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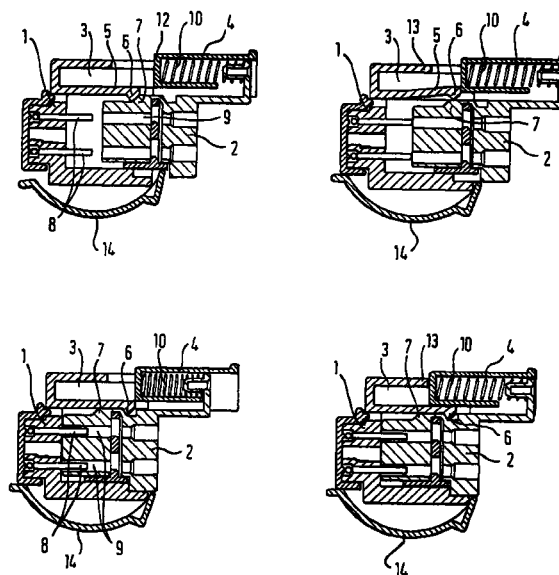
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(54) **Ignition bus contact housing, in particular for airbag applications**

(57) The present invention concerns ignition bus contact housings, in particular those for airbag applications with a pin housing (1) able to receive pin contacts and a spring contact casing (2). A slide guide (3) arranged parallel to the direction of insertion in a pin housing wall is provided, into which a tensioned slide (4) arranged on a spring contact casing opposite the slide guide so as to be able to move can be inserted. During the introduction of the contact housing into the pin housing, the locking arm (5) arranged opposite sense to the direction of insertion reaches, through the stop lug (6) which projects into the insertion channel for the contact housing, into the slide guide (3) by means of a cam (7) located on the contact housing and holds the slide (4) back against the pull of the spring until the cam (7) is overcome and the slide (4) slides over the locking arm (5) and locks together the interconnected pin housing (1) and the contact housing (2).

Fig. 3



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Description

[0001] The present invention concerns an ignition bus contact housing, in particular one suitable for airbag applications in accordance with the general introduction of the Claim 1.

[0002] Ignition bus contact housings of this type are inserted on ignition bus cables which control airbag restraint systems in those motor vehicles whose seating configuration can be modified, for example to provide more cargo space. This may be a question of easily removable seats and in this case the ignition mechanism of an airbag destined for the seat in question should be able to be immobilized, for example by disconnecting it from the ignition bus cable. Care must be taken that during the said disconnection no undefined potentials are formed on the ignition mechanism which might break the connection unintentionally. It must moreover be ensured that when a plug is being introduced into this type of ignition bus contact housing, a good contact which cannot be broken off unintentionally is established. Furthermore, the pin housing or the ignition bus socket should be protected from contamination.

[0003] The purpose of the present invention is that of improving an ignition bus contact housing of the type described at the beginning of the Specification in such a way that a secure pin-and-socket connection can be made, which does not, on being disconnected, form any undefined potentials on the airbag ignition device and that contamination is being prevented whilst the spring contact casing is out of contact.

[0004] This purpose is accomplished in accordance with the Claim.

[0005] Preferred embodiments of the present invention are described in the sub-Claims. The invention is explained more fully below by means of the description of an embodiment example and with reference to the relevant figure:

Fig 1 shows an ignition bus coupling with the ignition bus contact housing according to the invention, with two variants of a protective cap;

Fig 2 shows the components of the ignition bus coupling according to Fig 1 in detail and

Fig 3 shows four stages of the insertion of the spring contact casing into the pin housing

[0006] Fig 1 shows pin housing 1 into which a spring contact casing 2 is inserted, where the protective cap 14 which protected insertion face of the pin housing from contamination is swiveled aside. A slide 4 which can be pushed into the slide guide on the pin housing is arranged on the spring contact casing 2. The slide guide consists in essence of a channel arranged next to the pin housing into which the tip 12 of the slide 4 is introduced. The slide 4 is pushed in the direction of the slide guide 3 via a spiral pressure spring with the pressure

spring supported, on the one hand in the interior of the slide on its tip 12 and on the other hand by the spring contact casing 2.

