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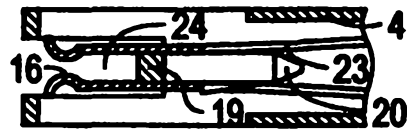
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(21) Internationales Aktenzeichen: PCT/DE98/00046 (22) Internationales Anmeldedatum: 8. Januar 1998 (08.01.98) (30) Prioritätsdaten: 197 00 843.7 13. Januar 1997 (13.01.97) DE (71) Anmelder: SIEMENS AKTIENGESELLSCHAFT [DE/DE]; Wittelsbacherplatz 2, D-80333 München (DE). (72) Erfinder: BRENNER, Wolfgang; Moosstrasse 35, D-82223 Eichenau (DE).		(81) Bestimmungsstaaten: AU, BR, CN, PL, europäisches Patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Veröffentlicht <i>Mit internationalem Recherchenbericht.</i>
(54) Title: DEVICE FOR REGULATING THE CONTACT POSITION OF PLUG-IN CONTACT POINTS OF A DISTRIBUTION COMPONENT (54) Bezeichnung: EINRICHTUNG ZUM EINSTELLEN DER KONTAKTLAGE VON STECKKONTAKTSTELLEN EINES VERTEILERBAUTEILS (57) Abstract Contact components (4) of the distributor have rear points of contact (16) for plugging in a contactor assembly (12). When the contactor assembly (12) is pulled, the points of contact are usually closed, such that the incoming lines are connected with the outgoing lines. By plugging in a spread plug (18) between the contact springs (15) of the contact component (4), the points of contact (16) can be opened so wide that the incoming and outgoing lines (17) are electrically separated, and are connected only via the later plugged in contactor assembly. In this way, the switching position of the points of contact (16) is permanently changed, simply and without altering the contact components (4).  (57) Zusammenfassung Kontaktbauteile (4) des Verteilers weisen rückseitige Kontaktstellen (16) zum Anstecken einer Schutzbaugruppe (12) auf. Bei gezogener Schutzbaugruppe (12) sind die Kontaktstellen üblicherweise geschlossen, so daß die ankommenden mit den abgehenden Leitungen verbunden sind. Durch Einstecken eines Spreizsteckers (18) zwischen die Kontaktfedern (15) des Kontaktbauteils (4) können die Kontaktstellen (16) soweit geöffnet werden, daß die ankommenden und abgehenden Leitungen (17) elektrisch getrennt sind und erst über die später eingesteckte Schutzbaugruppe miteinander verbunden werden. Dadurch wird auf einfache Weise ohne Änderung der Kontaktbauteile (4) die Schaltlage der Kontaktstellen (16) bleibend verändert.		

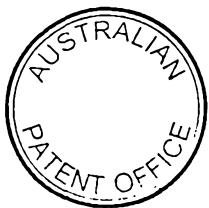
Abstract

Device for setting the contact position of plug-in contact points of a distribution component

Contact components (4) of the distribution frame have rear contact points (16) for plugging on a contactor assembly (12). The contact points are usually closed when the contactor assembly (12) is withdrawn, so that the incoming and outgoing lines are connected together. By plugging a spreader plug (18) in between the contact springs (15) of the contact component (4), the contact points (16) can be opened so wide that the incoming and outgoing lines (17) are electrically separated and are interconnected only via the contactor assembly which is plugged in later.

The switching position of the contact points (16) is thereby permanently altered in a simple way without changing the contact components (4).

Figure 4



Device for Regulating the Contact Position of Plug-in
Contact Points of a Distribution Component

5

The invention relates to a device for setting the contact position of contact points of a contact component in a distribution frame of a telecommunications system, it being possible for mating contacts of a contactor assembly to be plugged onto the contact points.

WO 91/1429 has disclosed a contact component for distribution frames of telecommunications systems, in which incoming and outgoing lines are connected to two parallel rows, situated one above the other, of connecting elements which are connected via contact springs to contact points which are arranged at the rear and onto which a contactor assembly can be plugged. When the contactor assembly is withdrawn, the incoming and outgoing lines can be interconnected via the closed contact points. If a contactor assembly is plugged in, the connection is produced via the contactor assembly. This means that a contact connection is possible between the incoming and outgoing lines both with and without the plugged-on contactor assembly.

