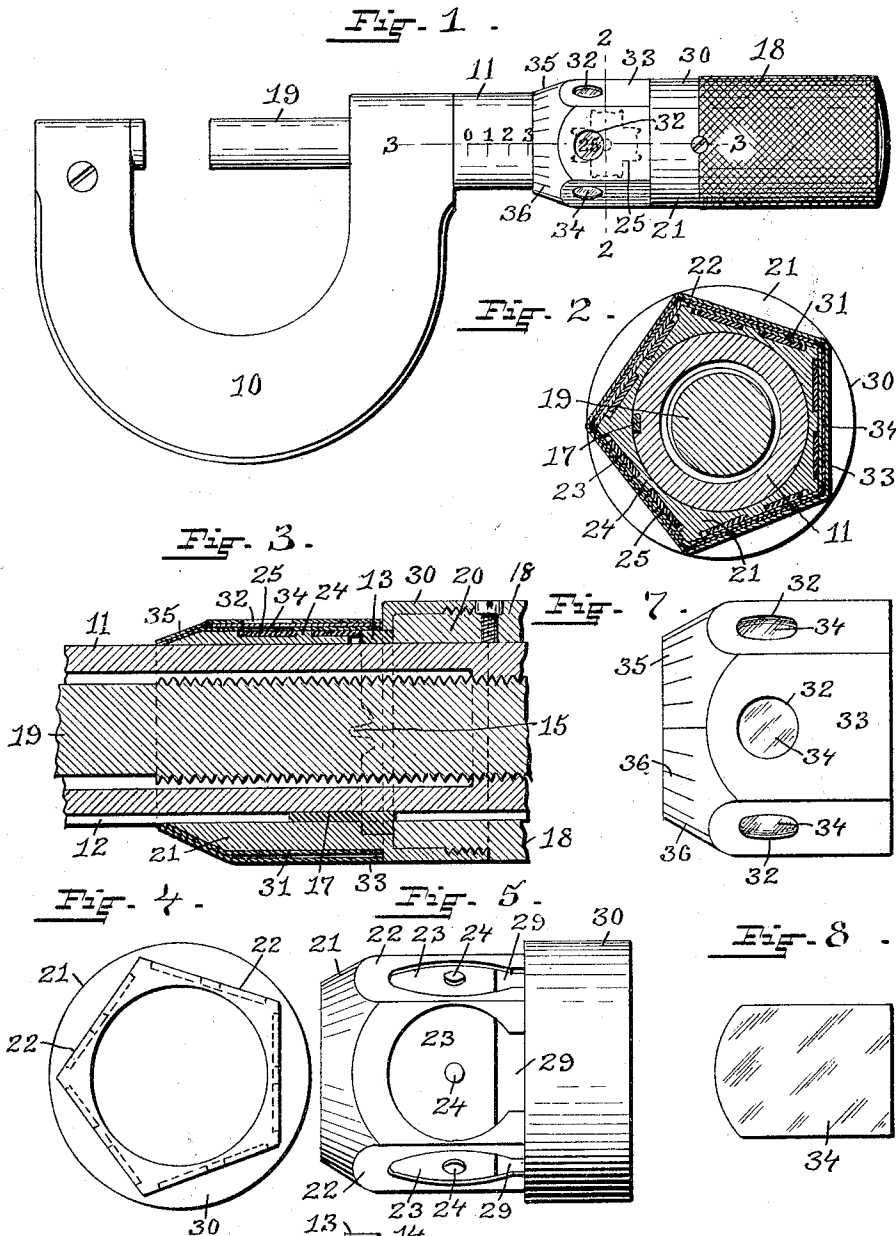


F. O. JAQUES, Sr.
MICROMETER CALIPERS.
APPLICATION FILED FEB. 2, 1914.

1,121,632.

Patented Dec. 22, 1914.



WITNESSES:

Julia Ricci
Michael Fisher

INVENTOR:

Fernando Oscar Jaques, Sr.
by *Chas. H. Luther*
ATTORNEY:

UNITED STATES PATENT OFFICE.

