

Aug. 14, 1934.

C. E. HANNY

1,970,520

UNIVERSAL BASE FOR ELECTRIC SWITCHES, ETC

Filed March 25, 1933

4 Sheets-Sheet 1

Fig. 1.

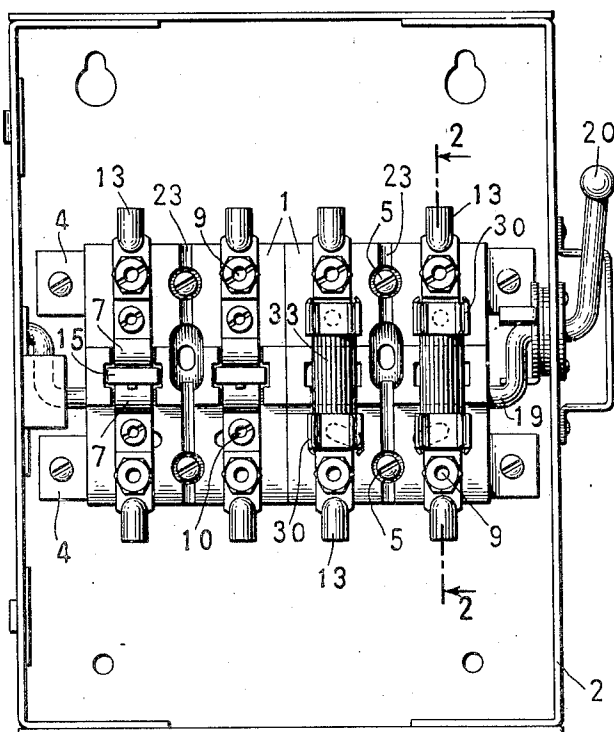


Fig. 2.

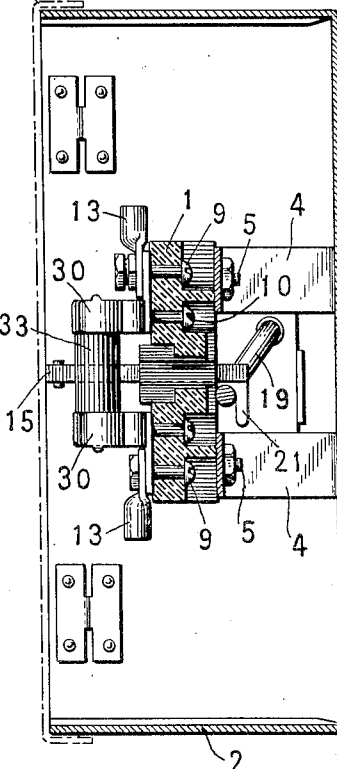


Fig. 3.

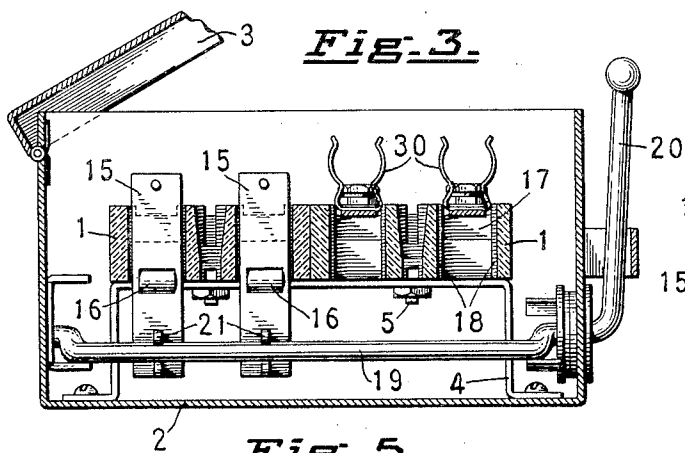


Fig. 4.

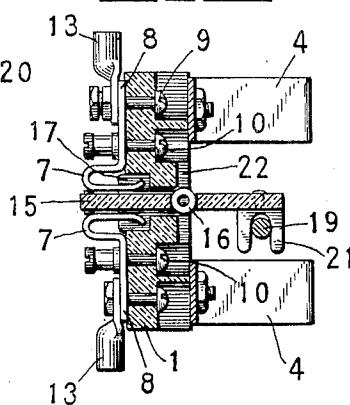
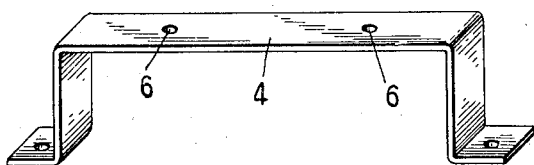


Fig. 5.



