July 1, 1930. H. G. BAXTER 1,768,879

PANEL BOARD

Filed June 8, 1927 3 Sheets-Sheet 1

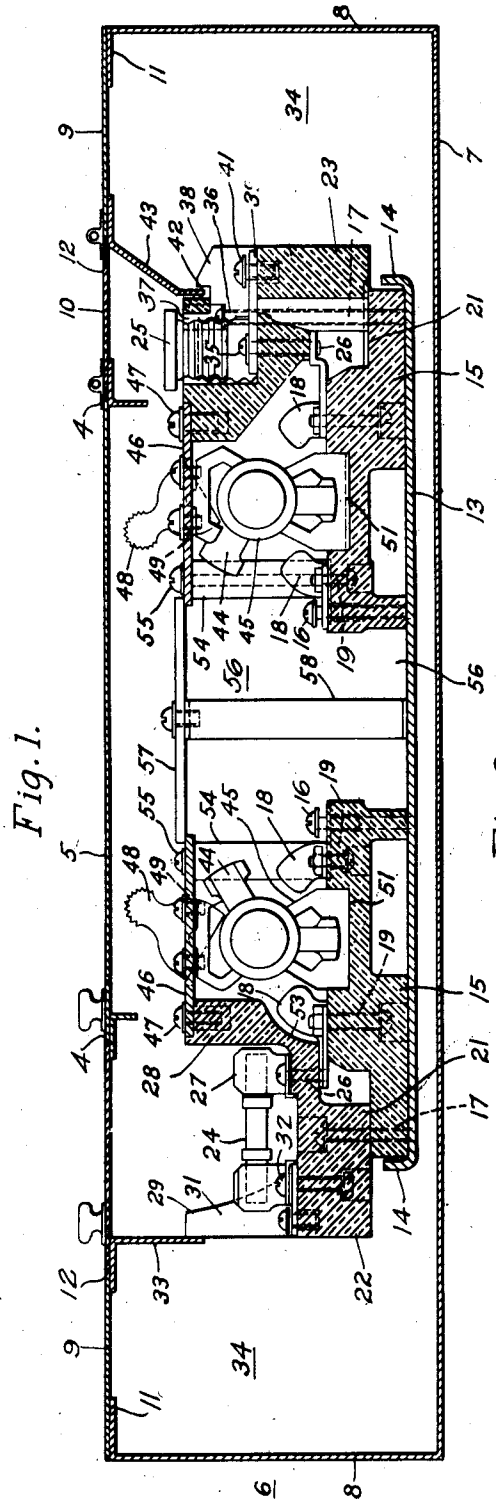


Fig. 1.

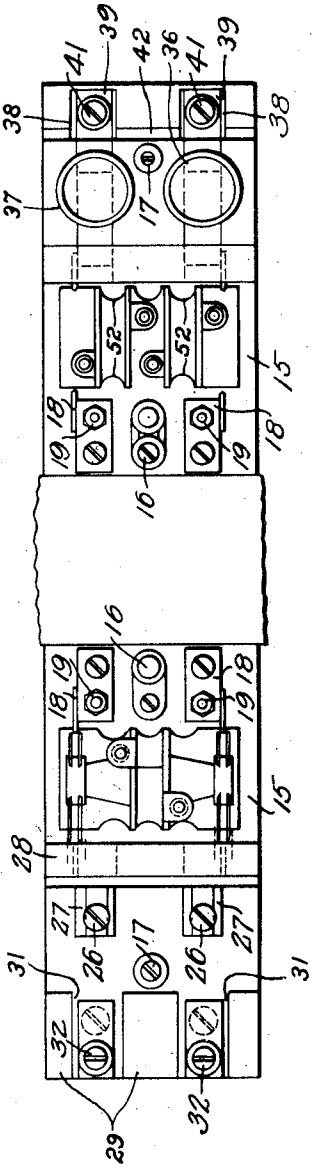


Fig. 2.

