

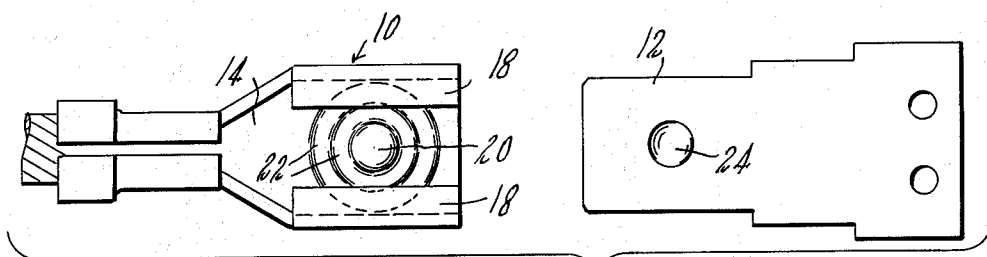
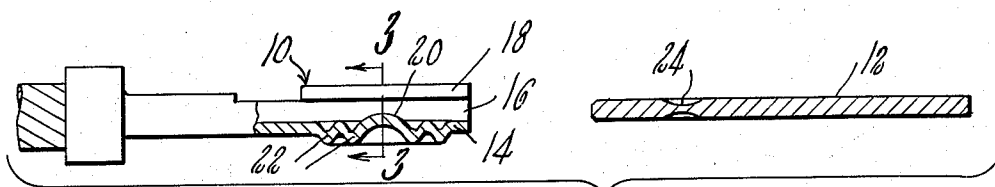
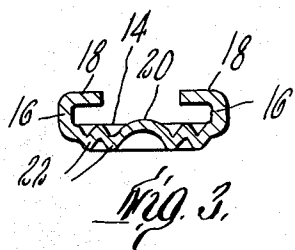
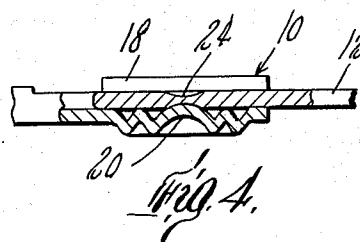
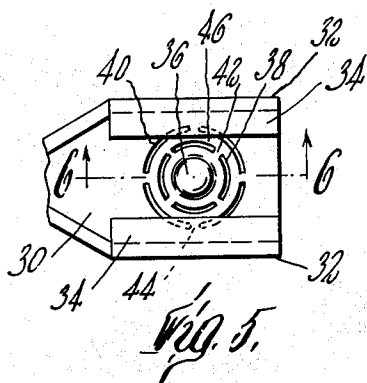
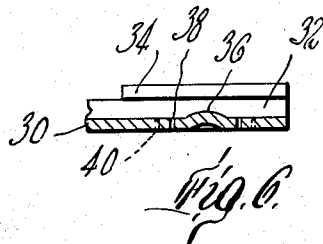
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2,747,170

CONNECTOR MEMBER WITH RESILIENT CENTER

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2,747,170

CONNECTOR MEMBER WITH RESILIENT CENTER 5

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1 Claim. (Cl. 339—258)

This invention relates to an electric connector consisting of complementary members of the male and female type wherein the male member may be a simple plane metal tongue and the female is a channel shaped member adapted to receive and hold the tongue. The invention relates more particularly to improvements in a female member of the type referred to. This member includes essentially a piece of metal strip stock bent to form a shallow channel having a floor with side walls rising from the side edges thereof and inturned flanges on said side walls overhanging the side margins of the floor. The channel is of a size and shape to be fitted by the tongue of a male member which should be tightly pressed between the floor and flanges of the female member in order to form a good electrical connection. Such pressure between the members is usually obtained by providing a resiliently yielding element on one or the other of the members so as to allow for slight variations which are liable to occur in the thickness of the stock of which members are made. The resilient element or elements are arranged to be sprung or distorted when the members are joined to make the connection. The force which tends to restore the distorted elements to their unstressed position is utilized to press interfaces of the members and thus to ensure a good electrical connection. The present invention relates to new and improved structures of the resilient elements. These structures are hereinafter described in detail and are illustrated on the drawings, of which—

Figure 1 is a plan view of the members of an electrical connector embodying the invention;

Figure 2 is a longitudinal sectional view of the same;

Figure 3 is a section on the line 3—3 of Figure 2;

Figure 4 is a sectional view of the members as in Figure 2, but in assembled relation;

Figure 5 is a plan view of a modified form of female connector member; and

Figure 6 is a section on the line 6—6 of Figure 5.

A connector consisting of a female member 10 and a male member 12 is shown in Figure 1. The female member has a floor 14, side walls 16 and inturned flanges 18 along the upper edges of the side walls. A novel resilient element is provided in the form of a central boss 20 surrounded by circular corrugations 22. As indicated in Figures 2 and 3, the boss 20 projects above the upper face of the floor 14, the ridges of the corru-

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gations on this face being flush with the floor. The ridges of the corrugations on the bottom face of the floor project below the bottom face. The corrugations provide considerable resilience when pressure is brought to bear on the boss 20 by reason of their shape, on a principle similar to the expansion of a syphon bellows. The boss 20 and corrugations 22 are preferably cold-forged between suitable dies. Since the metal in the forged portion of the floor must be stretched somewhat to form the boss and corrugations, it is thinned and hardened by the forging operation. This adds materially to the resilience of the corrugated area. The other member 12 of the connector may be provided with indentations 24 suitably located so that one of them will receive the top of the boss 20 when the connection is made to hold the members against accidental separation.

A modified form of the invention is illustrated in Figures 5 and 6. The connector member may for the most part be similar to that shown in Figure 1, it having a floor 30, with upstanding side walls 32, inturned flanges 34 along the tops of the side walls, and a central boss 36 projecting up from the floor. In this case the desired extra resilience in the floor is provided by cutting two or more circular series of long arcuate slots 38 and 40, the slots in each series being staggered with respect to the slots in the other series. The slots in each series are few in number, preferably not over four, and are spaced from one another by narrow necks 42 and 44, the former being between ends of slots of the inner series shown in Figure 5, the latter being between ends of slots in the outer series. The necks 42 are connected to the necks 44 by elongated arcuate elements 46 the width of which is determined by the radial spacing between the inner and outer series of slots. The necks 42 and 44 and arcuate elements 46 which support the central boss 36 provide considerable resilient yielding the degree of which can be regulated by spacing of the slots which determine the length and width of the necks 42 and 44 and the elements 46.

The increase in resilience by the means described permits the boss 20 or 36 to be pressed down a greater distance without approaching too close to the elastic limit, as compared with a floor having simply a central boss and nothing more.

I claim:

In an electrical connector member of the kind having a floor, upstanding side walls, and inturned flanges at the tops of the side walls, a central boss in said floor projecting up above the level of the floor, and circular corrugations in said floor concentric with said boss, the ridges of said corrugations being substantially flush with the floor level.

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