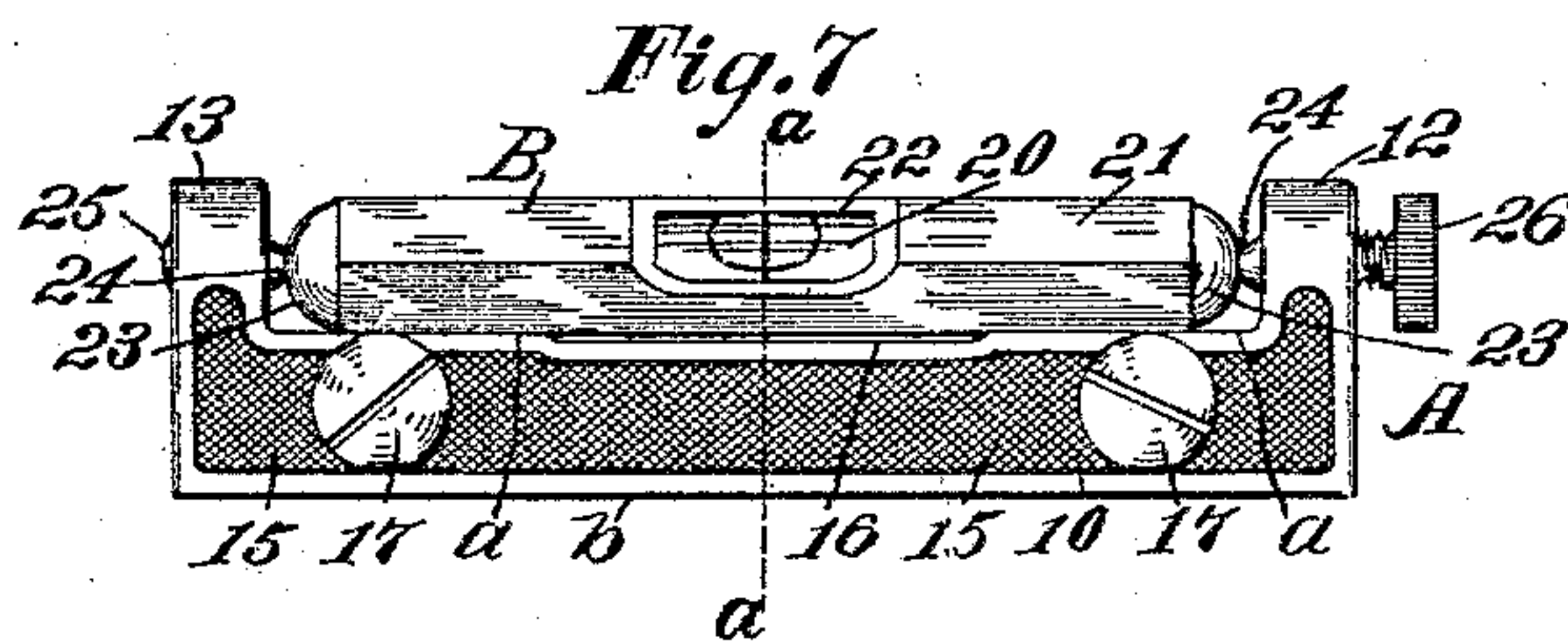
