

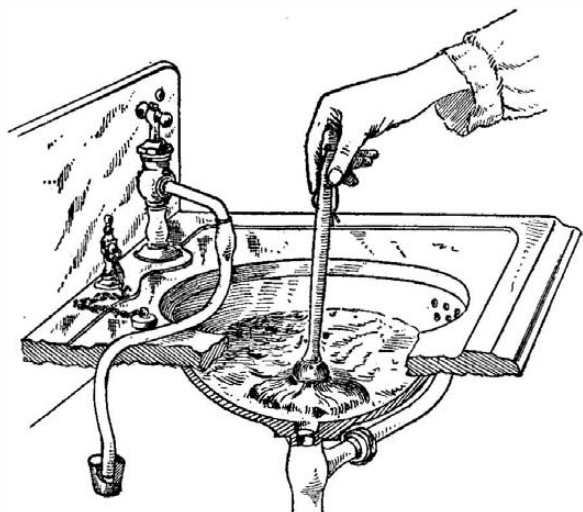


[The Editor of Handy Man's Workshop will be glad to receive any suggestions for this department and will pay for them, promptly, if available.]

### Starting a Clogged Drain

By B. F. Albert

**A**N easy method of starting a flow of water in a wash basin when the drain is clogged is as follows: With stopper removed, fill the basin half full of



Two methods of starting a clogged drain.

water. Take a swab and work it up and down rapidly in the water. This sets up a pumping action that agitates the water in the pipe violently. Nine times out of ten it will bring the sediment right up from the trap, and start a flow of water. If flushing is desired, take a cork that will fit the drain in basin, cut a hole through it, and attach a piece of rubber tubing to it, as shown in the drawing. Draw the other end of the tube over the faucet, place the cork in the basin drain, and turn on the city pressure. It may be necessary to hold a cloth over the drainage holes in upper part of basin. This wrinkle will save dollars in plumbers' bills, as I believe it is as efficient as a plumber's pump.

### A Talk About Bits

By Charles Cloukey

**A**LTHOUGH the common stock bit is a tool of almost universal use, there are some sensible and even scientific practices which are little known by the common run of people who use the brace and bit.

There are several different kinds of bits, and each kind made for its special use, although they are often used interchangeably both through ignorance and be-

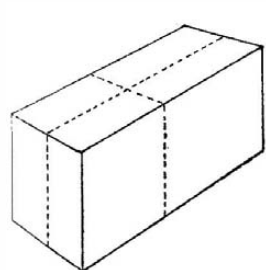


Fig. 1. - Method of marking the work.

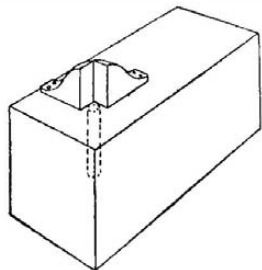


Fig. 2. - Using angle brackets to guide the bit.

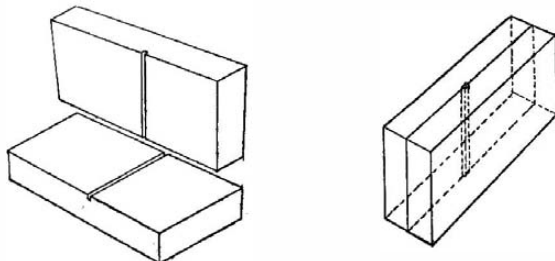
cause the workman does not have the full equipment in his tool chest.

The gimlet bit for screw holes, the center bit for the shallow holes of the cabinet and stair builder, the ship auger bit for the long holes in heavy timbers, the Fostner bit for ornamental work, the drill bit for center boring and for quick holes in soft wood, the expansive bit for all kinds of large and odd sized holes and the spur auger bit for general use and expert work, comprise the outfit.

It should be needless to say that all kinds of bits should be straight and sharp. The drills and gimlets should not be ground on the outside as that will reduce the diameter at the cutting edge and so hold the sharp edge away from the wood. The spur bits should be kept filed so that the spurs are longer than the lips or there will be a rough or ragged hole. Bits should be whetted after filing so as to give them a smooth keen edge.

When boring a hard piece of wood, much friction

and consequent labor may be avoided by a liberal application of machine oil in the cut. In similar cases when using a machine auger and the work is too hard for the belt to pull, the work may be modified either by filing the threads off the point of the bit, or by boring a center hole in the stock with a drill bit just large enough so that the threads will not lead the bit, and still small enough so that the bit will not chatter in the work. If there is no



Figs. 3 and 4. - Guide for cutting half-round grooves.

screw feed, the workman can regulate the pressure by hand so that the belt will be able to do the work, although at a reduced rate, which is the scientific result of the method.

Fig. 1 shows the method of marking a piece for boring a hole straight down through, and is practised by men who have become expert in the use of the brace and bit.

Fig. 2 illustrates the use of two little brackets tacked or clamped to the face of the work in which the hole is to be bored, and in such a manner as to form an angle in which the bit is to stand until the hole is deep enough to carry true of itself.

Fig. 3 shows a shallow saw cut in the faces of two pieces out of which is to be cut a half round groove.

Fig. 4 shows the two pieces in position for boring and the purpose of the two cuts becomes apparent as the lead for the screw of the bit.

