June 24, 1930. C. T. NIETMAN 1,767,808

TERMINAL CONNECTER FOR ELECTRIC CONDUCTORS

Filed June 8, 1928

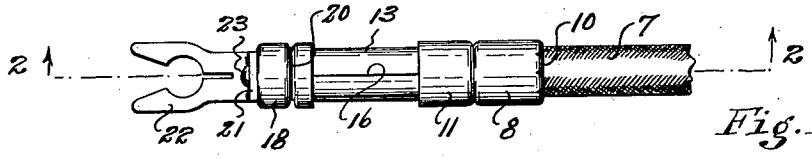


Fig. 1

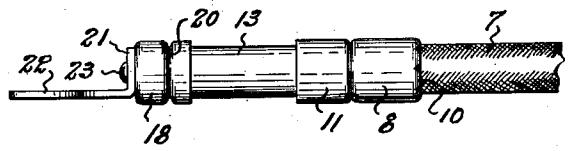


Fig. 2

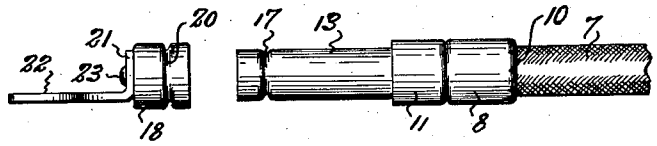


Fig. 3

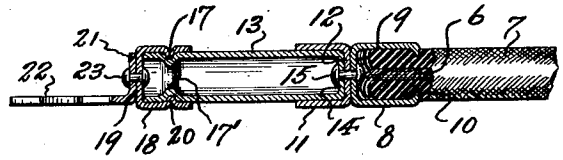


Fig. 4

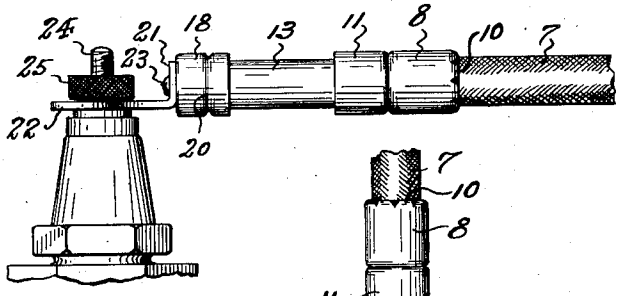


Fig. 5

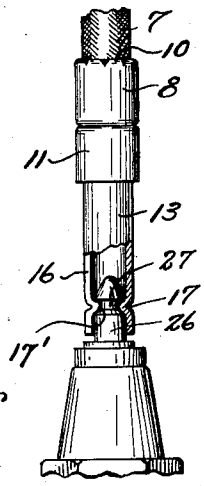


Fig. 6

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UNITED STATES PATENT OFFICE

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TERMINAL CONNECTER FOR ELECTRIC CONDUCTORS

Application filed June 8, 1928. Serial No. 283,775.

This invention relates to improvements in terminal connecters for coupling electric conductors to binding posts or other stationary terminals of electrical devices; and the invention has reference, more particularly, to improvements in terminal connecters for coupling electric conductors to ignition spark-plugs of internal combustion engines and for similar purposes.

This invention has for its principal object to provide a simple and easily manipulated convertible or interchangeable terminal connecter which may be readily adapted at will for either lateral or axial connection with external stationary terminal portions of ignition spark-plugs of various kinds.

The invention has for a further object to provide a simple convertible terminal connecter of comparatively low cost, and yet of a strong, neat and durable construction.

Other objects of this invention, not at this time more particularly enumerated, will be clearly understood from the following detailed description of the same.

The invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a top or plan view of the novel convertible or interchangeable terminal connecter made according to and embodying the principles of this invention; Figure 2 is a side elevation of the same; Figure 3 is a side elevation of the same with a detachable part thereof removed to convert the same for axial connection with a spark-plug terminal; and Figure 4 is a longitudinal sectional view, taken on line 4—4 in Figure 1.

Figure 5 shows the novel convertible terminal connecter arranged for lateral connection with the stationary terminal for a spark-plug; and Figure 6 is a similar view showing the terminal connecter arranged for axial connection with the stationary terminal of a spark-plug.

Similar characters of reference are employed in all of the hereinabove described views, to indicate corresponding parts.

Referring now to said drawings, the reference character 6 indicates an electric conductor having a suitable external covering or sheath of insulation 7. The novel convertible terminal connecter is secured in fixedly attached relation to the end of said insulated conductor 6—7. To this end I provide a metallic cap or ferrule 8 having a closed end 9. The insulation 7 is removed from the extremity of the conductor 6, and the latter is thus sufficiently bared to make contact with the metallic cap or ferrule 8 when the end of the insulated conductor 6—7 is inserted within the latter. The marginal portions of the open end of said metallic cap or ferrule 8 are provided with inwardly directed gripping portions 10 which are imbedded in the insulation 7 to thereby firmly and securely fasten the cap or ferrule 8 in operative connected relation to the insulated conductor.

