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2,991,444

TERMINAL BLOCK

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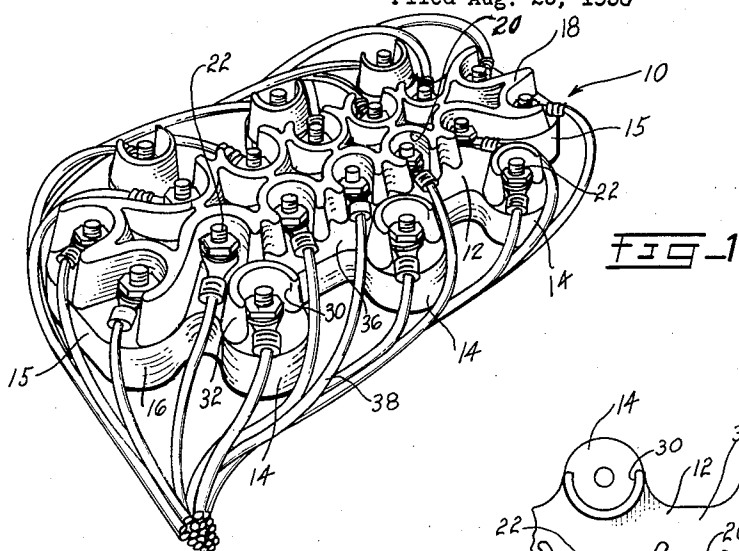


FIG-2

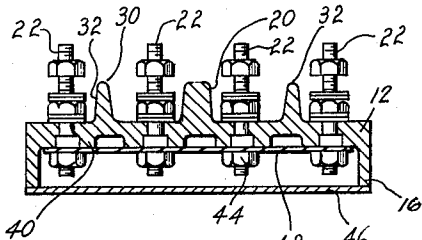
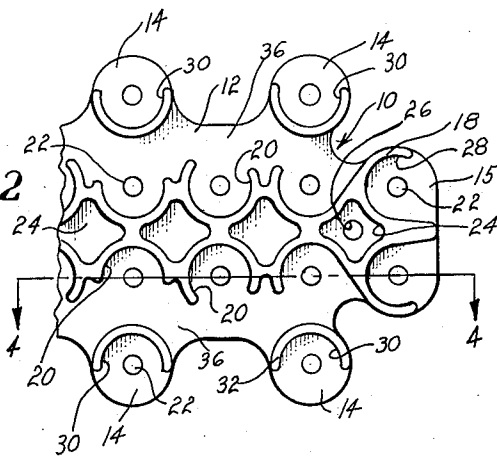


FIG-3

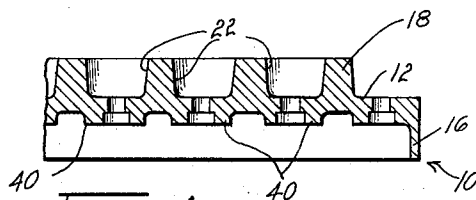


FIG-4

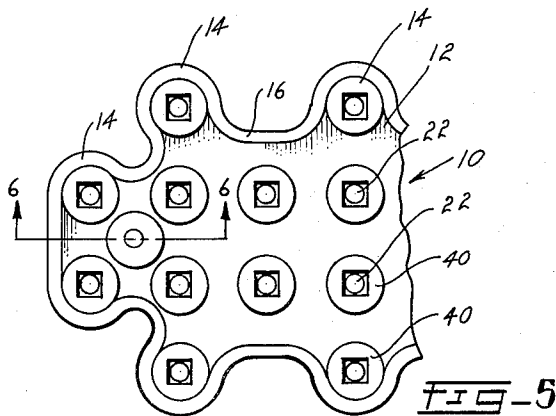


FIG-5

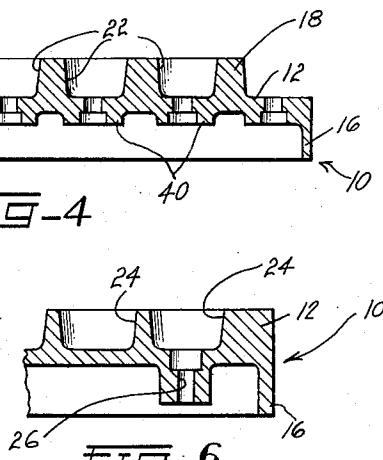


FIG-6

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TERMINAL BLOCK

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This invention relates to a terminal block and, more particularly, to a terminal block adapted to be utilized in conjunction with a large number of electrical leads and to occupy a relatively small space.

