United States Patent [19]

Haag et al.

[11] **3,822,416**

[45] **July 2, 1974**

[54] **ELECTRICAL CONNECTOR**

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[22] Filed: **July 27, 1973**

[21] Appl. No.: **383,091**

[30] **Foreign Application Priority Data**

Aug. 4, 1972 Germany 7228972

[52] **U.S. Cl.** ..... **339/65**, 339/125 R, 339/176 MP, 339/198 H

[51] **Int. Cl.** **H01r 13/20**

[58] **Field of Search** ..... 339/198 R, 198 G, 198 GA, 339/198 H, 198 U, 198 K, 5, 176 MP, 125, 65, 66

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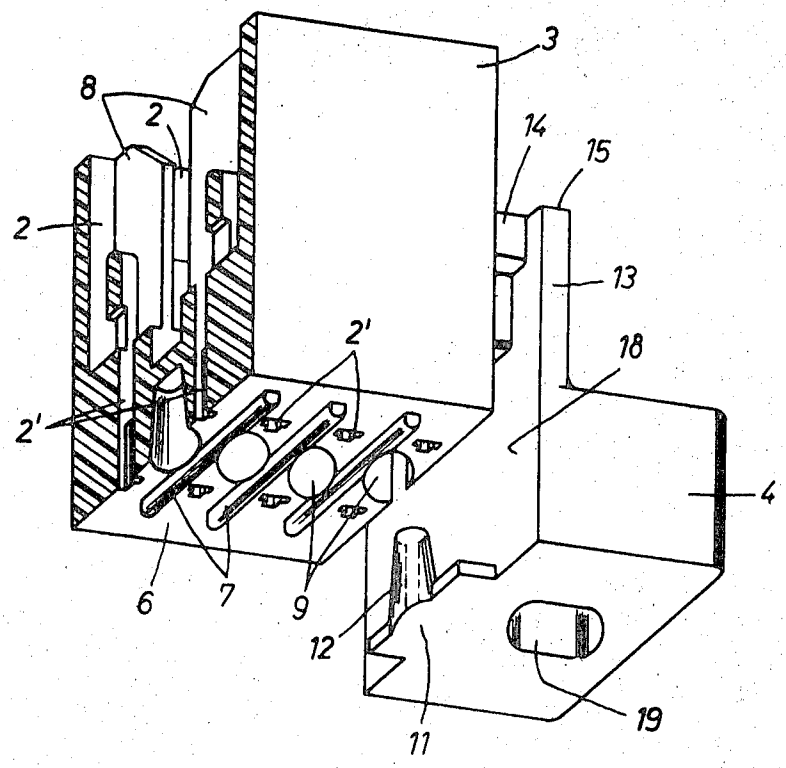
[57] **ABSTRACT**

An electrical connector in which mounting blocks are fixed to the end faces of an insulating connector strip having contact cavities therein. A plurality of receptacles are formed in the bottom of the strip. Each mounting block has an upstanding stud which extends into the receptacle closest to the corresponding end face of the strip. Extensions formed on the mounting blocks engage in the contact cavities closest to the end faces of the strip whereby the studs and extensions on the blocks interlock the blocks to the ends of the strip. The strip is originally cut to a desired length and thereafter the mounting blocks are attached thereto.

