

Jan. 31, 1956

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2,733,314

SAFETY ELECTRIC PLUG AND OUTLET

Filed April 8, 1954

2 Sheets-Sheet 1

FIG. 1

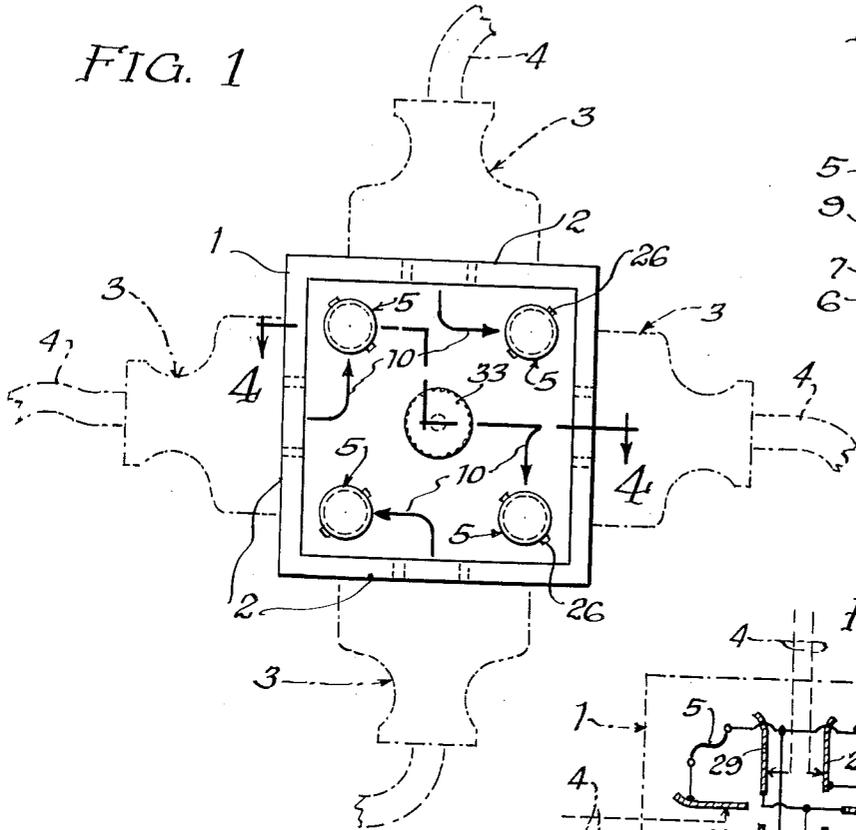


FIG. 2

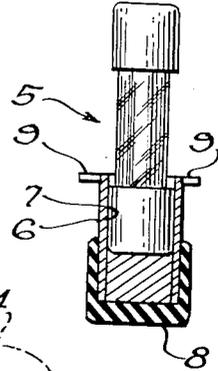


FIG. 3

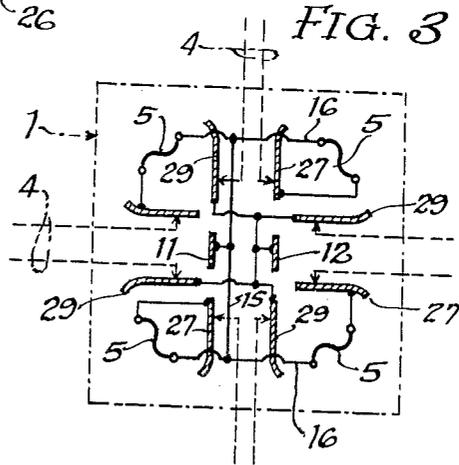
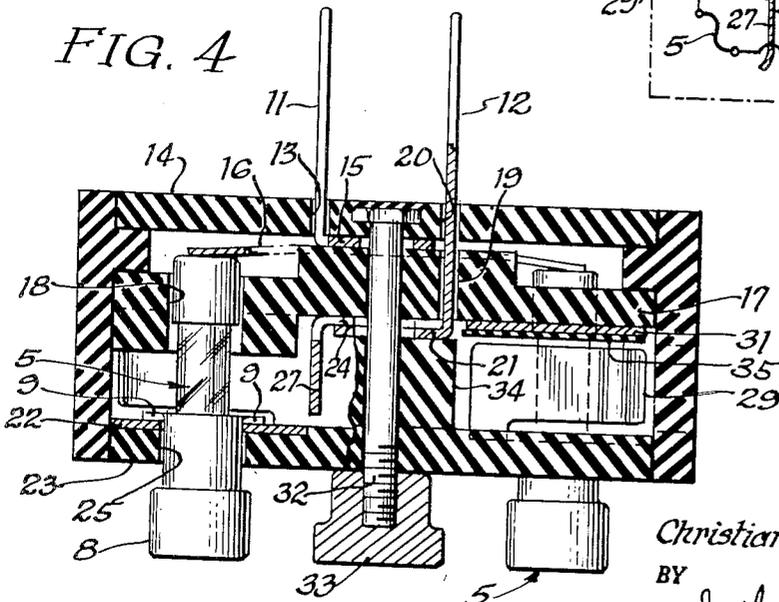


