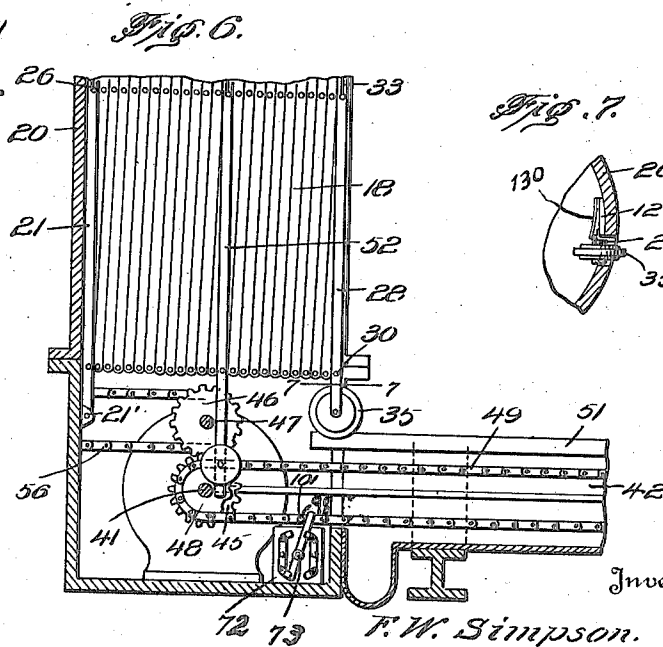
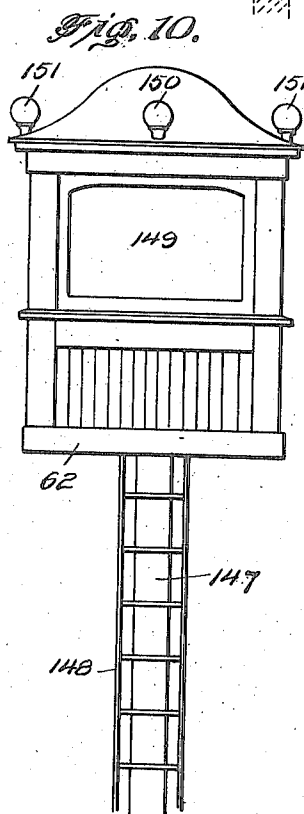
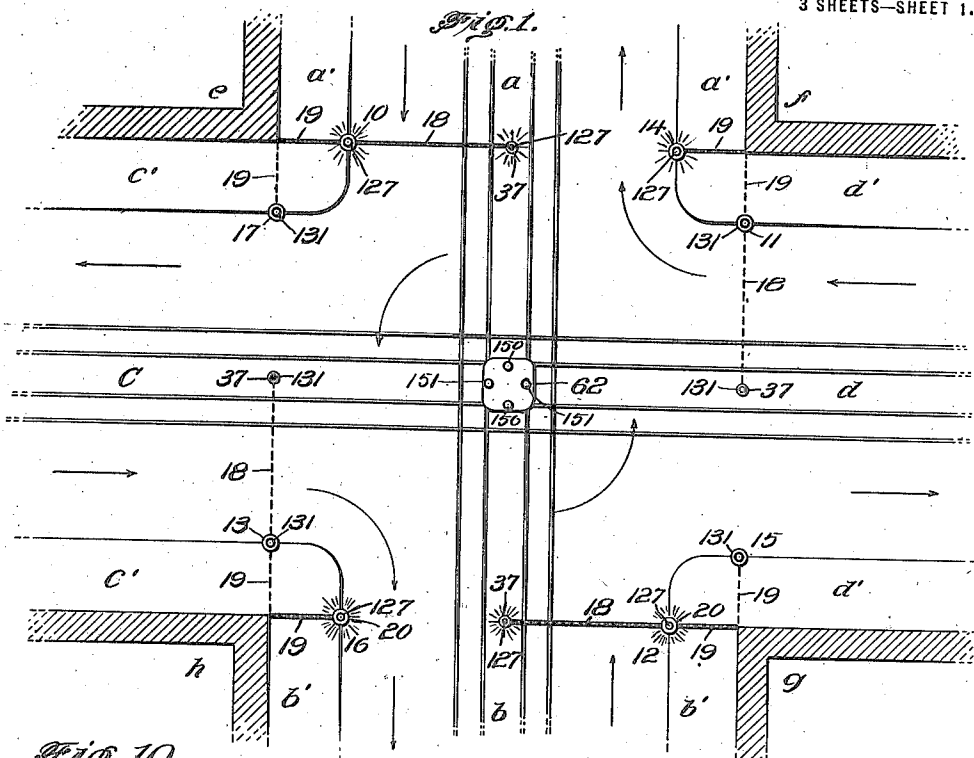


F. W. SIMPSON.
TRAFFIC CONTROLLING AND REGULATING SYSTEM FOR STREET CROSSINGS.
APPLICATION FILED MAY 11, 1921.

1,433,487.