The terminal connecter device comprises an inner metallic end cap 11 having a closed end 12 arranged back to back with said cap or ferrule 8. Telescopically fitted into said inner metallic end cap 11 is a metallic cylindrical body member 13 having an inner end wall 14 abutting the end 12 of said end cap 11. The parts thus assembled together are secured in the assembled relation by a rivet 15 or other suitable fastening means extended through or connected with the abutting walls 9, 12 and 14, whereby both mechanical connection and interrelated electrical contact is established between the parts. The cylindrical body portion of the member 13 is provided, on at least one side thereof, with a longitudinal split or division 16 extending rearwardly therethrough from the open outer end thereof, whereby the said open outer end will, under properly applied pressure, yieldably expand or contract for purposes to be subsequently set forth. Said cylindrical body member 13 is provided, adjacent to its outer open end, with an indented annular groove forming an external seat 17 and an internal engaging rib 17'.

The reference character 18 indicates a detachable metallic thimble having a closed outer end 19. This thimble 18 is provided in its side walls with an internally extending annular bead or rib 20. The thimble

18 is adapted to telescopically engage over the free end of said cylindrical body member 13, and to be detachably interlocked therewith by the engagement of its bead or rib 20 in the annular seat 17 of said body member 13, as shown more particularly in Figure 4, the split body member 13 yielding to the passage of said bead or rim thereover and into seated relation to the external seat 17 thereof. Secured to the exterior side of the end wall 19 of said thimble 18 is the base 21 of longitudinally projecting bifurcated contact clip 22, which may be fixed to the thimble by a fastening rivet 23 or by any other suitable fastening means.

The novel terminal connecter of this invention and made substantially as above described is easily and quickly convertible at will for cooperation with the stationary terminals of ignition spark-plugs, whether the same are provided with the threaded post and nut style of stationary terminal or the axial annularly grooved plug or post type of stationary terminal.

Referring to Figure 5 of the drawings, I have shown therein the upper end of an ignition spark-plug having as its stationary contact terminal the upwardly projecting threaded post 24 upon which is screwed the nut 25, the latter usually having a neck portion of reduced diameter. In applying the novel terminal connecter device of this invention to a spark-plug of this type, the thimble 18 is mounted in operative connection upon and to the split body member 13, thus operatively presenting the bifurcated contact clip 22 as a means for coupling the terminal connecter device with the spark-plug. To this end said bifurcated contact clip is sprung over and around and so as to straddle the neck-portion of the nut 25 of the stationary contact terminal of the spark-plug thereby making a circuit completing connection between the latter and the conductor 6.

Referring to Figure 6 of the drawings, I have shown therein the upper end portion of an ignition spark-plug having a stationary contact terminal in the form of an upwardly projecting axial plug or post 26 having adjacent to its free end an annular channel or groove forming a receiving seat 27. In converting the novel terminal connecter device for operative connection with a spark-plug of the type just described, the thimble 18 is removed from the split body member 13, leaving the open outer end of the latter free. The said open outer end of said split body member 13 is axially aligned with the plug or post 26 so as to telescopically engage over the same; said split body member 13 will yield laterally or expand when so applied to permit the internal engaging rib 17′ to ride over the end of the plug or post 26 and then spring into the receiving seat 27 of the latter, thus making the desired electrical and mechanical engagement with the stationary terminal contact of the spark-plug.

From the above description it will be obvious that by a very simple and easily manipulated construction I have provided a terminal connecter device for electric conductors that may be quickly converted for selective use with different kinds of fixed or stationary terminal contacts. While my novel terminal connecter device is of especial advantage in use with ignition spark-plugs, it will nevertheless be well understood that it may be used with various other electrical devices equipped to receive its engagement in one way or another.

I am aware that some changes may be made in the details of construction of my novel terminal connecter device is above described and as shown in the accompanying drawings, consequently said description and showing is to be taken as illustrative and not in a limiting sense within the scope of the herefollowing claims.

I claim:—

1. A convertible terminal conductor for the purposes described, comprising a tubular split body having means comprising a pair of attached caps arranged back to back at one end to connect an electric conductor therewith, said body having an open free end, a bifurcated contact clip, and means for detachably connecting said contact clip with said open free end of said body.

2. A convertible terminal conductor for the purposes described, comprising a tubular split body having a closing cap at one end and an electric conductor cap arranged back to back and attached to said closing caps to connect an electric conductor therewith, said tubular body having a means adjacent its open free end adapted to provide an internal male holding member for attaching said body directly to a terminal post and an external female holding member, a bifurcated contact clip, and means for detachably connecting said contact clip with said open free end of said body, said latter means comprising a thimble to which said contact clip is secured, said thimble having a rearward open end to slide over said free open end of said body, and an internal bead in the walls of said thimble receivable in said external female holding member of said body to hold said thimble and body in engaged relation.

In testimony, that I claim the invention set forth above I have hereunto set my hand this 11th day of April, 1928.

CHARLES T. NIETMAN.