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TERMINAL BLOCK CONNECTOR ASSEMBLY

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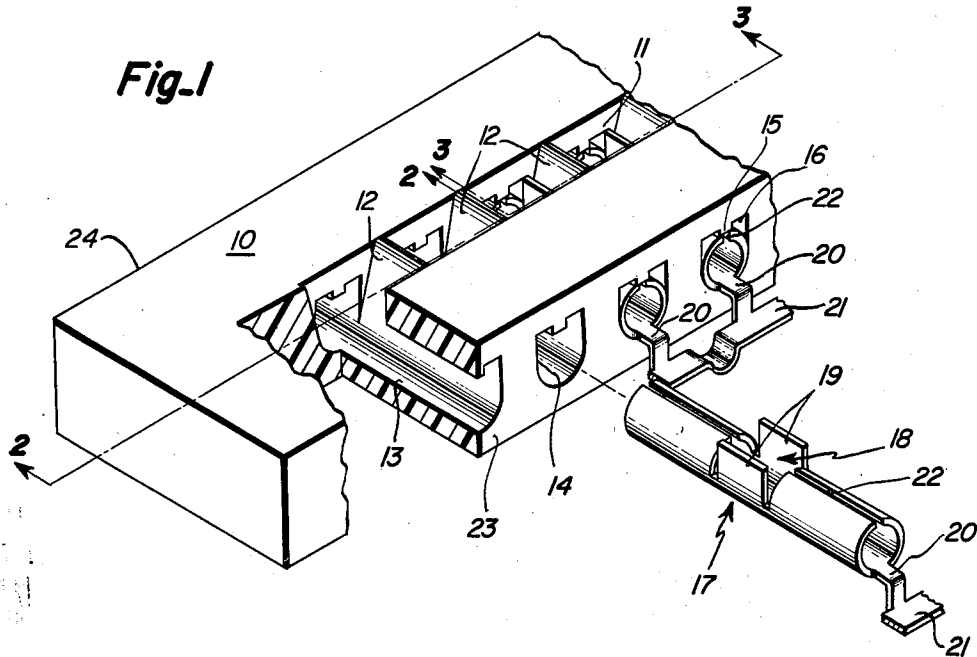


Fig. 2

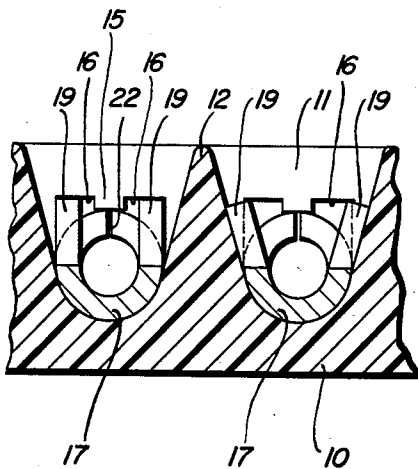
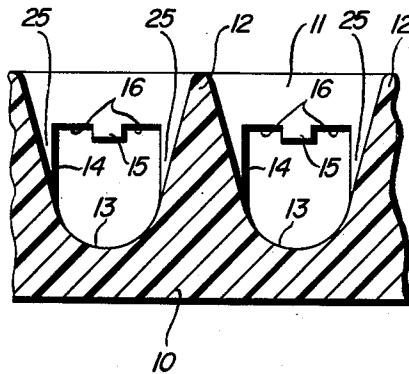


Fig. 3

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TERMINAL BLOCK CONNECTOR ASSEMBLY

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4 Claims. (Cl. 339—198)

This invention relates to terminal connector assemblies; more particularly it relates to a terminal connector assembly having a socket mounting block formed to securely hold a plurality of double ended female terminal sockets.

In complex electrical systems it is necessary to provide means for connecting each of several different system operating potentials to numerous points in the system. As space and cost are prime considerations in such systems it is desirable that the connecting means be small, compact, and economical to fabricate and use. It is also desirable that such connecting means be capable of being tailored to enable the connection of any number of conductors as required by the system to common system supply terminals.

The above desirable features are realized in the present invention in the provision of a socket mounting block adapted to receive and securely hold a plurality of double ended female terminal sockets. The plurality of double ended female terminal sockets are made from a continuous strip of conductive material and formed with portions complementary to the mounting block and with a common portion which may be cut wherever desired in accordance with the requirements of the system. A feature of the invention resides in the fact that the complementary block and terminal sockets enable the sockets to be locked within the block without resort to outside locking means.

A principal object of the invention therefore is the provision of a small, compact and economical terminal connector assembly.

Another object of the invention is the provision of a terminal connector assembly adapted to be tailored to fit the requirements of a particular system.

A further object of the present invention is to provide a terminal connector block that will hold a plurality of double ended female terminal sockets without using any outside means for locking said sockets within said block.

Other objects and many of the attendant advantages of this invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings in which like reference numerals designate like parts throughout the figures thereof and wherein:

Fig. 1 is a fragmentary perspective view with sections broken away of an electrical terminal connector mounting block constructed in accordance with the invention and showing double ended wire terminal sockets associated therewith;

Fig. 2 is a cross sectional view taken along lines 2—2 of Fig. 1; and

Fig. 3 is a cross sectional view taken along lines 3—3 of Fig. 1 with one socket locked in.

Referring now to the drawings wherein like reference characters represent like or corresponding parts throughout and wherein is shown a preferred embodiment there is shown in Fig. 1 a rigid rectangular block 10 formed

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from insulating material having a low coefficient of expansion over wide temperature ranges. One satisfactory material in this classification is Bakelite; it being understood that other of such materials will be suggested to those skilled in the art.

