contents or building will burn.
4. Store valuable materials in sprinklered building.
5. Don't overlook fire protection just because shed values are small.
6. Keep sources of ignition out of storehouses.
7. Keep materials in low, well separated piles.

Waterproof floors with adequate drainage should be provided if lower stories contain stock or machinery susceptible to water damage. Tarpaulins should be kept on hand to prevent water damage.

Roofs should be anchored to resist wind damage.

Fire-resisting vaults should be provided for business records and valuable drawings. Civil defense measures suggest storing vital records at some point remote from industrial centers.

When construction work is in progress, good housekeeping should be practiced and temporary fire protection provided. Salamanders and welding and cutting must be watched.

Automatic detection and sprinkler systems are recommended for combustible construction or occupancy.

Fire Loss Facts

Fire losses are a serious threat to our national security, as well as a severe blow to our economy. Sabotage, or malicious destruction, differs only in intent from that of carelessness, negligence, or lack of preparation, when destruction by fire takes place.

The National Fire Protection Association places the number of building fires in 1952 at 703,000, with an estimated cost of $793,500,000. This is a 7 per cent cost increase over 1951.

True values, however, go beyond dollars and cents for fire damage frequently affects vital production through loss of buildings, equipment and materials that may be difficult to replace. Deaths, injuries, and loss of manpower are additional important factors that must be evaluated when fires occur.

Estimated fire losses in 1952 indicate the extent of direct damage to industry. Manufacturing occupancies had losses totalling $153,600,000, of which metal working was $13,350,000. Warehouses were damaged or destroyed to the extent of $45,000,000. Fire losses to lumber yards, railroad and wharf property and bulk storage and refinery amounted to $51,100,000.

Like an evil eye, fire is constantly on the lookout for unprotected hazards such as flammable liquids, electrical equipment, materials in process. Get protection that never sleeps. Guard every hazard in your plant with a Kidde Automatic Fire Extinguishing System.

Quick as a wink, check the 'yellow pages' for your local Kidde dealer.

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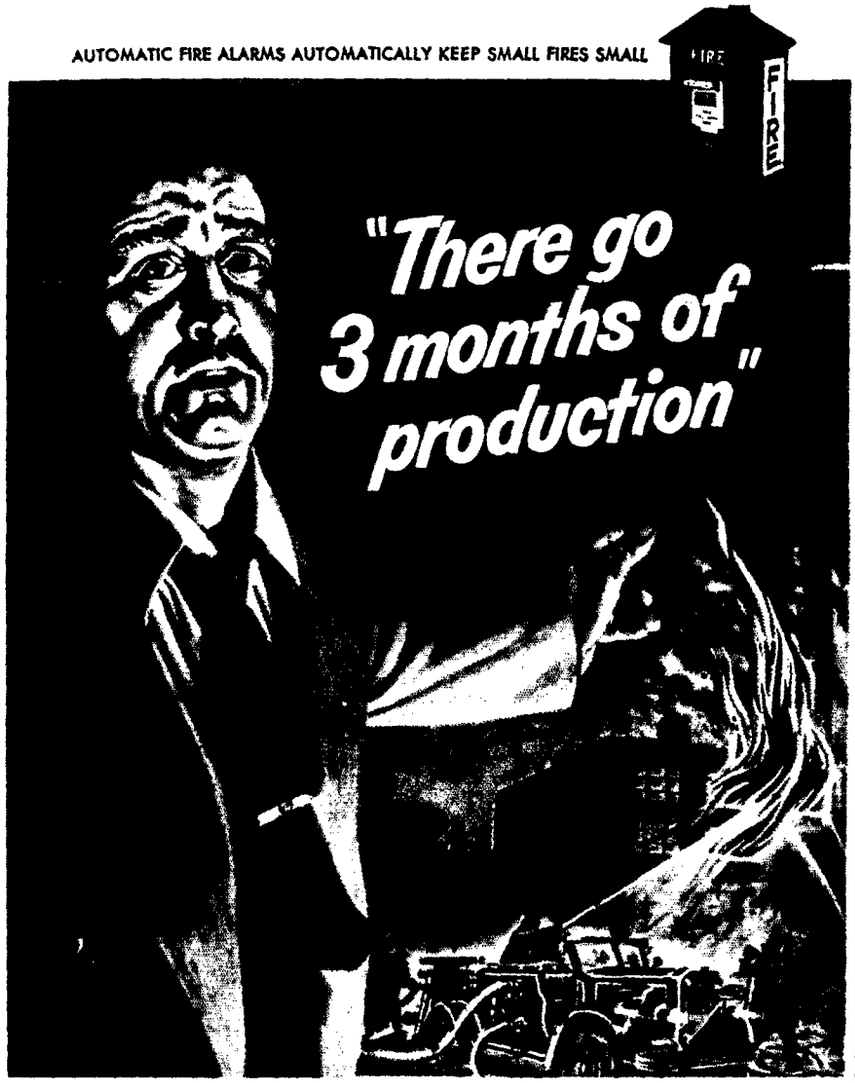
AUTOMATIC FIRE ALARMS AUTOMATICALLY KEEP SMALL FIRES SMALL



Lost production means part of a profit is gone, permanently.

Only fool-proof answer is a fire alarm system that *automatically* calls the *Municipal Fire Department* when an alarm box is pulled or a sprinkler head goes off. A sprinkler system auxiliarized by a Gamewell Automatic Alarm is the nearest thing you can get to 100% protection against fire and water damage. In addition, such an arrangement may enable you to have your insurance policies re-rated, thus reducing your premiums.

For complete protection of your personnel, your plant and your production, write for the name of your nearest Gamewell representative. It's easy to add the Municipal Fire Department to your fire protection team . . . and it's good business, too.

THE GAMEWELL COMPANY, Chestnut St., Newton Upper Falls 64, Mass.

In Canada: Northern Electric Co., Ltd., Belleville, Ontario

There's no substitute for the Municipal Fire Alarm Box System

Fire No. 3 Killer Survey Shows

In 1953, fire caused 12,360 deaths in the United States and Canada. This grim fact is the published estimate of the National Fire Protection Association.

Further evidence of the seriousness of fire as an accident killer comes from the Metropolitan Life Insurance Company, which places fire third on the list—topped only by fatal motor vehicle injuries and falls.

A survey of the company's industrial policyholders at ages 1-74 during 1950-1952 estimates the number of fire victims as 7,000 annually. Since this figure does not include deaths resulting from fires in vehicles, in mines and quarries, and those resulting from lightning or from burns due to electric current, it is considerably lower than the toll estimated by the NFPA.

Over 3,000 men, women and children annually, the survey shows, are the victims of burns, suffocation, trampling or other fatal injuries in burning buildings, grass or forest fires. Many more died from burns and scalds due to other causes.

The principal danger spot, the survey showed, is the home! It was there that more than four-fifths of the deaths originated!

Compared with the record of 20 years ago, this shows a dangerous trend—shows that deaths caused by conflagrations have gradually increased. This does not mean only the widely publicized fires which take many lives but those small ones in the home, each of which claims its victims. It is these fires, many caused by overheated or defective stoves and furnaces and oil stove explosions, that point up the need for greater fire prevention in the home.

Decontamination After Atomic Explosions

Every atomic explosion is accompanied by dust and smoke that are radioactive and can be carried great distances by the wind. Cleaning up this kind of trouble is a problem that may become vital. Recently, Foster D. Snell, Inc., New York, was asked to study clean-up methods and the result of two years of research was published in an article, "Detergents for Radiological Decontamination" in *Soap and Sanitary Chemicals* for October 1953. A summary appeared in Foster D. Snell's *Chemical Digest*, Spring 1954 issue.

Cleaning surfaces contaminated

KEEP production SAFE with PROTECTOSEAL

APPROVED

Safety Production Equipment

A PLUNGER CANS

Insure plant and operator safety in all cleaning, sponging and swabbing operations. When plunger is depressed a measured amount of the volatile and flammable fluid rises into the dasher to moisten the swab. Excess liquid flows back into the can and is not left on surface to evaporate or be ignited. Dasher containing fire baffle is self-extinguishing. Five sizes from 1 pt. to 2 gal.

B SAFETY CANS

For general use wherever flammables are employed within the plant. Fire prevention baffle is a double concentric cylinder inside base of spout. Spring-loaded cap automatically makes tight closure. Squeeze-grip handle; positive control while pouring.

C BENCH CANS

Reduce waste, speed production and give positive protection against fire and explosion: The spring mounted perforated metal dasher which also acts as the fire baffle covers the liquid surface and minimizes evaporation losses. A size to meet every requirement.

D OILY WASTE CANS

A necessity in every plant for the safe placement of oily or solvent-soaked rags and other waste material. Required by many insurance companies.
Full length cover opens wide by slight foot pressure at any point on full width treadle.

CLIP COUPON, fill in, attach to company letterhead and mail for Complete Catalog and Price List.

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with radioactive debris is necessary in laboratories working with radioactive isotopes, called "hot" labs, and will be essential in case of the explosion of an atomic bomb near a populated area.

When an atomic bomb explodes the resulting smoke and dust contain radioactive materials. This radioactive smoke and dust can be carried by the wind over wide areas before settling. After an explosion at Yucca Flat, Nevada, the atomic cloud reached New York City four days later and raised the radiation level to the point where the Snell "hot" laboratory had to be shut down for a day. This cloud represented no hazard to humans, but it illustrates how far the atomic debris is carried.

The results of the study show that the major decontamination can be done by the housewife if necessary, using materials she has on her kitchen shelf, products purchased at her corner grocery. Some surfaces, notably plaster, require special treatment.

The nature of the fission products —new atoms produced by the explosion—carried by the air depends on the time elapsed since the explosion and the type of bomb, since they change with time. Chemically, the atoms present are largely in the rare earth group from yttrium to europium.

For study, a group of such fission products was incorporated in a synthetic soil representing the dirt in the air over industrial cities and containing dozens of components. This soil was applied to such diverse types of surfaces as tin, glass, cement, gypsum, plaster, unpainted and painted wood, cotton cloth, and even the shaved skin of rabbits.

After the deposit had been allowed to dry, it was "deterged" by standard technics using commercial soaps, light-duty syndets (synthetic detergents) and heavy-duty detergents. The degree of contamination and its removal was measured with the Geiger counter.

Heavy-duty syndets were generally more effective than either light-duty syndets or soap. That proved to be the clue to efficient removal of fission products. The laboratory technicians turned to a class of chemical compounds known as sequestrants that have the property of "locking up" harmlessly in a compound many elements, including the rare earth elements produced as fission products.

Of the several of these sequestrants available (including ethylene diamine tetra-acetic acid, phates, tripolyphosphates, rates), the most economical was a modified form of hexametaphosphate marketed a trade name. When two p this chemical are mixed wi part of either soap or synde applied in one per cent solut water, the treatment removed radioactive contaminants from ly all surfaces. An exception gypsum plaster, where plain was better than water with cleaning agent.

As a typical example, it was fo that water removed 47 per cent the contamination from frosted gl 1 per cent solution of soap remov 81 per cent, and an admixture one-third as much soap with th parts of the household detergent re moved 98.8 per cent. In general, th harder and smoother the surface, th easier it is to decontaminate. Wit the exception of plaster, decontam nation better than 90 per cent offer no great difficulty when appropriat materials are used.

Disaster Units Effective In Vicksburg Tornado

The effectiveness of preorganized disaster units was demonstrated in Vicksburg, Miss., last December 3

FULL LINE OF

Fire Extinguishers
Charges and Repairs
Rubber Gaskets
Extinguisher Hose
Chemical Booster Hose
Unlined Linen Hose
Rubber Lined Fire Hose
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Safety and Waste Cans
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Prompt Delivery

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OILY WASTE CANS

for old rags or combustionable material. Underwriters approved. From 6 to 25 gallons.

SAFETY CANS

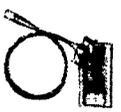
for easy handling of flammable liquids. Underwriters labeled. In 1 pint to 5 gallon sizes.

DISPENSING PLUNGER CANS

for sponging and cleaning with flammable liquids. In 1 quart, ½ gallon and 1 gallon sizes. Approved by Factory Mutuals.

SAFETY EXTENSION LIGHT

(#1727-S) — for safe inspection of storage or operating equipment . . . 15" or 30" extensions for lighting inaccessible areas. Underwriters approved.



SAFETY FLASHLIGHT

(#1717-S)—for use in group D, class 1 hazardous locations. Fully insulated. Underwriters Lab. approved.

SAFETY LANTERN

(#2144-S) 6 volt—for use in hazardous locations. Wire guard and stand. Safety kick-out bulb sockets. U.L. approved.

SAFETY HEADLIGHT

(#1904-S)—with belt clip for case and padded headband for light. Fully flexible with 1,500 ft. beam. Leaves both hands free.

FOR EXTRA PROTECTION JUSTRITE SAFETY CONTAINERS AND LIGHTS

YOU — *as the man directly responsible for the working safety of your personnel and equipment* — are asked to consider the safety features of Justrite equipment. These products have been designed, constructed and tested to meet the highest standards of industries everywhere. Used for inspecting, cleaning or storing . . . Justrite Containers and Justrite Portable Lights discourage sparks or explosions — wherever flammable liquids, vapors, or gases are present.

