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(54) CONTACT HANDLE WITH RETAINING COMB AND SOCKET

KONTAKTGRIF MIT HALTEKAMM UND SOCKEL

MANCHE DE CONTACT POURVU D'UN PEIGNE DE RETENUE ET D'UNE DOUILLE

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Description

Technology area

[0001] The technical solution relates to electric connecting parts in vehicles. This solution discloses an assembly comprising a contact handle with several contacts of different types with retaining comb and its positioning in a socket.

Present technology status

[0002] Solution known till now lying in providing a contact handle in a body comprising thick and thin small channels allowing insert of contact tubes, thick and thin contact pins, separate retaining cover that copies the contact handle shape, is a subject matter of protection comprised in DE 19830671 according to the preamble of claim 1. A retaining cover pursuant to this invention comprises channels positioned identically as those in the contact handle itself but they are cut in circumference and their height is just such preventing the contact pins from movement. Upper part of channels in the body of contact handle corresponds to the shape and height of cover's channels. Moreover, the retaining cover comprises locking plug and 3 security lamellas located in a way allowing mesh the plug and opening in the body of contact handle as well as fit the lamellas with those in the body of contact handle. The body is also equipped with 3 locking components for socket.

[0003] Disadvantage of this solution consists in complicated body of contact handle wherein individual channels are divided variously what results in corresponding complicated shape of retaining cover.

[0004] Moreover, a hybrid socket connecting system is known from EP 0908970 based on which the socket is designed as two-part and upper as well as lower part of socket each comprises one locking component allowing initial locking position and final locking position while secondary locking is effective when in final locking position and contacts may be arranged in the socket when in initial locking position.

Technical solution subject matter

[0005] The subject matter of this invention, as disclosed in claim 1, is a simple body of contact handle comprising several contacts of different types with retaining comb and locking component for a socket as well as a socket with locking component. The contact handle including retaining comb and socket comprise a body of contact handle that is equipped with four contact tubes located two and two opposite to each other, three thick contact pins located between contact tube pairs obliquely towards retaining comb centre line and six thin contact pins as well as locking components of contact handle and retaining comb that comprises 4 shaped comb teeth creating grooves between them while two middle teeth

and two edge teeth are mirror located and that is slipped into the opening in contact handle body.

[0006] In further embodiments, the socket is equipped with flexible locking components of socket. the retaining comb passes horizontally through upper internal part of body of contact handle so that edge teeth cover partially thick edge contact pins as well as thin contact pins and middle comb teeth cover partially from the top the thickest parts of contact tubes, thin contact pins and middle thick contact pin on which its position is fixed.

[0007] According to a further embodiment, the assembly comprises three locking components of contact handle being located symmetrically in circumference of contact handle body and overlapping outwards as well as flexible locking components of socket represented by three openings being symmetrically flexible divided in the socket cavity wall for location of contact handle body and they are mutually meshing.

Summary of figures in drawings

[0008] Figure 1 shows the contact handle 7+6 including retaining comb, Figure 1a shows cross section view and Figure 1b comprises side view. Figure 2 shows a socket with locking components and Figure 3 comprises a socket with contact handle 7+6 and Figure 3a shows a locking detail for contact handle 7+6 in the socket.

Performance examples

Example 1

[0009] The contact handle 7+6, shown in Figures 1, 1a and 1b, comprises a body 1 of contact handle 7+6 through which 7 channels of bigger diameter pass being located by a system that 1 of them is located in the middle and 6 are spaced uniformly around and 6 channels of smaller diameter located in the outer part of centre line between two channels of bigger diameter. The channels with bigger diameter accommodate 4 contact tubes 3 inserted so that two and two are located opposite to each other and three remaining channels located among them accommodate 3 thick contact pins 4. 6 channels of smaller diameter accommodate thin contact pins 5. The contact tubes 3, thick contact pins 4 and thin contact pins 5 are prevented from pushing out by retaining comb 2. The centre line of location of 3 thick contact pins 4 is occurring obliquely towards retaining comb centre line 2 (Figure 1a). The retaining comb 2 is a separate component being horizontally inserted into a cut in body 1 of contact handle so that covering partially the contact tubes 3, thick contact pins 4 and thin contact pins 5 preventing them from movement and its position is fixed on the middle thick contact pin 4 (Figure 1b).

