(No Model.)

W. R. VOGT.

SPIRIT LEVEL.

No. 359,236. Patented Mar. 8, 1887.

Fig. 1.

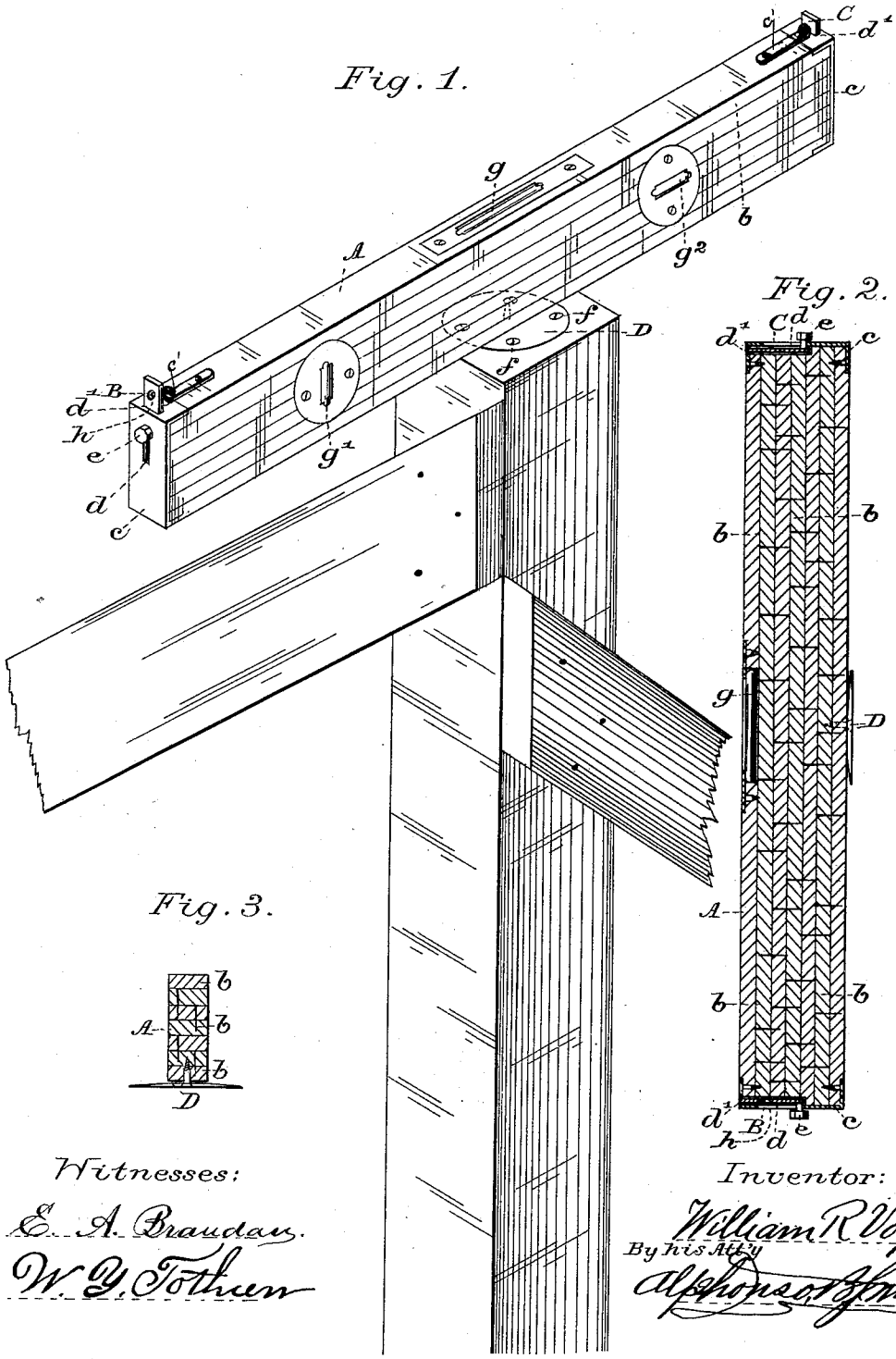


Fig. 2.

