

FIG 32-3 —A more-lasting job of safe-ending results from grinding or flame cutting a shoulder on the chisel and then bronze-welding it

some of which can be dressed frequently, be a little soft rather than too hard, because a chip may fly from an excessively hard tool without warning when the tool is struck with a hammer or sledge

Before a chisel is heat-treated, the exact analysis of the tool or recommendations for the proper heat treatment for it should be obtained from the manufacturer, because different grades of steel are used for chisels Usually, each requires a different heat treatment, from the quenching heat to the quenching bath Therefore, the forming and tempering of tools is a skilled operation to which only experienced workmen should be assigned It is possible to temper a tool so that the surface is hard enough for cutting, yet the body is soft enough not to fracture

If tools are not warmed up to at least 50 to 70 F in cold weather they may break with the first blow of a hammer Many plants keep the tools on a steel bench equipped with a heating element to eliminate this danger

Safe-ending tools

Hammer-struck tools, such as chisels, rock drills, flatters, wedges, punches, cold cutters, and number dies, should have heads properly hardened by a qualified workman The hazard of burred heads can be reduced by use of the following quick and economical procedure for safe-ending tools

In this procedure, a bronze band is welded into a recess about 1/8 in wide by 1/4 in deep (Fig 32-3) ground into the tool at the head This band retards checking of the tool head and reduces the frequency of tool maintenance Safe-ending is applicable to both new and old tools

The proper base-metal temperature for bronze-welding is 1600 to 1700 F The correct temperature is indicated by a bright red color when the tool is viewed in the dark, but, when it is looked at through dark glasses in the light of the oxyacetylene flame, the correct temperature has been reached as soon as a red coloring can be noted

Bronze-welding can best be done by using as small a flame as possible, and by speeding up the welding operation as it nears the finish In welding around the ends of a tool, there is a build-up of heat as the operator proceeds, so that as the finish is neared less heat must be supplied to the base metal to allow complete tinning

Short sections of tight-fitting rubber hose can be set flush with the striking ends of chisels, hand drills, mauls, and blacksmith's tools to keep chips from flying, since they usually imbed themselves in the rubber sleeve

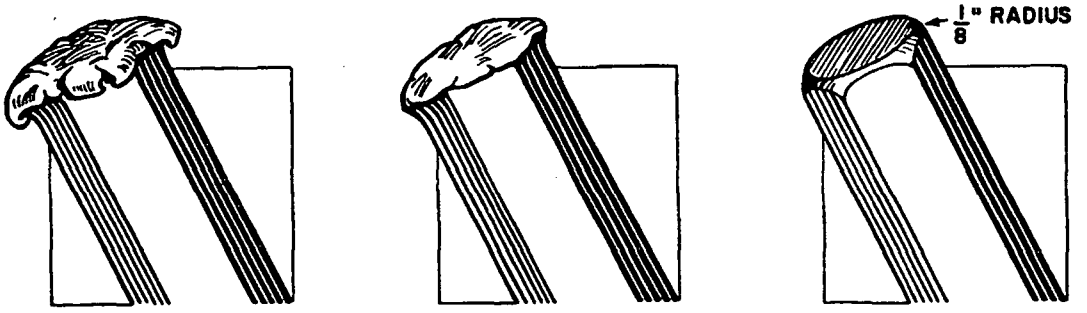

FIG 32-4 —Chisel at left has mushroomed dangerously The one in the center has started to mushroom and should be ground until it looks like the chisel at right

Courtesy Div of Safety and Hygiene, The Industrial Commission of Ohio