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2,647,004

DEVICE FOR ATTACHING FRONTS TO ELECTRICAL CABINETS

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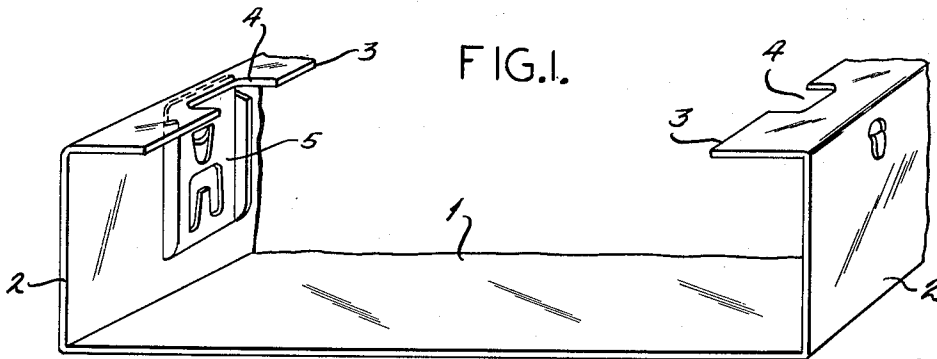


FIG. 1.

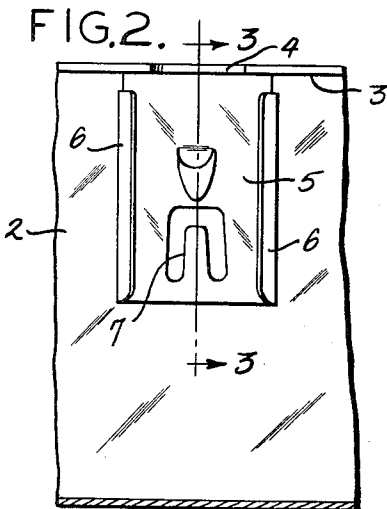


FIG. 2.

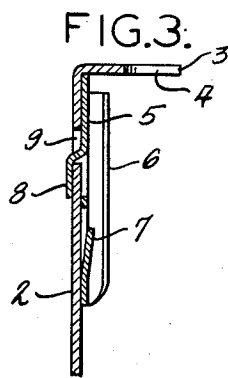


FIG. 3.

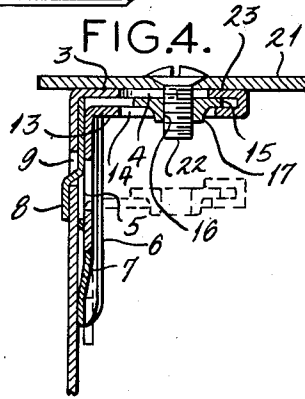


FIG. 4.

FIG. 5.

FIG. 6.

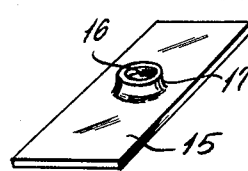
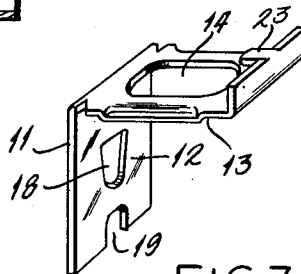


FIG. 8.

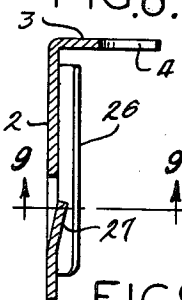


FIG. 9.

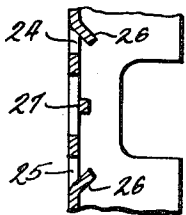
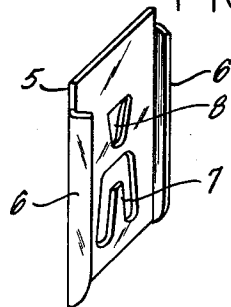


FIG. 7.



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DEVICE FOR ATTACHING FRONTS TO ELECTRICAL CABINETS

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6 Claims. (Cl. 292—256.73)

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This invention relates generally to panel boards, switch boards, and electric switch enclosures, and particularly to the connection of fronts on such devices of the type which are usually recessed within the walls of a building.

