Aug. 16, 1966 J. E. BAKER ET AL 3,267,408

SAFETY PLUG

Filed March 6, 1964 2 Sheets-Sheet 1

Fig. 1

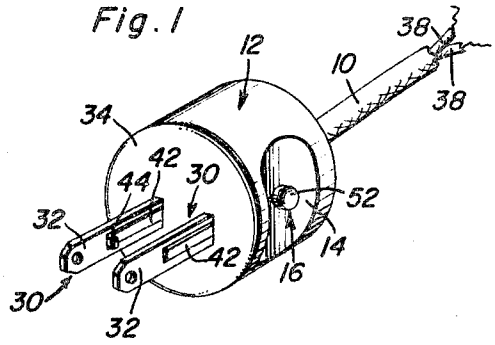


Fig. 8

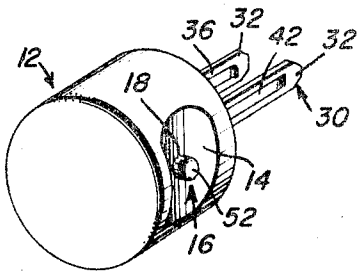


Fig. 2

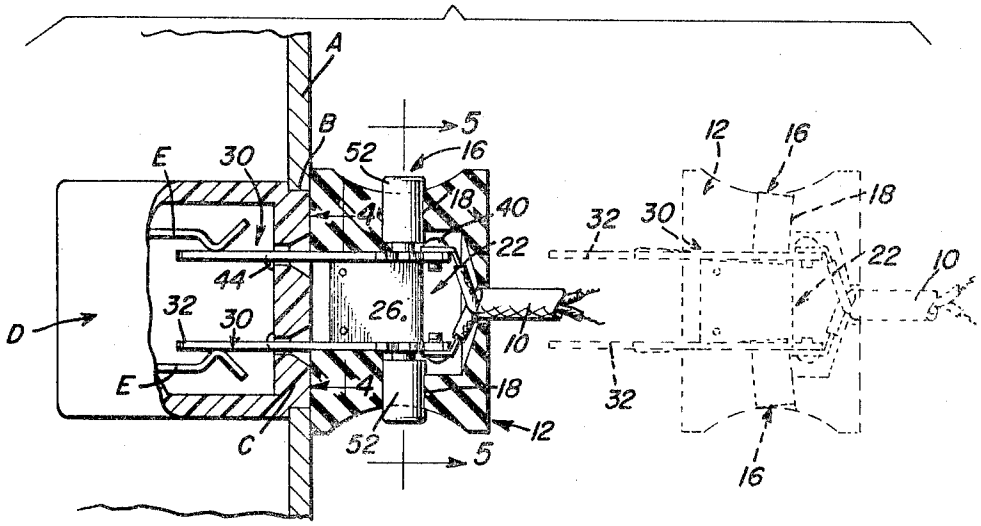
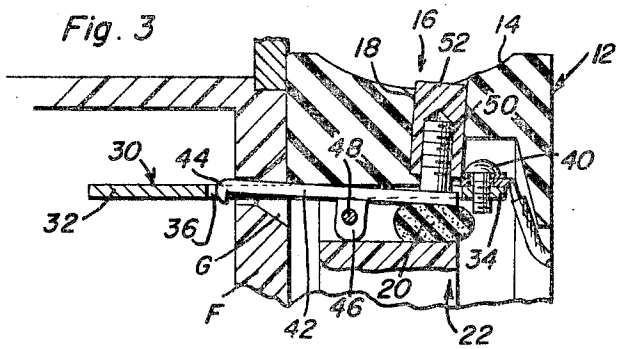


Fig. 3



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Fig. 4

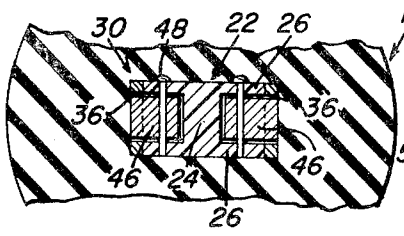


Fig. 5

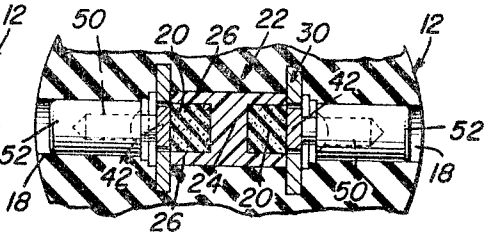
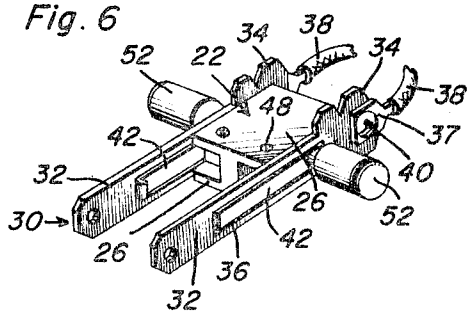


