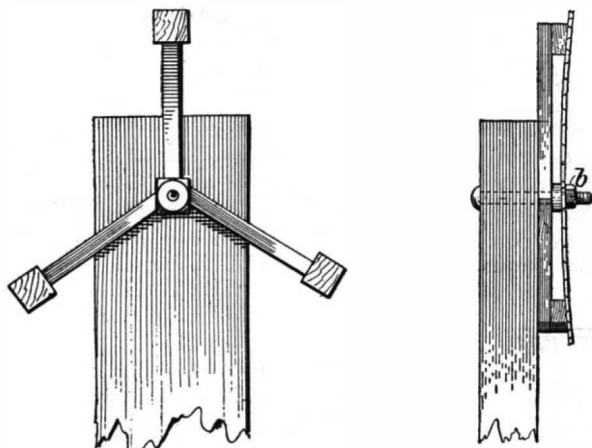


Holding Circular Saws While Sharpening

By William Grötzing

THE ordinary vise or bench clamp is about the only means in the shop that the workmen know of, to hold circular saws while being sharpened. The average workman knows how difficult it is to sharpen such a saw, as the vise or clamp does not hold it firmly



Device for holding circular saws.

enough. The following method will hold the saw securely, and allow good sharpening to be done: Upon some post or leg of a bench, three arms, each about 12 inches long, are bolted. On the end of each arm, a small block is placed, as illustrated in the side view. A hole is bored through the post and the center of the arms, to allow a long bolt to be inserted. To hold the saw, place it upon the arms, and put the bolt and nut *b* in place. When tightening the nut *b* the saw will be drawn firmly against the blocks on the three arms. When filing the saw, it will not slip back or forth, as it would in the other clamps.

Some Workshop Suggestions

By B. F. Dashiell

THE following are a few workshop "kinks" that have proved helpful to the writer, who hopes they may prove equally helpful to others:

Device for Holding Nuts in a Monkey Wrench.—It is quite an advantage sometimes to be able to hold a nut in an ordinary monkey wrench, when it is to be applied to or removed from the bolt. An ordinary wrench may readily be adapted to hold a nut if one of the jaws be provided with a piece of spring sheet metal as illustrated. (Fig. 1.) This spring is preferably applied to the stationary jaw, to which it is secured by a screw. The jaw has to be drilled and tapped to receive the screw *A* which holds the spring. A slight curve is given to the spring so that it will hold the nut firmly in the jaw.

Vise Pliers.—A pair of pliers is virtually a hand vise without any means for holding the jaws in fixed position. There are some pliers, however, on the market which are provided with such a holding device and these pliers are known as vise pliers. It is a simple matter to provide such an attachment for any pair of pliers. Fig. 2 shows how this may be done. A piece of heavy strap metal *A* is bent to a U form and is fastened to one of the jaws of the pliers with a pair of small machine screws. A set-screw is threaded through the strap as indicated at *B* in the drawing. When this screw or bolt is tightened upon the jaws

it holds the pliers firmly upon the work, leaving the hands free for other duties. If this holding device is applied to a pair of pliers of the parallel jaw type, the vise pliers may then be used as a wrench as well as a vise.

Fastening Hammer Heads on Handles.—The heads of hammers and hatchets have a strong tendency to become loose and work off the handle after a time. Not only is this annoying, but it is positively dangerous. A simple method of overcoming the danger is to drill a small hole transversely through the side of the hammer or hatchet to admit a small screw. The head may then be fastened to the handle by means of this screw as shown in Fig. 3.

Files for Large Surfaces.—When filing a large and flat surface, the file handle has to be raised above the plane of the work. This can be readily done by annealing and bending the handle up. The drawing (Fig. 4) shows various forms of files thus bent. With such files it is then easy to go over the whole of the work and use the entire file, without having the handle in the way.

Keeping Oilstones True.—Oilstones soon become hollow in the middle due to the fact that the ends cannot be used. If two blocks of wood are glued to a base on each end of the stone the whole of it can be used, as the tools slide out on the wooden blocks. The drawing (Fig. 5), published herewith, illustrates the arrangement.

