(No Model.) 2 Sheets—Sheet 1.

H. GILLETTE.

ELECTRIC CROSSING GATE.

No. 438,620. Patented Oct. 21, 1890.

FIG. 1.

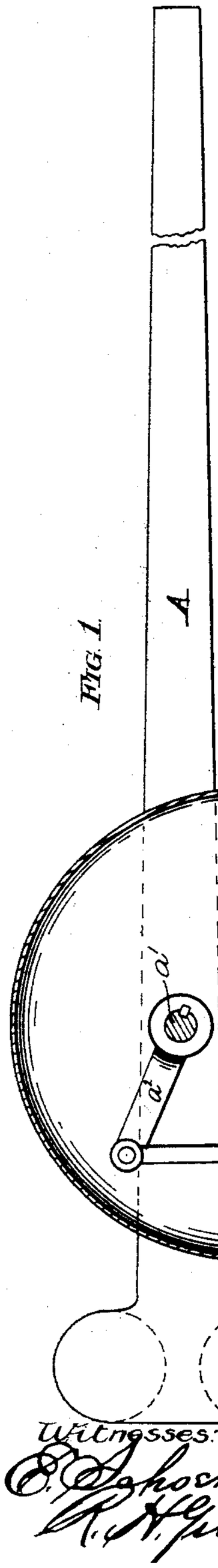
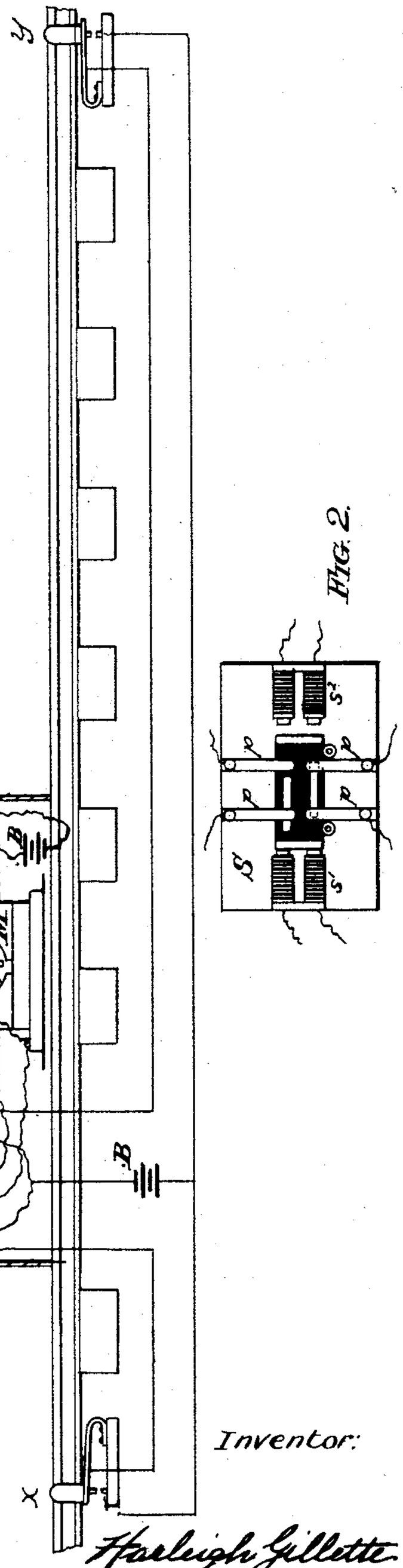


FIG. 2.



Witnesses:
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R. F. Gillett

Inventor:
Harleigh Gillette

(No Model.) 2 Sheets—Sheet 2.

H. GILLETTE.

ELECTRIC CROSSING GATE.

No. 438,620. Patented Oct. 21, 1890.

