

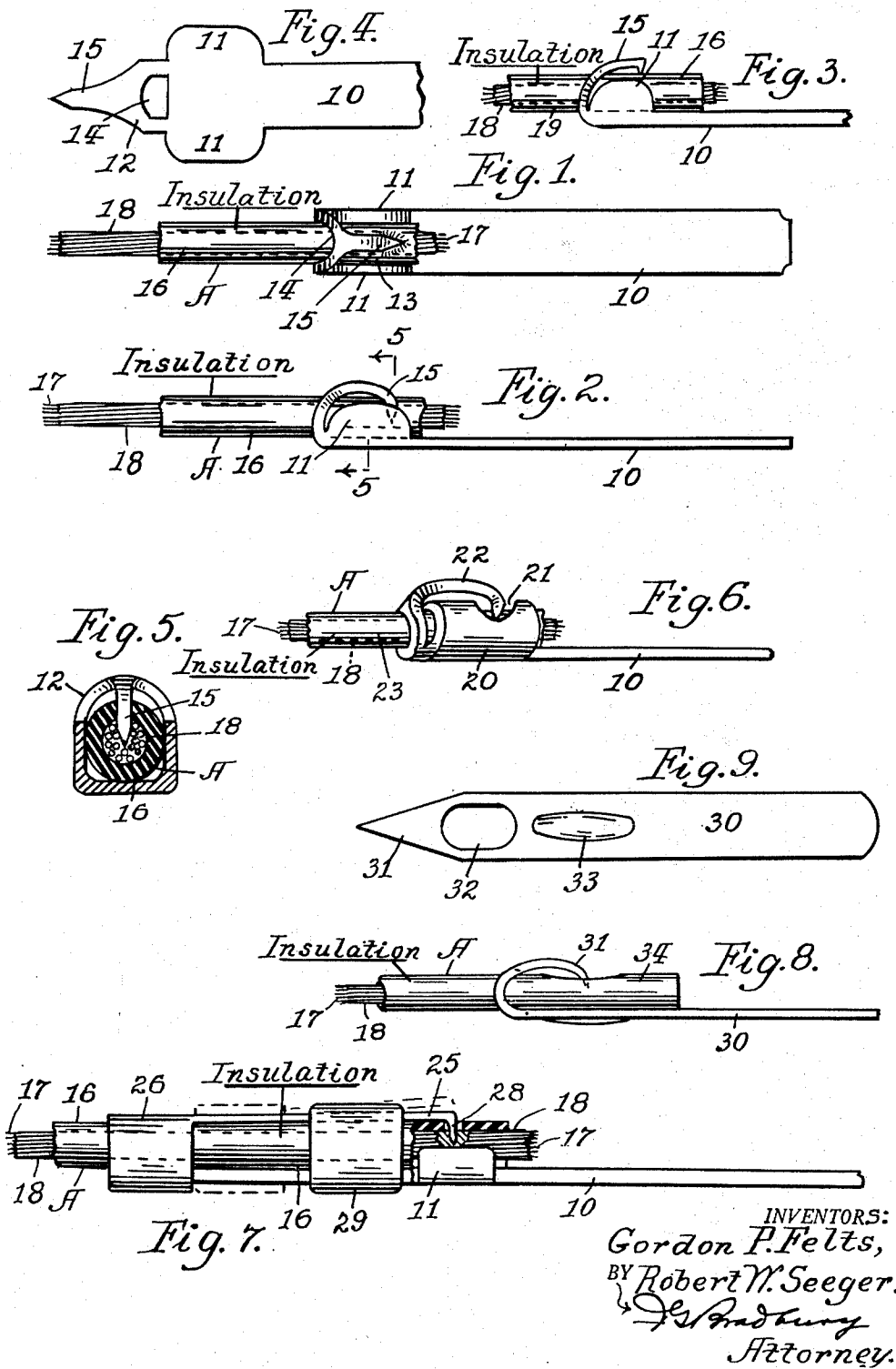
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TERMINAL CONNECTOR FOR ELECTRICAL CONDUCTORS

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TERMINAL CONNECTOR FOR ELECTRICAL CONDUCTORS

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2 Claims. (Cl. 173-269)

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This invention relates to terminals for multi-strand electrical conductors, one type of which is commonly known as "tinsel wire," in which a central multistrand core conductor is covered by flexible insulating material of well known type. It has been found difficult to provide a terminal of solderless type having lasting quality and that will produce an effective electrical connection and it is the primary object of this invention to overcome all previous objections and provide an efficient contact for multistrand conductors without impairing effectiveness of electrical connection after long continued use. Among other objects of the present invention is to provide means for forming and attaching terminals to electrical conducting cords in an improved manner.

In the accompanying drawing which illustrates our improvements, Fig. 1 is a plan of our improved terminal for an electrical conducting cord; Fig. 2 is a side elevation of the construction shown in Fig. 1; Fig. 3 is a side elevation of a detail before the piercing contact member is struck through the covering of insulation and impinged in contact with the strands of the electrical conducting core; Fig. 4 is a plan of a detail portion of the terminal blank before it is formed for use; Fig. 5 is a cross section taken on the line 5-5 of Fig. 2; and Figs. 6 to 9 inclusive are views of various alternative constructions of our improved multistrand terminal.

