

G. R. FREAK.

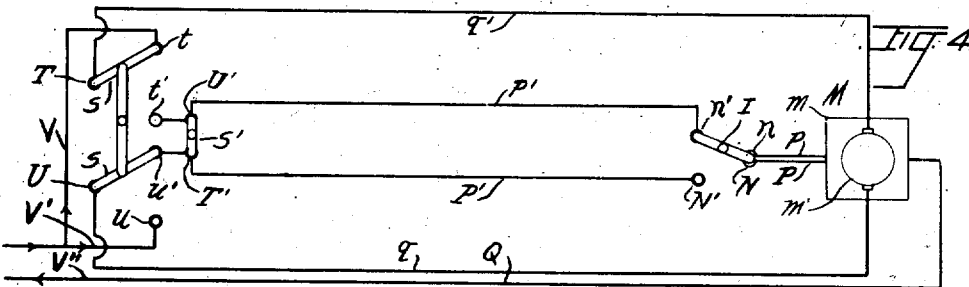
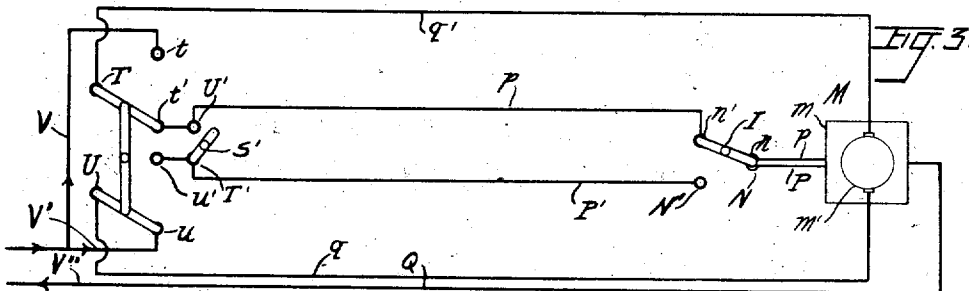
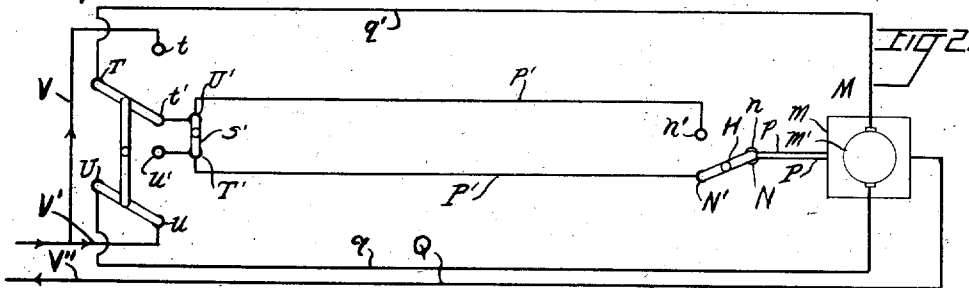
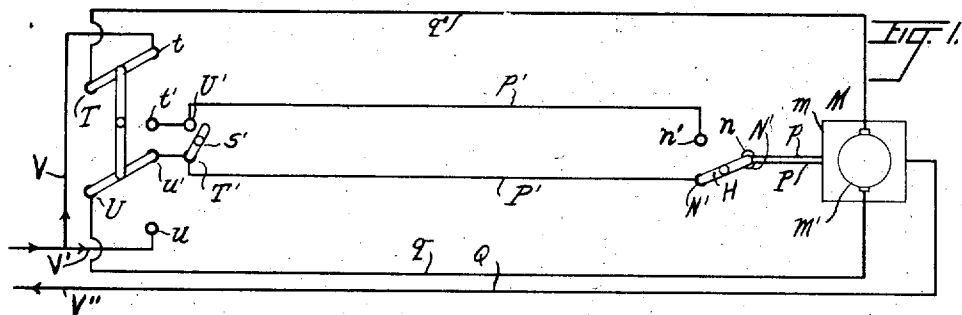
SAFETY GATE.