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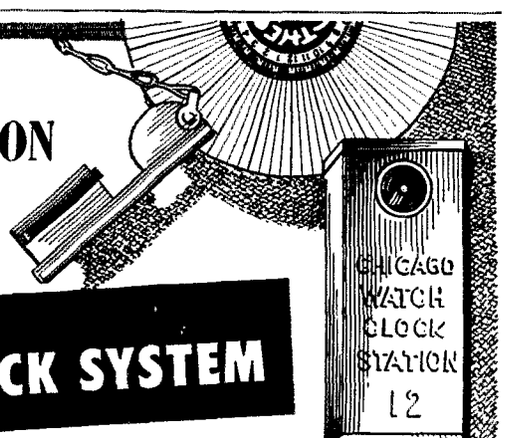

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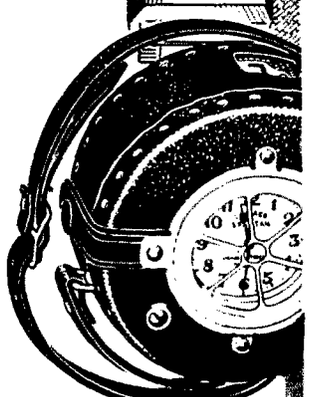

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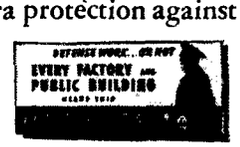

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Dr. George H. Martin, Vicksburg, chairman of the Mississippi State Medical Association's committee on industrial health, told the 14th annual Congress on Industrial Health recently held in Louisville and sponsored by the American Medical Association's Council on Industrial Health. He addressed a session devoted to preparations for meeting major disasters.

Within one hour after a tornado crashed through Vicksburg late in the afternoon, leaving behind 38 dead, 385 injured and property damage of more than $25,000,000, disaster units were in full swing, Dr. Martin reported.

Rescue operations were started by police and military forces within a few minutes. Volunteers began digging into ruins and extricating the dead and injured. Flashlights took the place of the wrecked lighting system.

Meanwhile, the city's four hospitals were quickly and completely staffed with doctors, nurses and other medical personnel so that the injured could be given quick attention. Emergency treatment was provided to nearly all of the injured within five and one-half hours after the storm struck. Doctors made no charge for this emergency treatment.

Power company crews went to work restoring service, first to the hospitals and the city's water works and then to the city. Broken gas mains were repaired because gas supplies had to be shut off in order to prevent fires.

Two-way radio communication was established while telephone repairmen rushed to put lines back into operation. Newspapers and the local radio station kept people informed of developments and needs. They gave casualty and death lists, located missing persons, and allayed fear and anxiety in general.

Crews moved in to clear streets blocked with debris and to eliminate immediate hazards to rescuers from leaning walls and hanging wreckage. Industrial plants shut down and released employees for rescue and rehabilitation work. Heavy duty earth-moving and land-clearing equipment was brought in and operated by skilled workmen.

Surgical and medical supplies were rushed into the area from nearby and distant points. Calls for blood brought out long lines of people.

"Three days after the tornado, rehabilitation was well under way and individual concerns were withdrawn from rescue work, and further demolition and repair were turned over to private contractors," Dr. Martin said.

"There were no individual heroes in the Vicksburg tornado. Everyone worked to his utmost, with one thought in mind—to save lives."

Two-Way Radio Aids Plant Protection

Dispatcher Sergeant D. L. Parr in plant protection control office of Beech Aircraft uses two-way radio system to contact foot patrolman in plant yard.

Getting the word through in emergencies has been assured by the plant protection department of the Beech Aircraft Corporation of Wichita, Kansas. Their new, modern two-way radio communications system is approved by company officials and employees alike.

Two company station wagons and a jeep have been equipped with very high frequency Motorola two-way radio units. Operating on the same frequency, the men in these cars are able to talk with each other and with the control center in the plant protection office. For close-in emergency work where the cars are unable to travel, four lightweight, portable "handie-talkie" radiophones are available.

The new equipment got its first emergency workout recently when hail and 100 mile-an-hour winds ripped through Wichita. With the aid of the two-way radio unit installed in his car, Bruce Dorman, chief security officer, maintained direct contact with the plant while making an inspection tour of company warehouses in the hard-hit downtown area. He radioed his instructions to the other radio-equipped guards and within minutes the damaged buildings were under tight security.

Dorman said, "Although the primary purpose of the radio system is to handle emergencies, it is also being put to good use in controlling company cars on a 24 hour schedule in the downtown area. In operation only a week, it has already saved us numerous trips."

RUSH

I am a rush job . . . I belong to no age, for men have always hurried . . . I prod all human endeavor . . . Men believe me necessary . . . but falsely. I rush today because I was not planned yesterday. I demand excessive energy and concentration. I over-ride obstacles, but at great expense . . . I illustrate the old saying "Haste Makes Waste." My path is strewn with the evils of overtime, mistakes and disappointments . . . Accuracy and quality give way to speed. Ruthlessly I rush on . . . I am a rush job.

—*Safety Notes*
Carolina Telephone & Telegraph Co.

A Better Deal For the Night Shift

THE NIGHT SHIFT presents management with a number of problems. In the best of circumstances, workers look upon night work as an out-of-the-ordinary assignment—usually reserved for those who do not have enough seniority to merit the day shift.

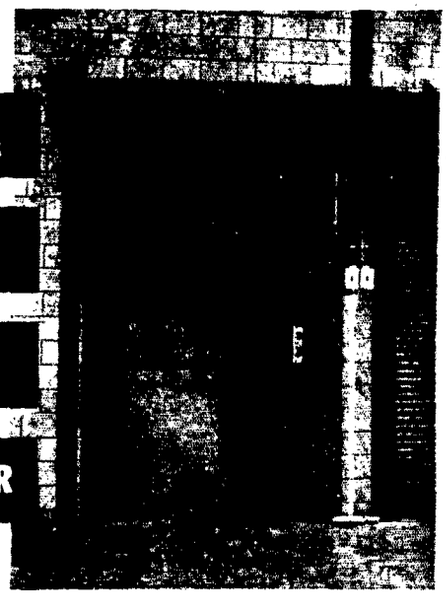
Management probably cannot do much to change this attitude, but it can do a great deal to improve morale and production on the after-dark shift, says an article in *Employee Relations Bulletin* of the National Foreman's Institute.

The major complaint of night workers is that while they get from a nickel to a dime an hour extra, the treatment they receive otherwise does not equal that accorded day workers. What, specifically, do night workers complain about? What is management doing about these complaints? A recent survey revealed the following:

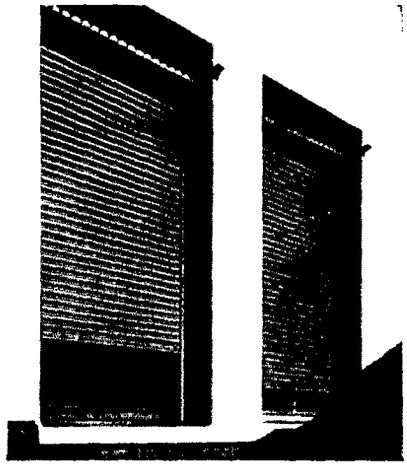
Complaint One: "When it comes to feeding facilities, we are treated like second-class citizens." Most companies which do not maintain full forces on night work do have a differential in food service because it doesn't pay to keep a cafeteria open all night to take care of a few. As a result, workers bring in their own food—usually dry sandwiches washed down by a soft drink from a vending machine. As a result, studies show, night workers have more gastric troubles than day shifters. The food problem usually requires some type of compromise.

Workers at one company, for example, are allowed to have the coffee pot going all night, with the company supplying the burner, gas, and necessary utensils. Also, rolling canteens during off hours are used by a growing number of companies. Another company has a rolling canteen make the rounds at 6 p.m. and 2 a.m. Vending machines also have been installed to dispense fruit punch and hot coffee. A lunch box service sells food during night hours at one textile mill, and the company provides hot coffee. On occasions when there are not enough workers to warrant such service, the company has the coffee sent in by a local diner.

Complaint Two: "We don't get the same medical care as the day shifters." Management men usually agree. But they also point out that it's a costly business to maintain a



Akbar ROLLING FIRE DOORS



Kinnear Akbar Window Shutters

Akbar Fire Door installed in a corridor

Kinnear all-steel Akbar Fire Doors are the positive, automatic means of blocking off flame-spreading drafts.

Coiled out of the way over the door lintel, Akbar Fire Doors go into action immediately when fire threatens. A strong spring insures positive action. Controlled speed provides added safety of building occupants. Akbar Doors may be opened instantly for emergency exit. They automatically close again at once. A special locking device stops the downward action of Akbar Doors at sill level . . . even if the floor is completely burned out. Akbar Rolling Fire Doors can save as much as one third their cost per year in reduced insurance rates.

Akbar Fire Doors may be equipped for daily use with manual or motor operation.

LARGE SIZES:** Kinnear makes doors for firewall openings ranging up to many hundred square feet in area. These doors are built with the same features offered in the labeled doors described above. **WRITE FOR DETAILS!

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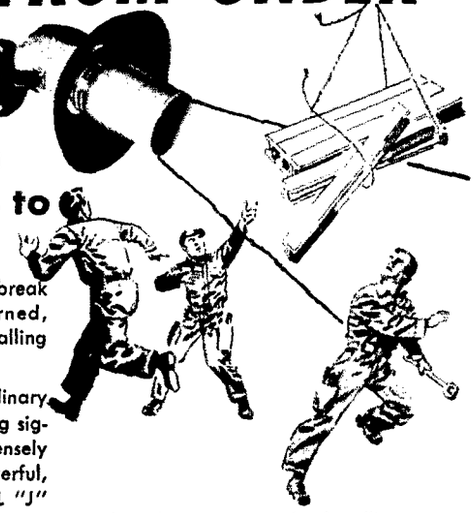

You never know when a cable might break or a load might shift. Unless warned, workers on the craneway face swift falling death from above.

Shouting won't do it, nor will an ordinary signal. You need a distinctive warning signal. . . . A siren that overcomes intensely high noise levels. You need the powerful, distinctively high-pitched FEDERAL "J" Siren—specifically designed for electric cranes and similar equipment for handling heavy materials.

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first aid staff during night [illegible] particularly when only a handful employees are working.

The practices employed in eliminating the complaint vary from full-scale service to some substitute procedure to fill particular needs. For example, one company arranges for doctors to visit the plant at night to give physicals and check on first-aid facilities. Plant guards are frequently trained in first aid so that they can handle night time emergencies. A fully equipped first-aid kit installed in each department for exclusive use of the night shift is another compromise.

Complaint Three: "Why should night workers wait so long for buses?" This is a common complaint and one that is not easily handled. Generally, companies with initiative have worked out some solution by conferring with the bus companies or other transportation agencies that serve the area.

Special buses parked in front of the plant at the end of the shift is one solution. The company guarantees the bus companies a specified number of riders in return for the privilege. Occasionally, management has been able to lay out special routes for the buses if there are a number of workers living in certain areas. This is a great boon to women workers on night duty who may be afraid to go home alone. Bus companies will sometimes modify their schedules so that night workers won't run the risk of missing transportation. On special occasions when women workers have to stay beyond their regular night shift, some companies pay their taxi fare.

Supervision also presents a problem to companies operating a night shift. Foremen are no more pleased about getting "stuck" on night assignments than are their men. There is, apparently, no one solution to this problem—each company copes with it in its own way.

The number of workers one foreman has to supervise may be cut. On day shifts, there are from 17-25 employees under one supervisor. At night, there are two foremen to every 25 workers. It is desirable to have some "decision-making" authority on the night shift. A general foreman with a thorough knowledge of company practices and policies is assigned to the night shift. Another setup is also [illegible] ment: Day-shift foremen [illegible] til the night supervisors [illegible] In this way they can get [illegible] on problems that need handling

The Medical Service

THE PHYSICIAN and the safety director share the responsibility for protecting the worker against the risks of injury on the job and occupational diseases.

Care of the injured worker was the first responsibility assigned to industrial medicine. Its importance in that field is universally recognized but its activities have expanded enormously.

Conservation of manpower is aided by (1) Proper placement of employees through pre-employment examinations; (2) Continued supervision of employee health through periodic check-ups, particularly in health-hazardous occupation; (3) Supervision of plant processes.

New processes and new materials, with actual or potential health hazards, have brought new problems and opportunities to the medical department. To study and control health hazards, some large corporations maintain industrial hygiene laboratories. Smaller companies obtain help from insurance carriers, state departments, and private consultants.

Scope of the Program

Industrial medical service requires a definitely organized plan, set up by a physician with management's full support. Essentials of such a program are:

1. A staff of qualified physicians, nurses and attendants adequate for the needs of the organization.

2. Dispensary and hospital facilities conforming to standards established by the American Medical Association, American College of Surgeons and the American Association of Industrial Physicians and Surgeons.

3. Efficient care of occupational injuries and diseases.

4. Reasonable first-aid treatment for non-occupational injuries and illnesses while on the job.

5. Physical examinations — pre-employment and periodic.

6. Adequate records of treatments and individual medical histories. The latter should be kept confidential.

7. Supervision of plant sanitation and hygiene measures.

8. Instruction of employees in personal health and safety.

Hospitals. Use of approved public hospitals, where available, is usually more desirable than setting up elaborate facilities for surgery and treatment of serious cases. Hospital facilities in many communities have been overtaxed since the beginning of World War II and this led to the expansion of many plant hospitals.

