

(No Model.)

W. C. THATCHER.
SPIRIT LEVEL.

No. 359,580.

Patented Mar. 15, 1887.

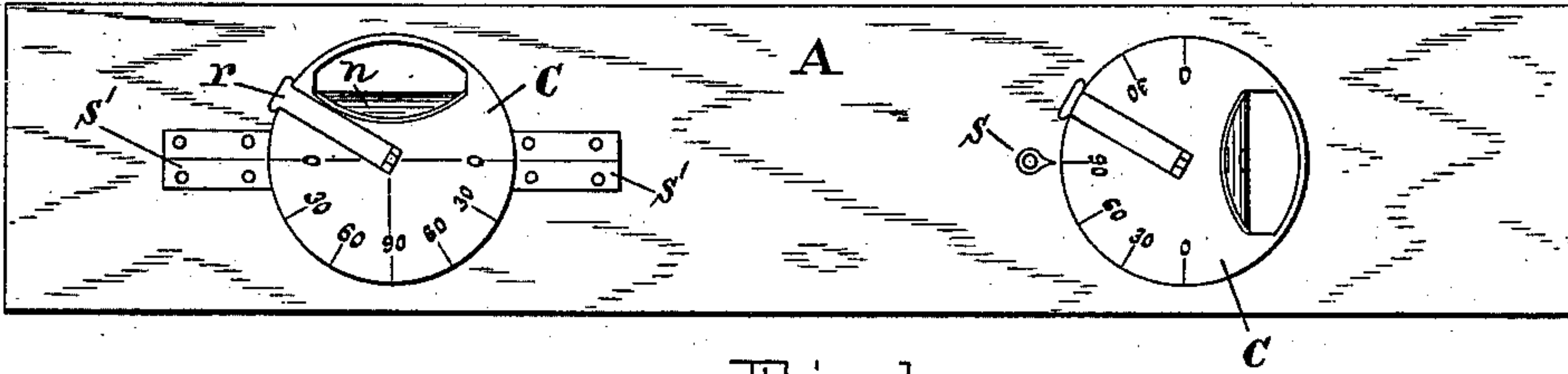


Fig. 1.

