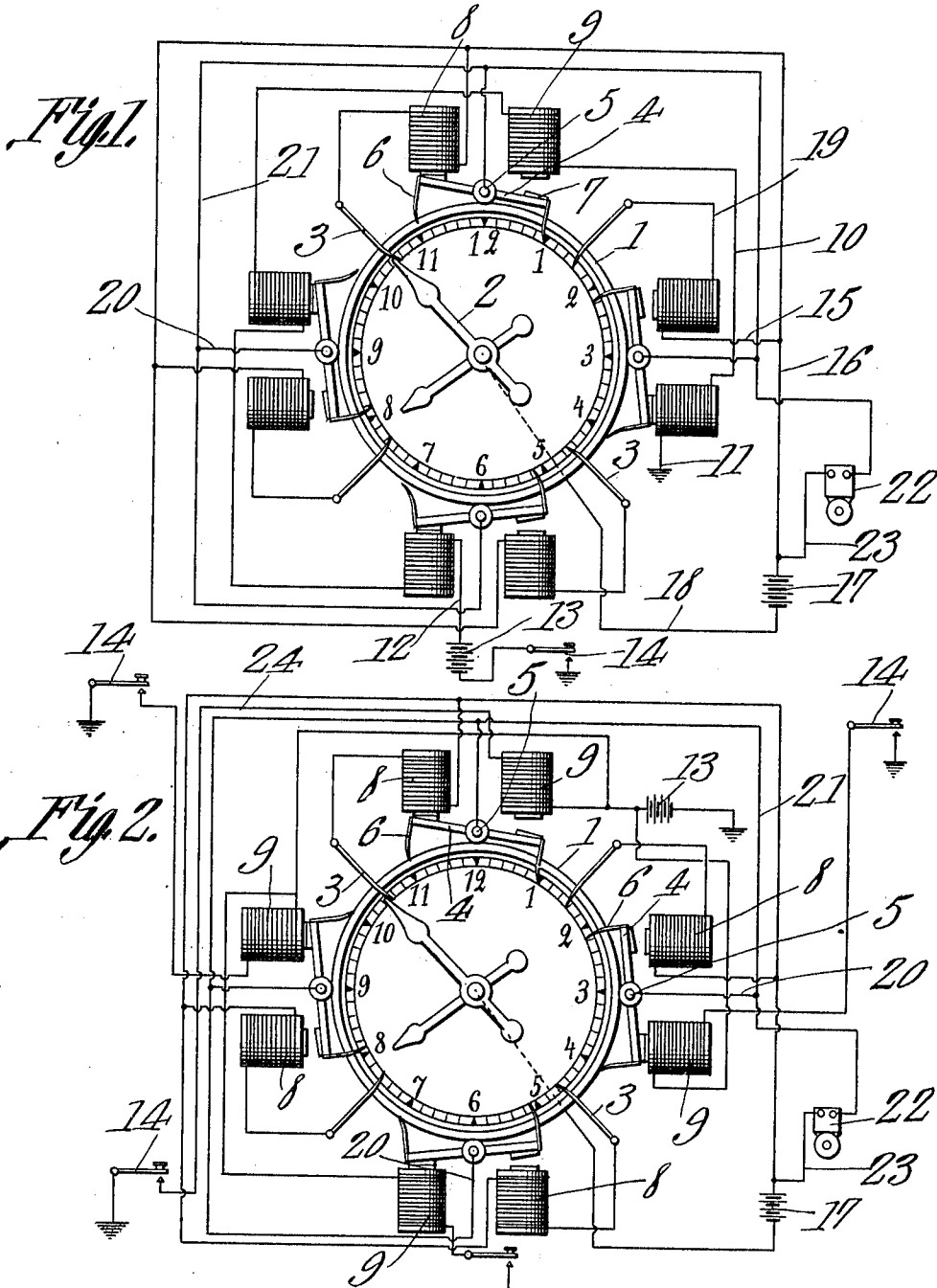


R. C. ROSE.
WATCHMAN'S CLOCK.
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984,301.

Patented Feb. 14, 1911.



Witnesses

J. G. L. L.
J. T. Chapman.

Richard C. Rose, Inventor
by *C. A. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

RICHARD C. ROSE, OF OSCEOLA, ARKANSAS.

