Dec. 11, 1934. D. H. ATWATER 1,983,890

SIGNAL FUSE PLUG

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Fig. 1.

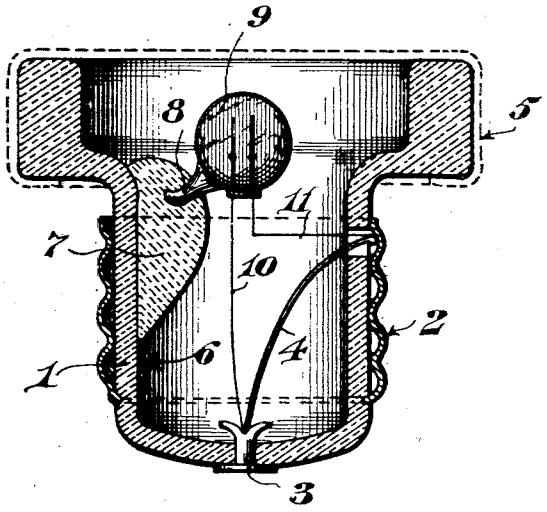
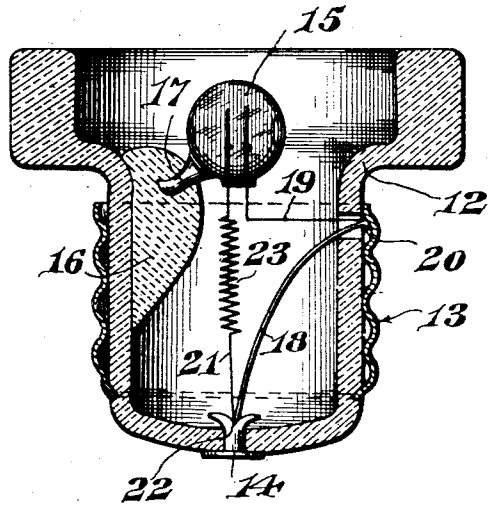


Fig. 2.



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SIGNAL FUSE PLUG

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2 Claims. (Cl. 200—121)

This invention relates to a signal fuse plug, and has for its object the production of a simple and efficient fuse plug of the conventional type which is provided with a signal means carried within the plug itself to indicate when the fuse has blown or burned on alternating current circuits.

Another object of this invention is the production of a signal fuse plug of the conventional screw type used in electrical circuits, wherein the fuse plug contains a small neon lamp which is shunted across a fusible element in such a manner as to cause the neon lamp to be lighted when the fusible element breaks through or burns on alternating current circuits.

Other objects and advantages of the present invention will appear throughout the following specification and claims.

In the drawing:

Figure 1 is a vertical sectional view through a fuse plug illustrating one form of the present invention; and

Figure 2 is a vertical sectional view of a fuse plug showing a modified form of the invention employing a resistance in the lamp circuit.

By referring to the drawing, it will be seen that 1 designates the fuse plug of a conventional type which may be of any suitable or desired construction common to the trade. The conventional brass threaded shell 2 is mounted upon the fuse plug 1 in any suitable or convenient manner and constitutes a terminal for the circuit of the fuse plug. A lower brass contact 3 is carried by the bottom of the fuse plug as shown in Figure 1, and the fusible element 4 is electrically connected to this lower brass contact 3, and to the threaded brass shell 2 thereby setting up a complete electrical circuit through the plug in the usual manner. The plug may be sealed in any suitable or desired manner across the top by means of a suitable closure cap 5, shown in dotted lines, as is common to the trade, but it should be understood that the body of the plug itself may be constructed in any suitable or desired manner without departing from the spirit of the invention.

