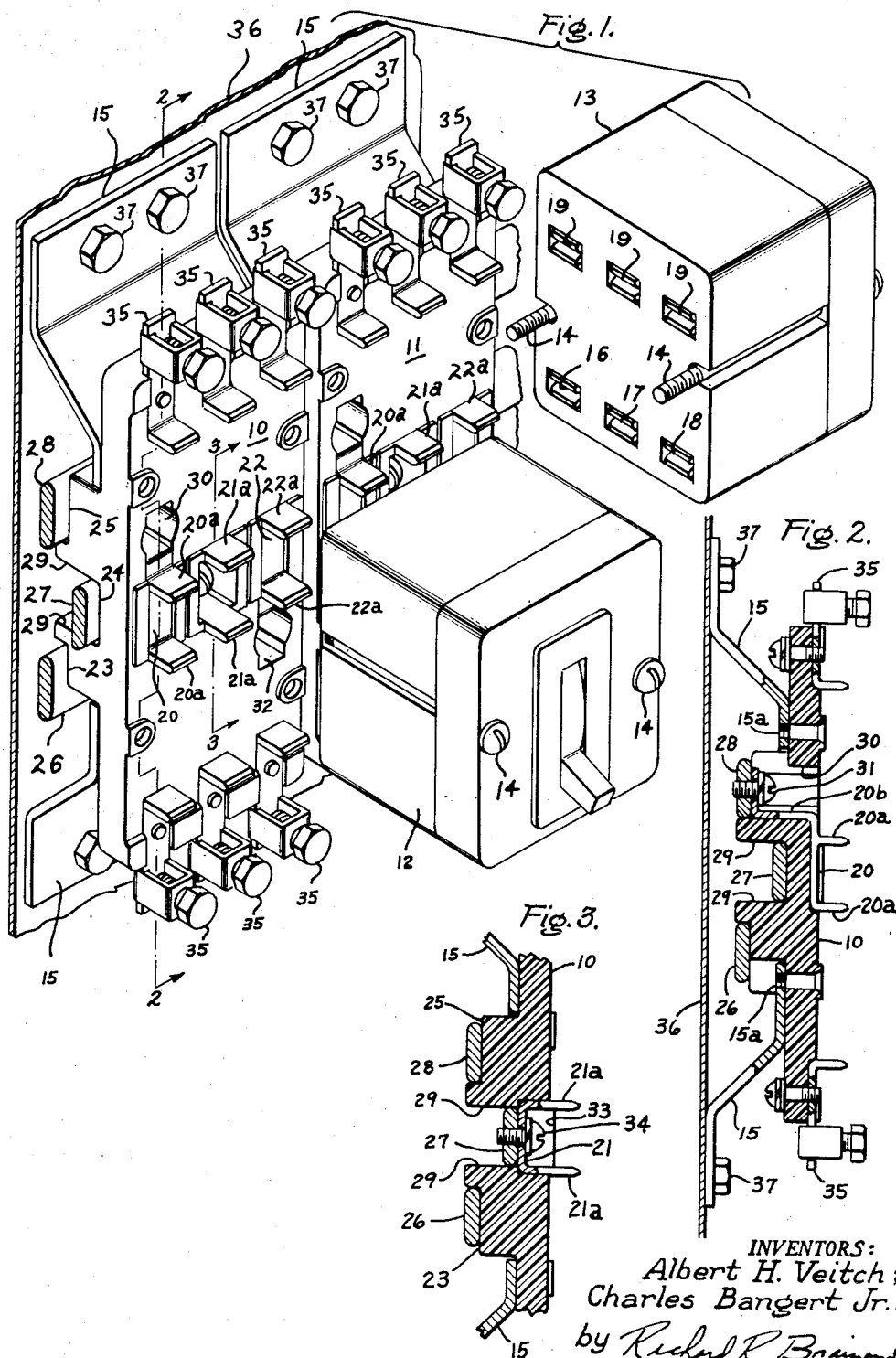


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PANELBOARD CONSTRUCTION

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PANELBOARD CONSTRUCTION

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The present invention relates to an improved panelboard construction and particularly to panelboards of the plug-in type.

