July 2, 1935. D. J. ALLEN 2,006,622

TERMINAL BOX

Filed Jan. 30, 1933

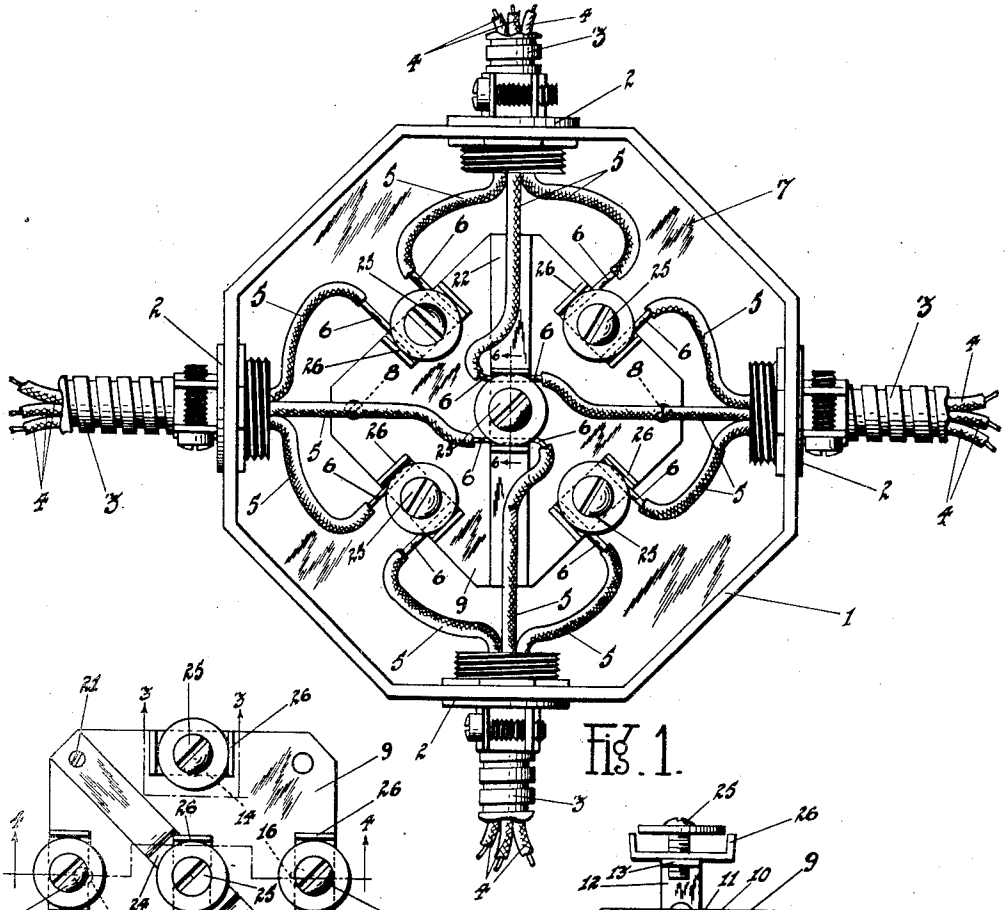


Fig. 1.

Fig. 2.

Fig. 3.

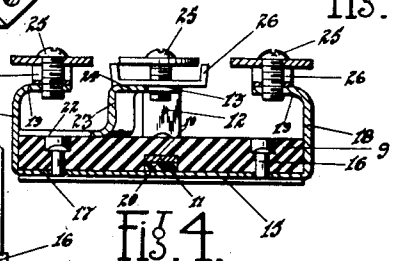


Fig. 4.

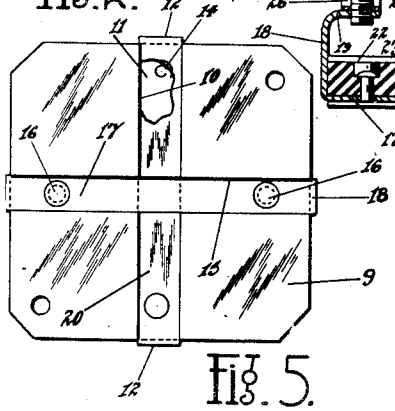


Fig. 5.