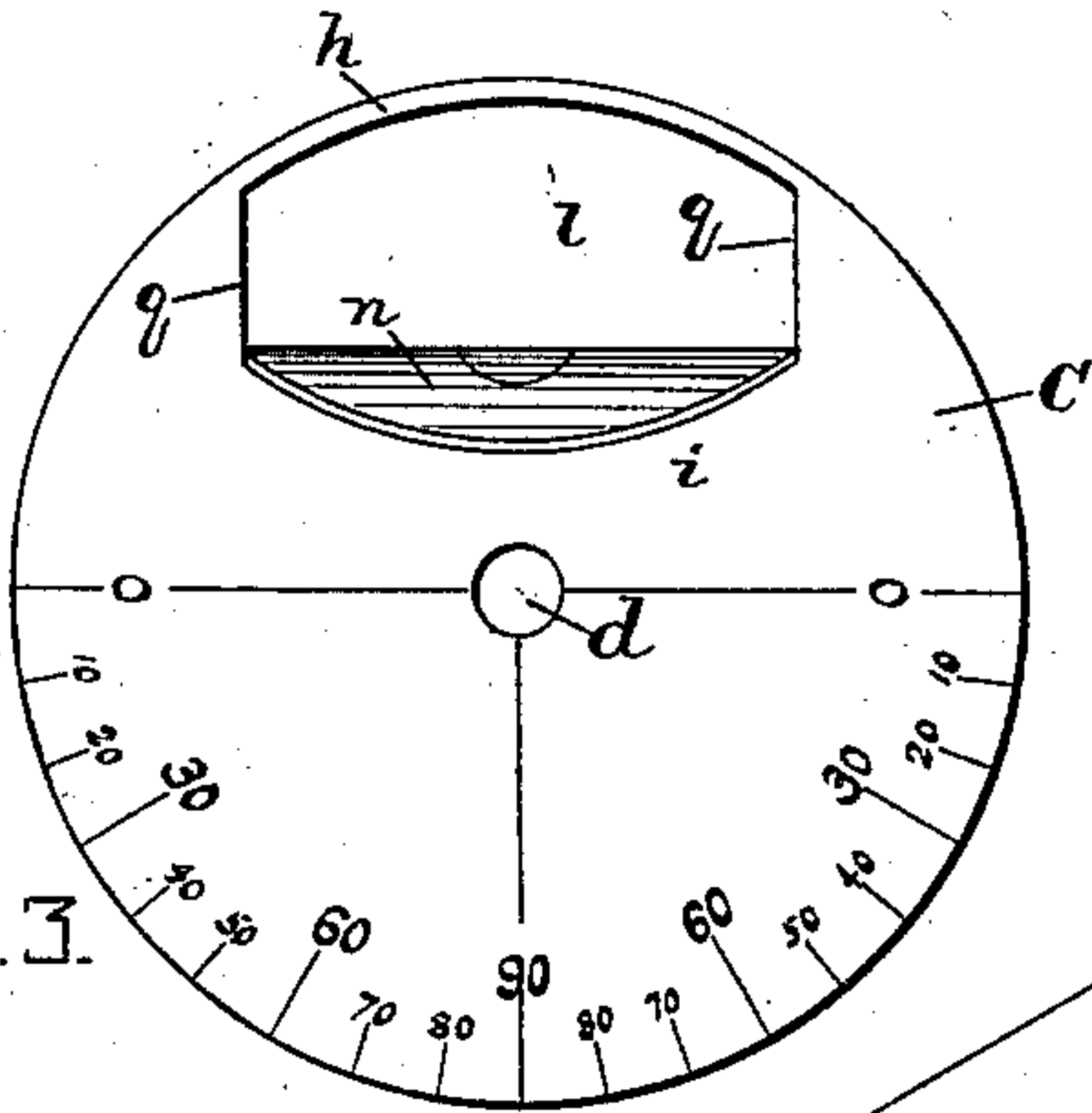


Fig. 3.