It is an object of this invention to provide an improved panelboard of the type having a row of stab contacts providing detachable line or supply connections for circuit breakers, or similar devices.

It is another object of the invention to provide an improved panelboard construction, in which the bus bars are supported on one side of the panel with adequate spacing for air insulation, and are contacted directly through the panel by contacts arranged in a row and overlying one of the bus bars.

Further objects and advantages of the present invention will become apparent as the following description proceeds reference being had to the accompanying drawing, and its scope will be pointed out in the appended claims. In the drawing, Figure 1 is a perspective view of a panelboard, embodying our invention, showing one breaker in mounted position, and one removed from the panel; Figure 2 is a sectional view taken along the line 2—2 of Figure 1, and Figure 3 is a sectional view taken along the line 3—3 of Figure 1.

Referring now to the drawing, the present invention is illustrated as embodied in a panelboard, including two similar panels, 10 and 11, of pre-molded insulating material. The panelboard is thus shown as of the sectional type, although it is apparent that any size board could be made in a single piece, if desired. The particular panelboard illustrated is designed to accommodate three-pole circuit breakers, such as illustrated at 12 and 13. The breaker 12 is shown mounted on the panel by means of securing bolts 14, which extend into suitable threaded openings 15a, provided in the panel mounting brackets 15. As illustrated by the view of the breaker 13, each breaker is provided with three socket contacts 16, 17 and 18, which provide the line contacts, and three similar load contacts, all designated by the numeral 19.

The panelboard, embodying our invention, and suitable for accommodating either single pole breakers or three pole breakers, such as illustrated at 13, will now be described in detail. Since panelboards 10 and 11 are identical, only one will be described and the same reference numerals will be applied to both panelboards to designate corresponding parts. The supply or line contacts of the panelboard are provided by the U-shaped contacts 20, 21 and 22 arranged in a row on the front of the panel and each received within a recess to provide barriers therebetween. The contact members are provided with upstanding contact prongs 20a, 21a and 22a, respectively, for engaging the contacts of one or more circuit breakers. As illustrated, the panelboard 10 is provided on the rear surface thereof with bosses 23, 24 and 25, extending in parallel relation in the same longitudinal direction as the row of contacts and providing supports for supply bus bars 26, 27 and 28. As illustrated, the boss 24 is the bottom of a deep recess, the side walls 29

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of which extend above the bosses 23 and 25, to provide insulating barriers between the bus bars. This particular construction provides adequate spacing for air insulation of the bus bars 26, 27 and 28, and at the same time provides a compact arrangement as far as transverse spacing is concerned so that the connection of the stab contacts 20, 21 and 22, with the bus bars is facilitated. By offsetting the central bar 24 it becomes possible to bring the two outside bars 26 and 28 closer together than would otherwise be possible. The insulation spacing through air and over the surface of the side of the base 10 would, for instance, be substantially decreased if the bar were all in a common plane.

By reference to Figure 2, it will be noted that the contact 20 is provided with a terminal portion 20b which extends to one side of the row of contacts, through an opening 30 in the panel and terminates in engagement with bus bar 28, to which it is secured by means of a suitable screw 31. In a similar manner, contact 22 is provided with a similar terminal portion (not visible in the drawing) which extends through an opening 32 located on the opposite side of the row of terminals and into engagement with bus bar 26 to which it is secured. The intermediate contact 21 is seated in a deeper recess 33 and directly overlies the central bus bar 27 which it contacts and to which it is secured by a screw 34. Thus, the present invention provides a novel mounting for the bus bars on one side of the panelboard to which the plug-in contacts are directly connected through openings provided in the panelboard, successive contacts in a row being connected to different bus bars.