Secured to one wall 6 of the plug 1 is a plastic substance 7 of material thickness in which plastic substance 7 is anchored the projecting lamp seal 8 of the neon lamp 9. As shown in Figure 1, the neon lamp by having the seal 8 projecting into and embedded within the plastic substance 7 will be efficiently and rigidly supported within the interior of the fuse plug 1 in a position preferably below the outer edge of the fuse plug and adjacent the open end of the fuse plug. The substance 7 may be of any suitable non-combustible substance or desired material sufficient to support efficiently the neon lamp 9. The neon lamp 9 is preferably red in color and is electrically connected to the lower brass contact 3 by means of a wire 10 and the other side of the lamp is electrically connected to the threaded brass shell 2 by means of a wire 11, the terminals of the wires 10 and 11 being connected to the contact 3 and to the threaded brass shell 2 at the same point of contact with the terminals of the fusible element 4. By considering the drawing, it will be seen that the neon lamp is shunted across the fusible element 4, which fusible element 4 constitutes a fuse strip. This neon lamp 9, it should be understood, constitutes a non-metallic circuit which is placed across the fuse wire or fusible element 4, and this will not raise the fusing point of the fusible element 4. The only circuit after the fusible element 4 has been broken will be through the gases contained in the neon lamp.

The operation of the device is as follows:—Should the fuse wire or fusible element 4 become burned or broken, the current will pass up through the neon lamp due to the circuit being completed through the wires 10 and 11 and the contact 3 and shell 2, thereby causing the neon lamp to be illuminated and dispense a red glow, in this way permitting an observer to readily determine the fuse which has become blown or burned. This is of particular advantage where a fuse bank is employed and wherein a multiple of fuses are displayed in one group or collection. An observer may, because of this illumination of the fuse plug, determine at an instant the inactive fuse.

The neon lamp 9 will not burn under ordinary conditions while the fuse or fusible element 4 is active, due to the fact that the neon lamp will offer more resistance to the current than to the fusible element 4, and it is a well known fact that electricity will follow the path of least resistance. Since the fusible element 4 and the neon lamp have the same terminals, when the fusible element 4 burns out the current flows through the neon lamp instead of the fusible element 4. The lamp, however, and its connections are constructed so that it will not serve as a fusible element but will merely light the neon lamp when the fusible element 4 burns out or becomes broken.

In Figure 2 there is shown a modified form of the invention wherein the usual fuse plug 12 is illustrated, having the threaded brass shell 13 upon its outer face and a central lower brass contact 14 at the bottom. A red neon lamp 15 is supported upon a suitable substance 16 mounted

upon one inner wall of the plug 12 by having the lamp seal 17 embedded in this substance 16. A fusible element 18 forms an electrical connection upon the shell 13 and the lower contact 14 and the neon lamp 15 is supported across the terminals of the fusible element 18 as shown by having the wire 19 connected to the terminal 20 of the fusible element and the wire 21 connected to the other terminal 22 of the lower brass contact 14. The wire 21 is provided with a suitable resistance 23 which may be of any desired character or strength and may be changed to suit various conditions under which the plug may be used.

It should be understood that the lamps 9 and 15 in each instance may be of any suitable or desired color without departing from the spirit of the invention and that the resistance 23 may be of any suitable type or strength without departing from the spirit of the invention.

It should also be understood that certain detail changes in the mechanical structure may be employed without departing from the spirit of the invention, so long as these changes fall within the scope of the appended claims.

Having described the invention, what is claimed as new is:—

1. As a new article of manufacture, a fuse plug of the conventional type having a conventional fusible element, a neon lamp having a projection engaging one wall of said fuse plug for supporting the neon lamp within the interior of the fuse plug, said lamp being in electrical circuit and shunted across said fusible element and being of greater resistance than the fusible element to permit the burning of the lamp when the fusible element is broken and prevent the burning of the lamp when the fusible element is active.

2. A signal fuse of the class described comprising a body of the conventional type, the body being provided with a conventional fusible element, a lamp mounted within the body and shielded thereby, said body having an enlarged substance carried by the inner face of the body, the lamp being partially embedded therein, and said lamp being shunted across said fusible element and being of greater resistance than the fusible element.

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