Nov. 11, 1969 KARL-FRIEDRICH SCHMITT 3,478,296

HERMAPHRODITE ELECTRICAL CONTACT

Filed Jan. 16, 1967

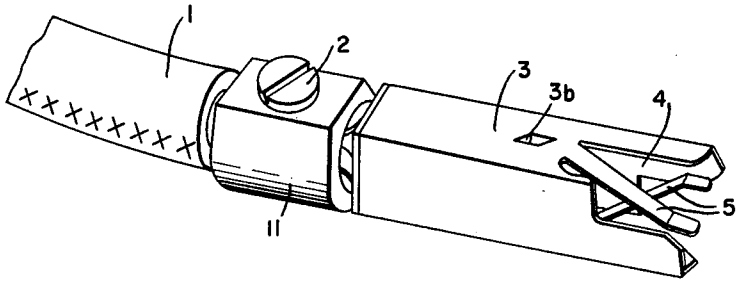

FIG. 1.

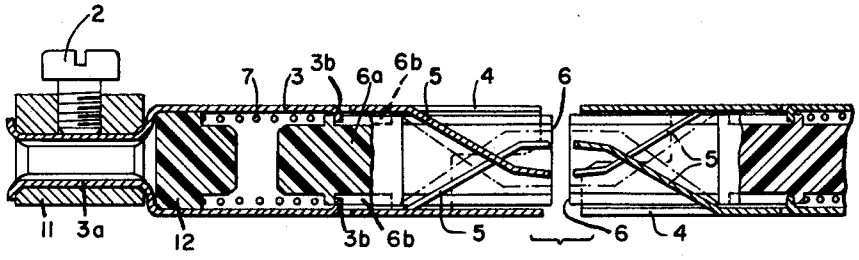

FIG. 2.

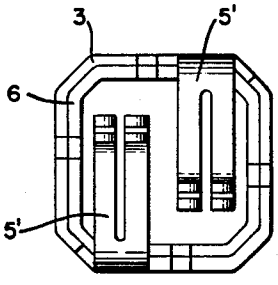

FIG. 3.

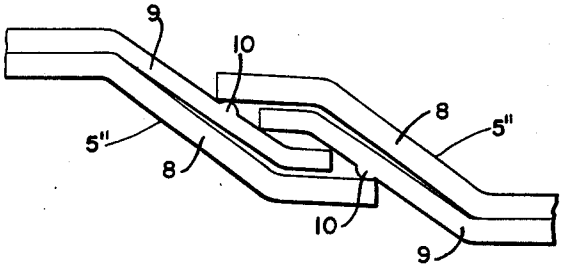

FIG. 4.

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HERMAPHRODITE ELECTRICAL CONTACT

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Int. Cl. H01r 25/02
U.S. Cl. 339—47 7 Claims

ABSTRACT OF THE DISCLOSURE

An hermaphrodite electrical contact having an elongated housing with two flat contact-making springs extending out of the housing and diagonally into the interior of the housing. The ends of the contact-making springs are bent in the longitudinal direction of the housing and, in one embodiment, the ends of the contact-making springs are slit in the longitudinal direction for better contact.

Background of the invention

The present invention relates to an hermaphrodite electrical contact. Such contacts have particularly advantageous application in many fields, for example, for electrically coupling vehicles to each other. When hermaphrodite contacts are used, it is no longer necessary to consider the orientation of the contact when the vehicles are coupled together.

There exists a known hermaphrodite electric contact in which the contact-making parts are made of a flat metal piece which has an elongated indentation in its middle with two hooks directed toward the middle of the indentation. These known hermaphrodite contacts are coupled together by rotating one contact by 90° and inserting it into the other contact.

The above described prior art contact is, however, not suitable for electrically coupling vehicles inasmuch as the two contact springs cannot slide over a long path, such as in necessary when vehicles are coupled to each other inasmuch as this often entails rough operating conditions.

It is, therefore, the object of the present invention to provide an hermaphrodite electrical contact in which the contact-making parts slide resiliently over each other throughout a relatively long path.