Patented Oct. 24, 1922.

3 SHEETS—SHEET 1.



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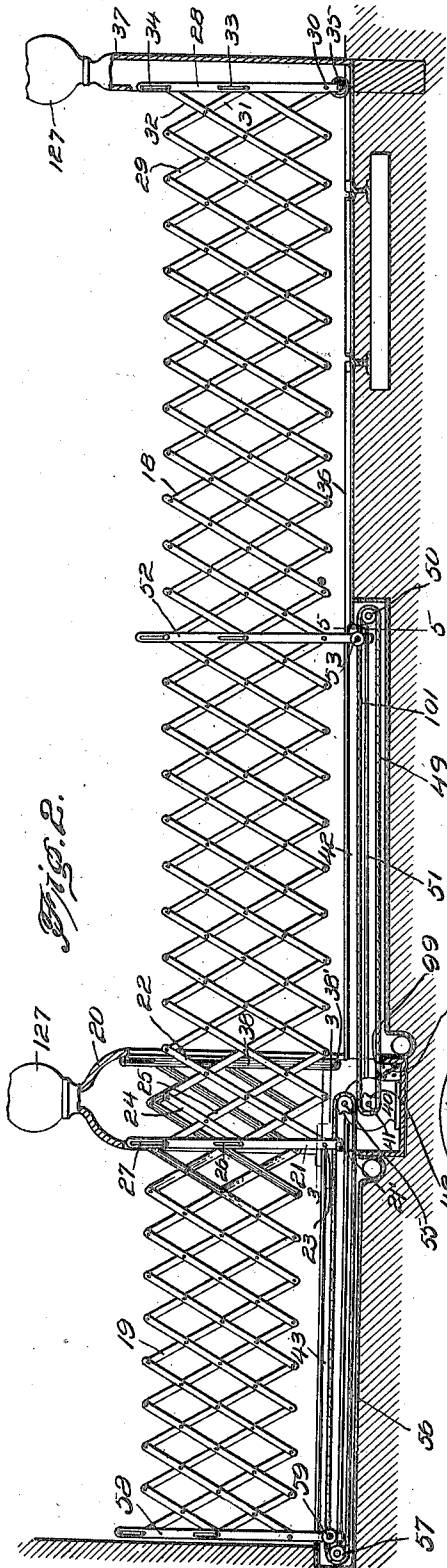
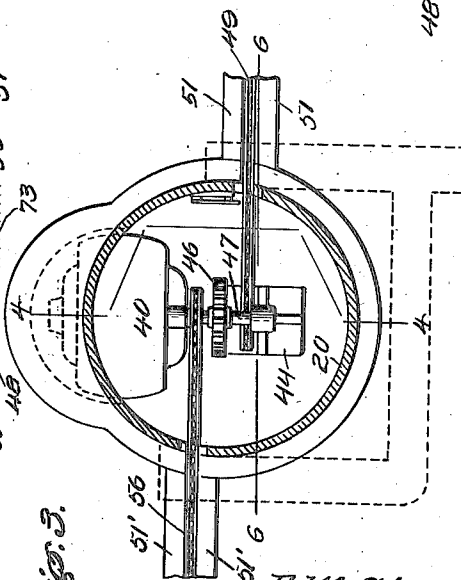
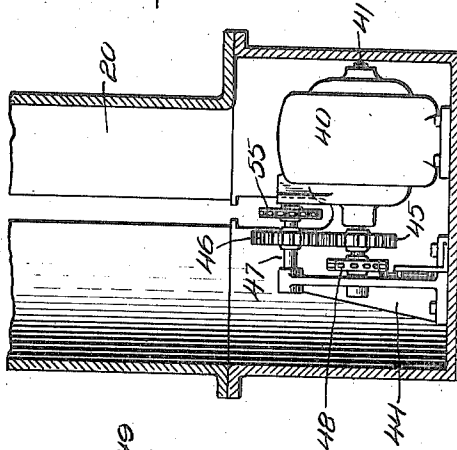
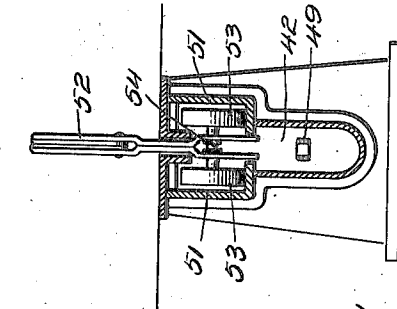


Fig. 1.

Fig. 2.

Fig. 3.



