F. A. TEFFT.

ELECTRIC CONNECTOR.

APPLICATION FILED JAN. 24, 1920.

1,382,753. **Patented June 28, 1921.**

Fig. 1.

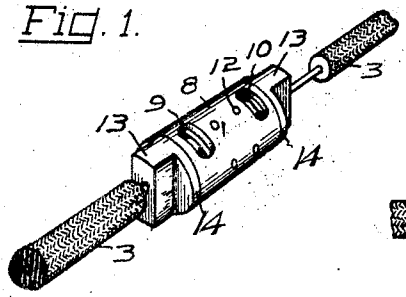


Fig. 2.

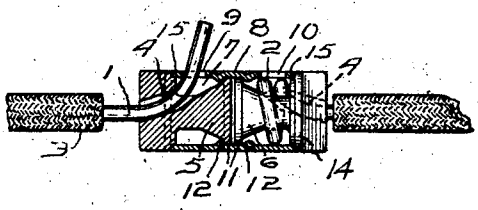


Fig. 3.

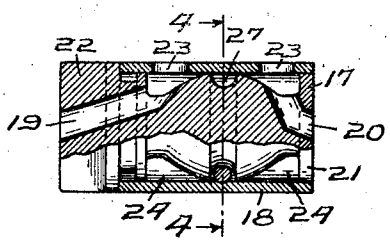


Fig. 4.

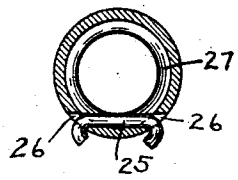


Fig. 5.

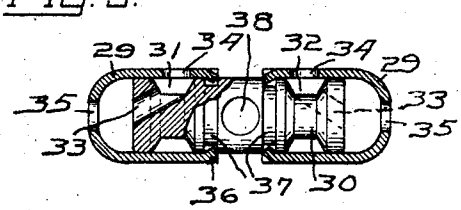


Fig. 6.

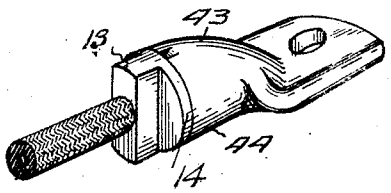
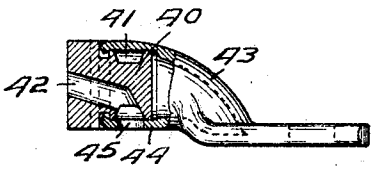


Fig. 7.



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ELECTRIC CONNECTOR.

1,382,753. Specification of Letters Patent. **Patented June 28, 1921.**

Application filed January 24, 1920. Serial No. 353,776.

To all whom it may concern:

Be it known that I, FREDERICK A. TEFFT, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Electric Connector; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention has for its object to provide a connector for connecting a wire to another object. The said other object may be to another wire or it may be to some instrument or other part or thing to which it is desired to make a secure connection. The invention is particularly adapted and finds its greatest advantage in connecting a wire to another object for the purpose of making a good electric connection which is somewhat of a permanent character and yet which may be made with ease and without the use of expensive or elaborate tools or method of connection. The invention thus provides a means for making a secure electrical contact connection without the use of solder. Other features and advantages of the invention will appear from the following description and upon examination of the drawings.

The invention may be contained in structures of different forms. To illustrate the practicability of my invention I have selected two or three constructions embodying the invention and shall describe them hereinafter. The structures selected are illustrated in the accompanying drawings.

Figure 1 of the drawings illustrates a perspective view of one of the structures selected. Fig. 2 illustrates a sectional view of the structure illustrated in Fig. 1. Fig. 3 illustrates a broken view, partly in section, of the modified structure. Fig. 4 illustrates a sectional view taken on the line 4—4 indicated in Fig. 3. Fig. 5 illustrates a sectional view of the further modified structure. Fig. 6 illustrates a modification showing the wire connected to a well known form of an instrument connector, and Fig. 7 illustrates a broken sectional view of the form of structure illustrated in Fig. 6.

In the form of the structure illustrated in Figs. 1 and 2, 1 and 2 are the wires that are to be connected together. They may be provided with insulators 3 of insulating material up to near the ends of the wire. The ends of the wire are bared and are inserted through openings 4 formed in plugs 5 and 6. The plugs 5 and 6 have channels 7 and the holes 4 preferably extend from the centers of the outer ends of the plugs diagonally toward the channels 7. The bared ends of the wires are inserted into the holes and the ends are bent so as to keep the main or body portions of the wires in axial alinement with the plugs and in so doing continued step by step inward movements and bending will cause the bared ends of the wires to curve outward from the axis of the plugs. The plugs are located in a cylinder 8 and preferably meet about the center of the cylinder. The cylinder is provided with openings 9 and 10. The openings 4 are so placed that as the bared ends of the wires 1 and 2 are inserted in the openings 4 and curved outward they will pass through the openings 9 and 10 of the cylinder 8. When the bared ends have been inserted, preferably so as to bring the insulation 3 against the outer ends of the plugs, the outer ends of the plugs are gripped by suitable means such as pliers, the cylinder 8 is rotated which will cause the ends of the wires to wind upon the plugs 5 and 6 and in the channels 7. If desired, the parts may be rotated relative to each other so as to wind all of the bared ends of the wire upon the plugs or a portion of the bared ends of the wire may be alowed to extend through one or both of the openings 9 and 10 of the cylinder so as to lock the cylinder with respect to the plugs. Also, if desired, the bared ends of the wire may be turned back and inserted into the openings 9 or 10 so as to prevent any movement whatsoever of the cylinder with respect to the plugs. The bending back of the end into the opening forms a U-shape protruding loop which will secure or lock cylinder with respect to the plugs.

