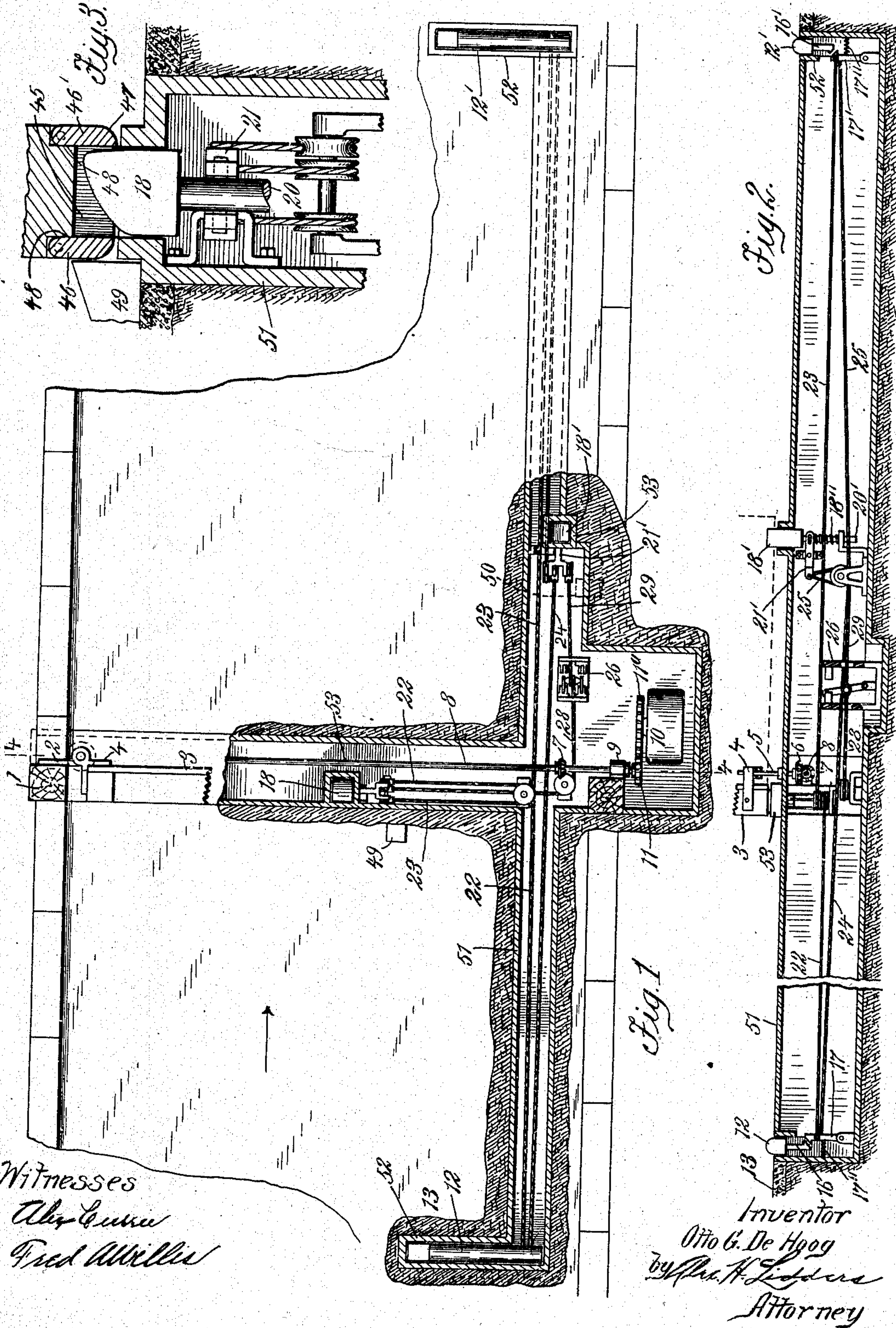


O. G. DE HOOG.
ELECTRIC AUTOMATICALLY OPERATED GATE.
APPLICATION FILED NOV. 8, 1909.

953,259.

Patented Mar. 29, 1910.