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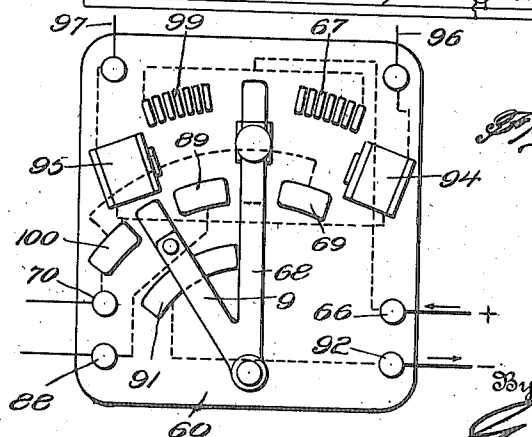
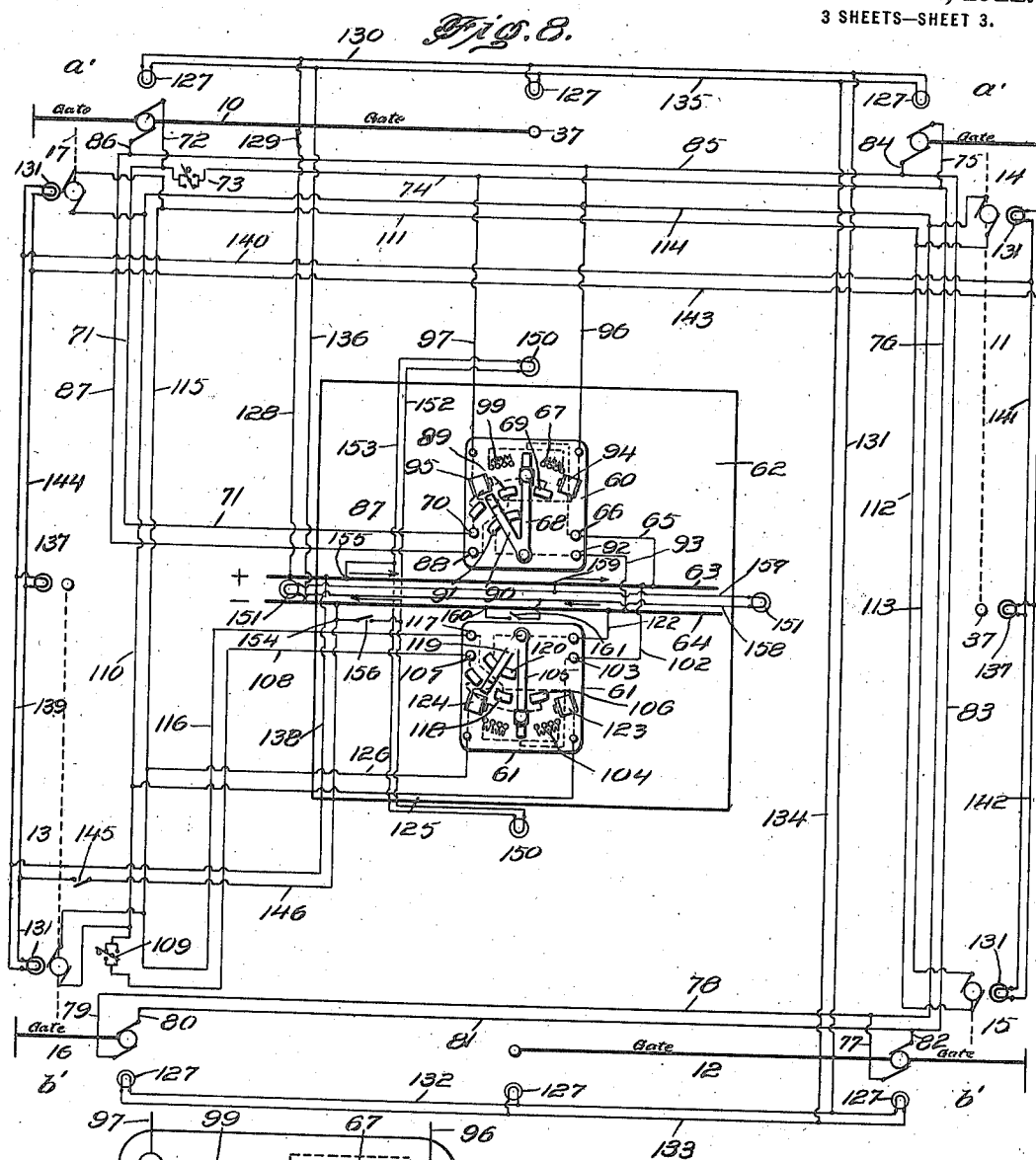
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Inventor

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UNITED STATES PATENT OFFICE.

FRANK WILLIAM SIMPSON, OF NEW YORK, N. Y.

TRAFFIC CONTROLLING AND REGULATING SYSTEM FOR STREET CROSSINGS.

Application filed May 11, 1921. Serial No. 468,470.

To all whom it may concern:

Be it known that I, FRANK W. SIMPSON, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Traffic Controlling and Regulating Systems for Street Crossings, of which the following is a specification.

