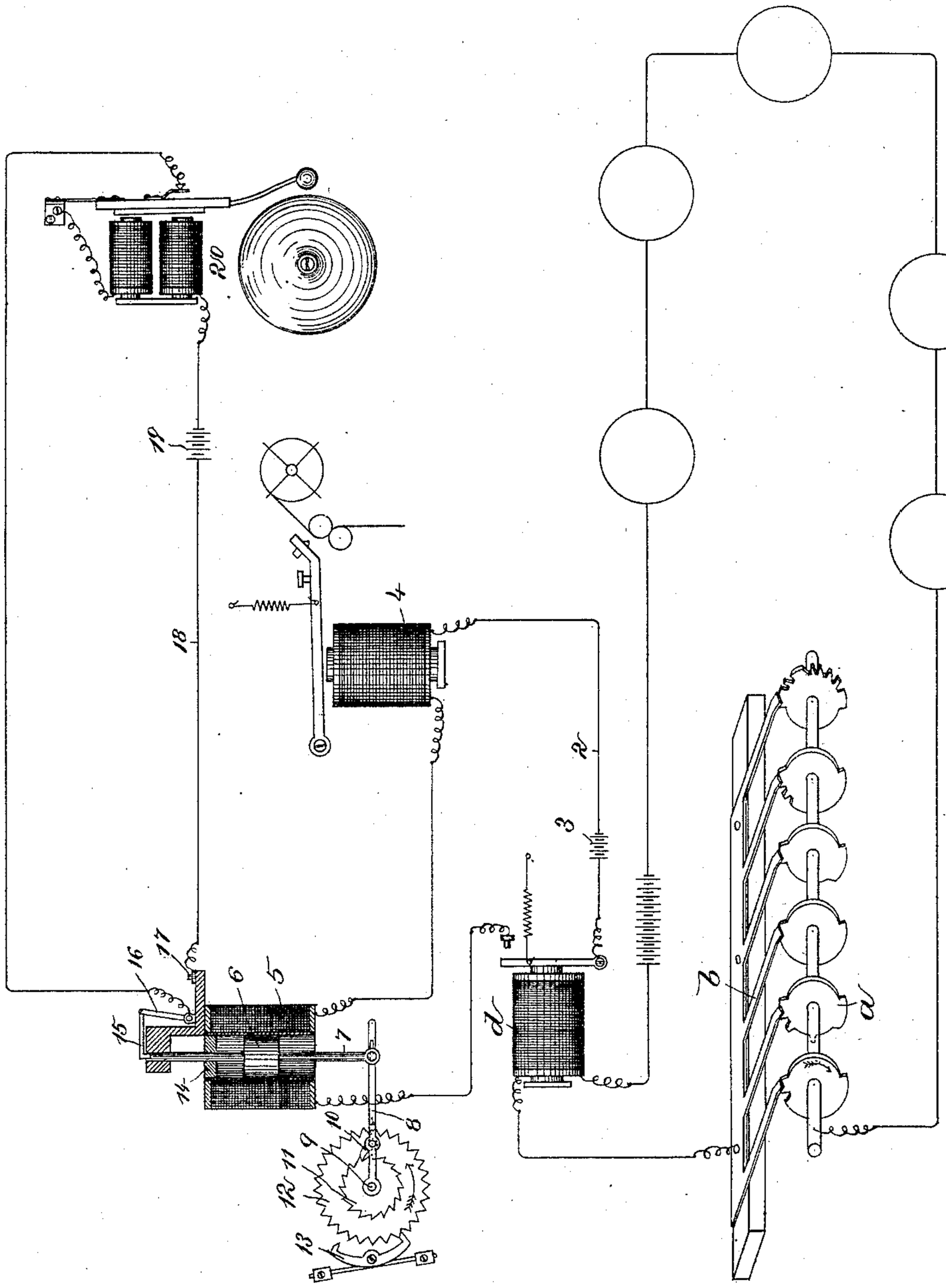
(No Model.)

B. J. NOYES.

MUNICIPAL SIGNAL SYSTEM.

No. 433,485. Patented Aug. 5, 1890.



Witnesses.
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UNITED STATES PATENT OFFICE.

BERNICE J. NOYES, OF BOSTON, MASSACHUSETTS.

MUNICIPAL SIGNAL SYSTEM.

SPECIFICATION forming part of Letters Patent No. 433,485, dated August 5, 1890.

