United States Patent

[11] **3,585,555**

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[54] **ADAPTERS FOR ELECTRICAL WALL RECEPTACLES**
7 Claims, 10 Drawing Figs.

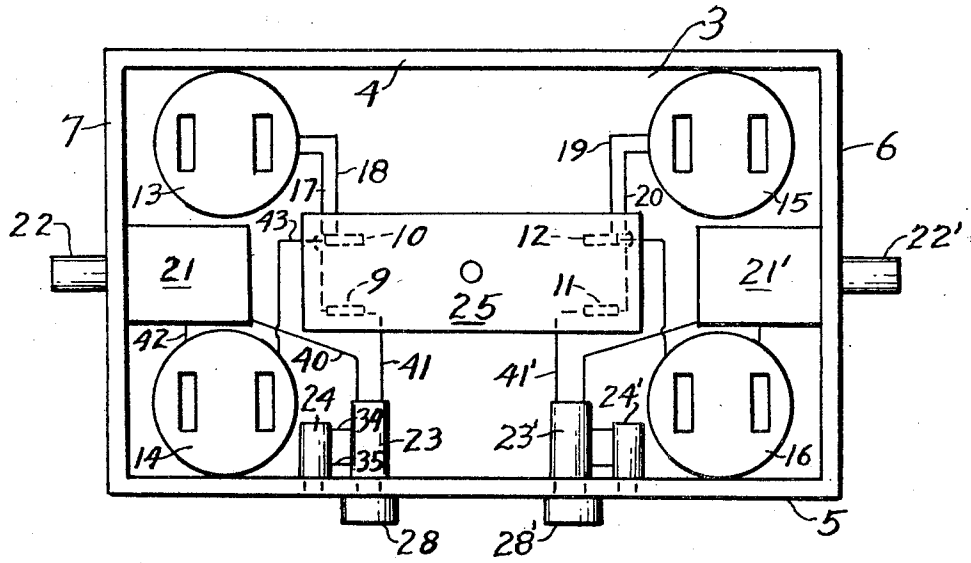
[52] **U.S. Cl.** **337/187,** 337/197, 337/198, 337/269
[51] **Int. Cl.** **H01h 85/02**
[50] **Field of Search** 337/187, 197, 198, 200, 268, 269, 1, 2, 3, 4, 113

[56] **References Cited**
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Primary Examiner—G. Harris
Assistant Examiner—F. E. Bell
Attorney—Earl E. Moore

ABSTRACT: A protective electrical arrangement for use in conjunction with a wall receptacle or similar outlets of the female type commonly employed in homes and buildings. The protective device is integral with the outlet circuitry and consists of a plurality of circuit breakers, wherein one of the breakers is adapted to open the circuit or connected line before any other protective device operates.



