A. FRANSOSI.

MICROMETER CALIPER.

APPLICATION FILED JULY 19, 1916.

1,216,680. Patented Feb. 20, 1917.

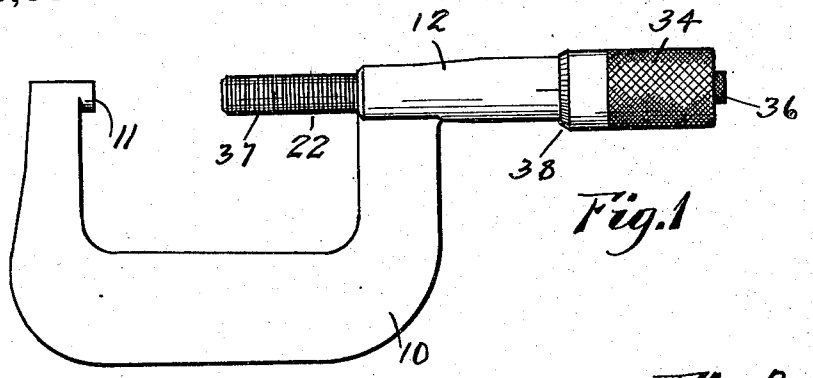


Fig.1

Fig.2

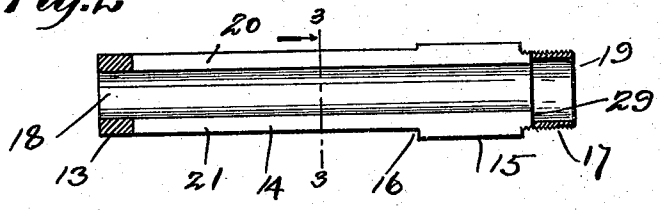


Fig.3

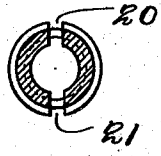


Fig.4

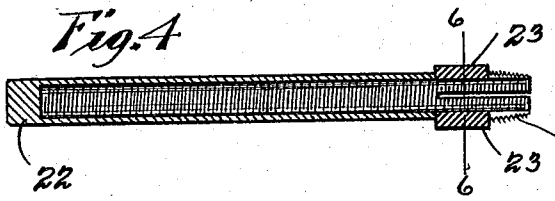
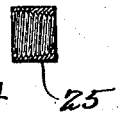


Fig.5



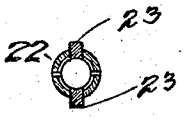
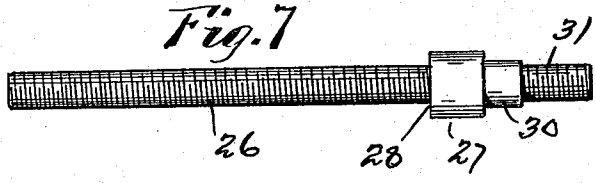


Fig.6

Fig.7



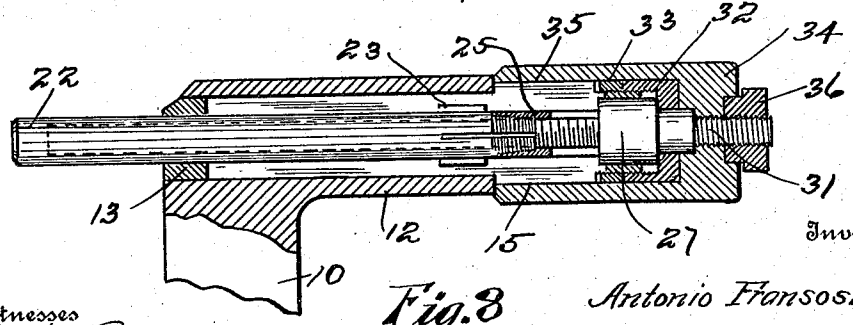


Fig.8

Witnesses

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UNITED STATES PATENT OFFICE.

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MICROMETER-CALIPER.

1,216,680. Specification of Letters Patent. Patented Feb. 20, 1917.

Application filed July 19, 1916. Serial No. 110,255.

To all whom it may concern:

Be it known that I, ANTONIO FRANSOSI, a citizen of the United States, and resident of the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Micrometer-Calipers, of which the following is a specification.

This invention relates to micrometer calipers and has for its object to provide such a caliper that is simple and practical in construction and one which is provided with an extremely long operating stroke.

A further object of the invention is to provide a graduated feed bar which gives the larger readings and a graduated operated handle which gives the finer readings.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings:

Figure 1— is a side elevation of my improved caliper showing the parts assembled and the graduations on the feed bar and handle.

Fig. 2— is a sectional side elevation of the sleeve member.

Fig. 3— is an end view of the sleeve member sectioned on line 3—3 of Fig. 2.

Fig. 4— is a sectional side elevation of the feed bar showing the same interiorly threaded and with its pair of keys to slide in corresponding keyways in the sleeve member.

Fig. 5— is a tapered nut for engaging the correspondingly threaded end of the feed bar for taking up the wear of the thread and tightening the same about the feed screw.

Fig. 6— is a sectional view on line 6—6 of Fig. 4 showing the pair of keys set into the feed bar.

