

No. 822,429.

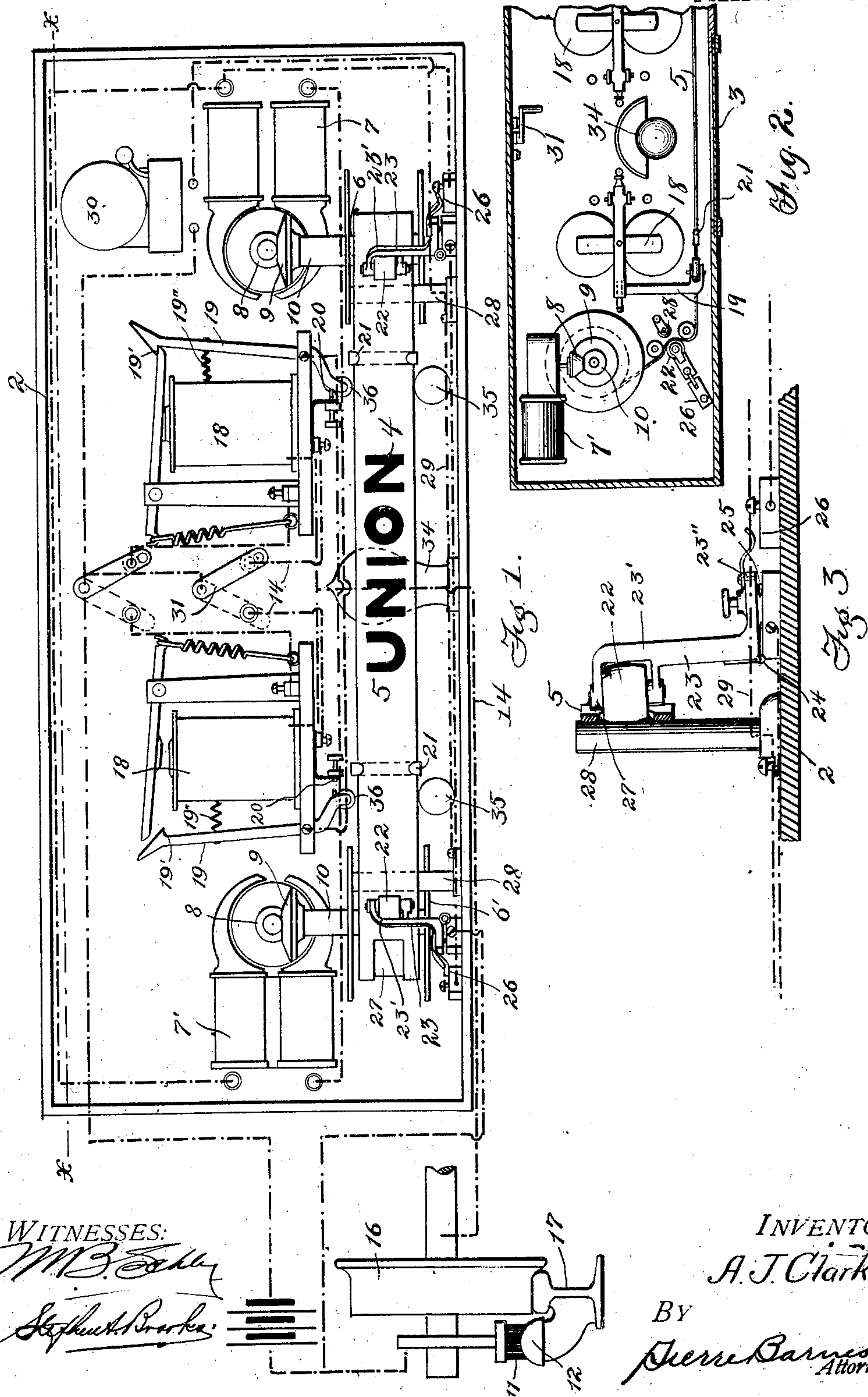
PATENTED JUNE 5, 1906.

A. J. CLARK.

ELECTRIC CONTROLLED STREET OR STATION INDICATOR.