10 This invention appertains to a system for the control and regulation of traffic at street and roadway crossings in thickly populated districts, and has for its principal object to provide for positive means for the holding up of pedestrians and vehicular traffic at street crossings in large cities and towns in one direction of travel, while permitting free and comparatively safe passage of pedestrians and vehicular traffic in the other direction of travel.

Another object of the invention is to provide for a system of the character mentioned, and one of an extremely efficient and practical nature capable of being controlled or operated by a single operator, and which will function in a manner to eliminate present day hand or mechanical signal methods of traffic regulation, and also prevent the numerous fatal accidents occurring from the utter disregard by pedestrians and drivers of vehicles of such signals.

A further object of the invention is to provide for a system of street crossing gates for the accomplishment of the desired objects and purposes of the invention, and which are operable in a manner to alternately open and close the intersecting streets, so that one set of gates is moved to a position to prevent passage of both pedestrians and traffic beyond the building lines of one of the streets, while the others are moved simultaneously to open the sidewalks and roadways of the other of the streets for the straight through crossing of pedestrians and traffic from one side of the crossing to the other, and for the turning of traffic from either direction along the open street into the open side portions of the intersecting roadway of the closed intersecting street.

50 A still further object of the invention is to provide for a system of the type set forth, and one which embodies a novel system of electrical operation and control for the opening and closing movements of the crossing gate, as aforesaid, and, in addition there-

to, certain novel features of automatic operation of the several circuits making up such system of electrical operation.

With the foregoing advantages and objects in view, and others which will be more readily apparent in the progress of the specific description, the invention resides in the certain novel and useful construction and arrangement of parts and circuits as will be hereinafter more fully described, set forth in the appended claims, and illustrated in the accompanying drawings, in which:—

Figure 1 is a diagrammatical plan view of a street traffic and railway crossing, showing the preferred arrangement of the pedestrian and traffic system of regulation therefor,

Fig. 2 is a side elevation of one of the gate units in position,

Fig. 3 is a horizontal section taken on the line 3—3 of Fig. 2,

Fig. 4 is a vertical section taken on the line 4—4 of Fig. 3,

Fig. 5 is a vertical transverse section taken on the line 5—5 of Fig. 2,

Fig. 6 is a section similar to that of Fig. 4, but taken on the line 6—6 of Fig. 3,

Fig. 7 is a fragmentary sectional detail taken on the line 7—7 of Fig. 6,

Fig. 8 is a diagrammatical plan view of the electrical system of control and operation of the several gates of the traffic regulating system,

Fig. 9 is an enlarged diagrammatical view, in plan, of one of the semi-automatic control or reversing switches of the electrical system for the control and operation of the traffic system of regulation, and

Fig. 10 is a side elevation of the tower from which the system is controlled and operated.

Referring to the drawings, wherein similar characters of reference designate corresponding parts in the several views thereof, and more particularly to the showing of Fig. 1, the reference letters *a* and *b* indicate the ends of the sections of a street or roadway at opposite sides of a crossing space; *c* and *d* the ends of the intersecting street or roadway; *a'* and *b'* the sidewalks at the opposite sides of the street sections *a* and *b*, respectively; *c'* and *d'* the sidewalks at the opposite sides of the street sections *c* and *d*; and *e*, *f*, *g*, and *h*, the building lines of the four corners at the point of intersection of

the streets *a* and *b*, and *c* and *d*. In general, the traffic regulating system comprises a set of four combined roadway and sidewalk gates, designated generally as at 10, 11, 12 and 13, and a set of four sidewalk gates, designated generally as at 14, 15, 16 and 17; the combined roadway and sidewalk gate 10 being located, as shown in the present instance, at a point on the street curbing, of the street section *a*, in alinement with the building lines of the street sections *c* and *d*, and is adapted to close the right or oncoming half of the roadway of the street section *a*, and the entire adjacent sidewalk section *a'*; the combined roadway and sidewalk gate 12 at the curbing of the street section *b* in alinement with the building lines of the street sections *c* and *d*, and similarly closing the right or oncoming half of the roadway thereof, and the entire adjacent sidewalk *b'*; the sidewalk gate 14 being similarly located at the curbing on the opposite side of the street section *a*, from the combined gate 10, and acting to close the adjacent sidewalk *a'* simultaneously with the operation of the latter; and the sidewalk gate 16 at the curbing opposite to the combined gate 12 and operable therewith to close the adjacent sidewalk *b'*. With the combined gates 10 and 12, and the sidewalk gates 14 and 16 thus located and operably positioned to close the street sections *a* and *b* as indicated, the combined roadway and sidewalk gates 11 and 13, and the sidewalk gates 15 and 17, are similarly located on the street sections *c* and *d*, and are positioned to permit free passage of pedestrians and traffic in both directions of straightaway travel therealong, the traffic way being also opened to vehicles for right and left hand turning movements, from the street sections *c* and *d*, into the outgoing open half portions of the roadways of the street sections *a* and *b*, all of the possible turning directions of travel of vehicles being clearly indicated by the arrows as shown in Fig. 1. When the combined roadway and sidewalk gates 10 and 12 and the sidewalk gates 14 and 16 are operated to inoperative position for the opening of the street roadway sections *a* and *b* and their sidewalks *a'* and *b'* for the passage therealong of pedestrians and traffic, the combined roadway and sidewalk gates 11 and 13, and their complemental sidewalk gates 15 and 17, are simultaneously operable to position to close the street sections *c* and *d* to the travel of pedestrians and traffic from one section to the other thereof.

