

(No Model.)

G. I. TUTTLE.
WATCH REGULATOR.

No. 336,360.

Patented Feb. 16, 1886.

Fig. 1

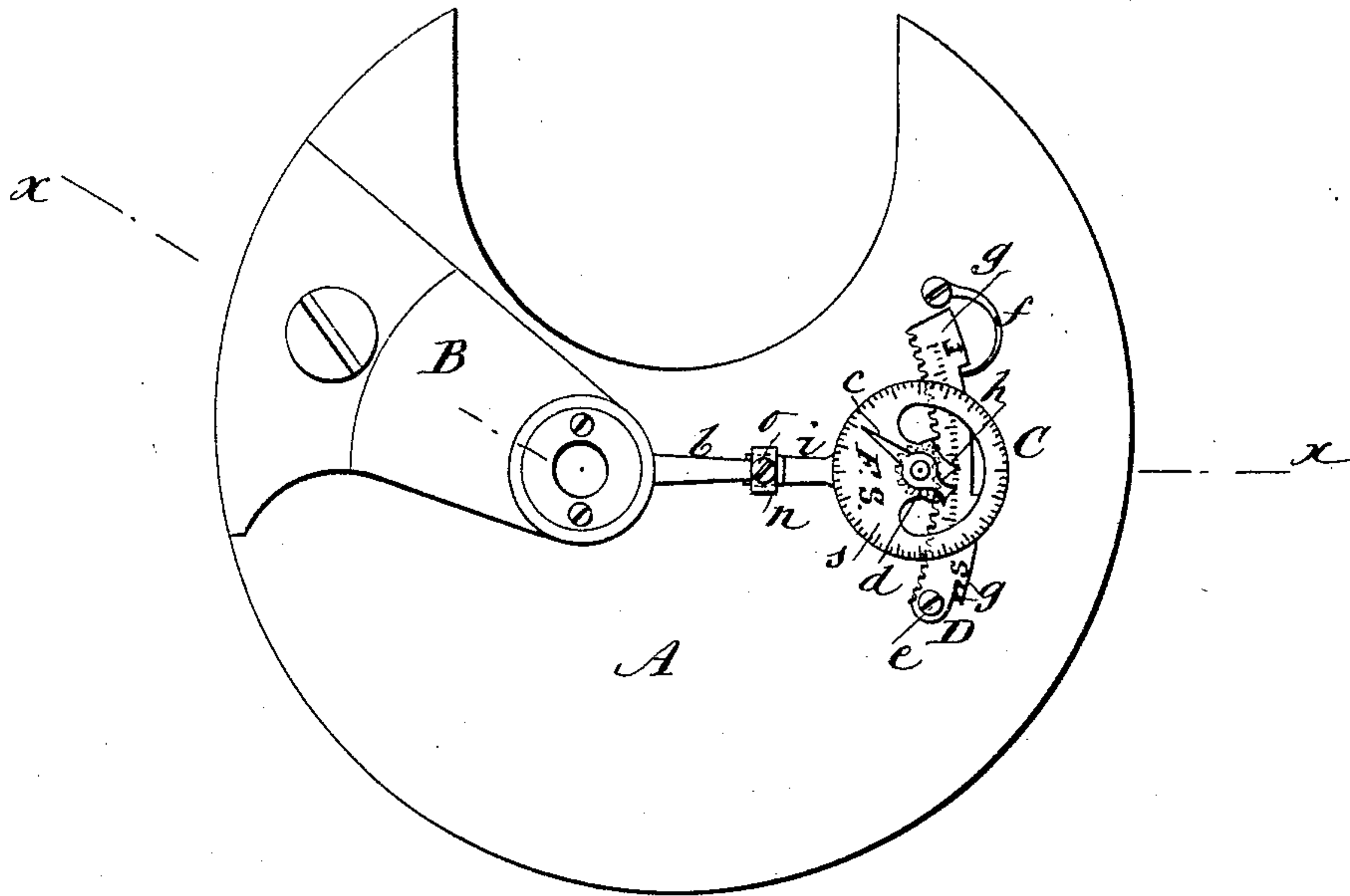


Fig. 2

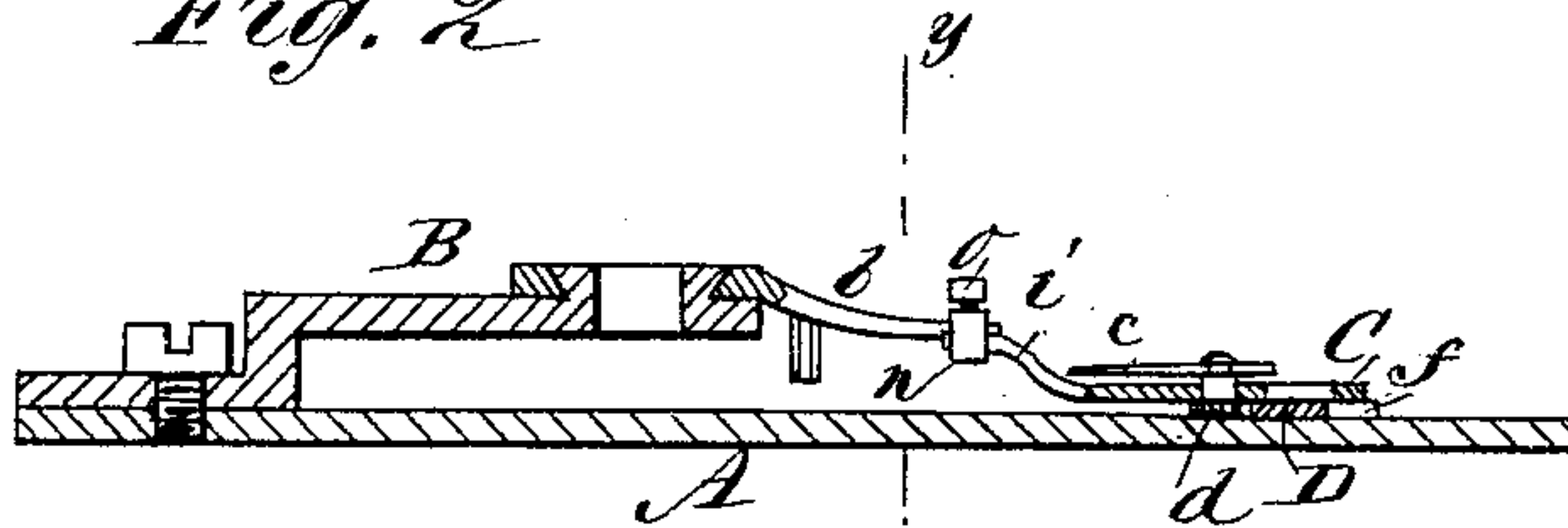


Fig. 3

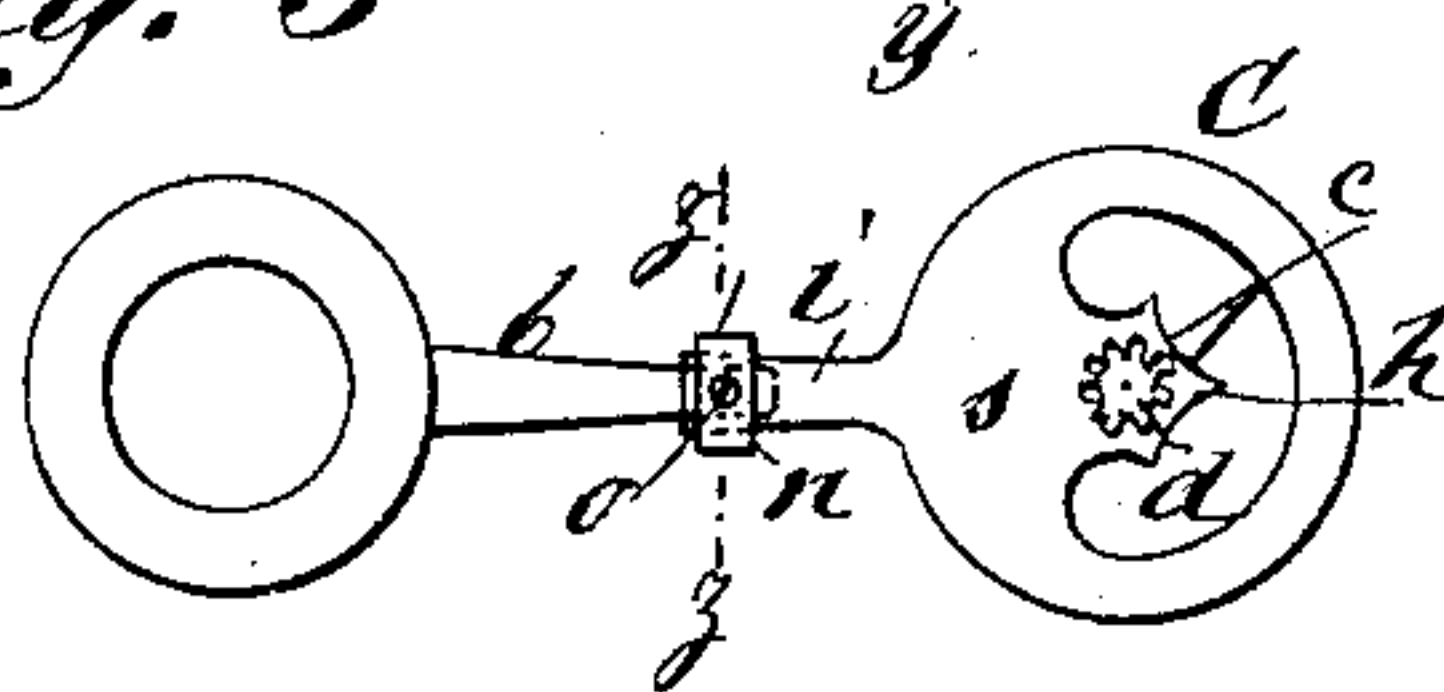


Fig. 6

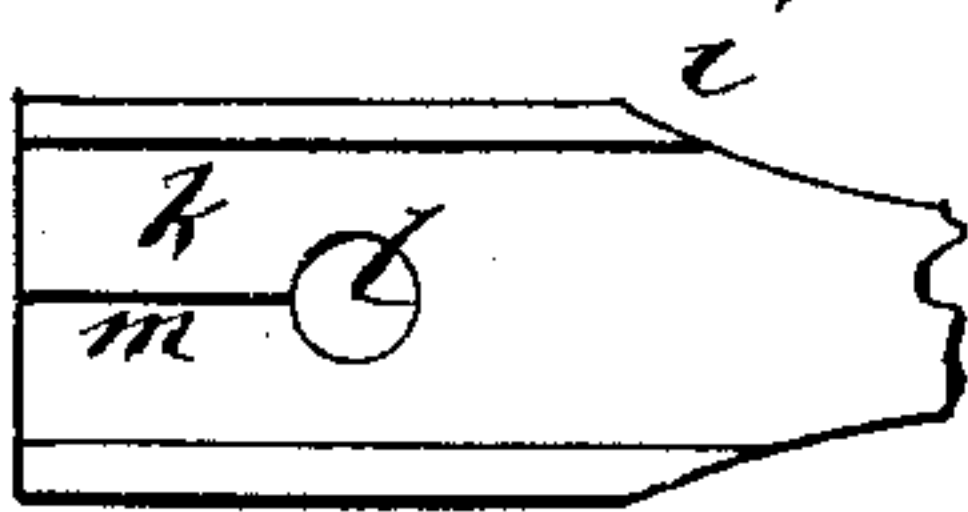


Fig. 4

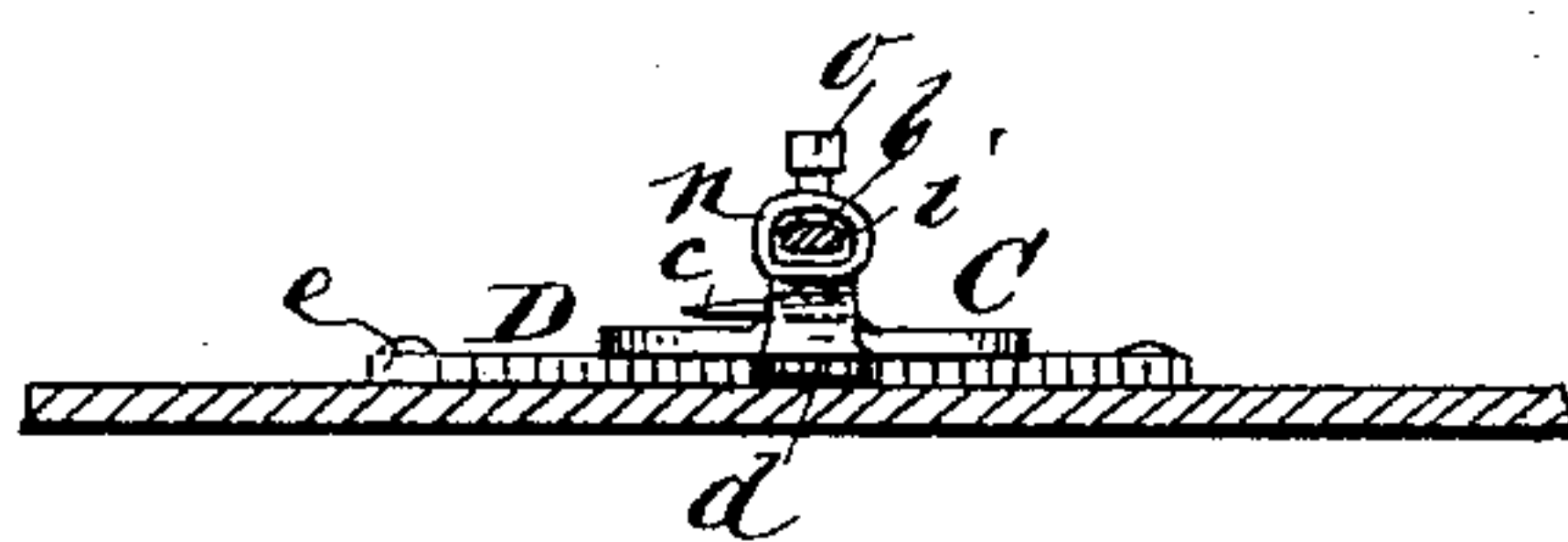
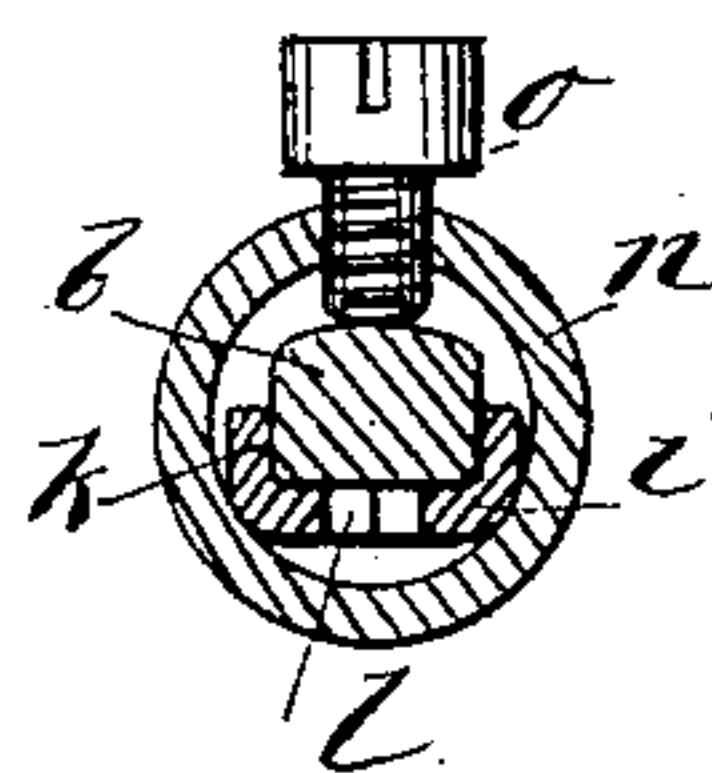


Fig. 5



WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE I. TUTTLE, OF AURORA, ILLINOIS.

WATCH-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 336,360, dated February 16, 1886.

Application filed September 9, 1885. Serial No. 176,592. (No model.)

To all whom it may concern:

