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220, 256 C, 258 F, 259 F, 262 F, 265 F, 266 F, 270

[50] Field of Search.....

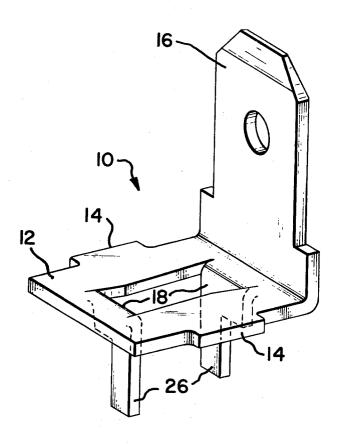
[11] 3,601,752

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[21]				UNITED STATES PATENTS			
[22]	Filed	July 23, 1969		753,976		Goss	24/227
[45]	Patented	Aug. 24, 1971		2,301,288	11/1942	Knauf et al	339/220
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[54]	ELECTRICAL CONTACT 3 Claims, 5 Drawing Figs.			W. Raring, John R. Hopkins, Adrian J. La Rue and Jay L. Seitchik			
[52]] U.S. Cl		339/17 R,		-		
			339/220 R	ABSTRACT	ABSTRACT: A contact is disclosed for electrically connecting		

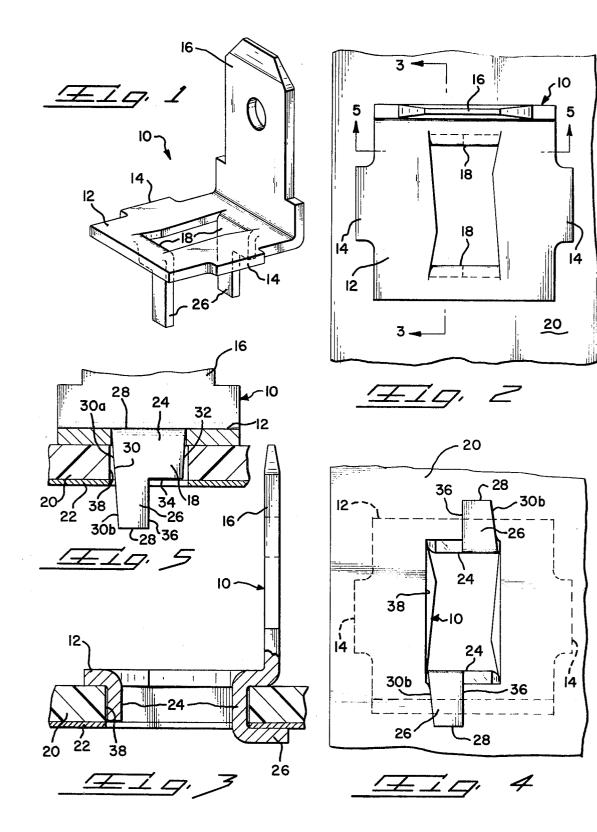
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ABSTRACT: A contact is disclosed for electrically connecting conductors to printed circuit boards or the like. More specifically the contact has provision for staking connection to a circuit board and an upstanding terminal for mating engagement with a terminated conductor.



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ELECTRICAL CONTACT

BACKGROUND OF THE INVENTION

Heretofore electrical connections of wire conductors to printed circuit boards and the like have been made by riveting receptacles in place on the circuit board and mating therewith a conductor terminated with a post or pin. Such connections are expensive in that the receptacle, comprising one or more 10 parts, must be mated with the rivet and then the assembly placed in position for the riveting operation. The use of different machinery and its operators for each operation, in addition to the quantity of stock material used, entails high production costs which are objectionable. Moreover, such 15 overlapping or side-by-side position with sides 36 adjacent connections tend to become faulty in that the rivet will sometimes work loose and rotate in the circuit board thereby causing a faulty electrical connection.

SUMMARY OF THE INVENTION

This invention relates to an electrical contact for facilitating the connection of wire conductors to a printed circuit board or the like.

Accordingly, it is an object of the invention to provide a simple and inexpensive contact for facilitating electrical con- 25 nection between a conductor and a printed circuit board.

It is a further object of the invention to provide a one-piece contact which can be stored and fed in strip form and staked to a circuit board in a one-stroke operation.

It is another object of the invention to provide a contact 30that, when staked to a circuit board, will not twist or rotate and lose electrical connection.