APPLICATION FILED OCT. 27, 1903

2 SHEETS—SHEET 1.



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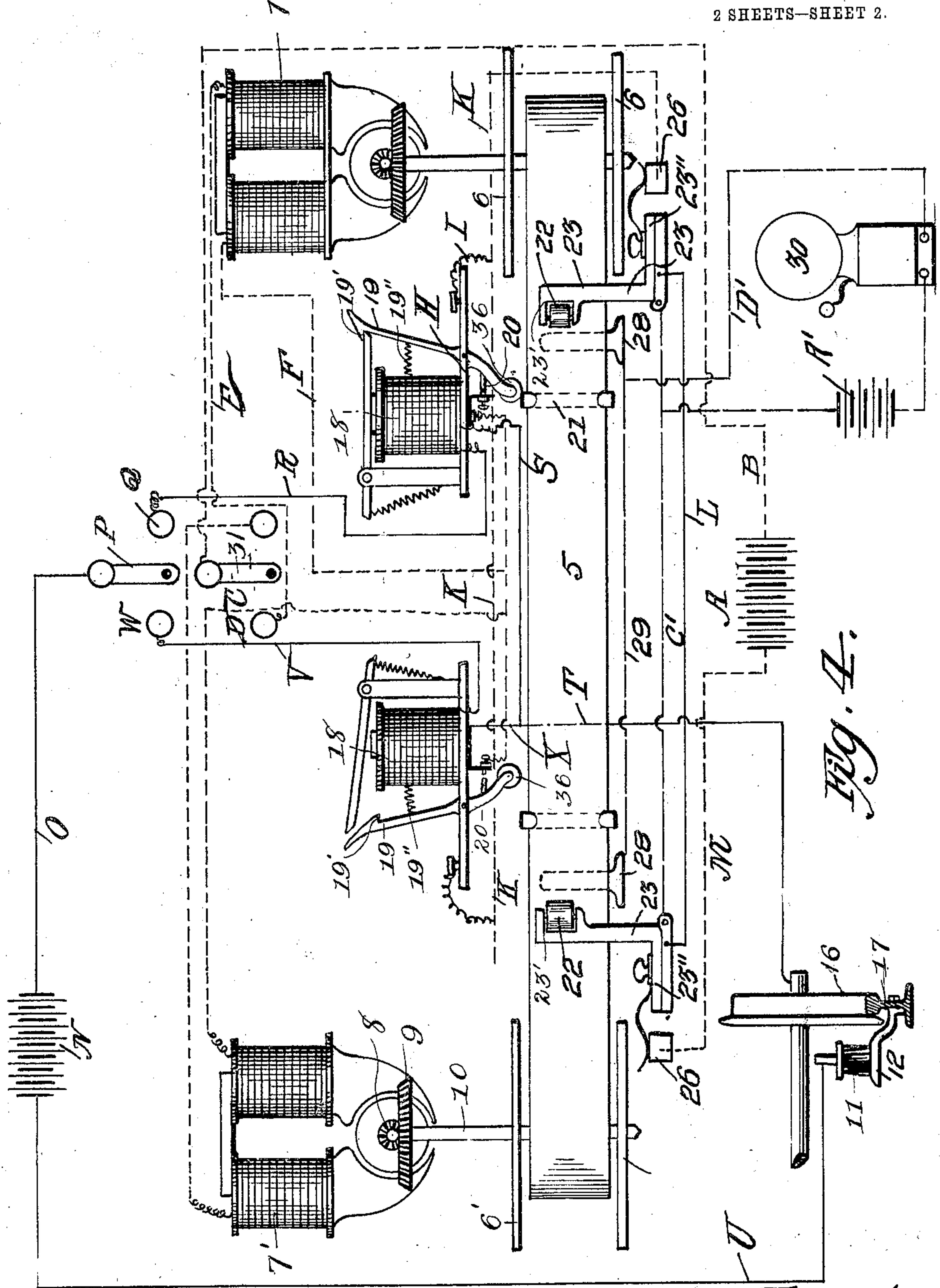


Fig. 4.

Witnesses:
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UNITED STATES PATENT OFFICE.

ARTHUR J. CLARK, OF SEATTLE, WASHINGTON, ASSIGNOR OF ONE-HALF
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ELECTRIC-CONTROLLED STREET OR STATION INDICATOR.

No. 822,429.

Specification of Letters Patent.

Patented June 5, 1906.

Application filed October 27, 1903. Serial No. 178,669.

