No. 889,853. PATENTED JUNE 2, 1908.

D. LEVY.

INDICATOR.

APPLICATION FILED APR. 11, 1907.

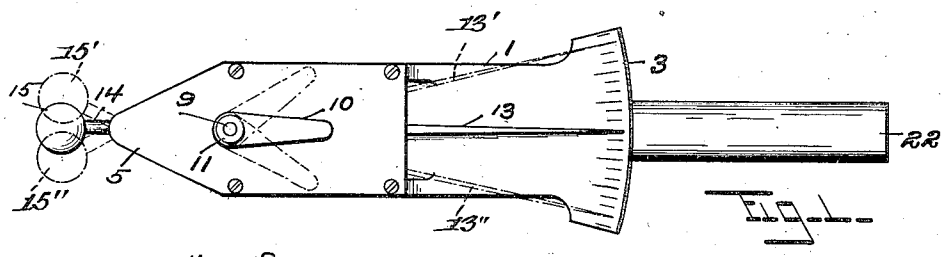


Fig. 1.

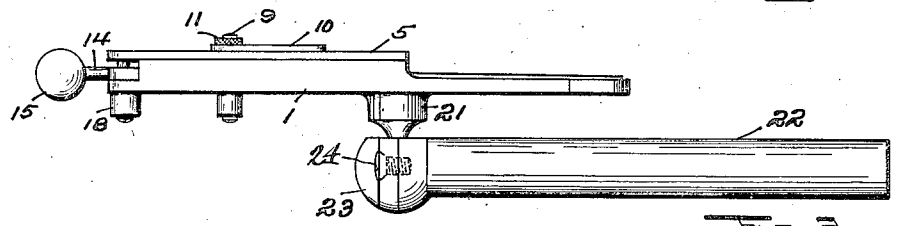


Fig. 2.

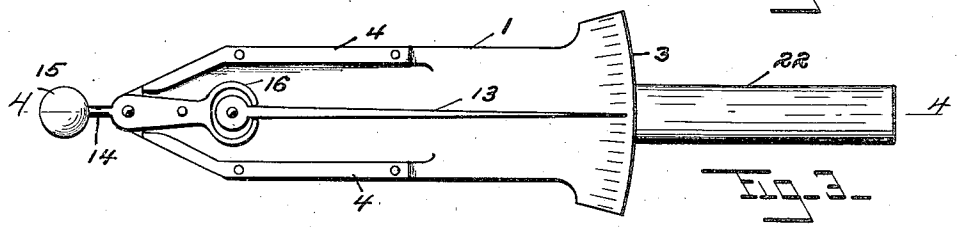


Fig. 3.

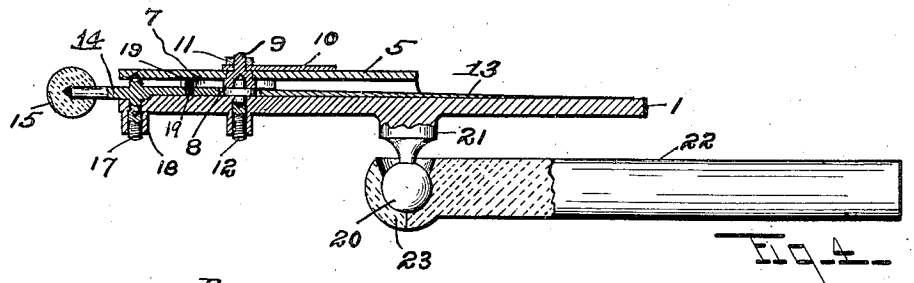


Fig. 4.

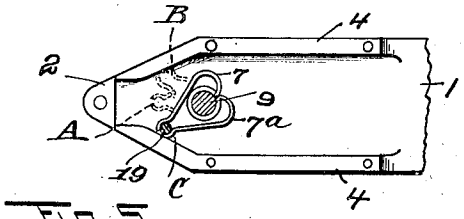


Fig. 5.

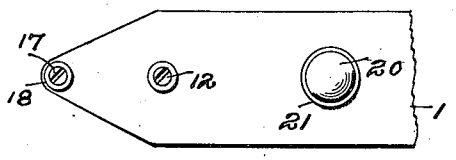


Fig. 6.

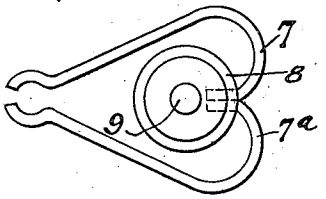


Fig. 7.

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No. 889,853. Specification of Letters Patent. Patented June 2, 1908.

Application filed April 11, 1907. Serial No. 367,538.

To all whom it may concern:

Be it known that I, DAVEGA LEVY, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Indicators, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to new and useful improvements in indicators, and has for its object, among other things, the production of a tool that will be sufficiently sensitive to indicate the slightest variation from the true of the work being tested, as well as to accomplish this result with few parts of simple and economical design.

To these, and other ends, my invention consists in the indicator having certain details of construction and combinations of parts as will be hereinafter described and more particularly pointed out in the claims.