FERNANDO OSCAR JAKUES, SR., OF CRANSTON, RHODE ISLAND.

MICROMETER-CALIPERS.

1,121,632.

Specification of Letters Patent.

Patented Dec. 22, 1914.

Application filed February 2, 1914. Serial No. 815,991.

To all whom it may concern:

Be it known that I, FERNANDO OSCAR JAKUES, Sr., a citizen of the United States, residing at Cranston, 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 micrometer calipers and more particularly to an improvement in the micrometer caliper patented to me April 25, 1911, No. 990,665.

In easy reading micrometer calipers having openings through which the indicating numerals are read, dust, dirt, etc., is liable to enter through these openings and clog up the interior mechanism of the caliper.

The object of my invention is to improve the construction of the said micrometer caliper, whereby the member which pivotally supports the disks is secured to and forms an inner detachable part of the forward end of the thimble, the external part of which is now composed of two members or thin shells, one within the other; each shell having coinciding sight openings through which the numerals on the disks are read; said openings being now closed by a thin transparent member, such as a thin sheet of mica held between the two shells, thereby protecting the inner mechanism of the instrument against the entrance of dust, dirt or oil, through the sight openings in the thimble.

My invention consists in the peculiar and novel construction of means for detachably securing the disk holding member to the thimble and means for closing the sight openings by the use of a thin sheet of transparent material, such as mica, held between two members or shells forming the forward end of the thimble, and other details of construction in said easy reading micrometer caliper, as will be more fully set forth hereinafter and claimed.

Figure 1. is a face view of my improved micrometer caliper showing the same reading to three hundred and twenty-five one thousandths of an inch. Fig. 2. is an enlarged transverse sectional view taken on line 2. 2. of Fig. 1. Fig. 3. is an enlarged longitudinal detail sectional view taken on line 3. 3. of Fig. 1. Fig. 4. is an enlarged end view of the disk holding member. Fig. 5. is an enlarged side view of the disk hold-

ing member. Fig. 6. is an enlarged side view of the disk operating member, looking from the opposite side and showing a disk in its turning position. Fig. 7. is an enlarged side view of the sight opening members removed from the forward end of the thimble, the inner sight opening member being an exact duplicate of the outer except as to size, and Fig. 8. is an enlarged face view of one of the thin mica plates removed from between the sight opening members.

In the drawings, 10 indicates the U-shaped frame of the caliper having an outwardly extending internally screw-threaded barrel 11, which has an outer longitudinal groove 12 and is graduated on its surface by transverse lines into tenths of an inch, with an indicating numeral for each line, as shown in Fig. 1. A ring 13 surrounds the barrel 11 on which it has a sliding fit and it is constructed to have a flat edge 14. an outwardly projecting tooth 15, with indentures 16. 16. at each side of the tooth and an outwardly extending spline 17 which has a sliding fit in the groove 12 in the barrel 11. A thimble 18 forms a part of an externally screw-threaded spindle 19 which extends through and is in screw-threaded engagement with the barrel 11, as shown in Fig. 3. The thimble 18 surrounds the barrel 11 and has the reduced externally screw-threaded forward end 20.

A disk holding member 21, Figs. 4 and 5, is constructed to have a sliding fit on the barrel 11, a series of five flattened outer faces 22. 22. each of said faces 22. 22. having a circular depression 23, a central stud 24 in each depression forming a pivot for an indicating disk 25. A series of five indicating disks 25. 25. are each constructed to have four equally disposed V shaped notches 26. 26. in their periphery, the edges of each notch extending outward into rounded projections 27. 27. and a central pivot hole 28 for a stud 24, and each disk is rotatably secured in a depression 23 on a stud 24 of the member 21 one for each depression, at right angles to the axis of the thimble, as shown in Figs. 2 and 3. The indicating disks 25. 25. each have four numerals on their outer faces and are positioned on the member 21 from left to right, number 1 disk is numbered 0. 25. 50. 75, number 2 disk 5. 30. 55. 80. as shown in Fig. 6., number 3 disk 10. 35. 60. 85., number 4 disk 15. 40. 65. 90. and number 5 disk 20. 45. 70. 95;