2 SHEETS—SHEET 1.



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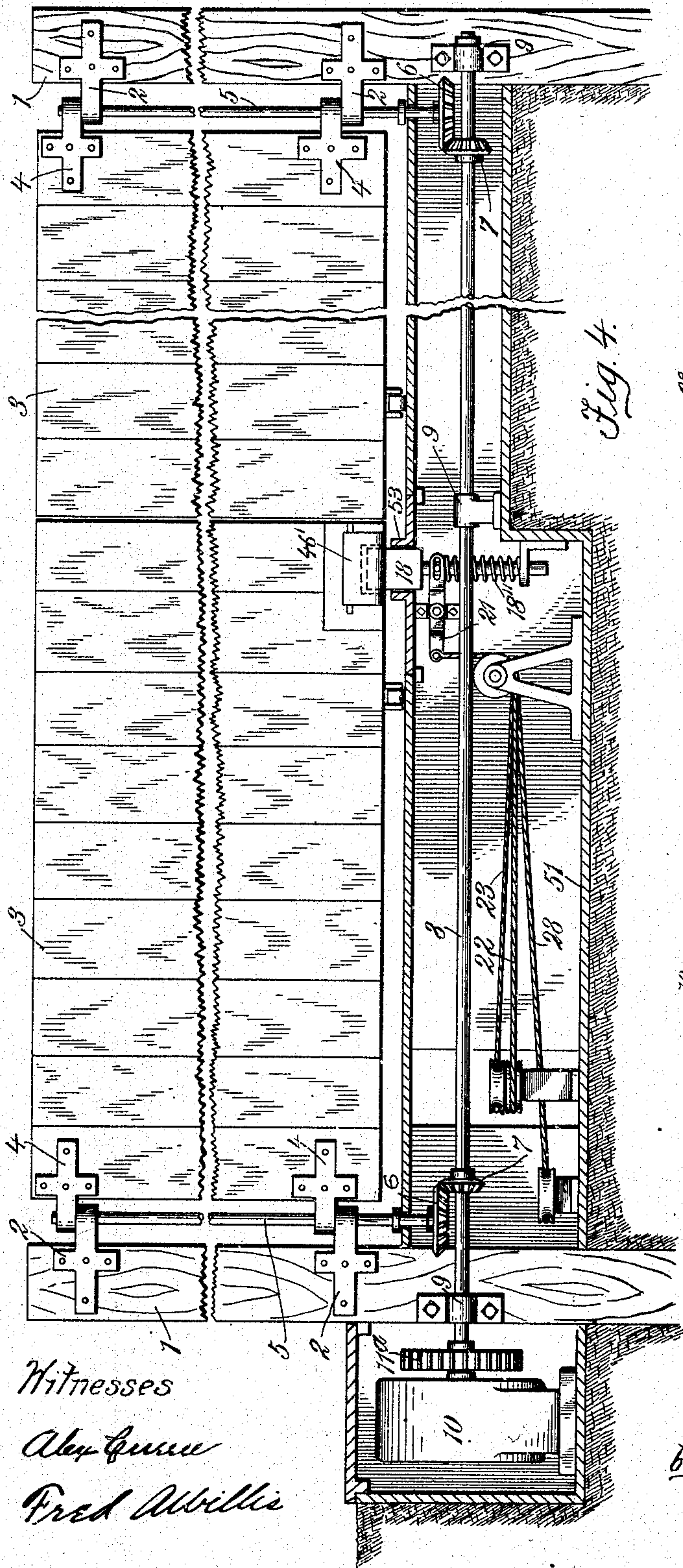


Fig. 4.