Referring to the drawings, in which like numerals of reference designate like parts in the several figures; Figure 1 is a plan view of my device complete; Fig. 2 is a side elevation thereof; Fig. 3 is a plan view with the top plate and connected parts removed. Fig. 4 is a longitudinal, sectional elevation upon 4—4 of Fig. 3; Fig. 5 is a fragmentary view of a portion of the base member showing the spring in one of its positions; Fig. 6 is a fragmentary view of the underside of the said base member; and Fig. 7 is a plan view of the spring stud.

In the practice of my invention, I provide a base member 1 which is pointed at its forward end 2 and terminating in a graduated arc 3 at the other end. On each side of the said base member are the upwardly projecting flanges 4 to which the top plate 5 is secured by screws or other convenient means.

Passing through the top plate 5 is the stud 9 having a head 8 to which are fixed the companion springs 7—7ª and carrying the pressure finger 10 which is held thereon by the nut 11. The springs 7—7ª are formed so as to project toward the end 2 of the base member upon each side of the stud 9 and terminate so as to allow an open space between the free ends thereof.

Pivotally mounted in the stud 9 and screw 12, threaded through the base member 1, is a finger 13 which projects over the base member and terminates near the end 3 thereof.

The numeral 14 designates a lever which is pivotally mounted midway between its ends in the top plate 5 and the base member 1. A removable contact ball 15 is upon the outer end of said lever and the inner end is formed in the shape of a yoke 16 that encircles the hub of the finger 13 and contacts with the sides thereof slightly in advance of its pivot mounting. The screw 17 which passes through the hub 18 upon the base member 1 provides ready means for adjusting the frictional contact of the pivot bearing of said lever.

I have illustrated the contact member herein as a ball (15), but any other form, that may be deemed desirable, can be used equally as well, or the said member may be removed entirely and only the pointed end of the lever 14 used. Fixed in said lever 14 is a pintle 19 which projects upwardly therefrom into the open space between the free ends of the springs 7—7ª. The zero position of the contact ball 15 and finger 13 is variable, to accommodate different classes of work, by manipulating the pressure finger 10, which it will be recalled is rigidly connected with the springs 7—7ª. In Fig. 1 I have illustrated the intermediate position of the pressure finger 10, contact ball 15 and finger 13 by full lines and the extreme positions by the broken lines which are severally designated by the figures 13′, 13″ and 15′, 15″. In Fig. 5 springs 7—7ª are illustrated by full lines in the extreme position C, the intermediate position by the broken lines A, and the other extreme position by the broken lines B. The contact ball 15 and finger 13 are always returned to their zero positions by the action of either one or the other of the springs 7 or 7ª engaging with the pintle 19, the acting spring being determined by the direction of movement of the contact ball 15.

To illustrate the application of my invention in testing the trueness of rotary parts I will describe the operation of truing of a hole in a part fixed upon a lathe. The part having the hole therein is temporarily secured to the face plate and the indicator held so that the ball 15 contacts with the surface of said hole, in which position the springs 7—7ª hold the finger 3 at the central zero graduation. Now, as the face plate is rotated the engagement of said ball with said hole surface will move the lever 14 upon its pivot mounting when the hole is not true, which lever moves the finger 13 in a circular path over the grad-

uations upon the base member, and the fact that the hole is out of true is indicated thereby. The springs 7 always return the parts to their normal central position as soon as the pressure is removed from the contact ball. The finger 13 is so long and the point of contact of the lever 14 with said finger is so close to its pivot mounting that the movement of the contact ball 15 is multiplied many times.

There are many convenient ways whereby this device may be held in a lathe, but the one I prefer is shown herein, and consists in a ball 20 upon the end of a lug 21 fixed to said base member, the holder 22 having a clamp plate 23, fixed thereto by screws 24, which partly surrounds said ball 20 and provides a ball and socket joint. The holder 22 is fastened in the tool post and by reason of said ball and socket connection the indicator can be moved into practically any desired position.

The use of my invention is not limited to testing rotary parts, but may be fastened in a planer for illustration, and moved over a part fixed upon the bed thereof to determine whether the same is true or not. Many other uses might also be suggested, but the above will suffice to illustrate the practical operation of my device.

In some cases it is desirable that the finger 13 should not indicate zero as the center of the graduation, as above described, but located at either end of said graduations, and the position of the finger 13 is shifted to accommodate such cases by moving the position of the springs 7 & 7ª, which, by their engagement with the pintle 19 in the lever 14, hold said lever and finger in the desired position. The springs 7 & 7ª are shifted by moving the pressure finger 10 about the stud 9, and the extreme positions of said springs 7 & 7ª are shown by the full and broken lines in Fig. 5.

There are minor changes and alterations that can be made within my invention, aside from those herein suggested, and I would therefore have it understood that I do not limit myself to the exact construction herein shown and described, but claim all that falls fairly within the spirit and scope of my invention.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is:—

1. In an indicator, the combination with a base member; of a pivotally mounted finger; a pivotally mounted lever engaging said finger between its pivot mounting and the free end thereof; means for varying the frictional engagement of both pivot mountings; and rotarily adjustable spring mechanisms for varying the zero position of said finger and lever.

2. In an indicator, the combination with the base member 1; of the finger 13 and lever 14 having pivot bearings; screws 12 and 17 for adjusting said pivot bearings; companion springs 7 and 7ª engaging a fixed part on said lever; and a pressure finger 10 for shifting the position of said springs.

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

DAVEGA LEVY.

Witnesses:
GEORGE E. HALL,
FLORENCE H. MONK.