each number indicating thousandths of an inch by fifths. Number 1. 3. 4. and 5. disks are not shown. The bottom of each of the depressions 23. 23. in the disk holding member 21 is cut away forming openings 29. 29. for the tooth on the ring 13 to extend through and engage with the V shaped notches in the indicating disks 25. 25. The thimble end 30 of the five sided disk holding member 21. corresponds in size and shape with the thimble 18., it is internally screw-threaded and is secured to the forward end of the thimble by screwing the same over the screw-threaded forward end 20. of the thimble, as shown in Fig. 3. The disk holding member 21 is locked to the thimble 18 by a screw screwed into the thimble at the intersection of the disk holding member and the thimble. An inner five sided shell 31 surrounds and fits over the five sided portion of the disk holding member 21 each side having a sight opening 32 through which the numerals on the disks are read, a corresponding outer shell 33 surrounds and fits over the inner shell 31 and has coinciding sight openings 32. 32. in each side, the sight openings 32. 32. in the inner shell being closed by a thin transparent plate 34. preferably of mica, which is securely and tightly held between the flat sides of the inner and outer shells, one for each side. The forward end of both shells are tapered, the outer tapered end 35 of the outer shell 33, having a series of twenty-five lines 36. 36., each line indicating one one thousandth of an inch. The shells 31 and 33 are held in place by friction. When assembled, the disk holding member 21 forms a part of the thimble 18, the ring 13 is held in place in the disk holding member by the forward end of the thimble; it has a longitudinal movement with the thimble 18 and disk holding member 21, but is held from rotation on the barrel 11. by the spline 17 in the groove 12. in the barrel 11, as shown in Fig. 3. The indicating disks 25. 25. are held in their operative positions by the inner shell 31. and the thin transparent plate 34 of mica covering the sight openings 32. 32. eliminates the entrance of dust or dirt to the inner mechanism of the caliper.

In the operation of my improved micrometer caliper the indicating disks 25. 25. revolve with the disk holding member 21 and the thimble around the axis of the spindle 19, but are prevented from revolving on their own axis or studs 24. 24. by the rounded projections 27. 27. on the periphery of the disks engaging with the flat edge 14 of the ring 13 until the tooth 15 on the ring

engages with a notch 26 in a disk and revolves the disk one quarter of a revolution. Starting with the reading of zero, the indicating disks are positioned consecutively from left to right on the disk holding member 21 with the 0 showing through a sight opening 32 which is on a line with the numerals on the barrel 11., the reading always being taken through an opening in this position. One fifth of a revolution of the thimble 18 to the left brings the tooth 15 on the ring 13 into a notch 26 in the indicating disk No. 2. as shown in Fig. 6 and rotates the disk one quarter of a revolution and brings the numeral 5 on the disk under a sight opening 32. The reading would now be five one thousandths of an inch. The next fifth turn would revolve disk No. 3; each fifth of a revolution of the thimble operating a disk and bringing up the correct number on a line with the numerals on the barrel. After the thimble 18 has been revolved to the left thirteen complete turns the reading would be three hundred and twenty-five one thousandths of an inch, as shown in Fig. 1. The operation is the same whether the thimble is turned to the left or right, the numerals on the disks always showing the correct reading in either direction.

Having thus described my invention I claim as new:—

1. A micrometer caliper comprising a barrel, a thimble rotatably surrounding the barrel, a disk holding member on the inner end of and forming an operative part of the thimble, a series of indicating disks on the disk holding member, means on the disk holding member for rotatably supporting the disks in their operative positions, external means on the disk holding member adapted to hold the disks in place, means for fastening the disk holding member directly to the inner end of the thimble and means for operating the indicating disks.

2. A thimble for micrometer calipers having a detachable inner end portion formed into a disk holding member, a shell over the disk holding portion of the thimble and having sight openings, a second shell over the first or inner shell and having coinciding sight openings, and a transparent member intermediate the shells and closing the sight openings all for the purpose as described.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

FERNANDO OSCAR JAKES, Sr.

Witnesses:

MICHAEL FISHER,

CHAS. H. LUTHER.