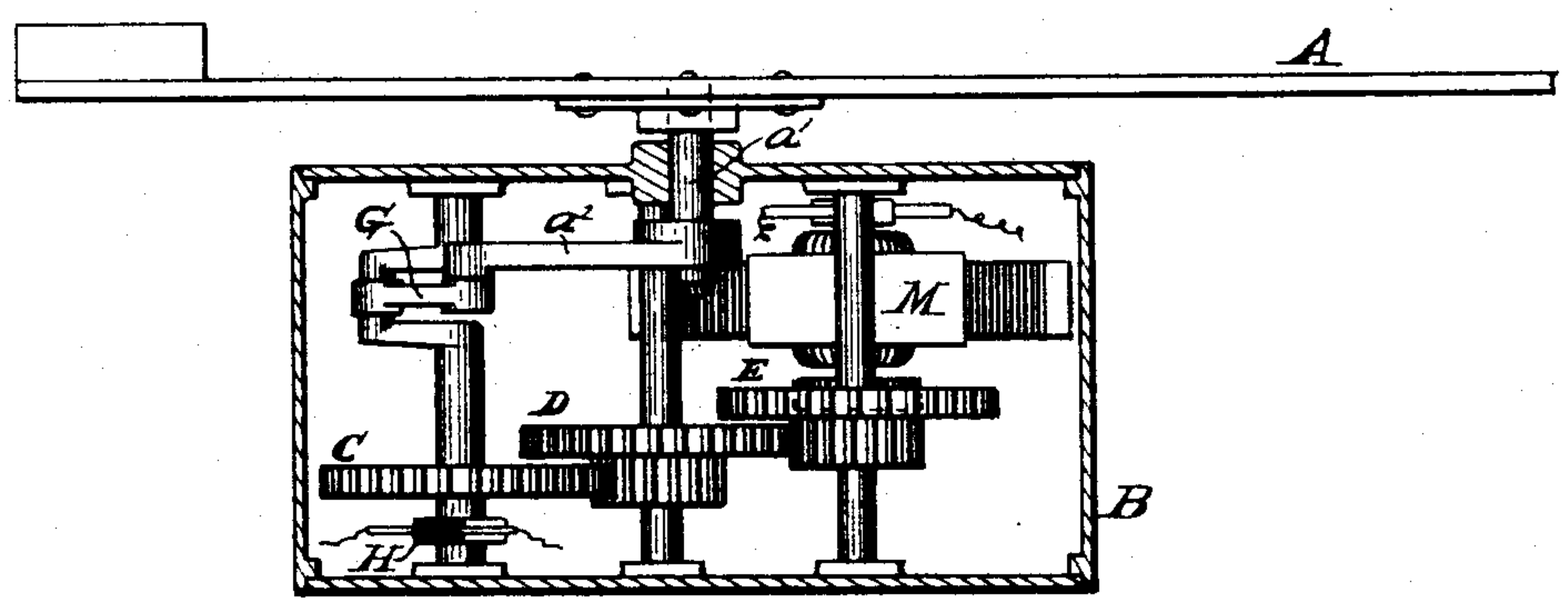

FIG. 3.

