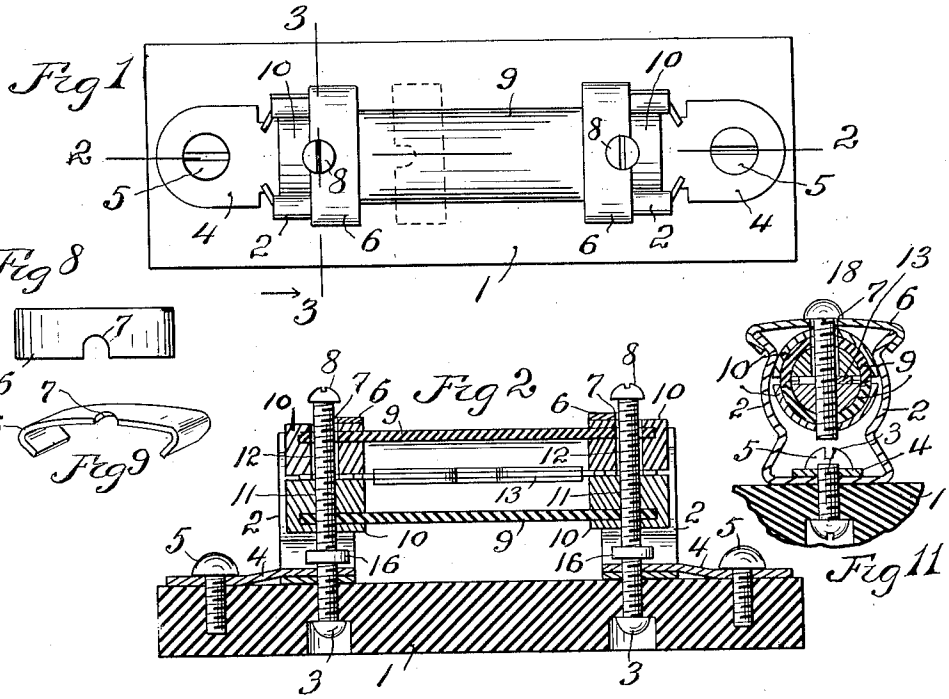
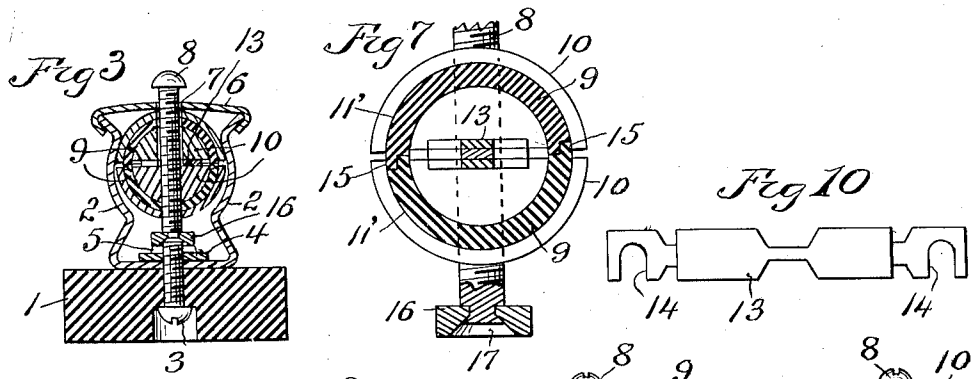
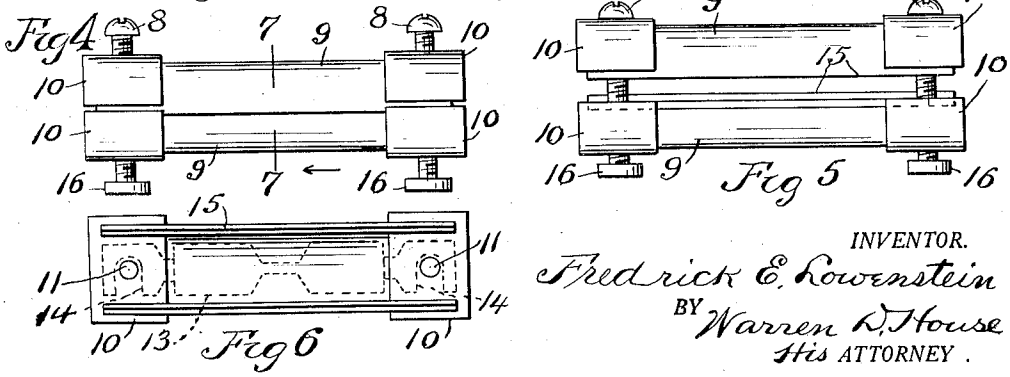
Nov. 3, 1936. F. E. LOWENSTEIN 2,059,467