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4 Sheets-Sheet 2

Fig. 6.

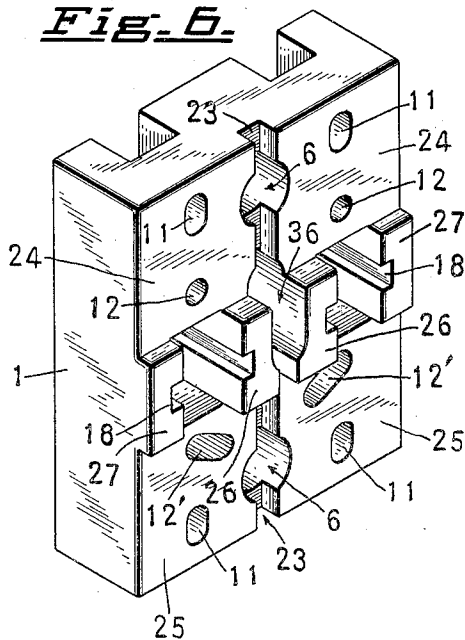


Fig. 7.

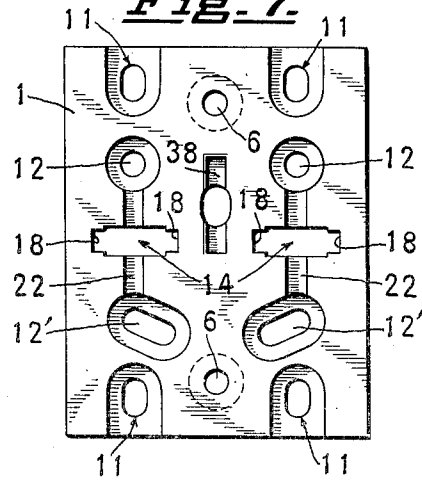


Fig. 10.

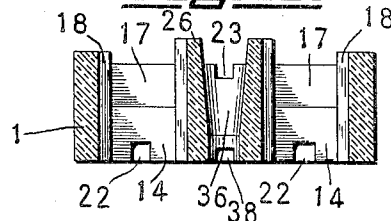


Fig. 8.

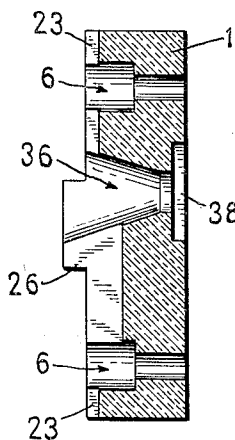


Fig. 9.

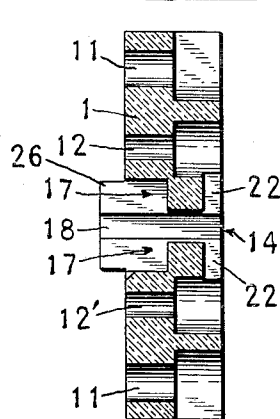
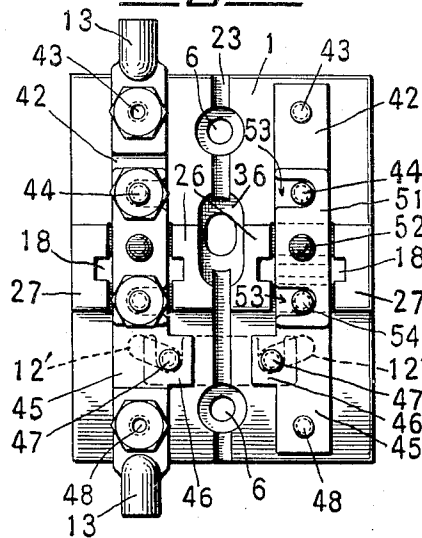


Fig. 11.



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4 Sheets-Sheet 3

Fig. 12.