FIG. 4



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FIG. 5

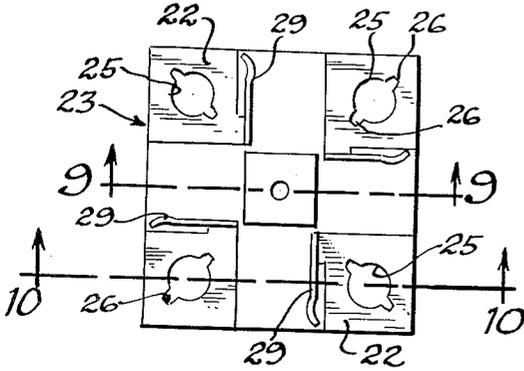


FIG. 6

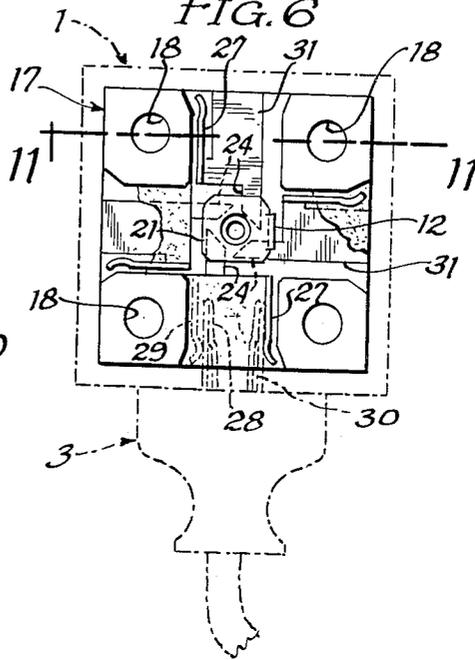


FIG. 7

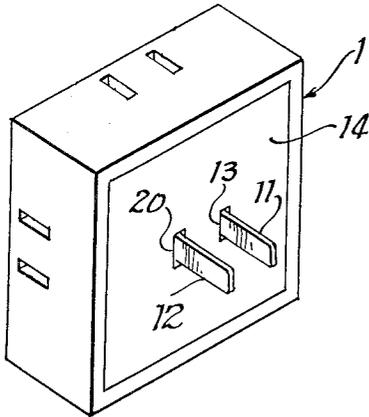


FIG. 8

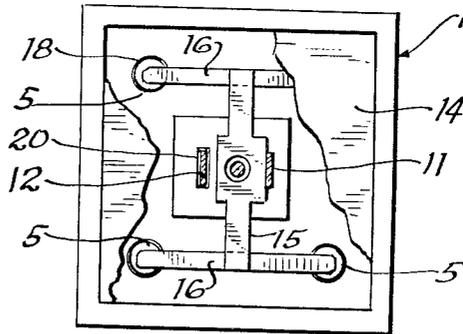


FIG. 9

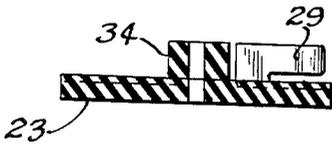


FIG. 11

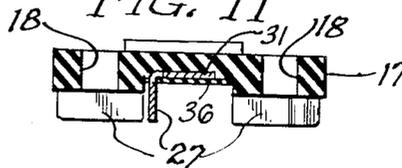
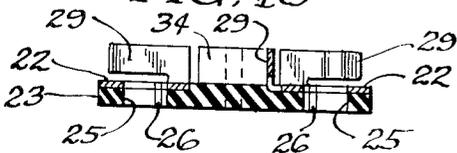


FIG. 10



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## SAFETY ELECTRIC PLUG AND OUTLET

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2 Claims. (Cl. 200-115.5)

This invention relates to electrical fuse boxes and more particularly to fuse boxes auxiliary or secondary to a master fuse box through which the current first comes from the main current supply lines, and relates more particularly to the protection of plugged-in appliances against excess current pressure.

