



[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.]

A Dangerous Muffler

To the Editor of Handy Man's Workshop:

IN Handy Man's Workshop of June 10th there is a description of a muffler for gasoline engines, which may work all right and certainly will be a good silencer so far as the noise from the exhaust is concerned; but some day the engine will get to missing fire—they all do it some time—and then the unburned gases will be forced from the engine into the barrels. This may continue for a time and then a weak charge in the engine will be fired and the fire will be communicated to the unburned gas in the exhaust pipe and from that into the barrel and away will go the barrel as if a large charge of powder had been exploded. I have long known of the danger in such cases. Only a few years ago a party had an engine in one of the buildings I now own, and had placed a large box under the flooring into which the exhaust from the engine went, passing thence to the outside. Then the batteries became weak and the engine began missing, and a little later the gas in the box exploded. It tore up about 15 feet square of floor and broke nearly every glass in the lower story of the building, 24 by 60, and did a lot of other damage. It hurt one workman considerably, but did not kill any one, which was considered very lucky.

H. L. CHAPMAN.

Marcellus, Mich.

A Good Substitute for a Drill Post

By R. C. D.

THERE are times when one is in a quandary as to the best way of setting up a drill post or "old man," as it is sometimes called. This is particularly

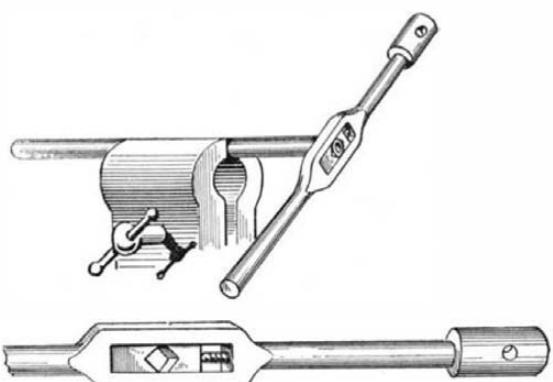


Substitute for a drill post. true when one has nothing but a curved surface on which to attach the base of the post. To overcome this trouble when holes are to be drilled in cylindrical objects such as metal posts, poles, boilers, etc., one may use a chain attached to a metal plate shaped as shown in the accompanying illustration. This plate has hooks forged or attached to its ends as shown, and to one of these one end of the chain is permanently secured. The other hook is made just large enough for the links of the chain to pass over it freely. In this way the device is made adjustable on objects of various sizes. The method of using the device in connection with a ratchet drill is clearly shown in the illustration.

Reducing the Size of Tubing

By F. C. I.

IT often becomes necessary to reduce the size of copper tubing so that it will enter a connection which does not admit of being reamed out to a larger size. If the tubing is filed down to fit it weakens the connection. The tubing is easily and neatly reduced by means of a tap wrench, which is placed over the



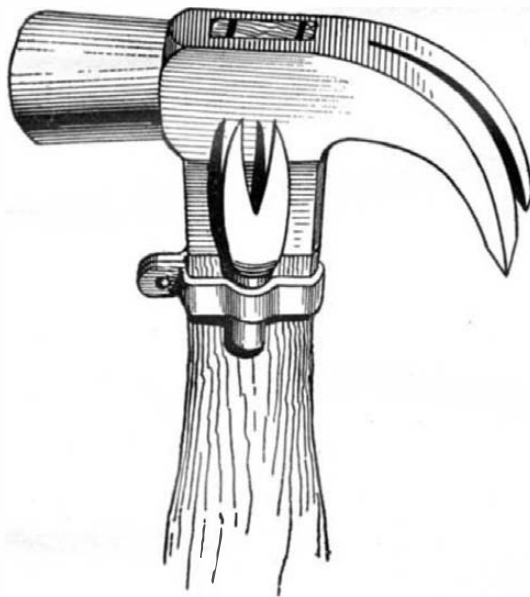
Reducing a tube with a tap wrench.

end and tightened as it is rotated. The tap wrench should be tightened gradually, or it will crimp the tubing.

Nail-holder for Claw-hammers

By W. J. C.

THE accompanying illustration is almost self-explanatory. A tongue of metal shaped as shown with a V-shaped slot in the upper half is clamped on to the handle of a hammer just below the head with an ordinary hose clamp. The V-shaped slot should be held slightly away from the flat side of the hammer.



Nail-holder for a hammer.

When it is desired to drive a nail in a location where both hands can not reach, for instance, above the head or to the right or left, when standing on a ladder, the nail is placed in the slot, with the head against the hammer head and the point extending to the side. A sharp blow starts the nail, and on withdrawing the hammer, the nail can be driven home.

Centering and Reboring Engine Cylinders in a Lathe

By H. C. Urbaner

TAKING for granted that our friend wishes to re-bore cylinders in an ordinary lathe, I think he will find the following simple method very helpful.

First, fit a hardwood block (2 by 4 preferred) into each end of the cylinder so that it will hold a rigid position. Now take a pair of hermaphrodite dividers and accurately fix a center into these blocks. Then with a three-quarter inch drill, or an inch drill, bore holes through these blocks at the centers described so that they will be in line with each other. Now fit a rod through these blocks so that it will extend far enough out of each end of the cylinder to meet the lathe centers without interference of projections of the cylinder. Here I may state that the centered blocks alone will be sufficient on a cylinder having both ends fitted with a head.

