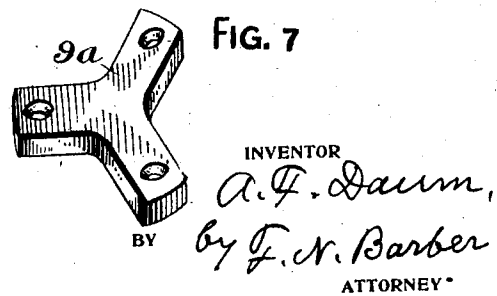
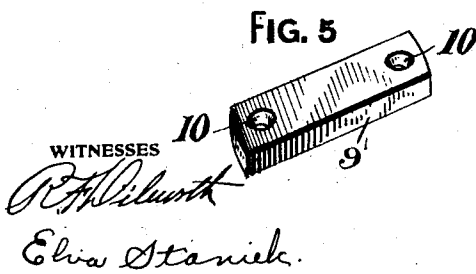
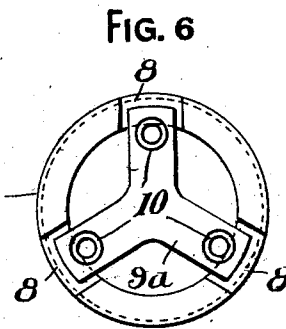
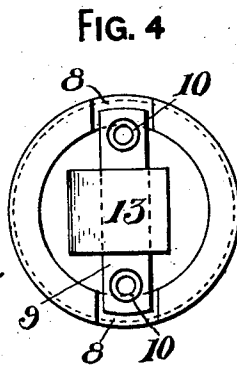
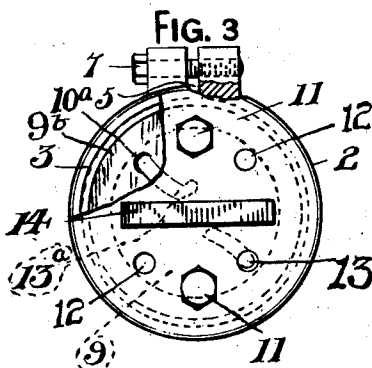
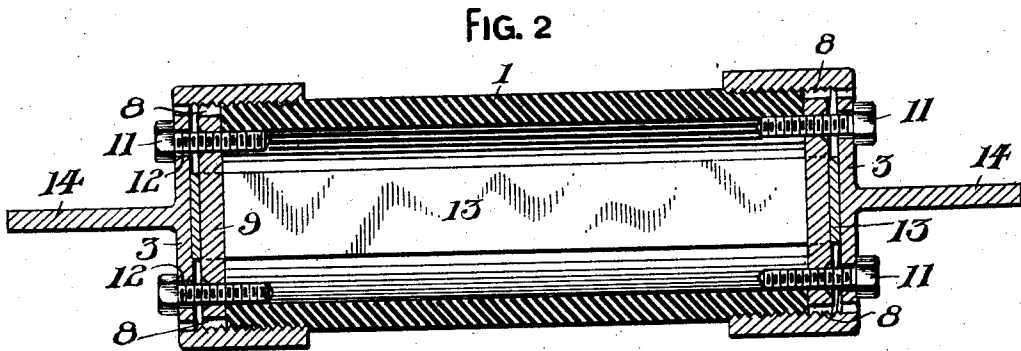
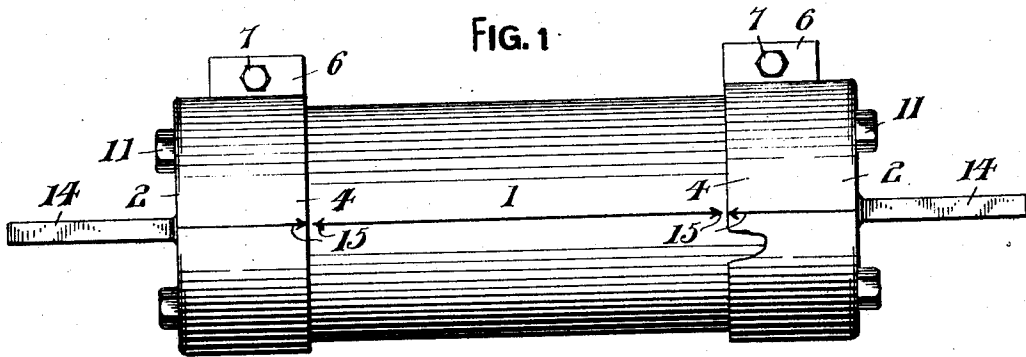


