April 4, 1967 H. I. STANBACK 3,312,874

ELECTRICAL PANELBOARD HAVING PARTICULAR NEUTRAL WIRE CONNECTING MEANS

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Fig. 1.

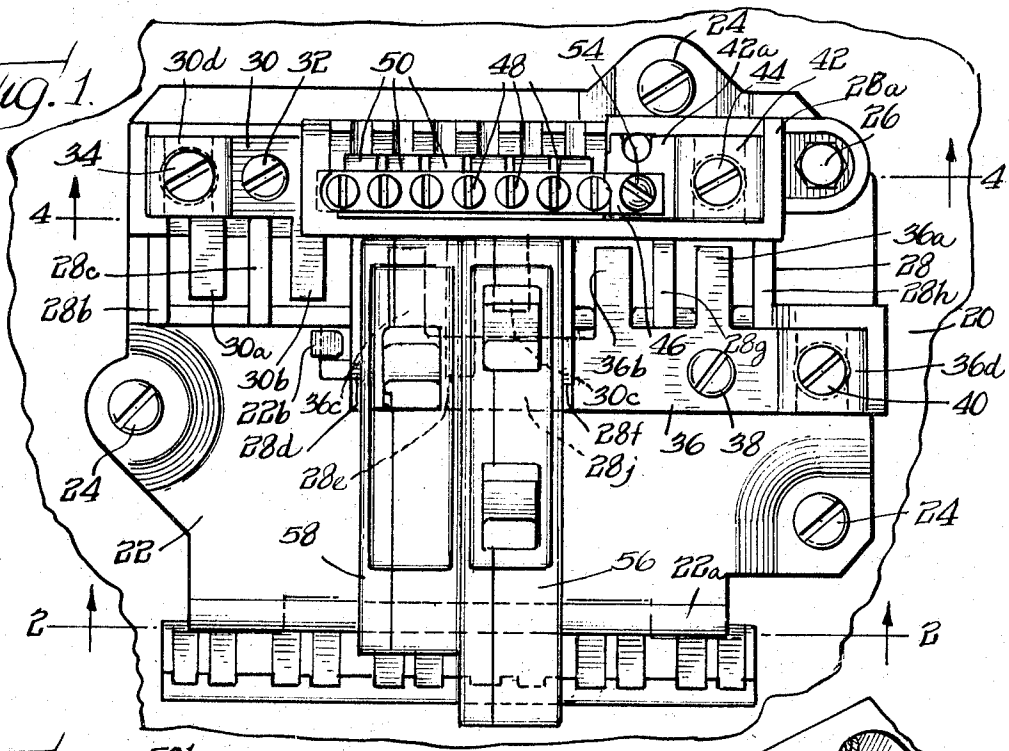


Fig. 11.

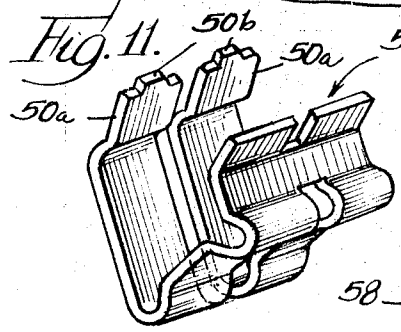


Fig. 12.

