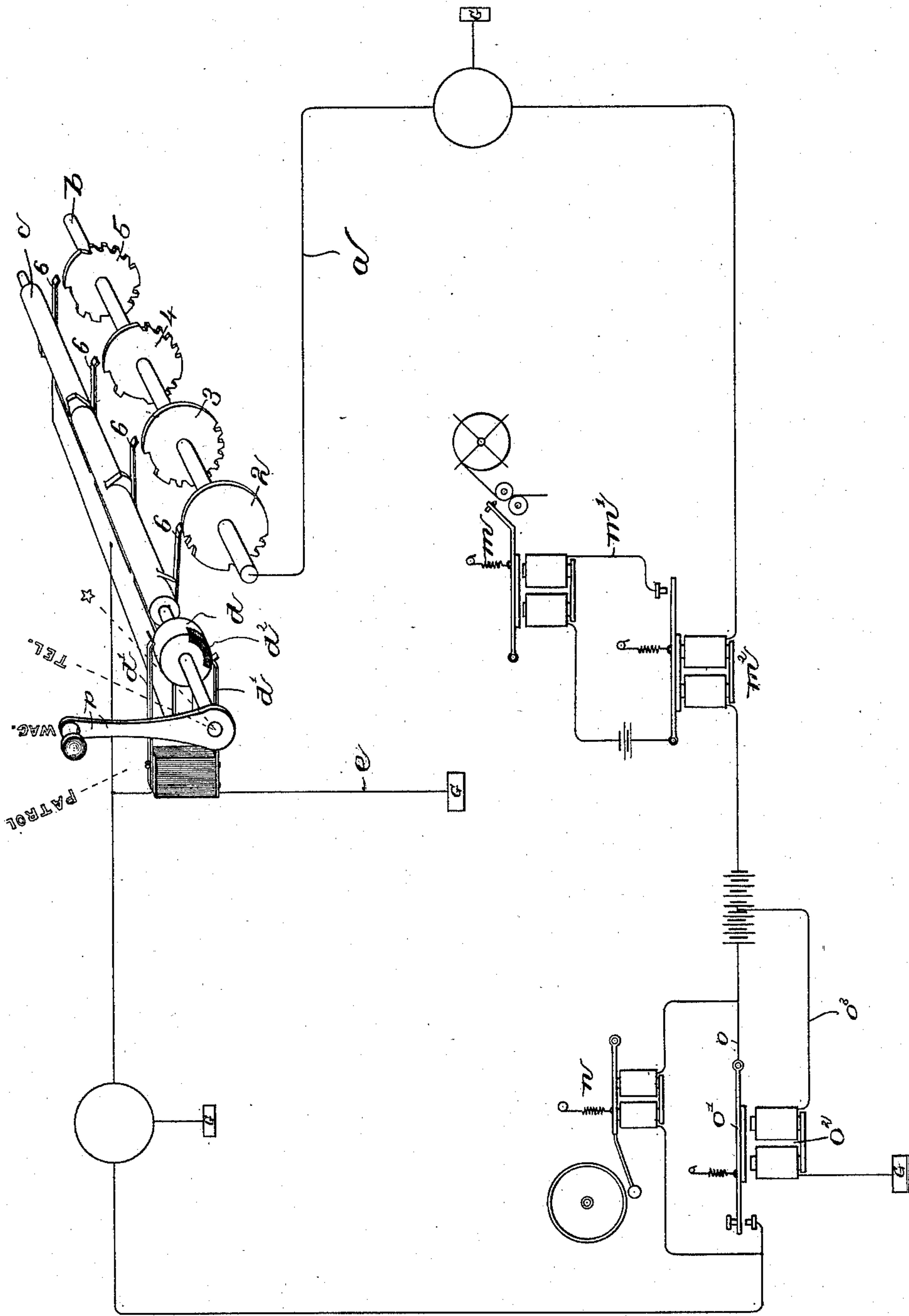


(No Model.)

**B. J. NOYES.**  
**SIGNALING APPARATUS.**

No. 474,852.

Patented May 17, 1892.



Witnesses:  
Howard F. Eaton.  
Eagar A. Goddin

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# UNITED STATES PATENT OFFICE.

BERNICE J. NOYES, OF BOSTON, MASSACHUSETTS.

## SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 474,852, dated May 17, 1892.

Application filed September 17, 1889. Serial No. 324,180. (No model.)

*To all whom it may concern:*

Be it known that I, BERNICE J. NOYES, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Signaling Apparatus, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

In United States Patents Nos. 359,686 and 359,687, granted to me, a signaling apparatus is shown comprising signal-transmitters and a signal-receiving station connected by an electric circuit, the receiving-station containing a register and an audible alarm, the latter responding to some signals and not to others. To effect this distinction, a circuit-changer is connected with the signal-transmitters, which is operated, in conjunction with the special signals, to cut in, include, or render inoperative the said audible alarm.