[0007] Fig 3 shows the four-stage process of the introduction of the spring contact casing into the pin housing. The start of the process of insertion is shown at the top left-hand side, where a cam 7 which is arranged on the contact housing opposite the slide guide touches a stop lug 6 of a locking arm 5. If the contact housing is pushed somewhat further into the pin housing, then the cam 7 lifts the locking arm 5 so that the latter blocks any further penetration of the slide 4 into the slide guide 3. The diagram at the top right-hand side of Fig 3 shows this situation. If the spring contact casing 2 is however pushed further into the pin housing 1, then, on the one hand, the pressure spring 10 in slide 4 is compressed and on the other hand the cam 7 moves under the stop lug 6 until, finally, the sloping side of the latter in the rear allows the locking arm 5 to fall back into its original position, whereby the slide 4 tensioned by the spring 10 jumps into the slide guide 3 and prevents, with the side wall which is pointing in the direction of the pin housing, the locking arm 5, from performing a bending movement. This locks the spring contact casing in the pin housing, since the stop lug 6 of the locking arm 5 reaches behind the cam 7 so that the pin-and-socket connection between the contact housing and the pin housing cannot be broken off by means of pulling on the spring contact casing.

[0008] To bring this about, it is first of all necessary to withdraw the slide 4 from the slide guide 3 against the pull of spring 10, in order to release the locking arm 5 which can then avoid cam 7 in order to release the spring contact casing.

[0009] It must also be ensured that electrical contact between the contact pins 8 and the spring contacts of the spring contact casing 2 is only made in the position shown in Fig 3, that is to say, when the spring contact casing is introduced into the pin housing against the pull of spring 10.

[0010] When the spring contact casing is withdrawn, the pin housing is hidden by the protective cap 14. In the case of the variant shown on the left in Fig 1, the protective cap on the pin housing is coupled so as to be able to be swiveled, where the swiveling movement is pre-tensioned by a spiral spring and the final position of the protective cap is defined as the position of rest.

[0011] In this way, an easily handleable ignition bus coupling is created which can be manipulated safely and rapidly when, for example, the vehicle seats are rearranged in or removed from the vehicle interior so that airbag restraints which are located opposite can be coupled to or disconnected from them.

[0012] The preceding description of an embodiment of the present invention is not to be understood as limiting, but merely as serving to illustrate the invention which is the subject of the Claims.

Claims

1. Ignition bus contact housings in particular those for airbag applications with

- a pin housing able to receive pin contacts (1) and
- a spring contact casing (2) characterised by a slide guide (3) arranged parallel to the direction of insertion which can be introduced into a tensioned slide (4) arranged on the spring contact casing opposite the slide guide so as to be able to slide, where a locking arm (5) arranged against the direction of insertion with the stop lug (6) projecting into the insertion channel for the contact housing reaches during the process of insertion of the contact housing into the pin casing, via the cam (7) on the contact housing, into the slide guide (3) and holds the slide (4) back against the tension of the spring until, after overcoming the cam (7) the locking arm (5) releases the slide guide and the slide (4) slides over the locking arm (5) and locks together the interconnected pin housing (1) and contact housing (2).

2. Ignition bus contact housing according to Claim 1 characterised by the fact that an electrical contact between the contact pins (8) and the spring contacts (9) is only established when the contact housing (2) is pressed against the sprung pull of the slide (4)
3. Ignition bus contact housings according to Claim 1 or Claim 2 characterised by the fact that when both housings (1 and 2) are joined, a pull on the slide (4) against the pull of the spring (10) releases the locking arm (5) so that the housings (1,2) are able to be separated from one another
4. Ignition bus contact housings according to one of the preceding Claims, characterised by the fact that the slide (4) encloses sideways the guide rails (11) on the spring contact casing (2) and that a spiral pressure spring (10) arranged between the guide rails (11) is supported by one end of the tip of the slide (4) and the said tip (12) is able to be introduced into the slide guide on the pin housing (1) as far as the stop (13)
5. Ignition bus contact housings according to one of the preceding Claims, characterised by the fact that a protective cap (14) which is able to be swivelled over the insertion opening is coupled on the pin housing (1)
6. Ignition bus contact housings according to Claim 5

characterised by the fact that the protective cap (14) is kept in the closed position by means of a spiral spring

7. Ignition bus contact housings according to Claims 5 or 6 characterised by the fact that the cap (14) closes the insertion face and the slide guide
8. Ignition bus contact housings according to Claim 5 characterised by the fact that the protective cap (14) essentially has the shape of a quadrant
9. Ignition bus contact housings according to one of the Claims from 1 to 4 characterised by the fact that the protective cap can be inserted on the pin housing.