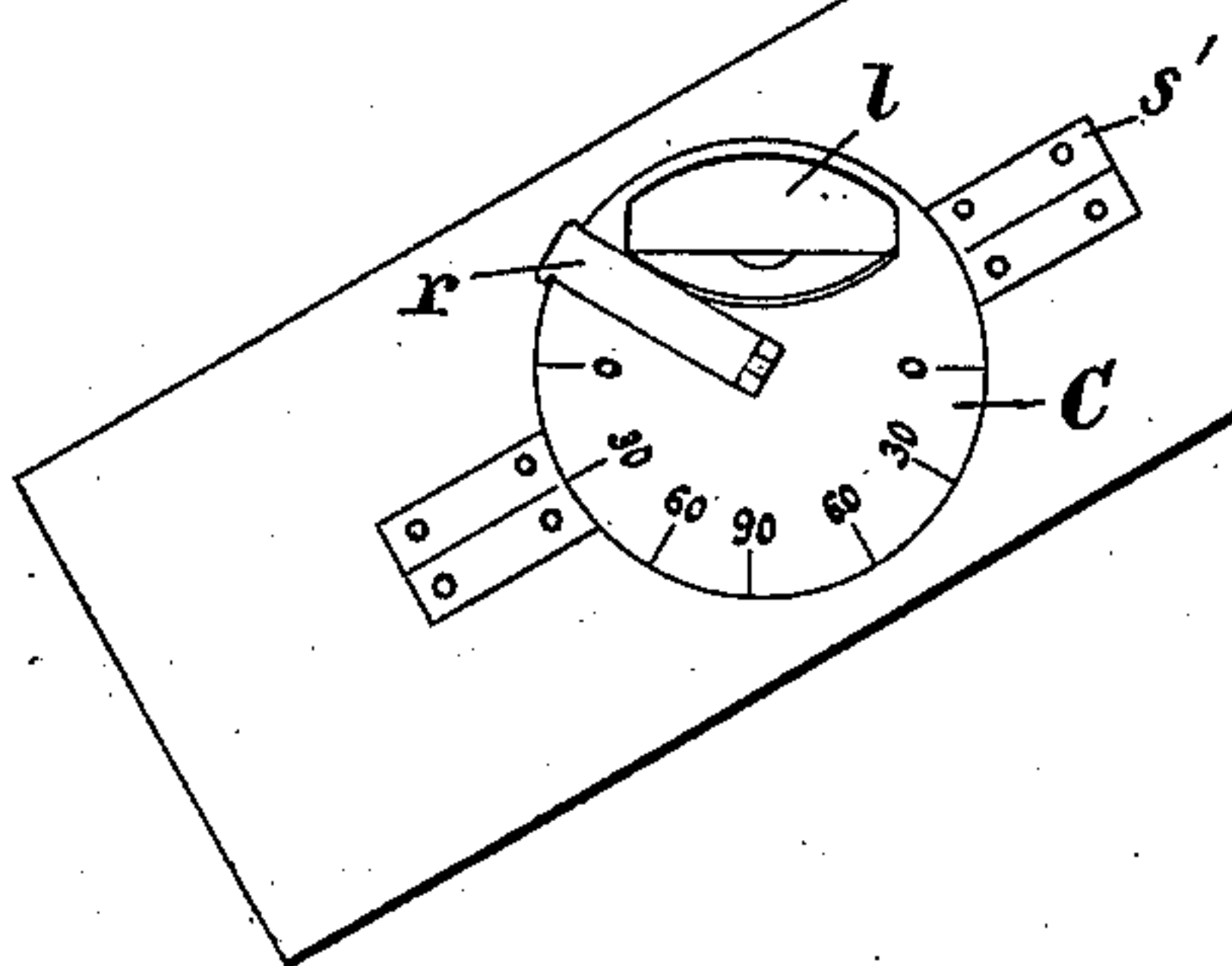


Fig. 5.

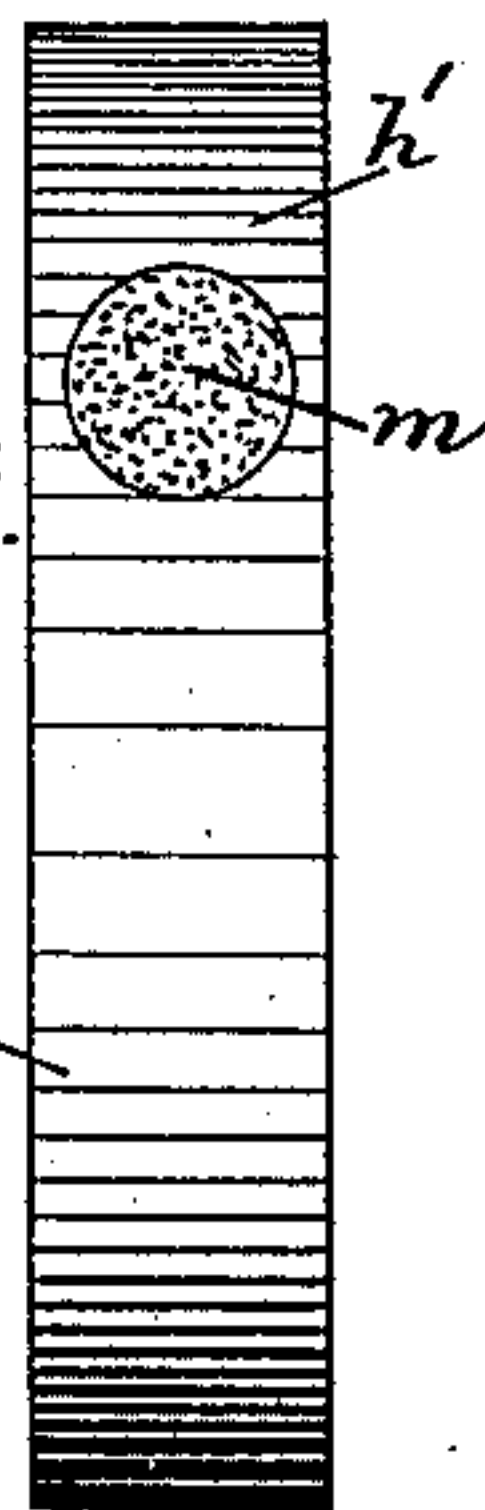


Fig. 6.

