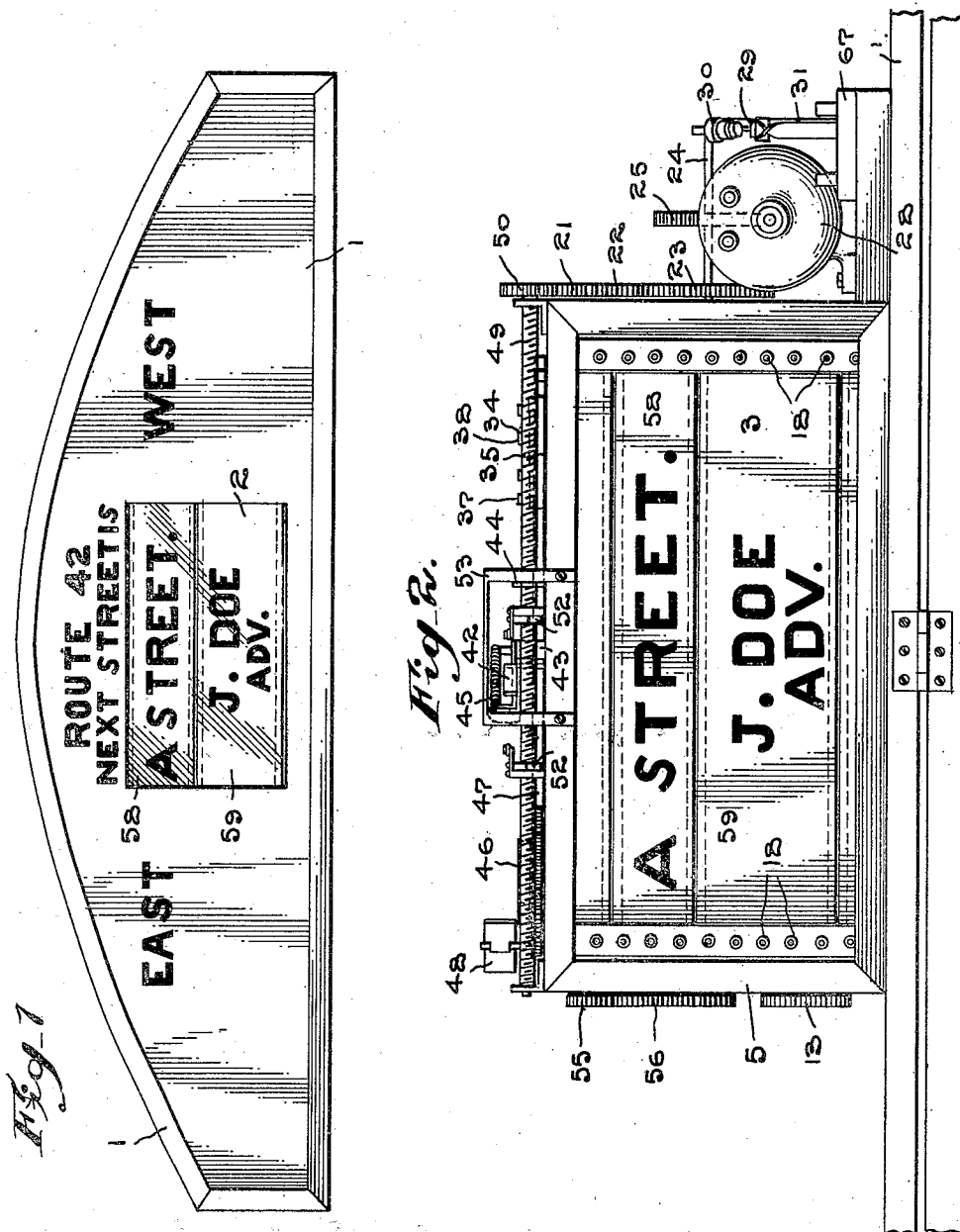


1,202,306.

J. E. OLVIS.
STATION INDICATOR.
APPLICATION FILED AUG. 30, 1915.

Patented Oct. 24, 1916.

