

May 1, 1962

W. M. WHITLEY

3,032,603

CONNECTOR WITH TEMPORARY CABLE HOLDING MEANS

Filed Feb. 27, 1961

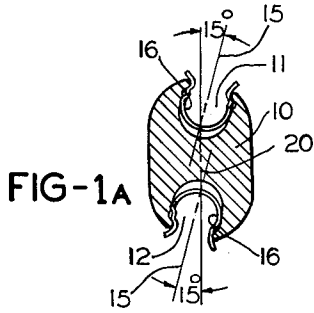


FIG-1A

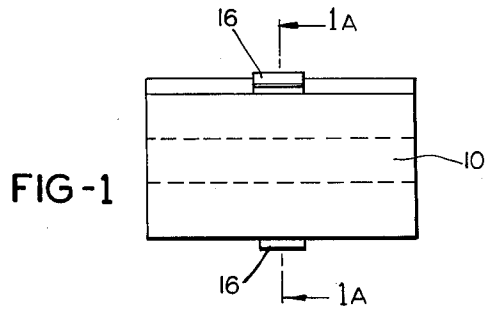


FIG-1

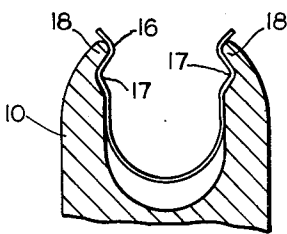


FIG-2

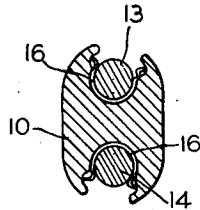


FIG-3

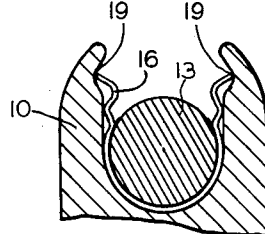


FIG-4

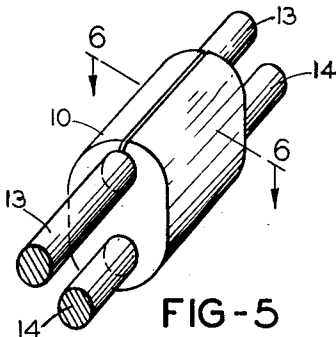


FIG-5

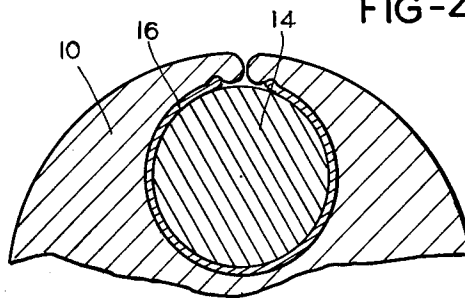


FIG-6

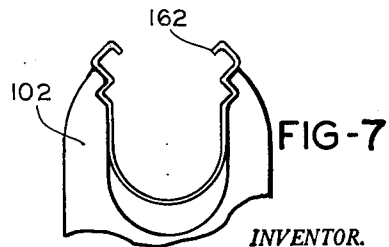


FIG-7

INVENTOR.

WILLIAM M. WHITLEY

BY

*R. S. Stickler*

1

3,032,603

## CONNECTOR WITH TEMPORARY CABLE HOLDING MEANS

William M. Whitley, Ambler, Pa., assignor to Effco, Inc.,  
Chattanooga, Tenn., a corporation of Tennessee  
Filed Feb. 27, 1961, Ser. No. 91,995  
2 Claims. (Cl. 174-94)

The present invention relates to wire and cable devices and relates in particular to a wire or cable connector operative to make a physical and an electrical connection with a wire or cable.

A characteristic of the class of connector devices to which the present invention relates is that the devices are formed of a malleable material such as aluminum, copper, bronze, soft iron or similar materials.

The cable is placed in a slot or other opening in the connector device and held there by some temporary means. Thereafter ultimate clamping of the connector device to the cable is effected by deforming or crimping the connector utilizing suitable pressure to cause the connector to seize tightly to the cable.

A major difficulty with prior art connectors is that the preliminary or temporary clamping means incorporated in the connector is usually not reliable in that the cable frequently jumps out of the slot in the connector before the lineman or other operator can bring his crimping device into position.

A special feature of the invention is the provision of a novel connector device of the above general class.

Another feature of the invention is the provision of a connector device having a novel preliminary clamping or holding means.

A further feature of the invention is the provision of a novel connector body structure.

A still further feature of the invention is the provision of a connector device operative to receive at least two ends of wire or cable in opposed slots where the slots are so positioned relative to one another to provide maximum web or wall thickness between the slots for a given overall dimension of the connector body and a given depth and width of slot.

A connector device embracing certain features of the present invention may comprise a malleable element having at least one slot operative to receive a length of cable and spring means or temporary lock means disposed in a slot operative in cooperation with the body element and the cable to effect a temporary connection between the body element and the cable.

