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HONEYCOMB INSULATOR FOR QUICK DETACHABLE CONNECTOR

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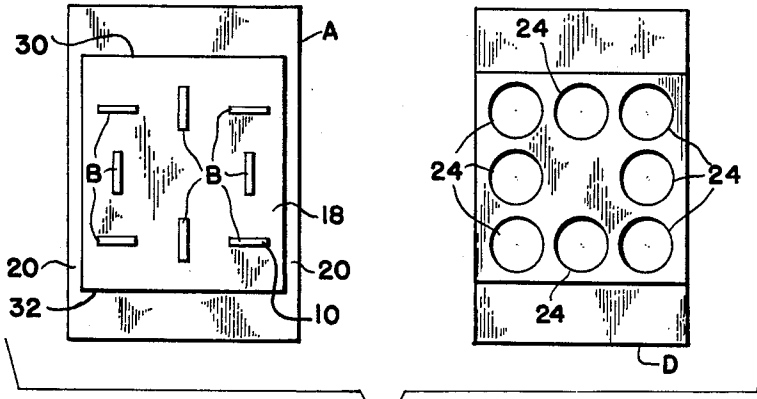


FIG. 1

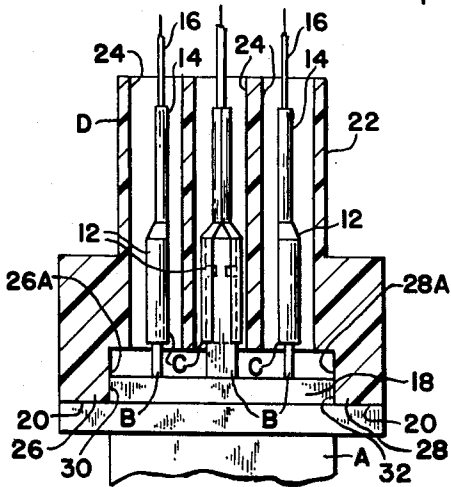


FIG. 2

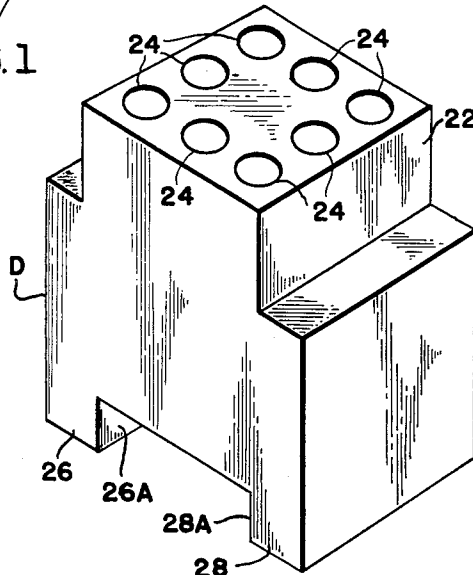


FIG. 3

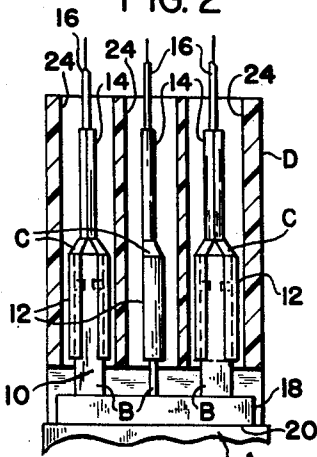


FIG. 4

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**HONEYCOMB INSULATOR FOR QUICK  
DETACHABLE CONNECTOR**

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1 Claim. (Cl. 339-176)

My invention relates to a protective covering for use with detachable connectors, and it relates particularly to a combined unitary insulator and spacer which covers and separates a plurality of releasable contact clips mounted on the contacts of quick detachable connectors of the type disclosed, for example, in my Patent No. 2,750,572 granted June 12, 1956.

Miniature male or female detachable connectors of the type indicated wherein a single insulator body has a plurality of bifurcated contacts mounted therein have a releasable contact clip connected to each of the bifurcated contacts to which a wire is affixed for electrical connection to an outside circuit. The releasable contact clip, when mounted upon the contacts, are closely spaced to one another. Hence, the possibility that the ends of the contacts might be accidentally pressed against one another, with resulting short circuits, is constantly present.

It is an object of my invention to provide a honeycomb insulator for the separable casing members of miniature detachable connectors of the type mentioned, either of the male or the female type, and wherein the casing members of the connector carry in spaced relationship a plurality of electrical contacts arranged in spaced relation in any desired configuration, each of the contacts having a releasable contact clip to which a cable or wire is crimped or even soldered, the honeycomb insulator serving to suitably insulate the clips one from the other.

Another object of my invention is to provide a honeycomb insulator for a plurality of closely spaced contact clips each of which is attached to a contact of a male or female detachable connector member, the honeycomb insulator being formed and arranged to prevent rotation thereof with respect to the connector member casings to thereby avoid accidentally disconnecting the clips from their respective contacts.