However, various users require that no contacts be possible when the contactor assembly is withdrawn, and this can be realized with changed contact springs or housing parts of the contact component.

It is the object of the invention to be able to supply a contact component with open contact points in conjunction with a low outlay on modification.

In accordance with one aspect of the present invention there is provided contact component for a distribution frame of a telecommunication system, said component comprising two rows of connecting elements which are situated opposite one another in pairs and can be interconnected, for incoming and outgoing lines, the connecting elements



being connected to contact springs on whose free outer ends there are constructed contact points which are arranged oppositely to each other and onto which mating contacts of a contactor assembly can be plugged, it being possible to interconnect the incoming and outgoing lines directly via the respective oppositely arranged contact points or the inserted contactor assembly, wherein an insulating spreader is provided, which can optionally be plugged in between the respective contact springs in order to spread the respective oppositely arranged contact springs away from each other to hold the corresponding contact points in an open position in which the distance between the open contact points is smaller than the corresponding distance between the mating contacts of the contractor assembly so that the mating contacts can contact both of the corresponding oppositely arranged contact points.

The invention renders it possible to make use of identical contact components for both application variants of the contact component with open or closed contact points. The open switching state is produced solely by a simple additional part in the form of the spreader element which is inserted into the contact component and spreads apart the contact points. The spreader element can be kept so wide that all the contact points of the contact component are opened simultaneously.

The spreader element can already be inserted into the contact components in the course of the production and preassembly of the contact components at the manufacturer's premises. However, it is also possible to codeliver the spreader elements separately and leave it to the customer to adapt the switching position for the contact points.

The invention is explained in more detail below with the aid of exemplary embodiments represented in the drawing, in which:

Figure 1 shows a perspective view of a distribution block with contact components and contactor assemblies,

Figure 2 shows a plan view of a contact component with a spreader plug before insertion into the contact component,

Figure 3 shows a section along the line III - III in Figure 2,

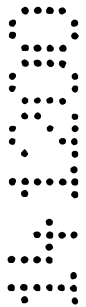
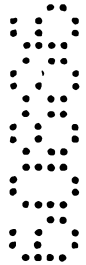
Figure 4 shows the parts according to Figure 3 after the insertion of the spreader plug into the contact component,

Figure 5 shows the parts according to Figure 4 with a plugged-on contactor assembly, and

Figure 6 shows another contact component similar to Figure 4 with a spreader element constructed as a spreader pin.



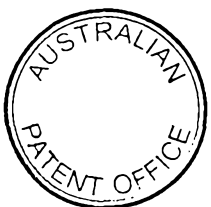
Figure 1 shows a distribution block 1 with a supporting part 2 in which blade-like wire guides 3 and contact components 4 are stacked one above another in the manner of a sandwich. The wire guides 3 have arcuately curved wire-guidance channels 5 in



which incoming and outgoing lines (17, Figure 2) can be guided from side walls 6 to an operating side 7 of the distribution block. The contact components 4 are provided on this side with insulation-piercing connecting devices 8 into the clamping slots of which the incoming and outgoing lines can be pressed by means of a connecting tool 9 in a contact-making fashion. The insulation-piercing connecting devices 8 are connected to contact parts which form in the interior of the contact components isolating contacts which can be interrupted by means of breaker plugs 10 which can be plugged in from the front.

On their rear 11 situated opposite the operating side 7, the contact components 4 have contact points for a contactor assembly 12 which can be inserted laterally into the distribution block 1. This contactor assembly is provided along its front 13 facing the contact component 4 with mating contacts 14 which can be plugged in between the contact points of the contact components 4 in accordance with the prescribed direction of the arrow.

According to Figures 2 and 3, the contact component 4 is provided with contact springs 15 which form the contact points 16 for plugging on the contactor assembly 12 along the rear 11 of the contact component 4. The contact springs 15 are connected with insulation-piercing connecting devices 8 which are arranged along the operating side 7 and to which incoming and outgoing lines 17 are connected. In the state represented, the contact springs 15 make contact with one another in pairs at the contact points 16, with the result that electric connection is made in each case between an incoming and an outgoing line 17. A spreader element constructed as a spreader plug 18 can be inserted in accordance with the arrows represented into the contact component between the contact springs 15. The spreader plug 18 is of comb-like construction and has plug-in tongues 20 which project in the direction of the contact component 4 and



can be inserted into holding chambers 21 for the contact springs 15 in the contact component 4. Fitted on the plug-in tongues are latching noses 22 which can be snapped into slot-like cutouts 23 in the contact
5 springs 15. The contact component



has a slot-like opening 24 which extends in the direction of the row of contact points 16 and is open toward the rear 11.

