

(No Model.)

J. B. STEWART.
ELECTRIC LIGHT CUT-OFF.

No. 513,250.

Patented Jan. 23, 1894.

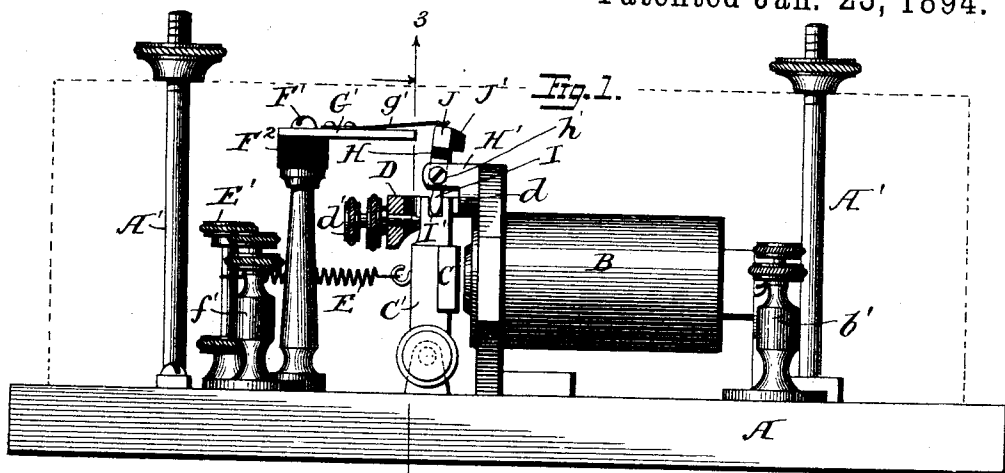


Fig. 2.

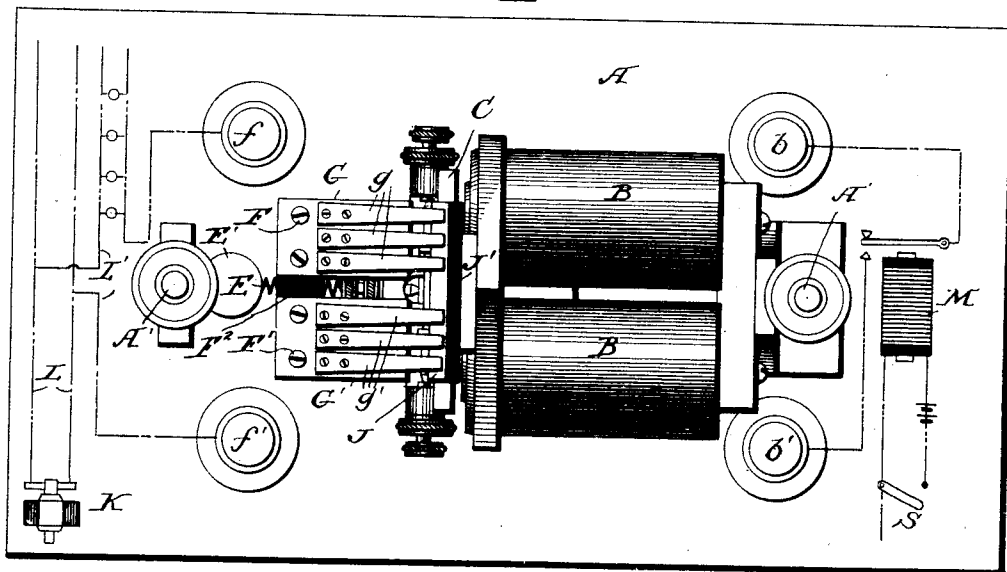
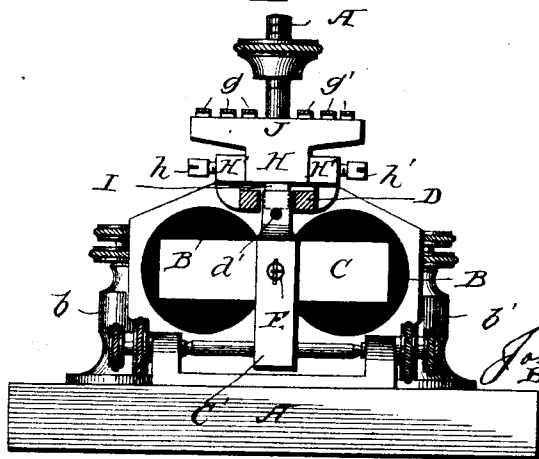


Fig. 3.



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UNITED STATES PATENT OFFICE.

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ELECTRIC-LIGHT CUT-OFF.

SPECIFICATION forming part of Letters Patent No. 513,250, dated January 23, 1894.

Application filed June 21, 1893. Serial No. 478,338. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH B. STEWART, a citizen of the United States, residing at Haverstraw, in the county of Rockland and State of New York, have invented certain new and useful Improvements in Electric-Light Cut-Offs, of which the following is a specification.

My invention relates to electro-magnetic cut-offs or circuit controllers, and it has for its object to provide a simple, cheap and effective device which may be easily operated and not liable to get out of order, and to these ends my invention consists in a device having the features of construction, arrangement and mode of operation, substantially as hereinafter more particularly pointed out.

Referring to the accompanying drawings, Figure 1, is a side view of the device embodying my invention. Fig. 2, is a plan view thereof, showing one arrangement of circuits; and Fig. 3, is an end view, some parts being cut away to better show the construction of the armature.