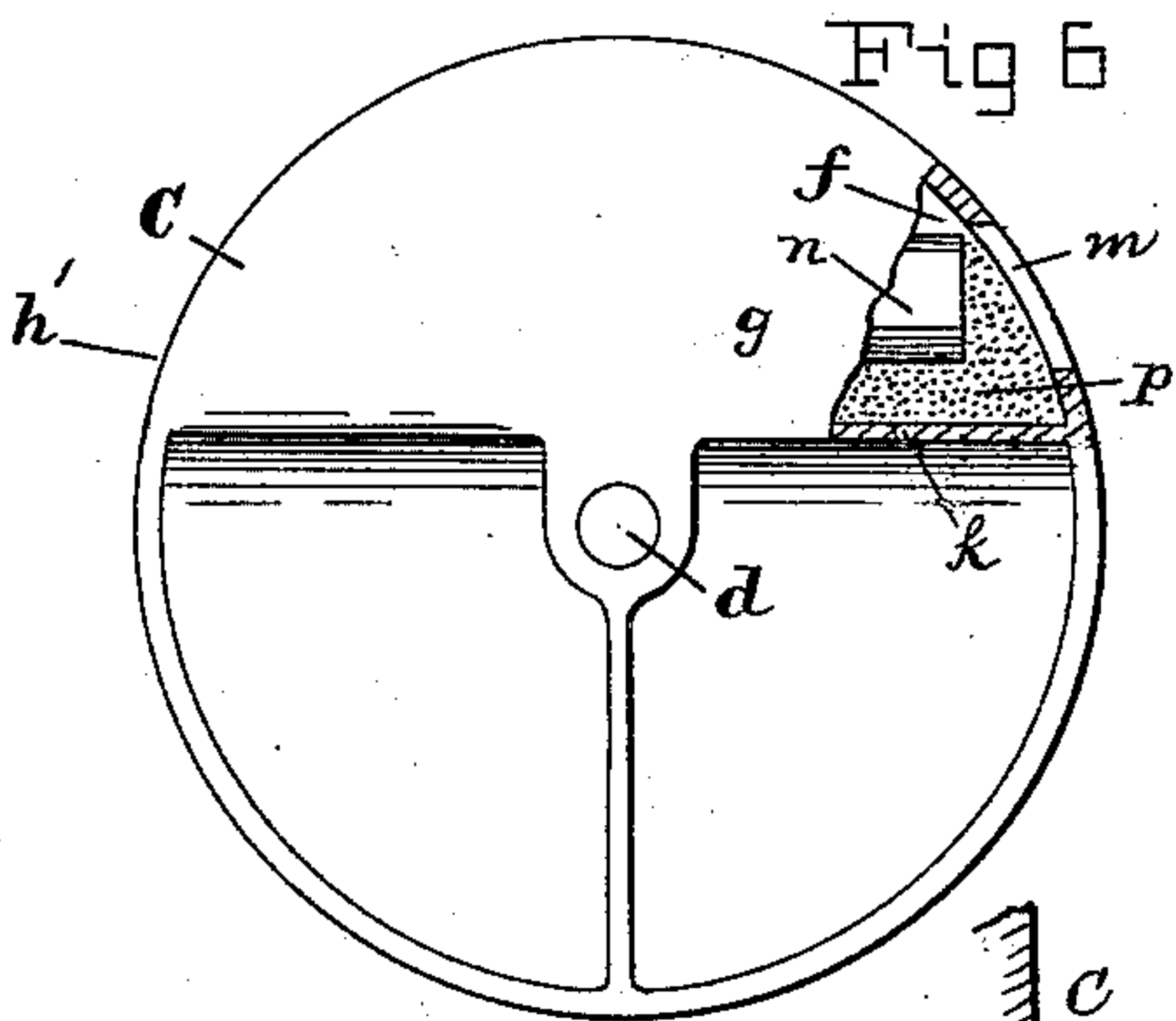


Fig. 7.

