June 19, 1951 L. N. BAENZIGER 2,557,587

LAG FUSE

Filed Aug. 24, 1950

Fig. 1.

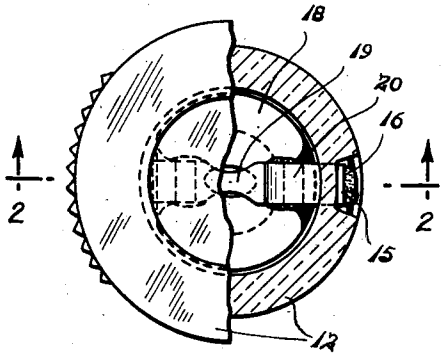


Fig. 2.

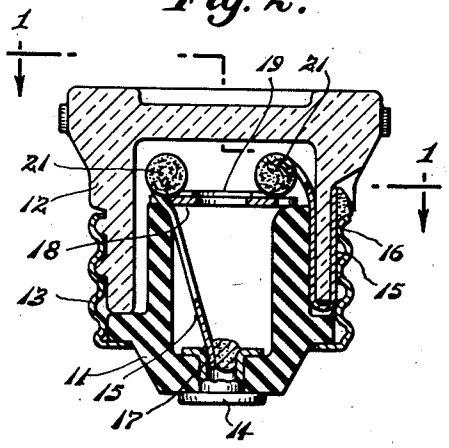


Fig. 3.

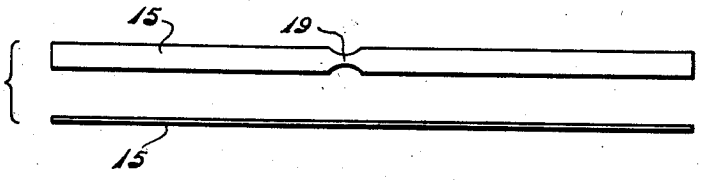
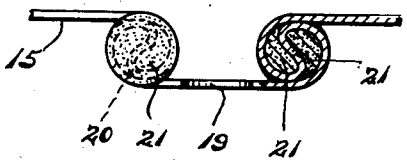


Fig. 4.



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Patented June 19, 1951

2,557,587

UNITED STATES PATENT OFFICE

2,557,587

LAG FUSE

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Application August 24, 1950, Serial No. 181,243

2 Claims. (Cl. 200—123)

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This invention relates to improvements in plug type fuses commonly known as lag fuses, adapted for use in the circuits of electrical appliances and designed to accommodate a quick surge of current when the switch in the appliance circuit is turned on, without "blowing" because of the quick surge of current which temporarily overloads the circuit.

The principal purpose of the invention is to provide a plug fuse of this type which is simple and economical to manufacture and assemble, durable and efficient in use and capable of carrying normal currents and temporary overloads without interrupting the circuit, while causing interruption of the circuit under sustained over loads or short circuits.

More particularly, it is an object of this invention to provide a lag fuse having body and shell portions of substantially conventional construction, equipped with a fusible strip having solder-filled coils on opposite sides of the fusible neck or link of the strip, whereby the solder pockets absorb the excess heat of a quick current surge of temporary overload such as occurs when the circuit to an electric appliance is first turned on, so that the circuit is not broken unless the overload is sustained for a predetermined period of time.

A recommended embodiment of the invention is shown in the accompanying drawings, in which:

Fig. 1 is a plan view of the improved fuse, partly broken away and in section, taken on line 1—1 of Fig. 2;

Fig. 2 is a diametric section on line 2—2 of Figure 1;

Fig. 3 is a composite view showing, in plan and in edge elevation, a fusible metal strip in flat form, prior to the coiling of the strip and the incorporation of the solder pockets; and

Fig. 4 is an enlarged, fragmentary edge elevation, partly in section, showing the fusible link and solder pockets in the coils of the fused strip.

In the form chosen for the purpose of illustration, the improved lag fuse comprises a substantially conventional body 11 of insulating material, a conventional transparent top member or cover 12, of glass or other suitable material, and a conventional threaded metal shell 13 which holds the body and cover in assembled relation and provides means for screwing the plug fuse into a conventional socket, in which the base terminal 14 of the fuse and the shell 13 constitute conductors when the circuit is open. The aforesaid elements are common to various types of

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plug fuses, and the structural details of these elements are not material to the present invention and may be modified as desired to suit particular purposes.

In accordance with this invention, the fuse strip normally incorporated in such plug type fuse performs the general function of conventional fuse strips but is of novel construction most economically and efficiently to perform the functions and purposes above described. The strip 15 consists of zinc or other fusible metal and is of such a length to be incorporated in the fuse plug so that one end is electrically connected to the screw shell 13 as at 16 and the other end is electrically connected as at 17 to the base terminal 14, with the central portion of the strip extending across the top of the insulating body 11 above the customary paper disc 18. The strip 15 has a reduced central neck fusible link portion 19. The electrical connections 16 and 17 may be achieved by soldering the parts together in accordance with ordinary practice.

On opposite sides of the link 19, the metal strip is coiled upon itself at 20, as best shown in Fig. 4, and the openings in the respective coils are filled with molten solder 21 which, upon hardening, forms solder pockets in each of the coils 20 and retains said coils against displacement when the fusible strip 15 is incorporated in the plug as shown in Figs. 1 and 2, with the solder pockets disposed above the disc 18 on top of the hollow insulating body 11. As previously indicated, these solder pockets absorb the excess heat of a quick current surge and prevent the breaking of the fuse at the link 19 under a temporary overload of the circuit. If, however, such overload is sustained for a predetermined time period, because of a short in the circuit, or for other reasons, the fusible link will melt and the circuit will be interrupted before any damage to the electrical appliance results.

The fusible strip of a lag fuse constructed as above described avoids the necessity for using special links or springs, such as employed in certain previous types of lag fuses, which are complicated to manufacture and assemble and likely to get out of order in use. The solder-pocketed strip is easy to manufacture, compact in form, and may be assembled with the other elements of the fuse plug without introducing additional parts or special connections.

1. A lag fuse comprising a flat metal strip having a fusible link of reduced width intermediate its ends, said flat strip being coiled upon itself on opposite sides of said link, said coils having

transverse pockets therein and said pockets containing solder.

2. A plug type lag fuse comprising a body of insulating material, a cover of transparent insulating material, a threaded shell partially enclosing said body and cover and holding the same in assembled relation, a terminal in the base of said body, and a flat strip of fusible metal having its respective ends connected to said shell and said terminal and having an intermediate portion extending across the top of said body, said intermediate portion having a reduced neck constituting a fusible link, the flat metal strip being coiled upon itself on opposite sides of said link to provide pockets in the coils, said pockets containing hardened solder.

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