Aug. 3, 1943. J. M. YADON 2,326,090

TERMINAL CONNECTOR

Filed Feb. 13, 1942

Fig. 1.

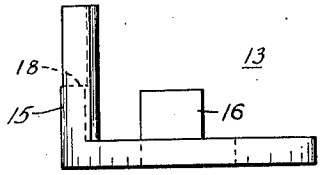


Fig. 2.

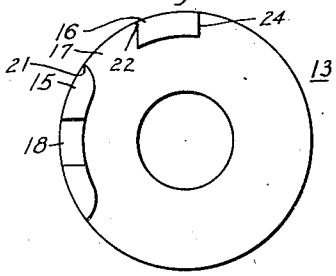


Fig. 3.

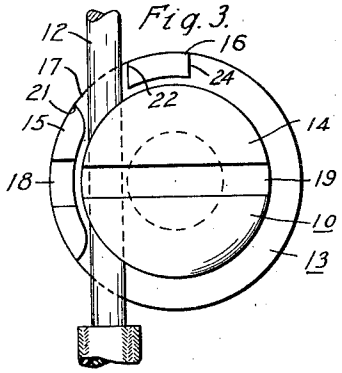


Fig. 4.

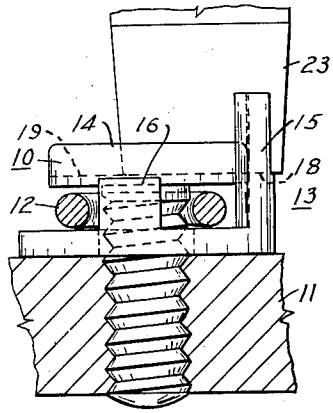


Fig. 5.

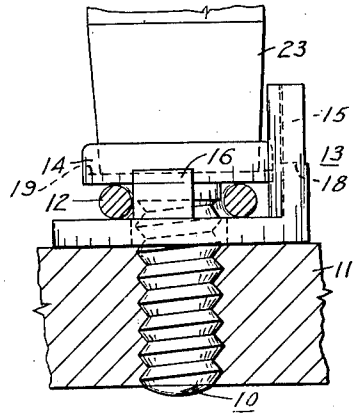
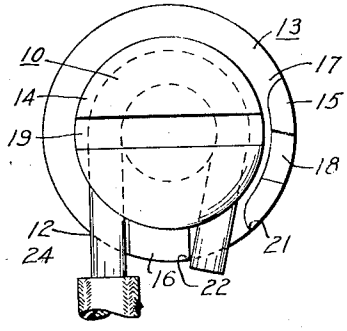


Fig. 6.



WITNESSES:

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UNITED STATES PATENT OFFICE

2,326,090

TERMINAL CONNECTOR

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Application February 13, 1942, Serial No. 430,723

2 Claims. (Cl. 173—259)

My invention relates, generally, to connectors and, more particularly, to connectors of the type suitable for conecting flexible conductors to the terminals of electrical devices.

Most of the terminal connectors with which I am familiar require that a loop be pre-formed in the wire before it is inserted on the connector. Frequently, with such a device the pre-formed loop is made the wrong way and as the screw is tightened the loop tends to unwind, thereby resulting in a partially or an insecurely held wire, particularly when a stranded conductor is utilized.

An object of my invention, generally stated, is to provide a terminal connector which shall be simple and efficient in operation and which may be economically manufactured and installed.

A more specific object of my invention is to provide a self-looping terminal connector.

Another object of my invention is to provide a terminal connector for a wire in which the wire is both looped and tightened by the same means and at substantially the same time.

A further object of my invention is to provide a screw terminal for a wire wherein the wire may be looped about the screw and tightened against the terminal of an electrical device by substantially the same operation.

Other objects of my invention will be explained fully hereinafter or will be apparent to those skilled in the art.

In accordance with my invention a screw terminal is provided with a concentric washer having flanges thereon so disposed that the wire is engaged by the flanges and formed into a loop about the shank of the screw while the screw and the washer are being rotated by means of a screw-driver or a similar tool.

For a fuller understanding of the nature and objects of my invention, reference may be had to the following detailed description, taken in conjunction with the accompanying drawing, in which:

Figure 1 is a view, in elevation, of a terminal washer constructed in accordance with my invention;

Fig. 2 is a view, in plan, of the washer shown in Fig. 1;

Fig. 3 is a view, in plan, of the washer with a screw and wire in position for the formation of a loop in the wire;

Fig. 4 is a view, partially in section and partially in elevation, of the terminal connector with a screwdriver inserted in both the washer and the screw, the loop having been formed by rotating the washer with the screw;

Fig. 5 is a view, similar to Fig. 4, with the screw tightened against the looped wire by rotating only the screw; and

Fig. 6 is a view, similar to Fig. 3, with the loop completed.