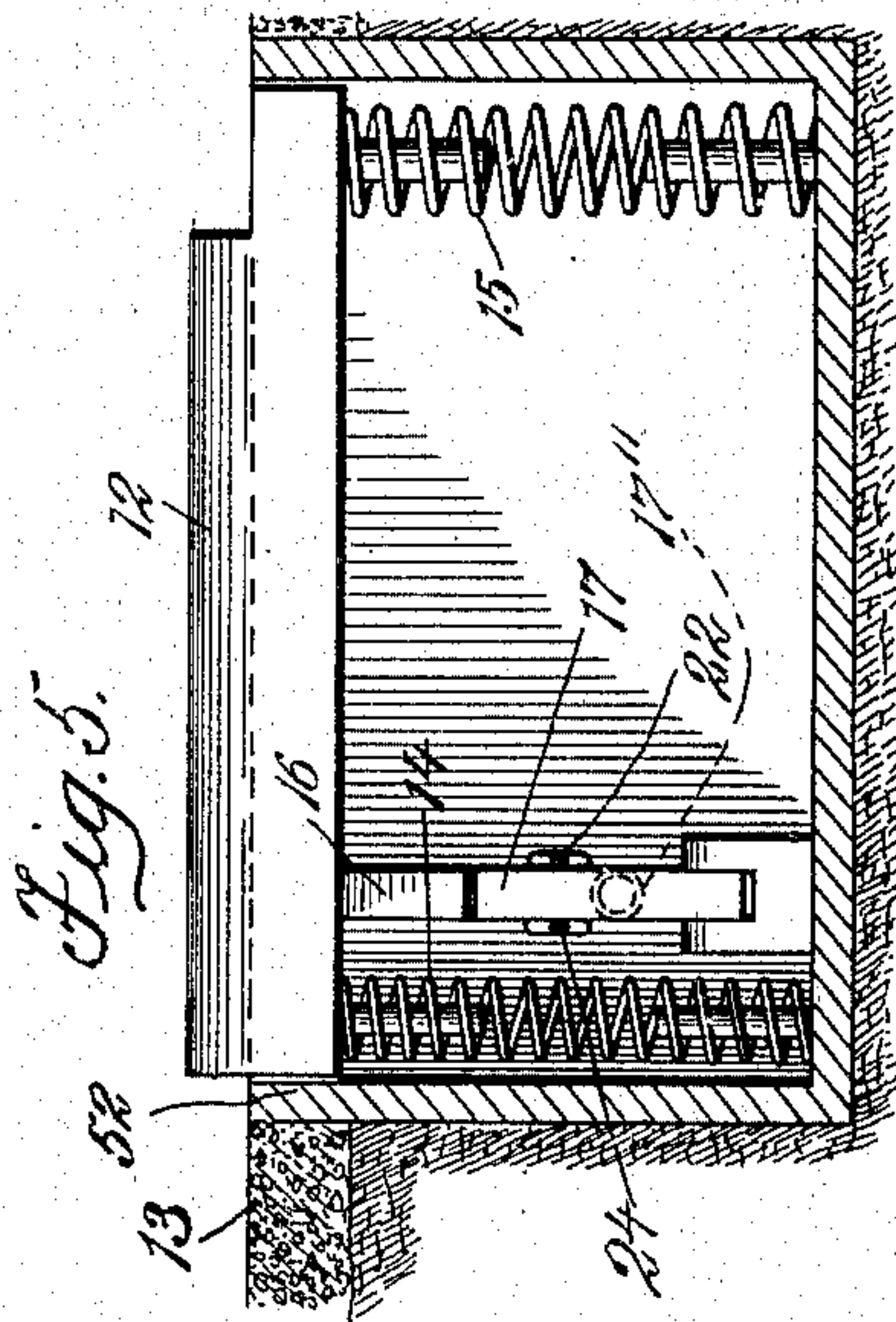


Fig. 5.