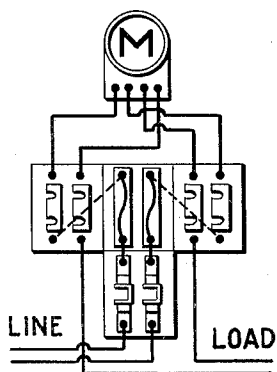


Fig. 13.

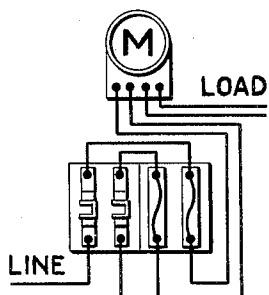


Fig. 14.

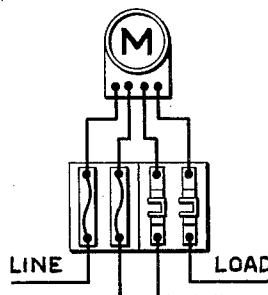


Fig. 15.

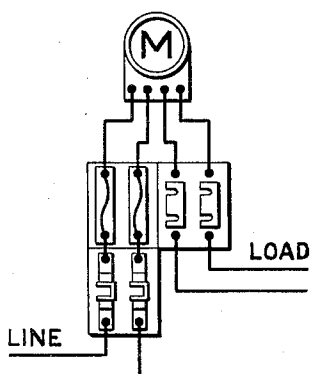


Fig. 16.

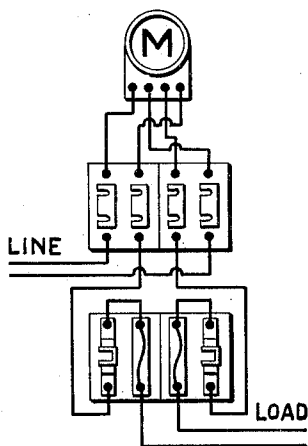


Fig. 17.

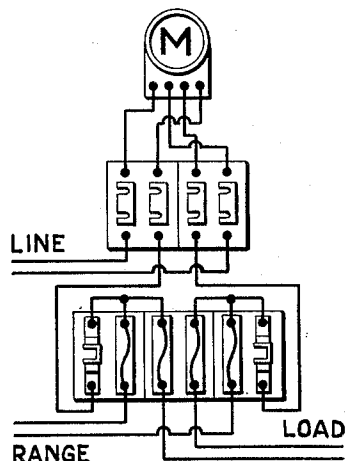


Fig. 20.

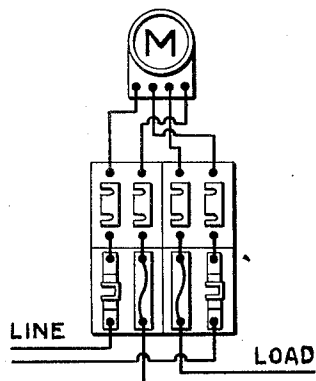


Fig. 19.

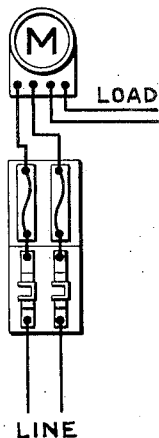
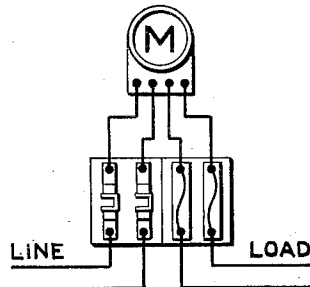


Fig. 18.



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4 Sheets-Sheet 4

Fig. 21.

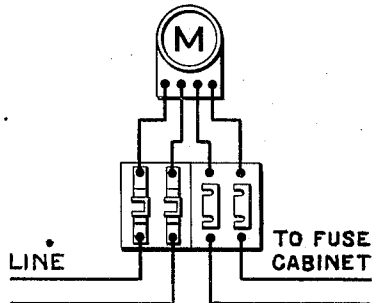


Fig. 22.

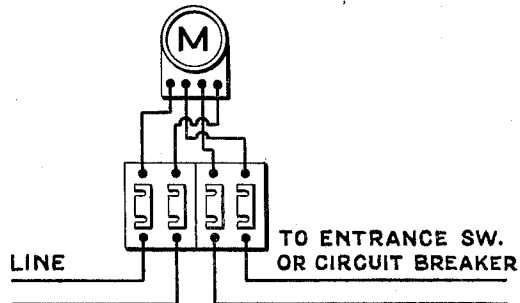


Fig. 23.

