June 13, 1967 H. I. STANBACK 3,325,693

SYSTEM OF NON-INTERCHANGEABILITY FOR CIRCUIT PROTECTIVE DEVICES ON AN ELECTRICAL PANELBOARD

Filed Oct. 23, 1965

Fig. 1.

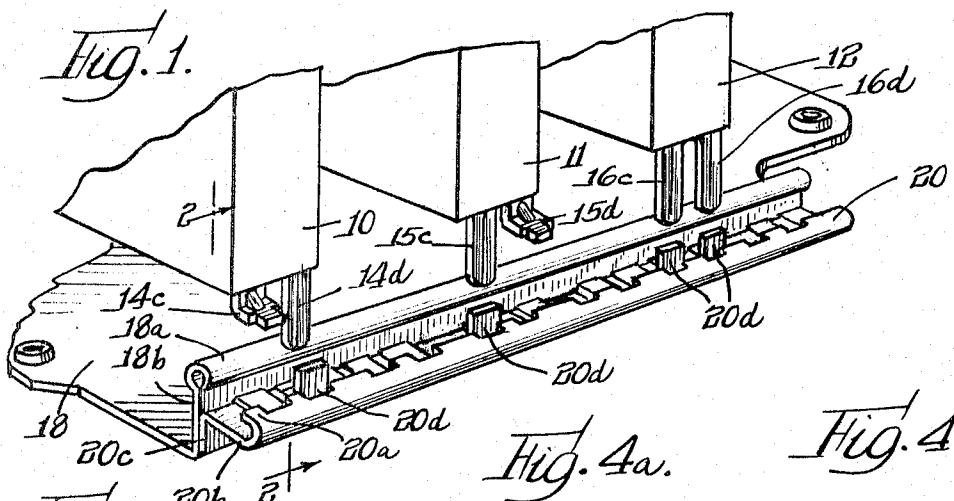



Fig. 2.

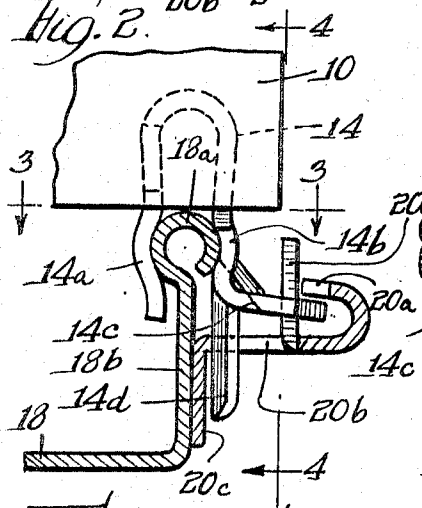



Fig. 4a.

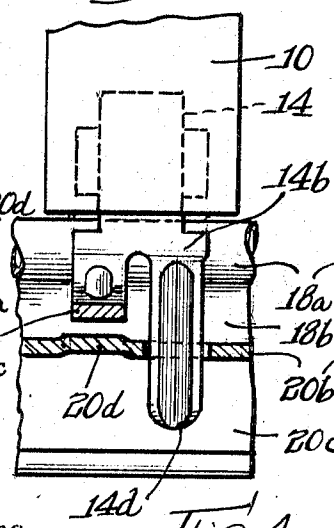



Fig. 4b.

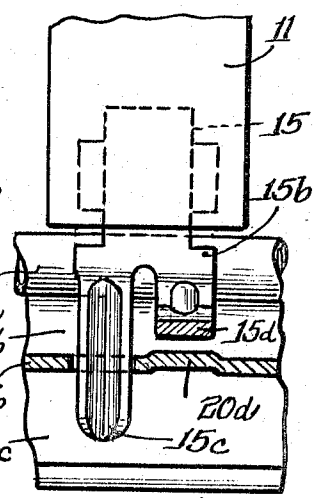



Fig. 3b.

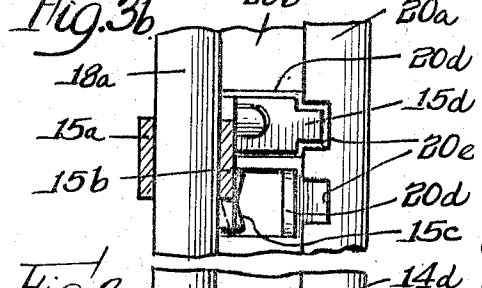



Fig. 3a.