Fig. 7— is a side elevation of the feed screw.

Fig. 8— is an enlarged sectional side elevation showing the operating mechanism.

Referring to the drawings 10 designates the yoke-shaped frame of the caliper, at one end of which is the anvil 11, and at the opposite end is the barrel portion 12 in which the operating mechanism is mounted.

One of the features of my invention is the simplicity in the construction of the operating mechanism and the facility with which the wear of the working parts may be taken up by adjustment.

Another feature is the construction by which the cost of making the parts may be reduced to the minimum. In order to accomplish this I form a sleeve member 13 separate from the barrel portion, which has a body portion 14 turned to fit into the barrel 12. This body portion is provided also with an enlarged bearing portion 15 which performs a double function; first, it provides a shoulder as at 16 for limiting or determining the distance it shall be forced into the barrel portion; second, its outer surface serves as a bearing for the operating handle, presently described, the outer end portion of this sleeve is threaded as at 17.

This sleeve has a central bore 18 extending from its inner end nearly through it and a larger bore 19 extending from the opposite end inward to meet it.

A feature in the construction of this sleeve member is that two opposite slots 20 and 21 are formed longitudinally along the body of the same, in which slide the keys 23 presently described and which slots extend through the body into the middle bore, the same being formed preferably by a rotating saw which passes completely through the sleeve, the corners being squared up after the cut is made. Next a feed bar 22 is fitted to slide in the bore of the sleeve and this bar is provided with two keys 23 which are preferably formed by first slotting the end of the bar and soldering a single block therein and these keys slide in the slots 21 of sleeve 13. Next a hole is drilled lengthwise in the feed bar cutting this block in two thereby forming the two keys 23 as above described. The end portion 24 of this bar is tapered and threaded for the reception of the tapered nut 25 which when screwed onto this end contracts the threaded portion of the bar about the screw to take up wear and prevent lost motion. This feed screw 26 is fitted into the threaded portion of the feed bar and is provided with an enlarged portion 27 which fits into the recess 19 in the sleeve and its shoulder 28 receives its bearings against the shoulder 29 in this enlarged recessed portion. The outer end of this enlarged portion is provided with a smaller

portion 30 and the outer end of this feed screw is threaded as at 31 for the purpose presently described.

In order to lock the feed screw to the sleeve against a relative endwise movement I have provided a nut 32 which screws onto the threaded portion 17 of the sleeve and brings up against a check nut 33 also on this threaded portion 17, whereby the wear on the enlarged portion 27 of the screw against the shoulder 29 may be readily adjusted or taken up and locked in position by the lock-nut 32 so that the micrometer readings will at all times be accurate.

The operating handle 34 is chambered out so as to fit over this locking nut 32 and receive a bearing at 35 on the sleeve on which it may be freely rotated and in order to secure this handle to the feed screw I have threaded the outer portion 31 of the feed screw into the outer end of this handle and have provided a nut 36 threaded onto the extremity of the feed screw, whereby it may be set up against the end of the handle to securely lock the same in position thereon.

It will be noted that the construction of my improved micrometer caliper is extremely simple and inexpensive, is positive in its action and the wear of the operating parts may be readily adjusted and taken up, one of the adjustments being the tapering nut 25 by which the threaded portion of the feed bar may be contracted about the feed screw 26 to compensate for any wear between these members; and second, the nut 32 may be adjusted on the threaded portion 17 of the sleeve to take up any relative endwise movement of the screw and this nut 32 is securely locked in its adjusted position by the check nut 33, thereby insuring accurate reading of the instrument at all times.

Then again by this construction the stroke or opening capacity of the caliper is very great and yet the parts have long bearings to preserve accurate alinement.

In order to provide easy reading for the caliper, I have graduated the outside surface of the feed bar as at 37, see Fig. 1, and I have also graduated the inner beveled end 38 of the operating handle 34.

I have described and illustrated one embodiment of my invention but the details of construction may be varied without departing from the spirit and scope of my invention, the scope of the invention being defined and limited only by the appended claims.

I claim:

1. A micrometer caliper comprising a frame, a barrel portion connected to said frame, a sleeve fitted in said barrel and provided with a longitudinal keyway, a feed bar slidable endwise in said sleeve, and provided with a key engaging said keyway, a feed screw for operating said bar, said screw member being provided with an enlarged shouldered portion for determining the position of said sleeve in the barrel, a wear take up lock nut for securing said screw to said sleeve against a relative endwise motion, and an operating handle secured to said screw.

2. A micrometer caliper comprising a frame, a barrel portion carried thereon, a sleeve fitted in said barrel and provided with a pair of longitudinal slots and an enlarged shouldered portion for determining the position of the sleeve in the barrel, a feed bar slidable endwise in said sleeve, and provided with a pair of keys engaging said slots, a feed screw for operating said bar, said screw member being provided with an enlarged portion shouldered in said sleeve, a take up lock nut for securing said screw to said sleeve against a relative endwise motion, and an operating handle secured to said screw and bearing on said enlarged shouldered portion on said sleeve.

In testimony whereof I affix my signature.

ANTONIO FRANSOSI.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."