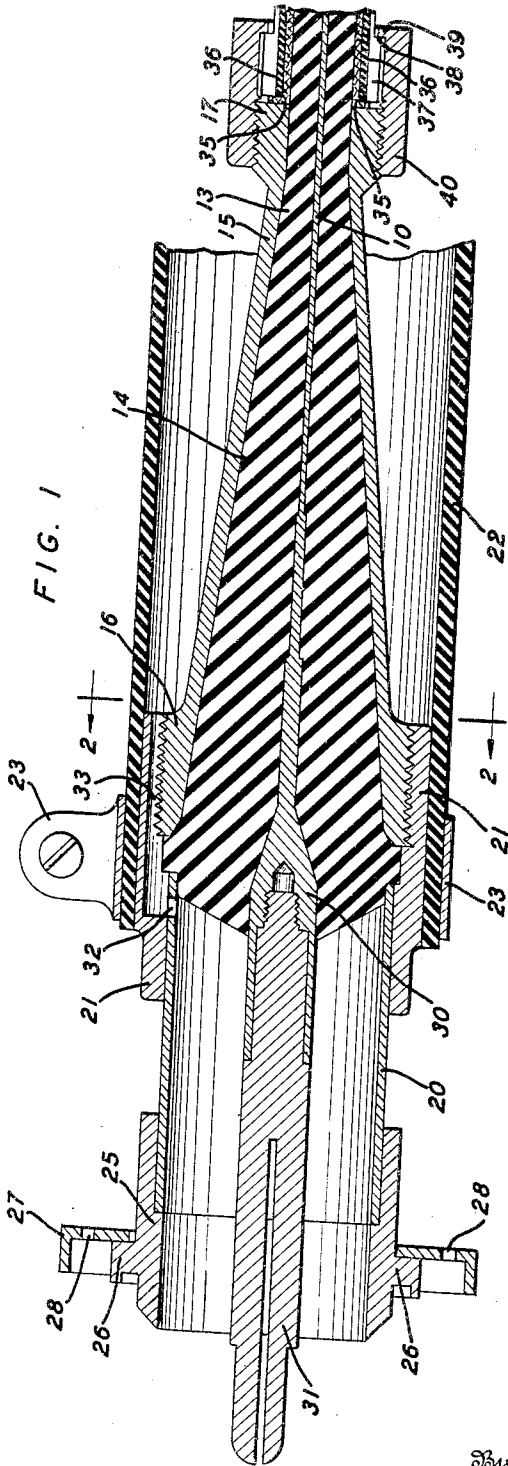
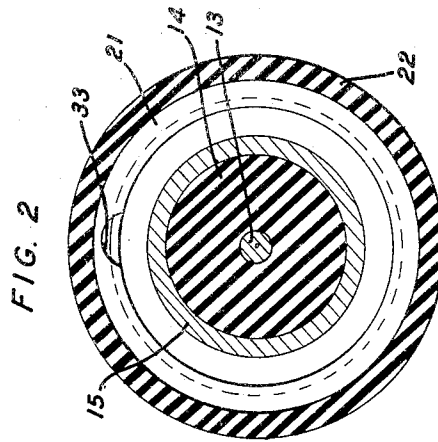
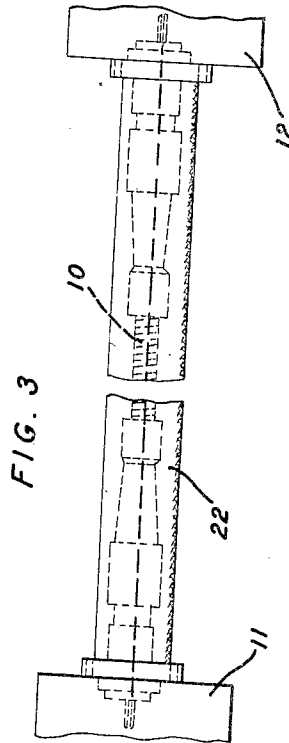


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T. H. BATT
CONNECTING DEVICE
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CONNECTING DEVICE

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This invention relates to flexible electrical connections and more particularly to an electrical conductor for flexibly interconnecting electrical units and maintaining the same air pressure from one unit to the other.

An object of the invention is to provide a high tension electrical cable in a surrounding air hose for transmitting a high voltage, high frequency current from one electrical unit to another while maintaining the same air pressure in both interconnected units.