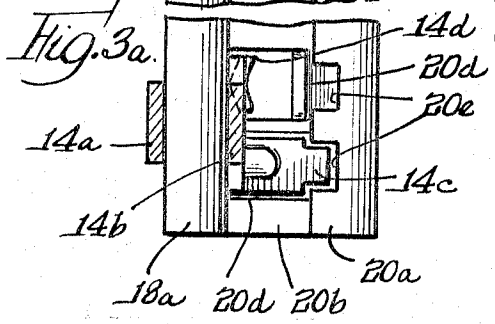



Fig. 4c.

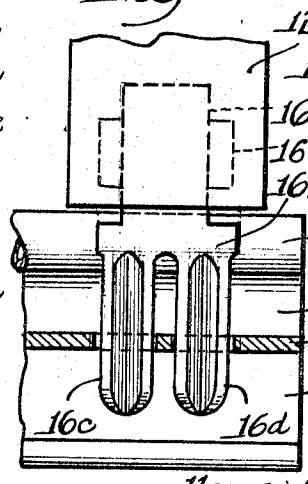
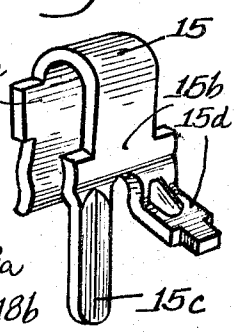



Fig. 5

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United States Patent Office 3,325,693 Patented June 13, 1967



3,325,693

# SYSTEM OF NON-INTERCHANGEABILITY FOR CIRCUIT PROTECTIVE DEVICES ON AN ELECTRICAL PANELBOARD

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Filed Oct. 23, 1965, Ser. No. 503,892
4 Claims. (Cl. 317—119)

This invention relates generally to electrical panelboards or load centers, and to circuit breakers and fusible units of the plug-in type therefor, and more particularly to a system of non-interchangeability of circuit breakers or fusible units of different ratings on the panelboard.

An object of the invention is to provide an improved system of non-interchangeability of circuit breakers or fusible units of different ratings on an electrical panelboard or load center.

In accordance with the invention, three circuit breakers or fusible units of different ratings are provided respectively with three different mounting clips adapted to receive a mounting rail, and a rejection bracket associated with the mounting rail may be modified to present three different configurations, each configuration of the rejection bracket enabling it to receive or cooperate with a different one of the mounting clips and to reject the other two.

In the drawings, FIG. 1 is an exploded perspective view of a mounting pan of an electrical panelboard and portions of the casings of three circuit breakers or fusible units of different ratings, the mounting pan having a beaded mounting rail and a rejection bracket constructed in accordance with the invention and the circuit breakers or fusible units respectively having different mounting clips constructed in accordance with the invention;

FIG. 2 is a sectional view of the mounting pan taken generally along line 2—2 of FIG. 1 and showing the mounting clip of the left-hand circuit breaker or fusible unit of FIG. 1 in place on the mounting rail, it being assumed that the center and right-hand circuit breakers or fusible units of FIG. 1 are also in place on the panelboard and directly aligned with and behind the circuit breaker or fusible unit shown;

FIG. 3*a* is a fragmentary sectional view taken generally along line 3—3 of FIG. 2 and showing the mounting clip of the left-hand circuit breaker or fusible unit of FIG. 1;

FIG. 3*b* is a fragmentary sectional view taken generally along line 3—3 of FIG. 2 and showing the mounting clip of the center circuit breaker or fusible unit of FIG. 1;

FIG. 4*a* is a fragmentary sectional view taken generally along line 4—4 of FIG. 2 and showing the left-hand circuit breaker or fusible unit of FIG. 1;

FIG. 4*b* is a fragmentary sectional view taken generally along line 4—4 of FIG. 2 and showing the center circuit breaker or fusible unit of FIG. 1;

FIG. 4*c* is a fragmentary sectional view taken generally along line 4—4 of FIG. 2 and showing the right-hand circuit breaker or fusible unit of FIG. 1; and

FIG. 5 is a perspective view of the mounting clip of the center circuit breaker or fusible unit of FIG. 1 before it is assembled in the casing thereof.

