No. 676,637. Patented June 18, 1901.

F. SPALDING.

MICROMETER CALIPERS.

(Application filed Feb. 9, 1900.)

(No Model.)

Fig. 1.

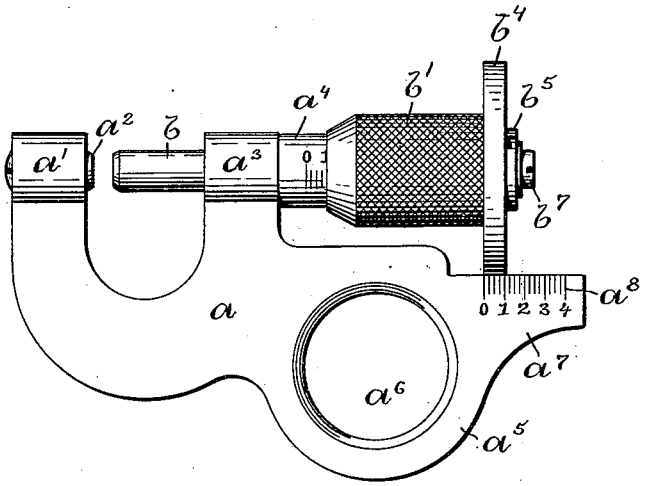


Fig. 2.

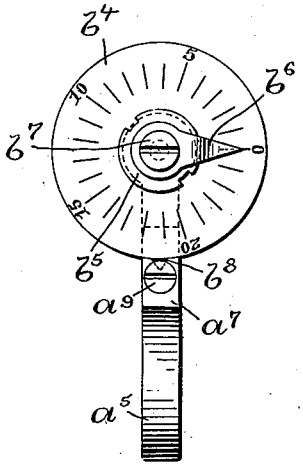


Fig. 3.

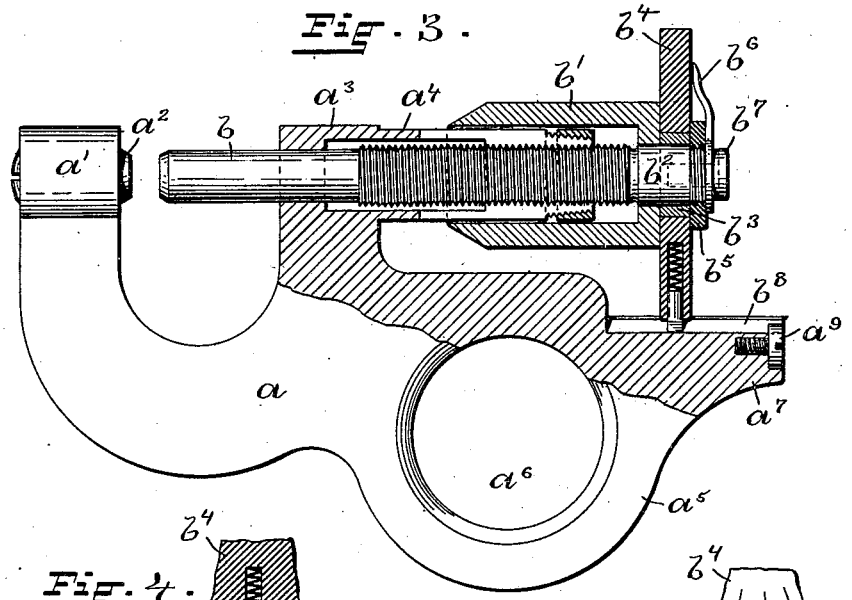


Fig. 4.

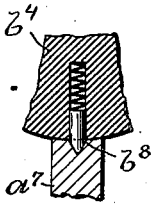
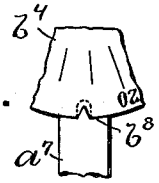


Fig. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

FRANK SPALDING, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO BROWN & SHARPE MANUFACTURING COMPANY, OF SAME PLACE.

MICROMETER-CALIPERS.

SPECIFICATION forming part of Letters Patent No. 676,637, dated June 18, 1901.

Application filed February 9, 1900. Serial No. 4,656. (No model.)

To all whom it may concern:

Be it known that I, FRANK SPALDING, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Micrometer-Calipers, of which the following is a specification.

The invention relates to an improvement in instruments used for measuring sheet metal, wire, and other articles by calipering; and it consists in the peculiar and novel construction whereby micrometric measurement is secured, as will be more fully set forth hereinafter.

The object of this invention is to facilitate the reading of micrometer-calipers adapted to measure the thickness of sheet metal or other articles.

