

tools frequently and remove from service those found to be defective. Many companies have each supervisor check all tools each week. A checklist for hand tools considered most hazardous can be helpful in systematizing inspection.

Some workmen prefer to use their own tools even though tools are furnished by the company. In this case, supervisors should examine the tools frequently to prevent the use of those that are unsafe. If privately owned tools are found to be defective, supervisors should insist that they be replaced or that company-owned tools be used instead.

Carrying tools

The workman should never carry tools which in any way might interfere with his using both hands freely on a ladder or while he is climbing on a structure. A strong bag, bucket, or similar container should be used to hoist tools from the ground to the job. Tools should be returned in the same manner, not brought down by hand, carried in pockets, or dropped to the ground.

Mislaid and loose tools cause a substantial portion of the hand tool injuries. Tools are laid down on scaffolds, on overhead piping, on top of step ladders, and in other locations from which they can fall on persons below. Leaving tools overhead is especially hazardous where there is vibration or where men are moving about.

Chisels, screw drivers, and pointed tools should never be carried edge or point up in a workman's pocket. They should be carried in a tool box or cart, in a carrying belt like that used by electricians and steelworkers, in a pocket tool pouch, or in the hand with points and cutting edges away from the body.

Tools should be handed from one workman to another, never thrown. Edged or pointed tools should be passed, preferably in their carrying case, with the handle toward the receiver.

Workmen carrying tools on their shoulders should pay close attention to clearances when turning around and should handle the tools so that they will not strike other workmen.

Maintenance and Repair

The tool room attendant or tool inspector

should be qualified by training and experience to pass judgment on the condition of tools for further use. No dull or damaged tool should be returned to stock. Enough tools of each kind should be on hand so that when a defective or worn tool is removed from service, it can be replaced immediately with a safe tool.

Efficient tool control requires periodic inspections of all tool operations. These inspections should cover housekeeping in the tool supply room, tool maintenance, service, number of tools in the inventory, handling routine, and conditions of tools.

Responsibility for such periodic inspections is usually placed with the department head and should not be delegated by him.

When metal tools break in use, there are usually detectable causes: overheating or underheating of the forging or steel when it was being hardened, cracks from improper forging, improper tempering, failure to relieve stresses in forging, improper quenching, incorrect angle of cutting edge, or steel of poor quality.

Defects such as these will usually be found in tools of inferior construction, which, because of breakage and inefficiency, are more expensive in the long run than are tools of good quality. Therefore, it pays to purchase tools of the best quality obtainable.

Hand tools receiving the heaviest wear, such as chisels, wrenches, sledges, star-drills, blacksmith's tools, and cold cutters, require frequent maintenance on a regular schedule.

Proper maintenance and repair of tools require adequate facilities, workbenches, vises, a forge or furnace for hardening and tempering, tempering baths, safety goggles, repair tools, grinders, and good lighting. Workmen especially trained in the care of tools should be in charge of these facilities; otherwise tools should be sent out for repairs.

Tempering tools

Hammer-struck and striking tools (chisels, stamps, punches, cutters, hammers, sledges, and rock drills) should be made of carefully selected steel and heat-treated so that they are hard enough to withstand blows without mushrooming excessively (Fig. 32-4), and yet not be so hard that they chip or crack.

For safety, it is better that shock tools,