A filler for an unused panelboard location is a one-piece unit constructed of relatively stiff resilient plastic material. Tab-like formations at opposite ends of the unit define recesses that receive opposed edges of the face-plate opening. An integrally formed deflected arm transmits forces maintaining the filler in its operative position.
PLASTIC FILLER WITH INTEGRAL BIAS MEANS

Electrical distribution panels utilizing circuit breakers are provided with face plates that mechanically retain the circuit breakers mounted to the panelboard and also bar access to electrified portions of the circuit breakers and panels. One or more openings are provided in the face plates for access to the circuit breaker operating handle. For many installations all of the available circuit positions of the panel may not be utilized. Thus, at those positions not being utilized, the spaces provided in the face plate openings for circuit breakers at the unused locations are closed off by so-called fillers.

Typically, each filler consists of a plate-like member provided with retainer means to secure the filler to the face plate. In accordance with the prior art, the filler plate is usually constructed of insulating material and the retaining means is a metal spring secured to the plate and positioned at the rear thereof.

The fillers are often giveaway items so that their production costs must be minimized. In addition, the fillers must be readily installable, must not accidentally dislodge, and must be strong.

In accordance with the instant invention, a filler is constructed of a single piece of molded resilient plastic material. The filler includes a rectangular plate-like main portion having stiffening lips along the long edges thereof. Tab-like formations adjacent the short edges of the main sections form open-ended recesses adapted to receive portions of the panelboard face plate bounding the circuit breaker opening to be closed by the filler. A self-biased spring arm extends from one of the lips stopping just short of the other lip and positioned so as to engage the edge of the face plate opening.

The recesses at the end of the main member having the spring arm are relatively deep. When the face plate edge is positioned deeply into these recesses, the spring arm is deflected for loading thereof so that the filler is biased away from this edge portion of the face plate opening and the opposite edge portion thereof enters the relatively narrow recesses at the other end of the main section so that both ends of the filler are supported by the face plate.

Accordingly, a primary object of the instant invention is to provide a novel construction for a filler used to close a portion of a panelboard face plate circuit breaker opening.

Another object is to provide a filler of this type that is constructed solely of insulating material.

Still another object is to provide a filler of this type in which all portions thereof are integrally formed of plastic material.

These objects as well as other objects of this invention will become readily apparent after reading the following description of the accompanying drawings in which:

FIG. 1 is a front elevation of a panelboard face plate having its circuit breaker opening occupied by two circuit breakers and by a filler constructed in accordance with teachings of the instant invention.

FIGS. 2 and 3 are cross-sections taken through the respective lines 2—2 and 3—3 of FIG. 1, looking in the directions of the respective arrows 2—2 and 3—3.

FIGS. 4—6 are rear elevations looking in the direction of arrows 6—6 of FIG. 2 and illustrating the steps involved in mounting the filler to the face plate. FIG. 4 shows initial positioning of the filler with respect to the face plate opening, in FIG. 5 the retaining portions at one end of the filler are engaged with the face plate, and in FIG. 6 the filler is fully mounted as in FIG. 2.

FIG. 7 is an end view looking in the direction of arrows 7—7 of FIG. 4.

Now referring to the figures. Trim or face plate 11 of an electrical distribution panel is removably secured in its operative position of FIG. 1 by screws 12 located at each corner thereof. Face plate 11 is provided with rectangular aperture 13 through which handle and escutcheon portions of single pole circuit breakers 14, 15 extend. However, the portion of aperture 13 at the right of FIG. 1 is not occupied by either of the circuit breakers 14, 15, but is closed by filler 20 that is constructed in accordance with teachings of the instant invention.

