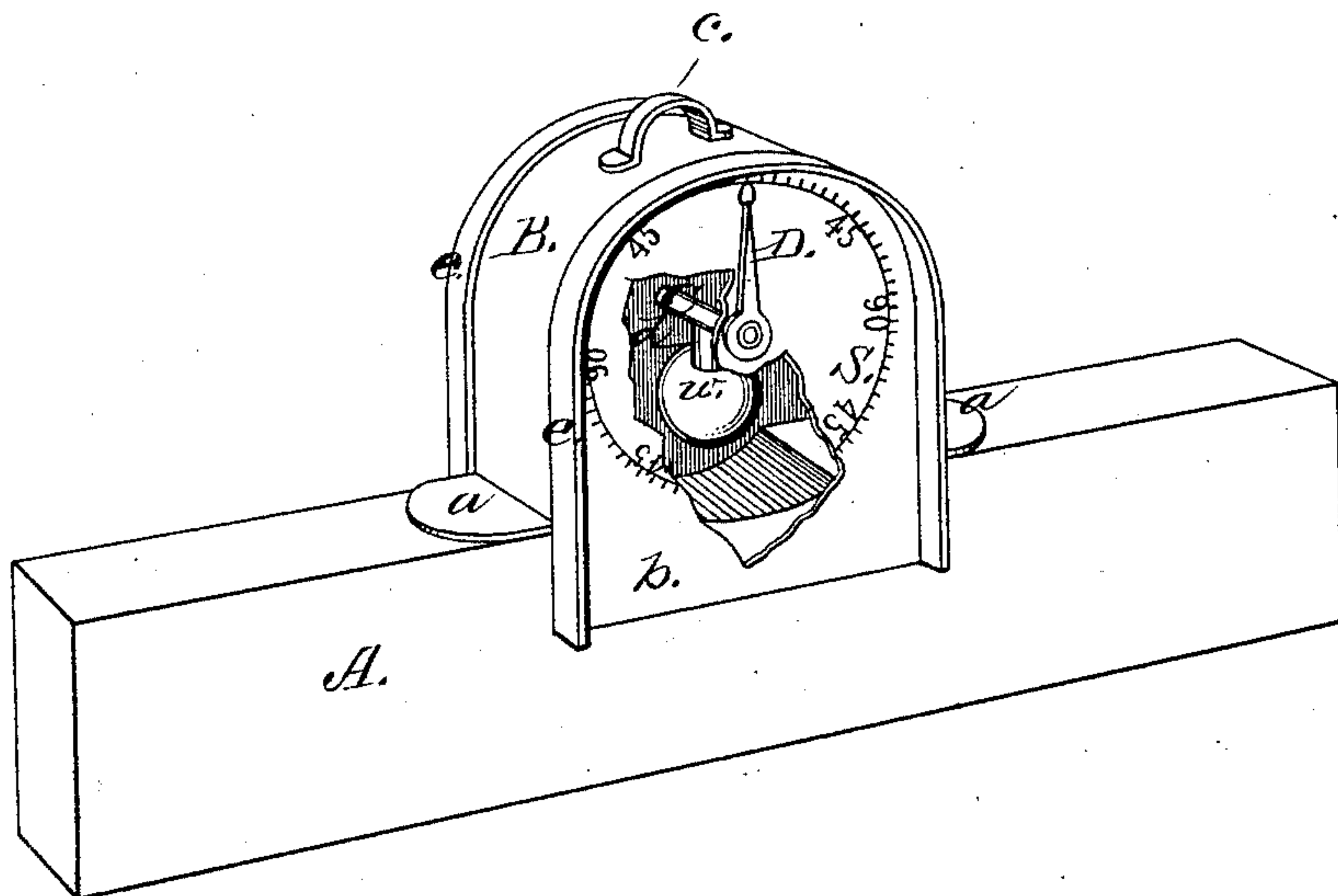


M. HARRISON.
Plumb-Level.

No. 223,343.

Patented Jan. 6, 1880.



WITNESSES

Villette Anderson
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INVENTOR

Mordecai Harrison,
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UNITED STATES PATENT OFFICE.

MORDECAI HARRISON, OF COLUMBIA, SOUTH CAROLINA.

PLUMB-LEVEL.

SPECIFICATION forming part of Letters Patent No. 223,343, dated January 6, 1880.

Application filed October 25, 1879.

To all whom it may concern :

Be it known that I, MORDECAI HARRISON, of Columbia, in the county of Richland and State of South Carolina, have invented a new and valuable Improvement in Graduated Levels and Plumbs; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

The drawing is a representation of a perspective view, partly broken away, of my improved plumb-level.

This invention has relation to improvements in plumb-levels, wherein a needle is made to traverse a protractor and indicate thereon the angle which the level makes with the horizontal or vertical planes.

The nature of the invention will be fully set forth hereinafter.

In the annexed drawings, the letter A designates a straight-edge of suitable length, and B indicates a metallic box having a plane front and back, and secured to the straight-edge by means of the horizontal end flanges *a*, that lie upon its upper horizontal edge, and the vertical flanges *b*, that extend down the sides of the straight-edge, and are fastened thereto by suitable screws. The upper end of this box is finished off in rounded form, and is provided with a ring, *c*, by means of which it is conveniently handled.

C indicates a horizontal shaft extending transversely through box B, and having its bearings in the front and back thereof. This shaft is provided, inside of the box, with a projecting arm, *d*, having at its end a weight, *w*, and it turns readily in its bearings, so that the weighted arm will always depend vertically therefrom, whatever be the position of inclination of the straight-edge. The ends of the shaft C project beyond the box, and are each provided with an index or finger, D, which traverses a graduated scale, S, engraved on the face-plates of the box. These scales are laid off from naught to ninety degrees, completing the circle in four subdivisions, the subdivisions being again subdivided into graduations of forty-five degrees and fractional parts thereof, usually five degrees. In very fine work the scale may be laid off in degrees.

Extending outward from the edges of box B toward the front and rear and beyond the face-plates or dials are the flanges *e*, that serve to prevent the indexes from being jammed against an object and prevented from working, and protect them from being bent or displaced thereby.

The entire box and its attachments, except the straight-edge, which is preferably of wood, are made of metal, and the box is weather and dust proof.

This device is of great utility in raising the curves on railroad-tracks, adjusting rafters at a proper angle, and other analogous purposes, and the indicator being on top of the straight-edge and the scale laid off for three hundred and sixty degrees in subdivisions of ninety degrees, the instrument may be used in erecting perpendiculars, leveling on the ground or overhead, and for all purposes wherever the plumb and level are now separately employed. In all these operations the box B serves as a handle. Being above the straight-edge or level, the figures of the dial may be read off readily, even though the straight-edge be let down into a trench or between two beams of a bridge upon a third between them.

What I claim as new, and desire to secure by Letters Patent, is—

The plumb-level consisting of the straight-edge A, the box B, having the horizontal flanges *a* secured to the upper surface of the straight-edge, the vertical flanges *b*, extending down the sides of the said straight-edge, and secured thereto, the horizontal shaft C, extending transversely through the box, and having its bearing in the front and back thereof, and provided with the central projecting arm, *d*, having the end weight, *w*, and operating-finger D, and the projecting flange *e*, adapted to protect the finger and face of the box from being jammed, displaced, or otherwise injured, as shown and described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

MORDECAI HARRISON.

Witnesses:

A. C. MOORE,
T. A. SCOTT.