WATCHMAN'S CLOCK.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, RICHARD C. ROSE, a citizen of the United States, residing at Osceola, in the county of Mississippi and State of Arkansas, have invented a new and useful Watchman's Clock, of which the following is a specification.

This invention has reference to improvements in watchman's clocks and its object is to provide a clock system wherein the clock will automatically set itself into position to give an alarm if the watchman fails to properly operate means at a predetermined station or stations.

The invention will be best understood from a consideration of the following description taken in connection with the accompanying drawings forming a part of this specification, in which drawings;—

Figure 1 is a diagram illustrating a watchman's clock with the invention applied. Fig. 2 is a similar diagram showing a somewhat different arrangement of the circuit.

Referring to the drawings there is shown a clock 1 which may be installed at any suitable point in the system, preferably in the superintendent's room, and so far as the time side of the clock is concerned it may be of any approved type.

The clock is provided with a hand or arm 2 which may be one of the time indicating hands of the clock or may be a separate arm not visible to the casual observer. In the path of the hand or arm 2 are contact fingers 3, the number depending on the distance traversed by the hand or arm in a given time and also the time intervals at the ends of which the watchman is expected to cause the proper operation of the clock. The fingers 3 may be spring fingers and the hand or arm may be arranged to sweep across these fingers so as to make electrical contact therewith.

At appropriate points around the clock and closely adjacent thereto are mounted levers 4 shown as each upon a centrally located pivot 5 and carrying at each end a spring finger 6 movable by the lever into and out of the path of the hand or arm 2. Each lever 4 at opposite sides of the pivot carries an armature 7 and in position to act on the lever through the armatures are electro-magnets 8, 9, respectively, the magnet 8 acting on one end of the lever and the magnet 9 on the other.

In Fig. 1 there are shown four levers 4

and four sets of magnets 8, 9, but it will be understood that the number of levers and actuating magnets may be varied as desired or expedient.

The magnets 9 are connected up in series by conductors 10 and one of the magnets 9 is connected to ground as indicated at 11, while the magnet 9 at the other end of the series is connected by a conductor 12 to a battery 13 and the latter is connected through a circuit-controller 14 to ground, the circuit-controller 14 being indicated as an ordinary push key. It will be understood that the push key or controller 14 is located at some distant point which must be visited at predetermined intervals by the watchman, while the clock 1 is located at a point inaccessible to the watchman.

Each magnet 8 is connected by a conductor 15 to a common conductor 16 which in turn is connected to a battery 17 and this battery is connected by a conductor 18 to the hand 2. The side of each magnet 8 opposite to that connected to the conductor 15 is connected by a conductor 19 to one of the spring fingers 3, each magnet 8 having a spring finger 3 individual thereto.

Each armature lever 4 is connected by a conductor 20 to a common conductor 21 which in turn leads to one side of a bell 22 or other suitable alarm device, the other side of which is connected by a conductor 23 to the conductor 16 leading to the battery 17.

In the normal or working condition of the clock it may be assumed that the several levers 4 are in such position that the finger 6 at the end toward the oncoming hand or arm 2 is in the path thereof while the finger 6 at the other end of the lever has been moved out of the path of the hand by the proper tilting of the lever. As soon as the hand 2 comes into engagement with the adjacent finger 3, there is established a circuit from the battery 17 by way of the conductor 18 through the hand 2 to the finger 3, thence by the conductor 19 to the magnet 8 individual to said finger, thence by the conductor 15 to the conductor 16 and back to the battery 17 thus energizing the magnet 8 and causing a rocking of the lever 4 in a direction to withdraw the finger 6 primarily in the path of the arm 2 out of the path thereof but moving the finger at the other end of the lever 4 into the path of the oncoming arm 2. Under these conditions when the arm 2 reaches the point where it would

