CONTACT COMPONENT FOR A DISTRIBUTOR IN THE TELECOMMUNICATIONS INSTALLATION

1. Contact component for a distributor in a telecommunications installation,
the contact component being provided with contact elements (3) which are constructed on the operator side as connection elements (9) for incoming and outgoing electrical lines, at least one subset of the contact elements (3) being connected to additional springs (4) which extend to a rear side, lying opposite the operator side of the contact component and form plug-in contacts (11) there for a plug-on protective plug for the electrical lines, the additional spring (4) being detachably connected at its inner end to the contact element (3), a contact zone (5) of the additional spring (4) having a flat, arcuate bent-up portion, the contact zone (5) and the contact element (3) being clamped in a sprung fashion between supporting faces of a housing (1, 2) of the contact component, and the contact zone (5) of the additional spring (4) having cut-out contact tongues (6) which extend in the longitudinal direction of the additional spring (4), charac-
characterized in that the contact tongues (6) are bent with their free ends towards the contact element (3) and bear against the latter with prestressing, and in that the contact zone (5) of the additional spring (4) has an H-shaped sectional contour whose side legs form the contact tongues (6) which are connected to one another by means of a central transverse web (7) from which the rest of the additional spring (4) branches and which is supported on the housing (1, 2).
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Invention Title: Contact Component for a Distributor in the Telecommunications Installation

The following statement is a full description of this invention, including the best method of performing it known to me/us:-
Description

Contact component for a distributor in a telecommunications installation

The invention relates to a contact component for a distributor in a telecommunications installation, the contact component being provided with contact elements which are constructed on the operator side as connection elements for incoming and outgoing electrical lines. Such a contact component has been disclosed for example by DE-C-27 29 680. According to this publication, the contact elements form, in the interior of a housing of a contact component, contact springs via which the incoming and outgoing lines are electrically connected to one another. Additional springs, which form at their rear end a plug-in contact for a plug-on protective plug for the electrical lines, branch from the contact elements to the rear of the contact component which lies opposite the operator side. It is customary to connect the additional spring to the contact elements by welding so that they have to be inserted into the housing together with the contact elements, which involves corresponding difficulties.

In addition, a similar contact component for a distributor is known according to the previously filed DE 44 30 991 C1, in which distributor the additional spring is detachably connected to the contact element. The contact zone has a short, arcuate curvature which, on its convex outer side, bears against the contact element. At the same time, the contact zone of the additional spring is clamped between a housing wall and the contact element.

As a result of the detachable connection between the contact element and the additional spring it is possible to dispense with the costly welding process and to insert the two elements separately into the housing of the contact component. Since these are simple parts, they can be mounted with corresponding ease. For example, the
additional spring can easily be subsequently inserted into the housing from the rear.

The invention is based on the object of improving the formation of contact between the contact element and the additional spring and of improving mounting.

This object is achieved by means of the invention in accordance with Claim 1. The contact tongues permit a plurality of contact points to be provided which are isolated from one another. As a result, the contact resistance is reduced and the contact security increased. As a result of the rocker-like construction of the contact zone, the contact forces are distributed uniformly over all four contact tongues. The short spring fingers permit a high degree of flexibility with a high contact force which is distributed over four contact points which are isolated from one another.

Since the free ends of the contact tongues are bent towards the contact element, they bear against the said contact element in a point-like manner with a high surface pressure. This results in a high contact quality which permits even high overcurrents to be transmitted safely and conducted away onto the protective plug. As a result of the increased flexibility of the contact tongues, deviations in the installation dimensions can be compensated without impediment so that the contact zone can be inserted into the contact component without difficulty.

As a result of an advantageous further development of the invention according to Claim 2, the spring tongues are largely isolated with respect to the rest of the additional spring.

As a result of another development of the invention according to Claim 3, the free ends of the spring tongues for run-up slopes for the contact component so that its surface is not damaged during plugging-together.

The invention is explained below in greater detail with reference to an exemplary embodiment which is illustrated in the drawing, in which:

Figure 1 shows a disc-like contact component in a pers-
Figure 2 shows a partial view through the contact component, according to Figure 1, Figure 3 shows a plan view of contact elements according to Figure 2.

