No. 639,560. Patented Dec. 19, 1899.

B. M. W. HANSON.

CALIPER ATTACHMENT.

(Application filed June 6, 1899.)

(No Model.)

Fig. 1.

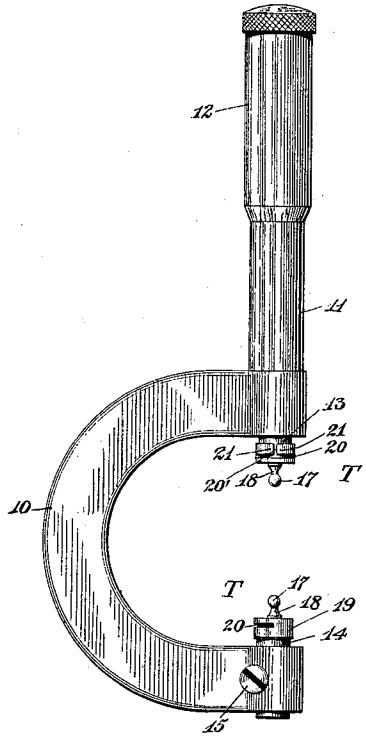


Fig. 2.

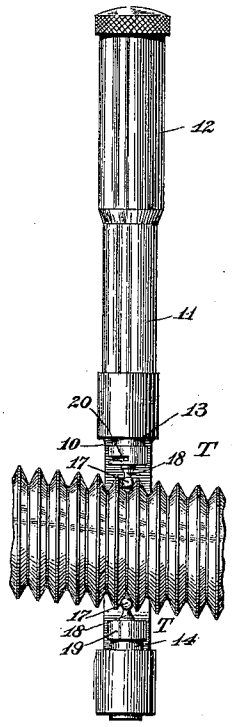


Fig. 3.

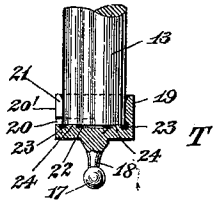
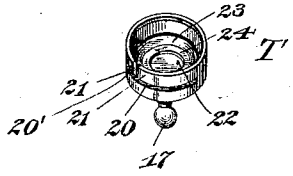


Fig. 4.



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UNITED STATES PATENT OFFICE.

BENGT M. W. HANSON, OF HARTFORD, CONNECTICUT.

CALIPER ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 639,560, dated December 19, 1899.

Application filed June 6, 1899. Serial No. 719,542. (No model.)

To all whom it may concern:

Be it known that I, BENGT M. W. HANSON, a citizen of Sweden, residing in Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Attachments for Calipers, of which the following is a specification.

This invention relates to calipering instruments, and more particularly to that class known to the trade as "micrometer-calipers;" and it has for its object the provision of a tool of the class mentioned whereby the diameters of, for example, screw-threads may be accurately gaged, as will hereinafter appear.

In the accompanying drawings, Figure 1 illustrates in side view a micrometer-caliper equipped with my improvement. Fig. 2 is a front view of the same, showing the manner of calipering a screw-threaded piece of work. Fig. 3 represents, on an enlarged scale, the end of one of the caliper-jaws with the attachment in place, the latter being shown in central section; and Fig. 4 is a perspective view of the attachment.

Similar characters designate like parts in all the figures of the drawings.

In the drawings, 10 designates the frame of a micrometer-calipers of ordinary construction; 11, the barrel supporting the thimble 12, which serves to adjust one of the jaws, as 13, relatively to the fixed jaw 14, the latter being held in the lower end of the frame by a binding-screw 15. Both jaws 13 and 14 have their working or gage faces formed flat, as is usual in tools of this character; but it has been found in practice that when screw-threads of precisionized form are to be calipered such faces are not adequate to the demands, inasmuch as the depth to which the thread is cut cannot be accurately determined thereby. For this reason each of the jaws is provided with an interchangeable cap or socket (designated in a general way by T) and adapted to be placed on or removed from said jaw without in any way altering the construction or shape thereof.

