

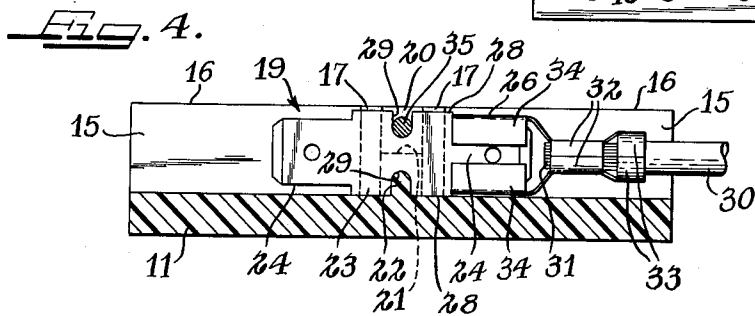
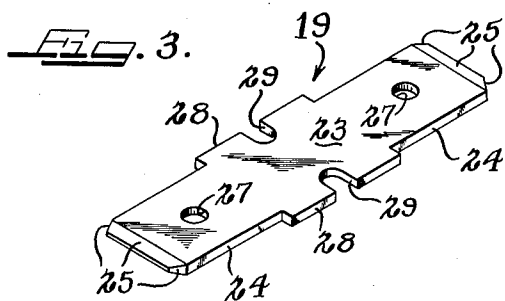
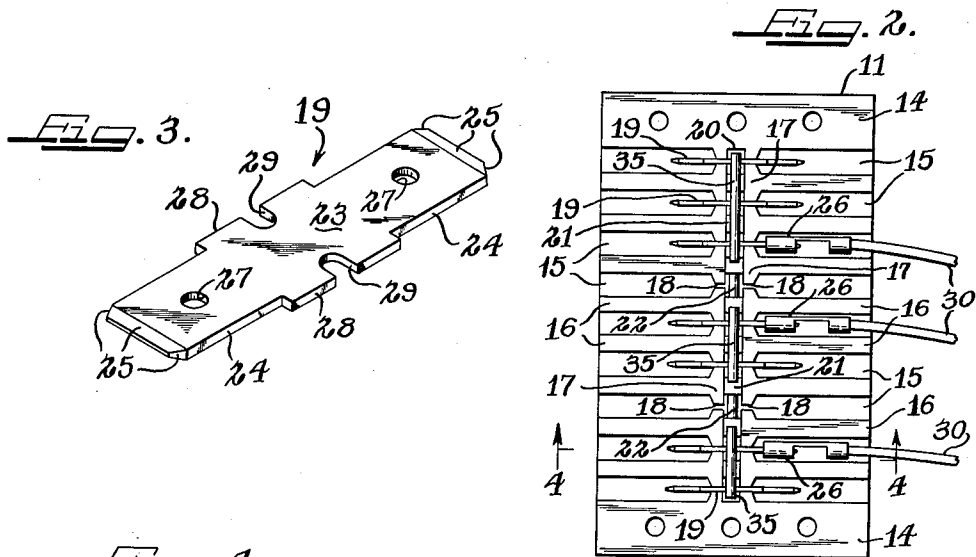
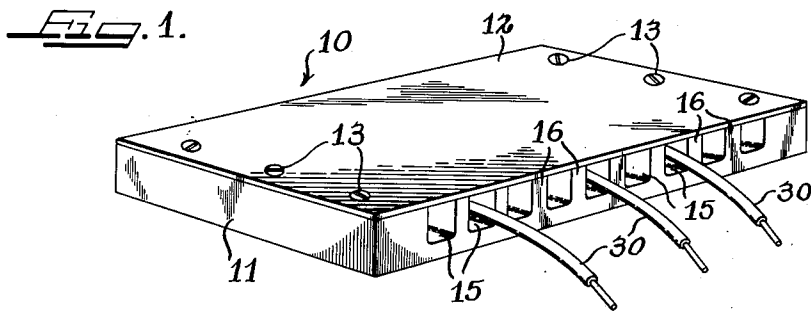
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CONDUCTOR TAB INTERCONNECTING ARRANGEMENT FOR TERMINAL BLOCKS

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## CONDUCTOR TAB INTERCONNECTING ARRANGEMENT FOR TERMINAL BLOCKS

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The present invention relates generally to terminal blocks adapted for use in electrical circuits and systems. More specifically the invention deals with a new and improved terminal block, a new and improved conductor tab interconnecting arrangement for use in a terminal block, and a new and improved electrical conductor tab adapted for use in the new arrangement.

