

Jan. 19, 1954

F. M. LASERSON

2,666,263

MICROMETER

Filed July 5, 1952

Fig. 1

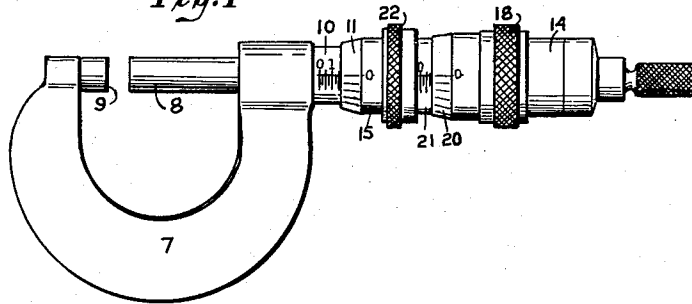


Fig. 2

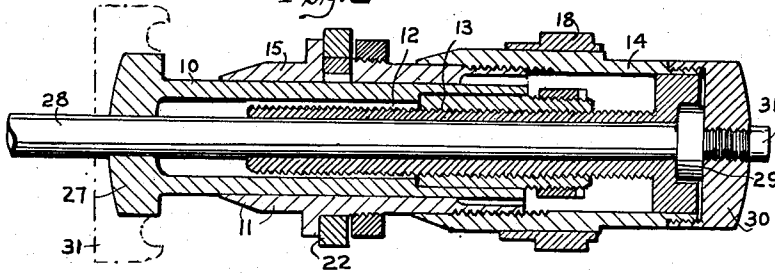


Fig. 3

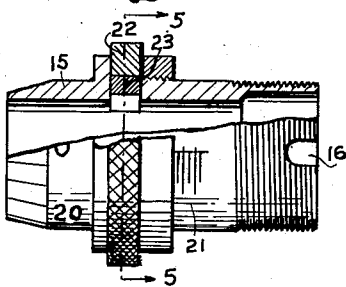


Fig. 4

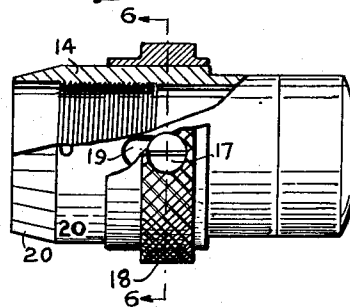


Fig. 5

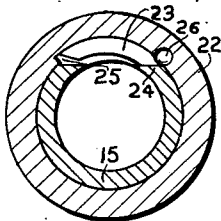
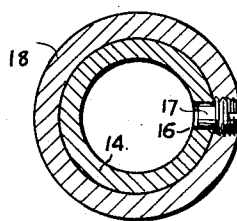


Fig. 6



INVENTOR.

Goldenrick M. Laserson

UNITED STATES PATENT OFFICE

2,666,263

MICROMETER

Frederick M. Laserson, Los Angeles, Calif.

Application July 5, 1952, Serial No. 297,223

4 Claims. (Cl. 33—164)

1

My invention relates to improvements in micrometers.

An object of the invention is to provide a micrometer usable in every way as a conventional micrometer but which can, in addition, be used to save time and eliminate the possibility of errors when taking measurements during the progress of turning, shaping, boring and the like.

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 work measurements taken on an auxiliary scale which shows only the amount of cutting necessary to bring the work to the finish size.

In the accompanying drawings I show complete examples of the physical embodiments of my invention devised to illustrate in a simple manner the practical application of the principles of my invention. It should, however, be understood that changes may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings:

Figure 1 is a side view of a caliper form of the invention.

Figure 2 is an enlarged longitudinal section of an inside-measuring micrometer.

Figure 3 is a longitudinal part view and section of the main thimble of the micrometer.

Figure 4 is a longitudinal part view and section of the auxiliary thimble.

Figure 5 is a cross section along a line 5—5 of Figure 3.

Figure 6 is a cross section along a line 6—6 of Figure 4.

In these views, numeral 7 designates the usual frame, 8 is the spindle and 9 the anvil. 10 is the usual sleeve or barrel with its graduations which cooperate with graduations 11 on a rotary thimble 15. Axially continuous with the spindle 8 is a micrometer-screw 12 which travels in nut 13 of the barrel 10, and is held integral with the thimble 14. The parts of a micrometer thus far described being mainly old and well known construction, an extended description of the mechanism is omitted.

In my invention I split the thimble into two portions. The conventional portion 14 remains attached to and is coaxial with the spindle 8, which, as stated before, travels by a micrometer-screw 12 in the bore of the barrel 10, and is held integral with the thimble 14. In threaded engagement with the thimble 14 I devise an auxiliary thimble 15, the thread having the same lead as that of the micrometer-screw.