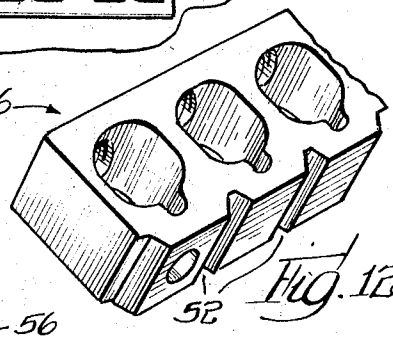
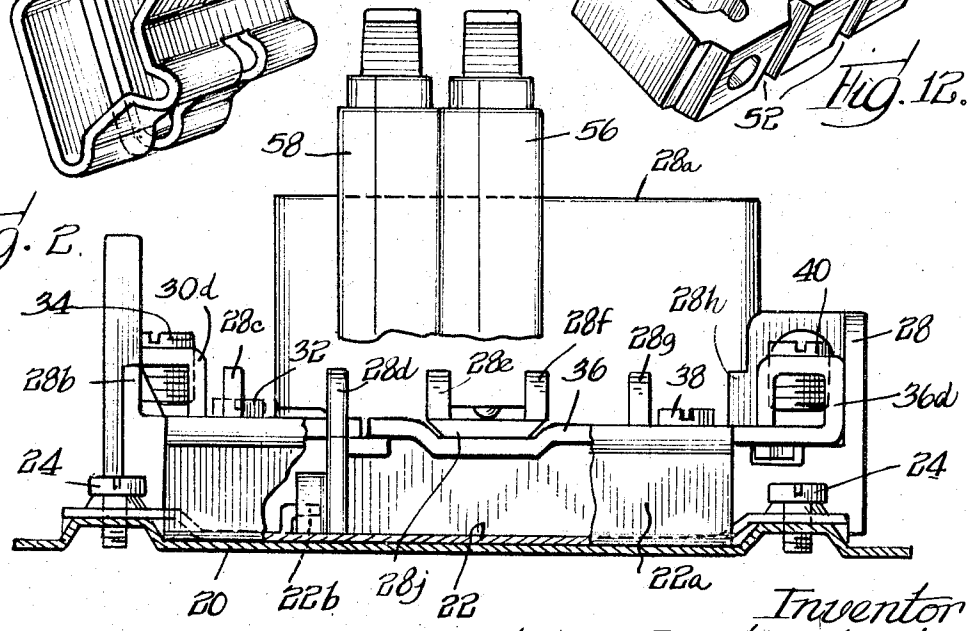


Fig. 2.



Inventor
Harris I. Stanback
By: Paul J. Rose Atty.

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Fig. 3.

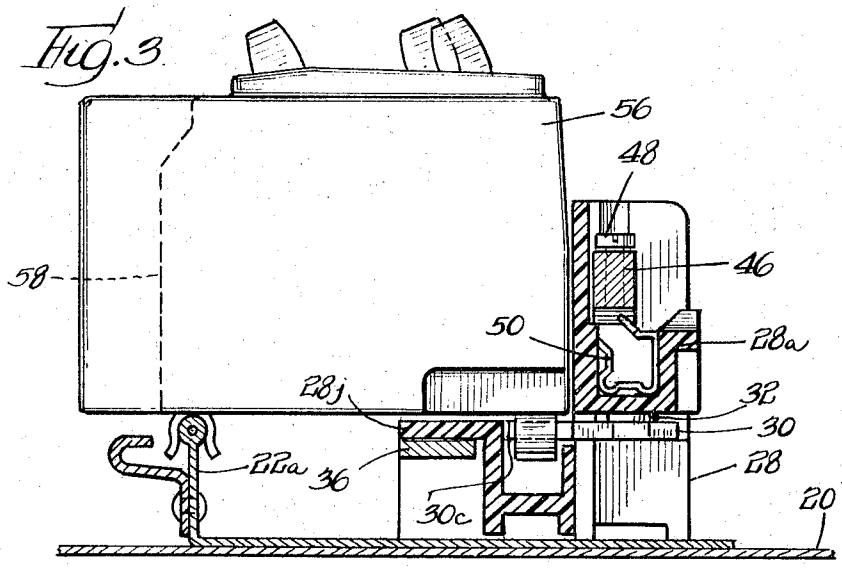


Fig. 4.

