No. 874,795. PATENTED DEC. 24, 1907.

J. SACHS & F. D. REYNOLDS

SAFETY FUSE.

APPLICATION FILED MAR. 19, 1906. RENEWED MAY 16, 1907.

Fig. 1.

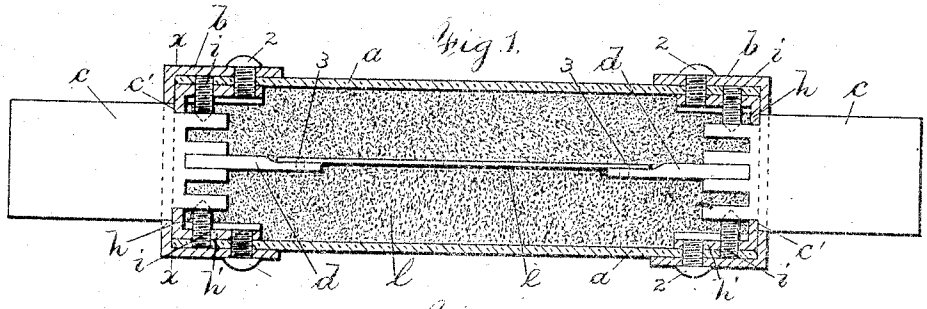


Fig. 2.

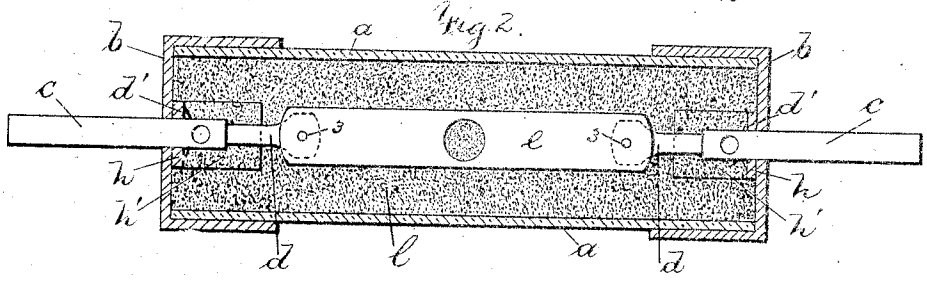


Fig. 3.

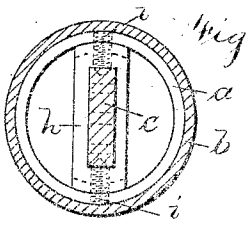


Fig. 4.

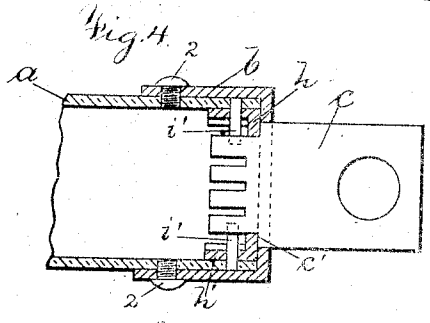


Fig. 5

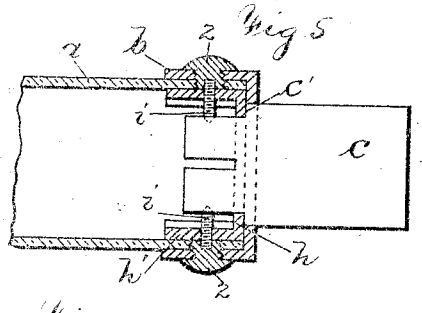


Fig. 7.

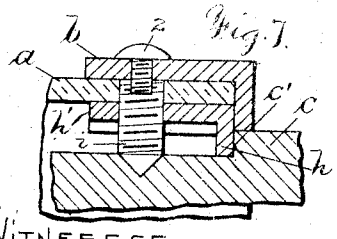
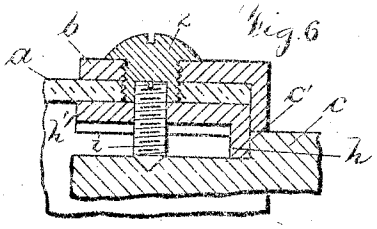


Fig. 6.



WITNESSES

A. D. Berrell

Chas. F. Smith

INVENTORS

Joseph Sachs

Frank D. Reynolds

PER Harold Terbell

THEIR ATTY

UNITED STATES PATENT OFFICE.

JOSEPH SACHS AND FRANK D. REYNOLDS, OF HARTFORD, CONNECTICUT, ASSIGNORS TO THE SACHS COMPANY, OF HARTFORD, CONNECTICUT, A CORPORATION OF CONNECTICUT.

SAFETY-FUSE.

No. 874,795. Specification of Letters Patent. Patented Dec. 24, 1907.

Application filed March 19, 1906, Serial No. 306,723. Renewed May 16, 1907. Serial No. 373,980.