This invention is an improvement of the system of non-interchangeability disclosed in U.S. Patent No. 3,065,386. FIG. 1 shows portions of the casings of three circuit breakers or fusible units **10**, **11**, and **12** having different ratings and different mounting clips. As circuit breakers, they may be of the types shown in U.S. Patents Nos. 2,902,560, 3,134,051, and 3,061,697. As fusible units, they may be of the types disclosed in copending applications, Ser. No. 398,637, filed Sept. 23, 1963, Ser.



No. 420,570, filed Dec. 23, 1964, and Ser. No. 423,680, filed Jan. 6, 1965, now Pat. No. 3,284,598, issued Nov. 8, 1966, all assigned to the assignee of the present invention. Hereinafter, the circuit breaker units or fusible units **10**, **11**, and **12** will be referred to simply as "units."

The units **10**, **11**, and **12** are provided adjacent one end respectively with resilient mechanical mounting clips **14**, **15**, and **16** adapted to fit over a mounting rail **18***a* formed as a beaded edge portion of a flange **18***b* of a generally flat mounting pan **18** of a mounting pan assembly normally secured to a rear wall portion of a box (not shown) to form an electrical panelboard or load center. Riveted or otherwise secured to the flange **18***b* is a rejection bracket **20** which cooperates with the mounting clips **14**, **15**, and **16** to provide the improved system of non-interchangeability. In addition to the mounting pan **18** and the rejection bracket **20**, the mounting pan assembly includes an insulating base (not shown) having a pair of bus bars (not shown) mounted thereon, as disclosed in copending application, Ser. No. 494,854, filed Oct. 11, 1965, and now Pat. No. 3,312,874, issued April 4, 1967, and the units **10**, **11**, and **12** are provided adjacent the other end respectively with plug-in terminal jaws (not shown) adapted respectively to plug on one of the bus bars.

The bracket **20** is generally L-shaped in cross section, but a free end portion **20***a* of a longer side portion **20***b* is reversely curled over to extend back generally parallel to the remainder of the longer side portion **20***b* on the opposite side thereof from a shorter side portion **20***c* which is secured to the flange **18***b*. The side portion **20***b* is provided with a pair of sheared tongues **20***d* for each space on the electrical panel board or load center in which one of the units **10**, **11**, or **12** may be mounted. The sheared tongues **20***d* are adapted to be bent outwardly so as to extend away from the side portion **20***b* oppositely to the side portion **20***c*, a tool such as described in U.S. Pat. No. 3,115,053 and available only to authorized persons being required to so modify the rejection bracket **20** when the mounting pan **18** is in a box of an electrical panelboard. The reversely curled free end portion **20***a* prevents the tongues **20***d* from being bent beyond a predetermined angle, while an upper face of the side portion **20***c* prevents them from being bent in the other direction, as explained in the aforementioned U.S. Pat. No. 3,065,386.

The mounting clips **14**, **15**, and **16** respectively include inner jaw portions **14***a*, **15***a* and **16***a* and outer jaw portions **14***b*, **15***b*, and **16***b* between which the mounting rail **18***a* is received when the units **10**, **11**, **12** are mounted. Further, the outer jaw portions **14***b*, **15***b*, and **16***b* are provided respectively with pairs of prong-like extensions **14***c* and **14***d*, **15***c* and **15***d*, and **16***c* and **16***d*, the extensions **14***d*, **15***c*, **16***c*, and **16***d* being substantially identical to each other, generally straight and generally parallel to the flange **18***b* when the units **10**, **11**, and **12** are mounted, and the extensions **14***c* and **15***d* being substantially identical to each other and bent outwardly to extend generally perpendicularly to the flange **18***b* when the units **10**, **11**, and **12** are mounted.

As best shown in FIGS. 3*a* and 3*b*, the portion **20***a* of the rejection bracket **20** is provided with a plurality of notches **20***e* to provide clearance for the free end portions of extensions such as extensions **14***c* and **15***d*, the notches **20***e* being spaced longitudinally of the rejection bracket **20**. The notches **20***e* are made narrower than the tongues **20***d* to insure that the portion **20***a* of the rejection bracket **20** will stop the tongues **20***d* in proper position as they are bent away from the portion **20***b*, and opposite edge portions of the free end portions of the extensions **14***c* and **15***d* are cut away as shown for easy reception within the notches **20***e*.

