J. H. GRANT.

INDICATOR FOR USE WITH CALIPERS, SCRIBING BLOCKS, AND THE LIKE.

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1,129,289.

Patented Feb. 23, 1915.

Fig. 1.

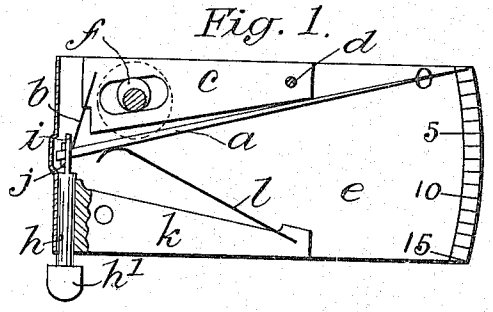


Fig. 2.

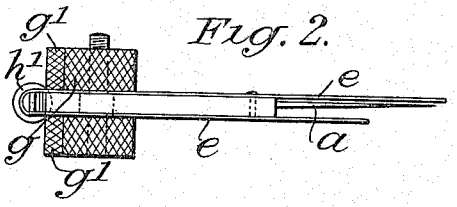


Fig. 3.

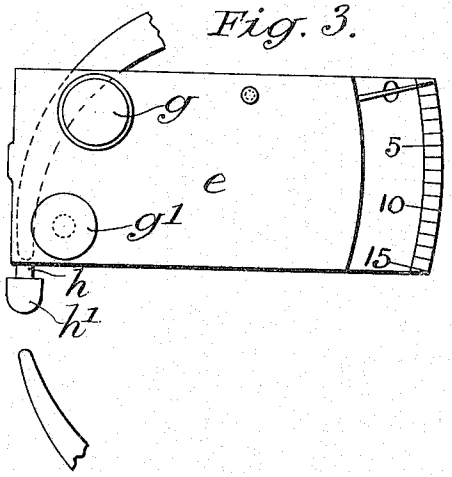


Fig. 6.

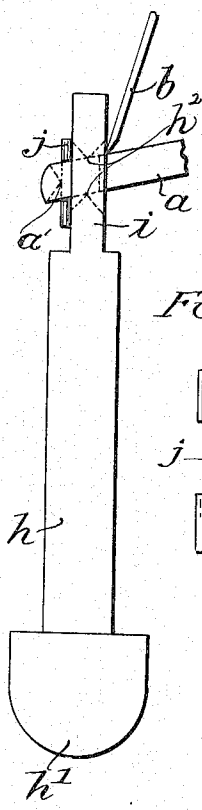


Fig. 7.

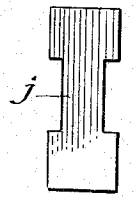


Fig. 4.

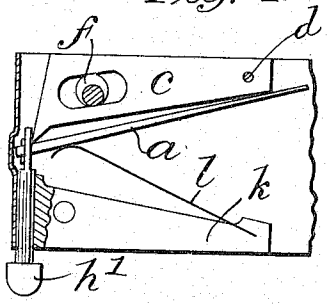
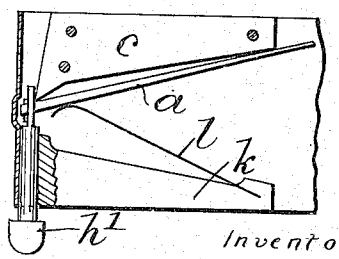


Fig. 5.



Witnesses

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INDICATOR FOR USE WITH CALIPERS, SCRIBING-BLOCKS, AND THE LIKE.

1,129,289. Specification of Letters Patent. Patented Feb. 23, 1915.

Application filed August 8, 1912. Serial No. 714,113.

To all whom it may concern:

Be it known that I, JAMES HENRY GRANT, a subject of the King of Great Britain and Ireland, residing at School House, Heber Road, East Dulwich, London, England, have invented certain new and useful Improvements in Indicators for Use with Calipers, Scribing-Blocks, and the like, of which the following is a specification.

This invention for improvements in indicators for use with calipers scribing blocks and the like relates to indicators in which the movement of a spring controlled member is magnified and indicated on a scale by a lever, and consists in mounting the lever on a knife edge fulcrum and operating it by another knife edge so that these two points can be brought close together and thus a great multiplication obtained of the motion of the operating edge with a lever of small dimension.

Another feature of this invention is the mounting of the fulcrum adjustably in order that the position of the spring controlled member may be regulated or adjusted without altering the position of the pointer on the scale.

A further feature of this invention consists in mounting the fulcrum adjustably in order that the proportions of the indicating lever may be varied.

The accompanying drawing illustrates various practical forms of indicators constructed according to the invention.

