



## Tools for Pounding and Hammering

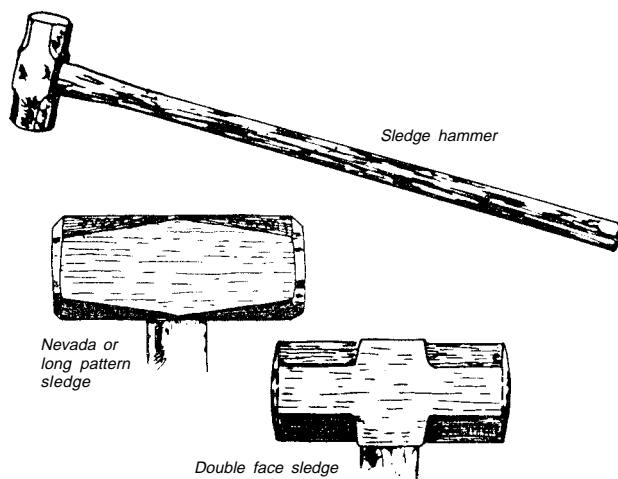
### Sledge Hammers

Sledge hammers have heads that weigh from 8 to 20 pounds, which are forged from heat-treated high carbon steel. They usually have two rounded striking faces with beveled edges to minimize chipping. Thirty-six inch handles are common. Handles can be fiberglass or wood.

*Driving sledges* are used to set heavy timbers and drive heavy spikes or hardened nails. *Stone sledges* are used to break boulders or concrete. Because of differences in tempering, these tools are not interchangeable.

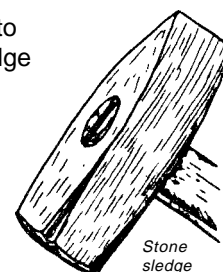
Swing sledge hammers carefully—more like mattocks and picks than axes. Carry these tools like axes, holding the handle by your side, extending the handle behind you, and gripping the hammer near the head.

Maintain hammers by keeping striking faces smooth. Use a grinder, but do not allow the tool to overheat, which will weaken its temper. The temper is shallow, and excessive grinding will go through to soft metal. Have a blacksmith recondition those with badly chipped or mushroomed faces. Check handles regularly for tightness or cracks. Repair or replace them as needed.



### Hand-Drilling Hammers

Hand-drilling hammers are used to drill steel into rock or to drive wedge and feathers into cracks or drilled holes. There are two types of hand-drilling hammers—*single jacks* and *double jacks*. Both have two rounded striking faces with beveled edges to minimize chipping.



*Single jacking* involves an individual holding a drilling steel in one hand and hitting it with a hammer held in the other. The single jacks have 3- or 4-pound heads and 10- inch handles. The short handle helps you place blows accurately and resists breaking better than longer handles. Engineer's hammers with 3- or 4-pound heads and 14-inch handles can also be used for modified *double jacking*. An operator sits or kneels near the steel and hammers with both hands while another worker holds the steel. The proximity of both hands to the head required by the 14-inch handle assures that accuracy and safety are not sacrificed. Large double jacks with 6- or 8-pound heads and 36-inch handles are available for experienced drillers. For more information on hand drilling, we recommend **Hand Drilling and Breaking Rock** (Missoula Technology and Development Center Technical Report No. 8423-2602-MTDC, August 1984).

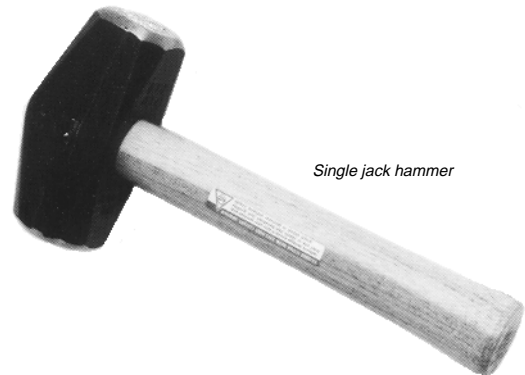


Single jacking.

