

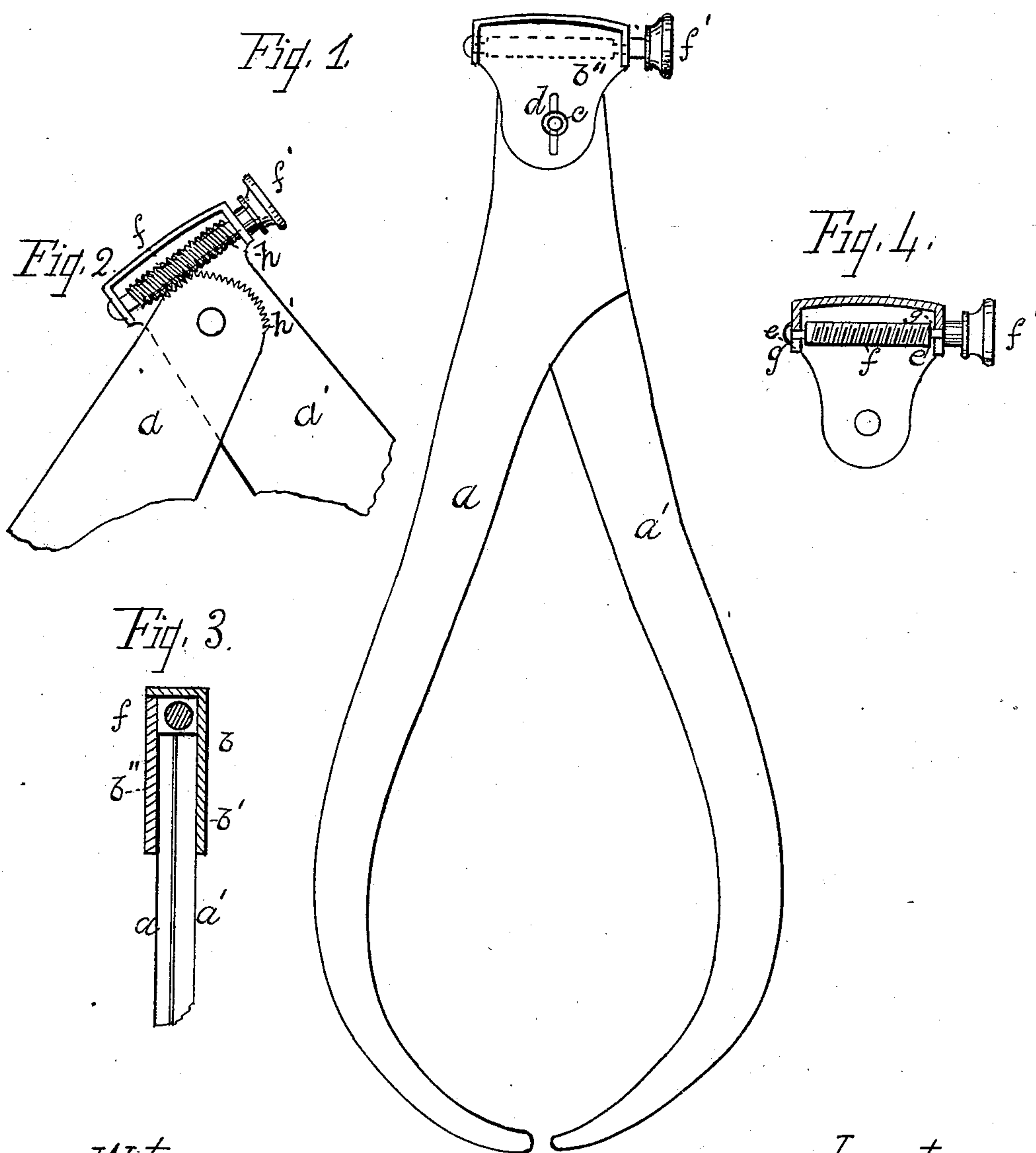
(No Model.)