To all whom it may concern:

Be it known that I, ARTHUR J. CLARK, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Electric-Controlled Street or Station Indicators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to apparatus for indicating to passengers within a railway-car the names or numbers of the stations or streets along the route; and the object of the invention is the provision of electrically controlled and actuated apparatus for exhibiting in proper sequence and time the names of the several such stations or streets as they are approached.

I attain this and other objects by the novel construction and combination of devices hereinafter described, and illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of apparatus embodying my invention, the containing-case being in section. Fig. 2 is a horizontal section taken on line xx of Fig. 1. Fig. 3 is a fragmentary view showing the governor and a portion of the screen. Fig. 4 is a diagrammatic view illustrating the circuits of my improved apparatus.

In the said drawings and in order to avoid confusion the several circuits are represented by broken lines.

The numeral 2 indicates a containing-case, to be secured in a conspicuous position within a car and provided in its front with an opening 3, through which may be discerned the names or characters designating the various streets or stations. The said characters, such as 4, are printed or otherwise inscribed upon a screen or belt 5, wound about spools 6 and 6', which are respectively driven, according to the direction the belt is to be moved, by motors 7 or 7' through the medium of interengaging toothed wheels 8 and 9, respectively mounted upon the armature-shafts and the mandrels 10 of the said spools. A brush 11 is secured to but insulated from the car for the purpose of making contact with a plurality of metal blocks 12, connected to a track-rail and distributed at suitable intervals therealong, whereby an electric relay-circuit is closed through the wires 14 and car-wheel 16 and track-rail 17 contiguous of the

said blocks to actuate an electric magnet of 55 and close the relay 18, which forces the upper arm of lever 19 outwardly against the action of spring 19'' and closes the motor-circuit at 20. This circuit being made, the motor is operated to drive the screen until the lower 60 arm of lever 19 is struck by the adjacent of a series of attachments 21, secured at a predetermined distance to the rear of each of the several aforementioned street names or characters, and which moves the lower arm to 65 break the circuit and simultaneously unhook or release the relay-locking arrangement, such as a hook 19', provided upon the upper of said lever-arms. 22 is a brake-pulley having its axle journaled in an arm 23' of a bell- 70 crank 23, which is pivoted at 24 to a suitable support. This pulley is pressed against the screen to keep it normally taut by the resilience of a compression-spring 25, positioned under the other arm 23'' of said bell-crank, 75 and is also adapted to act as a circuit-breaker at 26 by permitting the arm 23'' being raised to separate the contact-points thereof. This is accomplished by the provision adjacent to each end of the screen of 80 an aperture 27 therein for the admission of the pulley sufficiently far to allow the bell-crank to tilt to the position shown in Fig. 3.

Upon the opposite side of the screen and in line with each of the said pulleys is a post 28, 85 forming a terminal of a wire 29, which upon being contacted by the said pulley makes a closed circuit to operate a bell 30, thus giving an alarm to notify the conductor or attendant that the screen has reached the end of its 90 travel and that the switch or controller 31 should be manipulated to cut out the motor previously in circuit and put the other motor in circuit for action when the car is started in the opposite or return direction. 95

Should, however, the car be run but a part of its route, then the switch should obviously be thrown over by the attendant upon the reversal of the car instead of waiting for the screen to run out its entire length. 100

A lamp 34 is placed to the rear of the screen for the purpose of illuminating the same in order that the characters thereon may be readily discerned after dark, and in order to retain the screen in line guide-pulleys 35 may 105 advantageously be positioned under the screen and beneath the antifriction-rollers 36 of the levers 19.

