

(No Model.)

L. S. STARRETT & C. P. FAY.
MICROMETER GAGE.

No. 411,536.

Patented Sept. 24, 1889.

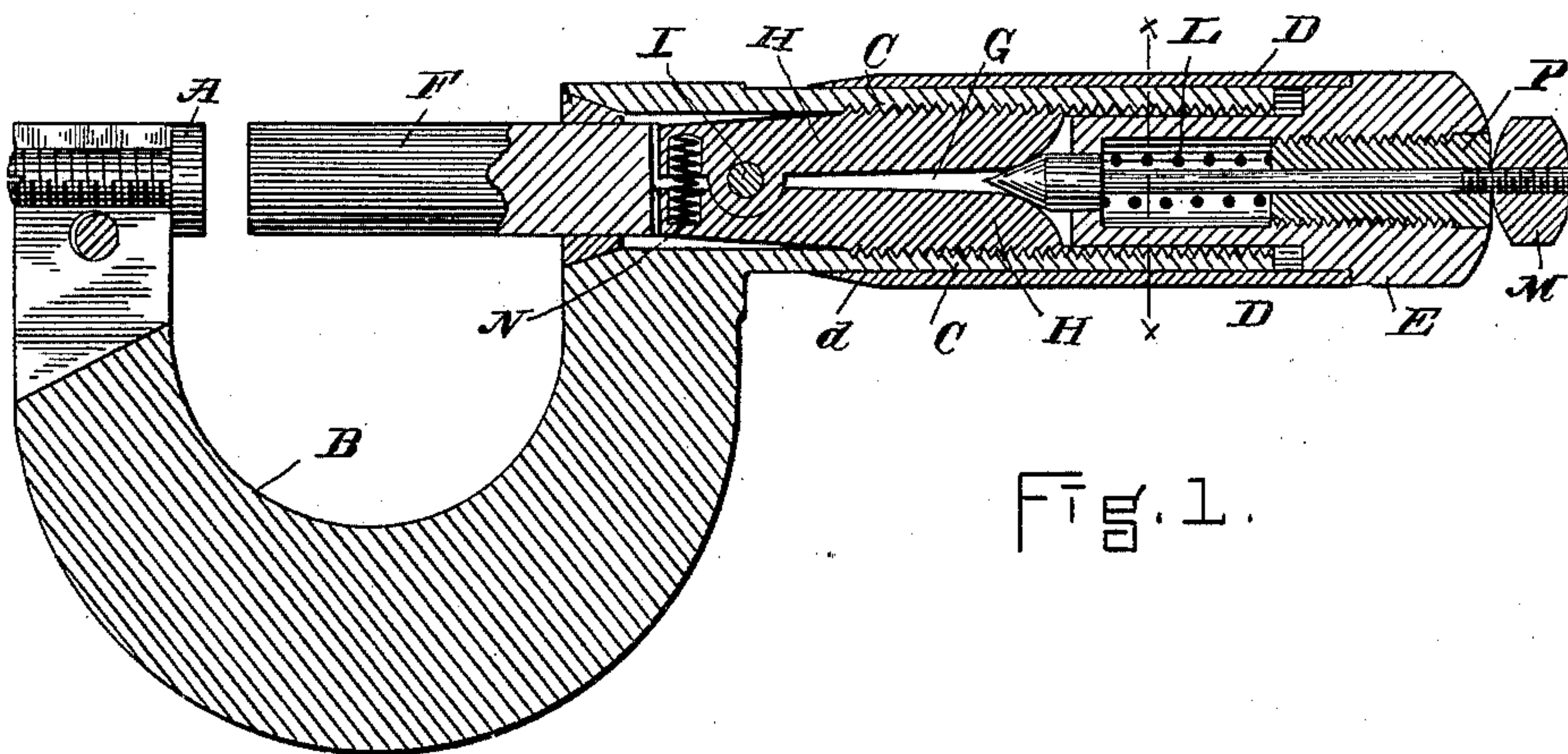


Fig. 1.

