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G. R. TRUMBULL

1,867,784

FUSE PLUG

Filed May 12, 1930

Fig. 1.

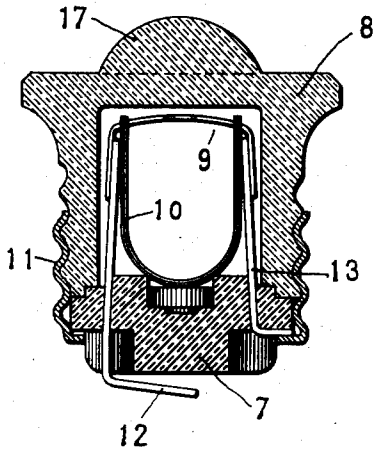


Fig. 2.

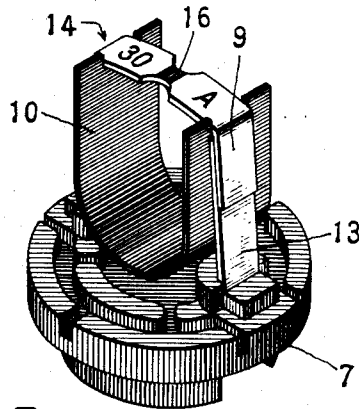


Fig. 3.



Fig. 4.

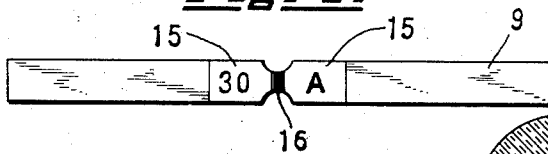


Fig. 5.

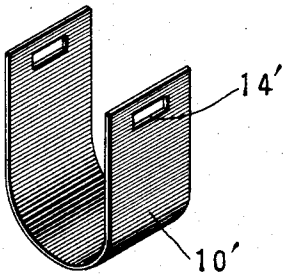
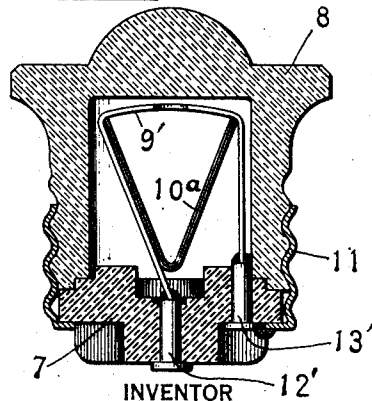


Fig. 6.



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FUSE PLUG

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My invention relates particularly to plugs of the screw type having fusible links the condition of which is intended to be shown at the front when the plug is in place in its socket.

One object of the invention is to provide a simple and reliable construction in which the condition of the fuse is clearly indicated.

Another object is to provide means for interrupting the arc formed when the fuse blows.

The invention is particularly intended for use in connection with plugs having a glass or other transparent top.

It has been found that in constructions of this character the glass is likely to crack or melt when the fuse is subjected to a heavy overload. I have discovered that this difficulty can be very readily overcome by simply inserting a strip of non-conducting material such as fibre or paper between the two arms of the fuse so that the arc is confined to the space between the ends of the insulating strip. This cuts down the effect of the arc to such an extent that there is no damage to the construction other than the melting of the fuse strip.

In order to make it possible to more easily inspect the condition of the fuse I color the fusible strip, preferably white, and print upon it the numbers or letters indicating the normal rating of the plug.

I also preferably provide a central indicating mark in a distinctive color such as red which readily catches the eye. It is thus possible to instantly ascertain the condition of the fuse and to inspect the marking.

Preferably the top of the fuse is of glass and provided with a central lens which magnifies the central point and fuse strip and its marking.

Fig. 1 is a longitudinal sectional view of a plug embodying the improvements of my invention.

Fig. 2 is a perspective view showing the

fuse strip and protecting device.

Fig. 3 is a detail view of the arc interrupting protecting device.

Fig. 4 is a detail view of the fuse strip.

Fig. 5 is a perspective view of a modified form of protector.

Fig. 6 is a sectional view of a modification.

