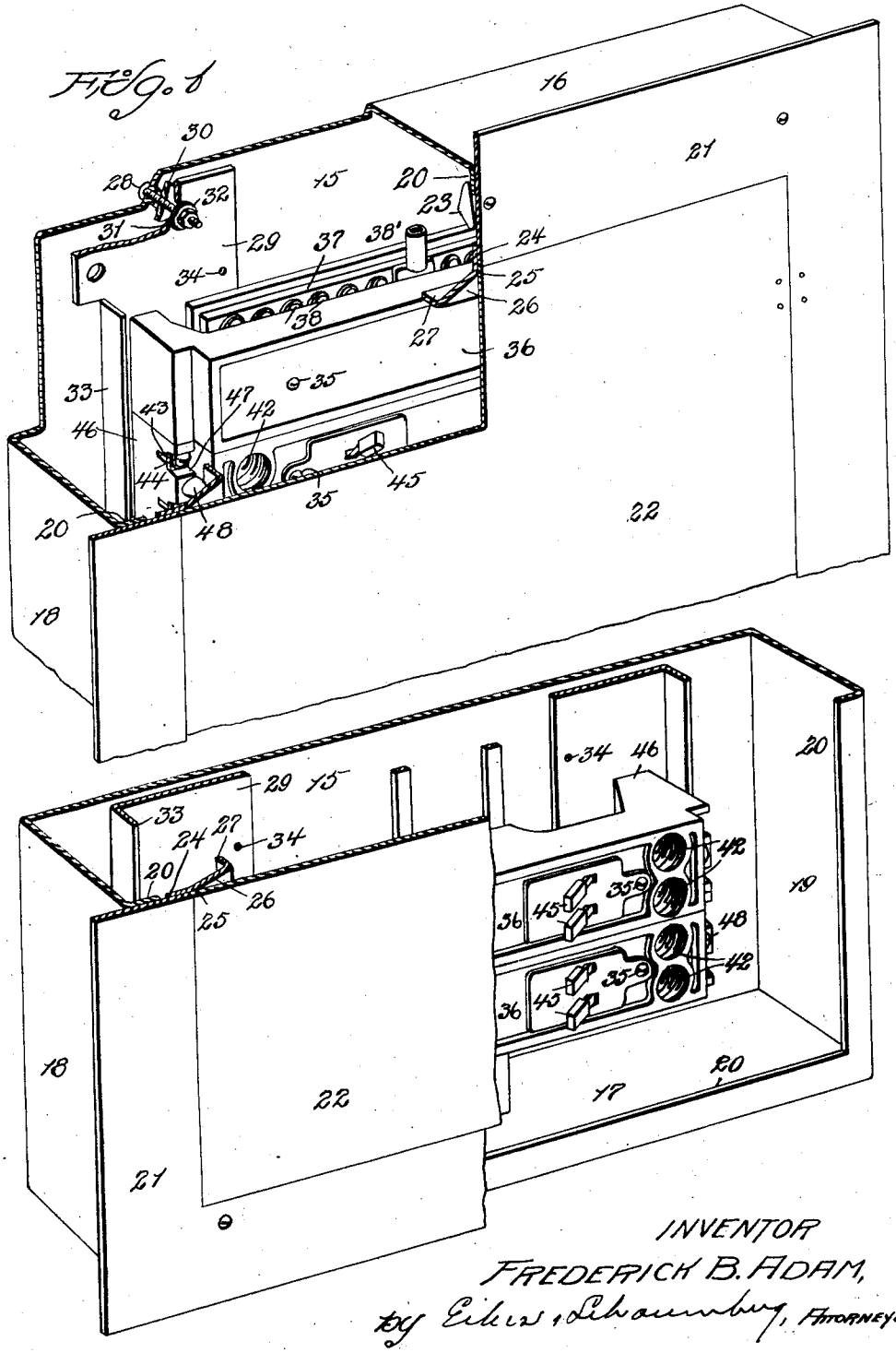
Oct. 10, 1933. F. B. ADAM 1,930,028

PANEL BOARD AND CABINET

Filed Dec. 26, 1925 4 Sheets-Sheet 1



Oct. 10, 1933. F. B. ADAM 1,930,028

PANEL BOARD AND CABINET

Filed Dec. 26, 1925 4 Sheets-Sheet 2

Fig. 2.

