Oct. 30, 1928. 1,689,982

P. H. VOGEL

LEVEL VIAL HOLDER

Filed March 31, 1927

Fig. 1

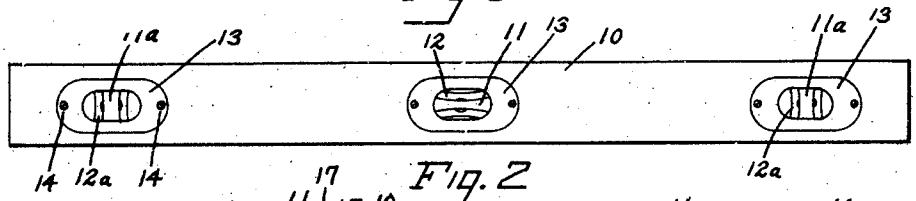


Fig. 2

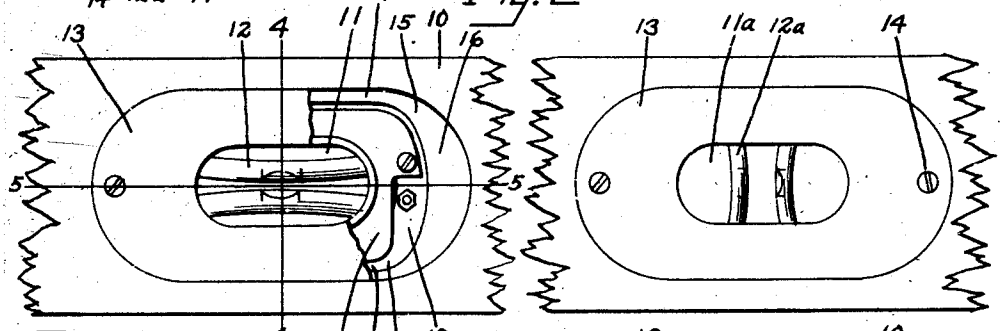


Fig. 3

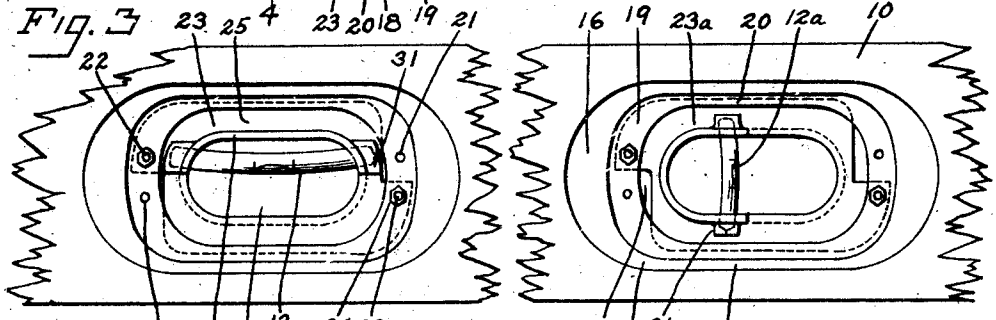


Fig. 4

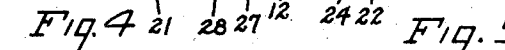


Fig. 5

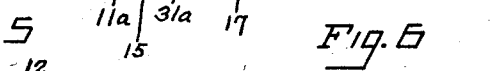
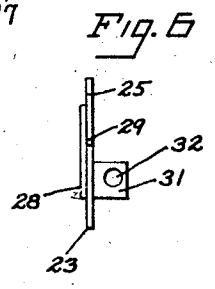
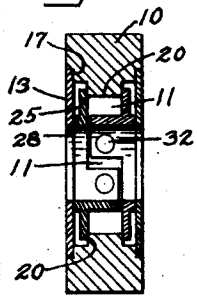


Fig. 6





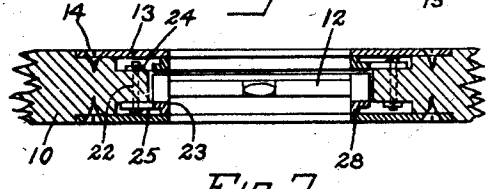
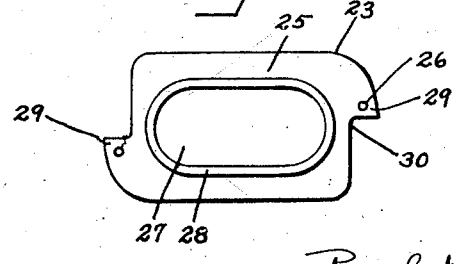


Fig. 7



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UNITED STATES PATENT OFFICE.

PAUL HERMAN VOGEL, OF NEW HARTFORD, CONNECTICUT, ASSIGNOR TO THE CHAPIN-STEPHENS COMPANY, OF PINE MEADOW, CONNECTICUT, A CORPORATION.

LEVEL VIAL HOLDER.

Application filed March 31, 1927. Serial No. 179,774.

My invention relates to improvements in level vial holders, particularly for use with stocks or bodies of wood, and the object of my improvement is to provide a structure that is adapted to mate with a structure of precisely similar form at the opposite end of the sight opening and that will permit of providing a firm and reliable supporting connection with said stock or body.

In the accompanying drawing:—

Figure 1 is a side elevation of a carpenter's level embodying my invention.

Figure 2 is a similar view, on an enlarged scale and in part broken away, showing the middle sight opening and one of the end openings and the adjacent parts.

Figure 3 is a similar view of the same end with the front level vial holder removed from each of the sight openings.

Figure 4 is a vertical sectional view through the middle sight opening on the line 4—4 of Fig. 2.

