(No Model.)

A. G. HOLLISTER.

DEPTH GAGE.

No. 526,105. Patented Sept. 18, 1894.

Fig. 1.

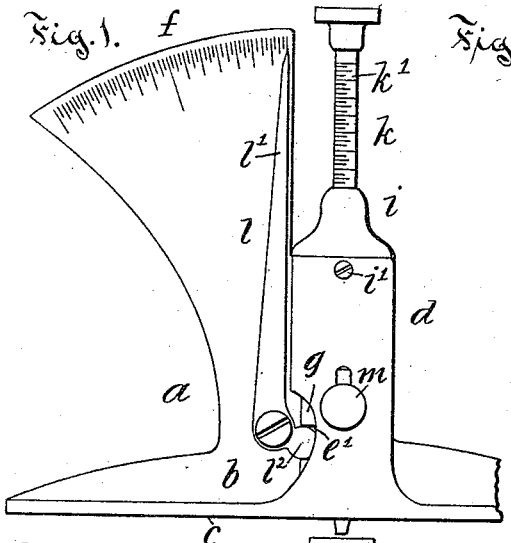


Fig. 3.

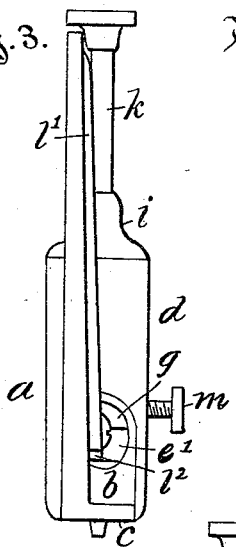


Fig. 4.

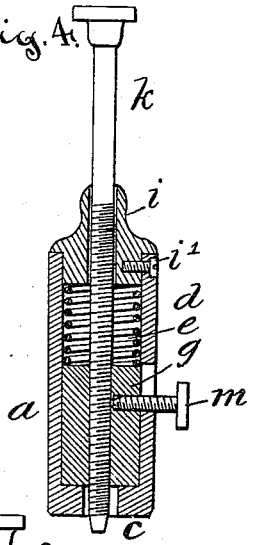


Fig. 2.

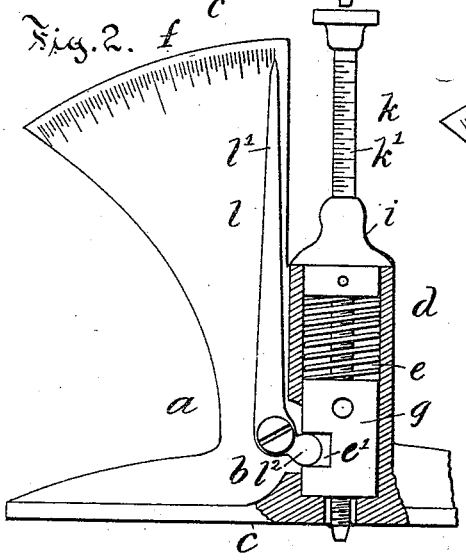


Fig. 5.

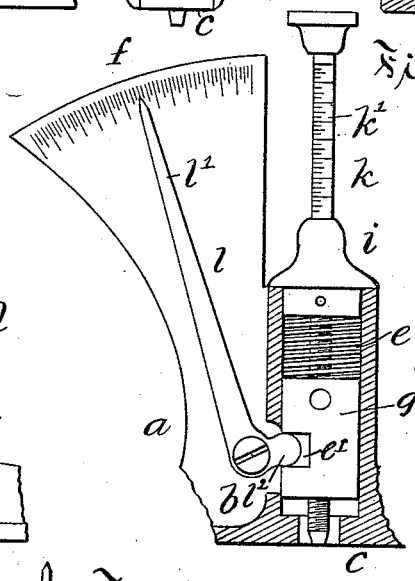
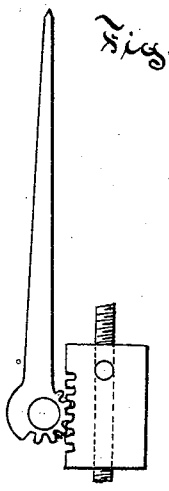


Fig. 6.



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UNITED STATES PATENT OFFICE.

ALBERT G. HOLLISTER, OF HARTFORD, CONNECTICUT.

DEPTH-GAGE.

SPECIFICATION forming part of Letters Patent No. 526,105, dated September 18, 1894.

Application filed May 24, 1894. Serial No. 512,283. (No model.)

To all whom it may concern:

Be it known that I, ALBERT G. HOLLISTER, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Depth-Gages, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

The object of my invention is to provide a simple and compact device that shall be simple and strong in construction and one which may be made at a price that will bring it within the reach of the average workman, and to this end my invention consists in the details of the several parts making up the gage and in the combination of such parts as more particularly hereinafter described and pointed out in the claims.

Referring to the drawings: Figure 1 is a front view of the gage. Fig. 2 is a detail front view of the gage with the plunger case cut in vertical section to show the construction. Fig. 3 is a detail edge view of the device. Fig. 4 is a detail view in cross section through the plunger chamber. Fig. 5 is a detail skeleton view of the operative parts illustrating the manner of use. Fig. 6 is a detail view showing a modified form of connection between the plunger and index lever.

The device consists mainly of a body part having a straight base and a stock containing a plunger that is adapted to be protruded through an opening in the base the whole being compactly arranged and free from any combination of delicate springs and levers apt to be injured or made useless by a slight blow or fall.

In the accompanying drawings the letter *a* denotes the body part of the tool as a whole which is preferably of metal cast to shape and including a base *b* with a flat straight under surface *c*, a stock *d* provided with a plunger chamber *e*, and the graduated arc *f*.