As above indicated, one of the objects of my invention is to provide a cut-off or electric circuit controller, whereby a comparatively large or heavy current of electricity may be readily controlled by a slight current, and while my invention may be used for many and various purposes, it is specially applicable in controlling electric light circuits, in railroad signals, as for instance, in such a system as that shown in Patent No. 498,865, granted to Stewart and Wattson, and while I have illustrated and described my invention as used in such a connection, it is evident that it may be used in other connections, wherever it is applicable, and I do not limit myself to such use.

In switches of this character, it is desirable and practically necessary that the opening and closing of the circuit should be quickly accomplished, to avoid arcing, and other objectionable features, and it is often desirable to have the circuit broken or controlled at an inaccessible point, and without reciting such instances, further than referring to the above named patent, it will be seen that my present invention is well adapted for such uses. The instrument as shown in the drawings, consists of a base A, preferably of insulating material, on which is mounted an electro-

magnet B, the coils of which are connected to the terminals *b, b'*. Arranged in proper relation to the ends of the magnet, is an armature C, which is shown as mounted on a pivoted armature lever C', the free end of the lever vibrating in the yoke D, so shaped as to form a front stop *d*, and provided with an adjustable rear stop *d'*, in the form of a screw, as is common in this class of instruments. A retractile spring E, is connected to the armature lever at one end, and the other end is secured to the adjusting screw E', and this may be adjusted so that in its normal position the armature lever will rest on its back stop *d'*, but when the magnet is energized, the armature will be attracted, so as to rest on the front contact *d*. The terminals of the circuit to be controlled may be secured to the binding-posts *f, f'*, and these in turn are connected to the posts F, F', which are connected preferably by an insulating block F², and secured upon this block are the contact plates G, G', which are electrically connected respectively with the posts F, F'. Mounted on these plates are the springs or contact pieces *g, g'*, forming the spring terminals of the circuit.

Suitably mounted with relation to the armature lever C', and as shown, in the projection H', of the magnet frame, is a rocking arm H, it being shown as supported on the adjusting screws *h, h'*, passing through the arms of the yoke or projection H', so that it can have a free movement therein. This arm H, is provided with a central downward extension I, which fits in a socket I', in the free end of the armature lever, the projection being rounded or properly shaped to allow freedom of movement. The upper end of this arm H, is made of or provided with a metallic strip J, which forms an electric connection between the spring contacts *g, g'*, when in proper position, while mounted on this strip is an insulated strip J', which affords a support for the contact springs, but insulates one set from the other, so that when the springs rest on this insulating material, the circuit is broken. The faces of the strips or bars J, J', are preferably inclined, as shown in the drawings, and the ends of the contact springs *g, g'*, preferably curved so as to form a good bearing on the bars and furnish a rubbing con-

tact. The arm H, may be of any desired length, and preferably the upper portion is considerably longer than the lower portion, so that a comparatively small movement of the armature lever will produce a considerable throw or movement of the contact bars, so that the circuit will be quickly opened or closed, and to a sufficient extent to prevent any danger of arcing. The whole apparatus may be inclosed in a suitable case, indicated in dotted lines, Fig. 1, the parts being held together by the rods A', which may be provided with suitable thumb-nuts.

In Fig. 2, I have indicated an electric circuit in which K, is a generator, L, L, the leading wires of the system, and L', a branch therefrom, containing the electric lights, or other translating devices, the branch wires being connected to the binding-posts *f, f'*. I have also shown a relay M, controlling an electric circuit of the magnet B, the wires of the circuit being connected to the binding-posts *b b'*, and the circuit of the relay being controlled by a switch S. It will be understood that this switch and the relay may be placed at any position or distance desired from the cut-out itself, they being shown in the present instance as mounted on the base simply for convenience.

The operation of the device will be evident to those skilled in the art, and as shown in Fig. 1, it will be seen that normally the electric light circuit is closed, the spring E, holding the armature lever in such a position that the contact springs *g, g'*, rest on the bar J, of conducting material. When, however, it is desired to cut out the light circuit, as in the signal patent referred to, or otherwise, all that is necessary is to move the switch or push-button S, and close the circuit of the relay, which in turn closes the circuit of the magnet B, which being energized, attracts the armature C, and throws the arm H, quickly over, so that the contact springs *g, g'*, will rest on the insulated bar J', and the electric light circuit will be broken, and so remain as long as the magnet B is energized. When, however, the circuit of this magnet is broken, the spring quickly retracts the armature lever, closing the circuit of the lights.

It will be seen that this device can be

quickly and readily operated with a small source of electricity, and from any desired distance, and that the parts are simple and effective, and that the light circuit is quickly made or broken, in a manner to avoid danger or injury to the parts.

It will be evident that while I have shown the light circuit as normally closed, the parts could be arranged so that the light circuit would be normally open, and other changes and modifications in the use and construction of the device will suggest themselves to those skilled in the art, so that I do not limit myself to those shown and specifically described.

What I claim is—

1. An electric light cut-out, comprising a single magnet, a single armature, a rocking arm mounted on the magnet, the arm being provided with a conducting and a non-conducting bar and having electric light terminals, and a single projection on the arm engaging the armature lever by which it is operated, substantially as described.

2. An electric light cut-out, comprising a magnet, an armature lever having a socket in its end, electric light terminals in the form of springs, and a rocking arm pivotally mounted above the armature lever and provided with a conducting and a non-conducting bar engaging the spring terminals and having a projection engaging the socket of the armature lever, substantially as described.

3. An electric light cut-out, comprising an electro-magnet, an armature lever having a socket in its free end, a rocking arm carrying a conducting and a non-conducting bar and having a projection fitting the socket of the lever, posts connected with the light circuit terminals, an insulated bar connecting the posts, conducting plates secured to said bar and to the posts, and spring contact arms mounted on said plates, and bearing on the conducting and non-conducting bars, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH B. STEWART.

Witnesses:

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