It is almost a universal custom to operate electrical floor lamps, toasters, coffee makers, blankets, radios, television sets and the like by plugging the electrical cords of same into wall sockets, and if anyone of such appliance develops a short circuit a fuse in a remote fuse box will burn out, and as such box is usually in a basement or at some point distant from the location of the appliance it is considerably inconvenient for one to have to make a special trip to such box to replace a fuse especially at night when ordinarily all the lights in the premises go off when a fuse burns out.

One of the objects of the device is to provide a secondary fuse box which may be plugged into an ordinary wall socket, such fuse box embodying a plurality of socket stations to which different appliances may be plugged in and such box having an independent fuse for each of said socket stations, such fuses having a lower current capacity than the fuses in the regular fuse box on the premises.

Another object is to provide a fuse box of this nature which is adapted to use cartridge type fuses such as used in automobiles and radios and which may be very readily replaced.

It is a special object to provide such a fuse box with fuses arranged and connected so that when one experiences the burning out of the fuse through which current is fed to one appliance, other appliances associated therewith will continue to operate uninterrupted.

It is also an object to provide for the quick and convenient insertion and withdrawal of the fuses.

It is also an object to provide an item of this class of slightly appearance and which is adapted to modern manufacturing methods.

The above and other objects are attained by the structure illustrated in the accompanying drawing of the invention in which similar characters of reference designate similar parts throughout the different views.

Fig. 1 is a normally side view of the invention as it appears when plugged into a conventional wall socket.

Fig. 2 illustrates a means embodied with the invention to simplify the handling of the fuses.

Fig. 3 is an electrical diagrammatic view showing the current inlet circuit, the fuse circuits and the outlet socket circuits combined.

Fig. 4 is a cross-sectional view in which additional mechanical parts of the device are shown.

Fig. 5 is a plan view of the device when partly disassembled.

Fig. 6 shows other parts of the device disassembled.

Fig. 7 is a perspective view of the back, top and side of the invention.

Fig. 8 is a view of the back of the invention with one of the walls removed.

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Fig. 9 is a sectional view taken on line 9-9 of Fig. 5. Fig. 10 is a sectional view taken on line 10-10 of Fig. 5; and

Fig. 11 is a sectional view taken on line 11-11 of Fig. 6.

Referring to Fig. 1 the numeral 1 indicates the housing of the device which in this example of the invention is of square design and has four outlet socket stations 2. The dot-and-dash lines 3 indicate the positions of four corresponding conventional appliance plug-ins with conventional electric cord conductors 4 one of each plug-in engaging one of said socket stations by which arrangement four different appliances are thus plugged in for operation it being understood of course that any number of appliances may be plugged in as required.

As a means of adapting the standard cartridge type fuse 5 to quick and convenient insertion and withdrawal, fuse caps 6 are provided one end of each having a cylindrical socket 7 which received one end of one of such fuses the other end of each cap forming a knob 8 for manipulation of same as will be understood from Fig. 2. The fuse end of said caps are each provided with outwardly extending retaining lugs 9 which are preferably provided in pairs of diametrically opposite lugs as shown. Referring again to Fig. 1 the numeral 6 designates four of said fuse caps with fuses in place (not shown). The arrows 10 painted or formed on the housing 1 indicate which fuses are associated with the different socket stations 2 so that if one of said fuses blows out it may be found at once by following the conductor cord from the appliance thus affected to its respective plug-in station.

Referring to Fig. 4 the rearwardly extending prongs 11 and 12 are inserted in an ordinary wall socket and serve to connect the device with one of the main electrical lines of the premises and thus to a master fuse box thereof (not shown). The prong 11 extends to within the housing 1 through the rectangular hole 13 of the normally back insulating wall 14 and terminates within said housing as a cross bar 15 in a plane at right angles to the exposed part of said prong said cross-bar being disposed against said back wall. Each of the ends of said cross bar is connected to the convex side of one of the two curved cross springs 16 at midway points thereof said springs being at right angles to said cross bar as considered in the plane of same. Said springs curve away from said plane and thus away from said back wall. Each of the ends of said springs bears against the inner end of one of the fuses 5 which are conveniently on the other side of said springs from the cross bar 15. From the foregoing it will be seen that the springs 16 are thus tensioned between said back wall and the inner ends of said fuses 5 through said cross bar.

