Faceplate

DOGS and CLAMPS

USING the same principle employed for the faceplate of the large industrial lathe- which often serves as a chuck- the facenlate of a small lathe can be provided with dogs or clamps for holding components which require to be gripped edgewise, as in chuck jaws. The components I have in mind are those which cannot be merely clamped back to the faceplate, and cannot- because of their size or irregular shape-be held in the ordinary three-jaw self-centring chuck, or the four-jaw independent type.

By GEOMETER

For such components, dogs or clamps convert the faceplate into an extra-large, extra-adaptable independent chuck, when they are mounted in place with bolts through the slots in the faceplate, or through holes which have been drilled. On slides or tables with T-slots, they are equally useful for side-gripping components as in machine vices. The advantage here is that in their setting they provide the widest possible choice of angles and positions through which such grip may be applied.

Setting **the dogs**

For a large lathe, dogs are of special construction, and the faceplate, when intended to be used as a chuck, is adapted to take them. The bases which are bolted to the faceplate are short box-like steel castings, the sliding jaws of forged steel, and the feed screws of heat treated nickel chrome steel. The bases have locating plates or tongues to engage any of a series of recesses in the faceplate, and so prevent slidina under heaw pressure: Radial setting can, of course, be wherever required, with the jaws pointing to provide a hold on components either from outside or inside.

For a small lathe on which the faceplate may only occasionally be used as an extra-large chuck, dogs or clamps can be of much simpler construction. The bases can be of various types, built-up or solid, but without sliding jaws, for the pressure screws themselves can perform that function in securing components, bearing either at their ends or their heads, pointed or rounded, and directly on components or through packing pieces.

Mild steel which can easily be brazed or welded should be used for built-up bases, but duralumin or aluminium alloy is suitable for solid types. With either, tirm bolting to the faceplate should be sufficient to prevent slip, so that only in exceptional cases should dowelling be necessary. For pressure screws, high tensile hexagon-headed setscrews (threaded' the full length) can be used in 1/4in., 5/16 in. and 3/8 in. dia., and with BSF threads.

An example of work set up through dogs or clamps on the faceplate is as at *A.* Each clamp consists of a flat base with brazed or welded-on tapped bosses, so that two pressure screws can provide a balanced grip with a single holding bolt. The grip with this arrangement is better than than obtained from a single pressure screw, and so is always to be preferred where there is sufficient length of flat face. Besides this, it is not necessary to do any drilling for holding through the faceplate slot, and should drilling be essential on any occasion, there is need for only one hole.

The bases

Short pieces of angle-section steel with nuts for extra length of thread make bases for simple single-screw clamps, as at *B,* where the pressure screws bear through their heads and the work is hollow and supported inside by blocks bolted to the faceplate. The bases of the clamps can be secured by countersunk screws with nuts at the rear of the faceplate; and with a permanent fitting for screws, each can be nearer to the angle of the section and placed in position before the nut for the pressure screw is brazed or welded on.

Solid bases for single-screw clamps can be as at C, for securing by countersunk screws (l), when the material may be mild steel or ahuninium alloy, or by a stud (2), when the material should be mild steel, with a length of thread giving a firm hold. Using two holding bolts-more suitable for T-slotted slides, bases can be as at *D,* solid or built-up.

On any clamp, slight inclination of the screw(s) is advantageous,. while holding bolt holes should be drilled to leave a good length X for reaction. ❏