FUSE AND HOLDER THEREFOR

Filed March 23, 1936







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Patented Nov. 3, 1936

2,059,467

UNITED STATES PATENT OFFICE

2,059,467

FUSE AND HOLDER THEREFOR

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Application March 23, 1936, Serial No. 70,210

10 Claims. (Cl. 200—134)

My invention relates to improvements in fuses and holders therefor. It relates particularly to electrical fuses of the cartridge type and to holders for such fuses.

One of the objects of my invention is to provide a fuse with novel means for removably holding a fusible element, so that when burnt it may be easily and quickly replaced.

Another object of my invention is the provision of a novel holder for my improved fuse, which will securely and tightly hold the conductive contact terminals of the fuse, and which will offer a minimum resistance to the passage of the electric current between the contacting portions of the fuse and holder, thereby reducing heating of the parts to a minimum.

My invention further provides a fuse and holder therefor which are simple, cheap, durable, not likely to get out of order, which enable quick and easy removal and replacement of the fuse with respect to the holder, and which are efficient in operation.

The novel features of my invention are hereinafter fully described and claimed.

In the accompanying drawing which illustrates my invention,

Fig. 1 is a plan view of the preferred embodiment of my invention, showing the fuse mounted in operative position in its holder.

Fig. 2 is a section on the line 2—2 of Fig. 1.

Fig. 3 is a section on the line 3—3 of Fig. 1.

Fig. 4 is a side elevation of the fuse with the two sections thereof in the closed position.

Fig. 5 is a view similar to Fig. 4, showing the fuse sections in the open position, the fusible element being omitted.

Fig. 6 is an inside plan view of one fuse section.

Fig. 7 is an enlarged section on the line 7—7 of Fig. 4, parts being broken away.

Fig. 8 and Fig. 9 are respectively plan and perspective views of one of the clamping members.

Fig. 10 is a plan view of a fusible element adapted for use in my improved fuse.

Fig. 11 is a view similar to Fig. 3, showing a modification in which the clamping screw of the fuse does not engage the fastening screw of the holder.

Similar characters of reference designate similar parts in the different views.

For the most part, the fuse holder is of usual type comprising a non-conductive base 1, preferably porcelain, on the upper side of which are mounted two U-shaped conductive members, 2, the transverse portions are respectively provided with threaded holes in which are fitted respectively two screws 3, which extend upwardly through the base 1, the heads of the screws bearing against the under side of the base 1. Two conductive plates 4 respectively bear upon the upper sides respectively of the members 2 to which the plates 4 are secured by the screws 3 which are fitted in threaded holes on the plates 4 and which extend above the upper sides of the plates 4, Figs. 2 and 3. The plates 4 are each provided with a threaded hole in which is fitted a binding screw 5 which is adapted to bind a conducting wire, not shown, to the plate. The said conducting wires are in the circuit which supplies the fuse with current.

The upper portions of the jaws of each U-shaped member 2 outwardly diverge and are adapted to be releasably embraced by the inwardly turned flanged end portion of an arcuate clamping member comprising a metal plate 6, which is removable and replaceable edgewise with respect to the jaws of the member 2.

A notch 7 is provided in the middle of one longitudinal edge of each clamping member 6 for receiving a screw 8, as will be hereinafter explained.

The improved fuse comprises the following described structure.

The fuse consists of a tubular casing comprising two longitudinal sections, each section consisting of a semicylindrical hollow member 9 of nonconductive material, such as vulcanized fiber or "Bakelite", and two conductive solid semicylindrical conductive end portions 10 of metal, such as brass. Each end portion 10 is provided in its inner end with a semicircular concentric groove 11' in which is tightly fitted the adjacent end of the member 9 of the section.

The two fuse sections, when disposed one on the other, as shown in Figs. 2, 3, 4 and 7, form a body with cylindrical middle and end portions, corresponding in shape to the usual cartridge fuse. The two sections of the fuse are substantially similar, the only difference between the two being that the end portions 10 of one section have threaded holes 11, Fig. 2, through which extend and are respectively fitted the screws 8, while the other two end portions 10 are respectively provided with holes 12 therethrough in which the screws 8 are respectively slidable.

