Nov. 9, 1954 G. P. FELTS ET AL 2,694,190

TINSEL WIRE CONNECTOR

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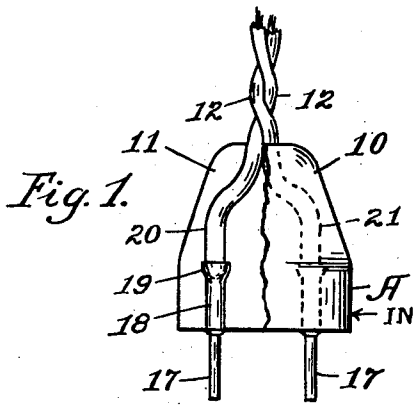


Fig. 1.

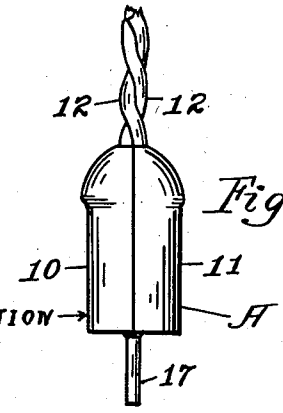


Fig. 2.

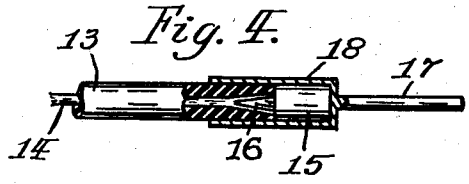


Fig. 4.

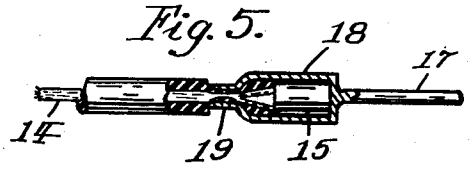


Fig. 5.

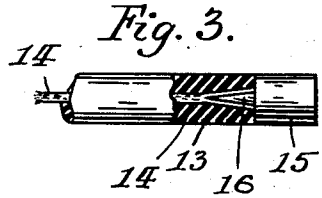


Fig. 3.

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TINSEL WIRE CONNECTOR

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1 Claim. (Cl. 339—100)

Our invention relates to that class of electrical plug connectors for use with insulated wire tinsel conductors such as are composed of a multiple strand of tinsel which is encased in insulation. This type of wire conductor does not permit of the usual practice of stripping or cutting back an end of the insulation so as to provide an exposed end of the conductor. This is particularly the case when extremely small gauge flexible connectors are used such for illustration as a type which is connected to hearing sets which are carried by users, or for other analogous uses.

In the accompanying drawing forming part of this specification, Fig. 1 is an enlarged front elevational view of a plug connector illustrating our invention with part of the plug housing broken away to expose one of our improved tinsel wire connecting contacts; Fig. 2 is a side elevational view of the structure shown in Fig. 1; Fig. 3 is a side elevation partly in section of a detail illustrating a portion of the means by which an end of the tinsel conductor is connected by a pointed insert applied thereto; Fig. 4 is a side elevation partly in section of a detail illustrating the application of one of the plug contacts to the end portions of the tinsel conductor shown in Fig. 3; and Fig. 5 is a view similar to Fig. 4 illustrating the step of locking the sleeve of the plug contact shown in Fig. 4 on the end portion of the tinsel wire.

In the drawing, we have shown in Figs. 1 and 2 the application of our improvement to a double terminal plug A, which has a housing composed of two corresponding mated sections **10** and **11**, of insulated material, between which the pair of insulated conductor wires **12—12** are sealed by cementing said sections together. Each of the conductor wires is of usual construction (Fig. 3), and has an insulating covering **13** and a tinsel electrical conductor core **14** of well known type. In practice this form of our invention is particularly but not exclusively adapted for use with hearing apparatus in which the transmitting wire is flexible and of extremely small diameter and the connector plug is necessarily very small and must be durable in order to give satisfaction.

In the use of a tinsel conductor wire which provides a flexible conductor, it has been found difficult to provide a durable and satisfactry connection between the connecting contact pins of the connector plug and the ends of the tinsel wire or core in the plug. This objection we overcome in the following manner.

Each tinsel conductor wire **12** is provided longitudinally with a small cylindrical contact head **15** which substantially corresponds in diameter with the insulation covering **13** of the wire. This head piece is provided coaxially on its inner end with an integral sharp pointed contact **16** which is first thrust into the end of the tinsel core as shown in Fig. 3. Next a connecting contact pin **17** (Fig. 4), having an integral hollow cylindrical sleeve **18** is secured over the end of the wire by slipping the sleeve in close contact over the head piece **15** and the

insulating covering **13**, said sleeve being of sufficient length to extend over a substantial portion of the insulation on the wire. The sleeve impresses the insulation and this in turn compresses the tinsel core into firm contact against the surface of the pointed contact end **16**. After this application of the contact pin the outer end of the sleeve is secured tightly by pinching its end at **19** over the insulated end of the insulated wire as shown in Fig. 5. The flattened end portion of the jacket thus formed produces a shoulder for the purpose of keying the contact pin **17** rigidly in the housing A of the connector as hereinafter described.

The inner adjacent surfaces of the corresponding sections **10** and **11** of the plug are formed with suitable channels **20** and **21** in which the ends of the cords **12—12** are held with the contact pins **17—17** projecting rigidly from one end of the connector, the pinched shoulders **19** of the jacket **18** being rigidly keyed in the body of the connector plug so that the contact pins **17** can be applied in sockets to complete an electrical circuit.

After the wires **12—12** and our improved contacts are adjusted in the channels **20** and **21** the opposed sections **10** and **11** are closed and secured together by cementing or other suitable means, whereby the contacts are held firmly in the housing by their keyed connections.

It is contemplated that our improvements are equally applicable for use with a single wire connector or by duplication with any number of connectors. Our invention is extremely simple and effective in construction and is applicable for various uses within the spirit thereof. We contemplate changes in construction and desire to have it understood that the construction shown is only illustrative and that the invention can be carried into practice by other means and applied to uses other than those above specified within the scope of the following claim.

We claim:

An electrical terminal for attachment to an insulated tinsel wire core, comprising a solid cylindrical contact body of substantially even diameter with that of said insulation containing said tinsel wire core and having a pointed end thrust into the exposed end of said tinsel wire core, and a sleeve of even diameter throughout its length engaged over said contact body and an end portion of said insulation on said tinsel wire core, the outside diameter of said solid cylindrical contact body being only slightly smaller than the inside diameter of said sleeve so that the body is slidably and snugly inserted in said sleeve to afford optimum holding contact between the entire outer surface of the body and a substantial portion of the inner surface of the sleeve, said sleeve having its forward end portion provided with a solid longitudinal contact terminal pin and its opposite end portion contracted to about one-half its original diameter into tight pressing engagement over a substantial portion of the adjacent end portion of the insulation on the tinsel wire core.

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