

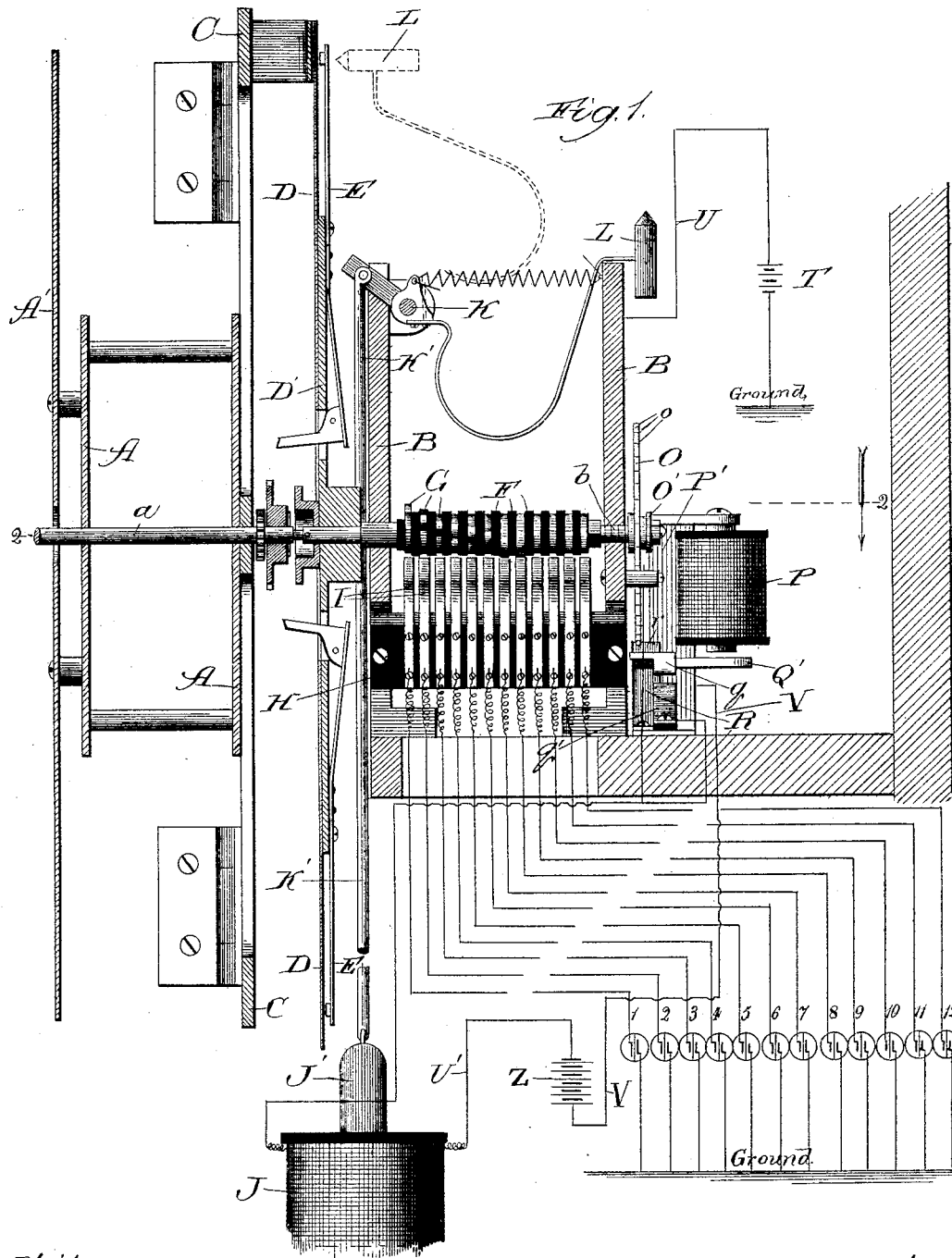
(No Model.)

4 Sheets—Sheet 1.

H. S. PARK.
ELECTRICAL WATCHMAN'S CLOCK.

No. 455,352.

Patented July 7, 1891.



Witnesses:

Carl E. Gaylord,
Clifford A. White.

