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L. L. SCHILLER

3,364,459

UNIVERSAL SPARK PLUG TERMINAL CONNECTOR

Filed Oct. 11, 1965

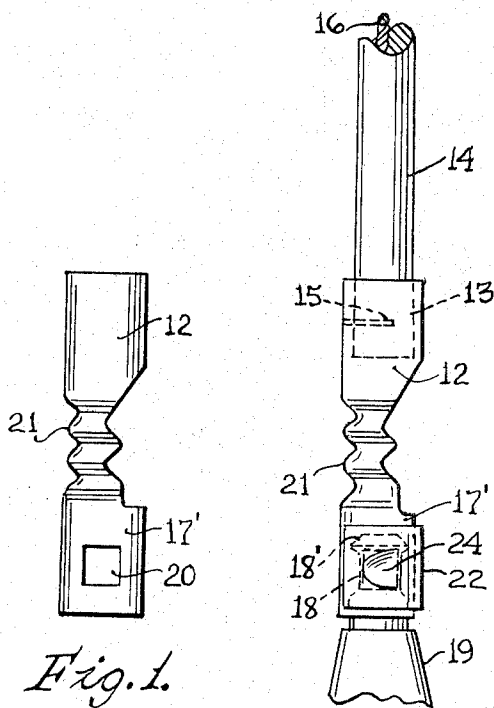


Fig. 1.

Fig. 2.

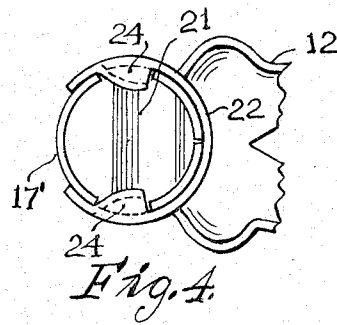


Fig. 4.

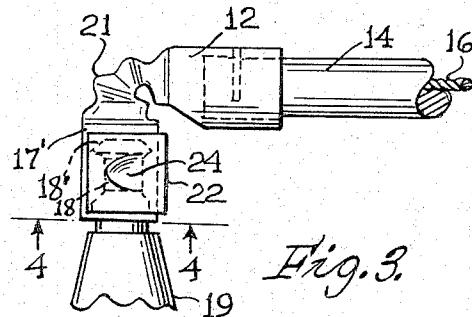


Fig. 3.

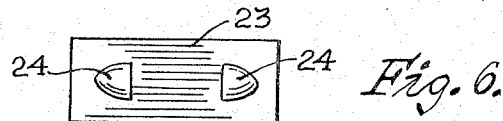


Fig. 6.

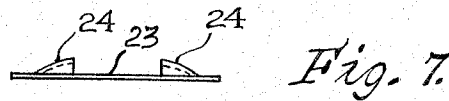


Fig. 7.

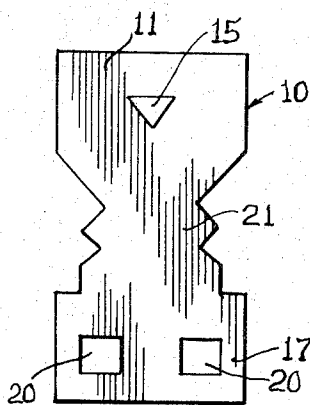


Fig. 5.

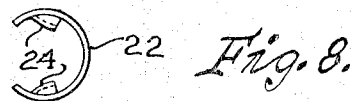


Fig. 8.

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1

2

3,364,459

UNIVERSAL SPARK PLUG TERMINAL CONNECTOR

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1 Claim. (Cl. 339-245)

ABSTRACT OF THE DISCLOSURE

A terminal connector for a spark plug formed from a single blank of material, and providing one sleeve portion for engaging one end of a terminal wire, and a second sleeve portion adapted to embrace the electrode of a spark plug with the sleeve sections connected together by a corrugated web. A clamp is formed to project through openings in the sleeve portion of the terminal which embraces the electrode and which provides inwardly struck projections insertable into openings formed in the sleeve portion of the terminal, with the projections clamping the sleeve on to the spark plug as well as engaging the electrode thereof.

Disclosure of the invention

The present invention constitutes an improvement over that shown and described in United States Letters Patent No. 3,141,724. The terminal connector there shown and described comprises opposite longitudinally split sleeves integrally connected together by a corrugated web. Such web permits the sleeve to be bent at various angular positions with respect to each other. In this bending operation, it has been found that the terminal sleeve to be connected to the electrode often expands, resulting in a loose connection between the sleeve and the electrode of the spark plug.

This invention has for its object a simplified and economical arrangement for releasably latching one of the sleeves to the electrode of a spark plug and for clampingly embracing and latching together the longitudinal edges of such sleeve to prevent the sleeve from expanding during the bending to the aforesaid angular positions, which expanding would result in a loose contact between such sleeve and the electrode.

