

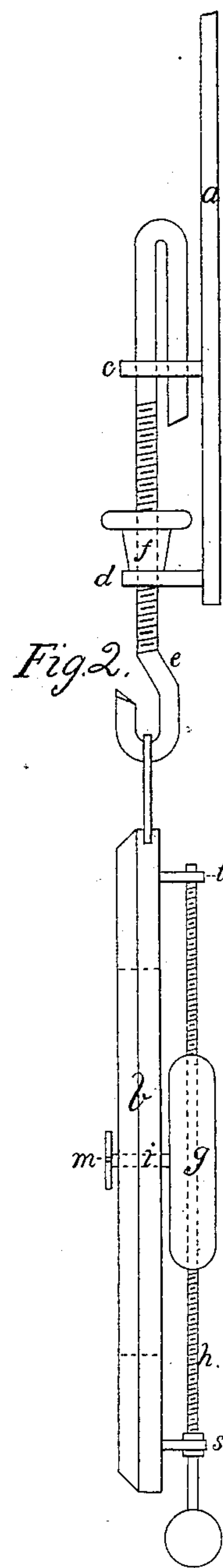
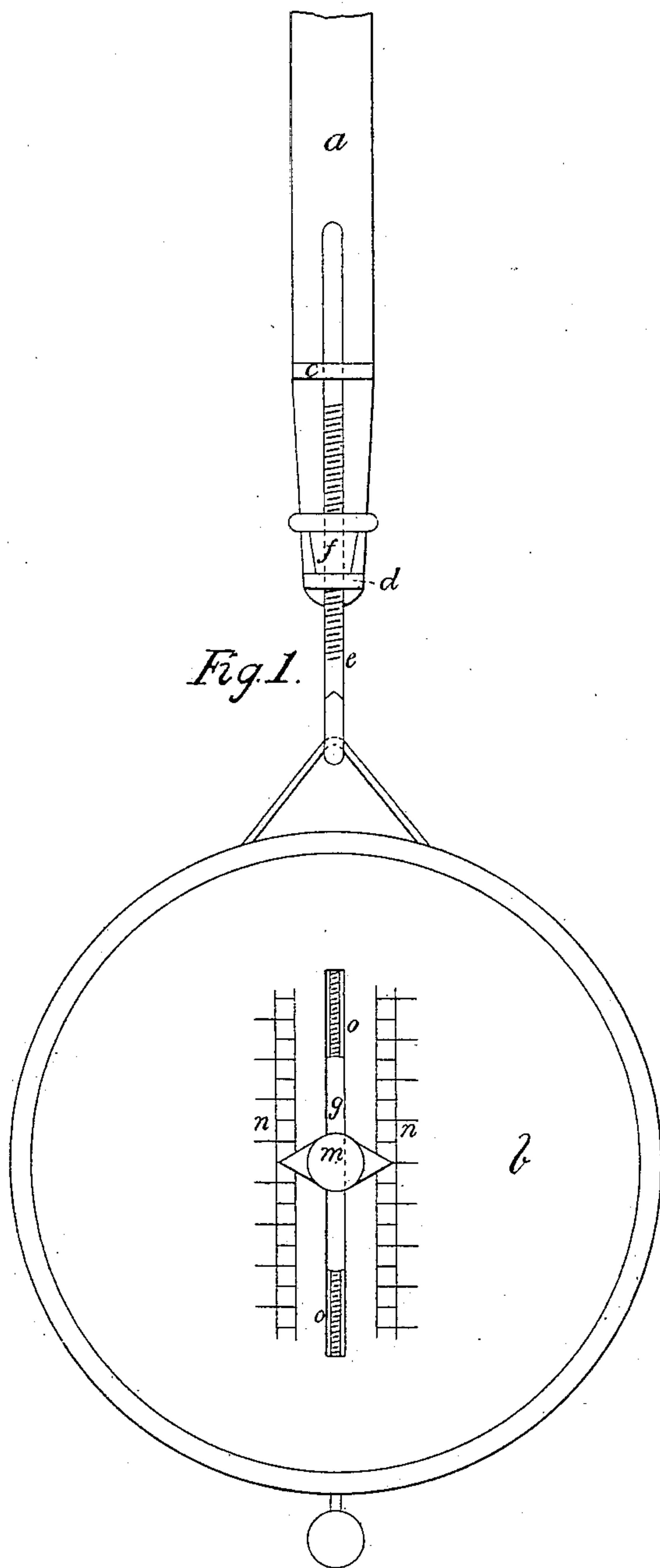
(Model.)