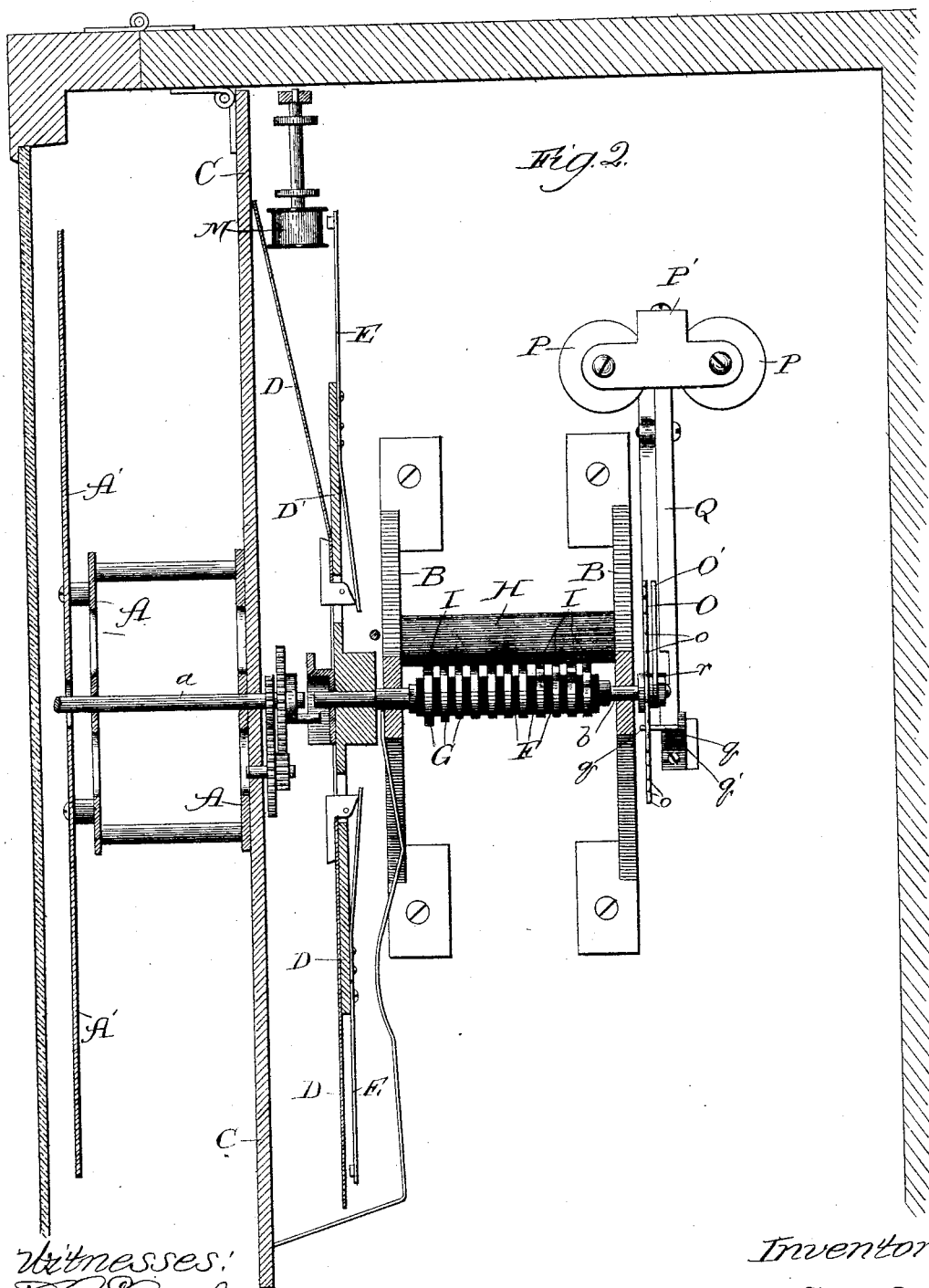
Inventor:

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H. S. PARK.
ELECTRICAL WATCHMAN'S CLOCK.

No. 455,352.

Patented July 7, 1891.



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(No Model.)

