Dec. 1, 1953 J. E. DOSS 2,661,413

FUSE PROTECTED ELECTRICAL OUTLET

Filed Sept. 4, 1951

Fig. 1.

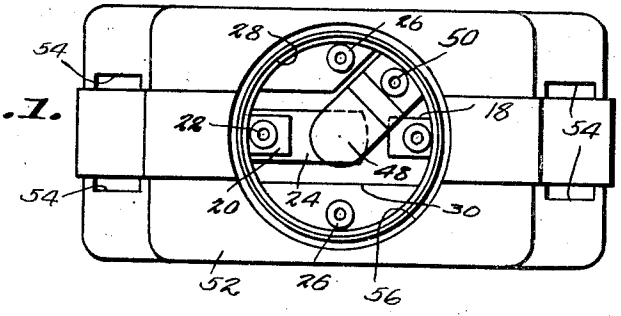


Fig. 2.

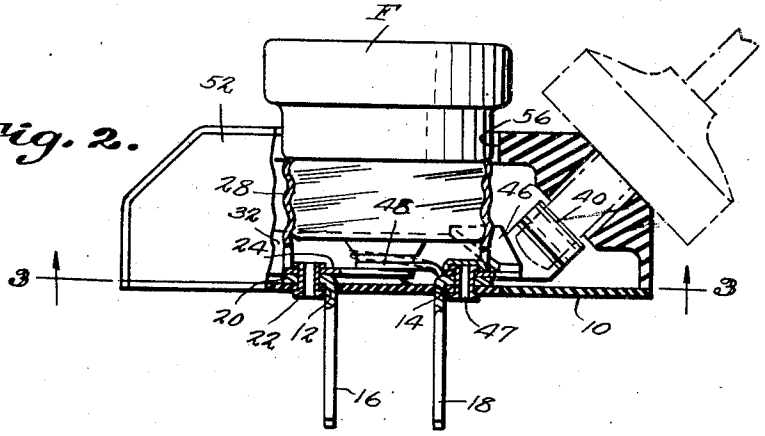


Fig. 3.

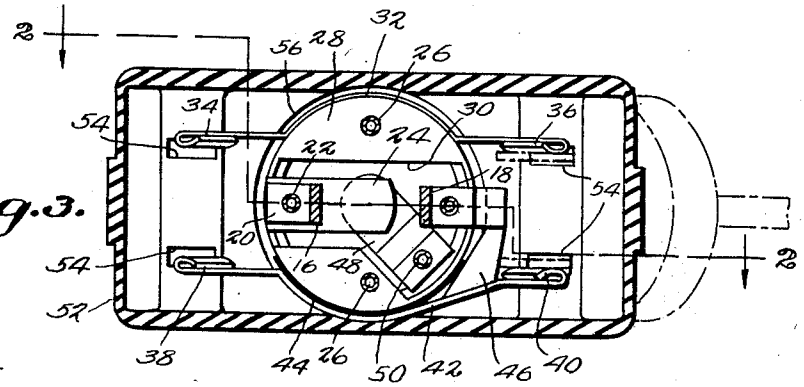
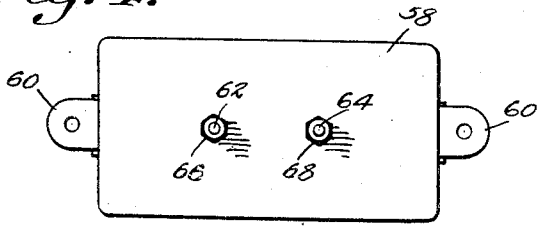


Fig. 4.



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FUSE PROTECTED ELECTRICAL OUTLET

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1 Claim. (Cl. 200—115.5)

1

This invention relates to a fuse protected electrical outlet and has for its primary object to protect electrical appliances from injury through overloads and also to protect lines from overheating, due to overloading, or short circuits.

Another object is to prevent the use of the outlet without inserting a fuse therein and to frustrate any attempt to short circuit the fuse outlet by the insertion of a coin or the like thereinto.

A further object is to avoid danger to children or others who might insert their fingers into the fuse outlet when no fuse is supported therein.

A still further object is an attachment which may be employed in connection with a conventional convenience outlet to permit one or more appliances to be connected to the single convenience outlet.

The above and other objects may be attained by employing this invention which embodies among its features a pair of spaced prongs adapted to enter a convenience outlet and engage the spring contacts thereof, a pair of spaced spring contacts one of which is electrically connected directly to one of the prongs, a screw threaded shell of conducting material electrically connected to the other spring contact of the pair of spring contacts, a center contact within but electrically isolated from the shell and connected electrically to the other prong whereby when a fuse is threaded into the shell and engages the center contact, the electrical connection will be effected between the prong that is connected to the center contact and the spring contact opposite that which is directly connected to a prong.

Other features include guard means within the shell and electrically isolated therefrom, said guard means overlying the center contact in spaced relation thereto when no fuse is in the shell to avoid establishing electrical contact between the shell and the center contact either by the introduction of a finger or fingers into the shell, or by the introduction of a coin or the like into the shell.

