No. 850,027. PATENTED APR. 9, 1907.

M. J. LYNCH.

INDICATOR.

APPLICATION FILED NOV. 17, 1906.

3 SHEETS—SHEET 1

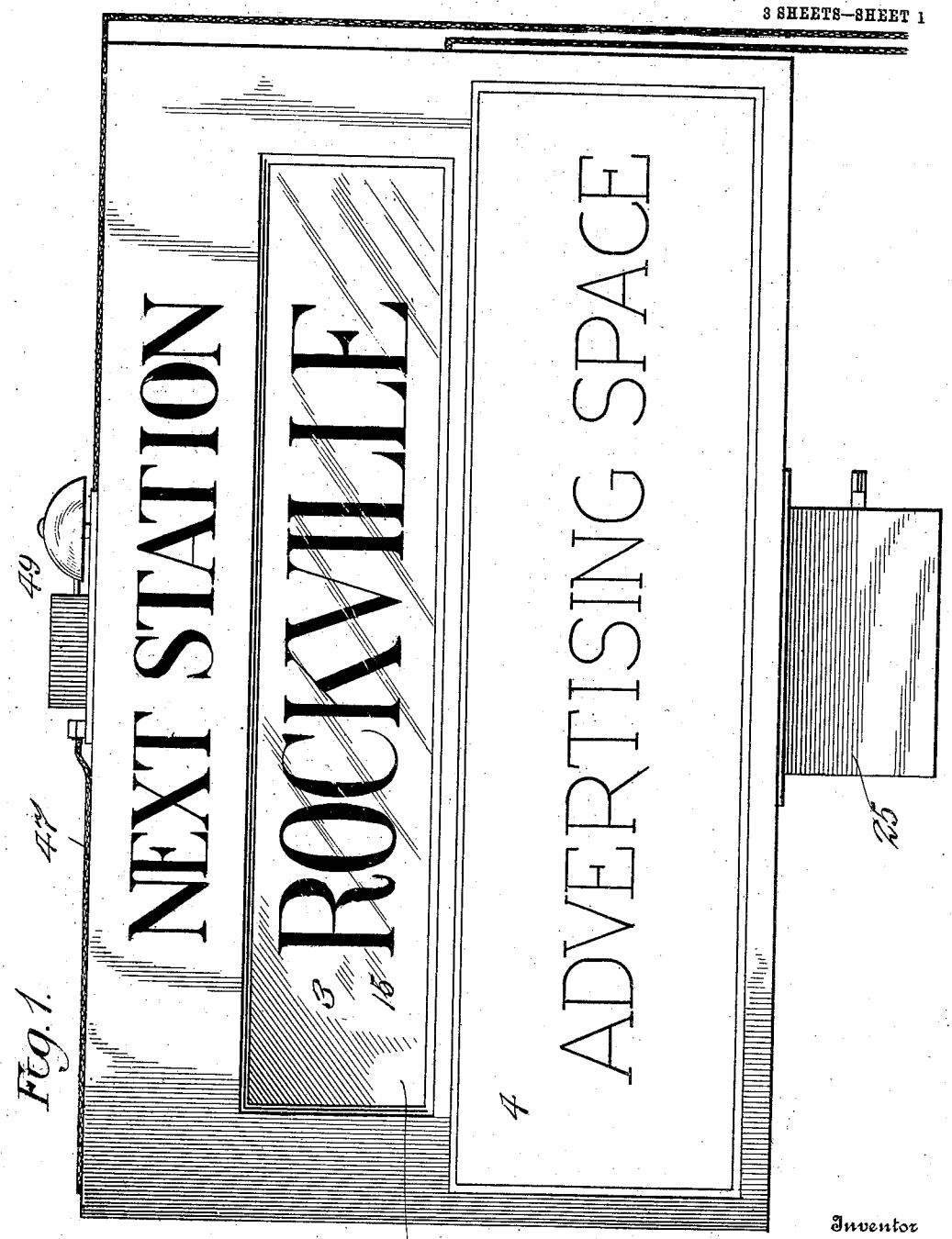


Fig. 1.

