

C. J. BANKS.
MICROMETER.

(Application filed July 5, 1899.)

(No Model.)

Fig. 4.

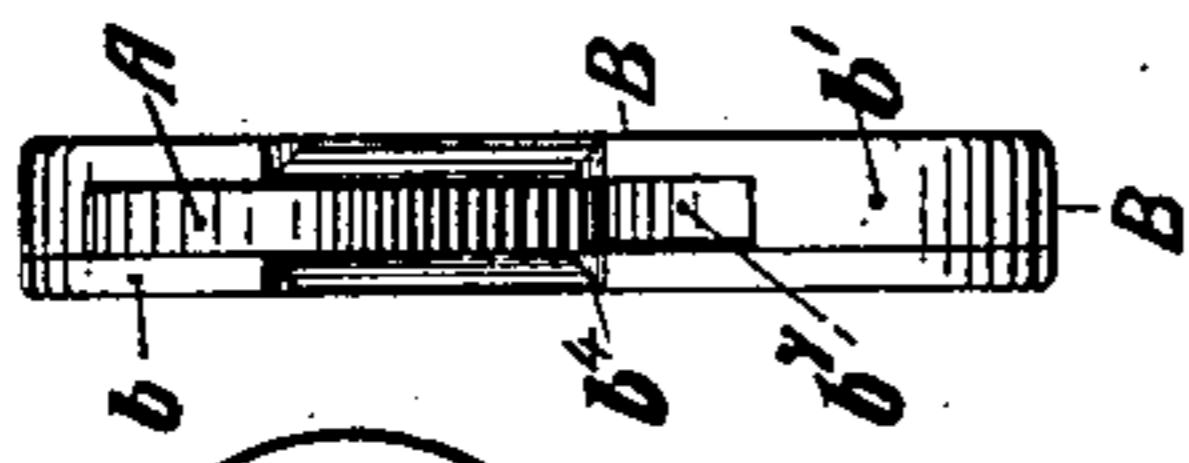


Fig. 5.

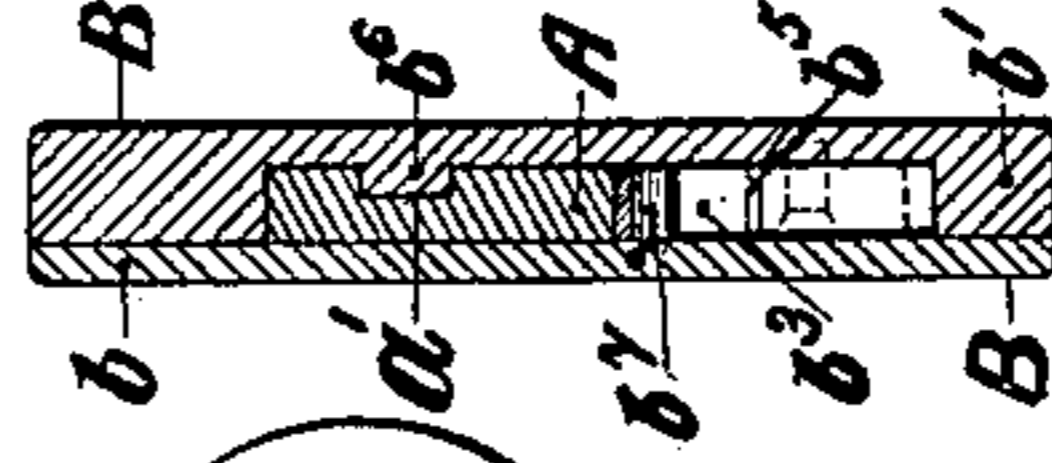


Fig. 1.

