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CONNECTER FOR ELECTRICAL LINES

Filed March 11, 1929

Fig. 1

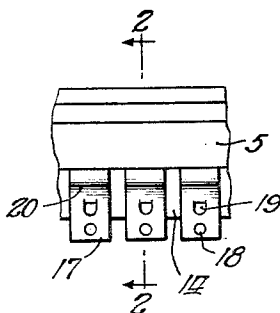


Fig. 2

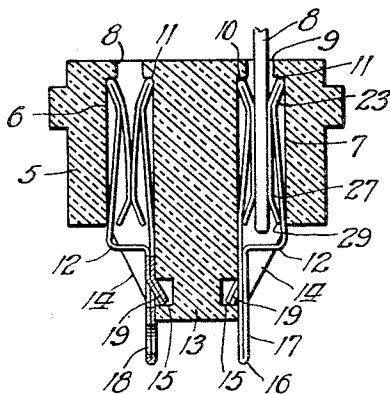
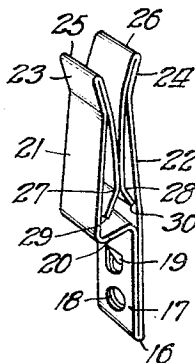


Fig. 3



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UNITED STATES PATENT OFFICE

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CONNECTER FOR ELECTRICAL LINES

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This invention relates to connectors for electrical lines, and has for its principal purpose the provision of a simple and easily assembled connecting device for a number of lines, in which the socket elements may be readily removed or replaced without disturbing each other, thus permitting the individual wiring of the socket elements before their insertion in the block, if this is desired, and permitting the checking of the individual elements by their removal from the block.

My invention also contemplates the provision, in a device of this character, of a novel socket element that provides a large contact surface for a plug inserted therein, together with a strong spring pressure, so that the connection made is capable of carrying a large current without heating or sparking.

Other objects and advantages of the invention will appear as the description proceeds, in connection with the accompanying drawings. It is obvious, however, that modifications may be made from the exact structure shown without departing from the spirit of the invention.

In the drawings,—

Fig. 1 is a side view of a portion of a connecting block utilizing my improved socket;

Fig. 2 is a section on the line 2—2 of Fig. 1; and

Fig. 3 is a perspective view of the socket element removed from the insulating block in which it is mounted.

Referring now in detail of the drawings, the socket block 5 is preferably made of any insulating compound, and is provided with a series of apertures, such as indicated at 6 and 7, which apertures may be arranged in rows along the opposite sides of the block to provide for receiving a multiplicity of plugs, such as indicated at 8. The apertures 6 and 7, as shown, are reduced at the top ends, as at 8 and 9, and enlarged slightly below the top ends to provide shoulders 10 and 11, and to provide a larger space for the socket elements 12.

The block 5 also has a central ridge 13 extending below the main body of the block and providing a tapered wall, as shown at 14, between adjacent apertures 6 and 7. In

the base of the grooves formed by the extension of the apertures 6 and 7 over the portion 13 there are provided recesses 15, the purpose of which will be hereinafter more fully described.

The socket unit of this device is made of a single strip of metal which is doubled, as shown at 16, to provide the wiring attaching portion 17 that is apertured at 18, for convenience. The double portion 17 then has a tongue 19 struck out therefrom and adapted to engage, when the socket is inserted in one of the openings 6 or 7, in the recess 15 to normally hold the socket in place. One side of the double portion 17 is bent upwardly at 20 to separate the two portions of the strip, while the other side thereof continues substantially parallel to the double portion 17, but with a slight inclination in the direction in which the portion was bent at 20. The portion 21 is then bent to extend substantially parallel to the double portion 17, but extending at a slight angle toward the other portion 22. At a suitable distance from the upwardly bent portion 20, the side portions 21 and 22 are bent outwardly, as shown at 23 and 24, and are then doubled back upon themselves at 25 and 26 to extend between the portions 21 and 22, and curved toward each other until, in the normal position prior to insertion within the block 5, they touch each other at the points 27 and 28. The free ends are then flared outwardly, as at 29 and 30, a distance which slightly spaces them from the adjacent surfaces of the portions 21 and 22.