As seen in the figures a central portion 11 of the rectangular block 10 is formed with a series of alternate lands 12 and valleys 13 along the long dimension of the block. The block 10 is also formed with a plurality of elongated semi cylindrical holes 14 extending through the block transverse to the long dimension thereof. As is apparent from Figs. 2 and 3 the semicylindrical portion of the holes coincide with the bottom curvature of the valleys 13. The upper surface of each hole is formed with a downwardly projecting rib 15 thereby forming two grooves 16 to either side thereof.

Referring to Fig. 1 there are shown double ended female terminal sockets, generally designated by reference character 17, adapted to be inserted into the transverse holes 14 in the block. The terminal sockets as will be understood are formed from conductive material such as copper or the like which is cut and formed by suitable dies into a plurality of tubular sockets; the outer diameters of which as seen most clearly in Fig. 3 approximate the diametral dimension between the surface of the downwardly projecting ribs 15 and the bottom surface of the holes. The central portion 18 of the tubular sockets are cut and bent during forming whereby a pair of locking tabs 19 are formed. As is apparent from Fig. 1 all the tubular sockets have tail portions 20 integral therewith which are bent away from their associated tubular sockets and joined to a common portion 21. The common portion is bent between tubular sockets to enable the sockets to be spaced properly for insertion of all the sockets simultaneously into the holes 14.

Referring to Fig. 3 it will be apparent that the locking tabs 19 on the tubular sockets will pass through the grooves 16 on either side of the downwardly depending ribs 15 and that when the sockets are fully inserted, the locking tabs may be bent over against the sloping valleys between shoulders 25 formed by walls 11 thereby locking the sockets within the block 10.

As will be understood tapered male terminals inserted into the double ended sockets will spread the tubular sockets due to the open slit 22 therein and be held securely by the tension created by the spreading action. As is apparent where several different system operating potentials are to be distributed to various points in the system the common portion of the sockets may be cut wherever desired depending on the number of feeder lines required to be energized by an associated source potential. For example if four points in a system required connection to a 100 volt source and three points in the system required connection to a 17.5 volt source the common portion 21 of the tubular socket strip would be cut isolating 4 and 3 double ended tubular sockets whereby the 100 volt terminal inserted in one of the four sockets on side 23 would energize four feeder terminals inserted in the corresponding four sockets on the opposite side 24. Similarly one 17.5 volt terminal inserted in one of the three sockets on side 23 would energize three feeder terminals inserted in the corresponding three sockets on the opposite side 24. As will be understood the lands 12 between sockets insulate one socket from another.

It should be understood, that the foregoing disclosure relates to only a preferred embodiment of the invention and that it is intended to cover all changes and modifications of the example of the invention herein chosen for the purposes of the disclosure, which do not constitute departures from the spirit and scope of the invention.

The invention claimed is:

1. A terminal connector construction comprising a block of insulating material having a central portion along its long dimension formed with alternate lands and valleys, a plurality of bores in said block transverse to said long dimension, each having a portion of its wall surface coincident with the bottom surface of one of said valleys, said valley walls forming with the bore walls pairs of inwardly facing shoulders, and substantially cylindrical wire terminal sockets in said bores, said sockets having tabs bent against the walls of said valleys between said shoulders whereby said sockets are securely locked within said block.

2. A terminal connector construction comprising a rectangular block of insulating material having a central portion along its long dimension formed with alternate lands and sloping valleys, said block having substantially U-shaped bores therein transverse to said long dimension, each of said bores having a portion of its wall surface coincident with the floor of one of said valleys, substantially cylindrical wire terminal sockets, said sockets being formed with upstanding tabs intermediate their ends, the leg wall portions of said U-shaped bores forming acute angles with the sloping sides of said valleys whereby pairs of inwardly facing shoulders are formed; and whereby after insertion of said sockets in said holes said tabs may be bent toward the sides of said sloping valleys between said shoulders thereby preventing removal of said sockets.

3. A terminal block assembly comprising a block of insulating material having a plurality of parallel laterally spaced bores formed therethrough with their axes disposed substantially normal to the longitudinal axis of said block, said block also having a plurality of alternate lands and valleys formed centrally of its long dimension, the lower portions of said valley walls coinciding with

said bore walls, and the upper portions diverging therefrom whereby said bores are undercut thereby providing opposed pairs of inwardly facing shoulders, tubular terminal sockets detachably locked in each of said bores, said sockets each having a pair of upstanding tabs which in the preassembled position are slidably engageable with the walls forming associated bores and which in the assembled position are laterally bent off into the undercut portion of associated bores between said shoulders, the engagement of said tabs and shoulders thereby preventing withdrawal of said sockets from associated bores.

4. The combination of a rectangular block of insulating material having a central portion along its long dimension formed with a plurality of alternate lands and valleys and a plurality of transverse holes extending from the sides of said block to the valleys in said central portion, the lower portions of said valley walls coinciding with the walls of said holes and the upper portions of said valley walls diverging therefrom thereby forming opposed pairs of inwardly facing shoulders, and double ended female terminal sockets in said holes, said sockets having upstanding tab portions adapted to be bent toward the sloping sides of said valleys between said shoulders thereby to prevent removal of said sockets, said sockets being formed with longitudinal slits therein whereby they may flex upon insertion of wire terminals therein, each of said sockets being joined at one end to a common portion adapted to be cut wherever desired.

References Cited in the file of this patent

UNITED STATES PATENTS

2,441,393	Buchanan et al. _____	May 11, 1948
2,463,826	Thacker _____	Mar. 8, 1949

FOREIGN PATENTS

789,695	Great Britain _____	Jan. 29, 1958
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