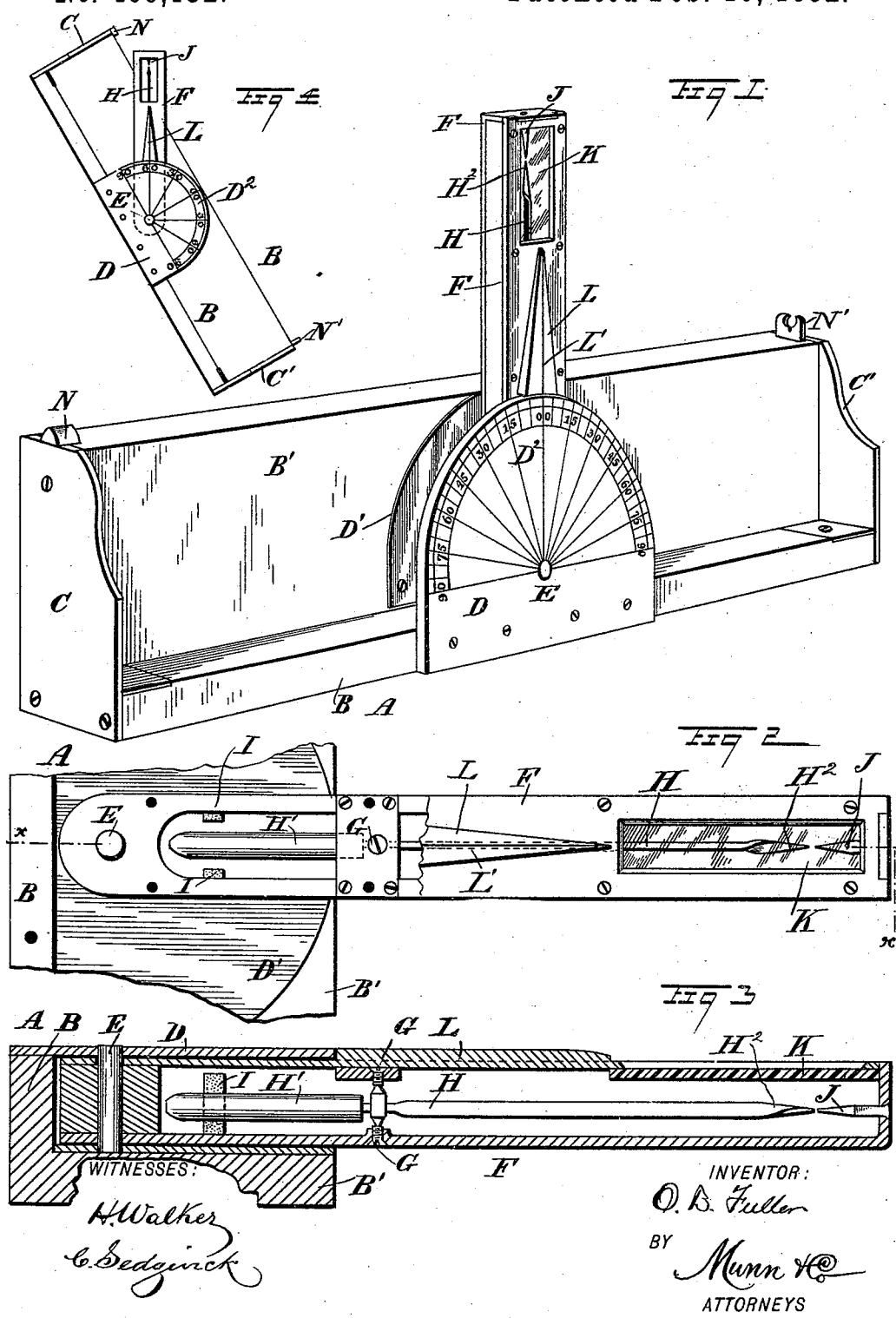


(No Model.)

O. B. FULLER.
PLUMB LEVEL.

No. 469,132.

Patented Feb. 16, 1892.



UNITED STATES PATENT OFFICE.

OSCAR B. FULLER, OF PITTSBURG, KANSAS, ASSIGNOR OF ONE-HALF TO
JOHN A. ELLSWORTH, OF SAME PLACE.

PLUMB-LEVEL.

SPECIFICATION forming part of Letters Patent No. 469,132, dated February 16, 1892.

Application filed March 17, 1891. Serial No. 385,381. (No model.)

To all whom it may concern:

Be it known that I, OSCAR B. FULLER, of Pittsburg, in the county of Crawford and State of Kansas, have invented a new and
5 Improved Measuring-Instrument, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved measuring-instrument
10 which is simple and durable in construction, and designed for conveniently and accurately indicating in degrees the position of a beam or like object, and which also can be advantageously used as a level, plumb, or theodolite.

15 The invention consists of certain parts and details and combinations of the same, as will be hereinafter fully described, and then pointed out in the claims.

