Nov. 13, 1928. 1,691,088

A. L. STARKE

TERMINAL BLOCK

Filed Jan. 3, 1927

Fig. 1

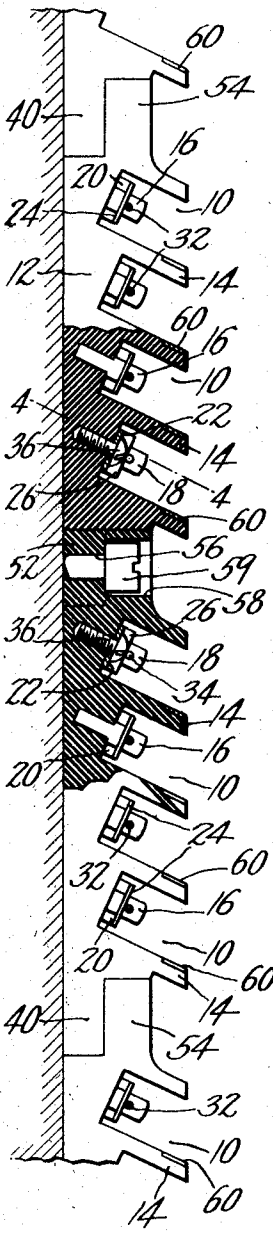


Fig. 2.

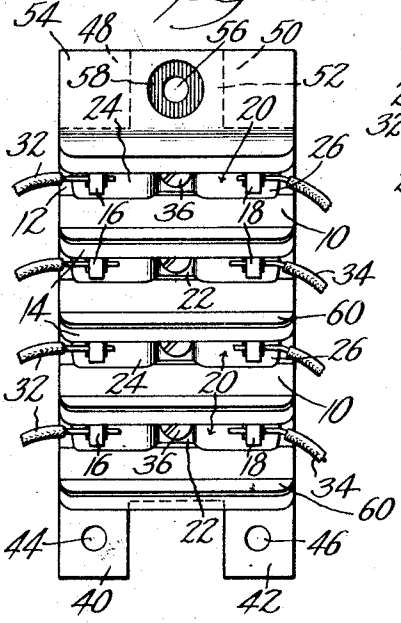


Fig. 4.

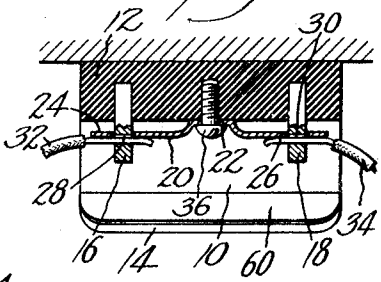


Fig. 5.

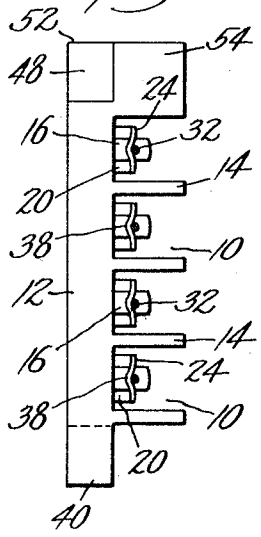
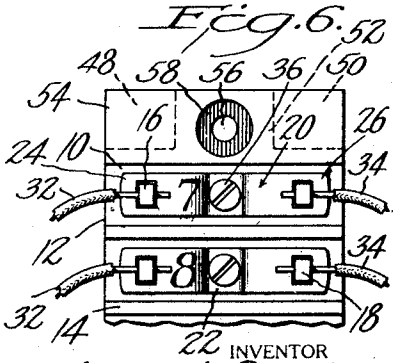


Fig. 6.



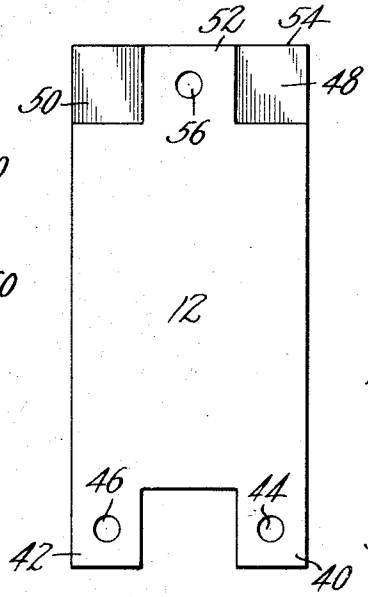


Fig. 3.

