

(No Model.)

J. P. B. WELLS.

MICROMETER GAGE.

No. 373,705.

Patented Nov. 22, 1887.

Fig. 1

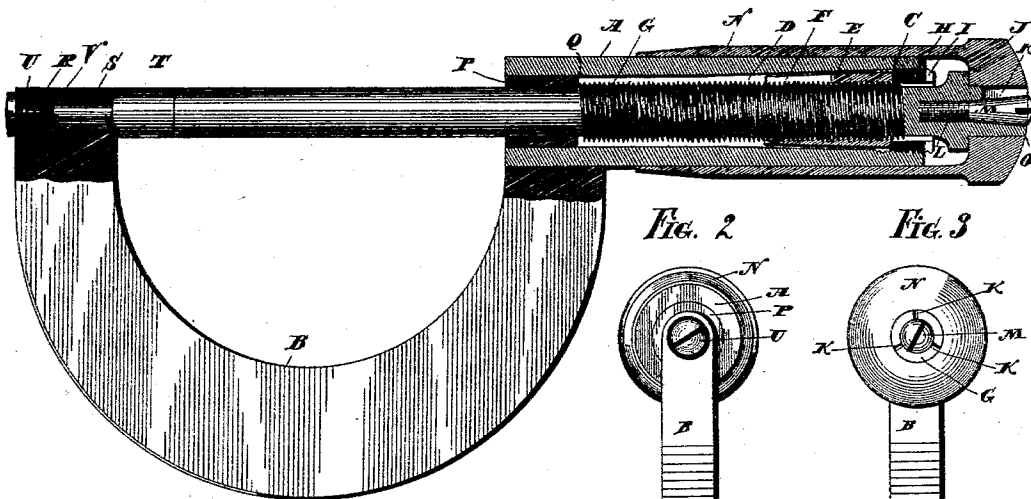


Fig. 2

Fig. 3

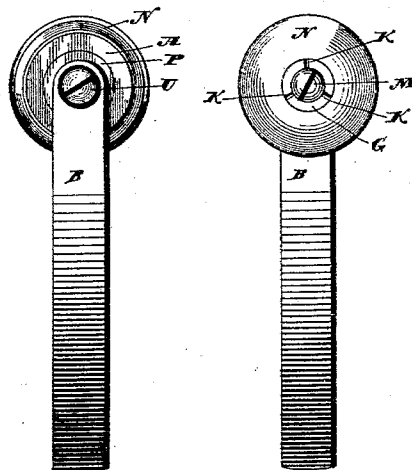


Fig. 4

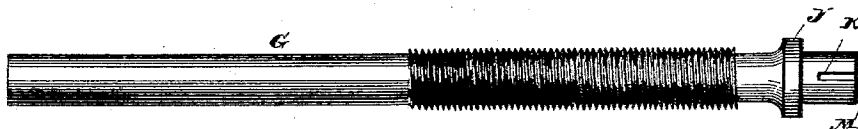


Fig. 5

Fig. 6

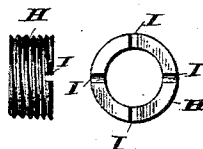
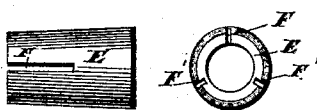


Fig. 7



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JOHN PERU BRICE WELLS, OF THOMASTON, CONNECTICUT.

MICROMETER-GAGE.

SPECIFICATION forming part of Letters Patent No. 373,705, dated November 22, 1887.

Application filed January 17, 1887. Serial No. 224,514. (No model.)

To all whom it may concern:

Be it known that I, JOHN PERU BRICE WELLS, residing at Thomaston, in the county of Litchfield and State of Connecticut, have
5 invented certain new and useful Improvements in Micrometer-Calipers; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which form a part of
10 this specification.

My invention relates to an improvement in micrometer-calipers, the object being to produce an instrument adapted to compensate for wear without disturbing its graduations, and
15 to be easily and quickly adjusted, available for a wide range of precise measurements, and combining simplicity of construction with durability and general efficiency in use.

With these ends in view my invention consists in certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view, partly in elevation and partly in central longitudinal section, of one form which my improvement may assume. Fig. 2 is a view
25 thereof looking toward the outer end of the micrometer sleeve. Fig. 3 is a similar view from the opposite end of the instrument. Fig. 4 is a detached view of the measuring-screw. Fig. 5 is a similar view showing the independent nut in side and in end elevation. Fig. 6 is a similar representation of the adjusting-nut, and Fig. 7 is a view of the tapering binding screw.
35

As herein shown, the barrel A, having the usual graduation and vernier, is made integral with the bow B and provided at its outer end with interior screw-threads, C, and with a
40 smooth conical or tapering chamber, D, extending inward on a decreasing taper from such threads. An interiorly-threaded tapering nut, E, provided in its smaller end with a slit, F, and two deep grooves, F' F', is located in the said conical chamber with its
45 smaller end in the smaller end thereof, and receives the measuring-screw G, to which it conforms in threading. An exteriorly-threaded adjusting-nut, H, having a smooth
50 bore through which the said measuring-screw passes and provided in its outer face with slots