Fig. 6



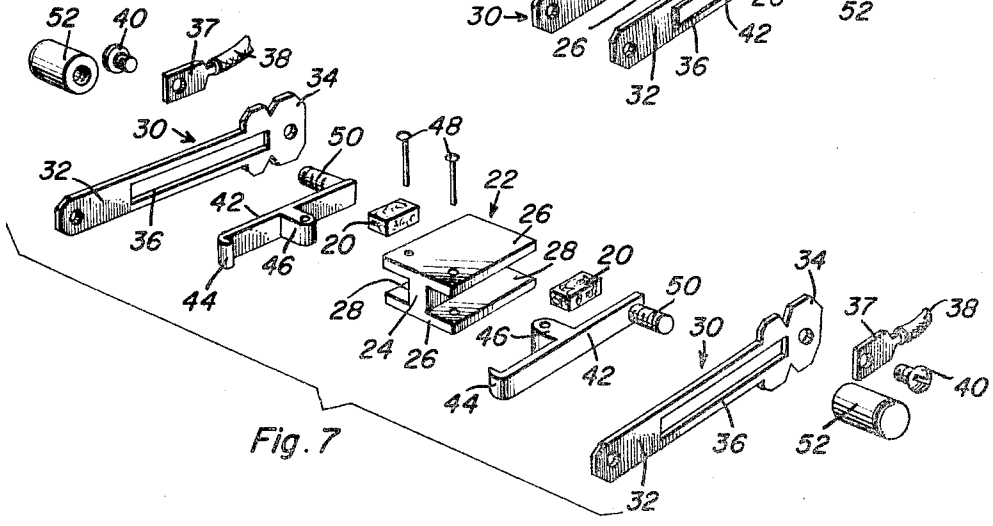


Fig. 7

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United States Patent Office 3,267,408 Patented August 16, 1966

3,267,408

SAFETY PLUG

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Filed Mar. 6, 1964, Ser. No. 349,889
6 Claims. (Cl. 339—74)

The present invention relates to a current conducting cord; that is, a cord which functions to deliver current from a relatively stationary outlet to household appliances such as, for example, lamps, shavers, refrigerators, clocks and the like and has reference, more in particular to the cord attaching plug by way of which the cord is separably joined to said outlet, and wherein said plug is provided with paired prongs which are constructed to safely lock themselves in a plugged-in position.

An objective is to provide a cord-equipped and attaching plug wherein the prongs are provided with safety latches which are such in construction and so arranged as to minimize the possibility of unwary persons and children from subjecting themselves to an unexpected electric shock.

It is common knowledge that many and varied styles and forms of safety-type plugs have been devised for use but for one practical reason or another have not met with widespread adoption and use. It follows that it is another object of the instant invention to structurally, functionally and in other ways improve upon prior art safety plugs by providing one wherein novelly applied latches are pivotally mounted in the body portion of the plug and are provided with diametrically opposite finger-actuated normally released buttons which when pressed by the fingers of the user (customarily an adult familiar with this improved plug) function to release the latches so that the prongs on the plug can be detached from the outlet receptacle.

In carrying out the preferred embodiment of the invention the body (which is to be made of suitable insulation material) may be formed in accordance with the cylindrical plug shown; or, may be possessed of any other appropriate shape and size so long as it is suitable to accommodate the centrally embedded hub-like means on which the latch-equipped prongs may be successfully mounted and used.

More explicitly, novelty is predicated on an adaptable hub-like member having channels in opposite sides thereof and wherein safety latches are pivotally mounted in such a manner that the latches are operatively fitted in slots provided therefor in prongs, the shank portions of the prongs being fixed on the hub-like member and having end portions for connection of the terminals to which the current conducting wires are connected.

Further novelty is predicated on the construction above set forth and wherein push-buttons are mounted in the aforementioned insulated body, said push-button being normally urged outwardly to a projected ready-to-function position by way of simple rubber blocks or the like which serve as means for spring-loading the cooperating end portions of the button-equipped safety latches.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a view in perspective of a safety latch equipped cord attaching plug constructed in accordance with the invention.

FIGURE 2 is a view with component parts appearing in section and elevation and showing an outlet fixedly

mounted, the prong-equipped safety type plug attached in full lines and detached and shown in phantom lines.

