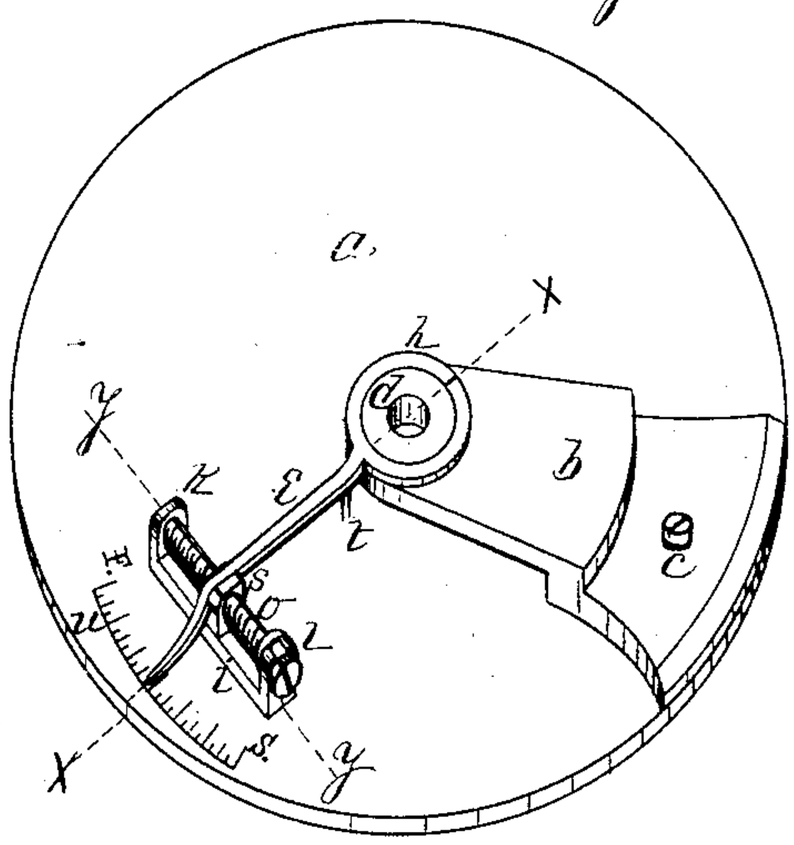
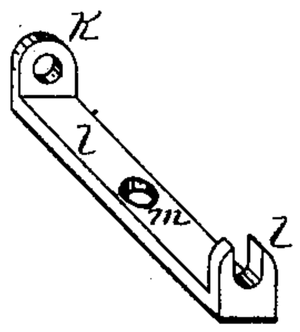
(Model.)

J. A. JOHNSON.
Watch Regulator.

No. 239,387. Patented March 29, 1881.

Fig. 1.





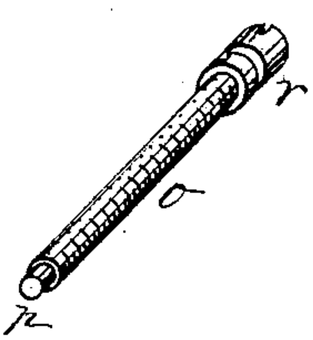


Fig. 2.

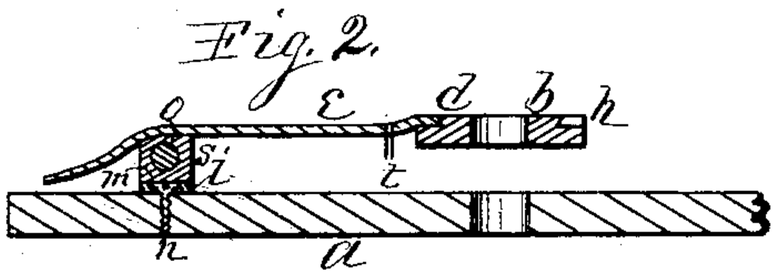


Fig. 3.

