

Oct. 20, 1959

C. E. PALMER

2,909,630

COMBINATION ELECTRIC CORD PLUG AND FUSE

Filed March 11, 1957

Fig. 4

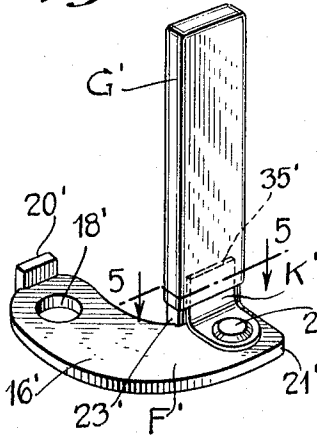


Fig. 1

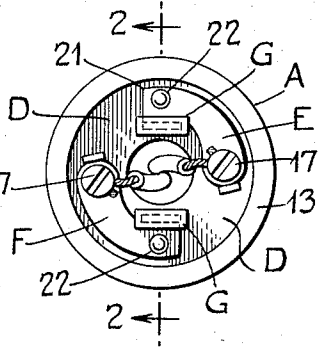


Fig. 6

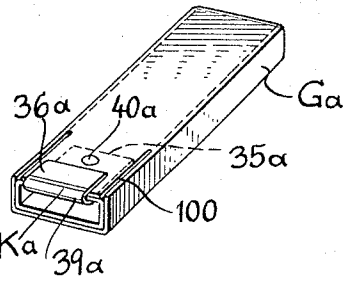


Fig. 2

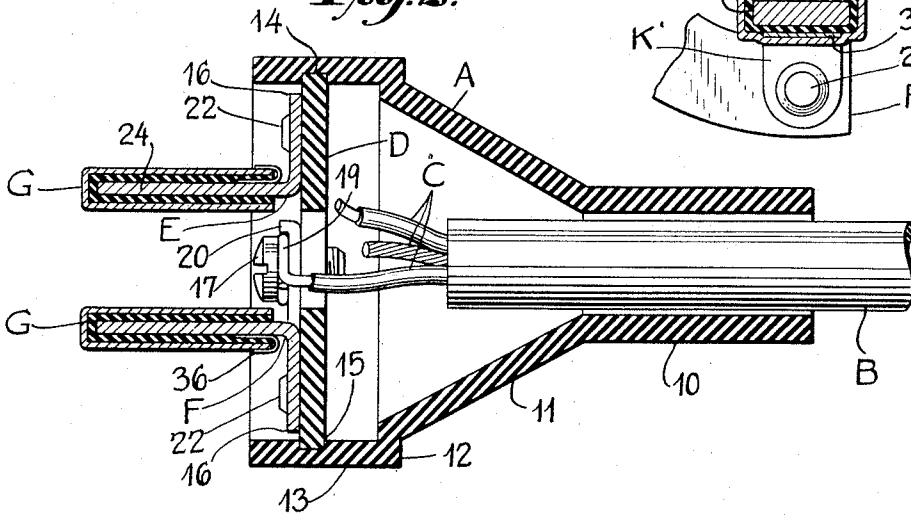


Fig. 5

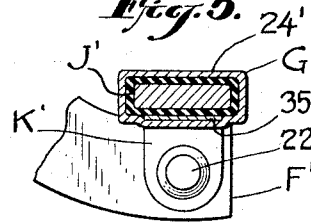
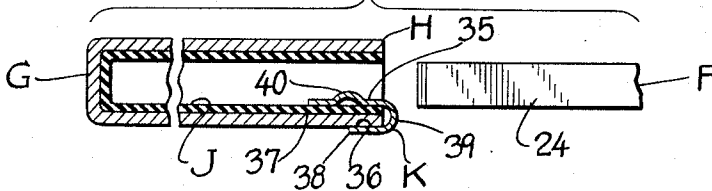


Fig. 3



INVENTOR.

CHARLES E. PALMER.

BY

Charles E. Palmer
ATTORNEY.

1

2,909,630

COMBINATION ELECTRIC CORD PLUG AND FUSE

Charles E. Palmer, Plymouth, Ind.

Application March 11, 1957, Serial No. 645,197

5 Claims. (Cl. 200—115.5)

The present invention relates to a combination cord plug and fuse and it particularly relates to a combination cord plug and fuse which may be readily utilized in connection with various cord connections and electrical appliances and other purposes.

