

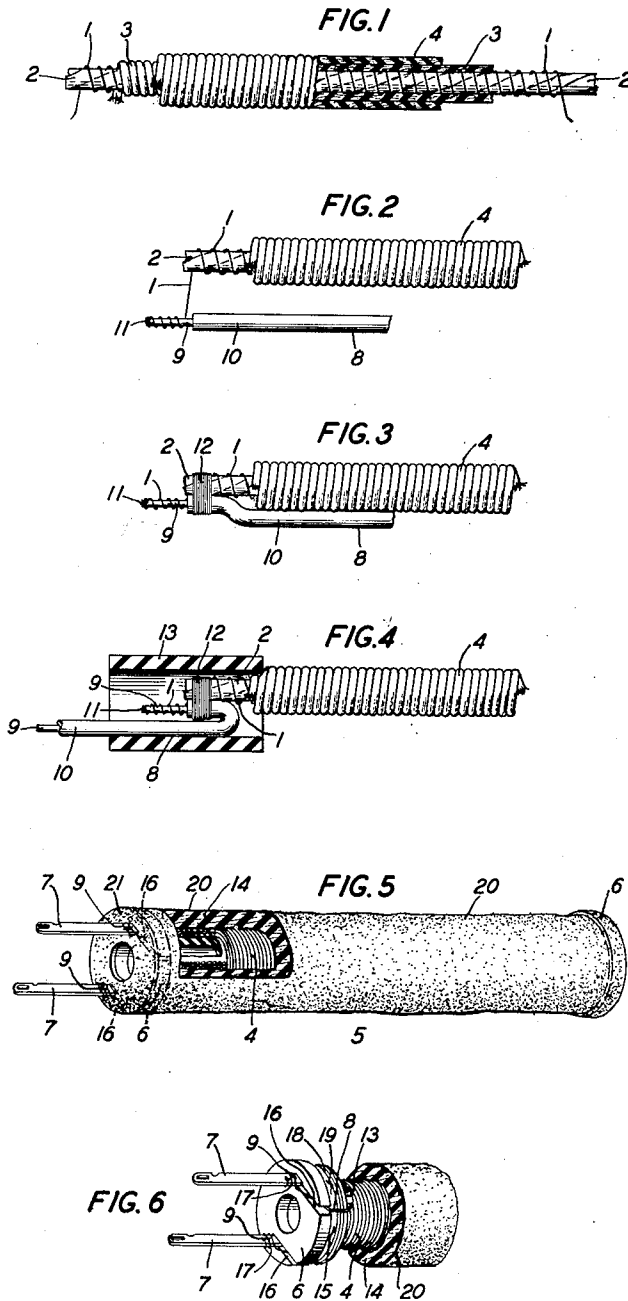
March 14, 1939.

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2,150,404

WIRE CONNECTION

Filed Jan. 27, 1937



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2,150,404

WIRE CONNECTION

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Application January 27, 1937, Serial No. 122,527

1 Claim. (Cl. 174—87)

This invention relates to wire connections and more particularly to a wire connection in which a wire of comparatively small gauge is attached to a conductor wire of comparatively large gauge.

5 The object of the invention is to provide a strong and durable connection between the wires above mentioned.

A feature of the invention resides in a splice by means of which the wires are connected.

10 Another feature resides in protective means applied to the splice to protect the wires at the point of splice from strain.

In the drawing:

15 Fig. 1 is a side view partly in section of a conductor wire together with supporting means and protective coverings for the wire;

Fig. 2 is a side view of the conductor wire of Fig. 1 and a lead wire and illustrates one step in the manner in which the two members are 20 attached;

Fig. 3 is a side view of the conductor and lead wires shown in Fig. 2 and shows a further development;

Fig. 4 is a side view, partly in section, of a 25 completed connection between the two wires;

Fig. 5 is a view in perspective and partly in section of an electrical device in which the invention is used; and,

Fig. 6 is a side view, partly in section, of a 30 portion of the device shown in Fig. 5.

Figs. 1, 2, 3 and 4 are drawn on enlarged scales relative to Figs. 5 and 6.

In electrical devices of the wire wound type, the resistance wire forming the resistance element is 35 sometimes of comparatively small gauge and is helically wound on a cord of insulating material. In some cases a covering of insulating material is provided over the wire wound on the cord. The resistance element comprising the wire-wound cord and insulating covering is wound on a spool of insulating material and electrical connections are made between the resistance wire and terminals supported on the spool. The resistance wire in some cases is of such small gauge 40 that it is found desirable to provide a wire stronger and of larger gauge than the resistance wire, as a lead wire between an end of the resistance wire and the terminal to prevent accidental disconnection of the parts. The present invention provides a strong and durable connection 45 between an end of the comparatively small gauge resistance wire and the wire of larger gauge.