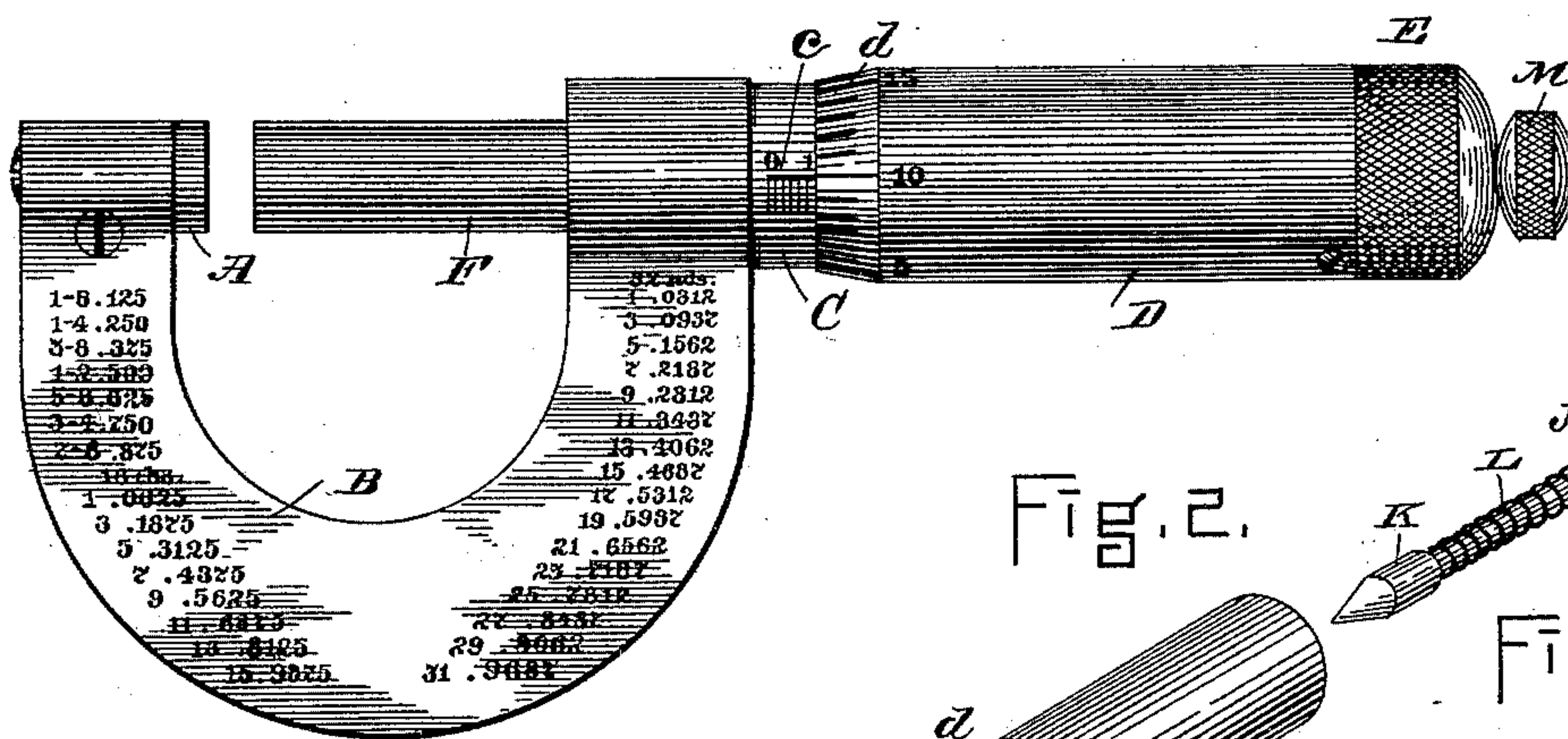


Fig. 2.

