H. A. REBELSKI.

MICROMETER CALIPER.

APPLICATION FILED SEPT. 21, 1914.

1,155,440. Patented Oct. 5, 1915.

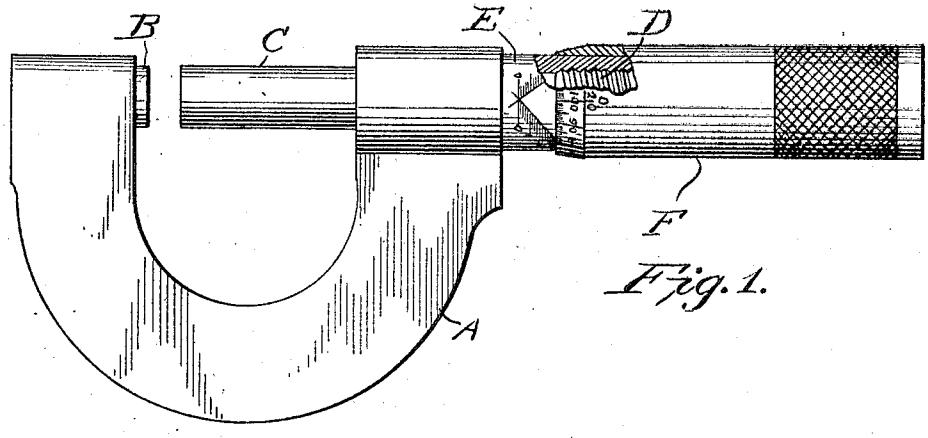
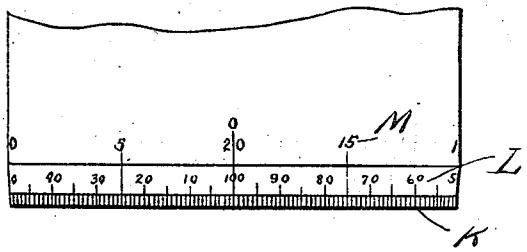


Fig. 1.

Fig. 2.



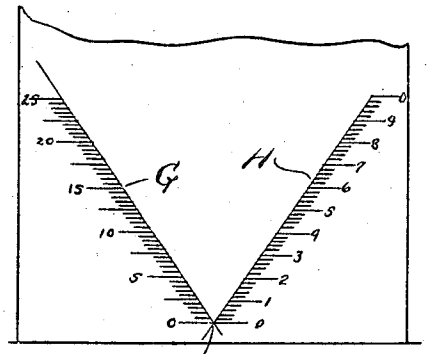


Fig. 3.

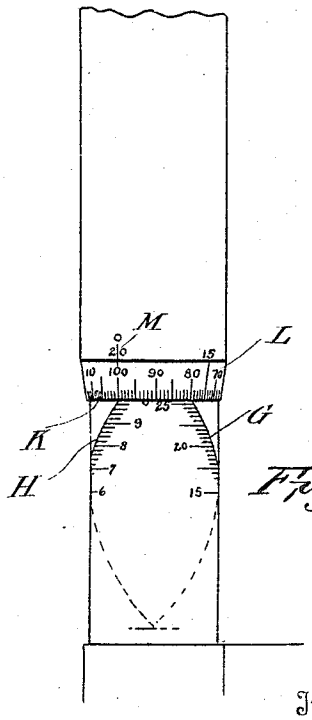


Fig. 4.

Witnesses

D. L. Morris

Inventor

H. A. Rebelski

By Dandelet & Dandelet

Attorneys

UNITED STATES PATENT OFFICE.

HARRY A. REBELSKI, OF BROOKLYN, NEW YORK.

MICROMETER-CALIPER.

1,155,440. Specification of Letters Patent. Patented Oct. 5, 1915.

Application filed September 21, 1914. Serial No. 862,784.

