

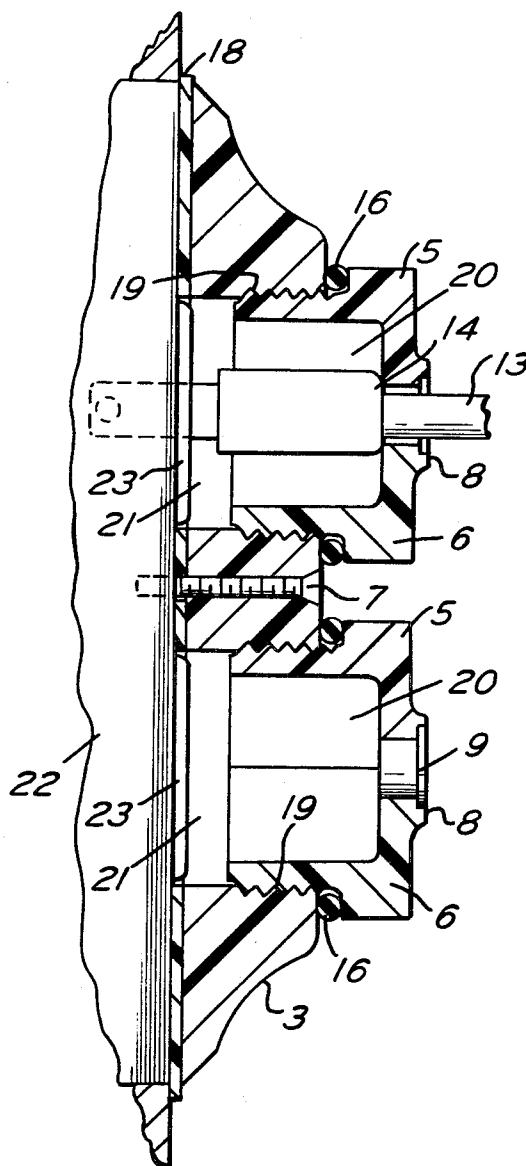
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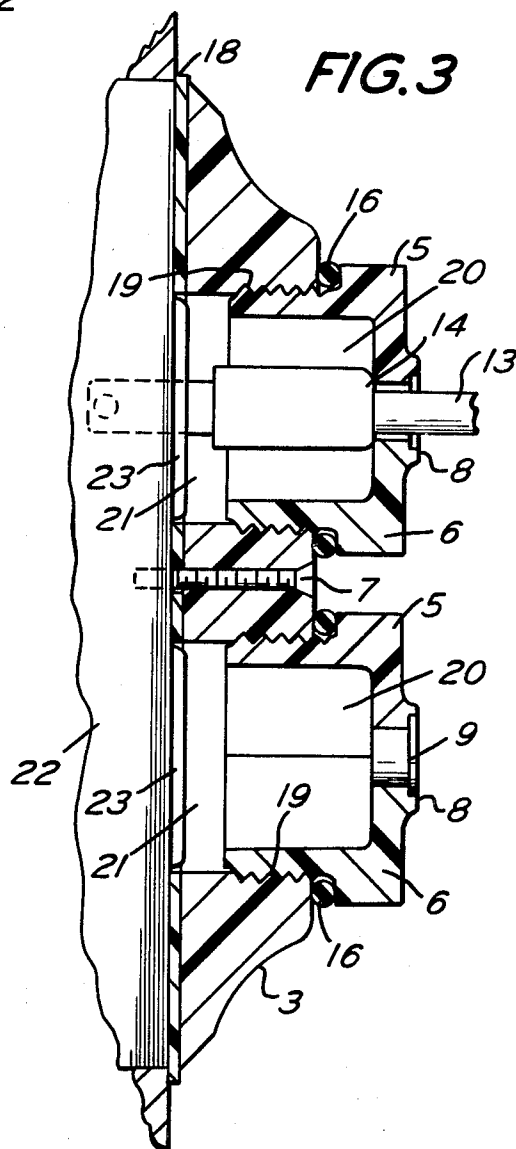
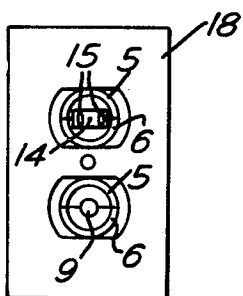
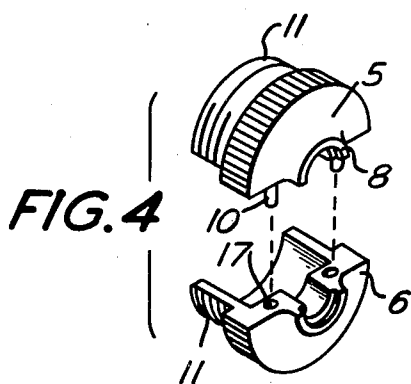
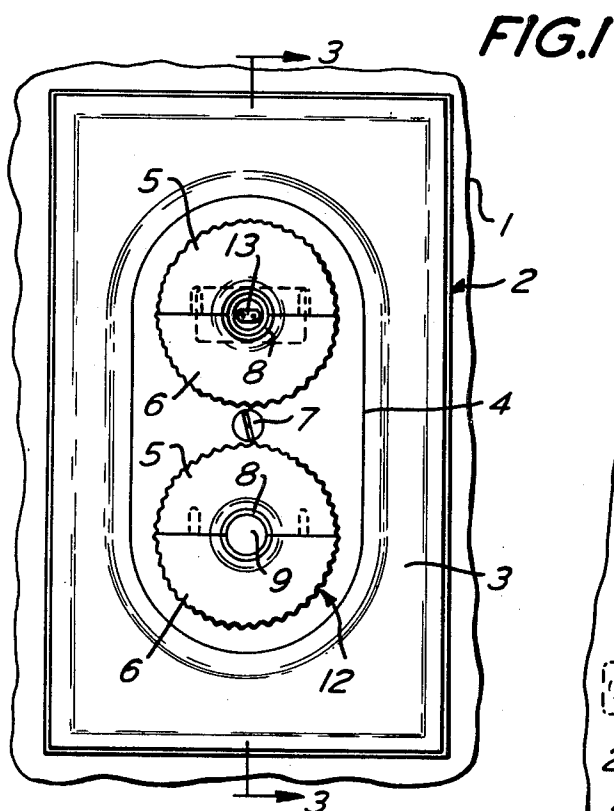
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 Primary Examiner—Joseph H. McGlynn
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[54] **MALE PLUG RETAINER**
 9 Claims, 4 Drawing Figs.

