Feb. 15, 1927. 1,617,669

A. A. COYLE

CALIPERS

Filed March 31, 1926 2 Sheets-Sheet 1

Fig. 1.

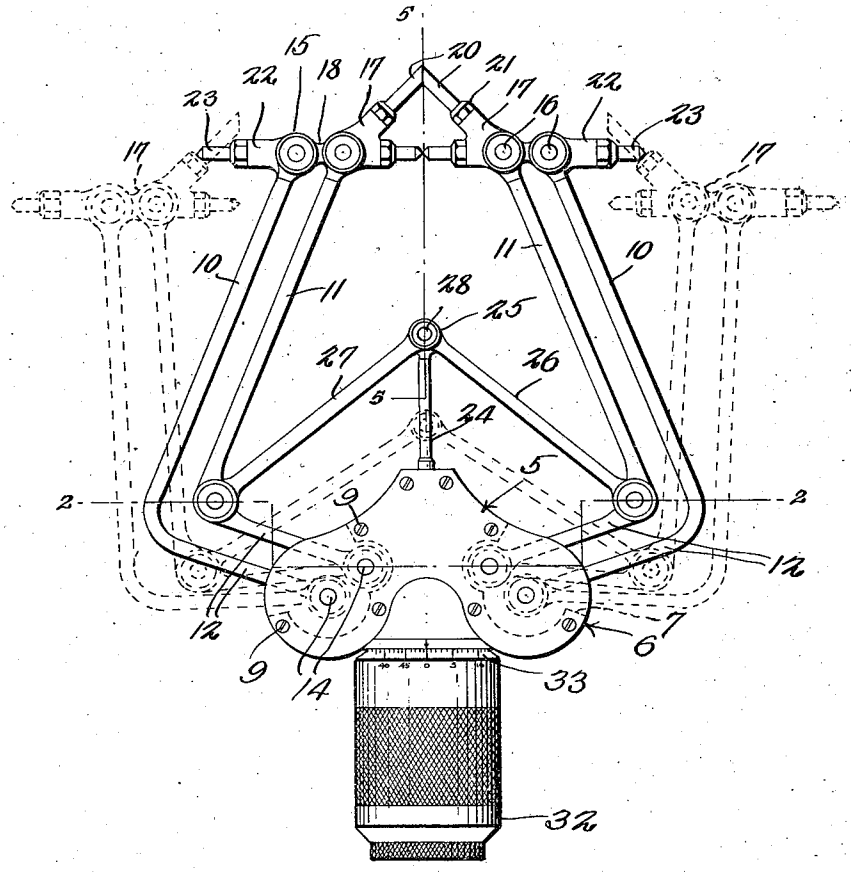
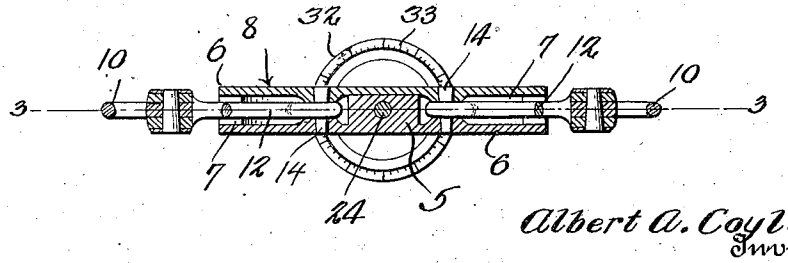


Fig. 2.



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Filed March 31, 1926 2 Sheets-Sheet 2

Fig. 3.

