

(No Model.)

G. R. CLARKE.
CALIPERS.

No. 585,184.

Patented June 29, 1897.

Fig. 1

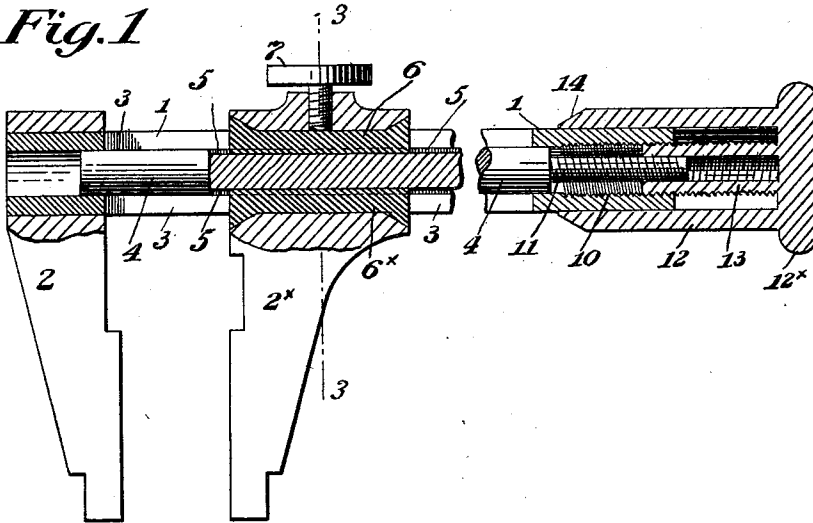


Fig. 2

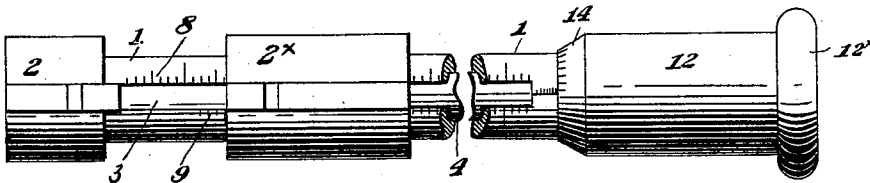
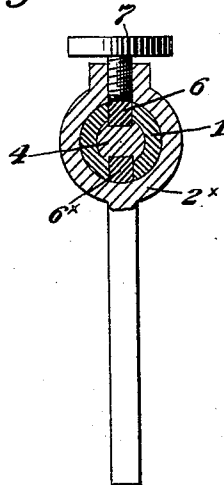


Fig. 3



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UNITED STATES PATENT OFFICE.

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CALIPERS.

SPECIFICATION forming part of Letters Patent No. 585,184, dated June 29, 1897.

Application filed June 29, 1896. Serial No. 597,342. (No model.)

To all whom it may concern:

Be it known that I, GEORGE R. CLARKE, a citizen of the United States, residing at Montell, Uvalde county, Texas, have invented certain new and useful Improvements in Calipers, of which the following is a specification.

My invention relates to calipers for either inside or outside measurements; and the object is to provide for a quick and simple adjustment of the calipers to nearly the proper dimensions and then an equally quick and simple adjustment to the exact measurement within one five-thousandth of an inch, or even less. Indeed, one of the features of the calipers is the ability to adjust micrometrically and at the same time to effect this adjustment by a considerable movement marked by widely-spaced graduations which may be easily read.

Another object of the invention is to attain a simple and inexpensive construction, so that the instrument may be within the reach of any good mechanic.

In the drawings which illustrate an embodiment of the invention, Figure 1 is a longitudinal section of the calipers. Fig. 2 is an elevation as seen from below in Fig. 1. Fig. 3 is a transverse section on the line 3 3 in Fig. 2.

The stock 1 is a metal tube which I prefer to make of accurately-drawn steel tubing. On the end of this tube is fixed, preferably by shrinking, the fixed jaw 2 of the calipers. The tube 1 has in it two oppositely-arranged longitudinal slots 3 and on it is mounted to slide the movable jaw 2^x of the calipers. The jaws 2 and 2^x will be by preference of steel, formed in the way usually employed in making such parts. The sleeve of the jaw 2^x will fit snugly on the tube 1.