APPLICATION FILED NOV. 22, 1909.

979,458.

Patented Dec. 27, 1910.

2 SHEETS-SHEET 1.



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2 SHEETS—SHEET 2.

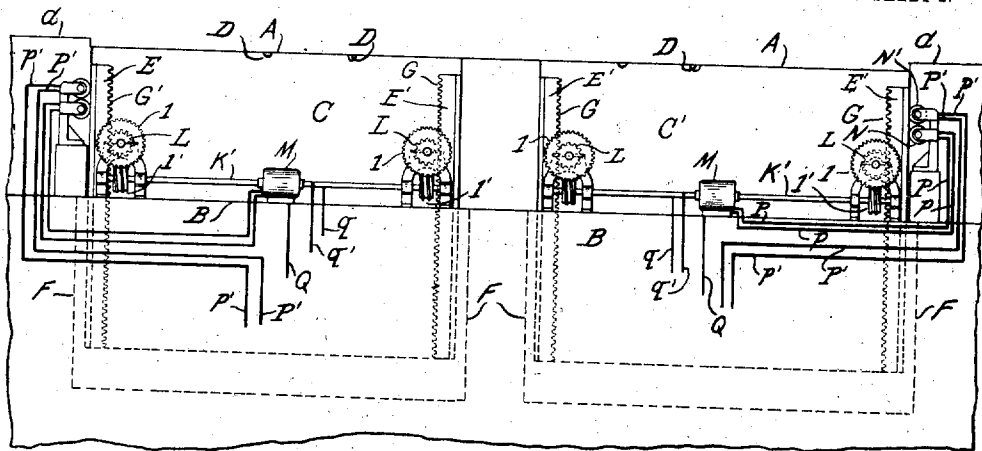


FIG. 5.

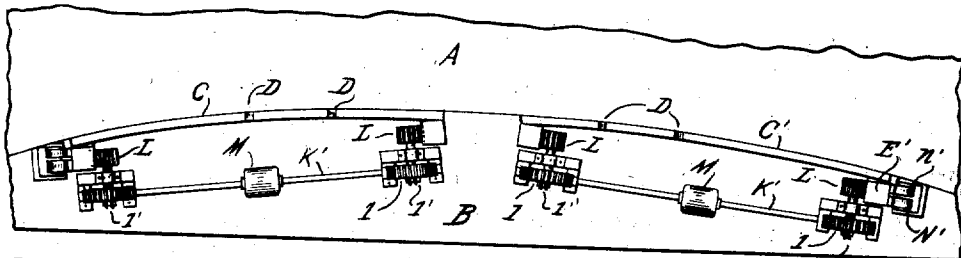


FIG. 6.

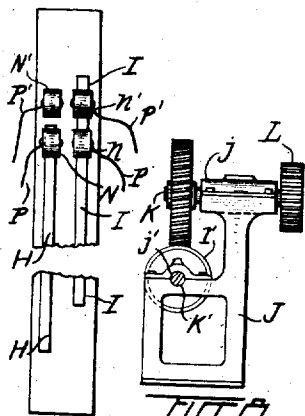


FIG. 7.

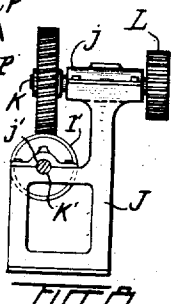


FIG. 8.

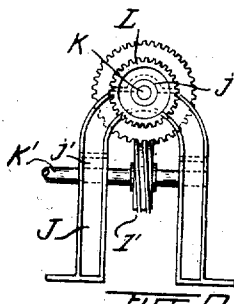


FIG. 9.

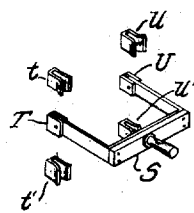


FIG. 10.

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SAFETY-GATE.

979,458.

Specification of Letters Patent. Patented Dec. 27, 1910.