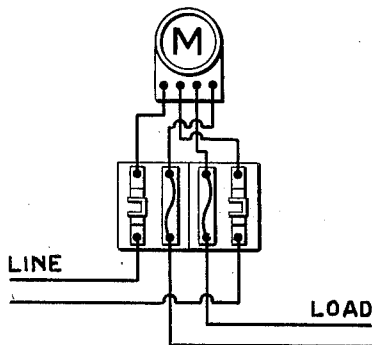


Fig. 24.

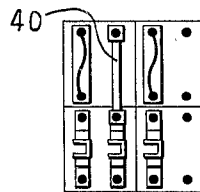


Fig. 25.

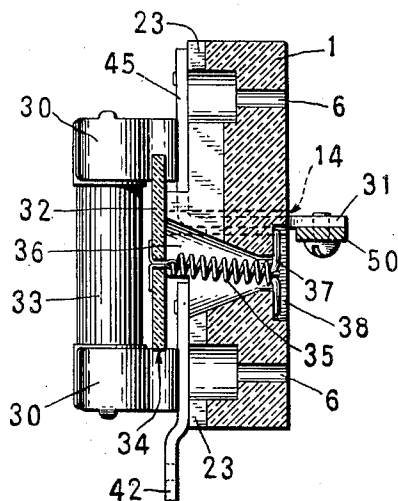
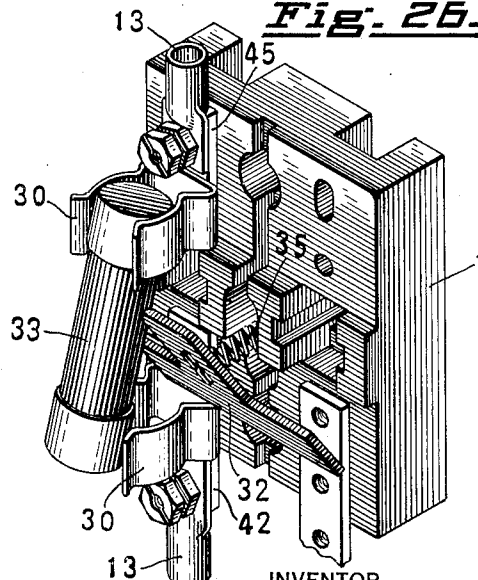


Fig. 26.



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UNITED STATES PATENT OFFICE

1,970,520

UNIVERSAL BASE FOR ELECTRIC SWITCHES, ETC.

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Application March 25, 1933, Serial No. 662,667

4 Claims. (Cl. 200—168)

My invention relates to electrical devices and particularly to the construction of a universal insulating base or block suitable for interchangeably supporting, in unit form, various devices such as electric switch parts, protecting fuses, meter testing terminals, fuse ejecting devices or combinations of these or similar devices.

The main object is to provide a simple and rugged base which may be used for any of the above purposes and which is adapted to be used singly or in combination with other units built up on similar bases. These bases with various mountings are adapted to be combined in many different ways so as to serve as combinations of switches, fuses and meter testing arrangements or other similar devices of unit form.

Fig. 1 is a front view of an enclosed type construction embodying the combination of two units of my invention, namely, a switch unit and a fuse unit.

Fig. 2 is a vertical sectional view on the plane of the line 2—2 of Fig. 1.

Fig. 3 is a horizontal section and view looking upwardly at the parts shown in Fig. 1.

Fig. 4 is a vertical sectional view of one of the switch units involving my invention.

Fig. 5 is a perspective view of a mounting bracket.

Fig. 6 is a perspective view of the insulating base involving my invention.

Fig. 7 is a rear view of the same.

Fig. 8 is a vertical sectional view taken through the center of the base.

Fig. 9 is a vertical view taken through the section which supports the switch and other conducting parts.

Fig. 10 is a horizontal sectional view and through the center of the base.

Fig. 11 is a front view of the base with meter testing parts attached.

Fig. 12 to Fig. 24 inclusive are diagrammatic views illustrating various combinations of units embodying my invention.

Fig. 12 shows what may be considered as a standard switch, meter and fuse assembly with facilities for testing the meter.