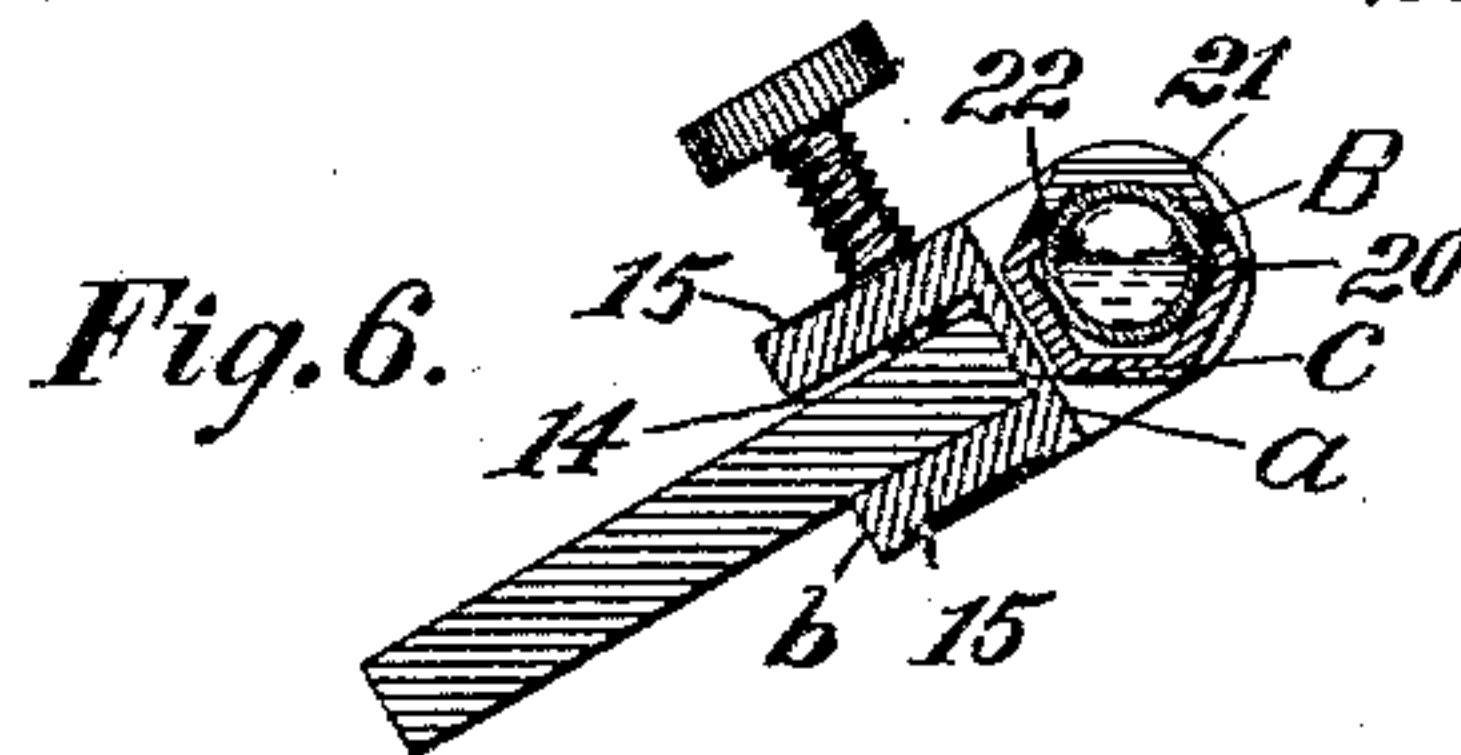