The body of the plug consists preferably of the two parts 7 and 8, both of which are of insulating material, and enclosed between them the fuse strip 9 and the protecting strip 10. The two parts of the body may be held together with the usual screw shell 11. One end of the fuse strip is connected to the inner end of the member 12 which constitutes the center contact. The other end of the fuse strip is connected to the inner end of the conducting strip 13 which is electrically connected with the screw shell.

The two members 12 and 13 may be suitably secured in the base 7 as, for instance, by being molded in place.

The insulating strip 10 may be stamped from fibre or paper and bent into form between the opposite sides of the fuse strip as shown in Figs. 1 and 2, so that the two side arms of the fuse strip and the conductors 12 and 13 are entirely separated by the two walls of the insulating material.

The ends of the strip 10 may be extended somewhat beyond the fuse strip 9 by providing notches 14 in the ends of the strip 10 which also serve to hold the protector strip 10 in position. The resiliency of the strip 10 also aids in holding it in place.

In the form shown in Fig. 5, the strip 10' is provided with slots 14' thru which the fuse strips may be inserted, thus increasing the protective effect and preventing the arc from traveling around the edges of the strip 10'.

The fuse strip itself may be secured to the conductors 12 and 13 in any suitable manner. Its central portion is preferably painted or printed white so that the rating indications

such as "30—A" when printed, for instance black, stand out much more sharply.

The mid point of the fuse strip will usually be reduced in width and may be provided with a distinguishing mark as, for instance, a red line 16, which can be readily seen thru the front of the plug.

By making the strip 10 of dark material such as black fibre or paper a still greater contrast is produced by this effective black background.

I prefer to make the top member 8 of glass and provide a magnifying lens portion 17 for accentuating or bringing out the details of the fuse link and its marking.

By giving the inner ends of the conductors 12 and 13 an initial bias away from each other the fuse link may be kept under tension to aid in the "blowing" of the fuse. When the link "blows" the resilient U-shaped protector strip 10 may be arranged to spread and follow the ends of the link so as to aid in suppressing the arc.

The structure provides for sufficient space around the fuse link to permit positive disruption of the fuse link and interruption of the current under overload conditions.

It will be seen that the strip 10 performs two functions. It not only serves to provide a distinguishing background for the fuse wire but it also serves to prevent the arc from travelling back along the side arms of the fuse. It is thus impossible for the blowing of the fuse to develop a dangerous pressure or temperature.

In the form shown in Fig. 6 the center contact 12' and the side anchor member 13' are in the form of beaded studs inserted in the base and having the fuse link 9' soldered to their inner ends, the anchor member 13' may be soldered or otherwise connected to the screw shell 11.

The arc interrupter 10a is folded double between the ends of the fuse strip. When the fuse blows the strip 10a may expand against the adjacent walls of the cap member 8 and thus assist in blocking the arc.

I claim:

1. A fuse comprising an insulating base, spaced conductors carried thereby, a transverse fuse link connecting said conductors and spaced apart from said base, a doubled insulating strip sprung between the base and the fuse link.

2. A fuse comprising a base, two conductors mounted therein and initially biased away from each other at their outer ends, a fuse strip normally connecting the ends and a resilient insulating strip held compressed between the conductors with portions adjacent said fuse strip and adapted to reduce the tendency to arc when the fuse strip blows.

3. A fuse plug comprising an insulating body formed of two parts, the outer part

being of transparent glass and having a recess, resilient spaced terminal members in the other part of the body having their free ends extending into said recess, a fuse strip having spaced side arms and ends secured to the free ends of said terminal members and having an intermediate marked portion visible through the glass part and a resilient arc interrupting insulating strip between the side arms of the fuse strip in said recess normally tending to separate said terminal members.

4. In a fuse plug, a window of magnifying glass, spaced conductors, a colored fusible link connecting said conductors and having markings thereon, said link being formed with a restricted fusible portion positioned in line with said window, said restricted portion being painted a color in contrast to the color of said link, and a resilient insulating strip between said conductors and shaped to normally spread said conductors, said insulating strip being of a color in contrast with the colors of said link and the restricted portion thereof.

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