The plunger *g* is located in the plunger chamber and held at one end of its path of permitted sliding movement therein by means of a spring *e* which in the form shown is a coiled spring located between the upper surface of the plunger and a cap *i* which is secured to the stock as by means of a clamp screw *i'* which extends through a threaded socket in the stock and engages the cap. A gage rod *k* extends lengthwise through the stock passing through a hole in the cap and through a threaded hole in the plunger, the rod being threaded to fit the threaded opening through the plunger. The upper end of the rod which projects beyond the cap of the plunger chamber is provided with a graduated surface *k'* marked to any scale desired and preferably on a flattened portion of the rod.

An index lever *l* is pivoted to the body part of the tool with the longer arm *l'* terminating in a pointer which traverses the graduated arc and by this position indicates the position of the plunger within the chamber, a short arm of the lever engaging the plunger so that any lengthwise movement of the plunger causes a traversing movement of the outer end of the lever across the graduated arc.

In the preferred form of the device the arm l^2 of the lever projects into an open socket *e'* in the side of the plunger the wall of the chamber being cut away to enable the parts to be engaged as illustrated. This end of the lever is rounded and fits closely between the parallel walls of the socket so as to cause the plunger and lever to move together, but the contact is not loose enough to allow of any lost motion between the parts.

The central mark on the graduated scale is the zero mark and when the plunger is lifted to a position which places the index end of the lever on the zero mark of the arc the lower end of the gage rod is located in the plane of the surface *c* of the base of the implement, as shown in Fig. 5 of the drawings.

The method of using the instrument is as follows: If a channel is to be planed in the surface of a piece of metal the gage rod is screwed downward so that the lower end of the rod projects beyond the surface of the base a distance equal to the depth of the channel or groove, when the parts are arranged with the index end of the lever on zero of the graduated arc. The proper adjustment of the gage rod is determined from the scale marked on the upper part of it, the upper edge of the cap being used as the index surface in connection with the marks on

the gage. When the gage rod has been protruded this desired distance it is clamped firmly to the plunger by means of a clamp screw *m* which extends through a slot in the wall of the plunger chamber and into a threaded socket in the plunger, the bottom wall of which is made thin so that by turning the clamp screw inward the plunger may be clamped firmly to the rod. The implement is then applied to the work after the channel or groove has been started and the position of the index arm of the lever on the arc will indicate whether the groove has been cut to a sufficient depth or not. If the index end of the lever is located at the right of the zero of the gage it will show that the channel is too deep, and if at the left of the gage it will show that it is not of the required depth to conform to the gage as set. Owing to the difference in length between the two arms of the lever a small movement of the plunger is multiplied at the index end of the lever so that the relative condition of a surface as to depth of various parts can be determined with great accuracy.

A modified form of device as to the means of connecting the plunger and the index lever is shown in Fig. 6 of the drawings where a segment of a gear cut on the side of the pivot end of the lever is arranged to engage the teeth of a rack cut in the side of the plunger. This is not so desirable a form of connection owing to the chance for lost motion between the engaged teeth. Provision may be made for expanding the short arm of the lever so as to take up any wear or lost motion between the rounded surfaces of the lever arm and the opposite surfaces of the socket in the plunger, the parts, however, being in the first instance thoroughly hardened to reduce the wear to a minimum.

It is obvious that the device may be modified in several features without departing from the invention and I do not limit myself to the precise construction of the plunger, the gage rod, and the index lever and its connections, as in the form described.

I claim as my invention—

1. In combination in a depth gage, a body part, a stock having a plunger chamber, a graduated arc, and a base having a straight edge, a reciprocating plunger located within the chamber, a threaded gage rod extending through a threaded socket in the plunger and with its lower end adapted to project beyond the straight surface of the base, and an index lever pivoted to the body part with a short arm engaging the plunger whereby a reciprocating movement of the plunger is translated to a circular movement of the outer end of the lever, all substantially as described.

2. In combination with a body part having a plunger chamber, a graduated arc, and a straight edge, a reciprocating plunger located within the chamber, a spring located between the plunger and an end wall of the plunger chamber, a gage rod having a threaded part fitting a threaded socket in the plunger and with its lower end extending beyond the surface of the base, and a graduated scale marked on the upper part of the rod, an index lever pivoted to the body part of the tool with the short arm of the lever in engagement with the plunger and the longer arm adapted to traverse a graduated arc, all substantially as described.

3. In combination with a stock having a flat working face and a plunger chamber at substantially right angles thereto, a graduated arc, a reciprocating plunger located within the chamber, a spring located between the plunger and an end wall of the plunger chamber, a guage rod having a threaded part fitting a threaded socket in the plunger and a graduated scale marked on the upper part of the rod, a clamp screw adapted to clamp the plunger and gage rod together, an index lever pivoted to the stock and with its short arm in engagement with the plunger and its longer arm adapted to traverse the graduated arc, all substantially as described.

4. In combination in a depth gage, a stock having a flat working face, a reciprocating plunger borne on the stock, a gage rod adjustably connected to the plunger, a graduated scale on the gage rod, a graduated arc on the body part of the stock and an index lever pivoted to the stock and having a short arm in engagement with the plunger, the end of the gage rod being located in the plane of the working surface when the index end of the lever registers with the zero of the graduated arc, all substantially as described.

5. In combination in a depth gage, a body part, a stock having a plunger chamber, a graduated arc, a brace having a straight edge, a reciprocating plunger located within the chamber, a recess in the wall of the plunger, a threaded gage rod extending through a threaded socket in the plunger and with its lower end adapted to project beyond the straight surface of the base, and an index lever pivoted to the body part with a short arm projecting into the recess in the plunger, all substantially as described.

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Witnesses:
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