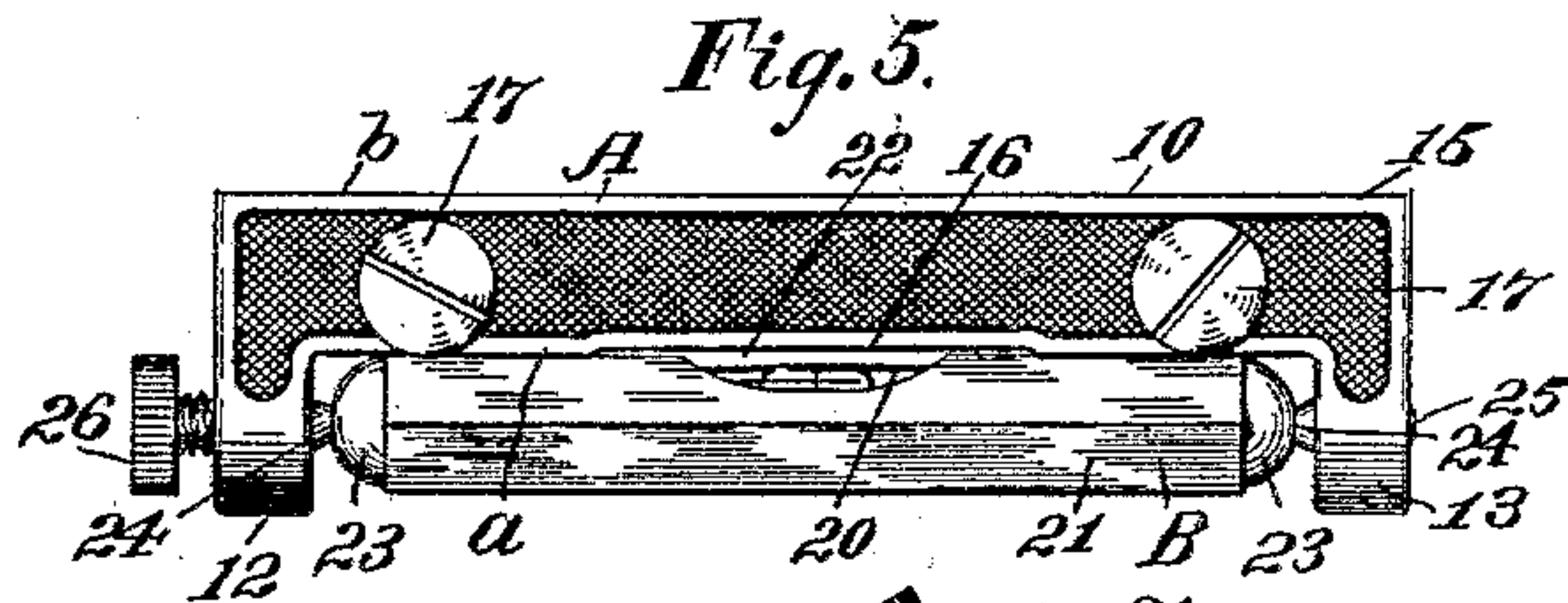
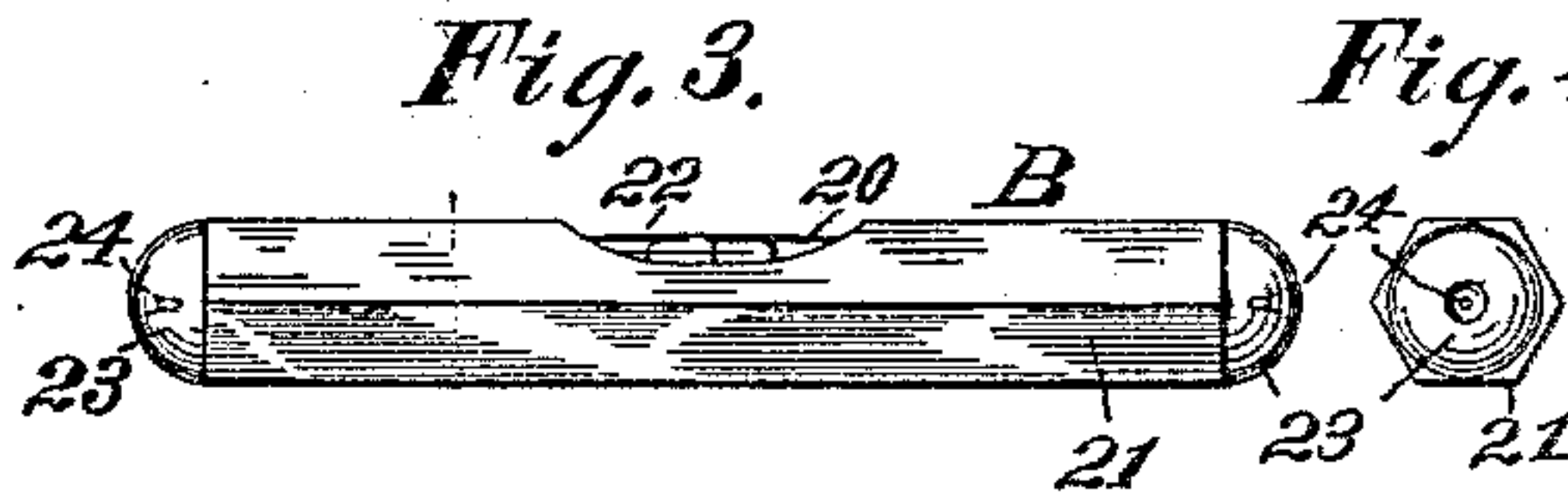
