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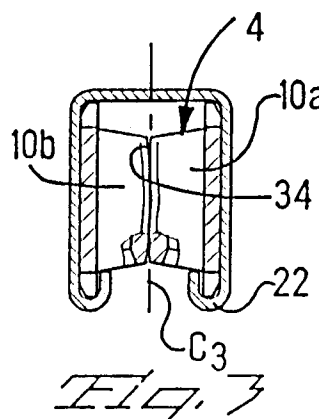
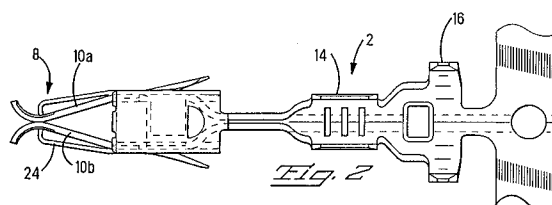
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(57) An electrical contact (2) has an inner contact member (4) and an outer assist spring (6) where backup spring arms (24) of the assist spring (6) press against cantilever beam spring arms (10a and 10b) to increase contact pressure on an inserted tab. The cantilever beam spring arm (10a) includes two contact points at (34) with an intermediate shallow section (36) whereas the cantilever beam spring arm (10b) includes a single contact point at (32). This configuration provides three distinct contact points for an inserted tab, and increases the contact force against an inserted tab contact.

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The subject invention relates to an improved electrical terminal, and in particular, to terminals having increased contact force added by an additional back-up spring.

It is known to have electrical terminals which include an inner contact portion having opposed contact arms formed by cantilever beams, where a back-up spring or an assist spring is included having back-up spring arms which increase the contact force on the opposed contact arms for increasing the contact pressure to a mating tab terminal. In these known electrical contacts, single cantilever beam spring arms extend forwardly having a generally flat arm configuration along the vertical axis. It is difficult to achieve however, a perfect planar contact between the cantilever beam surfaces and the surfaces of the tabs to achieve an adequate electrical contact.

It is therefore an object of the present invention to provide an improved electrical contact having multiple points of contact.

It is a further object of the invention to provide an electrical terminal having an increased contact force against a tab inserted therein.

The objects of the invention have been accomplished by providing a cantilever beam contact member having contact arms extending forwardly from a body portion and having a constricted portion forming opposed contact portions. The contact member is characterized in that one of the contact beam arms are formed with more than one contact point at the same axial distance and the opposite cantilever beam has a contact point intermediate the contact points on the other contact beam arm.

An embodiment of the invention will now be described by way of reference to the drawings where;

Figure 1 is a side plan view of a preferred embodiment of the contact member;

Figure 2 is an upper plan view of the contact member of Figure 1;

Figure 3 is a cross-sectional view through lines 3-3 of Figure 1; and

Figure 4 is a front view of the inner contact portion shown after formation of the opposed contacts, but prior to forming the inner contact with the contact arms in an opposed relation.

With reference first to Figures 1 and 2, an electrical contact is shown at 2 comprising an inner contact portion 4 and an outer assist spring 6. The inner contact member 4 is comprised of a forward contacting section 8 formed by cantilever beam spring arms 10a and 10b which extend from a central portion 12. A wire crimp section 14 extends from an opposite end of the intermediate portion 12 and strain relief arms 16 can wrap around a wire to be terminated to guard against inadvertent pulling forces. As also shown in Figures 1 and 2, the outer

backup spring 6 is comprised of a backup spring member 6 having side sections 20 which are positioned against the contact arms 10a and 10b and are clinched to the arms at 22 as shown in Figure 3. The backup spring member 6 further includes arms 24 which press against the contact arms 10a and 10b to increase the normal force against a tab to be inserted into the contact section 8.

As shown best in Figure 3 and 4, the inner contact member 4 has cantilever beam spring arms 10a and 10b, which in Figure 4 are shown in their preformed condition. As best shown in Figure 4, the contact arms 10a and 10b have inner contact surfaces 30a and 30b where the surface 30b is formed by a single radius of curvature to form an apex of the surface along its centerline C1, at 32. Surface 30b is formed with two contact points at 34 by radiused surfaces having a radius of curvature which is less than the radius of curvature for surface 30a. Intermediate the two contact points 34 is a shallow portions at 36, which is positioned along the axial centerline C2 of the surface 30b, which, as shown in Figure 3 will somewhat receive the contact surface 32 therein. As shown in Figure 3, surface 32 will somewhat overlap the vertical centerline C3 on the righthand thereof as viewed in Figure 3, whereas surfaces 34 will somewhat overlap the vertical centerline C3 on the lefthand side thereof.

Thus upon insertion of a tab, the surfaces 32 and 34 advantageously provide discrete points of contact along the length of the inserted tab, but also add an increased deflection of the cantilever beam contacts thereby increasing the contact force against the tab terminal. The increased deflection of the cantilever beam spring arms 10a and 10b is caused by the cantilever beam spring arms having to open somewhat to reach the actual centerline, and thereafter having to open the thickness of the tab. Thus the contact force against the tab will be greater as the contact force increases with increased deflection of the contact arms 10a and 10b.

Claims

1. A cantilever beam contact member (4) having contact arms (10a, 10b) extending forwardly from a body portion (12), and having a constricted portion forming opposed contact portions (30a, 30b), the contact member (4) being characterized in that one of said contact beam arms (10a) is formed with more than one contact point (34) at the same axial distance, and said opposite cantilever beam member (10b) has a contact point (32) intermediate said contact points (34) on said other contact beam arm (10a).

2. The cantilever beam contact member (4) of claim 1, characterized in that said one contact beam arm (10b) is formed with two radiused sections, whereas said opposite contact beam (10a) is formed with a single radiused section. 5

3. The cantilever beam contact member (4) of claim 1 or 2, characterized in that an outer assist spring (6) having back-up spring arms (24) that press against the cantilever beam spring arms (10a, 10b) to increase contact pressure is attached to said contact member (4). 10

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