13 designates a fusible element of usual type which extends between the members 9 and has its ends respectively clamped between the pairs of end portions 10.

The end portions of the fusible element 13 are respectively provided in one longitudinal edge with notches 14 adapted to receive the screws 8, when the element 13 is thrust laterally edgewise into the casing, when the sections are in the open position, shown in Fig. 5.

The ends of the element 13 respectively bear upon those parts of the end portions 10 which are located within the members 9, as shown in dotted lines in Fig. 6, and as shown in Fig. 2.

Each member 9 has along one longitudinal edge a flange 15 which is adapted to enter a corresponding recess provided in one longitudinal edge of the other member 9, Fig. 7. When the members 9 are in the closed position shown in Figs. 7 and 8, the flanges 15 overlap the adjacent members 9 and close the lateral longitudinal cracks that otherwise would be present between the two members 9.

In mounting the fuse in the holder, the clamping members 6 are removed, and the assembled fuse, as shown in Fig. 4, is disposed in the holder with the end portions 10 disposed between and gripped by the jaws of the U shaped members 2, the section which contains the threaded holes 11 being disposed below the other section, as shown in Figs. 2 and 3.

The projecting lower ends of the screws 8 are respectively provided with collars 16, each having a downwardly flaring recess 17 in its lower side adapted to receive the upper end of the adjacent screw 3, Figs. 2, 3 and 7, the screws 8 being spaced so as to respectively register with the screws 3.

The parts having been so assembled, the clamping members 6 are then slipped respectively into embracing engagement with the outwardly flaring jaws of the members 2, as shown in Figs. 1, 2 and 3, and to positions in which the screws 8 will respectively enter the notches 7.

The screws 8 are then revolved so as to move upwardly the lower end portions 10, thus through the fusible element 13 lifting the upper section so that the upper end portions 10 thereof will respectively bear against the under sides of the clamping members 6, which upon being pushed upwardly will draw the jaws of the members 2 tightly against the contact terminals comprising the end portions 10.

The members 2 which carry the current to one contact terminal and from the other contact terminal of the fuse, by reason of the clamping effect against the portions 10, have good conductive engagement with the latter, thus avoiding heating with its destructive effects on the members 9.

The pressing engagement of the screws 8 with the screws 3 respectively through the collars 16, effects several functions. It serves to properly position the fuse circumferentially and longitudinally in the holder. When the screws 8 are turned so as to force upwardly the fuse, as has been described, they bear downwardly against the plates 4 and the members 2, through the screws 3, thus forming good conducting means for the current to and from the fusible element 13 through the screws 3 and 8 and lower elements 10, thereby assisting the members 2 in conducting the current.

The other function effected by the engagement of the screws 8 with the screws 3 has already been referred to, the forcing of the upper end portions 10 against the clamping members 6, so as to cause the latter to more tightly force the jaws of the members 2 against the end portions 10, which form the contact terminals of the fuse.

When a fusible element 13 fuses, the screws 8 are turned to disengage from the screws 3. The clamping members 6 are then removed from the jaws of the members 2, and the fuse withdrawn. The screws 8 permit the upper section of the fuse to be raised to the position shown in Fig. 5, in which position, the remnants of the fused element may be ejected and another fuse inserted, following which the parts are reassembled, in the manner already described.

In the modified form, shown in Fig. 11, the only difference in structure from that shown in the other figures, is in the screws 18, corresponding to the screws 8, do not have the collars 16, and do not bear against the screws 3, and in the heads of the screws 18 bearing against the upper sides of the clamping members 6. When the screws 18 are tightened, they draw upwardly the lower section of the fuse and cause the upper contact terminal portions 10 to push upwardly against the jaws of the members 2 and to draw downwardly the clamping members 6 tightly against the upper portions 10.

Where herein it is stated that the screws 8 bear against the conductive members 2 of the fuse holder, the term "bear" or "bearing" is used in the sense of exerting pressure against, and not of direct contact. Such pressure is exerted through the collars 16 and the screws 3 to the conductive members 2.

Other modifications of my invention, within the scope of the appended claims, may be made without departing from the spirit of my invention.

What I claim is:—

1. In a fuse holder, a fuse having a contact terminal, a conductive member having a pair of jaws adapted to releasably grip between them said terminal, a clamping member embracing said jaws and adapted to bear against the outer side of said terminal, and means engaging said conductive member and said terminal for forcing the latter outwardly against said clamping member.