The medical director. Health and medical services should be under the supervision of a physician. Management and the medical director can formulate workable policies. Medical assistants, consultants, nurses, and others, should be selected on the recommendations of the medical director.

Full-time service of a physician may be warranted by the size of the

Doctor, nurse and safety director review an accident case.

plant or the nature of its operations. Sometimes a plant physician engages in private practice with the company's approval. He may devote part of his time to the industrial organization, assuming supervisory responsibility and delegating detail work to qualified assistants.

For Smaller Plants

Part-time service. For a plant not large enough to warrant a full-time medical director, a part-time arrangement may be the solution. A physician who is present only part of the day should have definite hours at the plant.

With such an arrangement it is desirable to have a full-time nurse in attendance so that treatment will be carried out and complete records kept. The nurse is responsible to the physician and works under his direction.

Some plants employ medical service on a call basis, the doctor being summoned only in emergencies. This is the least satisfactory type of service. Under such a setup, the physician is not likely to develop a real interest in the company, nor will he be able to do effective educational work.

Cooperative services. Where several small plants are close together, a cooperative medical service program can often be carried on successfully. A central dispensary with the necessary personnel and equipment is maintained. Adequate service can be made available at moderate cost.

Physical Examinations

Pre-employment examinations have become standard procedure in many companies. Their purpose is to place each employee in a job suited to his capacity rather than to bar anyone from a job.

Periodic checkups are desirable, particularly for elderly employees, for those in jobs where safety depends on physical fitness, and where there is exposure to health-hazardous materials.

Examinations include vision, heart, chest, blood pressure, hearing and urinalysis. Tests in some industries require rather elaborate laboratory facilities.

Laboratories. For most industries, facilities for taking urine tests and blood counts are needed. Blood serum samples can be sent to a local or state laboratory for analysis. Where a large volume of toxicological tests is conducted, a complete laboratory at the plant may be desirable.

Vision. Several devices for testing visual acuity and classifying workers for jobs are available. These devices can be used by trained laymen. Employees showing visual defects are referred to ophthalmologists or optometrists for further tests.

Hearing. By means of the audiometer, acuteness of hearing can be determined and treatment indicated. Any progressive loss of hearing, through noisy work or other causes can be measured.

Chest. For many occupations, employment and periodic examinations include X-rays of the chest. Mass chest surveys are made at regular intervals in industries where health hazards require frequent checks, and in public health campaigns to detect incipient cases of tuberculosis.

Trained technicians with mobile equipment can be engaged to conduct mass X-ray surveys.

Consultants

The medical director, like the private practitioner, is not an expert in all branches of medical sciences. Both find it necessary at times to call on specialists when diagnosis is uncertain or treatment requires specialized techniques.

Surgeons. In all surgical cases where there is danger of inaccurate diagnosis or inadequate treatment outside consultation should be called in early. Frequently, the administrative and diagnostic ability of the medical director is more important than his skill in surgery. The plant

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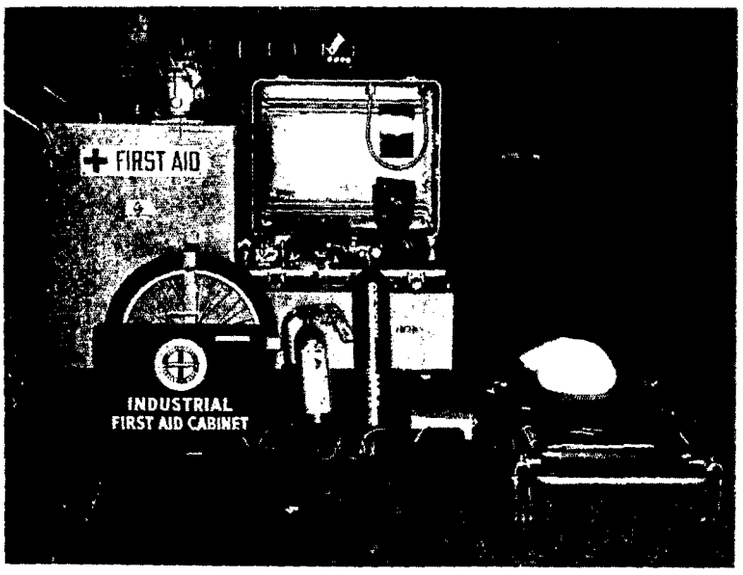

Mobile first-aid cart. Equipment includes first aid kit, folding stretcher, resuscitator, fire extinguisher, lanterns and blanket. (Barber Greene Co.)

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Care of the Injured

Utility crew demonstrates techniques of treatment with unit first-aid kit.

PROMPT and skilled treatment of injuries can prevent many minor cases from becoming serious and thereby avoid a great deal of lost time. Sudden illnesses that occur on the job are also within the scope of plant first-aid service and here also complications can often be avoided by prompt treatment.

Injuries should be treated by a physician or nurse if possible. Companies with extensive first-aid training programs do not permit laymen to give treatment if medical service is available. Their training is strictly for emergency use.

However, most injury cases, in the plant and outside, are first handled by laymen. Many a life has been saved because some trained person used the minutes while waiting for the doctor to check bleeding, apply resuscitation, and treat shock.

Military service has extended the training of laymen in first-aid techniques, and combat experience proved the value of their training. In civilian life many persons have been trained by the American Red Cross, and the U. S. Bureau of Mines in the United States and similar organizations in other countries.

Competent treatment of injuries requires:

1. Trained attendants
2. Clean, convenient quarters
3. Medically approved equipment and supplies
4. Proper organization
5. Well-kept records

This discussion is concerned primarily with the needs of plants which employ a full-time nurse and part-time physician rather than those with medical staffs and hospital facilities.

Personnel. First-aid facilities should be under the supervision of at least a part-time physician. A full-time registered nurse is desirable, even in a medium-sized plant.

If a full-time nurse is not practicable, at least two employees who have completed standard first-aid courses should be selected to carry on the work. They should be under the supervision of a doctor or a nurse.

Attendants should be allowed sufficient time from their jobs to keep the first-aid room in order, check supplies, and keep the necessary records. One attendant should be available during all working hours.

The Dispensary

A separate room should be provided, if possible. Patients should have reasonable privacy. If it is not practicable to partition the dispensary into a waiting room and a treatment room, a screen can be used.

Cleanliness of equipment and surroundings should be maintained for both hygienic and psychological reasons. The color scheme has an important influence on patients. For walls and ceilings, light tints in washable semi-gloss enamel are practical and cheerful. White is no longer considered necessary for hospitals and dispensaries.

The first-aid room should have:

1. Good lighting
2. Adequate ventilation and comfortable temperature
3. Basin with hot and cold running water
4. A quiet location
5. Floors of durable and easily cleaned material
6. Toilet facilities

Equipment. For a dispensary with a registered nurse in charge under the supervision of a part-time physician, equipment might include:

1. Two white enameled chairs and a bench
2. Enameled top table or desk
3. Stool
4. One or more beds or cots
5. Linen and blankets
6. Waste can with cover
7. File for medical records
8. Floor lamp
9. Treatment table and instrument cabinet
10. Medicine chest
11. Small sterilizer
12. Small items of office and surgical equipment, such as basins, pitchers, rubber gloves (sterile), scissors, tweezers, forceps, hot water bottle, ice bag
13. Stretcher
14. Telephone

Supplies

The dispensary operated under full-time medical supervision will naturally carry a wider assortment of instruments and supplies, including many items not ordinarily used by laymen. If the first-aid room is staffed by workers with Red Cross certificates it is better to keep the setup as simple as possible.

The supervising physician should be consulted about the selection of materials, particularly when medication is involved. It is advisable to leave the choice of such items as first-aid antiseptics and burn dressings to him.

Unit first-aid material is replacing bulk first-aid supplies for smaller plants, for small groups detached from a central headquarters, men working in isolated areas where medical help is not available, and

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JUNKIN STRETCHERS

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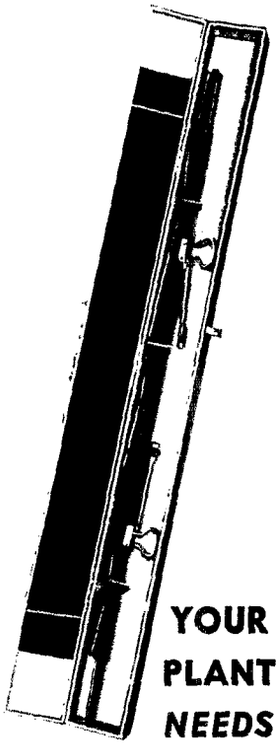

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JUNKIN SPLINT-TYPE STRETCHER

Construction permits patient to be carried horizontally or lifted vertically without danger from inaccessible locations. Canvas straps and footrests keep patient rigid and comfortable. For complete information write for free descriptive literature.

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JUNKIN SAFETY APPLIANCE CO.
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on trains, buses, trucks, airplanes and other mobile equipment.

Unit first aid material is desirable for such groups because each dressing and treatment is an individual unit, for one-time use only. Materials can be kept in sanitary condition without deterioration for long periods. There is more likely to be a sufficient quantity and wider assortment of bandages.

To simplify maintenance of industrial first-aid kits and to establish commercial standards for sizes of unit cartons and kits, the Division of Simplified Practice, National Bureau of Standards has compiled **Code** R178-41 in cooperation with industry.

Kit sizes and their contents are determined by the number of persons to be protected, with consideration to the nature and frequency of injuries likely to occur. Kits come in 10, 16, 24, and 36 unit sizes. A 24-unit kit for example, would be suitable for a group of 50 men.

Specifications outlined in Federal Specifications GGK-391 (Amended) are generally accepted and used by manufacturers in the production of unit first-aid material and kits.

For operations under federal regulation, assortments have been specified although these may not fit all local requirements. Contents of kits include the following items:

Adhesive bandages
Burn compound
Burn solution
Petroleum gauze
Ammonia inhalants
Antiseptic swabs
Antiseptic applicators
Tincture green soap
Eye packets
Bandage compresses—2, 3 and 4 inch
Tourniquet
Forceps
Scissors
Triangular bandage
Gauze bandage
Gauze pads
Gauze compress
Adhesive tape
Aspirin tablets
Soda bicarbonate tablets
Poison ivy ointment
Insect repellent
Snake bite packet

The unit system does away with many of the objections to the old first aid kit but a competent and conscientious employee should be responsible for dispensing the supplies. Employees may help themselves, often for home use, and supplies may not be replaced. Also, self-treatment should be discouraged.

For the smaller plant, ideal quarters for a first aid station may not be available but the best possible spot should be chosen. It should be readily accessible to the working zone and convenient for supervision and maintenance.

A lavatory with hot and cold running water and toilet facilities should be available.

Reasonable privacy is desirable, both for the patient and for the possible effect on those working in the area. If a separate room is not available, a screen can be erected.

Equipment may be selected from lists suggested for dispensaries, keeping in mind the limitations of space and the requirements of the plant. The following are essential.

1. Desk or table for filling out reports and records.
2. Chair or stool.
3. Filing cabinet for records.
4. Waste can with cover.
5. Bulletin board.
6. First aid manual.

Dispensary Records

Accurate records should be kept of all treatments. If injuries are infrequent, a small day book may be sufficient, if kept systematically. Entries should include these details:

1. Date and time of injury.
2. Date and time injury was reported for treatment.
3. Name of injured.
4. Address of injured.
5. Where and how injury was received.
6. Names, addresses and telephone numbers of witnesses.
7. Nature of injury.
8. Kind of treatment given, and by whom.
9. Whether employee returned to work after treatment; if not, when.

First-Aid Antiseptics

Infection of an open wound can be prevented by killing the germs already present or by removing them mechanically and preventing the entrance of more. It is in this second theory that soap and sterile water are used in aseptic treatment of wounds.

Careful and thorough washing with soap will mechanically remove the organisms and a sterile bandage will prevent entrance of more. Very few are destroyed in the process.

Many substances will kill germs in a test tube but a successful first-aid antiseptic must kill them in the presence of body substances and not kill too many of the body cells at the same time. Choosing the proper one is something of an art and for this reason should be left to the doctor in charge.

Corrosive sublimate, for instance, is an antiseptic mercury compound and very effective except for its bad

first aid for throat irritations

Thantis LOZENGES

SORE THROATS due to coughs and colds, if neglected, may result in lost man hours of work.

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'Thantis' Lozenges relieve pain promptly—reduce infection—act prophylactically.

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Mercurochrome *first aid for wounds*

Neglect may cause infection which can be prevented by prompt use of 'Mercurochrome'.®

No antiseptic has been proved to be more effective than 'Mercurochrome' for topical application.

HWD

HYNSON, WESTCOTT & DUNNING, INC., BALTIMORE 1, MARYLAND

What your plant can
accomplish
with Vision Screening

We recently made up a report of savings made by 59 plants:

Big savings in *cost of training new employees* (as high as 75%); reduction in *accidents* and *spoilage;* labor *turnover* reduced 30% or more.

Also increased earnings of employees, less absenteeism, and other gains.

Briefly summarized in a Booklet—which we'll be glad to send to any personnel official, on request.

Keystone View Co., Meadville, Penna. Pioneers in Binocular Vision Testing.

