An electrical connector including a metal body having at its rear end wire receiving elements and at its forward end terminal receiving elements with a surrounding insulating plastic sleeve having an indented wire stop portion extending inwardly therefrom and located between the wire and terminal receiving elements for stopping a wire received in the wire receiving elements from extending into the terminal receiving elements.

2 Claims, 6 Drawing Figures
INSULATED ELECTRICAL CONNECTOR WITH WIRE STOP

This invention relates to insulated electrical connectors and more particularly to novel wire stop means therefor.

In electrical connectors of the type having at one end wire receiving elements and at the other end terminal receiving elements, it is necessary to provide a stop element for stopping a wire received during assembly in the wire receiving elements from extending into the terminal receiving elements and so preventing a terminal from properly being received therein.

It is a major object of the present invention to provide a novel stop element in connectors of the type having an insulating plastic sleeve surrounding the metal terminal body.

According to the invention, this is uniquely accomplished by providing an electrical connector including a metal body having at its rear end wire receiving elements and at its forward end terminal receiving elements and an insulating plastic sleeve surrounding said body, said sleeve having a wire stop portion in the form of an indentation on the outer surface of said sleeve extending inwardly from the inner wall of the sleeve and located between said wire receiving elements and said terminal receiving elements for stopping a wire inserted in said wire receiving elements from extending into said terminal receiving elements.

For the purpose of more fully explaining further objects and features of the invention, reference is now made to the following detailed description thereof, together with the accompanying drawings, wherein:

FIG. 1 is an isometric view of a female terminal according to the invention with a wire received therein, together with a cooperating spade terminal;

FIGS. 2 and 3 are, respectively, front and rear views of the terminal of FIG. 1;

FIGS. 4 and 5 are longitudinal sectional views of the terminal of FIG. 1, respectively, before and after a wire has been received and cramped therein; and

FIG. 6 is a transverse sectional view of the terminal of FIG. 1, taken on line 6-6 of FIG. 4.

Referring to the drawings, in FIG. 1 is shown the novel female insulated electrical connector of the invention, generally designated 12, in combination with a conventional flat spade terminal of predetermined width and thickness having a forward blade portion 14 and with a wire 16 received therein.

The body of the connector of the invention comprises a single piece of resilient sheet metal having a longitudinally extending central base portion 18 with side portions at its rear end formed into wire receiving elements 32 and 34 and at its forward end formed into terminal receiving elements 22, 24, 26 and 28 for selectively receiving spade terminal 14. A deformable, resilient thermoplastic sleeve 20 of substantially uniform thickness surrounds the entire body of the connector and preferably extends somewhat beyond its ends for electrical insulation thereof.

More specifically, at its forward end, the metal body has longitudinal side portions bent upward and inward to form with said central base portion 18 a generally closed channel having longitudinally extending side walls 22, 24 and top walls 26, 28 and an open end 30 for receiving spade terminal 14. The central base portion 18 is deformed inwardly to retain spade terminal 14, this being accomplished by swaging in the usual manner to deform it to provide a central detent 25. At its rear end, for receiving connecting wire 16, the metal body has, bent up from base portion 18, generally semi-cylindrical wall portions 32, 34 bent upward and inward with an open end 36 to form a generally cylindrical rear portion.

The forward and rearward portions are longitudinally spaced from one another by a transition 38 of substantial longitudinal dimensions between the rear end of walls 22, 24, 26 and 28 and the forward end of wall portions 32, 34.

In accordance with the present invention, plastic sleeve 20 has an inwardly deformed wire stop portion 40 extending inwardly therefrom, as by deforming sleeve 20 by a suitable tool, and located in transition 38 between the forward and rearward portions of the terminal body for stopping the forward end of a wire 16 received in said receiving elements 32, 34 during assembly from extending into said terminal receiving elements, as best shown in FIGS. 4 and 5. Thus, in FIG. 4, the terminal is illustrated before wire 16, shown in dotted lines, has been cramped therein, where in it will be seen that wire stop portion is in the form of an indentation 40 on the outer surface of sleeve 20, said indentation extending inwardly from the inner wall of sleeve 20 on the upper side of terminal 12 to a position closely adjacent the inner wall of base 18 generally transversely centrally thereof in transition 38, prevents the passage of wire 16 into the spade terminal receiving portion of the connector body. After crimping wire 16 in terminal 12 by downwardly deforming rear walls 32, 34 in the usual manner the wire 16 is firmly positioned, as shown in FIG. 5, in the rear portion of the terminal and cannot interfere with the insertion of spade terminal 14 therein.

What is claimed is:

1. A preinsulated, crimpable, electrical connector including a metal body having at its rear end crimpable wire receiving elements and at its forward end elements for selectively receiving a connecting terminal said body comprising a single piece of sheet metal formed into a central base portion having forward and rearward portions longitudinally spaced from one another, said rearward portion having at its rearward end wall portions bent upward with an open end for receiving a connecting wire for crimping thereto an insulating plastic sleeve of generally uniform thickness surrounding said body said sleeve having an inwardly deformed wire stop means for stopping a wire received in said wire receiving elements during assembly from extending into said terminal receiving elements before being cramped therein, said wire stop means being in the form of an indentation on the outer surface of said sleeve extending inwardly from the inner wall of said sleeve to a position closely adjacent and opposed to the inner wall of said central base portion generally centrally transversely thereof and located between said forward and rearward portions.

2. A preinsulated, crimpable, female electrical connector including a metal body having at its rear end crimpable wire receiving elements and at its forward end elements for selectively receiving a spade terminal
said body comprising a single piece of resilient sheet metal formed into a central base portion having at its forward end longitudinal side portions bent upward and inward to form with said central base portion a channel having longitudinally extending side walls and top walls with an open end for receiving said spade terminal and at its rearward end wall portions bent upward and inward with an open end to form a rear portion for receiving a connecting wire for crimping thereto said forward and rearward portions being longitudinally spaced from one another

an insulating plastic sleeve of generally uniform thickness surrounding said body said sleeve having an inwardly deformed wire stop means for stopping a wire received in said wire receiving elements during assembly from extending into said terminal receiving elements before being crimped therein, said wire stop means being in the form of indentation on the outer surface of said sleeve extending inwardly from the inner wall of said sleeve to a position closely adjacent and opposed to the inner wall of said central base portion generally centrally transversely thereof and located between said forward and rearward portions.