No. 716,279. Patented Dec. 16, 1902.

A. RIEFFEL.

MICROMETER GAGE.

(Application filed May 16, 1902.)

(No Model.)

FIG. 1.

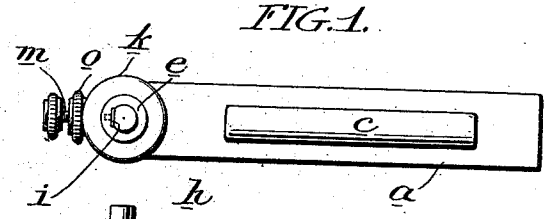


FIG. 2.

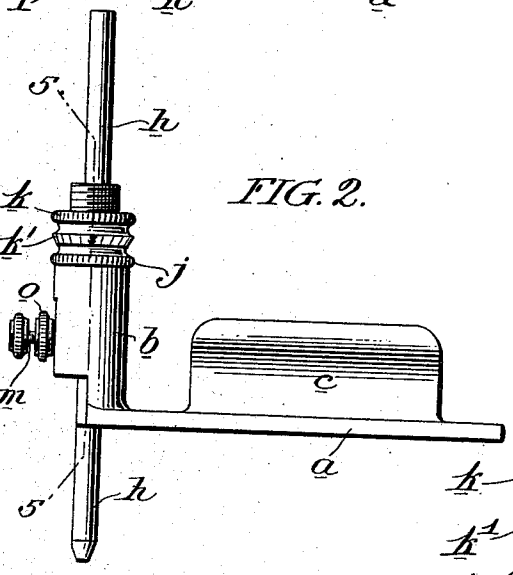


FIG. 3.

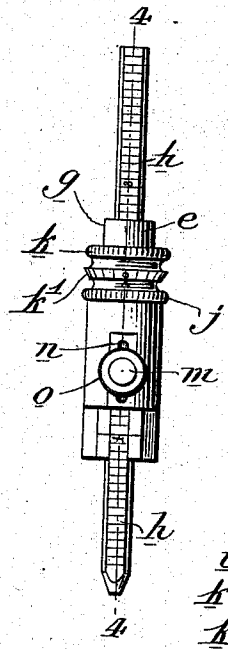


FIG. 5.

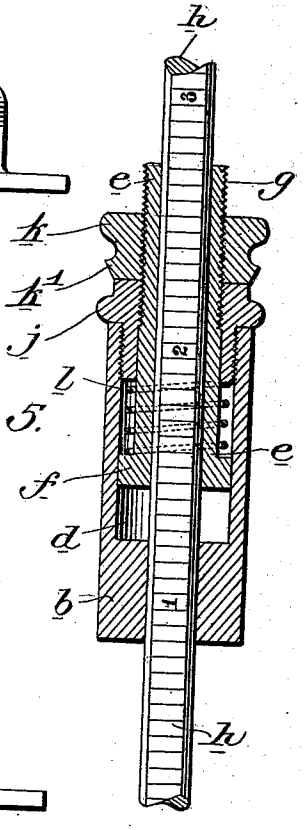
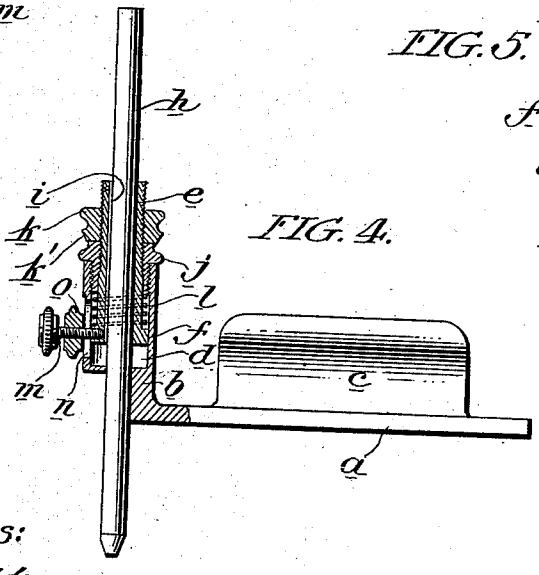


FIG. 4.



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AUGUST RIEFFEL, OF PHILADELPHIA, PENNSYLVANIA.

MICROMETER-GAGE.

SPECIFICATION forming part of Letters Patent No. 716,279, dated December 16, 1902.

Application filed May 16, 1902. Serial No. 107,687. (No model.)

To all whom it may concern:

Be it known that I, AUGUST RIEFFEL, a citizen of the United States, and a resident of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Micrometer-Gages, of which the following is a specification.

My invention relates to improvements in micrometer-gages, and more particularly to improvements in micrometer depth and height gages.

