

COLLETS for CHUCKS and FACEPLATES

In the normal way, collet chucks are used on lathes with hollow spindles, which admit of long material being fed through from the rear ends. By this means small parts can be machined, parted off, and the material moved along in the collets without need for cutting into lengths with a hacksaw. The same is true, of course, when a three-jaw or four-jaw chuck is used.

However, a great many jobs—perhaps most in a small workshop—require much less than the whole length through the lathe spindle; and one of the solid type will generally provide sufficient distance from the front of the chuck jaws back into the

taper where the centre is fitted. There is naturally more overhang with this than with collets, which can have the minimum projection from the spindle, and there is more size and weight in the chuck, which may seem out of proportion for small parts. But given the limit on length of material, it is only necessary to provide mountings for collets, or make up special types, to take advantage of the facilities these can offer.

For standard collets which are used in a nose-piece, a mounting is as at **A**. On a hollow-spindle lathe, not adapted for collets, the nose-piece is mounted on a small backplate, and the collets are operated with a draw-tube or rod through the spindle. Here a mounting plate is bolted with packing to the faceplate, the nose-piece is bolted or held by screws to the mounting plate, and there is a special nut for the collets, with radial holes for operating by a tommy bar, between the mounting plate and the faceplate.

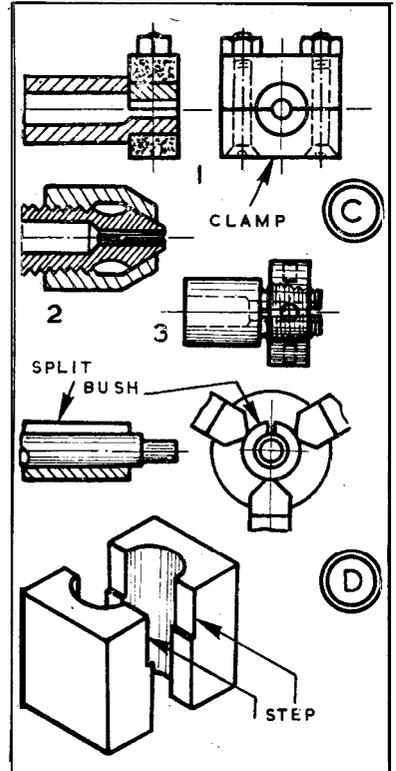
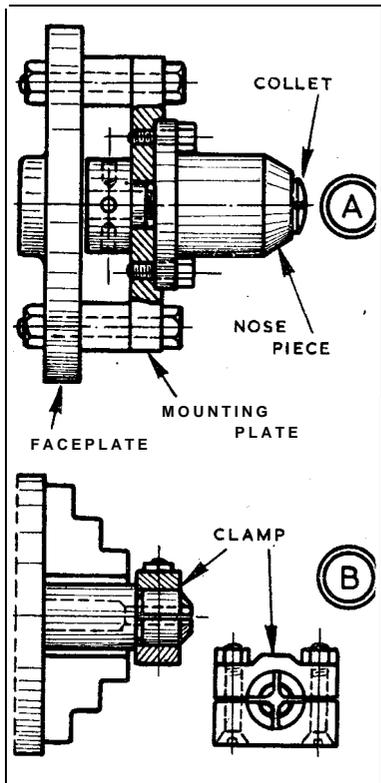
The mounting plate can be flat rectangular mild steel, wide enough to take the flange of the nose-piece, while the packing can be two parallel pieces of square mild steel. Drilled, cleaned up by filing, and bolted up to the faceplate, these pieces can be centre punched for refitting in original positions. After centring, the plate is drilled, and the recess machined for the flange of the nose-piece. If this part is being made, it can be bored and tapered after attaching by screws to the mounting plate. The nut for the collets—in round mild steel—can be turned with a step to locate in the bore in the mounting plate, and fitted either with the faceplate removed from the spindle, or by detaching the mounting plate. Abutting to the end of the spindle, the nut pushes the collet out for freeing the work.

An example of a collet for use in a jaw chuck is as at **B**. For making this, a piece of mild steel rod is faced, centred, and drilled with a clearance hole in what will be the back. Then it is reversed in the chuck, and the process gone through again for the length where the work will be held-finished by reaming if possible. Turned down to take a clamp, the diameter is undercut at the shoulder

and slit lengthwise—to be springy and contract easily. A centre punch dot to No 1 jaw admits of true resetting after unchucking.

An adaptation of the collet is as at **C**. The reversed piece of mild steel is turned down, but left solid, the end filed half through, and a loose piece fitted with the clamp. With the collet rechecked, this end is drilled and reamed for the work—and for

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grip, the loose piece is eased at the joint line by filing.

Collets to contract by a nut can be of two types, as at **C2** and **C3**. In the first type, the nut has a coned end which bears on the split end of the collet jaws; while in the second type, the nut has a taper thread (from not putting the tap right through) running on a taper thread obtained from regulating the opening of the die which is used for cutting it. A plain bush, of course, can often be used as a collet, split with a cut along the side.

For slitting the ends of collets, blocks as at **D** can be bored for holding, and a step filed or machined to accept and guide the saw blade. □