A. F. DAUM.
CARTRIDGE FUSE.
APPLICATION FILED MAR. 1, 1912.

1,061,228.

Patented May 6, 1913.



UNITED STATES PATENT OFFICE.

ALBERT F. DAUM, OF PITTSBURGH, PENNSYLVANIA.

CARTRIDGE-FUSE.

1,061,228.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed March 1, 1912. Serial No. 680,939.

REISSUED

To all whom it may concern:

Be it known that I, ALBERT F. DAUM, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Cartridge-Fuses, of which the following is a specification.

My invention relates to cartridge fuses and its object is to provide cartridge fuses in which the fuse wire, strip or ribbon may be positively and reliably clamped to the terminal caps so that any subsequent shrinkage of the body or shell will not cause the fuse wire, strip, or ribbon to become loose in the clamping members.

In many cartridge fuses, the shrinking of the body allows the member which clamps the fuse wire, strip, or ribbon to the cap to become loose, thereby interfering with the continuity of the electric circuit. With my improvement, the shell or body is not directly or indirectly a clamping member.

Another object of this invention is to provide means whereby flat or knife terminals on the caps may be brought readily into line and prevented from getting out of alinement.

Another object is to prevent the rotation of the clamping member which is within the cap whereby torsion on the fuse wire or ribbon is eliminated.

Referring to the accompanying sheet of drawings, Figure 1 is a side elevation of a cartridge fuse embodying one form of my invention; Fig. 2, a longitudinal section of a modified form of my invention; Fig. 3, an end view of Fig. 1, slightly modified and partly broken away; Fig. 4, an end view of Fig. 2 with the caps and screws omitted; Fig. 5, a perspective view of the clamping member shown in Fig. 4; Fig. 6, a view like Fig. 4 but with three-armed clamping member; and Fig. 7, a similar view of the clamping member shown on Fig. 6.

Referring first to Figs. 1 to 5 of the drawing, 1 is the tubular, preferably cylindrical, casing, body, or shell composed usually of vulcanite, but other non-conductors of electricity may be used. The ends of the shell are provided with the cup-shaped caps 2, each having its bottom, end, or closure 3 opposite an end of the shell and its skirt, flange, or cylindrical side 4, surrounding an end of the shell. In Fig. 1 I have shown the skirt or flange toward the end 3 of the cap,

and with a pair of opposing lugs 6 on the flange at opposite sides of the slot 5. The lugs 6 are provided with the headed screw 7 which draws the sides of the slot toward each other and causes the slotted flange 4 to grip the shell. The screw 7 passes loosely through one lug and is threaded to correspond to the threads in the other lug, the head of the screw operating on the first lug to draw the lugs toward each other. However, the caps may be screwed upon the ends of the shell in the usual way as shown in Fig. 2, or they may loosely or telescopically fit thereon, the slot 5 and the lugs 6 being omitted. Each end of the shell has diametrically opposite open-ended slots or notches 8 to receive the clamping members or bars 9, preferably of electric conducting material, having a threaded hole 10 at each side of the center to receive the bolts or screws 11 having their intermediate portions in the holes 12 in the caps, the heads of the screws or bolts bearing on the outer faces of the ends 3 of the caps. 13 is a fuse ribbon having its ends bent over the bars 9 and clamped between the said bars and their respective caps by the screws or bolts 11. It is seen that the screws or bolts 11 draw the bars 9 tightly against the inner faces of the ends of the caps without any co-action or dependence on the shell 1, so that, if the shell should shrink, there would be no tendency whatever to loosen the clamping action between each bar 9 and its respective cap.