KEYSTONE
OCCUPATIONAL VISUAL SERVICE

EMERSON Resuscitators

"Simplest and Safest"

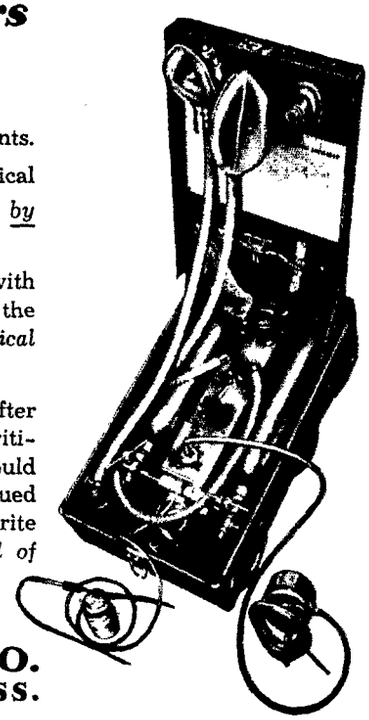
SIMPLE to operate.

SAFE for adults children, or infants.

ACCEPTED by the American Medical Association since 1942 for use *by laymen.*

PROVIDE SUCTION, alternating with pressure, to give vital aid to the circulation. Write for *free Medical References on Resuscitation.*

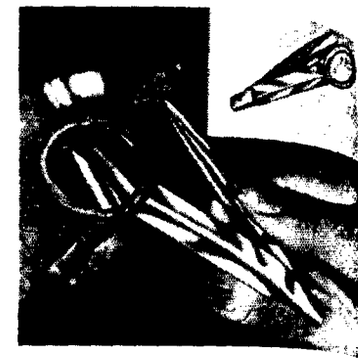
NOTE: The first few minutes after breathing has ceased are the most critical. Manual artificial respiration should be started immediately and continued until the resuscitator is in use. Write for free bulletin, *Emerson Method of Artificial Respiration.*



J. H. EMERSON CO.
CAMBRIDGE 40, MASS.

effect on tissues. Compounds such as merthiolate, merphenyl and mercurochrome are devised to get the antiseptic properties of mercury without its toxic effects.

The halogens (tincture of iodine and Dakin's solution) have been widely used because of their strong oxidizing action. They are even stronger than hydrogen peroxide which is used for the same reason.



Combination tweezers and 4X magnifying glass. (Hilco Engineering Co.)

The various antibiotics (sulpha compounds, penicillin, terramycin, etc.) are not antiseptics although they are very useful in treating infections. They should not be used in first aid because their use is not without danger.

Transporting the Injured

Where there is any doubt about moving the patient, medical aid should be brought to the scene of the accident, if at all possible. Lifting a patient into a car may aggravate injuries.

Before the patient is moved he should be treated for possible shock. Fractures should always be splinted.

Stretchers. The army type is easy to handle. It can be used as a cot at the scene of the accident, in transit, and at the first-aid room or hospital. It is frequently stored in a canister in a conspicuously marked spot to keep it clean and ready for use.

Collapsible stretchers may be folded when not in use and carried in an automobile. Some are equipped with wheels and an adjustable head rest.

Bandages, splints and stretchers may be improvised in emergencies when regular equipment is not available. Improvisation is part of first-aid training. Where men are at work, however, approved first-aid equipment and supplies should be kept on hand.

announces new way...

Operate your unit first aid system at lower cost

The secret is... *cellophane-wrapped units!*
MSco gives you this wrapping service free!
Here is how it saves you money...

1 **Infrequently used units will not have to be replaced** because of the unit carton (not contents) wearing out. Now MSco protects the carton, too!

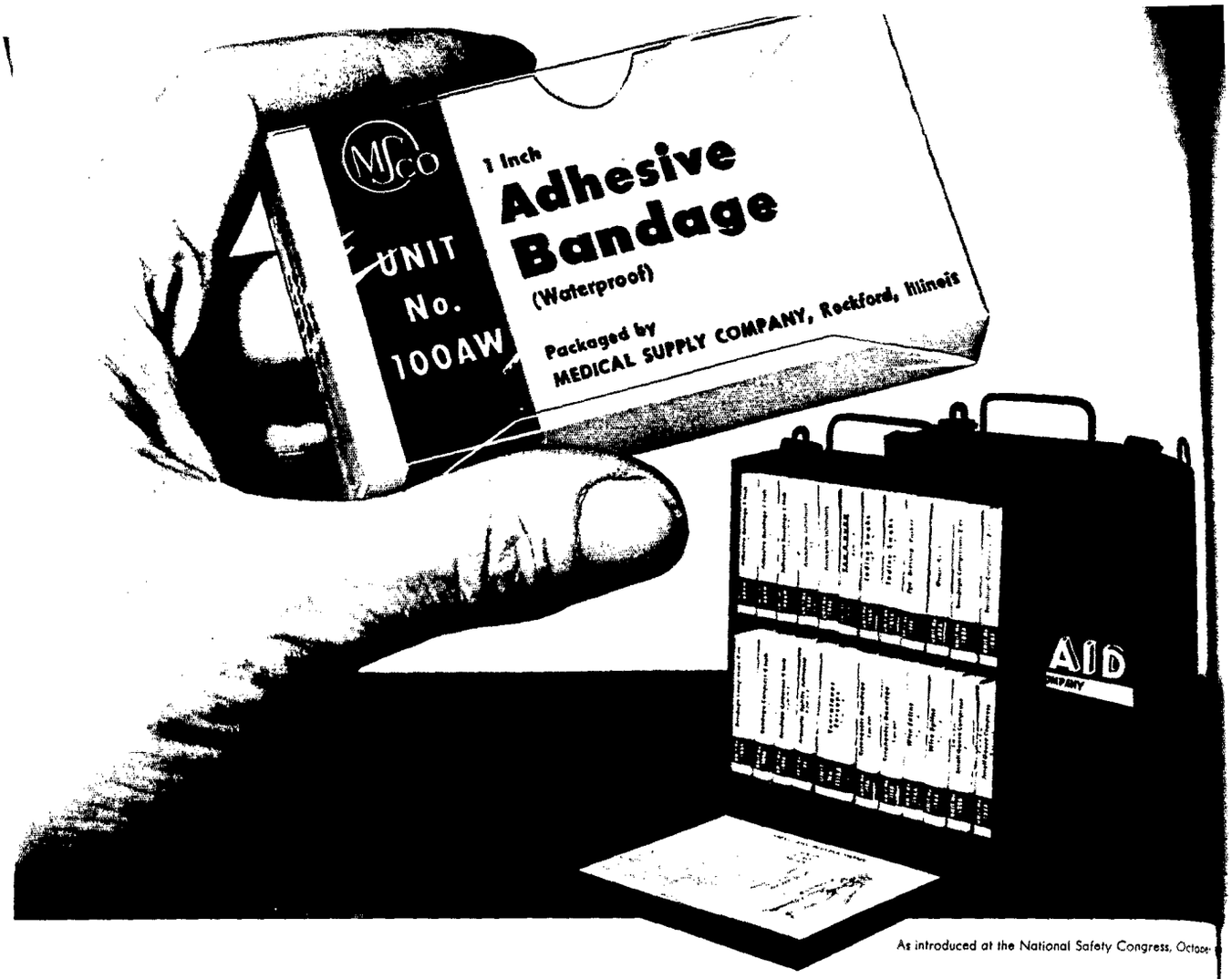
2 **Pilferage of items from a multiple unit can always be detected** . . . like forceps, scissors, or a tourniquet, for example. It's a *tamperproof* unit! Thus, a man in the field never suddenly finds an important item missing just when he needs it!

3 **Inspection time cut 75%.** A glance tells the story! No more opening of every single unit package to determine contents. Actual studies prove this reduces inspection time 75%. Figure out *your* savings on your own hourly rate.

4 **Every unit gets continuous protection.** No more discards, because other units in the kit are protected against leakage due to partially used and improperly sealed items, such as tubes, applicator vials and bottles.

5 **Cellophane builds extra confidence** because packages are tamperproof. Your *employees* know this!

Turn page...



As introduced at the National Safety Congress, Octobe

New cellophane-wrapped first aid units and color-matching kits by MSCO

Here's unit first aid in its finest form . . . remarkably improved to lower your costs, give greater service in the field!

New cellophane-wrapped units . . . *exclusive* with MSco . . . and new color-matching kits give you a more practical, serviceable unit carton *plus* a more practical, serviceable kit. Here's why:

Cellophane wrapping eliminates replacement of infrequently used units . . . makes the unit tamperproof, guards against pilferage of items . . . cuts inspection time 75% . . . gives continuous protection to every unit . . . builds extra confidence among your personnel.

Kits are of attractive *hard finish* MSco Forest Bronze that withstands scuffing, weather, abuse! This hard, baked-on enamel is the same type as used by automotive equipment manufacturers. Your field men know what such protection means!

And, most important, too, this new standard color scheme for *both* the units and cartons . . . highly visible Buckskin Tan with Forest Bronze . . . means extra legibility, quick and accurate reading of contents and use data. Saves time when it counts most!

Such new and *practical* developments are the kind you can always expect from MSco. For MSco people are *specialists* in unit first aid . . . devoted *exclusively* to the policy of bringing you the very latest and very best in unit first aid for your field operations.

MSCO *Specialists in unit first aid*

Medical Supply Company

ROCKFORD, ILLINOIS • IN CANADA, IT'S SAFETY SUPPLY CO

Resuscitation Methods and Equipment

PROMPT application of artificial respiration by trained persons has saved thousands of lives in cases of suspended breathing due to asphyxiation, drowning, electric shock, and other causes.

The Arm-Lift, Back-Pressure Method, recently introduced, has been adopted officially by the American Red Cross and other organizations, and is being taught to an increasing number of persons. It can be applied immediately without apparatus, which is important in all cases of suspended respiration. It is more efficient than the Schafer prone pressure method which has been widely taught for many years and has saved many lives.

Mechanical resuscitators are used by fire departments, hospitals and by some industries where asphyxiation or electric shock hazards are serious and where apparatus and trained personnel are immediately available.

Such apparatus can be used where injuries to the patient might prevent use of manual resuscitation. It also gives more air exchange and does not get tired.

Mechanical resuscitators are for use only by persons trained in their operation. The American Medical Association lists devices accepted for use by hospitals and medical departments.

The inhalator, which supplies oxygen to the patient under low, continuously positive pressure, is used with manual resuscitation. It is particularly valuable in cases of gas asphyxiation. The inhalator, by itself, does not produce respiration and should not be confused with mechanical resuscitators.

Use of pure oxygen, rather than a mixture of oxygen and carbon dioxide, is recommended by the Council on Physical Medicine of the American Medical Association.

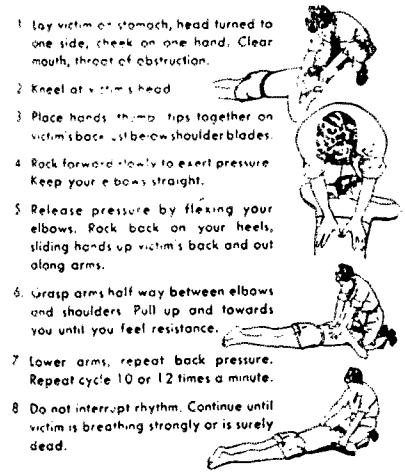
Some types of apparatus combine the functions of resuscitator, inhalator and aspirator, restoring breathing, administering oxygen and removing from the throat secretions which might hinder breathing.

The "Eve" or rocking method uses a stretcher over a support on which the patient is see-sawed up and down. This method is used by the British Navy and the U. S. Coast Guard. A folding stretcher and support can be carried in an automobile.

Application of manual resuscitation should never be delayed while waiting for apparatus.

Mechanical resuscitators give more air exchange than manual resuscitation and do not get tired. Manual methods should be employed without delay while waiting for equipment. (J. H. Emerson Co.)

ARTIFICIAL RESPIRATION
(Arm-Lift, Back-Pressure Method)



NOT too HEAVY—NOT too FAST. Let someone else loosen tight clothing, go for help, get blankets. You haven't time.

NSC Safety Instruction Card No. 781.

Medical Service

—*From page 230*

physician should refer all cases which might be beyond his training and experience to a specialist or surgeon.

Oculists. Injuries to the eyes are among the most frequent of occupational injuries. The importance of the eyes is so great that highest available skill should be secured. Specialists should be summoned in all potentially serious cases.

The oculist can also serve industry in correcting defective vision among employees. The employee should, of course, have the privilege of choosing his own oculist or optometrist but frequently he will ask the advice of the medical department on the selection of a specialist. Where prescription goggles are indicated, some companies provide the examination.

Dentists. Injuries to the teeth are relatively infrequent in industry and such cases are usually sent outside for treatment. The medical department should have a list of dentists qualified to treat such injuries.

The importance of oral hygiene has led many companies to provide dental examinations, sometimes including full-mouth X-rays. The findings are usually referred to the employee's dentist since few companies provide restorative dentistry.

Health Agencies

Among the agencies furnishing helpful data on general and specialized phases of medical service, first aid and industrial hygiene are the following:

United States Public Health Service
United States Department of Labor
American Standards Association
Industrial Hygiene Foundation
Atomic Energy Commission
State and Municipal Health Departments

MEDICAL FACILITIES

Recommended Standards

1. In plants of 500 or more, a full-time nurse should be in attendance. A physician should be present at the daily dressing hour.

