March 21, 1944. W. H. COWARD 2,344,498

MICROMETER

Filed Dec. 22, 1942 2 Sheets-Sheet 1

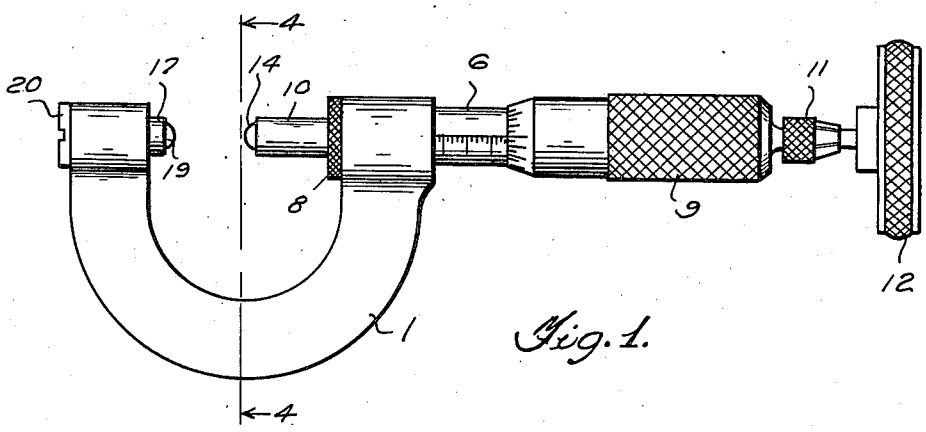


Fig. 1.

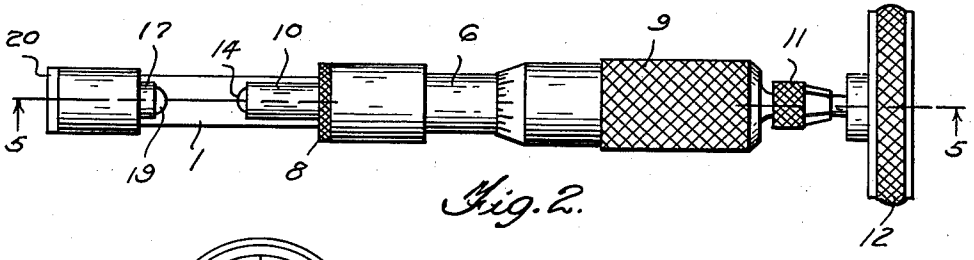


Fig. 2.

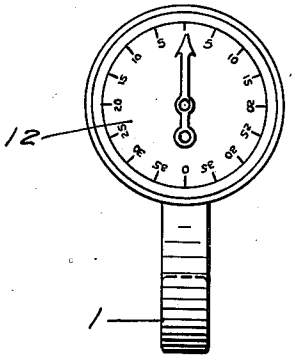


Fig. 3.

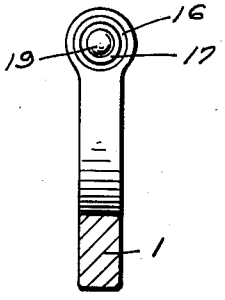


Fig. 4.

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MICROMETER

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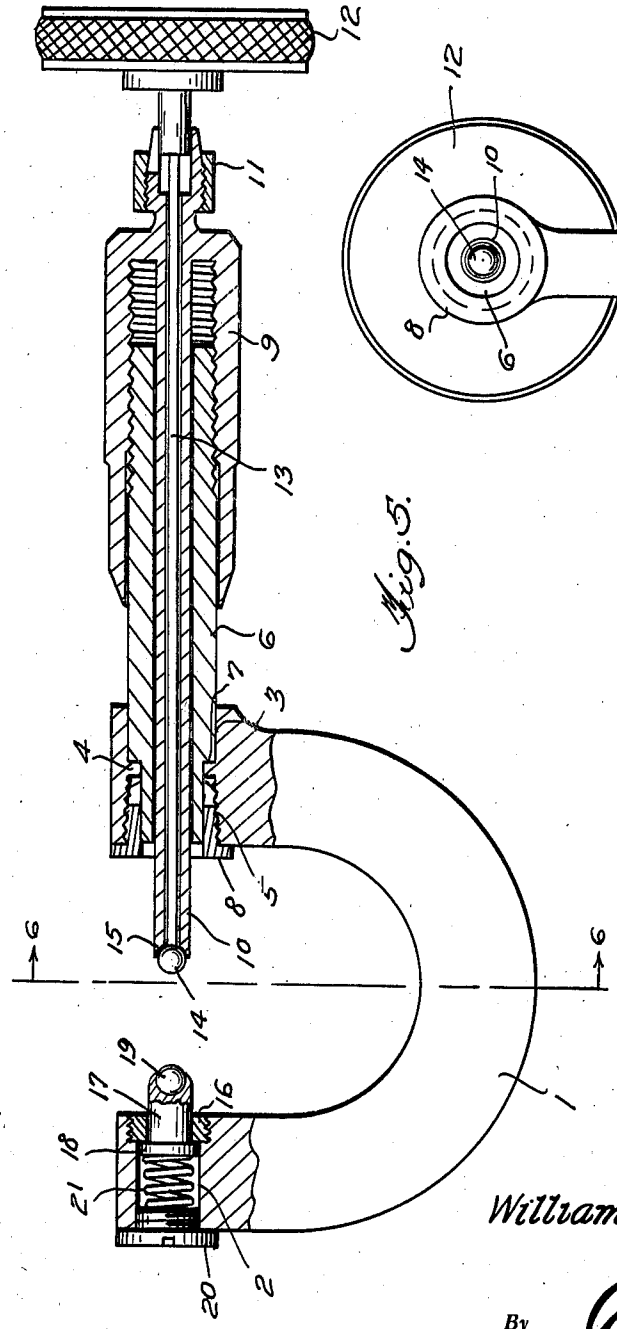