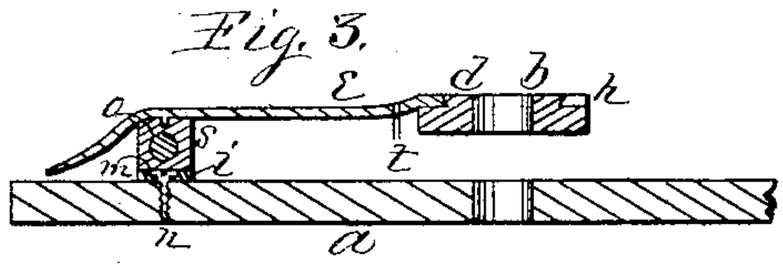


Fig. 5.

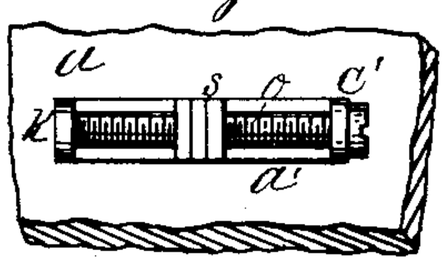


Fig. 6.

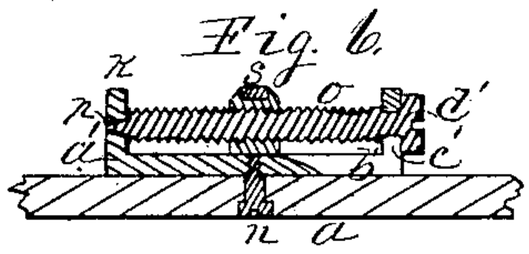


Fig. 4.

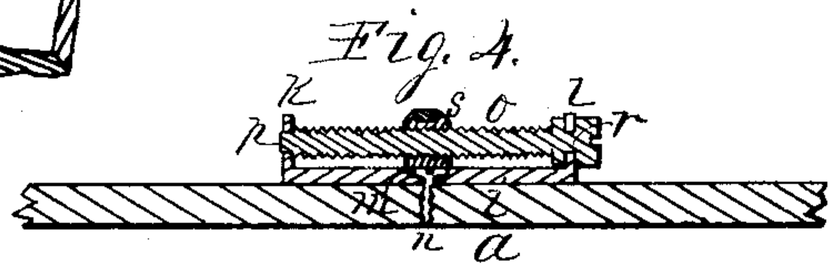
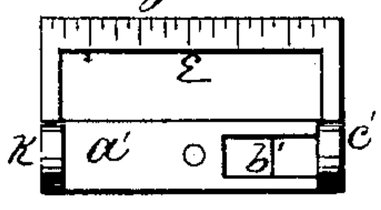


Fig. 7.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN A. JOHNSON, OF ROCKFORD, ILLINOIS.

WATCH-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 239,387, dated March 29, 1881.

Application filed August 9, 1880. (Model.)

To all whom it may concern:

Be it known that I, JOHN A. JOHNSON, of the city of Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Improvement in Watch-Regulators, of which the following is a specification.

This invention relates to the moving of the regulator, and its object is to adjust the regulator of a time-keeper to measure time; and it consists, mainly, in the combination, with the free end portion of the index-finger, of a pivoted screw movement, which, with other improvements to be hereinafter described, constitute the subject-matter of this specification.

In the accompanying drawings, Figure 1 is an isometrical representation of a watch-plate with my improved regulator in place, of which Fig. 2 is a vertical section on dotted line *x*. Fig. 3 is a like section slightly modified. Fig. 4 is a vertical section on dotted line *y*.

In the figures, *a* represents one of the plates of a watch employed to support the works journaled therein.

At *b* is represented a balance-bridge of the usual form, designed to receive the jewel journal-support of the balance-wheel, and is fixed in position on the plate *a*, in the usual manner, by means of steady-pins and a suitable clamping-screw, *c*. The overhanging journal-supporting end of this bridge is provided with a boss, *d*, projecting from its outer face, having its outer edge beveled under, being of less diameter at the outer face of the bridge than at its outer surface, producing a dovetailed edge.

At *e* is represented an index-arm, having its inner end portion, *h*, of open spring-ring form, with inner edge beveled and of proper size to embrace the beveled edge of the boss on the bridge with sufficient force to give it a steady firm bearing, and capable of an oscillatory movement thereon.

