

HOLDERS FOR MICROMETERS

By GEOMETER

THE 1 in. outside micrometer is the most widely used of screw-type measuring instruments and is usually the first that an engineer possesses. Not the least of its merits is the confidence given to its owner, who is left in no doubt about dimensions.

Apart from obvious applications in lathe work, a micrometer is useful for solving many small but important problems. By its aid, you can sort mixed parts into order. You can check the size of drills and find what they are in reference tables.

You may come across a drill, which to look at, appears to be 1/4 in.; but because the shank has been badly-marked or scored you cannot be certain. With the micrometer and a table of drill sizes, the problem is soon settled. You measure a clean part of the shank, or over the flutes? and from the dimension you see if the drill is letter *D* 0.246 in., *E* 0.250 in., or *F* 0.257 in. In the same way, confusion is avoided with number drills—important when you need a small hole of just the right size for tapping, for a driving fit, or for clearing.

Most of the time, a micrometer is used in either of two ways. To measure loose work, you hold the micrometer in one hand and the work in the other. To measure work in the lathe, you hold the micrometer by its frame, and adjust the thimble or ratchet stop with a finger and thumb. There are times, however, when it is convenient, if not essential, to have both hands free. This is so when you have to set inside calipers to the micrometer—or to check their setting.

Perhaps a piece of work which is being bored in the lathe has arrived at the critical stage with less than 0.010 in. to remove from its bore. You have taken the diameter carefully with inside calipers, and you need to verify the dimension. This is none too easy with the calipers in one hand and the micrometer in the other. You get on better with the micrometer on a holder or a stand.

Commercial needs are met by bench micrometers with integral stands. For occasional use, there are

stands to mount 1 in. micrometers. These are the sort of thing that newcomers to model engineering can make. An example is shown at A. But if you need a holder quickly, you can make one to grip in the vice.

Bend a 4 in. length of 3/16 X 3/4 in. steel in the middle to an angle of 110 deg. At 7/8 in. from one end, drill 3/16 in. clearance. Drill a 1-3/4 in. length of the same material the same size in the middle, to serve as a clamp, using a 3/16 in. screw and wingnut, with packing the thickness of the micrometer frame at the tail end of the clamp.

Oddments of material can be used for the holder at A—cast iron, steel light alloy. The base can be a disc which you can also use for scribing. The 3/4 in. wide block can be faced at an angle in the lathe by clamping it to an angle plate. Get a good clean finish on all surfaces, and the holder, simple as it is, will have a neat appearance.

For setting inside calipers and scribing blocks to dimensions above 1 in., a micrometer can be mounted as at B. For a maximum of 2 in., machine a 1 in. bush on a mandrel, so that the ends are true. Hold a square bar (lathe tool) in the micrometer on top of the bush, against an angle plate, and clamp the frame. You need a 3/4 in. bush to pick up dimensions from 1 in.—to clear the anvil. Dimensions are obtained as at C1 and 2.

To set a scriber point to a line, as on a rule, make the device shown at C3. It consists of a collar and a disc held by countersunk screws, with a grub screw to the spindle. The scriber point goes to the joint line.

Diagram D shows an adjustable holder which has a base with a threaded pillar carrying a sleeve with a clamp that holds the micrometer. The sleeve is fixed by the nut Y after setting it with the graduated collar Z. Diagram E illustrates the clamp, which can be adjusted on the sleeve in mounting the micrometer. This is set true with the sleeve in V-blocks, as at F.