In U. S. Patent 1,915,509, there is disclosed an arrangement for facilitating the connection of fronts to panel boards, switch boards, and other similar cabinets. As pointed out in said patent, the cabinet or box containing the desired electrical equipment is ordinarily mounted in the building prior to the plastering operation. After the plastering operation is completed, and at the time the trim is being applied within the structure, the permanent front is applied to the panel board or the like. Since the front of the panel board becomes a part of the trim of the building, it is impractical to apply it before the plastering operation is completed. In the mounting of the panel board or the like within the building as well as during the subsequent plastering and other construction operations, the cabinet may be subjected to abuse. It may become distorted or it may get out of plumb or be subjected to other abuses, none of which affect the operability thereof from the electrical standpoint, but which nonetheless make difficult the application of the front, or may, unless latitude is allowed, require that the front be permanently connected in a manner which is noticeably out of true. For these reasons, the aforesaid Patent No. 1,915,509 contemplated the allowance of some movement between the nut (which received the front securing screws) and the structure of the cabinet. The arrangement disclosed in said patent is quite satisfactory for the purpose except that, during installation, the parts which connect the nut to the cabinet are sometimes subjected to abuse; as, for example, when they obstruct the pulling-in of wires and are damaged (deliberately or accidentally) during the process of making the electrical connections. In the latter instances, difficulties have been encountered in subsequently securing the front to the cabinet while the latter is in position within a wall and the front in position covering the cabinet, so that the nut was inaccessible.

The object of the present invention, generally stated, is to provide a floating nut and an anchorage therefor, which may be conveniently applied to a panel-board or the like immediately prior to the application of the front, and consequently will not be subject to the abuses aforesaid.

Another object of the invention is to simplify

and cheapen the accessories for connecting fronts to cabinets of the character aforesaid.

Other objects will become apparent to those skilled in the art when the following description is read in connection with the accompanying drawings, in which:

Figure 1 is a perspective view of a typical panel board cabinet or trough showing the front connecting device of the present invention at one side thereof;

Figure 2 is a view in side elevation of one of the interior side walls of the cabinet prior to application of the front;

Figure 3 is a sectional view taken along line 3—3 of Figure 2;

Figure 4 is a sectional view corresponding to the position of Figure 3, but showing the structure after the application of the front;

Figure 5 is a perspective view of a floating nut retainer constructed in accordance with the present invention;

Figure 6 is a perspective view of a floating nut suitable for use in accordance with the present invention;

Figure 7 is a perspective view of a guiding and locking device shown permanently mounted to the side wall of the cabinet in Figures 2 and 3;

Figure 8 is a sectional view corresponding to the position of Figure 3 but of a different embodiment; and

Figure 9 is a sectional view taken along line 9—9 of Figure 8.

The present invention contemplates generally that a freely floating nut be provided and retained in position adjacent each cut-out in the usual flange of the cabinet or trough for a panel board or similar device; and that the nut be readily and quickly assemblable with the cabinet after the latter is installed but securely held in position for the reception of a screw extended through the front and the cut-out in the flanges of the cabinet yet freely floatable within the limits of the cut-out. Thus the floating nut and the parts retaining it in position are relieved from the abuses to which they might be subject during the process of transportation, handling, and installation of the cabinet.

Referring now to Figure 1 of the drawings, a section of panel board cabinet of a common type is shown. The cabinet is formed as a sheet metal trough having a back 1, side walls 2, and flanges 3 projecting inwardly from the side walls. The edges of the flanges 3 are provided with two or more cut-outs 4 proportioned to be considerably larger than the front-connecting screws intended

to project there-through so as to provide a considerable latitude of position for the screws within the cut-out. The structure just described is conventional and per se forms no part of the present invention.

Adjacent each of the cut-outs 4, the side wall 2 of the cabinet is provided with a clip 5 shown in detail in Figure 7. The clip is a sheet metal stamping having its opposite edges in-turned to provide guide rails 6. The clip is also punched out about a tang 7 which is upset so that it projects out of the plane of the back of the clip as shown clearly in Figure 3. The clip 5 is also cut out to define a tongue 8 arranged to extend through an opening 9 in the side wall 2 and be peened over on the exterior thereof as shown in Figure 3. It is contemplated that the clip 5 be permanently connected with the side walls 2 at the time of manufacture of the cabinet or at least prior to the installation thereof in a building and while the exterior of side walls 2 is still accessible for peening over the tongue 8. Of course, the clip 5 may if desired be secured to the side walls 2 by welding or otherwise.

There is also provided a bracket 11 having an angular part 12 proportioned to be slidably received within the race-way defined by rails 6 of clip 5; and an angular part 13 arranged to extend parallel with flange 4 when the bracket is in final position. The angular part 13 has an aperture 14 preferably at least as large in area as the cut-outs 4.

There is also provided a floating nut 15 consisting of a short strip of sheet metal having a central internally threaded hole 16. The metal about hole 16 is upset as shown at 17 to provide a boss projecting out of the plane of the face of nut 15.