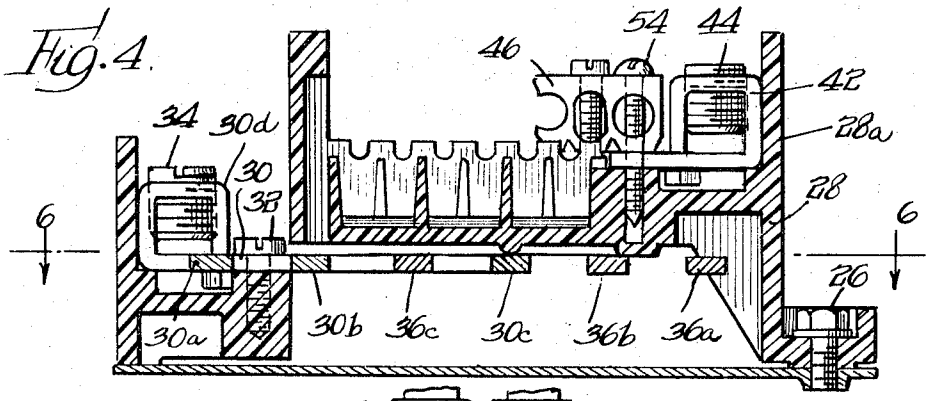
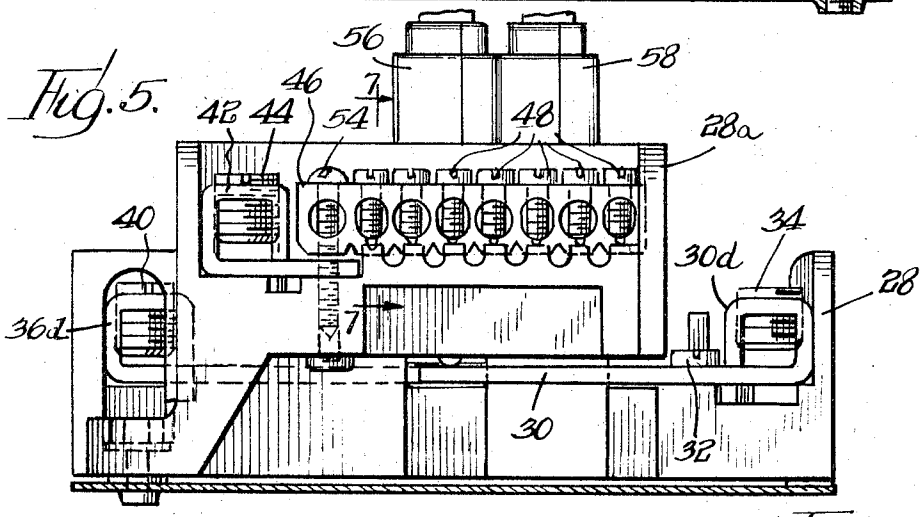


Fig. 5.



Inventor
Harris I. Stanback
By: Paul J. Rose Atty.

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Fig. 6.

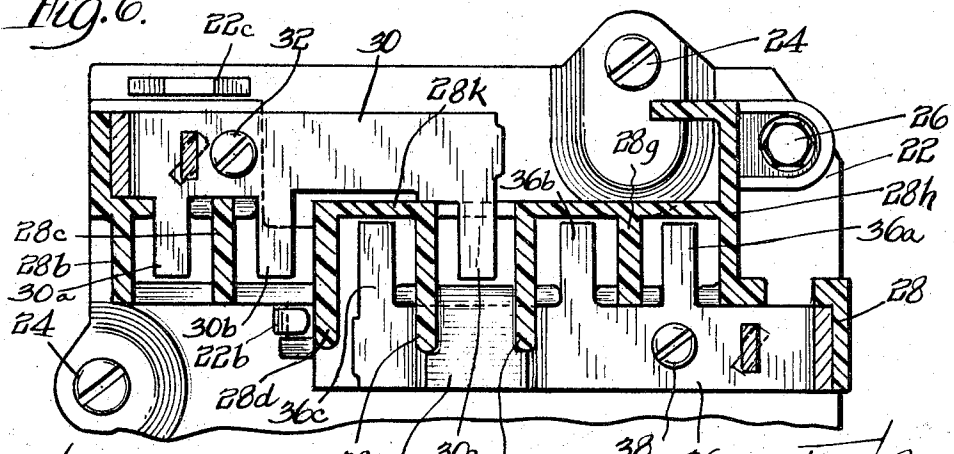


Fig. 7.