Next lay the cylinder on the slide rest and with hardwood blocks, if iron blocks are not available, block it up until the centers previously made in the rod will be accurately in line with the lathe centers, when the cylinder is lightly bolted and clamped to the slide rest. This is the all-important step of the entire process, and must be done accurately with whatever material there is at hand.

Now for a boring bar. This bar should be of round steel shafting and sufficiently longer than twice the length of the cylinder so that while doing the work the cylinder will not strike the dead or live centers of the lathe.

It should be at least two and one-half or three inches in diameter so as to remain rigid. This bar is fitted with the cutting tool a little farther than the length of the cylinder from the dead center end by boring a hole through it and filing it out so that it will admit the cutting tool. The tool should be at least one inch wide and preferably five-eighths or three-quarters of an inch in thickness. This tool may be held in place by fixing a setscrew at right angles to the tool through the bar.

In the boring operation the lathe should run at slow speed and the cylinder on the slide rest fed to the cutting tool in the usual manner. But under no circumstances should the lathe be stopped until the tool has cut the full length of the cylinder. If it is, you are sure to have a little bump, or a depression. In reboring a cylinder it is always best to take two light cuts—one through and the other back with the same tool, the rear end of the cutting edge of

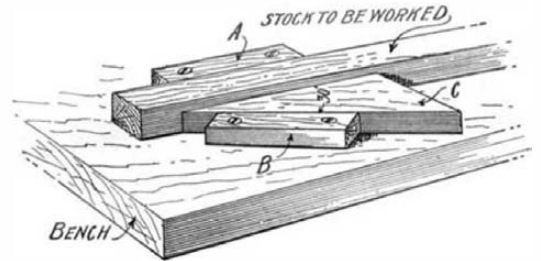
which is slightly relieved so that when coming back for the second cut it will leave a smooth surface.

[This is a second answer to the problem published in the SCIENTIFIC AMERICAN of May 6th. The other answer was published in the issue of June 24th.—Ed.]

A Simple Vise

By B. Francis Dashiell

THE accompanying engraving shows a very handy and easily made vise or clamp. At A is a piece of dressed hardwood 12 inches by 2 inches by 1 inch. It is screwed upon the bench or table top. Another piece B of the same dimensions is screwed on about



Vise for a bench top.

8 inches away and at an angle of 30 degrees to A. A triangular piece C with its hypotenuse about 15 inches long is used as a wedge.

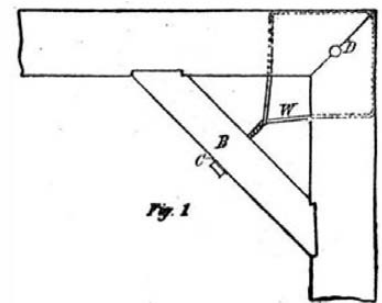
The stock that is to be worked is placed up against the piece A, and the wedge C is driven up tightly, thus clamping the stock firmly.

Some Oddities in Joints

By W. D. Graves

VISITING a friend, the writer's attention was engaged by a number of jointures which, while they would hardly appeal to the operator of a fully equipped wood-working plant, are all thoroughly practical—however odd—and might well be used by any one lacking the equipment necessary for the expeditious making of more conventional ones.

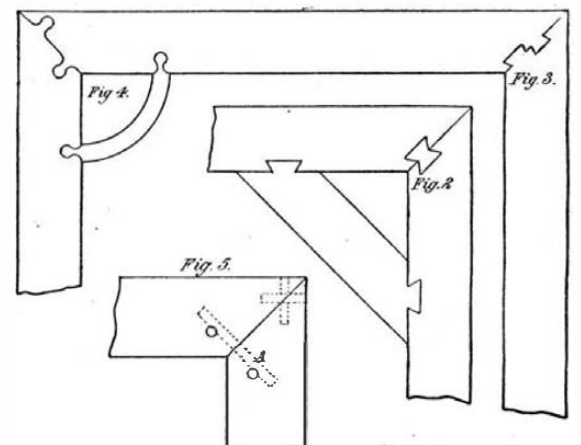
That shown in Fig. 1 was in a screen door corner, and was very secure. The stock was mitered, a wire W carried around the corner, through holes as shown by the dotted lines, and the ends passed through a hole in the brace B, through a washer C, and secured



Joint for a screen door.

in a common nut by pouring the hole full of solder. Turning the nut twisted the wire and drew the joint tight. The pin, or dowel, D served to keep the parts from sliding out of place while the wire was being tightened.

Figs. 2 and 3 are self-explanatory, being merely adaptations of the miter and dovetail combined. Fig. 4 is a joint on essentially the same principle but was made by tacking adjoining pieces together, one on top of the other, but otherwise relatively in their final positions, and sawing through both with a band saw; the table of the machine being tilted to an amount equaling the thickness of the saw kerf in twice the thickness of the stock. Fig. 5 is a doveled miter, the holes for the long dowel A being bored before the parts were put together, and the others afterward. All these joints, except that shown in Fig. 1, were in flat frames for pictures, and, the contiguous parts being of wood of different shades, the effect was striking.



Joints for picture frames.