4 SHEETS—SHEET 1.



Witnesses

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4 SHEETS—SHEET 2.

Fig. 3.

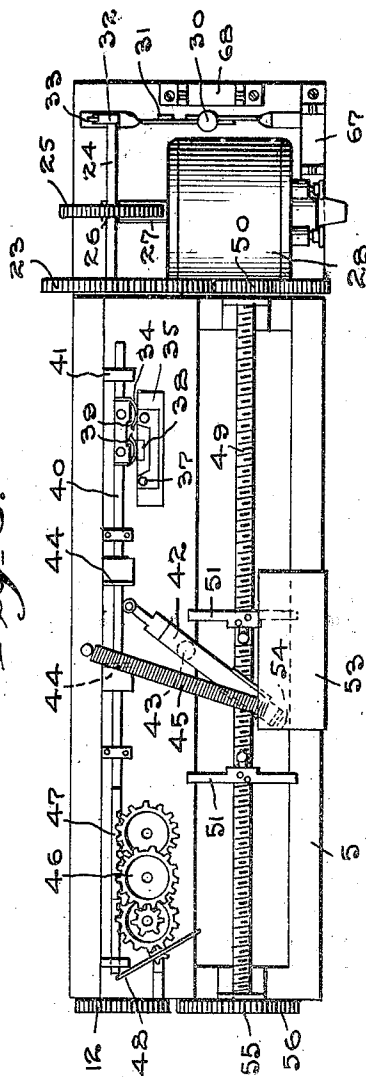


Fig. 5.

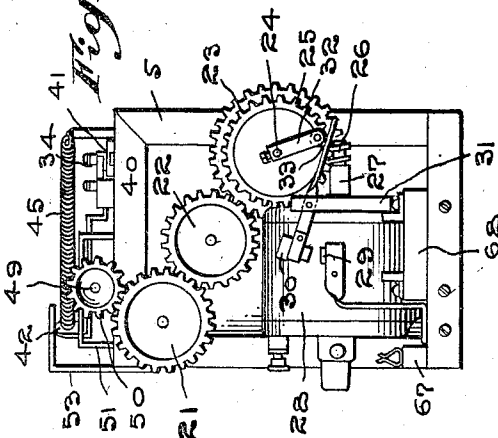
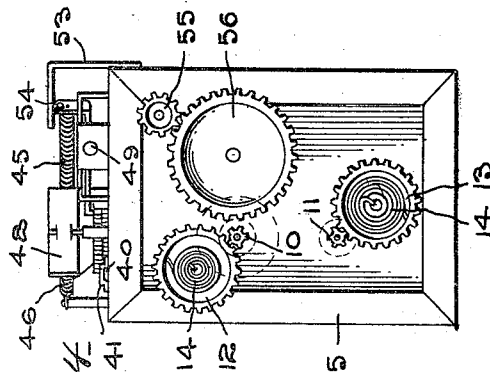


Fig. 4.



