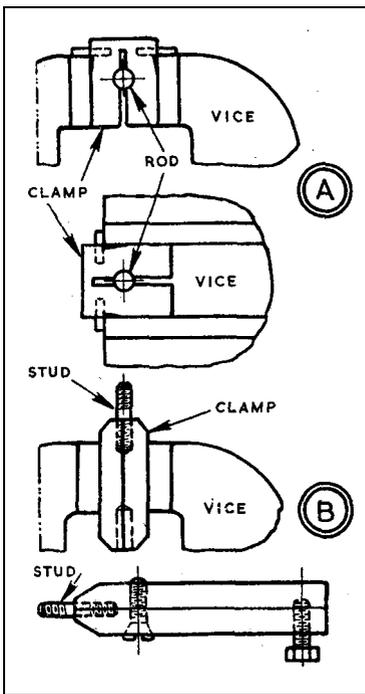


By GEOMETER



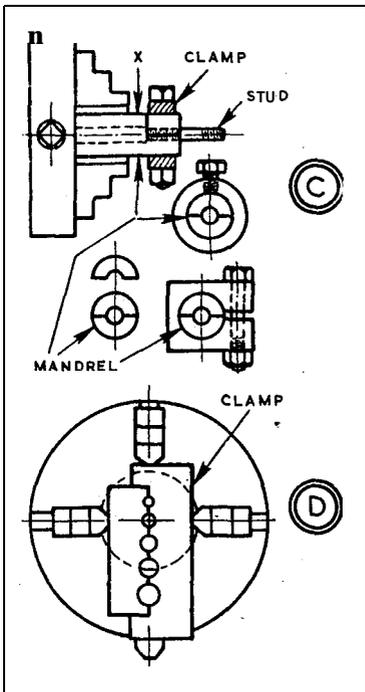
WHILE commercial studs, screws and threaded rod meet the requirements of a large proportion of model work, special items of this type must necessarily be produced by the constructor himself. Unless he has had previous experience of this work, it can be far less straightforward than was thought, and perhaps even more demanding in time and patience than some of the more routine operations on major components.

The second threading operation on small, short studs, such as are used for securing cylinder covers, can cause difficulty. A die must be used, as for the first thread, but once the rod material has been cut to-length (with a small surplus for finishing the

To avoid this, plain rod should be held in a split clamp, which can be as at A for diameters larger than, say, 5/32 in. Rectangular material is drilled undersize, then reamed to size and a saw cut made through the hole. Pins can be fitted for the clamp to hang on the vice jaws when adjusting the rod horizontally for sawing, or locate when pushed in sideways with the rod standing vertically for threading. Easing the sides of the clamp by filing just below the pins, ensures a firm grip on the rod.

A clamp for small rod-for which the saw cut would be disproportionately wide-can be made from two pieces of material drilled and dowelled together, then drilled at the joint line -where they must be eased by filing to grip the rod. With two pieces of material, a clamp can be made, as at B, to give good upward projection for

Holding rod, studs and screws



end), there is very little plain diameter on which to obtain a grip.

It may even happen that if the vice is in general use, its jaws are chamfered and incapable of gripping the plain diameter without damage to the thread already cut. For the same reason mounting the stud in a drill chuck may not be possible. Even with a good chuck it is difficult to get a grip which will prevent the stud from turning when the die is used on it.

Use of two nuts-locked on the thread already cut-poses the problem of holding the lower nut, itself of small depth in miniature sizes. If the stud is screwed into a tapped hole in the end of a rod, and locknuted there, it will almost certainly slacken as soon as the die is eased back.

A solution is to produce the first thread longer than necessary, hold on the surplus for making the second thread, and cut it off afterwards. This involves producing about twice the length of thread that is really required. Besides this, the grip on the rod for the first thread may leave it "oval" or at least bearing marks which can be to its detriment for other purposes.

working in a vice, or to hold like a toolmaker's clamp for screwing small studs firmly into components. The two pieces (which can be of mild steel) are drilled at the joint line end-wise, one end to grip the rod for the first threading, the other end tapped to hold studs for the second threading. They are eased as required at the joint line.

For lathe use, a mandrel can easily be made, as at C. Mild steel rod is sawn and filed half through at the end, and a loose piece similarly made. The clamp is a collar with screw or a split type with bolt. Thus prepared, the mandrel is chucked with a mark to No 1 jaw for replacement, or with diameter Xrunning truly. It is centred, drilled and tapped for studs or screws -and if these are long, a hole is drilled from the back for clearance. As on clamps the joint line of the step and loose piece must later be eased.

For popular thread sizes two pieces of flat material can have several tapped holes at the joint line. They can be used in a vice or in a chuck, as at D, for which it is convenient if the main piece is stepped for permanent hold by two of the jaws.