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(54) DEVICE FOR RATCHET WRENCHES AND THE LIKE

(57) A device (1) for ratchet wrenches and the like, which comprises an elongated body (2) ending with an end (3) provided with a hole (4), the elongated body (2) being engageable with the handle of a ratchet wrench and the like (5), and adapted to be locked thereto, an element (6) being arranged in a position above the end (3) and connected thereto in order to define a receptacle for the head of the wrench, the element (6) being provided with a hole (7) with a diameter that is smaller than the diameter of the hole (4) of the end (3), the hole (4) of the end (3) and the hole (7) of the element (6) being mutually superimposed, a tab (10) being adapted to be arranged on the elongated body (2), the tab (10) being provided with a fork (11) at one end, the opening of which is smaller than the diameter of the hole (4) of the end (3).

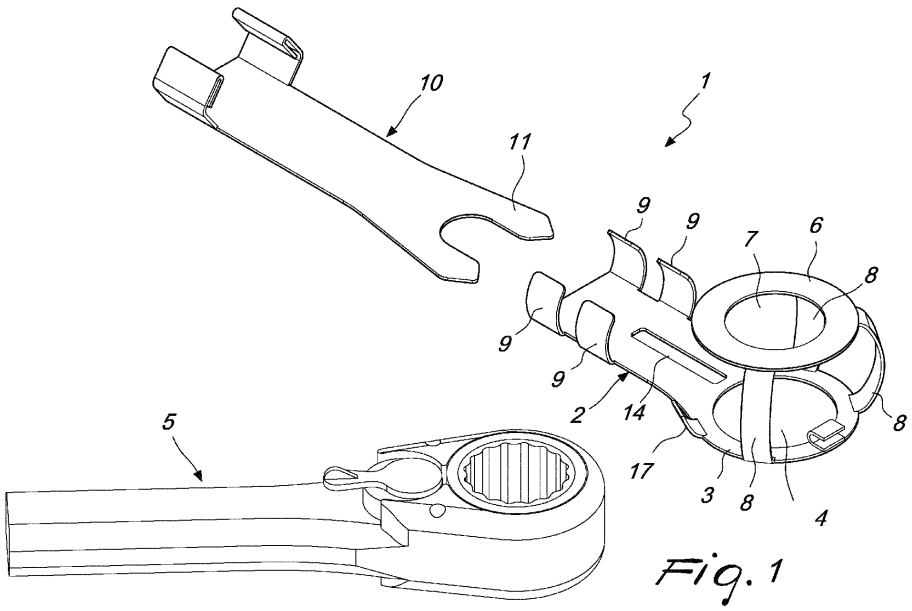

Fig. 1

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Description

[0001] The present invention relates to a device for ratchet wrenches and the like. More specifically, the invention relates to a device that is adapted to be applied to ratchet wrenches and the like in order to improve their functionality.

[0002] As is known, use of a ratchet wrench is extremely useful to speed up the work of screwing and unscrewing, because the wrench can be used without needing to remove it from the head of the bolt or nut each time that the bolt or nut is to be turned.

[0003] However, conventional ratchet wrenches have the drawback of not holding the bolt or the nut in the dedicated seat.

[0004] In fact, every time bolts and nuts need to be inserted or removed, the user has to use his or her hands to hold them because often they drop out of the seat and fall into inconvenient spaces.

[0005] Normally, bolts and nuts to be screwed and unscrewed are arranged in confined spaces and in the presence of gear wheels and similar mechanisms.

[0006] It can therefore happen that the nut or bolt falls into the above-mentioned gearwheels and can even get lost in crevices that are hard to reach, and consequently the machine will have to be dismantled.

[0007] The aim of the present invention is to provide a device for ratchet wrenches and the like, that makes it possible to improve the functionality of the latter, while maintaining the operation thereof unchanged.

[0008] Within this aim, an object of the present invention is to provide a device for ratchet wrenches and the like, that can be easily fitted to the ratchet wrench, without the use of any tools.

[0009] Another object of the present invention is to provide a device for ratchet wrenches and the like, that can be made for any size of wrench.

[0010] Another object of the present invention is to provide a device for ratchet wrenches and the like, that enables the wrench to be used with one hand only, thus obviating the need to hold nuts and/or bolts in the hand in order to prevent them from falling out of the seat of the wrench.

[0011] Another object of the present invention is to provide a device for ratchet wrenches and the like, that is highly reliable, relatively simple to provide, and at low cost.

[0012] This aim and these and other objects which will become better apparent hereinafter are achieved by a device for ratchet wrenches and the like, characterized in that it comprises an elongated body ending with an end provided with a hole, said elongated body being engageable with the handle of a ratchet wrench and the like, and adapted to be locked thereto, an element being arranged in a position above said end and connected thereto in order to define a receptacle for the head of the wrench, said element being provided with a hole with a diameter that is smaller than the diameter of the hole of said end, said hole of said end and said hole of said element being mutually superimposed, a tab being adapted to be arranged on said elongated body, said tab being provided with a fork at one end, the opening of which is smaller than the diameter of said hole of said end.