According to Figure 4, the spreader plug 18 is plugged into the contact component 4 so far that the transverse web 19 of the spreader plug 18 bears against the base of the opening 24. In this case, the latching noses 22 are latched into the cutouts 23 in the contact springs 15, and thereby secure the spreader plug 18 in its functional position. The spreader plug 18 is now located between the rows of contact springs and spreads the latter apart so far that the contact points 16 of each pair 15 of contact springs are separated. Consequently, the electric connection between the incoming and outgoing lines 17 is interrupted without this requiring a change to the contact components 4. Said component can now be delivered without additional arrangements either with or without the spreader plug, that is to say closed or open contact points 16.

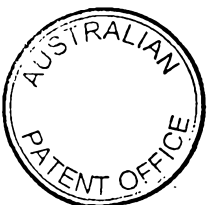
According to Figure 5, a contact web 25 of the contactor assembly 12 is inserted into the opening 24 in addition to the spreader plug 18. This contact web 25 includes the mating contacts 14, which make contact with the contact points 16 of the contact springs 15. In the process, the latter are spread apart even further, thus ensuring contact is made reliably. The transverse web 19 of the spreader plug 18 is kept so narrow that the contact web 25 can be plugged sufficiently far into the opening 24, in order to obtain an adequate contact overlap.

The contactor assembly 12 is provided with surge voltage protectors 26 which are connected to a row of mating contacts 14. They are capable of discharging to ground high overvoltages in the subscriber lines leading outward. The contactor assembly 12 further has fuses 27 via which the two rows of the mating contacts are electrically connected. In the event of an overcurrent, the fuses cause an



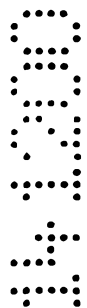
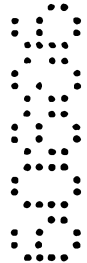
open circuit between the incoming and outgoing lines 17 (Figure 3).

According to Figure 6, the housing of the contact component 4 is provided with a transverse bore 28 which
5 extends parallel to the opening 24 in the immediate vicinity thereof. The spreader element is constructed here as a round pin 29 which is inserted into the transverse bore 28 from the side and whose diameter is kept so large that the contact springs 15 are spread
10 apart. As a result, the contact points 16 are separated in a fashion similar to Figure 4.



The claims defining the invention are as follows:

1. A contact component for a distribution frame of a telecommunication system, said component comprising two rows of connecting elements which are situated opposite one another in pairs and can be interconnected, for incoming and outgoing lines, the connecting elements being connected to contact springs on whose free outer ends there are constructed contact points which are arranged oppositely to each other and onto which mating contacts of a contactor assembly can be plugged, it being possible to interconnect the incoming and outgoing lines directly via the respective oppositely arranged contact points or the inserted contactor assembly, wherein an insulating spreader is provided, which can optionally be plugged in between the respective contact springs in order to spread the respective oppositely arranged contact springs away from each other to hold the corresponding contact points in an open position in which the distance between the open contact points is smaller than the corresponding distance between the mating contacts of the contractor assembly so that the mating contacts can contact both of the corresponding oppositely arranged contact points.
2. The device as claimed in claim 1, wherein the spreader element is constructed as a spreader plug which can be inserted into the contact component in the longitudinal direction of said contact springs and latched.
3. The device as claimed in claim 2, wherein the spreader plug has latching noses which can be latched into slot-like cutouts in the contact springs.
4. The device as claimed in claim 2 or 3, wherein the spreader plug, which is constructed like a comb, is provided with plug-in tongues which can be inserted between the contact springs and which are interconnected by means of a common transverse web.
5. The device as claimed in claim 4, wherein the contact component has a slot-like opening for the mating contacts of the contactor assembly, and wherein the depth of the slot-like opening is dimensional such that the opening holds the transverse web of the spreader plug and the mating contacts of the contact assembly.



6. The device as claimed in claim 1, wherein the spreader element is constructed as a spreader pin which can be inserted between the contact springs in the transverse direction thereof.