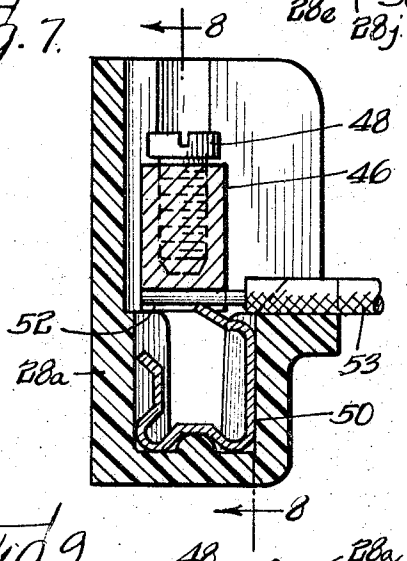


Fig. 8.

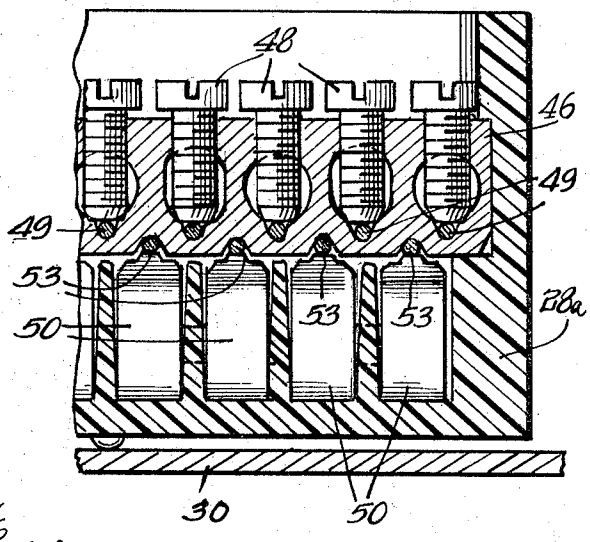


Fig. 9.

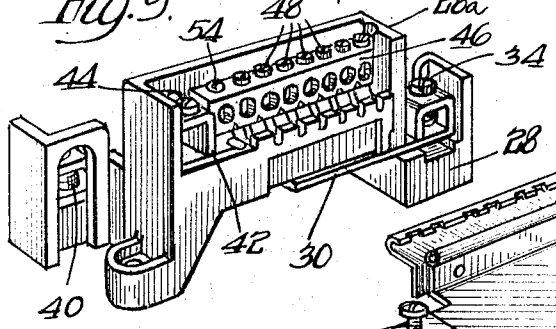
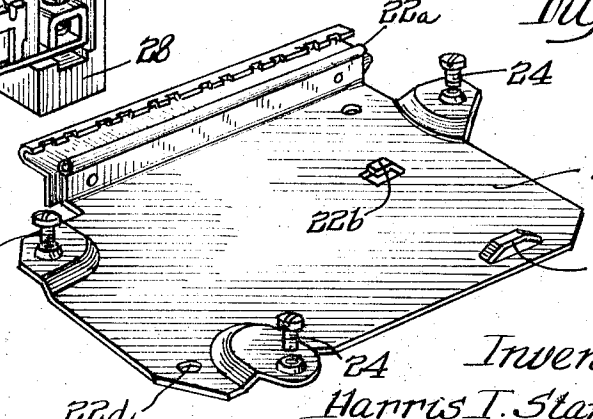


Fig. 10.



Inventor
Harris I. Stanback
By Paul J. Rose Atty.

United States Patent Office

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ELECTRICAL PANELBOARD HAVING PARTICULAR NEUTRAL WIRE CONNECTING MEANS

Harris I. Stanback, Lexington, Ky., assignor to Square D Company, Park Ridge, Ill., a corporation of Michigan

Filed Oct. 11, 1965, Ser. No. 494,854
5 Claims. (Cl. 317—119)

This invention relates generally to electrical panelboards or load centers, and more particularly to an improved insulating base and neutral wire connecting means.

An object of the invention is to provide an improved neutral wire connecting means and insulating base for an electrical panelboard.