Fig. 1

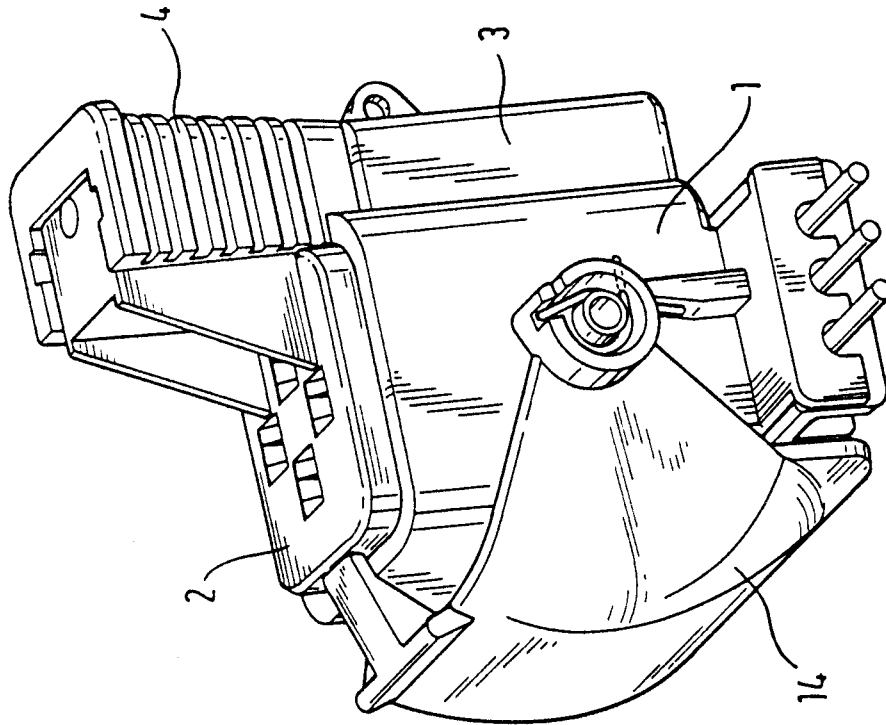
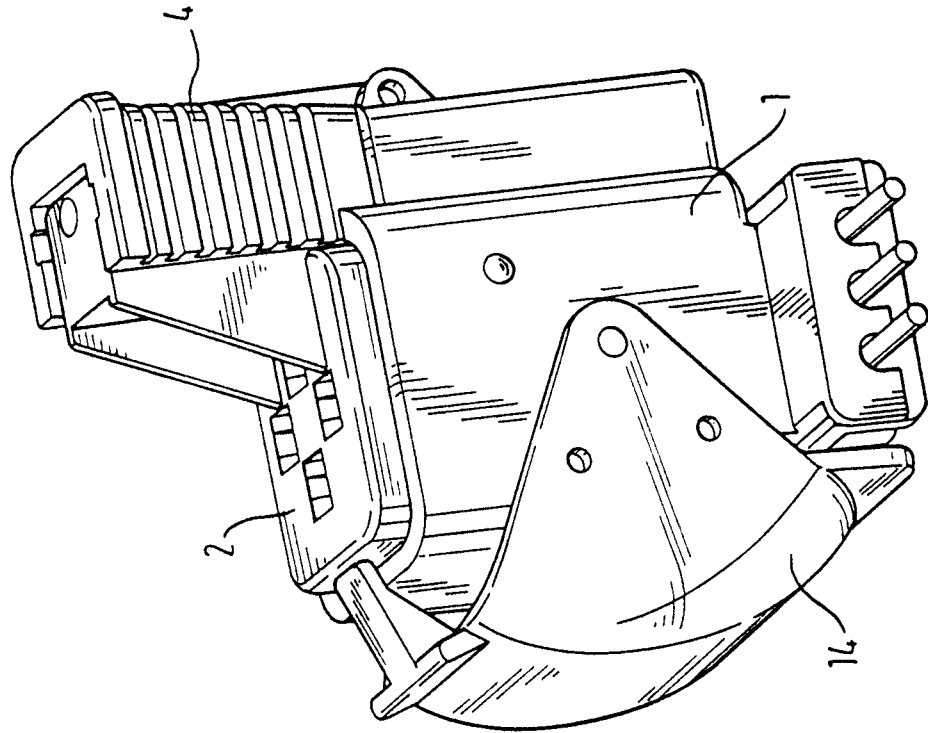