The plugs 5 and 6 may be provided with flanges 11 whose outer edges preferably fit the interior of the cylinder 8 so that if desired, the plugs may be secured in the cylinders by driving a pointed instrument against the cylinder to form indentations 12 that will be located at the side edges of the flanges 11 and thus prevent the plugs 5

and 6 from being pulled out of the cylinder.

For purposes of rotation the outer ends of the plugs 5 and 6 are provided with oblong heads 13 which provides a means whereby the plugs may be readily engaged with pliers or with a wrench to cause rotation of the cylinder with respect to the plugs or rotation of the plugs with respect to the cylinder. The outer ends of the plugs may be so formed that in forming the heads 13, flanges 14 will be left which will cover the ends of the cylinder. Shoulders 15 may also be formed in the flanges 14 that will operate as a guide in the relative rotations of the plugs and the cylinder.

By this arrangement a perfect electric contact is made and the contact portions are inclosed and protected.

In Figs. 3 and 4 is shown a structure wherein the wires are connected to a single plug. The plug 17 extends through the entire length of the cylinder 18. The ends of the plugs 17 are provided with the openings 19 and 20. One end of the plug 17 has a flange 21 that corresponds to the flanges 11 shown in Fig. 2 and closes the end of the cylinder 18. The other end of the plug 17 is provided with a suitable means for permitting a good grip of the plug 17 such as by means of pliers or a wrench. This also may be an oblong head 22 of a form similar to that shown in the form illustrated in Figs. 1 and 2. The cylinder 18 is provided with openings 23 through which the wires pass as they are bent and turned in passing through the openings 19 and 20 and through the channels 24 of the plug 17. The cylinder 18 is then gripped by a suitable means and rotated while the plug 19 is held in position. By this operation the ends of the wires will be wound around the plug. To lock the cylinder relative to the plug, the ends of the wires may be bent back as is described in connection with the description of the structure illustrated in Figs. 1 and 2. In Figs. 3 and 4 is illustrated another form of connection which consists in keying the cylinder to the plug by means of the wire 25 which may be inserted through openings 26, the plug 17 being provided with a channel 27 through which the wire 25 passes tangential with respect to the bottom of the channel 27. The ends of the wire 25 may be turned back to prevent the withdrawal of the wire, and thus to securely lock the plug 17 and the cylinder 18 together.

In the form of the structure illustrated in Fig. 5, the bared ends of the wire are inserted through thimbles 29 that cover the end of the part 30 that corresponds to the plug 17 of the form of the structure illustrated in Fig. 3. The plug 30 is provided with the channels 31 and 32 and the openings 33, while the thimbles 29 are provided with the openings 34 and 35. The bared ends of the wires are inserted through the openings 35, 33 and 34, whereupon the thimbles and the plug are rotated relative to each other so as to wind the ends of the wires in the channels 31 and 32. The thimbles 29 may be locked by means of the ends of the wire as described in connection with the form of structure illustrated in Figs. 1 and 2. They also may be connected to the plug 30 by means of turning down or spinning the edges 36 of the thimbles into the channels 37 formed in the plug 30.

For purposes of rotation of the plug 30 relative to the thimbles 29, the central portion of the plug may be larger than the diameter of the thimbles or the plug 30 may be provided with the opening 38 through which may be inserted an instrument, such as a nail or awl.

Figs. 6 and 7 illustrate a connection that is made to a part of an instrument, that is the said part may be formed at one end so as to connect it with the ordinary binding post or it may be made in such a shape as to be used as one of the terminals of a knife switch. The other end of the connector is provided with the plug 40 which has the channel 41 and the opening 42 leading from the center of the end of the plug to the channel 41. The connector member 43 at one end has a cylindrical part 44 in which the plug 40 is located. It has an opening 45 that may be located on the lower side of the connector part 43 and when connection is to be made the bared end of the wire is inserted through the openings 42 and 45 and the plug 40 is rotated so as to wind the wire on to the plug 40 and into the channel 41.

I claim:—

1. In an electric connector, a cylinder having an opening, a plug located in the cylinder and having a channel registering with the opening in the cylinder, the plug having an opening leading from the outer end of the plug to the channel, the said openings and the channel adapted to receive the end of the wire to be connected and the channel adapted to receive turns of wire when the cylinder and the plug are rotated relative to each other.

2. In an electric connector, a plug having channels and openings extending from the ends of the plug to the channels, a cylinder having openings, said openings and channels adapted to receive the ends of the wire to be connected and the channels for receiving the turns of wire when the plug is rotated relative to the cylinder.

3. In an electric connector, a cylinder having a pair of openings, plugs located in the cylinder and having a pair of channels registering with the said openings and having openings extending from the ends of the plugs to the channels, the said openings for

receiving ends of the wires to be connected and the channels for receiving turns of the wires to be connected.

4. In an electric connector, a cylinder having a pair of openings, plugs located in the cylinder and having a pair of channels registering with the said openings and having openings extending from the ends of the plugs to the channels, the said openings for receiving ends of the wires to be connected and the channels for receiving turns of the wires to be connected, and means for interlocking the cylinder and the plug.

In testimony whereof I have hereunto signed my name to this specification.

FREDERICK A. TEFFT.