2

The auxiliary thimble 15 is provided with an indent 16 for engagement with a pin 17 in a locking ring 18. The locking ring 18 is mounted slidable on the main thimble 14, with its movement limited by a slot 19 through which the pin 17 projects.

The main thimble 14 is provided with graduations 20 which cooperate with graduations 21 on the auxiliary thimble 15; calibrated to read 0 when the two thimbles are locked or are in a locking position.

When thus locked, the instrument serves as a conventional micrometer; readings being taken in the usual manner on the scale of the barrel 10 in conjunction with the calibrations on the auxiliary thimble 15.

Numeral 22 shows a knurled clamping ring; including a brake shoe 23 resting partly in a transverse groove 24 in the auxiliary thimble 15 and partly in an eccentric portion 25 of the bore of the ring. The brake shoe is pressed into frictional contact with the barrel 10 by a roller 26 when the clamping ring is rotated slightly.

For taking measurements on work in process of being reduced to size, the two thimbles are aligned to 0 on the calibrations 20 and 21 and locked as a unit by sliding the locking ring 18 axially into the engaging position. The micrometer is thereafter set to the finish measurement required on the calibrations 10 and 11, and the auxiliary thimble 15 firmly locked on the barrel 10 by rotating clamping ring 22. The locking ring 18 is then slid to disengage the two thimbles.

Measurements are now taken of the work as the cutting progresses, by reading on the scale 20 and 21, which shows at each reading the exact amount of material necessary to be removed to bring it to the finish size which would be 0 on the scale 20 and 21.

Figure 2 shows the invention embodied in an inside-measuring micrometer. The barrel 10 has the usual graduations engraved upon it, and terminates in a knurled head 27. Through the knurled head emerges an interchangeable spindle 28 slid through a bore in the micrometer-screw 12 and retained against a shoulder 29 on the micrometer-screw by a cap 30. The cap also holds a contact 31; or it can carry an extension measuring rod of any length. This construction can be adapted for use as a depth gauge by incorporating a flat base, shown by dotted lines 31.

The method of reading the micrometer for depth and bore measurement in production work differs from the caliper method inasmuch as the cutting is for enlarging the measurement,

3

In these cases, instead of setting the micrometer to the finish size required the micrometer is set to an arbitrary minus measurement, say .050" less than the finish size, and the progress readings taken on the auxiliary scale outwards from 0 until the .050" mark is reached; the interim measurements showing the amount of stock to be removed to bring to the finish measurement.

What I claim is:

1. In a micrometer, including a spindle, a micrometer-screw, a cooperating barrel and a cooperating thimble: an auxiliary thimble attached to the first said thimble; graduations showing the amount of movement of the first said thimble relatively to the auxiliary thimble; graduations showing the amount of movement of the auxiliary thimble relatively to the said barrel; means for optionally engaging the two thimbles to move integrally as one thimble; and means for optionally engaging the auxiliary thimble with the said barrel to prevent relative movement of the auxiliary thimble and the said barrel.

2. In a micrometer, including a spindle, a micrometer-screw, a cooperating barrel and a cooperating thimble: an auxiliary thimble engaged by micrometer-screw threads with the first said thimble; graduations showing the amount of axial displacement of the first said thimble relatively to the auxiliary thimble; graduations showing the amount of axial displacement of the auxiliary thimble relatively to the said barrel; means for optionally engaging the two thimbles to rotate integrally as one thimble; and means for optionally engaging the auxiliary thimble with the said barrel to prevent relative movement of the auxiliary thimble and the barrel.

4

3. In a micrometer, including a spindle, a micrometer-screw, a cooperating barrel and a cooperating thimble: an auxiliary thimble engaged by micrometer-screw threads with the first said thimble; graduations on the first said thimble and cooperating graduations on the auxiliary thimble; graduations on the auxiliary thimble and cooperating graduations on the said barrel; a clamp ring for optionally holding the auxiliary thimble unrotatable on said barrel; and means for optionally locking the auxiliary thimble to the first said thimble to provide integral movement.

4. In a micrometer, including a spindle, a micrometer-screw, a cooperating barrel and a cooperating thimble: an auxiliary thimble engaged by micrometer-screw threads with the first said thimble; graduations on the first said thimble and cooperating graduations on the auxiliary thimble; graduations on the auxiliary thimble and cooperating graduations on the said barrel; a clamp ring for optionally holding the auxiliary thimble unrotatable on said barrel, and means for optionally locking the auxiliary thimble to the first said thimble; said locking means comprising a pin moving in a longitudinal slot, carried by an axially slidable ring on the first said thimble, and engaging in a matching indent in the auxiliary thimble.

FREDERICK M. LASERSON.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
672,622	Isherwood	Apr. 23, 1901