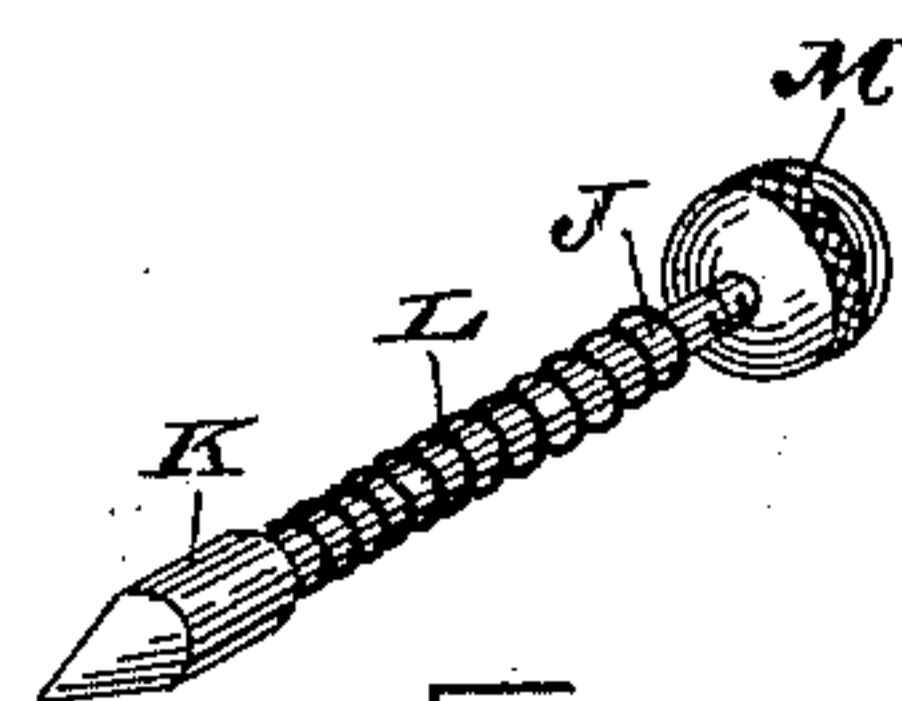


Fig. 3.

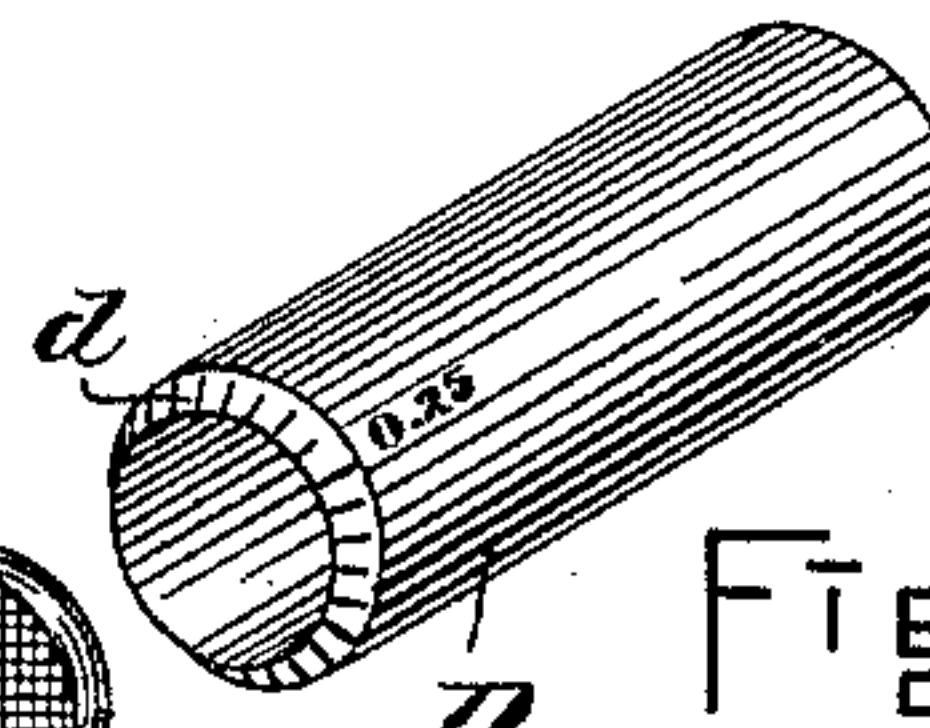


Fig. 4.