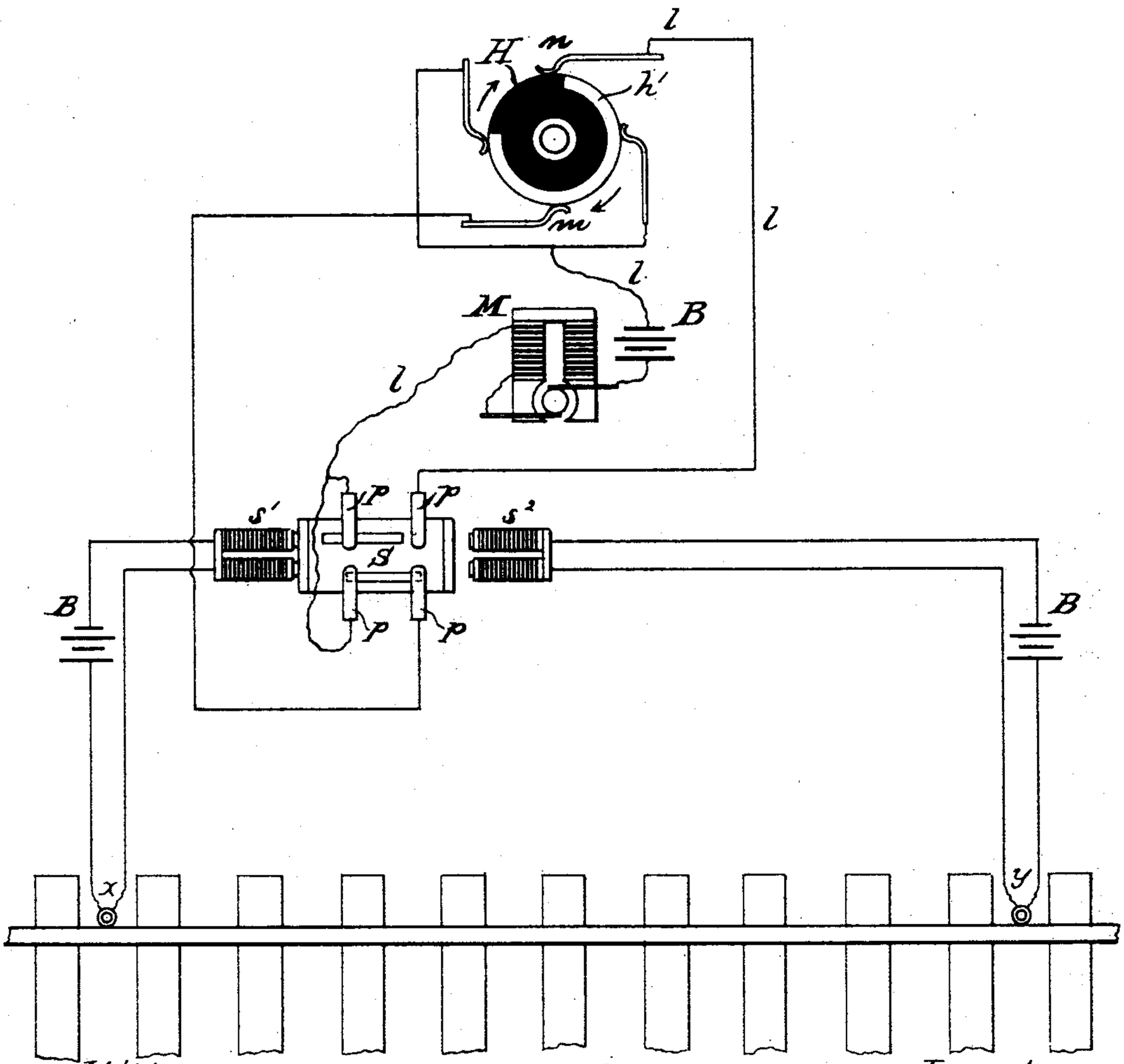

FIG. 4.

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UNITED STATES PATENT OFFICE.

HARLEIGH GILLETTE, OF HIGHLAND PARK, ILLINOIS.

ELECTRIC CROSSING-GATE.

SPECIFICATION forming part of Letters Patent No. 438,620, dated October 21, 1890.

Application filed March 24, 1890. Serial No. 345,082. (No model.)

To all whom it may concern:

Be it known that I, HARLEIGH GILLETTE, of Highland Park, in the county of Lake and State of Illinois, have invented a new Electric Gate; and I hereby certify the following to be a true specification thereof.

This invention relates to operating gates by the electric current; and it consists of improved devices for closing, breaking, and switching the electric circuits and the arrangement of said devices and circuits.

Figure 1 is the side plan of an improved electric gate. Fig. 2 shows the enlarged plan of my electro-magnetic circuit closer or switch. Fig. 3 is a view of the operating mechanism from above; and Fig. 4 is a diagram of the electric circuits, showing the motor-circuit immediately after the same has been closed by the magnet s' and before the motor has had time to open the gate.

Referring to the drawings, A represents an ordinary braced and pivoted railway-crossing-gate arm, and B the wooden or metallic box or casing for the operating mechanism of the same, upon which the axis a' of the gate-arm is journaled in the usual manner.

M represents an ordinary electric motor of sufficient power to operate the said pivoted arm, and C D E represent cog-wheels for reducing the swiftness of the motor to a desirable degree and multiplying the power directly exerted for swinging the gate. G represents the crank-arm which connects the said cogs to the lever a^2 upon the gate-axis a', and thus completes the transfer of power from the motor to the swinging arm. The motor field-magnets are secured to and the cogs and motor-armature journaled upon a suitable frame-work adjusted and attached upon the inner side of the casing B. This completes the mechanical part.