Application filed November 22, 1909. Serial No. 529,388.

To all whom it may concern:

Be it known that I, GEORGE R. FREAK, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Safety-Gates, of which the following, when taken in connection with the drawings accompanying and forming a part hereof, is a full and complete description, sufficient to enable those skilled in the art to which it pertains to understand, make, and use the same.

This invention relates to gates designed to be opened and closed at the will of an operator, to permit and prevent travel upon the roadway; as, to close the roadway onto a bridge or over a railroad crossing, and to open said roadway. And the object of the invention is to obtain a safety gate which will be strong and durable, simple in construction, not liable to get out of order, which will be operated by an electric motor upon the closing of an electric switch, and which when started in a given direction (as to open or to close), will continue to move in said direction over the determined distance when it will be stopped by the automatic break of the circuit in which said motor is an element.

In the drawings referred to Figures 1, 2, 3 and 4, are diagrammatic views of the several electric circuits of a device embodying my invention. Fig. 5 is an elevation of a safety gate comprising this invention, said gate being down. Fig. 6 is a top plan view of a safety gate embodying the invention, said gate being down. Fig. 7 is an elevation of the face of one of the posts of the gate, which face is provided with electric conductors, showing the terminals which are electrically connected to said conductors. Fig. 8 is an elevation of a standard or hanger provided with journal bearings, and shafts rotatably mounted therein, with a worm and gear wheels on said shafts. Fig. 9 is an elevation of the standard or hanger illustrated in Fig. 8 and of the shaft worm and gear wheels mounted in said standard or hanger viewed at an angle of 90 degrees from the view thereof illustrated in Fig. 8. Fig. 10 is a perspective of a double three point switch forming an element in the construction comprising this invention. Figs. 7 to 10 inclusive are drawn to a larger scale,

and in Figs. 5 and 6 the electric connections are drawn to a larger scale than are the remainder of said figures.

In Figs. 5 and 6 a safety gate embodying this invention is illustrated as the same is constructed across a roadway provided with a draw bridge, said construction being shown as erected on the abutment at one end of the bridge, the bridge itself not being shown. Like gates are erected on the opposite abutments.

A reference letter used to designate a given part is applied to said part throughout the several figures of the drawings, wherever the same appears.

A is a roadway.

a, a, are foot walks on the side of the roadway.

B, B, are abutments to the bridge.

C, C', are gates which are vertically movable.

D, D, are grooves which extend laterally across the upper edge of gates C, C'. These grooves form tracks connecting the tracks on the roadway A with like tracks on the bridge.

The gates C, C', are provided, on one side thereof and at the ends, with the posts E, E'. These posts extend below the gate, and wells are provided therefor as indicated by the broken lines lettered F, F, Fig. 5.

G, G, are gear racks attached to one face of the posts E, E', and H, I, (see Fig. 7,) are electric conductors which are attached to one face of the posts E, E', respectively.

J, J, are hangers or standards.

j, j', are journal bearings in standards or hangers J.

K is a shaft rotatably mounted in bearings j and K' is a shaft rotatably mounted in bearings j'.

L, L, are pinions or small gear wheels rigidly secured to shaft K and mesh with the teeth on the racks G, G. l, l, are worm gear wheels which are also rigidly secured to shaft K.

l', l', are worms which are rigidly secured to shafts K', K'.

M, M, are electric motors which are mounted to turn shaft K' in the direction in which the motor is turning.

N, N', and n, n', are rollers which form electric terminals. The rollers N, N', register with and travel on the tracks H and

the rollers n, n' , register with and travel on track I.

P, p , are wires which extend from one of the field terminals of the motor M to the respective terminals N, n ; and P', p' , are wires extending from terminals N', n' , to terminals u', t' , of switch S.

Q is a wire extending from the other terminal of the field motor M.

q, q' , are wires from the brushes of the armature of the motor M to U and T.

The wires p', p' , Q, q, q' , may be contained in a cable and extend to the terminal of the switch S which switch may be located at any convenient place as on a bridge or to the signal house of the gate keeper.