2. Number of treatment rooms:
   50 to 500 employees..... 1
   500 to 1000 employees..... 2
   1000 to 5000 employees.... 3
   5000 to 10,000 employees... 5

3. For plants of more than 1,000 employees the dispensary should be equipped with bath and toilet, equipment for minor surgery, and other apparatus and supplies selected by the physician in charge.

4. One or more beds should be provided where severe cases may be made comfortable during observation or while waiting for transportation to a general hospital.

5. An X-ray room, if facilities are not available in a local hospital or physician's office.

6. The hospital should be under full charge of the company physician.

Surgical Cleanliness in The First-Aid Room

FIRST AID treatment requires adequate sterilization of surgical materials and rigid precautions during treatment and until the wound is healed.

To the physician and nurse, keeping equipment and supplies free from contamination and cleansing the hands thoroughly has become second nature. But the first-aid attendant called from his job to treat an injury may overlook important precautions.

The first-aid room should be quiet and away from odors. Good ventilation is essential. Windows should be screened to keep out insects. In summer, screen doors are also advisable.

Furnishings should be simple and neat and the room should not be cluttered. Walls painted with eggshell enamel in a light tint of green, cream or buff are satisfactory. A patient who is nervous or in a state of shock may be upset still more by intricate patterns on walls and ceilings.

The floor should be resilient and easy to clean. Linoleum, rubber tile, vinyl tile, and asphalt tile are satisfactory. Damp cloths for dust[ing] a sweeping compound avoid[s] dust. A vacuum cleaner with [a] brush attachment is also desirable.

Supplies (bandages, gauze, instruments, etc.) should be kept in cabinets. Gauze and bandages as purchased in packages are sterile [and] dressings are recommended [for] treatment by laymen. There is [less] waste and contamination of unused supplies and, as in the case of finger compresses, it is possible to apply dressings without touching the part which comes next to the wound.

Sterilizers are used to sterilize instruments such as forceps, tweezers, etc., by subjecting them to boiling water or live steam. Boiling for 20 minutes is advised.

When treatment is concluded, instruments should be cleaned and sterilized and allowed to dry. Soiled dressings should be disposed of out of sight of patients. A closed can with self-closing foot-operated cover is a useful item.

Hands cannot be made absolutely sterile but reasonable standards of personal cleanliness should be maintained. While the packet system makes it possible for a person with dirty hands to apply a sterile dress-

—*To page 242*

"This Quality Control Number is Your Proof that M·S·A FIRST AID KIT Items are Fresh, Pure, Sterile"

Every step in manufacture, all supplies that go into the new M.S.A. First Aid Kits are keyed to the number stamped on each Unit "D" package. This identity is your assurance of *individual responsibility* on our part . . . the best possible guarantee of product protection to you.

MORE THAN 60 ITEMS GIVE YOU COMPLETE SELECTION

You name it, we have it! 12 different packages of antiseptics; 15 various kinds and sizes of bandages and dressings; over 21 burn treatments; and more than 15 miscellaneous items, including eye treatment, snake bite kits, poison ivy ointments, and many others. Write for details.

MSA SAFETY EQUIPMENT HEADQUARTERS

MINE SAFETY APPLIANCES CO.
201 North Braddock Avenue, Pittsburgh 8, Pa.
At Your Service: 82 Branch Offices in the United States and Canada

NEW HOPE

in the battle against

CANCER

THE FIGHT against man's cruelest enemy is far from won. If present rates continue, 23 million living Americans will die of cancer—230,000 *this year*. And thousands of these will die needlessly—through cancer that could have been cured if treated in time.

ALL THE SAME, there have been victories. Thousands who once would have died are being saved—thanks, in part, to *your* donations to the American Cancer Society.

AND, LAST YEAR, the Society was able to allocate $5,000,000 of your donations to research aimed at finding the ultimate cure for *all* cancer. That's more money than ever before.

MUCH MORE, of course, remains to be done. So please make *this* year's gift a really *generous* one!

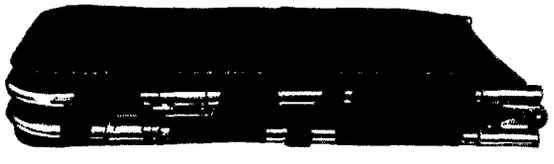
Cancer
MAN'S CRUELEST ENEMY
Strike back—Give
AMERICAN CANCER SOCIETY

Good First Aid Equipment Starts With a

BOMGARDNER

SUPER-JIFFY EMERGENCY STRETCHER

● Good first aid equipment must include a modern stretcher . . . one that will give the patient the best in comfort and safety. The Bomgardner Super-Jiffy is the finest stretcher made . . . manufactured by the leading producers of stretchers, ambulance cots and wheeled service equipment. Check these features. You'll agree that Super-Jiffy is a must in your first aid equipment.



Super-Jiffy Folds to 37"x19"x4" size for easy Carrying or Storage

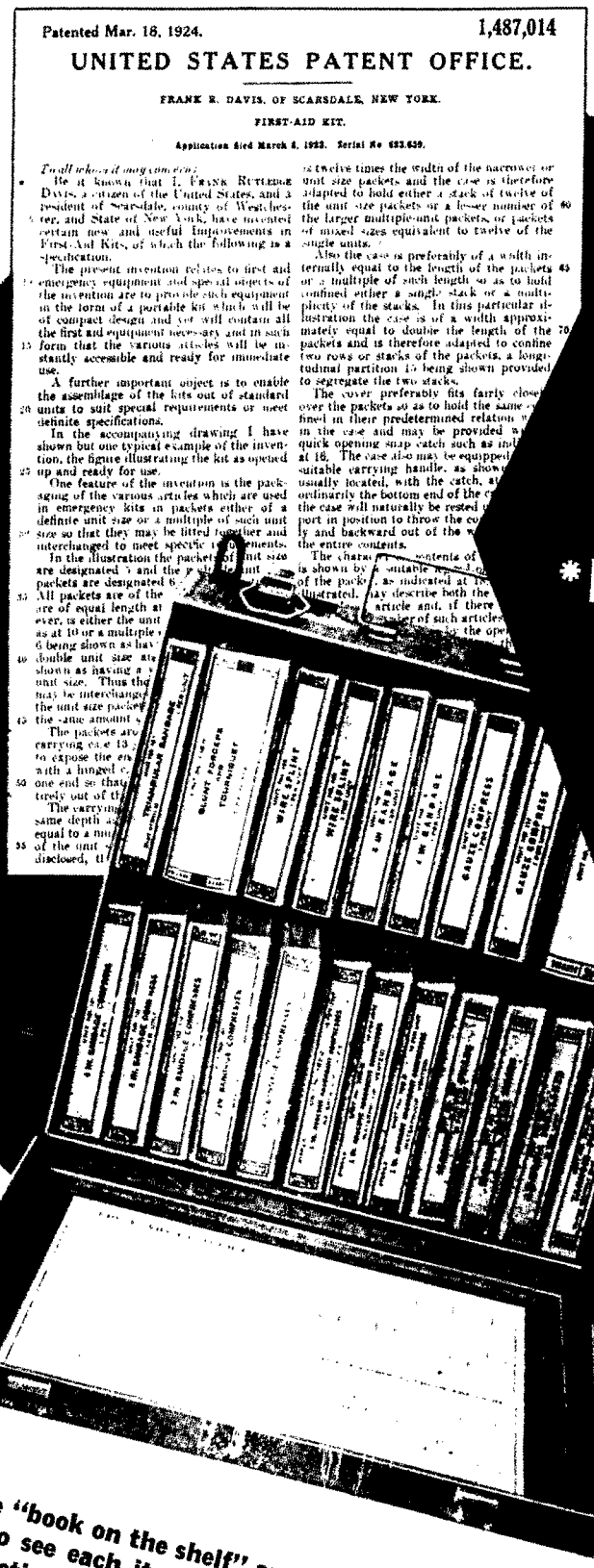
- ***Super Strong . . . heat treated, aluminum aircraft tubing***
- ***Absolutely Safe . . . no parts move on frame . . never becomes "shaky"***
- ***Wheels, legs and frame lock automatically when opened***
- ***A Pair of Six Foot body straps***
- ***Dimensions: Open—72"x19"x6¼"***

Write for Catalogue for Full Information

THE BOMGARDNER MANUFACTURING CO.

Dept. N, 1384 Hird Avenue ● Cleveland 7, Ohio

30 YEARS AGO



Patented Mar. 18, 1924. 1,487,014

UNITED STATES PATENT OFFICE.

FRANK R. DAVIS, OF SCARSDALE, NEW YORK.

FIRST-AID KIT.

Application filed March 8, 1923. Serial No. 623,639.

To all whom it may concern:

Be it known that I, FRANK RUTLEDGE DAVIS, a citizen of the United States, and a resident of Scarsdale, county of Westchester, and State of New York, have invented certain new and useful Improvements in First-Aid Kits, of which the following is a specification.

The present invention relates to first aid emergency equipment and special objects of the invention are to provide such equipment in the form of a portable kit which will be of compact design and yet will contain all the first aid equipment necessary and in such form that the various articles will be instantly accessible and ready for immediate use.

A further important object is to enable the assemblage of the kits out of standard units to suit special requirements or meet definite specifications.

In the accompanying drawing I have shown but one typical example of the invention, the figure illustrating the kit as opened up and ready for use.

One feature of the invention is the packaging of the various articles which are used in emergency kits in packets either of a definite unit size or a multiple of such unit size so that they may be fitted together and interchanged to meet specific requirements.

In the illustration the packets of unit size are designated 5 and the [illegible] unit packets are designated 6. All packets are of the same depth and are of equal length at one end, however, is either the unit size as at 10 or a multiple thereof, 6 being shown as having a double unit size and 7 shown as having a [illegible] unit size. Thus the packets may be interchanged with the unit size packets and the same amount of [illegible].

The packets are [illegible] carrying case 13 [illegible] to expose the ends of the packets with a hinged cover 14 at one end so that the packets may be entirely out of the case.

The carrying case is of the same depth as the packets and of a width equal to a number of times the width of the narrowest or unit size packets and the case is therefore adapted to hold either a stack of twelve of the unit size packets or a lesser number of the larger multiple-unit packets, or packets of mixed sizes equivalent to twelve of the single units.

Also the case is preferably of a width internally equal to the length of the packets or a multiple of such length so as to hold confined either a single stack or a multiplicity of the stacks. In this particular illustration the case is of a width approximately equal to double the length of the packets and is therefore adapted to confine two rows or stacks of the packets, a longitudinal partition 15 being shown provided to segregate the two stacks.

The cover preferably fits fairly close over the packets so as to hold the same confined in their predetermined relation [illegible] in the case and may be provided with a quick opening snap catch such as indicated at 16. The case also may be equipped with a suitable carrying handle, as shown, usually located, with the catch, at ordinarily the bottom end of the [illegible] the case will naturally be rested [illegible] port in position to throw the cover [illegible] ly and backward out of the way to the entire contents.

The character [illegible] contents of [illegible] is shown by a suitable [illegible] of the packets, as indicated at [illegible] illustrated. [illegible] may describe both the [illegible] article and, if there [illegible] of such articles [illegible] the open

U. S. PATENT No. 1,487,014
FOR
THE ORIGINAL
DAVIS
***D-CARTON**
SYSTEM
GRANTED 1924

*"D" stands for Davis

Note the "book on the shelf" arrangement that makes it easy to see each item, and to lift it from the kit. No projecting ends or edges to become damaged.

DAVIS CREATED *Modern* INDUSTRIAL UNIT FIRST AID

Yes . . . three decades ago Davis gave industry the D-CARTON System —the first effectively organized unit system of first aid, designed specifically to meet the many different personnel emergencies encountered in the plant and in the field. Since then it has been adopted as the standard by thousands of companies in every branch of industry. And over the years Davis dedication to the cause of industrial unit first aid has resulted in many other innovations that have made first aid more effective. A few of the outstanding Davis contributions to greater industrial unit first aid are described below.

OTHER DAVIS "FIRSTS" FOR INDUSTRIAL UNIT FIRST AID

1924—The Adhesive Bandage—now a common household item—was developed by Davis for industrial first aid use.

1924—Coloring of solution in Ammonia Inhalants to produce pink tint on cotton to indicate exhaustion of Ammonia. U.S. Patent No. 1516454.

1926—Tannoid, the then accepted Tannic Acid treatment for burns, made available to industry in a special Davis Burn Kit. An anti-freeze was added to the formula to keep it effective in cold weather. See 1949.

1932—Lot numbers stamped on D-Cartons for maximum quality control.

1933—Isodine, non-alcoholic solution of Iodine developed by Mellon Institute, presented to industry by Davis.

1936—Davis Bandage Compresses adopted Johnson & Johnson Zobec Sponge for greater absorbency and softness.

1940—Davis introduced transparent sleeve for antiseptic swabs. Swab ends cemented to sleeves, will not push back into sleeve, or pull out when in use.

1949—Davis introduced Americaine water soluble jelly in Davis Burn Kit—a topical anaesthetic that provides almost instant relief from pain.

The D-Carton System—a standard UNIT FIRST AID FOR INDUSTRY

The Davis line of First Aid Kits and equipment has grown to keep pace with industry's needs, so that today there is a kit to meet the special requirements of every type of industrial operation—from the most compact pocket kit to the most complete possible plant kit. These include portable and wall kits of all sizes and combinations of equipment, hundreds of special purpose first aid materials and medicaments; burn kits, snake bite kits, first aid and medicine kits, etc. The Unit System of First Aid is also used by the Armed Forces and the Red Cross.