Witnesses

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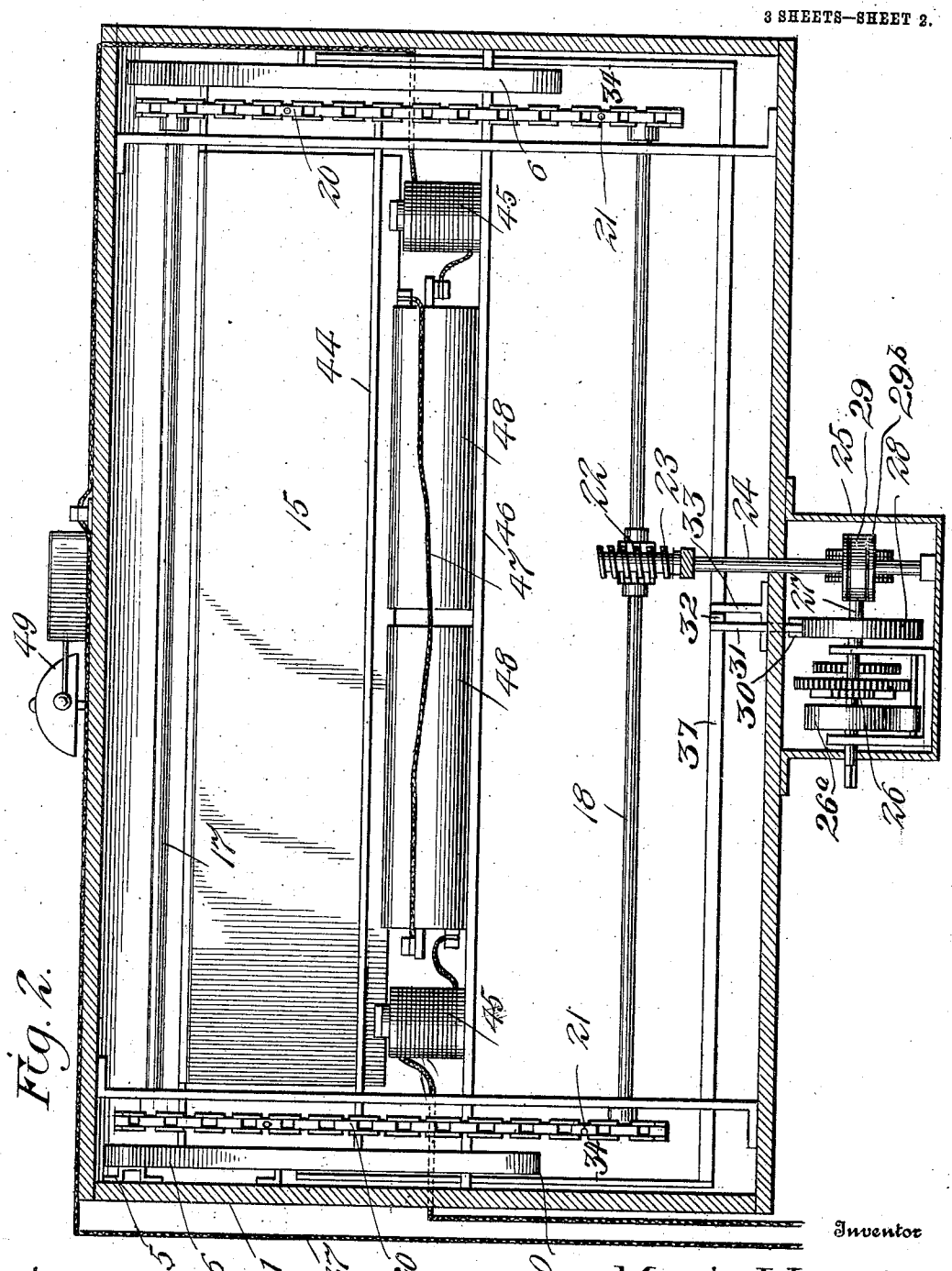


Fig. 2.

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3 SHEETS—SHEET 3.