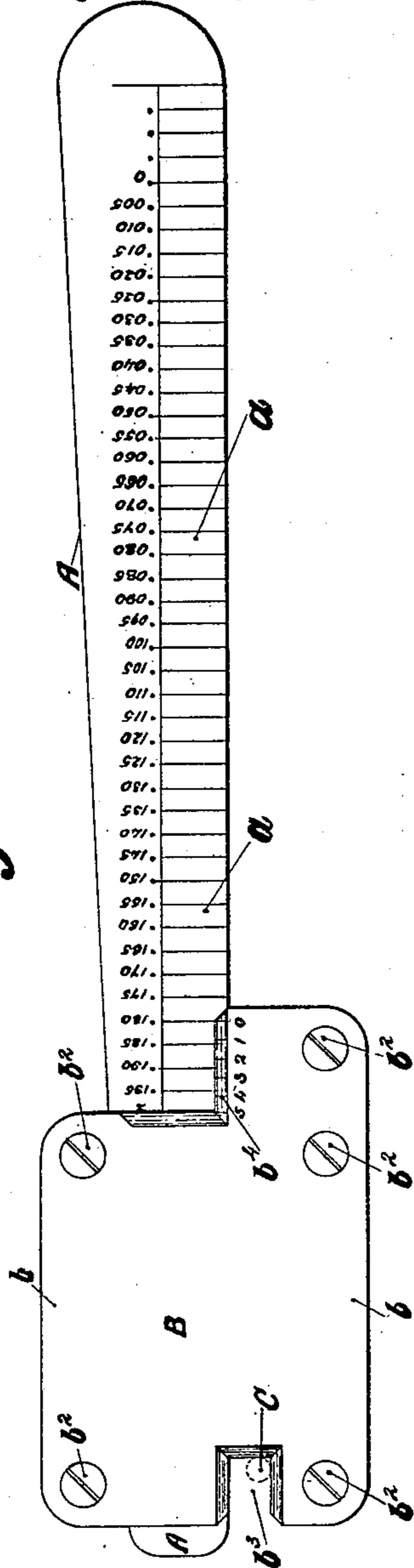


Fig. 2.

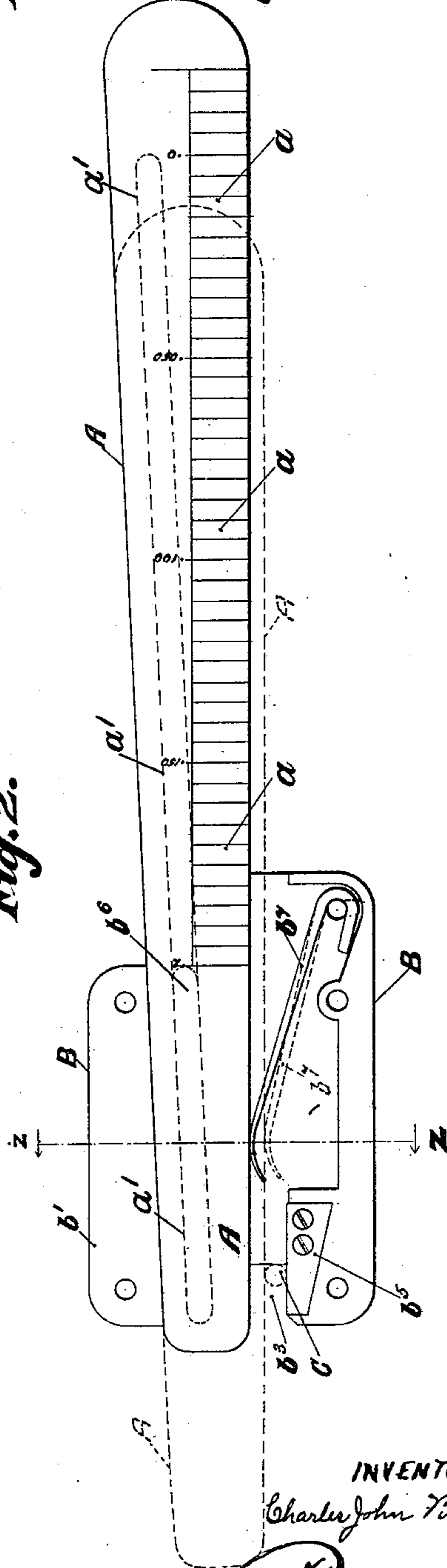
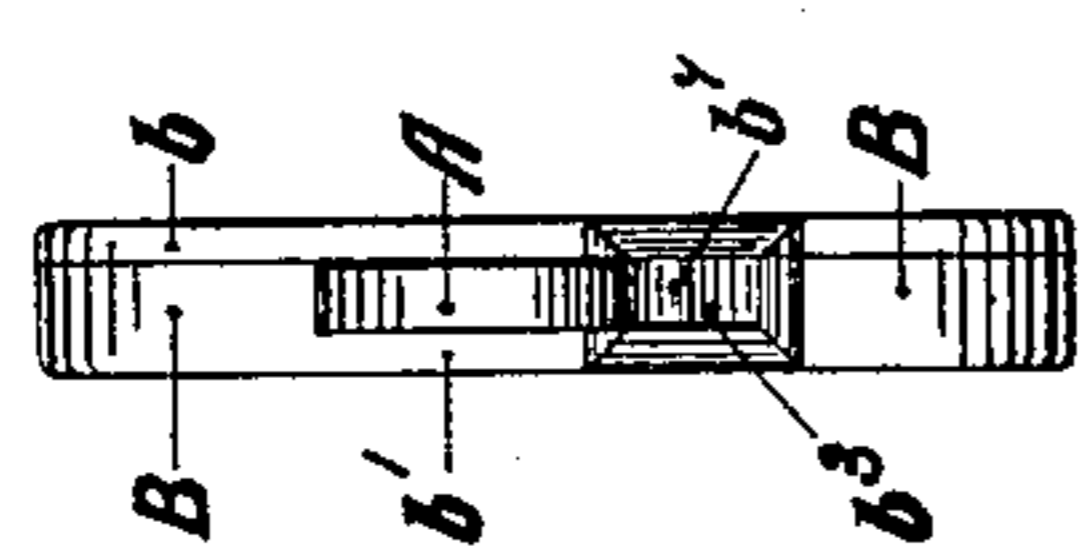