[0010] In circumference of body 1 of contact handle 7+6, 3 locking components 6 of contact handle (Figure 1) are symmetrically spaced overlapping outwards. This location is such allowing the contact handle to be slipped

and locked only in one position.

[0011] The contact handle 7+6 is located in the socket 8. The socket 8 is equipped with 3 flexible locking components 7 of socket. Locking components 7 of socket are three openings divided flexibly in the wall of socket tube to allow fitting a contact handle. Figure 3a shows detail locking of contact handle 7+6 using locking component 6 of contact handle and flexible locking component 7 of socket.

[0012] The contact handle with retaining comb and socket were used for a plug with 13 poles.

Example 2

[0013] Socket from the Example 1 with particular contact handle was used to connect a plug with 7 poles.

Industrial applicability

[0014] The contact handle with retaining comb and socket are used for motor vehicles to provide electric connection between pulling vehicle and trailer. The advantage of this socket is that both plugs the one with 13 poles and that with 7 poles could be used for connection.

List of reference marks

[0015]

- 1 body of contact handle
- 2 retaining comb
- 3 contact tube
- 4 thick contact pin
- 5 thin contact pin
- 6 locking component of contact handle
- 7 locking component of socket
- 8 socket

Claims

1. Assembly comprising a contact handle with retaining comb and socket where the contact handle comprises body of contact handle equipped with locking element where by the contact handle comprises a body (1) of contact handle **characterised in that** the body (1) of contact handle is equipped with four contact tubes (3) located two and two opposite to each other, three thick contact pins (4) located between pairs of contact tubes (3) obliquely against the centre line of retaining comb (2) and six thin contact pins (5) as well as locking components (6) of contact handle and retaining comb (2) comprising four shaped comb teeth creating grooves between them while two middle teeth and two edge teeth are symmetrically located and being slipped into opening in contact handle body (1).

2. The contact handle with retaining comb and socket as per Claim No.1 **characterized by** that the retaining comb (2) passes horizontally through upper internal part of body (1) of contact handle so that edge teeth cover partially thick contact pins (4) as well as thin contact pins (5) and middle comb teeth cover partially from the top the thickest parts of contact tubes (3), thin contact pins (5) and middle thick contact pin (4) on which its position is fixed.
3. The contact handle with retaining comb and socket as per Claims 1 and 2 **characterized by** that the circumference of body (1) of contact handle includes symmetrically spaced 3 locking components (6) of contact handle overlapping outwards.
4. The contact handle with retaining comb and socket as per Claims 1 to 3 **characterized by** that body (1) of contact handle including retaining comb (2) are inserted into socket (8) equipped with flexible locking components (7) of socket.
5. The contact handle with retaining comb and socket as per Claim 4 **characterized by** that flexible locking components (7) of socket are three openings which are symmetrically flexibly divided in the socket (8) cavity wall for location of contact handle body (1).

Patentansprüche

1. Eine Aufstellung, die einen Kontaktgriff mit Halte- kamm und Buchse umfasst, in der der Kontaktgriff das Körper des Kontaktgriffs mit einem Verriegel- lungselement umfasst, wobei der Kontaktgriff den Körper (1) des Kontaktgriffs umfasst, **dadurch ge- kennzeichnet, dass** der Körper (1) des Kontakt- griffs mit vier Kontaktrohren (3), die so angeordnet sind, dass zwei und zwei gegenüberliegen, drei di- cken Kontaktstiften (4), die zwischen den Paaren von Kontaktrohren (3) schräg gegenüber der Mittel- linie des Haltekamms (2) angeordnet sind, und sechs dünnen Kontaktstiften (5), sowie Verriegel- lungselementen (6) des Kontaktgriffs versehen ist, und der Haltekamm (2) vier geformte Kammzähne, die Nuten zwischen ihnen schaffen, umfasst, wobei zwei mittlere Zähne und zwei Randzähne symmet- risch angeordnet sind und in die Öffnung in dem Kon- taktgriffgeschoben werden (1).
2. Der Kontaktgriff mit Haltekamm und Buchse nach Anspruch 1, **dadurch gekennzeichnet, dass** der Haltekamm (2) horizontal durch den oberen inneren Teil des Körpers (1) des Kontaktgriffs läuft, so dass die Randzähne die dicken Kontaktstifte (4) sowie die dünnen Kontaktstifte (5) teilweise bedecken und der mittlere Kammzahn die dicksten Teile der Kontak- trohren (3), die dünnen Kontaktstifte (5) und den mitt-