It is to be noted that all of the combined roadway and sidewalk gates 10, 11, 12 and 13 are identical in details of construction, arrangement and operation, and that the sidewalk gates 14, 15, 16 and 17 are identical in similar details to that of the sidewalk sections of the combined roadway and sidewalk

gates, as aforesaid, consequently, for the sake of facilitating the clear understanding of such construction, arrangement and operation of the same, only one of the combined roadway and sidewalk gates will be specifically described herein.

Referring particularly to Figs. 2 to 7, inclusive, each combined roadway and sidewalk gate comprises a roadway gate section 18 and a sidewalk gate section 19, both of which are secured at their inner ends within a hollow post 20 positioned vertically of the curb-line at one side of a street section, as hereinbefore stated, and each of these gate sections are of toggle lever construction, so as to be expanded and contracted outwardly and inwardly, in opposite directions, one from the other, through slotted openings formed in the vertical wall of the post 20. The inner end of the gate section 18 is provided with a vertically disposed bar 21, and has the lower free end of one of its toggle bars or levers 22 pivoted, as at 23, to the lower end thereof, and the free ends of certain of its other toggle levers or bars 24 and 25 are pivoted for sliding movements in slotways 26 and 27, respectively, formed in the bar 21, the slotway 26 being located at a point intermediate the opposite ends of the same, and the slotway 27 at the upper end thereof, which arrangement allows for the several of the toggle levers or bars of the gate 18 to fold or collapse one upon the other inwardly of the post. The forward or outer end of the gate section 18 is carried by a vertically disposed bar 28 which has one of the toggle levers or bars 29, of the gate, pivoted inwardly of the lower end thereof, as at 30, and certain of the other of the toggle levers or bars 31 and 32 pivoted for sliding movement in slotways 33 and 34, respectively, formed in the bar 28 similarly to the slotways 26 and 27 of the bar 21 within the post 20. The lower end of the bar 28 is provided with a roller 35 which is movable along a trackway 36 extending outwardly from the post 20 in a direction transversely of the roadway section of the street to a point on the longitudinal center of the latter, at which point is located a post 37 having a slotted opening in alinement with the trackway 36 and which is adapted to receive and house the bar 28, when the gate section 18 is projected outwardly from the post 20 to close the adjacent portion of the roadway of the street section against the passage of traffic along the same. The sidewalk gate section 19 is similarly connected at its inner end, within the post 20, by means of a slotted bar 38, both of the bars 21 and 38 being secured in position at opposite sides of the post, one slightly offset from the other, as by means of securing elements 21' and 38' respectively.

For operating the gate sections 18 and 19

inwardly and outwardly of the post 20, an electric motor 40 is secured in position at the bottom of the post, at one side of the transverse center thereof, and has one end of its shaft 41 projecting in a plane below and at right angles to that of the lower ends of the oppositely disposed slotways in the post 20, which lower ends of the slotways open into track channelways 42 and 43 extending outwardly in opposite directions therefrom, the track channel 42 extending transversely of the roadway of the street section in alignment with and connecting at its outer end with the trackway 36, and the track channel 42 transversely of the sidewalk with its outer end terminating at the building line thereof. The outer free end of the motor shaft 41 is journaled in a vertically disposed bearing standard 44, and has keyed on its intermediate portion a gear 45 arranged in mesh with the gear 46 carried on a counter-shaft 47 which is journaled in position between the upper end of the bearing standard 44 and the casing of the motor 40, and parallel to and above the motor shaft 41. Keyed on the motor shaft 41 is a sprocket 48 from which is trained a sprocket chain 49 extending outwardly of the post and through the track channel 42 to the outer end thereof, where it is trained over a sprocket 50 journaled transversely between the parallel side walls of the channelway 42 formed by a pair of oppositely disposed and spaced channel irons 51. Secured at a point approximately intermediate the opposite ends of the gate section 18, is a vertically disposed bar 52, which connects certain of the toggle levers or arms thereof after the manner of the end bars 21 and 28, and has its lower end projecting downwardly of the slotway formed between the channel irons 51, forming the track channel 42, and carrying thereon a pair of oppositely disposed rollers 53 operable in the channels of the irons 51. The lower end of the bar 52 is forked to provide spaced parallel arms as shown in Fig. 5, and these arms depend at opposite sides of the upper stretch of the sprocket chain 49, and are secured thereto, as at 54, at a point whereby the bar 52 is moved the length of the trackway 42 to and from a position within the complementary slot of the post 20. Likewise, a sprocket 55 is keyed on the countershaft 47, and around the same is trained a sprocket chain 56 extending through the sidewalk track or channelway 43, from a sprocket 57 journaled transversely of the opposite end thereof. A bar 58, similar to the bar 52 on the gate section 18, is secured on the outer free end of the gate section 19, and has its lower end projecting into the track channelway 43, and carrying thereon a pair of rollers 59 arranged in the channels of the oppositely disposed channel irons 51' forming the said track channelway 43. The lower end of this

