W. H. CHURCH.

MICROMETER CALIPERS.

APPLICATION FILED DEC. 10, 1919.

1,405,285. Patented Jan. 31, 1922.

Fig. 1.

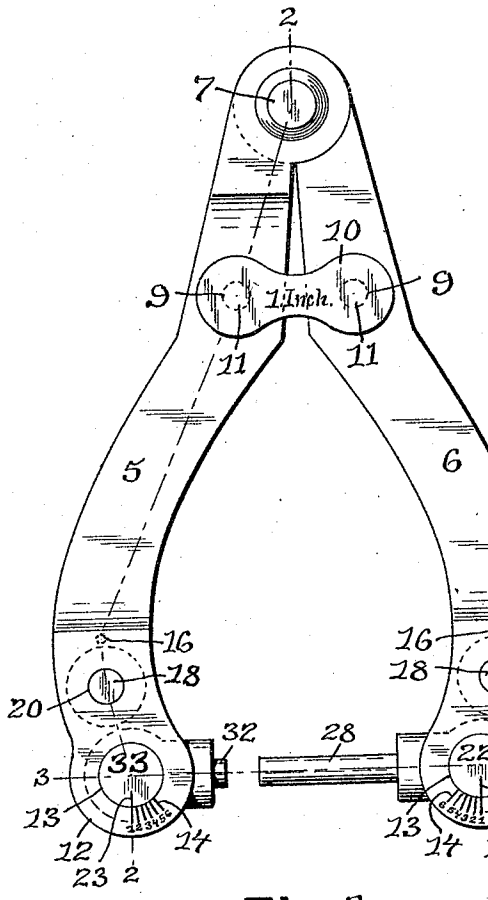


Fig. 2.

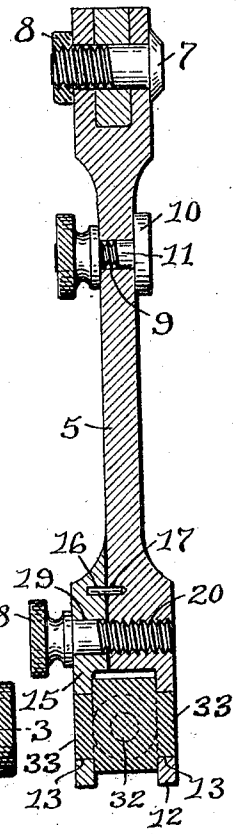


Fig. 3.

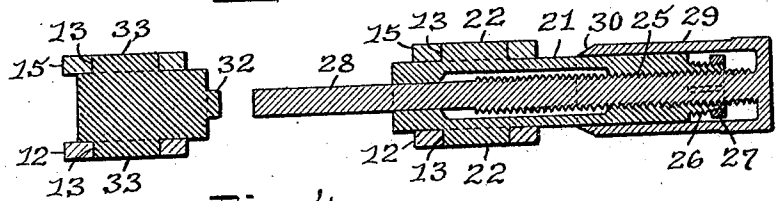
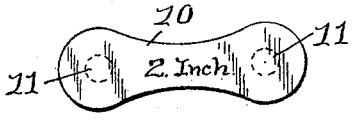


Fig. 4.



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MICROMETER CALIPERS.

1,405,285. Specification of Letters Patent. Patented Jan. 31, 1922.

Application filed December 10, 1919. Serial No. 343,820.

To all whom it may concern:

Be it known that I, WILLIAM HENRY CHURCH, a citizen of the United States, residing at Edgewood Station, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Micrometer Calipers, of which the following is a specification.

My invention has reference to an improvement in measuring instruments of precision and more particularly to an improvement in micrometer calipers.

The object of my invention is to improve the construction of a micrometer caliper, whereby the micrometer caliper is in the form of compasses or dividers in which the legs are pivotly secured together at one end, the free ends of the legs having micrometric means for measuring and indicating units of measurements, preferably by one thousandth of an inch.

Further objects of my invention are to improve and simplify the construction of such a micrometer caliper, thereby simplifying the operation and reducing the cost of construction.

My invention consists in the peculiar and novel construction of a micrometer caliper in the form of dividers or compasses, said micrometer caliper having details of construction as will be more fully set forth hereinafter and claimed.

Figure 1 is a face view of my improved micrometer caliper showing the same adjusted and fixed to form a one-inch micrometer caliper.

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

Figure 3 is a sectional view taken on line 3, 3 of Figure 1, and

Figure 4 is a face view of a two-inch adjusting bar.

