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(54) **Title:** CONTACT TUBE WITH LAMELLA

(57) **Abstract:** Contact tube with lamella characterised by that comprising a tube (1) of cylindrical shape produced by sheet metal shaping ended on one side with a crimping part (1.1) for conductor and the tube (1) itself is equipped with a part (1.3) seating into a shell before the crimping part (1.1) for conductor, a cut locking element (1.2) of contact into the shell, uniformly spaced within the surface in perimeter deflected from the surface outwards from the crimping part (1.1) for conductor and locking parts (1.4) for the lamella and moreover it consists from the lamella (2) comprising flexible plates (2.1) anchored in a rim (2.2) while the lamella (2) is inserted in the tube (1) from the opposite side from the crimping part (1.1) for conductor.

Contact tube with lamella**Technology area**

The invention relates to contact tubes located in sockets and plugs properly furnished with pins providing electric current transmission. This comes under automotive equipment with electric joining parts such as truck tractors for trailers and/or semi-trailers.

Present technology status

Till now, the contact tubes were manufactured as simple turned part made from rod material of circular cross section originating long tube with 2 cut grooves fixed in the broken part from outside by a ring. Compression results in cross-section reduction and thus in contact with a plug pin. However, oval shape arising from original circular cross section fails to provide this contact in a perfect way. The second disadvantage consists in greater length of tube resulting in higher material consumption.

Invention subject matter

The invention subject-matter is a contact tube with lamella comprising a tube of cylindrical shape made by sheet metal shaping ended on one side by a crimping part for conductor while the tube itself is equipped with a part seating into a shell before the crimping part for conductor, cut locking element of contact into a shell, uniformly spaced within the surface on perimeter deflected from the surface outwards from the crimping part for conductor and locking parts for lamella and moreover it consists from a lamella comprised flexible plates anchored in a rim while the lamella is inserted in the tube from the opposite side to the crimping part for conductor. The subject-matter of invention is double sided locking of lamella preventing its extraction therefore locking parts for lamella are located both from the opposite side of tube from crimping part for conductor and in positions above locking elements of contact into shell or in a distance identical to lamella length.

The number of locking parts for lamella on both sides is at least three ones and similarly the locking contact elements of contact into shell are three ones as minimum.

Summary of figures in drawings

Figure 1 shows the contact tube with lamella for pin of 4.0 mm diameter. Figure 2 shows contact tube with lamella for pin of 4.8 mm diameter. Figure 3 shows the long contact tube with lamella for pin of 6.4 mm diameter.

Examples of implementation

Example 1:

This is an example of contact tube with lamella for the pin of 4 mm diameter (Figure 1) comprising tube 1 of cylindrical shape, made by metal sheet shaping that is ended on one side by crimping part 1.1 for conductor. Tube 1 of cylindrical shape is equipped with part 1.3 seating into a shell before crimping part 1.1 for conductor, cut locking elements 1.2 of contact into shell, uniformly spaced within the surface on perimeter deflected from the surface outwards from crimping part (1.1) for conductor and locking parts 1.4 for lamella located in positions above the locking parts 1.2 of contact into shell and from the opposite side of tube 1 from crimping part 1.1 for conductor. Tube 1 accepts inserted lamella 2 comprising flexible plates 2.1 anchored in rim 2.2. Locking parts 1.4 for lamella lock lamella 2 from both sides after inserting tube 1. The number of locking parts 1.4 for lamella on both sides is three ones and similarly the locking contact elements 1.2 of contact into shell are three ones.

This contact tube with lamella is made from brass sheet metal. The crimping part serves for accommodation a conductor of cross-section 1.0 to 2.5 mm². It is used as a contact tube ABS 15 pol, 24 V.

The contact tube with lamella provides better conductive connection due to lamella application. To produce this, less material is used in comparison with contact tube with 2 cut grooves.

Example 2

This is an example of contact tube with lamella for pin of 4.8 mm diameter (Figure 2) performed by sheet metal shaping. The contact tube with lamella is similar to that from Example 1, however, it has larger external diameter for the same length. It is proper for plugs 7 pol, 24 V. The contact tube with lamella provides better conductive connection due to lamella application. To produce this, less material is used in comparison with contact tube with 2 cut grooves.