otherwise have engaged the finger 6 first in its path this finger being no longer in the path of the arm is not engaged thereby but the continuous movement of the hand or arm will bring it into engagement with the other finger 6 unless the latter be moved out of the path of the hand or arm. If it be assumed that this has not occurred then the hand or arm 2 will engage the finger 6 in its path and thus establish a circuit from the battery 17 by way of the conductor 18 to the hand 2, thence by the finger 6 to the lever 4, thence by the respective conductor 20 to the conductor 21, thence by way of the bell or other alarm 22 and by the conductor 23 to the conductor 16 and so back to the battery 7. This will cause the alarm 22 to sound and if it be in the superintendent's room or at other appropriate point, notice will be given that the watchman has failed in his duty. Suppose however that the watchman, after the time that the arm or hand 2 has contacted with the finger 3 under consideration and before the time it has reached the finger 6 thus put in its path, but subsequent to the time that the hand has passed the position occupied by the first finger 6 considered, has closed the circuit at the controller 14, then there is established a circuit from the battery 13 through the controller 14 to ground, thence by way of the magnet 9 in series to the conductor 12 and finally back to the battery 13, these magnets all being thereby energized and the lever 4 primarily rocked by the action of the hand 2 in closing the circuit to the magnet 8 is rocked back to initial position. When now the hand or arm 2 reaches the position where it would have made contact with the finger 6 at the farther end of the lever 4, such finger is no longer in its path and consequently the alarm circuit is not sounded. It is therefore incumbent upon the watchman to close the circuit at the controller 14 at predetermined times and within a certain short time limit prior to the time when the alarm would otherwise be given under penalty of having an alarm given if the watchman closes the circuit too soon or not soon enough.

In Fig. 2 an arrangement is shown whereby the watchman must call at separated stations in a predetermined order to there close the circuit in order to prevent the giving of an alarm. The showing of Fig. 2 differs from that of Fig. 1 in that the magnets 9 are all connected to the battery 13 in multiple and the battery is connected directly to ground. The other side of each magnet 9 is connected by a conductor 24 to a circuit-controller 14 which in turn is connected to ground, the arrangement being such that each magnet 9 is under the individual control of a circuit-controller 14. By arranging the circuit-controller 14 at separated

points and at widely different parts of the area to be covered, the watchman may be compelled to cross and recross the area to be inspected a number of times in order to reach the circuit-controller 14 in proper order under penalty of causing an alarm.

What is claimed is:—

1. In a watchman's clock, a contact hand or arm having a progressive movement, a contact constantly in the path of said hand or arm, an armature lever intermediately pivoted, contacts on said armature lever and either of them movable by the rocking of the lever into the path of the hand or arm, electro-magnets one controlling one end of the armature lever and the other controlling the other end of said armature lever, a charged single circuit connected to the hand and to the armature lever, a charged circuit including the hand, one of the magnets and the contact constantly in the path of said arm, and a charged circuit including the other magnet controlling the same armature lever and a circuit-controller and adapted to cause the rocking of the armature lever in the reverse direction to that caused by the circuit including the first magnet.

2. In a watchman's clock, a contact hand or arm having a progressive movement, a series of spaced contacts constantly in the path of said arm or hand for engagement in order thereby, an equal number of armature levers intermediately pivoted and each carrying at opposite sides of the pivot point, contacts adapted to be engaged by the hand or arm, electro-magnets in operative relation to opposite ends of the armature lever, a charged electric circuit including the hand or arm, the contact constantly in the path thereof and the magnets controlling one end of each armature lever, a signal electrically connected to the armature levers and to the charged circuit including the hand or arm, an electro-magnet for each armature lever in operative relation to the end thereof remote from the first named magnet controlling the armature lever, and a charged electric circuit provided with a circuit controller and coupled to the second named magnet.

3. In a watchman's clock system, a contact hand or arm having a progressive movement, a series of contacts constantly in the path of said hand or arm and adapted to be successively engaged thereby, a series of armature levers each intermediately pivoted and carrying spaced contacts either of which is movable by the rocking of the lever into the path of the hand or arm, the levers being arranged in predetermined relation to the contacts constantly in the path of the hand or arm, a series of electro-magnets, each magnet controlling the like end of the arm and armature lever,

a charged electric circuit including the said magnets and the hand or arm and also including the contacts in the path of the hand or arm at all times, another series of
5 electro-magnets each controlling the end of the armature lever remote from that controlled by the first named magnet, a source of electric energy connected to all the second named magnets, and circuit-controllers
each connected to a respective one of the 10 second named magnets for coupling the charging source of current to said second named magnet at will.

R. C. ROSE.

Witnesses:

T. W. POTTER,
SUSABEL MICHELL.