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N. J. SCHMELIG
PANEL BOARD CABINET
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2,675,141

FIG. 1.

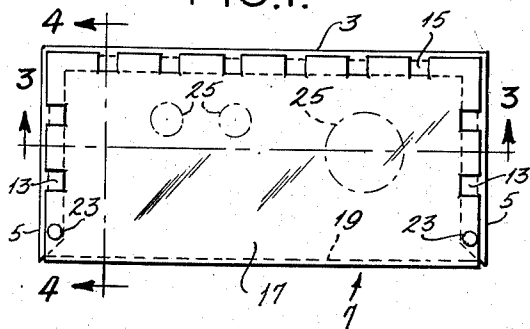


FIG. 3.

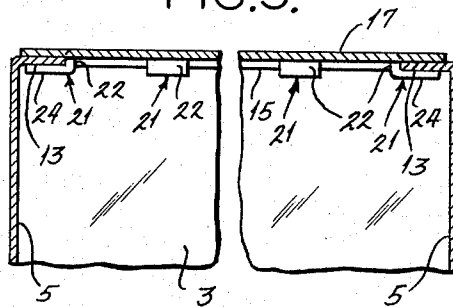


FIG. 2.

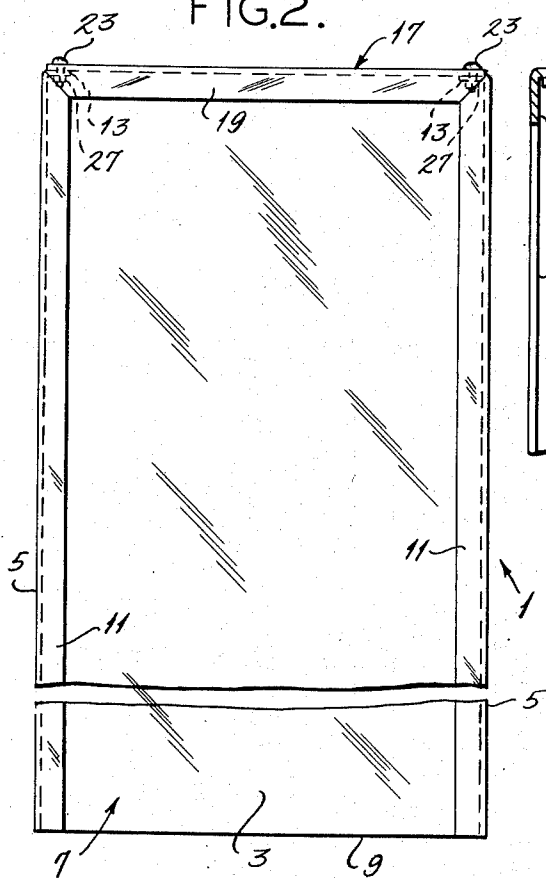
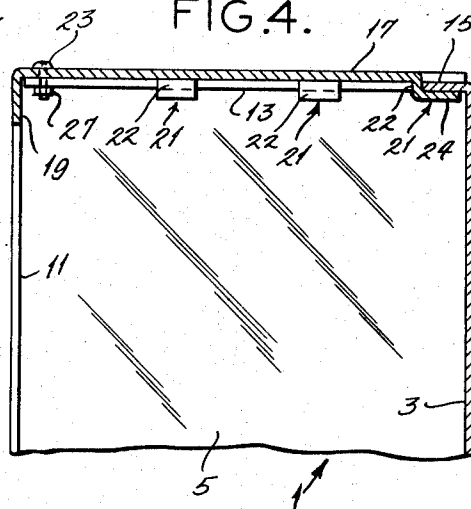


FIG. 4.



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PANEL BOARD CABINET

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3 Claims. (Cl. 220—3.8)

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This invention relates to cabinets for electric switch gear and the like, and more particularly to panelboard cabinets having detachable conductor-entry panels.