Another object is to prevent corona at the connections.

Another object is to prevent the transmission of vibration from one electrical unit to another.

These and other objects will be apparent from the following description when taken in conjunction with the accompanying drawing illustrating a preferred embodiment of the invention, wherein Fig. 1 is an enlarged longitudinal sectional view of the coupling end of the combined electrical air connection;

Fig. 2 is a cross-sectional view taken on line 2—2 of Fig. 1 in the direction of the arrows; and Fig. 3 is a plan view showing the invention interconnecting two high frequency electrical units.

Referring now to the drawing wherein like reference numerals are employed to designate identical parts throughout the various views, 10 represents a flexible conductor which is used to interconnect two electrical apparatuses or units 11—12 indicated diagrammatically in Fig. 3. The conductor 10 is covered by any suitable insulation 13 which, as shown in Fig. 1, enlarges at the terminal ends into a cone 14. Surrounding this insulating cone 14 is a metal cone shaped member 15 which has threaded ends 16 and 17.

Fitted over the enlarged end of the cone 14 is a metal tube 20 which is partially inserted into a metal collar 21 and soldered thereto. The right hand end of the collar 21 is threaded onto the end 16 of the metal cone shaped member 15. The collar 21 is inserted into a flexible fabricated rubber air hose 22 which surrounds the insulated conductor 10 and extends between the electrical units 11—12. The air hose 22 is secured to the collar by a clamp 23.

The left hand end of the metal tube 20 is soldered into a tubular coupling member 25 which has a cylindrical shoulder 26. Resting against the shoulder 26 is a concentric flanged member 27 which has four apertures 28 for receiving bolts to clamp the coupling member 25 to a companion coupling (not shown) in the electrical unit 11 or 12.

Secured to each end of the conductor 10 is a metal sleeve 30 which has threaded into it an

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electrical plug 31. This plug extends through the metal tube 20 and beyond the coupling member 25 so as to engage an electrical jack in a companion coupling (not shown) in the electrical units 11 or 12.

In order to permit the passage of air from one electrical unit 11 to another electrical unit 12 (Fig. 3) through the air hose 22, an aperture 32 is provided in the metal tube 20. This aperture coincides with a longitudinal slot 33 (Figs. 1—2) in the collar 21 to thus provide an air passageway from the electrical unit 11 through coupling member 25, tube 20, aperture 32, and slot 33 into the flexible hose 22.

The coupling with the air passageway shown in Fig. 1 is provided on both ends of the flexible hose 22 carrying the conductor 10 as indicated in Fig. 3, so that an air passageway is provided from electrical unit 11 to unit 12 to maintain equal air pressure throughout.

A return circuit for the conductor 10 is provided through the metal coupling member 25, tubes 20, collars 21, cone shaped members 15 and a plurality of copper strands 35 surrounding the insulation 13 and extending to the threaded ends 17 of the metal cone shaped members 15. These copper strands extend throughout the cable and are covered by a suitable insulation 36 (Fig. 1). The fanned out ends of the copper strands 35 are held in contact with the end of the cone shaped member 15 by a tubular member 37 which fits over the insulation 36 and engages the ends of the copper strands. The tubular member 37 has a shoulder 38 which engages a shoulder 39 of a sleeve 40 which is threaded onto the end 17 of the cone shaped member 15. As the sleeve 40 is threaded onto the end 17, the tubular member 37 is forced by the engaging shoulders 38—39 toward the end 17 and clamps the fanned out ends of the copper strands between the end 17 and the tubular member 37 to give a good electrical contact.

Thus, the invention provides a two-way flexible cable in a surrounding air hose for the purpose of transmitting a high tension, high frequency current while maintaining the same air pressure from one electrical unit to another. The maintaining of the same air pressure throughout prevents corona which would interfere with the operation of the connected electrical units. Also the flexible connection prevents the transmission of vibration and expedites the connection of electrical units located at various elevations.

The embodiment particularly disclosed and described herein is illustrative and may be modified without departing from the spirit and scope of the invention as defined by the appended claims.