Fig. 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

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SPIRIT-LEVEL.

SPECIFICATION forming part of Letters Patent No. 359,236, dated March 8, 1887.

Application filed July 9, 1886. Serial No. 207,619. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. VOGT, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented a new and useful Improvement in Spirit-Levels, of which the following is a full, clear, and exact description.

My invention relates to improvements in spirit-levels; and it consists in the features of construction and combinations of parts hereinafter fully described, and pointed out in the claims.

In the drawings, Figure 1 is a perspective view of the device, showing the manner of attaching it to a post to determine a level. Fig. 2 is a longitudinal section, showing the manner of constructing the stock, and Fig. 3 is a transverse section of the stock.

Referring to Fig. 1, A represents a spirit-level provided with sights, spirit-tubes, and a swivel-plate, and having the stock laminated—that is to say, the stock is composed of a series of thin strips, *b*, of wood, the grain of the strips running in different ways. These strips are glued together and further secured by nails or screws. The object of this construction is to produce a solid stock, which will not warp or twist out of a true line by exposure to heat or moisture.

Each end of the stock is provided with a plate, *c*, which is attached by screws. On the end each plate has a vertical slot, *d*, for the action of a button which is attached to each sight, and on top in the center near the edge each plate has a slot, *d'*, for the action of the sight.

The sights B C are placed between the plate *c* and the stock, and are adapted to move vertically, for the purpose of preventing the sight from falling after it has been raised; and to hold it firmly in position a small spring, *c'*, is attached at one end to the stock and adapted to bear against the sight at its other end. The pressure of said spring against the sight is sufficient to hold it after it has been raised to its limit. In the sight B there is a pin-hole, *h*, in the center, exactly on a level with the top edge of the rear sight, C, both sights being moved vertically by the button *e*, attached to each sight through the slot *d*. The sights are arranged to give a true level, by raising them to their limit, without graduation or adjustment.

For the purpose of attaching the spirit-level to a corner-post in determining a level, I provide a swivel-plate, D, which is screwed to the center of the lower edge of the stock, the plate having screw-holes *f* for attaching it to the post, Fig. 1. As the level of a corner is determined the spirit-level is revolved on a screw and pointed at the next corner, or any intermediate point, and so on until the level of all the required points has been determined. In placing the spirit-level on a corner-post it is adjusted to an exact level, as shown by the spirit-tubes *g*, by inserting small strips or shavings under the swivel-plate, which is then screwed to the post, and the level of all the corners or intermediate points is determined from the initial point without removing the spirit-level.

In using my spirit-level to determine the height of posts, I may employ a block or card the exact size of the width of the spirit-level, this size including the exact width from the lower edge of the stock to the top edge of the rear sight, C, when it is raised to its limit, as shown in Fig. 1. This block is attached to a pole held by an assistant at the required point, and when the level between the points has been determined it will be marked on the pole at the under side of the block, which will give the length of the next post.

The manner in which I arrange the spirit-tubes on the stock enables me to avoid confusion or error in using my spirit-level. The spirit-tube *g*, for determining a dead-level, is placed in the center of the upper edge of the stock, and can be observed only from that point. The spirit-tubes g' g^2 are placed on one side of the stock, each respectively in the center of the space between the ends of the stock and the center thereof and at right angles to each other, and in determining a level or plumbing a perpendicular the operator is not confused or led into error by observing the wrong spirit-tube.

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

1. In a spirit-level, the combination, with

the stock, of the swivel-plate D, attached thereto by a screw on which said stock revolves, said plate having screw-holes *f*, for attaching it to a post.

2. The combination, with the stock, of the swivel-plate attached thereto by a screw on which said stock revolves, said plates having screw-holes *f*, the spirit-level tubes, the sights B C, the plate *c*, having slots *d d'*, and the button *e*, the sight B having a hole, *h*, as set forth.

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Witnesses:
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