Aug. 18, 1970 Q. BERG 3,525,070

CONTACT LUG

Original Filed Aug. 28, 1967

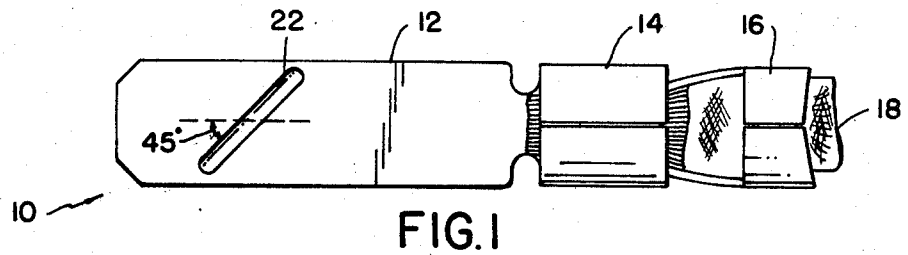


FIG.1

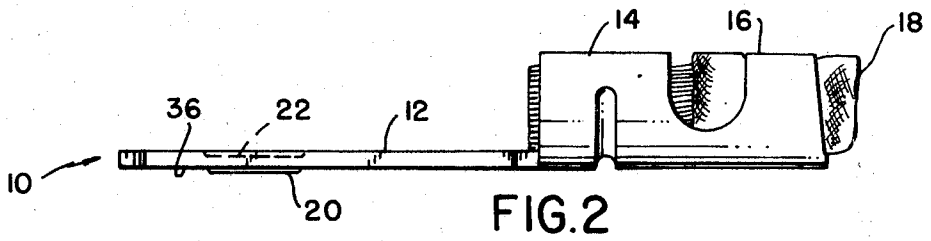


FIG.2

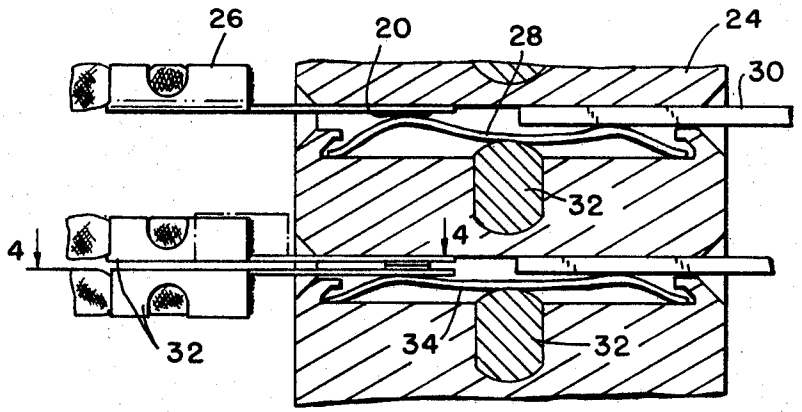


FIG.3

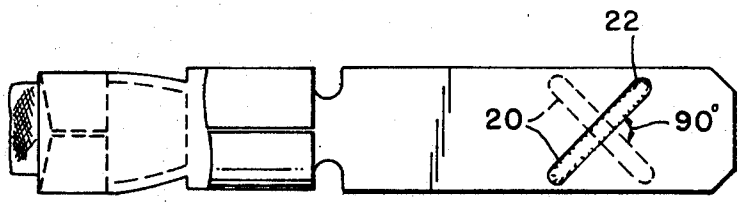


FIG.4

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CONTACT LUG

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Original application Aug. 21, 1967, Ser. No. 662,147. Divided and this application Apr. 17, 1969, Ser. No. 817,011

Int. Cl. H01r *11/08*

U.S. Cl. 339—276 3 Claims

ABSTRACT OF THE DISCLOSURE

A contact lug having a contact ridge formed in one side of the lug so that when two like lugs are positioned in back-to-back relation the ridges cross at an angle to establish a point contact electrical connection between the lugs.

This application is a division of my copending application Ser. No. 662,147, filed Aug. 21, 1967, for "Connector Block."

The invention relates to contact lugs which are secured in electrical connection on the end of insulated wires. The lugs have a flat lug portion with a contact ridge extending outwardly of the lug portion and oriented at an angle relative to the longitudinal axis of the lug portion. When two like contact lugs are in back-to-back relation the contact ridges cross each other at an angle to form a point contact electrical connection between the two lugs. Preferably the lugs are biased toward each other to provide contact pressure for forming an electrical connection at the point where the ridges meet.