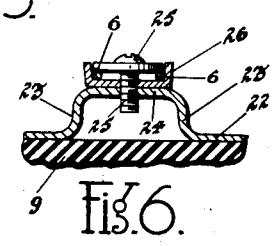


Fig. 6.

INVENTOR.
DENNIS J. ALLEN.
BY Philip S. Hopkins
ATTORNEY.

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TERMINAL BOX

Dennis J. Allen, Binghamton, N. Y., assignor of one-half to Charles Pearis, Binghamton, N. Y.

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6 Claims. (Cl. 247—14)

My invention relates to a terminal box for electric circuits and has for its principal object the provision of a simple, economical and efficient terminal means for the wires of various electrical circuits leading thereto and therefrom.

Heretofore, and with the terminal boxes in common use now, a real problem has existed due to the fact that no suitable or adequate means is provided for connecting the proper wires of each circuit and insulating them from the wires of the other circuits. The common practice has been to splice the appropriate circuit wires together and then tape the splice. With two or more sets of wires terminating in a box, this has been difficult to accomplish because of the restricted space. For the same reason, when such splicing and taping is completed it is difficult to crowd the heavily taped splices into the box to permit the cover to be placed thereon.

Furthermore, the wires of corresponding circuits are usually provided with a fabric covering of the same color and distinguished over the wires of other circuits. When the taping operation, now in practice, is completed, it is often impossible to distinguish the wires of particular circuits.

I have provided a terminal box in which there are provided insulated binding posts for receiving the wires of the various circuits and have provided a means for insulating such binding posts and their conductor supports from each other in such a way that no taping is required, no crowding of the wires is necessary, and the readily distinguishable circuit wires may be easily and quickly attached in proper relation without splicing and with maximum convenience.

One specific object of my invention lies in the provision of a novel arrangement of binding posts and their conductor supports in combination with an insulating block.

Other objects and advantages will be apparent as the description proceeds, reference now being had to the accompanying drawing forming a part of this application and in which like reference numerals indicate like parts.

In the drawing:

Figure 1 is a top plan view of my terminal box with the cover removed, showing the arrangement of wires therein in actual use.

Figure 2 is a top plan view of the insulating block with the binding posts thereon.

Figure 3 is a detail sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a sectional view taken on the line 4—4 of Figure 2.

Figure 5 is a bottom view of the insulating block.

Figure 6 is a detail sectional view taken on the line 6—6 of Figure 1.

With reference now to the details of the figures of the drawing, 1 indicates a terminal box or housing of any desired size or shape, but preferably of the plural sided character in common use today. I have shown an octagonally shaped box but it will be understood that my invention is equally adaptable to other shapes.

Suitably secured within openings thru certain sides of the box 1 are the clamp fittings 2 adapted to receive the ends of cables 3 thru which the wires 4 pass into the terminal box 1. The ends of the wires 4 entering the box from each cable are to be connected together in accordance with the circuits of which they are a part and thus complete such circuits thru the terminal box. The corresponding circuit wires are usually distinguishable by the color of the fabric covering 5 around the wires. This fabric, and any insulation thereunder is removed from the extreme ends of the wires, leaving them bare as at 6 for contact purposes, as is well understood.

Secured to the bottom 7 of the box 1, as by the screws 8 is an insulation block 9 of any suitable insulating material. This block is provided on its underside with a relatively deep groove or channel 10 extending from one edge to the other across said block. Disposed within this groove 10 is a strip 11 of metal constituting an electric conductor and the ends of which are bent upwardly at the edges of the block, as at 12, to a point spaced above the upper surface of the block, where such ends are then bent inwardly in overlying relation to said block as at 13. This conductor strip 11 is fixedly secured in the groove 10 as by rivets 14.

At right angles to the groove or channel 10 in the underside of block 9 is a second groove 15, of less depth than groove 10 and also extending from one edge of the block to the other and intersecting groove 10.

Fixed in the groove 15, as by rivets 16, is a second strip 17 of electric conducting material, also bent upwardly at the edges of the block 9, as at 18, to a point spaced above the block and, where such ends are bent inwardly as at 19 to overlying position with respect to the block.

Due to the difference in depth of the grooves 10 and 15, it will be clear that the conductor strips are out of contact with each other, eliminating any chance of a short circuit between them. If desired however, and as an extra pre-

caution, a strip 20 of insulating material may be placed in the groove 10 between the strip 11 and the strip 17.