Referring to the drawing and, particularly, to Figs. 4 and 5, the terminal connector shown therein comprises a screw 10, which may be threaded into the terminal 11 of an electrical or other device to which it is desired to connect a wire or conductor 12, and a washer 13 concentrically disposed on the screw 10. The screw 10 is provided with a head 14 of sufficient diameter to cover the wire 12 when it is looped about the shank of the screw. The washer 13 is of a greater diameter than the head of the screw 10 and is provided with a pair of up-turned flanges 15 and 16 which are disposed just outside the screw head and are of sufficient height to prevent the wire from being forced out from under the head, particularly when a stranded conductor is utilized.

As shown in Fig. 3 the flanges 15 and 16 are so designed and spaced as to provide a slot 17 for receiving the end of the conductor 12 which is to be looped around the shank of the screw 10 when the conductor is inserted underneath the head 14 of the screw. The flange 15 is preferably of a greater height than the flange 16 and is provided with a slot 18 which may be aligned with the usual slot 19 in the head 14 of the screw 10. The edge 21 of the flange 15 is preferably rounded as shown, while the edge 22 of the flange 16 is not rounded for a purpose which will be explained hereinafter.

In making the connection, the wire 12 is inserted through the slot 17 and under the head 14 of the screw 10 which is threaded into the terminal 11 a sufficient distance to bring the bottom of the slot 19 in the head of the screw on a level with the bottom of the slot 18 in the flange 15. The blade 23 of a screwdriver or similar tool is then so placed in the aligned slots 18 and 19 as to engage both the screw and the flange 15, as shown in Fig. 4. In this manner both the screw 10 and the washer 13 may be turned simultaneously by the screwdriver and in so doing the shoulder 21 of the flange 15 engages the conductor 12 and carries the wire around the shank of the screw until the proper loop is formed. The edge 22 of the flange 16 will also engage the wire 12 while the loop is being formed by the pressure of the shoulder 21 against the wire and

functions as a clamp to hold the wire and cause it to be drawn around the shank of the screw.

When the loop is completed, the screwdriver 23 is slipped back from the flange until it engages only the screw. Further turning of the screwdriver tightens the head of the screw against the wire 12, as shown in Fig. 5, without forming more loop in the wire. As shown in Fig. 6, one edge 24 of the flange 16 will engage the wire 12 to prevent further rotation of the washer 13 while the screw is being turned against the conductor 12.

In the event that it is desired to remove the conductor 12 from the terminal, the loop may be unwound by reversing the foregoing operation. When the washer 13 is rotated in a counterclockwise direction, the edge 22 of the flange 16 engages the conductor 12 to unwind the loop, thereby permitting the conductor to be withdrawn from the terminal without it being necessary to remove the screw 10 completely from the terminal.

While I consider the provision of the flange 16 desirable for the foregoing reasons, it is not absolutely essential for satisfactory operation of the terminal connector. It will be seen that a loop may be formed in the wire in the manner hereinbefore described by utilizing a washer having only the flange 15 which will engage one side of the conductor when the washer is rotated clockwise, thereby bending the wire around the shank of the screw in the manner described. In case the flange 16 is omitted, the loop cannot be unwound in the manner herein described.

From the foregoing description, it is apparent that I have provided a simple, inexpensive and effective means for looping and tightening a wire conductor to the terminal of an electrical or other device. The only tool required for making the connection is a screwdriver of the usual type. Furthermore, the formation of a proper loop for making a secure connection between the conductor and the terminal is assured.

I do not desire to be restricted to the particular form or arrangement of parts herein shown and described, since it is evident that they may be changed and modified without departing from the spirit and scope of my invention as defined in the appended claims.

I claim as my invention:

1. A terminal connector for securing a conductor comprising, a screw having a slotted head and a washer concentric with the screw, said washer being of a greater diameter than the head of the screw and having a pair of spaced flanges thereon, one of said flanges having a slot therein disposed for alignment with the slot in the screw head, whereby the washer may be rotated simultaneously with the screw by the same tool, thereby causing said flanges to bend the conductor around the shank of the screw.

2. A terminal connector for securing a conductor comprising, a screw having a slotted head and a washer concentric with the screw, said washer being of a greater diameter than the head of the screw and having a pair of upturned flanges disposed outside the screw head, said flanges being spaced apart to receive the conductor therebetween, one of said flanges having a rounded edge and the other a relatively sharp edge for engaging the conductor, and one of said flanges having a slot therein disposed for alignment with the slot in the screw head whereby the washer may be rotated in either direction simultaneously with the screw by the same tool thereby causing said flanges to bend the conductor around the shank of the screw when rotated in one direction and unbend the conductor when rotated in the opposite direction.

JOHN M. YADON.