

# Facing operations

**A**BETTER job is made by facing material in a lathe instead of with a file. The work is easier and faster; the finished end is flat; and the material is square at end and sides. You can use the independent chuck to hold angle sections and T-sections. A round-nosed tool, at centre height, can be employed to face them.

The material should be cut over-length with a hacksaw. It is advisable to begin to face it near the centre, and to bring the tool toward you with the cross slide feed. You will then avoid chopping at the start of the cut and

## By GEOMETER

save the tool from damage. Chopping is at a maximum when facing is started at the outside edges of the material.

If the hacksaw cut has gone askew, and a start is made to face the material at its outside edges, care must be taken to bring the tool to the edge at the top of the slope. Then the tool can be advanced for a normal cut. It is easy to make a mistake here. With a deep cut, the edge of the material chops heavily on to the tool. A very deep cut can break the edge.

To avoid this hazard, start to face the material at the centre. If the cut becomes heavy, as facing proceeds, the tool is drawn back by the top-slide, to reduce depth of cut for the remainder of that traverse. For the next one, the original cut is picked up again. The saddle should be locked to the bed; or it can be held by engaging the leadscrew nut.

Two angle sections can be set up in the independent chuck, as at A, with two of their flanges together, and a piece of packing on the other flanges. It should be placed slightly behind the ends of the angle sections, so that it is not faced by the tool. A T-section can be held the same way in the independent chuck, without packing.

When the end of each angle section has been faced, the two pieces can be reversed in the chuck for facing their opposite ends. If there is a stop in the lathe spindle, they can be pushed up to it. Then they will be faced to the same length. Without a

stop, they can be clamped, at the ends still to be faced, until they have been rechucked.

Another way to set up angle sections is as at B1, where two pieces are placed up to a rod and gripped by opposite jaws of the chuck. When a bolt is used instead of a rod, its head locates the angle sections, B2, so that they are faced to length at the second chucking. The head of the bolt should be turned circular, making the shoulder slightly less than the thickness of the angle sections. Then they are gripped firmly by the chuck jaws. The bolt can also be faced to overall length to serve as a gauge when there are several angle sections to be faced to the same length.

Long angle sections can be faced, one at a time, as at C, on a mandrel. This can be centred for support from the tailstock, although the end of a round bar can be run in the fixed steady. As shown, two clamps can be fitted on an angle section, so that

its ends can be faced with left-hand and right-hand tools. Alternatively, one end of the angle section can be held in the chuck. Only one clamp is needed; but the angle section must be reversed to face the opposite end.

A tube can be faced by mounting it on wood plugs which should be tapered to force tightly into the ends. Another way to set it up is as at D, on a mandrel which is expanded with a taper plug and a drawbolt. The free end of a long tube is supported by the fixed steady.

Many facing operations can be performed by rotating a tool instead of the material, which is clamped to a slide or on an angle plate. A facing tool for the independent chuck is as at E1; a round bit in a steel block, held by a clamping screw and kept up by a backing screw.

For finishing work with a radius, a fly-cutter can be used in a bar, as at E2; or a reamer which is the size can be employed, as at F.

