

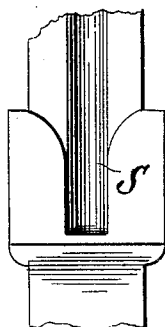
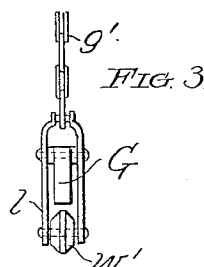
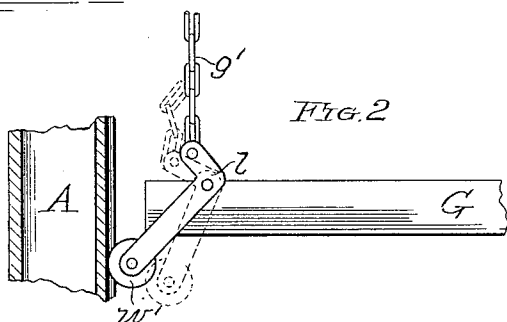
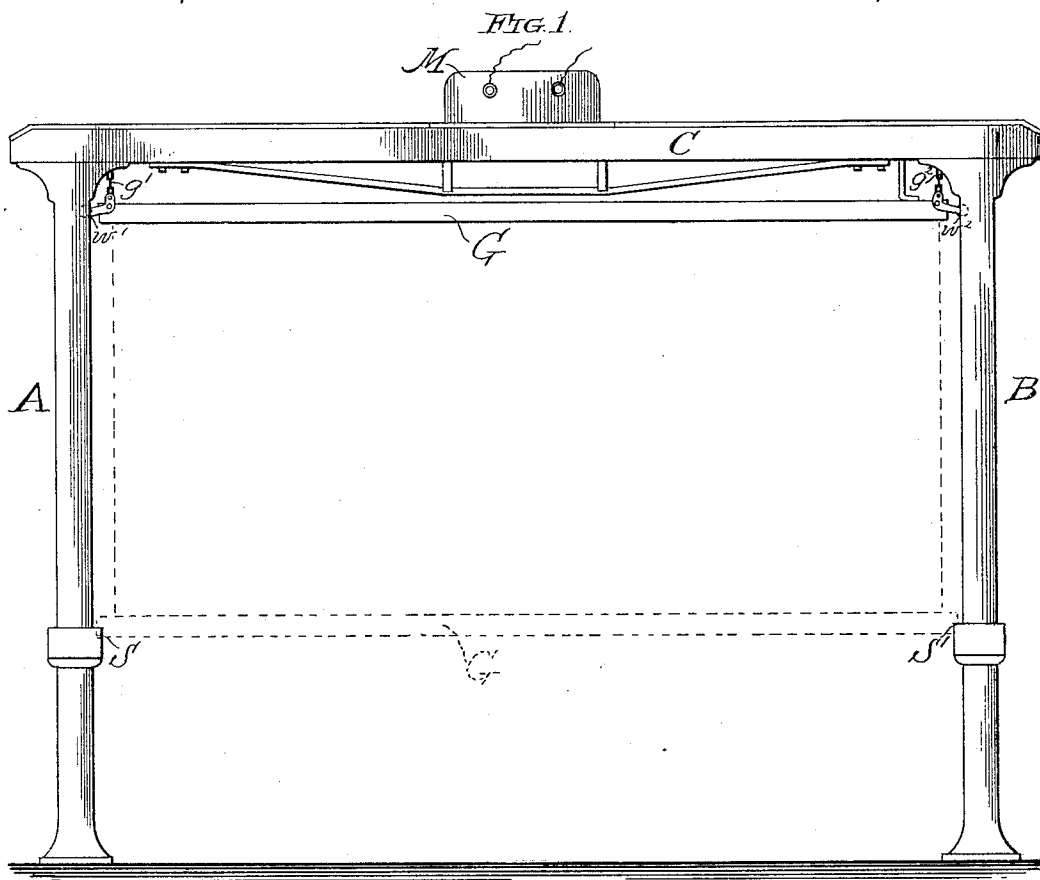
(No Model.)

2 Sheets—Sheet 1.

H. GILLETTE.
ELECTRIC GATE.

No. 462,403.

Patented Nov. 3, 1891.



Witnesses:

Aug. Stickney
H. A. Gillette.

Inventor:

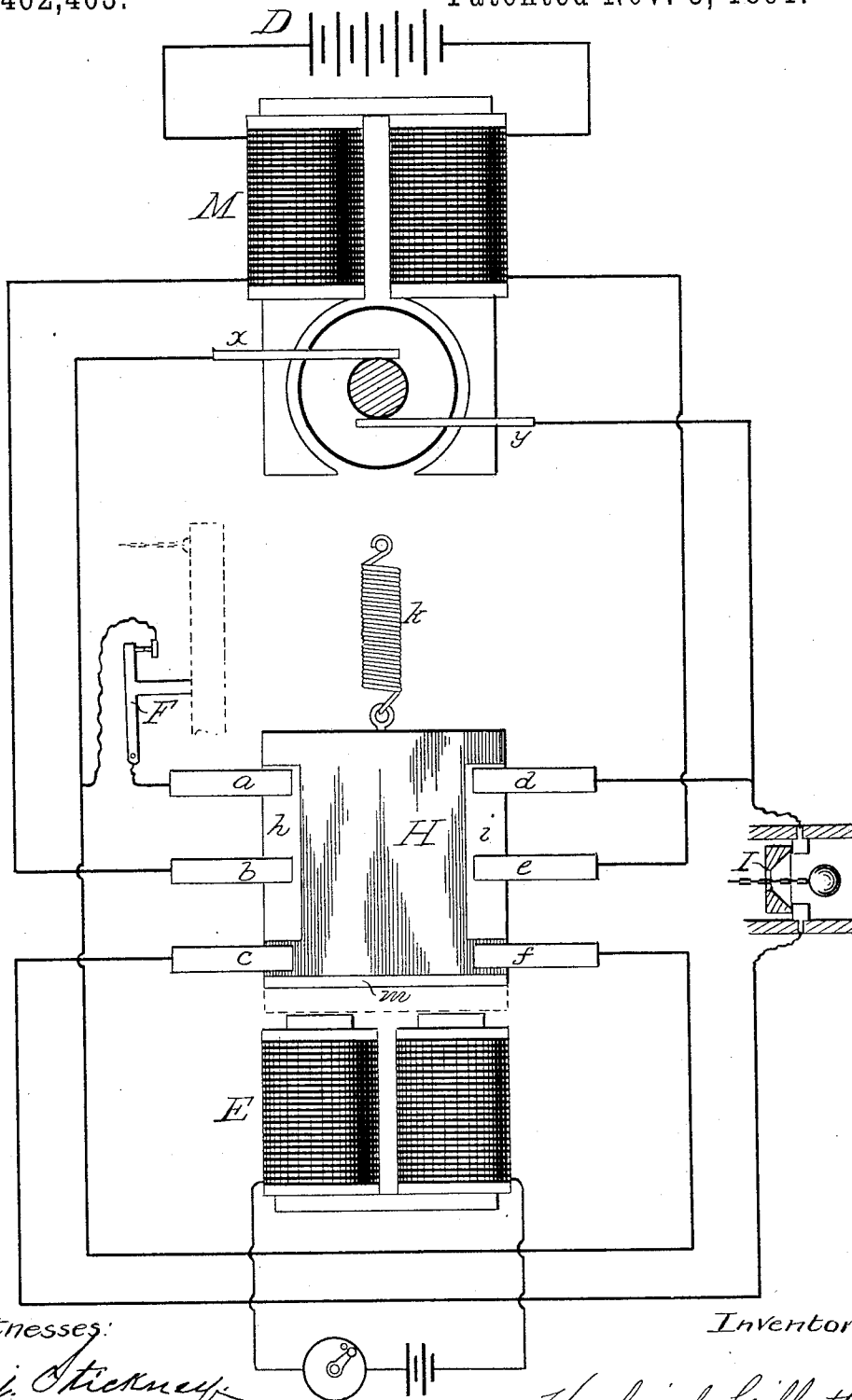
Harleigh Gillette.

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FIG. 5.



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UNITED STATES PATENT OFFICE.

HARLEIGH GILLETTE, OF HIGHLAND PARK, ILLINOIS.

ELECTRIC GATE.

SPECIFICATION forming part of Letters Patent No. 462,403, dated November 3, 1891.

Application filed December 10, 1890. Serial No. 374,198. (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 certain new and useful Improvements in Electric Gates for Railway-Crossings, Bridge-Approaches, &c., of which the following is a specification.

This invention relates to gates operated by electricity; and it consists of new electrical devices and combinations whereby the gate is closed and opened by the positive and reverse motion of an electromotor, together with certain improved devices for guiding the guard-bar or gate proper in its descent and ascent, and means for locking the same against lateral movement when in its lowered position. Its object is to produce a simple and practical gate that can be readily operated with but slight motive power and that cannot, under any circumstances, endanger life and property in case of an untimely descent of the guard-bar. It is designed as a practical improvement on my previously-invented electric gate, for which Patent No. 444,825 was granted to me on the 20th of January, 1891.

Figure 1 is a front view of my improved electric gate. Fig. 2 is a view of one end of the guard-bar, showing the lever-journaled guiding-wheel. Fig. 3 is a cross or end view of the same. Fig. 4 is a view of one of the socket-rests for the ends of the guard-bar; and Fig. 5 is a plan of the electric circuits and current-reversing switch, showing also the position of the two automatic circuit-breakers.

In the drawings, A B represent hollow posts, within which are suspended weights counterbalancing the guard-bar G.

C is the hollow cross-beam, provided throughout its length with a revolving shaft, which mechanically connects two sprocket-wheels carrying the sprocket-chains $g^1 g^2$. This shaft is provided at its center with a pulley, which is joined directly to a similar wheel upon the armature-shaft of the motor by means of the usual leather belting or equivalent connection.

G represents the guard-bar or gate proper, M the electromotor, and D a dynamo-battery or other generator for furnishing the current.

