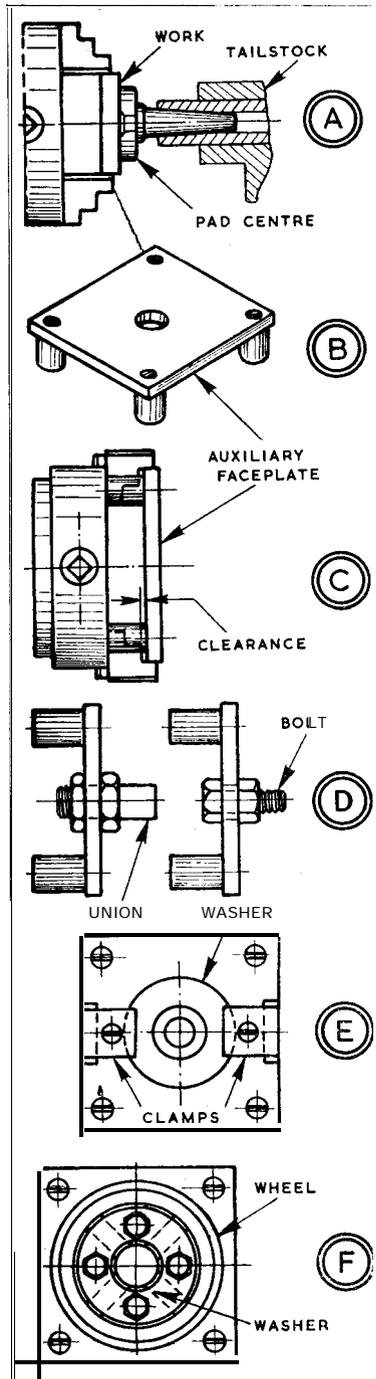


Simplifying setting-up

By GEOMETER



A NUMBER Of Operations performed on the lathe prove awkward in the setting-up stage, not because the parts are complicated, but because they are narrow, small, flexible, or with features not in agreement with standard equipment and methods. Often the work consists of odd jobs or corrections which can be time consuming, though certain production operations are not excluded.

It is not easy, for example, to grip a thin washer in the chuck to drill or bore out the centre; and a set-up for facing the threaded end of a bolt or screwed fitting can be difficult if a hold has to be obtained on a hexagon or narrow flange; and where it would be practicable to mount a screwed fitting in a threaded mandrel, it may not be possible to do so because the appropriate tap is not available.

Two lathe fittings providing facilities in this odd-job type of work are the pad centre for the tailstock, and the auxiliary faceplate which can be held in the four-jaw independent chuck. The pad centre, as at A, will square the face of any narrow part that can be gripped in the chuck. It can also be used to align and apply pressure to work which can be drilled on the lathe (drill in the chuck) as an alternative to the bench drill.

Using auxiliary faceplate

The auxiliary faceplate, as at B and C, furnishes a ready mounting for small parts that can be clamped-but not on the ordinary faceplate, owing to the presence of the spindle. It has the advantage, too, that a part can be mounted on it on the bench and the faceplate then adjusted, regulating the chuck jaws to bring the part true, which is much easier than truing before clamps are fully tightened.

As machining from the solid would involve considerable work for a pad centre, a built up construction is advisable, employing a suitable disc and a shank turned with the taper to enter the tailstock barrel. The size of the disc is largely influenced by that of the lathe, but 1 1/2 in. to 2 in. dia. is useful, with a thickness of 3/16 in. or 1/4 in. The disc can be screwed, riveted, brazed or welded to the shank

when the latter has been prepared; but if brazing or welding is adopted, finish-turning the shank may be left until afterwards. Finally, the shank can be fitted in the lathe spindle and the outside diameter and face of the pad machined true.

For a small lathe, a good size for the auxiliary faceplate is 2 1/2 in. to 3 in. square, and 3/16 in. or 1/4 in. thick, mounted on four "legs" 1/2 in. or 5/8 in. dia. The length of these legs should provide clearance under the reversed jaws of the chuck, as at C, so the plate is located on the chuck face. Observation should be made of screw holes in the chuck face, and the plate and legs should be of a size to avoid obstruction in normal use. Both plate and legs can be mild steel. Ideal finishing for the plate would be surface grinding, though a piece of material reasonably true to start with could be filed and lapped. Legs faced to the same length, can be fixed by countersunk screws.

There can be a central hole in the plate for clearance when drilling, and for mounting parts like unions and bolts-with washers if required. For particular sizes, other holes can be provided near the centre (to minimise off-set on the plate) and holes for clamping bolts or screws can be drilled-and tapped-when necessary.

Typical uses are as shown. As at D (left), the second screwing operation on a double-sided union fitting can be done mounting it in the plate with a nut, then adjusting the plate for spinning truth. A bolt (right) can be similarly mounted for shortening; and parts like car tappets with sunken heads can be set up for surface grinding. For boring out a washer, it can be clamped as at E; and there should be a piece of cardboard behind it so that the tool clears the plate. Faced on the back first, a part like a wheel can be turned on the diameter and drilled and bored, set up as at F, using a suitable washer and bolts between the spokes. EJ

Workshop Hints and Tips by Geometer. Fifty-nine articles in the "Beginner's Workshop" series in Model Engineer. A very large amount of useful information on the various operations that arise in model engineering work. 3s. 6d. from your bookseller or 3s. 10d. post paid from Percival Marshall and Co. Ltd., 19-20, Noel Street, London, W.I. (U.S.A. and Canada \$1.00 post paid.)