

- [54] **ELECTRICAL COUPLING ELEMENT** 3,120,990 2/1964 Kinkaid ..... 339/258 S  
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- [58] **Field of Search** ..... 339/256, 258, 259, 262

**FOREIGN PATENTS OR APPLICATIONS**

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[57] **ABSTRACT**  
An electrical coupling element having a base portion for connecting the coupling element to a wire conductor, a pair of spring arms for receiving a flat plug contact therebetween, and a stop spring member disposed between the spring arms for securing the coupling element in a multiple purpose plug housing.

**1 Claim, 3 Drawing Figures**

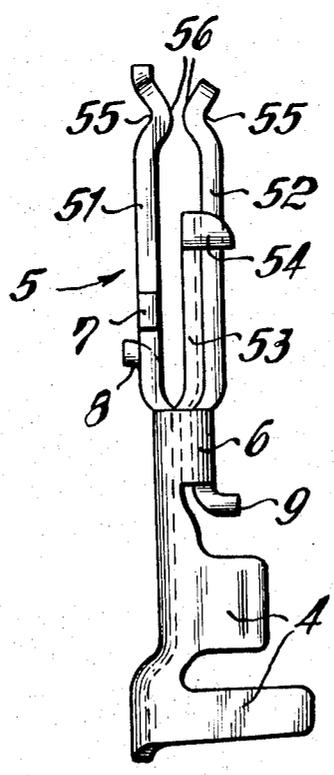


FIG. 1

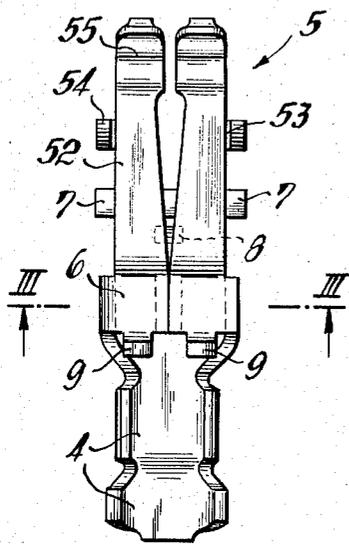


FIG. 2

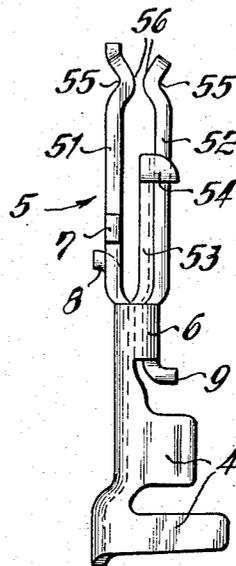
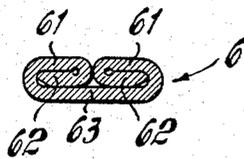


FIG. 3



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## ELECTRICAL COUPLING ELEMENT

The present invention relates to an electric coupling element, and in particular, to an electrical coupling element having a base portion for connecting the coupling element to a wire conductor, at least one pair of spring arms for receiving a flat plug contact, and a stop spring member disposed between the spring arms for securing the electrical coupling element in a multiple purpose plug housing.

Conventional electrical coupling elements are not secured in multiple purpose housings securely enough, nor centrally exact enough to prevent the possibility of disconnection.

Accordingly, the present invention provides a stop spring member or arm between the contact spring arms of the coupling element. This arrangement protects the spring member between the arms of the contact spring from damage, especially that resulting from overbending of the spring member. The coupling element is also provided with a base strip which is disposed in the center of the element and folded laterally with respect to the direction of the plug contact. The base portion is connected to one side of the base strip and disposed perpendicular thereto. Bridge-like shoulders are connected on the other side of the base strip, also perpendicular thereto. By folding the base strip, at least two of the bridge-like shoulders are disposed in a position opposite each other and form a pair of contact spring arms between which a stop spring member is located. A constriction may be provided at the free ends of the contact spring arms by bending the ends of the arms outwardly away from each other, thus forming a plug opening for the flat plug contact.

