

(No Model.)

H. B. NICKERSON & G. W. ELDRIDGE.
 DEVICE FOR INDICATING THE TRIM OF VESSELS.

No. 564,449.

Patented July 21, 1896.

Fig. 1.

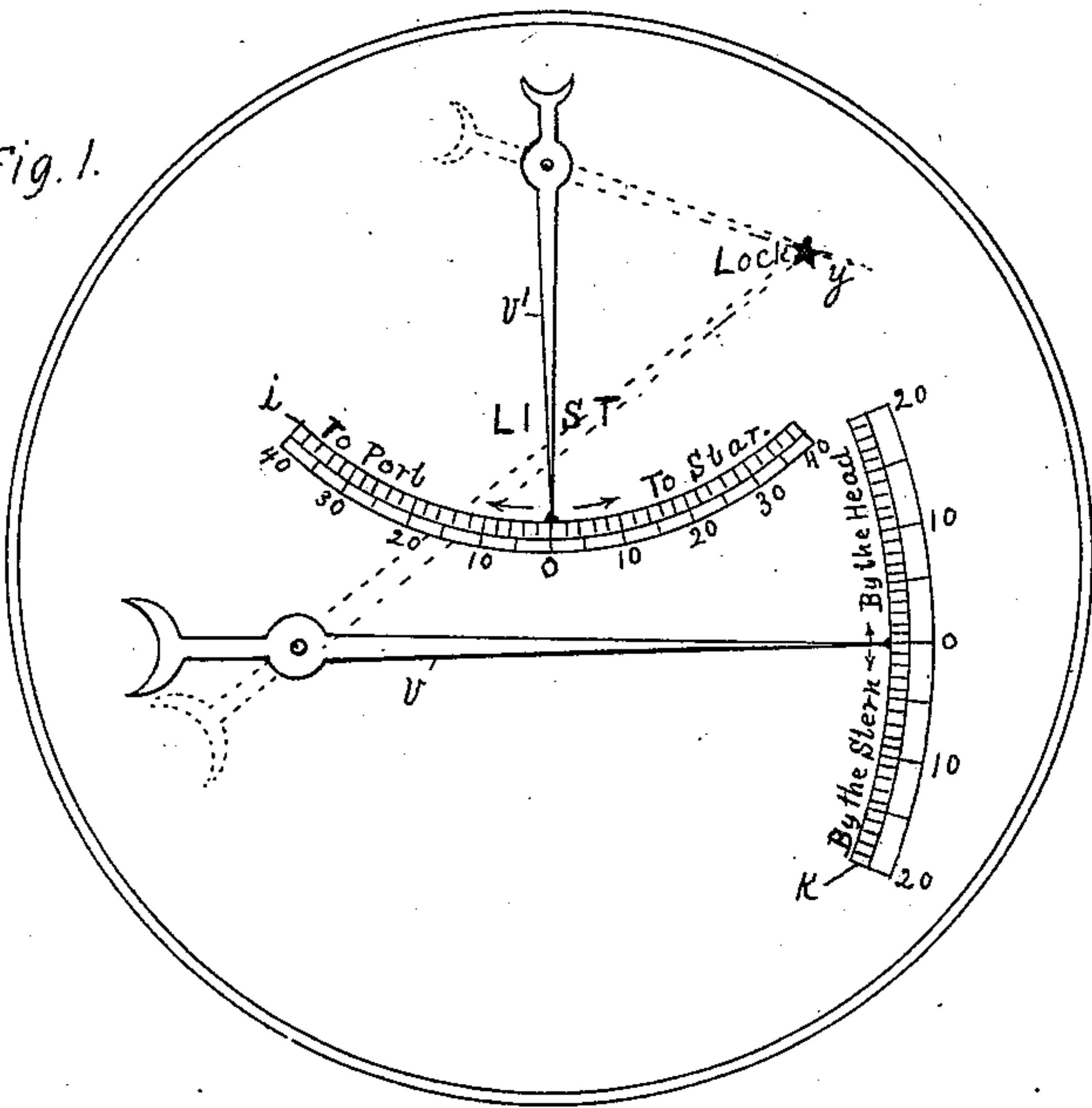


Fig. 2.

