

FIXED LATHE STEADIES

By GEOMETER

AN ACCESSORY considerably extending the range of work on a centre lathe is the fixed steady which is mounted on the bed to provide intermediate support for long shafts and similar slender components in conjunction with the tailstock, or to support the outer ends of components having a lengthy projection from the chuck.

Without such support, a shaft of any length even running between centres, is likely to wobble and would certainly be unstable and subject to chatter under cutting stress.

The normal steady supplied with a lathe is provided with three equally-spaced jaws which are individually-adjustable to the work, and tipped or capped with brass to obviate scoring. Each jaw is set just to touch and support the work? then locked by a nut or similar device.

Frequent oiling is necessary and adjustments must be made as the jaws wear and bed to the work. In the absence of a steady, either as an accessory or for a particular job, a temporary one can usually be contrived from a wood block with an angle-iron mounting to the bed.

How a steady extends the use of a lathe to work which could not otherwise be performed is shown at A.

An axle too large to pass through the lathe spindle-even if this is hollow-and too long to run between centres is required to be machined with parallel concentric ends. With the tailstock removed from the bed, a piece of over-length shafting is held in the chuck, while the free end is supported. In the steady and the turning-and any screwcutting-is done close to the chuck.

Afterwards the surplus pieces are cut off-as far as possible by parting tool, then finishing by hacksaw for safety. A set-up for facing the ends of a long tube can be made in the same way if a mandrel is mounted in the chuck for the tube to be pushed on.

On the same principle, shafts can be faced and centred, as at B. This is necessary when large billets are to be run between centres; or when it is desired to centre material accurately, there being a minimum to machine from the outside afterwards.

When a centre in a shaft has been damaged, such a set-up is necessary; and for truing, a fine boring or pointed tool may be required on the slide to avoid the swing and continuing wobble to which the centre drill would be subject. A setting for the steady jaws may be obtained by adjusting them with the steady close to the chuck, then bringing it back to the working position. Lifting and riding of the centre drill-from bad setting-is to be avoided on new work.

Support for hollow work, such as for boring a large bush, can be provided as at C, when the adjustment of the steady jaws has an effect on the parallelism or otherwise of the bore-so checks and adjustments are necessary well before finished size is reached.

When prolonged use is to be made of the steady and frequent adjustments to jaws would be necessary-apart from the possibility of marking the work from restricted local contact-a bush provides larger and more durable support. It can be from brass to fit the work and mount in the steady' jaws, as at D. A screw in the side counteracts a tendency to rotate? and adjustment can be made by slitting lengthwise.

To reduce wear, steady jaws in general use may be given a radius, as at E, using a reamer or boring tool in the chuck and adjusting the jaws to it. Using a boring tool, the steady can be traversed by lightly gripping it to the bed, then pushing it along by saddle feed.

A built-up steady, as at F, can be a wood block bored on the faceplate, or as at E, and bolted to a piece of angle iron which has a guide tongue for the bed riveted to the underside. A slit and a screw can provide adjustment.