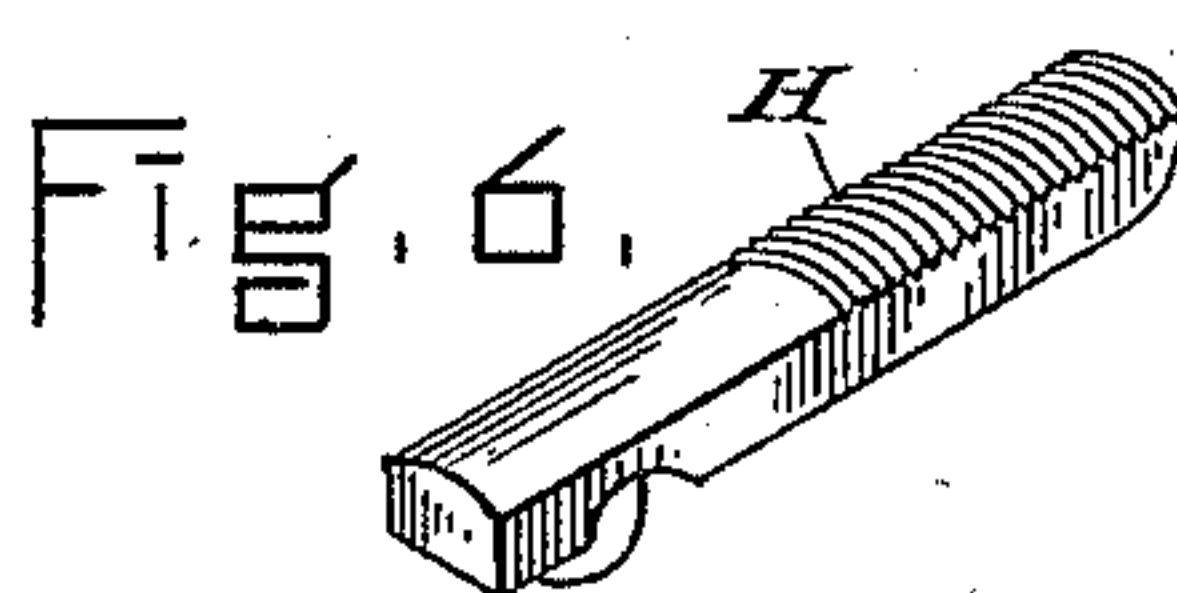


Fig. 6.