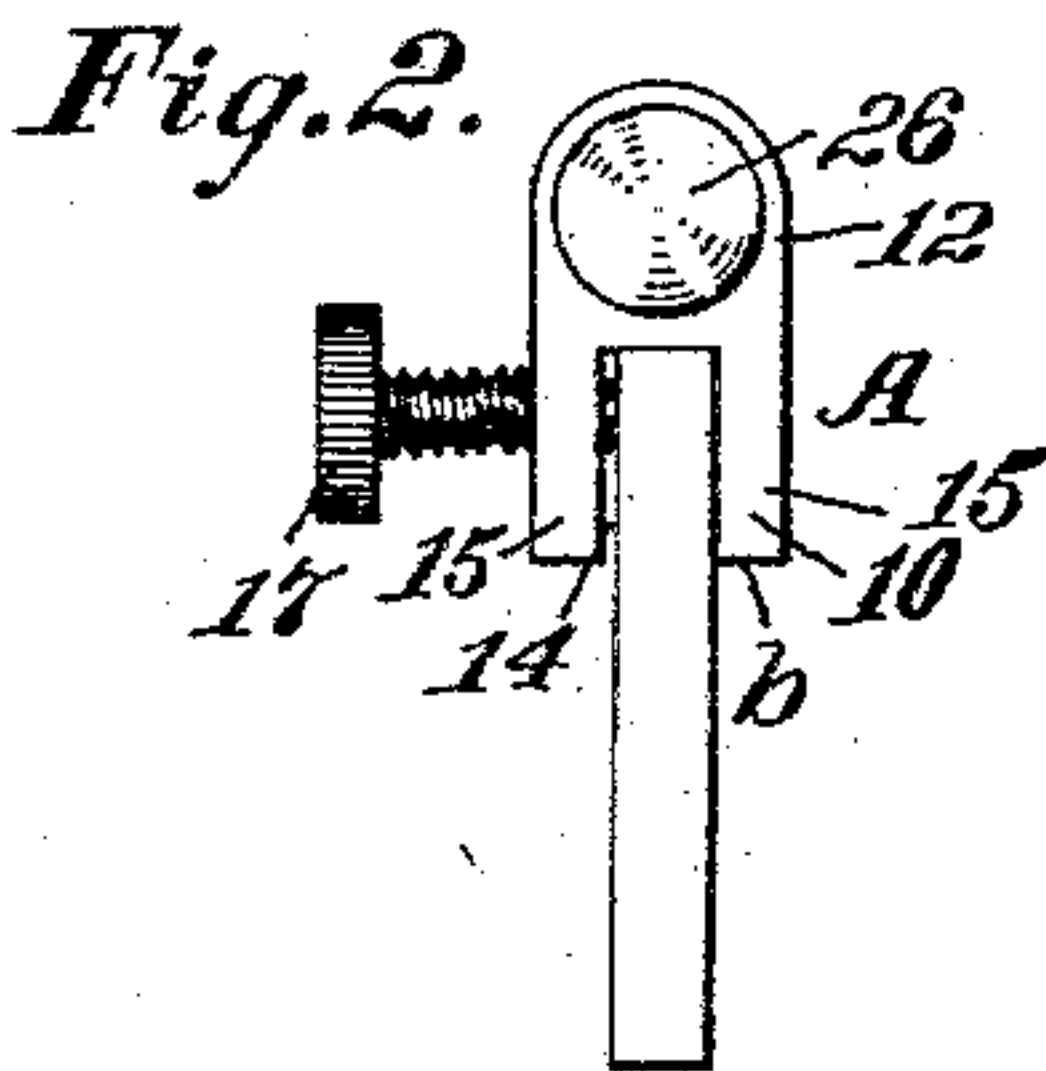