Terminal blocks are widely used as a centralized source of attachment of a plurality of electrical circuits. A terminal block of the type disclosed in my Patent No. 2,965,872 is very useful in efficiently accommodating the centralized connection of a plurality of electrical circuits and services. In such a block, a plurality of electrically interconnected metallic tabs having tongue-like portions are mounted in a readily moldable plastic block housing with tongue portions projecting into separated recesses which are in communication with surface areas of the housing. The interconnected tabs are readily formed by die stamping metallic strips and the resulting strip-like members are provided with any desired number of tongue-like portions. Selected strips are readily mounted in the block housing to provide for the requisite number of wire lead termination for a plurality of independent circuits. While this arrangement provides for adequate versatility by reason of the installer being provided with a variety of strips having varying numbers of tongue portions, the arrangement does require the manufacture and stocking of a variety of such strips.

It is an object of the present invention to provide a new and improved terminal block for multiple electrical circuit and wire lead termination use.

Another object is to provide a new and improved conductor tab interconnecting arrangement in a terminal conductor unit, such arrangement permitting ready and unlimited variation of plural circuit arrangement and wire lead termination relative thereto.

Still a further object is to provide a new and improved electrical conductor tab of a design and adapted for use in such a manner that tab standardization is possible not only from the stand-point of manufacture but also with regard to an unlimited variety of operational uses.

Other objects not specifically set forth will become apparent from the following detailed description of the invention made in conjunction with the accompanying drawing wherein:

FIG. 1 is a perspective of a form of terminal block incorporating the principles of the present invention therein;

FIG. 2 is a plan view of the base member of the block of FIG. 1 with the cover member removed;

FIG. 3 is a perspective of the tab forming a part of the invention; and

FIG. 4 is an enlarged transverse section of a portion of the block taken generally along line 4-4 in FIG. 2.

The terminal block 10 of the invention comprises a base member 11 preferably molded from plastic material and a cover member 12 in the form of an insulating plate suitably attached to the base member 11 by fasteners 13. As best shown in FIG. 2 the base member 11 is formed with raised block-like end portions 14 between which is formed a plurality of laterally extending wire lead receiving recesses 15. In the form of block illustrated, the recesses 15 are vertically directed in the base member

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11 and extend inwardly thereof from communication with opposite side margins of the base member. The recesses 15 are basically defined by upstanding wall segments 16 formed during molding of the base member 11. The innermost end of each recess 15 is substantially closed off by reason of a longitudinally extending enlarged inner end portions 17 of adjacent wall sections 16. Adjacent enlarged end portions 17 define therebetween laterally directed slots 18 through which opposite end portions of electrical conductor tabs 19 extend.

The enlarged end portions 17 of the wall sections 16 also cooperatively define a slot 20 which extends longitudinally of the base member 11 between laterally aligned recesses 15. The slot 20 in the base thereof includes a plurality of longitudinally spaced block-like portions 21 extending between juxtaposed end portions 17 of the wall sections 16. Between the block-like portions 21 the base of the slot 20 is formed with upstanding bead segments 22 which extend across juxtaposed slots 18 in communication with transversely aligned recesses 15. The beads 22 are formed with convex upper surfaces for a purpose to be described.

FIG. 3 best illustrates the special electrical conductor tab 19 forming a part of the invention. This tab is formed from a single piece of flat metallic material and is provided with a central block-like mounting portion 23 having integrally formed therewith a pair of oppositely directed lead attachment tongues 24. Each tongue 24 is dimensioned to be received in a recess 15 in spaced relation with all wall surfaces thereof including the adjacent covering surface of the cover member 12. The outermost edge of each tongue 24 is formed with beveled surface portions 25 to provide for readily receiving thereon a suitable form of wire lead connector 26 shown in FIGS. 2 and 4. The tongues 24 may be formed with dimple-like depressions 27 centrally thereof to receive therein corresponding projections formed in a lead connector 26 in the known manner to provide for a tight electrical connection between the tongues and connectors. The central mounting portion 23 of the tab 19 along opposite side margins is formed with projecting shoulder portions 28. These portions are each formed with a centrally located semi-circular slot or recess 29 of a configuration conforming with that of the bead segments 22 of the base member 11.

FIG. 4 best illustrates the operative mounting of a tab 19 in the base member 11. As previously described, the tab extends across the longitudinal slot 20 and through aligned transverse slots 18 to place the oppositely directed tongues 24 thereof in transversely aligned recesses 15. The tab 19 is maintained in vertical position as illustrated in FIG. 2 by the receiving of the mounting portion 23 thereof in the aligned transverse slots 18. These slots provide adequate clearance to permit ready insertion of a tab 19 while holding the same against any appreciable tilting. The lowermost shoulder 28 of the mounting portion 23 is received flush against the bottom surface portion of the base member 11 with the bead 22 being inserted in the associated recess 29. The bead 22 functions to prevent lateral movement or play of the tab 19 when mounted in the base member 11.

