May 18, 1965 E. B. RAYMOND ETAL 3,184,704

TERMINAL CONNECTOR

Filed Nov. 19, 1963

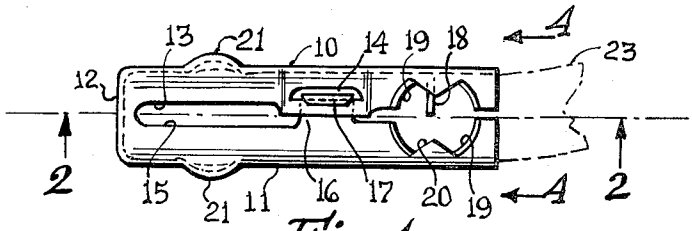

Fig. 1.

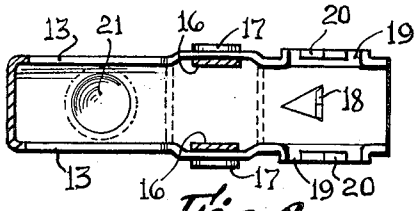

Fig. 2.

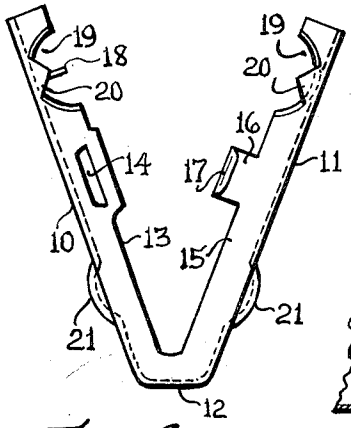

Fig. 3.

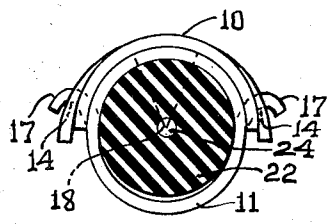

Fig. 4.

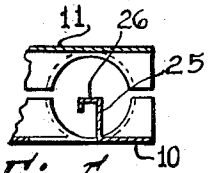

Fig. 5.

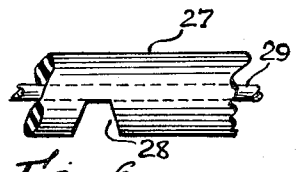

Fig. 6.

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3,184,704

TERMINAL CONNECTOR

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Our invention relates to a terminal connector particularly adapted for a distributor cable.

More particularly our invention has to do with a terminal connector having an improved and simplified construction for removably clamping the connector to an end portion of a cable having a conductor core in circuit with the connector by a contact thereof engaging the core.

A principal object of our invention is to provide a terminal connector for a distributor cable comprising substantially elongated sections which are substantially semicircular in cross section and having corresponding end portions flexibly connected together, the sections diverging outwardly from said point of connection to receive an end portion of a cable and to tightly embrace the cable when said sections are pressed together.

A further and equally important object of the invention is to provide such a terminal connector with preformed latching heads and cooperating slots, the latching heads being adapted to snap into the slots when the elongated sections of the connector are pressed into embracing position with respect to the end portion of the cable, whereby to releasably latch the sections of the terminal connector together.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

FIG. 1 is a side elevational view of the invention;

FIG. 2 is a sectional detail view taken substantially on line 2—2 of FIG. 1;

FIG. 3 is an elevational view of the invention prior to its application to a cable;

FIG. 4 is a sectional detail view taken substantially on line 4—4 of FIG. 1, showing the invention applied to a cable;

FIG. 5 is a fragmentary longitudinal section of the invention showing a modified form of construction;

FIG. 6 is a fragmentary elevational view of a cable section with which the modified form of construction shown in FIG. 5 is used.

Referring particularly to FIGS. 1 to 4 inclusive, our improved terminal connector includes complementary elongated sections 10 and 11 each substantially semicircular in cross section.

The sections 10 and 11 are flexibly connected together by an end web 12. Normally and prior to mounting upon an end portion of a cable, the sections 10 and 11 diverge from the point of connection provided by the web 12 for reasons hereinafter more fully explained. The section 10 on opposite longitudinal edge portions 13 has formed therein elongated slots 14 which extend in the direction of the length of the section 10. The section 11 on opposite corresponding edge portions 15 has formed thereon flexible latching fingers 16 each formed to provide a latch head 17. The section 10 provides a prong 18. In the outer free end portions of the sections 10 and 11 there are provided substantially semicircular openings 19. At the base of each of these openings 19 there are provided prongs 20. Adjacent the connected end portion of the sections there are formed outward projections 21.

Prior to the mounting of the terminal connector on the end portion 22 of a cable 23, the sections 10 and 11 are in diverging relation with respect to each other as shown in FIG. 3. This permits the end portion 22 of the cable 23 to be positioned between the sections 10 and 11.