Witnesses

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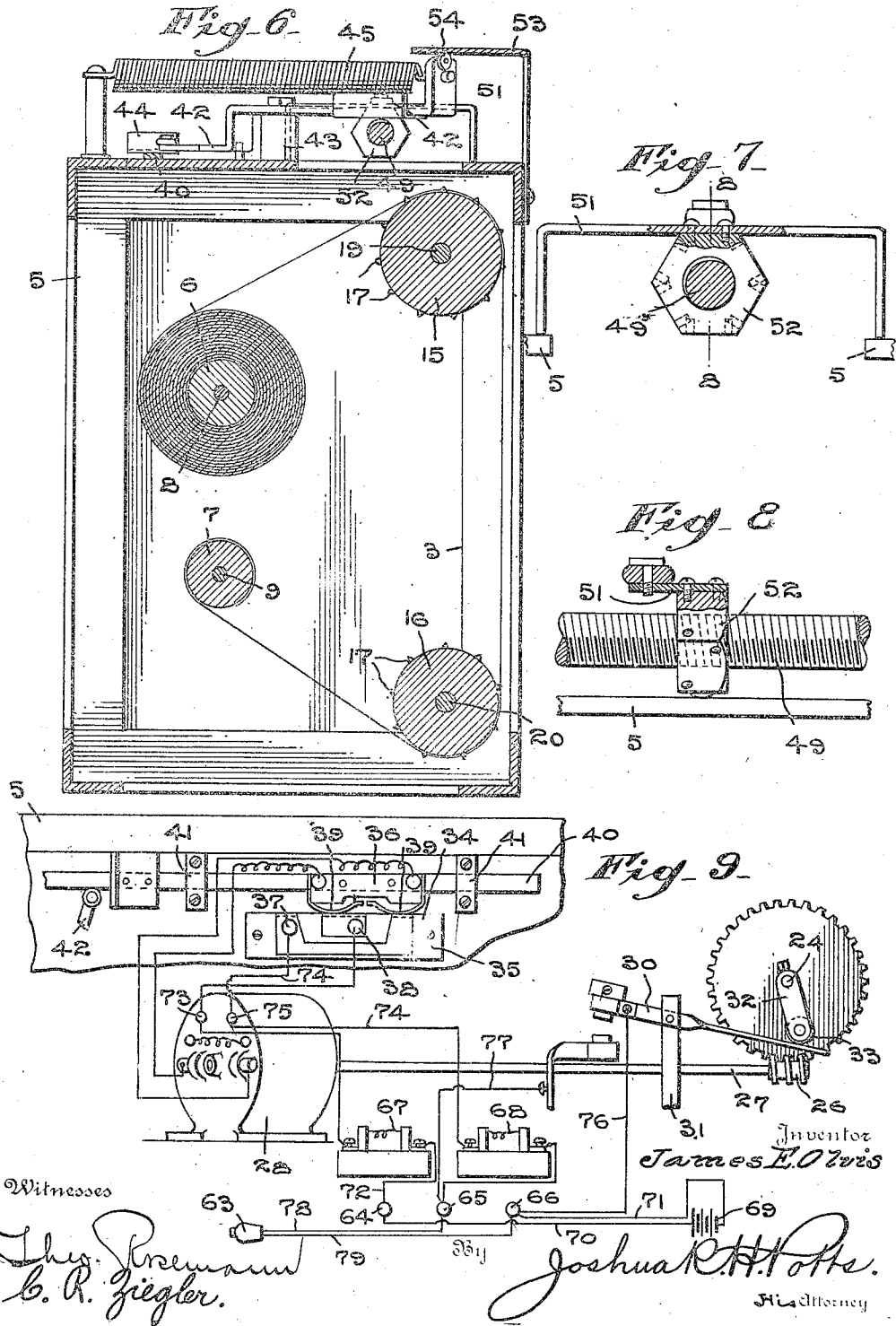
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1,202,806.

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4 SHEETS—SHEET 3.



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Patented Oct. 24, 1916.

4 SHEETS—SHEET 4.

Fig. 10.