I for turning it, is located in the outer end of the barrel, where it engages with the threads C thereof and abuts against the outer and larger end of the tapering nut aforesaid. The
55 outer end of the measuring-screw G is turned to form a shoulder or seat, J, split longitudinally, as at K K K, to make it expansible, and tapped, as at L, to receive a tapering binding-screw, M, by which it is expanded. 60
The micrometer-sleeve N, fitting over and revolving upon the barrel A, is provided at its open end with the usual graduation and at its outer or opposite end with a cap made in one piece with it and having an opening, O, receiving the tapering binding-screw M, which
65 holds the said cap against the shoulder or seat J of the measuring-screw and expands the split end of the same into such opening, whereby a friction-coupling between the said sleeve and measuring-screw is secured. A hardened
70 annular steel bushing, P, fits into a suitable recess, Q, formed in the inner end of the barrel, and forms the forward bearing for the measuring screw, which has its rear bearing
75 in the tapering nut located in the barrel, as aforesaid. The outer end of the bow is provided with a cylindrical chamber, R, open at both ends and receiving the shank S of an anvil, T, located in line with the measuring-
80 screw and abutting against the inner face of the bow, where it is held by a retaining screw, U, entering the outer end of the shank, which is thereto drilled, as at V, and engaging with the outer face of the bow, the said shank being
85 considerably smaller in diameter than the anvil and fitting closely into the chamber R aforesaid.

Under my invention any wear of the calipers or measuring-screw is compensated for by contracting the threaded nut-bearing. This is
90 done by turning in the adjusting-nut, whereby the tapering nut is forced inward against the tapering walls of its chamber, which close it onto the screw, the described mode of slitting
95 and grooving the tapering nut preserving the alignment of its threads and making it very responsive under pressure. It is to be noted that this compensation for wear occurs entirely in a nut made independent of the barrel, which therefore is not disturbed in its
100 scaling, and, moreover, that the means of com-

pensation are protected against being started in using the instrument.

By making the measuring-screw and micrometer-sleeve relatively movable the respective graduations of the latter and the barrel may be readily brought into correct relations when wear in the instrument has caused their divergence by loosening the tapering binding-screw and, after running the measuring-screw to the anvil, turning the micrometer-sleeve until its zero-line exactly coincides with that of the barrel. The tapering binding-screw is then turned to couple the sleeve and measuring-screw again. Being independent of the sleeve, the measuring-screw may be readily removed and refaced when worn, or it may be discarded and replaced.

By providing the anvil with a shank smaller than it in diameter and holding it in place by a retaining-screw entering the outer end of such shank, which closely fits into an open chamber in the bow of the instrument, I am enabled to secure the anvil in place without the formation at the end of the bow of the enlargement ordinarily required at that point and interfering with the use of the instrument and limiting the range of the application thereof.

It will thus be seen that no compensation of the tool for wear affects its graduations and that the movability of the sleeve with reference to the barrel enables a restoration of the scales to right relation if they have been relatively disturbed by wear of the movable parts of the tool, and particularly of the measuring-screw.

If desired, the independent nut located in the barrel may assume other forms than that herein shown. Thus it may be made cylindrical and contracted by a nut located upon it. I would therefore have it understood that I do not limit myself to the exact construction and arrangement of parts herein shown and described, but hold myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A micrometer-caliper having a barrel, a micrometer-sleeve, a measuring-screw, an independent contractile nut located in the barrel and threaded to receive the screw, and an adjusting-nut, also located in the barrel and arranged to operate the contractile nut, substantially as set forth.

2. A micrometer-caliper having a barrel provided with an interior tapering chamber, a movable contractile taper nut having its outer face smooth throughout its length, located entirely within such chamber, and threaded to receive the measuring-screw of the instrument, and means for operating such nut, substantially as set forth.

3. A micrometer-caliper having a barrel provided with an interior tapering chamber, a micrometer-sleeve, a measuring-screw, a contractile taper nut located in such chamber and threaded to receive the screw, and an adjusting-screw threaded into the barrel and engaging with the taper nut for contracting it, substantially as set forth.

4. A micrometer-caliper having an independent nut located in its barrel and threaded to receive its measuring-screw, and provided with one or more slits and one or more deep grooves to permit its contraction, substantially as set forth.

5. In a micrometer-caliper, the combination, with a measuring-screw provided at its outer end with a shoulder, of a sleeve seated upon such shoulder and extending forward toward the bow of the instrument, and a binding-screw passing through the outer end of the sleeve and into the outer end of the screw and normally coupling them rigidly together and unscrewed for loosening or uncoupling them for their relative adjustment to correct the instrument, substantially as set forth.

6. A micrometer-caliper having a barrel, a micrometer-sleeve, a measuring-screw shouldered, split, and drilled at its outer end, the micrometer-sleeve resting against its shoulder, and a tapering screw passing through the outer end of the sleeve and entering the drilled end of the screw, which it expands to couple the same and the sleeve together, substantially as set forth.

7. A micrometer-caliper having a barrel, a micrometer-sleeve, a measuring-screw, an independent nut located in the barrel and threaded to receive the screw, and a hardened steel bushing mounted in the barrel and forming the forward bearing of the measuring-screw, substantially as set forth.

8. A micrometer-caliper having an anvil provided with a shank smaller than it in diameter and closely fitting into an open chamber in the bow of the instrument, and a retaining-screw entering the outer end of such shank and engaging with the outer face of the bow, the inner face of which is engaged by the anvil, substantially as set forth.

9. A micrometer-caliper having a bow, a barrel, a micrometer-sleeve, a measuring-screw, an anvil provided with a drilled shank of smaller diameter located in the bow in line with the measuring-screw, and a retaining-screw entering the said drilled shank of the anvil and engaging with the outer face of the bow, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN PERU BRICE WELLS.

Witnesses:

JOHN FRANCIS JENKS, Jr.,
FRANK W. ETHERIDGE.