Fig. 5 shows a problem somewhat similar to the last, but is used in such cases as boring a shaft hole in a pulley or a bushing where a little space is required for draft. The two thin fillets are placed between the pieces with their edges just far enough

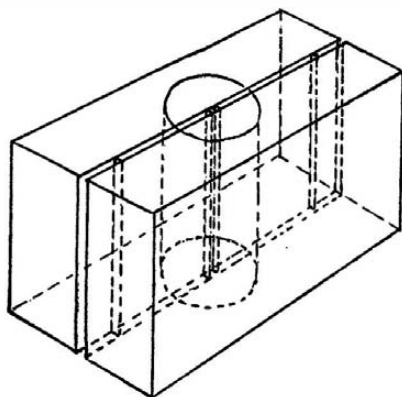


Fig. 5. - Guides for boring a hole in a bushing.

apart to form the lead where the hole is desired to be bored. It is better to make the bushing of two parts and bore as shown if it cannot be bored first and then turned up afterward.

Fig. 6 illustrates a practical method of boring large holes by means of the expansive bit. The outside circle is the perimeter of the hole to be bored and the dotted line near the center is the solid wood to be left for the engagement of the inner lip and spur. The smaller circles represent holes bored with a smaller bit in order to remove the bulk of the wood and relieve the strain on the extension. Care must be taken that the small holes do not cut the core loose from the outside, or the attempt will be a failure. The small holes should be so arranged

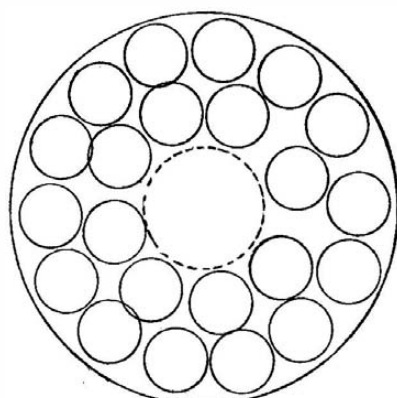


Fig. 6. - Preparing for a large bore.

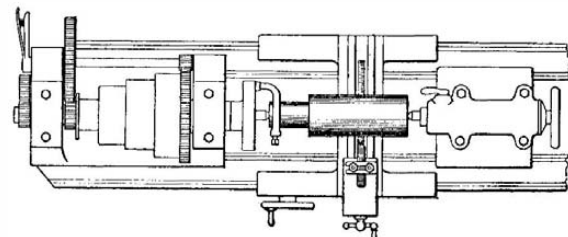
as to break up the continuity of the radial lines as thoroughly as possible, and should not break into the track of the outer spur. If the wood is very hard and tough like hickory, the holes may be quite close together and still hold the strain of the finishing cut,

but if the wood is soft and weak there should be more space between the holes for the reason named.

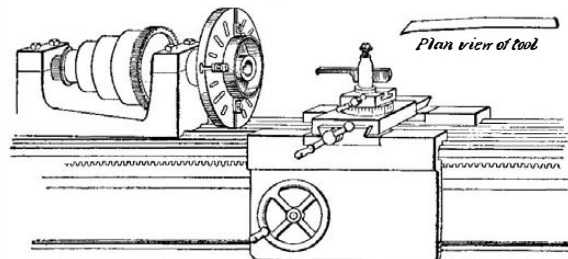
Gimlet bits should never be used for the purpose of boring straight center or lead holes, as a slant of the grain is liable to carry the point out of line. The tool for this work is a very sharp drill bit with little more bevel than is required for iron.

### Cutting Keyways on a Lathe

**I**T is a simple matter to do some of the work of a shaper or of a milling machine on a lathe. For instance, a keyway may be cut on a lathe, either in the shaft or in the pulley, by keeping the work stationary and moving the tool as in a shaper. To cut a keyway in the shaft, put the work on the centers, and taking a square-nosed finishing tool, lay it on liners on its side, so that the tool will be in line with the centers. Clamp it in place by means of two bolts. Wedge the dog that holds the work from turning, so



Cutting a keyway in a shaft.



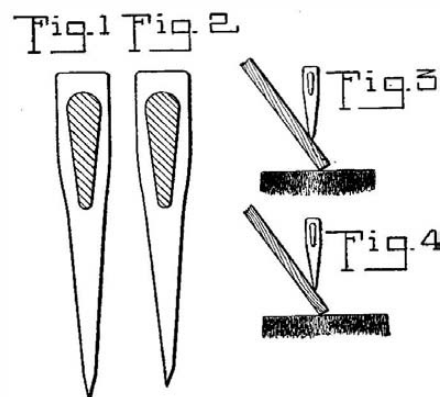
Cutting a keyway in a pulley.

that there will be no backlash or play. Now throw in the back gearing, and run the tool into the work by operating the carriage back and forth. The tool may be fed in at each cut, and in this way a neat keyway may be planed in the shaft, as shown in the first engraving. To cut a keyway in a pulley, secure the work in the chuck, and use a boring tool ground to the width of the keyway, and shaped as shown in the illustration. The carriage may be run in and out, and the tool fed into the work by means of the cross feed, as before.

### Hints on Cutting Stakes

**W**HEN sharpening the ends of bean poles and other stakes to enable them to enter the ground easily it takes several blows with the hatchet to obtain the desired effect.

All this trouble may be entirely done away with if you take care to sharpen the axe properly. When sharpening an ordinary ax or hatchet you first put one side against the grindstone and then the other, thus



How the ax should be ground for sharpening stakes.

making a bevel on both sides as in Fig. 1. But, instead of doing this, allow one side of the hatchet to lie nearly flat on the grindstone. Then lay the other side on the stone and put a bevel on it in the ordinary way. Now the hatchet has an edge like a wood cutting chisel (Fig. 2.) When pointing stakes let the flat surface, which must be the left side when the edge is pointing away from you, be nearest the wood. Lift up the ax and with a slight pressure let it drop on the end of the wood stake. It will be found to enter quite easily instead of glancing off the wood as often happens with the ordinary hatchet and the resulting cut will be straight as shown in Fig. 4, instead of being curved as shown by dotted lines in Fig. 3.

With this edge only half as many strokes and half as much energy need be used over a job and the