leren dicken Kontaktstift (4), auf dem seine Position befestigt ist, teilweise von oben bedecken.

3. Der Kontaktgriff mit Haltekamm und Buchse nach Anspruch 1 und 2, **dadurch gekennzeichnet, dass** der Kreisumfang des Körpers (1) des Kontaktgriffs 3 symmetrisch angeordnete Verriegelungselemente (6) des Kontaktgriffs, die sich nach außen überdecken, umfasst.
4. Der Kontaktgriff mit Haltekamm und Buchse nach Anspruch 1 bis 3, **dadurch gekennzeichnet, dass** der Körper (1) des Kontaktgriffs mit dem Haltekamm (2) in die Buchse (8), die mit flexiblen Verriegelungselementen (7) der Buchse versehen ist, eingefügt wird.
5. Der Kontaktgriff mit Haltekamm und Buchse nach Anspruch 4, **dadurch gekennzeichnet, dass** die flexiblen Verriegelungselemente (7) der Buchse drei Öffnungen sind, die symmetrisch flexibel an der Hohlraumwand der Buchse (8) zur Einbringung des Kontaktgriffs (1) angeordnet sind.

Revendications

1. Ensemble comprenant un dispositif de contact à l'intercalation des éléments concernés avec une peigne de blocage et une douille, le dispositif de contact est composé d'un corps de dispositif de contact équipé par un élément de verrouillage, tandis que le dispositif de contact comprend le corps du levier (1), ce qu'il est équipé par quatre tubes de contact (3) se trouvant deux et deux à l'encontre les uns aux autres, par trois gros chevilles de contact (4) se trouvant entre des paires de tubes de contact (3) en biais à l'égard de l'axe centrale de la peigne de blocage (2) et par six chevilles de contact fines (5), ainsi que par des éléments de blocage (6) du levier de contact et la peigne de fixation (2) comprend quatre dents de peigne profilées, lesquelles forment entre elles-mêmes des rainures, tandis que deux dents centrales et deux dents marginales sont placées d'une façon symétrique et entrent dans un orifice se trouvant dans le corps d'un dispositif de contact (1).
2. Dispositif de contact à l'intercalation des éléments concernés avec un peigne de blocage et une douille conformément à la revendication No. 1, **caractérisé par** cela, que le peigne de blocage (2) passe horizontalement la partie interne supérieure du corps du dispositif de contact (1), si bien que des dents marginales recouvrent partiellement des gros chevilles de contact (4), ainsi que des minces chevilles de contact (5) et des dents de peigne centrales recouvrent de la haut partiellement des parties les plus grosses de tubes de contact (3), des chevilles de

contact minces (5) et la cheville de contact centrale (4), ou sa position est fixée.

3. Dispositif de contact à l'intercalation des éléments concernés avec le peigne de blocage et une douille conformément à la revendication No. 1 et No. 2, **caractérisé par** cela, qu'un contour du corps d'un dispositif de contact (1) comprend trois éléments d'immobilisation du dispositif de contact (6), lesquels sont installés d'une façon symétrique et ils croisent vers dehors.
4. Dispositif de contact à l'intercalation des éléments concernés avec le peigne de blocage et une douille conformément à la revendication No. 1 au No. 3, **caractérisé par** cela, que le corps d'un dispositif de contact (1) avec un peigne d'attache (2) sont insérés dans la douille (8), laquelle est équipée par des éléments de blocage souples (7).
5. Dispositif de contact à l'intercalation des éléments concernés avec le peigne de blocage et une douille conformément à la revendication No. 4, **caractérisé par** cela que des éléments souples de blocage de la douille (7) présentent les trois orifices symétriquement placés dans une paroi de creux de la douille (8) pour une mise en place d'un corps du levier de contact. (1).