E. C. SMITH.

CALIPERS.

No. 256,062.

Patented Apr. 4, 1882.



Witnesses:

L. B. Harris

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Inventor:

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# UNITED STATES PATENT OFFICE.

EDWARD C. SMITH, OF BROOKLYN, NEW YORK.

## CALIPERS.

SPECIFICATION forming part of Letters Patent No. 256,062, dated April 4, 1882.

Application filed May 19, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD C. SMITH, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Calipers or Caliper-Compasses, of which the following is a true and accurate description, reference being had to the drawings accompanying the same.

My improvement has relation to that class of calipers where the operating mechanism is arranged within a head-piece; and the main objects of my improved construction is to afford facilities for an accurate adjustment of the legs of the calipers, to provide means to enable them to be lapped or crossed over each other, and to so construct and arrange the whole device that the several parts can be taken apart and put together with great facility.

In the accompanying drawings, which serve to illustrate my invention, Figure 1 represents a view in side elevation of the calipers closed; Fig. 2, a similar view with the legs extended and the adjustable plate of the head removed to show the operating mechanism. Fig. 3 is an end view; and Fig. 4 is a longitudinal section of the head, taken through the line *x x* of Fig. 3.

*a a'* are the curved legs, one of which, *a'*, is permanently secured to the head-piece *b*.

*c* is a loose pin, which passes through holes formed in the upper or head part of the legs, and which serves as an axis upon which they turn. It is provided with a screw-threaded end designed to take the thumb-nut *d*, which thumb-nut serves to clamp the adjustable side plate to the head *b*. The head-piece *b* is constructed with the two side plates, *b' b''*, to one of which the leg *a'* is rigidly secured, while the other is a loose plate, as is seen best in Fig. 3 at *b''*, which is held to the head-piece *b* by means of the pin *c*, which passes through it, and upon which it is secured by the thumb-nut *d*. The head-piece *b* is formed with short end pieces, each of which is provided with a slot, *e*, and within these slots is held a horizontal rod, *f*, which operates in connection with the leg *a*, as will be more fully set forth hereinafter. The rod *f* is constructed with the portions *g g* of somewhat smaller diame-

ter, thus forming in a sense shoulders, which bear against the end pieces and prevent too great lateral strain on the head-piece while the rod is being rotated. This, however, I deem only a mechanical contrivance, as the rod would, if made of equal diameter throughout, answer the same purpose. This rod *f* is provided with a fine-pitch screw-thread, *h*, and the upper part of the leg *a* is correspondingly provided with notches or teeth *h'*, which engage the threaded exterior of the bar or rod, and as the bar traverses the notched periphery of the leg *a* the legs are distended or brought together, as desired. The operation of the rod *f* is effected by rotating the head *f'* in either one or the other direction. When the legs have been set at the required distance apart they can be firmly clamped in that position by tightening the thumb-nut *d*. The upper part of the leg *a* being notched to about a semicircle in circumference, it will be readily seen that by reversing the screw-bar movement the legs will be made to cross or pass each other and be extended equally in the opposite direction. The head *b* carries permanently the leg *a'*. All the other parts are separable, and can be taken apart or reunited with great facility.

Presuming the device to be in operative connection, as shown in Fig. 1, in order to take it apart it is only necessary to unscrew and take off the thumb-nut *d*. The loose side piece may then be removed, the leg *a* slipped off, the screw-rod *f* dropped out of its slotted bearings, and the pin *c* removed. A reverse operation resets the leg and working mechanism.

In case any one part becomes worn or inoperative, it can be replaced without necessitating the changing of any other part.

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

In calipers or caliper-compasses, the combination of the head-piece *b*, legs *a a'*, rod *f*, adjustable plate *b''*, pin *c*, and thumb-nut *d*, all arranged and operating substantially in the manner and for the purpose set forth.

EDWARD C. SMITH.

Witnesses:

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