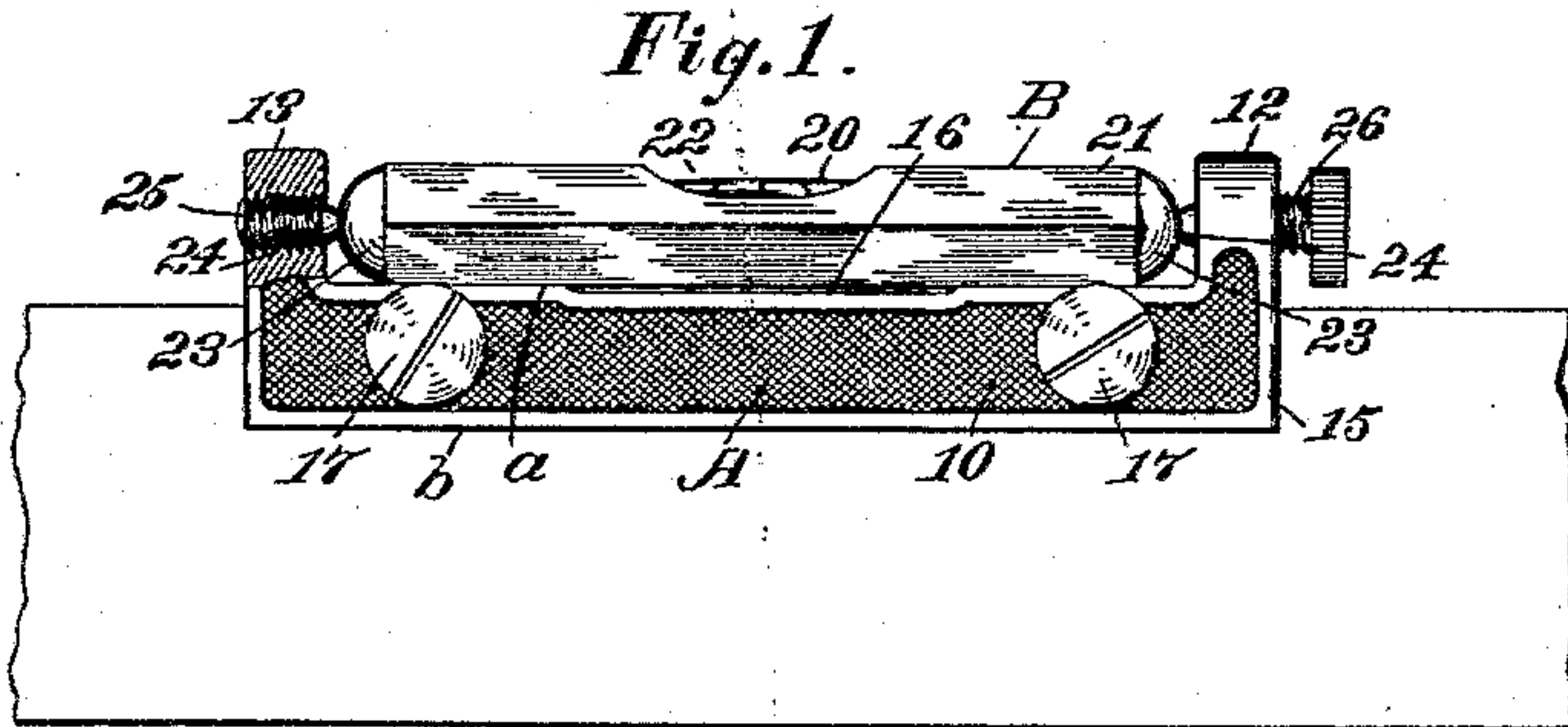