Other objects and attainments of the present invention will become apparent to those skilled in the art upon a reading of 35 the following detailed description when taken in conjunction with the drawings in which there are shown and described illustrative embodiments of the invention; it is to be understood, however, that these embodiments are not intended to be exhaustive nor limiting of the invention, but are given for illustration in order that others skilled in the art may fully understand the invention and principles thereof and the manner of applying 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.

IN THE DRAWINGS

FIG. 1 is a perspective view showing a contact embodying the teachings of the present invention;

FIG. 2 is a top plan view of the contact shown in FIG. 1, said 50 contact being mounted on a printed circuit board or the like;

FIG. 3 is a cross-sectional view taken along the line 3-3 of FIG. 2;

FIG. 4 is a bottom plan view of the contact shown in FIG. 1, said contact being mounted on a printed circuit board or the 55 like: and

FIG. 5 is a cross-sectional view taken along the line 5-5 of FIG. 2 prior to the tab-bending operation.

The contact of the present invention, indicated generally at 10, is shown in FIG. 1. A series of such contacts are formed in 60 strip form from sheet metal strip. The contact comprises a generally rectangular base portion 12 having ears 14 thereon which are the excess remaining from the slugs (not shown) which join adjacent contacts in strip form. Integral with and extending from one side of base 12 is a terminal post 16 65 adapted to receive thereon a terminated wire conductor.

Cut out of and depending from base 12 are tabs 18 (FIGS. 1 and 5) for securing the contact 10 to a printed circuit board or the like 20 (FIGS. 2, 3, 4, and 5). Each circuit board 20 may have a printed circuit 22 on the rearward face thereof. Each 70 tab 18 is comprised of a body 24 and, integral with and depending therefrom, a tine 26. The body 24 is of trapezoidal

shape having a long parallel side 28, one converging side 30a which is a portion of tab side 30, a second converging side 32, and a shorter parallel side, a portion of which is shown at 34, and the remainder being the imaginary extension of side 34 extending to converging side 30a, which imaginary extension divides the body 24 and tine 26. The tine is of trapezoidal shape with the aforesaid imaginary extension of side 34 denoting the longer parallel side. The remaining three sides are one converging side 30b of tine 26 which is a portion of side 30, the second converging side 36, and the shorter parallel side 28.

The shape of the two tabs 18 is such that no stock material is wasted when forming the tabs from body portion 12. Prior to bending tabs 18 out of the plane of body 12, tines 26 are in each other and sides 28 adjacent sides 34, it being obvious that sides 28 and 34 are of equal length.

In use, the contact, as shown in FIG. 1, is positioned on board 20 (FIG. 1) with tabs 18 extending through a generally 20 rectangular hole 38 cut in the board FIGS. 3, 4, and 5). The tines 26 of tabs 18 are thereafter bent back against the rearward side of board 20, as shown in FIG. 3, and in the case of a printed circuit board, making contact with the circuit 22 thereon. As seen in FIG. 5 the body 24 of the tabs 18 will prohibit twisting of the contact 10 in the board 20 and the tines 26 mechanically secure the contact thereon.

It can be seen that the contact of the present invention is very simple to attach to circuit boards. By forming the contact in strip form and in one piece the contact is relatively inexpensive to produce and yet is sturdy and rigid in both construction and use.

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. It is anticipated that one embodiment of the contact of the present invention could have a second terminal extending from the base portion or that the terminal could be a receptacle. 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 40 defined in the following claims when viewed in their proper perspective against the prior art.

The invention is claimed in accordance with the following:

1. An electrical contact for securing a connector to a circuit 45 board and having means thereon for mating contact with a connector, said contact comprising a generally flat base member lying in a first plane, said base member having means integral therewith and extending therefrom in plural planes substantially normal to said first plane for securing said contact to a circuit board, said plural planes comprise second and third planes and wherein said securing means comprise first and second tab means carried, respectively, in said second and third planes, and terminal means integral with and extending from said base member, wherein each said tab means are formed from adjoining central portions of the base member and comprise a body of trapezoidal shape and a tine of trapezoidal shape integral with and extending from one side of said body, each said trapezoidal shape having two parallel and two converging sides.

2. An electrical contact as set forth in claim 1 wherein the longer parallel side of said body coincides with the juncture of said staking means and said base member, said tine extending from the shorter parallel side of said body with the longer parallel side of said tine coinciding with a portion of said shorter parallel side of said body, the remaining portion of said shorter parallel side of said body and said shorter parallel side of said tine being of equal length.

3. An electrical contact as set forth in claim 2 wherein one converging side of said tine is an extension of one converging side of said body, and the remaining converging side of said tine is normal to said parallel sides of said tine.