Why a Plane "Iron" Has a "Cap"

By W. D. Graves

MORE completely than almost anything else are the tools of mechanics free from all superfluous parts, and there is rarely even a variation of their outline but that has material effect on their usefulness, though that effect is not always immediately apparent. The backs driven by a cobbler do not differ much from those driven by an upholsterer; yet there is good reason for the very wide difference in their hammers, as there is also for the difference in the mauls used by the ship caulker and the stone cutter. While it may be instructive to study the reasons for these differences, even though one does not expect to "clout shoon" nor caulk ships, it is better, first, to be sure that one fully understands the significance and value of all the parts of such tools as all of us are apt to find use for. With such knowledge of the common plane, for instance, we may be able to accomplish work which would otherwise be wholly beyond us.

The thing about a plane the reason for which seems least understood is that—except in a few special forms—the cutting member is made in two parts; the "iron" proper, which does the actual cutting, and the "cap" which is slidably bolted to it. This "cap" is absolutely essential to the accomplishment of the best work with a plane; yet even some joiners do not fully understand its application. Its office is to break the fiber of the shaving, holding it down meanwhile, so that it shall be severed from the wood directly by the cutting edge rather than be torn away by a wedge-like lifting action.

To illustrate roughly let us suppose that we wish to remove, with a jackknife, a thin sliver from the top of the piece of wood *W*, in Fig. 1, in which the grain runs in the relative direction indicated by the broken lines. When practicable, of course, we would begin the cut at the right, cutting "with the grain;" but in the supposition case we will begin at the left. If we were to press the knife blade directly in from the point *A*, the split would run a little ahead of the knife edge and follow the grain to *F*. If, however, we press the blade in a little at *a*, then tilt it sharply upward, a short piece is broken off. If we now press the blade in a little at *b*, *c*, *d*, etc., breaking off a piece each time, we will eventually have roughly removed a thin layer from *A* to *B*. This is essentially what is done by the plane iron and its cap, except that the shaving, being thin, is not broken entirely apart, and being thrust downward when it is broken, it is not pulled away from the wood, but is first severed therefrom by the sharp cutting edge, then thrust away.

The diagram, Fig. 2, illustrates how the shaving, immediately after the cutting edge lifts it, is thrown sharply forward and broken, at the same time being pressed

downward, by impinging on the end of the cap. In working hard and cross grained woods the cap is placed very close to the cutting edge, so that the breaks in the fibers of the shaving are very close together in-

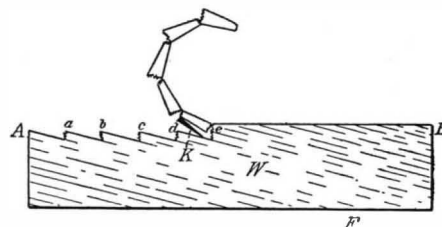


Fig. 1.—Planing against the grain without a cap.

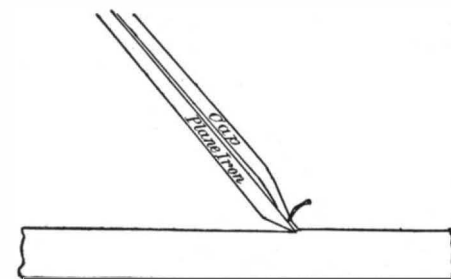


Fig. 2.—How the cap breaks the shaving.

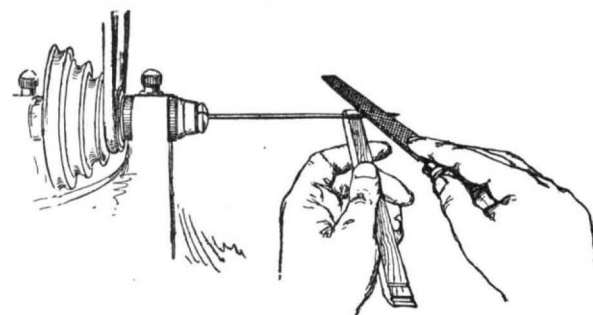
deed. As this necessitates the taking of a correspondingly thin shaving and makes the plane push much harder, it is customary to set the cap farther back in planing softer woods with the grain, or in cases where smoothness is not specially desired. It is essential to good results that the tip of the cap be fitted very snugly against the front of the iron in order that the shavings may not crowd under it.