(No Model.)

J. A. TRAUT.
LEVEL.

No. 565,098.

Patented Aug. 4, 1896.



Witnesses:
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UNITED STATES PATENT OFFICE.

JUSTUS A. TRAUT, OF NEW BRITAIN, CONNECTICUT.

LEVEL.

SPECIFICATION forming part of Letters Patent No. 565,098, dated August 4, 1896.

Application filed January 31, 1896. Serial No. 577,546. (No model.)

To all whom it may concern:

Be it known that I, JUSTUS A. TRAUT, a citizen of the United States, residing at New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Levels, of which the following is a specification.

This invention relates to levels; and the object of the invention is to provide a device or level which can be attached to and used in connection with a square, bevel, or other tool, and in which the level thereof can be separated from and used independently of its holder or stock.

A further object of the invention is to provide a level which is adjustable relatively to its holder or stock, whereby the device can be used in various positions—such, for instance, as on the under surfaces of horizontal or other beams, and whereby also it can be so adjusted relatively to its holder or stock that the bubble or level glass thereof can be protected from injury.

In the drawings accompanying and forming part of this specification, Figure 1 is a view of this device, showing the level and its holder or stock secured in position on a portion of a square, one part of said holder being shown in section. Fig. 2 is a right-hand end view thereof. Fig. 3 is a view of the level proper detached from its holder or stock. Fig. 4 is an end view thereof. Fig. 5 is a view of this device, showing the level adjusted in position relatively to its holder or stock for use on the under surface of a horizontal beam. Fig. 6 is a transverse sectional view of the device, taken on line *a a*, Fig. 7, and also a transverse sectional view of a square, showing the device attached thereto; and Fig. 7 is a view of the device having the level thereof adjusted relatively to its holder into a different position from that shown in Fig. 1.

Similar characters of reference designate like parts in all the figures of the drawings.

This improved device comprises, in a general way, a holder or stock (designated generally by A) adapted to be used in a similar way to an ordinary level stock or holder, or attached to a square or bevel or other tool or device and used in connection therewith, and a level (designated in a general way by B) adapted to be detached from and used inde-

pendently of its stock or holder, or adjustable relatively to said stock or holder and used in connection therewith.

In the preferred form thereof herein shown and described the level holder or stock A comprises the support or bed 10, having uprights 12 and 13 adjacent to each end thereof, and having its upper surface adjacent to such uprights constructed to form a true plane surface, as *a*, on which the level (hereinafter described) rests. This support or bed 10 is provided on its under side with a longitudinal recess or slot 14, thereby forming two parallel extensions 15, the edges *b* of which, together with the upper surface *c* of the recess or slot, is in true parallelism with the plane surface *a* of the bed or support, whereby when the device is used independently of a square or other tool or device the edges *b* will be in parallelism with the under surface of the level, and whereby when the device is attached to a square or similar tool the surface *c* of the recess or slot 14 can be in parallelism with the edge of such square or other tool, and the extensions 15 overlap the same. It will be understood, however, that the entire upper surface of the support or bed, from end to end thereof, might be constructed to constitute a true plane surface; but in the preferred form shown said support or bed, adjacent to the center thereof, is cut away or recessed, as at 16, for the purpose hereinafter set forth.

Suitable fastening or clamping devices (herein shown in the nature of mill-headed screws 17) extend through the extensions 15 in position to secure the holder or stock on a square or other tool when the device is to be used in connection therewith.

The level proper, B, in its preferred form, is in the nature of a polygonal level, and preferably comprises the bubble or level glass 20, inclosed in a suitable casing, preferably metallic, and adapted to be removably and adjustably secured in position relatively to the holder or stock, as hereinafter set forth; and in the preferred construction thereof herein shown and described this casing is preferably angular or polygonal in cross-section, and is preferably constructed as a hexagonal tube 21, adapted to receive the bubble-glass, which is secured therein in any suitable way—

as, for instance, by cement—and which tube has the usual sight-opening 22, whereby the bubble can be observed. The hexagonal tube is closed at each of its ends by means of a
 5 suitable closure, and which, in the construction shown, consists of a rounded conical cap or plug 23, having a portion thereof fitting closely within the ends of the casing or tube and closing the same, and thereby forming
 10 the polygonal level proper, which is slightly shorter than the distance between the uprights 12 and 13. Each of these caps has an opening or perforation 24, centrally thereof, and in alinement with each other and with
 15 the longitudinal axis of the casing or tube for the purpose hereinafter specified.