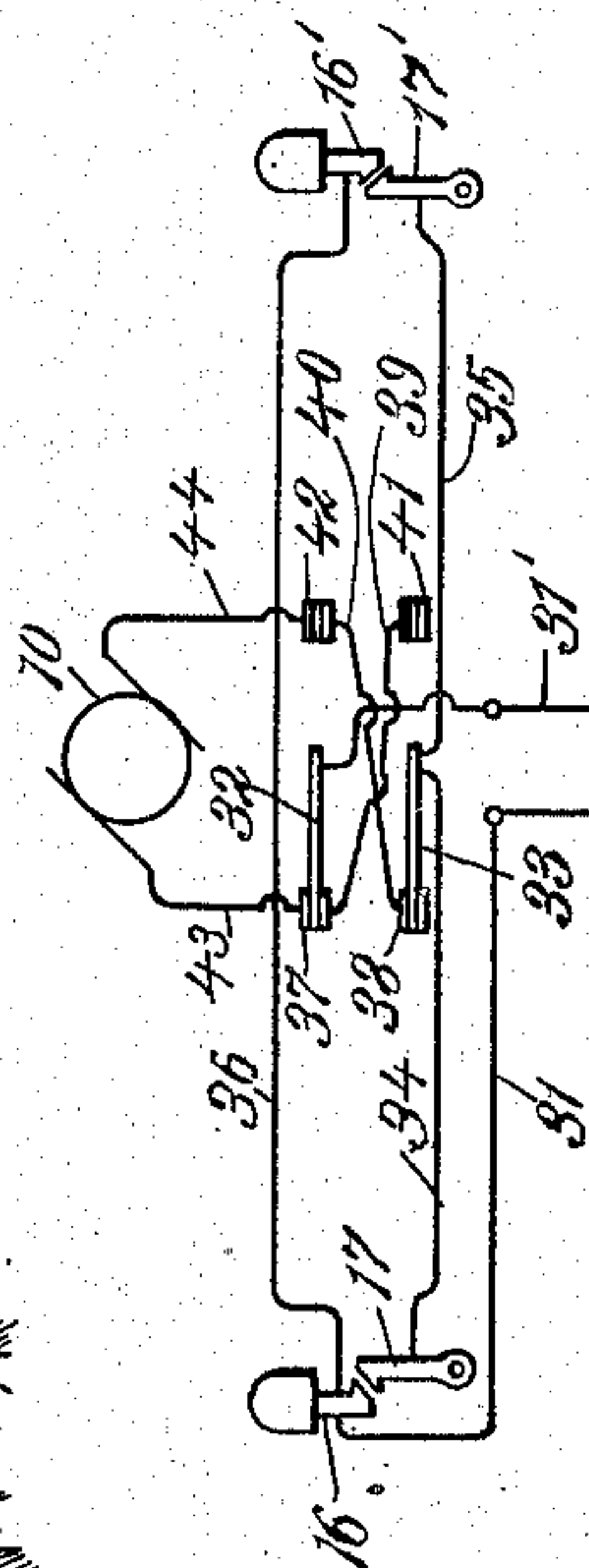


Fig. 6.

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UNITED STATES PATENT OFFICE.

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ELECTRIC AUTOMATICALLY-OPERATED GATE.

953,259.

Specification of Letters Patent.

Patented Mar. 29, 1910.

Application filed November 8, 1909. Serial No. 526,907.

To all whom it may concern:

Be it known that I, OTTO G. DE HOOG, a citizen of the United States of America, residing at Los Angeles, in the county of Los Angeles, State of California, have invented a certain new and useful Electric Automatically-Operated Gate; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to electric automatically operated gates, and is especially adapted to gates through which wheeled vehicles, such as automobiles, carriages, etc., pass, being primarily intended to be applied to gates on roads leading to the stables or garages of private residences.

The invention has for one of its objects to provide a gate which will be automatic in action and efficient in use, and in which the operating parts are concealed from view.

With the above and other apparent objects and advantages in view, the invention consists of the parts and combinations of parts as set forth in this specification and particularly pointed out in the claims.

In the accompanying drawings, in which is illustrated the preferred embodiment of the invention, Figure 1 is a plan view, partly in section, of a gate constructed according to the invention; Fig. 2 is a longitudinal sectional view thereof; Fig. 3 is a detail view illustrating one of the devices for reversing the direction of swing of the gate; Fig. 4 is an enlarged sectional view taken on line 4-4 of Fig. 1; Fig. 5 is a detail view illustrating one of the spring contact devices; Fig. 6 is a diagrammatic view of the electric circuits.

Referring now to the drawings, 1, 1, represent the gate posts having hinge members 2.

3, 3 are the gate leaves having hinge members 4.

Rigidly secured to hinge members 4 and passing freely through hinge members 2, are upright shafts 5, 5, at the lower end of which are mounted bevel gears 6, 6, intermeshing with other gears 7, 7 on a horizontal shaft 8. This shaft 8, which is mounted in any convenient manner, as in the bearings 9, is operatively connected through any suitable means with a motor 10. As here shown, there is mounted a small

spur gear 11 on one end of shaft 8, which intermeshes with a larger gear 11^a on the main arbor of the motor.

