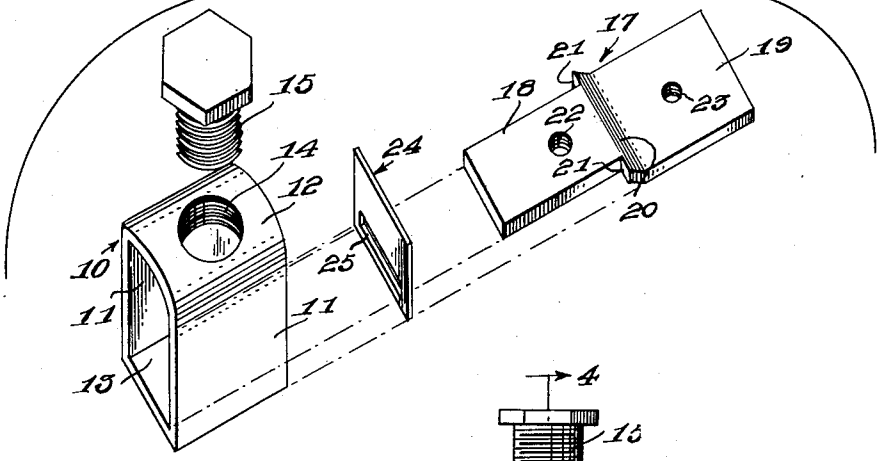
Oct. 29, 1957 T. J. NEWMAN 2,811,704

SOLDERLESS CONNECTOR

Filed Aug. 7, 1956

Fig. 1.



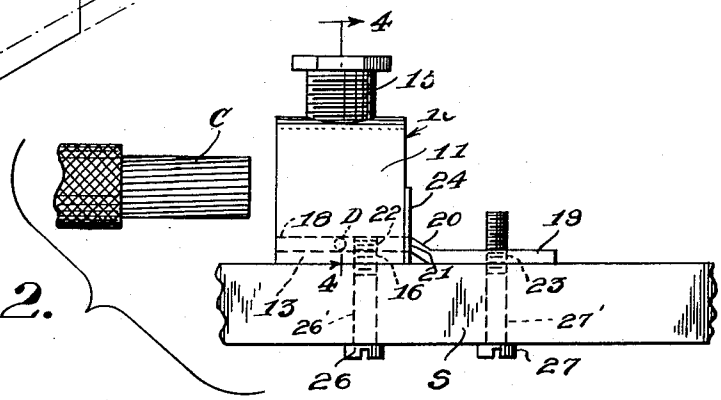


Fig. 2.

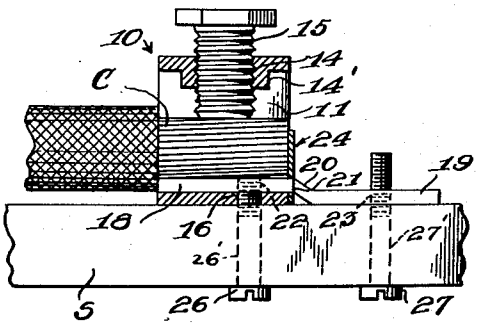


Fig. 3.

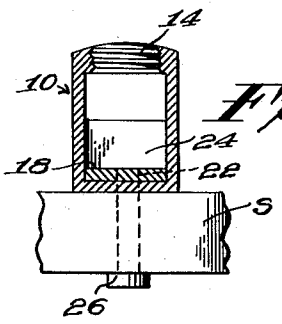


Fig. 4.

INVENTOR
Thomas J. Newman

BY Herbert M. Birch
ATTORNEY

United States Patent Office 2,811,704 Patented Oct. 29, 1957

2,811,704

SOLDERLESS CONNECTOR

Thomas J. Newman, Canton, Ohio, assignor to Meter Devices Company, Canton, Ohio, a corporation of Ohio

Application August 7, 1956, Serial No. 602,543

2 Claims. (Cl. 339—272)

This invention relates to a solderless connector.