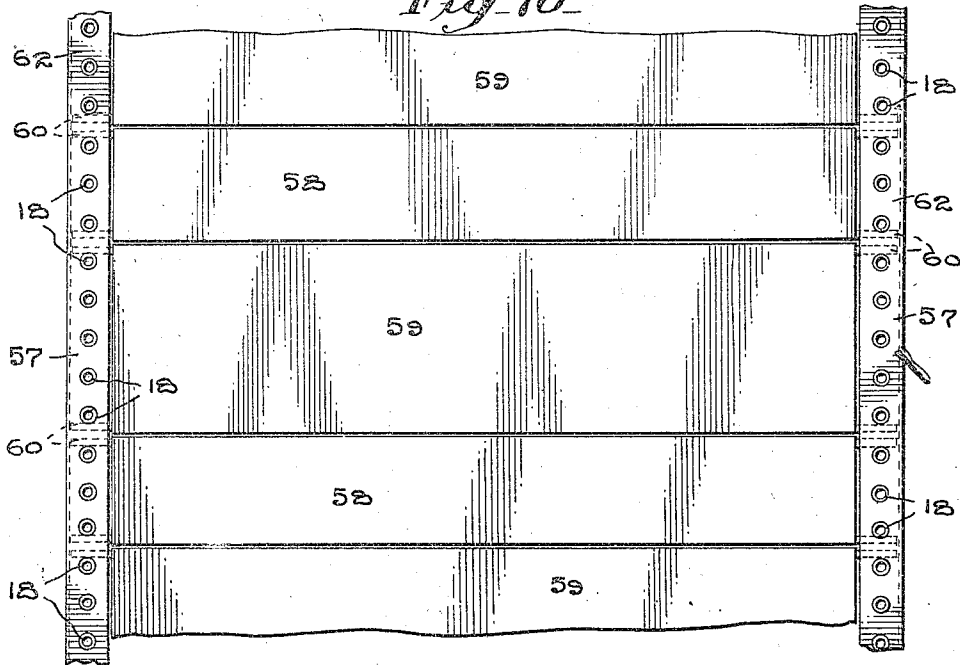


Fig. 11.

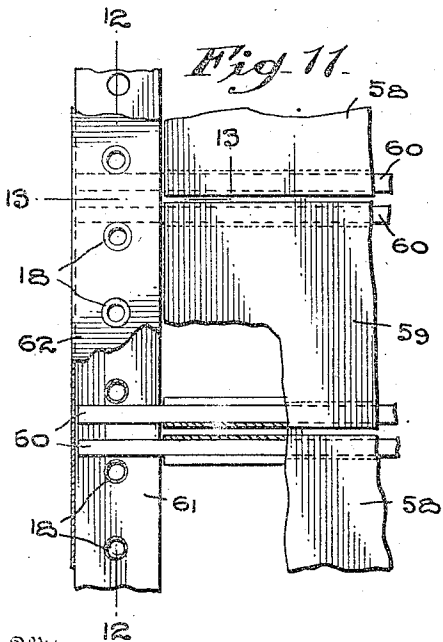


Fig. 12.

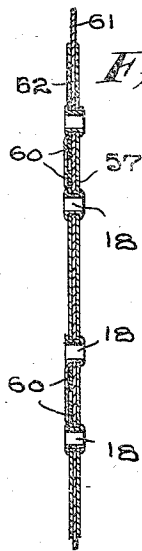
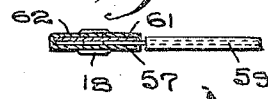


Fig. 13.



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UNITED STATES PATENT OFFICE.

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STATION-INDICATOR.

1,202,306.

Specification of Letters Patent.

Patented Oct. 24, 1916.

Application filed August 30, 1915. Serial No. 47,971.

To all whom it may concern:

Be it known that I, JAMES E. OLVIS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Station-Indicators, of which the following is a specification.

My invention relates to improvements in station indicators, and more particularly to an indicator designed for use on street cars and the like in which an improved construction of curtain is moved electrically to indicate the streets along the route of the car.

A further object is to provide improved means for reversing the direction of movement of the curtain, which means is entirely automatic, and takes place at both ends of the route.

A further object is to provide an electrically operated mechanism of the character described with an improved construction and arrangement of polarity reversing switch, and provide improved means for controlling the electric circuit to the motor so as to move the curtain a uniform distance at each operation.

A further object is to provide an indicator of the character described having an electric motor which causes the operation of the curtain, and which is controlled by a manually operated switch intended to be operated by the conductor to momentarily close the electric circuit including the motor and a source of electricity, and provide a mechanically controlled circuit closer, which maintains the circuit closed for a time sufficient to insure the movement of the curtain the necessary distance, and then is mechanically operated to open the circuit.

A further object is to provide an improved construction of curtain in which flexible sections are removable so as to allow an interchange of sections for varying the names of streets, advertising matter, etc.

