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(71) Applicant (for all designated States except US): **MKEM, spol. s r.o.** [SK/SK]; Továrenská 15, 06401 Stará Lubovna (SK).

(72) Inventors: **KRAJGER, FRANTISEK**; Hniezdne 366, 06401 Hniezdne (SK). **WYSTRON, ALEXANDER**; Gugistrasse 10, CH-6005 Luzern (CH).

(74) Agent: **RZYMANOVÁ, KAMILA**; Mládeže 2354/32, 058 01 Poprad (SK).

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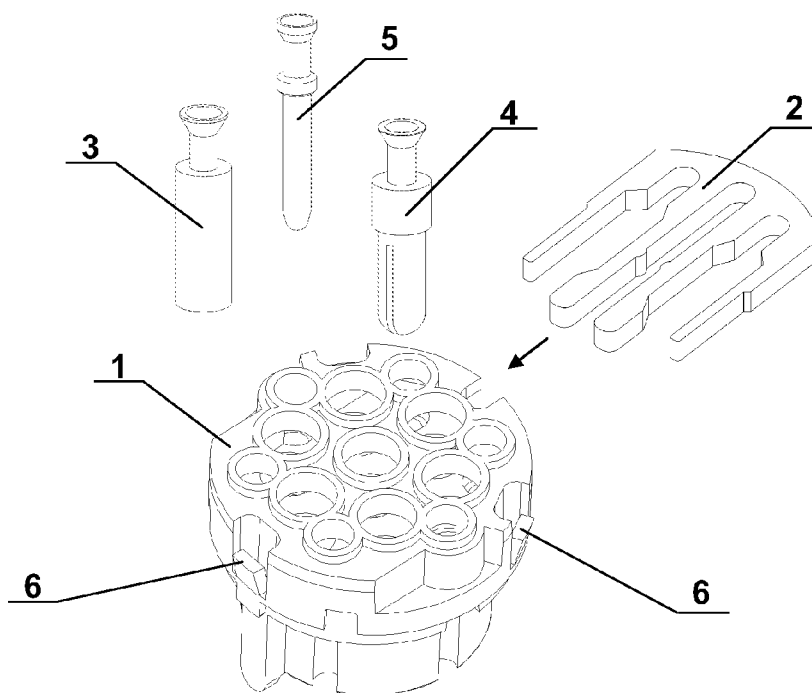
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(54) Title: CONTACT HANDLE WITH RETAINING COMB AND SOCKET



(57) Abstract: The contact handle with retaining comb and socket characterized by that the contact handle comprises a body (1) of contact handle and retaining comb (2) while 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.

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Contact handle with retaining comb and socket

### **Technology area**

The technical solution relates to an electric connecting part in vehicles. This solution represents a contact handle with retaining comb and its positioning in a socket.

### **Present technology status**

Solutions known till now lie 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. This retaining cover 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 equipped with 3 locking components for socket. Separate retaining cover is put on the body of contact handle from the top.

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.

### **Technical solution subject matter**

The subject matter of this technical solution is a simple body of contact handle 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 and retaining comb, while the body of contact handle 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. The socket is equipped with locking components of socket. Retaining comb passes horizontally through upper internal part of body of contact handle so that

partially overlaps the most thick parts of contact tubes, thick contact pins and thin contact pins, while comb's position is fixed on the middle thick contact pin.

The solution subject matter comprises three locking components of contact handle being located symmetrically and overlapping outwards as well as locking components of socket being located symmetrically in the tube cavity for the contact handle and they are mutually meshing.

### **Summary of figures in drawings**

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

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 an 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.

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.

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

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

#### Example 2

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

#### **Industrial applicability**

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**

- 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

## C L A I M S

1. The contact handle with retaining comb and socket characterized by that the contact handle comprises a body (1) of contact handle and retaining comb (2) while 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.
2. The contact handle with retaining comb as per Claim No.1 characterized by that the socket is equipped with locking components (7) of socket.
3. The contact handle with retaining comb 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 it overlaps partially from the top the thickest part of contact tubes (3), that of thick contact pins (4) as well as that of thin contact pins (5) while its position is fixed on the middle thick contact pin (4).
4. The contact handle with retaining comb as per Claims 1 and 3 characterized by that the circumference of body (1) of contact handle includes symmetrically spaced three locking components (6) of contact handle overlapping outwards.
5. The contact handle with retaining comb as per Claims 1 to 4 characterized by that locking components (7) of socket are three openings symmetrically flexible divided in the cavity wall of socket (8) for location of body (1) of contact handle.

