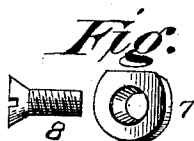
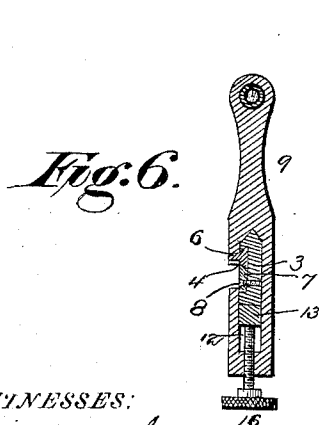
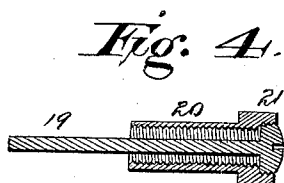
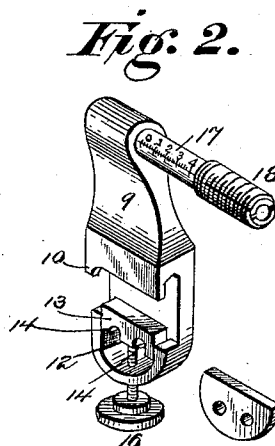
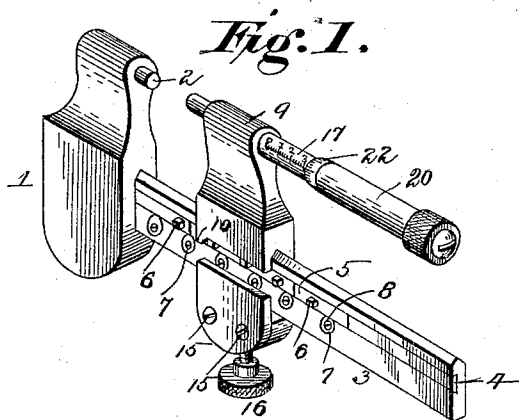


(No Model.)

E. C. CLAPP.
MICROMETER.

No. 468,642.

Patented Feb. 9, 1892.



WITNESSES:
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UNITED STATES PATENT OFFICE.

EDWARD CLIFTON CLAPP, OF ATHOL, MASSACHUSETTS.

MICROMETER.

SPECIFICATION forming part of Letters Patent No. 468,642, dated February 9, 1892.

Application filed May 11, 1891. Serial No. 392,352. (No model.)

To all whom it may concern:

Be it known that I, EDWARD CLIFTON CLAPP, a citizen of the United States, and a resident of Athol, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Micrometers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in measuring-instruments of that class known as "micrometers," by means of which measurements may be made with great exactness.

The object of the invention is to provide an instrument of the above character in which the head-stock carrying the micrometer-screw is movable upon a graduated beam, so that it can be readily and quickly adjusted to varying lengths of articles to be measured, said lengths being indicated by the graduated beam.

The invention consists in the novel construction and combination of parts hereinafter fully described, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a measuring-instrument constructed in accordance with my invention. Fig. 2 is a perspective view of the movable head-stock detached, the spindle and screw-threaded sleeve being removed. Fig. 3 is a sectional view of the hollow split tube. Fig. 4 is a sectional view of the spindle and sleeve on a slightly-reduced scale. Fig. 5 is a detail view of one of the beam-studs and its securing-screw. Fig. 6 is a cross-section of the instrument taken through the movable head-stock.

In the said drawings the reference-numeral 1 designates a head-stock having a stud 2 at its upper end and secured near its lower end to the beam 3. This beam is provided with a longitudinal dovetailed groove 4, in which is inserted a series of correspondingly-shaped bars or plates 5, having outwardly-projecting lugs or stops 6. These stops are arranged at equal distances apart—say half-inches—and the beam is provided with characters indicat-

ing the distance of said stops from the fixed head-stock. The plates 5 are movable in the groove, so as to compensate for wear, and are held in place by the studs 7, set in recesses in the beam and having central recesses, through which pass binding-screws 8. These studs have a portion of their peripheries flattened to engage with the plates, as seen in Fig. 5.

The numeral 9 designates the movable cross-head, having an opening corresponding in shape with the beam which passes there-through, so that said cross-head can be reciprocated thereon. The face of the cross-head is also cut away, as shown, leaving a downwardly-depending shoulder 10, which engages one of the lugs or stops 6. The lower part of the cross-head is also provided or formed with a chamber 12, in which is located a vertically-movable plate 13, having transverse grooves 14 14, through which pass pins 15 15. Through the lower end of the cross-head passes a set-screw 16, which engages with the plate 13, and by means of which the latter may be adjusted vertically. The object of the grooves 14 14 is to allow the plate 13 to be moved or adjusted without interfering with the pins 15.

In the upper part of the cross-head 9 is secured a hollow tube 17, having its outer end split and formed with a number of micrometer screw-threads 18. The exterior of this tube intermediate of its ends is provided with a number of parallel graduations, as is usual in this character of instruments. Passing through this tube is a spindle 19, upon the outer end of which is mounted a sleeve 20, having a milled head 21. The interior of this sleeve is formed with a series of screw-threads corresponding with those on the tube 17. The periphery of the sleeve is provided with a series of indicating characters 22, as usual.

The outer end of the hollow tube 17 is interiorly screw-threaded to receive a hollow plug 23, having an angular shoulder 24, by means of which the split ends of said tube may be forced outward to compensate for wear.

The operation will be readily understood. The movable cross-head is adjusted by loosening the screw 16 and moving it upon the beam the proper distance to receive the article to be measured, with the shoulder 10 rest-

ing against one of the stops 6, as seen in Fig. 1. The screw is then tightened, whereby said head-stock is securely held in place and the article to be measured is inserted between the head-stocks. By means of the graduations on the beam the distance between the stud 2 on the stationary head-stock and the movable head-stock can be readily ascertained, and in connection with the spindle and micrometer-screw the length of the article can be measured with great exactness and accuracy.

Having thus described my invention, what I claim is—

1. In a measuring-instrument, the combination, with the stationary head-stock, the beam secured thereto, having a dovetailed groove, and the removable plates seated in said grooves, having projecting lugs or stops, of the movable head-stock mounted on said beam and provided with a shoulder, substantially as described.

2. In a measuring-instrument, the combination, with the head-stock and the graduated beam secured thereto, of the movable head-stock having an opening therethrough for the passage of the beam, cut away on its face, and provided or formed with a depending shoulder, the vertically-movable plate located in a chamber in the lower end of said head-stock, the set-screw, and the projecting lugs or stops on the beam adapted to engage with said depending shoulder, substantially as described.

3. In a measuring-instrument, the combi-

nation, with the head-stock and the graduated beam secured thereto, having a longitudinal groove, of the movable head-stock having an opening therethrough for the passage of the beam, cut away on its face, and provided with a depending shoulder, the movable plates located in the groove in the beam and having projecting lugs or stops, the studs having a portion of the periphery flattened and having central apertures, and the screws for securing said studs in recesses in the beam, substantially as described.

4. In a measuring-instrument, the combination, with the head-stock and the graduated beam secured thereto and having a longitudinal groove and a series of movable plates with projecting stops, of the movable head-stock having an opening therethrough to receive the beam and cut away on its face and provided with a depending shoulder, the vertically-movable plate located in a chamber in said head-stock, having transverse grooves therein, the transverse pins passing through the head-stock, and the set-screw for adjusting said plate, substantially as described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

EDWARD CLIFTON CLAPP.

Witnesses:

FREDERICK CLAPP,
EMMA M. WILSON.