Panelboards and switchboards are commonly enclosed within a sheet metal cabinet having doors which may be locked to prevent unauthorized access to the switch gear, protective devices and other electrical apparatus therein contained. Because the cabinet usually has to be tailored, at the time of installation, to fit previously installed runs of conduit, cable or duct, it has become the accepted practice in the industry to provide such cabinets with a panel which may be removed by the installing workman after the cabinet is properly oriented with reference to the fixed situation of the external conductors. In this way, the installing workman is enabled to accurately locate the proper position at which to cut conductor entry openings while the removable panel is in position on the cabinet; then remove the panel to a convenient work bench for cutting the appropriate openings. The cutting of the openings while the panel is in situ is universally discouraged for several reasons, among which may be mentioned the likelihood that chips of metal may drop into the electrical apparatus and go undiscovered until the juice is turned on, whereupon serious damage might result.

Heretofore, such removable panels have been secured to the body of the cabinets by bolts and nuts, with the nuts on the interior. For security reasons, the heads of the bolts are preferably of a character which do admit of manipulation by screwdrivers or wrenches applied from the exterior. In order to comply with the standards laid down by the Underwriters' Laboratory, a great multiplicity of such bolts and nuts is required, for example, a cabinet twelve inches deep and two feet wide is required to have between fifteen and twenty bolts securing a removable top about three sides thereof.

The fact that the securing bolts are so many, and the further fact that the nuts thereon are so difficultly accessible and their manipulation (both in removal and replacement) hindered not only by their corner location, but also by the proximity of electrical apparatus already mounted in the cabinet, in many instances has induced, and always tempts, the installers to avoid the onerous task by cutting the conductor entry openings without removing the removable panel. This not only defeats the purpose of the removable panel, and renders useless the additional expense to which the panelboard manu-

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facture went in drilling the matching holes and threading up the bolts and nuts at the time of manufacture (better that the structure had been welded together in the first instance), but also may lead to serious consequences. While the onerous task imposed upon the installer would be mitigated if the manufacturer delivered the panelboard with the removable panel wholly unconnected, such is not feasible because the structure requires the added strength, provided by the removable panel, to withstand the rigors of handling and shipping.

It is accordingly an object of this invention to provide an improved panelboard cabinet having a conductor-entry panel that is more readily removed and replaced than those in prior types of such cabinets.

Another object of the invention is the provision of a panelboard cabinet that meets strength and construction requirements for such cabinets; and particularly the provision of a cabinet wherein the conductor-entry panel is secured at a sufficient number of points about its periphery, without requiring a separately manipulatable fastening at each such point.

An additional object of this invention is the provision of a panelboard cabinet that is inexpensive to manufacture.

In common with the prior practice, I provide a channel-shaped sheet metal body forming the back and sides of the cabinet. A swinging door may be hung on the front of the body and a suitable base affixed at the bottom end. At the top of the channel-shaped body flanges are inturned from the back and sides. In accordance with my invention, however, a generally rectangular conductor-entry panel is seated on the aforesaid flanges, and the panel is secured thereto by lugs which are offset from the plane of the panel about the three of its edges which engage the flanges. These offset lugs engage beneath the three end flanges of the body, and are preferably struck from the panel, which may be of sheet metal. The lugs, which herein form fasteners, are preferably spaced apart distances corresponding to the spacing of fasteners in prior bolted types of cabinets. The panel is thereby slidably removable in a forward direction, and it is securable in its innermost position by but two bolts, located at the most accessible position therein.

Other features of the invention will be apparent from the following detail description taken in connection with the accompanying drawings, in which:

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Figure 1 is a top plan view of the panelboard cabinet of this invention;

Figure 2 is a front elevation of Figure 1;

Figure 3 is an enlarged vertical section taken on the line 3—3 of Figure 1; and

Figure 4 is an enlarged vertical section taken on the line 4—4 of Figure 1.

Referring to the drawings, there is shown a generally channel-shaped body 1 forming a back 3 and sides 5 of a cabinet in which a variety of electrical devices (not shown) are permanently mounted. It will be understood that the cabinet may be provided with a swinging door hung at the front 7, and with a suitable base at one end 9. The sides 5 are formed with inwardly directed flanges 11 along the front, as indicated, and with inwardly directed flanges 13 at the top end. The back 3 has a similar end flange 15, and these end flanges 13 and 15 form a support upon which a conductor-entry panel 17 is seated.