Additionally, the contact lug may be used to form an electrical connection with another circuit element, such as a contact spring in a connector block. This connection is an improvement over that formed with a conventional contact lug having a flat lug portion because of the raised contact ridge which assures that a high pressure electrical connection is formed.

In the drawings:

FIGS. 1 and 2 are top and side views of a contact lug according to the invention;

FIG. 3 illustrates the use of the contact lug for forming electrical connections in a connector block; and

FIG. 4 is a sectional view taken along line 4—4 of FIG. 3, showing a pair of contact lugs in back-to-back relation.

Contact lug **10** is formed from relatively thin sheet metal and includes an elongated flat lug portion **12** and wire and insulation crimp ferrules **14** and **16**. As illustrated in FIGS. 1 and 2, ferrules **14** and **16** are crimped to an insulated wire **18** to establish reliable electrical and physical connections with wire **18**.

Flat lug portion **12** extends outwardly of the wire and insulation crimp ferrules and is provided with a contact ridge **20** which projects away from the lug portion on the opposite side thereof from the wire and insulation crimp ferrules **14** and **16**. Ridge **20** is oriented at an angle of roughly 45° to the longitudinal axis of lug **10**. The contact ridge may be formed by punching out a portion of the lug **10** so that a depression **22** is formed in the lug portion **12**.

Lug **10** may be used to form an electrical connection with contacts in a connector block **24** as illustrated in FIG. 3. Where it is desirable to form an electrical connection between a single lug **26** and a spring contact **28** in a connector block, the lug is inserted into one side of the block with the contact ridge **20** positioned adjacent the contact portion of the spring **28**. A conventional contact pin **30** may be inserted into the other side of the block so that when a cam pin **32** stresses the spring **28** the contact portions thereof engage lug **26** and pin **30**. Because the spring **28** contacts ridge **20** along the crest of the ridge, the contact pressure is high between the two and a reliable electrical connection is formed.

Where it is desirable to form an electrical connection between two lugs **32**, each like lug **10**, the lugs are arranged in back-to-back relation as shown in FIGS. 3 and 4 so that the two contact ridges **20** cross each other to provide a high pressure point contact between the lugs. When the lugs are inserted into a connector block and spring **34** is stressed, an electrical connection is established between the springs and both lugs. The spring provides the contact pressure required to make the electrical connection between the two ridges **20**. The contact ridge is the only portion of lug **10** which extends below a plane defined by the lower surface **36** of lug portion **12**. Thus when two lugs **10** are placed in back-to-back relation as in FIGS. 3 and 4 and the lug portions thereof are biased together, the contact ridges meet and are forced against each other to form an electrical connection. It is important to the formation of an electrical connection that no other portion of the lug prevent the two contact ridges from being held against each other.

Longitudinal ridges **20** are arranged at an angle of approximately 45° to the longitudinal axis of the lug portions **12** so that when two lugs are placed in back-to-back relation, the two contact ridges cross each other at 90° and permit the establishment of a reliable electrical connection between the two like lugs at the ridges. Obviously the angular orientation of the ridges may be other than 45° relative to the axis of the lug portions in order to assure that the high pressure contact is achieved.

While the connector block **24** illustrated in FIG. 3 is like that disclosed in my aforementioned copending application, the lugs **10** may be used with other connector blocks or for other purposes than establishing electrical connections with connector block contacts.

While I have illustrated and described a preferred embodiment of my invention, it is understood that this is capable of modification, and I therefore do not wish to be limited to the precise details set forth.

What I claim as my invention is:

1. A contact unit for forming an electrical connection between two circuit elements comprising: a pair of contact lugs, each contact lug formed of thin sheet metal stock and having a flat elongated lug portion, means at one end of said lug portion for establishing an electrical connection with a circuit element, and a contact ridge formed on one surface of said lug portion and projecting outwardly therefrom, said ridge oriented at an angle relative to the longitudinal axis of said lug portion, said pair of contact lugs being positioned in back-to-back engagement with the lug portions and means adjacent each other respectively and the contact ridges of the two contact

lugs crossing one another to establish a point contact electrical connection therebetween.

2. A contact unit as in claim 1 wherein said contact lugs are identical, each contact ridge is oriented at an angle of 45° relative to the langitudinal axis of its respective lug portion and the contact ridges of the two lug portions cross at an angle of 90°.

3. A contact lug as in claim 1 wherein no portion of either contact lug other than said contact ridge extends through a plane defined by the surface of said lug portion from which said contact lug projects.

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