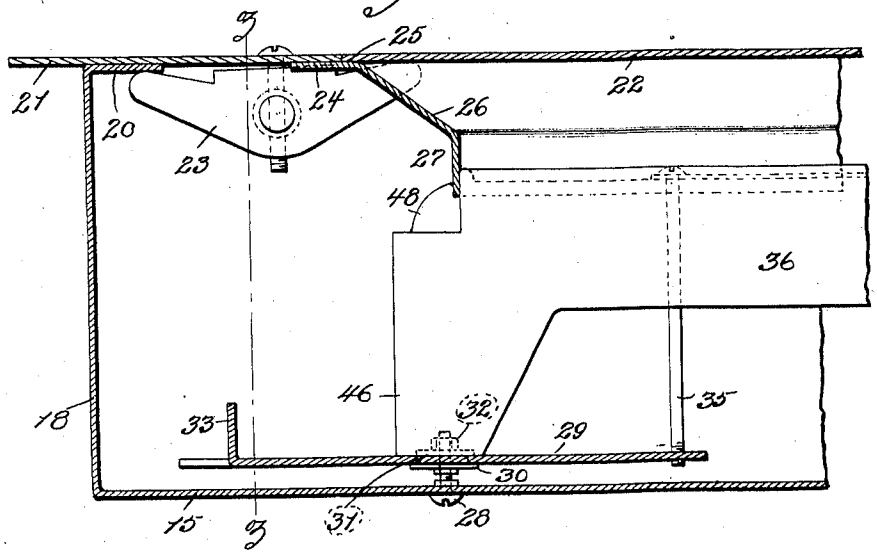


Fig. 3.

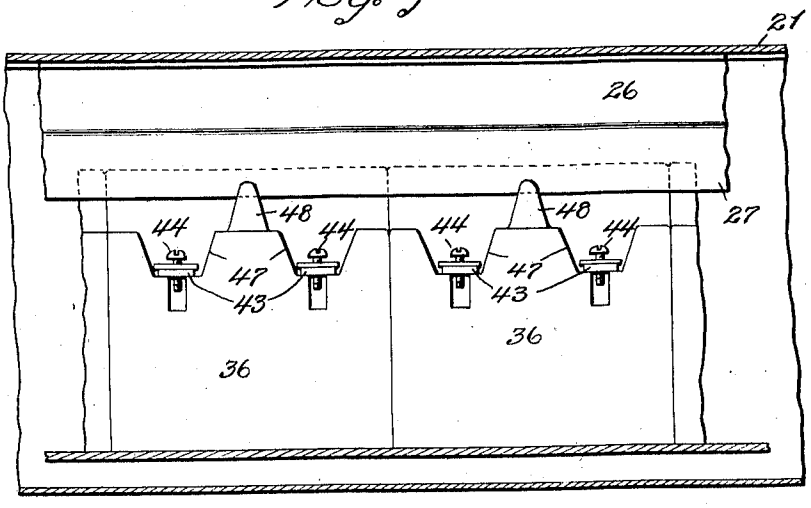
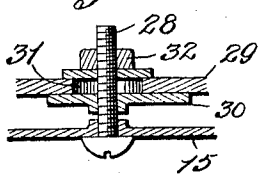


Fig. 4.