4 Sheets—Sheet 3.

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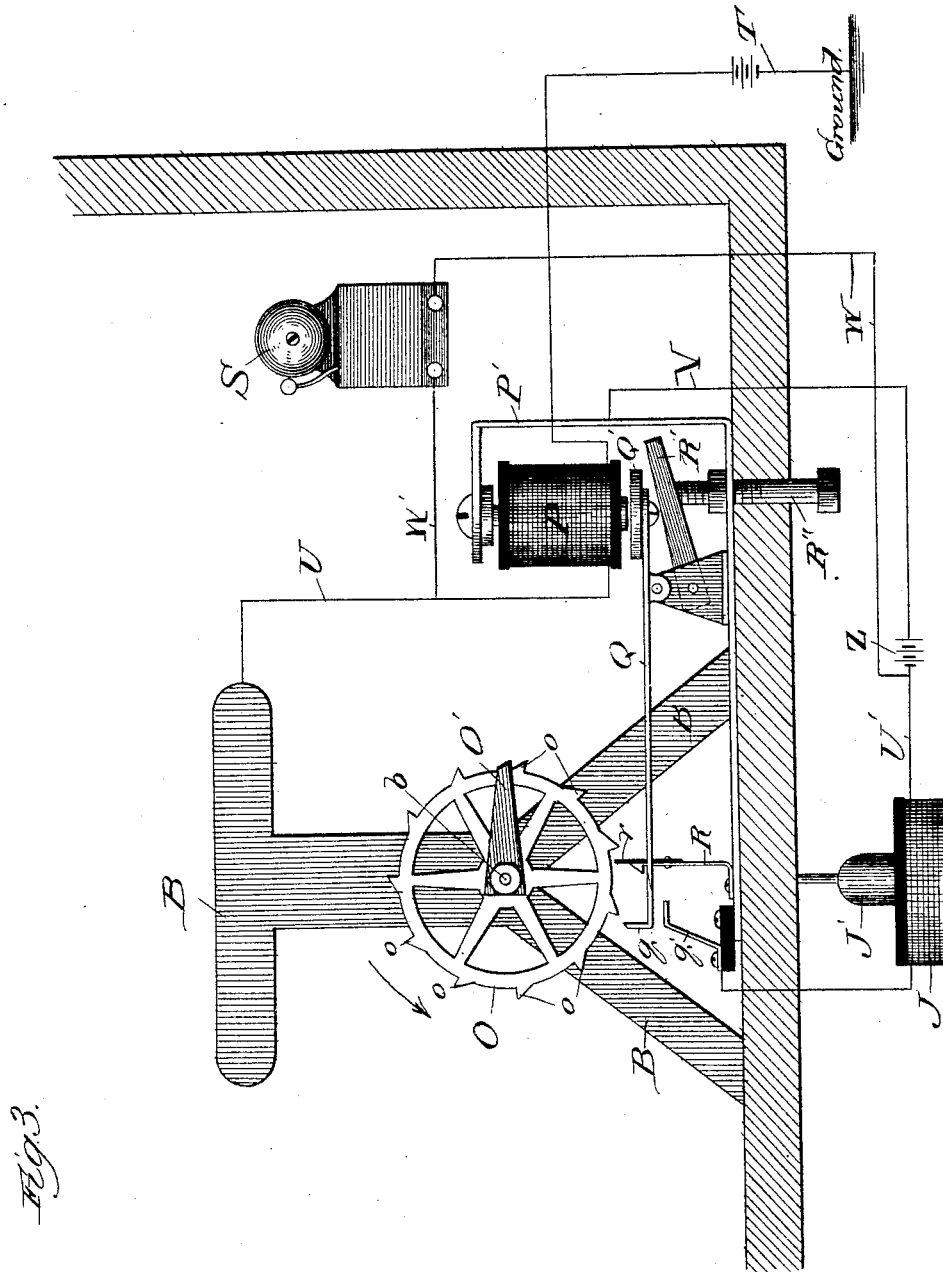


Fig. 3.