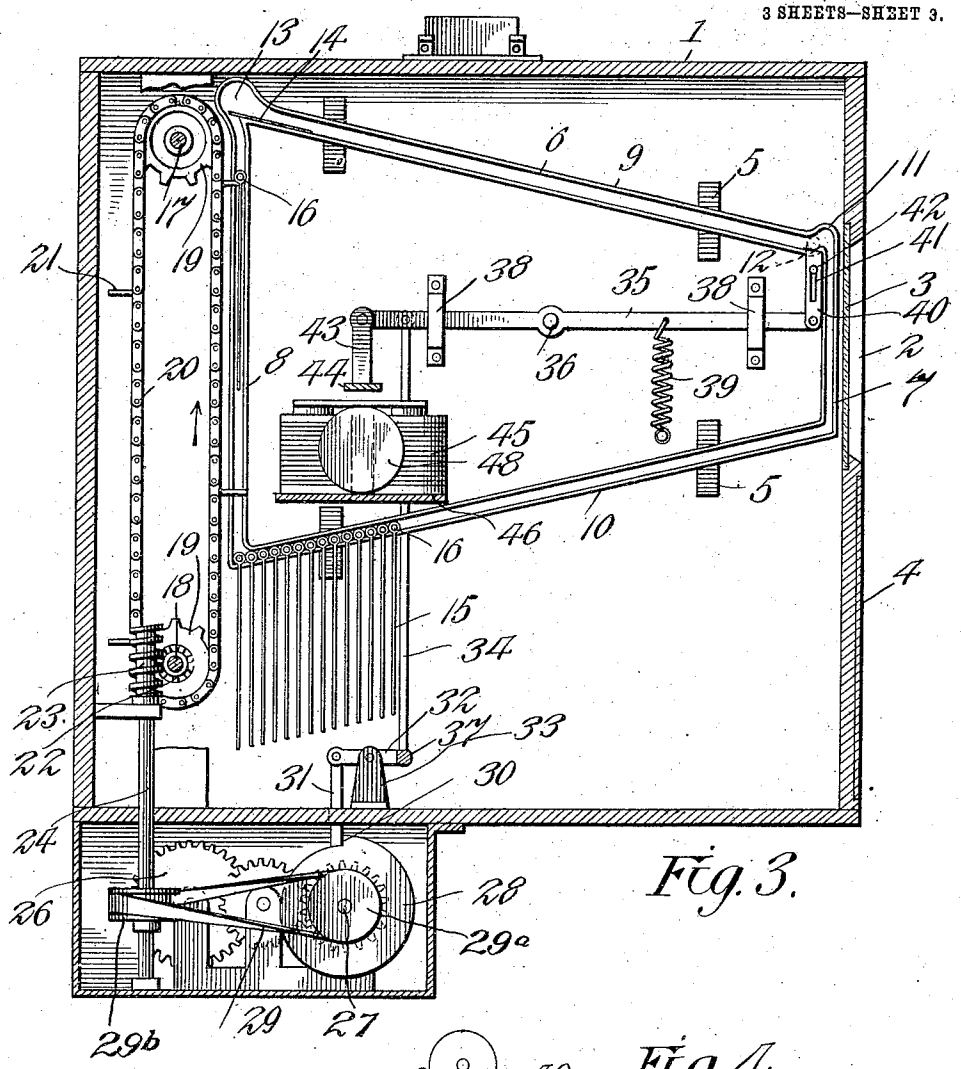


Fig. 3.