As one means for removably and adjustably securing the level in position on the stock or holder A, suitable holding or clamping de-
 20 vices are provided, and which, in the preferred form thereof herein shown, comprise pivot-screws 25 and 26, having conical points and carried by the uprights 12 and 13 of the stock or holder, said screws being adjustable in
 25 threaded apertures of the uprights, and adapted to have their points enter the openings 24 of the caps, whereby the level will be axially supported. One of these pivot-screws, as 26, is provided with a suitable milled
 30 head, whereby it can be adjusted toward and from the other pivot-screw 25, which is normally fixed in position. These pivot-screws 25 and 26 are so positioned that one of the plane faces of the hexagonal tube will firmly
 35 rest on the true plane faces *a* of the support 10, which plane faces are in parallelism with that plane face of the hexagonal tube which is most remotely disposed therefrom, and when the pivot-screw 26 is adjusted into firm
 40 engagement with the end of the level the same will be held firmly on said bed or holder against either longitudinal or lateral movement. By this particular construction of level holding or clamping means the expan-
 45 sion and contraction of the level relatively to its support is provided for, and the level will be held in its proper position at all times, regardless of such expansion or contraction.

In the use of this improved device, when
 50 it is desired to use the level independently of its holder or stock, the holding device 26 is turned to release the level, which can then be removed therefrom and used as an ordinary level, the plane faces of the polygonal or hexagonal casing permitting it to be used in different positions. When, however, it is desired to use the level in connection with its holder or stock, the level is placed in position thereon and the holding device 26 adjusted
 60 to clamp the same with one of its plane faces firmly resting on the plane face of the holder.

If the device is to be used in work where it is inconvenient or impossible to observe the bubble, when such bubble is in parallelism
 65 with the plane faces of the holder, the holding device 26 is actuated to permit the level to be adjusted through the arc of a circle to

any desired position and permit one of the plane faces of its casing to firmly rest upon the plane face of the holder, as shown, for
 70 instance, in Figs. 7 and 5. The holding device 26 is then turned to reclamp such level in its adjusted position, and the level is then in condition for use.

If the device is to be used on the under side
 75 of a beam, the level may be adjusted, relatively to its holder, substantially as shown in Fig. 5, whereby the bubble can be observed adjacent to the recess 16, for which purpose the recess is made in the stock or holder.
 80 This position of the level also protects the bubble-glass from breakage and the level from accidents, and hence the level may be adjusted to that position when the device is not
 85 in use.

If the device is to be used in connection with a square or bevel or other tool or other article, it is secured thereto by the clamping-screws 17.

From the foregoing it will be obvious that
 90 this improved device has a three-fold use—viz., that the level can be used independently of its holder; that the level can be used together with its holder, and that the level and holder can be used in connection with a square
 95 or other tool, and in all of which uses the level can be adjusted through the arc of a circle to various different positions to permit the same to have the bubble thereof more distinctly observed.
 100

Having thus described my invention, I claim—

1. A level device comprising a holder or stock having an upper, true, plane surface and adapted for attachment to a square or
 105 other tool, and a level longitudinally axially supported at its opposite ends and resting on the true plane surface of said holder or stock.

2. A level device comprising a holder or stock adapted for attachment to a square or
 110 other support, and a level removably and axially mounted thereon at its opposite ends for adjustment through the arc of a circle and adapted to rest on the supporting-surface of said stock.
 115

3. A level device comprising a holder or stock adapted for attachment to a square or other support, and a polygonal level axially mounted thereon at its opposite ends and adapted to have one of its plane surfaces rest
 120 on said holder or stock, whereby it is held against rotating movement.

4. A level device comprising a holder or stock adapted for attachment to a square or other support and having an upper, true,
 125 plane surface, and a level removably and axially mounted thereon at its opposite ends and comprising a polygonal casing adapted to have one of its plane surfaces rest on the true plane surface of said holder or stock,
 130 and a bubble glass or tube in said casing.