Another object of my invention is to provide a honeycomb insulator which is light in weight and easy to handle.

Another object of my invention is to provide a honeycomb insulator which may be assembled in a fraction of the time required for assembly of the spaghetti type of insulator previously used.

Another object of my invention is to provide a honeycomb insulator for the purposes set forth above which will provide a maximum of protection against possible short circuits.

Other objects of my invention are to provide an improved device of the character described that is easily and economically produced, which is sturdy in construction, and which is highly efficient in use.

With the above and related objects in view, my invention consists in the details of construction and combination of parts, as will be more fully understood from the following description, when read in conjunction with the accompanying drawing, in which:

FIG. 1 is plan view of one member of a miniature, quick detachable connector and, alongside thereof, a honeycomb insulator and spacer according to my present invention which is adapted to be mounted upon the connector member.

FIG. 2 is a fragmentary view, partly in side elevation and partly in section, showing the honeycomb insulator mounted upon the connector with the legs of the honeycomb insulator engaging a part of the connector casing to prevent rotation of the insulator with respect to the connector.

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FIG. 3 is a perspective view of the honeycomb insulator. FIG. 4 is a fragmentary sectional view through the contact, the contact clip to which wire is permanently affixed, and the honeycomb insulator.

Referring now in greater detail to the drawing, there is shown, in FIG. 1, a quick detachable connector, which may be either the plug or the socket member of the connector, the plug being of the nature of a male member and the socket of the nature of a female member of the connector. The plug and socket members are complementary to each other and have, in the illustrated embodiment, the provision for eight bifurcated contacts of the type shown in my aforesaid Patent No. 2,750,572, these contacts being adapted to interfit with one another.

A single insulating block, generally designated as A, retains a plurality of bifurcated contacts, generally designated as B. The contacts may be mounted at the corners of a square-like figure with three stems or heads of the contacts being spaced in the outer horizontal and vertical rows. The block A may be molded from insulating material, such as "Bakelite," or any other suitable, non-conductive material, and it has therein a number of cavities wherein the contacts B are securely held in spaced relation to prevent short circuiting of the contacts. The contact head 10 of each bifurcated contact B is of a flat configuration and has attached thereto a releasable contact clip, generally designated as C, which has a ferrule 12 thereon for sliding electrical engagement with the contact head 10. One end 14 of each ferrule 12 has an end of a wire 16 securely affixed thereto by crimping, the wires 16 being connected to external electrical circuits (not shown). The connector insulating block A has on its upper, flat surface a central, square-like, projecting portion 18 through which the contacts B project, and each contact is twisted to lock the contact in a predetermined position. Integrally molded with the square-like portion 18 along the sides thereof are extensions 20 which provide side flanges.

When the ferrules 12 are placed upon the heads 10 of the respective contacts B of miniature connectors, adjoining ferrules 12 around the contacts B are quite close to each other and are in constant danger of short circuiting one another. In the past, spaghetti insulation has been used to prevent such short circuiting, but the use of the spaghetti insulation over the contacts has been a source of great inconvenience, and it consumes considerable time to install.

A honeycomb insulator according to my present invention, generally designated as D, covers the contact heads of all eight contacts B at one time. The honeycomb insulator D has a relatively elongated, central body 22 of insulating material formed with a plurality of through openings 24 therein. A pair of spaced side legs 26, 28 are integrally formed with the body portion 22 closely straddle or embrace the projecting portion 18 of the connector block A and to fit over the ledges or flanges 20 of the block A in a neat fashion after the releasable sliding contact clips are located in position.

The inner wall 26A of the leg 26 and the parallel, inner wall 28A fit snugly over two parallel walls 30, 32 of the central square-like portion 18 of the insulator so that the honeycomb insulator D cannot turn with respect to the insulating block A of the connector.

The wires 16 connected to the releasable clips C are first threaded through one of the openings 24; and when the wire and clips are attached to the connector, the insulator is moved along the wires to cover the junction of the connector contacts and the detachable clips. In order to open or replace a connector, the honeycomb insulator is simply moved away from the connector.

Although my invention has been described in considerable detail, such description is intended as being illustrative rather than limiting, since the invention may be variously embodied.

I claim as my invention:

In combination, an electrical connector member and a honeycomb insulator and spacer easily removably associated therewith, said connector member including a block of insulating material and a plurality of contacts of electrical conducting material mounted upon said block, said contacts each having a portion extending outwardly from said block, said connector member further including a plurality of exposed clips of electrical conducting material each detachably engaging a separate one of said contacts at the outwardly extending portions thereof to form exposed connections, said honeycomb insulator and spacer being removably and slidably inserted about and maintaining each of said exposed connections respectively in spaced relation, thereby insulating the exposed connections from each other, said insulator and spacer being slidably relative to said exposed connections and comprising a relatively elongated central body of insulating material including a plurality of through openings therein, said openings loosely and releasably receiving a separate one of each of said exposed connections, and a pair of spaced legs integrally formed with said body portion for closely

embracing sides of said block and precluding lateral movement of said central body member.

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