The invention is more particularly concerned with a solderless connector for the terminal of a stranded electric cable and which is generally characterized by a housing for receiving said cable terminal with same in abutment with a binding screw threaded into the housing and adapted to bind the said cable terminal in fixed position in the housing.

Prior art solderless connectors embody a cable end receiving housing having a stop for the ends of the cable strands and binding screw engaged within a threaded aperture in the housing for binding the said cable end in the housing.

These prior art connectors, however, make no provision for visual positioning of the butt end of the cable within the housing with the result that correct positioning is not assured.

Furthermore, in the prior art connectors, the cable end stop means is rigid with the housing, whereby a cable is capable of being entered into the housing from one end thereof only, and accordingly the connectors are restricted to the clamping of the end of a single cable.

It is accordingly an object of the present invention to provide a solderless connector embodying a housing having cable end stop means and a binding screw engageable with a cable end disposed within the housing for rigidly clamping the cable in position, and wherein the said housing is open at opposite ends thereof for visual inspection of said cable, and whereby accurate positioning of same within the housing is assured.

A further object of the invention is the provision of a solderless connector embodying an open ended housing having a cable terminal binding screw adjustably disposed in the top wall thereof, and wherein removable stop means is disposed at one end of the housing, whereby a single cable having its end abutting said stop means may be secured within the housing by means of the said binding screws or upon removal of said stop means a pair of cable ends may be entered through opposite ends of the housing and jointly clamped in position by said screw, thereby functioning as a splice means.

A still further object of the invention is the provision of a solderless electric cable terminal connector including an open ended housing for receiving said cable and having stop means adjacent one end thereof, and wherein said stop means only partially closes said one end, thereby permitting visual inspection of the positioning of said cable terminal.

Other objects and advantages of the invention will become apparent in the course of the following detailed description, taken in connection with the accompanying drawing, wherein—

Figure 1 is an exploded perspective view of the improved connector in accordance with a preferred structural embodiment of the invention, the dot-and-dash lines in this Fig. 1 indicating the paths of relative movement of the several cooperating elements from the separated positions shown to cooperating operative positions.

Figure 2 is a side elevational view of the connector shown secured to an insulated base or support and with a cable end about to be positioned within the connector.

Figure 3 is a view partly in side elevational and partly in longitudinal vertical section and showing the cable end in clamped position.

Figure 4 is a transverse vertical sectional view as observed in the plane of line 4—4 on Fig. 2.

Referring now in detail to the drawing, the improved connector will be seen to comprise a generally rectangular open ended housing **10** including opposite side walls **11**, a top wall **12** and a bottom wall **13**, the opposite ends being wholly open as shown.

The top wall **12**, which may be slightly upwardly arched as shown is provided with a threaded aperture **14** disposed intermediate the ends of the housing and which is adapted for reception of a cable terminal binding screw **15**. The bottom wall **13** is provided with an aperture **16**, shown in Figs. 2 and 3, and for a purpose later referred to.

The connector further comprises an elongated contact plate **17** which includes opposite end portions **18** and **19** which are vertically offset a distance equal to the thickness of the bottom wall **13** of housing **10** as is clearly indicated in Figs. 2 and 3. The end portion **18** is of a width equal to the distance between the housing side walls **11** and is adapted to be positioned within the housing in seating engagement with the bottom wall **13** thereof. The end portion **19** is adapted to seat on the face of an insulated support **5** and the unitary adjacent ends of said portions **18** and **19** comprise an intermediate portion **20** which is inclined downwardly from portion **18** to portion **19**. The end portion **19** is of a width equal to the external width of the housing **10** with resulting laterally opposed vertical shoulders **21** for a purpose about to appear.

The portion **18** is provided with a threaded aperture **22** and the portion **19** is provided with a threaded aperture **23**.

The connector further comprises a cable terminal stop plate **24**, which is relatively thin and of rectangular form and which is of a length equal to the width of the housing **10**.