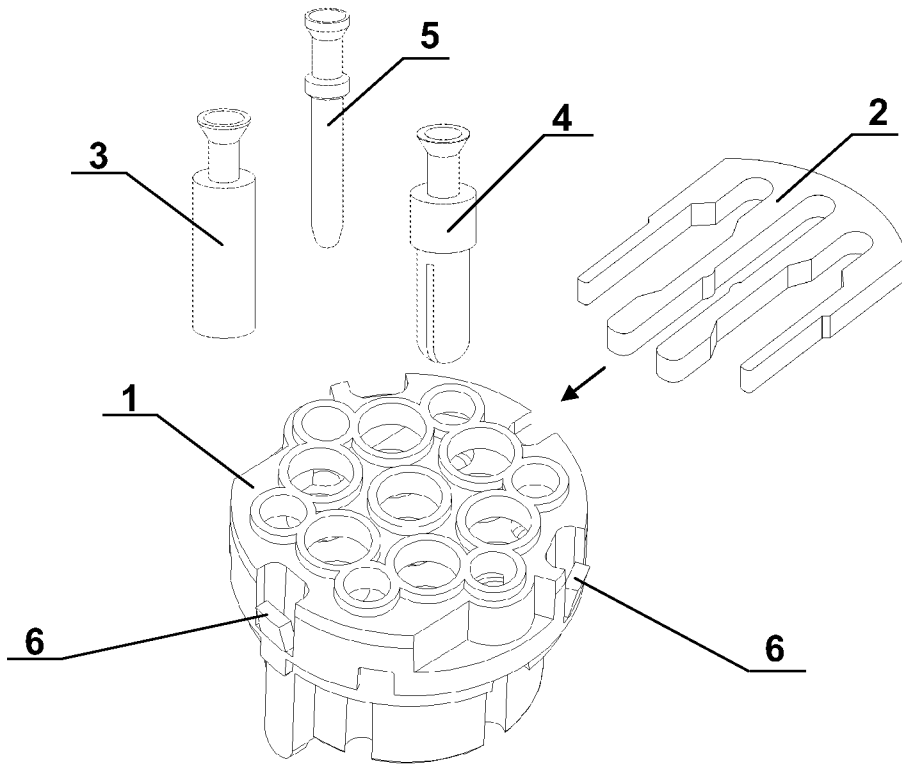


Figure 1

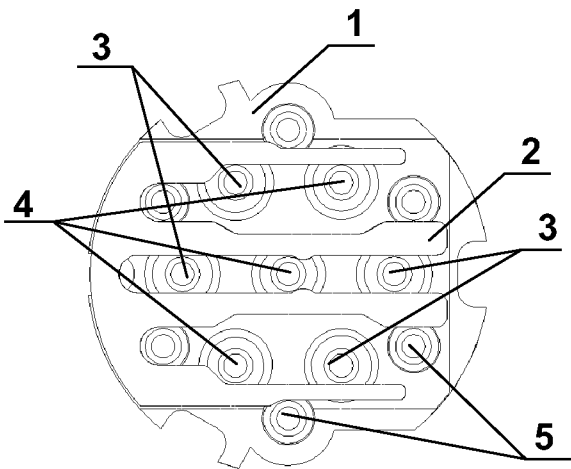


Figure 1a

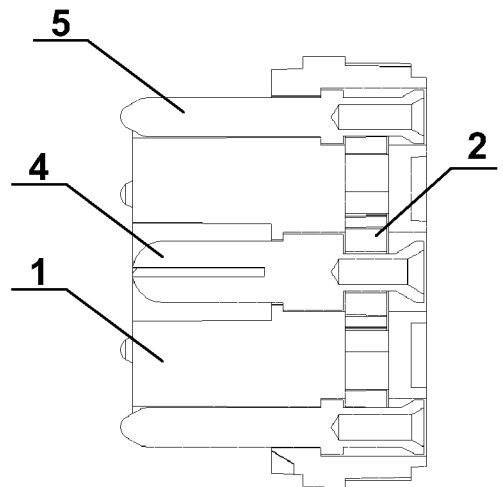


Figure 1b