To all whom it may concern:

Be it known that I, HARRY A. REBELSKI, a citizen of the United States, residing at Brooklyn, in the county of Kings, State of New York, have invented certain new and useful Improvements in Micrometer-Calipers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a micrometer caliper, and while I have illustrated it as embodied in a particular type of caliper it has merely been for the sake of illustration for as the description progresses it will be obvious that the invention may be embodied in any of the several types of micrometer calipers.

An object of the invention is to so construct the device that readings may be taken therefrom in either the English or metric systems simultaneously.

A further object of the invention is to make provision for the translating of a reading from one system to the other.

A still further object of the invention is to construct the device in such manner that the reading lines will be so located that all possibility of confusion in taking the several readings or in translating from one to the other will be obviated.

With these and other objects in view, such as will appear as the description progresses, my invention comprises the combination and arrangement of parts as herein set forth and subsequently claimed.

Figure 1 is a side elevation of a micrometer constructed in accordance with my invention. Fig. 2 is a similar view of the sleeve. Fig. 3 is a diagrammatic view of the barrel showing the graduations thereon. Fig. 4 is an enlarged view showing a particular reading which will be described.

Referring to the drawing wherein like parts are indicated by like characters throughout the several views:—the micrometer illustrated is of the ordinary formation having a frame A, an anvil B, spindle C on which is formed the adjusting screw threads D. Formed on the frame A is a barrel E and formed on the spindle C is a sleeve F which normally encircles the barrel E. This is the ordinary construction of a micrometer of this class and it is not thought necessary to go into the minute details of construction thereof as my invention does not radically change this construction.

Before entering into a detailed description of my invention it may be well to here state that the smallest measurements on the English and metric systems which are equal in round numbers, that is, without the employment of fractions or decimals is eight meters (8000) millimeters and three-hundred and fifteen inches (26 ft. and 3 inches). To be more exact 8,001 millimeters equals 315 inches as one inch equals 2.54 cm. Any measurements below this become fractional when translated from one to the other and inasmuch as the micrometer of the ordinary construction indicates readings below twenty-six feet and three inches it is necessary to specially construct the reading lines on the barrel to compensate for this fractional difference and for this purpose I have provided two diverging lines G and H which start from a common zero point I and are drawn helically about the barrel.

The line G is divided into millimeters and sub-divided into half-millimeters, while the line H is divided into tenths of inches with sub-divisions of fiftieths of inches, the measurements on each of the lines G and H gradually increasing as the lines diverge from the common point of zero.

The sleeve is beveled on the edge in the ordinary manner and this edge is divided into one-hundred equal parts, the divisional lines being indicated by the reference character K. Every tenth of these lines extends upwardly and is designated by the proper numeral L from zero to one-hundred, while every twenty-fifth line is carried farther up and is designated by the proper numeral M.

By observing Fig. 2 of the drawing it will be noted that the zero on the series of numbers L coincides with the zero on the series M, the numerals one hundred and twenty coinciding with each of the zeros respectively. The designations on the series L indicate ten-two-hundredths of a millimeter, while the designations in the series M indicate five-thousandths of an inch when read in conjunction with the diverging lines on the barrel. The screw threads on the spindle C are cut fifty and four-tenths to an inch, the four-tenths being to compensate for the divergence of the lines G and H. In this connection I will explain that should fifty threads be used to the inch on the spindle, it is obvious that the thimble

would have to be turned fifty times to get from zero to one inch, or forty-nine times and a fraction to get from zero to twenty five millimeters. It being remembered that one inch is equal to approximately twenty-five and four tenths millimeters. If I should want to use this micrometer the English reading line would be straight, or parallel to the axis, and the metric reading line would have to be helical, and this helical line would be produced by opening the micrometer to where it takes in twenty-five millimeters. The location of the zero on the thimble would then be noted and transferred over onto the barrel and connected by a helical line downward to the barrel zero. Now, if I was to adopt a thread of fifty threads to twenty-five millimeters, then the thimble would have to be turned fifty times to get from zero to twenty-five millimeters or fifty times and a fraction to take in one inch. If I should want to use this micrometer the metric reading line would be straight, or parallel to the axis, and the English reading line would have to be helical, and this helical line would be produced by opening the micrometer to where it takes in one inch. The location of the zero on the thimble would then be noted and transferred over onto the barrel and connected by a helical line downward to the barrel zero.