Another object of this invention is to provide a simple clamp for a terminal sleeve to be connected to a spark plug electrode, thereby to assure a positive and firm contact between the electrode and the terminal sleeve.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

FIG. 1 is a side elevational view showing the blank formed to provide the terminal connector of my invention;

FIG. 2 is a side elevational view showing the same connected to a terminal wire and to a spark plug;

FIG. 3 is a view similar to FIG. 2 but showing the terminal connector rectangularly bent to an adjusted position;

FIG. 4 is a fragmentary detail view taken substantially on line 4-4 of FIG. 3;

FIG. 5 is a plan view of the blank from which my improved connector is made;

FIGS. 6 and 7 are plan and edge views respectively of a blank from which a clamp embodied in my invention is formed;

FIG. 8 is an end view of the clamp embodied in my invention.

The several objects of this invention are accomplished by the preferred form of construction shown in the accompanying drawings. In this connection, 10 indicates a blank from which my terminal connector is made. This blank is formed of semi-rigid material and includes a section 11 which, when formed, provides a longitudinally split sleeve 12 which receives the end 13 of a terminal wire 14. Struck from the section 11 is a prong 15 which penetrates the end 13 of the terminal 14 to provide a connection between the conductor core 16 thereof and the terminal connector. The section 17 of the blank is formed to provide a longitudinally split sleeve 17' which receives the electrode 18 of the spark plug 19. This section 17 provides openings 20 in spaced relation with respect to each other adjacent its longitudinal marginal edges. The sleeve 17' is adapted to receive the end portion of the electrode 18 and be frictionally held thereon in a manner to be presently explained.

The sleeves 12 and 17' are integrally connected together by a web 21 which is corrugated circumferentially whereby to permit the sleeve 12 to be adjusted at any desired angular position with respect to the sleeve 17'. In FIG. 3 I have shown the sleeve 12 adjusted to a rectangular position with respect to the sleeve 17'. However, it is to be understood that the angular position of the sleeve 12 with respect to the sleeve 17' may be any position between a straight angle and a right angle.

As the sleeve 17' is split longitudinally, it is most desirable that some means be provided to prevent the sleeve from opening during the bending of the sleeves 12 and 17' to various angular positions with respect to each other. It is also desirable to prevent the sleeve 17' from opening to a degree such as would present a loose contact between the sleeve 17' and the electrode of the spark plug. To prevent this, I provide a substantially semi-rigid clamp indicated at 22. This clamp is formed from a blank 23 substantially rectangular in plan view and formed angularly to embrace the sleeve 17' (FIG. 4). The clamp 22 is clamped to embrace the sleeve 17' on opposite sides of and over the longitudinal split when the sleeves 12 and 17' are in longitudinal relation with respect to each other and prior to bending of the sleeves at a predetermined angular position with respect to each other.

As the clamp is formed of substantially semi-rigid material, when the clamp embraces the sleeve 17' it will firmly bear the sleeve 17' upon the end of the electrode of the spark plug, thereby assuring a positive and constant contact between the terminal connector and the electrode. There are struck from the blank 23, opposite protrusions 24 along the opposite longitudinal marginal edges (FIG. 6), which, when the blank is formed in the shape of the annular clamp 22, will extend inwardly through the openings 20 of the sleeve 17' to engage the electrode of the spark plug in the manner shown in FIG. 3, below the outer bead 18' of the electrode, thereby preventing the connector from accidentally becoming disconnected from the electrode and at the same time securing the clamp 22 to the sleeve 17'.

By this construction, upon bending the sleeves 12 and 17' to a desired angular position, which is usually done with the connector connected to the electrode, the clamp 22 will prevent the sleeve 17' from bending. Such clamp will also permanently latch the sleeve 17' upon the terminal by virtue of the engagement between the protrusions 24 and the bead 25 of the electrode.

By this arrangement, the connector is securely connected to the electrode and a positive contact between the connector and the electrode is at all times assured.

While I have illustrated and described the preferred

3

form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I therefore do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claim.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

1. A terminal connector for a spark plug comprising
 - (a) a blank formed to provide a pair of longitudinally split sleeves,
 - (b) one of said sleeves adapted to receive the end of a terminal wire
 - (c) and the other of said sleeves adapted to be mounted on the electrode of said spark plug,
 - (d) a corrugated web connecting said sleeves together and permitting said sleeves to be adjusted at various angular positions with respect to each other,
 - (e) said other of said sleeves having a pair of openings formed therein spaced equally distant from the sleeves' longitudinal marginal edges so as to be disposed on opposite sides of the electrode when the same is mounted thereon,
 - (f) and a substantially semi-rigid annular clamp hav-

4

ing a pair of protrusions struck therefrom adjacent its longitudinal marginal edge portions, with the protrusions providing spaced confronting flat edge portions extending parallel to the confronting edges of the clamp to rigidly embrace said other of said sleeves on opposite sides of and over the split of said sleeve with said protrusions projecting into said openings to latch said other sleeve against opening when said sleeves are bent to various angular positions with respect to each other and to releasably latch said other sleeve to said electrode.

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