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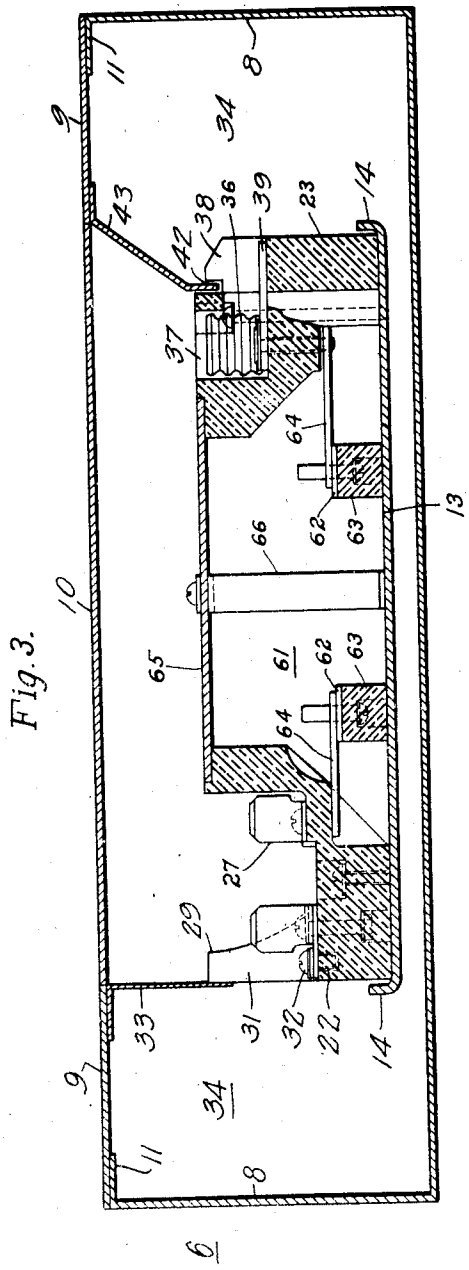


Fig. 3.

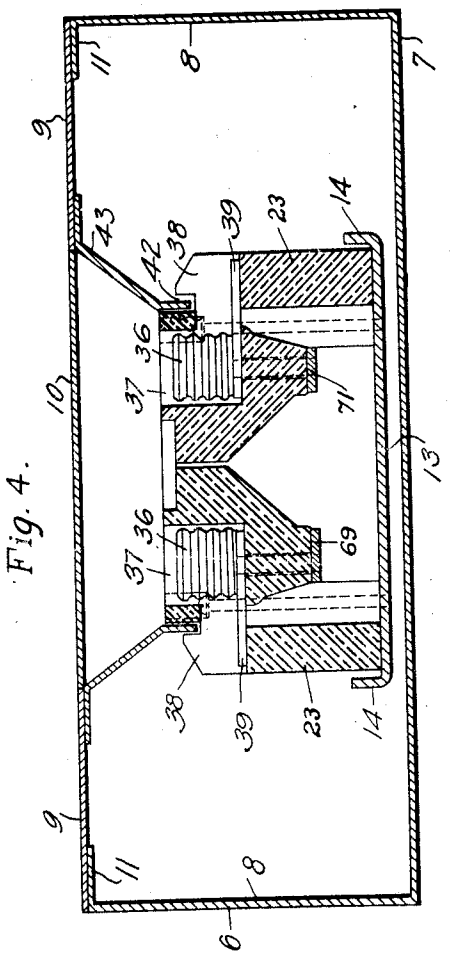


Fig. 4.

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Fig. 5.