Other features and advantages of the present invention will become more apparent from an examination of the succeeding specification when read in conjunction with the appended drawings in which:

FIG. 1 is a side elevational view of a double slotted connector device embracing the principles of the present invention;

FIG. 1a is a vertical section of the device of FIG. 1 as viewed in the plane of the line 1a-1a;

FIG. 2 is an enlargement of a portion of the illustration of FIG. 1a showing in detail the contour of the spring means and the contour of the marginal portion of the connector body element;

FIG. 3 is a view similar to FIG. 1a showing the spring means having been bottomed in their respective slots by the introduction of lengths of conductor;

FIG. 4 is an enlargement of a portion of FIG. 3 showing the change in relative position between the connector body element and the spring means after the introduction of a conductor;

FIG. 5 shows a pair of conductors fully clamped or crimped in the body of the connector;

2

FIG. 6 is an enlargement of a portion of a sectional view of FIG. 5 taken along the line 6-6 showing the ultimate position of the spring means, and,

FIG. 7 shows an additional embodiment of the invention.

Referring now to the drawings and in particular to FIGS. 1, 1a and 2a, there is shown a connector device including a body element 10 having a pair of opposed longitudinal slots 11 and 12 operative to receive lengths of cable 13 and 14 respectively.

Note that the slots 11 and 12, although generally opposed to one another, are offset or rotated about 15° from a truly diametrically opposed position.

Stated otherwise, the lines 15-15 which divide the respective slots into equal or symmetrical sections are rotated 15° (in a clockwise direction, as viewed in FIG. 1a) relative to the vertical line 20 which divides the unslotted body of the connector into equal sections.

The purpose of this arrangement is to effect the maximum possible web or wall thickness between the bottoms of the slots for a given slot size and for a given overall dimension of the connector body.

The offset arrangement of the slots also permits the accommodation of a wider range of cable sizes for a given size connector body.

Each slot carries a preliminary holding or temporary lock means which in the disclosed embodiment of the invention comprises a spring clip 16. The clip is generally U-shaped in configuration and is formed with one or more wrinkles, protuberances or crimps at both its terminal ends, identified by the reference numeral 17-17 (FIG. 2).

Marginal portions of the body 10 bounding the slots are formed with undercuts or grooves defining locking tabs 18-18 which cooperate with the wrinkles 17 formed in the clip to retain the clip frictionally in the position shown in FIG. 2.

The general tendency for the U-shaped clip 16 to open up develops sufficient friction to retain the clip in the position shown.

Upon the introduction of an end of cable or wire, such as identified by the reference numerals 13 and 14, the spring clip is bottomed or driven home to the position shown in FIGS. 3 and 4.

Upon this occurrence, the wrinkles 17-17 formed in the spring clip move out of engagement with the tabs 18-18 with the result that the wrinkles are moved toward one another further encircling the cable to the extent that there is no longer sufficient width at the open end of the clip to permit the cable to pass therebetween.

In addition, the terminal ends of the clip are now locked behind the tabs 18, as shown in FIG. 4, by the reference numerals 19-19.

Thus, the spring clip 16 is locked in its mating slot and the end of the cable individual thereto is locked inside the spring clip.

The elements just described and disclosed define one embodiment of the present invention. As stated previously, the structure is effective to hold the cable in place temporarily until a lineman or other operator can position a powerful crimping tool about the body of the connector to effect the final crimp or clamping operation seizing the connector to the cable.

The final appearance of the assembly after crimping is as shown in FIGS. 5 and 6.

For purposes of uniformity between the specification and claims, it is intended to refer to the spring clip 16 as a temporary lock means or as a spring means.

Furthermore, it is anticipated that a wide variety of spring clips may be devised having various contours effective to interlock with corresponding contours formed in

the marginal regions of the connector body bounding the slot without departing from the spirit and scope of the invention.

The clip 162 cooperating with connector body 102, respectively, shown in FIG. 7 is representative of an alternative embodiment of the invention.

It is to be particularly understood that the present invention certainly contemplates any spring slip structure which cooperates with the marginal portions of a connector slot where the clip is initially disposed in frictional engagement with the sidewalls of the slot in what may be defined as a first position, said first position being further defined as one in which the clip means affords free access for a cable to be dropped into the clip.

The invention further contemplates that the clip is movable relative to the connector to a second position wherein the clip is locked to the slot and the cross-sectional configuration of the clip has been so changed that a cable introduced therein when it was in the first position is no longer free to snap out of the slot.

What is claimed is:

1. An electrical connector device having a body formed with at least one slot, said slot being operative to receive a length of electrical cable, marginal portions of said body bounding the slot being formed with opposed, inwardly projecting locking tabs, movable lock means in combination with the body defining a generally U-shaped spring clip having at least one pair of opposed protuberances and a pair of opposed outwardly projecting ter-

minal ends, said clip being received in said slot and settable in a first position wherein the protuberances engage said tabs to retain the clip within the slot frictionally, said clip being further settable within said slot to a second position wherein said outwardly projecting terminal ends overtake the inwardly projecting tabs, in said second position said terminal ends cooperating with the inwardly projecting tabs to lock the clip mechanically with the slot in said second position.

2. The device of claim 1 wherein the body as viewed in cross-section is divided by a center line into two generally symmetrical sections, said body being formed with two opposed, generally symmetrical slots separated by an interior wall, said slots being offset relative to one another such that single parallel lines individual to each slot divide each said slot into two generally symmetrical sections whereby each said single parallel line subtends an angle of about 15° with said center line whereby a wall of maximum thickness is developed between said slots.

References Cited in the file of this patent

UNITED STATES PATENTS

2,744,708	Bedford	May 8, 1956
2,956,108	Brenner	Oct. 11, 1960
2,964,585	Nilsson et al.	Dec. 13, 1960

FOREIGN PATENTS

569,618	Germany	June 18, 1931
---------	---------	---------------