Figure 1 is a side view of my improved micrometer-calipers. Fig. 2 is an end view of the same. Fig. 3 is a sectional view of the calipers, showing the dial supported on the spindle and held against rotation with the spindle. Fig. 4 is a sectional view of part of the frame and an adjacent part of the dial, showing the preferred means for holding the dial against rotation. Fig. 5 is a sectional view of part of the dial and the adjacent part of the frame, showing a modified form of connection between the two.

In the drawings, a indicates the frame of the calipers, having the usual U-shaped opening, on one side of which the arm a' supports the anvil a^2 and on the other side of which the arm a^3 supports the internally-screw-threaded barrel a^4, with which the screw-threaded spindle b is in screw-thread engagement.

The frame a is provided with the handhold a^5, having the hole a^6 and the arm a^7, along the upper margin of which the graduated index a^8 indicates decimal fractions of a standard of measurement. The barrel a^4 may be graduated to correspond with the index a^8.

The spindle b, which is in screw-thread engagement with the internally-screw-threaded portion of the barrel a^4, has rigidly secured to it the sleeve b', the cylindrical portion of which is knurled to facilitate the rotation of the sleeve. The collar b^3 loosely fits the cylindrical portion b^2 of the spindle. The dial b^4 is mounted on the collar b^3 and held between the end of the sleeve b' and the nut b^5 in screw-thread engagement with the spindle b. The pointer b^6 is secured to the end of the spindle b by the screw b^7 and rotates with the same.

The dial b^4 is held against rotation by connecting the same with the way b^8 on the arm a^7 of the frame in any manner by which the dial is free to move longitudinally with the spindle b without rotating the same.

In the manner shown in Figs. 3 and 4 a spring-pressed post inserted into a hole in the peripheral portion of the dial enters with its pointed end a V-shaped groove in the way b^8, and, as shown in Fig. 5, a spline on the way b^8 enters a groove in the periphery of the dial. This spline may be V-shaped, as shown in solid lines, or have parallel sides, as is indicated in broken lines in Fig. 5.

The head of the screw a^9, secured in the end of the arm a^7, forms a stop by which the outward movement of the dial b^4 is limited.

In the drawings the calipers are shown as indicating a measurement of one-tenth of an inch or other unit of measurement. The end of the sleeve b' is at "1" of the index on the barrel a^4, and the forward edge of the dial is at "1" of the index on the arm a^7 of the frame a. The spaces between the lines of the indexes marked by numerals are divided by shorter lines into four spaces, each indicating one-fourth of the distance between the lines indicated by numerals. The pitch of the screw on the spindle b is such that at each complete revolution of the spindle the sleeve and the dial will move longitudinally a distance equal to twenty-five one-thousandths of an inch or any other standard of measurement. The dial b^4 is divided into twenty-five parts, and as the pointer b^6 turns with the spindle b the pointer indicates every one-thousandth of an inch of the measurement of the spindle and may be easily read on the dial, which is of comparatively large diameter.

In use when measuring plates the dial is in full view, so that thousandths may easily be read.

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

1. In micrometer-calipers, a dial supported on and moving longitudinally with the spin-

dle, means for holding the dial against rotation with the spindle, and a pointer secured to and rotating with the spindle and indicating on the flat face of the dial, as described.

2. In micrometer-calipers, in combination, a frame, an internally-screw-threaded barrel, and a graduated index on the frame, a spindle in screw-thread engagement with the barrel, a sleeve secured to and rotating with the spindle, a dial journaled on and carried longitudinally with the spindle, means for holding the dial against rotation, and a pointer secured to and turning with the spindle, whereby the rotation of the spindle is indicated on the dial, as described.

3. In micrometer-calipers, the combination with the frame a provided with the barrel a^4 and the arm a^7, the spindle b in screw-thread engagement with the barrel a^4, and the sleeve b' secured to and rotating with the spindle, of the collar b^3 on the unthreaded portion of the spindle, the dial b^4 rotatably mounted on the collar, the nut b^5 in screw-thread engagement with the spindle, the pointer b^6 secured to and rotating with the spindle, and a connection between the dial and the arm a^7 on the frame, whereby the dial is moved longitudinally with the spindle and the rotation of the spindle is indicated on the dial, as described.

4. In micrometer-calipers, a non-rotatable dial supported on and moving longitudinally with the spindle and a pointer secured to and rotating with the spindle and indicating on the flat face of the dial, as described.

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

FRANK SPALDING.

Witnesses:
J. A. MILLER, Jr.,
B. M. SIMMS.