In the drawings,

Fig. 1 is a plan view of a fuse protected electrical outlet embodying the features of this invention,

Fig. 2 is a side view partially in section of the outlet illustrated in Fig. 1,

Fig. 3 is a longitudinal sectional view taken substantially along the line 3—3 of Fig. 1, and

2

Fig. 4 is a bottom plan view of a modified form of the invention.

Referring to the drawings in detail a conventional base plate 10 of suitable non-conducting material is of elongated rectangular form and is provided intermediate its ends with longitudinally spaced slots 12 and 14 through which are extended prongs 16 and 18 respectively. The prong 16 is provided adjacent one end with an angular offset 20 which is pierced to receive a suitable rivet 22 by means of which the prong is rigidly fixed to the base plate 10. Coupled to the prong 16 by means of the rivet 22 is a conductor forming the center contact 24 of the assembly to be more fully hereinafter described.

Secured as by rivets 26 to the base plate 10 is a screw threaded shell 28 having an opening 30 extending therethrough which serves to electrically isolate the shell from contact with the prongs 16 and 18. Soldered or otherwise secured to the shell on the exterior thereof is a conductor 32 which extends beyond opposite sides of the shell and is electrically connected to spring contacts 34 and 36 which are located adjacent opposite ends of the plate 10. Similar spring contacts 38 and 40 are mounted in opposed relation to the contacts 34 and 36 respectively and are electrically connected together by a suitable conductor 42 which is electrically isolated from the shell 28 by a suitable layer of non-conducting material 44. A conductor 46 is connected to the conductor 42 and electrically connected to the prong 18 through the medium of a conventional rivet 47 so that when the device is in place in a convenience outlet, electrical communication will be established between one of the spring contacts of the convenience outlet and the spring contacts 38 and 40.

The device thus far described will function perfectly in providing a multiple convenience outlet when a fuse F is threaded into the shell 28 and engages the center contact 24, but the full protective effects are not realized as a person inserting his finger in the shell may engage the center contact 24 and obtain a shock in case an appliance is connected to one or the other pairs of spring contacts 34 and 38 or 36 and 40.

Moreover danger of overloading the line by placing a coin within the shell 28 to establish contact between the shell and the center contact 24 is also existent in the device so far described.

In order to further protect the line from over-

load and a person from receiving a shock, I provide a spring tongue 48 which is riveted or otherwise secured as at 50 to the base plate 10 within the confines of the shell 28, but electrically isolated therefrom, and this tongue overlies the center contact 24 and is so designed as to spring outwardly toward the open end of the shell 28 and out of contact with the center contact 24 when the fuse F is extracted from the shell. In this way unless deliberate effort is exerted on the spring tongue 48 to force it into engagement with the center contact 24 no electrical communication can be established between the shell 28 and center contact 24 either with a coin or by the insertion of a finger or fingers into the shell.

A convenient housing 52 is provided to engage the base plate 10 and enclose the shell 28 and spring contacts 34, 36, 38, and 40, it being understood that the housing will be provided with slots 54 through which contact by the prongs of a conventional outlet plug may be had with the contacts 34, 36, 38 and 40. The housing of course will be provided with a suitable opening 56 through which a fuse plug F may be introduced into the shell 28.

In the modified form of the invention illustrated in Fig. 4, the structure previously described is employed except that in place of the base plate 10 I substitute a base plate 58 having at opposite ends longitudinally extending apertured ears 60 for the reception of fastening devices by which the device may be permanently secured in place. Also in this structure the prongs 62 and 64 comprise binding screws on which are threaded binding nuts 66 and 68 by means of which conductors may be connected to the device.

In use with the fuse plug F entered into the shell 28 as illustrated in Fig. 2, the spring tongue 48 will be engaged by the center contact of the fuse plug so that as the fuse plug is turned into the shell, the spring tongue will be depressed and moved into engagement with the center contact 24 so as to establish electrical communication between the prong 16 and the spring contacts 34 and 36. Through the permanent connection of the prong 18 with the spring contacts 38 and 40, it will be evident that when the attachment plug of a conventional appliance is inserted in one or the other group of slots 54, the

appliance will be electrically connected to the prongs 16 and 18 and with the latter inserted in a conventional convenience outlet the appliance may be energized.

While in the foregoing there has been shown and described the preferred embodiment of this invention it is to be understood that minor changes in the details of construction combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

What is claimed is:

In a fuse protected electrical circuit a pair of spaced prongs adapted to enter a convenience outlet and engage the spring contact thereof, an insulated base plate having outlets therethrough for receiving the prongs of an outlet plug, pairs of spaced spring contacts on said base plate below said slots, one pair of said spring contacts being electrically connected directly to one of the prongs entering in said convenience outlet, a screw threaded shell of conducting material electrically connected to the other of the spring contacts, a center contact within but electrically isolated from said shell, said center contact being electrically connected to the other of said prongs entering in said convenience outlet whereby when a fuse is threaded into the shell and engages the center contact electrical connection will be effected between the prong that is connected to the center contact and the spring contacts opposite those which are directly connected to a prong, a spring tongue of conducting material within the shell and overlying the center contact, and said spring tongue being electrically isolated from the shell and displaced from the center contact toward the open end of the shell to disrupt electrical communication between the center contact and the shell when no fuse is in the shell.

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