

(No Model.)

D. IRISH & J. G. WILLIAMS.
AUTOMATIC CIRCUIT BREAKER.

No. 492,807.

Patented Mar. 7, 1893.

Fig. 1.

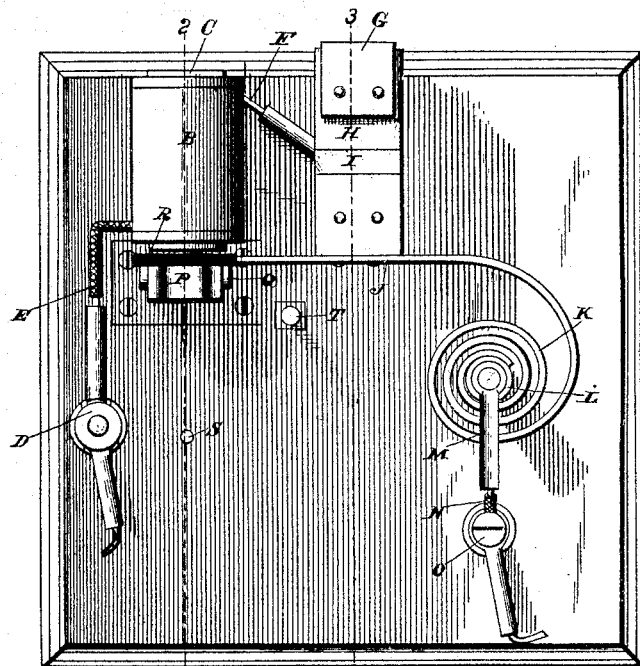


Fig. 2.

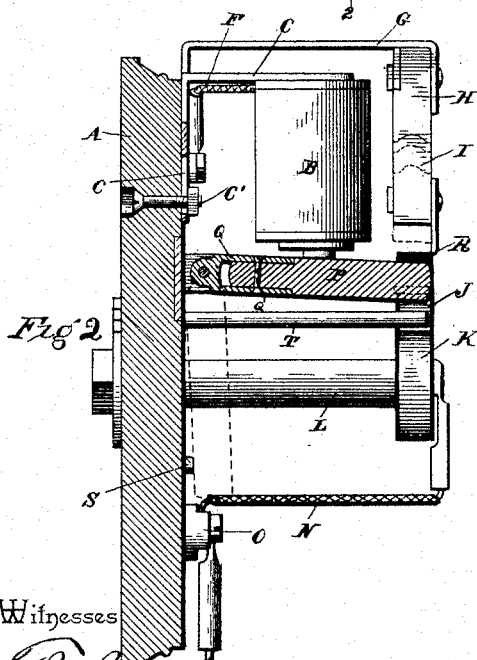
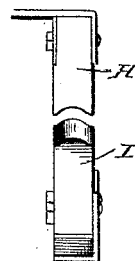
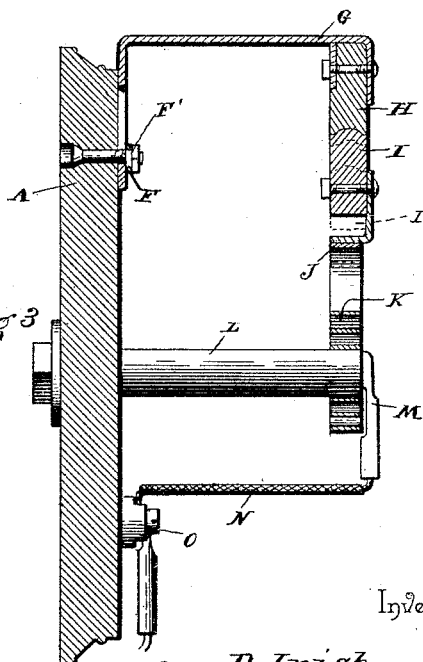


Fig. 3.



Witnesses

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By their Attorneys,

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UNITED STATES PATENT OFFICE.

DELOS IRISH AND JOHN G. WILLIAMS, OF SALT LAKE CITY, UTAH TERRITORY;
SAID WILLIAMS ASSIGNOR TO SAID IRISH.

AUTOMATIC CIRCUIT-BREAKER.

SPECIFICATION forming part of Letters Patent No. 492,807, dated March 7, 1893.

Application filed September 14, 1892. Serial No. 445,904. (No model.)

To all whom it may concern:

Be it known that we, DELOS IRISH and JOHN G. WILLIAMS, citizens of the United States, residing at Salt Lake City, in the county of Salt Lake and Territory of Utah, have invented a new and useful Automatic Circuit-Breaker, of which the following is a specification.

