May 26, 1953 F. M. LASERSON 2,639,510

MICROMETER

Filed July 11, 1952

Fig.1

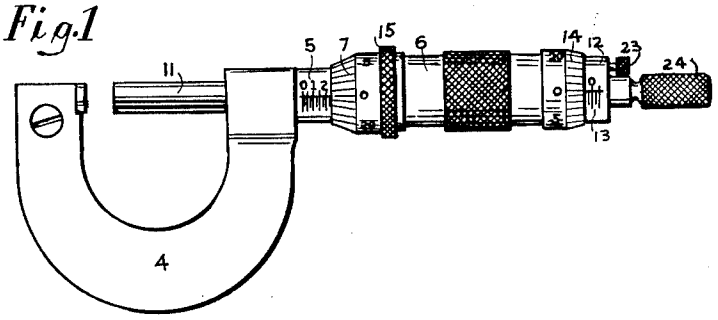


Fig.2

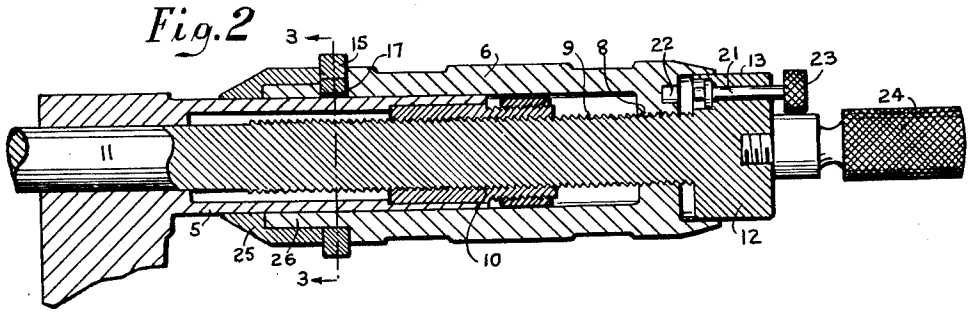
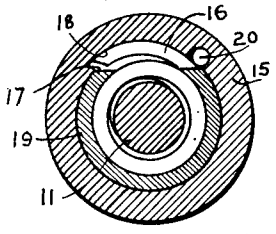


Fig.3



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MICROMETER

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3 Claims. (Cl. 33—164)

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My invention relates to improvements in micrometers, and specifically to micrometers having a conventional scale and an auxiliary scale of like graduations.

An object of the invention is to provide a micrometer for use as a conventional micrometer with a conventional scale, and to save time and eliminate the possibility of the usual errors when taking measurements and repeating measurements during the progress of turning, shaping, boring and similar operations.

Another object of the invention is to provide a micrometer where the required finish measurement is set in advance on a conventional scale and locked on the micrometer, and all working measurements taken on an auxiliary scale which shows only the amount of cutting necessary to bring the work to the finish size.

Another object of the invention is to provide a micrometer of the two-scale, double-function type which is simple in construction and can be manufactured at a reasonable cost.

In the drawings:

Figure 1 is a side view of the invention.

Figure 2 is an enlarged longitudinal section.

Figure 3 is a cross section along a line 3—3 of Figure 2.

Referring to the drawings in detail: numeral 4 designates the usual caliper frame to which is attached a conventional graduated sleeve or barrel 5 engraved with a longitudinal scale showing decimals of an inch or metric measurements. A thimble 6 with a cooperating peripheral scale 7 is rotatable on the barrel 5, and is threadedly engaged 8 with the micrometer-screw 9. The micrometer-screw travels in a nut 10 which is integral with the barrel 5. The spindle 11 is axially continuous with the micrometer-screw.

The rear end of the micrometer-screw terminates in a head 12 upon which is engraved a scale 13 of similar graduations to those of the barrel 5, and which cooperate with a peripheral scale 14 on the rear end of the thimble 6 of similar graduations to those on the front end of the thimble 7 but of limited measuring length.

A knurled clamp ring 15 is mounted on the thimble 6 for clamping the thimble to the barrel to prevent relative rotation, when so desired. The mechanism of the clamp ring comprises a brake shoe 16 held partly in a transverse groove 17 cut in the thimble and partly in an eccentric portion 18 of the bore 19 of the knurled ring. The brake shoe 16 is moved into frictional engagement with the barrel 5 by a roller 20 in a groove in the ring when the clamp ring is rotated slightly.

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Slidable in the head 12 is a bolt 21 registering with a hole 22 in the thimble when the graduations are at 0, the bolt can then be pushed into the hole by pressing on its knurled head 23. When thus locked, and when the clamp ring is not tightened, the thimble 6, the micrometer-screw 9 and the spindle 11 rotate as a unit in relation to the barrel 5; enabling readings to be taken, in the well-known manner, on the graduations at 5 and 7 of the barrel and thimble, as a conventional micrometer.

For taking progress measurements of work being reduced to a finish size, the micrometer is first set to the required finish size on graduations 5 and 7 in a conventional manner, and the setting locked by rotating the clamp ring. Measurements of the work, as the cutting process proceeds, are thenceforth taken on the auxiliary graduations 13 and 14, which show only the amount of material that is necessary to be removed to bring the work to finish size, which would be 0 on the auxiliary scale; measurements of the progress of the work being thus made without having to memorize the required size and without the necessity of repeated interpretations of the graduations with the attendant possibility of errors. A conventional ratchet stop 24 is shown, for facilitating the operation of the micrometer.

The graduations on the front end of the thimble are made on a sleeve 25 pressed onto a reduced portion of the thimble 26; the purpose is to hold the clamp ring in position and to be rotatable on thimble proper by a special tool for correctly aligning the calibrations when assembling the instrument, and after wear.

Whilst an embodiment of the invention has been shown as applied to a caliper, the invention can just as readily be applied to inside, depth, height or other kinds of micrometers, and it should be noted also that various changes may be made in the structure without departing from the spirit of the invention; and all such I aim to include in the scope of the appended claims.

What I claim is:

1. In a micrometer, including a spindle, a micrometer-screw and a cooperating barrel: a thimble engaged by threads with the micrometer-screw; graduations at one end of the said thimble cooperating with graduations on the barrel, and graduations on the other end of the thimble cooperating with graduations on an extension of the micrometer-screw; means for optionally engaging the thimble with the barrel in order to resist relative movement; and means for optional-

ly engaging the micrometer-screw with the thimble to provide integral movement of the micrometer-screw and the thimble.

2. In a micrometer, including a spindle, a micrometer-screw and a cooperating barrel: a thimble engaged by threads with the micrometer-screw; graduations at one end of the said thimble cooperating with graduations on the barrel, and graduations on the other end of the thimble cooperating with graduations on an extension of the micrometer-screw; a clamp ring for optionally engaging the thimble with the barrel in order to resist relative movement; and means for optionally engaging the micrometer-screw and the thimble to provide integral movement of the micrometer-screw and the thimble.

3. In a micrometer, including a spindle, a micrometer-screw and a cooperating barrel: a thimble engaged by threads with the micrometer-screw; graduations at one end of the said thimble cooperating with graduations on the barrel, and graduations on the other end of the thimble cooperating with graduations on an extension of the micrometer-screw; means for optionally engaging the thimble with the barrel in order to resist relative movement; and means for optionally engaging the micrometer-screw with the thimble to provide integral movement of the micrometer-screw and the thimble; said means including a bolt in the said extension of the micrometer-screw and a cooperating hole in the thimble.

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Number	Name	Date
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