(No Model.)

S. C. DOWNEY.

PLUMB LEVEL.

No. 460,388. Patented Sept. 29, 1891.

Fig. 1.

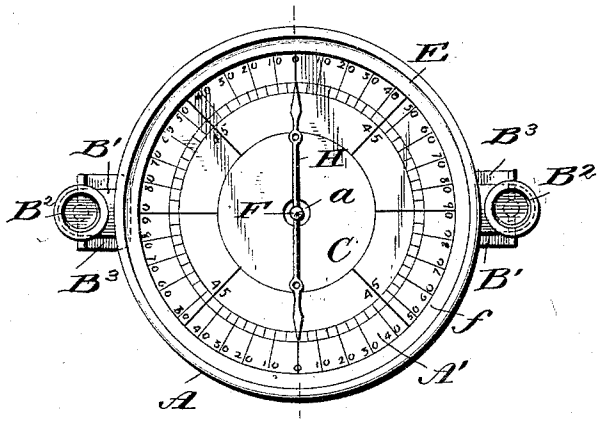


Fig. 2.

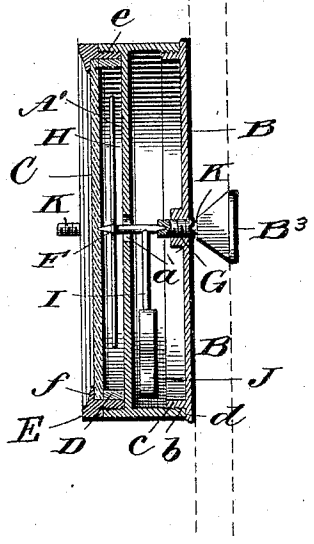


Fig. 3.

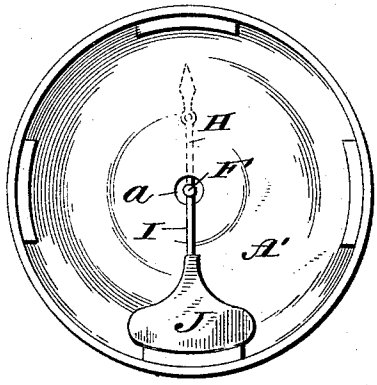


Fig. 4.

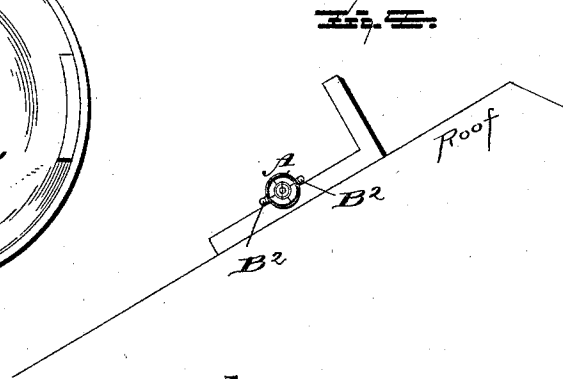
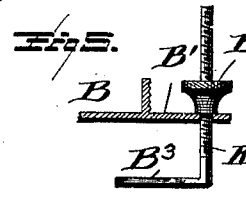


Fig. 5.



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PLUMB-LEVEL.

SPECIFICATION forming part of Letters Patent No. 460,388, dated September 29, 1891.

Application filed December 26, 1890. Serial No. 375,813. (No model.)

To all whom it may concern:

Be it known that I, SILAS C. DOWNEY, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Leveling-Instruments, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in leveling-instruments; and it has for its object, among others, to provide a simple, cheap, and durable device of this character embodying in the one device three separate instruments—a plumb, level, and inclinometer. I embody the plumb-bob principle in a casing, so that the wind will have no effect thereupon. The use of a plumb-bob on a windy day is very unsatisfactory and the results uncertain. I provide for the attachment of the device to a square or other tool for the purposes of doing away with the cumbersome level, being alike applicable to any piece or length of wood by simply being set in or clamped thereon. As an inclinometer for cutting timber for roof frames or miters it does away with all intricate tables or scales. It can be used by masons for leveling piers and plumbing walls by simply clamping it to any length of board, thereby obviating the use of the straight-edge and level heretofore employed. The plumb bob or weight is attached to a needle or pointer which works over a dial. A suitable screw-clamp is provided for attachment to the square or other tool.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a face view of the instrument complete with its attaching-clamp. Fig. 2 is a central section through the same. Fig. 3 is a face view of the rear of the case. Fig. 4 shows the application of the device as an inclinometer. Fig. 5 is a detail, partly in section, showing one of the clamps.

Referring now to the details of the drawings by letter, A designates a suitable case having a partition A′, as seen best in Fig. 2, said partition or diaphragm having a central aperture *a*, through which the arbor of the dial is designed to work loosely, as seen in said Fig. 2. The inner periphery of the case is threaded, as shown at *b*, at opposite edges.

D is the back of the case, having an inwardly-extending annular flange *c*, which is exteriorly threaded to engage the threads *b* at the rear of the case, as seen in Fig. 2, and an annular flange *d*.

The front face of the partition A′, which forms the dial, is subdivided into degrees of a circle, as shown in Fig. 1, and between this dial and the glass or transparent disk C is a ring D, and E is a ring having an inwardly-extending screw-threaded flange *e*, which fits between the threaded flange *b* at the outer face of the base, and the said ring E having an inwardly-extending flange *f* at right angles to the flange *e* and bearing around the outer edge of the disk C to retain it in place, as shown in Fig. 2.

F is the arbor, having pointed or knife-edge bearings at its ends, as seen in Fig. 2, one being in the disk C and the other in an adjustable screw G, held in the rear plate B. This arbor carries in front of the dial an index-hand or pointer H, which may extend upon either or both sides of its center, and upon the opposite side of the dial the arbor carries a pendulous arm I, having the weight J, the outer face of which is upon the arc of a circle having the arbor as its center.

The device as above described may be applied or attached to a level by inserting and securing the same in a recess or depression therein in any suitable manner. For the purpose of attaching it to a square or a straight-edge I provide the clamps K, which pass through extensions or lugs B′ on the rear plate B, as shown best in Fig. 5, the said clamps having adjustable thumb-screws B^2 and the clamp portion B^3, which may be roughened upon its clamping-face, if desired.

In Fig. 4 I have shown the device as attached to a square for the purpose of ascertaining the inclination or angle of a roof. It may also be employed for plumbing and squaring door-frames, window-frames, and the like.

The device works in harmony with the

square. It is always reliable, accurate, and can be used with precision by any one.

What I claim as new is—

1. The case and its dial and transparent disk, combined with the arbor working loosely through an aperture in the dial and having a bearing at one end in the transparent disk, the pointer upon the arbor on one side of the dial, and the pendulous weight on the arbor on the other side of the dial, substantially as described.

2. The combination, with the case, its integral dial, the glass disk, the rear plate, and the arbor having a bearing at one end in said disk and adjustably in the rear plate, of the pointer on the arbor between the disk and dial, and the pendulous weight carried by the arbor between the dial and the rear plate, substantially as described.

3. The combination, with the case and its inclosed parts and its rear plate having lugs or extensions B′, of the clamping-screws passed through openings in said extension and provided with right-angled clamping portions, and adjustable thumb-nuts, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

SILAS C. DOWNEY.

Witnesses:

C. D. STONE,

J. C. MORRISON.