Fig. 3.



WITNESSES:

Ella L. Giles.

Oldman

INVENTOR

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UNITED STATES PATENT OFFICE.

CHARLES JOHN BANKS, OF WASHINGTON, ENGLAND.

MICROMETER.

SPECIFICATION forming part of Letters Patent No. 706,148, dated August 5, 1902.

Application filed July 5, 1899. Serial No. 722,856. (No model.)

To all whom it may concern:

Be it known that I, CHARLES JOHN BANKS, a subject of the Queen of Great Britain and Ireland, and a resident of Washington, in the county of Durham, England, have invented a certain new and useful Improved Micrometer, (for which I have applied for a patent in Great Britain under No. 26,426, dated December 14, 1898,) of which the following is a specification.

This invention relates to micrometers or instruments for gaging certain sizes of small objects or articles, such as the diameter of wire.

The micrometers generally used at present are of the screw type; but they possess disadvantages in the way of manipulation and reading which tend to inaccuracy, while their somewhat complex construction renders them costly to produce.

The object of my invention is to provide a micrometer or gage that can be cheaply manufactured, easily handled, and read directly or without recourse to mental calculation.

An instrument embodying my invention consists, essentially, of a tapered bar and a frame having a correspondingly-inclined surface for coacting therewith, the arrangement being such that between the bar and frame a space intervenes which is gradually increased or diminished on the movement of either, whereby any object placed therein is gaged and its measurement shown by a convenient scale or scales on one or both parts.

As will be obvious, my invention may be carried into practice by various constructions; but the construction that I prefer and find to attain my object very advantageously is shown in the accompanying drawings, in reference to which I will fully describe my invention.

In the drawings, Figure 1 is a side elevation of a complete micrometer, and Fig. 2 is a similar view with a part hereinafter described removed. Figs. 3 and 4 are end elevations at the left and right hand ends of Fig. 1, respectively; and Fig. 5 is a transverse section on the line Z Z in Fig. 2 looking to the left.