FIGURE 3 is an enlarged view of a fragmentary type detailing the construction and operation of one of the safety latches and showing the latch disengaged with the push-button pressed into a latch releasing position.

FIGURE 4 is an enlarged fragmentary section taken on the plane of the section line 4—4 of FIGURE 2.

FIGURE 5 is a view in an opposite direction taken on the plane of the section line 5—5 of FIGURE 2.

FIGURE 6 is a view in perspective of the essential component parts of the invention minus the insulated body in which they are normally mounted.

FIGURE 7 is an exploded perspective view.

FIGURE 8 is a view in perspective similar to FIGURE 1, observing the plug in an opposite direction and wherein both the cord and cord hole are omitted, this being a modification to be hereinafter described in detail.

With reference first to FIGURE 2 in particular, the reference character A designates a stationary support member which may be a wall, floor, baseboard or the like having an opening B to accommodate an end portion C of a current supplying outlet D provided on its interior with the contact fingers E which are yieldingly mounted. The outlet means is shown merely to facilitate an understanding of the overall disclosure. As more particularly brought out in FIGURE 3, the end wall F of the outlet is provided with openings G to accommodate the prongs on the improved attachable and detachable plug for the current conducting cord **10**.

The plug or body is denoted by the numeral **12** and may be of appropriate size, material and shape. For purposes of this invention it comprises a cylindrical type plug having diametrically opposite finger accommodating seats or recesses **14** for normally projected but finger depressed operating plugs or buttons **16** movable in radial diametrically opposite openings or bores which are provided therefor. It is within the purview of the invention to embed these plugs or buttons in the body so that the inherent properties and elasticity of the body will serve to normally project the plugs and resist squeezing movement of the plugs toward each other. It is also within the scope of the invention that the plugs be projected by way of elastic or equivalent rubber blocks or inserts **20** of the type shown more particularly in FIGURE 3 and which will be more particularly referred to in the following description. It will be noted that the body **12** is appropriately hollowed out to accommodate the dual prong latch-equipped knob-equipped unit illustrated in FIGURE 6. This unit comprises a one-piece hub-like prong assembling and mounting member **22**. It embodies a web **24** (FIG. 7) having spaced plates **26** which are mounted in such a way as to define a pair of spaced parallel open-ended grooves or channels **28**. These channels serve to seat and accommodate the aforementioned spring cushions or blocks **20**. The prongs are denoted by the numeral **30** and each prong is the same in construction and comprises the prong proper **32** which projects beyond the end surface **34** of the plug body, the opposite end portion being fashioned into a head **34** and the intermediate portion being provided with a suitable slot **36**. The headed ends serve to accommodate the terminal cleats **36** on the wires **38** of the aforementioned conductor **10**. These cleats or terminal clips are held in place by attaching the screws **40**. The aforementioned latches are denoted at **42**. Each one comprises a suitable latch member which fits operably into the slot **36** and has a free end **44** which is toed-in to provide a catch or detent. There is a lug **46** intermediate the ends which is pivoted in place by one of the pivot and assembling pins **48** (FIG. 7). The outward end of the latch extends operably through the slot

36 and is provided with a screw-threaded shank 50 on which the insulated push-button 52 is mounted. The push-button in turn is operable in the bore 18 as already described or it is anchored in place and is operable in part by the inherent properties of the plug body and also with the aid of the compressibly resilient insert or block 20. By considering the component parts in FIGURE 7, how they are cooperatively assembled in FIGURE 6 and how this over-all device of FIGURE 6 is embedded in the plug or body 12 the construction and arrangement of the component parts will be clear. It will also be clear that the construction so far described is such that when in use it locks itself effectually and safely in any conventional-type outlet or receptacle. In addition, it should be kept in mind that it is basically designed and adapted to serve not only the purposes and objectives so far revealed, it eliminates poor contact and guards against unwanted removal from loose and worn receptacles. Then, too, it can be used as a safety plug to keep children from placing a metal object into an otherwise open or uncovered outlet and receiving a dangerous electric shock. To do this the manufacturer need only detach the cord and cast the plug completely in rubber except, of course, for the metal prongs and attending safety type detent equipped latches. This is to say, and as will be evident for example from the illustration in FIG. 8, the invention is such that it could be released to the public without a cord as shown. In other words, it is within the purview of the inventive concept to make and sell a cordless plug (FIG. 8) which can be used to eliminate the danger of an unknowing person or child receiving a shock. Accordingly, the safety prong equipped plug here shown is a lockable dummy plug which is capable of being locked into safety position. The fact that the buttons are on either side of the safety plug it is difficult and perhaps not capable of being easily operated by a child, that is a small child, and once the parent buys and uses this type of the cordless safety plug it cannot ordinarily be removed unless so desired by the parent-owner. It follows therefore that the plug-in type button-equipped rubber or equivalent plug is a dual purpose appliance and serves by itself as a safety dummy plug as illustrated in FIGURE 8 and as a cord-equipped lockable plug as hereinbefore described and shown with particularity in FIGURES 1 to 7 inclusive.

