

March 28, 1961

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2,977,403

ELECTRICAL WIRE TAP CONNECTOR

Filed Sept. 16, 1959

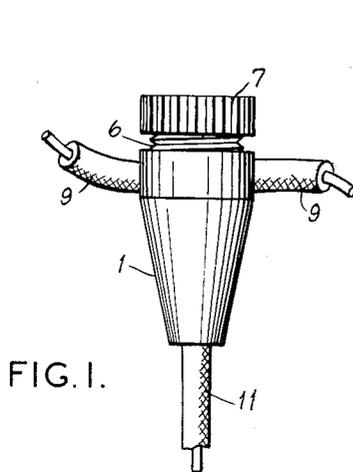


FIG. 1.

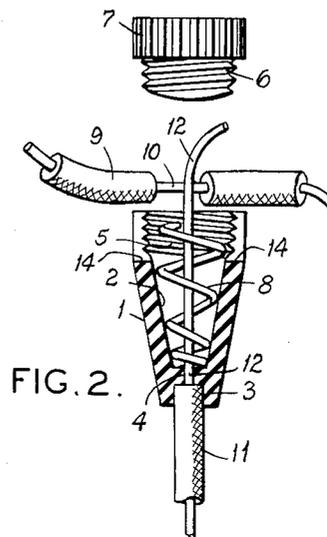


FIG. 2.

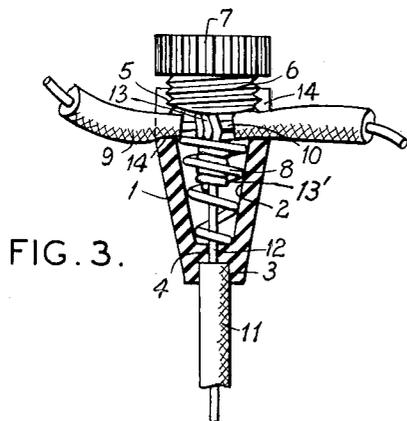


FIG. 3.

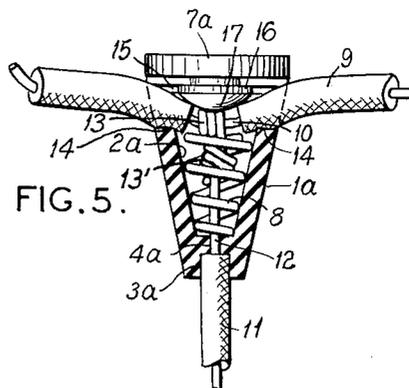


FIG. 5.

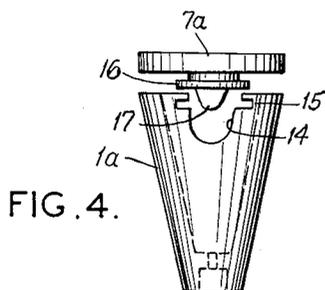


FIG. 4.

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2,977,403

**ELECTRICAL WIRE TAP CONNECTOR**

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Filed Sept. 16, 1959, Ser. No. 840,297

1 Claim. (Cl. 174-84)

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The principal object of my invention is to provide a simple connector for electric wires which will insure a permanent and positive connection and which may be quickly applied in use without elaborate precautions.

Another object of my invention is to provide a connector which will connect one wire to another in such a manner that the connection cannot be disrupted or pulled apart by the employment of ordinary forces.

A still further object of my invention is to provide a connector which acts as its own insulator and does not require any tape or the use of any other insulating materials.

An additional object of my invention is to provide a connector which contains one wire wound upon another and then back upon itself in such a manner as to provide a tight, secure connection, although the other wire is not wound or bent but remains straight, and in its original condition.

A final object of my invention is to provide a connector which forms a T connection between two wires and maintains said T in a firm, positive engagement between elements which will not allow relative movement which might disturb the connection.

These and further objects and purposes will be apparent to those skilled in the art of connectors upon studying the appended specification and the attached drawing.