S S' are the socket-rests for the guard-bar

in its lowered position. (Shown by the dotted lines, Fig. 1.)

In constructing this gate I follow the specification of my former application, above mentioned, so far as the frame-work, operating mechanism, and automatic circuit-breakers are concerned. The motive power, however, is furnished by a single reversible electromotor, instead of the two machines therein shown. This electromotor is constructed in such a way that, while a constant and continuous current is sent through the field-magnet coils, by simply changing the direction of the current through the armature-coils the polarity of the armature-magnet is altered with respect to the constant polarity of the field-magnets, and the revolution of the armature-shaft consequently reversed. The control of the motor is accomplished by means of a pole-reversing switch provided for the armature, a plan of which is shown in Fig. 5. This pole-reversing switch consists of a movable insulated block H, placed in a suitable retaining slideway, and carries two conducting-strips $h i$, sunk even with its upper surface, each of which makes electrical contact with conducting-brushes arranged alongside. In ordinary cases this switch is operated manually; but in order to adapt it for automatic operation by a passing railway-train I provide a spring k and an ordinary electro-magnet E, of which the armature m is affixed to the said sliding block. The circuit of the electro-magnet, which includes the usual generator, is then connected with an insulated section of the railway-track and the circuit completed through the wheels and axles of the passing train in a well-known manner. Returning to the electromotor, I provide therefor two automatic circuit-breakers F I, both of which are placed between the armature-pole-reversing switch and the said armature, as shown in the diagram, Fig. 5. These circuit-breakers are identical with those of my former invention, and consequently need not be again described.

Referring to Fig. 5, a passing train on entering the gate-section closes the circuit of the magnet E, energizes the same, and attracts to it the movable switch-block H. This action connects through the conducting-strip h the brushes $b c$ and through the conducting-strip i the brushes $e f$. The motor-operating cir-

cuit is thus completed, as follows, *D M b h c I y x f i e*, the current passing through the armature from the right to the left commutator-brush. The motor then operates to let down the gate until the circuit is automatically broken by the circuit-breaker I. As the train leaves the gate-section the circuit of the magnet E is reopened and the spring *k* draws back the switch to the position shown in the drawings. This re completes the circuit, as shown, *D M b h a F x y d i e*, the current traversing the armature-coils from the left commutator-brush to the right. The polarity of the armature being changed, the motor is reversed and operates to raise the gate until the circuit is automatically broken by the circuit-breaker F, when the mechanism again stops.

In order to prevent the swinging about in the wind of the guard-bar G in its descent and ascent and at the same time to avoid all danger of accident in case the same comes down upon a passing vehicle, it is provided with the two guiding-wheels *w' w''*, which run within grooves upon the side posts. These wheels are each journaled upon one end of a pivoted angular lever *l*, as shown in the drawings, the opposite power end of which is attached to the suspending-chains. By this means, while the said chains are normally taut by the weight of the guard-bar, the wheels are pressed within their guiding-grooves; but should the bar come down upon an obstruction the chain will become slack and the wheel fall outward by its own gravity, (see Fig. 2,) thus unlocking the bar and permitting it to swing outward until the obstruction is removed, when the beveled peripheral sides of the wheels assist them in regaining the guiding-grooves aforementioned.

I do not confine myself strictly to the particular form of gate herein shown, as any known construction adapted to operation by electromotors may be substituted. The guard-bar guiding and locking devices may also be varied by the use of known equivalents.

Having thus described my invention, I claim—

1. In an electric gate, the combination of

the gate mechanism with an electromotor, a circuit for operating the motor to close the gate, another circuit for reversing the motor to open the gate, and an independent current-switch consisting of an insulating-plate provided with parallel conducting-surfaces respectively connected to the terminals of the motor-field-magnet coils and provided with four contact-points leading to the armature-coils, wherewith the field-coil terminals can be entirely disconnected from those of the armature and reconnected in an exchanged position, substantially as specified.

2. In an electric gate, the combination of the gate mechanism with an electromotor, a circuit for operating the motor to close the gate, an automatic circuit-breaker therefor, another circuit for reversing the motor to open the gate, and an automatic circuit-breaker for the latter, together with an independent current-reversing switch consisting of an insulating-plate provided with parallel conducting-surfaces respectively connected to the terminals of the motor-field-magnet coils and provided with four contact-points leading to the armature-coils, wherewith the rotation of the motor-armature can be instantly stopped and reversed at any position of the gate mechanism, substantially as specified.

3. The combination, with the frame-work and operating mechanism, of the chain-suspended guard-bar provided with guiding-wheels journaled upon lever-arms, substantially as specified.

4. In an electric gate, the combination, with the gate proper mechanically connected to a single reversible electromotor, of a generator and two circuits for operating the motor to close and open the gate, an independent current-reversing switch for same provided with six contact-points and operated by means of a spring, and an electro-magnet with its individual circuit, circuit-closer, and generator, substantially as specified.

HARLEIGH GILLETTE.

Witnesses:

R. S. MCGUFFIN,

KENNETH R. SMOOT.