Write for First Aid Catalog and name of nearest distribution point.

SAFETY DAVIS DIVISION

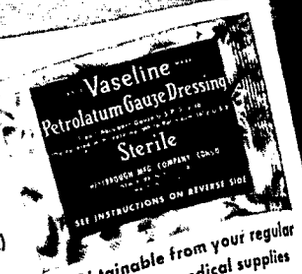
DAVIS EMERGENCY EQUIPMENT CO., INC.
55 HALLECK STREET • NEWARK, NEW JERSEY

DEPENDABLE DRESSING

for FIRST AID, for EMERGENCY for DISASTER, for DEFENSE

With a distinguished record of use by the medical services of the Armed Forces, by other governmental agencies, by hospitals, by emergency and disaster units, by industrial clinics and first-aid stations . . .

Now in three sizes:
No. 1: 3" x 36" (6 in carton)
No. 2: 3" x 18" (12 in carton)
No. 3: 6" x 36" (6 in carton)

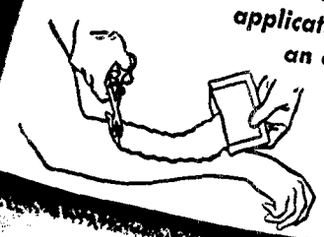


Obtainable from your regular source of medical supplies

VASELINE STERILE PETROLATUM GAUZE DRESSINGS

TRADE MARK (R)

...always STERILE, always READY for immediate and easy application to dress a burn, an abrasion, and other surface injuries.



have been adopted by surgeons as standard procedure, by nurses as preferred matériel, by professionally-trained aid personnel as the compact, ready-made, ready-to-apply dressing of their choice.

CHESEBROUGH MFG. CO., Cons'd
Professional Products Division • New York 4, N. Y.

Specify these superior dressings in the foil-envelopes to your supplier.

VASELINE IS THE REGISTERED TRADE-MARK OF THE CHESEBROUGH MFG. CO., CONS'D

HALCO STRETCHER CANISTER

The Halco Stretcher Canister is the ideal way to store your Stretcher. Made of heavy gauge steel, the Canister when closed will prevent dirt and grime from deteriorating the Stretcher. The Canister is 95" high by 5" wide by 8" deep, and comes finished in white baked enamel.

Write today for literature and the name and address of the nearest dealer handling the Halco Stretcher Canister.

•

A. E. HALPERIN Co., Inc.
75-87 NORTHAMPTON ST.
BOSTON 18, MASS.
Branch — **2208 E. FAYETTE ST.**
SYRACUSE 3, N. Y.

Surgical Cleanliness

—*From page 238*

ing without contaminating it, only an emergency would justify it.

For the first-aid room, clean towels (cloth or paper) and soap, preferably liquid or powdered in a dispenser, should be available. A nail brush should be used.

If extensive dressing or cleansing of a wound is indicated, the patient should be placed in a comfortable position and the injury covered temporarily, after any severe bleeding has been checked.

Wash-up then proceeds as follows:

1. Clean finger nails by scrubbing with soaped brush and warm water, up and down the nails and across the finger tips.

2. Then scrub inside of hands and between fingers.

3. Then outside of hands and arms beyond the elbow. A short-sleeved shirt or jacket is recommended.

4. Rinse so that water runs off the elbows. Finally, wash with a sponge dipped in alcohol.

Patient's clothes or hands should not come in contact with a wound during or after treatment. Wounds may also become infected from the nose or throat of the patient or the attendant.

Infections

Infections were involved in one out of ten hand or finger injuries according to reports of two State Compensation Commissions. This is twice the recorded frequency for other parts of the body. For example, foot or toe injuries became infected in only one case in 20; arm injuries and leg injuries in one case in 16. Infections for all parts of the body averaged 1 in 20 compensated injuries.

CLINICAL LABORATORY

...planning or improving a dispensary?

PHYSICAL EXAMINATION ROOM

EXAMINATION AND TREATMENT ROOM

EMERGENCY TREATMENT ROOM

RECOVERY ROOM

....let aloe help you

Modern industrial health care is increasingly concerned with the general health of employees as well as the routine treatment of the injured. If you plan to expand existing facilities or establish an entirely new department, A. S. Aloe has a planning department staffed with medical equipment experts, prepared to help you with layouts and suggested equipment lists. Our planning service is designed to save valuable time and relieve you of the burden of endless detail in preparing floor plans, check lists, etc. The illustrations above show the Aloe-equipped medical and laboratory installations of the Atlas Powder Company's plant in Chattanooga, Tennessee. Here, the employee is placed in an atmosphere equal, in every respect, to that of the private physician's office, and is therefore relieved of any possible doubt that he is the beneficiary of superior medical care. Please write for complete details.

a. s. aloe company AND SUBSIDIARIES • 1831 Olive St. • St. Louis, Missouri

LOS ANGELES 15 — 1150 SOUTH FLOWER ST. • SAN FRANCISCO 5 — 500 HOWARD STREET • SEATTLE 1 — 1920 TERRY AVE. • [illegible] 4 — [illegible] AVE.

KANSAS CITY 2 — 4128 BROADWAY • NEW ORLEANS 12 — 1425 TULANE AVE. • ATLANTA 3 — 492 PEACHTREE ST., N.E. • WASH[illegible] D. C. — [illegible]

Rehabilitation for the Handicapped

THERE ARE few persons so seriously handicapped physically or mentally that they are permanently unemployable. An intelligently selective program which places the handicapped worker where he can work safely and productively is both humane and economically sound.

Many companies, even in days of plentiful labor supply, have willingly accepted workers with serious physical defects. Most employers are willing to take care of their own employees who have been injured on the job but are less ready to employ those who have been disabled elsewhere.

The blind, deaf, and crippled, the amputees and the people with bad hearts, the neurotics and the sufferers from chronic illnesses and sensitivities — have been studied many times. Statistical evidence seems to show that such people, when properly placed, are productive and safe workers.

Proper placement for these people demands, first of all, a thorough knowledge of the work operations and the working conditions of each occupation in the plant. This knowledge should be evaluated by qualified specialists — production men, personnel men, safety men, and medical personnel. Physical requirements for each occupation should be established individually, and they should be as strict as needed—but not more so.

This information should be assembled in easy reference form for use in the employment interview and in the final placement following medical examination.

It is important that supervisors be made aware of the importance of any limitations placed on the types of work an individual may do safely. The formal transfer of a worker from one job to another is only the most obvious situation in which this point should be considered. There is, on the shop floor, a constant temptation to shift men and work operations quickly to meet temporary or changing situations.

No amount of personnel-office record-keeping will prevent misassignment and resulting serious hazard in such situations, unless supervisors are made strongly conscious of the need of observing all restrictions on the work operations of handicapped employees—and unless they have at hand the information on these restrictions for each employee.

A systematic method of conveying the information from department to department in cases of transfer should be established.

One objection to the employment of handicapped workers is that disability may be aggravated, and spurious claims of aggravation may be made, involving the company in increased compensation costs.

There are, of course, many types of handicaps which, for any particular type of operation, may be aggravated. Workers so handicapped should not be employed in those operations.

The best defense against unjustified claims is a sound physical examination, which definitely documents the physical status of the worker at employment and at intervals during his employment.

A number of agencies are ready to serve the employer who is considering employing conspicuously handicapped people. There are state and federal rehabilitation agencies which have information on the capabilities of the handicapped generally, and also contact with handicapped individuals who have profited from rehabilitation training.

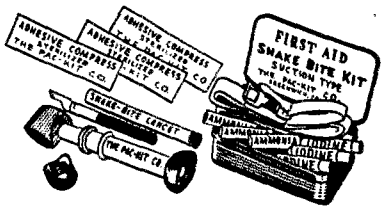
'PAC-KIT' FIRST AID

MODERN UNIT TYPE FIRST AID EQUIPMENT FOR EVERY EMERGENCY

'PAC-KIT' provides standard products packed in individual cartons with illustrated First Aid Instructions.

Electrically welded 20 gauge steel, dust and moisture proof cases provide complete protection of contents and long service.

No. 748 SNAKE BITE KIT SUCTION FIRST AID



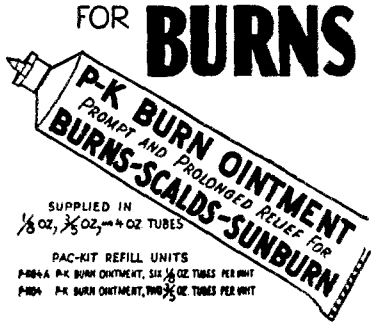
APPROVED BY SPORTSMEN'S RESEARCH (NON-PROFIT)

Easily operated with one hand. ANYONE can give effective first aid. KIT CONTAINS: *Tourniquet, Lancet* and *Suction Syringe,* with

- 1 Curved Rubber Suction Cup
- 1 Large Rubber Suction Cup
- 3 Iodine Applicators
- 3 Ammonia Inhalants
- 3 Adhesive Bandages

Wt. complete in metal case, 7 ozs.

IMPROVED FIRST AID FOR BURNS



FIRE, ELECTRICAL, WELDING, STEAM AND FRICTION BURNS.

Scalds—Sunburn—Windburn

P-K BURN OINTMENT provides immediate and sustained relief. It is a soft Lanoline base cream with an effective analgesic. Liberal free sample on request.

VISIT OUR EXHIBIT BOOTH NO. 103 AT THE GREATER NEW YORK SAFETY CONVENTION

Write for descriptive literature and prices.

THE PAC-KIT COMPANY P.O. BOX 1306 GREENWICH, CONN.

Training in Safety

INSTRUCTION in safe methods of work and development of sound attitudes toward the safety program have been made more effective through use of the many audio-visual aids that have been developed in recent years. These supplement and strengthen on-the-job instruction.

Safety is so closely associated with efficient operation that much of the instruction serves a double purpose.

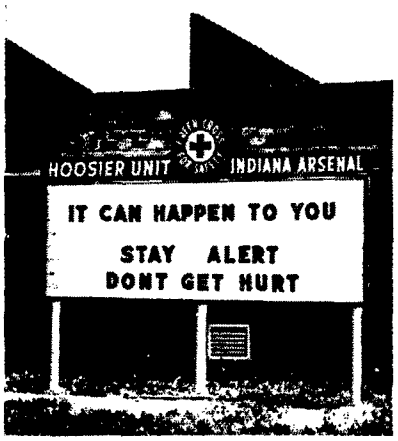
The following aids are used extensively in training programs:

1. Employee manuals
2. Films—motion pictures and slides
3. Bulletin boards and posters
4. Easels and flipcharts
5. Employee publications
6. Instruction cards

Employee manuals are widely used in getting new employees acquainted with their jobs and keeping older employees reminded of company policies. These booklets tell the employee what the company expects of him and what he can expect of the company. Group insurance, medical service, personal service facilities, work and safety rules, and other details of employment. There is a present tendency to avoid the word "rules" in referring to job practices.

Manuals range from simple mimeographed booklets to elaborate illustrated books. Cartoons give a friendly, informal tone to instruction and make rules seem less forbidding.

Films, both motion picture and slide, are valuable for training classes and for meetings. Types of films include:



Safety messages in letters eight inches high can be read at a distance. Copy can be changed quickly. (Wagner Sign Service, Inc.)

1. Strip films projecting individual frames, with the instructor adding the commentary.

2. Sound slidefilms using a similar strip, with disk or tape-recorded commentary.

3. Separate projection slides with either live voice or recordings.

4. Sound and silent movies.

Slidefilms can often be made from photographs taken on the job with amateur equipment. Modern color photography has added realism and attention value to both slides and movies, but black and white pictures are still useful for some subjects which do not lend themselves well to color.

Movies require more expensive equipment and greater skill in their production but short amateur movies can fill a useful place in the program.

Most of the motion picture films, however, will have to be obtained from outside sources and a great variety of films are available on a rental basis. Many are available from the National Safety Council which issues an annual list of movies and slidefilms that can be supplied.

Bulletin boards in prominent locations are excellent media for official announcements and news as well as for safety information and reminders in the form of posters, charts, photographs and exhibits of protective equipment. In a company which does not have an employee publication the bulletin board serves some of the functions of a newspaper.

Posters bring eye arresting splashes of color and safety messages to the bulletin board. Often the poster displays will catch the new employee's eye on the way to his department. Week after week, if the bulletin boards are well maintained, he will see new safety themes. These graphic displays will inform, remind and often amuse, since an occasional light touch has been found effective in getting across serious thoughts.

Jumbo posters, 8½ x 11 feet in size are often placed on boards in conspicuous locations where the employee cannot fail to see them when coming to work or leaving the plant. If they can be seen by the public passing the plant, they will also help to make a favorable impression. Many companies obtain jumbo posters from the National Safety Council on a monthly service basis. Some paint bill boards with original art-

Sound slidefilms are widely used visual aids in safety training.

work, perhaps including the plant's score of accident-free days.

Easels and flipcharts are helpful in conducting meetings. Example of this type of material are the National Safety Council's Safetygraphs, each dealing with a specific safety topic designed for use by foremen and others in holding meetings with small groups.

Safetygraphs are collections of drawings, cartoons, charts and other illustrations printed on heavy paper and spiral-bound in a folder that opens to form an easel. With the large illustration facing the audience, the instructor discusses the subject portrayed, using his own words or reading the suggested talk on the back of the illustration facing the audience.

