D. J. SEYMOUR.

GRAVITY LEVEL.

APPLICATION FILED FEB. 2, 1911.

995,099.

Patented June 13, 1911.

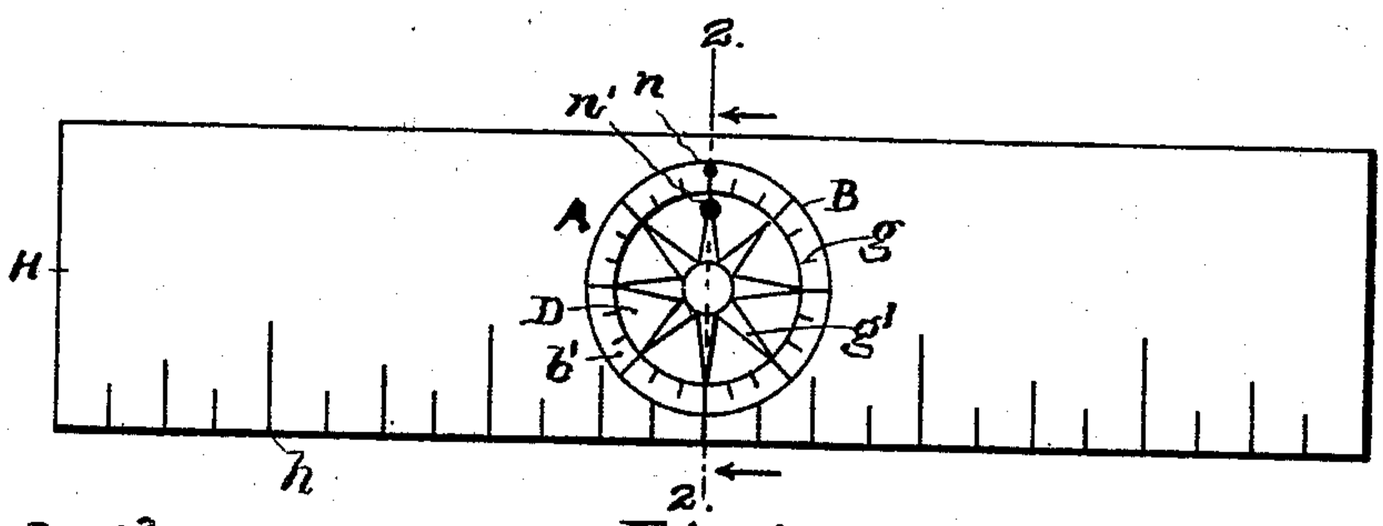

Fig. 1.

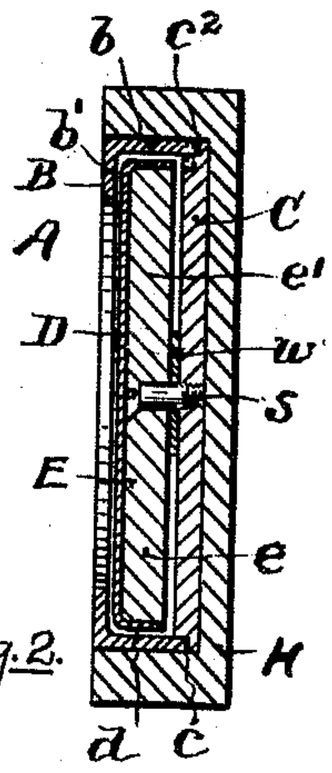

Fig. 2.

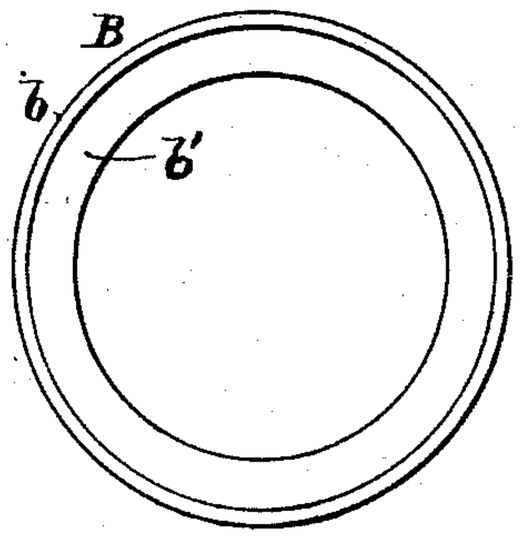

Fig. 4.

