Sept. 6, 1938. M. STEWART 2,129,309

EJECTOR FUSE PLUG

Filed March 3, 1937

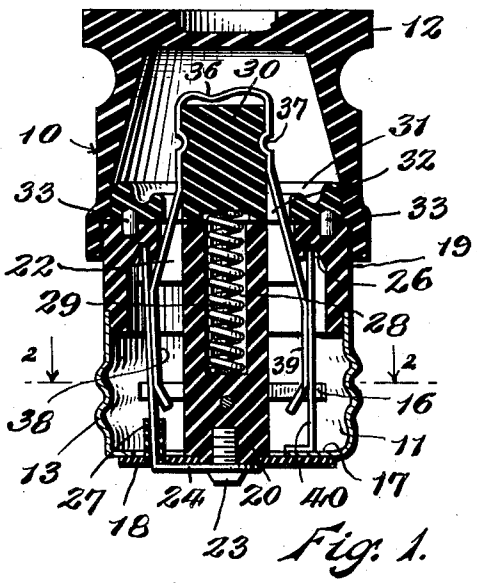


Fig. 1.

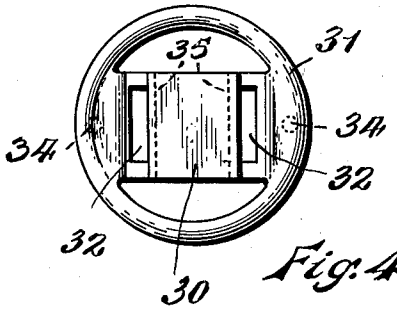


Fig. 4.

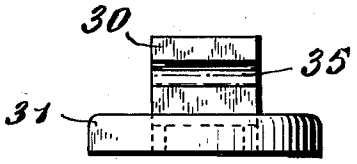


Fig. 5.

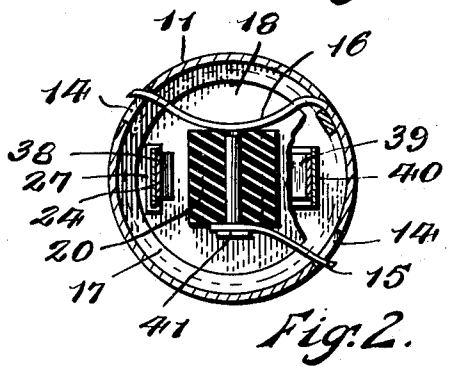


Fig. 2.

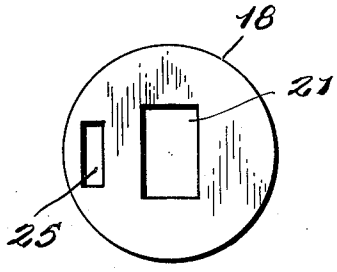


Fig. 6.

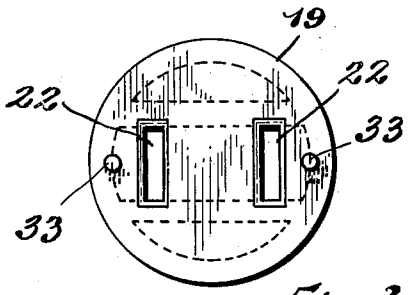


Fig. 3.

INVENTOR:
Marvin Stewart,
BY:
Christian K. Nielsen.
ATTORNEY.

Patented Sept. 6, 1938

2,129,309

UNITED STATES PATENT OFFICE

2,129,309

EJECTOR FUSE PLUG

Marvin Stewart, Ashland, Ky.

Application March 3, 1937, Serial No. 128,846

2 Claims. (Cl. 200—117)

This invention relates to a fuse plug and more particularly to a plug which will be automatically disrupted and parts thereof ejected, to indicate a blown fuse, and it consists in the constructions, arrangements and combinations herein described and claimed.

It is an object of the invention to provide a fuse plug which will become disrupted and unsuitable for further use, when blown, as well as providing a structure which will prevent temporary bridging in a fuse block.

It is also an object of the invention to provide a fuse in which the base member thereof is effectively located in a fuse block receptacle.

Additional objects, advantages and features of invention will be apparent from the following description considered in conjunction with the accompanying drawing, wherein

Figure 1 is a vertical sectional view through a fuse constructed in accordance with my invention.

Figure 2 is a cross section on the line 2—2 of Figure 1.

Figure 3 is a top plan view of an adapter, employed in the construction.

Figure 4 is a top plan view of an insert bridge.

Figure 5 is a side elevation thereof.

Figure 6 is a plan view of a washer employed in the device.

There is illustrated a fuse generally indicated by the reference character 10, and includes a base member 11 and closure cap member 12. The base member 11 is formed from sheet brass stamped or otherwise formed to provide screw threads 13, these threads serving connection with threads of a fuse block receptacle as is customary. At approximately diametrically opposite sides, the member 11 is slotted as at 14, and projected therethrough, there are spring tongues 15 and 16, which function to lock the plug in the fuse block receptacle, as will be described in greater detail hereinafter.

The base member 11 is cylindrical and open at its ends, one end being inturned to provide a flange 17 affording a footing for an insulator washer 18. The other end of the member 11 has seated therein a collar 19 of Bakelite or other insulating material. The collar 19 has an assembly plug 20 disposed centrally and formed as an integral part thereof, extending downwardly therefrom and terminates in a rectangular tenon, the latter being positioned in a similarly shaped opening 21 formed in the washer 18. The plug 20 is flush with the upper face of the cap, and at diametrically opposite sides of the plug openings 22 are formed, for a purpose presently to be explained.

