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ELECTRICAL PLUG WITH FLEXIBLE CONTACT MEMBER

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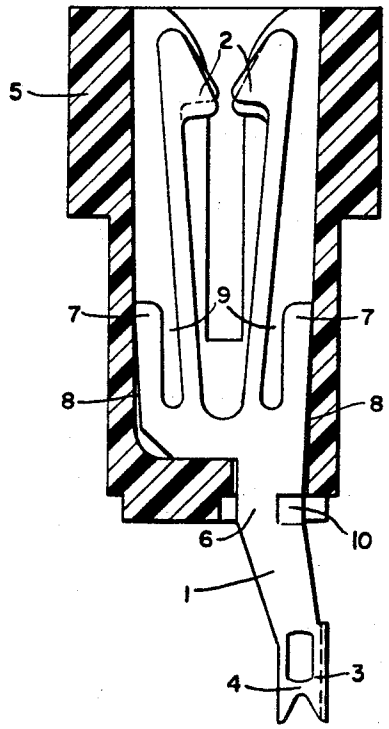

FIG. 1.

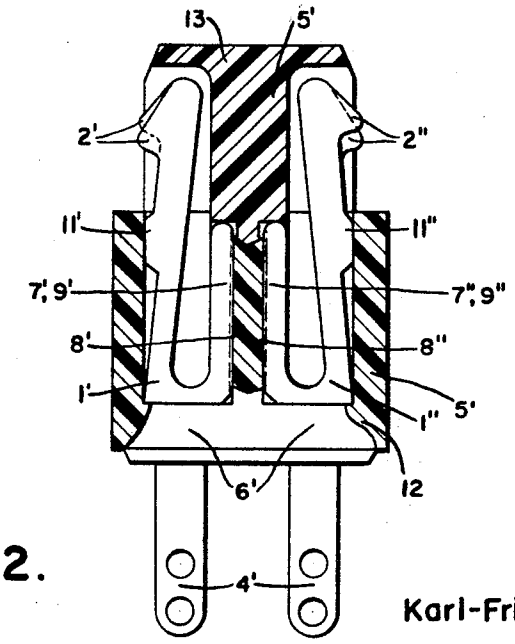

FIG. 2.

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ELECTRICAL PLUG WITH FLEXIBLE CONTACT MEMBER

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1 Claim. (Cl. 339—64)

ABSTRACT OF THE DISCLOSURE

An electrical plug including a housing made of insulating material and a flexible contact member mounted within the housing, one end of the flexible contact member including projecting tongues to engage a flat electrical contact, and the other end of the flexible contact member including means for connection to a conductor. Extensions project from the middle portion of the flexible contact member and abut against an interior surface of the housing to prevent the flexible contact member from being displaced by movement of the electrical conductor.

Background of the invention

This invention relates to electrical plugs which contain a flexible contact member made of a flat, resilient material mounted within a receptacle of insulating material, with one or more tongues formed on one end of the flexible contact member to make electrical contact with a flat contact, and means on the other end of the flexible contact member for connection to a conductor.

Plugs of the above noted type are known in which several pairs of tongues facing each other are floatingly mounted within the plug housing. This floating mounting serves the purpose of providing a good contact even if the opposing contact is misaligned between the pairs of tongues.

This prior art plug, however, has the disadvantage that when the conductor exerts a transverse pull on the lower end of the flexible contact member, one pair of tongues is thereby pushed into the area between the pairs of tongues which receive the other contact, due to the floating mounting, thereby causing interruptions of contact and making it difficult to insert the flat contact between the pairs of tongues.

Summary of the invention

It is the object of the present invention to provide a plug of the above-noted type which is rigidly mounted within its housing. In accordance with this invention, this is accomplished by providing one or more extensions projecting from the middle portion of the flexible contact member and abutting against an inner surface of the housing therefor.

Brief description of the drawings

FIGURE 1 is a vertical cross-sectional view of one embodiment of the invention.

FIGURE 2 is a vertical cross-sectional view of another embodiment of the invention.

Description of the preferred embodiments

Referring to FIGURE 1, a flexible contact member **1** is mounted within a hollow housing **5** made of insulating material. Although only one flexible contact member **1** is visible in the drawing, several are disposed within the housing **5** in side-by-side relation. Flexible contact member **1** is provided at one end with two pairs of tongues **2**, which provide contact with a flat contact which is not shown in the drawings. Flexible contact member **1** contains two symmetrical arm portions, stamped from one piece, which are joined to a common end **3** which is adapted at **4** to be connected to a conductor. In the individual contact members, the tongues **2** are slightly displaced in position with respect to each other so that the flat contact (not shown) traverses several independently flexible contacting points when inserted. The other end of the flexible contact member extends through the opening **6** of housing **5**. To avoid lateral displacement of the contact member when a lateral pull is exerted on its lower end **4**, the contact member of the present invention is provided with two additional extensions **7**, which project from the middle portion of the contact member and abut against the recess **9** in housing **5** at the inner surfaces indicated by the reference numeral **8**. After flexible contact member **1** is inserted in housing **5**, tabs **10** are laterally bent to prevent the member from slipping out of the housing.

FIGURE 2 shows two flexible contact members **1'** and **1''** which are both inserted into receptacle **5'** having recesses **9'** and **9''**. This flexible contact member differs from the other flexible contact member in being provided with a pair of outwardly extending tongues **2'** and **2''** which are adapted to make contact with a pair of parallel contact plates (not shown) which are inserted over the plug. Extensions **7'** and **7''** abut against corresponding surfaces **8'** and **8''** in the recesses **9'** and **9''**. The projections **11'** and **11''** abut against the opposing inner surfaces of recesses **9'** and **9''**.

To provide for easy construction, the housing **5'** is preferably divided into a lower portion **12** and an upper portion **13**. It will be apparent that the two electrical contact points, namely the tongue **2** and the lower end **4** of the contact member, mechanically decouple from each other in the plug according to the present invention, whereby a transverse force applied to the conductor end of the plug will not displace the tongues **2** and prevent proper electrical contact with the opposing flat contact.

It will be understood that the above description of the present invention is susceptible to various modifications, changes, and adaptations, and the same are intended to be comprehended within the meaning and range of equivalents of the appended claim.

We claim:

1. In an electrical plug including a housing made of insulating material and a flexible contact member mounted within said housing, one end of said flexible contact member being shaped to make sliding contact with another electrical contact element, and the other end of said flexible contact member being shaped to make fixed contact with an electrical conductor, the improvement comprising at least one extension projecting from the middle portion of said flexible contact member and abutting against an interior surface of said housing to prevent said flexible contact member from being displaced by movement of said electrical conductor; said flexible contact member being stamped from a single piece of resilient, electrically conductive material and comprising a pair of approximately identical flexible contact members disposed side-by-side within said housing; said one end of said flexible contact members containing projecting tongues for mak-

ing sliding contact with another electrical contact, and the projecting tongues on one of said approximately identical members being slightly displaced with respect to the projecting tongues on the other of said approximately identical members.

References Cited

UNITED STATES PATENTS

2,994,056	7/1961	Fox	339—17

FOREIGN PATENTS

1,399,216	4/1965	France.
869,497	5/1961	Great Britain.
1,001,221	8/1965	Great Britain.

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