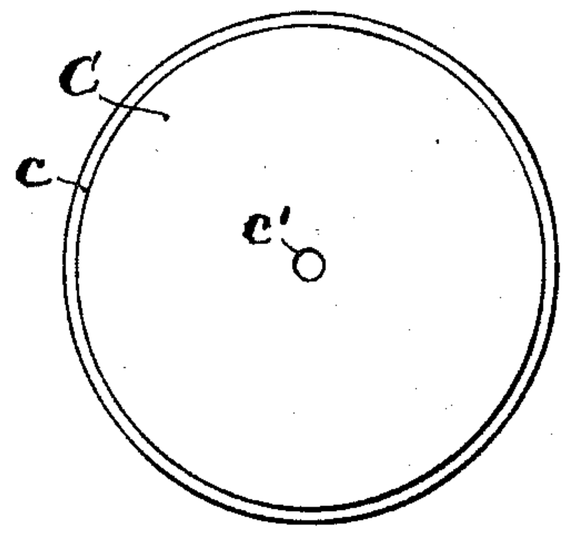

Fig. 3.

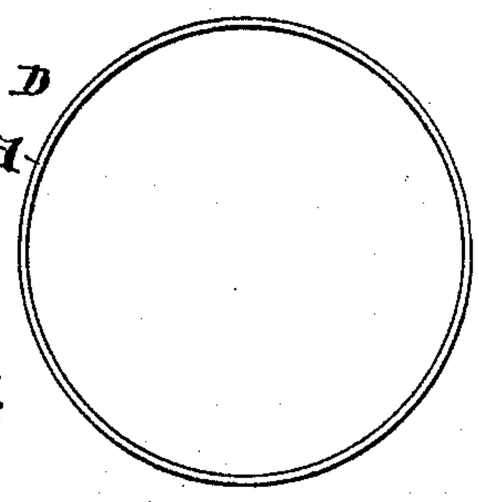

Fig. 5.

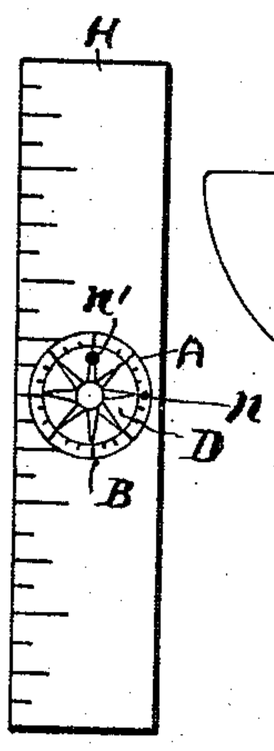

Fig. 7.

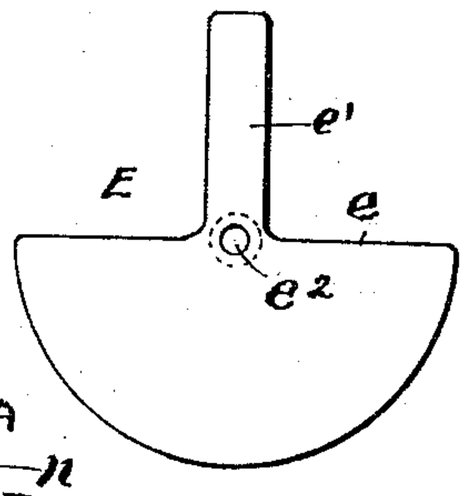

Fig. 6.

WITNESSES.

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UNITED STATES PATENT OFFICE.

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GRAVITY-LEVEL.

995,099. Specification of Letters Patent. **Patented June 13, 1911.**

Application filed February 2, 1911. Serial No. 606,085.

To all whom it may concern:

Be it known that I, DANIEL J. SEYMOUR, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Gravity-Levels, of which the following is a specification.

My invention relates to plumb-levels, and more especially to gravity-levels, employed for indicating bevels or angles, and it consists in the novel construction and arrangement of parts, all as hereinafter set forth and claimed.

The object sought to be attained is to produce a relatively small, light, inexpensive and practically accurate angle-indicating device, capable of being readily insertible into the bar proper. The latter may be made of wood and have one or both edges graduated, thereby adapting it to be used both as a measuring scale and rule or straight-edge. In fact, owing to its inexpensive character, the mounted device may be provided with suitable printed matter and employed as an advertising medium by the advertiser, since the levels can be made and sold at a small nominal price.