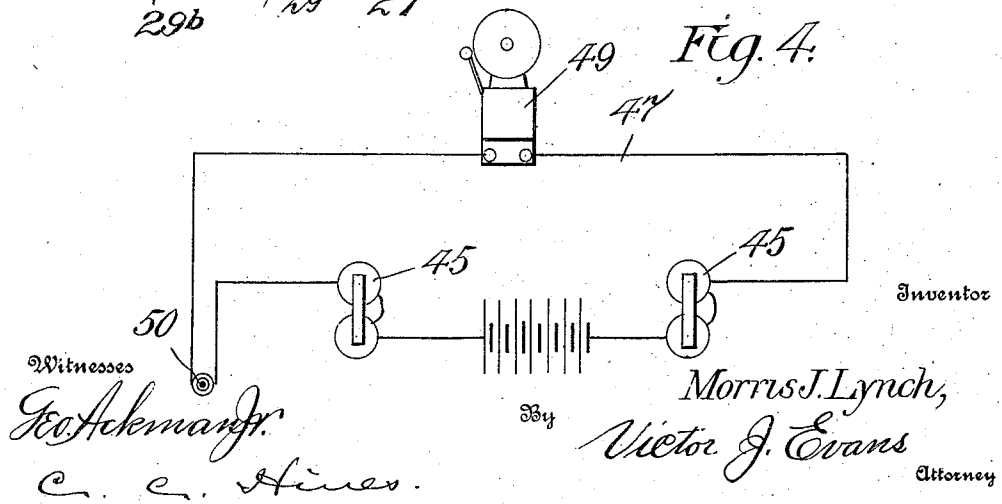


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

MORRIS J. LYNCH, OF OTTAWA, KANSAS.

INDICATOR.

No. 850,027. Specification of Letters Patent. Patented April 9, 1907.

Application filed November 17, 1906. Serial No. 343,917.

To all whom it may concern:

Be it known that I, MORRIS J. LYNCH, a citizen of the United States, residing at Ottawa, in the county of Franklin and State of Kansas, have invented new and useful Improvements in Indicators, of which the following is a specification.

This invention relates to improvements in indicators, and particularly to street and station indicators, although the device may be employed as a general advertising medium.

The object of the invention is to provide a simple and efficient type of indicator or advertising device provided with means for successively displaying a series of signs, said means being electrically controlled and having associated therewith an alarm device operated each time a sign changes to call attention thereto, a further object being to provide a device of this character designed to carry advertising matter and to secure a compulsory reading thereof through the action of the alarm mechanism in directing attention to the indicator.

In the accompanying drawings, Figure 1 is a front view of an indicator embodying my invention. Fig. 2 is a vertical transverse section thereof. Fig. 3 is a vertical front-to-rear section, taken centrally through the indicator-casing. Fig. 4 is a diagram of the electric circuit.

Referring to the drawings, 1 designates a suitable inclosing casing having an observation-opening 2, closed by a transparent panel 3, through which the traveling sign plates or leaves, hereinafter described, are designed to be viewed. The front of the casing may be suitably constructed for the application thereto of a permanent sign-plate 4 below the observation-opening 2, which sign-plate 4 may carry advertising matter of any preferred character.

Arranged within the casing at opposite sides thereof and supported therefrom by brackets 5 are channeled guides or tracks 6, each embodying vertical front and rear portions 7 and 8 and inclined top and bottom portions 9 and 10. The rear vertical portion 8 is of greater length than the front vertical portion 7, and the upper portion 9 inclines downwardly and forwardly from the upper end of the rear portion to the upper end of the front portion, while the lower portion 10 inclines downwardly and rearwardly from the lower end of the front portion 7 to the lower end of the rear portion 8, forming a continuous guide or track of approximately trapezoidal form. The upper end of the front portion 7 of each guide or track is offset to provide an enlargement 11 and a supporting shoulder or stop 12, and the upper portion of the rear end of the upper track-section 6 is similarly offset to provide an enlargement 13, arranged immediately above the upper end of the rear portion 8. A plate spring-guard 14 normally closes the upper end of the portion 8 and is free to permit of the upward passage of the sign-plates and serves to prevent the same from again dropping down into said portion, as hereinafter described.

The names of the streets or stations or the other matter to be exposed are placed upon a plurality or series of traveling sign plates or leaves 15, each of which is pivotally mounted at its upper end upon a transverse rod 16, the ends of the rods of the sign leaves or plates being arranged to travel in the guides or tracks 6. The leaves are designed to travel by gravity down the upper inclined section 6 of each track and to be held from movement by the shoulder 12 to support the plate in rear of the transparent panels 3, so that the name of the station, street, or other matter carried thereby will be exposed through said sign-panel. After the sign-plate has been exposed for a suitable period the supporting-rod is thrown out of engagement with the shoulders 12 and travels by gravity down the front sections 7 of the tracks and thence down the bottom sections 10 thereof to the lower ends of the vertical sections 8, whence it is lifted to the upper ends of the top sections 6 for a repetition of the traveling operation just described. The release of the sign-leaves from the supporting-shoulders 12 and the upward movement of the same at the rear of the tracks is accomplished through releasing and lifting devices automatically operated by electrical governing and motor mechanisms which I will now proceed to describe.

