

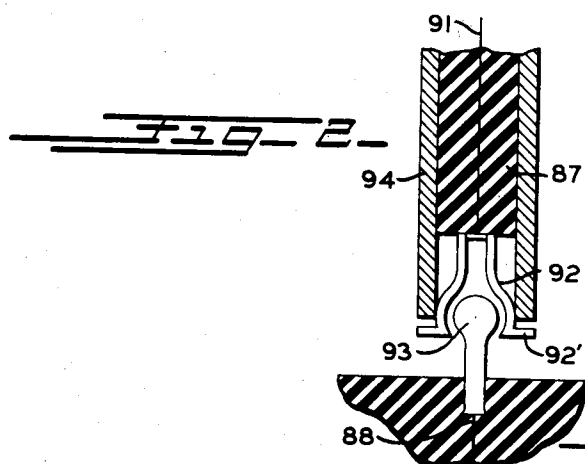
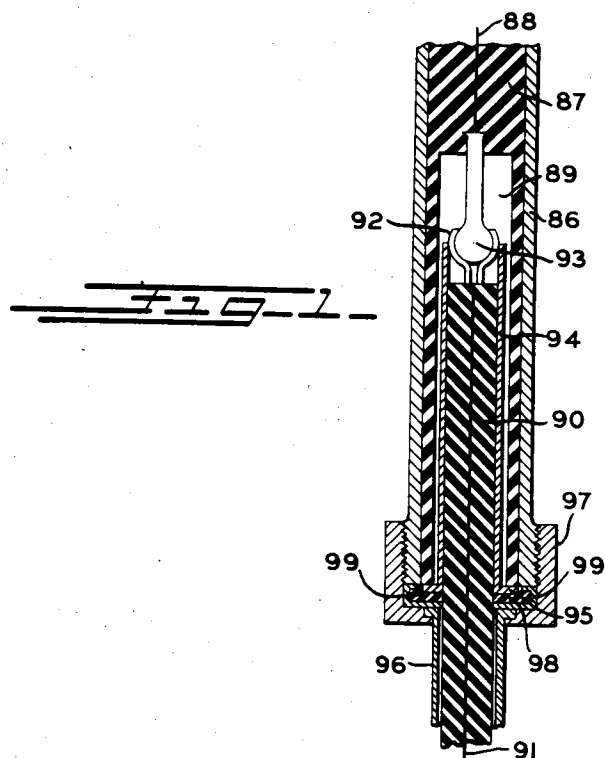
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THERMAL PROTECTION FOR SHIELDED IGNITION SYSTEMS

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THERMAL PROTECTION FOR SHIELDED
IGNITION SYSTEMS

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756,431. Divided and this application October
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4 Claims. (Cl. 174-84)

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amended April 30, 1928; 370 O. G. 757)

This invention relates to means for detachably connecting two electrically conducting members, and more particularly to means for connecting a radio shielded ignition cable to a spark plug.

The principal object of my present invention is to provide connecting means of the kind specified, that are efficient both electrically and mechanically, and are readily connectible and disconnectible.

In the drawing:

Fig. 1 is a longitudinal axial section of one embodiment of my present invention; and

Fig. 2 is a fragmentary sectional view showing a modified form of Fig. 1.

This application is a division of my copending application, Serial No. 756,431, filed December 7, 1934, now Patent No. 2,186,038, dated Jan. 9, 1940.

The type of connection usually employed for connecting any unshielded ignition cable to a spark plug is not adapted for use with a radio shielded cable. For the latter purpose the connecting elements must be enclosed in the shielding harness and since the parts of the harness immediately adjacent the spark plug are usually rigid, some sort of yielding contact making element, such as a spiral spring, is disposed in the spark plug connected end of the harness to form a conductive path between the center electrode of the spark plug and the conductor in the ignition cable.