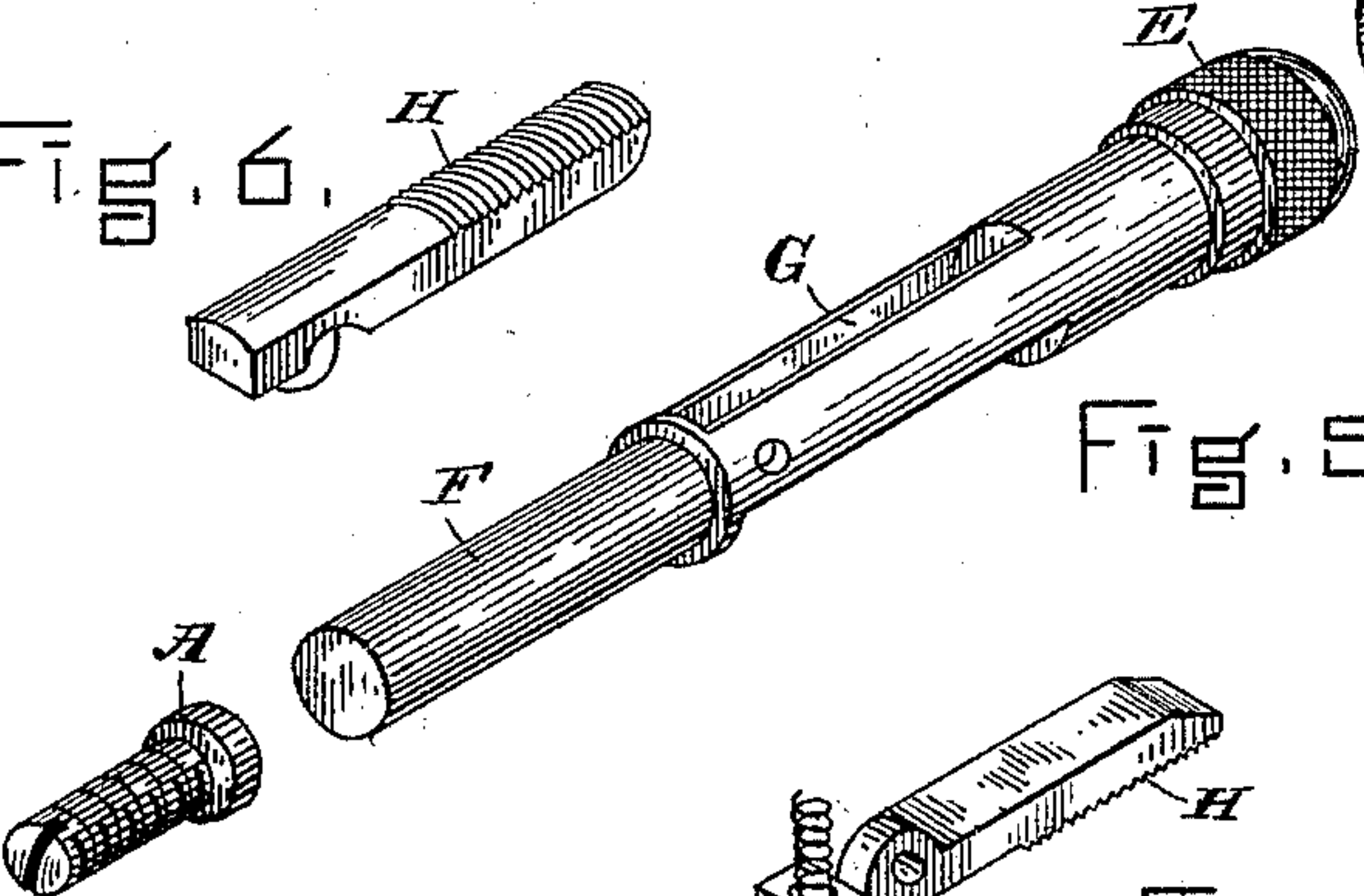


Fig. 5.

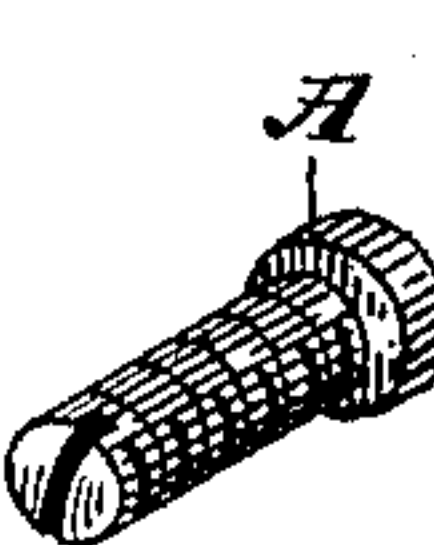


Fig. 8.