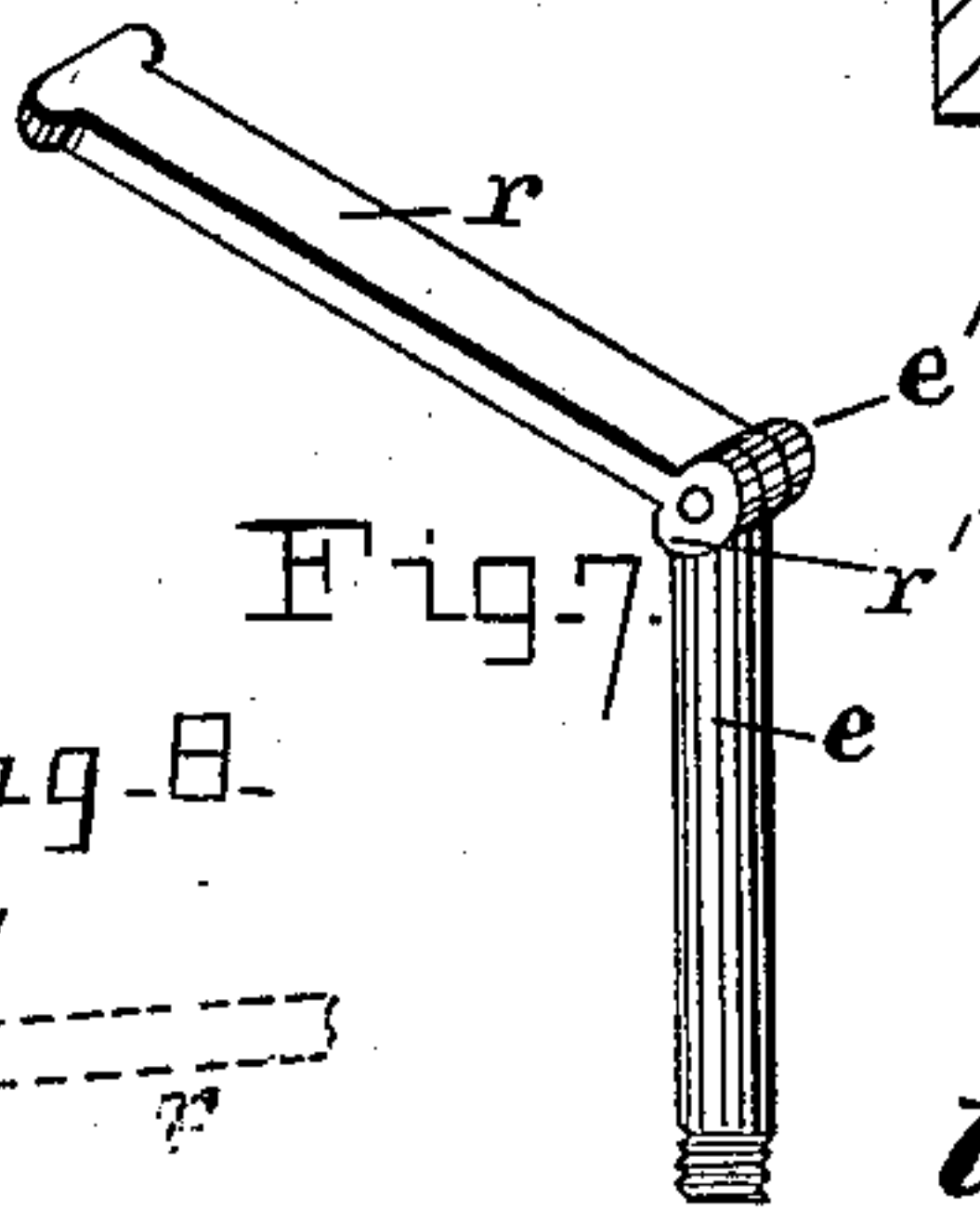


Fig. 8.

Witnesses

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UNITED STATES PATENT OFFICE.

WALTER C. THATCHER, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-THIRD TO J. ALBERT THATCHER, OF SAME PLACE.

SPIRIT-LEVEL.

SPECIFICATION forming part of Letters Patent No. 359,580, dated March 15, 1887.

Application filed December 21, 1885. Serial No. 186,275. (No model.)

To all whom it may concern:

Be it known that I, WALTER C. THATCHER, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Adjustable Levels and Plumbs, of which the following is a specification.

My invention relates to a spirit-level and plumb.

The object of the invention is to provide an implement for artisans' use comprising a body or block and a spirit-glass mounted on a carrier of special construction, and which is adjustably attached to the body.

The invention consists of certain parts, combinations of parts, and features of construction, as hereinafter described and claimed.

In the accompanying drawings, which illustrate the invention, Figure 1 is a front view of the improved implement in a horizontal position. Fig. 2 is a front view of the same, showing it at an inclination. Fig. 3 is a front view of the spirit-glass carrier. Fig. 4 is a cross-section of the body and the spirit-glass carrier. Fig. 5 is a side view of the spirit-glass carrier. Fig. 6 is a back view of the spirit-glass carrier. Fig. 7 is a view separately of the pivot-screw and jointed holder. Fig. 8 is a diagram showing the holder *r*, with its cam, in two positions.