In the drawing 5 and 6 indicate the legs of the caliper which are pivotally secured together at one end by a bolt 7 and nut 8. The legs 5 and 6 have oppositely disposed adjusting bar holes 9, 9. An adjusting bar 10 has screw-threaded pins 11, 11 which extend through the holes 9, 9 and the bar 10 is rigidly secured in place by thumb-nuts on the screw-threaded pins 11, 11 as shown in Figure 2. Various sizes of adjusting bars may be separately used, that will preferably adjust the caliper to a one, two, three and so on inch caliper, as desired. Each leg 5 and 6 terminates into a bifurcated end 12 having transverse trunnion holes 13, 13 and on the face radial lines and numerals 14 which indicate units of measurements, preferably by one inch. The rear part of the end 12 is formed into a separate clamping member 15 held in place by a pin 16 which enters a hole 17 in the leg and by a clamping screw 18 which goes through a hole 19 in the clamping member and screws into a screw-threaded hole 20 in the leg, as shown in Figure 2. A micrometer barrel 21 is constructed to have trunnions 22, 22 in the trunnion holes 13, 13 in the leg 6, the face of one trunnion having a radial indicating line 23. The barrel 21 also has on its outside the usual lines and numerals 24, a screw-threaded spindle-hole 25, an externally screw-threaded tapered and split inner end 26 and wear adjusting nut 27. A micrometer spindle 28 is screw-threaded through the screw-threaded spindle hole 25, it extends through the barrel 21 towards the anvil 32 and carries a thimble 29 which extends over the barrel 21, and has the bevelled end 30 on which are the usual lines and numerals 31. An anvil 32 is constructed to have trunnions 33, 33 in the trunnion holes 13, 13 in the leg 5, the face of one trunnion having a radial indicating line 23 and the leg has indicating lines and numerals 14.

My improved micrometer caliper, as shown in Figure 1 is set for a one inch micrometer and the micrometer is adjusted to give a reading of two hundred and fifty one-thousandths of an inch, which is the distance between the end of the spindle 28 and the end of the anvil 32. When it is necessary to change the caliper into a two inch micrometer caliper, the one inch adjusting bar 10 is removed, the legs 5 and 6 spread apart the required distance, a two inch adjusting bar 10 secured in place of the one inch bar, as described, the barrel 21 and anvil 32 turned on their trunnions in the trunnion holes 13, 13 until the indicating lines 23, 23 on the trunnions coincide with the lines 2, 2 of the indicating lines 14 which again bring the center line of the spindle 28 into alignment with the center line of the anvil 32. The barrel 21 and anvil 32 are then secured in place by tightening the clamping screws 18, 18. These operations are repeated in changing the micrometer caliper into a three, four and so

on inch micrometer caliper by the use of three, four and so on inch adjusting bars 10, 10.

My improved micrometer caliper may be easily, quickly and accurately changed from a small to a large micrometer caliper and vice-versa, and when so changed the legs are rigidly secured in the changed position and the center lines of the spindle and anvil are always in alignment with each other, thereby providing an extremely accurate convertible micrometer caliper.

Having thus described my invention I claim as new:—

1. A micrometer caliper having two legs pivotally secured together at one end, said legs having trunnion holes at their free ends, an adjusting bar detachably secured to the legs, means for detachably securing the adjusting bar to the legs, a micrometric measuring means having a barrel, trunnions on the barrel rotatably supported in trunnion holes in the free end of one of the legs, means for clamping the measuring means to the leg, an anvil having trunnions rotatably supported in the trunnion holes in the free end of the other leg and means for clamping the anvil to the leg.

2. A micrometer caliper having two legs pivotally secured together at one end, and supplied with trunnion holes, each leg having a bifurcated free end, an adjusting bar across the legs and having pins which extend through the legs, means on the pins for securing the bar in place, a micrometric measuring means having a barrel with trunnions adjustably secured in trunnion holes in the bifurcated end of one of the legs, said barrel having indicating lines and numerals, a spindle screw-threaded through the barrel, a thimble on the spindle and having indicating lines and numerals, an indicating line formed on the trunnion, indicating lines and numerals formed on the end of the leg, means for clamping the barrel in the adjusted position, an anvil with trunnions adjustably secured in trunnion holes in the bifurcated end of the other leg, an indicating line formed on the anvil trunnion, indicating lines and numerals formed on the end of the anvil leg and means for clamping the anvil in the adjusted position.

In testimony whereof, I have signed my name to this specification.

WILLIAM HENRY CHURCH.