

Oct. 9, 1934.

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1,975,885

WIRE CONNECTER

Filed Sept. 12, 1929

Fig. 2

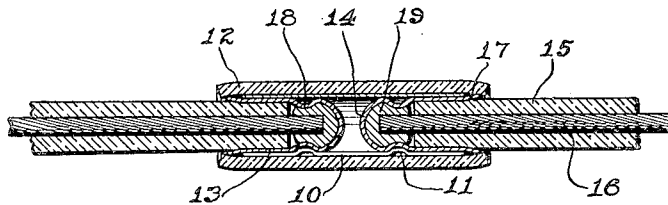
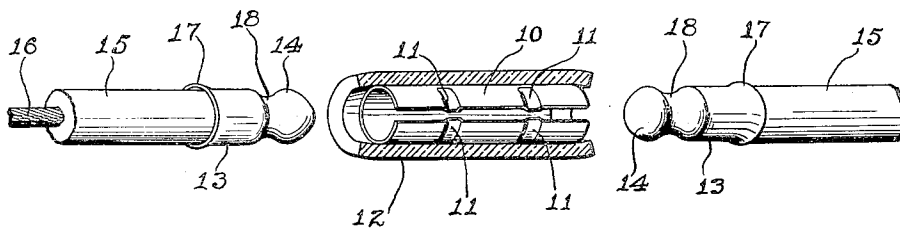


Fig. 1

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1,975,885

WIRE CONNECTER

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Application September 12, 1929, Serial No. 392,207

8 Claims. (Cl. 173—363)

The object of my invention is to provide a wire connector of simple, durable and inexpensive construction.

A further object of my invention is to provide a wire connector which may be readily assembled or dismantled by hand without the use of any tools whatsoever.

Still a further object of my invention is to provide a wire connector for use with insulated electric current conductors which will be relatively small in size and which will be provided with an insulated covering similar to the conductor covering.

Still a further object of my invention is to provide a wire connector for use in connection with the electrical wiring of automobiles. The modern method of manufacturing automobiles consists in building the car in several units and then assembling these units. The car chassis is made in one part of the factory and the wiring associated therewith is installed. The body may be built at a distant plant and shipped to the assembly plant where it is placed on the chassis. The wiring associated with the body must be installed before the body is completed, that is, before the upholstery is put on. The electrical circuit in the body is then joined in a number of places with the chassis circuit and it is the purpose of this device to provide a connector especially adapted for this use.

Numerous devices have been provided for connecting the various wires of the body with the wires of the chassis to complete the proper electrical circuits, such as, terminal blocks and gang sockets. These devices add to the cost of the car because of their relatively high initial cost. Further, all of the wires are usually run to one terminal block or gang socket which requires many of the wires to be much longer than would be needed if the wires were connected individually.

With my improved connector each wire running from the motor car body, or from an accessory used with the body or chassis, is provided with a terminal and a similar terminal is provided on the end of a wire built in the chassis and connected with the power circuit. These two terminals are then pushed into the ends of a tubular member which resiliently holds them together. The wires may, therefore, be as nearly direct as possible and further the wires may be connected in only a fraction of the time usually taken to connect a pair of wires in a terminal box.

This device is especially adapted for connecting horns, tail lights, stop lights, windshield wip-

ers, and similar accessories with which the ordinary screw and nut connection would be liable to jar loose.

With these and other objects in view, my invention consists in the arrangement, construction, and combination of the various parts of my improved device, as described in the specification, claimed in my claims, and illustrated in the accompanying drawing, in which:

Figure 1 shows a vertical central sectional view through the connector assembly, and

Figure 2 shows a perspective view of the device in a dismantled position, part of the insulation over the connector sleeve being removed to better illustrate the construction.

Referring to the accompanying drawing, I have used the reference numeral 10 to indicate generally a sleeve formed from sheet metal. This sleeve is preferably formed from thin copper stock rolled to tubular shape with the seam slightly open and having a pair of inwardly extending detents 11 formed in the abutting edges. The sleeve 10 so formed is inserted in a flexible tube 12 made from rubber or other insulating material which extends a considerable distance over each end of the sleeve. The inside diameter of the tube 12 is less than the outside diameter of the sleeves 10 so that this tube resiliently resists expansion of the split sleeve.

Terminals are provided for the ends of the wires which are to be secured together which consist of cup shaped members 13 having spherical heads 14. The open ends of the cup members 13 are chamfered, as at 17, so the insulation 15 of the wire 16 may be readily forced in the cup member. An annular groove 18 is provided in the cup member 13 which co-acts with the detents 11 to secure the terminals in the sleeve 10. The terminal 13 is secured on the end of the wire 16 by placing a drop of solder 19 in the head 14 and inserting the end of the wire 16 from which a short length of the insulation 15 has been removed, into the cup member 13 thereby soldering the wire to the terminal and securing the insulation in the cup member.

