

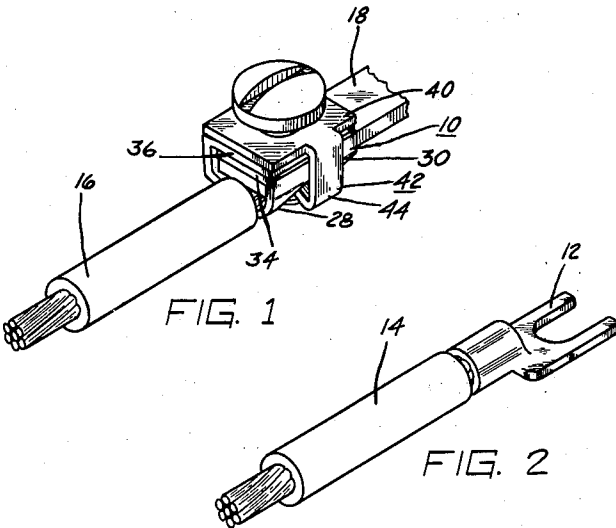
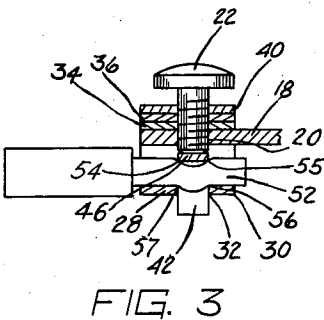
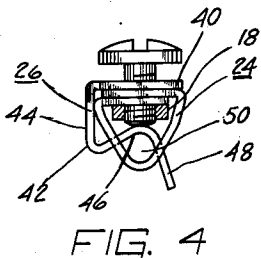
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TERMINAL CONNECTOR

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2,967,290

TERMINAL CONNECTOR

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5 Claims. (Cl. 339-272)

This invention relates to terminal connectors and more particularly, to the solderless type connectors of the detachable type such as are used to join wires or cables to the terminals of an electric switch, terminal junctions and the like.

It is an object of the present invention to provide a terminal connector which will maintain a tight connection with the bared end of a wire in spite of the tensile forces which may be exerted therebetween.

It is another object of the present invention to provide a terminal connector which may be used with either an untipped or tipped conductor.

A further object of the present invention is to provide a terminal connector which will maintain a tight connection with a terminal end of a wire by bending the end of a wire within the connector when the tightening screw of the connector is tightened.

Another object of the present invention is to provide a terminal connector with a pair of spaced V-shaped lips and a tongue that is movable between the lips for bending an end portion of the wire when a terminal screw is tightened.

A still further object of the present invention is to wedge an end of a wire into the apexes of a pair of spaced V-shaped members with a clamping means which is movable between the members when a screw forces the clamping means against the wire end and toward the space between the members.

Another object of the present invention is to provide an adapter means for a terminal which will permit the terminal to be used with a spade lug type terminal or a bare wire which may be either of the solid or braided core type.

Further objects and features of the invention will be readily apparent to those skilled in the art from the specification and appended drawing illustrating certain preferred embodiments in which:

Fig. 1 in perspective shows the terminal connector according to the present invention as used with a braided core wire.

Fig. 2 is a perspective view showing a wire length with a spade lug terminal which also may be used with the connector in Fig. 1.

Fig. 3 is a cross sectional view of the connector in Fig. 1.

Fig. 4 is an end view of the connector as shown in Fig. 1.

In the drawings the connector 10 as shown is adapted for use with either a spade lug type terminal 12 as connected to a wire 14 in Fig. 2, or a bare end of a wire 16 as shown in Figs. 1 and 3. In this connection it is to be noted that the connector 20 is suitable for use with either a solid or braided core type wire which may vary considerably in diameter.

The connector 10 includes a terminal member 18 having a threaded opening at 20 to threadedly receive a screw 22. The connector 10 also includes a member

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24 and a clamping member 26 which will be fully described.

The member 24 is formed of a bent slotted metal strip to have a pair of V-shaped portions or lips 28 and 30 which are separated by a space 32. The portions 28 and 30 depend downwardly from the terminal member 18 and are interconnected at their opposite ends by bights 34 and 36 which overlay the top surface of member 18. The bights 34 and 36 have openings therein to accommodate the passage of the screw 22 as shown. The member 24 is shaped to embrace a portion of the member 18 when the parts are assembled and provide at apexes the bottom of the V-shaped portions 28 and 30. These apexes are spaced below the member 18 and laterally aligned and spaced from each other.

The member 26 is also formed of strip material to have an anchoring portion 40 which has an opening therein to accommodate the passage of screw 22 when the portion 40 is overlaid on bights 34 and 36. The member 26 also has an extending or tongue portion 42 which extends downwardly exterior to the member 24 into a curved portion 46 which is formed as shown in Fig. 4 to extend into the space 32 and thereby be disposed between the portions or lips 28 and 30. The curved portion 46 is engaged by the free end of the screw 22 and has an extending end 48 which projects from the slot 32 exterior to the member 24.

