

FIXED and TRAVELLING STEADIES

EVERY accessory that is added to a lathe increases its scope or extends the range of work that can be performed on it.

Some accessories are convenient, in the sense that they simplify and expedite operations that are not impossible without them. Others are essential in so far as, lacking the accessories, you cannot perform the operations.

Fixed and travelling steadies are accessories of centre lathes that fall into both these categories. They

By GEOMETER

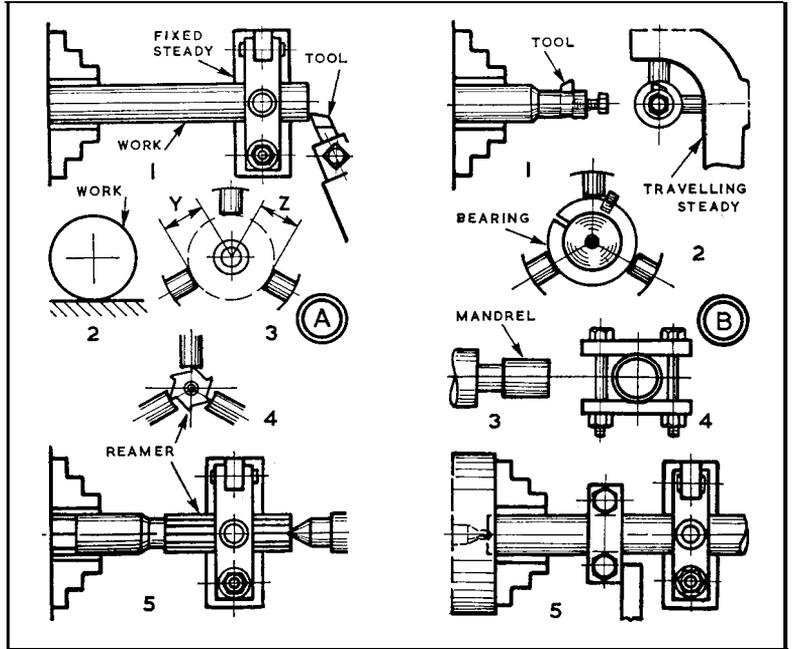
are at times convenient and on other occasions essential. Mainly they are essential where lathes are fulfilling their function of coping with varied work.

You cannot face and centre a long shaft in the lathe, ready for support by the tailstock centre, without using a fixed steady. Nor can you turn or screwcut the shaft satisfactorily without the aid of the travelling steady. But with the two steadies, the one mounted on the bed of the lathe, the other attached to the saddle and travelling with it, you find that all the operations are straightforward.

Diagram A1 shows a typical set-up with a fixed steady for facing a shaft before its end is centred with a Slocomb drill from the tailstock. The jaws of the steady are adjusted so that the work turns freely without shake. You prevent scoring with a few drops of oil. Face with the tool so that no "pip" remains, and then drill the centre in the normal way.

You have a choice of methods by which to adjust the jaws of the steady so that the axis of the work is a continuation of the spindle axis, with the outer end meeting the tailstock truly. This is important, for a high breaking stress is put on a centre drill when it is forcibly dragged to the axis of rotating work.

To avoid the risk involved with malalignment, you can true the jaws of the steady to the work, or to material of the same size, with the steady near the chuck, and move it to the working position. You can test over the work with a surface gauge from the lathe bed, and after



facing the end you can bring a tailstock centre to it.

By another method, work is lightly centred at the end before being mounted on the lathe, where the tailstock centre is used for support while the steady jaws are adjusted. The work can be rolled on a flat surface, A2, and its centre found with a surface gauge for centre-punching. Alternatively, you can centre it with a bell centre punch, or find its centre with a centre square or by using Jenny callipers.

A third method, A3, is to set the two bottom jaws, using inside callipers, from a pointed centre in the tailstock. Dimensions Y and Z are the radius of the work. You should set the jaws of the chuck as well, if the job is large and heavy. Then, with minimum effort, you can place it into position.

On occasion, when the work is of the same size as a reamer which you have handy, this tool can be used to machine the steady jaws to the correct radius and setting A4, as shown at A5. Adjust the locking device for the jaws so that you can just force them to the reamer. Then lock them.

This method of setting has the further advantage that no bedding of the jaws is necessary. From the start, they make full contact with the work, and so you are relieved of the frequent adjustments which are normal in the early stages of running a job in a steady.

The jaws of a travelling steady you can machine as at B1, having fixed them with their ends just within the sweep of a boring tool running in the chuck. Traverse the saddle with slow automatic or hand feed. Then they are left with a good finish and set to radius.

For long use of a fixed steady, a bearing bush is helpful, B2. Turn a well-fitting bush in the chuck, split it, and fit a stud to come to one of the jaws.

To face the end of a long tube, support one end in the steady. Put the other end overhanging the neck of a mandrel B3 in the chuck, and grip it with a clip B4. Use a long tool from the slide.

To centre a long shaft, employ the set-up B5, with the chuck spinning on the shaft. Force this along by a bar on the slide applied to the clip.