After thus positioning the end portion of the cable between the sections 10 and 11, the sections 10 and 11 are pressed together upon the end portion 22 of the cable 23. During this movement of the sections 10 and 11, the fingers 16 will engage beneath the walls of the section 11. When the sections 10 and 11 have been pressed together to a point where the latching heads 17 are opposite the openings 14, such heads, due to the flexibility of the fingers 16, will snap into the openings 14 to automatically latch the terminal connector in clamping position about the end portion 22 of the cable 23. Also during the movement of the sections 10 and 11 into clamping position with respect to the cable 23, the prong 18 will be caused to penetrate the cable and contact the conductor core 24 thereof, thus connecting the terminal in circuit with such conductor core.

The projections 21 provide a frictional connection between the terminal and the walls of the socket of the distributor block (not shown) so as to provide a positive contact between the terminal and the block and to prevent displacement of the terminal from within the socket.

The cable 23 may be positioned lengthwise as shown in dotted lines, FIG. 1, with respect to the sections 10 and 11, or, if occasion should require, the cable 23 may be disposed substantially at a right angle with respect to the sections 10 and 11. When this takes place, the cable 23 extends between the sections 10 and 11 through the openings 19 provided by the free end portions of the sections 10 and 11.

When the cable is thus positioned with respect to the sections 10 and 11, the prongs 20 will be embedded in the insulation of the cable so as to retain permanent firm connection between the terminal and the cable.

One of the advantages of our invention resulting from the employment of the automatic latching arrangement of the sections which results during the pressing of the sections together upon the cable, is found in the fact that should occasion require, these sections 10 and 11 may be pressed together so as to permit the latch heads 17 to be dislodged from the slots 14, thereby freeing the sections 10 and 11 to be bent away from the cable substantially into the position shown in FIG. 3.

As the latch heads 17 are pre-formed, it will be obvious that there is no requirement for the use of tools in order to properly latch the sections 10 and 11 together. The latching of these sections 10 and 11, as before stated, takes place automatically when the sections 10 and 11 have been pressed together in tight embracing position upon the end portion of the cable 23.

In the form shown in FIGS. 5 and 6, in lieu of the prong 18 we have provided a contact finger 25 which is struck from the section 10 and is formed with a flat engaging surface 26. The cable 27 has a portion removed to provide a notch 28 (FIG. 6) which exposes a portion of the conductor core 29. In this form of construction, it will be apparent that the finger 25, in addition to providing a contact between the terminal and the conductor core, will also resist longitudinal movement of the terminal with respect to the cable 27 and thus prevent the terminal connector from pulling free of the cable 27 when the terminal is withdrawn from the socket of the distributor. In withdrawing the terminal from the socket of the distributor, it is common practice to apply pulling force on the cable. In the absence of some means of preventing displacement of the connector from the cable, the frequent pulling of the cable might disconnect or displace the terminal connector from the cable. This is prevented in the

manner above stated by the use of the finger 25 and the notch 28.

While we have illustrated and described the preferred form of construction for carrying our invention into effect, this is capable of variation and modification without departing from the spirit of the invention. We therefore do not wish to be limited to the precise details of construction set forth, but desire to avail ourselves of such variations and modifications as come within the scope of the appended claims.

Having thus described our invention, what we claim as new and desire to protect by Letters Patent is:

1. A terminal connector of the class described comprising

(*a*) a blank of material formed to provide elongated complementary sections each substantially semi-circular in cross section and having corresponding end portions flexibly connected together, said sections normally diverging from said point of connection to receive therebetween an end portion of a cable having a conductor core, said sections adapted to be pressed together to fixedly embrace therebetween said end portion of said cable,

(*b*) a pair of oppositely disposed flexible fingers having pre-formed latching heads formed on opposite long edges of one of said sections and adapted to extend into the other of said sections when said sections are pressed to embrace said end portion of said cable,

(*c*) said other section having a pair of oppositely disposed slots formed in the opposite long edge portions thereof and into which said latching heads snap when said sections embrace said end portion of the cable to latch said sections in said embracing position,

(*d*) and means carried by one of said sections and contacting said conductor core when said sections are in latched embracing position on said end portion of said cable.

2. A terminal connector of the class described comprising

(*a*) a blank of material formed to provide elongated complementary sections each substantially semi-circular in cross section and having corresponding end portions flexibly connected together by a web, said sections normally diverging from said connection to receive therebetween an end portion of a cable having a conductor core, said sections adapted to be pressed upon said cable to fixedly embrace said end portion of said cable,

(*b*) flexible self-latching means formed on one of said sections and extending into the other of said sections when said sections are pressed together to embrace said end portion of said cable,

(*c*) said other section having a pair of elongated slots formed therein in the path of movement of said latching means and into which the latter is adapted to snap when said sections are in embracing position on said end portion of the cable to releasably latch said sections in said embracing position,

(*d*) and means carried by one of said sections and contacting said conductor core when said sections are latched in said embracing position on said end portion of said cable.

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