

(No Model.)

E. M. BENTLEY.
AUTOMATIC ELECTRIC CUT-OUT.

No. 427,724.

Patented May 13, 1890.

FIG 2

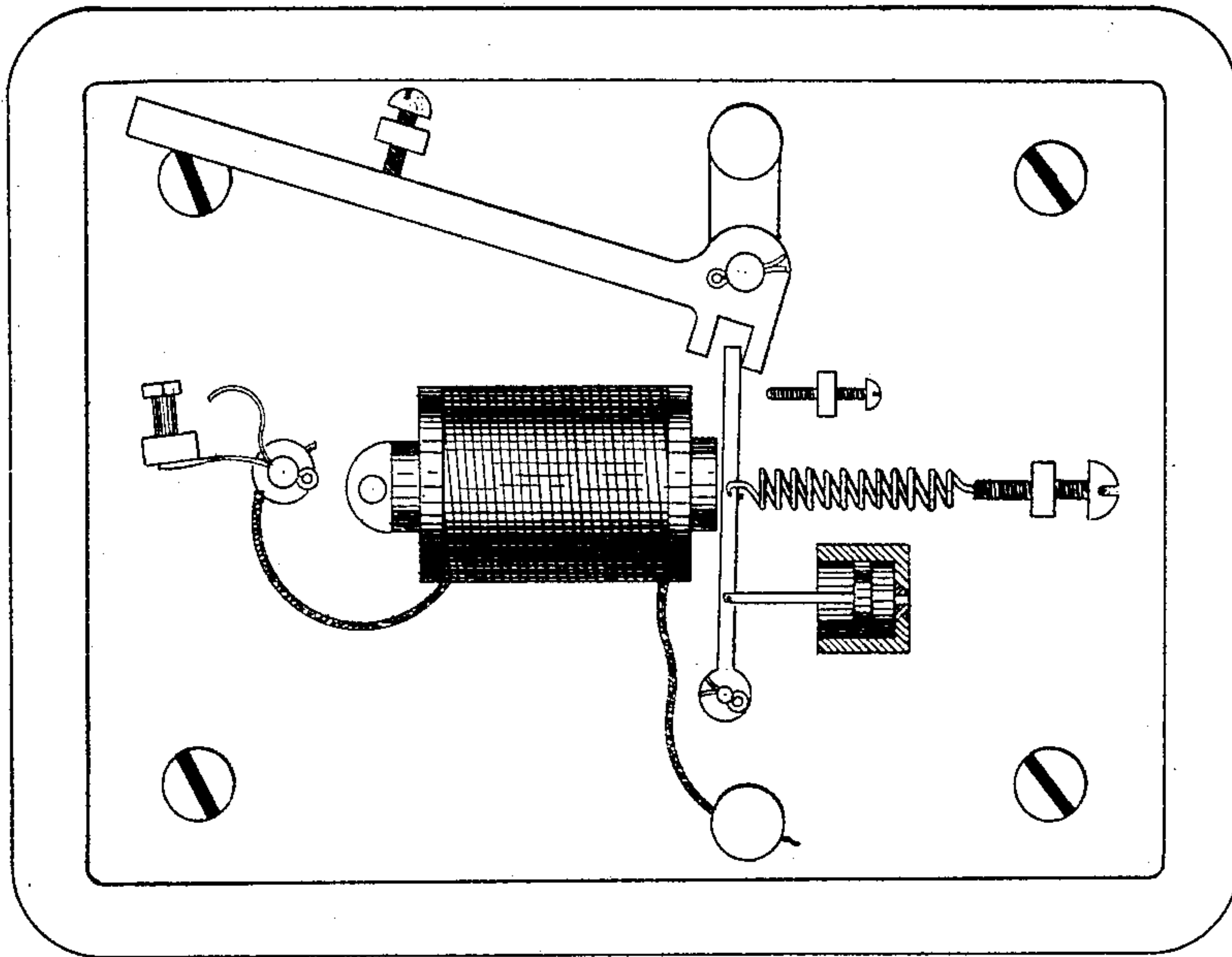
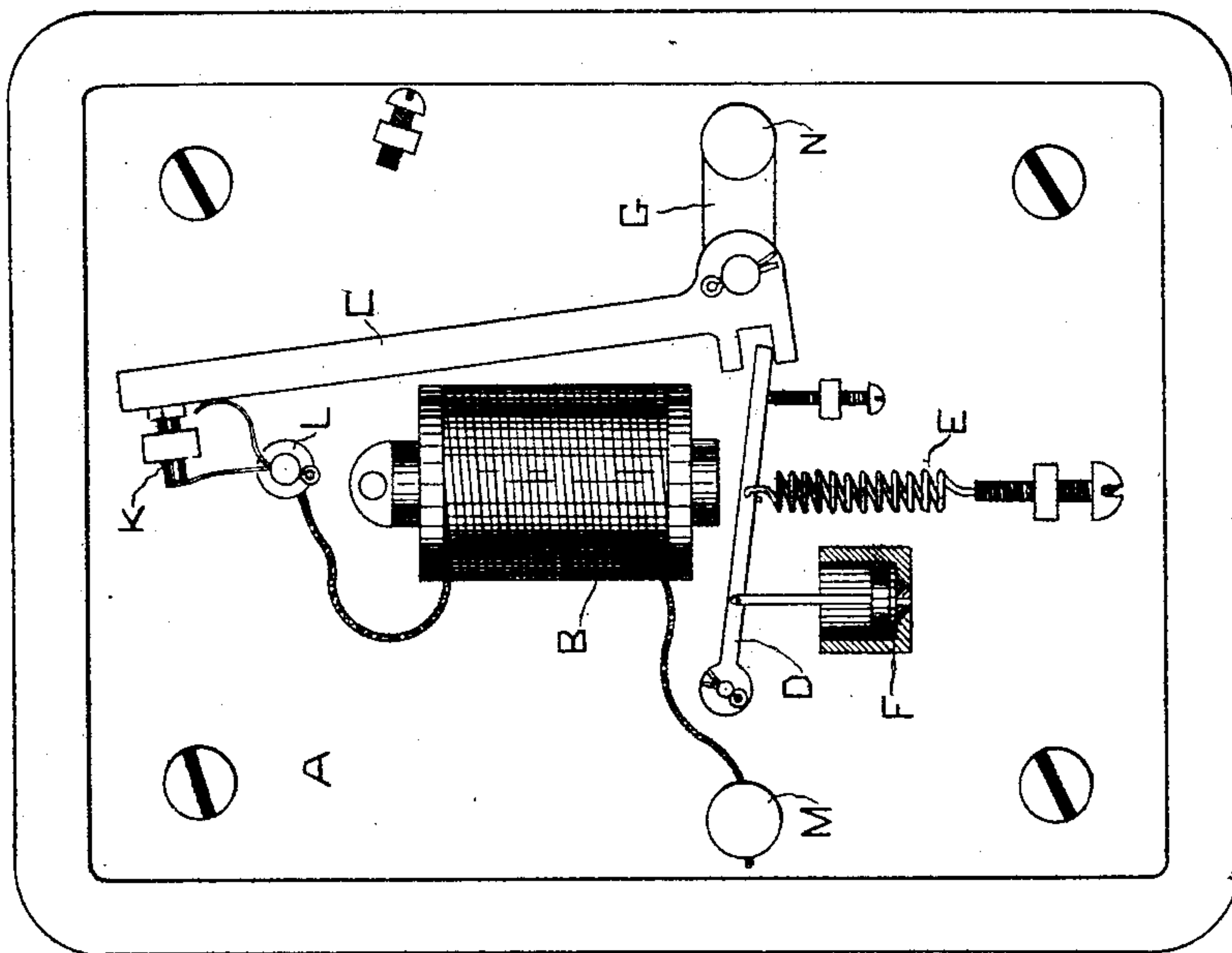