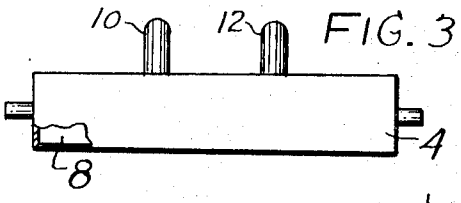


FIG. 3

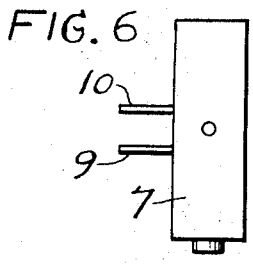


FIG. 6

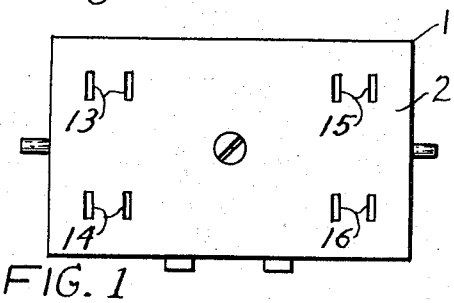


FIG. 1

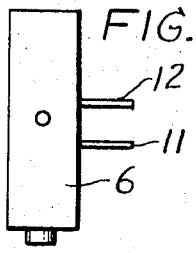


FIG. 5

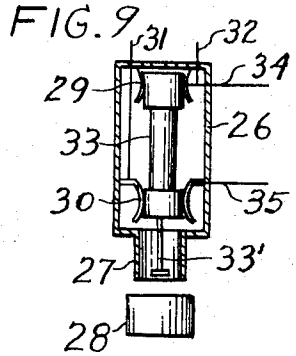


FIG. 9

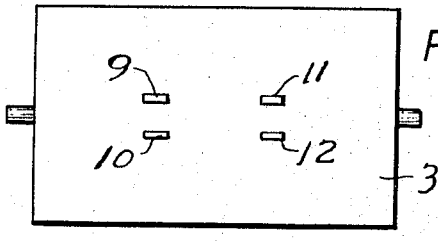


FIG. 2

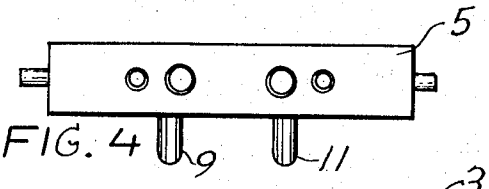


FIG. 4

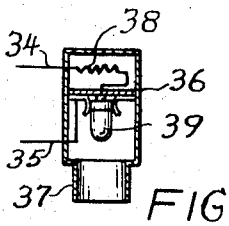


FIG. 8

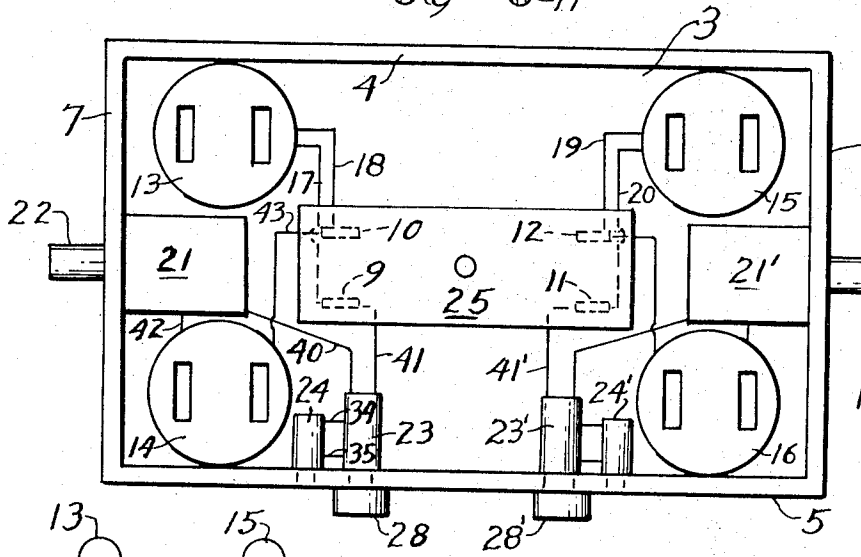


FIG. 7

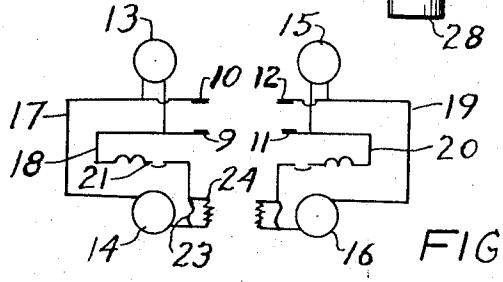


FIG. 10

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ADAPTERS FOR ELECTRICAL WALL RECEPTACLES

This invention concerns electrical outlets and the like which embody certain safety and overload devices.

An important object of the invention is the provision of protective means in combination with an electrical wall receptacle or similar outlets of the female type commonly employed in homes and buildings of all kinds. The protective means is intimate with the outlet per se and hence independent of the usual and well known protective devices associated with entrance line service and various wiring panels.

Another object is a series connective arrangement of protective devices wherein one of the devices is designed to open an electrical circuit earlier than the other protective devices that may be connected in an electrical circuit; the protective devices being proximate the outlet whether placed upon a sidewall, ceiling or floor.

Still another object is to provide a plurality of protective devices in an electrical circuit within a connector platelike box or housing having an outlet or outlets to which a detachable portable electrical plug or plugs are to be connected, and which box is provided with said devices that consists of a plurality of circuit breakers; and wherein one of the breakers is adapted to open the circuit or connected line before any other protective device operates.

Other objects will be apparent upon reading the specification and the drawings attached thereto.

In the drawings:

FIG. 1 is a side elevational view of a platelike container or box provided with a plurality of outlets to which portable cords can be readily attached;

FIG. 2 is an elevational view of the backside of that shown in FIG. 1;

FIG. 3 is a top plan view of the container or box;

FIG. 4 is a bottom plan view thereof;

FIG. 5 is an elevational view of one end of the container;

FIG. 6 is an elevational view of the other end thereof;

FIG. 7 is an elevational view of the container shown on a large scale with the front face thereof removed;

FIG. 8 is an enlarged view of an indicator unit;

FIG. 9 is an enlarged view of a fusing unit;

FIG. 10 is a schematic showing of the wiring system within the container.

As illustrated in the drawings, the reference character 1 indicates a platelike container, box or casing having a front side or face 2, a backside 3 that can be removed if and when necessary, a top side 4, bottom side 5, and the end surfaces or sides 6 and 7. All these sides are spaced-apart to provide a chamber 8 in which is housed various equipment. The container in this particular case is adapted to be attached to an ordinary wall type of receptacle after its cover plate has been removed, that is, this platelike container 1 is substituted for the usual plate which is to be discarded. The container 1 has the usual male attachment pins or prongs for attachment to a twin type of wall receptacle. This platelike container 1 has the pair of opposite pole pins 9 and 10 and another pair of opposite pole pins 11 and 12. However, the container may have only two such pins when it is designed to be attached to a wall receptacle that has only a single outlet.