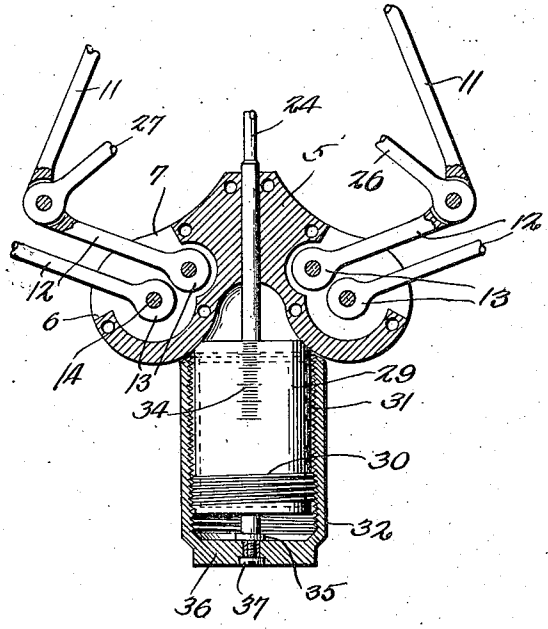


Fig. 4.

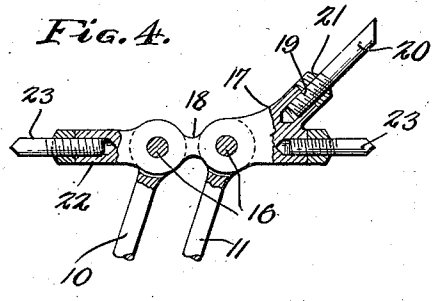


Fig. 5.

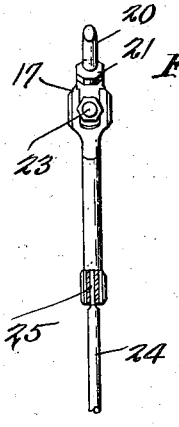
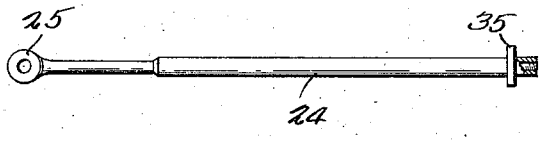


Fig. 6.



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UNITED STATES PATENT OFFICE.

ALBERT A. COYLE, OF ST. LOUIS, MISSOURI.

CALIPERS.

Application filed March 31, 1926. Serial No. 98,905.

The present invention relates to new and useful improvements in calipers, and more particularly calipers of the micrometer type, the primary object of the invention being to provide a caliper of a novel construction and especially designed for determining outer diameters as well as inner diameters.

Another object of the invention is to provide a registering caliper having exceptionally wide range, combining the usefulness of several tools into a simple, compact, positive quick-acting and serviceable unit, thereby increasing the capacity of the operations of such tools.

A still further object of the invention is to provide means to insure the quick adjustment of the various elements of the instrument that may through usage, become worn or incorrect, thus insuring an instrument that may be relied upon indefinitely, to meet the requirements of expert mechanics.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

Referring to the drawings:

Figure 1 is an elevational view of a measuring instrument constructed in accordance with the invention.

Figure 2 is a sectional view taken on line 2—2 of Figure 1.

Figure 3 is a fragmental sectional view through the lower portion of the instrument and taken on line 3—3 of Figure 2.

Figure 4 is a sectional detail view of the outer end of the instrument.

Figure 5 is a sectional view taken on line 5—5 of Figure 1.

Figure 6 is an elevational view of the controlling rod of the instrument.

Referring to the drawings in detail, the device includes a body portion indicated generally by the reference character 5, which is provided with lateral enlargements 6 that are cut away as at 7 to accommodate the lower ends of the legs of the instrument, to be hereinafter more fully described.

A cover plate indicated at 8 is formed with suitable openings to accommodate the securing screws 9 that also pass into openings of the body portion 5 to secure the cover plate in position.

The main or point supporting legs of the instrument are arranged in pairs as shown by Figure 1, each pair including legs 10 and 11 respectively, which are of a particular construction and as shown, have end portions 12 extending at substantially right angles with respect to the main portions thereof, the ends of the right angled portions 12 being formed with heads 13 that are apertured to receive the pins 14 that are carried by the body portion 5 to pivotally secure the legs 10 and 11 to the body portion.