[0013] Further characteristics and advantages of the invention will become better apparent from the description of preferred, but not exclusive, embodiments of the device according to the present invention, which are illustrated by way of non-limiting example in the accompanying drawings wherein:

Figure 1 is a perspective view of a device according to the present invention, with a ratchet wrench fitted;

Figure 2 is a perspective view of the device according to the present invention in the assembled configuration;

Figure 3 is a perspective view of the device of Figure 2 with the ratchet wrench inserted and in the inoperative condition;

Figure 4 is a perspective view of the device of Figure 2 with the ratchet wrench inserted and in the operative condition;

Figure 5 is a perspective view of the device of Figure 2 with the ratchet wrench inserted and in the inoperative condition and with a bolt engaged by the head of the ratchet wrench;

Figure 6 is a perspective view from below of the device according to the invention in the configuration of Figure 5;

Figure 7 is a perspective view from above of the device according to the invention in the operative configuration;

Figure 8 is a perspective view from above of the device according to the invention in a second embodiment thereof, in the pre-assembled condition;

Figure 9 is a perspective view from above of the device according to the invention in the second embodiment, in the assembled condition;

Figure 10 is a perspective view from above of the device according to the invention in the second embodiment, in the pre-operative condition;

Figure 11 is a perspective view from above of the device according to the invention in the second embodiment, in the operative condition;

Figure 12 is a perspective view of a ratchet wrench being inserted into the device according to the present invention, in a first step;

Figure 13 is a perspective view of a ratchet wrench being inserted into the device according to the present invention, in a second step;

Figure 14 is a perspective view of a third embodiment of the ratchet wrench according to the present invention;

figure 15 is a perspective view of a fourth embodiment of the ratchet wrench according to the present invention.

[0014] With reference to the figures, the device according to the present invention, generally designated by the reference numeral 1, comprises a laminar body 2 of substantially elongated shape and with one end 3 ending with an internal hole 4.

[0015] The end 3 can for example be rounded.

[0016] An element 6 with an internal hole 7 with a smaller diameter than the diameter of the hole 4 arranged above the end 3 of the elongated body 2 and is connected thereto by means of connecting means 8.

[0017] The end 3 and the element 6 define a receptacle for the head of a ratchet wrench 5.

[0018] Conveniently the element 6 is a disk-like element.

[0019] The elongated body 2 is conveniently provided with retention means 9 adapted to enable the elongated body 2 to be locked around the handle of the ratchet wrench 5.

[0020] The retention means 9 are conveniently elastic so as to allow the ratchet wrench 5 to be inserted, as will be explained below.

[0021] The rounded end 3 in turn has at least one retention tooth 17, arranged laterally and adapted to retain the head of the ratchet wrench 5.

[0022] In substance, the ratchet wrench 5 is positioned with its head between the rounded end 3 and the disk-like element 6.

[0023] The hole 7 having a smaller diameter than the diameter of the hole 4 makes it possible to prevent a bolt 16, screw or nut from exiting from the side of the disk-like element 6.

[0024] In order to effectively immobilize the bolt 16, nut or screw inside the space (seat) between the rounded end 3 and the disk-like element 6, a tab 10 is provided which is adapted to be superimposed on the elongated body 2, under the handle of the ratchet wrench 5, when the latter is accommodated adjacent to the elongated body 2, and is provided at one end with a fork 11 the opening of which is smaller than the diameter of the head of the bolt, nut or the like, so as to narrow the diameter of the hole 4 when the tab 10 is shifted so that the fork 11 is superimposed on the hole 4.

[0025] Conveniently, the tab 10 can slide along the elongated body 2 so as to be able to position it with its fork 11 at the hole 4 of the rounded end 3.

[0026] In an additional embodiment, it is possible to have an additional tab 12 provided with a raised tooth 13 which is adapted to engage in a slot 14 of the elongated body 2 of the device according to the invention.

[0027] In substance, the second tab 12 is also provided with a fork 15 which is adapted to be positioned in a position below the elongated body 2, and which can also be slid by pushing the thumb forward and backward so as to bring the fork 15 into superimposition on the hole 4 of the rounded end 3, so as to be able to retain, for example, bolts or screws that have an integrated washer that enlarges the head of the bolt or screw or nut with its edge.

[0028] The interlocking of the second tab with the elongated body 2 occurs by means of interlocking the tooth 13 in the slot or slit 14 of the elongated body 2, by first arranging the second tab 12 perpendicular to the elongated body 2 and then rotating it so as to bring it to coincide with the elongated body 2, overlapping it.

[0029] This rotation enables the tooth to rotate in the eyelet of the slot 14 and become arranged transversely to the eyelet of the slot 14 and so immobilize the second tab 12 in the seat.

[0030] The use of the device according to the invention is evident from the foregoing description and is illustrated in the accompanying drawings.