INVENTOR

FREDERICK B. ADAM,

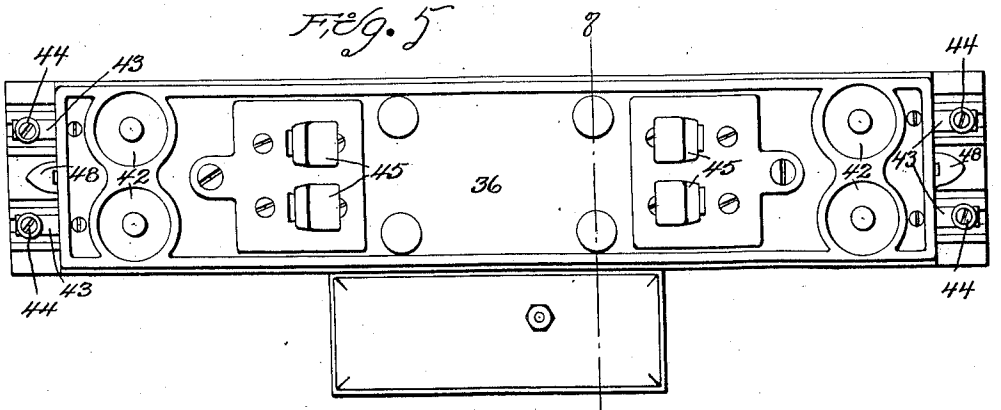
by Edwards & Shaumburg, Attorneys.

Oct. 10, 1933. F. B. ADAM 1,930,028

PANEL BOARD AND CABINET

Filed Dec. 26, 1925 4 Sheets-Sheet 3

Fig. 5



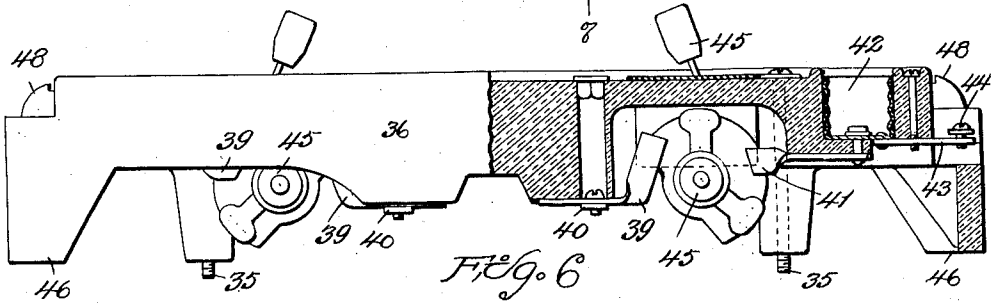


Fig. 6

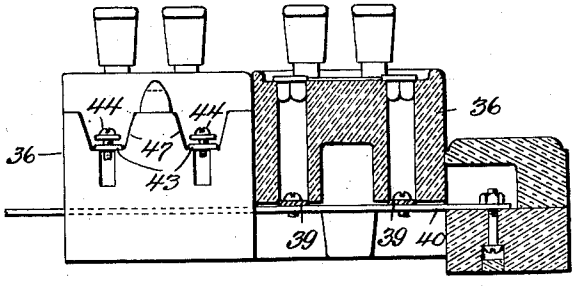


Fig. 7

INVENTOR

FREDERICK B. ADAM,

by Eilers & Schaumberg, ATTORNEYS.