The unit **12** has the highest current rating. For example, the unit **12** might be rated at 100 amperes. One of the units **10** and **11** has an intermediate current rating, and the other has the lowest current rating. For example, the unit **10** might be rated at 30 amperes and the unit **11** at 60 amperes, or vice-versa. The non-interchangeability system of this invention insures that when an authorized person has first modified the rejection bracket **20** so that it will receive a unit **10** in a particular space on the electrical panelboard or load center, and then later modifies it so that it will receive a unit **11** in that space, or vice-versa, an unauthorized person will not be able to readily substitute a higher rated unit **12** in that space. Thus, if in a particular space one tongue **20***d* of the particular pair has been bent so as to accommodate an extension **14***d*, as in FIGS. 1 and 3*a*, so that a unit **10** may be mounted in that space, and later the other tongue **20***d* of the particular pair is bent so as to accommodate an extension **15***c* of a unit **11**, were it not for the ingenious arrangement of this invention, an unauthorized person could mount a higher rated unit **12** in that space, as in FIGS. 1 and 4*c* where both tongues **20***d* of a particular pair are bent to accommodate the two straight prongs **16***c* and **16***d* of a unit **12**. However, in accordance with this invention, if in a particular space the rejection bracket **20** has been modified by the bending of one tongue **20***d* of the particular pair to permit mounting of a unit **10**, and it is later decided by an authorized person that a unit **11** should be mounted in that space, not only must the other tongue **20***d* of the particular pair be bent outwardly to accommodate the extension **15***c*, but the first tongue **20***d* must be bent back to its original position so as not to interfere with the outwardly bent extension **15***d*, and having been bent back, it would then interfere with the straight prong **16***d* of a unit **12** to prevent mounting thereof by an unauthorized person. In short, because of the outwardly bent extensions **14***c* and **15***d*, the mounting of either a unit **10** or a unit **11** in a particular space requires that at least one of the tongues **20***d* of the particular pair be in its original unbent position so that a unit **12** cannot be accommodated without further modification of the rejection bracket **20** by an authorized person having the proper tool.

I claim:

**1.** In an electrical panelboard having a mounting space in which a circuit protective unit may be mounted, a system of non-interchangeability for three circuit protective units respectively of relatively high, low, and intermediate current ratings, said system comprising three mounting clips of different configurations secured respectively to said units and adapted to mount said units selectively on said panelboard in said mounting space, and rejection means on said panelboard disposed in said mounting space, said rejection means being modifiable to present three different configurations in each of which said rejection means is cooperable with only one of said mounting clips to permit mounting of the respective unit on said panelboard in said mounting space and interferable with the other two of said mounting clips to prevent mounting of either of the other two units on said panelboard in said mounting space.



**2.** A system of non-interchangeability as claimed in claim **1**, wherein said panelboard includes a generally flat mounting pan having a mounting rail receivable in said mounting clips, said rejection means comprises a rejection bracket disposed adjacent said mounting rail and having a pair of sheared tongues, each of said tongues being bendable to dispose it either in a position in which it is generally parallel to said mounting pan or in a position in which it is generally perpendicular to said mounting pan, and each of said mounting clips includes a pair of extensions, both extensions of the mounting clip of a first of said units being generally perpendicular to said mounting pan when said first unit is mounted on said panelboard in said mounting space, one extension of the mounting clip of each of a second and a third of said units being generally perpendicular to said mounting pan and the other extension of the mounting clip of each of said second and third units being generally parallel to said mounting pan when said second and third units are selectively mounted on said panelboard in said mounting space and corresponding extensions of the mounting clips of said second and third units being reversed from each other with respect to being perpendicular or parallel to said mounting pan.

**3.** A system of non-interchangeability as claimed in claim **2**, wherein said first unit is the one with the highest current rating.

**4.** A system of non-interchangeability as claimed in claim **1**, wherein each of said mounting clips includes a pair of extensions either of a first type which is disposed in a first position with respect to the panelboard when the respective unit is mounted on the panelboard in said mounting space or of a second type which is disposed in a second position with respect to the panelboard when the respective unit is mounted on the panelboard in said mounting space, and said rejection means includes a pair of movable portions respectively disposable either in a first position or in a second position with respect to said panelboard, each of said movable portions when in the first of its said positions accommodating an extension of said first type and rejecting an extension of said second type and when in the second of its said positions accommodating an extension of said second type and rejecting an extension of said first type.


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