Terminal blocks of the character under consideration here are generally utilized in aircraft and prior art terminal block constructions have been characterized by the fact that the inherent design thereof has resulted in breakage and damage entailing the discarding of such prior art terminal blocks. This is attributable to the fact that the specifications for such blocks necessitate the isolation of the terminal ends of the electrical leads from one another as they enter the block and such isolation has been accomplished in prior art constructions by the utilization of relatively flexible isolation pegs or bosses projecting upwardly from the surface of the block and adapted to isolate the leads from each other.

Such bosses or pegs on conventional terminal blocks are particularly subject to breakage and damage due to the fact that the terminal blocks are customarily fabricated from various types of plastic material. The breakage of one or more pegs or bosses on a conventional block renders it unusable and entails the discarding of the entire damaged block.

In addition, conventional terminal blocks are provided in the form of elongated strips which occupy considerable space which is, of course, at a premium in military and similar aircraft. Thus it is impossible, when utilizing conventional terminal blocks, to obtain a compact terminal installation adapted for use in a relatively small space.

It is, therefore, an object of my invention to provide a terminal block which is adapted to receive a far greater number of electrical leads in a given space than is possible with the use of conventional terminal blocks and to more effectively isolate said leads from each other.

Another object of my invention is the provision of a terminal block of the aforementioned character which consists of a unitary body cast from phenolic or other types of dielectric materials and which includes a centrally located barrier wall having a plurality of terminal bays formed in the opposite sides thereof. The central barrier wall, in addition to providing a large number of bays, also structurally integrates the walls defining said bays, thus eliminating the possibility of breakage or severance thereof from the body of the terminal block itself.

Another object of my invention is the provision of a terminal block of the aforementioned character wherein the opposite side edges of the body of the terminal block are provided with additional bays which are separately formed on said edges and the walls of which are aligned with the entrances to alternate central barrier bays.

In addition to isolating the terminals from one another, the central barrier wall serves to strengthen said block and to provide a more rigid structure therefor. By providing the bays in the central barrier wall and in the peripheral edges of the block in the manner described hereinabove, it is possible to accommodate twice the number of terminals in a given space as would be accommodated by a conventional terminal block.

Other objects and advantages of my invention will be apparent from the following specification and the accompanying drawing which is for the purpose of illustration only and in which:

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FIG. 1 is a perspective view showing a terminal block constructed in accordance with the teachings of my invention;

FIG. 2 is a fragmentary, top plan view;

FIG. 3 is a transverse, sectional view of a terminal block constructed in accordance with the teachings of my invention;

FIG. 4 is a longitudinal, sectional view taken on the broken line 4—4 of FIG. 2;

FIG. 5 is a fragmentary, bottom plan view of the terminal block; and

FIG. 6 is an enlarged, fragmentary, sectional view taken on the broken line 6—6 of FIG. 5.

Referring to the drawing and particularly to FIGS. 1 and 2 thereof, I show a terminal block 10 constructed in accordance with the teachings of my invention and including a substantially rectangular body 12 fabricated from phenolic resins or similar dielectric materials by injection molding or other analogous processes.

Although the block is of generally rectangular configuration, it is provided with a plurality of semi-circular projections 14 on the opposite side edges thereof and incorporates enlarged projections 15 on its opposite extremities.