Journaled in bearings at the rear of the casing are upper and lower transverse shafts 17 and 18, carrying at their ends sprocket-wheels 19, connected by sprocket-chains 20, which chains are provided at spaced intervals with projections 21, adapted to engage the ends of the rods 16 to lift the sign-plates upwardly through the rear vertical sections 8 of the tracks. Upon the operation of th

chains the projections thereon arranged beneath the lower ends of the track-sections 8 engage the ends of the rods 16 of the sign-plate 15, supported at the lower ends of said track-sections and carry the same upwardly, as shown in Fig. 3, the guard 14 opening under the pressure to permit the rod to pass into the enlargement 13 and then springing back to normal position to prevent the sign from again dropping back into said track-sections 8.

The lower shaft 18 carries a worm-gear 22, which is in mesh with a worm-gear 23, arranged on a vertical driving-shaft 24, the lower end of which projects into a motor-casing 25, supported upon the bottom of the inclosing casing 1. Within this motor-casing is arranged a clockwork or other suitable motor 26, having a driving-spring 26^a, on the shaft 27 of which motor is a gear 28, connected by a belt 29 with the shaft 24, said belt passing around pulleys 29^a and 29^b on said shafts, whereby the latter is driven and communicates motion to the lifting-chains. The gear 28 is provided with a shoulder 30, adapted to be engaged by a vertically-sliding detent 31 to normally hold the motor from operation. This detent is connected with one of the arms of a rocking lever 32, intermediately pivoted upon a bracket 33, the other arm of said lever being attached by a connecting-rod 34 with the rear arm of a sign-releasing lever 35, fulcrumed at 36 to the casing. The rocking lever 32 is arranged at the center of the casing and is connected by a bar 37 to the lower ends of the connecting-rods 34, two of which are employed, one at each side of the casing. Two levers 35 are also employed and are similarly arranged and pivotally connected to the upper ends of the respective rods 34, the said levers 35 being designed to operate trip devices to release the ends of each sign-carrying rod from engagement with the shoulders 12 of the two tracks.

As shown, the front and rear ends of the levers 35 are arranged to swing in guides 38, and the front ends thereof are normally held down by springs 39, which operate to maintain the levers in a horizontal position. To the forward end of each lever 35 is pivotally connected the lower end of a trip device comprising a vertically-sliding block having its upper end arranged to engage and lift the adjacent end of the sign-carrying rod 16 out of engagement with the shoulder 12 and into the enlargement 11, so that the sign may travel down the front sections 7 of each track. The detent is formed with a vertical slot 41 engaging a guide-pin 42 on the casing to adapt said detent to travel in a true vertical path. When the rear arms of the levers 35 are drawn downward, motion will be communicated to the rods 34 to withdraw the detent 31 from engagement with the shoulder 30, thus allowing the drive-wheel 28 to be actuated by the motor, so that the lifting-chains will be driven to elevate a sign-plate into the upper sections 6 of the track for travel to the front of the casing for exposure, while the simultaneous upwardly-swinging motion of the front arms of the levers 35 will lift the trips 40, which will disengage the sign which has been exposed to view through the panel 3 and permit the same to be dropped, so that the succeeding sign, which is being lifted as described, may travel down the track-sections 9 and be arrested by the shoulders 12 to be exposed to view. The sign-operating mechanism is intermittently actuated in this manner, so that the sign-plates will be consecutively brought to view and elevated for subsequent exposure during the cycles of operation of the apparatus.

The levers 35, which control the release of the signs and operation of the motor, are electrically actuated, and to this end the rear arms of said levers are pivotally connected with short hangers 43, supporting an armature bar or rod 44, adapted to be retracted and drawn downward by the action of electromagnets 45, supported within the casing upon a horizontal shelf 46. The magnets are arranged within an electric circuit 47, fed by batteries 48, which are also preferably supported by said shelf. A bell or other alarm device 49 is also arranged in the circuit and supported upon the top of the casing 1, said bell being caused to sound when the circuit is energized and the mechanism operated to change the signs. A switch 50 of a suitable type is provided, whereby the electric circuit may be closed or energized to effect the operation of the apparatus. This switch may be operated at timed intervals in any preferred manner.

