(No Model.)

S. C. HOUGHTON.

CIRCUIT CLOSER.

No. 587,260. Patented July 27, 1897.

Fig. 1.

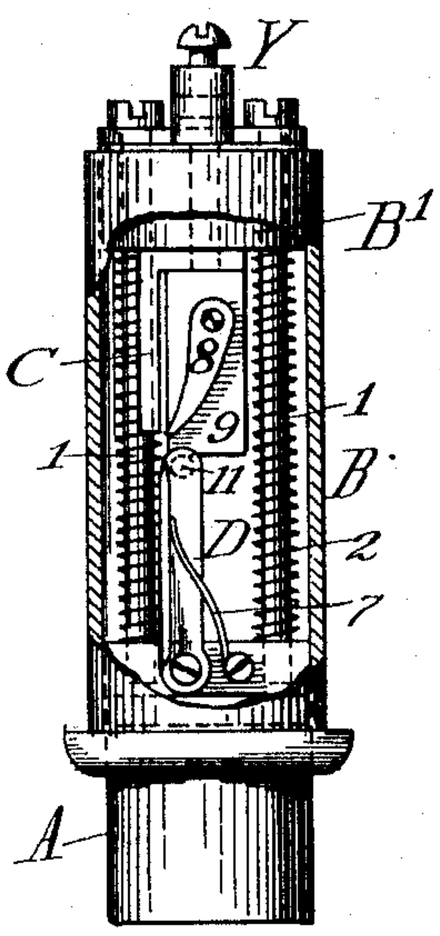


Fig. 2.

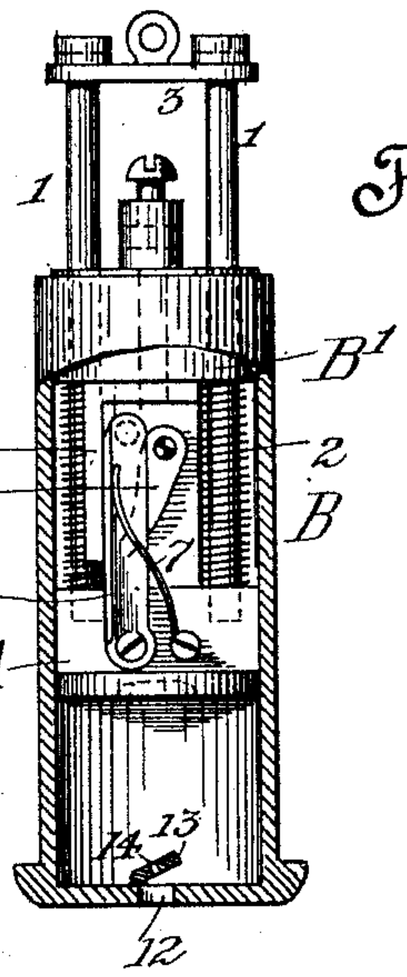


Fig. 3.

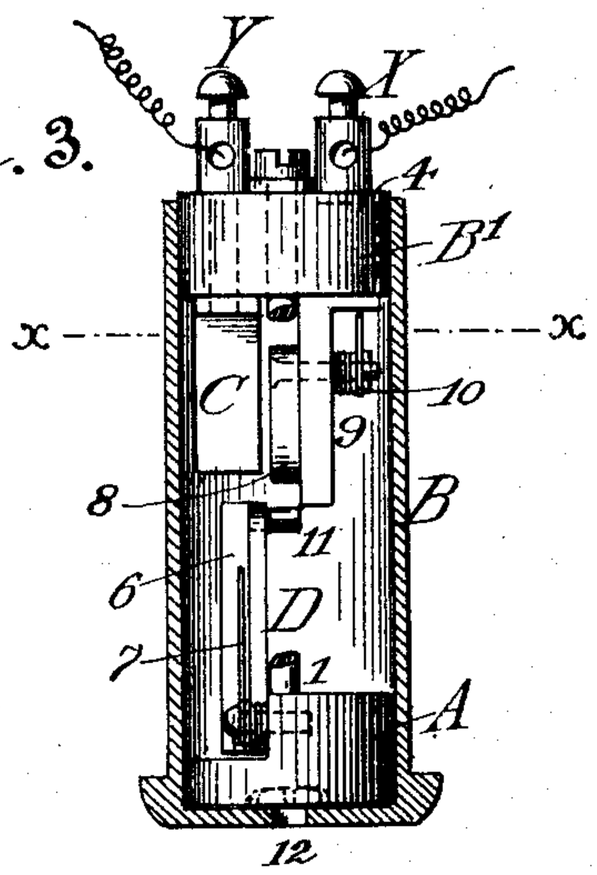
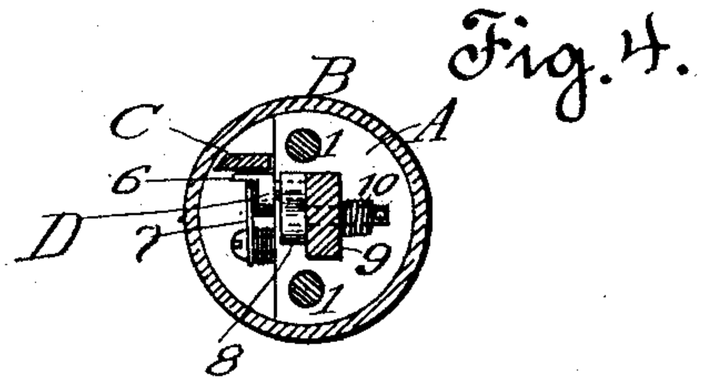