The housing 1 has an inner insulating wall 17 parallel to the back wall 14 said inner wall having holes 18 which confine the fuses 5 laterally said holes being in free fit relation to said fuses but locating same to register with the ends of the springs 16. The wall 17 has another hole 19 which is rectangular and in line with the rectangular hole 20 of the back wall 14.

The prong 12 extends through the rectangular holes 19 and 20, and terminates within the housing 1 as a foot 21 which rests against the extension 24 of the conductor plates 22, said plates and front insulating housing wall 23 having matched holes 25 in line with the holes 18 of the inner wall 17, said matched holes having internal keyway like notches 26 throughout their length as shown in Fig. 5 through which the lugs 9 of the fuse caps 6 enter in inserting the fuses against respective ends of the cross springs 16 so that when the fuse caps 6 are turned slightly by their knobs 8 the springs 16 will bear against the respective fuse ends and serve to hold the lugs 9 against the plates 22, by which arrangement it

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will be understood that when the prongs 11 and 12 are inserted in an ordinary wall socket current is fed from the prong 11 and springs 16 to the fuses 5 and fuse caps 6 to one or more of the insulated plates 22, each of which forms a contact 27 for one prong 28 of each of the plug-ins 3 as shown in Fig. 6 and thence through an appliance being operated to the other plug-in prong 30 which bears against one of the contacts 29 which is formed on one of the plates 31 which communicates with the supply line at the wall socket through prong 12.

It is evident that the holes 18 and 25, together with the spring arms 16, cooperate to form a plurality of fuse nests, each of which receives a fuse. The holes 18 function as locators for the fuses.

From the foregoing it will be understood that the different appliances can be plugged in at the same time to different ones of the stations 2 and that the current will go to same through a different one of the fuses 5, so that when one of said fuses blows out it will only affect the one corresponding appliance.

As will be noted in Fig. 4 housing 1 and walls 14, 17 and 23 are conveniently held together by stud 32 which is threaded at one end through the wall 13 at a central point and, extends therefrom through holes in walls 17 and 23 and beyond same sufficiently to be engaged by the nut 33 at the other end which is threaded to receive same. A spacing collar 34 is provided around the stud 32, between the front wall 23 and the foot 21 of the prong 12 said spaces serving to hold said foot against the extensions 24 of the plates 22.

In this example of the invention the plates 22 and 31 are cemented to the walls 23 and 17 respectively, but it is understood that screws, rivets or any suitable means may be used in holding these plates to the walls.

Numerals 35 and 36 indicate ordinary insulation sheets used in the device where required as will be understood in the art.

While the invention has been described in view of the accompanying drawing, it is understood that it is not restricted to the example shown, but that variations may be made without departing from the scope of the appended claims.

The invention claimed is:

1. A fuse box comprising an insulating housing structure having a plurality of current outlet stations each including a pair of current carrying contacts matching the electrodes of an ordinary extension cord plug, a plurality of fuse nests each of which is defined by aligned spaced openings in said housing structure with the outer ends of said nests including removable fuse retainers protruding from one side of said housing and receiving

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the outward ends of fuses engaging said fuse box, the inner ends of said nests being established by a spring constructed of flat current carrying material and having a branch across the lines of each of said nests said spring being bowed and tensioned between the adjacent wall structure of the other side of said housing and the respective inner ends of such fuses, a current intake electrode extending integrally from said spring through said adjacent wall structure said electrode being adapted to be inserted into one of the openings of a conventional wall plug socket and carry current from such socket through said spring, fuse and retainer to one of each pair of said current carrying contacts, and a mating intake electrode connected directly with the other one of each pair of said contacts.

2. A secondary fuse box comprising a housing having a rearward wall forming two electrode clearance holes their spacing corresponding to that of electrode receiving holes in an ordinary wall socket, an interior wall substantially parallel to said rearward wall and forming a plurality of spaced holes each serving as a fuse means locator said interior wall also forming a base hole registering with one of said clearance holes, a front wall also parallel to said rearward wall said front wall forming other holes in axial alignment with said spaced holes said other holes also serving as fuse means locators, a plurality of pairs of current outlet contacts secured to the inner side of said front wall, an exteriorly protruding electrode having a right angled perforated shank parallel to and spaced from said interior wall and disposed along the forward side of same, said shank being directly connected with one of each pair of said contacts, said electrode extending from said rearward wall from through said registering holes, into wall socket engaging position, and another electrode one end of which protrudes parallel with the first electrode through the other spaced hole the inner end of said other electrode being connected with the other of each pair of said contacts through a fuse contact spring and fuse means.

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