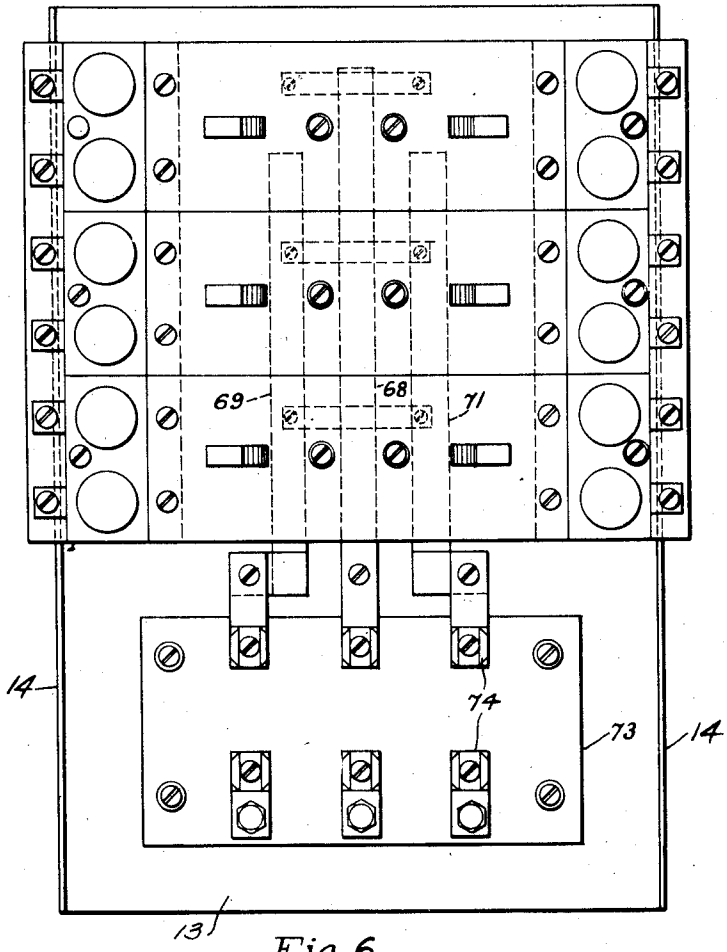
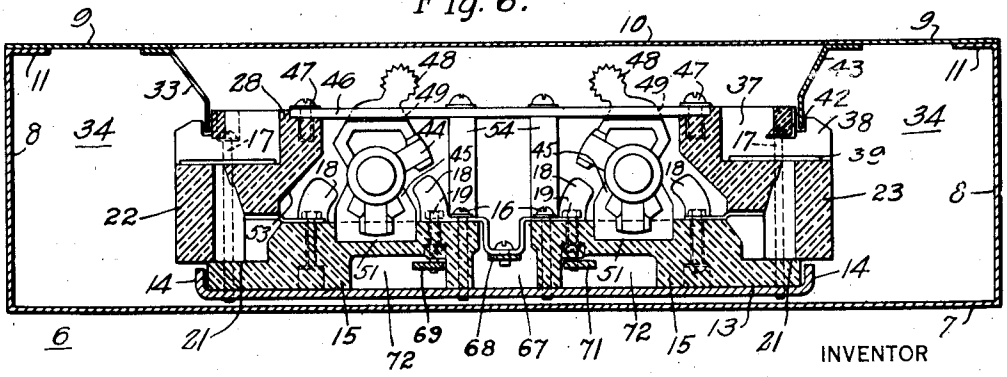


Fig. 6.



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UNITED STATES PATENT OFFICE

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PANEL BOARD

Application filed June 8, 1927. Serial No. 197,390.

My invention relates to distributing panel boards and particularly to panel boards of the type used in electric-current-distributing systems for houses, apartments and the like.

One object of my invention is to provide a distributing panel wherein the insulating switch and fuse bases may be combined to constitute a composite insulating panel unit wherein, by providing an insulating switch base and two forms of insulating fuse bases that may be associated with a switch base, a large variety of panel-board constructions may be built up by utilizing the three insulating bases mentioned.

Another object of my invention is to provide a distributing panel wherein three standard insulating base units may be used to mount switches and fuses of either the screw-plug type or the cartridge type and wherein the desired base combination may be assembled as a unit before being placed in the panel housing.

Another object of my invention is to provide a distributing panel that is compact and attractive in appearance and which is inexpensive to manufacture, by reason of the unit structure thereof.

These and other objects that will be made apparent throughout the further description of my invention are attained by means of the panel apparatus hereinafter described, and illustrated in the accompanying drawings herein.

Figure 1 is a transverse section through a distributing panel embodying features of my invention.

Fig. 2 is a plan view of the insulating bases shown in Fig. 1, and

Fig. 3 is a transverse section of a fuse panel showing the fuse panel blocks disclosed in Fig. 1, used without the switch blocks.

Fig. 4 is a transverse section through a panel unit wherein two similar insulating fuse-panel blocks are combined to constitute a panel unit.

Fig. 5 is a plan view of a panel assembly showing a modified combination of panel blocks, and

Fig. 6 is a transverse section through the panel unit shown in Fig. 5 that is enclosed within a housing.

