J. B. JOHNSON & H. WHITTEMORE.

Signal-Box for Electric Registers.

No. 210,258. Patented Nov. 26, 1878.

Fig. 1.

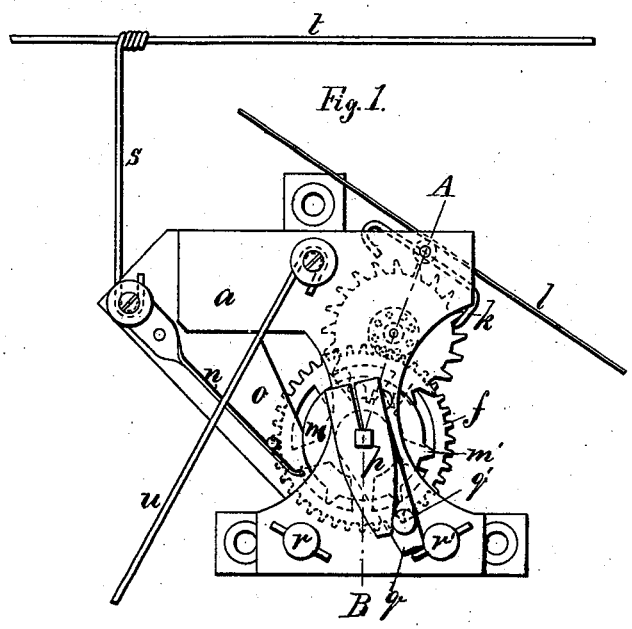


Fig. 3.

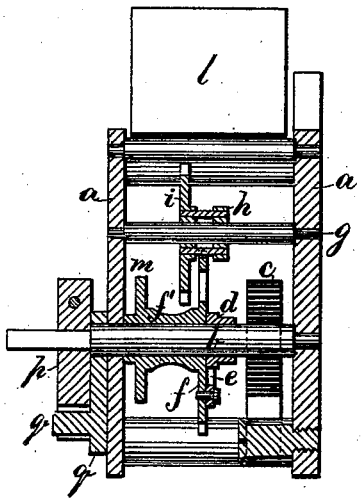
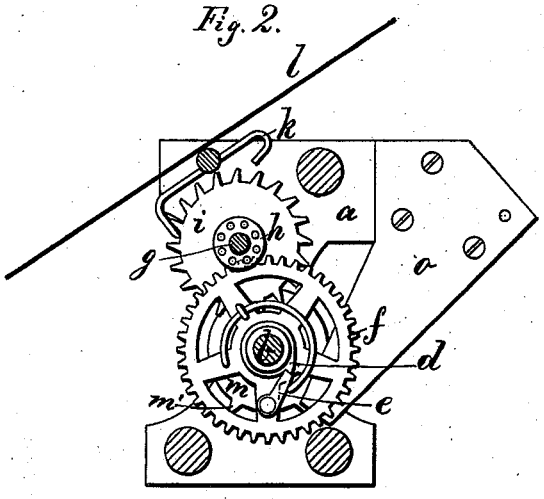


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN B. JOHNSON, OF BOSTON, AND HARRISON WHITTEMORE, OF MALDEN, MASSACHUSETTS.

IMPROVEMENT IN SIGNAL-BOXES FOR ELECTRIC REGISTERS.

Specification forming part of Letters Patent No. **210,258**, dated November 26, 1878; application filed March 12, 1878.

To all whom it may concern:

Be it known that we, JOHN B. JOHNSON, of Boston, in the county of Suffolk and State of Massachusetts, and HARRISON WHITTEMORE, of Malden, in the county of Middlesex and State of Massachusetts, have jointly invented certain new and useful Improvements in Circuit-Closers for Electric Registers and Time-Detecters; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Our invention relates to improvements in circuit-closers for electric registers and time-detecters for watchmen and others; and this our invention is carried out as follows:

The apparatus consists of a suitable frame for the mechanism attached thereto. In bearings in the said frames is located a driving-shaft, that is to be wound up with a key and set in motion by means of a coiled spring in the usual manner. Onto the said shaft is secured a ratchet-wheel having one single tooth, engaging on a pawl secured to a cog-wheel, supported loosely on the said driving-shaft. Said cog-wheel is geared into a pinion provided with an escapement-wheel operating an escapement.

To the hub of the loosely-running cog-wheel is secured a circuit-wheel, provided with any desired number of circuit-projections, that come in contact with an insulated spring during the rotation of the circuit-wheel.