In the figures, A designates a bar or rule, and B an open-ended frame, box, casing, or

guide adapted to slide thereon or permit reciprocation of the bar A in or upon it. To permit these movements, the frame B is constituted by two plates b b' , the former being plain, whereas the other is fashioned or recessed, as shown, to receive the bar A, which is retained in place by fixing both the plates together by screws b^2 b^2 . The plate b is the part before alluded to as removed in Fig. 2. The upper edge of the bar A is tapered or inclined longitudinally and the lower edge made horizontal, whereat an appropriate scale a is furnished. The upper and lower inner edges or surfaces of the frame B—that is to say, of the recess in its plate b' —are shaped to correspond with the respective edges of the bar A, and they are at a distance apart equal to or about the same as the greatest height or width of the bar or rule A. These features are clearly represented in Figs. 1 and 2.

At one end of the frame B and commencing at its lower inner edge a notch or gap b^3 is made in the plates b b' , forming the sides or lateral walls thereof, while at the other end the lower portion of both these plates or walls is extended, and on that part adjacent to the scale a a vernier-scale b^4 is provided. For symmetry and greater accuracy I prefer to extend both the plates b b' , as specified, though the plate b may only be so prolonged.

In Figs. 2 and 5 I show a plate b^5 fitted in a recess in and screwed to the plate b' , so as to form part of same about the lower margin of the notch b^3 . I recommend this plan, because the plate b^5 can be easily adjusted to meet any adjustment that may be required in the instrument without necessitating the adjustment of the essential components. Therefore convenience and economy accrue.

The bar A is placed within the frame B with the inclined surfaces in contact, the maintenance of position being effected with the aid of a projection b^6 (or there may be two or more) on the plate b' taking into a groove a' in the bar A and by a spring b^7 arranged to act on the under side of the bar A, the spring being attached within the frame-plate b' , suitably recessed therefor, by one of the screws b^2 b^2 , as shown.

Obviously, the use of the parts b^6 , a' , and b^7 is not absolutely necessary, but I prefer

to employ them as they insure accuracy; of course, in place of them, other suitable or equivalent means may be adopted.

As will now be apparent, the reading at the
 5 scales will be zero when the horizontal edge of the bar A is in contact with the corresponding edge of the frame B or the top of the plate b^5 , while as it recedes therefrom the reading gradually increases to the maximum.
 10 The scales a and b^4 exemplified are based on the decimal system; but of course such will be determined by circumstances. However, whatever the scale the accuracy can always be proved by noting the length and travel of
 15 the bar or rule A and comparing the increase or decrease of the space at the notch b^3 with the reading.

The parts herein described as comprising my improved micrometer may be constructed
 20 of any suitable material or materials known to those skilled in the art to which my invention belongs.

Having described the construction of my improved micrometer, I will now explain its
 25 operation in use. The object—say the wire C—to be gaged is inserted in the gap or notch b^3 . Then the bar A is moved toward same longitudinally through the frame B, whereby the spring b^7 is depressed, and eventually the ob-
 30 ject C is nipped between the lower edge of the bar A and the adjacent edge of the frame B, owing to the diminution of the intervening space, as indicated by the dotted lines in Fig. 2, whereupon the requisite measurement
 35 is directly shown by and can be readily as-

certained on referring to the scales a and b^4 . As will be evident, the same results will be attained by sliding the frame B (with the object C) backward on the bar A; but I find it more convenient to move the bar and main- 40 tain the frame more or less rigid.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination, a graduated bar A having an inclined edge and provided with a 45 groove a' at one side parallel to the inclined edge, and a box B having a recess in which the bar A can slide, one side of the recess being inclined similarly to the inclined edge of the bar, a projection b^6 for engaging the groove 50 a' , and a spring b^7 bearing on the bar, substantially as described.

2. In combination, a graduated bar A having an inclined edge and provided with a 55 groove a' at one side parallel to the inclined edge, and a box B, having a recess in which the bar A can be slid, one side of the recess being inclined similarly to the inclined edge of the bar A, a projection b^6 for engaging in the groove a' , a notch or gap b^3 at one end, an ex- 60 tended graduated portion at the other end, and a spring b^7 , all arranged and adapted for operating substantially as described.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

CHARLES JOHN BANKS.

Witnesses:

JAMES ANDREW HARVEY,
 ALFRED THOMAS BRATTON.