No. 854,723. PATENTED MAY 28, 1907.

J. T. H. DEMPSTER.

THERMAL CUT-OUT.

APPLICATION FILED NOV. 7, 1904.

Fig. 1.

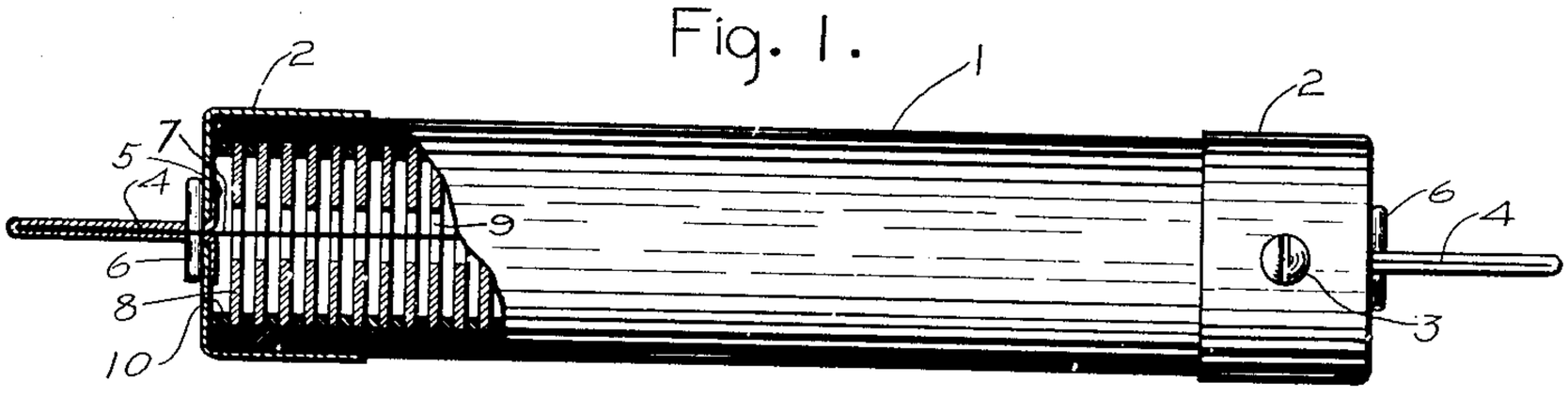
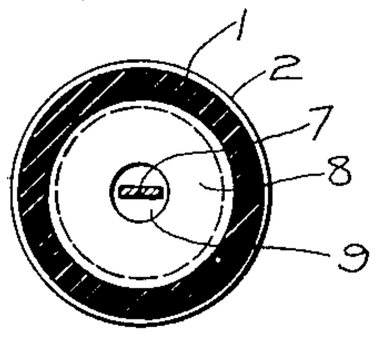


Fig. 2.



Witnesses.
Harold F. Locke.
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Inventor:
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UNITED STATES PATENT OFFICE.

JOHN T. H. DEMPSTER, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

THERMAL CUT-OUT.

No. 854,723. Specification of Letters Patent. Patented May 28, 1907.

Application filed November 7, 1904. Serial No. 231,662.

To all whom it may concern:

Be it known that I, JOHN T. H. DEMPSTER, a citizen of the United States, residing at Schenectady, 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 cut-out devices for interrupting electric circuits upon the passage therethrough of abnormal or dangerous currents, and more particularly to that class of such devices known as inclosed fuses, and characterized by the inclosure of the fusible element in a shell or casing which serves to prevent the danger due to the gases of fusion and particles of molten metal being expelled into contact with inflammable material.

The object of my invention is to provide an electric fuse which will effectually and positively interrupt electric circuits carrying currents of large volume.

In carrying out my invention I employ a casing with the fusible element extending therethrough in the usual manner and surround the latter with a series of plates of heat conducting material with spaces between them so that when the fuse "blows" the gases of fusion will be expelled into intimate contact therewith and quickly condensed. By making the plates of magnetic material the magnetic induction is rendered useful in retarding the rise in potential through the fusible strip upon the occurrence of a short circuit and thereby reduces the violence of the explosion due to the sudden transformation of the fusible element into gas.

For a more complete understanding of the invention reference may be had to the following detailed description and the accompanying drawing forming a part of this specification, in which

Figure 1 is a side elevation with part broken away of an inclosed fuse showing one form of my invention; and Fig. 2 is a cross section thereof.

The casing consists of a tube 1 of stout insulating fiber closed at its ends by metallic caps 2 which are secured thereto by screws 3 having apertures in their ends in which contact blades 4 are secured by outwardly-bent lugs 5 and pins 6 on opposite sides of the metal of the ends. The fusible strip 7 is connected in the usual manner to contact blades 4.

The base of the tube 1 has arranged throughout its length a series of iron plates or washers 8 having central apertures 9 of a size to permit the fuse strip 7 and any insulation thereon to pass freely therethrough, and these plates are held spaced in planes transverse to the axis of the tube by insulating rings 10 fitting the bore of the tube.

When a short circuit is thrown upon a fuse constructed as above described the iron plates act inductively as a break to prevent the sudden rush of current through the fuse strip, and upon the volatilization of the strip 7 they quickly absorb the heat of the gases and deprive the arc which forms upon the destruction of the fuse strip of its supporting medium, moreover, the arc in its passage through the apertures of the plates 8 comes in contact with more or less of the exposed metal edges and subdivides itself into a plurality of small arcs which on account of their counter-electromotive forces effectually cooperate to subdue the arcing action.

I do not desire to restrict myself to the particular form or arrangement of parts herein described and shown; since it is apparent that they 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. An electric fuse comprising a fusible strip, and one or more independently insulated metal pieces surrounding said strip and adapted to condense the gases of fusion.

2. An electric fuse comprising a fusible strip, and one or more metal mediums through which said strip is threaded.

3. An electric fuse comprising a casing, a fusible strip supported therein, and one or more pieces of metal having extended surfaces arranged in said casing.

4. An electric fuse comprising a casing, a fusible strip supported therein, and a series of metal washers surrounding said strip within the casing.

5. An electric fuse comprising a casing, a

fusible strip supported therein, and a series of independent metallic washers arranged in planes at right angles to said strip.

6. An electric fuse comprising a tubular casing, a fusible strip supported axially thereof, and a series of iron washers surrounding said strip.

7. An electric fuse comprising a tubular casing, a fusible strip supported axially thereof, a series of metal washers arranged transversely in said casing and through which said fusible strip is threaded, and insulating rings separating said washers.

In witness whereof, I have hereunto set my hand this 4th day of November, 1904.

JOHN T. H. DEMPSTER.

Witnesses:
BENJAMIN B. HULL,
HELEN ORFORD.