[52] U.S. Cl. 339/39,
 339/75 P
 [51] Int. Cl. H01r 13/44
 [50] Field of Search 339/36, 37,
 39, 75-79, 82

ABSTRACT: A male electrical plug retainer to cover a wall-mounted type electrical box or the faceplate of such a box. The retainer has a plate portion fastened to the box or the faceplate with a screw. The retainer also has a recess adapted to receive and retain a male plug. A hole extends from the recess to permit passage of the line cord. A recess is partially formed by a split threaded hollow cover, provided with locating pins and a hole, and a center closure is provided to close said hole when a line cord does not pass through it.





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MALE PLUG RETAINER

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to the field of electrical connectors, generally of the commonly known household type. It relates to the art of providing a means to retain a male plug in a female wall outlet so as to prevent accidental removal of the plug.

2. Description of the Prior Art

A number of prior expedients in this general field have been known. Such expedients include for example disclosures in U.S. Pats. Nos. 3,159,446; 3,161,450; 2,895,119; 2,704,831; 2,451,982; 1,912,252; and 2,441,643 for example, as well as other similar patents. There are a number of desirable attributes of such a device, including low cost, simplicity of manufacture, ease of installation, ample safety provision, ability to alter function and ease of doing so, good external appearance, ability to be made dustproof and waterproof, optional methods of installation. The prior expedients do not have all of these advantages or do not have them in the same degree that the present invention does.

