A. H. FARGO.

TERMINAL CONNECTOR.

APPLICATION FILED FEB. 5, 1915.

1,205,878.

Patented Nov. 21, 1916.

Fig. 1.

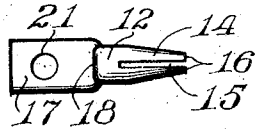


Fig. 6

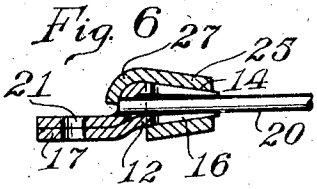


Fig. 2.

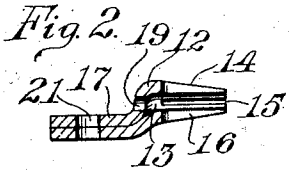


Fig. 3.

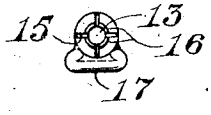


Fig. 4.

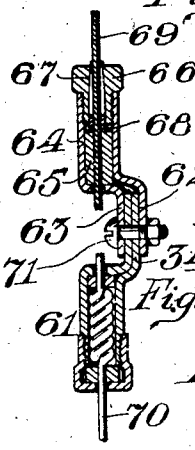


Fig. 5.

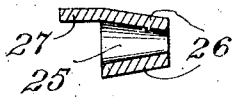


Fig. 11.

Fig. 12.

Fig. 9

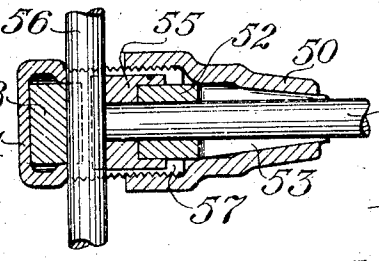
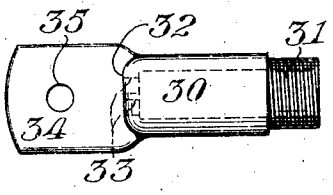


Fig. 7.



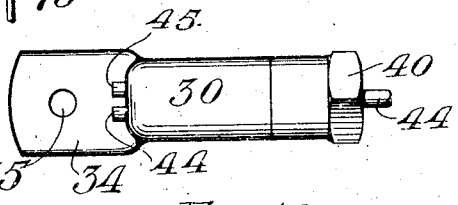


Fig. 10.

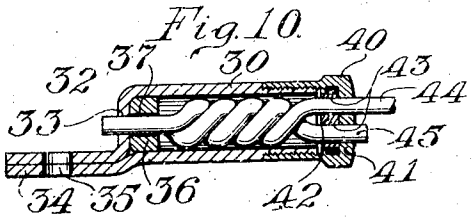
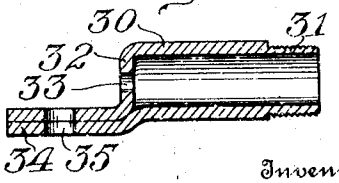


Fig. 8.



Inventor

Arthur H. Fargo,

Witnesses

Jos. L. O'Connell.

Rose M. O'Connell.

By J. Stuart Freeman,

Attorney

UNITED STATES PATENT OFFICE.

ARTHUR H. FARGO, OF POUGHKEEPSIE, NEW YORK.

TERMINAL CONNECTOR.

1,205,878. Specification of Letters Patent. Patented Nov. 21, 1916.

Application filed February 5, 1915. Serial No. 6,219.

To all whom it may concern:

Be it known that I, ARTHUR H. FARGO, a citizen of the United States, and a resident of the city of Poughkeepsie, county of Dutchess, and State of New York, have invented certain new and useful Improvements in Terminal Connectors, of which the following is a full, clear, and exact description.

The object of this invention is to provide a terminal connector and method of making the same, which is an improvement over any such device now in use, and one that is capable of being manufactured at a considerable decrease in cost.

Another object is to provide a device of this character which combines the improved connector and an improved means for securing an electrical conductor therein, without the use of solder or other uniting flux.

