(No Model.)

C. GODDARD.

THERMAL CUT-OUT.

No. 439,398. Patented Oct. 28, 1890.

Fig. 1.

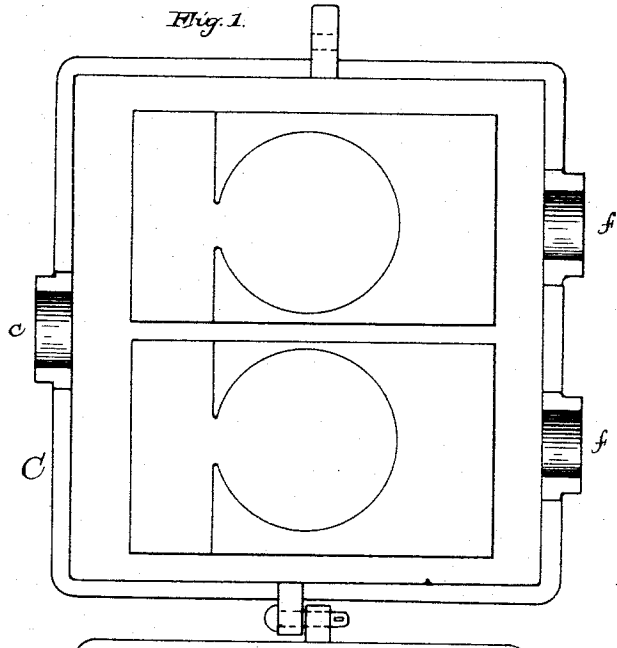


Fig. 5.

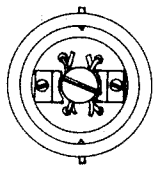


Fig. 6.

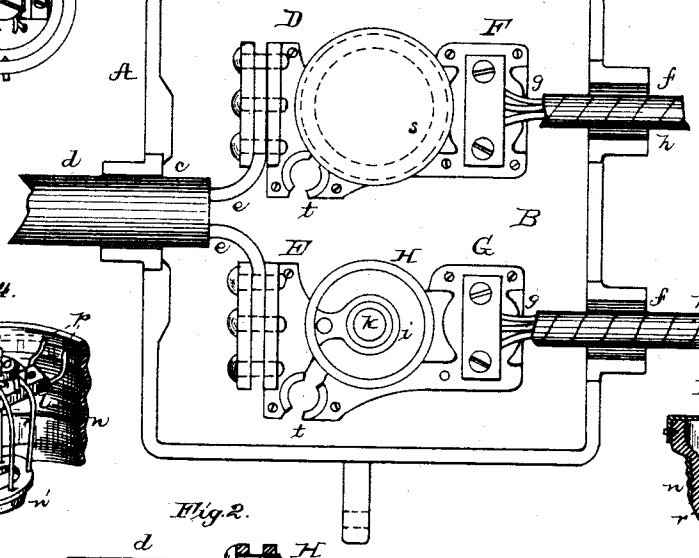


Fig. 4.

Fig. 3.

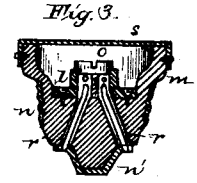
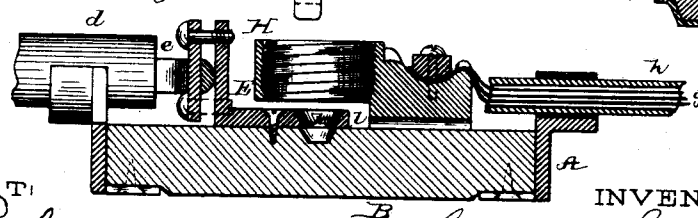


Fig. 2.



ATTEST:

E. C. Rowland

New Lenox

INVENTOR:

Calvin Goddard

By Richd. N. Dyer

Atty.

UNITED STATES PATENT OFFICE.

CALVIN GODDARD, OF NEW YORK, N. Y., ASSIGNOR TO THE EDISON ELECTRIC LIGHT COMPANY, OF SAME PLACE.

THERMAL CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 439,398, dated October 28, 1890.

Application filed December 12, 1883. Serial No. 114,285. (No model.)

To all whom it may concern:

Be it known that I, CALVIN GODDARD, of New York, in the county and State of New York, have invented a new and useful Improvement in Safety-Catches for Electric-Light Circuits, of which the following is a specification.

The object of my invention is to provide an efficient construction for the safety-catch plugs and receptacles therefor used in the circuits of systems of electric lighting, to provide such plugs with devices for readily and efficiently connecting the circuit-wires to them, and to provide means for closing circuit around a safety-catch when it is desired to do so in order to prevent sparks when the safety-catch is removed from or placed in position, or to maintain the circuit during the interval which may elapse between the destruction of a safety-catch and its replacement by another, or when it is desired to send out over the circuit an abnormal current.