Application filed September 23, 1889. Serial No. 324,810. (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 Municipal Signal Systems, 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 Patent No. 359,688, dated March 22, 1887, a municipal signal apparatus is shown comprising signal-boxes located on the streets, which are adapted to transmit special and patrol signals, and a register is employed at the central office which receives all the signals transmitted, and a bell is also employed at the central office which is responsive to the special signals only. The means employed in the said patent for causing the bell to respond on some signals only consists of a "creeper," which is moved sufficiently on a current change of long duration to effect the release of a drop which in falling closes a local circuit containing the bell.

In accordance with this invention in lieu of the creeper an electro-magnetic device is employed, the armature or movable portion or member of which is provided with a retarding device, so that it may move on current changes of short duration but a short distance and on current changes of long duration its full distance.

The electro-magnetic device preferably employed consists of a solenoid, the armature of which is connected with a pawl-carrying lever, the ratchet-wheel with which the pawl co-operates being fixed to a shaft or arbor carrying an escape-wheel.

The drawing shows in diagram the transmitting apparatus at the sub-station and the receiving apparatus at the main station.

At the sub-station a multiple signal-transmitter is employed designed to automatically transmit different signals, the transmitter herein shown being that shown and described in Patent No. 320,032, dated June 16, 1885, and comprising a series of signal-wheels *a* on a shaft, a series of pins *b*, and a signal-selecting cylinder, said transmitter being designed to transmit special and patrol signals, although any other form to carry out the result last specified may be employed. As indicated in Patent No. 359,688, referred to, the patrol-signals comprise only a series of changes of short duration, while the special signals comprise a series of changes of short duration accompanied by a current change of long duration.

At the central office a relay *d* is included in the main circuit, the armature of which controls a local circuit 2, including a battery 3 and the register-magnet 4 of any suitable message-recording or signal-receiving instrument. An electro-magnetic device (herein shown as a solenoid 5) is also included in the local circuit 2, and its movable armature 6 is mounted upon a rod 7, loosely connected with the outer end of a pawl-carrying lever 8, pivoted at 9, the pawl 10, loosely connected with the lever, being controlled by a spring. (See dotted lines.) With this particular form of solenoid a piece of magnetic material 14 closes the end, so that when the coil is energized the armature will be drawn toward said end. A ratchet-wheel 11 is fixed to a shaft carrying the escape-wheel 12, with which co-operates a pallet 13 of any suitable construction.

Upon the reception of a patrol-signal, which, it will be understood, is a signal comprising a series of current changes of short duration, the piston-like armature 6 will move vertically a short distance for each change, and in returning the pawl 10 slides freely over the teeth of the ratchet-wheel 11.

Upon the reception of a special signal, which, it will be understood, is one accompanied by a current change of long duration, the armature 6 will continue to move vertically until it strikes or approaches nearly to the closed end 14 of the solenoid. As the rod 7 rises it engages and releases a latch 15, thereby permitting the drop 16 to fall onto the contact 17 and close a local circuit 18, which includes a battery 19 and a bell 20. The drop 16 causes the bell 20 to ring continuously until replaced by hand. By this form of electro-magnetic device to distinguish the patrol from the special signals the operation is positive, and the liability of accidentally calling into operation the bell will be practically avoided, as the device is susceptible of a large range of adjustment.

I claim—

1. In a signaling apparatus, an electric cir-

cuit containing one or more signal-transmitters adapted to change the condition of the current for intervals of long and short duration, and a signal-receiving instrument at the central station for receiving all the signals transmitted, combined with an electro-magnet, also at said central station, its armature and a retarding device for the armature, consisting of a pawl, ratchet-wheel, escape-wheel, and pallet, and an audible signaling-instrument, also at said central station, controlled by the said armature, substantially as described.

2. In a signaling apparatus, an electric circuit containing one or more signal-transmitters adapted to change the condition of the current for intervals of long and short duration, a signal-receiving instrument at a central station, combined with the electro-magnetic device, also at said central station, and its armature and retarding device for the armature, the drop 16, and the bell, also at said central station, included in circuit with the drop, substantially as described.

3. In a signaling apparatus, an electric circuit containing one or more signal-transmitters adapted to change the condition of the current for intervals of long and short duration, and a receiving-relay at the central station, combined with a register at said central station included in a local circuit controlled by the armature of the said receiving-relay, an electro-magnetic device, also at said central station, included in said local circuit, its piston-like armature, the retarding device for said armature, and the audible alarm or indicating signal, also at said central station, controlled by said retarded armature, 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:
G. W. GREGORY,
E. J. BENNETT.