bar 58 also engages the sprocket chain 56, after the manner of the bar 52 with the sprocket chain 49, and is movable therewith the length of the track channelway 43 to and from a position within the complementary slot of the post 20.

Referring more particularly to Figs. 8 and 9, the electrical control system for the operation of the several combined roadway and sidewalk gates 10, 11, 12 and 13, and the sidewalk gates 14, 15, 16 and 17, is shown, and it is to be noted that the electric motors of the combined roadway and sidewalk gates 10 and 12, and of the sidewalk gates 14 and 16, are connected in circuit for simultaneous operation, and that the combined roadway and sidewalk gates 11 and 13, and the sidewalk gates 15 and 17, are similarly connected in a separate circuit for simultaneous operation, the first named circuit being under the control of a combined starter and reversing rheostat or switching device 60, and the last named circuit under the control of a second and similar rheostat or switching device 61, which rheostat or switching devices 60 and 61 are to be located preferably within a tower 62 disposed at the center of the street crossing proper, as is clearly shown in Fig. 1. The circuits for the operation of the gates 10, 12, 14 and 16, is as follows:— Current from the positive side 63 of the main supply circuit, the negative side of the same being designated as at 64, will flow through conductor 65 to binding post 66 of the rheostat or switching device 60, through starting resistance 67, switch arm 68, segment 69 to binding post 70, by conductor 71 to motor lead 72 of gate 10, through switch 73, conductor 74 to motor lead of the motor of the sidewalk gate 14, by the conductor 76 to the motor lead 77 of the combined roadway and sidewalk gate 12, by the conductor 78 to the motor lead 79 of the motor of the sidewalk gate 16, and returning from motor lead 80 of the motor of the sidewalk gate 16 by conductor 81, from the motor lead 82 of the motor of the combined roadway and sidewalk gate 12, by conductor 83 to motor lead 84 of the sidewalk gate 14, by conductor 85 to motor lead 86 of the combined roadway and sidewalk gate 10, by conductor 87 to binding post 88, on the rheostat or switching device 60, and from thence to segment 89 through switch arm 90 to segment 91, and thence to binding post 92, and by conductor 93 back to the negative side 64 of the main supply circuit. This circuit will be thus completed when the rheostat or switch arms 68 and 90 are moved to the right of the normal or neutral position of the same as shown, and the motors 40 of the several gate units 10, 12, 14 and 16 will rotate in a direction to drive the sprocket chains 49 and 56 in opposite directions outwardly of the post 20

and into the operative positions of the same as shown in full lines in Figs. 1 and 8, and is to be accomplished during the practical application of the system simultaneously with the operation of the gates 11, 13, 15 and 17 to positions for the opening of the intersecting streets to traffic. When the rheostat arm 68 is moved to operative position, as in the instance cited, the same is held in its full on position by means of an electromagnet 94, which is connected with a similar magnet 95 acting to hold the arm 68 in the other of its full on positions for the reversing of the direction of flow of current through the circuit, and these magnets are connected across the opposite sides of the circuit by means of conductors 96 and 97. For the purpose of automatically stopping the motors of the several gates 10, 12, 14 and 16 in their movements to operative or street section roadway and sidewalk closing positions, the double throw switch 72; which, as shown in Fig. 6 is located in position within the lower portion of one of the posts 20; is momentarily opened by means of a pin 98 carried on the sprocket chain 49 at the end of the travel thereof. This opening of the motor circuit of the gates 10, 12, 14 and 16, causes the electromagnets 94 and 95 to be deenergized, and the switch arms 68 and 90 to return to neutral or off position, from which position, the latter may be moved in the opposite direction to reverse the flow of current in the circuit for the operation of the motors of the gates 10, 12, 14 and 16 to inoperative or street section roadway and sidewalk opening position for the passage of pedestrians and traffic along the same. With the switch arms 68 and 90 moved to the left, or to reversing position, the switch 73 having been closed at the end of its opening movement, current will flow from the positive conductor 63, of the supply circuit, by the way of conductor 65, binding post 66, starting resistance 99, switch arm 68, segment 89 to binding post 88, and from thence by way of conductors 87, 85, 83 and 81 to the opposite terminals of the motors of the gates 10, 12, 14 and 16, and back through conductors 78, 76, 74, switch 73, conductor 71 to binding post 70, segment 100, switch arm 90, segment 91 to binding post 92, and by conductor 93 to the negative side 64 of the current supply circuit. Upon the closing of this circuit in this instance, the motors of the gates 10, 12, 14 and 16 will operate in a reverse direction, from that in the first instance, and the gates moved to position within their respective post 20, and during the movement of the roadway gate section 18 of the gate 10, a second pin 101, on the sprocket chain 49, will actuate the switch 73 in the reverse direction of movement to momentarily open the same for the deenergizing of the magnets 94 and 95,

through conductors 96 and 97, and the switch arms 68 and 90 will return to neutral or off position.

