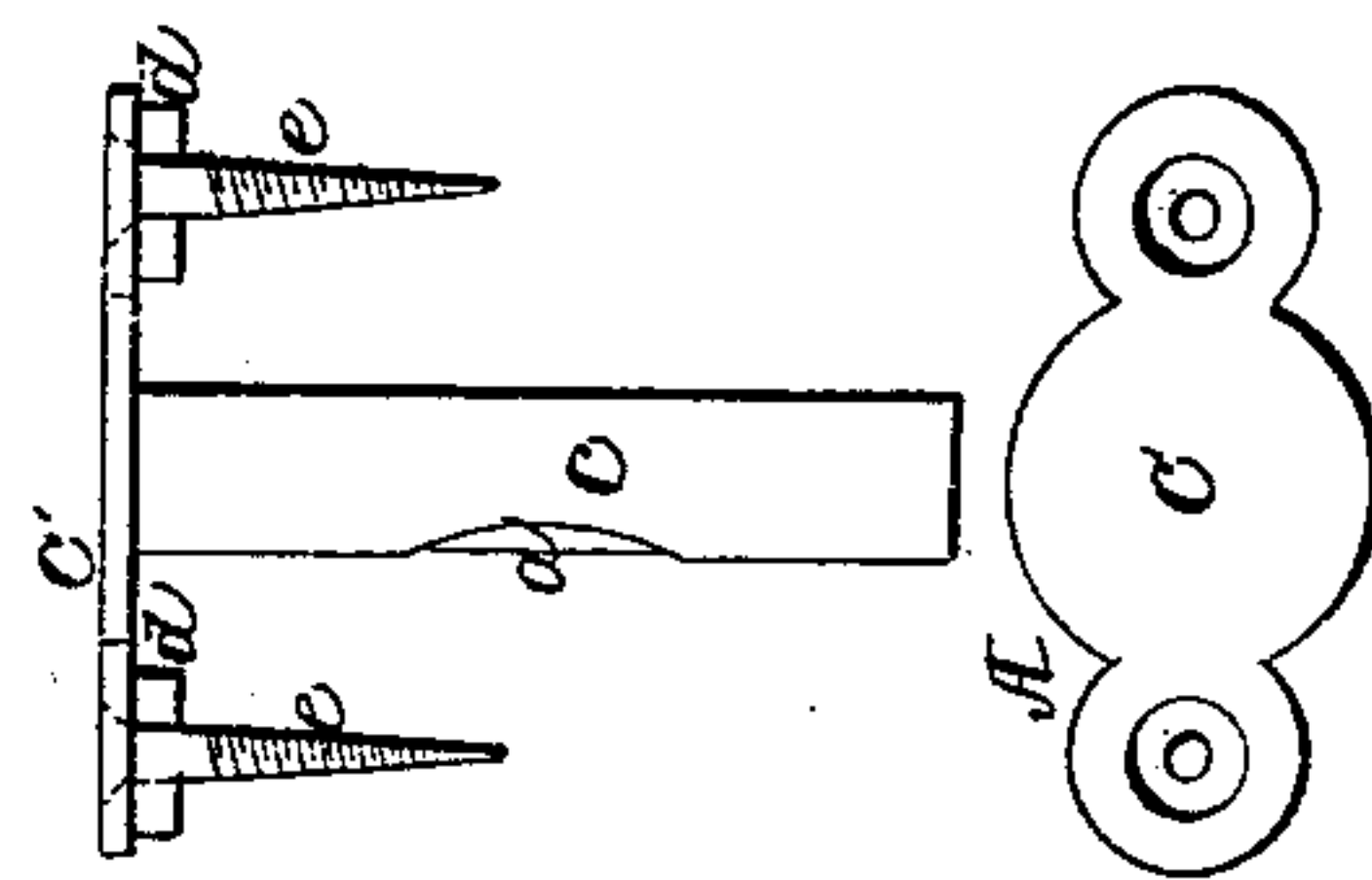
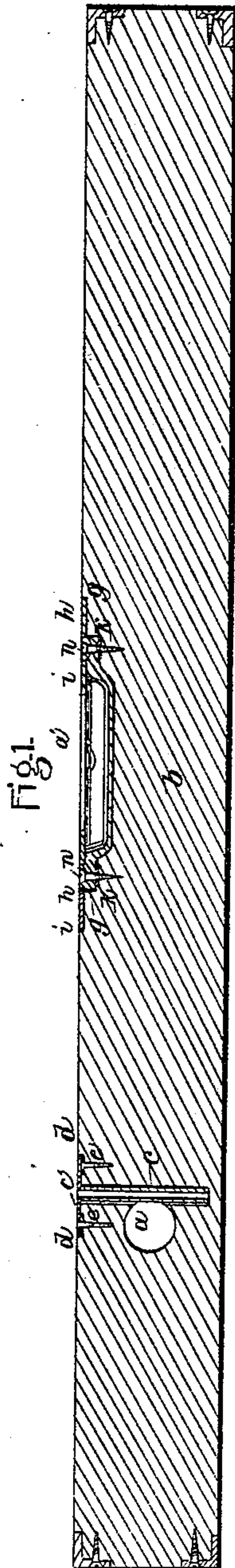