According to Figure 1, a stackable contact component which is flat in the manner of a disc has two sub-housings 1, 2 which can be plugged together in the given direction of the arrow to form a housing. The housing 1, 2 holds two parallel rows of contact elements 3 which are constructed on the operator side as connection elements 9 for incoming and outgoing electrical signal lines. In this arrangement, the incoming lines are connected to one row and the outgoing lines are connected to the other row.

The contact elements 3 are constructed inside the housing 1, 2 as contact springs 10 which are placed in contact with one another in pairs and by means of which the incoming and outgoing lines are electrically connected to one another. Contact is made between one row of contact elements and additional springs 4 which extend to the rear, facing away from the operator side, of the contact component and form plug-in contacts 11 there for plug-on protective plugs.

According to Figures 2 and 3, the additional springs 4 are detachably connected to the contact elements 3. One contact zone 5 of the additional spring 4 has an H-shaped sectional contour whose side legs are constructed as individual contact tongues 6 which extend in the longitudinal direction and are connected to one another by means of a central transverse web 7. The transverse web 7 is connected to the rest of the additional spring 4 by means of a narrow central connecting web 8. The contact zone 5 has a flat, arcuate bent-out portion at whose highest point the transverse web 7 is located. From there, the spring tongues 6 are bent towards the contact element 3.

The contact element 3 and the transverse web 7 bear with their sides facing away from one another.
against supporting faces of the housing 1, 2 and are clamped in a sprung fashion between said supporting faces. The narrow connecting web 8 is sufficiently soft that the contact zone 5 is largely isolated from the rest of the additional spring. In this way, the pressure forces are distributed uniformly from the transverse web 7 onto the ends of the contact tongues 6 which are thus securely placed in contact with the contact element 3. The ends of the spring tongues 6 have a slight counter-bend by means of which sharp-edged contact with the contact element 3 is avoided. The counter-bends also form run-up slopes which make it easier to plug together the parts.
Patent Claims

The claims defining the invention are as follows:

1. Contact component for a distributor in a telecommunications installation, the contact component being provided with contact elements (3) which are constructed on the operator side as connection elements (9) for incoming and outgoing electrical lines, at least one subset of the contact elements (3) being connected to additional springs (4) which extend to a rear side, lying opposite the operator side of the contact component and form plug-in contacts (11) there for a plug-on protective plug for the electrical lines, the additional spring (4) being detachably connected at its inner end to the contact element (3), a contact zone (5) of the additional spring (4) having a flat, arcuate bent-up portion, the contact zone (5) and the contact element (3) being clamped in a sprung fashion between supporting faces of a housing (1, 2) of the contact component, and the contact zone (5) of the additional spring (4) having cut-out contact tongues (6) which extend in the longitudinal direction of the additional spring (4), characterized in that the contact tongues (6) are bent with their free ends towards the contact element (3) and bear against the latter with prestressing, and in that the contact zone (5) of the additional spring (4) has an H-shaped sectional contour whose side legs form the contact tongues (6) which are connected to one another by means of a central transverse web (7) from which the rest of the additional spring (4) branches and which is supported on the housing (1, 2).

2. Contact component according to Claim 1, characterized in that the transverse web (7) of the contact zone (5) is connected to the rest of the additional spring (4) by means of a narrow connecting web (8).

3. Contact component according to Claim 1 or 2, characterized in that the free ends of the contact tongues (6) have a short bend which leads away from the contact element (3).
4. Apparatus substantially as described herein with reference to the accompanying drawings.

Dated 22 August, 1996
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Abstract

Contact component for a distributor in a telecommunications installation

An additional spring (4) of the contact component is detachably connected to a contact element (3) for incoming and outgoing lines and forms on the rear side of the contact component plug-in contacts (11) for plug-on protective plugs. A contact zone (5) of the additional spring (4) is curved in a flat arcuate shape and is clamped in a sprung fashion to the contact element (3) between supporting faces of a housing (1, 2) of the contact component. The contact zone has an H-shaped sectional contour with four individually resilient contact tongues (6). As a result, a high degree of contact security with simple plug-type mounting is achieved.