Located in the roadbed, indicated at 13, and projecting a short distance above its surface, at any desired distance at either side of the gate, are depressible members 12 and 12'. These members 12 and 12', which act as push-buttons to open and close the electric circuits through which power is conveyed to the motor, are supported on springs 14 and 15 and carry hooked contact members 16 and 16'. Located adjacent to the contacts 16 and 16' are other hooked contacts 17 and 17' which are normally held by springs 17'' in position, to be engaged by the contacts 16 and 16' on the depression of the latter. This engagement of 16 and 17 or 16' and 17' starts the motor to running, as will be hereinafter pointed out, thus causing the gate to swing. On the gate arriving at the full extent of its desired swing in either direction, it strikes one of a pair of plungers 18, 18' and depresses it. These plungers are supported by springs 18'', which normally hold them in a position with their tips slightly above the lower edge of the gate. The plungers, as shown in Fig. 1, are located one in a position to be depressed when the gate has almost opened and the other in a position to be depressed when the gate is almost closed, and are connected in any desirable manner with the contacts 17 and 17' beforementioned, so that the depression of the plungers causes the contacts 17 and 17' to disengage from contacts 16 and 16', which will stop the motor and bring the gate to rest. As here illustrated, this connection is effected as follows: Extending downwardly from the plungers 18, 18' are rods 20, 20'. These rods 20, 20' are connected with centrally pivoted tilting levers 21 and 21' through the medium of pins on the rods engaging in slots in the ends of the levers. Secured to the opposite ends of levers 21 and 21' are a series of flexible connections or ropes, as follows: From lever 21 a rope 22 leads, over any suitable guide pulleys, to contact 17; from this same lever another rope 23 leads to contact 17'. From lever 21' a rope 24 leads to contact 17, and a second rope 25 leads also from this lever to contact 17'. It will be readily seen from the foregoing that the depression of one of the plungers 18 or 18' will raise the end of the corresponding lever 21 or 21' to which

the flexible connections are secured, and so cause a pull to be exerted on the latter, thus releasing contacts 17 and 17' from contacts 16 and 16'. In addition to releasing con-
 5 tacts 17 and 17' from contacts 16 and 16', the depression of either of the plungers on being struck by the gate has the effect of changing the direction in which the motor will travel when again started, thus assuring
 10 the return of the gate to its original position when the motor is again started through the depression of one of the members 12 and 12'. This is preferably accomplished in the following manner: A double throw switch,
 15 indicated at 26 (Figs. 1 and 2), is located in any suitable position, and from its handle 27 ropes 28 and 29 lead in opposite directions and over any suitable guiding pulleys, to the ends of levers 21 and 21', being at-
 20 tached to the same ends of these levers that the ropes 22, 23, 24 and 25 beforementioned are connected. The opposite sides of the double throw switch 26 are electrically con-
 25 nected to the motor in such a manner that when the blades 32 and 33 thereof, to which handle 27 is secured, are thrown to one side by the depression, say, of plunger 18, it will cause the motor, when the circuit is closed,
 30 to travel in one direction, and when thrown to the other side by the depression of plunger 18', it will cause the motor to travel in the other direction.

The electric connections by which the motor is caused to operate (see Fig. 6), may be
 35 as follows: One of the feed wires 31 supplying the power, is connected to contact 16 and the other, 31', leads to one of the blades 32 of the switch. The other blade 33 of the switch connects by means of wires 34 and 35
 40 with the contacts 17 and 17' respectively. A wire 36 connects contacts 16 and 16'. From contacts 37 and 38 on one side of the switch, wires 39 and 40 lead to the contacts 41 and 42 on the other side of the switch.
 45 From contacts 37 and 42 wires 43 and 44 lead to the motor.

As it is essential that plungers 18 and 18' should return to their normal position immediately after being struck by the gate and
 50 depressed, a recess 45 is formed in the under side of the gate and a pair of hinged pawls 46 and 46' are secured to the gate on opposite sides of this recess (see Fig. 3). These pawls preferably have their lower outer
 55 edges rounded, as at 47, and swing freely in an outward direction but are prevented from swinging in the other direction by means of shoulders 48, so that when the gate strikes each member alternately at the end of its
 60 movement, the pawl will bear on the member and depress it, and as soon as the pawl has passed over the plunger the latter will be forced up into recess 45 by spring 18'', buffers 49 and 50 being arranged to bring
 65 the gate to a positive stop in this position.

On the start of the return movement of the gate, the pawl will ride freely over the plunger and will not depress it.

