

BACK TOOLPOSTS

By GEOMETER

A BACK toolpost provides for the setting up on a lathe of a tool or tools which can be used for minor or subsidiary operations. The object is to avoid disturbing the main tool or tools set up on the topslide or in the turret; and as operations can proceed one after the other, a considerable saving in time is made where several components are concerned. In addition, if the minor operations involve contours or chamfers, these are exactly the same on all components; whereas, when tools are moved, they may not be replaced in the same position on subsequent occasions.

the work is forced down by the cut instead of tending to ride up, and the swarf coming off it goes down into the bed, instead of across and over the turret to become something of a hazard for the operator.

Making the toolpost

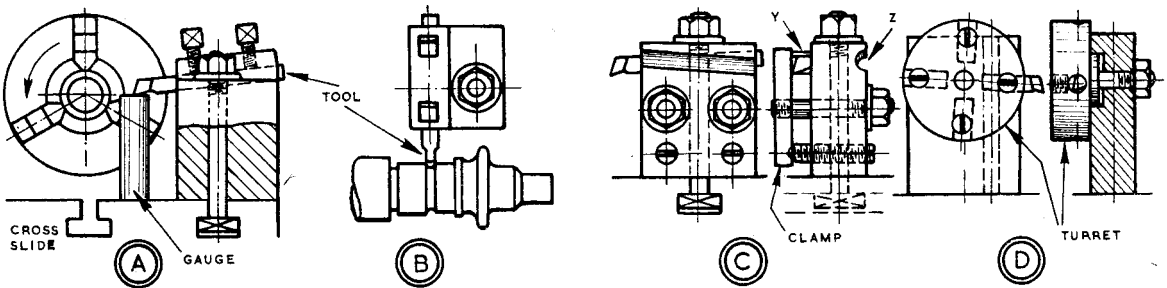
On the ordinary production centre lathe, the back toolpost cannot be used as there is no convenient mounting for it. On the smaller types of centre lathe and those employed for model making, the cross-slide is often slotted (to take a vertical slide or angleplate, or components for boring or milling); and so a back toolpost can easily be set up. Making is quite straightforward for a single tool, which may be either round or square or the toolpost can

take standard tool bits or silver steel rod, 1/4 in. or 5/16 in. dia.

The bottom of the toolpost can be faced off flat in the four-jaw chuck; and by off-setting, the hole for the clamping bolt can be drilled. A peg pressed or screwed in a hole alongside this other will locate the toolpost squarely in the cross-slide slot; but if the bottom is finished by milling or planing, a locating tongue can be left.

Clamping square or round tools

A back toolpost arranged for clamping either a square or a round tool can be as at C. This is a rectangular block, drilled to pass the clamping bolt and the studs in the clamps, and tapped for the reaction screws. These, like the clamps, can be changed one



The back toolpost is a standard fitting for most small and medium-sized capstan, turret and multi-cut lathes, on which it is employed for facing, deep grooving, chamfering, and parting-off operations - not that these machines cannot be heavily toolled in the normal way. All the positions available for tools are probably filled with types for producing features on components; and the back toolpost is the only solution to changing tools, or to taking the components in the part-finished state and setting up again.

be arranged to accommodate either type.

A typical design is as at A and B. The material can be cast iron or mild steel, square or rectangular section; although if a good depth is left for threads for the screws, duralumin or aluminium-alloy is suitable.

At the top, a step can be left from two cuts with a hacksaw and the surfaces filed smooth-but with facilities for milling or shaping, either of these operations would be preferable. The top of the upstanding part is finished at an angle corresponding to that for the tool. This should be about 7 deg. from the horizontal, to provide rake and permit setting to a gauge. The tool position can be marked, then drilled in any convenient way and finally reamed to

side to the other. Then instead of a square tool Y, a round one can be mounted in the groove Z.

Making the groove

Forming this groove is done by clamping a piece of material similar to the toolpost on it, then drilling and reaming at the joint line. A round tool is thus automatically located, and can be pushed down to set its cutting edge to height. The square tool can be set as required- or located by pegs or a planed groove.

A further development is a small turret, as at D, which can be made to set up at least four tools for light operations. A register locates it firmly in the toolpost, and a dowel and holes provide for quick setting at any position.

Upside-down mounting

Tools in the back toolpost or on a backslide, are mounted upside down. Apart from this they are in every way normal, but with the advantage that