Fig. 5.

Fig. 6.

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Patented Mar. 21, 1944

2,344,498

UNITED STATES PATENT OFFICE

2,344,498

MICROMETER

William Harvey Coward, New Rochelle, N. Y.

Application December 22, 1942, Serial No. 469,834

1 Claim. (Cl. 33—147)

The present invention relates to new and useful improvements in micrometers, and has for its primary object to provide, in a manner as hereinafter set forth, an instrument of this character which is adapted to accurately measure work while it is revolving in a lathe, thus greatly speeding production.

Another very important object of the invention is to provide a micrometer of the aforementioned character comprising a novel construction and arrangement whereby the instrument will be prevented from being damaged in the event that it is subjected to sudden shock or thrust.

Other objects of the invention are to provide a micrometer of the character described which will be comparatively simple in construction, strong, durable, highly efficient and reliable in use, compact, light in weight, and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:

Figure 1 is a view in side elevation of a micrometer constructed in accordance with the present invention.

Figure 2 is a plan view of the instrument.

Figure 3 is an end elevational view.

Figure 4 is a cross sectional view, taken substantially on the line 4—4 of Figure 1.

Figure 5 is a view principally in longitudinal section, taken substantially on the line 5—5 of Figure 2.

Figure 6 is a cross sectional view, taken substantially on the line 6—6 of Figure 5.

Referring now to the drawing in detail, it will be seen that the embodiment of the invention which has been illustrated comprises a U frame 1 of suitable metal. The end portions of the frame 1 have formed therein aligned openings 2 and 3. An annular seat 4 is provided at an intermediate point in the opening 3. The inner end portion 5 of the opening 3 is tapered and threaded.

Removably mounted in the opening 3 is a sleeve 6 comprising a shoulder 7 which is engageable with the seat 4. A longitudinally slotted, externally threaded and tapered nut 8 is screwed into the portion 5 of the opening 3 over the adjacent end portion of the sleeve 6 for frictionally securing said sleeve in position.

Threadedly mounted for adjustment on the sleeve 6 is a thimble 9. The thimble 9 carries a tubular movable spindle 10 which extends longitudinally through the sleeve 6 into the frame 1.

The outer or closed end of the thimble 9 is provided with a chuck 11. The chuck 11 constitutes means for securing a dial indicator 12 in position on the thimble 9. The dial indicator 12 includes an operating rod 13 which extends through the spindle 10 and which is provided, on its free end, with a work engaging ball contact 14. A concave seat 15 in the adjacent end of the spindle 10 accommodates the ball contact 14.

Threaded for adjustment in the inner end portion of the opening 2 is a bushing or the like 16. An anvil 17 is slidably mounted in the bushing 16. The anvil 17 includes a head 18 on its inner end. Mounted to revolve freely in the outer end portion of the anvil 17 is a ball contact 19. A plug 20 is threaded into the outer portion of the opening 2. A coil spring 21 between the plug 20 and the anvil 17 yieldingly urges the latter toward the contact 14.

It is thought that the operation of the instrument will be readily apparent from a consideration of the foregoing. Briefly, the dial indicator 12 is set at zero. The thimble 9 is then screwed down in the usual manner to the work until the dial indicator 12 registers + (plus) over the zero setting. The thimble 9 is then screwed back to zero. The reading is then taken from the sleeve 6 and the thimble 9 in the usual manner. If the instrument is subjected to sudden thrust, the sleeve 6 is forced out of the opening 3, thereby preventing the delicate mechanism of the instrument from being damaged. When the sleeve 6 is reinserted in the opening 3, seating of the shoulder 7 on the seat 4 facilitates correct adjustment.

It is believed that the many advantages of a micrometer constructed in accordance with the present invention will be readily understood, and although a preferred embodiment of the device is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:

A micrometer comprising a U frame having aligned openings in its end portions, an annular seat in one of the openings at an intermediate point, the inner end portion of said one opening being threaded and tapered, a sleeve removably mounted in said one opening and including a shoulder engageable on the seat, a contractible nut threaded into the inner end portion of said one opening and engaged with the sleeve for frictionally securing said sleeve in position, a thimble threaded for adjustment on the sleeve, and a spindle on the thimble integral therewith and slidably extending through the sleeve into the frame for engagement with the work.

WILLIAM HARVEY COWARD.