Safety instruction cards, covering safe methods of practically every type of industrial operation, as well as seasonal and off-the-job subjects, are issued to employees as part of their job instruction. Often they are placed near the bench or machine to serve as reminders of precautions to be observed on the job.

While the messages on most instruction cards are rather long to serve as posters, some companies make enlarged photostats of the cards and mount them on bulletin boards.

Employee publications furnish an excellent medium for the safety message. These publications range from simple mimeographed bulletins to elaborately printed and illustrated magazines. Illustrated safety stories are regular features in some publications. Most publications carry news of employee and company activities but some are strictly safety bulletins for employees, supervisors, and special groups.

Publications

The National Safety Council's **Accident Prevention Manual for Industrial** Operations, which heads the bibliography for practically every section in this issue, is an illustrated, cloth-bound volume of more than 800 pages. It contains the essentials of a complete program of accident prevention and occupational hygiene.

Each major section of the **Manual** is available as a separate paper-bound reprint. These 26 pamphlets are intended for wider distribution of specialized material. They replace many of the older Safe Practices Pamphlets which have been discontinued.

Titles of section reprints are:

1. Permanent Structure and Plant Layout
2. Maintenance and Maintenance Crews
3. Boilers
4. Pressure Vessels
5. Refrigerating Equipment
6. Principles of Guarding and Transmission Guards
7. Power Presses
8. Metalworking Machinery and Abrasive wheels
9. Woodworking Machinery
10. Guarding Special Equipment
11. Storage and Manual Handling of Material
12. Power Handling of Material
13. Hand and Portable Power Tools
14. Welding and Cutting
15. Electrical Hazards
16. Flammable Liquids
17. Fire Prevention
18. Fire Extinguishment and Control
19. Personal Protective Equipment
20. Motor Transportation
21. Industrial Health Engineering
22. Industrial Poisons
23. Medical Services and Table of Chemical Hazards
24. Safety Organization and Training
25. Accident Records
26. The Safety Man's Resources

National Safety News brings each month 100 or more pages of practical material on industrial accident prevention, occupational hygiene, fire protection, as well as news about people, products and events in the field.

Sectional News Letters deal more specifically with the problems and news related to the industries they serve.

Accident Facts presents the annual roundup of accident experience throughout the country, giving summaries, analyses, rates, charts and tables.

The Safe Worker, a monthly pocket-sized publication for employees, has a wide circulation throughout industry. Written and illustrated in a gently humorous vein, it covers general safety themes.

For the transportation fields there are similar publications called *The Safe Driver* and *The Safe Railroader.* For construction workers, *The Safe Builder* was recently introduced.

Numerous miscellaneous booklets published by the National Safety Council cover health and off-the-job subjects and are designed specifically for the worker.

The Industrial Supervisor each month provides help for the foreman in meeting his safety and training problems, offering articles and features on technical and human relations subjects, safety talks, how-to-do-it features and the like.

Other publications for foremen include a series of 12 pamphlets on "Safety in Foremanship," six pamphlets on "Psychology of Safety in Supervision," and volumes of suggested five-minute talks for the foreman to use "as is" or as the pattern for his own version of each subject.

Data Sheets offer concise, authoritative discussions on specific safety subjects. They, like the pamphlets, are furnished separately or as full sets in ring binders.

Detail Sheets offer working drawings for construction of temporary structures or safety devices that any workman can follow.

—To page 249

Sound slidefilms are widely used visual aids in safety training.

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Detail Sheets offer working drawings for construction of temporary structures or safety devices that any workman can follow.

—*To page 249*

Stonehouse SIGNS

FOR INDUSTRIAL ACCIDENT PREVENTION

WHEN workers go through the gate, they should find safe working conditions inside. They should feel secure against possible accidents.

"Safe—they come to work: Safe—they go back home" is a fine goal for any Industrial plant.

STONEHOUSE SIGNS

Train your workers in safe practices. Tell them; warn them of hazards and how to guard against them on the job. Do it effectively, economically—with Stonehouse Accident Prevention signs.

Our complete Catalog—64 pages, in full color—is yours, free on request.

Stonehouse SIGNS, inc. MANUFACTURERS • Stonehouse Bldg., 9th at Larimer

"Signs Since 1863"

Denver 4, Colorado

ACCIDENT PREVENTION • steel SIGNS IN STANDARD COLORS AND DESIGNS

Training in Safety

—From page 246

Special releases include *Accident Facts Memos, Engineering Studies* and *Safety Reprints* covering a wide range of subjects.

Safety score charts, home-made or available in poster services, bolster pride in the plant no-accident record, or remind employees of the accident record.

Photoscripts are give-away booklets for the workers—to teach safety with pictures. Actual on-the-scene photos make these training aids realistic and convincing.

REFERENCES
Safety Promotion and Training

National Safety Council
Accident Prevention Manual for Industrial Operations.
Service Guide 2.1.—Occupational Safety Services.
National Directory of Safety Films.
Directory of Safety Posters.

National Safety News
Good Medicine for Any Plant—D. H. Tilson, Feb. 1953, p. 20.
More Power to Your Words (Photography)—Norval Burch, Feb. 1953, p. 22.
Color Slides Hold Their Interest—Norman Howlen, July 1952, p. 28.
The Education of a Safety Man—Glenn Griffin, Jan. 1952, p. 24.
Lines of Communication—Robert Clair, Jan. 1952, p. 30.
Visual Aids in Safety Training—June 1953, p. 65.

American Standards Assn.
Industrial Accident Prevention Signs, Specifications for—Z35.1-1945.

Getting Results from Audio-Visual Aids

AUDIO-VISUAL AIDS can be used effectively to motivate and supplement instruction. They should be chosen to fit in with the method of instruction to be used, the group to be instructed, and the objectives to be achieved.

Audio-visual aids should serve to:

1. Formulate correct ideas.
2. Create interest.
3. Intensify impressions.
4. Broaden experience.
5. Save learning time.

No matter how good an aid may be, its effectiveness will be determined largely by the way it is used. Audio-visual aids have the advantage of being easily understood even by poor readers.

It should be remembered that audio-visual aids are not a complete program in themselves. Here are some suggestions for their use:

1. The user must know his subject and be thoroughly familiar with the aids.

—To page 250

STOP ACCIDENTS

KEEP ALL YOUR MEN WORKING

READY MADE SIGNS
are on the job day after day, through the years . . . sending home vital messages of safety.

For over half a century READY MADE SIGNS have been a powerful influence in helping industry to reduce time-killing, man-killing and profit-killing accidents.

SIGN UP FOR SAFETY WITH READY MADE!

Delivery is prompt on the thousands of different READY MADE stock wordings and on special signs made to your order.

All READY MADE SIGNS are made in accordance with the American Standard Association specifications for Industrial Accident Prevention Signs.

Send for our latest full color, all-inclusive catalog today!

READY MADE SIGN CO. Inc.
115 WORTH ST. NEW YORK 15, N. Y.
Telephone: WOrth 4-3990

Weathertite BAKED ENAMEL **SIGNS** STANDARD REGULATION SIGNS OF ALL KINDS FOR SAFETY AND EFFICIENCY

PRAIRIE STATE PRODUCTS CO. 3822 LAWRENCE AVE. CHICAGO 25, ILL.
EST. 1930

Training in Safety

—From page 249

2. The material must be introduced properly. Tell the audience what to expect and its significance.

3. Avoid distractions, such as noise, improper focus, etc.

4. Don't use too many devices.

5. Plan the sequence.

6. Try for exact timing and smooth handling.

7. Be sure material is pertinent, and clearly displayed.

Audio-visual aids may be rented or purchased. Some may be made to order by an outside agency or within the plant. Home-made aids range in price from a few dollars to several thousand.

Following are some of the aids used:

1. Charts—from 8½ x 11 inches to 30 x 40 inches.
2. Models, mock-ups, demonstrations.
3. Sandpaper board.
4. Movies.
5. Slide films.
6. Recorders—wire and tape, soundscriber.

FOR CLEAR *Projection* OF
NATIONAL SAFETY COUNCIL
SOUND SLIDEFILMS

USE THE *NEW*
DuKANE
SOUND SLIDEFILM
PROJECTORS

FOR BOTH KINDS OF SLIDEFILM!

AUTOMATIC:
A 30-50 CYCLE INAUDIBLE SIGNAL ON THE RECORD AUTOMATICALLY ADVANCES THE FILM IN COMPLETE SYNCHRONIZATION WITH THE RECORD . . .

Model 14A290 also operates with L/P records.

and MANUAL:
THE PRESENT TYPE OPERATES MANUALLY FROM AN AUDIBLE SIGNAL ON THE RECORD.

FILL IN • TEAR OFF • MAIL COUPON NOW!

Send FOR FREE FOLDER TODAY!

DuKane Corporation
Est'd as Operadio—1922

DUKANE CORPORATION
Dept. NSN-34 St. Charles, Ill.

☐ Please send FREE Descriptive Folder on 30-50 AUTOMATIC SOUND SLIDEFILM PROJECTORS.

NAME_____

ADDRESS_____

CITY_____ STATE_____

Safety Signs

—From page 247

Signboards with changeable letters are available in small sizes suitable for departmental use and larger types which may be erected in conspicuous places near the plant entrance where they can be seen by both employees and the public.

These boards may be used for brief safety messages and for recording the plant's record of no-accident days.

Awards and Incentives

Group and individual awards for safety accomplishments have been widely used. For plants and departments, plaques, trophies and banners are often presented. For individuals, automatic pencils, wallets, key rings and lapel buttons are among the popular items.

These awards are available in a variety of stock designs. Distinctive ones can be made to order.

What Price Accidents?

Following is a table of time charges used in reporting accident experiences to the National Safety Council for contest and record purposes. This table conforms to the definitions specified in the American Standard Method of Compiling Industrial Injuries Z 16.1:

Fatality—6,000 days

Arm

Any point above* elbow, including shoulder joint—4,500 days.

Any point above wrist and at or below elbow—3,600 days.

Hand

At or below wrist and above proximal joints of fingers—3,000 days.

Thumb

At or below (toward tip) proximal joint, and above distal joint—600 days.

At or below distal joint—300 days.

Leg

Any point above* knee—4,500 days.

Any point above ankle and at or below knee—3,000 days.

Foot

At ankle and above* proximal joint of toes—2,400 days.

Great Toe

Above distal joint up to and including proximal joint—300 days.

At or below distal joint—150 days.

Two great toes—600 days.

*The term "above" when applied to arm, hand or fingers means "toward shoulder;" when applied to leg, foot or toes means "toward hip."

A four-year-old child was up on a roof

A dog was caught in a fence

A boy was playing with sticks of dynamite

A plumber was needed in a hurry

A baby was about to be born

A house was on fire

Just a few of the emergency calls handled recently by one telephone central office.

The Spirit of Service

Calls like these are familiar to telephone people everywhere. We know them well.

What they say so plainly is that our work lies at the very heart of life. We are in the thick of it. And the way we act matters.

For day in and day out, minute by minute, we are serving the needs of the people. Our entire business —everything about it—exists in order that we may render service.

Out of this experience comes a certain attitude of telephone people that is one of our most precious assets. It is The Spirit of Service.

It begins with a sense of responsibility and shows itself in a sort of combination of knowing-how and wanting-to-do.

We know that without it there would still be telephone service of a sort. But it wouldn't be the same. And we wouldn't be the same people either. For the spirit that brings the most to the job, likewise returns the most to the people who give it.

Much has been done. But telephone men and women know that all that the years have brought is but the beginning.

Our opportunities for Service open wide before us.

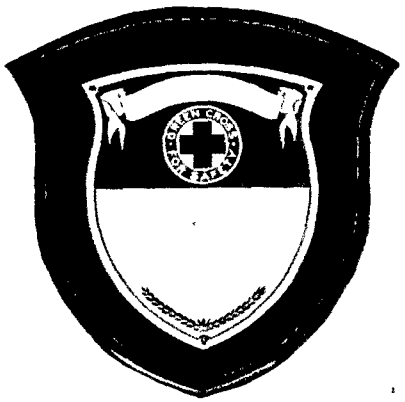
BELL TELEPHONE SYSTEM

LOCAL *to serve the community.* NATIONWIDE *to serve the nation.*

World's Largest and Foremost Manufacturers of —

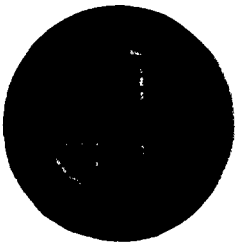
- SAFETY EMBLEMS
- SERVICE EMBLEMS
- PLAQUES
- TROPHIES

and Incentive Awards



AN IDEAL PLANT OR DEPARTMENT SAFETY AWARD

GC-3 PLAQUE . . . Beautiful two-tone jewelers bronze etching mounted on a genuine walnut shield. 7¾" x 7¼" —$6.50



1933 SERIES . . . 1¼" diameter hard glazed enamel, heavily gold plated pin and safety lock catch. $10.50 doz. (plus Fed. Tax)

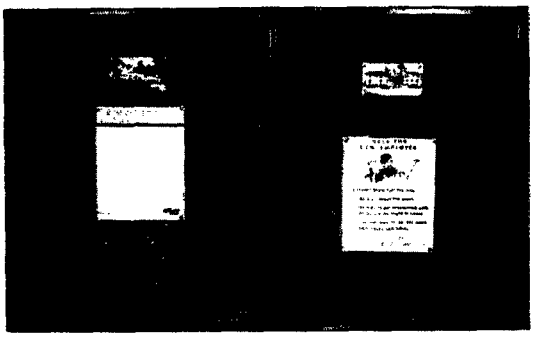
NEW! Industrial Awards Catalog will soon be off the press. Reserve your copy NOW!