Witnesses:

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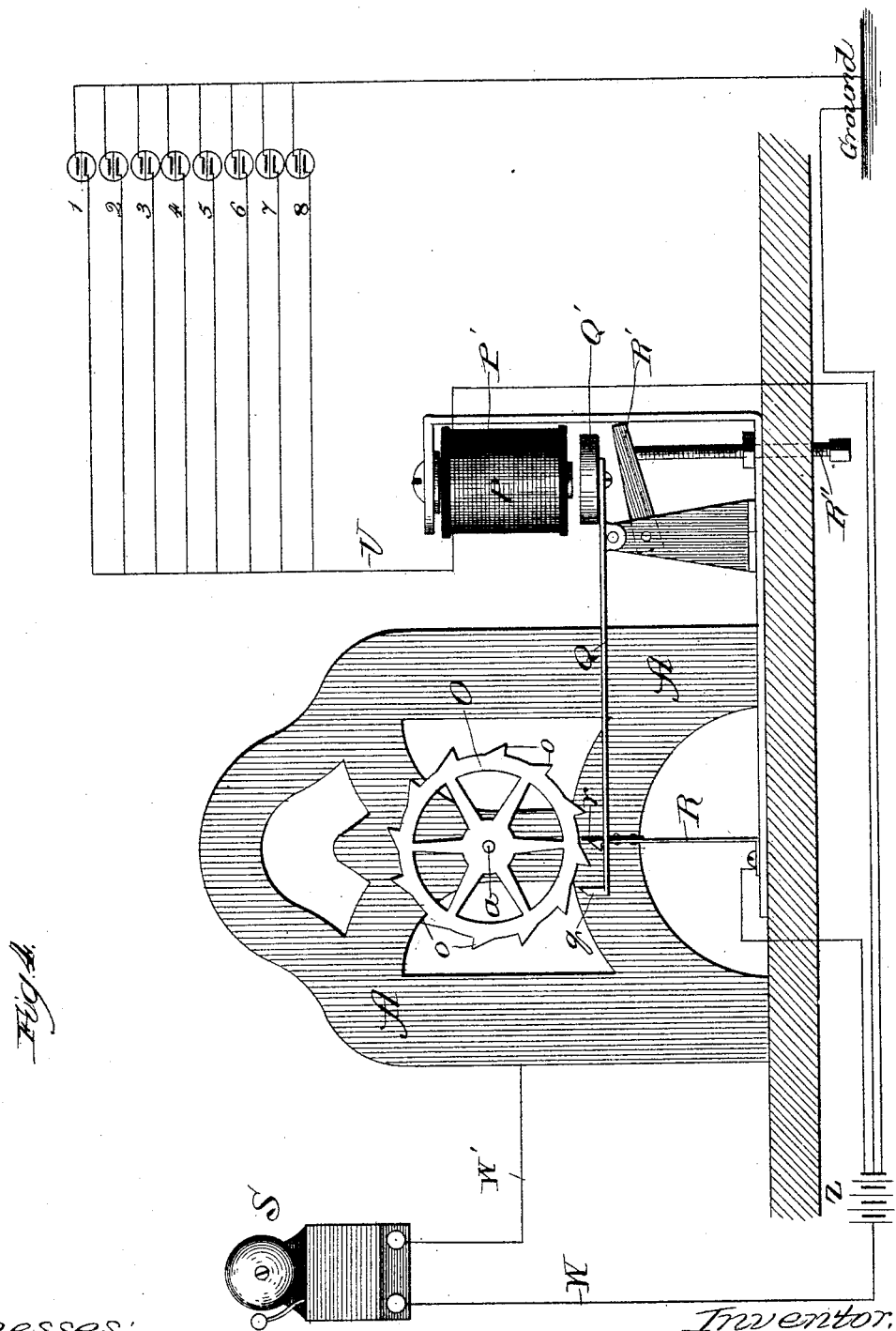
Inventor:

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H. S. PARK.
ELECTRICAL WATCHMAN'S CLOCK.

No. 455,352.

Patented July 7, 1891.



Witnesses:

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Inventor:

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UNITED STATES PATENT OFFICE.

HARVEY S. PARK, OF CHICAGO, ILLINOIS.

ELECTRICAL WATCHMAN'S CLOCK.

SPECIFICATION forming part of Letters Patent No. 455,352, dated July 7, 1891.

