June 21, 1938. J. LANGDON 2,121,127

REFILLABLE FUSE

Filed May 28, 1936

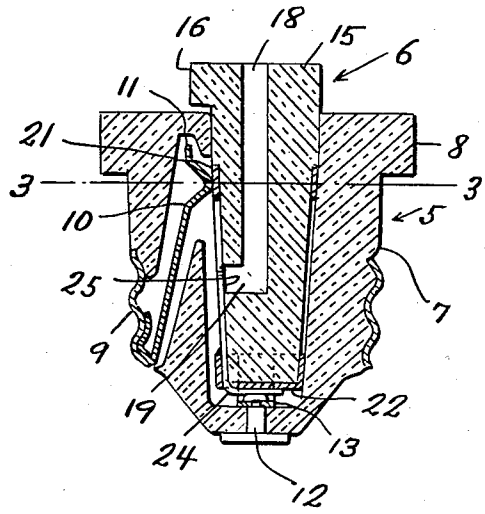
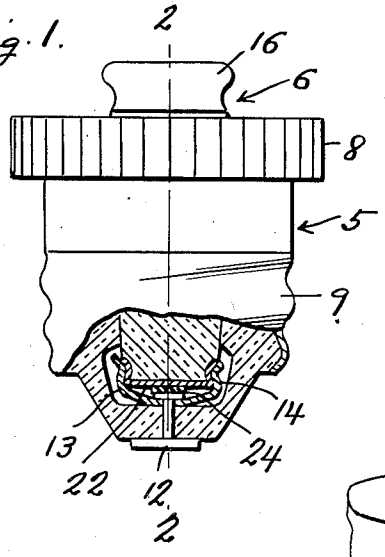


Fig. 2.

Fig. 1.



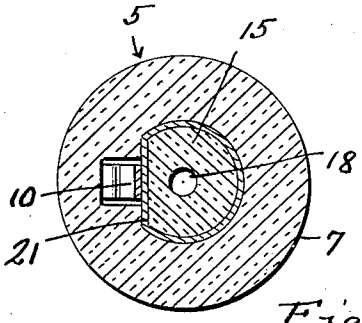


Fig. 3.

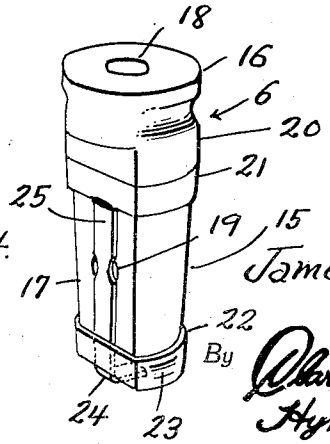


Fig. 4.

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REFILLABLE FUSE

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Application May 28, 1936, Serial No. 82,368

4 Claims. (Cl. 200—130)

This invention relates to renewable and refillable fuse construction, and has more specific reference to the plug-type such as is used in a conventional fuse box in the home and elsewhere.

Briefly, the preferred embodiment of the invention comprises a screw-threaded, plug type fuse which, in accordance with the present invention, is provided with a special adapter socket and relatively fixed and movable contacts therein designed to accommodate a supplementary core unit which functions as a fuse carrier plug and which is itself constructed to be bodily removed in order that the disrupted fuse element or filament may be readily removed and safely replaced so that it can be installed again in the plug without removing the plug from the fuse box.

My chief object is to generally improve upon fuse constructions by providing a structure which is highly simple and economical, practical and efficient, substantially fool-proof, and otherwise perfected to render it susceptible of satisfactory commercial and competitive use, and to justify its endorsement by various local and State authorities.

One feature of the invention relates to the screw-in main plug unit characterized by a fixedly mounted, spring-grip contact located in the adapter socket, together with a resilient, relatively movable contact finger or arm carried by the conductor shell and projectable into said socket for proper current conducting results.

The cardinal improvement, however, has to do with the special construction and safeguarding use of the removable supplementary plug which is insertible into the socket and equipped with contacts for cooperation with the companion contacts in the main plug and is expressly made to facilitate removal and replacement of the fusible strip or filament.

Other features and advantages will become more readily apparent from the following description and the accompanying illustrative drawing.

In the drawing, wherein like numerals are employed to designate like parts throughout the same:

Figure 1 is an elevational view with portions broken away and shown in section illustrating the complete assembled fuse construction ready for use;

Figure 2 is a central vertical sectional view which may be said to be taken approximately on the plane of the line 2—2 of Figure 1;

Figure 3 is a horizontal section on the line 3—3 of Figure 2;

Figure 4 is a perspective view of the insertible and removable, specially constructed renewable fuse carrier plug.