As shown in Figs. 1 to 4 inclusive, our improved terminal is formed from a blank, a detail portion of which is shown in Fig. 4, said blank having the usual connecting arm or blade 10, a pair of laterally spaced conductor holding flanges 11-11, and the piercing contact member 12. In forming the blank the flanges are first struck laterally so as to produce a channel or trough 13 in which the end of the insulated multistrand conductor cord A is adapted to be held. The piercing member 12 in use is bent upwardly from the rearward end portion of the connecting arm 10 and is formed with a longitudinal conductor cord receiving passage 14 which registers with the rearward end of the channel 13. The piercing end of the contact member 12 is pointed at 15 and is adapted to be bent and thrust downwardly with its pointed end perforating the insulation covering 16 of the conductor and to engage between and in firm contact with the conductor strands 17 of the core 18, as shown in Fig. 5.

The conductor cord A has its core 18 covered by insulation 16, composed of rubber or other non-conducting material, and its core consists of several electrical conducting strands 17 which

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are wrapped spirally or disposed longitudinally in the usual manner. In practice the pointed contact member 15 is deformed and thrust through the outer covering of insulation 16 and into contact between the strands of the conductor core 18 either by hand or by any suitable mechanical means. After the conductor cord is connected the arm or contact blade 10 is ready to be used directly or while applied to a plug such as is shown in our companion applications, Serial Numbers 213,394, 212,554, and 177,349, for making contact with a wall or other connecting socket.

In Fig. 6, the flanges 11-11 shown in Fig. 1 are replaced by a longitudinal sleeve 20, which is formed on the arm or blade 10, through which the conductor cord A is inserted and held. This sleeve has an opening 21 through its side which admits the contact arm 22 and permits the latter to be thrust through the insulation covering 23 and made to contact between the strands 17 of the core 18.

In Fig. 7, instead of the contact arm or blade being thrust by hand into contact with the strands of the conductor core it is clamped by a collar or sleeve 29 which is slid forwardly over the connecting arm or blade 10 and the spring piercing contact member 25, whereby said contact member 25 is pressed inwardly with its pointed end piercing the insulated conductor cord A and making contact between the strands of the conductor core. The piercing contact member 25 is supported on the conductor cord A by a collar 26, which is formed on the rearward end thereof. The lateral broken line position of the piercing contact member 25 shown in Fig. 7, occurs when the collar is withdrawn rearwardly and assumes the outward broken line position before it is applied in use. The portion of the contact member 10 which extends forwardly is provided with a pair of conductor holding side flanges 11 which are heretofore described. In use an end of the conductor cord A is inserted through the collar 26 and is held between the flanges 11 in juxtaposed position below the forward perforating pointed end 28 of the spring contact arm 25. Instead of depressing the contact arm 25 directly by hand to make electrical connection with the strands 17 of the conductor core 18, a sleeve 29 is slidably supported over the arm 10 and the conductor A thereon. When the sleeve is slid forwardly it depresses the contact arm and causes the latter to perforate the covering of insulation 16 on the conductor cord and to make contact with and between the strands 17 of the conductor 18. The full line position of the spring

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contact arm 25 and of the actuating sleeve 29 indicates the connected position with the core 18 of the conductor cord A and the extended socket contact member 10.

In the alternative construction shown in Figs. 8 and 9, the blank 30 from which the terminal is produced is formed with a pointed end 31, a conductor cord receiving opening 32 and a cord holding longitudinal recess 33. In use the end portion of the conductor cord A is first inserted upwardly through the passage 32 and placed over the longitudinal recess 33. The pointed end 31 is then bent upwardly and clasped tightly down as shown in Fig. 8 with its pointed end perforating the outer insulation 34 on the conductor cord and contacting between the strands 17. In this manner the conductor is held rigidly by the pointed end on the terminal both laterally and longitudinally in the recess 33.

Other modifications are contemplated within the spirit of the invention and the scope of the following claims.

We claim:

1. An electrical connector for an insulated multistrand electrical conductor comprising a generally J-shaped, one-piece terminal member having a long arm constituting a circuit contact blade and a short arm constituting a conductor-wire contact member, said short arm being bent up and over said long arm and having a piercing point at its free end, a longitudinal channel in said long arm for holding a conductor laterally therein, said channel being adjacent the bight and lying under the short arm, said bight having an opening therein in register with the channel to receive the conductor for placement in the channel, and said piercing point being adapted to be pressed through the insulation of the conductor and into contact with the strands thereof.

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2. An electrical connector for an insulated multistrand electrical conductor comprising a generally J-shaped, one-piece terminal member having a long arm constituting a circuit contact blade and a short arm constituting a conductor-wire contact member, said short arm being bent up and over said long arm and having a piercing point at its free end, a longitudinal sleeve on said long arm for holding a conductor laterally therein, said sleeve being adjacent the bight and lying under the short arm and having an opening in the top thereof, said bight having an opening therein in register with the sleeve to receive the conductor for placement in the sleeve, and said piercing point being adapted to be pressed through the opening in the sleeve and down into the insulation of the conductor and into contact with the strands thereof.

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