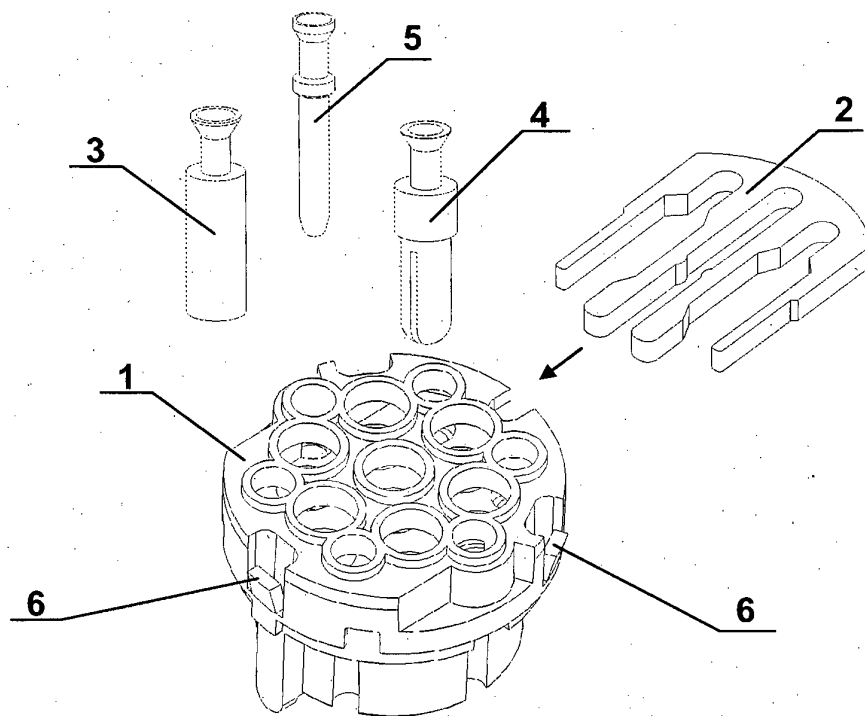


Figure 1

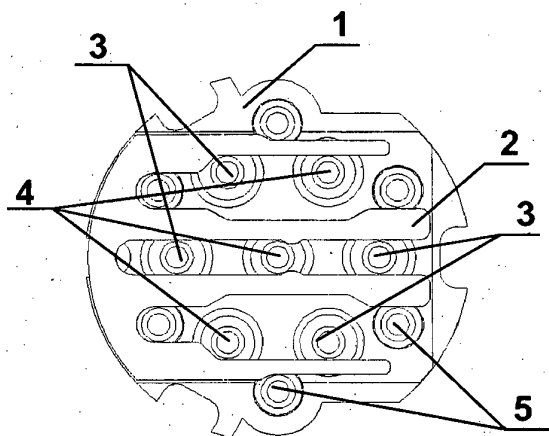


Figure 1a

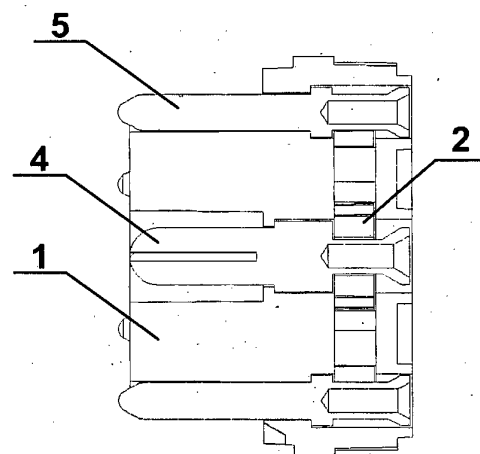


Figure 1b

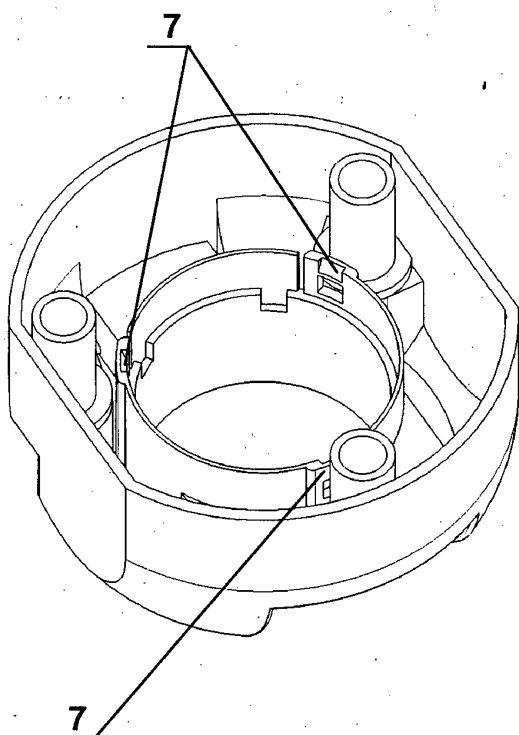