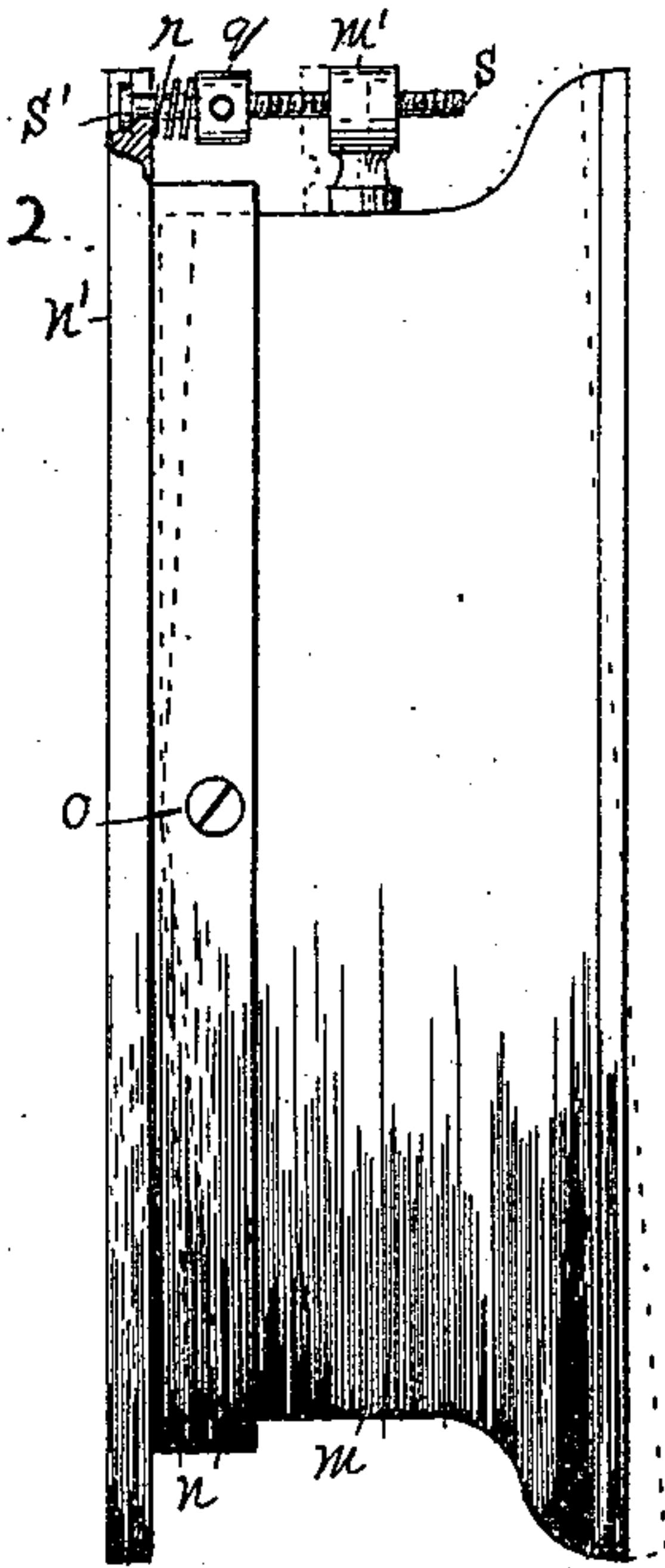


Fig. 3.

