May 7, 1963 I. F. MATTHYSSE ETAL 3,088,993

CRIMP CONNECTOR

Filed Aug. 26, 1959

FIG. 1

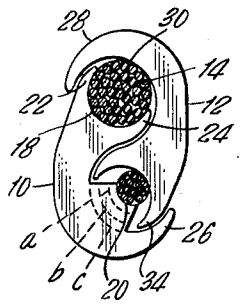


FIG. 2

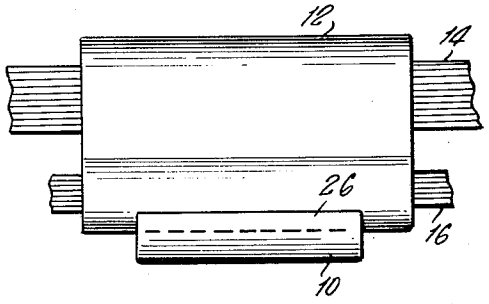


FIG. 3

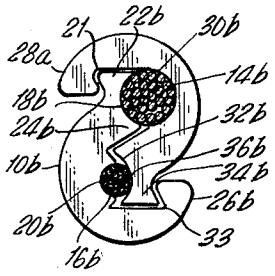


FIG. 4

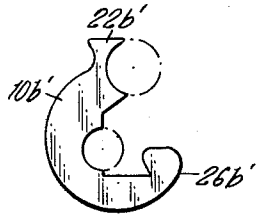


FIG. 5

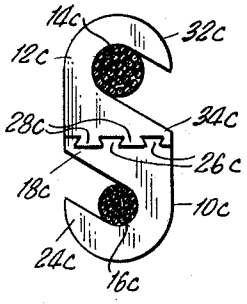
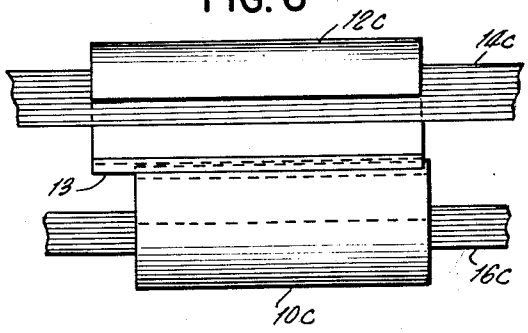


FIG. 6



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CRIMP CONNECTOR

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5 Claims. (Cl. 174—71)

My invention relates to a crimp connector and more particularly, to a connector wherein run and tap conductors can be simultaneously crimped thereto.

Crimp connectors of this type (as distinguished from splicing connectors) are provided at one end with an open groove for a continuous cable to be positioned therein, and at the other end and spaced from the run cable, a smaller groove or seat for the tap conductor. Separate seats are usually provided because of the differences in the two conductor sizes, it being difficult to seat a small size tap conductor up against a large size run conductor and secure the two together by crimping. Furthermore, where galvanic action between conductors of dissimilar metals is possible, the conductors should be spaced apart to reduce corrosion.

Accordingly, the requirement for spaced apart grooves necessitates a wide variety of connector sizes to afford the range of conductor combinations.

The principal object of the invention is to reduce the stock of connectors usually required for receiving the desired range of conductor sizes.

A further object is to provide the foregoing in a crimp connector that maintains the conductors in spaced apart relationship.

Still other objects are to provide this type of run and tap connector in a form that encircles the conductors before crimping as an aid during installation; and a connector in which the conductor grooves are peripherally closed with a minimum of clearance around the conductors.

I accomplished these and other objects and obtained my new results as will be apparent from the devices described in the following specification, particularly pointed out in the claims and illustrated in the accompanying drawing in which:

FIG. 1 is an end elevation of one form of my device;

FIG. 2 is a front elevation of the connector shown in FIG. 1;

FIG. 3 is an end elevation of a modification;

FIG. 4 is a side elevation of a part which interlocks with any of the parts of FIG. 3 to increase the range of conductor sizes that can be accommodated;

FIG. 5 is a side elevation of still another modification; and

FIG. 6 is a front elevation of the same.

Referring more in detail to the drawing, FIG. 1, reference numerals **10** and **12** designate a two-piece connector for a run conductor **14** and a tap conductor **16**.

The connector half **10** is channel shaped to provide the run conductor seat **18** and the tap conductor seat **20**, formed between the curved arms **22**, **24**, and **26**.

The other connector half **12** is similarly shaped but in the reverse position. A single curved arm **28** completes the run conductor seat **30**, and overlaps the opposing arm **22** to close the run conductor opening, while remaining arm **32** and **34** form the channel for the tap conductor seat **36** which is overlapped by arm **26**.

One connector half is positioned over a side of the run conductor. The second conductor half is then applied endwise to interlock the parts. The tap conductor is then inserted. The parts will normally stay interlocked until crimped.

The connector half **10** may be replaced by a connector

part which will accommodate different size tap conductors as is indicated by the dot-dash lines "*a*" and "*b*" and "*c*." The connector indicated by dot-dash lines "*c*" is the same as connector part **12**. In FIG. 2, the relative connector part lengths are shown for the combination of conductor sizes illustrated. Thus, for the connector part **12**, a 2" length may be used in combination with a 1¼" length for part **10**.

