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ELECTRIC CONNECTOR, FEMALE MEMBER

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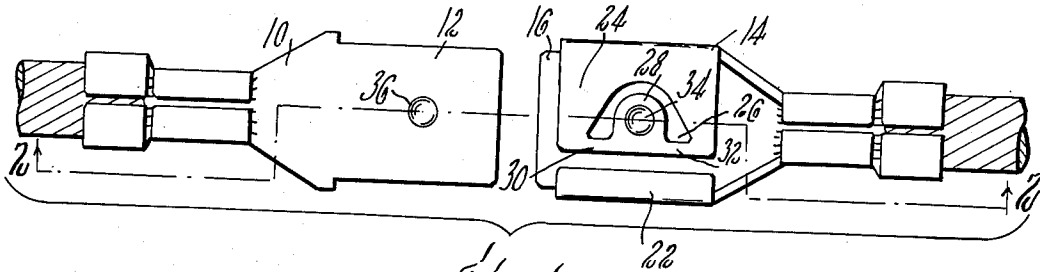


Fig. 1.

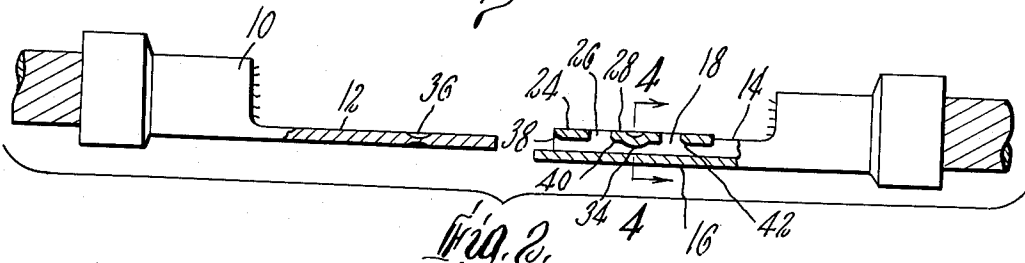


Fig. 2.

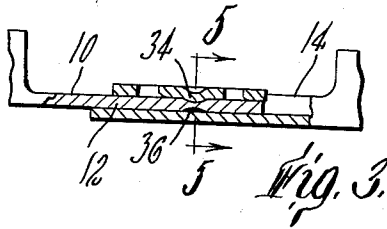


Fig. 3.

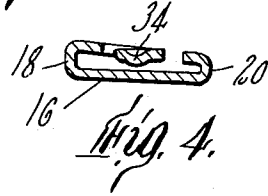


Fig. 4.

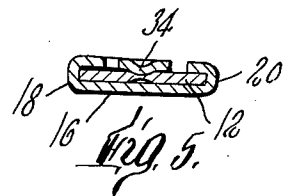


Fig. 5.

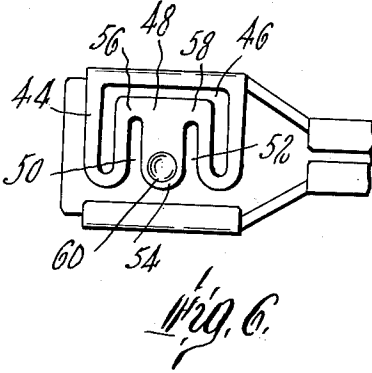


Fig. 6.

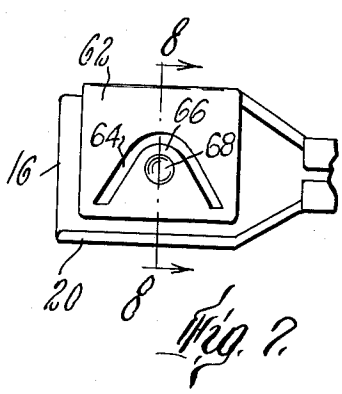


Fig. 7.

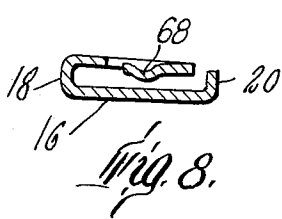


Fig. 8.

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ELECTRIC CONNECTOR, FEMALE MEMBER

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1 Claim. (Cl. 339—258)

This invention relates to the female member of an electric connector, the male member being in the form of a plane tongue of rectangular shape adapted to engage efficiently with the female member to form a good electrical connection. The female member is of the type consisting of a shallow metal channel with a plane floor adapted to receive the male member. Projecting from the side walls of the channel are pressing elements adapted to bear down against the male member so as to press it firmly against the floor of the channel. A locking element is also provided over the floor of the channel, the locking element having a downwardly projecting boss adapted to enter a dimple or depression in the upper face of the male member when the latter is in engagement with the female member. Several connectors of this general description have previously been invented. An object of the present invention is to provide a female connector member with an improved pressing element. Connectors of the kind hereinafter described are usually of small size, having a width of about $\frac{1}{4}$ " and a height of about $\frac{1}{16}$ ". Very slight variations in the thickness of the strip stock from which the male members are made usually result in a considerable difference in the effectiveness of the pressing elements in pressing the male member against the floor of the channel of the female member. Hence it is an object of the present invention to provide a pressing element the effective length of which is augmented to increase the resilience of its free end which presses on the male member.