T, t, t' , U, u, u' , are terminals of switches S.

T', U', are terminals of switch S'.

It will be observed that the wire P extends from motor M to terminal N and that so long as terminals N, N', are both in electric contact with electric conductor H, the circuit of which said parts are elements is closed by the closing of the switch S. A current flowing from the source of electric supply to terminals t of the switch S flows through the switch to terminal T thence over wire q' to one brush of the armature thence through the armature, thence over wire q to terminal U, thence over the switch to terminal u' , thence over wire P' to terminal N', thence over conductor H to terminal N, thence over wire P to a field terminal of the motor, through the field and over wire Q to ground. The current flowing over the last above described circuit rotates said motor M to raise the gate. As the gate rises to its extreme upward position the roller forming terminal N' will move beyond the end of the conductor H and will break the circuit. The gate is thus automatically stopped, at its determined extreme upward position. This circuit is shown with the switches closed by the diagram in Fig. 1.

It will be observed on reference to Fig. 7 that conductor H extends beyond the end of conductor I and that when the gate is in its extreme downward position the rollers or terminals N, N', are both in contact with the conductor H and by closing the switch S as illustrated in Fig. 1 of the drawings a current will pass through the field of motor M in a direction moving the motor in the direction required to raise the gate.

V, V', V'' are branch wires from a source of electrical supply to terminals of switch S.

When the gate is in its extreme upward position the terminal N' will move off conductor H a sufficient distance to open or break the circuit and the gate will be automatically stopped in its determined extreme upward position. At this time the rollers

n, n' , are both in electrical contact with electrical conductor I and by moving the switches into the position illustrated in Fig. 3 the gate will again be lowered.

Switch S' may be termed an emergency switch and is only used when for any reason it is desired to give the gate a further forward (either up or down) movement, after it has been automatically stopped, as before described.

The circuits which are made by the closing of the switch S' are illustrated in Figs. 2 and 4 of the drawings.

Any number of gates may be set on the roadway to a bridge or crossing, which is desired. I have shown two on the abutment at one end of a bridge and each is provided with independent circuits and means by which they may be moved independently. The gate on the side of the road leading onto the bridge usually being closed before the gate is closed on the other side of the road, from the bridge.

I have illustrated the gate embodying my invention constructed to be raised to close the roadway, but of course the guides to the gate may be constructed so that the gate is raised to open the roadway and lowered to close it, but the construction of said guide ways forms no part of my invention.

Having thus described my invention and operation thereof what I claim as new and desire to secure by Letters Patent is;—

1. A movable gate, an electric motor, switches, electric conductors from the motor to said switches, connections between the motor and the gate arranged so that revolution of the armature of the motor in a given direction produces movement of the gate in a determined direction, a plurality of tracks of electric conducting material on said gates, one of said tracks extending beyond the other in one direction and said other track extending beyond the first named one in the other direction, electric terminals registering with said tracks, and said tracks movable on said terminals, a plurality of electric conductors respectively connected to said terminals, to motor circuits and to switch terminals, so that when two of said terminals are in electric connection with one of said tracks and a corresponding switch is closed, a motor circuit is closed.

2. A vertically movable gate, geared racks connected to the gate to move therewith, rotatably mounted geared pinions meshing with said racks, an electric motor connected to said pinions to rotate the pinions in a direction corresponding with the direction of rotation of the shaft of the motor, switches, electric conductors from the motor to said switches, a plurality of electric conductors on said gates, one of said conductors extending upward beyond the other, and said other conductor extending downward

beyond the first named one, electric terminals registering with and on which said conductors move, a plurality of additional electric conductors respectively connected to said terminals, to motor circuits and to switch terminals so that, when two of said terminals are in electric connection with one

of said conductors on said gate and a corresponding switch is closed, a motor circuit is closed.

GEORGE R. FREAK.

In the presence of—

CHARLES TURNER BROWN,

JOHN ROBERTS.