The cap or socket T is provided with a tip or end 17 of any suitable shape and of such size as to seat itself in the groove of the thread without touching the bottom thereof and preferably near the pitch-line of the same. The tip is shown of ball shape and is carried at the end of a stem or neck portion 18, secured to or forming a part of the cylindrical cap or socket 19, the bore of which corresponds to the diameter of the end of the jaw to which it is attached, and in order to hold the same in place thereon the barrel portion of the cap is slitted in directions at an angle to each other, as at 20 20', forming lips 21, which may be bent slightly inward to serve as a means for frictionally retaining the cap in proper place on the jaw without the aid of extraneous devices.

By referring to Fig. 3 it will be seen that the bottom of the cap is recessed, as at 22, and that a groove 23, surrounding said recess, is provided, thus forming a projection 24, which serves as an accurate seat for the jaw, thereby preventing the rocking movement of the cap or socket on the jaw, even if the "gage-face" of said jaw should be of crown shape instead of flat, as shown in the drawings. The recess 22 and groove 23 also serve as convenient receptacles for dirt, which is thus prevented from collecting between the under surface of the jaw and the rib or bearing portion of the cap. Furthermore, the groove 23 and rib 24 prevent the sharp edge of the jaw from coming into contact with the wall and bottom of the cap or socket and from being damaged thereby.

As above stated, the caps or sockets T are made interchangeable to permit the substitution of a different-sized tip for the one in use in order to adapt the instrument to threads of various sizes, and it is obvious that when the jaws of a micrometer-calipers are provided with tips, as described, the attachment may be employed by the machinist to set the calipers accurately to a standard thread, and that he is then enabled to make use of the tool for the purpose of gaging the work in conformity with the measurement thus obtained.

In the old forms of calipers V-pointed tools have been attached in various ways to the jaws of the calipers, and these tools have extended to the roots of the threads and the standard of measurement has been taken therefrom. No matter how much care is taken in making the thread the roots of the same between the various convolutions are invariably slightly out of precision, and conse-

quently a measurement taken therefrom is generally inaccurate. The sides of the various convolutions of the thread are, however, formed with precision, and by measuring from such sides a much more accurate result is accomplished.

The operation of my invention differs from the usual mode of measurement in that the ball-shaped tips on the caliper-jaws are applied to the precisionized sides of the thread, as shown in Fig. 2, which afford, as above stated, much better surfaces from which accurate measurements may be taken.

It is evident that my improvement may be applied to various forms of calipers and that the same may be modified in many ways as regards the manner in which it is applied to the jaw without departing from the scope of my invention.

Having described my invention, I claim—

1. An attachment for the jaws of calipers, consisting of a ball-shaped tip adapted to fit between the sides of adjacent convolutions of the thread, and means whereby said tip may be attached to the exterior surface of the caliper-jaw.

2. The combination, with the jaw of a calipers, of a removable cap having a ball-shaped tip adapted to fit between the sides of adjacent convolutions of the thread.

3. The combination, with the jaw of a calipers, of a cap having a ball-shaped tip, said cap being frictionally retained on said jaw.

4. A cap for the jaw of a calipers comprising a socket portion adapted to fit said jaw and be frictionally held thereon, and a ball-shaped tip rigid with said socket portion.

5. An attachment for calipers comprising a slitted cup-shaped portion or socket adapted to be frictionally held on a jaw, and a ball-shaped tip carried by said socket.

6. An attachment for caliper-jaws comprising a cup-shaped portion or socket slitted in directions at an angle to each other, and a ball-shaped tip carried by said socket.

7. The combination, with the jaw of a calipers, of a cylindrical cup-shaped portion or socket adapted to be removably applied to said jaw and to be frictionally retained thereon, the wall of said socket being slitted to form ears, and said socket having a ball-shaped tip.

8. In a micrometer-gage, the combination, with the jaws thereof, of cup-shaped portions or sockets frictionally held thereon, each of said cup-shaped sockets or portions having a ball-shaped tip.

9. In a micrometer-gage, the combination, with a caliper-jaw, of a removable socket carrying a ball-shaped tip, the wall of said socket having a projection against which the end of the jaw is seated and a groove adjacent to said projection.

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