I adopt a thread of fifty and four-tenths to the inch, as a good mediating thread between the two mentioned heretofore. By doing so I get two helical diverging reading lines and each of them will lie half as much on an incline as if one of them would lie parallel to the axis. In opening this micrometer more and more the right hand reading line travels more and more to the right and this plus will exactly compensate for that which the thread is too fine for the English reading. For the left hand reading line, as the thimble is opened more and more I confront a minus which is also compensated for by that which the thread is too coarse for the metric reading. When this is done and the sleeve turned the reading may be taken off of either the English scale or the metric scale and when taken in connection with the graduations on the sleeve will translate from one to the other in such manner as to be readily read.

Fig. 4 of the drawing shows the sleeve in such position that the zero on the scale M thereon alines with the one-inch mark on the scale H on the barrel, thus indicating that the distance between the anvil and the extremity of the spindle is one-inch, now should it be desired to translate this measurement from the English reading to the metric reading the operator looks at the scale G and observes the last of the millimeter marks thereon, which in this case is twenty-five, has been passed to an amount of four-fifths of a revolution, the line eighty of the scale L intersects the diverging line G, thus indicating that the reading in the metric system is twenty-five and eighty-two-hundredths, or twenty-five and four-tenths millimeters.

It may be thus seen that I have provided a micrometer caliper by means of which various articles may be measured and the readings taken either in the English or in the metric systems or in both. I have so constructed the device that the reading lines are arranged in such manner that the graduations in the systems will be independent and will be marked on diverging lines on the barrel.

I have so constructed the device that the threads on the spindle will be of such pitch as to compensate for the divergence of the lines.

While I have illustrated and described a particular embodiment of my invention, I have merely done so for the sake of convenience and I do not wish to be limited to that particular embodiment as it is obvious that numerous changes may be made within the scope of the invention as defined by the claims.

What is claimed is:—

1. In a micrometer caliper including a barrel, sleeve, and spindle diverging reading lines on the said barrel, the said lines starting from a common point of zero, metric graduations on one of the said lines and English graduations on the other of the said lines, divisional lines on the edge of the said sleeve, certain of said lines being located to be read in conjunction with the metric graduations and the other of the said lines being located to be read in conjunction with the English graduations, the said spindle having screw threaded engagement with the barrel, the threads being of such pitch as to produce the readings, simultaneously, upon the movement of the spindle with relation to the barrel.

2. A micrometer caliper having diverging lines on the barrel thereof starting from a common point of zero, metric graduations on one of said lines and English graduations on the other of said lines, and divisional marks on the sleeve, certain of said marks being adapted to coöperate with the metric graduations and other of said marks being adapted to coöperate with the English graduations to produce a reading in either of the metric or English systems, the spindle of the said micrometer having a thread, of fifty and four-tenths to the inch, thereon.

3. A micrometer caliper including a barrel, spindle and sleeve, diverging reading lines on the said barrel having graduations in the metric and English systems thereon, the edge of the sleeve having divisional

marks thereon, certain of said marks being constructed to coöperate with the English reading line and other of said marks being constructed to coöperate with the remaining reading line, the said reading lines diverging from a common point of zero on the surface of the barrel, and threads on the said spindle of such pitch as to compensate for the divergence of the lines from a line parallel to the said axis.

In testimony whereof, I affix my signature, in the presence of two witnesses.

HARRY A. REBELSKI.

Witnesses:

HENRY W. SCHNEIDER,

FRANK E. MULLEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."