For a more complete understanding of the invention reference may be had to the following description thereof and to the drawing, of which:

Figure 1 is a plan view of a complete connector with the members disconnected, the female member of which embodies the invention;

Figure 2 is a section on the line 2—2 of Figure 1;

Figure 3 is a side elevation of the connector with the members connected, a portion being broken away to show in section;

Figure 4 is a section on the line 4—4 of Figure 2;

Figure 5 is a section on the line 5—5 of Figure 3;

Figure 6 is a plan view of a modified form of the invention;

Figure 7 is a plan view of another modified form of the invention; and

Figure 8 is a section on the line 8—8 of Figure 7.

The complete connector shown in Figure 1 consists of a male member 10 having a plane rectangular tongue 12 which is adapted to be thrust into contact with the female member 14. The female member comprises essentially a shallow channel with a plane floor 16 from the sides of which rise side walls 18 and 20. From the top of one or both of these side walls project pressers adapted to engage the upper surface of a male member in the channel to press the member against the floor 16 of the channel to make a good electrical connection.

In the form of the invention shown in Figures 1 to 5, one presser member 22 is in the form of an intumed narrow flange on the wall 20. This flange extends over a portion of the floor 16 and is spaced therefrom by a distance equal to the thickness of the tongue 12 so that if the gauge of the stock of which the tongue is made is accurate, a marginal portion of the tongue fits tightly under

the flange 22 and that part of the tongue is pressed against the floor 16. If the gauge of the stock of which the tongue is made is slightly less than standard, the fit is not tight and the flange 22 loses much of its effectiveness as a presser.

From the opposite wall 18 a presser 24 projects over the floor 16. This is in the form of an arm which extends nearly to the edge of the flange 22. In order to increase the effective length of the arm and thus to add to its resilience, a U-shaped slot 26 is cut therein to form an extension 28 projecting in the opposite direction, that is, toward the wall 78, and connected to the main part of the arm 24 by narrow necks 30 and 32. The extension 28 is adapted to press resiliently on a male member 12 in the channel with a resilience which accommodates the extension variations in the thickness of the male members employed, the resilience being that of the arm 24 as a whole combined with the torsional resilience of the necks 30 and 32. The arm 24 and extension 28 are thus equivalent to an arm of considerably greater length than the arm 24 alone.

To lock the members releasably together so as to avoid accidental disengagement thereof, a boss 34 is formed on the under face of the extension 28, preferably over the median of the floor 16, to enter a dimple or depression 36 in the male member 12. As indicated in Figure 4, the presser 14 is shaped so that the normal spacing of the boss 34 from the floor 16 is less than the thickness of the male member 12. Hence when the latter is thrust into the channel to connect the members, the extension 28 must be sprung upward. To facilitate entry of the male member when it is slightly thicker than the standard prescribed, the edges of the arm 24 and extension 28 which are encountered by the entering male member are relieved as at 38, 40 and 42.

If desired, the resilience of the presser arm may be further enhanced as shown in Figure 6. The arm 44 has a U-shaped slot 46 forming an extension 48 projecting toward the supporting wall. Slots 50 and 52 from the base of the extension 48 form a further extension 54 projecting away from the supporting wall, this further extension being connected to the extension 48 by narrow necks 56 and 58 the torsional resilience of which adds to the resilience of the arm as a whole. A boss 60 is provided in the extension 54 to cooperate with a depression in the male member as hereinbefore described.

Figures 7 and 8 show a further modification wherein the flange 22 is omitted and an arm 62 extends nearly all the way across the floor 16 to the opposite wall 20. The effective length of the arm 62 may be increased as hereinbefore described. As shown, a U-shaped slot 64 forms a reversely directed extension 66 having a boss 68 on its under face to engage a male member inserted in the channel.

I claim:

An electric connector member comprising a piece of stiffly resilient sheet metal bent to shape, said member having a flat floor portion with upstanding side walls and intumed elements overhanging said floor portion, one of said intumed elements extending substantially more than half way across said floor and having a U-shaped aperture therein forming a tongue extending in the opposite direction across the median of the floor, the other said intumed element being a narrow rigid flange.

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