

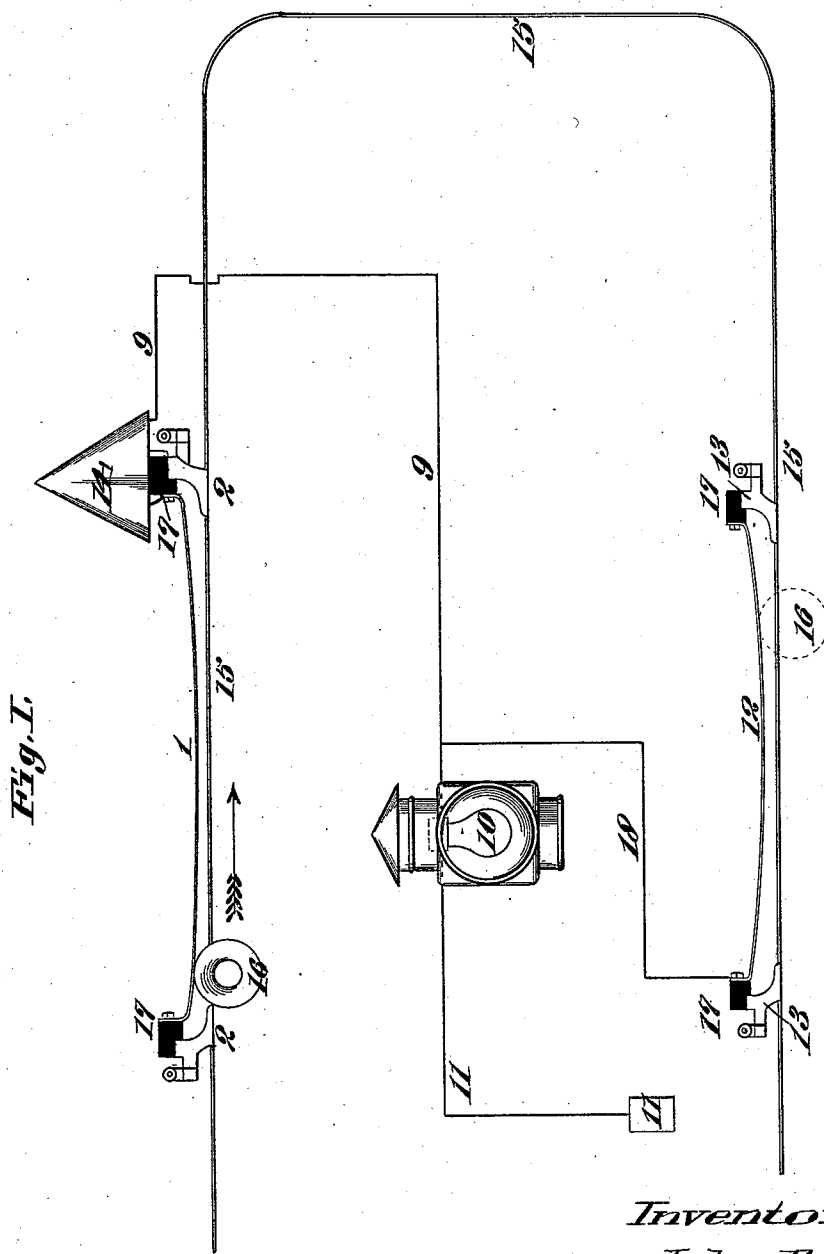
(No Model.)

2 Sheets—Sheet 1.

J. R. FARMER.
CIRCUIT CLOSER AND BREAKER.

No. 552,057.

Patented Dec. 24, 1895.



Attest:
Charles Pickles.
Stanley Stoner

Inventor:
John R. Farmer
F. Wright Bond atty's

(No Model.)