Removably secured to the block 9, as by the screws 21, is a third strip 22 of conducting material. This is positioned directly on the upper surface of the block and extends preferably diagonally of the strips 11 and 17, as shown in Figures 1 and 2 so as not to interfere with the upper, overhanging portions of the latter strips. Centrally of the strip 22 the same is bent upwardly away from the block as at 23 to provide a supporting saddle 24 spaced above the block the same distance as the overhanging portions 13 and 19. Obviously this conducting strip 22 is fully insulated from the strips 11 and 17 by the thickness of the block 9. By virtue of the screws 21 this auxiliary conductor strip is readily removable if not needed.

All of the spaced overhanging portions, 13, 19 and 24 are provided with threaded openings as clearly shown in Figures 3, 4 and 6, receiving the headed screw binding posts 25. Lying between the heads of the screws 25 and the corresponding supports therefor, are the upwardly flanged retaining clips 26 adapted to receive the bare ends of the wires between such clips and the heads of the binding post screws 25 as shown clearly in Figures 1 and 6.

The particular arrangement of the wire ends in the box of course depends upon the circuits involved and it will be obvious that I have provided a terminal device which permits ready attachment or disengagement of the wires without danger of short circuits, and without the use of tape, and which leaves the box convenient and renders it efficient in operation.

Any conventional cover means may of course be provided for the box 1.

Of course changes may be made in details of construction and arrangement of parts without departing from the spirit and scope of my invention. I do not limit myself therefore to the exact form herein shown and described other than by the appended claims.

I claim:

1. A terminal box comprising a housing having means for admitting wire ends thereinto, a block of insulating material secured in said box, a plurality of grooves of different depths in the side of said block farthest from the open side of said box and extending across the same, conductor strips in said grooves provided with supporting portions extending around the edges of said block and towards the open side of said box, the ends of said portions being bent over said block in spaced relation thereto, and binding posts for wire ends on said supporting portions.

2. A terminal box comprising a housing having means for admitting wire ends thereinto, a block of insulating material secured in said box, a plurality of grooves of different depths in the side of said block farthest from the open side of said box and extending across the same, conductor strips in said grooves provided with supporting portions extending around the edges of said block and towards the open side of said box, the ends of said portions being bent over said block in spaced relation thereto, and binding post for wire ends on said supporting portions, said grooves being disposed angularly to and intersecting each other.

3. A terminal box comprising a housing having means for admitting wire ends thereinto, a block of insulating material secured in said box, a plurality of grooves of different depths in the side of said block farthest from the open side of said box and extending across the same, conductor strips in said grooves provided with supporting portions extending around the edges of said block and towards the open side of said box, the ends of said portions being bent over said block in spaced relation thereto, binding posts for wire ends on said supporting portions, said grooves being disposed angularly to and intersecting each other, and insulating material separating the strips in the intersection of said grooves.

4. A terminal box comprising a housing having means for admitting wire ends thereinto, a block of insulating material secured in said box, a groove in the surface of said block farthest from the open side of said box and extending entirely across the same, a conductor strip secured in said groove and having its ends formed around opposite sides of said block and projecting past said block toward the open side of said box and bent to overlying relation, and binding posts on said overlying ends for wire ends.

5. A terminal box comprising a housing having means for admitting wire ends thereinto, a block of insulating material secured in said box, a groove in the surface of said block farthest from the open side of said box and extending entirely across the same, a second groove in the same surface of said block angularly disposed from the first groove, said grooves being of different depths, conductor strips secured in said grooves and having their ends formed around the edges of said block and projecting past the same toward the open side of said box and bent to overlying relation, and binding posts on said overlying ends for wire ends.

6. A terminal box comprising a housing having means for admitting wire ends thereinto, a block of insulating material secured in said box, a groove in the surface of said block farthest from the open side of said box and extending entirely across the same, a second groove in the same surface of said block angularly disposed from the first groove, said grooves being of different depths, conductor strips secured in said grooves and having their ends formed around the edges of said block and projecting past the same toward the open side of said box and bent to overlying relation, binding posts on said overlying ends for wire ends, and a removable conductor strip on the surface of said block toward said open side provided with a binding post in substantially the same plane as said first mentioned binding post.

DENNIS J. ALLEN.