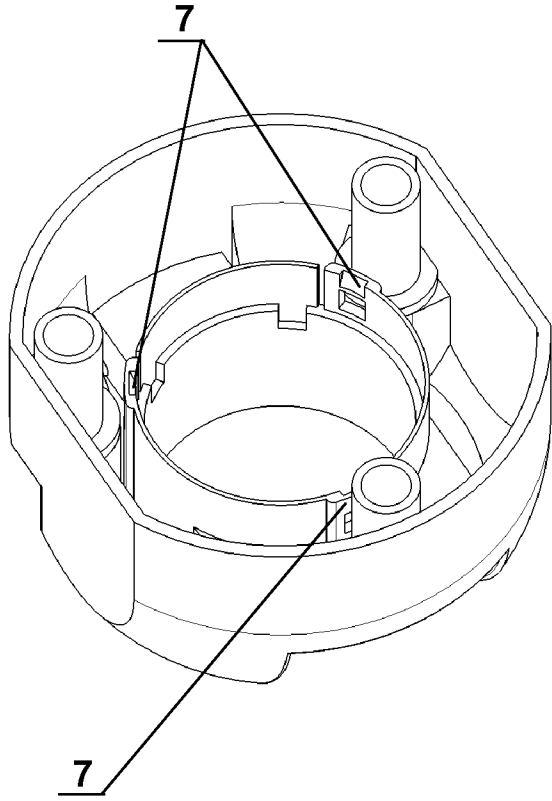


Figure 2

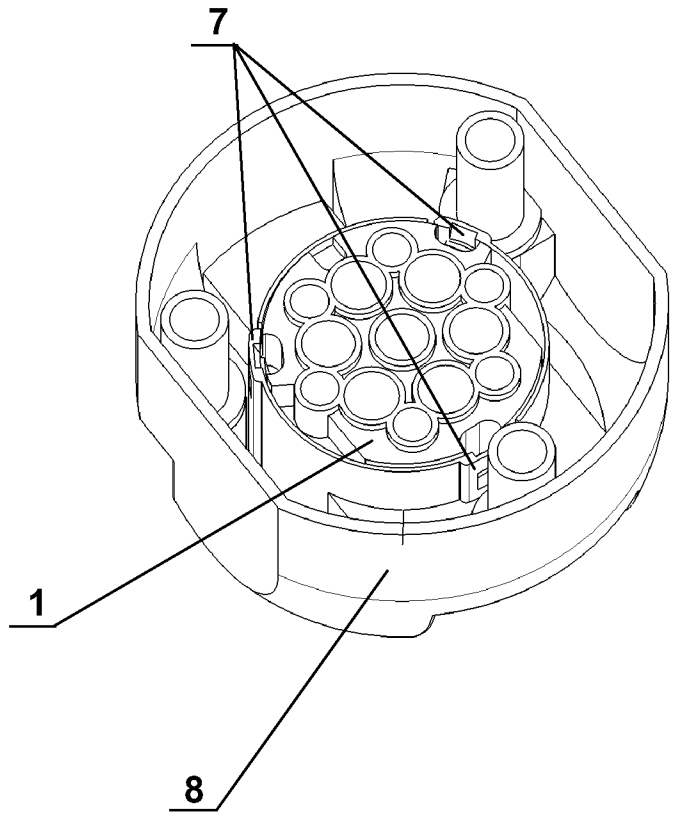


Figure 3

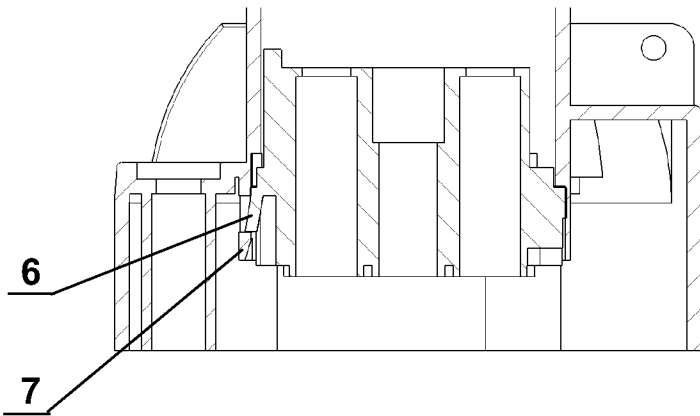


Figure 3a