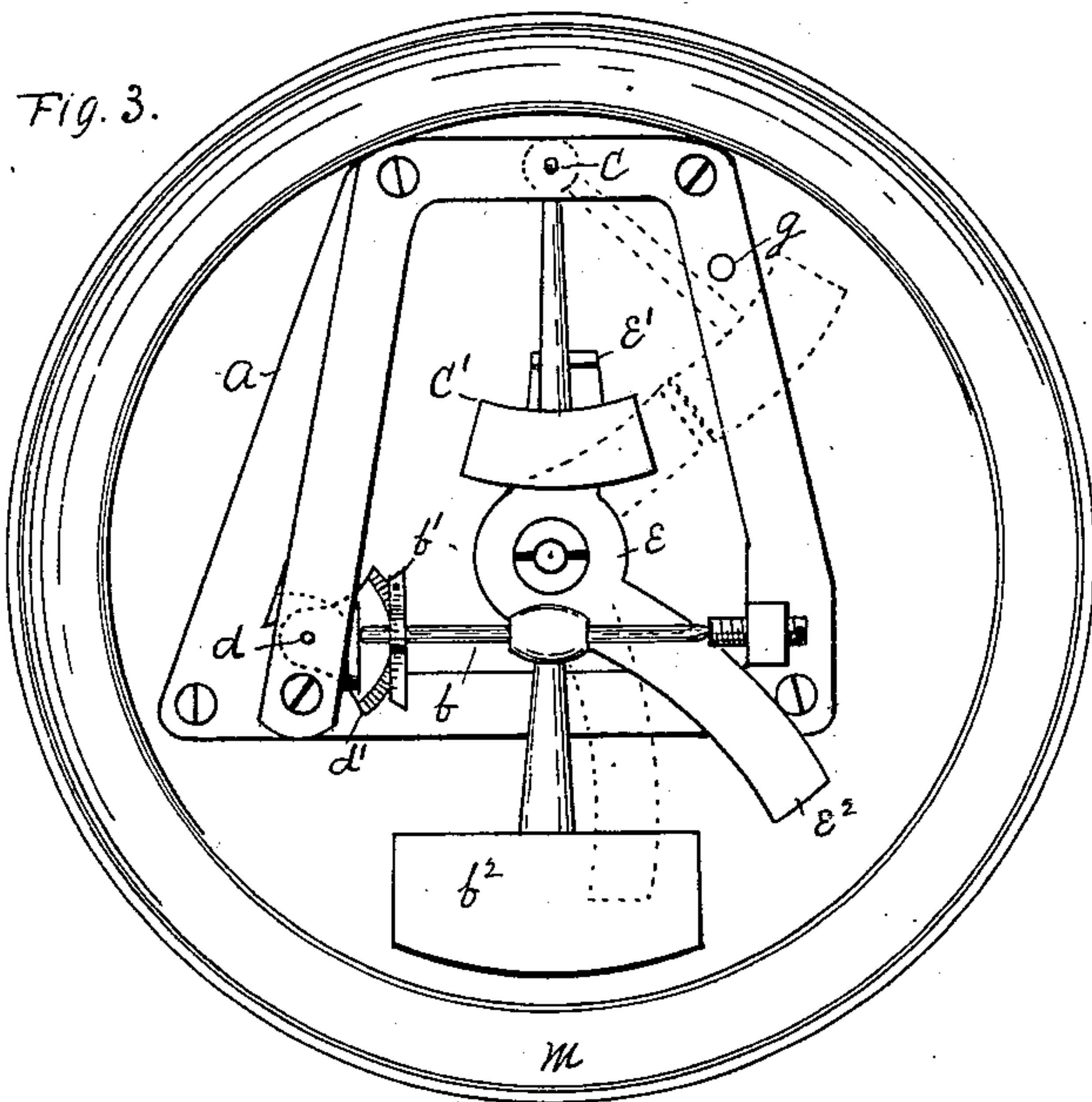
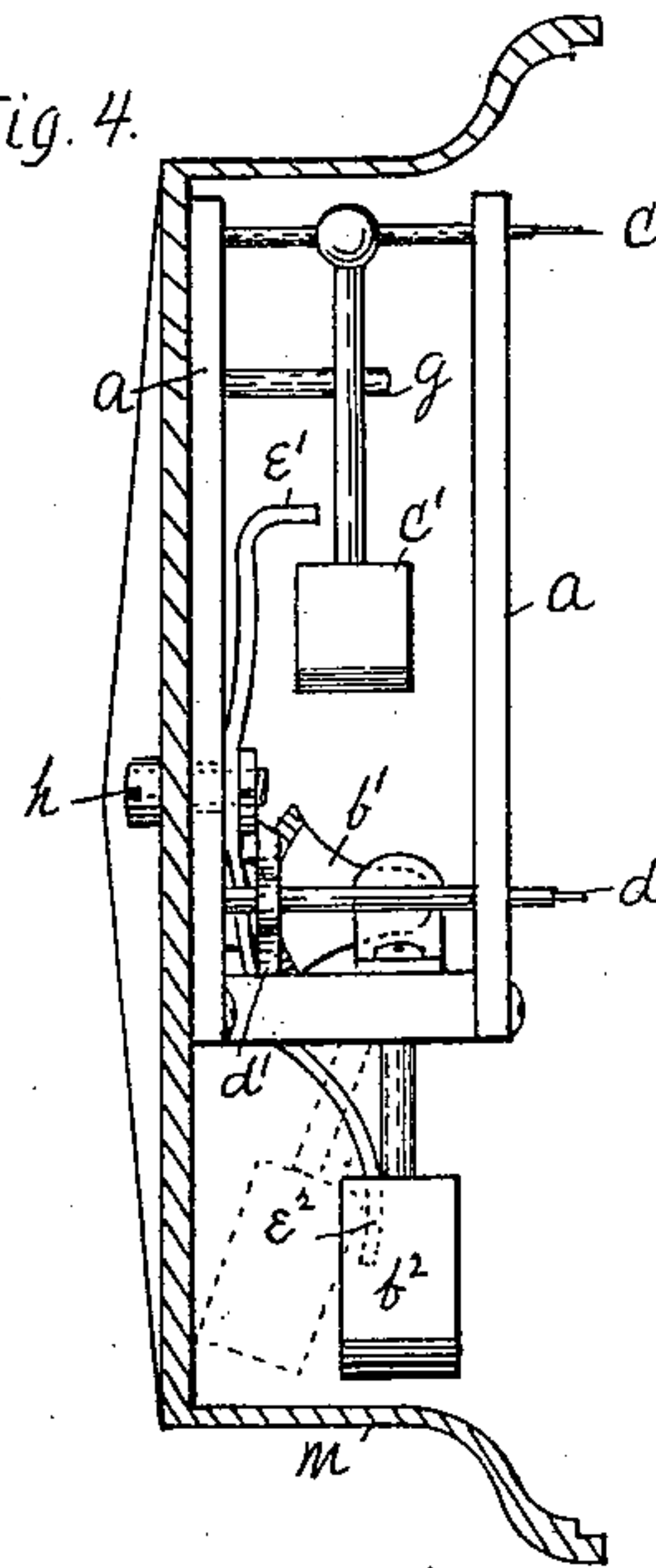