Referring to the drawings and particularly to Figs. 1 and 2, the distributing panel comprises a metal housing 6 having a bottom wall 7, side walls 8 and a detachable front trim 9 that is secured to front flange 11 of the side and end walls of the housing. The trim is provided with the usual opening 12 that is closed by a hinged door 10 having an opening 4 that is closed by a hinged door 5.

Adjacent to the bottom wall 7 of the housing, a sheet-metal pan 13 is mounted in such manner that it may be adjusted toward the front or rear of the panel housing, the manner of adjustment not being shown because the adjustment device constitutes no part of the present invention.

The pan 13 is provided with marginal flanges 14 which prevent distortion thereof, and the insulating switch blocks 15 are mounted upon the pan and secured thereto by means of screws 16 and 17.

Each insulating switch base 15 is provided with a set of switch contact terminals 18 that are secured to the base by screws 19, and the front face of the base is provided with a mounting seat 21 for receiving a fuse-panel block to be hereinafter described.

As illustrated in Fig. 1, two different types of fuse blocks are shown associated with the switch bases 15 which are identical in construction, the fuse bases 22 and 23 being designed to accommodate cartridge fuse 24 and screw-block fuse 25, respectively. It may be desirable to provide fuse bases for both the screw plug and the cartridge type in the same distributing panel, but, since the bottom portions of the fuse bases 22 and 23 are designed to fit upon the mounting seats 21

of the switch blocks 15, distributing panels may be built up upon the switch bases for accommodating fuses of either the screw plug or the cartridge type.

The fuse base 22 is secured by screws 26 to the switch base 15 before the latter is placed within the housing. The screws 26 serve to conductively connect the terminals 27 with the switch contact terminals 18. The inner end of the fuse base 22 is provided with a vertical wall or barrier 28 that serves as an insulating panel between the fuse receptacles 27 and the switch mechanism to be hereinafter described. The outer end of the fuse base 22 is provided with an extension 29 constituting a vertical wall that is divided into three parts by slots 31 within which the fuse terminals 32 are mounted. The trim 9 adjacent the opening 12 therein is provided with depending flange 33 that extends inwardly and engages the outer face of the wall 29 and precludes access to the wiring gutter 34 of the housing, through the opening 12.

The fuse base 23, for accommodating a screw plug fuse 25, is shown on the right-hand side of Figs. 1 and 2. The base is designed to fit on the mounted seat 21 of the switch block 15 and is attached thereto, before assembly within the housing, by means of screws 35 that serve to secure the shell 36 of the fuse receptacle to the base and to conductively connect the shell to a switch contact 18. The block is provided with circular recesses 37 in which the screw shell 36 is mounted, and notches 38 in the end wall of the base communicate with the recesses 37 and provide a recess for the fuse terminals 39 to which the load circuits are connected by the terminal screws 41. The outer face of the block 23 is provided with a transverse notch 42 for receiving a depending flange 43 that is secured to the trim 9 adjacent to the opening 12. The flange 43 serves to prevent access to the wiring gutter 34 through the opening 12 in the trim.

The switch 44 is of the tumbler type having a frame 45 that is attached to a cover plate 46 by screws 47, the operating handle 48 of the switch extending through a slot 49 in the cover plate 46.

The inner end of the frame 45 extends into a recess 51 in the outer face of the switch block 15, the recess being fluted as at 52, and the bottom wall 53 of the frame being correspondingly scalloped for engaging the flutes 52 and thereby preventing lateral displacement of the frame.

Metal brackets 54 are secured to the outer face of the block 15, and the cover 46 carrying the switch 44 is attached, at its outer end, to the inner wall 28 of the fuse block and, at its inner end, to the bracket 54 by means of screws 55.

The space 56 between the inner ends of the switch blocks 15 is provided to accommodate the bus bars (not shown) which extend longitudinally of the panel housing. Access to the bus bars is prevented by means of a cover plate 57 that rests upon the inner ends of the cover plates 46 and is attached to the housing by means of brackets 58 adjacent to the ends of the housing.

By reason of the panel-unit construction above described, only the switch handles 48 are accessible through the opening in the door 5. In order to gain access to the fuses, the main door 10 must be opened and, in order to gain access to the wiring gutters 34, the trim 9 must be removed.