The lower end of the plug 20 has an interiorly threaded bore receiving a screw 23 which will form the central contact of the fuse. For this reason a contact strip 24 is mounted between the head of the screw and the insulator washer 18, the strip being bent at right angles to pass through an opening 25 formed in the washer, the strip finally terminating and seating in the kerf 26 formed in the underside of the collar 19. The opening 25 may be suitably bushed as at 27 to fully insulate the contact strip. From the foregoing, it will be obvious that with the screw 23 screwed into the plug, the contact strip 24, the base member 11 and the collar 19 will be firmly held together.

A bore 28 is formed in the plug, extending longitudinally thereof, and stopping intermediately its length and within this bore there is confined a helical spring 29, held under compression by a bridge member 30 formed as an integral part of a cap member 31.

The cap member 31 is of lesser diameter than the collar 19 and comprises apertures 32 adapted to register with the opening 22 of the collar 19. In order that these apertures 22—32 may be properly alined, the collar 19 includes upstanding pins 33 receivable in openings 34 formed in the under face of the cap member 31.

The bridge member 30 may have any desired shape, and in the present instance, I have shown the bridge as substantially rectangular as seen in plan, and in the side walls adjacent the apertures 32, and intermediate the height thereof, recesses 35 are formed.

A fuse 36 is provided extended across the bridge 30 to the ends of which there is soldered respective leg members 38 and 39. The leg portions extend at right angles to the fuse and have formed therein depressed portions 37 adapted to seat within respective recesses 35 of the bridge 30. The leg 38 is of a length to contact the contact strip 24 and the leg 39 is in contacting engagement with a contact strip 40 fixed at one end to the flange 17 and in seating engagement at the other end in the kerf 26. The leg portions 38—39 will have sufficient resilience to forcibly engage the contact strips 24—40, and in addition will be so shaped as to frictionally bind upon the lower edges of the apertures 22. From the foregoing it will be seen that the spring 29 will be held under tension and will only be released upon rupture or breakage of the fuse.

The cap member 31 is frictionally seated with-

in the closure cap member 12, the latter enclosing the bridge 30 and fuse 36, with the exception of the leg members 38 and 39 which project therefrom.

In use, when the fuse 36 has been overloaded, causing it to break, the spring 29 will exert a force sufficient to project the closure cap 12 and its associated cap 31 as well as the broken fuse outwardly of the base member 11 and thus the circuit between the contacts 24 and 40 will be broken. To restore the connection between the contacts 24—40 a replacement fuse would be required, which would comprise the closure cap 12, the cap 31 and associated fuse 36. To insert the new fuse, the closure cap would be grasped in such manner as to present the legs 38—39 through the openings 22, aligning the pins 33 with the apertures 34 and then forcing the cap 12 upon the collar 19 and in such position of the parts the legs 38—39 will be in contacting relation with respective contact strips 24—40.

It is proposed to positively lock the base member 11 within the socket of the fuse block and this is effected by virtue of the spring tongues 15—16. These tongues project slightly beyond the circumference of the base member 11 and are resiliently movable against the threads of an engaged socket when inserting the fuse but tend to bite into the metal of the socket member upon unscrewing movement. The spring 15 is shown mounted at one end by a rivet 41 carried by the plug 20, the free end projecting through a slot 14 and the spring 16 is formed as an integral part of the base 11, the free end projecting through the slot 14 and extending in a direction opposite to that of the spring 15.

It will be apparent that from the construction here disclosed it will be impossible to insert a coin, tin foil or other conductor into the base member for the purpose of establishing a temporary connection between the contact strips 24—40 and that the base member cannot be removed for the purpose of bridging contacts of the fuse receptacle or socket.

While I have shown and described a preferred construction, this is by way of illustration only and I consider as my own all such modifications as fairly fall within the scope of the appended claims.

I claim:—

1. In a fuse, a base member including a metallic screw threaded shell, an inturned flange on one end of the shell, an insulator washer abutting the flange, said washer having an opening centrally thereof, a collar member in the open end of the shell, the collar having a circumscribing kerf and a downwardly projected plug member for seating engagement in the opening of the washer, said plug member having an internally threaded bore, a contact strip abutting the outer face of the washer, said strip having an aperture registered with the threaded bore, a screw engaged through the aperture and bore, said contact strip being bent and disposed inwardly of the shell and extending parallel to the plug member, a second contact strip within the shell one end thereof being connected to the flange of the shell and extending in a plane parallel to the plug, the free ends of the contact strips being positioned in the kerf of the collar member, the plug member having a longitudinal bore open at its upper end, a helical spring within the bore, a cap member for the collar member, each of said members having aligned apertures, means between the collar and cap members for aligning the apertures, a bridge on the cap member of a size to close the bore of the plug member for confining the spring under tension, a fuse element mounted upon the bridge, said fuse element including a pair of leg portions, said leg portions being disposed through respective aligned apertures of the collar and cap, and having a shape to frictionally bind upon the edges of the openings and in electrical contact with respective contact strips and a closure cap mounted on the collar for housing the fuse element.

2. In a fuse plug, a base member including a metallic screw-threaded shell, an inturned flange on one end of the shell, an insulator washer abutting the flange, said washer having an opening centrally thereof, a collar in the open end of the shell, the collar having a downwardly projected plug member for seating engagement in the opening of the washer, a contact strip fixed to the outer face of the washer, said contact strip being bent and disposed inwardly of the shell and extending parallel to the plug member, a second contact strip within the shell one end thereof being connected to the shell and extending in a plane parallel to the plug, a cap member for the collar, said cap having a bridge, spring means interposed between the plug member and the bridge, a fuse element mounted on the bridge, the fuse element including a pair of leg portions, said leg portions being disposed through respective aligned apertures of the collar and cap, and having frictional binding engagement upon the edges of the openings and in electrical contact with respective contact strips, and a closure cap on the collar for housing the fuse element.

MARVIN STEWART.