No. 815,804. PATENTED MAR. 20, 1906.

C. E. EVELETH.

THERMAL CUT-OUT.

APPLICATION FILED AUG. 4, 1903.

Fig. 2.

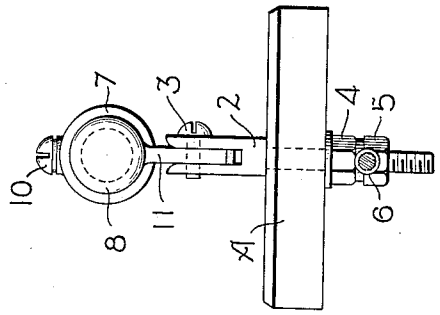
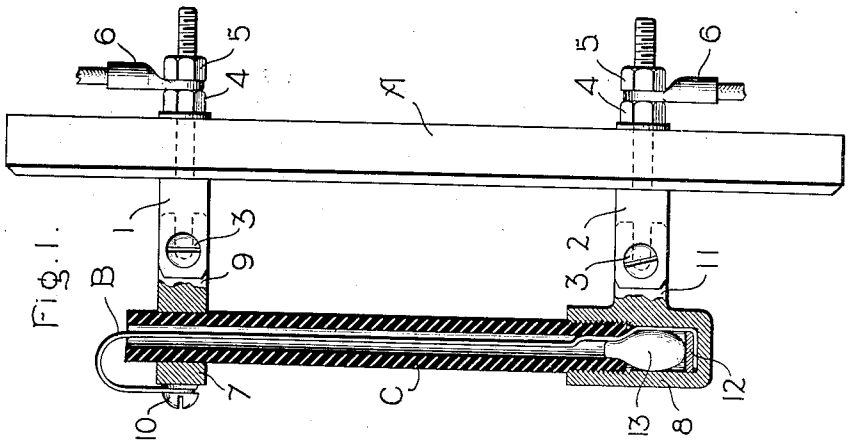


Fig. 1.



Witnesses.

Harry H. Tilden.

Arlen Alford

Inventor.

Charles E. Eveleth.

by Albert G. Davis

Att'y

UNITED STATES PATENT OFFICE.

CHARLES E. EVELETH, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

THERMAL CUT-OUT.

No. 815,804. Specification of Letters Patent. Patented March 20, 1906.

Application filed August 4, 1903. Serial No. 168,147.

To all whom it may concern:

Be it known that I, CHARLES E. EVELETH, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Thermal Cut-Outs, of which the following is a specification.

The present invention relates to protecting devices for electric circuits, and more particularly to thermal cut-outs, and has for its object to provide a simple and inexpensive device of this character which shall be very effective in rupturing high-tension circuits.

My invention consists in inclosing a fusible conductor in a tube or casing of suitable material and connecting therewith a charge of compressed gas or explosive material in such a manner that upon the formation of an arc it will be liberated and all the gases thereof discharged through the tube or casing in intimate association with the arc and effecting the complete expulsion thereof with the expenditure of a minimum amount of energy.

The invention will be readily understood by reference to the following description and the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of a panel-board and a longitudinal section of a thermal cut-out connected thereto and embodying one form of my invention, and Fig. 2 is a bottom plan of the same.

The panel-board A is made of stone or other suitable insulating material and has mounted upon its front surface two U-shaped metallic clips 1 and 2, each provided near its outer end with a transverse clamping-screw 3 and at its inner end with a screw-threaded shank which extends through the panel-board and receives two nuts 4 and 5, between which each of the terminals 6 of the main conductor is secured.

The fusible conductor B, consisting of a narrow strip of soft metal, is inclosed for the greater part of its length in a casing or tube C, of insulating material, which is provided at its respective ends with metallic terminals 7 and 8, to which the fusible conductor is connected. The upper terminal 7 is made ring-shaped, with an opening to loosely receive the tube C therein, and provided at one side with a split tongue 9, adapted to enter the upper U-shaped clip 1 and at its opposite side with a binding-screw 10, to which the upper end of the fusible conductor B is adapted to be connected after being bent down over the upper wall of the tube C. The lower terminal 8 is made cup-shaped with cylindrical side walls and a closed bottom and is provided at one side with a split tongue 11, adapted to enter the lower U-shaped clip 2. The wall at the upper end of the cavity is screw-threaded to detachably engage the threaded lower end of the tube C, and the wall at the lower end of the cavity is made cylindrical. The fusible conductor B makes contact with the cup-shaped terminal 8 at its inner side and end walls and is held in engagement therewith by a close-fitting disk 12 and by the charge.

The charge of blast-producing material in the present instance is compressed carbon-dioxid gas contained in a small egg-shaped metallic capsule 13 and known commercially as a "sparklet." When an arc forms in the tube C upon the fusing of the conductor B, the end of the capsule 13 is melted and the compressed gases instantly liberated; but instead of spreading in all directions from the end of the capsule they are confined and directed by the bore of the tube to its upper end, so that the arc and the volatile gases by which it is supported are more or less cooled and positively expelled by the discharge of the carbon-dioxid gas. The fusible conductor and charge can be readily renewed by unscrewing the tube C from the lower terminal 8, removing the fragments of the destroyed fuse and capsule, inserting a new fusible conductor and sparklet, rescrewing the tube in place, and connecting the upper end of the conductor B to the binding-screw 10.

I do not wish to be restricted to the particular construction shown and described herein, for it is apparent that it may be changed and modified without departing from my invention.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination with an electric conductor between parts of which an arc is liable to form, of means controlled by the arc for delivering a stream of fluid in the direction of said conductor, and means for confining said stream in intimate association with said arc.

2. The combination with an electric con-

ductor between parts of which an arc is liable to form, of an inclosing wall closely surrounding said conductor, and means controlled by the arc for discharging a stream of fluid through the space inclosed by said wall.

3. The combination with an electric conductor between parts of which an arc is liable to form, of an inclosing wall surrounding said conductor, and means located at one end of said wall for confining gases in such manner that they may be liberated by the arc and discharged through the space inclosed by said wall.

4. The combination of an electric conductor between parts of which an arc is liable to form, an inclosing wall surrounding said conductor, and a charge of blast-producing material located at one end of said wall and adapted to be set off by the arc and discharged through the space inclosed by said wall in intimate association with the arc.

5. The combination of an electric conductor between parts of which an arc is liable to form, an inclosing wall surrounding said conductor and closed at one end, and a charge of blast-producing material located in said closed end of the wall and adapted to be set off by the arc and discharged through the space inclosed by said wall in intimate association with the arc.

6. The combination of an electric conductor between parts of which an arc is liable to form, a cup-shaped terminal to which said conductor is connected, a tube of insulating material surrounding said conductor and engaging at one end with said terminal, and a reservoir for compressed gas detachably located in said cup-shaped terminal and adapted to be opened by the arc.

7. The combination of a metallic terminal provided with a cup-shaped recess, a fusible conductor, a capsule charged with compressed gas located in said recess and engaging one end of said conductor, and a tube surrounding said conductor and screwed into the mouth of said recess to abut at its end against said capsule.

In witness whereof I have hereunto set my hand this 3d day of August, 1903.

CHARLES E. EVELETH.

Witnesses:
BENJAMIN B. HULL,
HELEN ORFORD.