The letter A designates the body or block, which usually is made of wood. This body has two circular recesses, *b*, in one side, and a circular carrier, C, occupies each recess, and is so arranged that it may be turned therein, as hereinafter specified.

The circular carrier may be made of any suitable material, such as metal, vulcanized rubber, or celluloid. It has a central hole, *d*, through which passes a pivot-screw, *e*, by which it is retained in the recess, and around which it may turn. Any suitable screw or bolt may be employed for this purpose. A chamber, *f*, is in the carrier at one side of a diametrical line. This chamber is formed by a wall, *g*, at the back, the segment-shaped portion of rim *h*, the front wall, *i*, and the wall *k*, which is at one side of a diametrical line. An oblong-shaped opening, *l*, at the front exposes the chamber, and at one end the rim *h'* has a hole, *m*, for the insertion into the chamber of the spirit-glass *n*, which is of ordinary construc-

tion. The spirit-glass *n* is confined to its position by a straight bead or ledge, *o*, integral with the back wall, *g*, and which projects forward above the spirit-glass. Plaster-of-paris or other suitable cement, *p*, in the chamber serves as a seat or packing for the spirit-glass. This glass is visible through the oblong-shaped front opening, *l*, and the usual air-bubble in this kind of level can plainly be seen. The space between the segment-shaped portion *h* of the rim and the spirit-glass permits the insertion of the end of a finger of a person's hand, and by pressing the finger against either end *q* the carrier C may be partly rotated on the pivot *e*, and thereby the position of the spirit-glass *n* with respect to the body A, may be changed. This is illustrated in Figs. 1 and 2. The carrier C at the left of the body in Fig. 1 is set for the spirit-glass to be level when the body has a horizontal position, while at the left of the body in Fig. 2 it is shown set for the spirit-glass to be level when the body is at an inclination of thirty degrees. Thus the implement may be employed to ascertain or determine either levels or inclines of varying degrees.

The circular face of the carrier C is graduated each side of a diametrical vertical line from 0 to 90 degrees, the latter being at the said vertical line, and a horizontal line extends diametrically across between the two points marked 0. An indicator must be permanently fixed to the body A, so that the horizontal line may be brought exactly in coincidence with it. Two forms of indicator are shown, one being a pointer, *s*, the other a metal plate, *s'*, having a horizontal line across its center.

Two carriers, C, are mounted on the same body, A, in order that normally one (that at the left) may be set to serve as a level, while the other (that at the right) is set to serve as a plumb when the body is placed in a vertical position.

The pivot-screw *e* may have its end entered in the body, as a wood-screw would do, or a plate, *t*, may be on the back of body and the end of the screw entered in it, as in Fig. 4.

It is necessary to have the carrier held or confined to the particular position to which it may be adjusted or turned. To this end the

pivot-screw *e* has a holder, *r*, jointed to it at *e'*. This holder is simply an arm or lever, *r*, having a small cam, *r'*, at or near the joint. It will thus be seen that when the free end of the holder-arm *r* is moved away from the face of the carrier the small cam *r'* will not bind thereon, and then the carrier may be partly rotated to adjust the spirit-glass; but when the free end of the arm is adjusted toward the face of the carrier the small cam *r'* will be bearing on the carrier-face in such manner as to hold or confine the carrier and prevent its rotation.

The circular carrier C (here shown with the spirit-glass and pivot-screw arranged to hold the carrier) may be applied to the wood body of ordinary levels now in use.

It will be understood that while two spirit-glass carriers are here shown on one body or block, one may be used alone.

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination, with the body or block A, of a rotative carrier recessed therein, provided with a spirit-level, a central pivot-screw, and a pivoted arm or lever, *r*, provided with a cam, *r'*, adapted to confine the carrier when properly adjusted, substantially as described. 25

2. A level or plumb consisting of a body, A, a circular carrier freely recessed therein and having a graduated face, as described, a spirit-level suitably embedded in said carrier, the retaining portions *i o k b*, a pivot-screw, and a lever pivoted to this screw and provided with a cam adapted to operate substantially as described. 30 35

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

WALTER C. THATCHER.

Witnesses:

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