Application filed July 1, 1890. Serial No. 357,344. (No model.)

To all whom it may concern:

Be it known that I, HARVEY S. PARK, a citizen of the United States, residing at Chicago, Cook county, Illinois, have invented a new and useful Improvement in Electrical Watchmen's Clocks, of which the following is a specification.

The object of the present invention is to provide a device which shall give warning in any suitable manner—such as by ringing a bell—whenever the watchman fails to visit any of the stations or neglects his duty for a given time. In the use of a watchman's clock containing a recording apparatus—such, for example, as the clock described in Patent No. 435,185, issued to me August 26, 1890—if the watchman fail to visit a station an inspection of the record will of course disclose this fact, since no record would have been made; but this would require constant inspection of the record, thus necessitating the presence and wakefulness of some one who would have to examine the record at short intervals throughout the night. In other words, the watchman's omission would be negatively indicated simply—viz., by the fact that no record was made. This, however, is not sufficient, and I have therefore provided means which I shall describe in this application whereby whenever the time at which the watchman should have visited a certain station passes without his so doing a bell will be rung or a signal given in any desired place, thus giving notice of the watchman's neglect of duty. This device may be applied to any of the well-known forms of watchman's clock, or it may be attached to an ordinary clock, and would serve by itself as a watchman's detector, as will be hereinafter more fully explained, since as long as it remains quiet it would be known that the watchman was doing his duty, a signal being given only in the event of his failure in that respect.

My invention is also adapted for use in places where stations are so far from the recording apparatus that the line-circuit would usually be insufficient to operate the same. To overcome this, I use the line-circuit to close a local circuit, which operates the recording apparatus in somewhat the same manner as the line-circuit of a telegraph-line closes a local circuit to convey a message.

In the drawings I have shown the device as used in connection with a recording electrical watchman's clock and also as attached to an ordinary clock.

The invention consists in the features and details of construction hereinafter described and claimed.

In the drawings, Figure 1 is a vertical central section of a watchman's clock provided with the present improvements; Fig. 2, a horizontal central section of the same; Fig. 3, a rear elevation of Fig. 1, showing in detail the signal device which forms the subject-matter of the present application; and Fig. 4, an elevation of the device applied to an ordinary clock.

A is the frame or case containing the ordinary clock-works constructed on the balance-wheel system, and which works, being well known, are not shown and will not be further described; A', the clock-dial; B, the frame or case of the electrical part of the apparatus; b, a shaft or arbor supported in such case and rotated by means of the arbor *a* in the same direction and at the same speed as that arbor, the two engaging by any suitable means; C, a door or gate to which the frame A is attached, and which closes the box in which the electrical devices are kept; D, a recording-dial; D', a recording-wheel to which such dial is fastened; E, type-arms attached to the recording-wheel; F, insulating-washers; G, contact-plates on the shaft *b*; H, a bar of hard rubber or other suitable insulating material; I, arms attached thereto and adapted to engage with the plates G; J, an electro-magnet; J', the core thereof; K, a rock-shaft connected by means of a rod K' to the core of the magnet; L, the printing-hammer; M, the inking-roller; O, a wheel; *o*, contact points or projections preferably on the circumference thereof; O', a movable arm; P, a pair of electro-magnets supported in a frame P'; Q, a lever; *q*, a hook or projection thereon; Q', an armature; R, a hook; R', an adjustable arm; R'', a bolt; S, an electric alarm-bell; T, a battery; U, a wire leading from the frame B to the magnets P and from thence to the battery T and to the ground; U', a wire leading from the magnet J to the battery Z; V, a wire leading from the frame P direct to the battery Z; W, the wire leading from the battery

to the bell; W', a wire leading from the wire U to the bell, and 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12 connections between the several stations and the spring-arms I.

5 The frames or cases A and B, shafts *a* and *b*, dial D, registering-wheel D', arms E, contact-plates G, arms I, magnet J, hammer L, and all other parts of this device not herein-after particularly described form no part of
10 the present invention, being shown merely to illustrate the use of my device in connection with this form of clock, and, since their construction will be obvious from an inspection of the drawings, they require and will receive
15 no further description.