Be it known that I, GEORGE I. TUTTLE, of Aurora, in the county of Kane and State of Illinois, have invented certain new and useful
5 Improvements in Watch-Regulators, of which the following is a full, clear, and exact description.

This invention is designed as an improvement upon the watch-regulator described in
10 Letters Patent No. 308,448, issued to me on November 25, 1884. Said regulator had for its object the allowing of a fine and accurate adjustment with facility for being readily used without risk of injury to the parts of the watch;
15 and it consisted, mainly, in a combination, with a rack secured to the watch-plate, of a dial of circular form secured on the outer end of the regulator-arm, and a pinion and pointer on the arbor of said dial, the pinion engaging with
20 the rack, which had a graduated scale on it for indicating the movement of the regulator-arm, and the scale on the dial indicating divisions of the spaces on the rack, and thus providing for greater nicety of adjustment.

25 My improvement consists in certain constructions and combinations of parts in a watch-regulator of the above-named description, whereby special advantages are obtained, substantially as hereinafter specified, the same
30 including an adjustable and detachable connection of the dial, pointer, and pinion with the regulator-arm, which admits of the invention being applied to an ordinary push-regulator, and saves the expense of making a
35 special regulator-arm; likewise, provides for its attachment to different makes of watches.

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

Figure 1 is a face view of a watch-plate with my improved regulator applied. Fig. 2 is a cross-section on the line *x x* of Fig. 1. Fig. 3 is an under side or back view of the regulator-arm with its attachments. Fig. 4 is a transverse section on the line *y y* in Fig. 2; Fig. 5, a section, upon a larger scale, on the line *z z* in Fig. 3, and Fig. 6 a top view, also upon a larger scale, of a portion of a stub or arm,
50 which carries the dial and connects it with the regulator-arm.