When the members 18, 24 and 26 and screw 22 are arranged as described and shown in the drawings, it is clearly apparent that an exposed end 52 of a wire may be inserted into the space 50 as shown in Fig. 4 of the drawings to extend between the V-shaped portions 28 and 30 and the curved portion 46 as shown in Fig. 3 of the drawings. If, during the insertion of the end 52 of the wire 16, it is found that the curved portion 46 impedes the positioning of the wire as in Fig. 3, the opening 50 may be enlarged by backing the screw 22 from the portion 46 and bending the curved portion 46 upwardly when the end 48 is forced upwardly in Fig. 4. After the wire end 52 is in position, the screw 22 may be tightened in the member 18 to force the portion 46 downwardly against the top surface of the wire end 52. When this occurs the bottom surfaces of the wire end 52 will be pressed tightly into the apexes of the V-shaped portions and the bottom portion of the wire adjacent the space 32 will be slightly deformed to partially enter the space 32 as shown in Fig. 3. This arrangement will maintain the wire tightly in position in the connector 10 while providing a good electrical connection with the terminal member 18. In this connection it is to be noted that the securement of the wire may be improved if the edges 54, 55, 56 and 57 of members 24 and 26 are sharp to provide a modified biting action of the edges into the surfaces of the wire.

If it is desired to connect a spade lug type terminal to the member 18, the connector 10 may also be used. It is clearly apparent that when the parts 18, 24, 26 and 22 are assembled, the space 32 will be aligned with the threaded end of screw 22 to provide a clearance for the screw 22 and the curved portion 46. This will permit positioning of the spade lug on the connector in the conventional manner beneath the head of the screw.

While certain preferred embodiments of the invention have been specifically disclosed, it is understood that the invention is not limited thereto, as many variations will be readily apparent to those skilled in the art and the invention is to be given its broadest possible interpretation within the terms of the following claims.

What is claimed is:

1. In a connector of the character described, the combination comprising; a terminal member, a metal piece

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bent and centrally slotted to provide a pair of spaced V-shaped portions each having an apex spaced beneath the terminal member, said V-shaped portions being connected at each end by bight portions which overlay the top of the terminal member, a clamping member having; 5 a portion overlaying the bight portions and an extending portion curved and disposed in the space between the V-shaped portions, and a screw threaded into the terminal member and arranged to engage and force the extending portion of the clamping member into tight engagement with a top surface of a wire while simultaneously forcing the bottom surface of the wire into the apexes of the V-shaped portions and to bend a portion of the wire into the space between the apexes when a wire is inserted into the connector and the screw is tightened.

2. A wire connector comprising; a terminal member having a pair of spaced flat faces with a threaded opening extending therebetween, a metal piece having a slotted central portion located between two end portions each of which have an opening therein, said metal part being bent so the end portions overlies one another with the openings therein in alignment with one another and the slotted central portion provides a pair of spaced V-shaped portions extending from said overlying end portions, said bent metal part being positioned on the flat terminal so the overlying end portions overlies one of the faces of the flat terminal member with the openings therein in alignment with the threaded opening in the terminal member and the spaced V-shaped portions extend from the opposite flat face of the terminal member, a clamping member having an end portion with an opening therein positioned on the overlying portions of the metal piece so the openings in the clamping member and overlying portions are in alignment, a curved portion on the clamping member extending from the end portion in the space between the V-shaped portions, and a tightening screw threaded into the threaded opening in the terminal member and through said aligned openings, said screw having a threaded end engaging the curved portion of the clamping member for forcing the curved portion of the clamping member into tight

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engagement with a top surface of a wire while the bottom surface of the wire is forced into the apexes of the V-shaped portions and is bent into the space between the V-shaped portions when the screw is tightened in the opening in the terminal member to force the curved portion of the clamping member toward the apexes.

3. A connector of the character described, comprising; a terminal member, a metal strap having a central slotted portion which is bent to provide a pair of V-shaped portions which are spaced from each other at the central portion and joined together at bight portions which overlay a portion of said terminal member, a clamping member having; a portion overlaying at least a portion of the bight portions and an extending portion extending in the space between the V-shaped portions and a screw having a portion threaded into the terminal member and passing through the bight portions and overlying portions and arranged to engage and force the extending portion against one side of a wire while forcing the opposite side of the wire into the apexes of the V-shaped portions and into the space between the portions and a headed portion preventing separation of the terminal member, metal strap and clamping member.

4. The combination as set forth in claim 3 wherein the V-shaped portions and the extending portions have edges which bite into the wire when the screw is tightened.

5. The combination as set forth in claim 3 wherein the extending portion has an intermediate curved portion with the end portions thereof extending exterior to the V-shaped portions.

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UNITED STATES PATENT OFFICE
CERTIFICATION OF CORRECTION

Patent No. 2,967,290

January 3, 1961

Josef J. Zeller

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 1, line 56, after "lug" insert -- type --;
column 2, line 12, for "at apexes" read -- apexes at --.

Signed and sealed this 6th day of June 1961.

(SEAL)

Attest:

ERNEST W. SWIDER

Attesting Officer

DAVID L. LADD

Commissioner of Patents