SUMMARY

It is an object of this invention to provide a male electrical plug retainer.

The invention generally comprises a unit adapted to be fastened directly over the faceplate of a wall-mounted type of female electrical outlet, or alternatively, to replace the faceplate. In either case, it is easily installed without any alteration of the electrical box or of the female electrical fixture itself. Thus, the services of an electrician are not needed to install or remove the unit, and it may be done by the householder.

The prime purpose of this particular invention is to provide a safety cover for unused female outlets and to retain the male plugs from accidental disengagement, and the thrust of this invention is particularly directed toward households with children, rather than dealing with more rigorous security means or pilferage prevention. That is, this device will protect against accidental yank on a cord, or against the capabilities of young children, but is not intended to frustrate a determined adult.

The retainer comprises a plate portion which fastens over the wall outlet electrical box or over the faceplate of said box, and is fastened thereto by a screw, extending into the normal screw hole or holes. A recess is provided in the retainer, positioned over the female outlet. The recess is adapted to retain within it the male plug. The recess is partly defined by a hole in the plate, and partly by a hollow removable split threaded cover. The threaded cover is removed by unscrewing from the plate. The cover may then be opened into two halves and a male plug inserted therein. The line cord of the male plug extends through a hole in the center of the top of the cover. The halves of the cover are reassembled, being positioned by locating pins. The plug is inserted into the female outlet. The completed cover is then screwed back into the plate portion of the retainer. If an outlet is not being used, a center closure is held in the hole between the cover halves.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is an elevation view of a male plug retainer in place, having provision for two plugs, with one plug in place, and the other omitted.

FIG. 2 is an elevation view in reduced scale of the retainer of FIG. 1 taken from inside the electrical box.

FIG. 3 is a cross-sectional view taken along 3—3 of FIG. 1.

FIG. 4 is a perspective view of a mating pair of hollow covers.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The invention may be best initially understood in connection with FIG. 3. It is here shown as applied to a wall electrical

outlet provided with two female electrical sockets arranged in vertical alignment, as is common. FIG. 1 also aids in understanding the general construction. The vertical structural wall 1 is provided with the pair of female sockets 23. These sockets are provided in an ordinary electrical outlet box, whose detailed structure as such is not a part of this invention. The general top and bottom boundaries of the electrical box are indicated by the pair of horizontal lines extending into the wall toward the left as seen in FIG. 3. In one embodiment of the invention, the ordinary electrical outlet faceplate 18, normally present over such electrical outlet boxes and around such sockets, is not discarded. In FIG. 3, the faceplate 18 is shown covering the outlet box and with holes provided in it to accommodate the sockets 23.

A male plug retainer, generally designated 2, is provided, and is the structure of this invention. The male plug retainer 2 comprises a retainer body 3. The retainer body 3 has a general dimension approximating that of a faceplate, and sufficient to cover the front opening of the electrical outlet box. It is generally rectangular. The retainer body 3 has a substantial thickness or depth. Progressing from the edges of the retainer 3 toward the center, the depth or thickness increases to rise to a boss 4, which surrounds the central section of the retainer and surrounds the section which encompasses the sockets, as is described further below.

The boss is provided with a pair of holes which are adapted to register with female sockets 23. These holes are well shown in FIG. 3. Part of each hole is provided with internal threads 19. These threads start at the outermost surface of the retainer body, that is, that portion of the body most remote from the electrical outlet, and extend inwardly. These internally threaded holes define and form a recess 21 in the body of the retainer. The ordinary type of faceplate is affixed to an outlet box by means of a screw or screws. Commonly, if the outlet box is provided with dual outlets, a single screw is provided between these outlets. The retainer body 3 is provided with a retaining screw 7 between the two described recesses. This retaining screw 7 takes the place of the conventional retaining screw in a faceplate, so that the retainer 2 may be fastened to the outlet box over the faceplate 18 using the previously existing threaded hole to receive the screw 7.