It will be apparent from the foregoing that, by using combinations of the switch block and the fuse blocks, any desired panel construction of the type, now in commercial use may be assembled. For instance, an assembly shown in Fig. 3 provides a fuse panel wherein cartridge-type fuses are used on the left-hand side of the panel, and screw-plug fuses are used on the right side of the panel. In this assembly, the fuse blocks 22 and 23 are mounted directly upon the pan 13, the blocks being separated to provide a space 61 in which metering bars 62 are mounted upon insulating supports 63.

The fuse terminals 27 and 36 of the cartridge and screw-plug fuse receptacles, respectively, are connected to the bus bars 62 by links 64 that extend inwardly from the under faces of the fuse blocks. The space 61 is closed by means of a cover 65 that extends longitudinally of the panel housing and which is secured in position upon the bracket 66 carried by the pan 13.

In Figs. 5 and 6, I have illustrated a switch and fuse-distributing panel somewhat similar to that illustrated in Figs. 1 and 2, with the exception that the switch bases 15 are disposed in closer relation but spaced a sufficient distance to provide a space 67 in which a neutral bus bar 68 is mounted. The feed bars 69 and 71 are disposed in recesses 72 provided in the inner faces of the blocks 15, it being understood that the recesses 72 of each associated switch block are aligned to permit the feed bus bars 69 and 71 to extend transversely of the blocks and longitudinally of the housing.

In this construction, both rows of fuse panel blocks are of the screw-plug type. In other respects, the assembly is similar to that shown in Figs. 1 and 2.

The assembly shown in Fig. 5 illustrates the manner in which the switch and fuse blocks are mounted upon the pan 13, and the disposition of the bus bars with respect to the panel blocks. An auxiliary insulating base 73 is mounted upon the pan 13 and is provided with fuse receptacles 74 for receiving main fuses of the cartridge type.

In assembling a complete panel unit, the fuse blocks are first assembled upon the in-

sulating switch bases, and the units thus assembled are then mounted upon the pan 13. The pan is then placed in operative position within the housing, and, since the pan is adjustably mounted, the entire panel assembly may be positioned flush with the trim of the housing in a well known manner.

In Fig. 4, a narrow-type fuse panel is illustrated, wherein a pair of fuse blocks 23 are disposed in close relation and assembled upon a pan 13. The feed buses 69 and 71 are attached directly to the under faces of the blocks, as illustrated in the figure. This construction is of particular advantage in that standard parts of the distributing panels above described may be used and, since all of the parts are relatively compact and of small dimensions, they may readily be molded of insulating compound with a minimum of breakage. Where switch and fuse blocks of one piece have been employed, it has been found that the breakage losses are considerable in the molding process. By reducing the size of the molded units, the breakage losses are practically eliminated.

I claim as my invention:

1. A distributing panel comprising a supporting plate, an insulating switch-base unit for a switch mounted upon the plate and having a mounting seat on its outer face, a fuse-base unit for a fuse mounted upon the said seat and an attaching means extending through both units and attached to the said plate for securing the said units in assembled relation upon the plate.

2. A combined switch and fuse unit comprising an insulating base having switch contact terminals thereon, a complementary insulating fuse base having fuse terminals thereon, a bracket on the first said base, a cover plate having a movable switch for engaging the said switch contact members and mounted upon the bracket and the said fuse base, and means connecting a fuse terminal and a contact terminal.

3. A combined switch and fuse unit comprising an insulating base having switch contact terminals thereon, a complementary insulating base for a fuse associated with the first said base to constitute a composite switch and fuse unit, a bracket on the first said base, a cover plate, and a movable switch mounted thereon for engaging the said contact terminals, the said cover plate being detachably mounted upon the said bracket and the said fuse base.

4. A combined switch and fuse unit comprising an insulating base having switch contact terminals thereon, a complementary insulating base for a fuse associated with the first said base to constitute a composite switch and fuse unit, a bracket on the first said base, a cover plate, and a movable switch mounted thereon for engaging the said contact terminals, the said cover plate being detachably mounted upon the bases.

5. A distributing panel comprising a supporting plate, a pair of spaced insulating switch bases, a pair of insulating fuse bases mounted on the outer ends of the switch bases, a switch cover for each switch base secured to the switch base and its associated fuse base, and a cover associated with the said covers for closing the space between them.

In testimony whereof, I have hereunto subscribed my name this 28th day of May, 1927.

HAROLD G. BAXTER.