

[72] Inventor **William Vito Pauza**  
**Harrisburg, Pa.**  
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 [73] Assignee **AMP Incorporated**  
**Harrisburg, Pa.**

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*Primary Examiner*—James A. Leppink  
*Assistant Examiner*—Robert A. Hafer  
*Attorneys*—Curtis, Morris and Safford, Marshall M.  
 Holcombe, William Hintz, William J. Keating, Frederick W.  
 Raring, John R. Hopkins, Adrian J. La Rue and Jay L.  
 Seitchik

[54] **PRINTED CIRCUIT BOARD CONNECTOR**  
**2 Claims, 5 Drawing Figs.**

[52] U.S. Cl. .... 339/17,  
 339/176 MP, 339/217 S

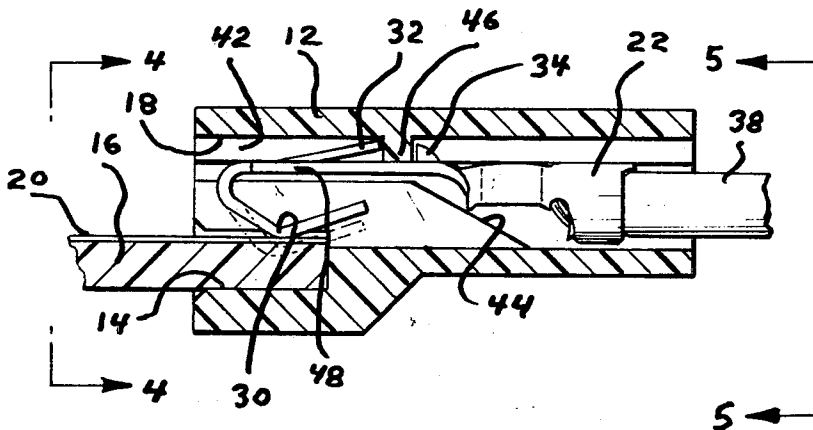
[51] Int. Cl. .... H01r 13/50,  
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[50] Field of Search ..... 339/217 S,  
 176 MP, 17

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**ABSTRACT:** An electrical connector for a printed circuit board or the like comprising an insulating housing and a plurality of electrical contacts disposed in regularly spaced cavities in the housing. An elongated slot communicates with the cavities and receives the printed circuit board. Stabilizing means are provided in the housing cavities and on the contacts for maintaining the contacts in position within the housing.



