

Stops for saddles and slides

By GEOMETER

It is generally accepted as a fact that a centre lathe requires a higher standard of operational skill than a capstan or turret lathe of the same size. A reflection of this is usually seen in the rates of pay of professional operators.

Among the reasons for the superior placing of the centre lathe are the great variety of work it can undertake, and its almost complete lack of pre-set stops. The operator of a capstan or turret lathe may go to the machine after it has been set up and produce satisfactory workpieces, working through a series of operations to stops and to figures on feedscrew dials. The centre lathe turner may have to work to a drawing on his own initiative, but sometimes simple stops can give considerable help beyond established lathe principles.

For a lathe to work efficiently, its slides must move smoothly and without shake. Their adjusting screws admit of this setting; for heavy cuts, or to lock a slide against movement, the screws can sometimes be given a further twist. It is important also for backlash on feedscrews to be taken up towards cuts; then, with a stiff setting, slides cannot move inadvertently.

These can be the settings for taking heavy cuts on castings. The top slide can be tightened, and backlash taken up on its screw. Adjustment can be made to the saddle, the leadscrew nut engaged, and backlash taken up. At other times, the tailstock can be moved up to the saddle and clamped to serve as a stop; while many small lathes can be provided with a stop for the bed, as at A1 and 2. Again, a top slide can be locked against movement by a piece of metal placed endwise between it and its guide-and wedged by turning the feedscrew.

A stop, as at A1 and 2, at the headstock end of the bed, will locate the saddle for the finish of cuts at shoulders or flanges on work, but care is needed when self-acting feed is used. The feed should be released just before reaching the stop. Then the remaining distance can be covered by hand feed. It is important, too, for swarf to be cleared from between the stop and the saddle.

The use of a stop on the lathe bed,

at either headstock or tailstock end, provides an abutment against which gauges can be placed to locate the saddle for length dimensions. Drills, lathe tools or other standard material may be used for short lengths, while for longer ones end gauges can be made to micrometer. An inside micrometer can be used.

A development of the simple stop is the type with a turret which can be used for the repetition jobs which crop up from time to time for a centre lathe. For a small lathe, construction of a stop can be as at B and C. The base is of rectangular material, and the turret a thick disc of round stock, drilled and reamed centrally for the stud, and drilled and tapped radially for the stop screws. Four or six of these, from mild steel or silver steel, can be fitted

to choice. A removable pin in the turret locates it on the base by holes which align each of the stops to the saddle.

Most of the machining is quite straightforward, but the step on the base to clear the heads of the clamping screws demands an end-milling or a shaping operation; while the 45 deg. face on the clamping piece can be machined by holding the material very firmly at an angle in two jaws of the independent chuck. Only light cuts must be taken, of course.

Many requirements are met by a stop in the saddle, abutting to the headstock, and interchangeable with others. A gauge can be used with it, as at D. There is minimum trouble with swarf at the face.

To locate work on a vertical slide, a metal strip can be clamped to a T-slot; or stops, as at E, can be machined to fit in it. To hold such a slide immovable, a plate with stop screw, as at F, can be fitted.

