(No Model.)

E. C. DURAND.

COMBINATION TOOL.

No. 496,300. Patented Apr. 25, 1893.

Fig. 1.

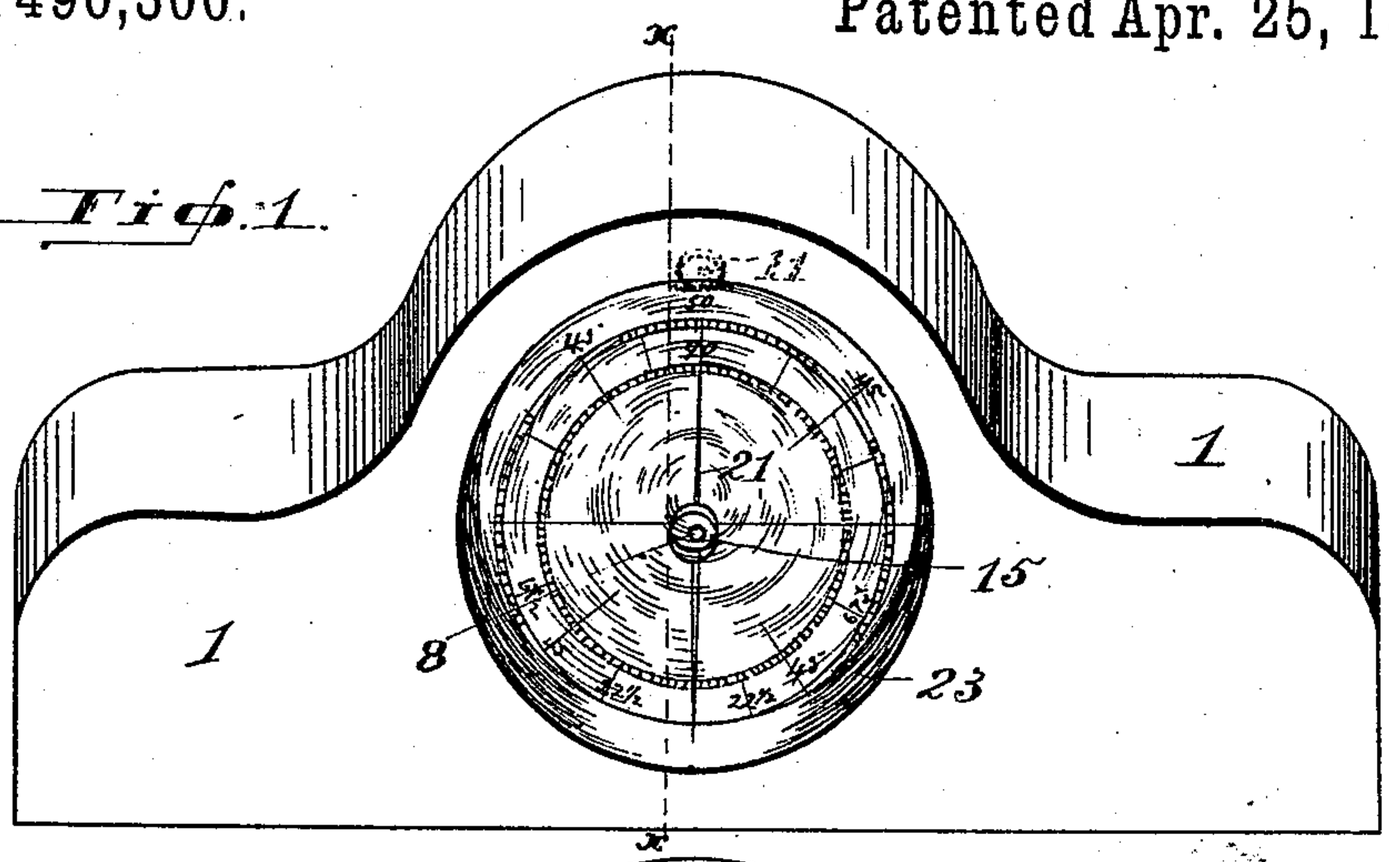


Fig. 3.