2. In a fuse holder, a fuse having a contact terminal, a conductive member having a pair of jaws adapted to releasably grip between them said terminal, a clamping member embracing said jaws and adapted to bear against the outer side of said terminal, and means including a screw engaging said conductive member and said terminal for forcing the latter outwardly against said clamping member.

3. In a fuse holder, a fuse having a contact terminal provided therethrough with a transverse hole, a conductive member having a pair of jaws adapted to releasably grip between them said terminal, a clamping member embracing said jaws and adapted to bear against the outer side of said terminal, and a screw bearing against said conductive member and extending through and revoluble in said hole and having means engaging said terminal by which the latter is forced outwardly against said clamping member when said screw is revolved in the proper direction.

4. In a fuse and holder therefor, a fuse having a contact terminal provided therethrough with a transverse threaded hole, a conductive member having a pair of jaws adapted to releasably grip between them said terminal, a clamping member embracing said jaws and adapted to bear against the outer side of said terminal,

and a screw extending through and revolubly fitted in said threaded hole and bearing at its inner end against said conductive member and adapted when revolved in the proper direction to force said terminal outwardly against said clamping member.

5. In a fuse and holder therefor, a fuse having two conductive semicircular end portions adapted to clamp between them a fusible element and to form a contact terminal at one end of said fuse when disposed together in cylindrical form, a conductive member having a pair of jaws adapted to releasably grip between them said terminal, a clamping member embracing said jaws and adapted to bear against the outer one of said portions, and means including a screw for engaging the inner one of said portions for forcing it outwardly so as to tightly clamp the portions together and to force the outer portion against said clamping member.

6. In a fuse and holder therefor, a fuse having two conductive semicircular portions adapted, when disposed together to form a cylinder, to clamp between them a fusible element and to form a contact terminal at one end of said fuse, said portions having therethrough respectively two alined transverse holes one of which is threaded, a conductive member having two jaws adapted to releasably grip between them said terminal with the portion having the threaded hole at the inner side, a clamping member embracing said jaws and bearing against the outer one of said portions, and a screw extending through said holes and fitted to the threaded hole and bearing against said conductive member and forcing the outer portion of said terminal against said clamping member.

7. In a fuse and holder therefor, a fuse having a contact terminal provided therethrough with a transverse hole part of which is threaded, a conductive member having two jaws adapted to releasably grip between them said terminal, a clamping member embracing said jaws and adapted to bear against the outer side of said terminal, a screw extending and projecting from said conductive member between said arms, and a second screw extending through said hole and fitted to the threaded part thereof and provided at its inner end with countersunk means for receiving the adjacent end of the first named screw and adapted when revolved in the proper direction to force said terminal outwardly against said clamping member.

8. A fuse of the cartridge type comprising a tubular casing composed of two substantially similar sections, each section comprising a semi-cylindrical hollow member of nonconductive material and two semi-cylindrical solid conductive end portions the inner end of each of said portions having a concentric semicircular groove, into which is fitted the adjacent end of said semi-cylindrical hollow member, said longitudinal sections being adapted to be disposed flatwise upon each other, adjacent ones of said end portions having alined holes therethrough, the holes of the end portions of one section being threaded, a fusible element in said casing having its ends disposed respectively between and contacting with the adjacent ones of said end portions, and two screws extending respectively through said threaded holes and respectively slidably mounted in the other two holes, for forcing the end portions having the threaded holes toward the other two end portions so as to clamp between them said fusible element.

9. In a fuse and holder therefor, a fuse having two contact terminals insulated from each other and adapted to conductively engage a fusible element, two pairs of conductive jaws, one pair insulated from the other pair, respectively gripping said terminals, two clamping members respectively embracing said pairs of jaws and said terminals, and means, including two screws respectively engaging said terminals, for forcing the latter tightly against said clamping members respectively.

10. In a fuse and holder therefor, a fuse having two contact terminals insulated from each other and adapted to conductively engage a fusible element and having respectively therethrough two holes, two pairs of conductive jaws, one pair insulated from the other pair, respectively gripping said terminals, two clamping members respectively embracing said pairs of jaws and said terminals, two screws respectively extending through said holes, and means engaging said screws by which, when the screws are turned in the proper direction, said terminals will be forced tightly against said clamping members.

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