The gates 11, 13, 15 and 17 are similarly operated from the rheostat or switching device 61, and the circuit thereof is as follows:—Current from the positive side 63 of the supply circuit, will flow by way of conductor 102, binding post 103, starting resistance 104, switch arm 105, segment 106, to binding post 107, conductor 108, switch 109, motor of the combined roadway and sidewalk gate 13, conductor 110, to motor of sidewalk gate 17 by conductor 111 to motor of the combined roadway and sidewalk gate 11, by conductor 112 to the motor of the sidewalk gate 15, and back by way of conductors 113, 114, 115, and 116 to binding post 117, and from thence, by way of segment 118, switch arm 119, segment 120, binding post 121, and conductor 122 to the negative side of the current supply circuit. The rheostat or switch device 61 is also provided with electromagnets 123 and 124, for the retention of the switch arms 105 and 119 in their full on position, and are connected to this motor circuit by means of conductors 125 and 126. The switch 109, in this instance, is, as shown in Fig. 8, associated with the combined roadway and sidewalk gate 13, and the same is operable for its momentary opening movements at the ends of the opposite directions of travel of the gate sections 18 thereof, by means of pins on the sprocket chain of the gate section 18 thereof, corresponding to the pins 99 and 101 of the gate section 18, of the combined roadway and sidewalk gate 10, as in Fig. 2.

Associated with the several gates 10, 12, 14 and 16 is a signal lighting circuit, and each of the posts 20 and 37 thereof, has a lamp 127 at their upper end, and this circuit is to be traced as follows:—Current will flow from the positive conductor 63 of the current supply circuit, by way of conductor 128, through switch 129, to and through conductors 130, 131 and 132, and back by way of conductors 133, 134, 135, and 136 to the negative conductor 64 of the current supply circuit. The lamps 127 are preferably colored red, and are to be lighted during the operative movements of the several gate sections 18 and 19 and remain lighted when the same are in street roadway and sidewalk closing position, but are to be automatically extinguished during the final movements of the gates to their inoperative positions within the post 20, and this is to be accomplished by the operation of the switch 129, which, as shown in Fig. 7, is in the form of a spring switch blade 130 adapted to be swung out of engagement with a contact on a switch base, designated by the numeral 129 in Fig. 7, by the final movement of the bar 28 inwardly of the post, and as soon as the bar 28 moves

outwardly of the post, the switch blade 130 will reestablish the circuit connection, and the lights will be lighted and remain so until the return of the gates from operative position. As shown in Fig. 8, this switch 129 is associated with the combined roadway and sidewalk gate 10; and is operable by the bar 28 of the gate section 18 thereof. A similar lighting circuit is also associated with the gates 11, 13, 15, and 17; and their respective posts 20 and 37 are also provided with lamps 137, at their upper ends, and the circuit to the same is as follows: Current will flow from the positive side 63 of the current supply circuit by the way of conductors 138, 139, 140 and 141 and back by way of conductors 142, 143, 144 through switch 145, and by way of conductor 146 to the negative side 64 of the current supply circuit. The switch 145 is, in this instance, associated with the combined roadway and sidewalk gates 13, and is operable by the gate section 18 thereof in the same manner and for the same purposes as is the switch 129 of the combined roadway and sidewalk gate 10.

Briefly, the operation of the system is as follows:—An operator occupies the tower 62, and, with the gates 10, 12, 14 and 16 closing the street roadway sections *a* and *b*, and the sidewalks *a'* and *b'* thereof, the gates 11, 13, 15 and 17 are within their respective post 20 and the street roadway sections *c* and *d*, and the sidewalks *c'* and *d'* thereof are open for the passage of traffic. To open the gates 10, 12, 14 and 16, and simultaneously close the gates 11, 13, 15 and 17, the operator grasps the long arm 68, of the rheostat or switching device 60, and the similar arm 105 of the other device 61, and moves the same to full on positions, when both motor circuits will be energized, and the gates 10, 12, 14 and 16 will move to positions within their respective post 20, and the gates 11, 13, 15 and 17 outwardly to street roadway and sidewalk closing position, so that street roadway sections *a* and *b* and their respective sidewalk sections *a'* and *b'* will be open to traffic, and the street roadway sections *c* and *d* and their sidewalk sections *c'* and *d'* closed to traffic, as hereinbefore indicated. When the respective sets of gates 10, 12, 14 and 16, and 11, 13, 15 and 17 reach the limit of their movements, the switches 73 and 109 will be actuated to open the magnet circuit respectively of the rheostats or switching devices 60 and 61, and the switch arms 68 and 105 will be released to return to neutral or off position, and ready for the alternate or reversing operation of the several gates. Also, upon the final inward movement of the gate section 18 of the gate 10, the lighting circuit of the lamps 127 will be opened, while with the initial movement of the gate section 18, of the gate 13,

outwardly of its post 20, the switch 137 will be released to close the lighting circuit to the lamps 131.