In the drawings, FIG. 1 is a fragmentary view of an electrical panelboard constructed in accordance with the invention, the front cover being removed and only a fragmentary portion of the back wall of the box being shown;

FIG. 2 is a sectional view taken generally along the line 2—2 of FIG. 1;

FIG. 3 is a sectional view of the panelboard of FIG. 1 taken generally along the line 3—3 of FIG. 2;

FIG. 4 is a sectional view taken generally along the line 4—4 of FIG. 1, certain parts being omitted;

FIG. 5 is a top view of the panelboard of FIG. 1, certain parts being omitted;

FIG. 6 is a fragmentary sectional view of the panelboard of FIG. 1 taken generally along line 6—6 of FIG. 4;

FIG. 7 is a fragmentary sectional view taken generally along the line 7—7 of FIG. 5 and showing a wire clamped to the bottom of a neutral bar of the panelboard;

FIG. 8 is a fragmentary sectional view of the panelboard of FIG. 1 taken generally along the line 8—8 of FIG. 7 and showing a plurality of wires, some of which are clamped in the grooves on the bottom of the neutral bar and others of which are clamped in holes extending through the neutral bar;

FIG. 9 is a perspective view of the insulating base, bus bars, and neutral wire connecting means of the panelboard of FIG. 1;

FIG. 10 is a perspective view of a mounting pan of the panelboard of FIG. 1;

FIG. 11 is a perspective view of one of the dual clips of the panelboard of FIG. 1 which cooperates with the neutral bar to form a connector of the push-in type; and

FIG. 12 is a fragmentary perspective view of the neutral bar of the panelboard of FIG. 1.

With reference to the drawings, a back wall portion **20** of a box of an electrical panelboard is fragmentarily shown in FIGS. 1–3. A mounting pan **22** is secured to the wall portion **20** by a plurality of screws **24**. The mounting pan **22** is best shown in FIG. 10 and includes a beaded mounting rail **22***a*, a mounting tongue **22***b*, a stop **22***c*, and a threaded hole **22***d* for the reception of a screw **26** (FIGS. 1, 4 and 6). An insulating base **28**, shown best in FIG. 9, is secured to the mounting pan **22** by the tongue **22***b* and screw **26**, the tongue **22***b* extending over a lug of the base **28** as shown in FIGS. 1 and 2, and the stop **22***c* insuring against relative rotation between the base **28** and pan **22**.

A bus bar **30** (FIGS. 1, 3, 4, 5, and 6) is secured to the base **28** by a screw **32**. The bus bar **30** includes three integral branch bus bars or extensions **30***a*, **30***b*, and **30***c*, and one end of the bus bar **30** is formed into an integral line terminal body portion **30***d* provided with a clamping screw **34** for securing a power supply line to the bus bar **30**. Similarly, a bus bar **36** is secured to the base **28** by a screw **38**. The bus bar **36** includes three integral branch bus bars or extensions **36***a*, **36***b*, and **36***c*, and one end of the bus bar **36** is formed into an integral line terminal body portion **36***d* provided with a clamping screw

40 for securing a power supply line to the bus bar **36**. As best shown in FIG. **6**, the bus bars **30***b* and **30***c* are spaced twice as far apart as the bus bars **30***a* and **30***b*, the bus bars **36***b* and **36***c* are spaced twice as far apart as the bus bars **36***a* and **36***b*, the bus bar **30***c* is interleaved between the bus bars **36***b* and **36***c*, and the bus bar **36***c* is interleaved between the bus bars **30***b* and **30***c*.

