C. RESCHKE.

MICROMETER CALIPERS.

APPLICATION FILED DEC. 17, 1914.

1,140,611. Patented May 25, 1915.

Fig. 1.

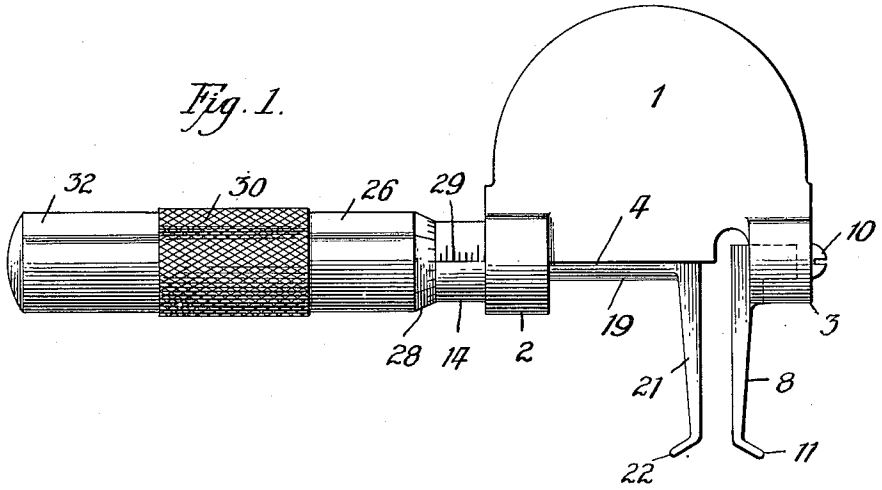


Fig. 2.

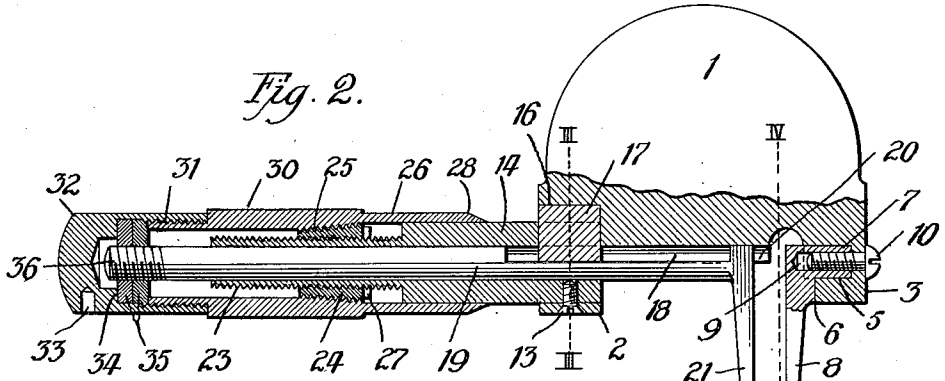


Fig. 3.

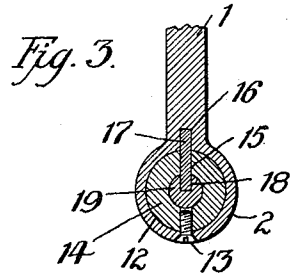
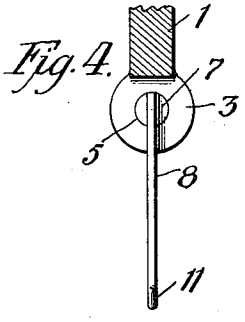


Fig. 4.



Witnesses

Karl H. Butler

Chas. W. Stauffiger

Inventor

Charles Reschke

By Cushman & Cushman

Attorneys

UNITED STATES PATENT OFFICE.

CHARLES RESCHKE, OF DETROIT, MICHIGAN.

MICROMETER-CALIPERS.

1,140,611. Specification of Letters Patent. Patented May 25, 1915.

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To all whom it may concern:

Be it known that I, CHARLES RESCHKE, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Micrometer-Calipers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a micrometer-caliper, and the primary object of my invention is to provide a novel instrument of precision by which inner and outer diameters of a piece of work can be quickly ascertained, the calipers having jaws that can be easily inserted in a piece of work to obtain a measurement that would be impossible by an ordinary micrometer or caliper.

Another object of this invention is to provide a sensitive and accurate machinist's tool of the above type with an adjustable jaw that can be set in proper relation to a stationary jaw, especially when a large number of similar operations is to be performed in connection with pieces of work, to reduce the amount of adjustment necessary to obtain a desired measurement.

A further object of this invention is to provide a simple and inexpensive micrometer caliper wherein the adjusting mechanism is concealed and not liable to injury by ordinary use.

I attain the above and other objects by a mechanical construction that will be hereinafter specifically described and then claimed, and reference will now be had to the drawing, wherein—

Figure 1 is a side elevation of a micrometer caliper in accordance with my invention; Fig. 2 is a longitudinal sectional view of the same partly in elevation; Fig. 3 is a cross sectional view taken on the line III—III of Fig. 2; and Fig. 4 is a similar view taken on the line IV—IV of Fig. 2.

