may become loose or chipped and the defect not be noticed

Some companies place a steel band around the head and bolt it to the handle to prevent the head from flying off The heads should be dressed whenever they start to check or mushroom

A hammer so light that it bounces off the work is hazardous, likewise, one too heavy and hard to control may cause body strain

Riveting hammers, often used by sheet metal workers, should have the same kind of use and care as ball peen hammers and should be watched closely for checked or chipped faces

Carpenter's or claw hammers are designed primarily for driving and drawing nails Their shape, depth of face, and balance make them unsuitable for striking heavier objects, such as cold chisels

Federal specifications for the hardness of claw hammers require the Rockwell C number of the face to be not less than 50 nor more than 60, and the Rockwell C number of the claw to be not less than 40 nor more than 55

The faces should be kept well dressed at all times to reduce the hazard of nails flying while they are being started into a piece of wood A checker-faced head is sometimes used to reduce this hazard

Some companies have found eye protection advisable for all men working close together, as in a shipping room, when some are using these hammers

When a nail is to be drawn from a piece of wood, a block of wood may be used under the head to increase the leverage and reduce the strain on the handle

Spark-resistant tools

So-called spark-resistant tools of nonferrous materials are sometimes advised for use where flammable gases, highly volatile liquids, and other explosive substances are stored or used The intensified sparks from steel tools are capable of igniting substances such as gunpowder, lint, TNT, carbon disulfide, and ethyl ether (See U S Department of Commerce, Office of Technical Services *Sparking Characteristics and Safety Hazards of Metallic Materials*, Technical Report No NGF-T-1-57, PB 131131)

In certain circumstances, steel coated with aluminum paint can emit sparks when struck with a metal striker (steel, brass, or spark-resistant alloys), and such sparks may ignite mixtures of flammable gases or vapors in air The sparks are due to the thermite reaction between iron oxide and aluminum and are, therefore, produced only in the presence of iron oxide The extent of this hazard depends on the nature of the surface covered and the nature of the paint, and it is increased if the painted steel is subjected to heat (For further information, see McMahan, E C and R T Wray *Aluminum Paint on Hot Surfaces*, Aluminum Research Laboratories, New Kensington, Pa)

Nonferrous tools reduce the hazard from sparking but do not eliminate it They need inspection before each use to be certain that they have not picked up foreign particles which could produce friction sparks, thereby obviating the value of these special tools

Portable Power Tools

Portable power tools are divided into four primary groups according to the power source electric, pneumatic, gasoline, and explosive (powder actuated) Several types of tools, such as saws, drills, and grinders, are common to the first three groups, whereas explosive tools are used exclusively for penetration work and cutting

A portable power tool presents similar hazards as a stationary machine of the same kind, in addition to the risks of handling Typical injuries caused by portable power tools are burns, cuts, and strains Sources of injury include electric shock, particles in the eyes, fires, falls, explosion of gases, and falling tools

The power line should always be disconnected before accessories on a portable tool are changed, and guards should be replaced or put in correct adjustment before the tool is used again

A tool should not be left in an overhead place where there is a chance that the line, if pulled, will cause the tool to fall The line and the tool may be suspended by counterweighted rope or string which keeps the line out of the operator's way and also counterbalances some of the weight of the tool and the line Lines on the floor create a