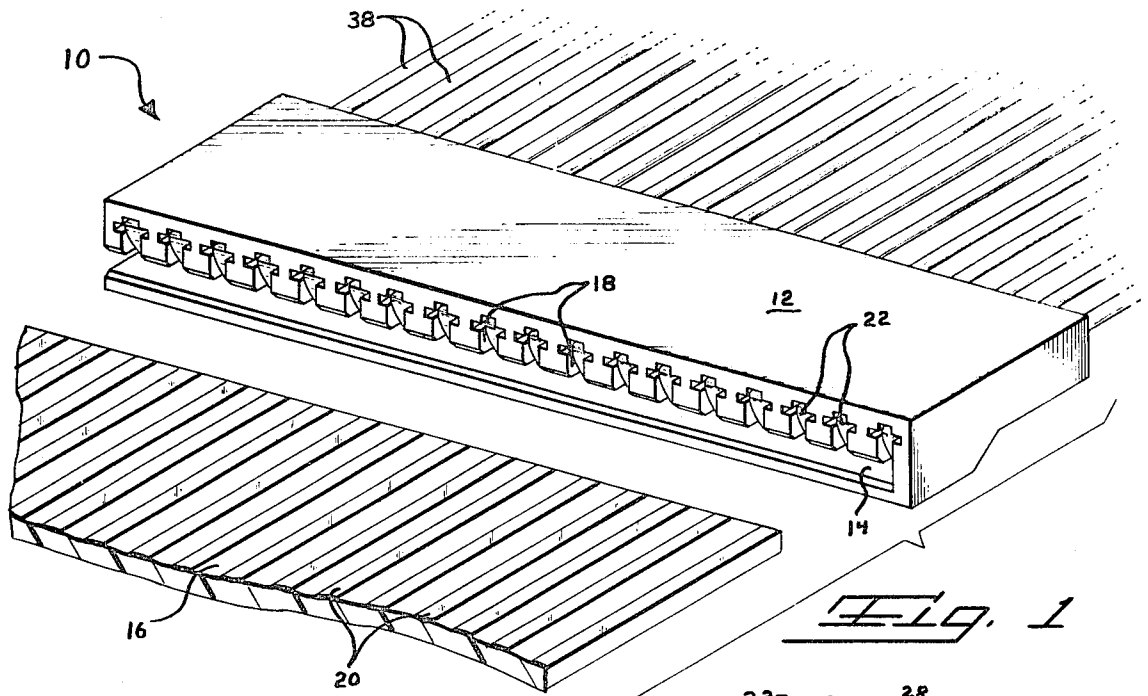


FIG. 1

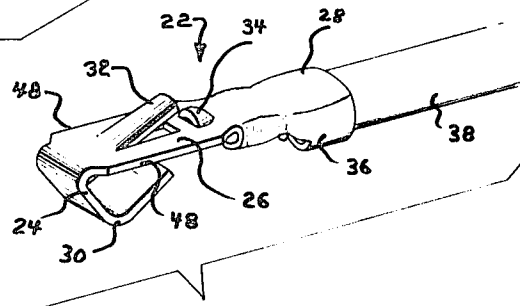
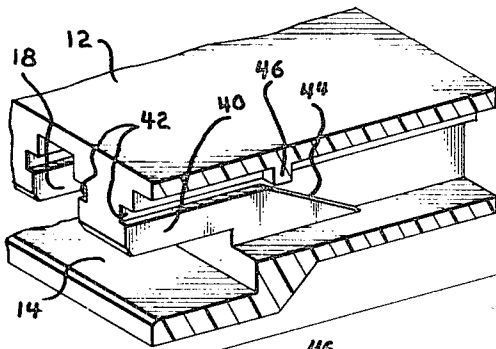


FIG. 2

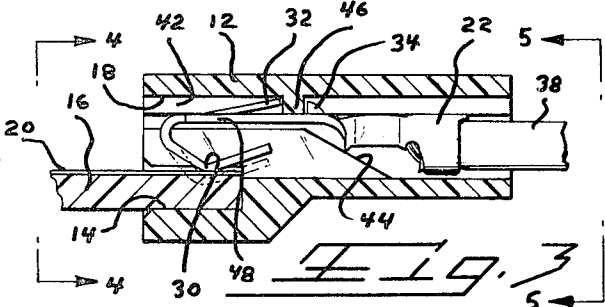
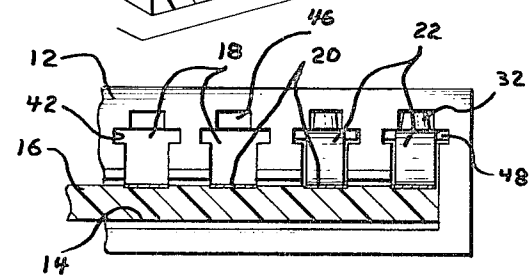
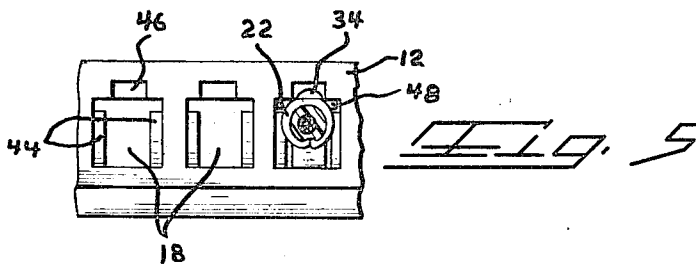


FIG. 4

FIG. 5



INVENTOR.  
WILLIAM VITO PAUZA  
BY *Jay H. Mitchell*

## PRINTED CIRCUIT BOARD CONNECTOR

This invention is directed to an edge connector for a printed circuit board or similar article. The connector comprises a plurality of electrical contacts having reversely bent contact portions for engaging the circuitry on a printed circuit board. The contacts are provided with runners along their opposite lateral edges which runners nest in recesses formed in the connector housing for stabilizing the contacts within the housing.

It is an object of this invention to provide an edge connector for printed circuit boards or the like.

A further object is to provide an edge connector wherein both the insulating housing and the electrical contacts are of simple construction.

Another object is to provide an insulating housing for an edge connector having stabilizing means for electrical contacts.

A still further object is to provide an electrical contact having stabilizing runners for cooperation with the cavities of an insulating housing.

### BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings in which like reference numerals refer to like parts:

FIG. 1 is a perspective view showing the edge connector of the instant invention and a fragmentary showing of a printed circuit board for insertion in the connector;

FIG. 2 is an exploded perspective view showing the housing and electrical contact which form the edge connector of FIG. 1;

FIG. 3 is a cross-sectional view showing an electrical contact seated within a cavity in the insulating housing;

FIG. 4 is a partial front view of the connector as seen looking in the direction of the arrows 4-4 of FIG. 3; and

FIG. 5 is a partial rear view of the connector as seen looking in the direction of the arrows 5-5 of FIG. 3.

### DESCRIPTION OF THE PREFERRED EMBODIMENT

The attainments of the present invention will become apparent to those skilled in the art upon a reading of the following detailed description when taken in conjunction with the drawings in which there is shown and described an illustrative embodiment of the invention; it is to be understood, however, that this embodiment is not intended to be exhaustive nor limiting of the invention but is given for purpose of illustration in order that others skilled in the art may fully understand the invention and the principles thereof and the manner of applying it in practical use so that they may modify it in practical use so that they may modify it in various forms, each as may be best suited to the conditions of a particular use.

An edge connector 10 made in accordance with the teachings of the present invention is shown in FIG. 1. The connector comprises an insulating housing 12 having an elongated rectangular slot 14 for receiving a printed circuit board or the like 16. The housing 12 contains a plurality of regularly spaced cavities 18, the spacing between the cavities 18 being equal to the spacing between circuitry strips 20 on the printed circuit board.