In the accompanying sheet of drawings, Figure 1 represents a front elevation of a level embodying my improvement. Fig. 2 is a transverse sectional view, in enlarged scale, taken on line 2 2 of Fig. 1, showing the interior construction. Fig. 3 is a front elevation of the back or base member of the stationary casing. Fig. 4 is an elevation of the front member of the casing, viewed from its inner face. Fig. 5 is a similar view of the swinging dial-plate. Fig. 6 is a face view of the weight member, detached from the dial; and Fig. 7 represents, in smaller scale, a manner of using the device.

In the drawing A designates my improved self-positioning angle-indicating device, as a whole, adapted to be fixed in a wooden rule or bar H. All the members, except the weight E, may be struck up or formed from quite thin sheet-metal stock.

The circular disk-like base C is centrally tapped at c^1 to receive the headed screw or supporting stud s, and having the outer edge of the base provided with a narrow shoulder c, constructed to receive thereon the rear edge part of the peripheral flange b of the annular front member B of the casing. The outer or front rim b^1 of the latter is provided with suitably spaced radial graduation marks g (Fig. 1) denoting degrees or other units of division, one of which, say the upper vertical one n, being the zero or central line. The weight member E is relatively heavy and has a central hole e^2 therethrough to receive the said screw s. A narrow central arm e^1 extends vertically from the lever or weight part proper e, and having the outer peripheral face of both the parts e, e^1 turned or trued off to snugly receive and centralize thereon the rearwardly extending rim or flange d of the front dial-disk member D, all as clearly represented in the assembled condition shown in Fig. 2. The face of the dial D is or may be provided with a permanent star-like figure g^1 having its points disposed with relation to the scale g of the said stationary annular rim b^1; one of the star-points has a zero mark n^1 normally alining with said zero mark n.

It may be stated that by the use of accurately constructed tools and dies the several members of the level may be perfectly made so that they can be assembled quickly and easily and without the use of solder or fastening means. That is to say, referring to Fig. 2, the weight E is pivotally mounted on the base C by means of the snugly driven screw s, a thin, loose washer w being interposed between the adjacent surfaces, if desired, followed by pressing the rim d of the dial D over the outer periphery of the weight until the flat disk-like faces are in contact, the parts E and D then being practically one member; after which the annular casing member B is placed in position and centered upon the peripheral shoulder of the back member C, thereby inclosing and protecting the dial-faced weight. Obviously, in the latter operation care must be taken to have the two zero marks n, n^1 in radial alinement with and contiguous to each other when the longitudinal edges of the body are horizontal, or, as indicated in Fig. 1. When finally adjusted the casing may be readily fixed to the part C by a pin c^2, Fig. 2, or by prick-punching or slightly indenting the wall of the casing at the point where it is mounted on the base, thus practically completing the device A.

In order to utilize the level, as for example in connection with a rule or straight wooden bar H of suitable dimensions, the

bar is counter-bored to snugly receive the device bodily, its depth being, say just equal to the thickness of the article A. If desired, the bar itself may be graduated to form a scale *h* for indicating linear measurements.

The manner of operation is obvious: Upon placing the base of the bar upon a surface inclined, say from a horizontal, the degree or angle of such inclination is automatically indicated by the corresponding angular distance between the zero marks of the scales *g* and g^1, since the action of gravity causes the zero mark n^1 of the weighted dial to always assume a vertical position, irrespective of the position of the bar H. In Fig. 7 the latter is represented in a vertical position, the pointer indicating an angular separation of one-quarter of a circle, or 90°.

I claim as my invention:—

1. In a gravity-level, the combination of a circular casing, adapted to be snugly inserted in a bar or straight-edge, and having an integral narrow, flat peripheral front flange or face provided with a suitably graduated scale, a swinging disk-like dial pivotally mounted in the casing and disposed immediately at the back of and parallel with the plane of said front flange having an index mark or character adapted to register with the latter's scale, and a weight member connected to the dial arranged to keep the index mark in a vertical position.

2. The gravity-level herein described, the same comprising a disk-like back or base member, an outer rim member B rigidly secured to said base and forming therewith a chambered casing having an annular front face provided with a circularly arranged scale or index, an inwardly extending central pivot fixed to said base, a swinging weight E supported on said pivot, consisting of the weight proper *e* and an arm e^1, a thin circular cup-shaped member D fixed to and inclosing said weight member E and concealing the front face of the latter, and having the front or exposed face of the member D provided with an index having a designated central vertical mark registering with a certain mark of the said scale, formed on the face of the casing, when the device is in the normally level position.

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

DANIEL J. SEYMOUR.

Witnesses:

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