As may be evident the safety plug (considering FIGS. 1 to 8, inclusive) will not satisfactorily lock itself in any outlet or receptacle wherein a base plate is greatly warped or which protrudes beyond the receptacle portion to an abnormal extent for the reason that the hooks must be inserted far enough or deep enough to catch hold of the back of the housing. Consideration of the showing in FIGURES 2 and 3 will enable the reader to amply understand the significance of this explanation.

A careful consideration of the specification in conjunction with the views of the drawings will enable the reader to understand the principles and secondary aspects of the over-all concept, the construction and arrangement of the component parts and the manner of properly evaluating the same from a standpoint of construction and ways of using the improved plug whether constructed with the cord as shown in FIGURE 1 or without the cord as shown in the modification of FIGURE 8.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A safety-type plug of the class described comprising: a plug body made of insulation material, a hub member mounted in said body, said hub member provided with spaced parallel latch mounting channels, a pair of strip members secured to respectively aligned portions of said channeled marginal portions, free end portions of said strip members projecting beyond said hub member and body, respectively, said strip members having lengthwise slots formed therein, a latch fitting cooperatively in each slot, each latch having a lug turned in toward and projecting into an adjacent cooperable channel and being pivotally mounted therein and accordingly movable in the slot provided therefor in said strip member, resilient means exerting constant pivoting pressure on each latch in a direction to position and maintain said latch in a body latching position, each latch having an end portion provided with an outstanding finger operated stud, said stud projecting outwardly through a cooperating portion of the coacting slot and being provided with a manually actuatable pushbutton.

2. A safety-type plug of the class described comprising: a manually attachable and detachable compressibly resilient plug-type body made of insulation material, a hub member axially embedded and wholly enclosed in said body, a pair of opposed spaced parallel like prongs having end portions affixed to diametrically opposite marginal portions of said hub member and free end portions projecting through and beyond a corresponding face of said body and adapted to be plugged into the usual receptacle portion of a relatively fixed wall-mounted outlet, a median portion of each prong having a longitudinally elongated slot therein, a latch wholly confined and movable within the encompassing limits of said slot, the free end of said latch having a lateral detent located at a corresponding end of said slot and normally projecting to a latching position beyond a cooperating surface of said prong, a lug affixed to and projecting laterally beyond one side of said latch, said lug being pivotally mounted on a cooperating marginal portion of said hub member and permitting the aforementioned movement of the latch in and relative to said prong and slot, and pressure responsive means providing a manually manipulatable operating connection between the actuating end of said latch and an oriented wall portion of said body.

3. The plug according to claim 2, and wherein said last-named marginal portion is provided with a groove defining an open-ended channel, said lug projecting into said channel and being pivotally connected with wall portions of said channel.

4. The plug according to claim 3 and, in combination, a normally expanded compressibly resilient insert lodged in said channel and interposed between the bottom of the channel and an opposed cooperating surface of said latch and functioning to exert a constant pivoting pressure on the latch in a direction to press and maintain said detent in its latching and retaining position.

5. The plug according to claim 4, and wherein the outward end portion of said latch is provided on a side opposite the side carrying said lug with an outstanding stud, said stud projecting outwardly through and beyond said slot and being provided on an outer end with an attached pushbutton, that portion of the wall of said body in line with said button having a hole therein and said pushbutton being snugly and retentively fitted in and passing through and accessibly beyond said hole.

6. For use in temporarily closing a current supplying outlet such as is ordinarily mounted in a wall, floor appliance or the like, a dummy plug having a resilient body made of insulation material, a pair of opposed spaced parallel prongs projecting from one face of said body and adapted to be plugged into openings provided therefor in a contact equipped stationary outlet, hub means embodied within the confines of said body and on which said prongs are mounted in opposed spaced parallel cooperating relationship, each prong being slotted and provided with a safety-type latch pivotally mounted on said hub means and having a prong retaining detent, and operating means for and operatively connected to the re-

spective latches, said means incorporated in said plug body and including buttons, said buttons being operatively mounted in diametrically opposite marginal portions of said body and availably usable by an informed adult but not susceptible of use, at least without difficulty, by a child, and operating connections between the buttons and latches for releasing the latches by an authorized user.

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