Fig. 2

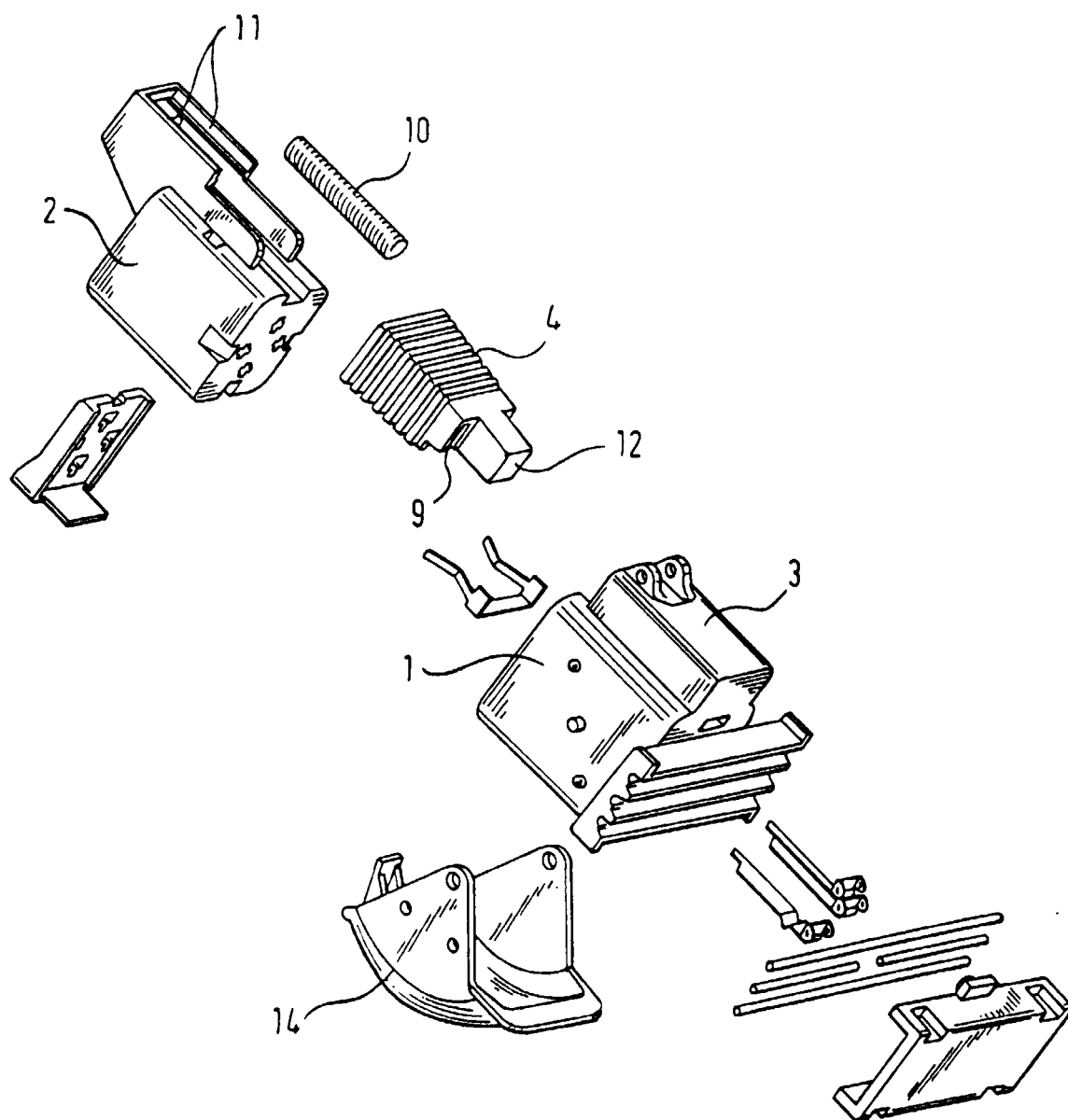
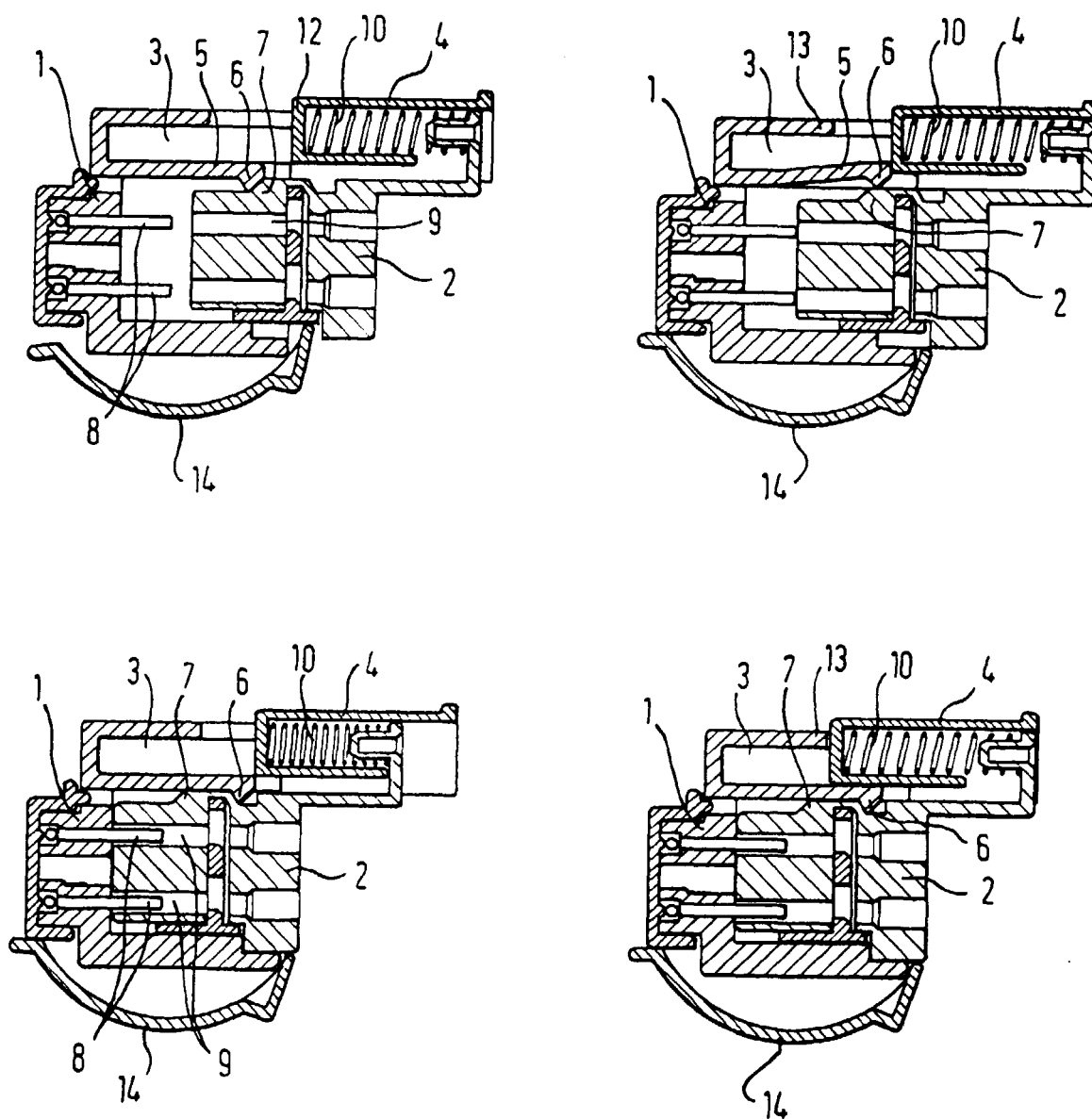


Fig. 3





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EUROPEAN SEARCH REPORT

Application Number

DOCUMENTS CONSIDERED TO BE RELEVANT			EP 99119136.2
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 7)
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			TECHNICAL FIELDS SEARCHED (Int. Cl. 7)
			H01R H02B B60R F42B
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 07-12-1999	Examiner SCHLECHTER
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

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ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO. EP 99119136.2

This annex lists the patent family members relating to the patent documents cited in the above-mentioned search report.
The members are as contained in the EPIDOS INPADOC file on 15.12.1999.
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For more details about this annex see Official Journal of the European Patent Office, No. 12/82.