Each of the recesses 21 is provided with a removable threaded hollow cover generally designated 12. One of these covers is described, it being understood that a description of one is a description of the other in the dual arrangement as shown. The cover 12 is split, that is, it comprises two separable half sections. These sections are best shown in FIG. 4. A first part or section 5 and a second part or section 6 is provided. Each part has a threaded hollow shank 11. This shank is threaded externally, and is adapted to be threadedly engageable with the internal threads 19 in the retainer body 3. The outer portion of each part of the threaded hollow cover comprises a knurled knob portion and a collar 8. The collar 8 serves as an outer flange or lid, and partially closes the outer surface of the hollow cover 12. This collar 8 is provided with a reduced diameter hole centrally located therethrough. The two parts of the cover 12 are provided preferably with means to facilitate their assembly together to form a complete cover. As shown in FIG. 4, these means comprise a pair of locating pins 10 on the first part 5, and a corresponding pair of locating pin holes 17 on the second part 6. The dotted lines in FIG. 4 show the pin insertion paths.

The two halves when assembled, as shown in FIG. 3 and in FIG. 1, provide a cover recess 20. This recess 20 joins part of the body recess 21, and provides an almost closed recess around and in front of each female socket 23. And a last elastomeric gasket 16 is provided on each cover 12, and can be slipped over the threaded shank portion thereof after the two halves thereof are assembled.

In using the male plug retainer, the existing screw holding a faceplate to a wall outlet is removed, and the retaining screw 7 replaces it, fastening the retainer 2 over the outlet and the faceplate 18 as shown. A threaded hollow cover 12 is un-

screwed from the retainer body 3. The two halves thereof are separated. A male plug 14, provided with a line cord 13 and prongs 15, is inserted in the cover 12 as follows. The line cord 13 is passed through that portion of a hole in the collar 8 which exists on one of the cover 12 parts. The other part is then assembled to and mated to the first described part, as by using the locating pins. Thus, the collar 8 surrounds the line cord 13, and the two parts 5 and 6 of the cover 12 are held in place manually. The plug 14 extends to the left, as shown in FIG. 3. The plug is then inserted into the female socket 23. Then, the cover 12 is slid along the cord 13 until the external threads on the shank 11 engage the internal threads 19 on the retainer body 3, and the cover 12 is then screwed into place. If a gasket 16 is provided, it is slipped over the shank and against the inner side of the knurled knob before the plug is inserted into the socket. It is apparent that after the cover is firmly inserted, the plug is retained inside the combined recessed 20, 21, and is retained in electrical contact with the wall outlet.

If one of the outlets is not to be provided with a plug, the center hole in the collar 8 is closed. This is accomplished by providing a center hole closure 9 which fits into the hole in the collar 8. The closure 9 is held in place by friction and by the compressive force of the two parts 5 and 6 of the cover 12, which compressive force is exerted when the cover 12 is screwed into the body 3.

In FIG. 2, a view from the interior of an electrical outlet box is shown, showing the faceplate 18 over the box, and showing as visible through the holes in the faceplate 18, a closed cover on the bottom and a plug 14 with prongs 15 provided in the upper portion.

It is apparent that there can be one or a plurality of sockets in the male plug retainer of this invention, and that two are shown only by way of illustration. It is apparent that the gaskets 16 are optional. Additional gasketing material can be provided in accord with known procedures around the marginal inwardly facing edges of the retainer body, and inside the center hole in the collar 8. The provision of such complete gasketing tends to or completely makes the unit dust or water-proof, as may be desirable in some classes of service.