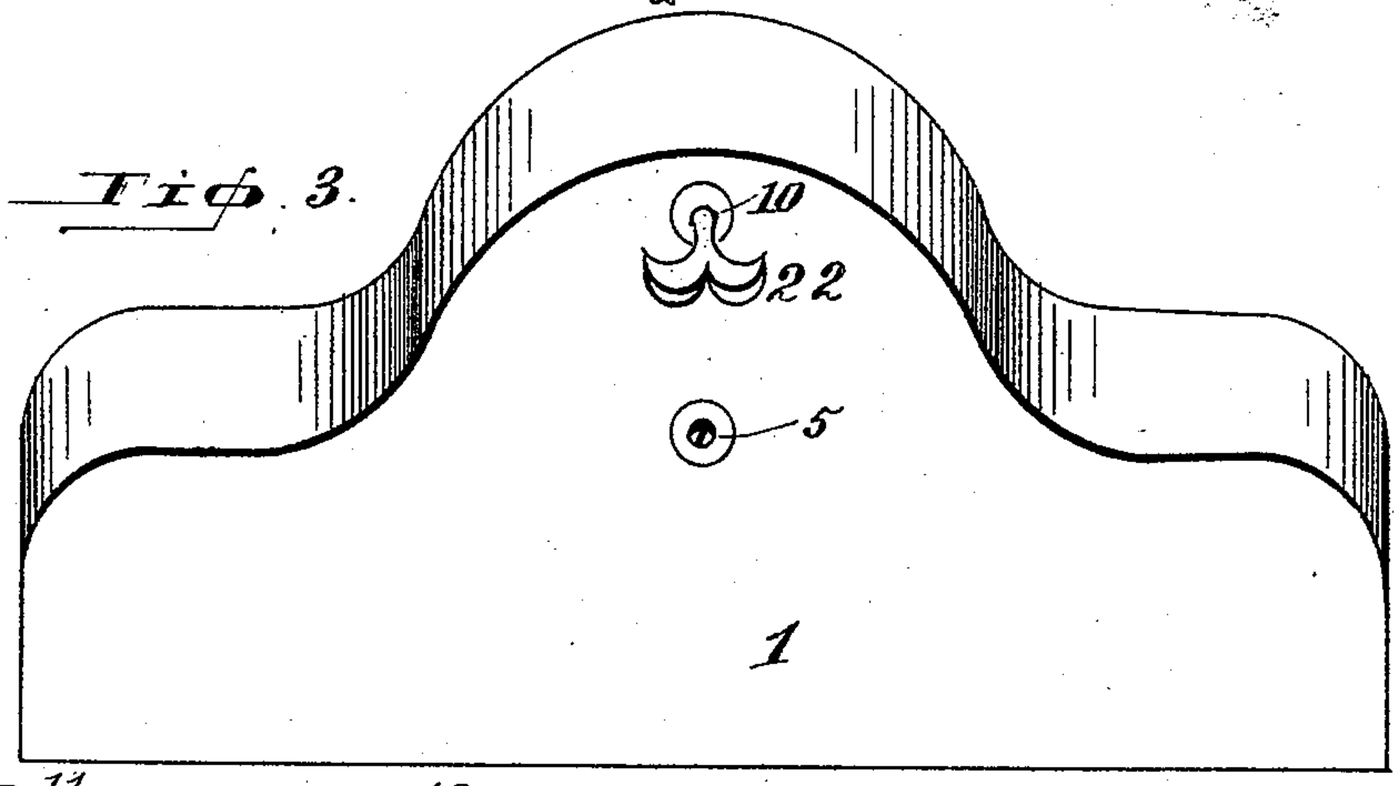


Fig. 2.

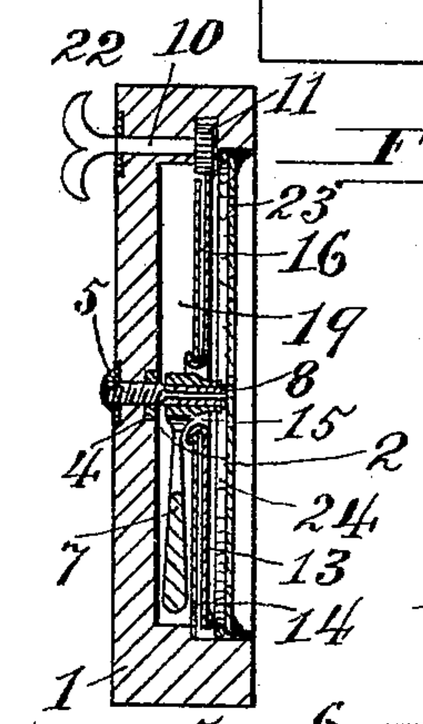


Fig. 5.