In Fig. 1 a resistance wire 1 of comparatively 50 small gauge is helically wound on a cord 2 of

insulating material, the cord 2 thus serving as a support for the resistance wire 1. A covering 3 of insulating material is applied over the winding of resistance wire, the covering 3 being in the form of a sleeve. The covering 3 may be made of 5 any suitable insulating material. An outer covering 4 of insulating material is applied over the covering 3.

The resistance wire 1 supported on the cord 2 of insulating material and enclosed in the protective coverings 3 and 4 shown in Fig. 1 may be 10 wound on a spool 5 of insulating material as shown in Fig. 5. The spool 5 may have end flanges 6 in which terminals 7 are suitably supported.

To electrically connect the resistance wire 1 15 to the terminals 7 lead wires 8 of larger gauge than the resistance wire 1 are provided. One end of the lead wire 8 is attached to a terminal 7 in any suitable manner, for instance by winding a portion of the lead wire 8 around the terminal 7 and by soldering the parts together. The 20 other end of the lead wire 8 is attached to the resistance wire 1.

The lead wire 8 comprises a suitable length of 25 conductor wire 9 having a covering 10 of insulating material. As shown in Fig. 2, a portion of the insulating covering 10 is removed from the conductor wire 9 to provide an uncovered portion suitable for making electrical connection between 30 the resistance wire 1 and the conductor wire 9. A portion of each insulating covering 3 and 4 enclosing the resistance wire 1 is also removed leaving the exposed portions of the resistance wire 1 and the cord 2 of insulating material. The lead wire 8 is placed parallel to the 35 wire-wound cord 2 and an end of the resistance wire 1 is helically wound on the bared end of the conductor wire 9, and may be further secured thereto by soldering the parts together as shown at 11. The point of winding of the resistance 40 wire 1 on the conductor wire 9 is advanced beyond the exposed end of the cord 2 to bring a portion of the covering 10 of insulating material of the lead wire 8 parallel to and adjacent the exposed portion of the cord 2. The bared end 45 of the cord 2 with several turns of the resistance wire 1 thereon is then lashed to the lead wire 8 as shown in Fig. 3, the parts being bound together by means of thread 12, the thread 12 50 being wrapped around the cord 2 and the insulating covering 10 of the lead wire 8 adjacent the bared end and lashing the parts together. I have found that silk floss serves well as a material to lash the parts together.

When the lead wire 8 is lashed to the bared end of the cord 2 as shown in Fig. 3, the lead wire 8 is then bent back along itself as shown in Fig. 4 to extend parallel to the bared end of the cord 2 and the point at which the parts are bound together. A sleeve 13 of insulating material is then applied over an end of the insulating covering 4 of the resistance element and over the bent back portion of the lead wire 8. The sleeve 13 closely embraces the end portion of the insulating covering 4 of the resistance element adjacent the bared end of the cord 2 and embraces the bent back portion of the lead wire 8 to hold the bent back portion of the lead wire 8 against the lashing 12. The free end portion of the lead wire 8 may be connected to a terminal 7 in any convenient manner such for instance as by removing a portion of the insulating covering 10 from the conductor wire 9 and by soldering an end of the wire 9 to the terminal 7.

In Figs. 5 and 6 a covering 14 of insulating material is applied over the windings of the resistance element on the spool 5. The lead wire 8 is shown in Fig. 6 as extending over an annular shoulder 15 on the inner face of the spoolhead 6, and through a slot 16 in the outer face of the spoolhead to a terminal 7. The bared end 17 of the lead wire 8 is wound around the terminal 7 and is soldered thereto. The lead wire 8 is lashed against the shoulder 15 by means of a cord 18, the cord 18 being wound around the shoulder 15 over the lead wire 8 and ends of the cord being tied together as shown at 19. The covering 14 extends over the lead wire 8 and

over the turns of the resistance wire element on the spool. The covering 14 may be made of any suitable insulating material but for the purpose of illustration is shown in the drawing as being a serving of thread. To further protect the resistance winding against the entrance of moisture a coating 20 of insulating material is applied over the covering 14. The slot 16 in the spoolhead 6 is filled with an insulating cement material after the lead wire 8 has been placed therein. An apertured disc 21 of insulating material is secured by means of insulating cement to the outer face of the spoolhead 6.

What is claimed is:

In a wire connection, a flexible cord of insulating material, a wire helically wound on said cord, an insulating covering surrounding said cord and said wire, a lead wire, a covering of insulating material thereon, a bared end portion of said cord with the helically wound wire thereon placed adjacent and parallel to a covered portion of said lead wire, a lashing of thread binding the covered portion of said lead wire to said bared end portion of said cord, a bared portion of said lead wire extended beyond the point of lashing, a portion of said first-mentioned wire helically wrapped into connection with said bared portion of said lead wire, an insulated portion of said lead wire bent back on itself and against said lashing, and a sleeve of insulating material surrounding the connected portions of said wires, the lashed portions of said wires and bearing against the insulating coverings of said wires.

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