Now, in inserting these socket members in the block 5, it is only necessary to press down upon the portion 23 a slight amount to cause it to enter the recess 6, and after that it is shoved into the recess until the ends, at 25 and 26, are substantially in engagement with the shoulders 10 and 11, at which time the tongue 19 drops into the recess 15 and locks the socket in the recess 6. It is obvious, of course, that the socket may readily be removed by merely lifting up on the portion 17 so as to lift the tongue 19 out of the recess 15 and then pulling the socket member out of the opening 6. This makes a very simple and effective means of mounting and dis-

mounting the socket members of a connecting device, and also provides a socket which makes a very good contact, as will be hereinafter described, with a plug inserted therein.

From an inspection of the right-hand socket 12 in Fig. 2, it will be noted that when the plug 8 is inserted between the portions 27 and 28 of the socket, these portions are pressed outwardly, so as to bring the ends 29 and 30 directly into engagement with the portions 21 and 22. Also the insertion of the plug 8 causes the flattening of the portions 27 and 28, so that a long flat contact is made on both sides of the plug, thus insuring a good contact of large current carrying capacity. A good strong pressure is also obtained, since the socket member is preferably made of material having considerable resiliency, and, as shown, the compression of the ends 29 and 30 against the outer portions 21 and 22 of the socket causes them to exert a strong pressure on the portions 27 and 28, forcing them against the plug. Similarly, where the plug enters between the portions 23 and 24, it must compress the double thickness of material, and this insures a good solid contact at the entering end of the socket.

From the above description, it is thought that the construction and advantages of this device will be clear to those skilled in this art, and, having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A device of the character described comprising a socket element having opposed side portions provided with inturned end extensions lying between said side portions and adapted to engage a plug inserted therebetween, the side portions being connected to each other at their ends opposite said extensions, said end extensions having the free ends thereof turned outwardly so as to engage with said side portions when a plug is inserted between said extensions.

2. A device of the character described comprising a socket element having opposed side portions provided with inturned end extensions lying between said side portions and adapted to engage a plug inserted therebetween, the side portions being connected to each other at their ends opposite said extensions, said end extensions having the free ends thereof turned outwardly toward said portions and being curved between said outturned ends and their points of connection with said portions so as to lie flat against opposite sides of a plug inserted therebetween throughout the greater portion of their length.

3. A device of the character described comprising an insulating body provided with an aperture therethrough and an internal shoulder adjacent one end of said aperture, a socket element having opposed spring fingers normally in engagement but adapted to

be separated by the insertion of a plug therebetween said socket element being seated in said aperture with the plug receiving end adjacent said shoulder, and means adjacent the other end of said element releasably retaining it in said aperture.

4. A device of the character described comprising an insulating body provided with an aperture therethrough and an internal shoulder adjacent one end of said aperture, a socket element having opposed spring fingers normally in engagement but adapted to be separated by the insertion of a plug therebetween, said socket element being seated in said aperture with the plug receiving end adjacent said shoulder, and means adjacent the other end of said element releasably retaining it in said aperture, said means comprising cooperating projection and recess means on said element and body.

5. A device of the character described comprising an insulating body provided with an aperture therethrough and an internal shoulder adjacent one end of said aperture, a socket element having opposed spring fingers normally in engagement but adapted to be separated by the insertion of a plug therebetween said socket element being seated in said aperture with the plug receiving end adjacent said shoulder, and means adjacent the other end of said element releasably retaining it in said aperture, said means comprising a lateral tongue on said element engaging a recess in said body to prevent endwise pressure on said element from moving it out of said aperture.

6. A device of the character described comprising an insulating block having an aperture therethrough, a socket element slidable into said aperture from one end thereof, and having a free end portion and cooperating means on said body and element requiring movement of said end transversely of said aperture to remove said element, said element having opposed side portions engaging the walls of said aperture and spring fingers integral with said side portions and lying therebetween for engagement with a plug inserted in said element.

In witness whereof, I hereunto subscribe my name this 5th day of February, A. D., 1929.

HOWARD B. JONES.