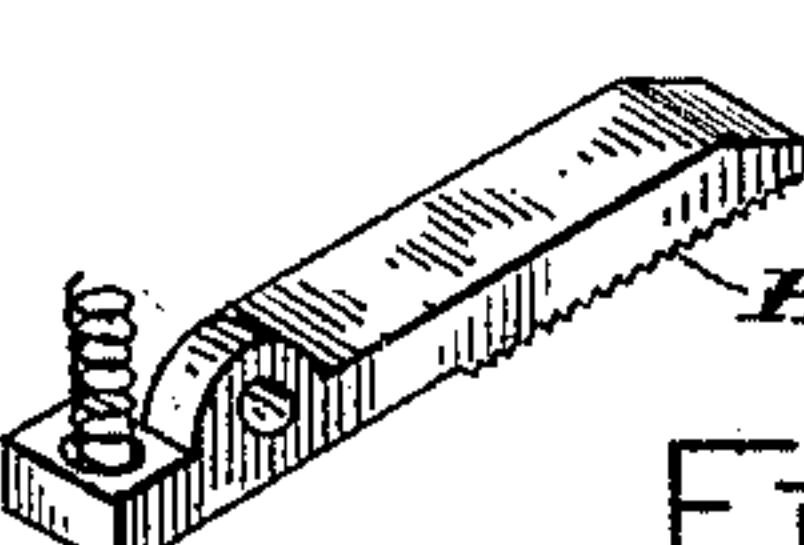


Fig. 7.

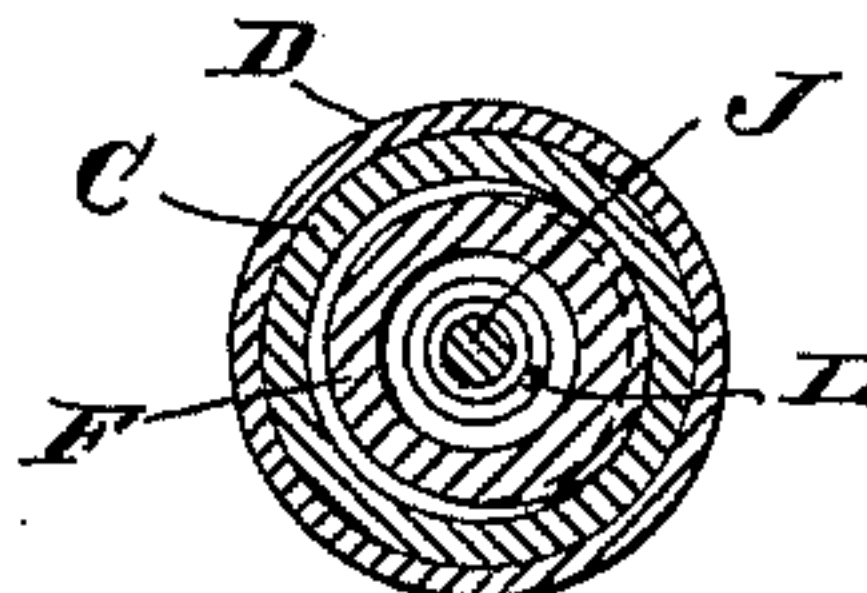


Fig. 9.

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LAROE S. STARRETT AND CHARLES P. FAY, OF ATHOL, MASSACHUSETTS;
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MICROMETER-GAGE.

SPECIFICATION forming part of Letters Patent No. 411,536, dated September 24, 1889.

Application filed May 4, 1889. Serial No. 309,561. (No model.)

To all whom it may concern:

Be it known that we, LAROE S. STARRETT and CHARLES P. FAY, both of Athol, in the county of Worcester and State of Massachusetts, have jointly invented certain new and useful Improvements in Micrometer-Gages, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to the class of finely-graduated measuring-gages in which a threaded spindle has heretofore been made adjustable in respect to its distance from a fixed head by rotation only. With the fine screw-thread required by the nicety of the instruments the longitudinal movement of the spindle is very slow.

It is the object of this invention to speed this movement and to provide for instantaneous adjustment of the spindle over the whole or any part of its axial path.

The barrel or body of the instrument is tubular without longitudinal slots, and is threaded internally to form a stationary nut. The rotary spindle is recessed in its enlarged part within the barrel to receive two pivoted jaws externally threaded, forming the screw. These jaws are pressed outwardly into engagement with the internally-threaded barrel by an axial plunger forced forward between the jaws by a spiral spring, thus automatically making a perfect fit between the screw and nut. These parts are instantly disengaged by withdrawing the plunger from contact with the jaws, which is effected by pressing the thumb and finger between the rotary sleeve and the terminal knob on the outer end of the plunger-rod, whereupon another spring brings the jaws together and releases them from the female thread.