Steady Rests for Small Lathes

By Albert F. Bishop

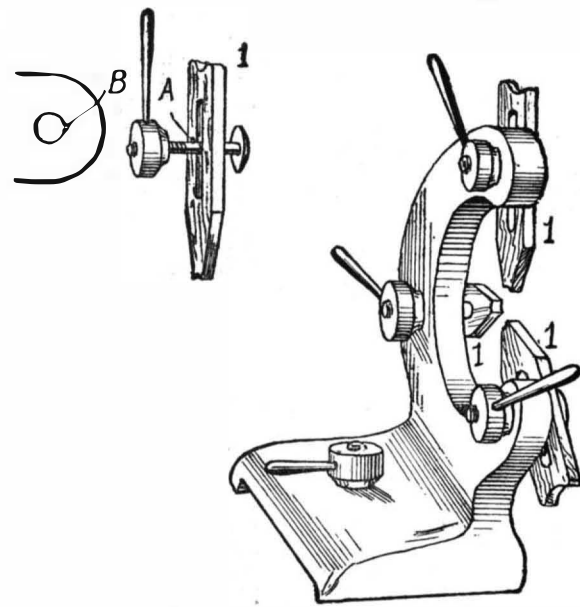
WHEN the jeweler wishes to reduce a slender wire in the lathe by filing he simply holds a piece of hardwood with a small notch in it under the wire. This will steady the wire so he can file it down quite rapidly. Jewelers prefer boxwood.

A simple form of steady rest is shown in one of the accompanying drawings. In making this rest it is necessary to construct the body of cast iron. The jaws marked 1 are made of hickory. Do not use fiber. The



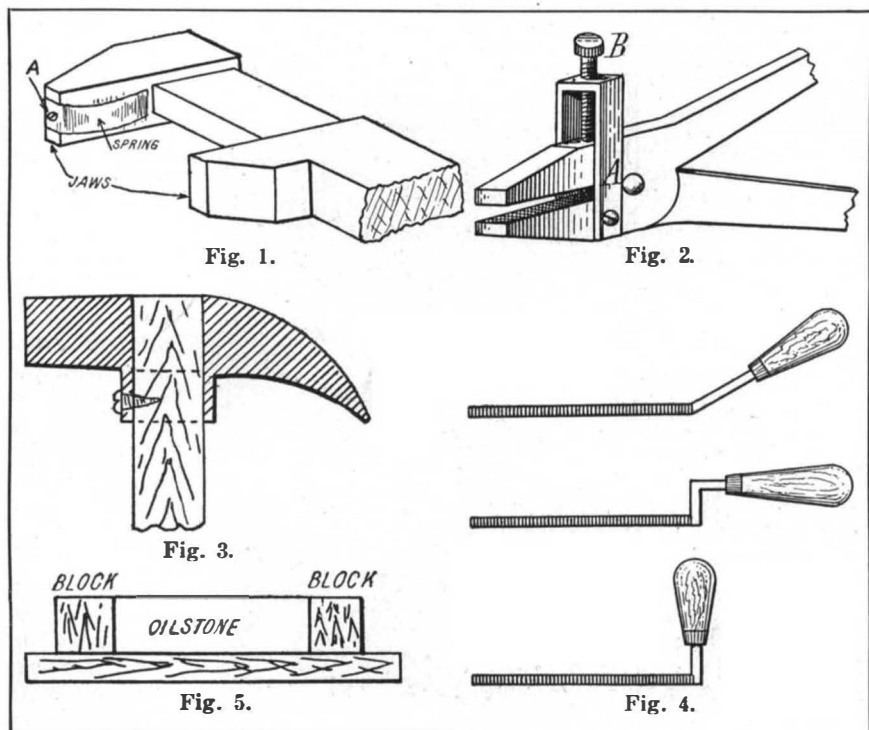
The jeweler's steady rest.

hickory jaws are slotted to allow for plenty of adjustment. Small bolts pass through the jaws and are tightened with a lever nut. The bolt has a large flat head, also a small pin marked *A*, which fits in a groove



Simple steady rest for small lathes.

in the steady rest marked *B*. This groove is easily filed in. The lever nuts should be adjusted so that when they are tightened the levers will stand away from the center. This gives plenty of leeway in setting the jaws on the work.



Some workshop suggestions.