Nov. 13, 1956 H. W. BATCHELLER 2,770,790

CONNECTOR MEMBER WITH SPLIT FLOOR

Filed Jan. 19, 1954

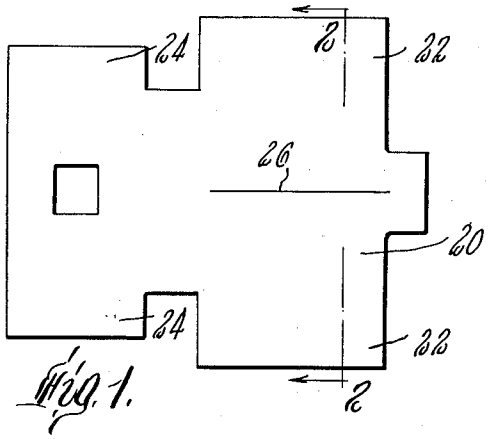


Fig. 1.

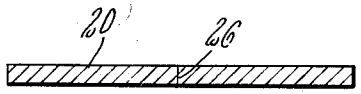


Fig. 2.

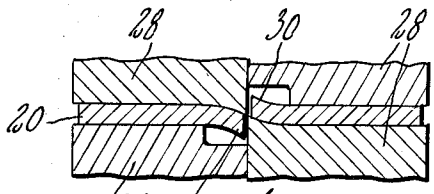


Fig. 3.

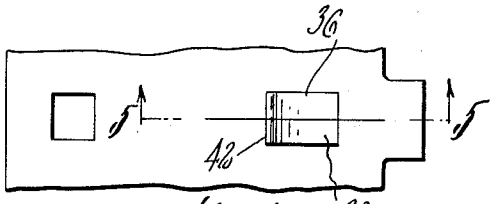


Fig. 4.

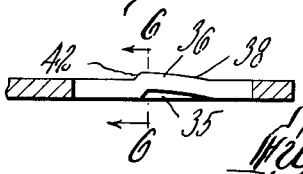


Fig. 5.



Fig. 6.

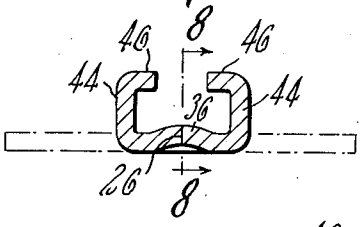


Fig. 7.

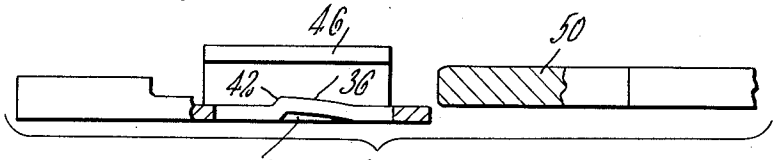


Fig. 8.

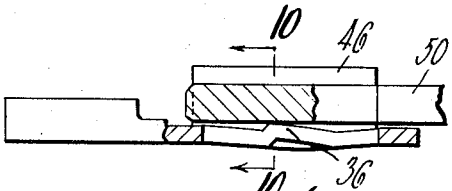


Fig. 9.

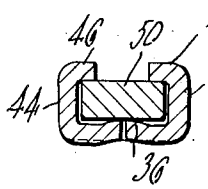


Fig. 10.

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CONNECTOR MEMBER WITH SPLIT FLOOR

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Application January 19, 1954, Serial No. 404,987