J. A. BARRETT.

Pendulum Attachment for Clocks.

No. 235,665.

Patented Dec. 21, 1880.



Witnesses —
Peter Schwamb
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UNITED STATES PATENT OFFICE.

JOHN A. BARRETT, OF WOODSTOCK, VERMONT.

PENDULUM ATTACHMENT FOR CLOCKS.

SPECIFICATION forming part of Letters Patent No. 235,665, dated December 21, 1880.

Application filed August 16, 1880. (Model.)

To all whom it may concern:

Be it known that I, JOHN ARNOLD BARRETT, of Woodstock, in the county of Windsor and State of Vermont, have invented a new and useful Pendulum Attachment, of which the following is a specification.

My invention relates to pendulums for use in controlling the movement of clocks or any other machine, or for marking time.

10 The object of my invention is to attain a great degree of accuracy in regulating the rate of vibration of pendulums.

The form of pendulum now commonly used for this purpose consists of a rod and weight 15 so arranged that the weight may be moved up and down on the rod, by which means the length of the pendulum may be varied and its rate of vibration correspondingly increased or diminished. A practical disadvantage in this 20 method lies in the difficulty of making this movement of the weight upon the rod sufficiently slight to secure a high degree of accuracy in the rate of vibration.

My invention consists in attaching to the 25 pendulum, either to the rod or to the primary ball, a second or supplementary ball of less weight than the primary ball, and so arranged as to be carried up and down by an independent movement.

30 The object of my invention is accomplished as follows: The desired rate is approximated by raising or lowering the primary ball. The rate is then accurately attained by raising or lowering the supplementary ball. The advantage of this method arises from the fact that 35 to accomplish a given variation in rate the distance which it would be necessary to move the supplementary ball is to the distance which it would be necessary to move the primary ball in the inverse ratio of their specific weights. For instance, if the relation of the primary weight to the pendulum be one, and the relation of the supplementary weight to the pendulum be one-tenth, the supplementary weight 45 must be moved ten times as far as the primary weight in order to vary to an equal extent the rate of vibration of the pendulum.

The accompanying drawings exhibit the invention claimed and a practicable method of applying the same.

Figure 1 is a front view of the primary ball 50 in combination with the supplementary ball, and shows a method of attaching it to the rod by means of a screw and nut. Fig. 2 is a side view of the same, and shows the primary ball 55 attached to the rod and the supplementary ball attached to the primary ball.

a is the pendulum-rod. *b* is the primary ball. *c* and *d* are two arms extending at right angles from the rod *a*. *e* is a wire passing 60 through holes in the arms *c* and *d*, and is bent at the upper end into an inverted-U form, and passes back through a second hole in the arm *c*, and is thus prevented from having any motion except up and down in the line of the 65 pendulum-rod. *f* is a thumb-nut fitted to a screw-thread on the wire *e*, and rests upon the arm *d*, so that by turning it the wire *e* is carried up or down together with the ball *b*. *g* is the supplementary weight. *h* is a screw-wire, 70 supported in the arms *s* and *t* in such a way as to turn freely, and is fitted to an internal thread in the ball *g*. From the ball *g* a pin, *i*, extends forward through a vertical slot, *o*, in the primary ball *b*, so that the supplementary 75 ball *g* has only a vertical motion on the screw-wire *h*. The pin *i* is furnished at the outside of the ball *b* with an index, *m*, which points to the scale *n* and marks the movements and position of the ball *g*. 80

To regulate the rate of vibration of the pendulum, turn the nut *f* until the desired rate is approximated. Then attain the rate accurately by turning the screw *h*.

What I claim, and desire to secure by Letters Patent of the United States, is— 85

The supplementary weight in combination with pendulums, substantially as and for the purpose described.

JOHN ARNOLD BARRETT.

Witnesses:

JAMES C. BARRETT,
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