Example 3

This is an example of long contact tube with lamella for pin of 6.4 mm made by sheet metal shaping. The long contact tube is similar to that from Example 1, however, the total length is 48.8 mm with 8 mm external diameter (Figure 3). It differs in location of locking part 1.4 for lamella that is located opposite to locking elements 1.2 of contact into the shell but considering its length, in the distance that is identical to lamella length. The contact tube is seated in the centre of contact insertion. It is proper for plugs 7 pol, 24 V.

The contact tube with lamella provides better conductive connection due to lamella application. To produce this, less material is used in comparison with contact tube with 2 cut grooves.

Industrial applicability

The contact tube with lamella is used for 24 V into plugs 15 pol, 13 pol for lighting of trailers, 5 pol for ABS and/or EBS brakes and 7 pol only for lighting circuit.

List of reference marks

1. tube
 - 1.1 crimping part for conductor
 - 1.2 locking element of contact into shell
 - 1.3 seating part into shell
 - 1.4 locking part for lamella
2. lamella
 - 2.1 plates
 - 2.2 ring rim

C L A I M S

1. Contact tube with lamella characterised by consisting from a tube (1) of cylindrical shape, produced by sheet metal shaping ended on one side by a crimping part (1.1) for conductor when the tube (1) itself is equipped with the crimping part (1.1) for conductor by a seating part (1.3) into a shell, cut locking elements (1.2) of contact into the shell uniformly spaced on the surface in circumference deflected from the surface outwards from the crimping part (1.1) for conductor and locking parts (1.4) for lamella and further comprising a lamella (2) with flexible plates (2.1) anchored in a rim (2.2), while the lamella (2) is inserted in the tube (1) from opposite side from the crimping part (1.1) for conductor.
2. Contact tube with lamella as per Claim 1 characterised by that locking parts (1.4) for the lamella are located in two positions on the opposite side of tube (1) from a crimping part (1.1) for conductor either in positions above locking elements (1.2) of contact into shell or in a distance identical to lamella length (2).
3. Contact tube with lamella as per Claims 1 and 2 characterised by that the number of locking parts (1.4) for a lamella (2) on both sides is at least three and similarly locking elements (1.2) of contact into shell are at least three ones.