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Report No. 8423-  
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## Features of Hand-Drilling Hammers—

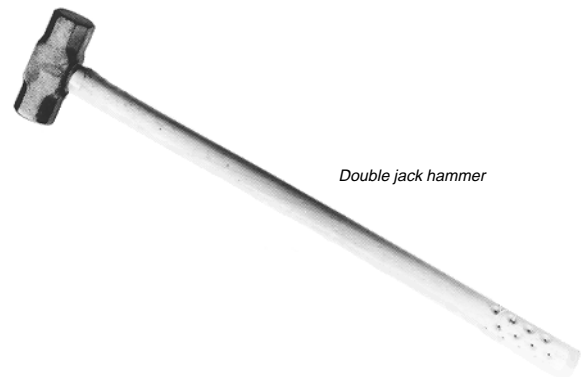
<b>Head</b>	The double-face hammer head is made of heat-treated, high-carbon steel.
<b>Striking faces</b>	The two striking faces should have beveled edges and should be heat-treated.
<b>Handle</b>	Wood handles are usually made of hickory. They should have a tight, knot-free grain that runs parallel to the wedge slot. Other handles are made of fiberglass, or are a forged extension of the head.
<b>Single jack</b>	These are also called 'club' or hand drilling hammers. Handles are commonly 10 inches long, and heads weigh either 3 or 4 pounds. The short handle is uniquely suited to hand drilling because it resists breaking better than longer ones, and it facilitates accuracy by requiring the hand to be close to the head.
<b>Engineer's hammer</b>	These are also called long-handle single jacks. They come with a 14-inch handle attached to a 3- or 4-pound head, and work well for the drilling technique we call modified double jacking.
<b>Double jack</b>	These large driving sledges have 36-inch handles and 6- or 8-pound heads. Because their use requires considerable expertise from both the driller and holder, we recommend that you use single jacking or modified double jacking until safety and proficiency with the double jack can be assured.



Single jack hammer



Engineer's hammer



Double jack hammer



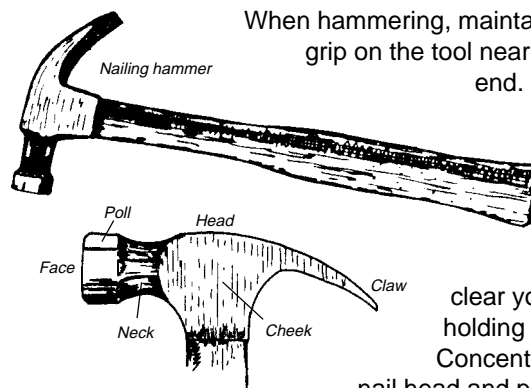
Double jacking.

Carry single jacks like hatchets and double jacks like axes or Pulaskis. Always wear gloves on the hands holding the steel to prevent injury from a glancing blow. Both drillers and holders should wear safety glasses or goggles to guard against flying rock chips.

Maintain drilling hammers by grinding striking faces smooth. Avoid overheating and excessive grinding with electric grinders that will destroy the shallow temper of the striking faces. If faces are badly chipped or unevenly worn, have them reconditioned by a blacksmith. Check handles regularly for tightness or cracks, and repair or replace them as needed.

## Nailing Hammers

Nail hammers have heads with a heat-treated steel face for driving nails, and claws on the other end for pulling. Heads vary in weight from 7 to 28 ounces. Impact handles are hickory, fiberglass, or steel forged directly to the head. Handles are usually 12 to 14 inches long.



When hammering, maintain a secure grip on the tool near the handle end. Start nails

with light hits until you can

clear your nail-holding hand.

Concentrate on the nail head and place each hit carefully. When

removing nails, position the head upside down against a flat surface, and catch the nail head between the claws. Pulling the hammer toward you causes the head to rock the claw end up and extracts the nail. For larger nails, a block placed between the head and the surface will increase your leverage. To carry hammers, grip the handle near the head, holding the tool away from your body as you walk. Maintain them like the other hammers discussed in this section.