The outer ends of the legs 10 and 11 are also formed with heads 15 that have openings to receive the supporting pins 16 that pivotally connect the point supporting members 17, it being understood that each supporting member includes a rearwardly extended portion 18 formed with an opening to receive the pin 16, to the end that as the leg members 10 and 11 are moved, the members 17 will also move, but will be held in the same plane at all times to insure accurate measuring.

Threaded openings are formed in the members 17, as shown by Figure 4 of the drawings, which openings accommodate the threaded extremities 19 of the removable points 20, nuts 21 being provided for locking the points 20 within the openings of the members 17.

Extending laterally from the members 17 are extensions 22 that are formed with threaded openings to receive the pins 23 which may be utilized for measuring inner diameters, as for example, by placing the instrument within a pipe so that the pins 23 contact with the inner surfaces thereof while the points 20 may be used for measuring outer diameters, by placing the instrument over a circular object in such a way that the points 20 rest against the outer surfaces of the circular object.

The operating mechanism includes an operating rod 24 that passes through an opening formed in the body portion, the inner end of the rod 24 being provided with a head 25 which is cut away to receive the adjacent ends of the arms 26 and 27, there being provided a connecting pin 28 extending therethrough to connect the arms 26 and 27 to the rod 24.

Secured to the body portion 5 is a barrel 29 that is provided with a threaded portion 30 disposed adjacent to its lower end, which threads cooperate with the threads 31 formed interiorly of the sleeve 32, which has a beveled edge 33 provided with graduations as shown by Figures 1 and 2 with the result that when the sleeve 32 is rotated, certain graduations 34 of the barrel 29 are uncovered to indicate the distance that the legs 10 and 11 move, which graduations cooperate with graduations 34 provided on the barrel 29.

As shown by Figure 3, the lower end of the rod 24 is supplied with a circular enlargement 35 adapted to engage the inner surface of the bottom 36 of the sleeve 32, the end of the rod passing through an opening formed in the bottom 36 where it is formed with internal threads to receive the screw 37 for securing the rod 24 to the sleeve 32 in such a way as to permit of rotary movement of the sleeve 32 around the rod 24, and owing to the fact that the rod 24 is carried by the sleeve 32, it will be obvious that the rod 24 will be moved through the opening of the body portion 5, to adjust the legs of the instrument in a manner as shown in dotted lines in Figure 1 of the drawings.

From the foregoing it will be obvious that due to this construction, the control nut or sleeve 32 when operated, will act to move the members 17 inwardly or outwardly, according to the direction of rotation of the sleeve 32, with the result that the points 20 and 23 carried thereby are held in horizontal planes to accomplish the purpose of the invention.

In view of the foregoing detail description, it is thought that a further detail description of the invention, is unnecessary.

I claim:

1. A caliper including a body portion, leg members embodying outwardly and upwardly extended portions pivotally connected with the body portion, inwardly extended pins carried by the leg members, outwardly extended pins carried by the leg members, a barrel secured to the body portion and having graduations thereon, a sleeve mounted for rotation on the barrel and adapted to move longitudinally of the barrel, an operating rod extending through the barrel and having connection with the sleeve, said rod passing through the body portion, arms pivotally connected with the rod and adapted to move the leg members towards each other, when the rod is moved in one direction, and said arm adapted to move the leg members away from each other when the rod is moved in the opposite direction.

2. A caliper including a body portion having a central opening, a pair of pivoted leg members supported at each side of the body portion, a barrel secured to the body portion, said barrel having a threaded portion, a sleeve having threads operating over the threaded portion, said sleeve and barrel having cooperating graduations, a rod extending through the opening in the body portion and having connection with the sleeve to move with the sleeve, arms connected with the rod and having pivotal connection with one of the legs of each pair, said arms adapted to move the leg members towards each other when the rod is moved in one direction, and said arms adapted to move the leg members away from each other when the rod is moved in the opposite direction, and pins carried by the leg members.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

ALBERT A. COYLE.