To all whom it may concern:

Be it known that we, JOSEPH SACHS and FRANK D. REYNOLDS, both citizens of the United States, and residents of Hartford, in the county of Hartford and State of Connecticut, have invented an Improvement in Safety-Fuses, of which the following is a specification.

Our invention relates to that class of inclosed safety fuses in which flat blade terminals are employed and are adapted for use in knife blade or stud bolt contacts. Heretofore the flat blade contact terminals of fuses of this class have been secured to and maintained within the end caps thereof in diverse manners, as have also the connections between the fuse strips or the fuse strip terminals and the flat blade contact terminals. In fuses of this description, an insulating and non-heat conducting filling material is commonly employed and in the manufacture of the fuse, due to the manner in which the flat blade terminals have been connected to the end caps,—there has been no support for the flat blade contact terminals during the filling process and the resultant effect has been that the connections between the fuse strips or the terminals thereof and the flat blade contact terminals, are in a large percentage of instances, injured during the filling operations because of the weight of the flat blade contact terminals and the movement thereof due to their non-support; and efforts to obviate this have made it difficult to properly fill the fuse.

The object of our present invention is to overcome the hereinbefore named difficulties, and in carrying out the same, we employ a casing, end caps therefor, flat blade contact terminals, fuse strip terminal selectrically connected to the flat blade terminals and a fuse strip or strips extending between and in electrical connection with the said fuse strip terminals and means for supporting the flat blade terminals in position within the casing and independently of the said end caps,—all of which will be hereinafter more particularly described.

In the drawing, Figure 1 is a central longitudinal section of a safety fuse embodying our present invention. Fig. 2 is a central longitudinal section taken at right angles to that shown in Fig. 1. Fig. 3 is a cross section on the line x, x, Fig. 1. Fig. 4 is a cross section illustrating a modified form of our invention. Fig. 5 is a similar section showing a further modification of the invention. Fig. 6 is an enlarged section showing in detail the manner in which the casing, end caps, yoke and flat blade terminals are connected in the modification shown in Fig. 5, and Fig. 7 is a section of a modification of the structure shown in Fig. 6.

Referring to the drawings, and particularly to Figs. 1, 2 and 3,—a designates a casing which is preferably cylindrical and made of any suitable insulating material. The casing a is provided with end caps b adapted to fit over the extremities thereof and to be secured thereto by suitable holding screws 2 or otherwise, the end caps b being provided in their faces with rectangular openings adapted to receive the flat blade contact terminals c and through which these terminals are passed.

The adjacent inner ends of the flat blade contact terminals c are preferably of reduced width providing shoulders c' and the reduced ends of the terminals are provided with one or more recesses adapted to receive the fuse terminals d which are electrically connected thereto in any manner well known in the arts; and also the fuse strip or strips e are connected to their respective fuse terminals d by pins or rivets 3 or otherwise as may be found expedient.

We also employ anchor members h provided with inwardly extending ends h' and adapted to be received and to fit within the ends of the casing a, the faces of the anchors h coming flush with the ends of the casing a. We may also employ headless set screws i which are passed through suitable openings in the casing a, and screw threaded openings in the ends h' of the anchors h and into recesses provided in the narrow sides of the reduced ends of the flat blade terminals c which also pass through suitable rectangular openings in the anchors h, the set screws being of such a length that when in position, the headless ends thereof are flush with the surface of the casing a. The shoulders c' formed by the reduced ends of the terminals c bear against the faces of the anchors h and we prefer to make the recesses in the reduced ends of the flat blade contact termi-

nals of such a depth that the bases thereof are approximately in line with the inner face of the adjacent anchor when the terminal is in position, so that in securing the fuse terminals in the said recess, the solder or other material employed in making the joint, may be slightly spread on the inner surface of the said anchor as indicated at d', Fig. 2, to additionally secure the flat blade contact terminal in and to the anchor.

It will be manifest that in the fuse construction hereinbefore described, the parts may be assembled independently of the end caps in such a manner that the flat blade contact terminals with the fuse terminals and the intervening fuse strips, may be secured to and within the casing a independently of the end caps b and that thereupon, one of the end caps may be placed and secured in position, the fuse held in a vertical position and the filling material indicated by l, may be placed within the casing, and this without the slightest movement of the upper flat blade contact terminal, the same being securely maintained in position by the set screws i that contact therewith, and its bearing within the opening of the anchor h, after which of course the other end cap b may be placed and secured in position to complete the safety fuse.