The base **28** includes a pocket portion **28***a* which overlies a portion of the bus bar **30** and partially encloses a main neutral wire terminal body **42** provided with a screw **44** for clamping a neutral wire of the power supply system, a neutral wire connector or neutral bar **46** provided with a plurality of screws **48** for respectively clamping the return wires from electrical loads supplied by the panelboard, such as the wires **49** (FIG. 8), and a plurality of suitable resilient clips, such as the dual clip **50** shown in FIG. 11, which are disposed at the bottom of the pocket portion **28***a* and which have pairs of resilient wire-fastening tongues **50***a* cooperating with the neutral bar **46** on the side thereof opposite the clamping screws **48** to form connectors of the push-in type for clamping other return wires from electrical loads supplied by the panelboard, such as the wires **53** (FIGS. 7 and 8), the neutral bar **46** preferably being provided with a plurality of respective grooves **52** (FIG. 12) and the tongues **50***a* preferably being provided with tip portions **50***b* receivable in the grooves **52**. One end portion of the neutral bar **46** is mounted in a slot in the pocket portion **28***a*, as indicated in FIGS. 5 and 8, and the other end portion is secured in place by a screw **54** which is threaded through a tongue portion **42***a* of the terminal body **42** and into a blind hole in the base **28** (FIGS. 4 and 5).

The beaded mounting rail **22***a* (FIG. 3) is adapted to be received in mechanical mounting clips either of cartridge fuse pull-out switches of the type shown in copending application, Ser. No. 423,680, filed Jan. 6, 1965, and assigned to the assignee of the present invention, or of electrical circuit breakers such as a tandem circuit breaker **56** of the type disclosed in U.S. Patent No. 3,134,051 and a single circuit breaker **58** (FIGS. 1, 2, and 5) of the type disclosed in U.S. Patent No. 2,902,560. The branch bus bars **30***a*, **30***b*, **30***c*, **36***a*, **36***b* and **36***c* are adapted to be received in electrical terminal jaws of the circuit breakers, as shown in FIG. 3. The base **28** includes integral barriers **28***b*, **28***c*, **28***d*, **28***e*, **28***f*, **28***g*, and **28***h* (FIGS. 1, 2, and 6) in alternately spaced relationship with the branch bus bars **30***a*, **30***b*, **30***c*, **36***a*, **36***b*, and **36***c*. The barriers **28***e* and **28***f* are connected by a web **28***j* to provide sufficient electrical clearance between the branch bus bar **30***c* and the bus bar **36**, which is offset between the branch bus bars **36***b* and **36***c* as best shown in FIG. 2 to accommodate the web **28***j*. A junction **28***k* (FIG. 6) between the pocket portion **28***a* and the remainder of the base **28** provides electrical clearance between the branch bus bar **36***c* and the bus bar **30**.

While the neutral bar or neutral wire connector **46** is shown as being of the one-piece type, the invention also contemplates the use of suitable resilient clip means such as the clips **50** with neutral wire connectors formed in two or more pieces, as when a conducting strip is assembled with an elongated generally U-shaped member having clamping-screw-receiving holes in the bight portion and wire-receiving holes in the leg portions.

I claim:

1. An electrical panelboard comprising an insulating base, an elongated neutral bar secured with respect to said base, said neutral bar having a plurality of wire-receiving holes extending transversely thereof and spaced longitudinally therealong and a plurality of clamping-screw-receiving holes spaced longitudinally therealong and respectively extending partially therethrough into intersect-

ing relationship with said wire-receiving holes, and resilient clip means in said base cooperating with said neutral bar and thereby forming a connector of the push-in type therewith.

2. An electrical panelboard as claimed in claim 1, including a plurality of said resilient clip means in said base respectively cooperating with said neutral bar and thereby forming a plurality of connectors of the push-in type therewith.

3. An electrical panelboard as claimed in claim 2, wherein said neutral bar is provided with a plurality of grooves extending transversely thereof and spaced longitudinally therealong on a side thereof opposite said clamping-screw-receiving holes, and said resilient clip means cooperate respectively with said grooves and thereby form said connectors of the push-in type.

4. An electrical panelboard as claimed in claim 2, including a pair of main bus bars secured to said base and each having a plurality of spaced branch bus bars, said base having a plurality of barriers formed integrally therewith in alternately spaced relationship with said branch bus bars.

5. An electrical panelboard as claimed in claim 3, wherein said grooves are disposed in alternately spaced relationship with said wire-receiving holes longitudinally of said neutral bar.

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ROBERT K. SCHAEFER, *Primary Examiner.*

H. O. JONES, *Assistant Examiner.*