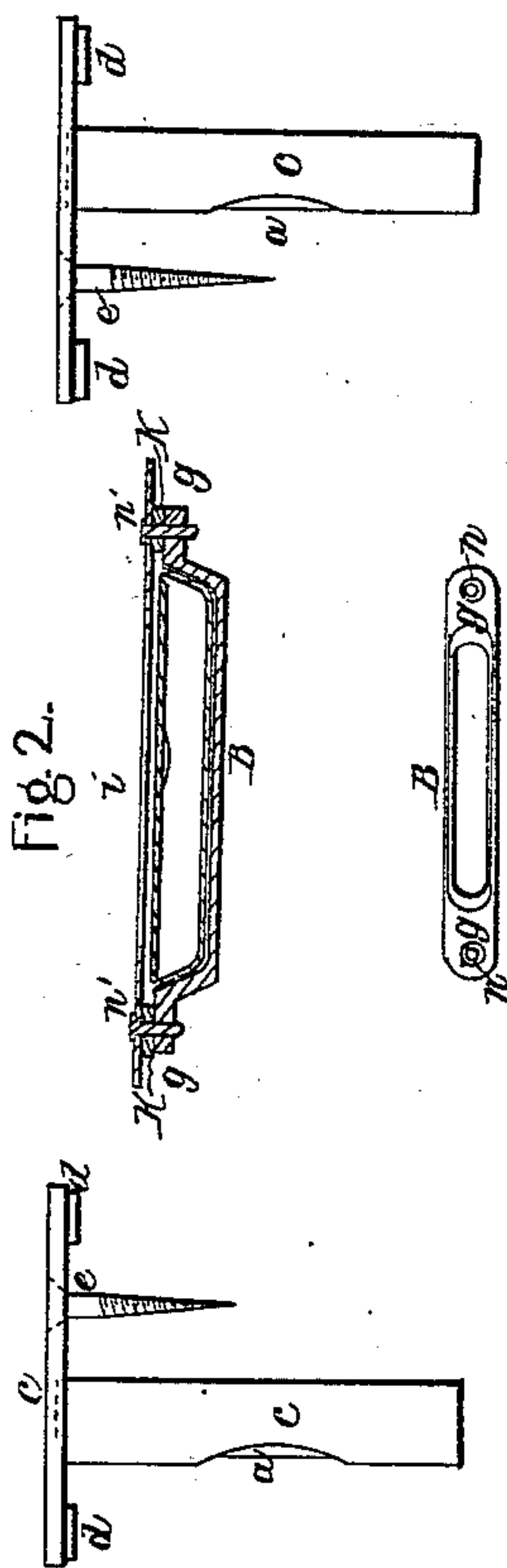