FIG 1



WITNESSES

Edward M. Bentley
J. Pennington

INVENTOR

Edward M. Bentley
By J. Pennington
Att'y.

UNITED STATES PATENT OFFICE.

EDWARD M. BENTLEY, OF NEW YORK, N. Y.

AUTOMATIC ELECTRIC CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 427,724, dated May 13, 1890.

Application filed March 16, 1888. Serial No. 267,296. (No model.)

To all whom it may concern:

Be it known that I, EDWARD M. BENTLEY, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Automatic Cut-Outs for Electric Circuits, of which the following is a specification.

My invention relates to an automatic cut-out for electric circuits, which is adapted to respond to an abnormal increase of current upon a line, and thereby act as a safety device against a dangerous excess of current. The device is further provided with a retarded restoring apparatus, by means of which the apparatus, having acted, is automatically restored to its normal condition after a predetermined interval. It is illustrated in the accompanying drawings, in which—

Figures 1 and 2 represent the apparatus in its open and closed conditions, respectively.

In the drawings, A represents the base-board to which the apparatus is attached.

B is an electro-magnet included in a circuit to be protected and having its armature so adjusted that it will be attracted only when a predetermined current shall pass through the magnet. The adjustment is such that only a dangerous excess of current will cause the magnet to attract its armature.

D is an armature having an adjustable retractile spring E.

C is a contact-lever pivoted at G and normally resting against the spring-contact point K.

L is a supplementary contact-spring adapted to form a good connection, while the point K is adapted to follow up lever C and receive any arc which may occur when the connection is interrupted. The main circuit, entering at M, passes through magnet B, thence through the contact into lever C, and passes out at N. Armature D projects between two jaws on the lower end of lever C. It is also provided with a dash-pot F, which permits a free movement of the armature toward the magnet, but retards its withdrawal for a definite time.

In operation the apparatus is normally set, as is shown in Fig. 1, the circuit being closed. Upon an excess of current passing through B

armature D is attracted. In moving upward D strikes the upper jaw upon C, throwing the lever into a vertical position. The momentum of C carries it beyond the point of dead-center, when by the action of gravity it falls over into the position shown in Fig. 2. The main circuit is of course interrupted when C breaks contact with K, and any arc which may be formed will be broken by the long distance which C traverses after it passes the center and falls by its own weight. The circuit remains broken until the action of spring E against the dash-pot F. Armature D, coming against the lower jaw on C, restores C to its normal position. The time during which the circuit is interrupted can be regulated at will, and if during this time the conditions which cause the abnormal flow of current in B are removed the circuit will remain closed in its normal manner. If, however, these conditions have not been removed, the apparatus will again act, and will continue to do so until the difficulty is removed.

I claim as my invention and desire to secure by Letters Patent—

1. In an automatic cut-out, the combination of a contact for making and breaking the main circuit to be protected, an actuating electro-magnet therefor responding to the presence of an abnormal current in said main circuit, and a retarded restoring device for said contact, whereby the circuit will be automatically restored to its normal condition after a predetermined interval.

2. In an automatic cut-out, the combination, with an actuating electro-magnet included in the main circuit to be protected, of a contact operated thereby upon the presence of an abnormal current, and a retarded restoring device for said contact, whereby the circuit will be automatically restored to its normal condition after a predetermined interval.

3. In an automatic cut-out, the combination of an actuating electro-magnet, an armature, and a spring holding the armature away from the magnet, except upon the presence of an abnormal current, with a moving contact operated by the armature to make and break the main circuit to be protected, and a retarded restoring device, substantially as described, whereby the circuit will be automatically re-

stored to its normal condition after a predetermined interval.

4. In an automatic cut-out, the combination of a magnet adapted to respond to an abnormal current, a pivoted contact-lever, and an armature for said electro-magnet adapted to throw the said lever beyond a point of dead-center, and a retarded restoring device for said lever, whereby the circuit will be automatically restored to its normal condition after a predetermined interval.

5. In an automatic cut-out device, the combination, with magnet B, of lever C, having a contact on its longer arm, and armature D, engaging with jaws on the shorter arm of C and provided with a retarded restoring device, substantially as described.

EDWARD M. BENTLEY.

Witnesses:

ROBT. W. BLACKWELL,
E. S. MCKINNEY.