

June 10, 1930.

R. H. WHISLER

1,762,848

ELECTRICAL CONNECTER

Filed Sept. 13, 1926

Fig. 1

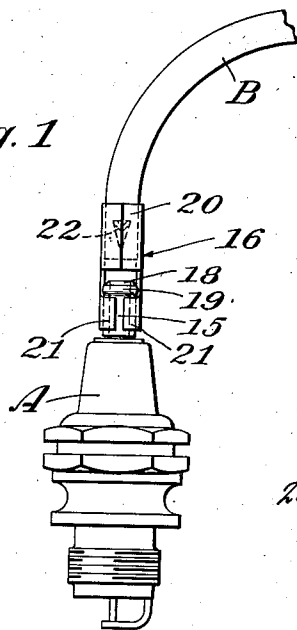


Fig. 2

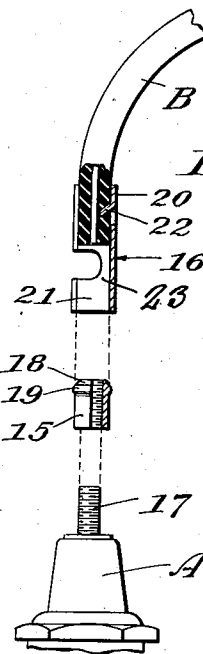


Fig. 3

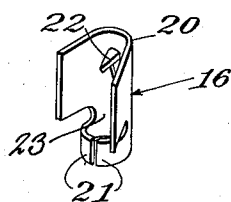


Fig. 4

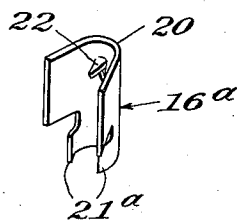


Fig. 5

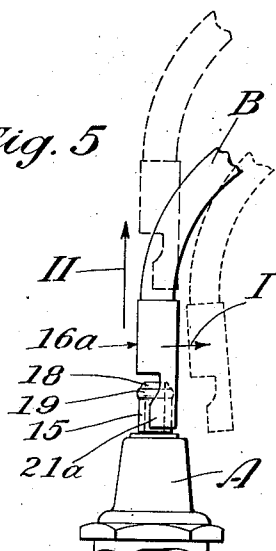


Fig. 6

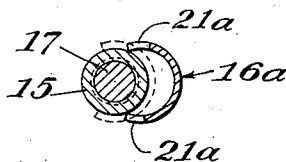
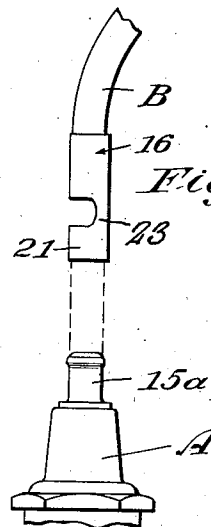


Fig. 7



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## UNITED STATES PATENT OFFICE

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## ELECTRICAL CONNECTER

Application filed September 13, 1926. Serial No. 135,010.

This invention relates especially, although not exclusively, to devices for electrically connecting the terminal wires of the ignition system to the spark plugs of an internal combustion engine, and has for its general objects to provide a simple and inexpensive device which can be readily applied and by the use of which the wires can be readily connected and disconnected by a simple movement without injury to the wires or to the insulation, the device being particularly useful in connection with engines of the type in which the spark plugs are conveniently accessible only from the top.

The foregoing and other more particular objects of the invention, together with means whereby the latter may be carried into effect, will best be understood from the following description of certain forms or embodiments thereof illustrated in the accompanying drawings. It will be understood, however, that the particular constructions described and shown have been chosen for purposes of exemplification merely, and that the invention, as defined by the claim hereunto appended, may be otherwise embodied without departure from the spirit and scope thereof.

In said drawings:

Fig. 1 is a side elevation of a spark plug and a terminal wire connected thereto by means of a connecter embodying the invention.