Heretofore some difficulty has been experienced in securing an efficient electrical connection between the spark plug and the cable where springs are used as the yielding conductive element. To eliminate this trouble, I have devised a new means of making such connection. In Fig. 1 is shown a hollow member 86 of metal that is a poor thermal conductor having in it the heat and electrical insulation 87 with the wire 88 of low heat conductivity embedded therein, there being a recess 89 formed in the insulating material 87 to receive the cable 90. Fixed to the wire 91 in cable 90 are a plurality of curved fingers 92 that are adapted to be spread apart when pushed against the bulbous terminal 93 on wire 88 to slip around and engage said terminal. To prevent casual separation of the fingers 92 from terminal 93 a sleeve 94 is slidably positioned on the cable 90 and after the fingers are engaged with the terminal this sleeve is pushed down to clamp the fingers against the terminal. At the outer end of sleeve 94 is a flange 95 that extends radially outwardly over the end of insulating material 87 and against

which the shielding harness 96 is clamped by a union 97, a body 98 of asbestos, relatively soft rubber or the like, disposed in a thin metal retainer 99 being so positioned that when connection 97 is tightened down the rubber will be squeezed tightly around the cable 90 and against the adjacent end of sleeve 94 to form a tight seal and to form an electrically conducting connection, through retainer 99, between members 86 and 96. The flange 95 may be caught with the fingers or a screw driver to pull sleeve 94 outwardly when it is desired to disconnect the cable from the terminal 93. The sleeve 94 may be slit at its inner end or it may be inwardly bevelled or otherwise shaped to increase its effectiveness for the purpose stated. In Fig. 2 the fingers 92 are shown provided with outwardly turned portions 92' at their free ends. These outwardly turned portions contact the walls of recess 89 and so center the fingers 92 in proper position to engage the terminal 93.

The invention herein set forth may be made or used by or for the Government of the United States without payment of any royalties thereon or therefor.

I claim:

1. In combination, a hollow member of electrically conducting material having low thermal conductivity, insulating material therein, there being a recess in said insulating material at one end, an electrical conductor of low thermal conductivity passing through said insulating material having a bulbous terminal in said recess adjacent the bottom thereof, an insulated cable with an end insertable in said recess, electrically conducting elements movable toward and away from each other connected to the wire in said cable at the said end thereof, said elements being normally separated sufficiently to permit of their being pushed over said terminal, a sleeve disposed around the said end of the cable slidable to lock said elements firmly upon said terminal, electrical shielding on said cable, and means to connect said shielding to said hollow member and simultaneously lock said sleeve against movement away from said terminal.

2. In combination, a hollow member of electrically conducting material having low thermal conductivity, insulating material therein, there being a recess in said insulating material at one end, an electrical conductor of low thermal conductivity passing through said insulating material having a bulbous terminal in said recess adjacent the bottom thereof, an insulated cable with an end insertable in said recess, electrically

conducting elements movable toward and away from each other connected to the wire in said cable at the said end thereof, said elements being normally separated sufficiently to permit of their being pushed over said terminal and each having an outwardly turned toe at its free end to position such free end in said recess, a sleeve disposed around the said end of the cable slidable to lock said elements firmly upon said terminal, electrical shielding on said cable, and means to connect said shielding to said hollow member and simultaneously lock said sleeve against movement away from said terminal.

3. In combination, an element having a recess therein, an electrical conductor within said element having a bulbous terminal in said recess adjacent the bottom thereof, a member including an electrically conducting portion insertable into said recess, electrically conducting fingers secured to said portion to be movable toward and away from each other and to be pushed over said terminal, means on said member movable into said recess to lock said fingers against withdrawal from said terminal, and means to force

said movable means into and to secure said means in the locking position and positively to fasten said element and said member together to prevent accidental separation thereof.

4. In combination, an element having a recess therein, an electrical conductor within said element having a bulbous terminal in said recess adjacent the bottom thereof, a member including an electrically conducting portion insertable into said recess, electrically conducting fingers secured to said portion to be movable toward and away from each other and to be pushed over said terminal, each said finger having a laterally turned portion to contact the wall of said recess and thereby position said fingers to engage said terminal, means on said member movable into said recess to lock said fingers against withdrawal from said terminal, and means to force said movable member into and to secure said means in the locking position and simultaneously positively fasten said member and said element together.

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