In the drawing,

Figure 1 shows a side view of the completed connector with the connection made, as it appears in use;

Figure 2 shows a longitudinal cross-sectional view of the connector of Figure 1, before the wires have been connected in the manner of a T connection;

Figure 3 shows a view similar to that of Figure 2, after the wires have been connected and the cap of the connector has been threaded into final position;

Figure 4 depicts an alternative modification of my invention in a side view, with a slide-engaging cap; and

Figure 5 shows a partially cross-sectional view of the modification of Figure 4, after the connection has been made and the cap has been engaged in final position.

In carrying the present invention into effect a conical-shaped insulating sleeve 1 is provided having a roughly conical central bore 2. Bore 2 communicates with a wire recess 3 at its bottom extremity through the conductor passage 4.

At its upper extremity the sleeve 1 is provided with internal threads 5, mating with the external threads 6 on the rounded bottom of cap 7. Disposed within the internal bore 2 is the spring 8, shown in its expanded position in Figure 2.

To practice my invention two wires are joined in a T arrangement as shown in Figure 2. The wire 9 is stripped of its insulation for a distance of approximately three-eighths to one-half of an inch, so that the inner conductor 10 is bared as shown in Figure 2.

The other wire 11, is stripped of its insulation for a length of approximately one and one-half inches as shown at 12. The bare conductor 12 is passed through the passage 4 and up through the center of the helical spring 8. The wire 11 is drawn up so that the outer insulation of the wire is seated in the wire recess 3 as shown in Figure 2.

At this point the conductor 12 is drawn up tightly and wrapped for several turns around the wire conductor 10 and brought back down and wrapped several additional

turns around itself, conductor 12, to form the connection 13, 13' as shown in Figure 3. The sleeve slots 14 of Figure 2 have been provided to allow the wire 9 to project through the sides of the sleeve as shown in Figure 3. The cap 7 is then threaded into the sleeve 1 and its rounded bottom compresses the following members and elements together. The wire 9 is compressed tightly between the rounded bottom of cap 7 and the bottoms of the sleeve slots 14 on both sides of Figure 3. The spring 8 is compressed downward and maintains a tight engagement between the cap and the connection 13, 13'. After further rotation of the cap 7 in the threads the wire 9 will be gripped tightly between the cap 7 and the bottoms of the slots 14.

The combination of the T connection of the wire conductors and the compression of the elements into tight engagement provides a superior connection which cannot be pulled apart in the manner of ordinary wire-connectors.

An alternative arrangement which I have designed is shown in Figures 4 and 5. The sleeve slot 14 is shown from a position rotated 90° from the position of Figure 2. Instead of threads I utilize a structure consisting of the slots 15 which engage with the slides 16 shown in Figure 4 on cap 7a. The assembly is handled in the same manner as before except that the cap 7a is slid into final position as shown in Figure 5. I have provided a rounded boss 17 on the bottom of the cap 7a. This boss 17 provides an extremely tight engagement between the wires 9 and 12 and the sleeve slots 14, as well as between the spring 8 and the connection 13, 13'.

Again, by the construction of Figure 5, I have provided a remarkably simple wire T connector which makes it impossible to pull apart the wires 9 and 11. It will be noted that either of the alternative arrangements provided is quite adaptable to tapping one wire onto another, a problem which has hitherto been solved in a variety of unsatisfactory ways. With a little practice an electrician can make firm T connections with a rapidity that is extraordinary.

The constructions illustrated in the drawing are directed to the preferred embodiments of the present invention and it will be understood that various alterations may be resorted to without departing from the spirit of the invention.

I claim:

A wire connector comprising an insulating sleeve in the shape of a truncated cone and provided at its wider end with internal threads, at its narrower end with a wire recess, and centrally with an internal bore in the shape of a cone, a pair of wire-bearing slots through the sides of the sleeve at its wider end to bear and hold a first wire, a wire passage communicating between said internal bore and said wire recess through which a second wire is disposed, said second wire being wound around and upon said first wire and then connecting around and upon itself forming a secure and fast electrical connection with said first wire in said central bore, a spring disposed in said central bore around said second wire and under and against said first wire, an insulating cap provided with external threads cooperative with the internal threads of said sleeve and also provided with a rounded bottom engageable with said connection of said second wire to said first wire, said first wire being gripped between the bottom of said cap and the bottoms of said slots.

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