It is therefore an object of the present invention to provide an electrical coupling element which may be securely coupled to a flat contact in a multiple plug housing so as to prevent accidental disconnection thereof.

It is another object of the present invention to provide an electrical coupling element which is simple in design, easy to manufacture, and efficient and reliable in operation.

Other objects and features of the present invention will become apparent from the following detailed description taken in connection with the accompanying drawings which disclose one embodiment of the present invention. It is to be understood, however, that the drawings are designed for the purpose of illustration only and not as a definition of the limits and scope of the invention.

In the drawings, wherein similar reference characters denote similar elements throughout the several views:

FIG. 1 is a front view of an electrical coupling element constructed in accordance with the present invention;

FIG. 2 is a side view of the embodiment of FIG. 1; and

FIG. 3 is a cross-sectional view of the coupling element taken along section 3—3 of FIG. 1.

Referring to the drawings, the coupling element includes a base portion 4 for connecting the coupling element to an electric wire conductor, and a contacting spring 5 which receives a flat rectangular plug contact from a multiple plug housing therebetween and comprises spring arms 51 and 52.

The coupling element is provided with a sheet metal portion which includes stretched base strip 6 from which base portion 4 and the contacting spring extend. After base strip 6 has been properly folded during manufacturing, the base portion 4 contacts spring arms 51 and 52, and the stop spring member 53 is formed. It should be noted that any number of contact spring arms may be used, and that the two contact spring arms of the illustrated embodiment are shown merely as an example.

As shown in FIG. 3, base strip 6 is foled twice at an angle of 180° so that contact spring arms 51 and 52 are positioned opposite each other. Thus, spring arms 52 are connected to base strip 6 at 61; stop spring members 53 are connected to base strip 6 at 62; and contact spring arms 51 are connected to base strip 6 at 63. It should be noted that each of these elements are individually connected to the base strip.

Shoulders 7, 8 and 9 illustrated in FIGS. 1 and 2 are provided to enable the central positioning of the coupling element in a multiple purpose plug housing. Central positioning of the coupling element is also enabled by stop spring member 53. Stop members 53 are provided with a shoulder affixed perpendicularly thereto and having an ascending slope which acts as catch 54. During insertion of coupling element into a multiple purpose plug housing, catch 54 and spring arm 53 are bent towards contact spring arm 51 until the catch engages an opening provided in the housing. At their free ends, spring arms 51 and 52 are provided with flanges 55 and reinforced members 56 which are disposed towards each other to contact the flat contact element of the housing. The outwardly extending spring arms enable easy insertion of the contact means.

The coupling elements of the present invention may be produced very economically since they may be punched from one piece of sheet material, thus reducing the loss of material during manufacturing. The individual elements may also be bent into their proper position without using core-like filling material as a strengthening means.

While only one embodiment of the present invention has been shown and described, it will be understood to those persons skilled in the art that many changes and modifications may be made thereunto without departing from the spirit and scope of the invention.

What is claimed is:

1. An electrical coupling element comprising:
  - a base for connecting the coupling element to a wire conductor;
  - at least one pair of flexible spring members rigidly affixed to said base for receiving and securing a flat plug contact therebetween;
  - at least one arresting spring member mounted on said base and disposed between said flexible spring members, for engaging an aperture provided in a multiple purpose plug housing, and thereby securing the coupling element therein during use; and,

shoulder abutment members affixed to said flexible spring members, and said base, for guiding and centering the coupling element in a multiple plug housing, said arresting member comprising a flexible elongated member having a curved abutment shoulder affixed to the end thereof for engaging said recess in said housing, said flexible spring members being bent inwardly at the free ends thereof for contacting a flat plug contact and being bent outwardly away from each other at the free ends thereof adjacent said inward bend to provide an opening for receiving the flat plug.

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