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Fig. IV

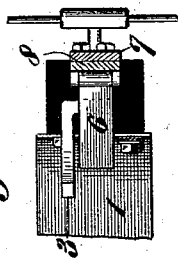


Fig. II

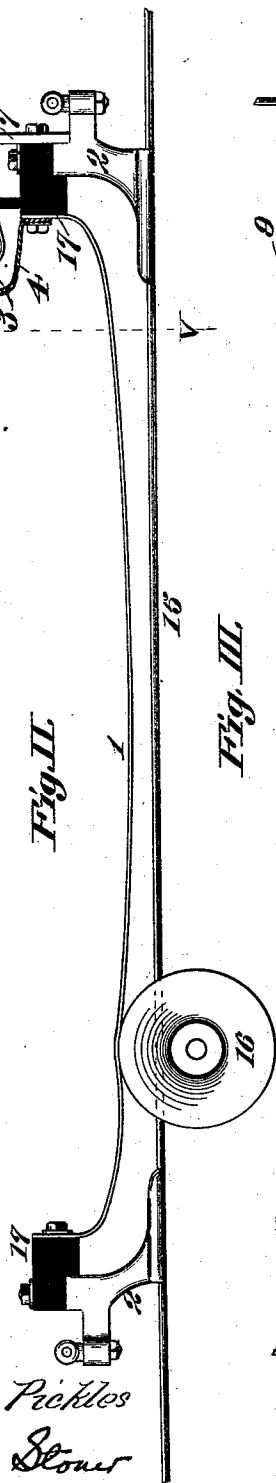


Fig. III

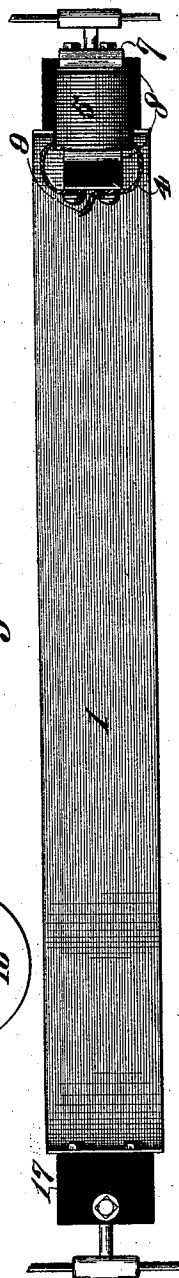


Fig. VI

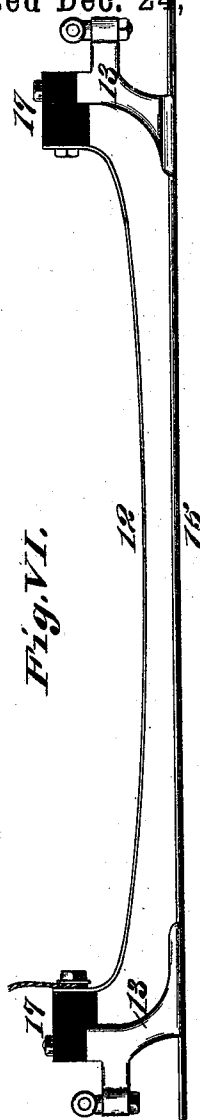
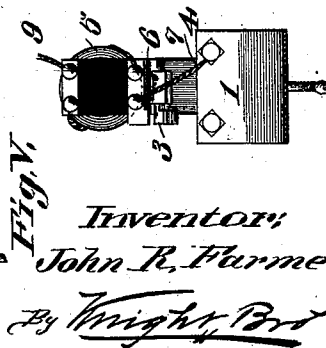


Fig. V



Attest:
Charles Pickles
Stanley Stoner

Inventor:
John R. Farmer
By Wright, Bond
attys

UNITED STATES PATENT OFFICE.

JOHN R. FARMER, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE FARMER
ELECTRIC COMPANY, OF SAME PLACE.

CIRCUIT CLOSER AND BREAKER.

SPECIFICATION forming part of Letters Patent No. 552,057, dated December 24, 1895.

Application filed January 25, 1895. Serial No. 536,224. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. FARMER, residing at the city of St. Louis, State of Missouri, have invented a new and useful Improvement in Circuit Closers and Breakers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a means of introducing a current of electricity through a lamp, said lamp adapted to serve as a danger or other signal on electric car-lines, and operated by the trolley-wheel of a passing car. I accomplish this object by use of the device illustrated in the drawings, in which—

Figure I illustrates a general view of my device, showing the apparatus for introducing a current through the lamp, and also showing the trolley, the lighting-wire, the lamp, and the apparatus for shutting off the current. Fig. II illustrates a side view of the apparatus by which a current of electricity is taken from the trolley and directed to the lamp. Fig. III illustrates a top view of the device shown in Fig. II. Fig. IV illustrates a top view of the armature and insulated plate through the line IV IV of Fig. II. Fig. V illustrates an end view of the armature-magnet and insulated plate through the line V V of Fig. II. Fig. VI is a view similar to Fig. II, illustrating a short-circuiting contact.