A number of double pin female outlets are provided in the face of the container and are shown at 13, 14, 15 and 16. These outlets are embodied in a suitable base which is generally round and which is fixed securely to the inner side of the backside or plate member 3, and this is best shown in FIG. 7 of the drawings. Obviously, any number of such outlets may be provided and also, in some cases, the wall outlet may be but a single one. In this case, as shown, the top outlets 13 and 15 are connected directly across the supply lines 17 and 18 and 19 and 20, respectively, as shown.

The other two outlets 14 and 16 have special overload protection and which operate to open the line in case of short circuits. These outlets can receive portable cord plugs from special portable heavy current using devices such as heaters, various ray equipment, electric motors etc. A casing with a circuit breaker therein is shown at 21 and which has a projected reset button 22. This breaker is of the well-known electromechanical type. The casing 21 is fixed to the wall 7. Such a circuit breaker may be like the one shown in Catalog sheet 40107-B-0868 of the E-T-A Products Company of America, Chicago, Ill. 60646.

A meltable fuse-type breaker is shown at 23 along with a companion neon light unit at 24. These units are fixed to the bottom wall 5 of the platelike container 1. In the central portion of the container there is a block of insulating material 25 which accommodates the attachment pins 9—10 and 11—12. This block is fixed to the backwall 3 in any suitable manner.

The fuse-type breaker 23 is shown in sufficient detail in FIG. 9. It consists of a casing means 26 having a neck portion 27 which extends through an opening in the wall 5 and which is removably capped by the means 28. The casing means is fixed to wall 5. In this casing there are the metal spring clips 29 and 30 which are fixed to the wall thereof and from which clips extend the connected wires 31 and 32, as shown. The fuse 33 has the usual transparent casing with conductor end caps which fit into the clips and make good electrical contact therewith. A headed rigid rod 33' has one end fixed to the outer end cap of the fuse so that the fuse can be removed and replaced by a person's fingers. Each clip has a wire, indicated at 34 and 35, which lead to the neon tell-tell lamp means 24. This tell-tell means 24 has the casing 36 with an open neck portion 37 which extends through a bore in the wall 5 and can thus be readily seen.

The wires 34 and 35 have a resistor 38 in series therewith and also the neon lamp 39. The electromechanical circuit breaker will open the circuit first before the soft metal of the fuse break or open the circuit. The value of the fuse in the circuit arrangement shown will exceed by 50 percent of that value in the setting of the electromechanical circuit breaker. The fuse will melt or blow within less than a second if a short circuit occurs any place along the line or in the units connected therein. A time factor is involved in the electromechanical circuit breaker and the chart below shows the various tripping times at 70° F.

This invention has its advantages for greater safety in electrical circuits in that the circuit is quickly opened to protect connected equipment connected therein. The fuse will melt within less than a second, as before stated, however, due to the electromechanical circuit breaker, it is capable of detecting defective equipment in the line before the problem gets worse or dangerous and thus might do damage to connected equipment or things around it. Another advantage of the electromechanical breaker is that it could withstand a surge of high current in the line. For instance, the electromechanical breaker may be set at 3 amperes and the fuse of a size to carry current up to 6 amperes.

This chart below shows tripping times for a mechanical breaker at a temperature of 70° F:

Percent rated current	100	200	300	400
Tripping time in secs	No trip	10-40	5-20	3-10

Therefore, this invention protects an electrical circuit from short circuits and overloads in a most efficient manner.

Certain novel features and details of this invention are disclosed and in some cases in much detail, and in order to make the invention clear. However, it is to be understood that this invention is not limited to the exact details disclosed since it is apparent that various modifications and changes may be made without departing from the scope of the invention as claimed.

Having thus described my invention, what I claim and believed new and which is desired to be secured by Letters Patent is:

1. An attachable platelike container for combination with an electrical outlet receptacle, prongs extending from one side of the container arranged to be inserted into contact openings

of an electrical receptacle, an opposite side of the container having at least one female outlet adapted to receive a portable electrical attachment plug, a pair of circuit breakers fixed to the container and arranged in series connection, one of the breakers designed to open earlier than the other breaker, one end of the series connection having a conductor leading to one of said prongs and the other end of the series connection having a conductor leading to one electrical side of said female outlet, and a conductor connecting the other of said prongs to the other side of said female outlet and thus provide the female outlet with a plurality of protective circuit breakers.

2. The container recited in claim 1 wherein one of the breakers is a fuse.

3. The container recited in claim 1 wherein one of the breakers is a fuse and the other breaker is an electromechanical breaker which has a reset rod that extends through a wall of the container.

4. The container recited in claim 1 wherein one of the breakers is a fuse and the other breaker is an electromechanical breaker, a low current lamp arranged so that its glow can be seen from without the container, said lamp having a pair of leads which shunt about the fuse and is illuminated when the fuse is broken.

5. The container recited in claim 1 wherein one of the breakers is a fuse, and means allowing the fuse to be replaced from outside of the container.

6. The container recited in claim 1 wherein the front face of the container has a plurality of female outlets and wherein some of the outlets have connection directly across said prongs whereas other outlets have double breakers as aforesaid.

7. The container recited in claim 1 wherein one of the breakers is a fuse and the other breaker is an electromechanical breaker, and wherein the fuse is set and designed to open the circuit at a higher current than the electromechanical breaker.