Although not limited thereto the present invention will be particularly described in its application to combination cord plugs and fuses which are utilized in connection with home, office, business or factory electrical appliances which may likely overdraw on current, particularly where there may be a short circuit in the device or where dropping of the appliance or banging thereof may cause an overload on the circuits with opening of a central circuit breaker or burning out of a central fuse.

It is among the objects of the present invention to provide a combination fuse arrangement of the character described which may be readily applied to the usual pronged electric plug-in connections without requiring special construction and which when burned out may be readily removed and replaced and will at the same time lessen the necessity of replacing relatively expensive central fuses or replacing relatively remote circuit breakers.

Another object is to provide relatively simple, inexpensive and readily applied attachments to the electrical connections of appliances so as to protect the main circuits from overloads due to temporary or permanent derangement in the appliances as may result from dropping or rough handling of the particular appliance in question.

A further object of the present invention is to provide a relatively simple, automatic fusing arrangement which may be applied directly to one or both of the prongs of a standard electrical connection and which will give assurance that such connection may be used and if subject to overdrawing of current will not affect any other part of the electrical circuit arrangements to which it may be applied and particularly will not cause derangement of the fuse box or circuit breakers associated with the house, factory, office or business establishment electrical circuits.

Still further objects and advantages will appear in the more detailed description set forth below, it being understood, however, that this more detailed description is given by way of illustration and explanation only and not by way of limitation, since various changes therein may be made by those skilled in the art without departing from the scope and spirit of the present invention.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:

Figure 1 is a bottom plan view of the electrical plug connections with the fusing devices in position thereon;

Fig. 2 is a transverse vertical sectional view taken upon the line 2—2 of Fig. 1;

Fig. 3 is a separated view showing one of the fuse caps as it is in position to be assembled with a plate;

Fig. 4 is a side perspective view of an alternative embodiment showing one of the prongs of the electrical

2

connection removed from its assembly with one of the fuse caps in position thereon;

Fig. 5 is a transverse vertical sectional view upon the line 5—5 of Fig. 4; and

Fig. 6 shows a further alternative embodiment and is an end perspective view showing the cap as it may be obtained as a separate part to be applied over the prong of an electrical connection.

Referring to Figures 1 and 2 there is shown a molded insulating shell A having a central insulated electrical conduit member B in which is positioned the separated electrical connectors C.

The plug-in connection is provided with a mounting plate D having the prong members E and F which receive the fuse caps G to which the present invention is particularly directed.

Each cap is provided with an outer shell H of conductive or metal material and an inner cap J of insulating material with a connection fuse link K at one corner thereof.

The shell may have a cylindrical terminal portion 10 receiving a conduit B, a conical end extension 11, a shoulder 12 and a relatively wide mouth 13. This relatively wide mouth has the grooves 14 to receive the edges 15 of the mounting plate D. The mounting plate D receives the base arcuate shaped portions 16 at the base of the prongs which are provided with screws 17 extending through openings 18 to engage and hold ends 19 of the wires at the end of the conductors C. The upturned lip or tang 20 will hold the wires in position and prevents short circuits in the plugs.

The corner 21 of the base 16 of the prongs is also provided with the rivets 22 to mount them upon the insulating mounting plate D. Extending upwardly from the edge 23 of the base 16 will be the prong members 24 which are normally extended directly into the recesses or receptacles in a wall or other electrical connection.

Since the female electrical connections will be sufficiently wide to receive the prong 24 they will also be sufficiently wide to receive the prong 24 carrying the cap G. The cap G, as shown in Fig. 3, consists of two shells H and J which are quite thin yet firmly adhesively or otherwise connected together so as to form a single unit together with the U-shaped fuse link K. This fuse link K may have an inside leg 35 and an outside leg 36 which respectively will contact the face of the prong as indicated in Fig. 2 and the outside metallic conducting shell H. In operation the caps G may be made relatively inexpensively and may be fitted over one or all of the prongs 24 of a multi prong electrical connection as shown in Fig. 2.

The fuse cap will be of such thin stock that it will readily fit into the recess of an electrical socket.

The inside insulating shell J and the outside conducting shell H and the connecting fuse link K will all be integrally assembled together so they will not separate by a pressure or by suitable adhesive connections which will not break the electrical contacts desired or establish circuits where they are not desired.