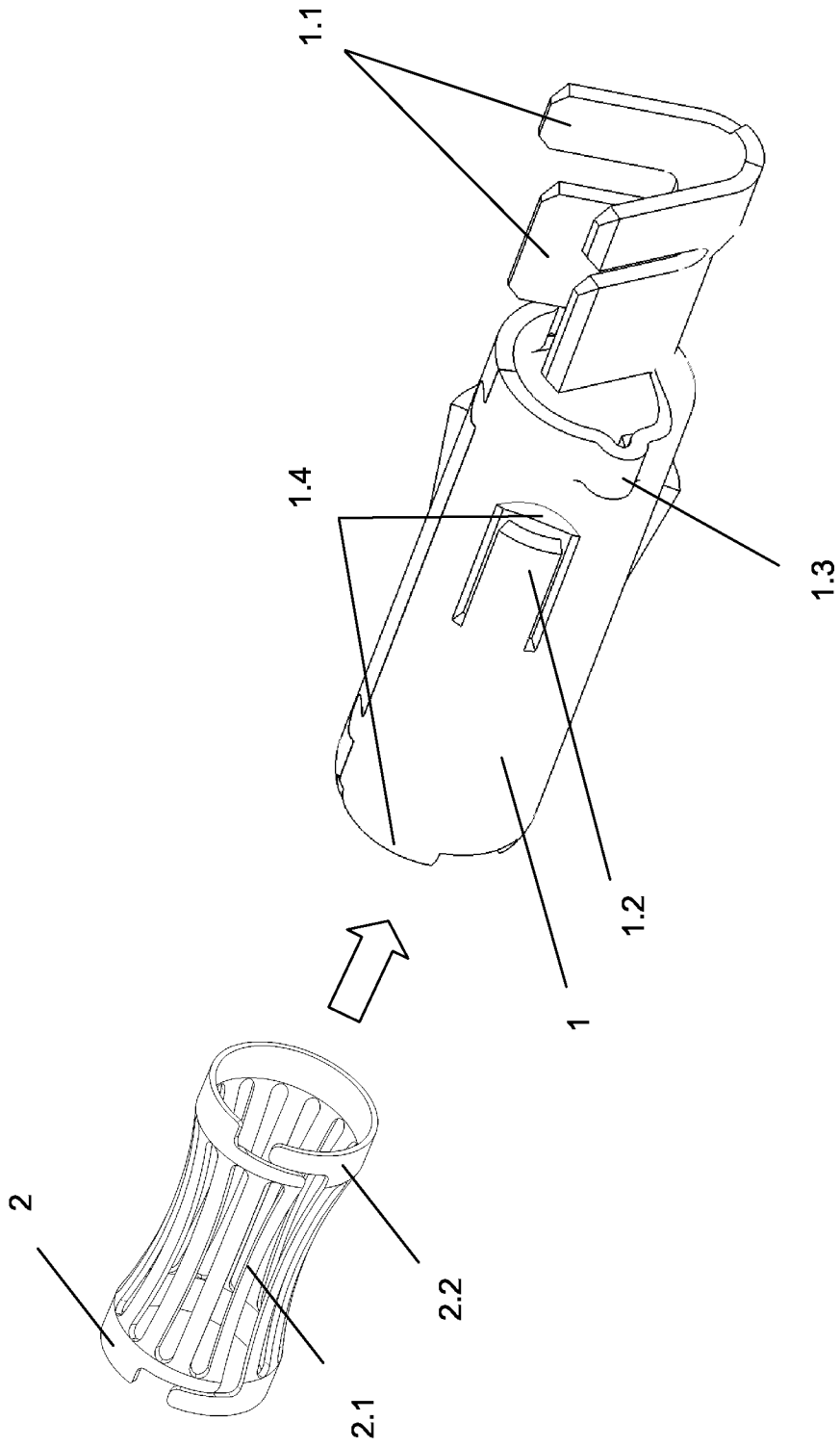


Figure 1

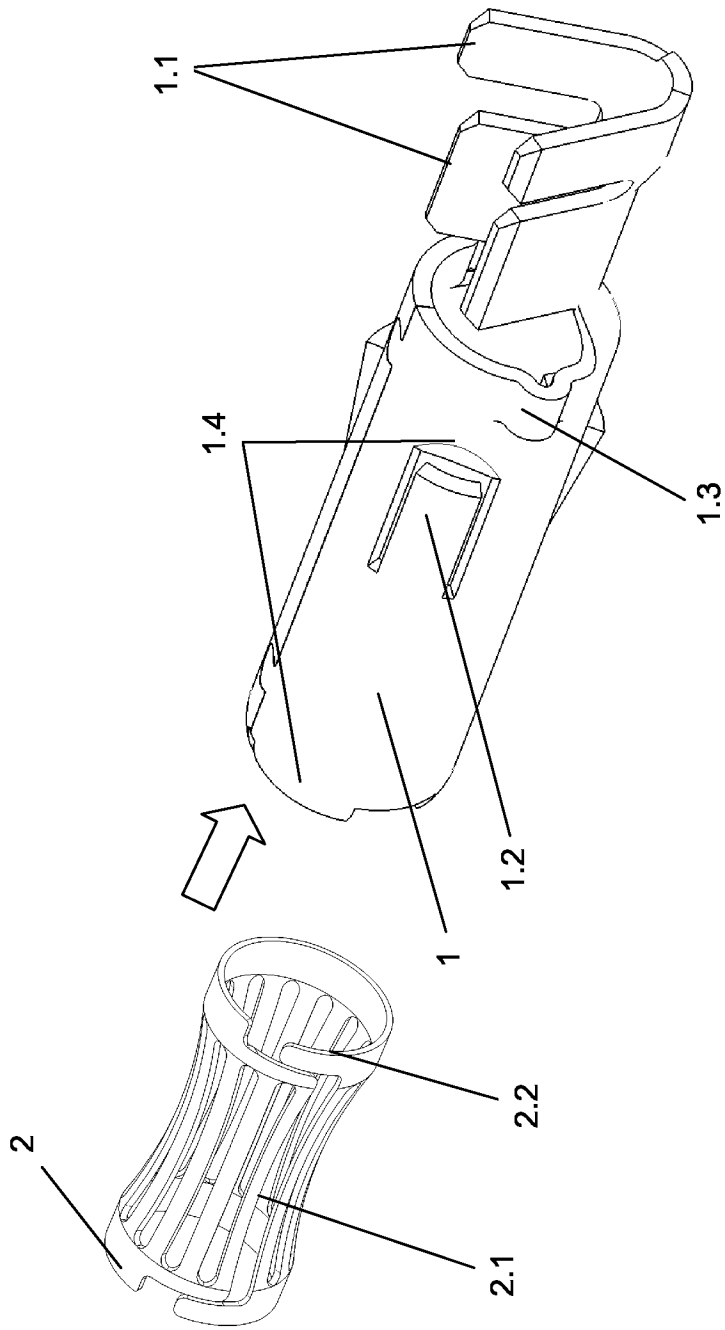