The same numbers refer to the same parts throughout the several views.

1 is a plate of suitable conducting material suspended over the trolley.

2 2 are shoes, also of suitable conducting material, clamped above the trolley, serving as supports to the plate 1, but insulated therefrom.

3 is a contact-brush carried on the armature.

4 is a conducting-wire, in contact with plate 1, leading to a magnet-coil 5.

6 is an armature secured to the support 7, directly below magnet 5. 7 is a support secured to shoe 2 and bearing magnet 5. This armature has electrical connection with the trolley-wire through the medium of its support 7, and together with its contact-brush 3, which is arranged to impinge on the connec-

tion 4, serves to keep the magnet supplied with current from the trolley after the armature is drawn up by the initial current received from the contact-plate 1.

8 is the core and frame of the magnet.

9 is a conducting-wire leading to the lamp.

10 is a lamp of any suitable construction adapted to be lighted by the current of electricity passing from 9.

11 is the ground connection.

12 is a plate similar in curvature to 1 and fastened by shoes 13 13 above the trolley.

14 is a hood placed over the armature and magnet to protect the same.

15 is the trolley-wire, and 16 is the trolley-wheel.

17 17 are insulators of any suitable material.

18 is a conducting-wire leading from plate 12 to lamp 10 to short-circuit magnet 5.

To operate my invention, the trolley-wheel

16, passing in the direction shown by the arrow, comes in contact with the plate 1. The

wheel thereby furnishes the necessary conductor to take a current of electricity from

the trolley-wire to plate 1. The current then

passes through wire 4 and magnet 5 and raises

armature 6. This armature is held in position as long as the current flows through said

magnet. The current passing on through

wire 9 lights the lamp. The armature 6 being

raised, the current for lighting the lamp

is now taken directly from the trolley-wire

through shoe 2, support 7, armature 6, brush 3,

and the magnet-coil, and until this current is

cut off and the armature-brush 3 dropped by

gravity the lamp will remain lighted. The

trolley-wheel passing on to position shown in

outline in Fig. I, comes in contact with the

plate 12. This plate is connected with a wire

18, which is joined to wire 9, as shown in said

Fig. I. The current which until this time is

passing through the high-resistance circuit,

including the reduced contact-brush 3 and the

magnet-coils, to the lamp is thus short-circuited, which takes the current taken from 9 and causes armature-brush 3 to drop. As long as the trolley-wheel 16 remains in contact with plate 12 the lamp will remain lighted; but plate 12 being insulated from its shoes 13 13 by insulators 17 17, as soon as the wheel

passes from contact with plate 12 the current will be cut off from 18 and the lamp extinguished.

My invention is of especial use for operating a lamp hung at the intersection of streets to warn persons of the approach of a car before said car can be seen. By placing plate 1 a suitable distance back from the street intersection the lamp hung at said intersection will be lighted in sufficient time to enable any one to avoid danger. I do not, however, limit myself to this use.

I claim as my invention—

1. In an electric circuit closer, the combination of a trolley wire, a contact plate placed parallel with the trolley wire, the circuit connecting said contact plate through an electro magnet with a signal lamp and a suitable return connection, the armature, having constant connection with the trolley wire, under control of the electro magnet, and adapted to close a circuit through said magnet and suitable means for dropping said armature from a distant point as explained.

2. In combination with a trolley wire and the shoes secured thereto, a conducting plate secured by said shoes in proximity to the trolley wire but insulated therefrom, an armature

supported on one of the said shoes, and electrically connected therethrough to the trolley wire, a magnet also supported on one of said shoes and having its coil electrically connected with the contact plate, and having contact for the armature when drawn up, and a lamp in electrical connection with the magnet coil substantially as described.

3. In combination with a trolley wire, a contact plate secured adjacent thereto but insulated therefrom, a circuit from said contact plate including an electro magnet, a signal lamp and suitable return connection, an armature fixed in working relation to the magnet, in constant electrical connection with the trolley wire, carrying a contact arranged to close the circuit from the magnet coils when attracted by said armature and a second contact plate located adjacent to the trolley wire at a distant point but insulated therefrom and having electrical connection with the lamp circuit between the lamp and the magnet and adapted to short circuit the magnet and permit its armature to drop as explained.

JOHN R. FARMER.

In presence of—

N. FINLEY,
STANLEY STONER.