

CENTRE FINDING

on the lathe

**WORKSHOP
HINTS
and TIPS**

IN marking-off procedure, centres are commonly located from crossed lines. Then the intersections are carefully centre-punched for the drilling or boring which follows. With relatively-large holes-whether to be finished by drilling or boring-it is often advisable to locate dividers in the centre-punch indentations and to scribe circles corresponding to the holes, as guides. Alternatively, with a height gauge, hole positions may be "boxed in" with squares.

One relies, in drilling, on the drill's following accurately into the original indentations, using small drills first, opening out gradually, and checking

By GEOMETER

from the scribed circles or boxed-in positions. Before the final drilling, of course, small errors from concentricity can often be corrected by judicious use of a round file.

In lathe work, a similar principle can be followed, in so far as a job can be eased over in the independent chuck, or adjusted on the faceplate or angle plate, if it is seen that a bore is not machining accurately into position. But it is generally preferable for the set-up to be initially precise, as a generated bore cannot wander off centre-unlike one produced by drilling; and, given the accurate set-up, one can concentrate attention on the size and finish of the bore.

Finding a centre from a pair of crossed lines needs only a scribing block, and a flat plate on which to use it if the lathe bed is one with inverted vee guides. It is not necessary to centre punch the position of the bore, scribe a circle, or box it in. The lines alone serve for location. Each in turn is centred by testing horizontally with the scriber point, turning the lathe, and adjusting the work and scriber as required.

After a line has been brought horizontal, the lathe is turned through 180 degrees. Then the line is above or below the point, and so this is

tapped up or down half the difference, and the line is brought to it by adjusting the work. After a few tests and adjustments, the line is on the lathe axis.

For work in the independent chuck, **A**, one line *S-T* is trued first, and then attention is given to the other *U-V*, followed by a further check on the first line. For work on the faceplate, where a straight edge is parallel to a line, the line should be trued first. Then a backing strip can be bolted to the faceplate, to keep the work in alignment while the other line is trued. Otherwise the first setting can be lost in unclamping to adjust the second line.

To locate a centre in the middle of parallel material, a line can be scribed from each edge, **B**. Here the required position is *W*, while *X* is the distance from the end. Two lines *Y* and *Z* are each scribed the same distance from their adjacent edge, and each brought to the same horizontal setting with the material in the chuck. This can avoid a scribing error in centralising.

Using a centre punch

To find the centre of work mounted on the angle plate is another job done with a scribed line. Any convenient metal block can be marked for height with the line, and then clamped to the angle plate, **C**. Adjusting this on the faceplate, the line is brought true in two positions. A further way of making the setting is to use a mandrel between centres with a suitable gauge, **D**.

Finding a centre from a tiny centre punch indentation can only be done with a needle, **E**. It is fixed in a little ball located in a countersunk hole in springy material, so as to be able to wobble. A sleeve of cycle-valve rubber will hold the needle, and the springy material can be bolted to a holder for the tool slide. The slide is eased up, the point put in the indentation, and the work trued to steady the needle.

A piece of thin plate, **F**, with its top edge at centre height, provides a quick centre finder for scribed lines, and is a means for setting the scriber point, for an upward tilt of which a clip with an overlapping edge is used on the plate. □