FIGS. 2 and 4 illustrate a typical connection of a wire lead 30 with a tab 19 by means of a connector 26. The lead 30 is of known type including insulation covered wire strands with bare ends 31 thereof being clamped by segments 32 of the connector 26. Additional segments 33 clamp the insulation covering of the lead 30 to prevent stripping thereof. The connector end engaged with the tongue 24 of the tab 19 is provided with resilient leaf portions 34 of known type, this end of the connector being dimensioned to be readily received in a

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recess 15 of the block 10. With this arrangement a plurality of wire leads 30 may be readily connected to tabs 24 as well as readily disconnected therefrom.

As previously described, one of the recesses 29 of the tab 19 receives a bead segment 22 therein to fix the tab in the base member 11. The remaining recess is thus exposed along the top surface of the tab in its mounted position in the base member 11. A single strand bare wire segment 35 is inserted in the uppermost recess 29 of a tab 19 and extends longitudinally of the base member 11 in parallel relation with the slot 20 thereof into similar engagement with one or more tabs 19. FIG. 2 illustrates the use of wire segments 35 in interconnecting separate series of tabs 19, each series including any desired number of immediately adjacent tabs. The diameter of the wire segment 35 is such that the same is snugly received or forced into the recess 29 of a tab 19 to prevent inadvertent displacement therefrom and provide for an efficient electrical conducting connection. Thus any number of tabs 19 may be electrically interconnected in a single circuit by proper selection of the length of wire segment 35 installed in the block 10. Each wire segment may be readily measured and cut on the job during installation of the block 10 to meet a variety of requirements. All of the tabs 19 are of the same design thus providing for uniformity in manufacture as well as uniformity in stocking of adequate components and parts by the installer. Each wire segment 35 is readily inserted in the assembly without the need of special tools and with proper snug, crimp-like fitting of the wire segment in the recesses 29 of the tabs 19, displacement thereof is prevented. Following desired interconnection of the plurality of tabs 19 in the base member 11, the cover member 12 is applied by use of the fasteners 13 and the terminal block 10 is fully assembled. Any number of tabs 19 may be used in a single block and only the total number of tabs intended for use need be installed.

The particular form of terminal block 10 illustrated and described is only one of several forms with which the unique tab interconnecting arrangement of the invention may be used. The vertical positioning of the tabs 19 in the terminal block to permit ready accommodation of the interconnecting wire segment feature also permits increased spacing between the tabs thus allowing the use of circuits of higher potential. In this regard, the wall portions 16 may be of rather substantial thickness without resulting in any appreciable wasted space as compared with the use of horizontally arranged tabs as distinguished from the vertically positioned tabs described. With this feature in mind it will also be appreciated that by vertically positioning the tabs a block

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of specified dimensions may accommodate a larger number of tabs for wire lead termination.

Obviously certain modifications and variations of the invention as hereinbefore set forth may be made without departing from the spirit and scope thereof, and therefore only such limitations should be imposed as are indicated in the appended claims.

I claim:

1. A terminal connector block comprising a base member formed with a longitudinally extending slot in communication with a plurality of radially directed electrical service lead receiving recesses extending to a side margin of said block, a plurality of longitudinally flat conductor tabs formed with endmost lead attachment tongues extending in upright side supported relation transversely of said slot with said tongues in said recesses, at least the top side portion of each of said tabs which is in said slot being formed with a marginal groove, a wire segment extending along said slot adjacent the top thereof interconnecting at least some of said tabs with portions thereof snugly received in said grooves, and top cover means attached to said base member to enclose said tabs and wire segment therein.

2. A terminal connector block comprising a base member formed with a longitudinally extending slot in communication with a plurality of radially directed electrical service lead receiving recesses extending to a side margin of said block, the base of said slot being formed with an upstanding bead, a plurality of conductor tabs formed with relatively flat upright mounting portions and endmost lead attachment tongues extending transversely of said slot with said tongues in said recesses, the mounting portions of said tabs in said slot being formed with opposite marginal semi-circular grooves, said bead being received in one of said grooves of each tab to position the same in said block, a wire segment extending along said slot adjacent the top thereof interconnecting at least some of said tabs with portions thereof snugly received in the other of said grooves, and top cover means attached to said base member to enclose said tabs and wire segment therein.

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