J. A. TRAUT.  
Spirit Level.

No. 82,769.

Patented Oct. 6, 1868.



Witnesses:

*W. H. Miller*  
*James W. Bays*

Inventor:

*James A. Traut*

# United States Patent Office.

JUSTUS A. TRAUT, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO THE  
STANLEY RULE AND LEVEL COMPANY, OF SAME PLACE.

*Letters Patent No. 82,769, dated October 6, 1868.*

## IMPROVEMENT IN ADJUSTING SPIRIT-LEVELS.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, JUSTUS A. TRAUT, of New Britain, county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Levels, for millwrights, carpenters, masons, &c.; and to enable others skilled in the art to make and use the same, I will proceed to describe its construction, by referring to the drawings, in which the same letters indicate like parts in each of the figures.

The nature of this invention will be understood from the specification and drawings.

The object desired to be attained thereby is to facilitate and cheapen the manufacture of spirit-levels, and to render them less liable to get broken or out of order, and at the same time convenient and easy to be again put in order, when, from any cause, the vials become slightly diverging from a true horizontal or perpendicular position with the stock, and thereby rendering the whole instrument rich and tasty in its appearance, more merchantable and desirable for use and trade.

In the accompanying drawings—

Figure 1 is a side sectional view of a level made after this improvement.

*a* is a spirit-vial placed in position in the stock, just one side of the sight and counter-bore orifice, which serves, with the stock, *b*, as a plumbing-instrument.

*a'* is a spirit-vial arranged in the edge of the stock *b*, and serves therewith the purpose of a levelling-instrument.

The peculiarity of this invention consists in providing the vial-tube *c* with right-angle plate *c'*, which may be made or cast in one piece of metal, or in two parts, and secured firmly together. This tube *c* may be secured at one end of the plate *c'*, or at any point between its ends. But it is believed that the object of this improvement will be best accomplished by having the plate *c'* and tube *c* cast whole, in one piece of metal, or firmly united together in a right-angle position in the centre of the plate *c'*.

This plate may also be made square, oblong, straight side, with round ends; but it is believed that labor-saving and good taste will be best secured by the shape as shown at A.

In preparing the stock *b* for the reception of this tube and plate, three depressions are bored, which produce the shape of the plate *c'*, as shown at A, the centre one a little larger than the two outer ones, (not necessarily, but as a matter of taste,) and about twice the depth of the thickness of the plate *c'*, (more or less, as desirable,) so as to allow a yielding material to be introduced between the plates and stock *b*. The hole or orifice for the tube is worked or bored out in the usual way, a little larger than the tube itself. Then the tube *c*, elastic packing *d*, and plate *c'*, are introduced into and secured in the stock by means of one or more screws, *e*. Thus it will be seen that by turning one or the other of said screws *e*, the spirit-vial can be perfectly adjusted in a right-angle position with the stock, and thus produce a perfect plumbing-instrument.

B is a metal case, (struck up or cast in one piece of metal,) formed dishing, and provided with ample room in which to secure the spirit-vial, with plaster of Paris or other suitable material, in the common way of securing them directly in the wood stock.

The sides of this case are cut or curved out in a proper manner, so as to allow of a clear view of the centre of the vial. At each end, and flush with the upper side of this case, are provided plates *g*, having hubs *h*, through which screw-holes are made, and countersunk from the upper side, to receive the head of the screws *n*, nearly or quite flush with the outer end of said hub.

The face-plate *i* is provided with orifices to receive the hubs *h*.

Figure 2 is a modification of fig. 1, in which the adjustable screw-head *n'* is countersunk or fitted into and flush with the face of the plate *i*. The screw-end thereof is fitted into the nut or plate *g*, which is secured to or formed in the plate *g*. In one case the spring or rubber pad *k* is placed between the case B and the stock *b*. The object in each case is to elevate or depress one end or the other of the spirit-vial case without changing or removing the plate *i*.



The depression in the edge of the stock *b* is formed (by the use of tools in the common way) the proper shape to receive the body of the case B. Each end of said depression is made the proper depth to receive the springs or packing-pads *k* and plates *g*.

Now, when these vials are properly arranged in their cases, and are placed in their depressions formed in the stock, having the pads *k* between the plates *g* and the wood or stock *b*, or between the plates *i* and *g*, and the outer or face-plate *i*, secured in its depression in the usual way, the screws *n* are then inserted, through the plate *i* and hubs *h* and pads *k*, into the stock, and turned up closely, so as to secure said case, with its vials, firmly in its proper position, or they are inserted through the plate *i*, spring or packing *k*, into the nut or plate *g*. Then, by turning one or the other of said screws, the vial is regulated to a perfectly level position.

Thus it will be seen that by the use of this improvement greater confidence can be had in the accuracy of the instrument. Besides, they are less liable to be broken by packing, transportation, storage, &c., and reduced to a more perfect system of manufacture. Thus, if a vial is broken, any person of ordinary ingenuity can readily replace and regulate the same for use.

I believe I have thus shown the nature, construction, and advantage of this improvement, so as to enable others skilled to make and use the same therefrom.

1. I claim suspending the vial-case *c* within the stock *b*, and adjusting the same to its relative position with the stock *b*, by means of the plate *c'*, screw or screws *e*, and springs *a*, substantially as and for the purpose described.

2. I claim the spirit-vial case B, constructed as described, with the springs *k*, screws *n*, operated through orifices in the plate *i*, substantially as and for the purpose set forth.

3. I claim the combination of the adjusting-plate or nuts *g*, springs *k*, and screws *n'*, substantially as and for the purpose described.

JUSTUS A. TRAUT. [L. S.]

Witnesses:

N. C. WILDER,  
JEREMY W. BLISS.