To the right-hand end of the shaft *b*, as shown in the drawings, which revolves once in twelve hours by reason of its connection with the shaft *a*, revolved by clock-work, is
20 fastened a wheel O, of any suitable dimensions. This wheel is provided with a number of teeth or contact-points *o*, (particularly shown in Figs. 3 and 4,) their number corresponding with the number of the stations to
25 be visited, and which are placed at predetermined distances apart upon the circumference of the wheel, for the purposes herein-after set forth. This wheel is made of suitable conducting material. A frame P' is provided, in which is supported a pair of electro-
30 magnets P. These magnets are connected, as shown, so as to be in the circuit which passes from the frame B through the wire U and the battery T and thence to the ground.

35 I next make a lever Q, which is pivoted, as shown, in a support attached to the frame P'. To one end of this lever the armature Q' is fastened, and the other end is provided with an upwardly-extending hook or projection *q*,
40 adapted to engage under certain circumstances with the teeth or contact-points on the wheel O. A spring-hook R is attached to the frame P', passing through a slot in the lever Q (shown in Fig. 2) and adapted, as
45 shown, to hook over such lever and prevent it from rising. A piece of insulated material *r* is attached to this hook and extends upward almost to the circumference of the wheel O.

50 An arm R' and a bolt R'' are provided to regulate the movement of the lever Q, the parts being so adjusted that when this lever is released from the hook R the armature will depress the end on which it is placed and lift
55 the other end a certain distance, but never enough to allow the hook *q* to come into contact with the web of the wheel O, but enough to elevate it into the path of the contact-points *o* on the wheel O. When the armature
60 Q' is elevated by the watchman touching the button, the hook end *q* is depressed into contact with the spring *q'* and a circuit formed through the magnet J, causing the hammer to register the visit.

65 An electric bell-alarm S, of any suitable form, is provided and connected, as shown, by means of suitable wires with the frame B

and the battery Z. A wire W is also provided connecting the bell S directly with the battery, in addition to the wire which con-
70 nects such frame with the battery through the magnets P.

The device operates as follows: As the shaft *b* revolves, the wheel O is carried round with it, as shown particularly in Figs. 3 and 4. As
75 above stated, the number of contact-points *o* upon this wheel corresponds with the number of stations to be visited, there being one of these points for each of the stations. A short time before the hour arrives at which the
80 watchman is expected to signal from any station—as, for instance, station 1—one of the contact-points *o*, corresponding to such station, engages with the insulating-point *r* and moves the hook R so as to release the lever Q and
85 allow the hook *q* to rise and approach the circumference of the wheel O enough to enter the path of the contact-points. If now the watchman signals from station 1 at the proper time, the current will pass from the battery
90 T to such station and from thence through the arm I, plate G, shaft *b*, frame B, magnets P, and back to the ground. As the current passes through the magnets P it energizes them, attracting the armature Q', drawing
95 down the hook end of the lever Q, and allowing the spring-hook R to engage again with such lever and hold the hook *q* out of the path of the contact-points *o* and the other parts in their original position until again
100 released by the contact of the next point *o* with the point *r*. As the armature is drawn up into contact with the magnet P the end of the armature Q contacts with the point *q'*, completing a circuit through the battery Z,
105 the frame P', the armature Q', the contact-point *q'*, and the magnet J. As this magnet is energized the core J' is drawn down, thereby throwing the hammer L forward into the position shown in dotted lines in Fig. 1 and
110 recording the visit of the watchman. This recording apparatus itself forms no part of this invention, although it acts in combination with the other parts herein described; but if for any reason the watchman fails to
115 visit the station at the proper time the magnets P will not be energized and the point *q* will remain in its raised position in the path of the contact-points *o* until the revolution of the wheel O brings one of the points *o* into
120 contact with it. As soon as this happens a current will pass from the battery Z through the wire V and frame P', lever Q', wheel O, frame B, and wires U and W' to the bell S, and thence through the wire W to the battery Z.
125 This current in its passage through the bell will ring the same, giving an alarm signifying that the watchman has failed to perform his duty, and will ring each time during the revolution of the wheel O that the points *o* are brought
130 in contact with the point *q*. The points *o* should be so adjusted that one of them should release the lever Q a short time before the watchman is expected to reach his station,

and so that after a short time has been allowed within which the signal should be made another of these points should come in contact with the point *q* and cause the alarm to be sounded. As a substitute for the points *o* I may provide a number of adjustable arms *O'*, of which I show one in Fig. 3, which may be set in any position desired around the wheel. Any number of such arms may be used, as desired, and any or all of the points *o* may be dispensed with and the arms used in their place.