The retainer 2 can conveniently be installed over an existing faceplate 18. It is also obvious that the faceplate can be removed as superfluous and the retainer 2 can take the place of a faceplate. For maximum ease of household installation, and for automatic self-storage of the faceplate, the faceplate is retained in its original position. If for any reason, generally, esthetic reasons, it is desired not to have the faceplate in place, it can be removed, and the operation of all aspects of the invention is identical to that described above. For example, if the faceplate 18 is not used, the illustration of FIG. 8 would be identical except that the cross section hatch lines would continue in the same direction through the section marked 18, and in FIG. 1, the slight border showing the gap between the edge of the retainer body and the edge of the faceplate would not exist. In FIG. 2, the surface identified as 18 would be the inside surface of the body 3, and the configuration of the cut outs around the sockets would be round instead of exactly as shown.

Some of the advantages of this structure have been described above. Other advantages recommend themselves obviously from a consideration of the structure. This is a versatile, flexible device, easy to manufacture, and very easy to install and remove as a whole by an unskilled householder. It is also very easy to remove or install individual electrical connections while leaving the body in place. It permits the retention of a preexisting faceplate, so that the faceplate may be used if it is later decided to remove the male plug retainer of the invention. The provision of the center enclosure 9 is an added safety feature to make sure that there is no access to the

electrical outlet, which is an important consideration where children are involved. It is also obvious that the closure 9 can be itself stored in the recess 20 when a plug 14 is being retained, so that if it is later decided to remove the plug, the closure 9 can be reapplied. The elements of the structure may be manufactured of moldable plastic by known means. The device protects against tampering by children, and against other unintentional electrical disengagement, which may cause losses or inconvenience as when equipment such as air conditioners or refrigerators are inadvertently disconnected.

The locating pins, or other mating means are preferable, but not essential to the practice of the invention, since the sections 5 and 6 may be manually assembled and held together without the aid of these devices. For applications involving minimum specification and stressing lowest cost of manufacture, the gaskets are not essential. It is apparent however, that the provision of a gasket 16 is in itself a means to hold the two parts of the cover 12 together before they are screwed into the body.

The scope of this invention is determined by the following claims.

I claim:

1. A male electrical plug retainer to hold a male plug in a socket, comprising,

- a. a retainer body having the general planer dimensions and configuration of an electrical outlet faceplate, a retaining screw to hold said retainer adjacent said socket, a hole in said retainer body positioned to register over said socket, said hole partially comprising a recess in said retainer, and being at least partially provided with internal threads,
- b. a hollow cover comprising a hollow externally threaded shank and a collar, said collar being provided with a reduced diameter center hole, said threads on said shank being engageable with said internally threaded hole in said retainer body, said recess in said retainer body and recess in said cover together forming a recess to accommodate a male plug, said cover being split into a first part and a second part through said center hole, said center hole being dimensioned to accommodate therethrough an electrical cord attached to said male plug.

2. A male plug retainer as set forth in claim 1 wherein a selectively insertable center hole closure is provided, said center hole closure fitting into said center hole in said neck and being held therein by friction and compression of the said parts of said cover, said closure being inserted at such times as said electrical cord does not pass through said center hole.

3. A male plug retainer as set forth in claim 2 wherein locating means are provided on said first and second parts of said hollow cover, said locating means aiding the registration of said parts together to form said cover.

4. A male plug retainer as set forth in claim 3 wherein said locating means comprises a pair of locating pins on said first part of said cover and a pair of corresponding locating pin holes on said second part of said hollow cover.

5. A male plug retainer as set forth in claim 2 wherein a knurled knob is provided around said threaded cover between said central hole and said shank.

6. A male plug retainer as set forth in claim 2 wherein said retainer comprises a plurality of said holes, each of said holes being provided with a said cover.

7. A male plug retainer as set forth in claim 2 wherein said retainer body replaces a faceplate around said socket.

8. A male plug retainer as set forth in claim 2 wherein said retainer body is provided over a faceplate around said socket.

9. A male plug retainer as set forth in claim 2 wherein gaskets are provided on closing surfaces of said male plug retainer to make said male plug retainer substantially water-proof and dust proof.