The conductor-entry panel 17 is a generally rectangular plate formed with a depending flange 19 at its forward edge, and with a plurality of lugs 21 offset downwardly and spaced about its three other edges. Each lug, as best shown in Figures 3 and 4, is struck from the metal in such a manner as to have a depending leg 22 and an outwardly directed tongue 24. These legs 22 and tongues 24 have a snug engagement with the inner edges of the flanges 13 and 15 and grip against the underneath sides of these flanges respectively. In a contemplated form of the invention, which has been approved by the Underwriters' Laboratory, each lug may be three-quarters of an inch wide, and the spacing between the lugs may be two and three-quarters inches. In contrast to the bolt-and-nut fastened panels hereinbefore mentioned, however, no drilling of flanges 13 and 15 is required to provide for connection with the lugs 21, and the several lugs, irrespective of their size or spacing, may be cut out and offset from the panel in one operation of a punch press. Moreover, all of the lugs are engaged with and disengaged from their respective cooperating flanges in one single motion.

Inasmuch as panelboard cabinets are generally manufactured from relatively heavy gauge sheet steel, for example, three-sixteenths inch gauge, the lugs provide an adequate fastening engagement. Near the front, the panel 17 and the side flanges 13 are suitably drilled to receive bolts 23, one bolt being located on each side. It will be seen that the conductor-entry panel may be readily detached from the body 1 of the cabinet by removing the bolts 23 and withdrawing the panel in a forward direction. Suitable conductor-entry apertures may then be cut, for example, as indicated by dotted lines at 25, according to whatever arrangement is desired. In this respect, the cabinet is ideally suited for installation where the conduit and wiring are already in place. This is because the installer may readily remove the conductor-entry panel and drill or cut conductor-entry apertures and affix fittings as desired. The panel is then replaced by sliding it across the top end flanges 13, with the lugs 21 engaged beneath these flanges, to the innermost position, and is then secured in position by means of the bolts 23 and nuts 27. A locking washer may be used with the nuts 27 if desired.

The above construction, wherein the fasteners comprise bolts 23 at the forward edge and offset

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lug members 21 spaced about the side and back edges, provides for a cabinet construction which is strong and rugged. It will be observed the snug engagement of the lugs at 22 with the inner edges of the end flanges 13 and 15 strengthens the body 1 against skewing, whereas the two bolts 23 at the front of the body 1 prevent spreading of the sides 5. In contrast to prior cabinets having detachable conductor-entry panels, however, the conductor-entry panel of this cabinet may be readily detached upon removal of only two bolts instead of the numerous bolts which were heretofore employed.

From the foregoing description, it is apparent that those skilled in the art will understand the structure, function, and mode of operation of the invention herein disclosed and appreciate the advantages thereof. While one embodiment has been disclosed in detail, it is to be understood that the invention is not limited thereto, but the drawings and description thereof are to be understood as being merely illustrative. For examples, the panel may be placed under, instead of over the flanges 13 and 15 with the lugs 21 extending above the flanges rather than beneath the same as described hereinbefore. It is realized that many modifications and variations will present themselves to those skilled in the art without departing from the spirit of this invention or the scope thereof as set forth in the appended claims.

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

1. A panelboard cabinet having a detachable conductor-entry panel, the cabinet comprising a sheet of metal bent to form a channel-shaped body with back and side panels, the margins at one end of the body being bent inwardly to form flanges along the back and side panels, a generally rectangular conductor-entry panel seated upon said flanges, said panel having a plurality of spaced lugs struck from the panel and spaced about its side and back edges to engage beneath said inwardly directed flanges on the body of the cabinet, said panel thereby being removable by withdrawal in a forward direction, and bolts securing the panel in its innermost position, said bolts being entered through the forward corners of the panel and forward parts of the side flanges to restrict spreading of the side panels.

2. A panelboard cabinet as set forth in claim 1 wherein the conductor-entry panel has a depending flange at its forward edge and wherein the body portion of the cabinet has similar flanges extending along the front part of the side panels.

3. A panelboard cabinet as set forth in claim 1 wherein said lugs are formed with depending legs which snugly engage the inner edges of the flanges at the top end of the body.

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