10 Claims, 5 Drawing Figures



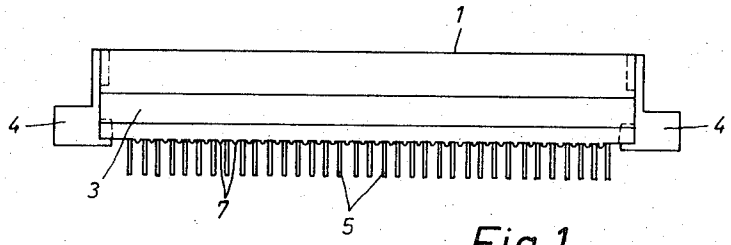


Fig.1

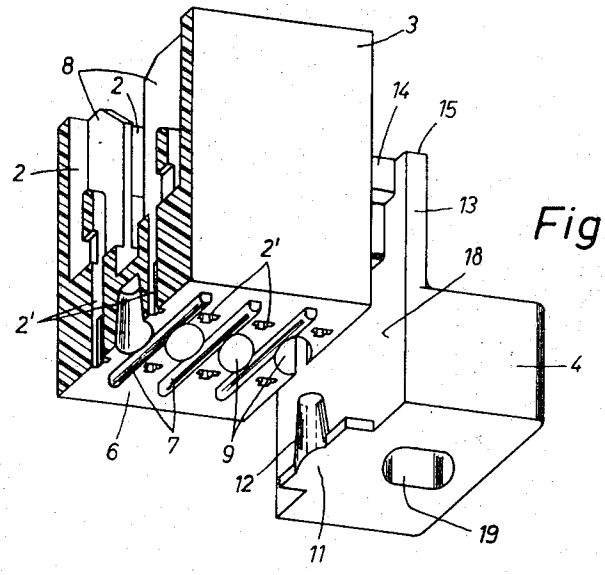


Fig.2

Fig.3

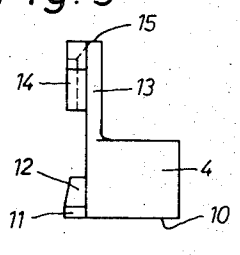


Fig.4

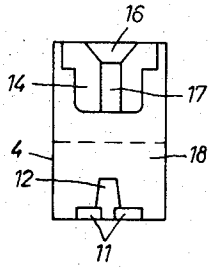
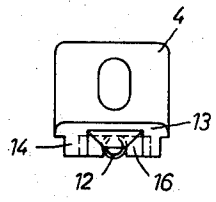


Fig.5



ELECTRICAL CONNECTOR

BACKGROUND OF THE INVENTION

The present invention relates generally to an electrical connector and, more particularly, to a connector in which a pair of mounting blocks are attached to the end faces of a connector strip.

Convention insulating connector strips provided with contact cavities are manufactured in excessive lengths and are then cut in accordance with the required number of contacts. Thereafter, the shorter connector strips are connected on their end faces with mounting blocks. These blocks are made, for example, from a plastic material having good toughness properties. The mounting block is designed such that a plate or board connected to the flange of the block by means of a short web or bridge piece can be inserted from above into an open contact cavity in the insulating strip with a piece thereof extending from the lower edge gripping over the bottom side of the strip. During assembly, however, this mounting block is exposed to bending stresses calling for a special kind of material to be used in the manufacture of the block.

What is desired then is a connector strip of variable length which is capable of being provided with mounting blocks which are joined to the end faces of the strip without being subjected to bending stresses.

SUMMARY OF THE INVENTION

According to the principal aspect of the present invention, an insulating connector strip is formed with a plurality of receptacles opening at the bottom surface thereof. The receptacles lying closest to the end faces of the strip are engaged by an upstanding stud formed on each mounting block. The blocks are also formed with extensions which are engaged in the contact cavities in the strip which are closest to the end faces. The studs and extensions on the blocks engaged in such receptacles and cavities, respectively, allow the mounting blocks to be secured to the connector strip without being subjected to bending stresses. Moreover, the connector strip may be cut to any length and the mounting blocks readily secured to the end faces of the strip.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a side elevational view of a connector constructed in accordance with the present invention;

FIG. 2 is a fragmentary perspective view showing one end of the insulating connector strip utilized in the connector illustrated in FIG. 1, with a mounting block shown in position to be joined to the end face of the strip;

FIG. 3 is a side elevational view of the mounting block;

FIG. 4 is a front elevational view of the mounting block; and

FIG. 5 is a top plan view of the mounting block.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawing in detail, the connector of the present invention, generally designated 1, comprises an elongated insulating strip 3 having a plurality of contact cavities 2 formed therein which open at the upper surface of the strip. Mounting blocks 4 are mounted on the end faces of the strip. The cavities 2 serve to retain contact elements (not shown) in position in the connector with the terminals 5 of the contact elements extending through openings 2' in the bottom part of the strip. The insulating strip 3 as well as its mounting blocks 4 are preferably made from a thermosetting plastic material.