This invention relates to automatic circuit-breakers; and it has for its object to provide an improved automatically operating circuit-breaker which also acts in the capacity of an ordinary circuit-closer, but the same is especially adapted to be used as a safety device for electric motors connected with a main working-circuit, which, in the event of the current being cut-off at the central station and suddenly switched in again, prevents the current thus suddenly switched in from injuring the motor by burning the fields, armatures or other part of the motor; and to this end to provide a device capable of use in all analogous connections, and which acts in the capacity of a circuit closer which provides means whereby the circuit can only be closed by the attendant after the current is once cut-off.

With these and many other objects in view which will readily appear as the nature of the invention is better understood the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

In the accompanying drawings;—Figure 1 is a front elevation of a circuit-breaker constructed in accordance with this invention. Fig. 2 is a vertical sectional view of the same on the line 2—2 of Fig. 1. Fig. 3 is a similar view on the line 3—3 of Fig. 1. Fig. 4 is an enlarged detail end view of the contacts separated.

Referring to the accompanying drawings;—A represents the base-board adapted to be secured in a suitable position for supporting the various parts of the circuit closer or breaker. An electro magnet B is adjustably supported off from the base board A, by the bracket arm C, having an adjustable slot c, working over the securing bolt c', securing the magnet to the board A. The current from the main working circuit is led through

the binding post D, to the magnet wire E, connected with said post and leading to the helix of the magnet, the other wire F of which, leads to the slotted off-standing bracket arm G adjustably secured to the board A and carrying at its outer end the concaved carbon contact block H, held stationary off from said board by means of the arm G. Working directly opposite and adapted to register with the concaved carbon contact block H is the opposite movable convexed carbon contact I. The said convexed contact block I is clamped to the spring arm J, of the coiled spring K, which tends to normally hold the carbon I below and out of contact with the carbon H. The spring K is secured to the outer end of the spring post L secured to the base board A, which is of suitable non-conducting material, and further carries upon its outer end the connecting socket M which receives one end of the conducting wire N, and thereby leads the current from the spring to such wire, which latter is connected to the motor binding post O, to which is connected the wire leading to the motor or other electrical device in connection with which the circuit-breaker is adapted to be used.

As stated, the tension of the coiled spring K holds the spring arm J thereof, normally in a position to hold the carbon I below and out of contact with the carbon H, when the circuit is broken, but when the circuit is closed and the current cut onto the instrument, the carbon I is held into registering contact with the stationary carbon H, by means of the weighted drop armature P. The drop armature P is clamped at one end in the socket Q, which latter is pivotally connected to the base board A, at a point below the exposed core of the magnet B, so that when the current is passing through the wire E, the magnet will hold the weighted drop armature P up to the same in such a position as to hold the carbons in close contact with each other. The drop armature is adapted to bear under the outer insulated end R of the spring arm J, when the magnet holds the former in its attracted position at approximately right angles to the board A. Immediately upon the current being cut off from the wire leading to the herein described circuit-breaker, the

magnet becomes upon that instant demagnetized and therefore allows the weighted drop armature to fall back against the board A, and the cushion S which breaks the fall of the same. The spring arm J is thereby released and springs down against the stop pin T, projecting from the board A, and thus allows the registering carbons to be immediately thrown out of contact with each other. It will be apparent that even if the current from the central station should be suddenly switched on, the same cannot pass through the circuit breaker to the machine or instrument in connection with which the same is employed, and on the contrary the circuit cannot be again completed or closed until the heavy drop armature is moved up to the magnet by the operator.

The many advantages of the herein described circuit-breaker will readily suggest themselves to those skilled in the art.

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

1. In a circuit-breaker, the combination of an electro magnet arranged in the working circuit, a weighted drop armature arranged at one end of the magnet, a stationary contact arranged in the magnet circuit, and a movable spring supported contact adapted to be held normally out of contact with the stationary contact and controlled by said drop armature, substantially as set forth.

2. In a circuit breaker, an electro magnet, a weighted drop armature arranged at one

end of the magnet, a stationary contact block, and a movable spring supported contact block adapted to be held in engagement with the stationary block by said drop armature, substantially as set forth.

3. In a circuit breaker, the combination of the base board, the electro magnet adjustably secured to said base board and arranged in the working circuit, a weighted drop armature pivoted at one end to said base board adjacent to one end of the magnet, a stationary bracket arm adjustably secured to the base board adjacent to the magnet, the stationary concaved contact carbon secured to the outer end of the bracket arm, a spring post secured to the base board, a coiled spring secured to the outer end of said post and provided with a spring arm terminating in an insulated end adapted to be engaged by said drop armature, a concaved contact carbon secured to said spring arm, a stop pin arranged adjacent to the spring arm to limit the same, and wires leading from the magnet to the stationary bracket arm and from the coiled spring to the line of use, substantially as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

DELOS IRISH.
JOHN G WILLIAMS.

Witnesses:

E. R. KNEASS,
JOHN S. BONNER.