Figure 2

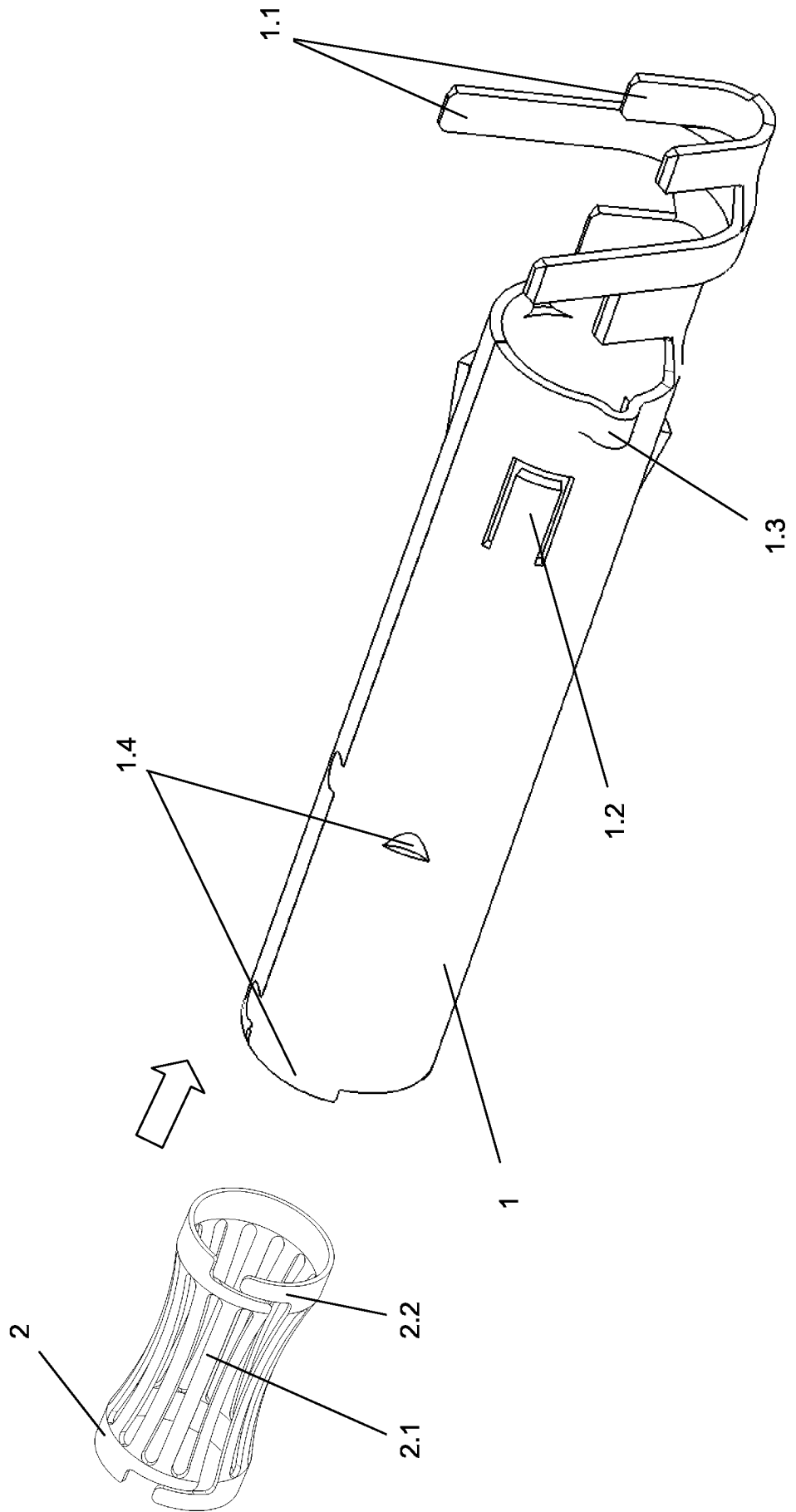


Figure 3