Our invention consists of the devices and combinations of devices herein set forth, and especially referred to in the appended claims.

In the drawings, Figure 1 is an enlarged longitudinal section of our improved micrometer, and Fig. 2 a side view or plan of the same. Figs. 3 to 8 are perspective details, hereinafter described; and Fig. 9, a transverse section on line *x x*, Fig. 1.

A represents the anvil or head of the instrument; B, the usual curved neck, and C the

stationary tubular body or barrel formed integral with such neck, threaded internally, and graduated at *c* in a line of minute fractions of an inch. This barrel is not split or slotted longitudinally, as is customary in similar cases, and hence a material advantage is gained by the absence of such openings, through which dust, emery, and other foreign matters commonly work into the screw-threads, causing inaccuracy and clogging the movement.

Outside of the fixed barrel C is the rotating sleeve D, beveled at its inner end and graduated peripherally, as at *d*, in the usual way. The outer end of this sleeve is secured to the milled head E of the rotary spindle F, so that said parts revolve together, the spindle passing through and turning within the barrel C and the sleeve D revolving outside of it. The middle portion of the spindle has a recess G entirely through it, as in Figs. 1 and 5, and in this recess we pivot the two externally-threaded jaws H, which constitute an adjustable screw adapted to engage with the internal threads of the stationary barrel C or to be disengaged therefrom by the operator. The pivot J, which unites said jaws and connects them to the spindle, is near their unthreaded end. A plunger K, extending in axially from the outer end of the spindle, is pressed between the diverging ends of the jaws H by a coiled spring L, such pressure holding the jaws apart, with their threaded surfaces engaging with the threaded interior of the barrel and the instrument in condition for use by rotary movement of the spindle.

To disengage the jaws and permit adjustment by a quick sliding movement, the plunger-rod J is prolonged through and beyond the head E of the spindle and furnished with a knob M, by which the plunger may be withdrawn slightly against the resistance of the spring L. Such withdrawal leaves the jaws free to come together at the axis of the barrel C—a movement which is insured by the employment of a short spring N, placed transversely between and compressed by the short ends of the jaws beyond their pivot I. This latter spring is of less power than the one which acts to press the plunger forward, so

that under ordinary conditions of use the plunger keeps the jaws expanded and engaged with the threaded barrel. Disengagement is readily effected by pressing the thumb and finger between the head E and knob M. The plunger-rod runs through a screw-plug P, which may be screwed more or less into the head E to vary tension of the spring L, which bears against it.

10 We claim as our joint invention—

1. In a micrometer-gage, the combination of an internally-threaded barrel and the rotary spindle provided with a pair of hinged and externally-threaded jaws, substantially as and 15 for the purpose set forth.

2. In a micrometer-gage, an internally-threaded barrel, a revolving sleeve, and a rotary spindle provided with a recess, in combination with a split screw formed of two pivoted adjustable jaws located in said recess, 20 for the purpose set forth.

3. In a micrometer-gage, a solid internally-threaded barrel graduated externally and a

revolving sleeve beveled and peripherally graduated at its inner end, in combination 25 with a rotary spindle carrying two adjustable screw-threaded jaws working within said barrel, and a plunger adapted to connect and disconnect such threaded parts, substantially as set forth. 30

4. In a micrometer-gage, the stationary anvil and threaded graduated barrel with the revolving spindle and sleeve, in combination with the screw-threaded spring-actuated jaws pivoted on said spindle, and the axially- 35 moving plunger with its terminal knob, for the purpose set forth.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, on this 6th day of 40 April, A. D. 1889.

LAROE S. STARRETT.
CHARLES P. FAY.

Witnesses:

HENRY R. VAILLE,
HENRY M. BURLEIGH.