Reference is to be had to the accompanying
20 drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of the improvement as arranged for a level. Fig. 2 is
25 an enlarged front elevation of part of the improvement with parts broken out. Fig. 3 is a transverse section of the same on the line xx of Fig. 2, and Fig. 4 is a reduced front elevation of the improvement as applied for
30 measuring an inclined surface.

The improved measuring-instrument is provided with a stock A, made or composed of a suitable base B, on which is secured a back
35 B', the ends of which, as well as those of the base, being bound by metallic plates C and C', so as to prevent warping of the stock.

On the front of the base B of the stock A is secured a degree-scale D, provided with the usual graduation D², and on the back B'
40 is secured a semicircular plate D', in which and in the degree-scale D is journaled a shaft E, passing through the center of the degree-scale, as is plainly illustrated in Fig. 1. The shaft E is secured in one end of an arm F,
45 made hollow and properly bound by metallic plates, so as to prevent warping. In this hollow arm F is hung on centers G a tongue H, the inner end of which is weighted, as at H', the weighted end having a limited motion
50 between stops I, preferably made of rubber,

and secured on the inside of the hollow arm F. The outer end of the tongue H is pointed, as at H², this point registering with a fixed pointer J, secured in the outer end of the hollow arm F. When the arm F stands
55 in a vertical position, the pointed end H² of the tongue H registers with the pointer J. (See Figs. 1 and 4.)

On the front of the arm F is arranged a projection L, formed with a central line L',
60 arranged radially to the shaft E and in line with the lines on the degree-scale D². The line L' is also in line with the tongue H when the arm F stands in a vertical position. The inner end of the line L' indicates on the de-
65 gree-marks of the degree-scale D². The centers G are arranged transversely, but in line with the indicating-line L', the pointer J, and the shaft E. In order to view the pointed end H² of the tongue H and the pointer J, the
70 front part of the hollow arm F is cut out and covered by a glass K, as is plainly indicated in the drawings.

On the top of the back B' of the stock A is arranged a suitable sight, composed of the
75 usual two parts N and N'. The back B', as shown in the drawings, is set somewhat to one side of the base B and so that the arm F, arranged between the two plates D and D',
80 can conveniently swing or fold onto the front of the back B' or the top of the base B. When the arm F is swung into the position shown in Fig. 1—that is, at right angles to the base B—then the device can be used as a
85 level, the line L' then standing at zero of the degree-scale D². The slightest deviation of the base B from a horizontal position is indicated by the pointed end H² of the tongue H,
90 as the said pointed end then swings out of line with the pointer J, either to the right or left, as the case may be. When the base B of the stock A is placed on an inclined surface, as illustrated in Fig. 4, then the operator swings the arm F until it stands in a
95 vertical position, which vertical position is indicated by the tongue H standing in line with the pointer J and the line L' of the projection L. The line L' then indicates on the degree-scale D² the proper degree of the inclined
100 surface. As shown in Fig. 4, the said in-

clined surface on which the stock A is applied is sixty degrees from horizontal.

When it is desired to use the device as a plumb, the arm F is swung upward until the line L' indicates over ninety degrees on the degree-scale D², the arm F then being parallel with the base B. When the stock A is placed against the side of a post, wall, or other object, then the slightest deviation from a perpendicular position is indicated by the tongue H moving to either a right or left hand position of the fixed pointer J. When the arm F is in this position and the stock A is applied on a wall, post, and the like and the pointed end H² of the tongue H registers with the pointer J, then the said wall, post, or like article is plumb. It is understood that the instrument measures with great accuracy as long as the stock is moved in a vertical plane.

It will be seen that the instrument can be readily used for sighting either horizontally or at an inclination, the proper degree being indicated on the degree-scale D².

Having thus fully described my invention; I claim as new and desire to secure by Letters Patent--

1. In a measuring-instrument, the combination, with a stock, of a degree-scale secured on the said stock; an arm pivoted in the center of the said degree-scale and provided with an indicating-line adapted to indicate on the degree-marks of the said scale, a tongue hung on centers in the said arm and having its lower end weighted and its

upper end pointed, and a pointer secured in the outer end of the said pivoted arm and arranged in line with the said indicating-line and adapted to register with the said tongue, substantially as shown and described.

2. The combination, with a stock, of a plate secured on the front thereof and having a curved upper edge provided with a degree-scale, an arm pivoted at its lower end behind said plate centrally of its scale and provided with a pointed projection L on its front side having a line L', the tongue hung on centers within the arm and provided with a weighted lower end and a pointed upper end, and the fixed depending pointer in the upper end of the arm, substantially as shown and described.

3. A level consisting in base B, the back B', the end pieces C C', the plate D, secured at its lower edge to the front of the base at its center and having a degree-scale at its upper curved edge, the arm pivoted at its lower end between the plate and the back centrally of the said scale and having an indicating-line, a tongue pivoted in the arm and having a weighted lower end and a pointed upper end, and the pointer depending from the upper end of said arm, substantially as shown and described.

OSCAR B. FULLER.

Witnesses:

J. M. LAMBERT,
I. M. LAMBERT.