The body 12 of the terminal block 10 is provided with a peripheral, depending skirt 16 and incorporates a centrally located barrier wall 18 which extends from one extremity of the block to the other and which includes a plurality of semi-circular terminal bays 20 which are designed to partially encompass terminal studs 22 located in said bays. The barrier wall 18 also defines a plurality of recesses 24, at least two of which are provided with depending, integral bosses 26 for the reception of fastening screws adapted to secure the terminal block 10 to an appropriate mounting surface.

The opposite extremities of the barrier wall 18 also define semi-circular terminal bays 28 in which terminal studs 22 are located, said bays being disposed in overlying relationship with the projections 14 at the extremities of the body 12.

Formed integrally with and defining side edge terminal bays 30 are semi-circular walls 32 which partially encompass terminal studs 22 and which are formed integrally with the edge projections 14 of the terminal block 10. The semi-circular walls 32 defining the edge terminal bays 30 are aligned with alternate barrier wall terminal bays 20, as best shown in FIG. 2 of the drawing, and the spaced walls 32 of the edge terminal bays 30 define passages 36 which permit electrical leads 38 to enter the respective barrier wall terminal bays 20, as best illustrated in FIGS. 1 and 2 of the drawing.

It will be noted that there is an integral circular boss 40 formed integrally with the underside of and overlying each of the terminal bays 20, 28 and 30, as best illustrated in FIGS. 3, 4, and 5 of the drawing, and that the lower extremities of the studs 22 are adapted to receive bus bars 42 which are secured in operative relationship therewith by means of lock nuts 44, as best illustrated in FIG. 3 of the drawing. If desired, a bottom plate 46 can be secured to the peripheral skirt 16 of the terminal block body 12 in the manner shown in FIG. 3 of the drawing.

In utilizing the terminal block 10, it is customary to mount the same upon a supporting surface by inserting appropriate screws through the openings in the bosses 26. After the terminal block 10 has been so mounted, the various leads can be affixed to the respective studs.

As graphically illustrated in FIG. 1 of the drawing, the leads which are intended for the studs 22 in the barrier wall terminal bays 20 are led through the passages 36 defined by the semi-circular walls of the edge bays 30 and are thus widely separated from each other to prevent shorting of the same. Similarly, the leads in the end bays

28 are separated by the semi-circular walls thereof. Of course, the leads for engaging the studs 22 in the edge bays 30 are effectively isolated by the walls 32 of said bays.

In addition, the central barrier wall provides a continuous, rigidifying member which serves to materially strengthen the terminal block 10 and which also eliminates the possibility of breakage of the individual walls of individual bays. Similar considerations apply to the semi-circular walls 32 of the edge bays 30 in that they are formed integrally with the projections 14 and are, by virtue of their semi-circular configuration, sufficiently rigid to prevent fracturing thereof.

I thus provide by my invention a terminal block which is characterized by its great strength and rigidity, which can accommodate a far greater number of electrical leads in a given space than conventional terminal blocks and which effectively isolates the terminals from one another.

I claim:

1. An electrical terminal block including a body having an integral, centrally located barrier wall provided with a plurality of semi-circular terminal bays in the opposite sides thereof, said body also having a plurality of walls defining semi-circular terminal bays at the opposite side edges thereof, the walls of said edge bays being disposed in spaced relationship and defining access passages therebetween aligned with certain of said barrier bays to permit electrical leads to extend therethrough to said barrier bays.

2. An electrical terminal block including a body having an integral, centrally located barrier wall provided with a plurality of semi-circular terminal bays in the opposite sides thereof, said body also having walls defining a plurality of semi-circular terminal bays at the opposite side edges thereof, said edge bays being disposed in spaced relationship and defining access passages therebetween to permit electrical leads to extend therethrough to said barrier bays, said edge bays being aligned with alternate terminal bays.

3. An electrical terminal block including a body having an integral, centrally located barrier wall provided with a plurality of semi-circular terminal bays in the opposite sides thereof, said body also having walls separate from said barrier wall defining a plurality of semi-circular terminal bays at the opposite side edges thereof, said edge bays being disposed in spaced relationship and defining access passages therebetween to permit electrical leads to extend therethrough to said barrier bays.

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