Oct. 10, 1933. F. B. ADAM 1,930,028

PANEL BOARD AND CABINET

Filed Dec. 26, 1925 4 Sheets-Sheet 4

Fig. 8

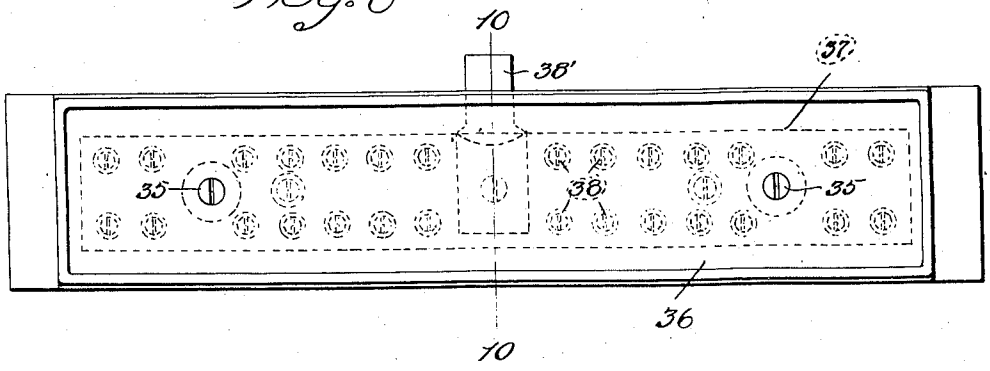


Fig. 9

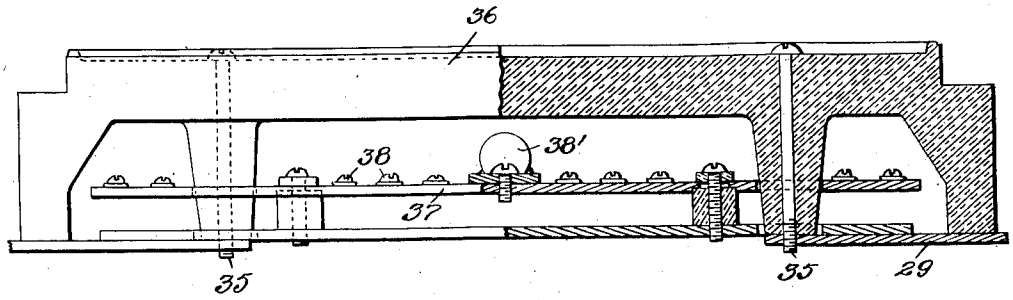
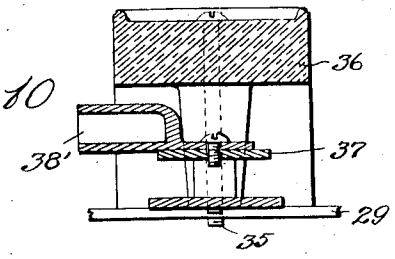


Fig. 10



INVENTOR
FREDERICK B. ADAM,
by Elliott & Schaumburg, ATTORNEYS.

Patented Oct. 10, 1933 1,930,028

UNITED STATES PATENT OFFICE

1,930,028

PANEL BOARD AND CABINET

Frederick B. Adam, St. Louis, Mo., assignor to Frank Adam Electric Co., St. Louis, Mo., a corporation of Missouri

Application December 26, 1925
Serial No. 77,682

12 Claims. (Cl. 247—10)

My invention relates to improvements in panelboards, and more particularly to circuit control elements constructed as sectional units for arrangement in panel formation and for mounting in an enclosing cabinet.

One of the objects of my invention is to provide units, comprising circuit controlling elements, whose relative arrangement and construction of body provide space economy to the end that a greater number of branch circuit controls may be assembled in a given area than heretofore possible.

A further object is to provide panelboard units, comprising circuit controlling elements, of such design as to combine with cabinet parts to form wire gutters or spaces.

A further object is to provide a panel, and cabinet therefor, each having fixed parts which combine to form a wire gutter or space.

A further object is to provide a panel and a cabinet trim, or front, having related parts, with a mounting, or back, adjustably secured in the cabinet whereby the panel and cabinet trim may be synchronously adjusted both distantly and angularly with respect to the cabinet.

My improvements consist in the novel construction, arrangement and combination of parts as hereinafter fully, clearly and concisely described, definitely pointed out in my claims and illustrated by the accompanying drawings, in which:—

Fig. 1 is a perspective view, partly in section, of a panel board and cabinet, constructed in accordance with my invention, with certain parts broken away.

Fig. 2 is a fragmental sectional plan view showing the relating means for the panel and cabinet trim which form the wire gutter and the adjustable mounting for the panel.

Fig. 3 is a section taken on the line indicated 3—3 of Fig. 2.

Fig. 4 is an enlarged, detail, sectional view showing the adjustable connection between the panel mounting and cabinet.

Fig. 5 is a front elevation of one of the panel units.

Fig. 6 is an elevation, partly in section, of a panel unit.

Fig. 7 shows a unit in transverse section as taken on the line 7—7 of Fig. 5 and a second unit in end elevation.

Fig. 8 is a front elevation of a panel unit comprising a neutral terminal plate.

Fig. 9 is an elevation, partly in section, of the unit shown in Fig. 8.

Fig. 10 is a transverse section taken on the line indicated 10—10 of Fig. 8.