Fig. 2 is a similar view, partly in section, showing certain of the parts separated.

Fig. 3 is a detail perspective view of the wire terminal prior to its application to the wire.

Fig. 4 is a similar view showing a modification.

Fig. 5 is an elevation and Fig. 6 an enlarged sectional view illustrating the operation of the terminal shown in Fig. 4.

Fig. 7 is an elevation illustrating a further modification, the parts being shown disconnected.

In Fig. 1 is shown a spark plug A to which a terminal wire B is connected by means of an electrical connecter embodying the invention. Said connecter comprises a terminal 15

carried by the spark plug A and a terminal 16 secured to the end of the wire B.

As shown in Fig. 2, the terminal 15 comprises a sleeve threaded to the usual terminal post 17 of the spark plug A, said sleeve having a smooth, substantially cylindrical exterior but being preferably slightly tapered at its extreme free end, as shown at 18, and being also preferably slightly enlarged immediately adjacent its tapered end, as shown at 19.

The wire terminal 16 is preferably composed of resilient sheet metal bent to form a substantially cylindrical body or wire-engaging portion 20 and a pair of unitary spring arms 21. The wire-engaging portion 20 is provided with an integral struck-up prong 22 and is initially formed with its ends open, as shown in Fig. 3. Said terminal member is applied to the wire by pressing the prong 22 through the insulation and into engagement with the metal of the wire proper, the free ends of the portion 20 being thereafter bent down upon the surface of the insulation to complete the substantially cylindrical form of said portion. The spring arms 21 are collectively disposed coaxial with the cylindrical portion 20, being preferably so arranged as to form an interrupted but nearly complete annulus of a diameter normally slightly less than that of the cylindrical terminal 15 and adapted to embrace the latter. Said arms are spaced or separated from the body portion and extend circumferentially in opposite directions respectively from a reduced unitary neck portion 23 which, in turn, extends longitudinally from the body portion 20.

It will be seen that the arms 21 may be readily engaged with or disengaged from the terminal 15, to connect and disconnect the parts, by a relative axial movement of the terminals, thereby avoiding twisting of the wire and permitting ready engagement and disengagement of the parts even though the spark plug is accessible only from the top. The connection of the parts is facilitated by the tapered end 18 of the terminal 15, while their accidental disconnection is resisted by the enlarged portion 19.

In the form of the invention shown in Figs.

4, 5 and 6, the free ends of the arms 21<sup>a</sup> of the terminal 16<sup>a</sup> are normally spaced apart a distance slightly less than the diameter of the terminal 15, thereby permitting inter-engagement and disengagement of the parts by a relative lateral movement, as indicated in Fig. 6 and by the arrow I in Fig. 5, as well as by a relatively axial movement, as in the form of the invention first described and as indicated by the arrow II in Fig. 5.

It will be seen that the device comprises only two parts which are of simple construction and easily applied, namely, the sheet metal wire terminal member 16 or 16<sup>a</sup> and the sleeve 15 which is applied to the terminal post 17 of the spark plug. If preferred, the terminal post of the spark plug may itself be formed to constitute the plug terminal as indicated at 15<sup>a</sup> in Fig. 7, but a separate sleeve is preferred as it adapts the device to use with any spark plug of standard construction and also permits the use of other attaching means if desired or if necessary in case of emergency.

Having thus described my invention, I claim:

An electrical connector comprising a terminal having a relatively enlarged portion adjacent its end and a relatively reduced portion in the rear of said enlarged portion, and a cooperating terminal having a body adapted for attachment to the end of a wire, a reduced unitary neck portion extending in a longitudinal direction from said body portion, and a pair of spring arms extending in opposite directions circumferentially from said neck portion, spaced from said body portion, and adapted to embrace the reduced portion of said first named terminal and to abut the enlarged portion thereof.

In testimony whereof I affix my signature.

**RALPH H. WHISLER.**

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