Figures 1 and 2 are respectively a sectional elevation and an outside plan of an indicator provided with an adjustable knife edge fulcrum. Fig. 3 is a view showing the same attached to a pair of calipers. Fig. 4 is a sectional elevation of an indicator with a modified form of adjustable fulcrum. Fig. 5 is a similar view of an indicator in which the fulcrum is fixed. Fig. 6 shows the spring controlled member on an enlarged scale. Fig. 7 is a detail front elevation of the pin which connects the indicating hand with the contact stud.

In the arrangement shown in Figs. 1 to 3 the indicating lever *a* is fulcrumed about a knife edge *b* of steel which is secured to the block *c*. This block *c* is pivoted at *d* to the casing *e* in which it forms a distance piece and is adapted to be moved by a cam *f* carried on screw and nut *g*. This cam *f* is housed in a slot in the block *c* so that when rotated it can raise and lower the block together with the knife edge fulcrum.

When the position of the knife edge *b* is to be adjusted or regulated, the cam *f* is rotated thus turning the block *c* about the pivot *d* while the knife edge *b* slides on the face of the spring controlled member *h*. The spring controlled member *h* is slotted at its upper end *i* to receive the end of the lever *a* which is secured thereto by the pin *j* as illustrated in Fig. 6. The pin *j* has its sides notched as shown in Fig. 7 and is inserted through an opening in the lever *a* which is sufficiently long to permit this pin to have its larger lower end passed therethrough, and said pin is then turned to dispose its contracted neck portion in the opening of said lever or hand *a* whereby the shoulders formed on opposite sides of the pin at the upper end of its neck, will engage the upper face of said lever and hold the pin in operative position. The lever *a* is also provided at the rear end of this opening with a knife edge *a'* which bears on the pin *j* (see Fig. 6). The opening or slot in the upper end of the member *h* through which the lever *a* passes is provided on its upper and lower walls with knife edges h^2 which permit the pivotal movement of said lever *a* in a vertical direction. This spring controlled member *h* is slidably mounted between the end of the casing *e* and the block *k* and carries an enlarged head *h'* at its lower end. This block *k* carries the spring *l* which normally holds the indicating lever in the zero position. One side of the case *e* extends farther than the other and is graduated to form a scale *m* over which the indicating lever moves.

In attaching the indicator to calipers or scribing block the thumb screws or nuts *g* and *g'* are used.

In the arrangement shown in Fig. 4 the knife edge fulcrum is formed as part of the block *c* and thus turns with the block about the center *d* when adjusted by the cam *f*. In this way the proportions and thus the sensitiveness of the indicating lever can be varied.

Fig. 5 shows a modified form of construction in which a fixed knife edge fulcrum is employed.

By means of this indicator small differences in dimensions may be shown and measured.

What I claim and desire to secure by Letters Patent is:—

1. An indicator for use with calipers and the like comprising a casing, a slidable contact stud carried thereby and provided at its inner end with a slot having a knife edge, an indicating hand pivotally supported in said slot, a knife edge bearing on said hand adjacent its pivotal connection with said slidable contact and a spring for resisting the movement of the hand in one direction.

2. An indicator for use with calipers and the like comprising a casing, a slidable contact stud carried thereby and provided at its inner end with a slot having a knife edge, an indicating hand pivotally supported in said slot, a spring for resisting the movement of said hand in one direction, and means for co-acting with said spring for indicating the movement of said slidable member.

3. An indicator for use with calipers and the like comprising a casing, a slidable contact stud carried thereby, and provided at its inner end with a slot having a knife edge, an indicating hand pivotally supported in said slot, a knife edge bearing on said hand adjacent its pivotal connection with said slidable contact, a spring for resisting the movement of said hand when pressure is exerted on the outer end thereof, and means for permitting shifting of the fulcrum of said hand.

4. An indicator comprising a casing, a slidable member supported thereby, an indicating hand pivotally supported by said slidable member, a spring bearing against said hand to resist its movement in one direction, a knife edge bearing on said hand adjacent its pivotal connection with said slidable member, a block pivoted to said casing and supporting said knife edge, and means adapted for angularly adjusting said block on its pivot.

5. An indicator for use with calipers and the like comprising a casing, a slidable contact stud carried thereby and provided at its inner end with a slot having a knife edge, an indicating hand pivotally supported in said slot, a block having a knife edge bearing on one side of said hand adjacent its pivot, and a spring bearing on the opposite side of said hand remote from its pivot.

6. An indicator comprising a casing, an indicating hand, a block pivoted to the casing and having a knife edge bearing on one side of said hand, a spring bearing on the opposite side of said hand, a cam adapted to adjust the block about its pivot, and means pivotally connected to said hand for angularly adjusting it on said knife edge against the tension of said spring.

In testimony whereof I have affixed my signature, in presence of two witnesses.

JAMES HENRY GRANT.

Witnesses:
H. D. JAMESON,
TRACY LAY.

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