5. A level device comprising a holder or stock having an upper, true plane surface, and a level comprising a hexagonal casing

having a bubble glass or tube therein, and supported on said holder for adjustment through the arc of a circle, and adapted to have one of its plane surfaces rest on the plane surface of said holder or stock, when said level is in operative position.

6. A level device comprising a holder or stock having an upper, true plane surface, and a level comprising a polygonal casing having a bubble glass or tube therein, and supported on said holder for adjustment through the arc of a circle, and adapted to have one of its plane surfaces rest on the plane surface of said holder or stock, when said level is in operative position; and means for securely holding said level in position against lateral or longitudinal movement.

7. A level comprising a hexagonal casing having a sight-opening, and adapted to rest with any one of its plane faces upon the object to be leveled; conical caps secured in the ends of said casing; and a bubble glass or tube in said casing.

8. A level device comprising a holder or stock having a recess or slot extending longitudinally of its entire under face, whereby it is adapted for overlapping attachment to a square or other device; and a level supported on said holder or stock, and comprising a hexagonal casing adapted to have one of its surfaces rest on said holder or stock, and having a bubble-glass therein.

9. A level device comprising a holder or stock having a recess or slot extending longitudinally of its entire under face, whereby it is adapted for overlapping attachment to a square or other device, and clamping devices for securing the same in position; and a level supported on said holder or stock, and comprising a hexagonal casing or tube adapted to have one of its surfaces rest on said holder or stock, and having a bubble-glass therein.

10. A level device comprising a holder or stock having a recess or slot in its under face, whereby it is adapted for attachment to a square or other device, and having an upper, true plane face; and a level supported at opposite ends thereof, and adapted to rest on the plane surface of said holder or stock.

11. A level device comprising a holder or stock having a recess or slot in its under face, whereby it is adapted for attachment to a square or other device, and having an upper, true plane face; a level comprising a polygonal casing or tube having a bubble glass or tube therein, and adapted to rest with one of its plane faces on the plane face of the holder or stock; and pivot-screws carried by said holder or stock, and in position to engage the ends of said level.

12. A level device comprising a holder hav-

ing uprights at its ends, and having an upper, true plane surface, and also having a recess or slot in its under face, whereby it is adapted for attachment to a square or other device; clamping devices for clamping said holder or stock in position; a level comprising a hexagonal casing or tube having a bubble glass or tube therein; pivot-screws carried by said uprights for engaging the ends of said hexagonal casing or tube, whereby the same is supported on the holder or stock in position to have one of its plane faces in engagement with the plane face of the holder or stock, and whereby also it is adjustable thereon through the arc of a circle.

13. A level device comprising a holder or stock having means whereby it is adapted for attachment to a square or other device, and constructed whereby it can be used independently thereof; and a level comprising a hexagonal casing or tube having a bubble glass or tube therein; and means for pivotally supporting said hexagonal casing at its opposite ends removably and adjustably in position on said holder or stock, whereby said level can be used in connection therewith or independently thereof.

14. A level device comprising a holder or stock having means whereby it is adapted for attachment to a square or other device, and whereby also it can be used independently thereof, and a level adjustably and removably secured thereto, whereby it can be used with or independently of said holder or stock.

15. A level device having means whereby it can be secured in position on a square or other device and used in connection therewith, and comprising a holder or stock and a polygonal level, said level being supported on said holder or stock for adjustment through the arc of a circle, whereby the level can be used in various positions in connection with said holder; and said polygonal level being removable from said holder or stock, whereby it can be used independently thereof with one of its plane faces as its base.

16. A level device comprising a holder or stock adapted for attachment to a square or other device, and having an upper, true plane surface, and carrying pivot-screws having conical points, and one of which screws is adjustable; and a level supported at its opposite ends on said conical points, and comprising a hexagonal casing having a bubble glass or tube therein, and adapted to have one of its plane faces in engagement with the plane face of the holder.

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Witnesses:

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H. S. WALTER.