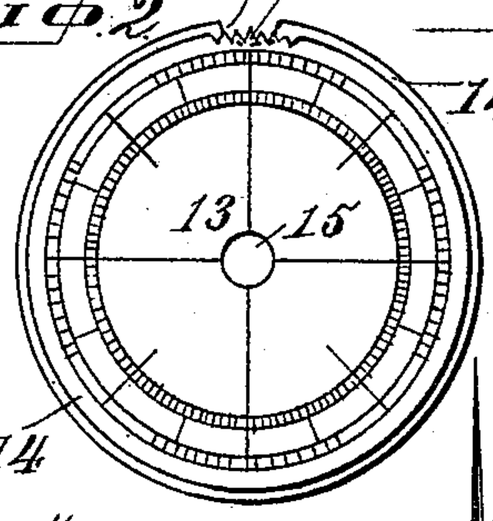


Fig. 4.

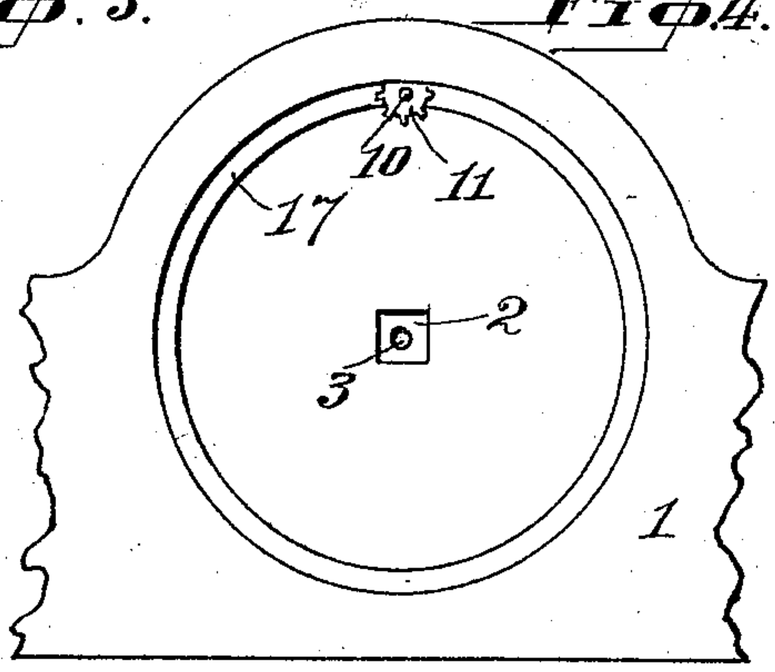
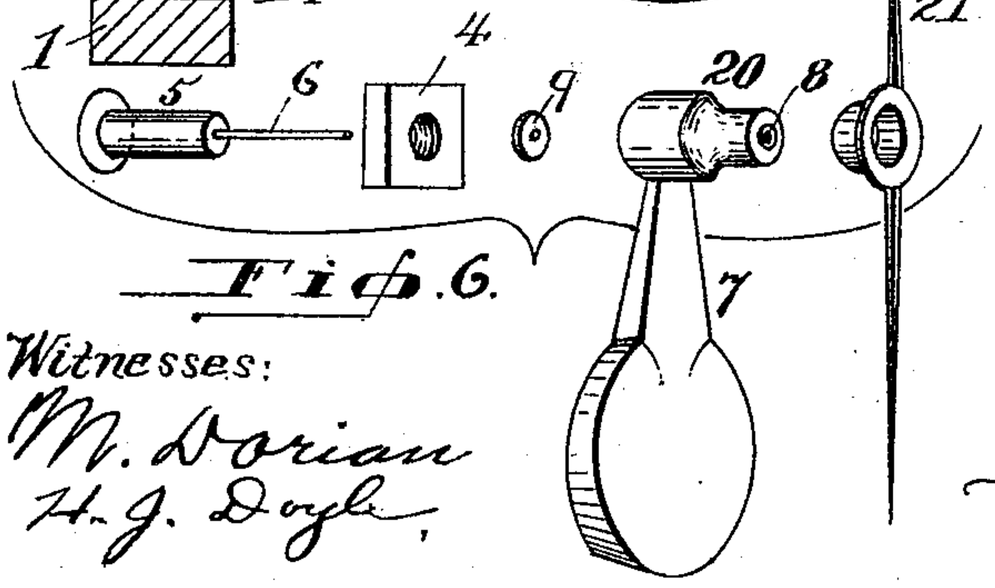


Fig. 6.



Witnesses:
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H. J. Doyle.

Inventor.
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UNITED STATES PATENT OFFICE.

EDWIN C. DURAND, OF WELLINGTON, OHIO.