A further object is to provide a street car indicator which will embody in its construction many novel features, and which is adapted for use in street cars as they are now made, and which will most efficiently perform the functions for which it is intended.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts as will be more fully

hereinafter described and pointed out in the claims.

In the accompanying drawings: Figure 1 is a view in front elevation illustrating my improved street car indicator in a box such as commonly used in the ends of street cars containing printed matter to indicate certain desirable information for the traveling public. Fig. 2 is a view in front elevation on an enlarged scale showing only a fragment of the box. Fig. 3 is a top plan view of the mechanism. Figs. 4 and 5 are views of opposite ends of Fig. 3. Fig. 6 is an enlarged view in vertical section through the center of the mechanism. Fig. 7 is an enlarged detail view partly in transverse section illustrating one of the lever shifting brackets. Fig. 8 is a fragmentary view partly in section and partly in elevation, the section being taken on the line 8—8 of Fig. 7. Fig. 9 is a diagrammatic view illustrating the electric circuit. Fig. 10 is a fragmentary view in front elevation of my improved curtain. Fig. 11 is an enlarged fragmentary detail view partly in elevation and partly in section illustrating the manner of connecting the curtain sections to the carrying tapes at the sides of the curtain. Fig. 12 is a view in section on the line 12—12 of Fig. 11, and Fig. 13 is a view in section on the line 13—13 of Fig. 11.

1 represents a box such as is commonly found in street cars, and which contains printed matter setting forth information desirable for the traveling public, and while my invention is not limited to any such box, I have indicated the same in connection therewith to show that it is adapted for use without altering the ordinary car construction.

When my improvements are installed, it is my purpose to provide a central transparent space 2 through which my improved curtain 3 can be seen, and as the box fronts are ordinarily hinged as shown in Fig. 2, my improved mechanism is readily accessible as occasion may require.

5 represents a frame which supports all of the working parts of my improved indicator. In this frame 5, I locate two horizontal drums 6 and 7, to which the ends of my improved curtain 3 are secured and upon which they are adapted to be wound. These drums 6 and 7 are secured upon shafts 8 and 9 respectively, and the latter at one end of the frame are provided with pinions 10

and 11. which are in mesh with pinions 12 and 13. These pinions 12 and 13 are provided with springs 14, which tend always to turn the gears in a direction to wind the curtains on the respective drums 6 and 7, so that while the curtain is being wound upon one drum, the spring of the other drum winding gear will be wound up and vice versa. These springs, therefore, perform the function of winding the curtain on the drums as permitted, and also maintaining the curtain taut at all times.

The curtain in its passage from one drum to the other passes over two rolls 15 and 16 respectively. The upper roll 15 constitutes the driver, and both rolls are provided with sprocket teeth 17 which project through eye-lets 18 in the curtain and hold the curtain in proper position for display, and also insure a proper movement of the curtain.

The rolls 15 and 16 are secured on shafts 19 and 20 respectively, shaft 19 constituting the drive shaft and provided on one end with a gear wheel 21 which is connected by an idler 22 with the gear wheel 23 on a shaft 24. This shaft 24 is provided with a worm wheel 25 driven by a worm 26 on a shaft 27. The shaft 27 is driven by an electric motor 28 to impart the necessary movement to the curtain.

A stationary contact 29 is adapted to be engaged by a movable contact 30, the latter constituting a lever which is pivotally supported between its ends on an upright 31.

One end of the lever 30 is engaged by a crank arm 32 on the shaft 24, and is moved by said crank arm to break or open the electric circuit. The crank arm 32 is provided with a roller 33 in its free end to engage the lever 30 and reduce friction to a minimum.

On top of the frame 5, or elsewhere as most desirable, I locate a polarity reversing switch 34 which comprises a stationary member 35 and a sliding member 36. The stationary member 35 has two contacts 37 and 38 insulated from each other, while the member 36 has two insulated contacts 39 which are in the form of springs, and which are adapted to reverse the polarity of the motor when moved from one position to the other as is readily understood.

