WORKSHOP HINTS and TIPS

WORK STEADYING METHODS

By GEOMETER

BASICALLY, the fixed steady provides support for lengthy work which is running in the chuck, or is mounted between centres and needs an intermediate support to prevent whip or wobble. In these ways, the steady considerably extends the scope of the lathe and improves the quality of work. In addition, there are outsize or unusual jobs which can be done with a steady that would otherwise call for a much larger lathe.

Sometimes an axle is required from a piece of standard mild steel shaft on which only the ends need machining. In the lack of length on the lathe bed for a set-up between centres, the shaft can be cut overlength each end, the surplus held in the chuck, and the steady used for support. With one end finished, the shaft is reversed in the chuck for machining the other end, as at ***A***.

Centring of a long shaft is possible by mounting it in the chuck and the steady, and running a centre drill in a holder in the spindle. The chuck jaws are oiled and closed to spin smoothly on the shaft, which is held by a carrier and pressed up by a bar on the saddle to the running centre drill. When required, a bush aored in the chuck improves support.

Ordinary centring of a shaft is done with one end running in the chuck, the other supported by the steady, and the centre drill in the tailstock. The end of the shaft should first be faced with a tool, so that surface irregularities cannot wobble the centre drill. In the same way, a shaft can be set up for truing a damaged centre, using a small boring tool from the angled top slide. When a centre drill is employed, it should be at minimum overhang from the barrel, which should be adjusted by the clamp to move firmly.

There are various ways of adjusting a steady for the axis of work to be true with the lathe. For parallel work, the jaws can be adjusted to it (or to material the same diameter) with the steady near the chuck. Then the steady can be moved into position on the bed. Alternatively, with the steady in position, one can first " average out " the wobble on the work, and then check height with a surface gauge from the bed, and parallelism with a pointer or indicator on the saddle. Again, if there is a centre in the work, the tailstock can be used while the steady is adjusted.

As steady jaws wear with use, further adjustment is required, though the need for it can be minimised by boring the jaws to the curvature of the work. This is done by using an overhanging boring tool in the chuck or a fly cutter in a mandrel. The steady is tightened to slide on the bed and is pushed along by the saddle. Best support, of course, is a bush bored for the work and held stationary in the steady jaws.

The need for a narrow fixed steady can be met by a built-up type as at ***B*** or C. For each, the base is mild steel rectangular bar with a tongue of similar material attached to locate in the bed. Two substantial studs are fitted to the top side (shouldered into holes, riveted and brazed) to take locknuts for setting the steady jaws or bearing.

For general work, the bars, T and U, can be made from tee-iron, with oversize holes for lateral adjustment. For special work like a multi-throw crankshaft, brass half-bearings can be fitted to the bars. For small work, a single split bearing can be used on a single bar, C.

For a roller steady, the bars T and U, from tee-material, can be fitted with necked mild steel rollers, VWX, the top one being secured by a clip. All should be casehardened.

In turning long small diameters, a steady can be provided from the tailstock, as at ***D***, with a plate Y brazed to a shank for the steady bar Z, through which the work is run., to be bolted up with a distance piece. The tool is on the slide, and both this and the tailstock are fed.