In FIG. 3 is illustrated a modification of the invention. Here the connector parts may interlock by means of a tongue and groove structure. Thus, part **10***b* is provided with a tongue **22***b* which fits in groove **21** formed by arm **28***a*. The run conductor **14***b* is positioned between seat **18***b* and **30***b*. In the tap position, tongue **34***b* of connector half **12***b* is interlocked in groove **33** formed by arm **26***b* of connector half **10***b*. The tap conductor **16***b* is positioned between seats **20***d* and **36***b*. Completing the tap conductor seat **36***b* of connector part **12***b* is arm **32***b*, while the counterpart arm **24***b* extends from connector part **10***b* to complete the run conductor seat.

FIG. 4 illustrates an additional part for interchange with any of the parts shown in FIG. 3 to increase the range of conductor sizes that may be accommodated with four different connector parts. Ten combinations of conductor sizes are possible with four different connector parts.

This form of the connector also possesses the advantage of encircling the run conductor and therefore cannot accidentally separate during the installation. Also the conductor seats are closed with a minimum of clearance around the conductors. The tool therefore does not have to close down the connector excessively before being compressed on the conductor.

Another modification is shown in FIG. 5. This comprises connector part **10***c* and **12***c* slidable interlocked with a tongue and groove joint. This modification differs from the previous types in that each conductor is completely enclosed by a conductor part. For example, connector part **12***c* with extending arms **32***c* and **34***c* encloses conductor **14***c* while connector part **10***c* within extending arms **18***c* and **24***c* encloses conductor **16***c*.

The tongues **28***c* extending from connector part **12***c* are interlocked by means of the dovetail construction with tongues **26***c* extending from connector part **10***c*.

As is shown in FIG. 6, by making connector part **10***c* shorter in length than connector part **12***c*, there is provided an overhang **13** which shields the tap conductor **16***c*. Thus, it is possible to reduce corrosion when joining aluminum to copper conductors.

The constructions shown and described will reduce the number of complete connectors required to be kept in stock to the minimum. One-half a connector may be combined on the job with another connector half for any predetermined run and tap conductor combination. In this manner the advantages of a bolted run and tap connector may be obtained in using simultaneously made run and tap conductor crimps. The two connector halves are retained on the run conductor to free both hands if needed for operating the crimping tool. If desired the grooves may be of the enclosing type eliminating the need for closing the connector arms before compression to the conductor.

As an aid to the crimping operation, the outline of the assembled connection is oval in cross-section making crimping easier and the final connection stream-lined in appearance.

When used for aluminum to copper conductors a corrosion shield may be formed to protect the tap conductor.

The connector parts may be made by individually shaping each part or by extruding an elongated member hav-

ing the desired contour and slicing off the connector part in the needed length.

I have thus described my invention, but I desire it understood that it is not confined to the particular forms or uses shown and described, the same being merely illustrative, and that the invention may be carried out in other ways without the departing from the spirit of my invention, and therefore, I claim broadly the right to employ all equivalent instrumentalities coming within the scope of the appended claims and by means of which objects of my invention are obtained and new results accomplished as it is obvious that the particular embodiments herein shown and described are only some of the many that can be employed to obtain these objects and accomplish these results.

I claim:

1. A run and tap connector consisting of two connector halves each of uniform cross section throughout its length and having mutual interlock means to join said two halves into the complete connector; said complete connector having two spaced apart conductor receiving portions for supporting in spaced apart relationship two cables; each connector half comprising a body portion and a conductor seat portion; said connector halves body portion being identical, a section of each of the body portions between said conductor seats including a portion extending on each side of the plane passing through each of the conductors and made of malleable metal suitable for crimping said connector halves into a unitary assembly about the two cables.

2. The connector of claim 1 wherein each of said connector halves includes two spaced apart cable receiving grooves, each groove forming one half of one of said spaced apart conductor receiving portions.

3. A run and tap connector consisting of two connector halves having mutual interlock means to join said two halves into the complete connector; said complete connector having two spaced apart conductor receiving portions for supporting in spaced apart relationship two cables; each connector half comprising a body portion and a conductor seat portion; said connector halves body portions being identical and made of malleable metal suitable for crimping said connector halves into a unitary assembly about the two cables, each of said connector halves includes one of said spaced apart conductor receiving portions.

4. A run and tap connector comprising two malleable metal interlocking connector halves each of uniform cross section throughout its length; and each said connector half provided with a face to mate with a face on the other said connector half, a pair of longitudinally disposed, transversely spaced apart, conductor receiving grooves on said face, and means to mutually interlock with interlock means on the other said connector half; each said connector half comprising a body portion and a conductor seat, the body portion of each connector half being identical with the other said connector half; a section of each of the body portions between said conductor seats including a portion extending on each side of the plane passing through each of the conductors and said two connector halves having a mode of operation whereby longitudinally sliding said two connector halves together, with said faces mated, interlocks one said interlock means with the other said interlock means and secures said two connector halves against transverse separation, and aligns one said pair of grooves with the other said pair of grooves to form a pair of conductor receiving bores.

5. A run and tap connection comprising: two connector halves having mutual interlock means joining said two halves into a complete connector; said complete connector having two spaced apart conductor receiving portions; a conductor disposed in each conductor receiving portion; each connector half comprising a body portion and a conductor seat portion, the body portion of each connector half being identical; said complete connector and included conductors being deformed into a unitary mechanical and electrical assembly by constrictive pressure on the periphery of said complete connector.

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