The main plug unit is denoted by the numeral 5 and the core-like companion or complementary removable plug unit is indicated by the numeral 6. The unit 5 comprises a body of insulation material 7 of conventional shape provided with a knurled finger-gripping flange 8. It further includes the corrugated or screw-threaded shell 9 which in the present instance is provided with a radially and inwardly projecting relatively movable spring contact finger 10. This terminates in a flexible terminal or shoe 11, which is projectable into the central adapter socket. The fixed contact button 12 is located in the bottom of a socket and is provided with a substantially U-shaped clip 13 terminating in spring grips 14.

The fuse carrier or mounting plug unit, as shown in Figure 4, comprises a tapered body of insulation 15 which is shaped and proportioned to fit snugly in the adapter socket in the plug 5. The upper end is formed with an outstanding grooved knob or head 16 which functions as an appropriate finger-grip. On one side is a flat face 17 which is adapted to match with the flat-faced side of the adapter socket so as to insure proper insertion of the unit 6. That is to say, the cooperating flat faces of the socket and plug 6 insure fool-proof placement of the plug 6. The plug is shown as formed with a vertical bore 18 registering with a port 19 opening through the flat side which provides the desired vent. Surrounding the intermediate shouldered portion 20 of the plug is a contact band or ring 21 with which the terminal 11 is cooperable. At the bottom of the plug is a cap 22 of suitable current conducting material having diametrically opposite keeper seats 23 to resiliently receive the grips 14 on the U-shaped contact member 13. This is shown to advantage in Figure 1. The cup 22 is properly apertured to accommodate the bendable, that is, the laterally bent lower end 24 of the renewable or refillable fuse element 25. This is a conventional filament and the straight shank portion thereof is slipped up through the aperture in the rim portion of the cup 22 so that it contacts the ring 21, thereby bridging the two parts and conducting the current from the contact button 12 to the shell 9 by way of the contact finger 10.

Novelty is thought to reside in the special construction of the relatively stationary plug 5 hav-

ing the contact button 12 and the special grip-equipped, U-shaped contact element 13 located in the adapter socket, together with the resilient contact finger 10 having its terminal 11 projectable into the socket to accommodate the filament carrier plug 6. Then, too, the plug 6 is highly important and probably constitutes the chief novelty. It is thought that the novelty here resides in the tapered flat-faced insulator with the finger-grip and the venting means, together with the cap 22 on the bottom, the ring 21 on the intermediate portion, which features serve as retaining elements for the renewable filament 25. Then, too novelty exists, it is believed, in the cooperation of the features 14 releasably and properly gripping the cap 22 through the instrumentality of the seats 23.

All of these parts have been carefully selected and coordinated to bring about the desired matched coaction. As before intimated, however, the device as a whole is believed to be an improvement because of its simplicity, the economy involved, the commercial possibilities, and the inherent properties of fool-proof safety features.

It is thought that the description taken in connection with the drawing will enable a clear understanding of the invention to be had. Therefore, a more lengthy description is thought unnecessary.

While the preferred embodiment of the invention has been shown and described, it is to be understood that minor changes coming within the field of invention claimed may be resorted to if desired.

I claim:

1. As a new article of manufacture, a removable insert in the nature of an auxiliary plug embodying a body of insulation material generally tapered in a longitudinal direction and flat on one side, a metal contact cap fitted on one end of said body, a contact ring fitted on the intermediate portion of the body, said body being provided with a longitudinal bore having its inner end directed laterally and opening through one face of said body, and a renewable filament electrically connected with said contact cap and ring, said filament bridging the laterally directed inner end of said bore.

2. As a new article of manufacture, a removable insert in the nature of a plug embodying a body of insulation generally tapered in a longitudinal manner and flat on one side and provided with a venting bore, longitudinally spaced contact members mounted on said body, and a renewable filament cooperable with said contact members.

3. As a new article of manufacture, a removable insert in the nature of a plug embodying a body of insulation generally tapered in a longitudinal manner and flat on one side and provided with a venting bore, longitudinally spaced contact members mounted thereon, a renewable filament cooperable with said contact members, one of said contact members being in the form of a cap fitting over the lower end of the body of insulation, and apertured to accommodate one end of the filament, and provided with detent accommodation keeper seats.

4. As a new article of manufacture and as a component part of a refillable fuse assembly of the class described, a main fuse plug of the detachable screw-type provided with a centrally disposed auxiliary separable plug accommodation socket, said socket being of general cylindrical cross-sectional form and having at least one side thereof substantially flat and extending in a longitudinal direction the full length thereof, an externally disposed corrugated metal screw shell embracing the attachable end portion of said plug, the body portion of said plug being provided with a contact adapter passage opening at one end into the socket and having its opposite end opening through the periphery of the plug to expose said shell, a contact finger in said adapter passage connected at one end to the shell and having its inner end of general V-shaped formation and projecting into said socket, and a substantially U-shaped resilient contact clip fixedly mounted in the bottom of said socket to accommodate the aforementioned auxiliary plug.

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