5 7. The device as claimed in claim 6, wherein the spreader pin is constructed as a round pin which is guided in a transverse bore in the contact component.

8. The device as claimed in any one of the preceding claims, wherein the spreader element can be produced with different widths for cooperation with a differing number of
10 contact springs.

9. A device for setting the contact position at contact points of a contact component in a distribution frame of a telecommunication system, substantially as herein before described with reference to any one of the embodiments as illustrated in Figs. 1 to 6.

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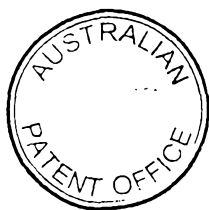
DATED this twelfth Day of December, 2000

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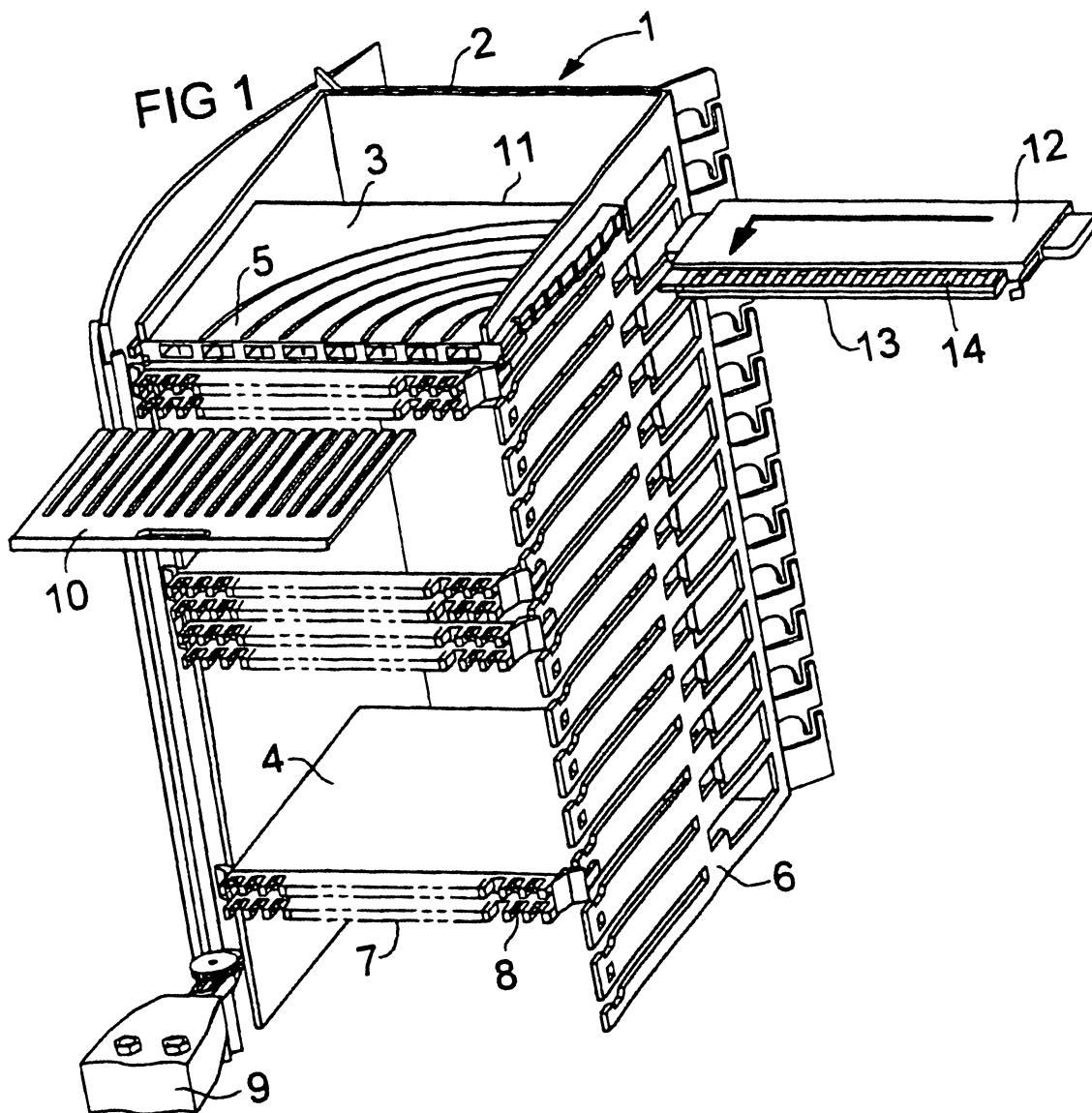
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FIG 2