WITNESS

Oliver W. Holmes

INVENTOR

AUGUST L. STARKE

BY Benj. T. Rauber

his ATTORNEY

Patented Nov. 13, 1928. 1,691,088

UNITED STATES PATENT OFFICE.

AUGUST L. STARKE, OF BROOKHAVEN, NEW YORK, ASSIGNOR TO INSULATION MANUFACTURING COMPANY, INC., A CORPORATION OF NEW YORK.

TERMINAL BLOCK.

Application filed January 3, 1927. Serial No. 158,620.

This invention relates to an improved terminal block, more particularly to a terminal block in which a number of terminals or bus bars are mounted and insulated from each other. The invention also relates to an improved terminal or connector for terminal blocks and similar devices.

An object of the present invention is to provide cases or blocks of the above mentioned type having their ends so formed that the end of one block may be fitted into the end of an adjacent block and the blocks thus be united in a single unitary structure.

Another object of the invention is to provide a bus bar or terminal plate for mounting on a terminal block or terminal case of the above indicated type, or on other blocks of insulating material, so that lead wires may be quickly attached to and detached from said bus bar or terminals.

Further objects and features of the invention are to provide a block of a compact structure and of a simple and cheap construction and also to provide a terminal block having partitions so arranged as to thoroughly protect the terminals or bus bars regardless of the exposure of the block and at the same time, to enable a marking strip to be placed in close position to each terminal plate or bus bar without obscuring it from view.

With these and other objects in view, which will be more fully set forth in the following description, the invention comprises the terminal block and terminals described in the following specification and claims:

The various features of the invention are illustrated in the accompanying drawings in which:

Fig. 1, is a side view, partly in section, of a series of terminal blocks embodying my present invention arranged end to end to form a unitary structure,

Fig. 2 is a front view of a terminal block shown in Fig. 1,

Fig. 3 is a rear view of the terminal block shown in Fig. 2,

Fig. 4 is a cross-sectional view of the terminal block taken on line 4—4 of Fig. 1,

Fig. 5 is a side view of a modified form of terminal block, and,

Fig. 6 is a front view of the upper portion of the terminal block shown in Fig. 5.

Referring to the accompanying drawings a terminal block of any desired length may be formed of a number of connected sections. These sections are formed of a single block or plate of insulating material having a series of horizontal spaced grooves 10 extending from side to side in the front face of the block thus forming a back plate 12, and a series of forwardly projecting horizontal partitions 14. These grooves may be formed in the block at an acute angle to the front face of the block as shown in Figs. 1, 2 and 3 so that the partitions 14 will overhang the grooves, and so that the upper faces of the partitions will be more exposed to view; or the grooves may be formed at a right angle to the front face of the block so that the partitions 14 will project forwardly at a right angle to the back plate 12. The terminal plates or bus bars are mounted in the bottoms of the grooves 10 so that the partitions 14 provide an extended insulating surface between the metal parts of the bus bars or terminals.

Any desired type of terminal or bus bar may be provided for the blocks. However, bus bars or terminals described in the present specification are preferred because of their simplicity and their ease in mounting on the blocks and the facility they provide for rapidly and easily securing and detaching terminal wires therefrom. The lead wire securing means for these bus bars each comprises a pair of studs 16 and 18 mounted in the bottom of the groove 10, one at a short distance from each side edge of the groove. These studs are preferably secured by being molded into the body of insulating material and project slightly therefrom. The bus bar comprises a strip of metal 20 having a depression 22 at its middle portion and forming a pair of wings 24 and 26 extending past the studs 16 and 18 and having openings through which said studs project. The studs 16 and 18 are provided with openings 28 and 30, respectively, through which the stripped ends of lead wires 32 and 34, respectively, may be inserted. The terminal plate 20 is secured at its central depressed portion by means of a screw 36, threaded into the back portion 12 of the insulating block, and the wings 24 and 26 of the terminal plates are so formed and positioned that they normally stand outwardly from the back plate 12 beyond the openings 28 and 30 of the studs 16 and 18. In inserting a wire 32 or 34, the wing 24 or 26 is pressed downwardly toward the plate 12, the wire 32 or 34 thrust through the opening 28 or 30 and the wing 26 released, whereupon it will clamp

a portion of the wire against the outer edges of the openings in the studs and thus hold the wires and firmly grip them to the plates 20, and through the studs 16 and 18, directly to the terminal block itself. To more certainly secure the wires from being pulled loose, the portion extending through the opening 28 or 30 may be bent or kinked so that it will be more difficult to pull them out of the openings 28 and 30 respectively. This manner of securing lead wires to the terminal plate offers the advantage that the wires are always tightly gripped to the terminal blocks, which is not always the case when binding screws are depended upon. It also provides a much more convenient means of securing the wires to the terminal plates. The wings 24 and 26 may be depressed or grooved slightly as shown at 38 in Fig. 5.