Figure 5 is a horizontal sectional view on the line 5—5 of Fig. 2.

Figure 6 is an end elevation of one of the holders.

Figure 7 is a plan view of the same.

My improved level vial holder is particularly adapted for use with a stock or body 10 that is made of wood, said stock being provided with transverse sight openings for the display of the level vials, the openings, as shown, comprising the opening 11 at the middle and the two openings 11ª located one on each side thereof, adjacent the ends of the stock.

At each opening are displayed a pair of level vials, for alternative use, consisting of the vials 12 at the middle opening 11 and directed generally longitudinally for horizontal use, and the vials 12ª in the end openings 11ª, directed generally cross-wise and adapted for vertical use of the level.

The sight openings have their borders covered each by an apertured cover-plate 13 that is held in place by a pair of end screws 14 and that preferably is housed within a depression 15 in the material of the stock, whereby said plate lies substantially flush with the face of the stock. A cover-plate 13 is provided for each of the sight openings 11 and 11ª and also for each side of said openings, and the different plates are generally similar one to the other.

The bearing portion within the depression 15 for the cover-plate 13 is continuous and unbroken around the border edges of said plate 13 and comprises relatively wide portions 16 at the ends, which receive the end screws 14, and narrow connecting portions 17 at the top and bottom.

The material that is bordered by said bearing portion and intermediate the same and the border walls of the sight opening 11 or 11ª, as the case may be, is further cut away or recessed so as to provide on each side and for each opening a second complete, continuous, and unbroken bearing portion, bearing face, or seat 18.

Said seat 18 comprises relatively wide portions 19 at the ends and inter-connecting narrow portions 20 at the top and bottom.

Between the seats 18 on the opposite sides for each opening there remains a web-like structure 20 of the material of the stock 10 that is of appreciable thickness and that borders the sight opening 11 or 11ª, said web 20 being located symmetrically relative to the middle longitudinal plane of the stock 10.

At each end seat portion 19 are provided a pair of holes 21, positioned one on each side of the horizontal longitudinal plane, for the bolts 22 that hold the holders 23 or 23ª in place, there being two bolts for each holder and nuts 24 being provided for the bolts.

As will be noted, the bolts 22 for each individual holder 23 or 23ª are located along a diagonal relatively to the sight opening 11 or 11ª.

The holders 23 for the vials 12 at the middle opening 11 and the holders 23ª for the vials 12ª at the end openings 11ª differ in details only to the extent needed to correspond to the differences in the positions of the vials.

Considering the details for the parts that are located at the middle sight opening 11, each of the two holders 23 comprises a supporting plate or web 25 that is opposed to the seat 18 and has at the ends the diagonally located openings 26 for the bolts 22. A central opening discloses the vials 12 and there may be provided as a finish or frame for said opening 27 an outwardly projecting border rib or rim 28. The holes 21 are slightly large for the bolts 22 for purpose of adjustment as to accuracy of the vials.

As described, the portions 29 of the supporting plate or web 25 that cooperate with the holding bolts 22 are located along a di-

agonal line or plane that extends across the horizontal longitudinal plane. The bolt holes 21 and bolts 22 for the supporting plate or web 25 that is mounted on the opposite face of the stock 10 are also located along a diagonal, the two diagonals being symmetrically related to said horizontal plane.

The structure described permits of making the opposed and mating holders 23 precisely alike.

Each holder 23 supports a single vial 12 so that the same is positioned symmetrically relative to the mating vial relative to both the horizontal longitudinal plane and the vertical axial plane. The actual support is provided by an inwardly directed structure in the form of an extension from the inner face of the supporting plate 25 so as to provide a pair of lugs 31 that have openings 32 for receiving and supporting the respective ends of the glass 12.

The vial supporting lugs 31 are entered into position within the opening 11 from opposite sides; the plates 25 engage with the seats 18; and then the bolts 22 and nuts 24 are applied.

In the case of the middle sight opening 11 the vial supporting lugs 31 for the two vials are located one above and the other below the horizontal axial plane.

In the cases of the two end sight openings 11^a the corresponding vial supporting lugs 31^a are on opposite sides of the transverse plane passing through the middle of the particular opening 11^a.

The holders are preferably made of cast aluminum.

In the structure shown and described two sight openings 11^a are provided for vertical use. In longer levels more of such openings, each having the proper vials, may be used.

As shown in Fig. 4, the rib or rim 28 projects outwardly from the face of the web 25. The opening 27 has as its border wall the material of said rib or rim 28 and the web 25. In some cases this material may be recessed suitably to receive a window glass so as to serve as a closure for the opening 27, the glass being held in place in any proper manner, as by the use of putty or the like, with a finish of aluminum paint or the like.

Thus, with the two holders in use for a particular opening the opening will be substantially closed.

I claim as my invention:—

1. In a level, a stock of wood provided with an elongated opening for level vials and having at the inner peripheral surface of the ends of said opening a supporting web, said web having faces on the opposite sides that serve as seats, a pair of plates, each in the form of a border for said opening, positioned one on each side of said stock, and having extensions at the ends that are opposed respectively to said seats, bolts projected through said web and engaged with said extensions for holding said plates, said plates being provided with integral lugs for supporting level vials, said extension in each case covering only a portion of the adjacent seat to which it is opposed, the extension of the plate on one side being generally on the opposite side of the longitudinal axial plane relatively to the extension of the plate on the opposite side, whereby unobstructed portions of said seats are available for use of the holding bolts.

2. In a level as described in claim 1, the extensions at the two ends of each of said plates being located generally on the opposite sides of said plane, whereby the holding bolts for each individual plate can be located along the extension of a diameter of said opening.

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