Fig. 13 shows what may be regarded as an entrance type combination utilizing the assembly of a switch unit and a fuse unit connected to a meter.

Fig. 14 shows another arrangement of a switch and fuse assembly with a meter.

Fig. 15 shows another combination of a switch, fuse, meter and testing means.

Fig. 16 shows a combination of special switch and fuse units with testing units.

Fig. 17 shows still another combination with switch and fuse units and testing units.

Fig. 18 shows a construction similar to Fig. 14 but with the connections reversed.

Fig. 19 shows another variation of the arrangement of the two units of Fig. 13.

Fig. 20 shows another arrangement of switch, fuses and testing units.

Fig. 21 shows the combination of a switch with meter testing elements on the same base.

Fig. 22 shows a testing block and meter combination.

Fig. 23 shows the combination of two modified switch and fuse units.

Fig. 24 shows a combination of four units arranged for a three pole switch and fuse assembly.

Fig. 25 is a sectional view showing a fuse unit with a fuse in position and a means for ejecting the fuse.

Fig. 26 is a perspective view of a unit base or block showing attached fuse clips and a fuse ejected in the position which it occupies when being operated to remove the fuses.

The insulating base 1 may be formed of suitable molded insulation or porcelain or the like. Usually these constructions are enclosed in a suitable type of receptacle or box 2 having a cover 3. Each base is adapted to be supported in the box preferably by two brackets 4—4 and the bolts or screws 5 are passed through holes 6 in the base.

When the base is to be used for a switch construction the contacts 7—7 having arms 8—8 are secured to the base by screws 9 and 10 which pass through holes 11 and 12 or 12'. The holes 11 are preferably elongated somewhat lengthwise of the base to allow for variations in the length of the parts to be attached and to allow different parts to be mounted in the same holes so as to be spaced apart the required distance. The holes 12' are also preferably elongated but diagonally in order to accommodate other holding devices as will be hereinafter described. Circuit terminal connections 13 may be secured by the screws or bolts 9 in the usual manner.

The base is provided with a passage 14 on each side of its longitudinal center for the operation of the insulating bar 15 which carries a movable switch member 16 adapted to be interposed between the contacts 7—7. The front of the base is provided with recesses 17 above and below

the passage 14 to accommodate the movable spring tips of the contacts 7. The base is also preferably provided with grooves 18 at each side of each passage 14 to guide the movable switch bar 15.

The switch bar is operated in any suitable manner as for instance by means of a crank shaft 19 and a handle 20. The type of operating mechanism, however, is immaterial to my invention. The bar 15 carries a forked member 21 which is engaged by the crank shaft 19 so that motion of the crank shaft is transmitted to the switch bar 15. The back of the base is preferably recessed at 22 to allow for movement of the fork 21 so that the crank shaft 19 may have a maximum throw in the most compact space possible.

The front of the base is preferably provided with a longitudinal channel 23 which extends between the plane surfaces 24—24 and 25—25 on which the conducting parts are mounted so as to increase the actual surface distance between the respective pairs of conducting parts of opposite polarity and still retain the desirable small and compact size. As a further electrical protection between the switch units on each side of the center of the base, I provide outwardly projecting barriers 26—26 and as an additional protection when one base is combined with another base, side by side, I provide similar projections 27—27 at the edges of the base.

When the base is to be employed for supporting a fuse of course the switch unit will be omitted and terminal clips 30—30 will be substituted for the contact members of the switch unit and these fuse terminals will be secured to the base by screws in exactly the same way as described with respect to the switch units. In case it is necessary to provide a connection at the rear of the base, an angle type bar may be used as a support for the fuse clip instead of the terminal plate 42 so that one arm 31 will pass through the opening 14.

A fuse ejecting or releasing device may be provided as set forth in my application Serial No. 622,906 and consists of an insulating plate 32 mounted beneath the fuses 33 in such a way that, by means of a finger piece, it can be tilted about its lower edge at 34 to engage the back of the fuses and pry one end of each of them from their clips. This releasing lever 32 is yieldingly connected to the base by a spring 35 which passes through the opening 36 in the base and is detachably anchored by a pin 37 at the rear in the recess 38.