It will be clear from the foregoing description that each time the circuit is closed or energized the levers 35 will be actuated by the electromagnets to release the sign-plate exposed to view and throw the motor into operation to feed the succeeding sign-plate forward for exposure and that when the circuit is broken or deënergized the parts will return to normal position, stop the operation of the motor, and maintain the sign which has thus been fed up exposed through the panel 3 until the switch is again operated, whereupon such sign will be released and another sign set up for operation in the manner previously described.

The device may be employed as a street or station indicator upon electric cars or railway-trains and the switch manipulated by the conductor or one of the crew or automatically operated by suitable switch-shifting mechanism. As automatic means for controlling the switch forms no part of the present invention, I have not deemed it necessary to show any type of device of this kind.

The apparatus may also be employed as an advertising medium in various places, and I therefore do not limit the invention particularly to its use as a street or station indicator. At each operation the alarm-bell 49 will sound, thus audibly causing attention to the sign mechanism and rendering reading of the sign-plates and other associated matter practically compulsory, whereby the value of the device is enhanced.

Having thus described the invention, what is claimed as new is—

1. An indicator of the character described comprising an inclosing casing having an observation-opening, a trackway therein having a vertical portion disposed adjacent said observation-opening, a rear vertical portion and upper and lower inclined portions connecting said front and rear portions, said trackway being provided with supporting means at the juncture of the front vertical and upper inclined portions thereof, a series of signs arranged to travel said trackway and to be held by said supporting means, said signs being adapted to travel by gravity along said inclined portions, means for lifting the signs from the lower end of the lower inclined portion to the upper end of the upper inclined portion of the trackway, a motor for automatically operating said lifting means, and means for releasing the sign from said supporting means and setting the motor into operation.

2. An indicator of the character described comprising an inclosing casing having a trackway therein, signs arranged to travel by gravity along a portion of the trackway, operating mechanism for propelling the signs along the remaining portion, a motor for actuating said operating mechanism, means for holding the signs, means for releasing the signs from the holding means, means for normally holding the motor out of operation, and electrical means for simultaneously actuating said sign-releasing means and throwing the motor into operation.

3. An indicator of the character described comprising an inclosing casing having a trackway therein, signs arranged to travel by gravity along a portion of the trackway, operating mechanism for propelling the signs along the remaining portion, a motor for actuating said actuating mechanism, means for holding the signs, means for releasing the signs from the holding means, means for normally holding the motor out of operation, an electric circuit having an electrical magnet therein, and means controlled by said magnet for simultaneously actuating said sign-releasing means and rendering said means for normally holding the motor out of operation inoperative.

4. An indicator of the character described comprising an inclosing casing having a trackway therein provided with supporting means, signs adapted to travel by gravity along a portion of said trackway and be successively exposed for view by said supporting means, means embodying gearing adapted to engage and propel the signs along the remaining portion of the trackway, a motor for operating said gearing, a controlling device for normally holding the motor out of operation, a trip device for releasing the signs from said supporting means, lever mechanism for simultaneously projecting and retracting said controlling and trip devices, an electric circuit, an electromagnet therein, and an armature controlled by said electromagnet and operatively connected with said lever mechanism.

5. An indicator of the character described comprising an inclosing casing having an observation-opening, a trackway therein comprising guides having vertical front and rear portions and inclined upper and lower connecting portions, the vertical rear portion being longer than the vertical front portion and said guides being formed with supporting-shoulders at the upper ends of the front vertical portions, a series of signs having supporting-rods arranged to travel said guides, said signs being adapted to travel by gravity along the vertical front and inclined portions of the trackway and adapted to have their supporting-rods rest upon said supporting-shoulders, lifting mechanism arranged to engage the signs and elevate them along the rear vertical portion of the trackway, a motor for operating said mechanism, trip devices for releasing the sign-rods from engagement with said supporting-shoulders, a detent for normally holding the motor from operation, levers for simultaneously retracting the trip devices and detent, an electric circuit, an electromagnet therein, an armature controlled by the magnet and connected with the levers, and means for returning the levers to normal position after operation by the magnet.

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

MORRIS J. LYNCH.

Witnesses:
CLYDE G. SCHRIVER,
B. K. ELLINGER.