The member 36 is secured to a sliding bar 40 mounted to move in guides 41 on frame 5 and operated by a lever 42. This lever 42 is mounted to pivot horizontally and is centrally supported on a bracket 43, so that both ends of the lever swing in the arc of a circle, the shorter inner end adapted to engage the shoulders 44 on the bar 40 to cause the latter to move longitudinally as will be hereinafter explained.

A coiled spring 45 is connected at one end to the frame 5, and at its other end to the lever 42, and is adapted to throw the lever

from one side to the other after the forward end of the lever is moved past its center, so that the operation of the polarity reversing switch is instantaneous.

To relieve the shock of contact of the lever with one of the shoulders 44, I provide a train of gearing 46, one of the gears of the train meshing with a rack 47 on bar 40. This train of gearing operates a governor 48, and permits the bar 40 to move quickly, but prevents bangs and jars.

The lever 42 is operated to reverse the polarity of the motor when the curtain reaches its respective display ends, which of course, will be at the respective ends of the route of the car.

To move the lever, I provide a screw 49 supported longitudinally on top of the frame 5, and having a gear wheel 50 on one end in mesh with the gear wheel 21 above referred to.

Sliding frames 51 are mounted to slide on the top of frame 5, and are secured to nuts 52 located on the screw 49, so that the turning of the screw operates to move the frames 51 longitudinally, and the distance of movement of the frames will be adjusted in accordance with the length of the curtain, and it is of course to be understood that such frames will be so positioned that they will swing the lever 42 at the proper time.

When one of the frames 51 engages the end of the lever 42, it will cause the latter to swing to a point slightly beyond the center of its fulcrum, or pivot, when the spring 44 will continue the movement sufficient to reverse the polarity switch as above explained, and the train of gearing 46 will operate as a shock absorber in this movement.

A fixed bracket 53 is secured to frame 5, and under this bracket the forward end of lever 42 is movable, and is provided with a roller 54 to engage the bracket. The bracket operates to hold the lever in its horizontal position and overcome any upward tendency of its free end due to the pull of the spring 45.

On the end of shaft 19, opposite to the end carrying gear 21, I locate a pinion 55 in mesh with a large gear wheel 56. This pinion 55 and gear 56 represents a brake, and I may of course add any other mechanism desired for the purpose, but these gears answer for illustration my intention to prevent any possibility of the momentum of the motor carrying the curtain beyond a desired movement, and while in some cases no brake mechanism is necessary, in others it may be found desirable, and I consider myself at liberty to employ any such desired.

In Figs. 10, 11, 12, and 13, I illustrate the details of my improved curtain 3, which comprises parallel tapes 57 supporting re-

movable sections 58 and 59 between them. These sections 58 and 59 contain the names of streets and advertising matter respectively, and they are preferably of some flexible material having steel strips 60 secured in their edges with the ends of the steel strips projecting beyond the sections and adapted to be inserted in the tapes 57 at the ends of the curtain. These tapes 57 each constitute a steel band 61 having a flexible covering sheet 62, and the eyelets 18 above referred to not only form openings for the reception of the sprocket teeth 17, but they also secure the flexible covering 62 to the steel tapes 61 and operate as spacing devices between which the steel strips 60 of sections 58 and 59 are positioned. The sections 58 and 59 are therefore readily removable by bending them between their ends, and other sections can be inserted as desired.

To momentarily close the electric circuit and energize the motor, I may of course provide various switch mechanisms, but as it is my intention to have the conductor to operate this circuit closing means, I have shown an ordinary push button 63 which he may operate with his hands or feet, and in Fig. 9 I illustrate my improved electric circuit.

64, 65, and 66 are binding posts, and 67 and 68 are fuses which are inserted for safety sake.

69 is an electricity source having a wire 70 connecting one side thereof with binding post 64, and a wire 71 connecting the other side thereof with binding post 66.

A wire 72 between the ends of which fuse 67 is located, connects binding post 64 with one pole 73 of motor 28, and also connects with contact 38 of the polarity reversing switch.