Still another object is to provide an improved sleeve, which, when forced over the connector proper and secured in place, contracts the sides of the latter securely about a conductor extending therethrough. And another object is to provide a sleeve for this purpose, which is permanently, or removably, secured in place by bending a portion thereof around the rear, or larger side, of the conductor surrounding portion of the connector proper.

A further object is to provide a modified form of the device in which the adjacent ends of two conductors are firmly held by the connector, while two other portions of said conductors spaced from the first pass through a cap, which cap when screwed into place firmly twists and thus secures said conductors together within said connector. And a still further object is to provide a method of making both of said forms from tubing pressed into shape, and thus eliminating the necessity of employing the usual and more expensive castings ordinarily used for the same purpose.

For a complete detailed description of the devices above mentioned, reference is made to the accompanying drawings in which—

Figure 1 is a plan view of one form of the connector; Fig. 2 is a vertical longitudinal section through the same; Fig. 3 is an end view; Fig. 4 is a plan view of the clamping sleeve; Fig. 5 is a vertical section through the same; Fig. 6 is a vertical longitudinal section through the device as a whole, with the sleeve surrounding the connector proper; Fig. 7 is a plan view of the modified form of connector with cap removed; Fig. 8 is a vertical longitudinal section of the same; Fig. 9 is a plan view of the modified form of the device complete; Fig. 10 is a vertical longitudinal sectional view of the same, showing two twisted connectors in position; Fig. 11 is a section through a connector embodying pressed steel members, and Fig. 12 is a longitudinal section through a connector comprising two terminals secured together.

Referring to Figs. 1 to 6 of the drawings, the improved connector comprises a substantially cylindrical section of tubing 12, having a normally uniform bore 13, but tapered upon its outer surface 14 and slotted at intervals 15, to form resilient fingers 16. The opposite end portion of the original tube is brought together and flattened at 17, forming a rear closing wall at 18 for the interior of said tube, which in turn is pierced at 19 to permit a conductor 20 to pass therethrough. Said flattened portion 17 in turn is also pierced at 21, for securing the device by suitable means to any other supporting member as may be desired. For contracting the resilient fingers 16 about a conductor, a sleeve 25 is provided with converging walls 26 of substantially uniform thickness, open at opposite ends and at one side provided with a longitudinally extending, integral ear or lug 27. After passing the conductor through the bore 13 of the connector, and possibly through the hole 19 also, the tapered sleeve, which has previously been slipped over the conductor, is slid over the fingers 16 and tapped into place, thus contracting the said fingers about the said conductor, after which the ear 27 is bent downwardly around the rear part of the tube 12, to secure the respective parts in their relatively operative positions. From this construction it is obvious that there has been provided a cheap form of connector in conjunction with a clamping device, also cheap in construction, that causes a proportionately firmer clamping of the gripping fingers about the conductor as longitudinally outward tension is placed upon the latter. Furthermore, by forcing the lug 27 upwardly and drawing the sleeve forwardly from around the fingers, the latter are thereby released and thus permit the conductor to be withdrawn uninjured for further use as may be desired.

In the modified form of the device as shown in Figs. 7 to 10, a tube 30, reduced at one end 31 and threaded, is at the other end brought together to form a closing wall 32, pierced by spaced apertures 33, and a flattened portion 34, pierced in turn by a hole 35, through which means can be passed for securing the device to any desired supporting member. Into the tubular portion and firmly against the rear wall 32 is forced a washer or similar member 36, provided with spaced holes 37 similar to and in alinement with the holes 33; or a solid washer-like member can first be forced into the tube, after which the spaced holes are drilled in it simultaneously with the holes 33. An internally threaded cap 40 has forced into it and firmly against the closed end 41 thereof a washer-like member 42, which together with the end 41 is simultaneously pierced by spaced apertures 43. To secure a conductor 44 in this form of connector, a short piece of metal 45, preferably of the same size and shape as the conductor and in fact generally a piece of the same thing, is inserted through one of the holes 43 and one of the holes 33, while a bared section of the conductor 44 is passed through the other hole of each of the said pairs. Then the plug is placed over the open end of the tube and screwed firmly into place, causing the two parallel conductors to twist into the condition and shape shown in Fig. 10. From this position it is readily seen that it is impossible to withdraw the main conductor from the connector, when thus assembled, without destroying the device as a whole, or at least mutilating it to such an extent as to make its re-use practically impossible. However, the strength of the tubular casing is such as to cause the conductor to break before the former yields, it having been found that the formation of the connector from the tube makes its liability to break *nil*, when compared to the usual castings employed for this purpose. In this connection, however, it is to be noted that many changes in the shape and arrangement of the various parts can be made without departing from the scope of the invention or from the breadth of appended claims.