In the drawings, the reference numeral 1 denotes a conventional hand piece having the ends thereof provided with longitudinally alining barrels 2 and 3 projecting from the straight edge 4 of the hand piece. The inner end of the barrel 3 has a longitudinal recess 5 and a slot 6 in communication with said recess. The recess 5 receives a pin 7 carried by the inner end of a stationary caliper jaw 8 and a portion of the inner end of said jaw extends into the slot 6 to prevent a rotative movement of the pin 7 in the recess 5, also to correctly position the jaw 8 relative to the barrel 3. The pin 7 has a bore 9 with the walls thereof screwthreaded to receive a screw 10 mounted in the closed end of the barrel 3, said screw retaining the stationary jaw 8 in engagement with the hand piece 1. The outer end of the stationary jaw 8 terminates in an angularly disposed outwardly projecting contact piece 11 and the advantage derived by this contact piece will be hereinafter referred to.

The barrel 2 has a longitudinal cylindrical opening 12 and mounted in said opening by a screw 13 is the outer end of a tubular guide 14. The outer end of the tubular guide 14 has a keyway 18 registering with a similar keyway 16 in the hand piece 1 and said keyways receive a key or spline 17. The key 17 coöperates with the screw 13 in preventing the tubular guide 14 from rotating relative to the hand piece 1, but said key serves another purpose, which is paramount, as compared to the former purpose. Namely, the key 17 extends into a longitudinal groove 18 provided therefor in a rod 19 movable longitudinally of the tubular guide 14. The key 17 prevents the rod 19 from rotating relative to the tubular guide 14 and the outer end of said rod extends into a longitudinal groove 20 in the straight edge 4 of the hand piece 1, said groove representing a prolongation of walls of the bore of the tubular guide. The outer end of the rod 19 has a jaw 21 terminating in a contact piece 22, and the jaws 8 and 21 with the contact pieces 11 and 22 coöperate in ascertaining measurement.

The inner end of the tubular guide 14 terminates in a screw 23 and in threaded engagement with said screw is a nut 24. The periphery of the nut 24 is tapered and screwthreaded for engagement with a tapering screwthreaded portion 25 of a sleeve 26 rotatable upon the tubular guide 14. The large end of the nut 24 has kerfs or sockets 27 to receive a spanner wrench or other instrument employed for screwing the nut 24 into the threaded portion of the sleeve. The outer end of the sleeve is beveled and graduated, as at 28, the graduations coöperating with graduations 29 upon the tubular guide in determining adjustments of the jaws 8 and 21.

Intermediate the ends of the rotatable sleeve 26 is a knurled portion 30 and the inner end of said sleeve is reduced and

screwthreaded, as at 31 to receive a cap 32. The cap 32 has a radially disposed recess or socket 33 to accommodate a pin or other instrument employed for screwing the cap upon the threaded end of the rotatable sleeve, and the inner walls of the cap are machined or otherwise formed to provide an annular seat or shoulder 34 for nuts 35 screwed upon the threaded inner end 36 of the rod 19. The nuts 35 are normally positioned and held between the seat 34 and the outer end of the rotatable sleeve 26, and by removing the cap 32, the nuts 35 can be adjusted upon the threaded end of the rod 19, whereby when the nuts 35 are again held between the seat 34 and the end of the sleeve 26, the rod 19 will have been adjusted relative to the sleeve and the adjustable jaw of the instrument correctly positioned relative to the stationary jaw. Importance is attached to this secondary adjustment as it is through the same that the instrument is made very sensitive and accuracy is at all times assured.

It is apparent from the foregoing that a rotary movement of the sleeve 26, which is facilitated by the knurled portion 30 thereof, shifts the sleeve 26 and the rod 19 longitudinally of the tubular guide 14, and consequently the jaw 21 is moved to and from the stationary jaw 8.

I attach considerable importance to the contact pieces 11 and 22 of the jaws 8 and 21 respectively, and to illustrate the action of said contact pieces, there is shown in dot and dash lines a piece of work 37 having a cavity 38, the walls of which are reached through the medium of an opening 39 of less diameter than the cavity 38. With an ordinary pair of caliper or micrometer jaws it would be impossible to determine the diameter or cross sectional area of the cavity 38, whereas with the diverging contact pieces it is possible to insert the outer ends of the jaws in the cavity and then adjust the jaws until the contact pieces 11 and 22 engage the walls of the cavity. The measurement having been determined, a retraction of the jaws 8 and 21 permits of the same being removed from a piece of work. This is simply an example of one of the advantages gained by the novel extremities of the jaws, and it is thought that the operation and utility of the instrument will be apparent without further description.

One embodiment of my invention has been illustrated, but it is to be understood that the structural elements are susceptible to such variations and modifications as fall within the scope of the appended claims.

What I claim is:—

1. A micrometer caliper comprising a hand piece, a stationary jaw carried thereby, a tubular guide connected to said hand piece, a rod movable longitudinally of said guide, a jaw carried by said rod and confronting said stationary jaw, a sleeve rotatable and reciprocable upon said tubular guide and adapted to impart movement to said rod, a cap at the inner end of said sleeve, and means housed by said cap and connected to said rod for adjustably holding said rod relatively to said sleeve.

2. A micrometer caliper comprising a hand piece, barrels carried thereby, a stationary jaw fixed to one of said barrels, a tubular guide mounted in the other of said barrels, a rod shiftable longitudinally of said guide, a jaw carried by said rod and confronting said stationary jaw, diverging contact pieces carried by said jaws, a sleeve rotatable and reciprocable upon said tubular guide, a nut in said sleeve in screwthreaded engagement with said tubular guide, a cap on the inner end of said sleeve, and adjustable means on said rod held between said sleeve and said cap whereby said rod can be adjusted relative to said sleeve.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES RESCHKE.

Witnesses:
OTTO F. BARTHEL,
ANNA M. DORR.