The ends of the terminal blocks are so formed that a number of blocks may be connected end to end in a compact unitary structure. For this purpose each block is provided at one end with a pair of spaced rectangular ears 40 and 42, the outer edges of which are in alignment with the longitudinal edges of the block and the inner edges of which are spaced to leave a rectangular depression between them. The ears 40 and 42 are of approximately the same thickness of the back plate 12. Each of the ears 40 and 42 is provided with an opening 44 or 46 respectively, through which a screw may be passed to secure the ears when these ears are not covered by overlapping portions of an adjacent block. The opposite end of the block is provided with a pair of rectangular notches 48 and 50, one at each lower corner of the block. These notches are of substantially the same dimensions as the ears 40 and 42 so that when the blocks are arranged end to end, the ears of one block will fit into and fill the notches of an adjacent block.

In this arrangement a projecting tongue 52 is left between the rectangular notches 48 and 50, and there is also provided an overlapping ledge 54 which also covers the upper edges of the ears 40 and 42 of an adjacent block. An opening 56 is formed in the tongue 52 and at its outer end is countersunk at 58, to receive the head of a screw 59 which may be passed through the opening 56 to secure one end of the block to a supporting surface. When a number of blocks are thus secured the tongue 52 and overlapping edge 54 of one block being thus secured by a screw passing through the opening 56, will serve to hold and retain in position the projecting tongues 40 and 42 of an adjacent block so that this end of the adjacent block does not require further securing means.

In the form of the invention shown in Figs. 5 and 6 the indicating marks as for example numerals 7 and 8, might be placed directly on the terminals or bus bars themselves whereas in the form of block shown in Figs. 1 to 3 and having inclined partition walls, the indication for a terminal plate may be placed on a strip of marking material 60, mounted on the upper projecting face of the partition immediately beneath the terminal plate. Inasmuch as the wings 24 and 26 of the bus bars are sprung outwardly from the bottom of the grooves 10, they contact with the block only at their central portions. As the studs 16 and 18 are set inwardly from the edges of the grooves, the grooves may be made narrow and little, if any broader than the lengths of the terminal plates or bus bars themselves without danger of providing a short path over the surface of the block between adjacent terminals. By thus making the terminal blocks narrow the partitions do not require any bracing, and the construction of the block and its associated terminals may be greatly simplified and cheapened.

As changes of construction could be made within the scope of my invention, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

Having described my invention what I claim and desire to secure by Letters Patent is:

1. A terminal block which comprises a body of insulating material having grooves in its forward surface to form a back plate and a series of spaced horizontal partitions projecting forwardly therefrom, and a series of terminal plates one in the bottom of each of said grooves between said partitions and removably secured between its ends to the bottom of said groove, and binding means embedded in the block at the bottom of said groove and having a removable connection to said terminal plate.

2. A terminal block formed of a body of insulating material having horizontal grooves in its front portion to form a back plate and a series of spaced horizontal partitions projecting horizontally therefrom, said block having a pair of spaced ears projecting lengthwise from one end of said back plate, the opposite end of said block having rectangular notches in its lower corners so that when a series of blocks are arranged end to end, the ears of one block will fit into the notches of and be overlapped and held in position by the adjacent block, and screw openings in said tongue and ears.

3. A terminal block which comprises a body of insulating material having horizontal grooves in its front portion to form a back plate and a series of vertically spaced horizontal partitions projecting forwardly therefrom, said partitions being sloped downwardly, said block having a pair of spaced ears projecting lengthwise from one end of

said back plate, the opposite end of said block having rectangular notches in its lower corners, so that when a series of blocks are arranged end to end the ears of one block will fit into the notches of, and be overlapped and held in position by, the adjacent block, and screw openings in said tongue and ears.

4. A terminal block which comprises a body of insulating material having grooves in its forward surface to form a back plate and a series of spaced partitions projecting inwardly therefrom, pairs of spaced studs embedded in said plate and projecting therefrom one pair at the bottom of each groove, the projecting portions of said studs having horizontal openings therethrough, and terminal plates one in each groove and having a depressed central securing portion between said studs and having side wing portions projecting past said studs and having openings through which said studs project when said wings are depressed toward the bottom of said groove.

In testimony whereof I hereunto affix my signature.

AUGUST L. STARKE.