In the terminal or connector shown in Fig. 11 the tapered casing 50 is pressed from a metal blank, preferably steel, while the plug 51 is formed in a similar manner, each being subsequently threaded as shown. The gripping member 52 is provided with resilient fingers 53, which firmly grip the conductor 54 when forced into the casing 50 by engagement with the bushing 55, which in turn contacts directly with the conductor or other member 56, passing through oppositely positioned slots 57 in said plug and seated against the recessed reinforcing disk 58.

Fig. 12 shows a terminal 61, exactly like that illustrated in Fig. 10, but with its flattened portion 34 inserted snugly into the transversely elongated aperture 62 in the flattened portion 63 of the tubular member 64. Said last-named member has inserted and secured therein a centrally apertured block 65, while the plug 66 has a centrally disposed, tapered aperture 67 into which extends the tapered gripping member 68. In this construction, as the plug is screwed into place within said tubular member, the coöperation of the gripping member with the block 65, forces the former through the said plug, thus contracting its resilient fingers 68' about the conductor 69, and in this manner securing said conductor to the conductor 70. Said terminals are attached and firmly secured to each other by a suitable bolt 71, which can be removed at will, but which when in position, prevents any appreciable movement of one of said terminals with respect to the other in any direction.

Having thus described my invention, what I claim and desire to protect by Letters Patent of the United States is:

1. A terminal connector, comprising a body portion formed from a tube collapsed at one end and having its walls tapered at the opposite end, in combination with a sleeve, and yielding means to secure said sleeve in position on said body.

2. A terminal connector, comprising a body portion formed from a tube collapsed at one end and having its walls tapered at the opposite end and slotted to form spaced resilient fingers, in combination with a conical sleeve, and yielding means to secure said sleeve in position on said body and surrounding said fingers.

3. A terminal connector, comprising a body portion formed from a tube collapsed at one end to form a supporting base and having its walls tapered at the opposite end and slotted to form spaced resilient fingers, in combination with a conical sleeve, and yielding means to engage said body portion and secure said sleeve in position upon said body and surrounding said fingers.

4. A terminal connector, comprising a body portion formed from a tube, having its walls pressed together at one end to form an attaching portion, and at its other end slotted at intervals to form yielding gripping members, means to contract said members about a conductor, and yielding means integral with said last-named means and operative to secure the same in operative relation with said body portion.

5. A terminal connector, comprising a body portion formed from a tube, having its walls pressed together at one end to form an attaching portion, and at its other end slotted at intervals to form yielding gripping members, said members being similarly tapered, and a conical sleeve operative to be forced over and contract said members

about a conductor, and yielding means integral with said sleeve operative to engage said body portion to secure the same against relative movement.

6. A terminal connector, comprising a body member, centrally apertured and slotted, to provide yielding gripping fingers, and a member provided with a tapered bore and operative to be forced rectilineally over said fingers to contract the same, and yielding means integral with one of said members to secure the same together.

7. A terminal connector, comprising a body member, centrally apertured and slotted, to provide yielding gripping fingers, a tube provided with a tapered bore and operative to be forced rectilineally over said fingers to contract the same and yielding means to secure said tube in operative position.

8. A terminal connector, comprising a body member, centrally apertured and slotted, to provide yielding gripping fingers, a tapered tube operative to be forced longitudinally over said fingers to contract the latter, and yielding means integral with said tube to secure the latter in operative position.

In witness whereof, I have hereunto set my hand this 3rd day of February, A. D., 1915.

ARTHUR H. FARGO.

Witnesses:
GEO. H. WILLIAMS,
IRVING H. RISELEY.