As best seen in FIG. 2, transversely extending projecting ribs 7 are formed on the bottomside 6 of the strip 3. The spaced relation of these ribs corresponds to the spacing between the walls 8 which separate the contact cavities 2 from one another. Receptacles 9 opening at the bottom side 6 of the strip 3 are located between the ribs 7. The receptacles are arranged at the same spaced relation as the contact cavities 2 and openings 2'. Each receptacle is in the form of a blind or a pocket hole.

The end of the mounting block 4 directed toward the end face of the strip 3 is formed with an outwardly projecting plate 11 centrally positioned on the block. The bottom side 11 of the plate is flush with the bottom surface 10 of the mounting block. The thickness of the plate 11 corresponds to the height of the projecting ribs 7 on the strip 3. An upstanding stud 12 is provided on the plate 11. The stud may be either cylindrical or slightly conically tapered toward the upper free end.

The mounting block 4 is formed with an upstanding flange 13 which carries an extension 14 on its surface 18 directed toward the end face of the insulating strip 3. The extension 14 has a configuration complementary to that of a contact cavity 2. The upper end of the extension 14 is flush with the top edge 15 of the flange 13. A bevelled entranceway 16 opening at the top of the extension 14 leads to a printed circuit board guide slot 17 as best seen in FIG. 4.

A vertical opening 19 is formed in each mounting block 4 for receiving a bolt for connecting the block to a mounting board (not shown) underlying the connector 1.

During manufacture, the connector strip 3 is cut to its desired length. The strip is cut at its opposite ends so that the contact cavities 2 and cylindrical receptacles 9 thereat open at the end faces of the strip. To assemble a mounting block 4 on the strip, the stud is inserted from below into the receptacle 9 adjacent to the end face of the strip until the place 11 lies under the bottom side 6 of the strip. At the same time, the flange 13 is swivelled until the extension 14 engages in the cavity 2 adjacent to the end face. Thus, the mounting block 4 is force-and-form lockingly connected to the connector strip 3. To additionally secure the blocks to the strip, the surface 18 of the blocks may be cemented to the insulator strip or may be joined thereto by ultrasonic welding.

From the foregoing, it will be appreciated that the blocks 4 of the invention may be easily mounted on the connector strip 3 without bending stresses being imparted to the blocks, thus allowing the use of thermosetting plastic material as the material of the blocks.

What is claimed is:

1. An electrical connector comprising:
an insulating connector strip having a plurality of contact cavities therein, said strip terminating in a pair of end faces;
a mounting block adjacent to each said end face;
a plurality of receptacles formed in said strip opening at the bottom surface thereof;

each said mounting bock being provided with an upstanding stud extending into the receptacle closest to the corresponding end face of said strip;

the contact cavities in said strip closest to said end faces opening at said faces; and

extensions formed on said mounting blocks engaged in said contact cavities closest to said end faces.

2. A connector as set forth in claim **1** wherein said receptacles are arranged at the same spaced relation as the contact cavities in said strip.

3. A connector as set forth in claim **1** wherein ribs are formed on the bottom surface of said strip between said receptacles, said ribs extending transversely in relation to the longitudinal direction of said strip.

4. A connector as set forth in claim **1** wherein an integral plate is formed on each block extending toward the corresponding end face of said strip, the bottoms of said plates being flush with the bottoms of said blocks, and said plates having a thickness corresponding to the height of said ribs.

5. A connector as set forth in claim **4** wherein said studs are positioned on said plates.

6. A connector as set forth in claim **1** wherein each said mounting block includes an upstanding flange, each said extension is flush with the top edge of said flange and has a cross-section which corresponds to that of one of said contact cavities.

7. A connector as set forth in claim **1** wherein a vertically extending printed circuit board guide slot is formed in said extension of each said block.

8. A connector as set forth in claim **1** wherein the surface of each said block is intimately joined to the corresponding end face of said strip.

9. A connector as set forth in claim **1** wherein both said insulating strip and said mounting blocks are made from a thermosetting plastic material.

10. A connector as set forth in claim **1** wherein each said extension has a configuration corresponding to that of one of said contact cavities.

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