Fig. 4.



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UNITED STATES PATENT OFFICE.

HIRAM B. NICKERSON, OF BOSTON, AND GEORGE W. ELDRIDGE, OF VINEYARD HAVEN, MASSACHUSETTS; SAID NICKERSON ASSIGNOR TO SAID ELDRIDGE.

DEVICE FOR INDICATING THE TRIM OF VESSELS.

SPECIFICATION forming part of Letters Patent No. 564,449, dated July 21, 1896.

Application filed August 19, 1895. Serial No. 559,732. (No model.)

To all whom it may concern:

Be it known that we, HIRAM B. NICKERSON, residing at Boston, in the county of Suffolk, and GEORGE W. ELDRIDGE, residing at Vineyard Haven, in the county of Dukes, State of Massachusetts, citizens of the United States, have invented certain new and useful Improvements in Devices for Indicating the Trim of Vessels, of which the following is a specification.

The object of our invention is to provide an instrument which, when properly attached to the cabin-wall or some other suitable portion of a vessel, will correctly indicate on a dial her trim or position in the water.

To this end our invention consists in the device illustrated in the accompanying drawings, in which—

Figure 1 is a front view. Fig. 2 is a side view. Fig. 3 is a front view of the instrument with the dial removed, showing the internal mechanism; and Fig. 4 is a side view of the internal mechanism, showing a portion of the case in vertical section.