Referring to Fig. 4, it will be apparent that instead of employing the set screws i, we may without departing from the nature and spirit of our invention, make use of pins i' which pass in diametrically opposite positions through the casing a and holes in the inwardly extending ends h' of the anchors h into the recesses in the narrow sides of the flat blade contact terminals adapted to receive the same; or as indicated in Figs. 5 and 6, the set screws i may be so placed that the heads thereof project centrally into an opening of larger diameter in the casing a, the heads coming flush with the surface thereof, in which instance it will be necessary to provide the end of the shank of each holding screw 2 with a suitable central recess adapted to receive the end of one of the set screws i, the holding screws 2 being screwed down against the projecting end h' of an anchor h, whereby it will be manifest that the parts are doubly secured in position, or as shown in Fig. 7, to effect the same result, the set screw i may be of larger diameter and the head thereof provided with a central circular recess adapted to receive the shank of the holding screw 2.

It is to be understood that the term anchor as hereinbefore employed, is to be construed as meaning generically a device or devices by which the flat blade contact terminals are secured in and to the casing independently of the end caps, inasmuch as we do not limit ourselves to the anchor herein shown and described as other and equivalent forms thereof may be employed without departing from the nature and spirit of our invention.

We claim as our invention:

1. A safety fuse comprising a casing, end caps therefor, flat blade contact terminals, a fuse strip electrically connected to the flat blade terminals, and means passing through the walls of the casing but not through the end caps and engaging the flat blade terminals to maintain the same in position within the casing independent of the said end caps.

2. A safety fuse comprising a casing, end caps therefor, flat blade contact terminals, a fuse strip electrically connected to the flat blade terminals, means independent of the said end caps and co-acting with the flat blade terminals to position the same, and means passing through the walls of the casing but not through the end caps and engaging the flat blade terminals to maintain the same in position within the casing independent of the said end caps.

3. A safety fuse comprising a casing, end caps therefor, flat blade contact terminals, a fuse strip electrically connected to the flat blade terminals, means independent of the said end caps for co-acting with the flat blade terminals to position the same, means passing through the walls of the casing but not through the end caps and engaging the flat blade terminals to maintain the same in position within the casing independent of the said end caps, and means for securing the end caps in position on the casing.

4. A safety fuse comprising a casing, end caps therefor, flat blade contact terminals, a fuse strip electrically connected to the said flat blade terminals and extending between the same, means independent of the end caps for co-acting with the flat blade terminals to position the same, and means co-acting with the walls of the casing and independent of the end caps and engaging the flat blade terminals to maintain the same in position within the casing and independent of the said end caps.

5. A safety fuse comprising a casing, end caps therefor, flat blade contact terminals, fuse terminals electrically connected to the flat blade terminals, a fuse strip electrically connected to the said fuse terminals and extending between the same, an anchor having inturned ends received within the end of the casing and extending across the same, and means passing through the walls of the casing, through the inturned ends of the anchor and engaging a flat blade terminal to maintain the same in position within the casing independent of the end caps.

6. A safety fuse comprising a casing, end caps therefor, flat blade contact terminals, fuse terminals electrically connected to the flat blade terminals, a fuse strip electrically connected to the said fuse terminals and ex-

tending between the same, anchors having inturned ends received within the ends of the casing and extending across the same, and set screws passing through openings in the walls of the casing, the inturned ends of the anchors and against the narrow sides of the flat blade terminals to clamp and maintain the flat blade terminals in position within the casing independent of the end caps.

7. A safety fuse comprising a casing, end caps therefor, flat blade contact terminals, fuse terminals electrically connected to the flat blade terminals, a fuse strip electrically connected to the said fuse terminals, and extending between the same, anchors having inturned ends received within the ends of the casing, and provided with screw-threaded openings and extending across the same, set screws passing through openings in the walls of the casing, the screw threaded openings in the inturned ends of the anchors and against the narrow sides of the flat blade terminals to clamp and maintain the flat blade terminals in position within the casing independent of the end caps, and screws passing through the end caps, and casing and into the inturned ends of the anchors for maintaining the end caps in position on the casing.

8. A safety fuse comprising a casing, end caps therefor, contact terminals, a fuse strip electrically connected to said contact terminals, anchors for said contact terminals, and means for securing the said anchors within the casing independently of the end caps.

9. A safety fuse comprising a casing, end caps therefor, contact terminals, a fuse strip electrically connected to said contact terminals, anchors for said contact terminals, and means for securing the said anchors and contact terminals to the casing independently of the end caps.

10. A safety fuse comprising a casing, end caps therefor, flat blade contact terminals, a fuse strip electrically connected to the flat blade terminals, and means engaging the flat blade terminals to maintain the same in position within the casing independent of the said end caps.

11. A safety fuse comprising a casing, end caps therefor, flat blade contact blade terminals, a fuse strip electrically connected to the flat blade terminals, and means coacting with the said casing for securing the said flat blade contact terminals to the same independently of the said end caps.

Signed by us this second day of March 1906.

JOSEPH SACHS.
FRANK D. REYNOLDS.

Witnesses:
FRANK N. ALLEN,
CAROLINE N. SACHS.