To the forward end of the driving-shaft is secured an arm or projection, and between said arm and the frame is hinged to the shaft a swinging or movable arm, having a projection in its lower end, that is acted upon by the arm that is secured to the shaft, by which a swinging motion is imparted to said movable arm.

To the front of the frame are secured two stationary stops, between which the movable arm aforesaid is limited in its swinging motion, and by this arrangement a complete revolution is imparted to the circuit-wheel when it is set in motion by the coiled spring and the one-tooth ratchet and pawl, so that the said circuit-wheel will always make one complete revolution when the spring is wound up, and it will be stopped always in the same relative position to the insulated spring. A ground-connection is made with the frame in the usual manner, and the insulated spring is connected with the main wire from the battery by means of an insulated branch wire, by which arrangement the advantage is obtained of being able to connect all the circuit-closers used in different parts of the building by means of one single wire, from which short branches are led to the different circuit-closers.

By means of this invention a distinct record is made from each room or place where the circuit-closer is located, so that the time-register will show exactly the time in which the watchman has visited each particular room containing our improved circuit-closer.

The operation of our invention is as follows: The circuit-closers, after being located in their respective rooms to be visited and registered by the watchman, are connected by means of one single wire leading from the battery and insulated branch wires connected from the main wire to each circuit-closer, and a ground-connection made from each of the latter. We make each circuit-wheel of a different number of projections or a different combination of projections, so as to distinguish accurately each circuit-closer from the others.

When the watchman wishes to register his presence in any locality in which our circuit-closer is contained, he winds up the same with a key for this purpose, turning the driving-shaft one revolution, so as to engage the single-toothed ratchet with its pawl. In so doing the arm on the driving-shaft is turned toward the right till it comes in contact with the projection on the swinging arm, and till the latter is brought up against the left stationary stop upon the frame. He then withdraws the key or allows it to turn with the shaft, when the coiled spring sets the mechanism in motion, imparting one complete revolution to the circuit-wheel, the projections of which come in contact with the insulated spring that is connected to the battery and its time-register, and in this manner transmits a distinct record of the place in which the circuit-closer was oper-

ated. A paper ribbon spaced off in hours and parts thereof is fed through the time-piece or registering apparatus, upon which the marks are transmitted from each of the circuit-closers, so that the person in charge of the watchman can see at a glance at what hours each separate circuit-closer has been visited.

On the accompanying drawings, Figure 1 represents a front elevation of our invention. Fig. 2 represents a vertical section of the same, seen from the rear; and Fig. 3 represents a cross-section on the line A B, shown in Fig. 1.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

a a is the frame. *b* is the driving-shaft, located in bearings in the said frame. *c* is the coiled driving-spring, attached to the shaft *b*. To the said shaft is secured the single-toothed ratchet *d*, as described. *e* is the pawl, jointed to the cog-wheel *f*, that runs loosely on the driving-shaft. *g* is the escapement-shaft, located in bearings in the frames *a a*, and having attached to it the pinion *h*, engaging into the cog-wheel *f*. *i* is the escapement-wheel, attached to the shaft *g*. *k* is the escapement, with its fan *l*, as usual. *m* is the circuit-wheel, secured to the hub *f'* of the driving-gear *f*. *m' m' m'* are the projections on the circuit-wheel *m*, as described. *n* is the insulated spring that comes in contact with the projections *m' m' m'* during the rotation of the circuit-wheel *m*. *o* is the hard rubber or other suitable insulator, in the usual manner. *p* is the arm or projection, secured to the front end of the driving-shaft *b*. *q* is the swinging arm, hinged to the said driving-shaft, and provided with the projection *q'*, for the purpose set forth. *r r'* are the stationary projections on the front of the frame, as described. *s* is the branch from the insulated spring *n* to the main wire *t*, and *u* is the ground-connection, as and for the purpose described.

Having thus fully described the nature, construction, and operation of our invention, we wish to secure by Letters Patent, and claim—

In a circuit-closer for electric time-registers, the combination of the shaft *b*, with its arm or projection *p*, swinging arm *q q'*, the stationary projections *r r'*, the one-tooth ratchet *d*, pawl *e*, and the circuit-wheel *m*, with its insulated spring *n*, as and for the purpose set forth and described.

In testimony that we claim the foregoing as our own and joint invention we have affixed our signatures in presence of two witnesses.

JOHN B. JOHNSON.
HARRISON WHITTEMORE.

Witnesses:
ALBAN ANDRÉN,
HENRY CHADBOURN.