Summary of the invention

In accordance with the present invention, an hermaphrodite electrical contact having a long contact sliding path is achieved by providing an elongated housing with two contact-making flat leaf springs extending out of the housing and diagonally into the interior of the housing. In accordance with one preferred embodiment of the present invention, the two contact-making leaf springs are crossed within the housing, and in accordance with other features of the present invention each flat leaf spring has its end longitudinally slit, and each flat spring comprises two individual springs positioned one above the other.

Brief description of the drawings

FIGURE 1 is a perspective view of one hermaphrodite electrical contact of this invention.

FIGURE 2 is a vertical cross-sectional view of two hermaphrodite electrical contacts of FIGURE 1.

FIGURE 3 is a front view of another hermaphrodite electrical contact of this invention.

FIGURE 4 is a side view of another embodiment of a contact arrangement according to the present invention, the same including two contact-making leaf springs in contact with each other.

Description of the preferred embodiments

Referring now to the drawings, and first to FIGURES 1 and 2, a conductor **1** is secured to an elongated housing **3** by means of a set screw **2** threaded into a sleeve **11** which surrounds a reduced portion **3***a* of the housing **3** so as to be electrically conductively connected with the housing **3**. At the front end of elongated housing **3**, there is a recess **4** in which two flat contact-making springs **5** are punched out, the ends of these flat springs being angled so as to extend in the longitudinal direction of the housing. The two flat springs slide against each other when the two contacts are slipped one into the other, for example when railway cars are being coupled, and assume the position shown in phantom lines in FIGURE 2. It will be seen that even if the mutual distance between the two contacts is changed, as can often happen in operation, the two contacts will still be in continuous engagement with each other.

In order to provide protection, a sleeve **6** not shown in FIGURE 1 but illustrated in FIGURE 2, made of insulating material is slidably arranged in the front part of housing **3**. In rest condition, this sleeve projects beyond the edge of the housing. In operating condition, the sleeve is pushed into the interior of the housing against the action of a compression spring **7**, this spring being interposed between a solid head **6***a* of sleeve **6** and an abutment **12**. As shown in FIGURE 2, the head **6***a* of sleeve **6** is provided with grooves **6***b* into which project tabs **3***b* bent inwardly from housing **3**.

In the embodiment of FIGURE 3, the flat springs **5'** have their ends slitted longitudinally so as to make better contact, while in the embodiment of FIGURE 4, each flat spring **5** consists of two individual springs **8** and **9** arranged one above the other. The contact-making spring **9** is adidtionally provided with a projection **10** extending toward the contact side which serves as a detent point.

It will be seen that the hermaphrodite contact according to the present invention can be used not only with a similar contact, but with a differently configured contact element. All that is necessary is that the contact element be capable of being introduced into the cross section of the sleeve **6**. For example, a simple plug-type contact of appropriate dimensions can constitute the suitable cooperating contact element.

The contact according to the present invention is suitable for use not only in conjunction with vehicle couplings and especially railroad car couplings, but can always be used to advantage whenever a reliable resilient contact is to be made over a relatively long path.

I claim:

1. An hermaphrodite electrical contact comprising, in combination:

(a) an elongated housing; and

(b) first and second contact-making springs each extending out of said elongated housing and diagonally into the interior thereof, said two flat springs

being positioned on opposite sides of said housing and being inclined toward each other, said two flat springs being crossed within said housing.

2. An hermaphrodite electrical contact as defined in claim 1, wherein said flat springs have their ends bent in the longitudinal direction of said housing.

3. An hermaphrodite electrical contact as defined in claim 1, wherein said housing is electrically conductive.

4. An hermaphrodite electrical contact as defined in claim 1, wherein each of said flat springs has its end longitudinally slit.

5. An hermaphrodite electrical contact comprising, in combination:

(a) an elongated housing; and

(b) first and second contact-making springs each extending out of said elongated housing and diagonally into the interior thereof, each of said flat springs comprising two individual springs positioned one above the other.

6. An hermaphrodite electrical contact as defined in claim 5, and further comprising a projection on one side of each of said flat springs.

7. An hermaphrodite electrical contact as defined in claim 1, wherein said flat springs are integral with said housing.

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