I have preferably employed my invention in connection with a junction-box for making connection between the main conductors and the house-wires of a system—such as is set forth and claimed in my application, Serial No. 78,747, filed December 8, 1882. Said invention is, however, applicable to many other situations.

My invention consists in the novel devices and combinations of devices employed by me in accomplishing the objects above specified, as hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a plan view of the interior of an opened junction-box embodying the features of my invention; Fig. 2, a vertical section of the same through one of the safety-catch receptacles; Fig. 3, a section of a safety-catch plug; Fig. 4, an enlarged perspective view of the terminals of such plug, the screw-ring terminal being in section; Fig. 5, a top view of the plug with its cap removed, and Fig. 6 an elevation of a guard-plug.

The inclosing-box is made in two parts—a metallic frame A, which holds an insulating-block B, on which the connections are made, and a metallic cover C, which fits over the frame A. The box is provided with an opening *c*, through which the tube *d*, containing main conductors *e e*, enters it, and openings *f f*, through which pass the house-wires *g g*, covered by insulating-wrappings *h*.

The main conductors are clamped upon metal plates D and E, and the house-conductors upon plates F and G all such plates being secured to the insulating-block B. The construction of the clamping devices is not specifically described herein, as it is claimed in my application above referred to. The plates D and E are extended inwardly and form the bottom plates *i i* of the sockets or receptacles for the safety-catch plugs. Each of such bottom plates is provided, preferably, with a conical depression or aperture *k*.

Secured to, or, if desired, made in one piece with each of the plates F and G, is the internally-screw-threaded metal ring or band H, which bands form the other terminals of the safety-catch receptacles. In these sockets or receptacles are inserted the safety-catch plugs. These consist each of a block *m* of wood or other suitable insulating material, on the outside of which is secured a screw-threaded metal ring or band *n*, forming one terminal, while the other terminal is a conical metallic tip *n'*, secured to the end of the plug, being of the conical form shown to correspond to the conical depressions *k*, whereby an increased area of contact is provided. The wooden plug is hollowed out at the top, and in the chamber thus formed is placed a metal clamping plate *l* and a clamping-screw *o*. The clamping-plate *l* is electrically connected with the ring-terminal *n* of the plug by wires *p p*, soldered to the plate and ring. The lead-wires *r r*, which form the safety-catch, are soldered to the tip-terminals *n'* and clamped under the head of the clamping-screw *o*. One of these plugs is inserted in each of the sockets or receptacles of the junction-box, and a safety-catch is thus interpolated in each conductor of the house-circuit. The chambers in the tops of the plugs are covered by removable metal caps *s*.

Outside of the sockets the plates D E and F G are extended toward each other and flanged to form receptacles *t t* for guard-plugs *u*, which are inserted when it is desired to complete the circuit around the safety-catch plugs. Such guard-plugs are inserted before

the removal or before the replacement of a safety-catch plug to prevent spark, or may be used to maintain circuit after a safety-catch is destroyed and before the introduction of a new one. This is a matter of great importance in electric-lighting circuits, since it is desirable that in case of emergency the circuit can be kept closed to the lamps without the use of the safety-catch. It occasionally occurs that, the terminals of a safety-catch becoming oxidized, the safety-catch is destroyed while there is yet a safe current flowing for the system. The service of the light must be certain, in order to meet commercial requirements, and hence the guard-plugs are immediately inserted in place. It is often desirable to do this even when the safety-catches are destroyed by an abnormal current, so as to keep up current in the circuit while the load is being decreased to relieve the plant or to burn out a cross on the conductors by concentrating the power of the plant upon it in the form of current.

What I claim is—

1. The safety-catch plug provided with a conical tip-terminal, in combination with a socket or receptacle therefor having a corresponding depression in its bottom plate, substantially as set forth.

2. A safety-catch plug having a hollow chamber formed in its top, in combination with a clamping plate and screw in said chamber and the safety-catch wires clamped by said plate and screw, substantially as set forth.

3. The combination, in an electric-light circuit, of a fusible safety-catch plug having a conical tip constructed to be removed and replaced, a socket therefor having a corresponding depression, and a normally-open shunt around such safety-catch, with a circuit-controller for closing said shunt when desired, substantially as and for the purpose set forth.

This specification signed and witnessed this 16th day of November, 1883.

CALVIN GODDARD.

Witnesses:
H. W. SEELY,
EDWARD H. PYATT.