In Fig. 4 of the drawings I have shown by a diagrammatic view the electric circuits and connections of my improved apparatus. In this figure the motor-circuit is shown in dotted lines and the relay and track circuit in full lines, and referring now to this figure of the drawings I will first describe the course of the motor-circuit and then describe the course of the relay and track circuit. Beginning with a battery A, which is the motor-battery, a line B proceeds from the right-hand side of this battery to the switch-lever C of the motor-switch, and from a contact D, which is adapted to be placed in connection with the tongue, a line E leads to the motor at the right-hand side, and from thence a line F leads to a screw-cup H, which is connected to one of the contacts of the contact 20, the other contact of contact 20 being carried by the lever 19 and this lever being in electrical connection with the base of the relay. From the base of the relay a line I leads to a line K, that is connected to the contact-block located under the spring-tongue carried by the lower arm of the bell-crank lever 23, and from the support of the bell-crank lever 23 a line L leads to the support of the bell-crank lever at the opposite side of the apparatus, and from the contact-block beneath the contact-tongue carried by this lever a line M leads back to battery A. When the circuits are closed through the line just described by swinging the switch-lever C into contact with the contact D, and when the circuit has been completed, it will follow the above-described path and energize the motor at the right-hand side of the apparatus, and this motor, through the mechanism hereinbefore described, will wind the screen or belt 5 around the spool 6 until such time as the attachment 21 strikes the lower end of the lever 19, whereupon the circuit will be broken at 20, and the motor will stop. When the car passes another of the metal blocks 12, the relay-circuit at the right-hand side of the apparatus will be completed, drawing down the relay-tongue and forcing the lever 19 back to its original position, thereby completing the circuit through the motor and setting the same again in operation. The relay-circuit is as follows: from a relay-battery N through a line O to swinging lever P, to the contact Q, through line R, thence through the relay and by line S to a line T, connected with the truck of the car, thence through the axle and wheel of the car to contact-block 12, and thence by a line U to the battery N. This circuit just described belongs to the relay at the right-hand side of the machine, and the relay at the left-hand side is connected by a line V to a contact-post W and by a line X to the line leading to the car-truck. It will be observed that the motor-circuit and the relay-circuit on each side of the center of the apparatus are the same, and the foregoing description of course

applies to the relay-circuit and to the motor-circuit on each side of the apparatus, the relay and motor on either side being thrown into circuit by drawing the relay-switch lever and the motor-switch lever in contact with the proper contact-posts. A bell-battery A' and a bell 30 are included in a separate circuit from the motor and relay circuits, this circuit being shown in Fig. 4 of the drawings by long dashes and being as follows: The two posts 28 form, as before stated, the terminals of a wire 29, and the bases of the pivoted levers 23 are connected by a line C', and the bell and battery are arranged in a line D', that connects the line or wire 29 with the line C'. When, therefore, the screen or belt 5 reaches a point when one aperture 27 is opposite one of the wheels 22, the wheels contact with the posts 28, completing the battery-circuit, whereupon the bell will ring and warn the conductor that the belt has run its full length in one direction. At the same time the motor-circuit will be broken by the contact-finger on the lower arm 23' of the bell-crank 23 being separated from the block 26, thereby protecting the motor-circuit and bringing the motor to a stop.

I claim—

1. In a device of the class described, the combination of a containing-case provided with a sight-aperture in its front, a screen having inscriptions thereon, a spool positioned at each end of said case, a motor for driving each of said spools, an electric circuit including a source of energy, branches thereof each including one of said motors, a manually-operable switch for throwing said motors alternately into and out of circuit with said source of energy, two relays, a track-circuit including a battery, a contact carried by the car and adapted to coact with stationary contacts located at intervals along the track, said relays being included in separate branches of said track-circuit, a manually-operable switch adapted to throw said relays alternately into said track-circuit, a lever carried by each relay and adapted to be moved by the armature thereof, a contact carried by each lever, the said contacts being each included in the circuit of one of the motors, stationary contacts also included in the motor-circuits, the said stationary contacts and the contacts carried by the levers being adapted to close the motor-circuits when the relays are energized by the closing of the track-circuit and means carried by said screen for automatically opening the motor-circuits.

2. In a device of the character described, the combination with a movable screen having inscriptions thereon and electric motors and connections for intermittently driving said screen alternately in opposite directions, a plurality of pivoted switches each arranged in the circuit of one of said motors, and means carried by the screen for operating said

switches to throw the said motors out of circuit with a source of electric energy, a railway-track, a contact carried by the car on which said screen is mounted, a contact located alongside the track and electrically connected thereto, the contact on the track and the contact on the car being adapted to be brought into electrical connection by the movement of the car, a battery and relays carried by the car and adapted to be included in circuit with the track, said relays being adapted to throw said motors into circuit

when the contact carried by the car meets the stationary contact connected with the track, and a manually-operable switch for throwing said relays alternately into and out of circuit with the track.

In testimony whereof I affix my signature in presence of two witnesses.

ARTHUR J. CLARK.

Witnesses:

PIERRE BARNES,
M. E. BREWER.