Similar letters refer to similar parts in the several views.

The letter *a* indicates the framework of the mechanism of our device secured in the case *m*, in which is journaled the shaft *c*, which projects through the front of the frame to receive an indicator-hand *v*'.

d is a shaft also journaled in the frame and parallel to the shaft *c* and projecting through the front of the frame to receive an indicator-hand *v*.

The shaft *d* is provided with the segmental bevel-gear *d'*, adapted to mesh with a similar gear *b'*, mounted on the shaft *b*, which is journaled in the frame at right angles to the shaft *d*.

c' is a weight having a rigid arm, the top of which is rigidly secured on the shaft *c*. *b'* is a similar weight having its arm rigidly secured on the shaft *b*.

g is a stud projecting from the frame *a* to limit the movement of the weight *c'* in one direction.

e is a piece of sheet metal firmly secured to the stud *h*, which is revoluble in the back of the case *m*, having the bent end *e'* adapted

to bear against the end of the weight *c'* when it is in the position as shown in dotted lines, Fig. 3, and having the bent end *e'* adapted to clasp the weight *b'* when it is in position as shown in dotted lines, Fig. 4. The head of the stud *h* is slotted to receive a wrench, by means of which the part *e* is operated from the outside of the case *m*. The part *e* constitutes a lock to secure the weights *c'* and *b'* in a rigid position, as shown in dotted lines, Fig. 3.

The front of the case *m* is provided with a dial, having openings for the shafts *c* and *d* to project through, and provided with the graduated segments *i* and *k*. The case *m* is further provided with the stud *m'*, through which works the screw *s*, having a head *s'*, adapted to turn in a recess in the flange *n'* of the rim or base *n*, and provided with a block *q*, rigidly secured thereon and having a hole in its side, by means of which the screw may be revolved by inserting a lever in said hole. A spring *r* is interposed between the block *q* and the flange *n'*.

The case *m* is pivoted in the rim or base *n* by the screws *o*, and when the screw *s* is revolved in either direction the inclination of the face of the instrument to the flange *n'* is changed.

The device is designed to be secured to some part of the vessel, preferably the wall of the cabin, by screws passing through the flange *n'*. It is so arranged that the face of the dial is at right angles to the keel of the vessel and fronting the stern. By means of the screw *s* the dial is adjusted to a perpendicular position when the vessel is in her normal or desired position in the water and without her load. The pointers *v'* and *v* are adjusted over the face of the dial, the pointer *v'* pointing to zero on the graduated segment *i*, and the pointer *v* pointing to zero on the segment *k*. When the vessel is loaded, the pointer *v'*, by means of the weight *c'*, indicates on the dial the degree to which she is listed to starboard or to port; and the pointer *v*, by means of the weight *b'*, indicates on the dial the degree of pitch she is "by the head" or "by the stern." When the pointers *v'* and *v* are in the position of the dotted lines,

crossing over the star, they indicate that the weights c' and b^2 are in proper position to be secured by the locking device.

The lock is used only to secure the weights
5 in an immovable position while the instrument is being handled for sale or transport.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

10 In an instrument for indicating the trim of a vessel, the combination of a dial, having two graduated segments on its face; two pointers, mounted on shafts projecting through said dial, and adapted to move respectively over
15 said segments: one of said shafts actuated at certain times by a pendulum rigidly secured to it, and the other shaft provided with a segmental bevel-gear, adapted to mesh with a similar gear of equal diameter, mounted on a

shaft journaled parallel with said dial, and 20 actuated at certain times by a pendulum secured to said shaft; a case, inclosing said shafts and pendulums, having said dial as its front; a two-armed lever, pivoted in said case and adapted to hold said pendulum in a rigid 25 position, at certain times; a flanged ring, adapted to be secured to some upright part of a vessel, and said case pivoted at its sides, in said ring; and a revoluble screw, working through a stud on the top of said case, and 30 having its head adapted to turn in a recess in the edge of the flange of said ring, as shown and described.

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