As shown in the drawings, the various parts of the device, except those that are re-
 70 quired to project above the roadbed, are enclosed in boxing 51 and placed beneath the level of the roadbed, the members 12 and 12' and plungers 18 and 18' passing up through
 75 guides 52 and 53 respectively.

Although this invention is illustrated as applied to a double gate, it is obvious that it will act equally well if applied to a single one; in fact, various changes may be made
 80 from the precise construction illustrated without departing from the spirit of the invention.

The operation of this device is as follows: When a carriage, automobile, or any wheeled
 85 vehicle approaches the gate, say, for instance, in the direction indicated by the arrow (Fig. 1), the wheel on one side will depress member 12, close the contact between 16 and 17, and complete the circuit to the
 90 motor through parts 31, 16, 17, 34, 33, 38, 40, 44, 43, 39, 37, 32 and 31', causing the motor to operate and the gate to open. When the gate has opened, it depresses plunger 18', tilts lever 21', releases contact 17 through
 95 rope 24, causing motor 10 to stop, and reverses switch 26 through rope 29. After passing through the gate, the vehicle depresses member 12', closes the contact between 16' and 17', and completes the circuit
 100 to the motor through parts 31, 16, 36, 16', 17', 35, 33, 41, 39, 37, 43, 44, 42, 32 and 31', causing the motor to run in the opposite direction and the gate to close. When the gate closes, it depresses plunger 18, tilts lever 21, releases contact 17' through rope 23,
 105 causing motor 10 to stop, and at the same time changes switch 26 back to its original position through rope 28. If a vehicle approaches from the opposite direction, the operation will be the same, or if a vehicle
 110 approaches from either direction sufficiently close to the gate to cause it to open and then backs out again, the closing of the circuit through contacts 16 and 17 or 16' and 17' will cause the gate to close exactly the same
 115 as if the vehicle had passed on through.

I claim:

1. In combination, a gate, means for opening and closing the same, consisting of a motor, an operative connection between the
 120 motor and the gate, a pair of contact members located in the roadbed at one side of the gate, a second pair of contact members located in the roadbed at the opposite side of the gate, electrical connections between
 125 each of said contact members and the motor, whereby the latter will be caused to operate when either one of said pairs of contact members is brought together, a plunger adapted to be moved by the gate when the
 130

latter is moved in one direction, a second plunger adapted to be moved by the gate when the latter is moved in an opposite direction, and an operative connection connecting each of said plungers with one of each of said pairs of contact members.

2. In combination, a gate, means for opening and closing the same, consisting of a motor, a geared connection between the motor and the gate, a switch for changing the direction of rotation of the motor, a pair of contact members located in the roadbed at one side of the gate, a second pair of contact members located in the roadbed at the other side of the gate, electrical connections between each of said contact members and the switch, a plunger adapted to be actuated by the gate when it is moved in one direction, a second plunger adapted to be actuated by the gate when it is moved in an opposite direction, and flexible connections connecting each of said plungers with one of each of said pairs of contact members and with the switch.

3. In combination, a gate, means for operating the same, consisting of a motor, an operative connection between the motor and the gate, a depressible contact member, a second contact member located adjacent to said depressible contact member, an electrical connection between said contact members and the motor, whereby the latter will be caused to operate when the contact mem-

bers are brought together, a plunger adapted to be actuated by the gate, and a connection between said plunger and second contact member whereby the latter will be moved away from the first contact member on the depression of the plunger.

4. In combination, a gate, means for opening and closing the same, consisting of a motor, a horizontal shaft connected by gearing to said motor, a vertical shaft rigidly secured to the hinge member of the gate leaf and connected by gearing to the horizontal shaft, a pair of contact members located in the roadbed at one side of the gate, a second pair of contact members located in the roadbed at the other side of the gate, a pair of plungers located in the path of the gate, a switch controlling the action of the motor, flexible connections between each of said plungers and the second mentioned contact members, and between the plungers and the switch, and electrical connections between the first and second mentioned contact members and the switch, for the purpose set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses at Los Angeles county of Los Angeles, State of California, this 29th day of October A. D. 1909.

OTTO G. DE HOOG.

Witnesses:

ALEX CURRIE,
JAMES A. BROWN.