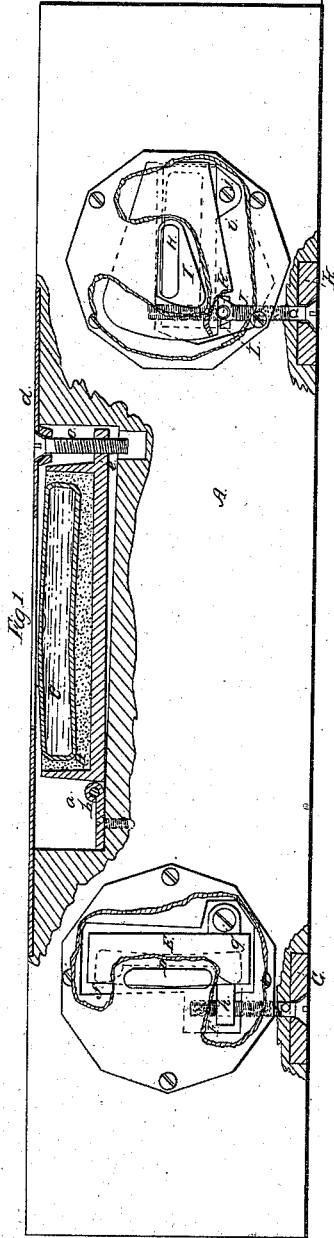


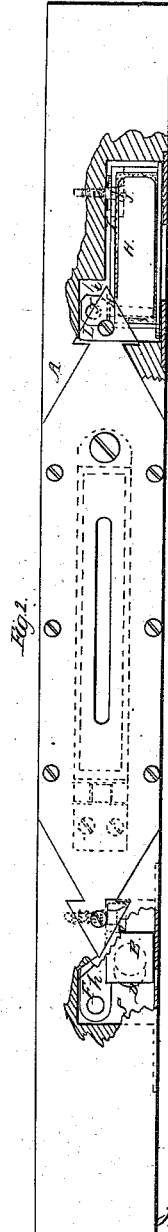
T. N. HOSMER.
SPIRIT LEVEL.

No. 36,906.

Patented Nov. 11, 1862.



Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS N. HOSMER, OF TODD'S VALLEY, CALIFORNIA.

IMPROVEMENT IN SPIRIT-LEVELS.

Specification forming part of Letters Patent No. 36,906, dated November 11, 1862.

To all whom it may concern:

Be it known that I, THOMAS N. HOSMER, of Todd's Valley, in the county of Placer and State of California, have invented a new and useful Improvement in Spirit-Levels and in Plumbs and Grading Implements in which Spirit-Bulbs are Used; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of my invention, partly in section. Fig. 2 is a plan or top view of the same.

Similar letters of reference indicate corresponding parts in the two figures.

This invention relates to an improved mode of securing and adjusting the glass spirit bulbs or vials in the stock of the implement, whereby the bulbs or vials may be very readily replaced if broken, and when fitted in the stock capable of being adjusted in proper position so that they may answer the purpose for which they are designed.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a rectangular block of wood of any proper dimensions, and having a rectangular opening or mortise, *a*, in its upper surface, in which an oblong metal box, B, is fitted, and secured at one end by a hinge or joint, *b*, as shown clearly in Fig. 1. The opposite end of this box B is retained in proper position by a screw, *c*, which passes through a plate, *d*, on the upper surface of the block, and which serves as a covering for the opening or mortise *a*, the screw passing through a hole in a projection, *e*, at the end of the box, said hole being provided with a female screw.

Within the box B the spirit bulb or vial C is placed and secured in position by being embedded in plaster-of-paris, as usual. The bulb or vial C is adjusted parallel with the bottom of the block A by turning the screw *c*, and said bulb or vial, when thus adjusted in the block, forms in connection therewith what is commonly termed a "spirit-level." In case of any inaccuracy in the position of the bulb or vial C or in the block A, it will be seen that the bulb or vial, by adjusting the screw *c*, may always be kept in proper relative posi-

tion with the under side of the stock, and in case the bulb or vial should be broken it may be readily replaced by a new one and the latter adjusted in any proper position without any difficulty whatever. This result is not attained by the ordinary spirit-levels, which have their bulbs or vials permanently secured in them, and require to be adjusted by a mechanic or one skilled in the art.

D is a glass spirit bulb or vial, which is fitted in a proper recess, *f*, in the block, and in a transverse position therewith. The bulb or vial is inserted in a metal box, E, which is secured in the block by a screw, *g*, which serves as a pivot for the bulb or vial D to turn on. The box E has an arm, *h*, projecting horizontally from it, through which a screw, F, passes, said screw passing loosely through a plate, G, attached to the block. By turning this screw F it will be seen that the box E and the bulb or vial D may be adjusted so as to bring the latter in a proper relative position with the block, (at right angles with its sides,) in order that the implement may serve as a plumb.

H is a glass spirit bulb or vial, which is inserted in a box, I, placed in a recess, *i*, in the block A. The box I is secured in this recess by a screw, *j*, on which it is allowed to work in order to be adjusted. The adjusting of the box I is effected like the others by a screw, J, which passes loosely through a metal plate, K, and is fitted in a nut, L, provided with a pin, *k*, which passes loosely into the box I. This nut and pin admit of a greater adjustment of the box I than could be obtained by the screw J passing through a fixed arm connected with the box, and this greater degree of adjustment of said box I is necessary, as the bulb or vial H is used for grading purposes, or for setting articles at a greater or less degree of inclination, while the boxes B E of the other bulbs or vials, C D, when once properly adjusted, do not require to be afterward moved unless to compensate for some inaccuracy in the block.

This invention does not add in an appreciable degree to the cost of construction, while it places the device, so far as correctness or accuracy is concerned, under the complete control of the operator or user.

Having thus described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

The securing of the glass spirit bulbs or vials of spirit-levels, plumbs, grading implements, &c., in their stocks or blocks by having the boxes in which said bulbs or vials are placed fitted in recesses in the stocks or blocks

on a hinge, screw, or pivot, and adjusted and secured in proper position by a screw, substantially as herein set forth.

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Witnesses:

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