COMBINATION-TOOL.

SPECIFICATION forming part of Letters Patent No. 496,300, dated April 25, 1893.

Application filed December 3, 1892. Serial No. 453,943. (No model.)

To all whom it may concern:

Be it known that I, EDWIN C. DURAND, a citizen of the United States, residing at Wellington, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in a Combined Level, Plumb, and Inclinometer, of which the following is a specification.

This invention relates to the class of measuring instruments and particularly to a combined pitch-board, level, and indicator, and its novelty will be fully understood from the following description and claims, when taken in connection with the annexed drawings, and the object of the invention is to provide an inclinometer, level, plumb, and indicator all in one.

A further object of the invention is to provide a combined level, plumb, inclinometer and indicator, with a dial adjusting mechanism which can be operated without displacing or separating the parts of the level or board.

In the accompanying drawings forming part of this application: Figure 1 is a perspective view of my combined instrument. Fig. 2 is a cross section taken on the line *x—x*, Fig. 1. Fig. 3 is a perspective view looking at the rear of the instrument. Fig. 4 is a front view, with the dial, disk and indicator hand removed. Fig. 5 is a front view of the dial and disk. Fig. 6 is a perspective view of the pendulum, pin, indicator hands, steel bushing and pin nut.

The same reference numerals denote the same parts throughout the several figures.

The body 1 of the instrument I prefer to make of block wood of any convenient size, or it may be made in box form. The body 1 is grooved out or counter-sunk in circular form, having a central cavity 2 surrounding a central aperture 3. In this cavity 2 is placed a metallic screw-thread bushing 4, through or into which is screwed from the back of the instrument, an arbor 5 having an extension or pin 6. This pin 6, is made of hardened steel, and upon it is hung the pendulum 7.

The hub 20 of the pendulum has an internal bushing 8 also of hardened steel, in which the pin 6 is journaled, and secured by means of a thin nut 9.

Extending part-way through the wooden block or frame 1, from the rear, is an adjusting rod 10, having a hand operating device 22, and provided with a pinion 11 secured upon its inner end. This pinion 11 engages a segmental tooth portion 12, of the dial 13, said dial having two sets of degree marking upon its face. The dial is secured to a disk 14, by means of an eyelet hole 15 in the center, leaving a space 16 between the disk and the dial.

There is a shoulder 17 formed in the counter-sunk portion of the block 1, upon which the disk 14 rests, said resting place or shoulder being behind the pinion 11; the said disk has a cut out 18, to allow the said pinion to pass and engage the toothed portion 12 of the dial 13.

The space 16 between the dial and disk, allows the dial to be moved, or adjusted, should any irregularity occur in the instrument, by turning the rod 10 by means of the hand piece 22, in either direction, without its touching, or the disk.

The space 19 between the shoulder 17 and the inside back of the counter-sink allows free play of the pendulum.

The hub 20 of the pendulum in which the steel bushing is located extends clear through the eyelet holes of the disk and dial without touching them and has secured upon its end an indicator hand 21, thus leaving the pendulum and indicator hand firmly secured together, and perfectly free to vibrate together.

The dial is covered by a glass disk 23 in the usual manner.

24, denotes a piece of wire sprung into the counter sink on top of the dial, so as to hold it firmly in place, and upon which the glass disk rests.

The large circle of degree markings on the dial indicates half inch to the foot, while in the smaller circle each marking indicates five degrees.

It will be observed that the instrument may be employed by changing its position, as a level, plumb, or indicator.

I do not wish to be understood as limiting myself to any particular form of base or frame nor to the material of which said frame or any

of the parts of my instruments are made, as the same may be changed without departing from the spirit of my invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an inclinometer, the disk secured therein, the dial loosely connected to the disk and having a segmental toothed portion, and the pinion engaging said toothed portion, whereby the dial is adjusted, as set forth.

2. The body 1, having a counter-sunk portion in which is secured the adjusting rod and pinion, in combination with said rod and pinion, the disk also secured in the said portion, and the dial pivotally connected to the disk and having teeth engaged by the pinion, substantially as and for the purpose set forth.

3. The body 1 having a counter-sunk portion, the glass disk, and the disk having a cut out located in said portion, combined with the dial pivotally connected to the disk at its center and having a segmental toothed portion, the eyelet making said connection, and means for turning the dial for the purpose of adjustment, as set forth.

In witness whereof I hereunto set my hand in the presence of two witnesses.

EDWIN C. DURAND.

Witnesses:
J. H. DICKSON,
H. M. DURAND.