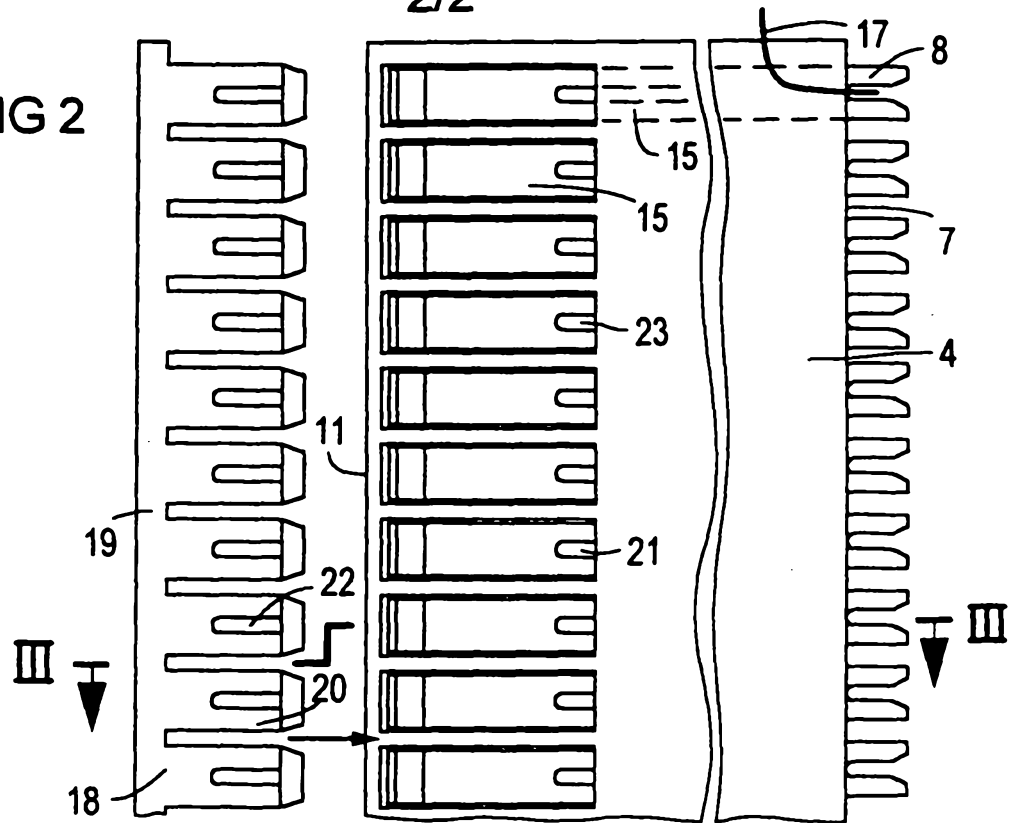


FIG 3

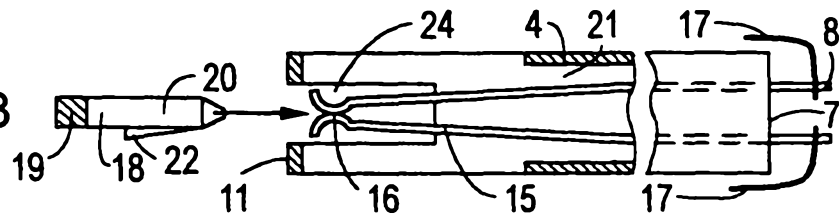


FIG 6

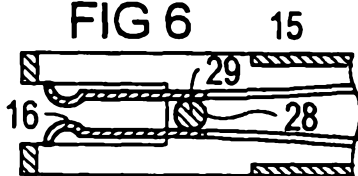


FIG 4

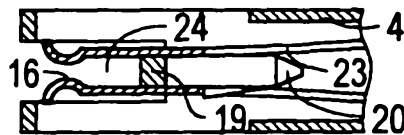


FIG 5