In Fig. 4 I have shown the wheel *O* located at the back of an ordinary clock and adapted to be rotated by the operation of the clock-works. The other parts of my apparatus I arrange and operate in this case the same as when such wheel is attached to a watchman's clock, as I have above described, and I regard it as unnecessary to again enter into a detailed description where I arrange the wheel *O* upon the works of an ordinary clock. It will be understood that the alarm-bell *S* is to be located in the office of the general superintendent having charge of the watchmen, whose business it is to visit the station and register their visits, or, if desired, it may be placed in the residence of the owner of the building, bank, store, factory, or works intended to be visited by the watchman, so that he will be immediately apprised of the failure of the watchman to perform his duty.

As I have stated above, this device is adapted for use in cases where the stations are so remote from the recording apparatus that the line-circuit is insufficient to actuate the core *J'* in order to operate the recording apparatus. This is accomplished in the following manner: Suppose the station *1* be at some distance—say a mile—from the clock. The watchman presses the button at the station, closing the line-circuit. The current flows through this station, the frame, magnets *P*, and through the battery *T* to the ground. As the current passes through the magnet *P* it attracts the armature and closes the local circuit by bringing the arm *Q* into contact with the point *q'*. The printing is then done by this local circuit. The current of the line-circuit therefore need only be sufficiently strong to attract the armature *Q'*, the printing being done by the battery *Z*.

Although I have given a somewhat detailed description of the construction and arrangement of the mechanism employed by me, it will be understood that many of the parts may be varied as to size, shape, or arrangement without departing from the spirit of my invention, which consists, speaking generally, in the use of a number of contact-points moving through a predetermined path in connection

with a contact-point which periodically comes within such path and is drawn out therefrom if the watchman performs his duty, but which, if he fail to so perform his duty, will contact with one of the first points to sound an alarm, my invention also consisting, as stated, in the use of the relay or local circuit.

I claim—

1. The combination of contact-points moving through a predetermined path, a contact-point periodically entering such path, a line-circuit which when closed withdraws the point from such path, and an alarm-circuit adapted to sound an alarm when the point remains in such path beyond a certain predetermined time, substantially as described.

2. In an electrical watchman's clock, the combination of a wheel *O*, having points *o*, a pivoted lever *Q*, carrying a contact-point *q* and an armature *Q'*, an elastic hook *R*, engaging with such lever, magnets *P*, a line-circuit passing through such magnets and one or more stations, a bell *S*, and an alarm-circuit passing through such bell, whereby the arm *Q* is periodically released from the hook *r* and the point *q* allowed to enter the path of the points *o* and contact therewith to ring the bell unless the line-circuit be first closed to actuate the magnets and restore the arm *Q* to its normal position, substantially as described.

3. In an electrical watchman's clock, contact-points adapted to close an alarm-circuit, but periodically prevented from closing such circuit by the action of the line-circuit magnets, substantially as described.

4. In an electrical watchman's clock, the combination of magnets *P*, a pivoted lever *Q*, having an armature *Q'* at one end and a contact-point *q* at the other, a contact-point *q'*, a wheel *O*, having points *o*, and a spring-hook *R*, all combined and operating substantially as shown and described.

5. In an electrical watchman's clock, the combination of magnets *P*, a line-circuit connected with said magnets, a pivoted lever *Q*, carrying an armature *Q'*, a contact-point *q'*, a magnet *J*, connected therewith, a hammer *L*, connected to the core *J'* of such magnet, and a local circuit through the battery *Z*, the magnet *J*, and the lever *Q*, whereby when the line-circuit is closed the armature *Q'* is attached by the magnets *P*, closing the local circuit and operating the hammer to record a signal, substantially as described.

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Witnesses:

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