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

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CIRCUIT-CLOSER.

SPECIFICATION forming part of Letters Patent No. 587,260, dated July 27, 1897.

Application filed May 14, 1897. Serial No. 636,468. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN C. HOUGHTON, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Circuit-Closers; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention is an improved electric-circuit closer.

The purpose is to secure a connection of the two electric poles or wires which shall be complete and of duration sufficient to insure the operation of mechanism designed to be actuated by the current, and in which accuracy and certainty of operation are desired.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of the device shown in connection with a push-button and with the circuit open and the barrel for the push-button broken away. Fig. 2 is a similar view with the circuit closed, but showing a modification in which a pull-button is substituted for a push-button. Fig. 3 is a longitudinal section at right angles to Fig. 1. Fig. 4 is a cross-section on line *x x* of Fig. 3.

In order to show a practical embodiment of my invention, I have illustrated it in connection with a slide or button A. This button slides within a barrel B and is guided by the rods 1 1, secured to the button and which project through the head B′ of the barrel and are encircled by coil-springs 2, against the resistance of which the button is pressed inwardly. These rods are preferably connected by a yoke 3, to which, if desired, a cord can be secured, so that the device operates by a pull from the opposite direction instead of by a push.

X is one of the binding-posts for the wire of the circuit, which is in electrical connection with a metallic piece 4 in contact with the barrel. The other binding-post Y is in contact with an angular plate C, secured to the head or end of the barrel. This plate is one of the terminals or contact-pieces. Pivoted to the button or sliding part A is the other contact-piece D, against a projection 6 on which bears a spring 7, which tends to press the two contacts together. In normal or open position, Fig. 1, the end of the contact-arm D is below the end of the plate, so that no contact will be made. When the button A is pushed or pulled inwardly, a contact is prevented at first by a guide and guard 8, pivoted to a bracket 9, and having a spring 10, which forces it toward the contact C. When the button is pushed or pulled inwardly, a stud 11 on the arm 5 is intercepted by this guard, so that the end of the arm is compelled to travel along the edge of the guard. At the end of the latter, Fig. 2, the spring 7 pushes the arm 5 toward the other contact, the stud 11 traveling over the rounded pivoted end of the guard.

Fig. 2 shows the two terminals in contact prior to the release of the button. When the button is released, the contact is maintained along the whole length of the plate C until it is broken when the parts reach the position of Fig. 1 again, the guard yielding to permit the end of arm D and its stud to pass. A contact of such unusual extent and duration insures the operation of whatever mechanism may be controlled by the button, while the action is sufficiently quick.

The button A is shown in Fig. 1 as a push-button and in Figs. 2 and 3 as a pull-button; and I have illustrated in connection with the latter figures a means for prolonging the duration of the contact by interposing a cushion of air behind the button, which acts as a piston within the barrel. In this case the end of the barrel is closed excepting for a small opening 12, having an inwardly-opening valve 13, provided with a vent 14. When the button is moved inwardly, air is drawn in through the valve, which on the release and return of the button acts as a cushion and somewhat retards the button, thus prolonging the contact.

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

1. In a circuit-closer and in combination, a movable slide carrying a pivoted contact-arm; a contact-plate substantially parallel with the slide; a spring tending to force the arm into contact with the plate; and a pivoted and spring-pressed guard adapted to intercept and divert the arm away from the plate during its motion in one direction, but permitting it to make contact and retain such con-

tact throughout the length of the plate, during its motion in the opposite direction.

2. In a circuit-closer and in combination, a stationary plate-contact, a pivoted movable spring-pressed arm-contact, an interposed pivoted and spring-pressed guide and guard, and means for moving the arm-contact in one direction outside of and along the guard and around the end of said guard, and in the other direction inside of or between the guard and plate-contact causing a full-length contact of the arm with the plate during the latter movement.

In testimony whereof I have affixed my signature, in presence of two witnesses, this 30th day of April, 1897.

STEPHEN C. HOUGHTON.

Witnesses:

L. W. SEELY,

H. J. LANG.