Each cap is provided with the flat or knife terminal 14, preferably made integral with the end of the cap. In order to fit the usual pairs of spring clips or terminals, it is necessary that the knife terminals on the caps be arranged substantially in the same plane, or more correctly that the corresponding sides of the terminals should lie between parallel planes. In order to insure that, when the fuse ribbon 13 is clamped to both caps as described, the flat sides of the knife terminals shall lie substantially between parallel planes, and that the caps 2 may be interchangeable on the ends of the same shell, I have arranged the holes 12 for the screws or bolts 11 in each cap so that a line connecting them will be at right angles to the knife terminal 14 on the same cap and have arranged the notches 8 between parallel planes, or so that the longitudinal edges of the bars 9 are parallel or nearly so. The bars 9 may be differently shaped and the

notches 8 differently arranged to secure the interchangeability of the caps and the alinement of the knife terminals. I intend to cover broadly any construction whereby these two results are secured provided that such construction comes within the spirit of my invention and within the liberal interpretation of the appended claims. The placing of the knife terminals at the center of the cap prevents the use of a center screw. To further assist the arranging of the knife terminals in line, I place gage or guide marks 15 on the skirts of the caps and on the shell, so arranged that, when these marks are in alinement, the terminals lie in the same plane. These marks may be arranged variously, it being necessary only that the mark on each cap register with a mark on the shell, but it is preferred that all the marks be in one line. To facilitate the insertion of the screws or bolts 11 in the holes 10, I make the notches a little wider than the bars 9 so that the latter can move slightly, it being difficult to turn the caps always so as to bring the holes 10 and 12 into exact alinement when the bar 9 has no play in its seats.

In Fig. 6, I have provided the end of the shell with three notches 8 arranged 120° apart, and have made the clamping member 9^a have three arms 120° apart which lie in the said notches, just as the ends of the bar or member 9 lie in their respective notches. The three-armed or V-shaped member 9^a evidently cannot, by movement on its own plane, slide out of the notches, it not being necessary to hold it in place or to use care not to displace it while starting the caps on over the ends of the shell.

In Fig. 3, I use the washers 9^b instead of the straight bars 9 or the spiders 9^a. These washers rest on the ends of the body and are shown without means to prevent their rota-

tion, but I do not limit my invention to this feature. The washers have a circle of threaded holes 10^a, in some of which the screws or bolts 11 may enter, and through others of which the fuses 13^a pass from the interior of the body, the ends of the fuses being bent so as to lie between the washers and the caps. It is readily seen that the spaces at each side of the bar 9, or of the arms of the spider 9^a, are in some respects equivalent to the holes 10^a.

I claim—

1. In a cartridge fuse, a tubular body, skirted caps secured exteriorly of the ends of the body and provided with holes in their ends, a fuse extending through the body, a washer within each cap free therefrom and from the body and having therein threaded holes arranged to register with the said holes in the adjacent cap, a fuse extending through the said body and having its ends passed through one of the holes in each cap, and one or more screws extending through some only of the said holes in each cap and certain of the unoccupied holes in the washers to clamp the fuse between each washer and the adjacent cap, other of said registering holes being unoccupied to allow the escape of gases therethrough.

2. In a cartridge fuse, a tubular body, a cup-shaped cap having its closed end opposite the end of the body and having its skirted portion arranged telescopically over one end of the body and provided with a slot, and means for drawing the opposing edges of the slot toward each other so as to clamp the skirted portion to the body.

Signed at Pittsburgh, Pa., this 22nd day of February, A. D. 1912.

ALBERT F. DAUM.

Witnesses:

ALICE E. DUFF,
ELVA STANICK.