Figure 2

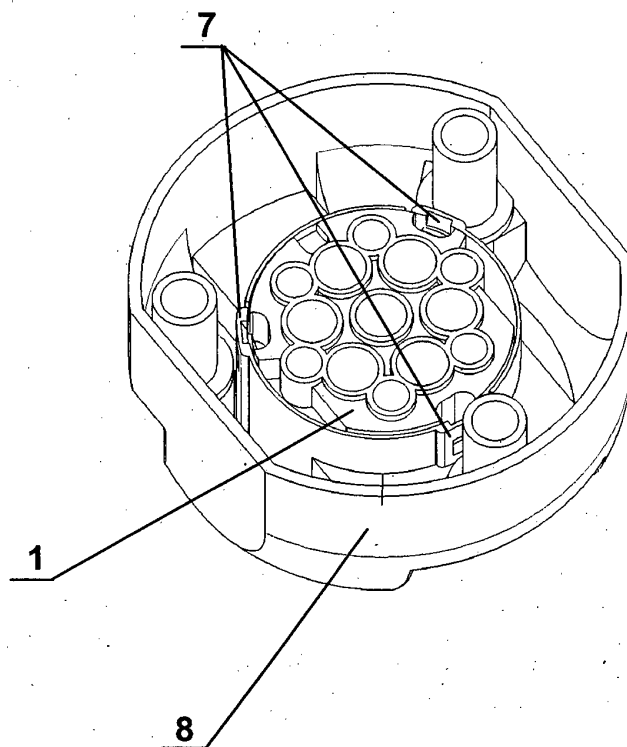


Figure 3

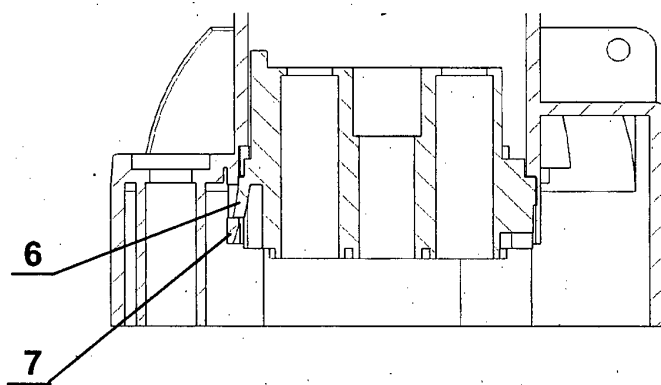


Figure 3a

REFERENCES CITED IN THE DESCRIPTION

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