Parts for a MICROMETER HOLDER

By GEOMETER

A HOLDER for a 1 in. micrometer, as at *A*, is one of several that were briefly described in my last article. As with all the holders, the object is to increase the usefulness of the most popular of measuring instruments.

By mounting the micrometer vertically, with its anvil at a definite height, the end of the spindle becomes an adjustable reference surface which can be set to an accuracy of 0.001 in.

From it you can set or check inside calipers, and transfer dimensions to a scribing block-two tasks for which you would otherwise need further precision measuring tools.

To obtain basic height settings for the micrometer, you make blocks or bushes, using the instrument to measure them in the normal way. When you need 2 in. with the spindle right up,. you use a 1 in. block with a flat pointer on top to set the anvil, as shown. If you want 3 in., you build up 2 in. with a pair of 1 in. blocks.

The holder is arranged to facilitate basic settings. The round base has a screwed pillar on which is a plain-bored sleeve. This is adjusted up or down by a threaded collar ***R*** and is secured by a nut S. A clamp on the sleeve grips the micrometer by its frame.

For a range of initial settings, the clamp can be adjusted on the sleeve, and the micrometer adjusted in the clamp. The final precise setting in every instance is obtained with the threaded collar ***R.*** It has 50 divisions and is threaded 20 t.p.i., so that one division equals 0.001 in.

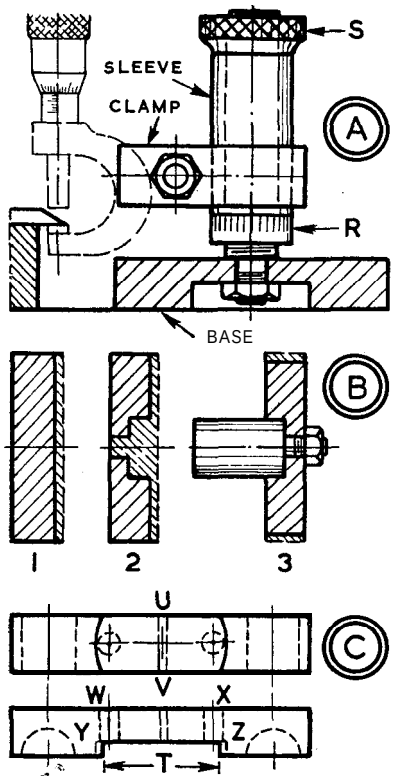
There are no binding dimensions for the holder, but a fairly robust construction is advisable to give stability and retain settings. suggested minimum dimensions are : base 3 in. dia.; pillar 5/8 in. dia.; sleeve 1/8 in. wall thickness.

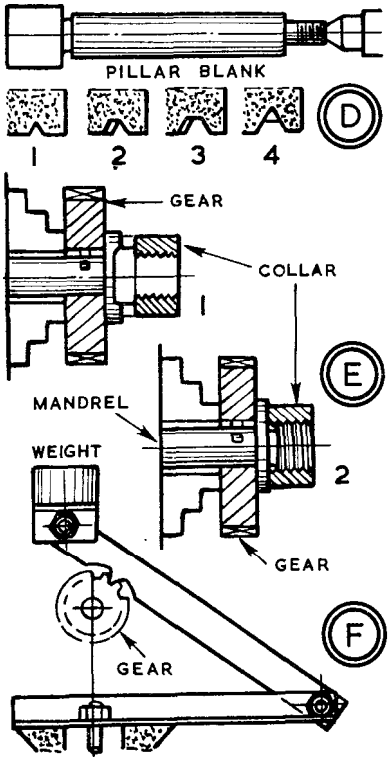
Materials can be mild steel, duralumin and brass. If mild steel is used for the pillar, it should be a free-cutting sort to take a good thread by screwcutting.

Diagrams B to ***F*** illustrate points in machining parts for the holder.

The base is finished at three set-ups, as at ***B.*** At the first 1, the disc is faced. At the second 2, it is faced again, and then centred, drilled and counterbored-with the face that was first machined pressed to the reversed jaws of the chuck. At the third set-up 3, the disc is mounted on a mandrel for turning the outside. Its faces can be skimmed again if required.

Diagram C shows how the clamp can be made from flat bar. Diameter T is machined to a depth equal to half the thickness of the micrometer frame, with the bar on a faceplate or in the independent chuck. Then it is cut at the centre on line ***UV,*** and the two pieces are clamped for drilling holes WX. Bolted together they are mounted in the independent chuck to bore for the sleeve-which leaves them with half-circles YZ. Finally, each piece is held in the chuck to skim its inside face for clearance.





Screwcutting is the tricky job on the pillar, although on a short one you are not compelled to provide a full-length thread. The ends can be screwcut, the centre left plain. In each case, the blank is prepared as at ***D*** by machining in the chuck with tailstock support. The V-tool you grind to Whitworth 55 deg. to a thread gauge, but somewhat narrow so that sideways feed can be given.

For 20 t.p.i. the tool is fed down 0.032 in. from the top diameter in a series of cuts. The first I leaves a V 0.010 in. deep. The second and third 2-3 are widening cuts of a few thou at the same depth. Then the tool is brought back halfway towards the original lateral setting for another deepening cut 4-and so on. Finally, each flank is finished to the thread gauge, or a chaser is used.

Threads in the collar and nut are similarly widened and deepened. The core diameters should be top diameter minus 1/16in.

To graduate the collar, a 50-tooth gear can be used as at the material being turned with a shank I, or a mandrel made for the collar after threading 2. Dividing can be done with the angle and bar device at ***F,*** using a V-tool on the slide. ❑