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What is claimed is:

1. A flexible electrical transmission and pressure line including an insulated flexible conductor, an electric plug connected to each end of the conductor, a second insulated conductor secured to and concentrically surrounding the first insulated conductor, a metal coupling secured to the insulation at each end of the first conductor and spaced concentrically from the plugs therein, means for maintaining contact between the second conductor and each metal coupling, and a flexible air tube surrounding the second conductor and sealed to the metal couplings, said couplings having passageways therethrough into the air tube and to the plugs.

2. A flexible electrical transmission and pressure line including a flexible insulated conductor, an enlarged cone shaped insulator at each end of the conductor, a cone shaped sleeve surrounding each of said insulators, a coupling spaced from the conductor and secured to an end of each cone shaped sleeve, and an air hose surrounding the conductor and secured to the couplings, said couplings and sleeves being provided with air passageways therebetween into the air hose.

3. A flexible electrical transmission and pressure line for interconnecting electrical units, comprising electrical couplings connected to the electrical units, a flexible insulated cable having enlarged cone shaped ends connected to the couplings, an air tube surrounding the cable, and means for fastening the ends of the air tube to the couplings at the enlarged cone shaped ends of the cable, said couplings having air passageways therethrough to provide for the passage of air from one electrical unit through the air tube into the other electrical unit.

4. A flexible electrical connection comprising a flexible electrical cable having two insulated conductors, a flexible air tube surrounding the cable, a hollow coupling secured to each end of the cable and tube and connected to one of the conductors, and an electrical plug positioned within the hollow coupling and electrically connected to each end of the second conductor in the cable, said couplings and plugs being spaced apart to provide a passageway through the couplings into the air tube.

5. A flexible electrical transmission and pressure line for electrically interconnecting a plurality of electrical units and for maintaining the same air pressure therein, comprising a cable having two flexible conductors insulated from each other, one of the conductors terminating at its ends in outwardly tapering enlargements to provide greater space between the conductors, a flexible air hose surrounding the conductors and for carrying a predetermined air pressure, a unitary electrical coupling attached to each end of the air hose and to each of the increased spaced ends of the conductors of the cable for connecting them to an electrical unit, due to the increased spacing between the conductors at the end of the cable the said couplings have ample air passageways therethrough into the air hose to maintain the same air pressure on the terminal ends of each conductor and in the interconnected electrical units.

6. A high tension electrical transmission and pressure line for interconnecting a plurality of electrical units comprising electrical couplings connected to the electrical units, a flexible insulated cable connected to the couplings, an air tube surrounding the cable in spaced relation and secured to said couplings, said couplings having

air passageways therethrough for the purpose of maintaining a predetermined air pressure throughout the length of the couplings and around the flexible cable so that corona loss is reduced during transmission of high voltages.

7. A flexible electrical transmission and pressure line, comprising an insulated conductor, a second conductor spaced and insulated from the first conductor and terminating in a flared out cone at each end, an electrical coupling connected to each of the flared cone shaped ends of the second conductor and secured to each end of the first conductor, and an air tube surrounding said conductors and connected to the couplings, each of said electrical couplings spaced from the said flared out cone shaped ends of the second conductor to provide an air passageway through the couplings into the air tube.

8. A flexible electrical transmission and pressure line including a flexible conductor, a second conductor insulated from the first conductor, an enlarged cone shaped insulator at each end of the first conductor, a cone shaped conductor sleeve surrounding each of said insulators and connected to the ends of the second conductor, a coupling spaced from the first conductor and secured to an end of each cone shaped sleeve, and an air hose surrounding the conductors and secured to the couplings, said couplings being provided with air passageways into the air hose.

9. A flexible electrical transmission and pressure line including a flexible insulated conductor, an enlarged cone shaped insulator at each end of the conductor, a cone shaped sleeve surrounding each of said insulators, a coupling spaced from the conductor and secured to an end of each cone shaped sleeve, and an air hose surrounding the conductor and secured to the couplings, said couplings being provided with air passageways into the air hose.

10. In an electrical transmission line, a tubular conductor, an insulated conductor centrally spaced within the tubular conductor, a detachable electric plug connected to an end of said insulated conductor, a cylindrical terminal secured by the insulation of the insulated conductor and electrically connected to the end of the tubular conductor and concentrically spaced from the plug therein to provide a passageway therebetween, and a hollow insulating tube connected to the cylindrical terminal and surrounding the conductors throughout the length thereof, said cylindrical terminal having an opening into the insulating tube.

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