When the panel board has been installed and the front is ready to be applied, the bracket 11 is inserted in the lower end of clip 5 and moved upwardly therein until tang 7 engages within hole 18. In this position (shown in dotted lines in Figure 4), the floating nut 15 is laid on the upper surface of part 13 with boss 17 extending into hole 14. It will be observed that the boss 17 is substantially smaller in diameter than the hole 14 and consequently a considerable latitude of movement between those parts is made possible without necessitating that the one be separated from the other. With the nut 15 thus disposed above part 13 of bracket 11, the latter is moved upwardly in its race-way until the upper face of nut 15 makes contact with the lower face of flange 3. As this position is reached, tang 7 springs into engagement with the upper edge of recess 19 in bracket 11, thus securing the bracket against removal from this position. With the bracket in this position, and the boss 17 of the nut extending into aperture 14 (or for that matter into cut-out 4), the nut cannot escape but is nonetheless freely floatable within the limits defined by aperture 14. When the parts are in this position, front 21 is placed in appropriate position and screw 22 is inserted through a hole provided in the front. The front may be maneuvered until screw 22 can be engaged with the threaded part of nut 15. Other screws, as for example at the four corners of the front, may then be similarly inserted. In view of the latitude of movement provided by the floating nuts, the front 21 may be readily maneuvered until all screws are engaged with their corresponding nuts. Finally, the front 21 is trued with reference to the interior of the building, and all of

screws 22 tightened down to retain the front in final position.

In cases where the flanges 3 are relatively narrow and the angular part 13 of bracket 11 extends substantially beyond the edge of the flanges, it is desirable that the bracket be provided with an in-turned lip 23, extending in parallel spaced relationship to part 13 and substantially in the plane of flange 3 when the bracket is in final position. The lip 23 thus prevents the escape of nut 15 beyond the edge of flange 3.

Instead of providing the race-way for the reception of bracket 11 as a separate element, the side walls 2 may be stamped out to provide the race-way and retaining catch as shown in Figures 8 and 9. In this form the side wall 2 is slit at 24 and 25 to provide a three-sided severance about each of tongues 26 which are then upset inwardly to provide the equivalent of rails 6 in the previous embodiment. Likewise, a cut-out is provided in the side walls 2 to define a tang 27 equivalent to tang 7 of the previous embodiment. As a further alternative, a suitable race-way and retaining catch may be mounted on the inner side of flange 3 or an equivalent of angular part 13 on bracket 11 may be secured beneath flange 3 after the cabinet is installed, as the flange is at that time still accessible for the reception and securing of rivets, screws, or tongues.

From the foregoing description, those skilled in the art should readily understand the construction and operation of the invention and realize that it accomplishes its purpose. While one complete embodiment of the invention has been disclosed in detail, and some alternatives suggested, it is not to be understood that the invention is limited to the details of the foregoing disclosure, but on the contrary it is realized that those skilled in the art may readily modify and adapt the device to particular situations without departing from the spirit of this invention and such modifications and variations are therefore contemplated, as fall within the scope of the appended claims.

Having thus described the invention, what is claimed and desired to be secured by Letters Patent is:

1. The combination with an electrical cabinet having a flange for attachment of a front, said flange having a cut-out therein for the accommodation of front attachment screws with substantial latitude of variation in position, the combination of means fixedly secured to said cabinet having a part disposed in parallel spaced relationship with said flange adjacent said cut-out, said part having an aperture aligned with said cut-out, and a free floating nut disposed between said part and said flange, said nut having a projection extending into said aperture.

2. The combination of claim 1 wherein said means has a snap-on connection with said cabinet.

3. The combination of claim 1 wherein said means has a lip extending substantially in the plane of said flange in the same spaced relationship as said flange with said part.

4. The combination of claim 1 wherein said cabinet has a guideway for slidably receiving said means, and a catch for locking said means in position.

5. The combination of claim 4 wherein said catch engages said means at a recess in one end of said means, and the other end of said means has a lip proportioned correspondingly to said

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recess, said lip being bent back into parallel spaced relationship with said part.

6. The combination with an electrical cabinet having a flange for attachment of a front, said flange having a cut-out therein for the accommodation of front attachment screws with substantial latitude of variation in position, the combination of parallel guide rails on the side wall of said cabinet adjacent said flange, an angular bracket having one part slidably received between said rails and another part extending parallel with said flange, a catch for locking said bracket in

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position between said rails with said second part thereof near said flange, a floating nut between said second part and said flange, and means for retaining said nut in position.

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