In the tube 1 is fitted snugly a rod 4, which will be, by preference, of steel and accurately drawn. This rod is provided with two oppositely-arranged longitudinal grooves 5, in which and in the slots 3 in the tube fit gibs 6 and 6^x, the wider ends of which engage recesses in the sleeve of the movable jaw 2^x. This jaw may be moved along the tube 1 and rod 4, carrying with it the gibs, and it may be fixed firmly in place on the rod 4 by means

of a set-screw 7 in the boss of the jaw 2^x, the tip of said screw bearing on the gib 6.

Along one margin of the slot 3 in the tube is a series of graduations 8 (to any standard, as inches, for example) for outside calipering between the inner faces of the jaws, and along the other margin of the slot is a similar series of graduations 9, adapted for inside calipering between the outer faces of said jaws. It is not very important just where these graduations are placed about the tube, and there may be two sets adapted for different standards, as inches, centimeters, &c.

In order to get micrometrical adjustments of the movable jaw 2^x, I employ the means which will now be described.

In the outer end of the tube 1 (at the right in Fig. 1) is formed a female screw 10, and on the reduced end of the rod 4 at that end of the tube is formed a male screw 11. These screws differ in pitch, but the direction of the pitch may be the same—that is, they may both be right-hand or both left-hand screws.

Fitted snugly on the end of the tube 1 is a sleeve-cap 12, which has fixed in it, concentrically, an inner nut-sleeve 13, having a male screw to fit the female screw 10 and a female screw to fit the male screw 11.

If we suppose that the screws 10 and 11 are respectively twenty pitch and twenty-five pitch and the sleeve-cap 12 be turned once around, (by means of the milled bead 12^x thereon,) the rod 4, carrying the jaw 2^x, will be moved relatively to the tube 1 a distance equal to one one-hundredth of an inch. Now if the beveled end 14 of the sleeve-cap 12 be provided with, say, ten equally-spaced graduation-marks a rotative movement of the sleeve-cap to the extent of one such division will move the jaw 2^x to the extent of one one-thousandth of an inch. Subdivisions of the spaces indicated by the graduations at 14 would indicate a movement of the jaw one two-thousandths of an inch. Of course other proportions may be employed between the pitches of the screws 10 and 11.

The mode of using the calipers will be readily understood. Suppose it is desired to turn down a piston, plunger, &c., to a diameter a very little in excess of two inches. The work-

man relaxes the set-screw 7 and sets the jaw 2^x to two inches on the scale 8, clamps it fast to the rod 4 by the screw 7, and then turns the sleeve-nut 12 in the proper direction and to the proper extent to move the jaw 2^x, say, to the extent of two one-thousandths of an inch outwardly or from the fixed jaw 2. The user will readily understand how to set and employ the calipers for other purposes.

It will be readily understood that the object in using the differential screw is to allow the use of relatively coarse graduations on the nut-sleeve at 14, which can be easily seen by the eye, thus enabling the user to set his calipers micrometrically with ease and without the aid of a magnifying-glass.

Having thus described my invention, I claim—

1. In calipers, the combination with a tubular, slotted stock, of the fixed jaw secured thereto, the movable jaw having a sleeve mounted on said stock, the set-screw in said sleeve, the rod in said stock, said rod having longitudinal, oppositely-arranged grooves coincident with the slots in the stock, the gibs engaging the said grooves and situated in the

sleeve on the movable jaw, one of said gibs being under said set-screw, and means substantially as described for moving said rod, micrometrically, in the tubular stock.

2. In calipers, the combination with a tubular stock having oppositely-arranged slots 3, 3, and a fixed jaw secured thereon, of a movable jaw having a sleeve embracing said stock, the rod in said stock, said rod having longitudinal grooves coincident with the slots in the stock, a gib engaging the sleeve of the movable jaw and a slot in the stock and bearing on said rod, means for clamping said gib onto said rod, and means for moving said rod micrometrically in the stock, said means comprising the sleeve-cap 12, having the nut-sleeve 13, adapted to screw onto the said rod and into the stock, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GEORGE R. CLARKE.

Witnesses:

HENRY CONNETT,
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