CLARENCE WILLIAMS
WILLIAMS JEWELRY & MFG. CO.
Silversmiths Bldg., 10 S. Wabash Ave.
Phone: CEntral 6-5018 Chicago 3, Ill.

KEEP SAFETY OUT IN FRONT

GET DAV-SON "TELL-ALL" PLANT SAFETY BOARDS

Dav-Son Bulletin Boards are especially designed to get the maximum attention for your messages. Dav-Son equipped plants everywhere are maintaining envious safety records. Write for circular describing the many styles available.



DAV-SON
CORK BACK BULLETIN BOARD
For Inside or Outdoor Use

- Wood or Metal Frames
- Glass Enclosed or Open
- Real Cork Mounting Surface
- Illuminated or Non-Illuminated
- Many Sizes. Low Cost.

We are manufacturers of bulletin boards for every purpose. Changeable letter directories, production control and sales bulletin boards, cork back boards, and special display boards of all types.
CONSULT US

DAV-SON
"The Safety Director"
Flashing Color, Changeable Letter Display for Timely Safety Messages. The most effective safety bulletin made. Write for special circular.

Dept. NSN

DAV-SON
A.C. DAVENPORT & SON, INC.
ESTABLISHED 1932
311 N. DESPLAINES ST., CHICAGO 6, ILL.
MANUFACTURERS OF BULLETIN BOARDS FOR EVERY NEED

Each toe other than [illegible]
complete—150 days.
less than complete—75 days.

One Eye
Loss of sight—1,800 days.

One Ear
Loss of hearing—600 days

Both Ears
Loss of hearing—3,000 days

More Than One Finger of Same Hand
Two fingers—750 days.
Three fingers—1,200 days.
Four fingers—1,800 days.
Thumb and one finger—1,200 days.
Thumb and two fingers—1,500 days.
Thumb and three fingers—2,000 days.
Thumb and four fingers—2,400 days.

Finger, Except Thumb
At or above middle joint, up to and including proximal joint—300 days.
At or above distal joint, up to and not including middle joint—150 days.
Below distal joint, provided bone is damaged—75 days.
Tip, without either traumatic or surgical bone involvement—Actual days of disability if any.

Permanent Total Disability

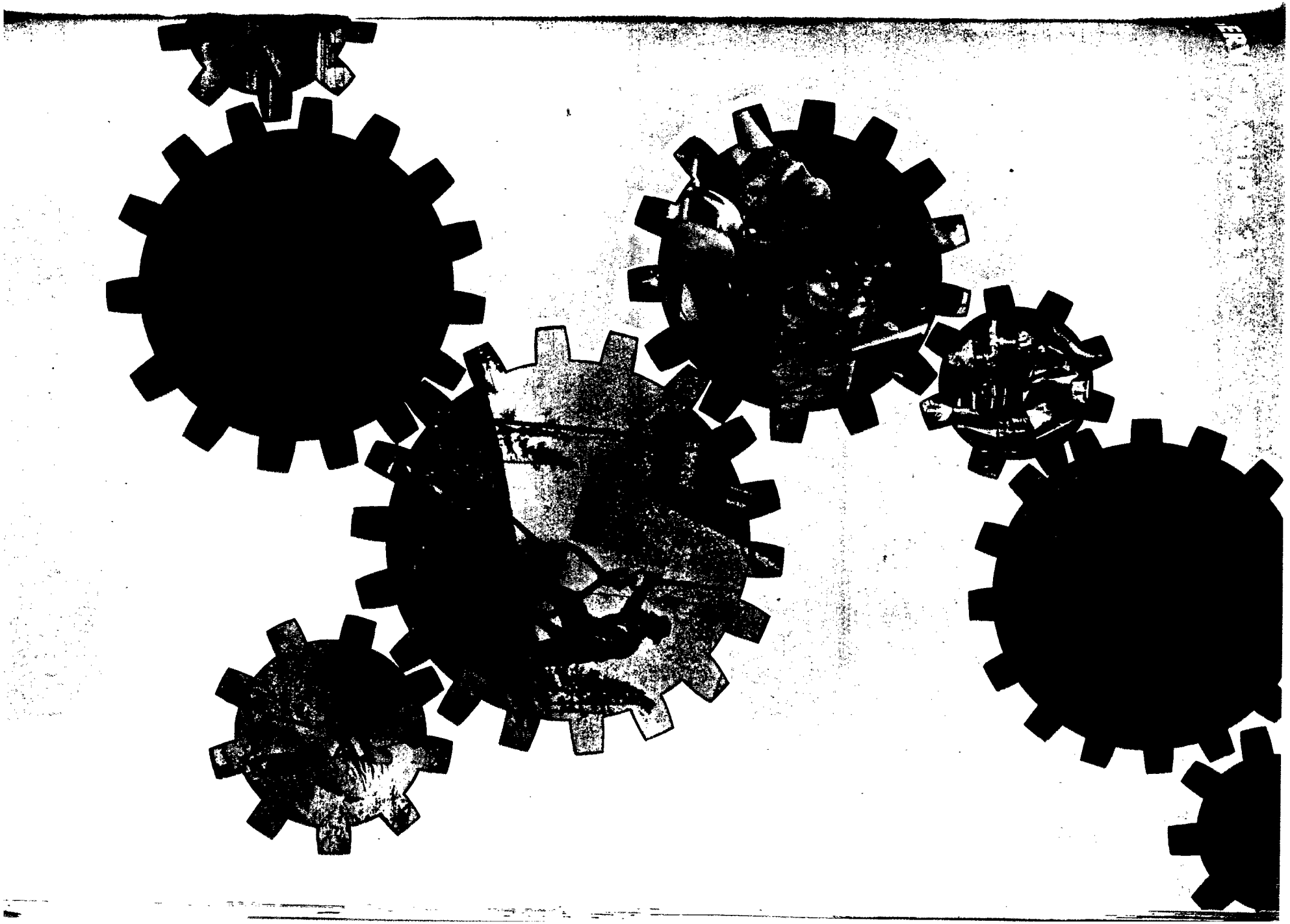
3.3.2. The loss of, or the complete loss of use of, any of the following in one accident shall be considered permanent total disability
(a) Both eyes;
(b) One eye and one hand, or arm, or leg, or foot;
(c) Any two of the following not on the same limb: Hand, arm, foot, or leg.

Temporary Total Disability

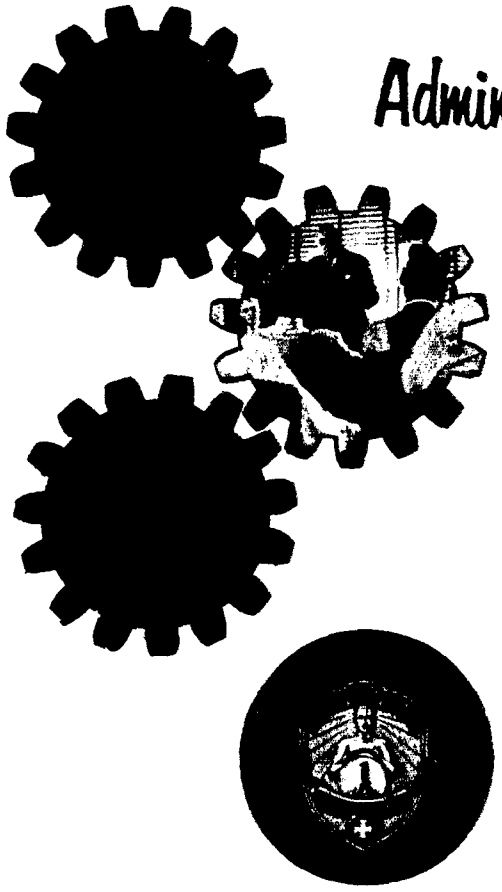
3.4.1. An injury which does not result in death or permanent impairment shall be classified as a temporary total disability if the injured person, because of his injury, is unable to perform a regularly established job, which is open and available to him, during the entire time interval corresponding to the hours of his regular shift on any one or more days (including Sundays, days off, or plant shutdowns) subsequent to the date of injury.

Temporary Partial Disability

3.4.2. A regularly established job is one which has not been established especially to accommodate the injured employee, either for therapeutic reasons or to avoid counting the case as a temporary total disability. If the injured person is returned to a regular established job other than his own, the injury shall be classified as a temporary partial disability. See 3.5, Page 7. Z-16.1 Bulletin.



OCCUPATIONAL SAFETY SERVICES



Administrative Publications

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Supervisor Training

PAGES N-15 THROUGH N-21

Employee Training

PAGES N-22 THROUGH N-41

Driver Training

PAGES N-49 AND N-50

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Self-Prescribed Glasses, A Safety Problem

By FRANKLIN M. FOOTE

Incorrect "correction" through over-the-counter glasses may injure eyesight and create a hazard on the job

THROUGHOUT industry there is general recognition of the fact that good vision is a prime requisite for a good safety program. A worker's sight must be adequate to handle all phases of his job. This may take in many situations of which a worker might not always be aware.

Think, for example, of the crane operator whose vision has been corrected to the extent that he sees, quite sharply, all the controls he must manipulate. But his vision is not equally sharp at the distance where his hook or tongs pick up the material. This man could be a menace to himself and to his fellow workers.

A machinist with vision corrected to cope with the finest micrometer or vernier caliper readings, but not for arm-length operations, is working under a handicap. And it's the type of handicap that might well lead to a tragedy that would put him into the class of workers known as "handicapped."

It doesn't have to be emphasized that a truck driver with faulty depth perception or limited field of vision is a menace not only to himself but also to others on the highway.

These considerations deal with personal safety. There is a purely materialistic element, too. If the truck driver is hurt in an accident, his valuable truck will suffer costly damage. The machinist or tool maker who has a sight-caused mishap may ruin a valuable part or die component, and the crane operator may pick up—and drop—a valuable product ready for shipment to an impatient customer.

The instances considered so far point up some of the potential hazards from lack of proper visual correction.

If we ask ourselves: "How does one obtain proper correction?" there might be any number of answers. But no thinking person will come up with this answer: "By testing my own eyes." Yet, 42 of our states still permit a man to diagnose and prescribe for his own visual deficiencies. And some manufacturers provide equipment for these self-doctors.

Even in the name of "safety," this condition exists. It is possible, today, to purchase welding, or "safety," helmets with magnifying lenses of varying powers. Magnification is one form of correction, and one that has limited application. A magnifying lens that will sharpen an image at one point will blur it at another.

Only six states have recognized the insidious danger in this practice of self-prescribing of corrective spectacles. They are Maine, Massachusetts, Minnesota, Kansas, New York and Rhode Island. The lawmakers of these states have realized that over-the-counter sale of lenses intended to "correct" a person's vision may lead to accidents. Too, they have realized that improperly prescribed glasses can lead to physiological disturbances the self-doctor may not attribute to the glasses. Above all, these ready-made corrective spectacles may conceal for months symptoms of a condition that will eventually lead to blindness, may keep a person away from treatment of a progressive sight-destroying disease until it is too late.

The Safety Man's Stake

Safety engineers, and all others who share the responsibility for the safety and well-being of workers, have a vital stake in legislative action to prevent self-prescribing of sight-correction devices. All their programs and all their plans can be thrown out of line by the worker with improper corrective spectacles.

The fact that six states have regulations forbidding over-the-counter sale of eyeglasses in retail stores—where most of them are sold—does not necessarily indicate a trend toward protective legislation of sort. Rather, the trend might be considered as edging toward other direction.

Only last year the "Brady Bi was beaten in the New York St Legislature. This bill would ha knocked out the law forbiddi over-the-counter sale of correcti spectacles.

In 1952, the forces behind th sort of sale were able to have writ ten into the New Jersey la regulating ophthalmic dispensers an exemption permitting the sale o "ready-made glasses or spectacles with simple magnification only where sold as merchandise at established places of business." The magnification may appear simple, but use of such spectacles can produce complicated safety problems.

Earlier, in both Louisiana and Virginia, amendments to control legislation were pushed through that weakened or destroyed much of the protective value of their laws.

Protecting the Public

All states and the District of Columbia have laws governing the practice of eye care. These came about with the growth, early in the century, of the profession of optometry. Prior to that, professional eye care was, by and large, in the legal province of physicians, particularly those who had specialized in this field—ophthalmologists or oculists. As optometrists grew in number and raised their educational standards, laws were necessary to regulate their practices just as there were laws covering physicians.

These laws were enacted to protect the people. The governing bodies of the states saw the danger inherent in allowing totally unskilled practitioners to prescribe for patients with visual deficiencies. In every instance these laws would forbid you to prescribe lenses for another human being—even a member of your own family. But in all save six states, tacitly or specifically, you are allowed to prescribe for yourself.

These states have, in actuality, created a paradox. They have set up laws to forbid John Doe, Citizen, from prescribing for Richard Roe, Citizen. This has been done presumably to protect Richard. John is, they say in effect, not qualified to prescribe for Richard. But John is allowed to prescribe for John, and Richard is not considered worthy of protection from the hazards which John's incorrect "correction" may present.

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