The structure of the units of the panelboard, of the means for adjustably relating the panelboard to the cabinet, and of the means for forming the gutter, may be varied in form without departure from my invention as hereinafter claimed, the showing of this description and the drawings being merely in illustration of one embodiment of my invention in response to the statutory requirement relating to applications for patent.

Referring to the drawings, 15 designates the back, 16 the top, 17 the bottom, 18 and 19 the sides of the cabinet, or box, and 20 an inturned flange surrounding the cabinet at the margins of the top, bottom and sides, all of which, by preference, are formed as a unit of sheet metal.

The front for the cabinet consists of a trim 21 of open-frame construction and a closure, or door 22, hinged in the open frame, and adjustably secured to the cabinet as by clamps 23.

Carried by the trim, and by preference, fixed thereto, as by welding, is an open frame, comprising a flat 24, welded to the trim next the opening and extending therefrom to form a rabbet 25 for the door to close against, an inwardly and rearwardly inclined return 26 having a rearwardly extended flange, 27, forming parts of a wire gutter.

Extending forwardly from the back 15 of the cabinet are the studs 28, which, by preference, are bolts fixed to the back as by threading therethrough for the support of the mounting back 29 for the panel.

In order to provide distance adjustment between the mounting back and cabinet back I employ spacer nuts 30, on the studs 28, for location between the mounting back and cabinet back, and to plumb or adjust the mounting back vertically relative to the cabinet, in the event the latter may be out of plumb, I provide holes 31 in the mounting back whose diameters are greater than the diameters of the studs whereby the mounting back may be shifted relative to the studs and then secured in properly "set" position as by the retaining nuts 32. By preference the mounting back consists of spaced metallic strips, each of which is held as by the studs, spacer nuts and retaining nuts recited, and sufficiently rigid to prevent bending lengthwise. For certain installations the metallic strips may be provided with stiffening elements, such as the flanges 33. At regularly spaced intervals lengthwise of the strips of the mounting back, there are the screw-seats,

34, for the reception of screws, 35, which hold the various units or molded sections of the panelboard in place.

My illustrations have been confined to the construction of the panelboard units, but it is to be understood the wiring may be of the so called, three wire system, in which heretofore, it has been the practice to include in each branch circuit a fuse and a switch in the neutral wire which obviously required space upon the face of the unit.

According to my present invention I provide a special panel section, 36, comprising a plate 37, having a plurality of binding posts, or screws 38, for the accumulation of all the neutral sides of all the branch circuits and which plate carries a main terminal 38' for the neutral wire, or side, of the feeder.

By this expedient I may omit the fuse and switch in the neutral side of each branch circuit and I am enabled thereby to economize in space upon the face of each unit to the end that I may construct a unit with no greater dimensions than usual but with a greater number of branch circuit controls.

In Figs. 5, 6, and 7 I illustrate a unit comprising a body, preferably formed by molding, and formed of insulating material, arranged for the control of four branch circuits, in which there are the switch terminals 39, arranged in pairs at each end of the unit, as shown in Figs. 6 and 7, and arranged for connection with busses 40 which latter are for connection with the live mains of the system. In line with each terminal 39 is a terminal 41 leading to a socket 42, for the reception of a plug fuse. Leading from the socket is a bus 43, having a binding screw 44, and between the terminals 39 and 41 is a switch 45. At each end of each unit is a foot 46 extending below the body proper of the unit whereby all of the "live" elements of the unit are properly "space-insulated" from the mounting backs 29.

As shown, the busses 43 and binding screws, 44, are located in notches 47 in order to be "space-insulated" from the return, 26, and are thus located outside the wire gutter.

At each end of each unit there is a boss 48 which is notched to receive the margins of the flanges 27 of the return, whereby the return is held properly spaced from the busses 43 and screws 44 and whereby the panel, consisting of a number of the units, is combined with the cabinet front and as a consequence a plumbing of the panel board, as by a shifting of the mounting comprising the strips 29, automatically plumbs the front which comprises the trim 21 and door 22; and by adjustment of the spacer nuts 30 and retaining nuts 32, the mounting back may be moved to bring the bosses to meet the flange 27 of the return regardless of the distance separating the trim and cabinet.