When two wires are to be secured together the terminals are inserted in the open ends of the sleeve 10 to position so that the detents 11 co-act with the annular groove 18 thereby resiliently securing the terminal in the sleeve 10. The tube 12 being also circumferentially expanded by the insertion of the terminals materially assists the sleeve in retaining the terminals therein. Thus, a light gauge metal having great resiliency may be used in the construction of the sleeve 10.

Many advantages arise through the use of my improved device and it may be well to mention that, in connection with automobile manufacture, the chassis and body may be wired separately and the terminal wires of each of these assemblies connected together with my improved connector. A further advantage results because no tools are required to make a permanent electrical connection between the ends of the wires when so connected. Still a further advantage results because my improved connector is small and inconspicuous and is provided with insulation equivalent to the insulation of the wire with which it is used. The connector is small compared to the wires which it connects so that it may readily be supported by the wires without other fastenings.

Some changes may be made in the arrangement, construction, and combination of the various parts of my improved device, and it is my intention to cover by my claims such changes as may reasonably be included within the scope thereof.

I claim as my invention:

1. An electrical terminal socket comprising, a longitudinally split sleeve formed from resilient metal so as to be radially expansible, said sleeve having an inwardly projecting detent formed therein which is adapted to be moved outwardly in a radial direction by the insertion of a plug type terminal therein, said detent snapping inwardly into a recess in the terminal plug when the latter is inserted into position, and a resilient rubber tube disposed over said sleeve the bore of which tube in its free state is enough smaller than the outside diameter of said sleeve that the metal of the sleeve is stressed inwardly from its free or neutral position when the terminal plug is withdrawn, the metal of said sleeve being stressed outwardly from said neutral position when said plug is inserted.

2. A device, as claimed in claim 1, wherein said resilient tube is of such length that it projects beyond both the end of said sleeve and the end of said terminal plug to thereby effectively insulate both the sleeve and the terminal plug.

3. A device, as claimed in claim 1, wherein an insulated wire is fixedly secured to the plug type terminal which is associated with said device, and wherein said resilient tube projects beyond the end of said sleeve and plug type terminal and contracts into intimate engagement with said insulated wire to effectively seal said connector.

4. An electrical terminal socket comprising, a longitudinally split sleeve formed of resilient metal, said sleeve having inwardly extending detents formed in the respective ends thereof which are adapted to be moved outwardly and radially by the insertion of a plug type terminal in each end thereof, which detents resiliently retain said terminals therein, and a flexible rubber tube disposed over said sleeve, the bore of which tube in

its free state is enough smaller than the outside size of said sleeve that the metal of the sleeve is stressed inwardly from its neutral position when the terminal plugs are withdrawn, the metal of said sleeve being stressed outwardly from said neutral position when said plugs are inserted, said tube projecting beyond each end of said sleeve where it contracts and thereby effectively prevents the tube from becoming loose from said sleeve.

5. An electrical terminal socket comprising, a longitudinally split sleeve formed from resilient metal, said sleeve having a projecting detent formed therein which is adapted to be moved radially by means of and when a terminal member is secured thereto, and a flexible rubber member associated with said sleeve of such size that the metal of the sleeve is stressed in the direction of engagement with said terminal beyond its free or neutral position when the terminal is withdrawn, the metal of said sleeve being stressed in the opposite direction beyond its neutral position when the terminal is in its engaged position.

6. A terminal tip connector formed of light sheet metal of general cylindrical shape, the edges of which are spaced apart to form an opening extending lengthwise through the side wall thereof, the said edges each being inwardly crimped at two points along said edge to form two pairs of oppositely facing crimped portions, each pair of crimped portions being spaced an equal distance from the ends of the cylinder, said inwardly crimped portions extending only a short distance inwardly of the said edges, the outer periphery of said connector presenting a smooth and unbroken surface throughout its length.

7. A terminal tip connector formed of light sheet metal of general cylindrical shape, the edges of which are spaced apart to form an opening extending lengthwise through the side wall thereof, the said edges each being inwardly crimped at two points along said edge to form two pairs of oppositely facing crimped portions adapted to resiliently engage a terminal tip when inserted within the connector, the inner and outer peripheries of said cylindrical connector presenting a smooth and unbroken surface throughout their length except at the four crimped portions.

8. A terminal tip connector formed of light sheet metal of general cylindrical shape, the edges of which are spaced apart to form an opening extending lengthwise through the side wall thereof, inwardly crimped portions formed only at said edges adapted to resiliently engage a terminal tip connector when inserted therein, said cylindrical connector presenting a smooth inner and outer periphery throughout its length except at said crimped portions, the outer diameter of said connector being uniform throughout its length.

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