Upon looking at Fig. 1 it is obvious that a semi-revolution of the cog C will cause the crank G to assume a reverse or opposite position from that shown, and carry the lever a^2 downward sufficiently to bring the pivoted arm A to a vertical position. Upon a completion of the revolution, the said parts will reassume their first position. This being so it but remains in operating the gate to supply the electric current to the motor in such a way that the circuit will be automatically cut off at each semi-revolution of the cog C. This I do by means of the automatic cut-off H, which consists of a disk of wood, ebonite, or other insulating material, upon the periphery of which, for a distance extending exactly three-quarters of its circumference, is attached a metallic conducting-strip h'. This conductor is combined with the insulating part in such a manner as to fill out and complete a perfectly-circular wheel or disk, as shown. This wheel or disk is then attached at its center to the axle of the cog C. Four metallic brushes are secured at insulated positions to the stationary frame-work, with their points touching the periphery of the disk H at equidistant points. The four brushes are then connected as shown in the diagram.

The electro-magnetic circuit-closer S consists of a quadrangular block of wood or insulating material arranged within a suitable slide and plays back and forth between the faces of the electro-magnets s' and s^2. Upon the two ends facing the magnets are secured armatures of soft iron, and upon the upper part of the said insulating block are sunk even with the surface two parallel conducting-strips. The two electro-magnets are then connected up within separate circuits, in each of which is also arranged a spring-contact or other circuit-closer adapted to be operated automatically by the wheels of a railway-truck.

Having thus described the arrangement of the electric circuits, their action is as follows: Taking the circuit-diagram, as shown in Fig. 4, a locomotive-wheel, in passing over the track toward the gate, completes the circuit at y and vitalizes the magnet s^2. The armature carrying the switch-block is immediately attracted. This action changes the position of the conducting-strips on its upper surface in regard to the stationary brushes $p\ p\ p\ p$, connecting the upper and disconnecting the lower pair. The upper two being joined electrically and the disk H being supposed to be in a reverse position from that shown, the motor-circuit $l\ l\ l\ l$ is completed and the motor immediately operates to let down the gates. When the gate is down, which coincides with a semi-revolution of the disk H, the said semi-revo-

lution brings the insulated quarter of the disk's periphery under the brush n to the position shown in the diagram, the circuit is broken, and the motor stops. The locomotive in proceeding reaches the point x, completes the circuit, and vitalizes the magnet s'. The switch-block being drawn back reassumes the position shown in the drawings and again completes with its lower metallic strip the motor-circuit. The motor operates, the gate is raised, and the disk, semi-revolving, brings its insulated part beneath the brush m to disconnect the circuit and stop the motor.

Where a number of these gates are to be operated within a short distance of each other, as often happens in the larger towns and cities, a series are arranged upon one circuit in connection with the usual resistance or induction coils and a current furnished by dynamo, the wires being carried along the track upon the regular telegraph-poles. In case of the convenient proximity of incandescent light or power circuits the necessary current can be obtained therefrom in the usual manner. In isolated cases a battery can be used.

In constructing these gates I do not confine myself to any particular form nor any single mechanism for transmitting the power from the electric motor to the gate proper. In the drawings this is done by gears, crank, &c.; but any well-known mechanical or other means may be employed, such as compressed air, belting, and pulleys, &c.

The circuit-closers x and y are shown in the drawings, for the sake of clearness, as spring contact-closers; but in use I prefer to make the connection by simply insulating two rails, by means of which the circuit is completed through the iron wheels and axle of the locomotive-truck at the instant of passing.

These gates are designed to be operated in connection with a suitable automatic, electric, or other alarm, which will give ample warning before the gate descends.

Having thus described my invention, I claim—

In an electric gate, the combination, with the gate proper mechanically connected to an electric motor with a generator, two motor-circuits, and an alternating automatic cut-off for same, of a current-switch for said motor-circuits, consisting of a single movable switch-block provided with conductors and worked alternately back and forth by two stationary electro-magnets, each provided with a generator, circuit, and circuit-closer, substantially as specified.

HARLEIGH GILLETTE.

Witnesses:
E. SCHOENEMAN,
R. H. GILLETTE.