My gage comprises a frame having two limbs, one at right angles to the other, one limb forming a base adapted to rest upon the surface of the object a hole or step in which is to be measured and the other limb of which carries an adjustable graduated rod. The graduated rod is movably carried in a sleeve movable within the vertical limb of the frame. A thumb-screw passes through a slot in the frame, through the movable sleeve, and engages the movable rod, so that this latter may be locked to the sleeve. A jam-nut is provided whereby the set-screw, the sleeve, and the movable rod may all be locked to the frame. The top of the opening in the vertical limb of the frame is closed by a plug, through which the upper part of the movable sleeve passes. The upper outer end of the sleeve is threaded and carries a nut graduated upon its periphery, forming a micrometer adjustment. The movable sleeve is normally held downward by a spring, and the interior of the movable sleeve carries a spring which engages one side of the graduated rod to prevent this latter from falling from the sleeve, while permitting its free movement up and down therein.

In the accompanying drawings, forming part of this specification, and in which similar letters of reference indicate similar parts throughout the several views, Figure 1 is a top or plan view of my improved depth or height gage; Fig. 2, a side elevation of the gage; Fig. 3, a front elevation of Fig. 2; Fig. 4, a section of Fig. 3 on line 4 4; Fig. 5, an enlarged section of Fig. 2 on line 5 5.

The frame of the gage consists of two limbs, a horizontal one *a* and a vertical one *b*, which are arranged at right angles. The limb *a* is furnished with a thumb-piece or handle *c*. The vertical limb *b* is bored out to form a chamber *d*, Figs. 4 and 5, which is adapted to receive a movable sleeve *e*, the lower end of which is furnished with a shoulder *f* and the upper outer part of which is furnished with a fine screw-thread *g*. The vertical axis of the sleeve *e* is bored out to receive the graduated measuring-rod *h*, which is prevented from falling from the sleeve by a spring *i*, Fig. 4, carried by the sleeve and bearing against the rod. The upper end of the chamber *d* is closed by a plug *j*, through which the sleeve *e* passes.

k is a nut furnished with graduations *k'*, carried by the thread *g* on sleeve *e* and forming therewith a micrometer adjustment for the sleeve *e* and rod *h*.

l is a spring bearing against the lower end of plug *j* and against the upper end of shoulder *f* on sleeve *e*, which normally forces sleeve *e* downward.

m is a set-screw passing through a slot *n* in the vertical limb *b* of the frame and through sleeve *e*, which carries it and which is adapted to engage and lock the rod *h* to the sleeve.

o is a jam-nut carried by screw *m*, by means of which this screw and the sleeve *e* may be locked to the limb of the frame.

In using the gage for measuring the depth of a hole, for instance, the limb *a* of the frame is placed upon the surface in which is the hole, the set-screw *m* is loosened, and the rod *h* is pushed down until it engages the bottom of the hole, when the screw is tightened, locking the rod to the sleeve *e*, after which the gage is lifted up and the scale read in the usual manner. If the scale be set first to a fixed distance—say one inch—and the set-screw *m* then run in to lock the rod *h* to the sleeve and the rod be then inserted in a hole of less depth than one inch, the rod and the sleeve will be lifted until the limb *a* rests squarely upon the surface of the object in which is the hole being measured. When limb *a* is in perfect contact with its bearing and the sleeve *e* and rod *h* lifted, the jam-nut *o* is run in until it locks the screw *m* and the sleeve *e* to the limb *b*. The graduations on the nut *k* having been previously set at the zero-mark, this nut is run down until it engages the top of the plug *j*, upon which is the stationary or setting mark for the micrometer. The complete and partial revolutions

of the nut *k* being counted will give the difference between the actual depth of the hole and the scale on the rod *h* as originally set, the difference being read off at the top of the scale instead of at the bottom, as is usual, a great advantage when measuring holes of small diameter and considerable depth.

The gage is adapted not only for measuring the depth of holes, but for measuring any other things that its particular design will permit.

Having thus described my invention, I claim—

1. In a gage, in combination, a frame furnished with a chamber at right angles to its base, a sleeve longitudinally movable in said chamber, the upper outer end of said sleeve being threaded, a cap closing the top of said chamber through which said sleeve passes, a graduated rod longitudinally movable in said sleeve, means whereby said rod may be locked to said sleeve, means for normally forcing said sleeve downward, and a graduated nut carried by the thread upon the upper end of said sleeve.

2. In a gage, in combination, a frame furnished with a chamber at right angles to its base, a sleeve longitudinally movable in said chamber, the upper outer end of said sleeve being threaded, a cap, through which said sleeve passes, closing the top of said chamber, a graduated rod longitudinally movable in said sleeve, a spring carried by said sleeve engaging said rod, a screw, passing through a slot in said frame carried by said sleeve adapted to engage said rod, a jam-nut carried by said screw, a spring normally tending to throw said sleeve downward, and a graduated nut carried by the thread upon the upper end of said sleeve.

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