I claim:

1. The combination of a cabinet, a panel and a panel mounting, the mounting comprising a pair of strips between which the panel extends, a supporting stud bolt extending from the back of the cabinet at each end of each strip and means on each stud bolt for supporting the respective ends of the strips and for varying the distance of the strips from the back of the cabinet.

2. The combination of a cabinet, a panel and a panel mounting, the mounting comprising a pair of substantially parallel strips between which the panel extends, a supporting stud bolt extending from the back of the cabinet at each end of each strip and means on each stud bolt for supporting the respective ends of the strips and for varying the distance of the strips from the back of the cabinet.

3. In combination, a cabinet, a panel structure within the cabinet, members projecting into the cabinet from the back thereof, means carried by each member engaging a portion of the panel structure and adjustable along the respective members for varying the spacing of portions of the panel structure with respect to the cabinet back, said means also providing for lateral adjustment of the panel structure, a front for the cabinet, a return carried by the front and extending toward the panel, and means on the panel holding the return and adapted to position the panel with respect to the front.

4. In combination, a cabinet, a panel within the cabinet, studs projecting from the back of the cabinet, means on each stud for engaging and supporting a portion of the panel, said means being movable along the stud for varying the distance between the panel and the back of the cabinet and providing also for lateral adjustment of the panel, a front for the cabinet, a return attached to the front and projecting toward the panel, and means on the panel engaging the return to position the panel with respect to the front.

5. In combination, a cabinet, a panel structure within the cabinet, studs having threaded portions projecting from the back of the cabinet, means, including a nut on each stud for engaging and supporting a portion of the panel structure, said means being adapted for selective placement along the studs for separately adjusting the distances between portions of the panel structure, and the cabinet back, said means further providing for lateral adjustment of the panel structure within the cabinet, a front for the cabinet, a return carried by the front and extending toward the panel structure, and means on the panel engaging the return to position the panel with respect to the front.

6. The combination of a cabinet, threaded studs carried by the cabinet, a panel, a panel mounting and supporting plate adapted to be inserted over said studs and having stud openings of substantially greater size than necessary to receive the studs, means on the studs for adjustably spacing the plate within the cabinet, and retaining nuts on said studs.

7. The combination of a cabinet, studs carried by the cabinet, a panel, said studs having threaded portions between the panel and adjacent cabinet wall, a panel mounting member of strip form having openings of substantially greater size than necessary to receive the studs, means for securing the panel to said mounting member, retaining nuts on said studs, and spacer nuts thereon, adapted for selective placement on said threaded portions between the cabinet and panel mounting.

8. A panelboard assembly comprising a cabinet, a panel and a panel mounting, said mounting comprising a strip having an opening adjacent each its ends, bolts of lesser size than, and disposed in, said openings, means carried by each of said bolts, adapted for effecting selective distance placement of the strip, along each bolt, and panel-securing nuts, adapted for reception by said bolts after placement of said strip.

9. In combination, a cabinet, a front, a panel, means for adjusting the distance between the panel and the back of the cabinet, a spacing element carried by the front and extending be-

tween the front and panel to form a wire gutter, and means on the panel for engaging said spacing element to position said element, laterally, and adapted to position the front, distantly, relative to the panel.

10. In combination with a cabinet, a panel and a front, means for adjusting the distance between the panel and the back of the cabinet, means carried by the front adapted to coact with the panel to form a wire gutter, and an element carried by the panel and adapted to coact with said last named means, to maintain the panel and front in predetermined spaced and lateral relation.

11. In combination, a cabinet, a front therefor, a panel, means for adjusting the panel to and from the back of the cabinet, a return carried by the front and extending to the panel and means on the panel adapted to engage the return, to position the front, distantly and laterally, relative to the panel.

12. In combination with a cabinet, a sectional panelboard including a distinct unit comprising a plate adapted to accumulate a plurality of neutral connections and means for connection with the neutral side of the feeder; panelboard mounting elements within the cabinet, an insulating body for said unit, overlying said plate and connections thereto, and projections rearward of said overlying portion, and extending through said plate into engagement with said mounting elements.

FREDERICK B. ADAM.