A is the watch-plate, and *b* the regulator-arm, which may be of the ordinary push description, and is hung on the balance-bridge B, as usual, but which has its outer crooked
55 or bent end portion cut or left off for attachment and adjustment along the arm *i* of the graduated circular dial C, with its pointer *c* and pinion *d* on the arbor of the dial.

D is the curved graduated rack with which
60 the pinion *d* engages, and which is attached by a screw, *e*, at its one end to the plate A, and is controlled by a spring, *f*, at its free end, to retain it in mesh with the pinion while allowing a certain amount of elasticity. This spring
65 *f* is made to hook, as shown in Fig. 1, onto the graduated rack D, which dispenses with a steady-pin, and it may be attached by a screw fitting the same hole that is provided for securing the ordinary regulator-index, so that it
70 may be applied to watches constructed to carry an ordinary regulator-index without drilling or in any way marring the finished watch-plate. Furthermore, the index or graduated rack D is constructed with lips or projections *g g* on
75 its outer surface, which provide for the letters "F" and "S," indicating "fast" and "slow," not being covered up by the dial C as it sweeps over the graduated rack. The dial C, with the pointer *c* and pinion *d* on its arbor, and having
80 a pointer, *h*, for travel over the scale on the graduated rack D, is detachably and adjustably connected with the foreshortened regulator-arm *b*, by constructing said dial with a stub or arm, *i*, which is bent to correspond with
85 the outer or omitted or cut-off bent outer end portion of an ordinary regulator-arm, and binding or securing said foreshortened regulator-arm and stub *i* together as firmly as if said parts were one solid piece, yet providing
90 for their adjustment the one on or along the other. This is or may be done by longitudinally grooving the upper surface of the inner straight portion of the stub or arm *i*, as at *k*, to receive the regulator-arm *b* within it, and
95 drilling a hole, *l*, in said grooved portion, and forming a slit, *m*, in it extending outward from said hole to give elasticity, and prevent breakage, and secure a firm connection, the regulator-arm *b* being forced through the groove
100 in the stub *i*, and a binding collar, which is here shown as a collar, *n*, provided with a set-

screw, *o*, applied to hold the stub and regulator-arm firmly together. By thus making the dial detachable from the regulator-arm and adjustable there on or along, there will be no
 5 necessity to make a special regulator-arm in applying the invention to watches of different makes; but the jeweler or person applying it need only cut off the usual lower bent outer end of said arm, and then slip the dial by its
 10 attached stub on or along said arm and tighten the set-screw of the slotted collar, which holds the regulator-arm and stub together. Again, by the adjustment of the dial portion of the device on or along the regulator-arm, the length
 15 of radius or sweep of the regulator may be varied and accurately set, which, when the dial is in one piece with the regulator-arm, cannot be done. The dial *C*, I prefer to make of a solid plate form for a portion of its area, as at
 20 *s*, to provide for the better exposure thereon of "fast" and "slow" marks and arrows, if desired. The regulator is operated in like manner as the regulator described in my Letters Patent hereinbefore referred to. Thus the
 25 pointer *c* is turned by using any simple instrument, and the pinion *d*, turning on the rack *D*, causes the regulator-arm, with its attached dial, to travel in either direction, as the case may be. In this, as in my former regulator, the move-
 30 ment of the pointer will be considerable to obtain a slight movement of the regulator-arm, whereby a fine adjustment is possible, and the extent of movement is determined by the scale. In this, too, as in my former regulator, it will

be observed that the dial is at a distance from 35 the balance, so that there is no risk of injuring the spring or wheel. Likewise, the rack, if desired, may be on the balance-bridge and equally removed from the vicinity of the balance.

40 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a watch-regulator in which the regulator-arm carries a supplementary scale composed of a graduated dial provided with a pointer and pinion for operation with a rack on the watch-plate, as described, the combination, with the shortened regulator-arm *b*, of the dial *C*, with its attached pointer and pinion, 45 adjustable in or out along the regulator-arm, substantially as and for the purposes specified.

2. The combination, with the rack *D* and shortened regulator-arm *b*, of the dial *C*, having a pointer and pinion on its arbor, the stub 55 or arm *i*, carrying said dial and adjustable on or along the regulator-arm, and the binding-collar *n*, essentially as shown and described.

3. In combination with the shortened regulator-arm *b*, the stub or arm *i* of the attached 60 dial, grooved, as at *k*, and having an aperture, *l*, and slit *m*, substantially as and for the purpose described.

GEORGE I. TUTTLE.

Witnesses:

ALLEN WEBSTER,
 FRED L. R. BROWN.