More particularly, filler 20 is a one-piece molded member constructed of relatively stiff resilient insulating material such as polypropylene. Filler 20 includes elongated rectangular plate-like main portion 21 having rearwardly extending lips 22, 23 along substantially the entire lengths of the main portion long edges. Adjacent short edge 24, lips 21, 22 are slotted to form recesses 25, 26 that receive the boundary edge portion 27 of face plate opening 13. Adjacent the other short edge 36 of main section 21, filler 20 is provided with rearwardly extending tabs 28, 29 defining open-ended recesses 32, 33, respectively, that receive the boundary edge portion 34 of face plate opening 13 opposite boundary edge portion 27.

Cantilevered arm 40 is positioned at the rear of main section 21 and extends diagonally from lip 22 toward edge 24, stopping just short of lip 23 in the region adjacent recess 26. Left ends 41 of arm 40 (as seen in FIGS. 4 and 7) are fixedly secured to both lip 22 and main section 21 by being formed integrally therewith, and the entire portion of arm 40 to the right of fixed portion 41 is free to deflect.

Filler 20 is mounted to face plate 11 by initially placing filler edge 24 against the forward surface of face plate 11, with lips 22, 23 projecting into openings 13 at boundary edge 27 thereof (FIG. 4). Filler 20 is then moved in the direction indicated by arrow A in FIG. 5, so that edge portion 27 is positioned at the closed ends of relatively deep recesses 25, 26. During this movement of filler 20 in the direction of arrow A, arm 40 is deflected in the opposite direction by engagement thereof with edge portion 27. Because filler 20 is constructed of relatively rigid resilient plastic material, this deflection of arm 40 creates a biasing force which urges filler 20 in the direction indicated by arrow B in FIG. 6. When edge 27 reaches the closed ends of recesses 25, 26, filler edge 26 is moved rearward to engage the forward surface of face plate 11, and at this time tabs 28, 29 are entirely within aperture 13. Thereafter the biasing force reacting between deflected arm 40 and aperture boundary edge 27 moves filler 20 in the direction indicated by arrow B until boundary edge portion 34 of aperture 13 reaches the closed ends of relatively shallow recesses 32, 33. Since recesses 25, 26 are much deeper than recesses 32, 33, in the fully mounted position of FIG. 6, boundary edge portion 27 is entered a substantial portion of the way into recesses 25, 26.

Although there have been described preferred embodiments of this novel invention, many variations and modifications will now become apparent to those
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3 skilled in the art. Therefore, this invention is to be limited not by the specific disclosure herein, but only by the appending claims.

The embodiments of the invention in which an exclusive privilege or property is claimed are defined as follows:

1. A filler for an opening in a trim plate, said filler including an elongated rectangular plate-like portion having first and second relatively short edges at opposite ends of said portion, first retaining formation means at said first edge defining a relatively shallow plate receiving first recess means at one of said ends and having an opening facing said first edge, second retaining formation means at said second edge defining a relatively deep plate receiving second recess means at the other of said ends and having an opening facing said second edge, an element mounted to said portion and positioned to engage a trim plate edge entered into said second recess means, biasing means acting on said element to create a reaction force which urges said filler away from a trim plate edge entered into said second recess means whereby another trim plate edge becomes more deeply positioned in said first recess means.

2. A filler as set forth in claim 1 in which the plate-like portion, the first and second retaining formation means, and the element are integrally formed.

3. A filler as set forth in claim 2 in which the biasing means is formed integrally with the element.

4. A filler as set forth in claim 3 constructed of resilient plastic material.

5. A filler as set forth in claim 1 in which there are depending lips along the relatively long edges of the plate-like portion.

6. A filler as set forth in claim 5 in which the element extends from one of the lips stopping short of the other of the lips.

7. A filler as set forth in claim 6 in which the second retaining formation means is part of said lips at one end thereof.

8. A filler as set forth in claim 7 in which the first retaining formation means is inboard of the lips and the other ends of the lips limit movement of said filler by engaging a trim plate edge entered into the first recess means.

9. A filler as set forth in claim 7 in which the plate-like portion, the first and second retaining formation means, the lips, the biasing means, and the element are integrally formed.

10. A filler as set forth in claim 9 constructed of resilient plastic material.

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