A plurality of electrical contacts 22 are provided for disposition within the cavities of the housing. The contacts may be formed of any suitable resilient metal such as brass and the housing 12 may be formed of a suitable dielectric material such as nylon.

The contacts 22 comprises a forward blade portion 24, an intermediate portion 26 and a rearward portion 28 (see FIG. 2). The blade portion 24 of the contacts is reversely bent whereby the free end of the blade portion extends in the direction of the rearward portion. A bend section 30 on the blade portion is positioned so as to engage the circuitry strips of the printed circuit board when located within the edge connector 10.

The intermediate portion 26 of the contact is formed with a spring lance 32 for retaining the contact within housing 12 and a stop means 34 for limiting the insertion of the contact with the cavities 18. The lance 32 and stop means 34 lie adjacent each other and are oppositely disposed. The rearward portion 28 of the contacts is provided with a ferrule 36 for receiving a wire conductor 38. The wire conductor is crimped or otherwise mechanically secured and electrically connected to the contact 22 by means of the ferrule 36 in a conventional manner.

Each of the cavities 18 of housing 12 extends completely through the housing and is in communication with the slot means 14. The cavities 18 have a forward portion 40 of generally T-shaped configuration. The portion 40 of the cavities contains the blade portion and intermediate portion of the contacts. A pair of oppositely facing recesses 42 are formed in the sidewalls of each of the cavities 18 and terminate in ramps 44 leading from the recesses to the bottom of the cavities. A shoulder 46 is also provided within each of the cavities and has forward and rearward faces for cooperation with the lance means 32 and stop means 34 of the contacts.

Upon insertion of the contacts 22 within the housing cavities the lance means 32 will be depressed by shoulder means 46 until the contact is fully seated within the cavity whereupon the lance 32 will spring outwardly and will cooperate with stop means 34 to engage opposite sides of shoulder 46 to retain the contact in position. The retention provided by the lance 32 and stop means 34 serves only to lock the terminal axially within the housing cavities and for this reason means are provided for stabilizing the contacts in transverse directions within the housing cavities. The intermediate portions 26 of the contacts are provided with longitudinally extending runners 48 disposed along opposite side edges of the contacts and these runners will nest within the recesses 42 of the housing upon insertion of the contacts into the cavities 18. The contacts are thus fully supported over a substantial portion of their length so that the contacts will remain in proper position when contacted by the edge of a printed circuit board.

In FIG. 3 the initial position of the blade portion 24 is shown in dotted lines. When the printed circuit board 16 is inserted into the housing slot 14 the blade portions will contact the circuitry on the board and will move upwardly into the full line position shown in FIG. 3. The resilient nature of the contacts provides the force necessary to produce a proper electrical connection between the contacts and the printed circuitry strips.

The connector 10 is retained in position on the edge of a printed circuit board by the spring force developed between the contacts and the circuitry strips and by frictional engagement between the printed circuit board and the inner surfaces of the slot 14. Proper orientation between the edge connector and the printed circuit board may be easily achieved by means of a keying projection 50 located along one side of the connector which projection may engage a side edge of the printed circuit board. The contacts 22 are properly oriented within the cavities 18 of the housing by means of the ramps 44 which cause the lateral runners 48 of the contacts to move upwardly into the recesses 42 to insure proper orientation between the contacts and the housing.

Changes in construction will occur to those skilled in the art and various apparently different modifications and embodiments may be made without departing from the scope of the invention. The matter set forth in the foregoing description and accompanying drawings is offered by way of illustration only. The actual scope of the invention is intended to be defined in the following claims when viewed in their proper perspective against the prior art.

I claim:

1. An edge connector for a printed circuit board or the like comprising a housing formed of an insulating material, said housing having a plurality of regularly spaced cavities disposed therein, elongated slot means formed in said housing and communicating with said cavities along a first side of said

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slot, a second side of said slot being opposite to said first side and being uninterrupted for receiving and supporting an edge of a printed circuit board, each said cavity being adapted to receive an electrical contact and having a depending shoulder disposed along one side thereof, said shoulder being generally intermediate the ends of said cavity and being of short longitudinal extent relative to the longitudinal extent of said cavity, oppositely disposed recesses formed in said cavities and extending longitudinally therealong for stabilizing a contact, said recesses extending from the end of said cavity communicating with said slot to a point generally midway along the longitudinal extent of said cavity, and ramp means formed in the lateral walls of said cavity, and extending from said midway point to a second side of said cavity opposite to said one side, for guiding contact portions into said recesses.

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2. An edge connector as set forth in claim 1 further comprising an electrical contact disposed in each said cavity and having a forward portion and a rearward portion, said forward portion having a reversely bent contact blade for engaging circuitry on a printed circuit board, said rearward portion having means for connection to a wire conductor, and an intermediate portion disposed between said forward and rearward portions, said intermediate portion having rearwardly extending lance means and forwardly extending stop means for engaging respectively the forward and rearward faces of said shoulder for retaining said contacts in said cavities said intermediate portion further having laterally extending runners disposed within said recesses for stabilizing said contacts within said cavities.

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