The plate **24** is provided with an elongated rectangular slot **25** of dimensions to snugly receive the contact plate portion **18** with the plate engaged with one open end of the housing and with the lower edge thereof engaged with the support S. In the mounted position of the plates **17** and **24** the shoulders **21** engage the outer face of plate **24** at opposite ends of the slot **25**.

With the plates **17** and **24** assembled as in Figs. 2 and 3 the threaded aperture **22** is axially aligned with the smooth walled aperture **16** in the bottom wall **13** of the housing **10**.

As is clearly indicated in Fig. 1, the improved connector comprises four simple parts, viz. housing **10**, binding screw **15**, contact plate **17** and stop plate **24** and from this figure it will be apparent that assembly is quickly effected by introduction of the plate portion **18** into the slot **25** of plate **24**, until plate **24** engages shoulders **21** and thereafter the portion **18** is pushed into the housing **10** in engagement with the bottom wall **13** thereof and the stop plate will be clamped between an end of the housing and said shoulders **21**.

A screw **26** is extended through a vertical aperture **26'** in the support S, through the aperture **16** in the housing bottom wall **13** and is engaged within the threaded aperture **22** in the contact plate portion **18**.

A second screw **27** is extended through a second vertical aperture **27'** in the support S and is engaged within the threaded aperture **23** in the contact plate portion **19**.

It is to be particularly observed that the stop plate

24 has a vertical dimension whereby the upper edge thereof when in assembled position is disposed substantially below the top wall 12 of the housing to provide an inspection opening and in fact a like inspection opening is provided at the opposite end of the housing as is obvious from inspection of Fig. 3.

While the several constituent parts of the connector are shown entirely separate preparatory to the connection thereof with the support S by means of screw 26, same may be held in pre-assembled relation as a single unit by means of screws, or by dimpling or peening D indicated in Fig. 2 or by other suitable means.

However, in order to adapt the structure for selective use as a single cable terminal connector or for the splicing of adjacent terminals of a pair of cables, it is preferable to handle the structure with the readily separable elements as shown, whereby the stop plate 24 may be used for engagement with the end of a single cable as shown, or the stop plate may be omitted and a cable terminal introduced into the housing from each end thereof for a splicing operation.

While I have disclosed my invention in accordance with a preferred single structural embodiment thereof, such is to be considered as illustrative only, and not restrictive, the scope of the invention being defined in the sub-joined claims.

What I claim and desire to secure by U. S. Letters Patent is:

1. A solderless connector for electric cable terminals, comprising a housing having top, bottom and side walls with opposed open ends, an elongated contact plate having one end portion thereof disposed within the housing in contact with the bottom wall thereof, a binding screw adjustably threaded through said top wall for clamping a cable terminal between same and said end portion of the contact plate, and a stop plate supported by said contact plate and engaging one end of said housing in partial blocking relation to the opening therein for contact of the free end of the terminal therewith, said stop plate being of substantially less height than said housing, whereby visibility to the interior of the housing is provided through the unblocked area of the said opening above the plate.

2. A solderless connector for electric cable terminals, adapted to be secured to an insulated support, comprising a housing having top, bottom and side walls with opposed open ends, an elongated contact plate including opposed end portions vertically offset a distance equal to the thickness of said bottom wall, said opposed end portions being integrally united through an upwardly inclined intermediate portion of the plate, one of said end portions of the contact plate being of a width equal to the distance between the inner faces of said side walls, the other of said end portions together with said inclined intermediate portion being of a width greater than that of said first end portion, the extensions of said intermediate portion laterally of said first end portion being provided with vertical shoulders, said first end portion of the contact plate being disposed within said housing in seating contact with said bottom wall, and said second end portion being disposed externally of the housing with its lower face flush with the lower face of said housing and with said shoulders opposed to adjacent ends of the side walls, means for securing said housing and said second end portion of the contact plate to an insulated support, and a rectangular stop plate having an elongated slot through which said first end portion of said contact plate extends, and said shoulders engaging the outer face of said plate with the inner face thereof engaging with said ends of the side walls of the housing.

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