While in the case of many circuit breakers the load connections are made directly to the breakers, the present panelboard provides load terminals and contacts at opposite edges thereof, designated by the numeral 35 for cooperation with the load socket contacts 19 of the circuit breakers. The mounting brackets 15 are shown secured to a metal plate 36 by means of bolts, or studs, 37. It is understood that plate 36 may be part of a supporting frame or the bottom wall of an enclosing case.

From the foregoing detailed description, it is apparent that our invention provides a novel and simple structure in which the supply busses are mounted on one side of a panel and directly engaged by contact members of the plug-in or stab type, which are arranged in a row on the opposite side of the panel and secured to the bus bars from the opposite side.

While a particular embodiment of our invention has been described, it will be apparent to those skilled in the art that changes and modifications may be made without departing from our invention in its broader aspects, and we aim, therefore, in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of our invention.

What we claim as new and desire to secure by Letters Patent of the United States is:

1. A multiphase electric panelboard assembly comprising at least two mounting bases of rigid molded insulating material, each of said insulating bases having a plurality of transversely extending parallel connector strap recesses in the front thereof and a plurality of longitudinally extending parallel bus bar supporting surfaces on the back thereof extending generally at right angles to said recesses, said insulating bases each having integral ridge-like portions thereof extending between each pair of adjacent bus bar supporting surfaces, an aperture extending from each of said recesses to a different one of said supporting surfaces respectively, an electrical connecting strap positioned in each of said recesses and having a pair of integral contact portions in side-by-side relation transversely of said base, said pairs of contact por-

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tions being aligned centrally on said base in a direction generally at right angles to said transversely extending recesses, a plurality of power supply bus bars each having a surface extending in contact with one of said supporting surfaces at the back of each of said bases, said bases being disposed in side-by-side relation with said supporting surfaces thereof in alignment and said bus bars bridging and interconnecting said bases, said connecting straps each including a portion overlying a shoulder portion of said base in one of said recesses and a portion extending over said aperture in said recess, means electrically and mechanically connecting each of said connecting straps to a respective one of said bus bars through said aperture whereby said connecting straps and said bus bars are rigidly interconnected and said base is held therebetween, said connecting means all being accessible for insertion and removal from said front of each of said bases, common supporting means for all of said bases and said bus bars, a plurality of electric circuit breakers each having at least one plug-in type electric connector adjacent one end thereof, said circuit breakers being supported in pairs with the circuit breakers of each pair extending in end-to-end substantially abutting relation on one of said bases and with the said plug-in connectors thereof in engagement with said contact portions of a predetermined one of said connecting straps, and means engaging a front portion of said circuit breakers and retaining said circuit breakers on said insulating bases respectively in connected engagement with said contact portions.

2. A multiphase electric panelboard as set forth in

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claim 1 wherein said panelboard also includes means adjacent the outer edges of said mounting bases for releasably holding said circuit breakers at the end thereof opposite said one end, and wherein said means engaging said circuit breakers comprises means engaging the front of each of said circuit breakers between the said ends thereof.

3. A multiphase electric panelboard as set forth in claim 1 wherein said means engaging said circuit breakers comprises a pair of headed bolts each having a head portion overlying a front portion of one of said circuit breakers and an end portion threadedly engaged in a portion of said common supporting means, to retain said bases and said breakers on said common support.

References Cited in the file of this patent

UNITED STATES PATENTS

977,123	Olley	Nov. 29, 1910
1,452,752	Olley	Apr. 24, 1923
1,715,689	Wurdack	June 4, 1929
1,815,038	Adam	July 21, 1931
1,929,925	Kuhn	Oct. 10, 1933
2,007,174	Benjamin	July 9, 1935
2,509,701	Smith	May 30, 1950
2,647,225	Cole	July 28, 1953
2,707,761	Page	May 3, 1955
2,737,613	Morris	Mar. 6, 1956

OTHER REFERENCES

- 30 "NLTO Panelboards," a bulletin, TEB-14, by the Trumbull Electric Company, April 23, 1951.