A wire 74 connected to the other contact 37 of the polarity reversing switch is connected to the pole 75 of motor 28, and to the binding post 65 including between its ends the fuse 68. A wire 76 connects binding post 66 with the movable contact lever 30, and a wire 77 connects the stationary contact 29 with binding post 65. A wire 78 connects a push button 63 with binding post 65, and a wire 79 connects the push button 63 with the binding post 66.

When the parts are at rest, the electric circuit is broken by the button 63 and by the contact lever 30.

When the button 63 is operated, the circuit is closed as follows:—From the electricity source 69, through wire 70, binding post 64, wire 72, motor pole 73, contact 38, contacts 39, contact 37, wire 74, motor pole 75, binding post 65, wire 78, push button 63, wire 79, binding post 66, wire 71, back to the electricity source 69. As soon as the motor begins to operate, shaft 24 will turn and move the arm 32 a distance far enough

to let the lever 30 fall by gravity engaging the stationary contact 29. As the conductor presses the button for an instant and then releases the same, the circuit will be maintained closed by the contacts 29 and 30 as follows:—From the electricity source 69, through wire 70, binding post 64, wire 72, motor pole 73, contact 38, contacts 39, contact 37, wire 74, motor pole 75, binding post 65, wire 77, contact 29, contact 30, wire 76, binding post 66, and wire 71, back to the electricity source 69. The circuit will remain closed until the crank arm 32 engages lever 30 and elevates the same to break the circuit as shown clearly in Fig. 9.

The movement of the parts is so proportioned that the curtain is moved an equal distance at each operation, but if it is desired to continuously move the curtain, it is simply necessary for the conductor to maintain the circuit closed by a continued pressure on the button 63.

Various slight changes might be made in the general form and arrangement of parts described without departing from my invention, and hence I do not limit myself to the precise details set forth, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A street car indicator, comprising a frame, a pair of spring-operated rolls, a curtain mounted to move from one roll onto the other, a drive roll engaging the curtain, an electric motor, a gear train connecting the drive roll and motor, a screw located parallel to the rolls and turned by the gear train, and devices on the screw controlling the circuit to the motor, substantially as described.

2. A street car indicator, comprising a frame, a pair of spring-operated rolls, a curtain mounted to move from one roll onto the other, a drive roll engaging the curtain, an electric motor, a gear train connecting the drive roll and motor, a screw located parallel to the rolls and turned by the gear train, frames having threaded engagement with the screw and movable thereby, and a lever controlling the circuit to the motor, said lever moved by engagement with the frames, substantially as described.

3. A street car indicator, comprising a frame, a pair of spring-operated rolls, a curtain mounted to move from one roll onto the other, a drive roll engaging the curtain, an electric motor, a gear train connecting the drive roll and motor, a screw located parallel to the rolls and turned by the gear train, frames having threaded engagement with the screw and movable thereby, a polarity reversing switch included in cir-

cuit with the motor, a pivoted lever, a spring holding the pivoted lever in normal position, and said pivoted lever adapted to be engaged by the frames to shift the lever from one normal position to another, substantially as described.

4. A street car indicator, comprising a frame, a pair of spring-operated rolls, a curtain mounted to move from one roll onto the other, a drive roll engaging the curtain, an electric motor, a gear train connecting the drive roll and motor, a screw located parallel to the rolls and turned by the gear train, frames having threaded engagement with the screw and movable thereby, a polarity reversing switch included in circuit with the motor, a pivoted lever, a spring holding the pivoted lever in normal position, said pivoted lever adapted to be engaged by the frames to shift the lever from one normal position to another, and a shock absorber cushioning the movement of the lever, substantially as described.

5. A street car indicator, comprising a frame, a pair of spring-pressed rolls in the frame, a curtain secured at its respective ends to said rolls and having openings in its edges, a pair of rolls supported in the frame and having teeth thereon projecting through the openings in the curtain, an electric motor, a gear train connecting the motor with one of said last-mentioned rolls, a polarity reversing switch included in an electric circuit with said motor, a pivoted lever constructed to move the switch, a spring holding the lever in either of two extreme positions, and means for automatically reversing said lever, substantially as described.