The screw-supporting frame consists of a bed, *i*, of suitable dimensions, from the ends of which rise ears *k* and *l*, of which the ear *k* is fitted to receive the end journal of the regulating-screw, and the ear *l* is formed with an opening on its upper end, to admit the journal at the head end portion of the regulating-screw to enter. The bed of this screw-frame is provided with a countersunk hole, *m*, near its center, adapted to receive a suitable pivot-screw to connect it with the watch-plate.

At *n* is represented the pivot-screw, formed to enter the countersunk hole in the frame, and is provided with a shoulder to rest on the outer surface of the plate, and its screw-threaded portion to enter the plate to fix the frame in position thereon in such a manner as to permit it to oscillate.

At *o* is represented the regulating-screw, fitted with end journal, *p*, and shouldered journal *r*, adapted to enter the bearings in the ears *k* and *l*, to revolve therein and prevent endwise movement. This screw is provided with a screw-nut, *s*, having its under side fitted to slide on the face of the bed of the screw-frame, and its outer surface grooved transversely of the screw, to receive the index-finger arm. These parts are located on the plate in proper position and fixed thereto, as hereinbefore described, and in such relative position that the arm of the index-finger will engage the groove in the outer face of the screw-nut. From this arrangement it will be seen that by turning the screw in either direction the nut will be made to move in the lengthwise direction of the screw, in one or the other direction, as the screw is turned to the right or left, and the movement of the screw-nut will carry with it the index-finger, and its radial movement will cause the screw-frame to oscillate on its pivotal center, which will always maintain a right angle to the index-finger, and will prevent cramping of the parts.

Instead of the groove formed in the outer face of the screw-nut to receive the arm of the index-finger, it may be provided with a hole on its outer face to receive a pin depending from the under side of the arm, as at Fig. 3; or the slotted nut may be employed to receive the depending pin, to permit it to slide therein, in which instance the screw-frame may be fixed to prevent oscillation, and the movement of the pin in the slotted nut to compensate therefor.

At *t* are represented pins or studs depending from the under side of the index-arm, designed to receive the outer coil of the hair-spring between them, and which, in the movements of the index-arm, by means of its connection with the operating-screw, will serve

to vary the length of the working portion of the spring, producing a regulator to accelerate or retard the movements of the balance-wheel with which it is connected, and consequently control the movements of the time-keeper, to cause it to measure time correctly.

At *u* is represented a graduated scale of curved segment form, the curve of which is produced from the center on which the index-finger swings, and with a radius about equal to the length of the finger. This scale serves as a guide by which to determine the extent of movement of the index-finger.

In the foregoing I have represented the screw-frame provided with a screw-bearing opening upward to admit the screw; but this portion of my invention may be reversed, as represented in the several Figs. 5, 6, and 7, in which the bed *a'* has one of its ends slotted, as at *b'*, to admit the passage of the screw from its under side, and one of the ears, as at *c*, is also slotted from the under side, to receive the shouldered journal *d'* at the head end of the screw, all of which is clearly shown in the drawings.

Instead of the graduated index being formed on the watch-plate in curved form, as hereinbefore described, it may be constructed as at *e'*, being a part of or fixed to the bed *a'* of the screw-frame, which construction will not require a curved index, as it will oscillate with the bed, and always maintain its relative position with the index-finger.

I claim as my invention—

1. The combination, with the regulator, of a screw movement employed to adjust the regulator, and capable of an oscillatory movement, to maintain its relative position with the index-finger, substantially as and for the purpose hereinbefore set forth.

2. The combination, with a regulator provided with a screw movement capable of an oscillatory movement, substantially as described, of a graduated index to indicate the movements of the index-finger, as hereinbefore set forth.

3. The combination, with the pivoted screw-frame, of an operating-screw mounted therein, provided with a screw-nut operating to adjust the regulator, substantially as and for the purpose hereinbefore set forth.

4. The combination, substantially as hereinbefore set forth, of a regulator, a pivoted screw-operating mechanism, and a graduated index, these parts combined and operating substantially as and for the purpose hereinbefore set forth.

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Witnesses:
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