In accordance with this invention several signal-transmitters are connected by an electric circuit with a receiving-station containing a register and a bell or other indicating instrument, the latter being normally included in the circuit, and a switch is also located at the receiving-station, which is moved by a distinguishing impulse to cut out or disconnect said bell for some signals and not others—viz., on the patrol-signals. As herein represented, the switch at the receiving-station is moved by a ground impulse produced by closing a ground tap or branch at one of the signal-boxes in the line, said ground-tap being closed by means of the pointer or some other movable member within the box, although other distinguishing impulses may be produced and employed to effect this same result, as shown in a companion case filed concurrently with this, Serial No. 324,181.

The drawing shows in diagram an electric circuit containing signal-transmitters and instruments located at the receiving-station connected in said circuit.

The main or signaling circuit *a* includes or connects several signal-boxes and a signal-receiving station. Each signal-box contains a multiple-signal transmitter of some suitable construction, many forms being in common use. The one herein shown consists of several circuit-wheels 2 3 4 5, arranged on a shaft

*b*, a pen 6 for each wheel, and a selecting-cylinder *c* being provided, which is arranged to press upon one or another pen and throw it into contact with one or another wheel. A pointer *p* is fixed to said selecting-cylinder, by which it is revolved, said pointer moving over a dial having marked thereon the signals corresponding to the circuit-wheels. The shaft *b* is rotated by a motor (not shown) of any usual construction. A circuit-changer is provided in each box, one member of which, as *d*, is secured to a movable part of the apparatus, (herein shown as secured to the signal-selecting cylinder *c*,) the stationary member or part, or it may be members or parts, *d'* of said circuit-changer being included in a ground tap or branch *e*. The member *d* has an insulated spot *d*<sup>2</sup> on it, so that when in some positions the ground tap or branch is closed and when in other positions it will be opened, and, as represented, it is closed on the patrol or post signals and opened on the special signals—as, for instance, wagon, telephone, and the like.

At the receiving-station a message-receiving instrument *m* is placed, which is herein shown as operatively connected with the signaling-circuit; but being included in a local circuit *m'* it is governed by the armature of a relay *m*<sup>2</sup>, included directly in the signaling-circuit, although it is obvious that the message-receiving instrument or register *m* may be included directly in the signaling-circuit, if desired. A bell *n* is also located at the signal-receiving station, it being herein represented as included directly in the signaling-circuit, although it may be included, like the register *m*, in a local circuit controlled by a relay, which will be included in the main circuit. A shunt-wire *o* is arranged around the coil of said bell, governed by the armature *o'* of an electro-magnet *o*<sup>2</sup>, included in a ground tap or branch *o*<sup>3</sup>, leading from the signaling-circuit *a*.

With the signal-selecting cylinder arranged as shown the ground tap or branch at the signal-box is open, and hence any signal transmitted will be received on the register and will also ring the bell; but if the pointer be turned onto a patrol-signal the ground tap or branch *e* will be closed, thereby attracting



the armature  $o'$  of the electro-magnet  $o^2$ , and any interruptions in the signaling-circuit at such time at one side of the ground-tap  $e$  will affect the register  $n$ , but will not affect the bell, because the armature  $o^2$  will be held down by the magnet  $o^3$ , as a closed ground-circuit is continuously formed. It will thus be seen that the bell  $n$  will respond to all signals unless positively shunted out or disconnected, and such positive action, while being herein shown as produced by an impulse different from the regular signaling impulse, yet I do not desire to limit myself to any particular means for effecting such distinction.

I claim—

1. In an electric circuit, a signal-receiving station containing a register and a bell operatively connected with the said circuit and responsive to the signal impulses, a controlling device for rendering said bell non-responsive, and an electro-magnet controlling the action of said controlling device and responsive to a distinguishing impulse, combined with a signal-transmitter, also connected in said circuit and contained in a box, and a circuit-changer for transmitting the said distinguishing impulse to effect the operation of said electro-magnet, substantially as described.

2. In an electric circuit, a signal-receiving station containing a register and a bell operatively connected with the said circuit and responsive to the signal impulses, a shunt-

switch, as  $o$ , for rendering said bell non-responsive, and an electro-magnet controlling the action of said shunt-switch and responsive to a distinguishing impulse, combined with a signal-transmitter, also connected in said circuit and contained in a box, and a circuit-changer for transmitting the said distinguishing impulse to effect the operation of said electro-magnet, substantially as described.

3. In an electric circuit, a signal-receiving station containing a register and a bell operatively connected with the said circuit and responsive to the signal impulses, a controlling device for rendering said bell non-responsive, and an electro-magnet in another circuit controlling the action of said controlling device and responsive to a distinguishing impulse, combined with a signal-transmitter, also connected in said circuit and contained in a box for transmitting the signals, and a circuit-changer in another circuit for transmitting the said distinguishing impulse to effect the operation of said electro-magnet, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BERNICE J. NOYES.

Witnesses:

GEO. W. GREGORY,  
E. J. BENNETT.