6. A street car indicator, comprising a frame, a pair of spring-pressed rolls in the frame, a curtain secured at its respective ends to said rolls and having openings in its edges, a pair of rolls supported in the frame and having teeth thereon projecting through the openings in the curtain, an electric motor, a gear train connecting the motor with one of said last-mentioned rolls, a polarity reversing switch included in an electric circuit with said motor, a screw turned by the gear train and supported by the frame, devices movable on the screw, a spring-held lever moved from one spring held position to another, and said lever adapted to control the movement of the switch, substantially as described.

7. A street car indicator, comprising a frame, a pair of spring-operated rolls, a curtain mounted to move from one roll onto the other, a drive roll engaging the curtain, an electric motor, a gear train connecting the drive roll and motor, a screw located parallel to the rolls and turned by the gear train, devices on the screw controlling the circuit to the motor, and a mechanical circuit

breaker operated by the gear train, whereby the motor is stopped after the gear train has moved a pre-determined distance, substantially as described.

8. A street car indicator, comprising a frame, a pair of spring-operated rolls, a curtain mounted to move from one roll onto the other, a drive roll engaging the curtain, an electric motor, a gear train connecting the drive roll and motor, a screw located parallel to the rolls and turned by the gear train, frames having threaded engagement with the screw and movable thereby, a lever controlling the circuit to the motor, said lever moved by engagement with the frames, and a mechanical circuit breaker operated by the gear train whereby the motor is stopped after the gear train has moved a pre-determined distance, substantially as described.

9. A street car indicator, comprising a frame, a pair of spring-operated rolls, a curtain mounted to move from one roll onto the other, a drive roll engaging the curtain, an electric motor, a gear train connecting the drive roll and motor, a screw located parallel to the rolls and turned by the gear train, frames having threaded engagement with the screw and movable thereby, a polarity reversing switch included in circuit with the motor, a pivoted lever, a spring holding the pivoted lever in normal position, and said pivoted lever adapted to be engaged by the frames to shift the lever from one normal position to another, and a mechanical circuit breaker operated by the gear train whereby the motor is stopped after the gear train has moved a pre-determined distance, substantially as described.

10. A street car indicator, comprising a frame, a pair of spring-operated rolls, a curtain mounted to move from one roll onto the other, a drive roll engaging the curtain, an electric motor, a gear train connecting the drive roll and motor, a screw located parallel to the rolls and turned by the gear train, frames having threaded engagement with the screw and movable thereby, a polarity reversing switch included in circuit with the motor, a pivoted lever, a spring holding the pivoted lever in normal position, said pivoted lever adapted to be engaged by the frames to shift the lever from one normal position to another, a shock absorber cushioning the movement of the lever, and a mechanical circuit breaker operated by the gear train whereby the motor is stopped after the gear train has moved a pre-determined distance, substantially as described.

11. A street car indicator, comprising a frame, a curtain supported by the frame, a motor constructed to move the curtain a pre-determined distance at each operation, a screw turned by the motor, frames moved

by the screw, a pivoted lever adapted to be moved by the said frames, a spring engaging the lever and causing the same to complete a pre-determined movement after being moved by one of said frames, a sliding bar operated by the lever, a motor reversing mechanism at one end of the bar, and a shock absorber at the other end of the bar, substantially as described.

10 12. A curtain of the character described, comprising tapes having openings therein, and removable sections connecting the tapes, said sections consisting of flexible material having elastic strips in the edges thereof

projecting beyond the ends of the sections 15 and adapted to engage the said tapes, said tapes each consisting of a steel band with a flexible covering, and eyelets extended through the bands and the coverings, and the elastic strips being positioned between 20 said eyelets, substantially as described.

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

JAMES E. OLVIS.

Witnesses:

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S. W. FOSTER.