The tower 62, is as hereinbefore stated, preferably located at the center of the crossing space of the intersecting streets, and, as shown in Fig. 10, the same is preferably in the form of a closed compartment carried at the upper end of a single pedestal or post 147 an entrance to the same is to be had through the medium of a ladder 148 leading upwardly of the pedestal or post 147 and through a man hole in the floor thereof. The tower 62 is preferably square in plan, and is provided with glass inclosed windows 149 on all four sides, each facing a complementary street section, so that an operator within the tower compartment may be able to have clear view of the entire crossing space. The tower is preferably provided with a set of colored signal lamps, preferably red in color, arranged in complementary pairs, as at 150 and 151, the lamps 150 being at opposite sides of the tower compartment, so that one can be observed from the street section *a*, and the other from the street section *b*, while the lamps 151 are similarly arranged so as to be observed, one from the street section *c*, and the other from the street section *d*. The pair of lamps 150 are connected in circuit, one with the other, by means of conductors 152 and 153, to the main leads 63 and 64 of the main current supply circuit as at 154 and 155, and inserted into the conductor 152 is a control switch 156, while the lamps 151 are likewise connected in circuit, one with the other, by means of conductors 158 and 159, to the leads 63 and 54 of the main supply circuit, as at 159 and 160, and similarly inserted into the conductor 158 is a control switch 161. It is desired to light the signal lamps 150 by the closing of the switch 156 about five seconds prior to the closing of the gates across the street sections *a—b*, so as to warn traffic and pedestrians, particularly at night, that the gates of the street sections are to be closed or are already closed, inasmuch as the lamps are to remain lighted just as long as their complementary street gates are closed. Similarly, the lamps 151 are to be lighted by the closing of the switch 161 five seconds prior to the closing of the gates of the street sections *c—d*, and, of course, prior to the extinguishing of the lamps 150 and the simultaneous operation of the gates of both street sections *a—b* and *c—d*.

From the foregoing, it will be readily apparent that the system involved herein has incorporated within the same every feasible precaution against accidents occurring at street crossings, both with regard to collisions between vehicles, collisions between the gates in the operation of the same to open

and closed positions with vehicles, and to the running down of pedestrians by the passing vehicles.

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

1. In a traffic control and regulating system for street crossings, combined roadway and sidewalk gates arranged at corresponding corners of a street crossing, sidewalk gates arranged alternately with respect to said combined roadway and sidewalk gates at corners of the street crossing opposite to the latter, and means for actuating said gates for the alternate opening and closing of the roadway and sidewalks of the intersecting streets of the crossing one with respect to the other.
2. In a traffic control and regulating system for street crossings, combined roadway and sidewalk gates arranged at corresponding corners of a street crossing, sidewalk gates arranged alternately with respect to said combined roadway and sidewalk gates at corners of the street crossing opposite to the latter, and electrical means for actuating said gates for the alternate opening and closing of the roadways and sidewalks of the intersecting streets of the crossing one with respect to the other.
3. In a traffic control and regulating system for street crossings, combined roadway and sidewalk gates arranged at corresponding corners of a street crossing, sidewalk gates arranged alternately with respect to said combined roadway and sidewalk gates at corners of the street crossing opposite to

the latter, electrical means for actuating said gates for the alternate opening and closing of the roadways and sidewalks of the intersecting streets of the crossing one with respect to the other, and means located at the center of the street crossing for controlling the operation of said electrical means.

4. In a traffic control and regulating system for street crossings, expansible and contractible gates arranged at the opposite corners of a street crossing, an electric motor circuit for operating the gates on one of the intersecting streets of the street crossing, a second electric motor circuit for operating the gates of the other of the intersecting streets, and control devices for said electric motor circuits for effecting the alternate opening and closing movements of said gates.

5. In a traffic control and regulating system for street crossings, expansible and contractible gates arranged at the opposite corners of a street crossing, an electric motor circuit for operating the gates on one of the intersecting streets of the street crossing, a second electric motor circuit for operating the gates of the other of the intersecting streets, control devices for said electric motor circuits for effecting the alternate opening and closing of said gates, and means operable by the movements of certain of the gates for resetting said control devices for the successive operation of said gates.

In testimony whereof, I affix my signature hereto.

FRANK WILLIAM SIMPSON.