The inside and outside legs 35 and 36 may be recessed into the lower inside edge of the inside insulating cup J and the lower outside edge of the conducting cup H or its points as indicated at 37 and 38 may be riveted or soldered in position. The loop 39 as shown in Fig. 3 is desirably free of or is substantially spaced from the end of the shell G so that the molten fuse metal will more readily flow free from the shell G and break the circuit upon excessive current consumption by the electrical appliance. A slight bead or bump may be placed at 40 on the inside leg 35 to more frictionally retain the cap G on the prong 24 and give a better frictional connection. The bead or projection 40, however, should

3

never be so high as to give any difficulty in the assembly of the cap G upon the prong 24.

In the alternative embodiment of Figs. 4 and 5, similarly functioning parts being indicated by the same numerals which, however, are primed, the fuse link K' is shown as being attached by the rivet 22' to prong member F' and it extends upwardly inside of the shell G', as best shown in Fig. 5. The upwardly extending leg 35' will establish the connection between the shell G' and the prong base structure F' and if there is any over-current this link K' will melt and break the connection. It will be noted that the shell G' is separated electrically from the prong structure F' by the insulating shell J' and the only connection that is established is by the right angle link connection K' extending between the rivet 22' and the inside face of the cap G'.

In the alternative embodiment of Fig. 6, the same elements as in Figs. 1-5 are indicated by the same numerals and letters, however, followed by a small "a." In this case the wall of the cap Ga is slit as indicated at 100 to give more resiliency and the fuse link Ka will have an outside leg 36a and an inside leg 35a. This resiliency caused by the slots 100 will take up any extra thickness due to the inside leg 35a on the projection 40a.

It is thus apparent that the applicant has provided a simple, inexpensive, readily applied fuse element for prong type electrical connectors which may be widely used to restrict any blowouts directly to the appliance and prevent damage to the central fuses or central circuit breakers of a wiring system in a house, factory, office or business establishment.

While there has been herein described a preferred form of the invention, it should be understood that the same may be altered in details and in relative arrangement of parts within the scope of the appended claims.

Having now particularly described and ascertained the nature of the invention, and in what manner the same is to be performed, what is claimed is:

1. A fuse attachment for a male prong type electrical plug-in connection of the type having blade-like extensions to be inserted into a female electric connection, said attachment consisting of a laminated shell having an insulating lining forming an inside shell and a metal conductive outside shell and a connecting fuse link, said link consisting of a short J-shaped strip having an embossed inside leg closely to contact the prong.

2. A fuse attachment for a male prong type elec-

4

trical plug-in connection of the type having blade-like extensions to be inserted into a female electric connection said attachment consisting of a laminated shell having an insulating lining forming an inside shell and a metal conductive outside shell and a connecting fuse link, said fuse link taking the form of a U member with its inside leg permanently mounted on the inside lower face of the lining and its outside leg permanently mounted on the outside lower face of the outer shell, said inside leg being longer than said outside leg and said inside leg having an embossment to make better contact.

3. A fuse attachment for a male prong type electrical plug-in connection of the type having blade-like extensions to be inserted into a female electric connection said attachment consisting of a laminated shell having an insulating lining forming an inside shell and a metal conductive outside shell and a connecting fuse link, said fuse link consisting of a connection between the lower ends of the inside and outside shells, said link consisting of a short J-shaped strip having an embossed inside leg closely to contact the prong.

4. A fuse attachment for a male prong type electrical plug-in connection of the type having blade-like extensions to be inserted into a female electric connection said attachment consisting of a laminated shell having an insulating lining forming an inside shell and a metal conductive outside shell and a connecting fuse link, said inside and outside shells being of rectangular cross-section to closely fit onto the prong of a male electrical plug-in connection, said link consisting of a short J-shaped strip having an embossed inside leg closely to contact the prong.

5. A combination fuse cap combination for fitting over and onto the prong of a plug in an electrical connector comprising an outside metal cap and a closely fitting inside insulating cap and a short J-shaped fuse strip extending around the edges of said caps with its long leg inside the caps and its short leg outside the caps and a friction boss on the inside leg frictionally to contact the prong.

References Cited in the file of this patent

UNITED STATES PATENTS

1,493,148	Cohen	May 6, 1924
2,147,584	Thomas	Feb. 14, 1939
2,457,477	Larizza	Dec. 28, 1948
2,686,856	Cardone	Aug. 17, 1954
2,703,352	Kozacka	Mar. 1, 1955