Obviously one side of the base could be provided with a switch unit and the other side with a fuse unit or one side can be provided with a strap unit 40 as shown in Fig. 24. Such a construction is adapted to control a three wire system in which the strap 40 is of course in the central or neutral line and the usual fuses and switches in the two side lines.

Fig. 11 shows the unit with parts attached for use in meter testing. Terminal plate 42 is secured to the base by screws or bolts 43 and 44 which pass through the openings 11 and 12 respectively. The terminal plate 45 is provided with an extension and is adapted to be secured to the base by bolts or screws 47 and 48. Screw 47 passes through the angularly inclined slot 12' and screw 48 passes through one of the openings 11 in the lower edge of the block.

The terminal plate 45 may have an arm 31 adapted to extend through the passage 14 to

the back of the base where it may be connected by a cross bar 50 to one of the adjacent units. A test strip 51 has a handle 52 and slots 53 open at one side to facilitate connection beneath the heads of screws or of clamping nuts on the screws 44 and 54. To facilitate the side-wise attachment and detachment of the strip 51 the boss or projection 27 is approximately the same height as the thickness of the terminals 42. The short circuiting strip 51 or a similar one is adapted to connect the two terminals on opposite sides of the center line of the base by contacting them with the bolts 47.

It will be noted that the holes, passages and recesses in the base block 1 are arranged in three substantially straight lines parallel with the sides of the block. Fig. 8 shows the central line of holes, etc. in section and Fig. 9 shows a second line of holes, etc. which is positioned substantially mid-way between the center line and one side of the base. The third line of holes is the same as the second line and is positioned at the opposite side of the center line of the base. The first line consists of mounting holes 6, 6 for the base, a groove or channel 23 for increasing the actual surface distance between the metal parts of opposite polarity and a passage 36 in which the spring 35 for the fuse ejector 32 is located.

The holes, recesses, etc. in the second and third lines are so designed and so correlated that they will serve as a mounting means for switches, fuses, meter-testing terminals, etc. as specified and the second and third lines are so correlated that parts mounted therein may be connected by a standard meter-testing link if so desired.

It will be seen from the foregoing that each block may be fitted up with such electrical devices as desired and that the units may be assembled in various combinations. It will be understood of course that the electrical connections with the terminals of the individual units may be effected therein by straps or bus bars at the back or by means of wires in the usual manner. The various openings, platforms or plane surfaces, barriers and grooves are so constructed and arranged as to adapt the block to a large number of uses and to facilitate the readily detachable and variable arrangement and combination of these units in protective boxes as is usual in this art.

I claim:

1. As an article of manufacture a supporting block interchangeably adapted for switches and fuses and including a one piece body of insulation having a flat supporting surface at each corner with a row of four projections arranged across the center of the front, with transverse guide passages for switch plungers between the projections at the outer edges and the next respective inner projections and means in each corner surface for the attachment interchangeably of circuit terminals for switch contacts and fuses.

2. As an article of manufacture a rectangular base for interchangeable use as a switch base or a fuse support singly or in multiple and having a flat supporting surface at each corner and having a passage through the base from front to rear on each side of the vertical center line, said base having portions projecting from the plane of the corners at each side of each passage to form guides for switch members, said base having two screw passages through each of

the corner surfaces for screws for the attachment of circuit terminals and fuse clips respectively.

3. A one-piece base for supporting electrical devices, said base having holes for mounting screws in its approximate longitudinal center line, a pair of elongated holes at each of the opposite sides of said center line, each elongated hole being positioned near one of the respective ends of said base for receiving a terminal mounting screw, a rectangular guide passage for a movable switch member between the holes of each pair of elongated holes, and a pair of terminal mounting holes on each side of the longitudinal center line of said base, each of said terminal mounting holes being positioned between one of the said respective elongated holes and one of the respective guide passages and one

of each pair of said terminal mounting holes being elongated in an angular direction with respect to the longitudinal center line of said base.

4. A one-piece base for supporting electrical devices having upper and lower ends with two holes for mounting screws in its approximate center, and on each side of the center a vertically elongated hole for a terminal attaching screw near each end, a central guide passage for a movable switch member extending through said base between the upper and lower elongated holes, and a second hole for a terminal attaching screw above and below the central guide passage, one of the latter mentioned holes being elongated and inclined diagonally toward the center of the base.

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25	100
30	105
35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145