3 Claims. (Cl. 339—256)

This invention relates to electric connector of the male-and-female type of which the female member consists essentially of a shallow channel with a floor, side walls and over-hanging flanges on the side walls which project toward each other. The male member may be a plane tongue which enters the channel and engages under the flanges. It is a practical necessity in connectors of this kind that when the members are joined they will be strongly held together so that they will not be disconnected easily by accident or otherwise. In some electrical apparatus, connectors of relatively small size are desirable, e. g., connectors the female member of which has an outside width of ⅛ inch. In connectors of this size, devices heretofore known for frictionally binding the members together when joined have proved to be insufficiently effective. It is an object of the present invention to form the female member of a small connector in such a way that a male member comprising essentially a plane tongue will be strongly gripped frictionally to hold the members together against a separating force of several pounds. For this purpose, the floor of the female member is split along a portion of its longitudinal median, the ends of the split being spaced inward from the ends of the floor. To do this, a shearing cut of limited length is made, then the relatively offset areas of the floor on opposite sides of the cut are pressed back into a common plane. The middle of the bottom face of the floor is then indented to raise a boss on the top face of the floor. This upraised boss is on both sides of the cut and slopes up gradually in the direction away from the entering end of the member to a maximum height, then may fall off abruptly, the point of maximum height being at or near the midpoint of the cut. When a plane male member is inserted in the channel of the female member, its entering end engages the gradual slope of the boss while its side margins are engaged under the inturned flanges on the side walls of the channel. The cut permits just sufficient yielding of the floor of the member for the insertion of the male member and the resultant distortion of the portions of the floor which are adjacent to the cut causes the male member to be tightly gripped so that considerable force is required for its withdrawal.

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 blank for a female connector member embodying the invention;

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

Figure 3 is a fragmentary sectional view of the blank and dies cutting the central slit therein;

Figure 4 is a fragmentary plan view of the blank after the boss has been struck up on it;

Figure 5 is a section on the line **5—5** of Figure 4;

Figure 6 is a section on the line **6—6** of Figure 5;

Figure 7 is a section similar to Figure 6, showing the margins bent up and in;

Figure 8 is a side elevation, partly in section, showing the two members of the connector separated;

Figure 9 is similar to Figure 8, with the members assembled; and

Figure 10 is a section on the line **10—10** of Figure 9.

The blank **20** shown in Figure 1 may be cut or died out from a sheet of brass or other suitable metal, laterally projecting wings **22** being provided to be bent up to form side walls and flanges for the connector member as hereinafter described. The blank is also provided with laterally projecting wings **24** to be curled around a wire on which the connector is to be mounted. A central cut or slit **26** is made in the blank along the longitudinal median, the ends of the cut being spaced inward from the ends of the portion of the blank which is to be the floor of the connector member. The slit **26** is preferably made by a shearing cut as illustrated in Figure 3, suitable dies **28** being employed. In making such a cut, the edges **30** and **32** formed by the cut are pushed up and down, respectively, out of the plane of the blank. After the cut has been made, these edges are pressed back into the plane of the blank by any suitable means. Then suitable dies are used to indent the under face of the blank as at **35** so as to raise an upstanding central boss **36** on the floor which has a surface **38** which slopes gently upward from the plane of the floor and away from the entering end **40** of the member. This inclined surface reaches the point **42** of maximum height of the boss a little beyond the midpoint of the slit **26**. The boss is intersected by the slit and consequently a part of it is on each side of the slit.

The connector member is then completed by bending up the wings **22** of the blank along lines parallel to the slot **26** to form the side walls **44** of the member. The outer portions of the wings **22** are bent inward to form the inturned flanges **46** overhanging the floor with just sufficient clearance to receive the tongue **50** of a male connector member. When the tongue enters the channel of the female member it rides on the gradually sloping surface of the boss **36**. The flanges **46** under which the side margins of the tongue engage prevent upward movement of the tongue. The bosses are therefore forced downward, this local yielding of the floor being made possible by the slit **26** the midportion of which opens as indicated in Figure 10. This results in a resilient stretching of the metal of the floor with a strong restoring force which causes the tongue **50** to be tightly gripped. For example, a female connector member made as herein illustrated and described from sheet brass .015 thick, the overall width of the member being ⅛ inch, can hold the male member against a withdrawing force of four or five pounds.

I claim:

1. A female connector member having a floor, side walls and inturned flanges on said side walls, said floor having a slit extending along its longitudinal median, the ends of the slit being spaced inward from the ends of the floor, said floor having an upstanding boss at the midportion of said slit, said boss having a surface sloping gradually upward to the maximum height in a direction away from the entering end of the member.

2. A connector member as in claim 1, said boss being on both sides of said slit.

3. A connector member as in claim 1, said boss being bisected by said slit.

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