

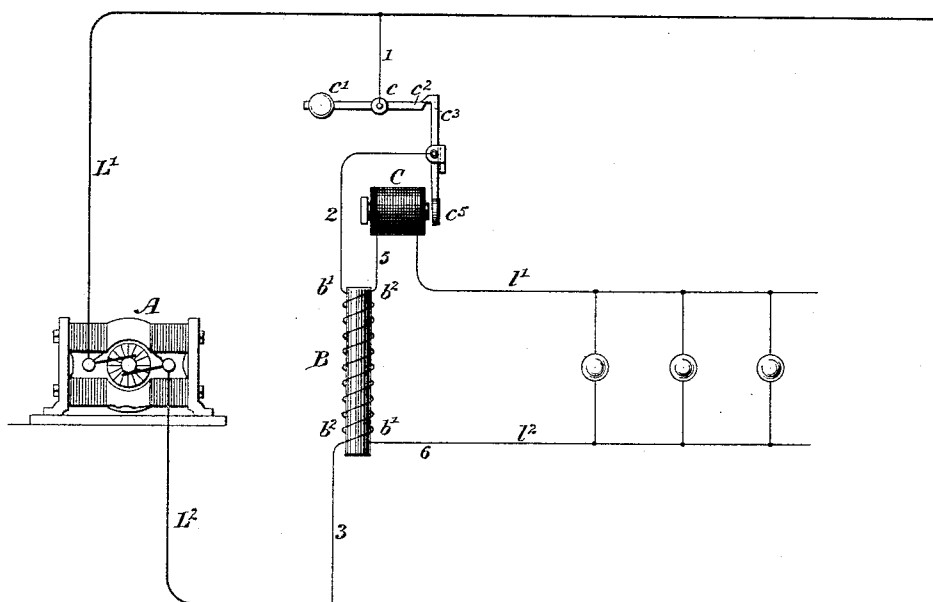
(No Model.)

W. STANLEY, Jr.

AUTOMATIC CUT-OUT FOR ELECTRIC LIGHT CIRCUITS.

No. 349,614.

Patented Sept. 21, 1886.



Witnesses

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UNITED STATES PATENT OFFICE.

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AUTOMATIC CUT-OUT FOR ELECTRIC-LIGHT CIRCUITS.

SPECIFICATION forming part of Letters Patent No. 349,614, dated September 21, 1886.

Application filed December 19, 1885. Serial No. 186,163. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM STANLEY, JR., a citizen of the United States, residing in Great Barrington, in the county of Berkshire and State of Massachusetts, have invented certain new and useful Improvements in Automatic Cut-Outs for Electric-Light Circuits, of which the following is a specification.

My invention relates to the class of apparatus employed for automatically interrupting the connections of an electric circuit when it is traversed by currents of an abnormal or dangerous strength.

The invention is especially designed to be employed in connection with electric-light systems in which currents of a given potential are transformed into currents of a different potential through the instrumentality of an inductorium or converter.

The object of the invention is to provide an electro-magnetic device operated by an excess of current-strength in the secondary or translating circuit of the inductorium for automatically interrupting the connections of the primary circuit when, for any reason, the current traversing the translating-circuit exceeds a predetermined limit.

The invention consists in establishing the normal connections of the primary circuit of the inductorium, or, as it is preferably termed, the "converter," through an automatic circuit-interrupting device capable of being operated by an electro-magnet included in the secondary or translating circuit, and which acts to sever such connections. This electro-magnet, although not responsive to currents of the strength normally employed for operating the system, will nevertheless actuate its armature when traversed by currents of an abnormal strength sufficiently to act in turn upon the circuit-interrupting device, and thereby release a circuit-closing arm from a detent, which immediately severs the connections of the primary.

The accompanying drawing is a side elevation of an apparatus embodying the essential features of the invention, together with a diagram of the circuits.

Referring to the figure, A represents an electric generator, of any suitable character, capable of transmitting currents of the proper

character through a main line, L, to a primary coil, *b'*, of an inductorium, induction-coil, or converter, B. The connection through the said primary coil may be traced as follows: from one arm, L', of the main line through a conductor, 1, to a pivoted arm, *c*, one end of which is preferably weighted, as shown at *c'*, while the other end, *c''*, is normally engaged by a detent, *c'''*. An armature, *c'*, is carried upon the arm *c''* of this detent, and an electro-magnet, C, is applied to this armature. A conductor, 2, leads from the detent *c'* through the primary coil *b'* of the inductorium, and a conductor, 3, leads from this coil to the remaining arm, L'', of the main line.

The electro-magnet C is included in the circuit of the secondary coil *b''* of the inductorium as follows: A conductor, 5, leads from one terminal of the secondary coil *b''* through the coils of the electro-magnet C to the conductor *l'*, which constitutes one arm of the translating-circuit. The other arm, *l''*, of the translating-circuit is connected with the remaining terminal of the secondary coil by a conductor, 6.

It sometimes chances that a current of abnormal strength traverses the secondary conductors of the induction-coil. It is then desirable that either its connections or the connections of the primary should be immediately interrupted. The electro-magnet will at once respond to such a current, and, by withdrawing the detent, release the circuit-interrupting lever *c*, and by thus interrupting the primary circuit the development of secondary and induced currents at once checked.

The application of the cut-out has been described in connection with the primary coil in such manner that it operates to sever the connections of the conductor leading thereto. It is evident, however, that a shunt-circuit might be formed around the coil by the circuit-controller, if desirable. Thus a second contact-point may be applied to the contact arm or lever in such position that the lever rests against it when fed by the device in the secondary circuit, as indicated in dotted lines.

In another application of even date herewith, Serial No. 186,161, I have described and claimed another device for similar purposes operated by the thermal effects produced by abnormal currents.

I claim as my invention—

1. The combination, substantially as hereinbefore set forth, with an inductorium or converter, of a circuit including one of the coils
5 of the same, a circuit-interrupting device included in said circuit, a circuit including the other coil of said inductorium or converter, translating devices included in the last-named circuit, and a device, also included in the last-named circuit, for operating said circuit-inter-
10 rupting device.

2. The combination, substantially as hereinbefore set forth, of a main line, an induction-coil or converter, circuit-connections from said
15 main line through the primary of said induction-coil, a circuit-interrupting device, a translating-circuit including the secondary coil of said converter, translating devices in said translating-circuit, and an electro-magnet, also
20 included in the translating-circuit, for operating said circuit-interrupting device when traversed by currents of abnormal strength.

3. The combination, substantially as hereinbefore set forth, with an electric generator and
25 a main line leading therefrom, of an induc-

tion-coil, the primary circuit of which is included in the main-line circuit, a circuit-interrupting device included in circuit with the primary coil, a translating-circuit in which the secondary coil is included, translating devices
30 in the last-named circuit, and a device responding to abnormal currents in the secondary circuit for operating said circuit-interrupting device, and thereby interrupting the circuit-connections of the primary.

4. The combination, substantially as hereinbefore set forth, with the primary circuit of an induction-coil and a circuit therefor, of a circuit-interrupting device included in said circuit, a circuit including the secondary of the
40 induction-coil, and an electro-magnet included therein and applied to said circuit-interrupting device, substantially as described.

In testimony whereof I have hereunto subscribed my name this 4th day of December, A.
45 D. 1885.

WILLIAM STANLEY, JR.

Witnesses:

DANL. W. EDGECOMB,
CHARLES A. TERRY.