[0031] In particular, with reference to Figures 12 and 13, it should be noted that the ratchet wrench 5 is inserted in the device according to the present invention with a rotary motion, from the right or from the left, such that the handle of the ratchet wrench 5, by being lifted upward, overcomes the retention means 9 in order to be brought into axial alignment with the elongated body 2 (Figure 12) and then be lowered once it is in alignment with the elongated body 2 (Figure 13), in order to be in the position for use, with the device according to the invention fitted over the ratchet wrench 5.

[0032] The device according to the invention can for example be made of steel or composite materials that are adapted to retain the bolt, screw or nut.

[0033] In practice it has been found that the device according to the present invention fully achieves the set aim and objects, in that it makes it possible, in combination with a ratchet wrench or the like, to retain the bolt, screw or nut without needing a second hand, the user in fact being able to use a single hand to screw and unscrew using the ratchet wrench and at the same time effectively retain the bolt, screw or nut inside the seat of the ratchet wrench, without the head of the bolt, screw or nut being able to exit from such seat.

[0034] The device, thus conceived, is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0035] Thus, for example, as illustrated in Figure 14, the connecting means 8 of the previous embodiments can be provided so as to eliminate the retention teeth 17 of the previous embodiments and convert them to connecting means 17 that are arranged at the initial portion of the rounded end 3 (two connecting means 17) and at the central region of the rounded end 3 (a connection means 17).

[0036] Even further, it is possible that an additional tab 10' is provided, soldered or in any case connected at one end to the tab 10 described previously, so that the two tabs 10 and 10' can be made slide in conjunction, with the elongated body 2 interposed between them.

[0037] Such variants described above can be applied in combination or alone to both of the embodiments of Figures 1-13, and the variants of the embodiments of Figures 14 and 15 can be present simultaneously in an embodiment.

[0038] In practice, the materials used, as well as the contingent shapes and dimensions, may be any according to the requirements and to the state of the art.

[0039] The disclosures in Italian Patent Application No. 102022000020883 from which this application claims priority are incorporated herein by reference.

[0040] Where the technical features mentioned in any claim are followed by reference numerals and/or signs, those reference numerals and/or signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference numerals and/or signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference numerals and/or signs.

Claims

1. A device (1) for ratchet wrenches and the like, **characterized in that** it comprises an elongated body (2) ending with an end (3) provided with a hole (4), said elongated body (2) being engageable with the handle of a ratchet wrench and the like (5), and adapted to be locked thereto, an element (6) being arranged in a position above said end (3) and connected thereto in order to define a receptacle for the head of the wrench, said element (6) being provided with a hole (7) with a diameter that is smaller than the diameter of the hole (4) of said end (3), said hole (4) of said end (3) and said hole (7) of said element (6) being mutually superimposed, a tab (10) being adapted to be arranged on said elongated body (2), said tab (10) being provided with a fork (11) at one end, the opening of which is smaller than the diameter of said hole (4) of said end (3).

2. The device according to claim 1, **characterized in that** said elongated body (2) is provided with retention means (9) adapted to allow the retention of said elongated body (2) against the handle of said ratchet wrench (5).

3. The device according to claim 1 or 2, **characterized in that** said elongated body (2) is provided with a longitudinal slot (14).

4. The device according to one or more of the preceding claims, **characterized in that** said element (6) is a disk-like element connected by means of connecting means (8) to said end (3) of said elongated body (2), said end (3) being rounded.

5. The device according to one or more of the preceding claims, **characterized in that** said tab (10) can slide along said elongated body (2) in order to move from a rest position to a position of engagement, with said fork (11), with said hole (4) of said end (3), in order to reduce the diameter of said hole (4).

6. The device according to one or more of the preceding claims, **characterized in that** it comprises an additional (12) adapted to be arranged in a position below said elongated body (2) and provided with a fork (15) which is adapted to engage said hole (4) of said end (3), in order to reduce its diameter.

7. The device according to one or more of the preceding claims, **characterized in that** said additional tab (12) is provided with a tooth (13) adapted to engage in the slot (14) of said elongated body (2), so as to move said additional tab (12) from a position at right angles to said elongated body (2) to a position parallel to said elongated body (2) and superimposed on said elongated body (2), so that said tooth (13) is arranged at right angles to said slot (14).

8. The device according to one or more of the preceding claims, **characterized in that** said additional tab (12) can slide along said elongated body (2).

9. The device according to one or more of the preceding claims, **characterized in that** said rounded end (3) comprises at least one tooth (17) which is arranged laterally and is adapted to retain the head of the ratchet wrench (5) when said head is inserted between said rounded end and said disk-like element (6).

10. The device according to one or more of the preceding claims, **characterized in that** it is made of steel or composite materials.

11. The device according to one or more of the preceding claims, **characterized in that** it comprises an additional tab (10') adapted to be connected at one end to said tab (10), said tab and said additional tab being adapted to be made slide in conjunction, with said elongated body (2) interposed between them.

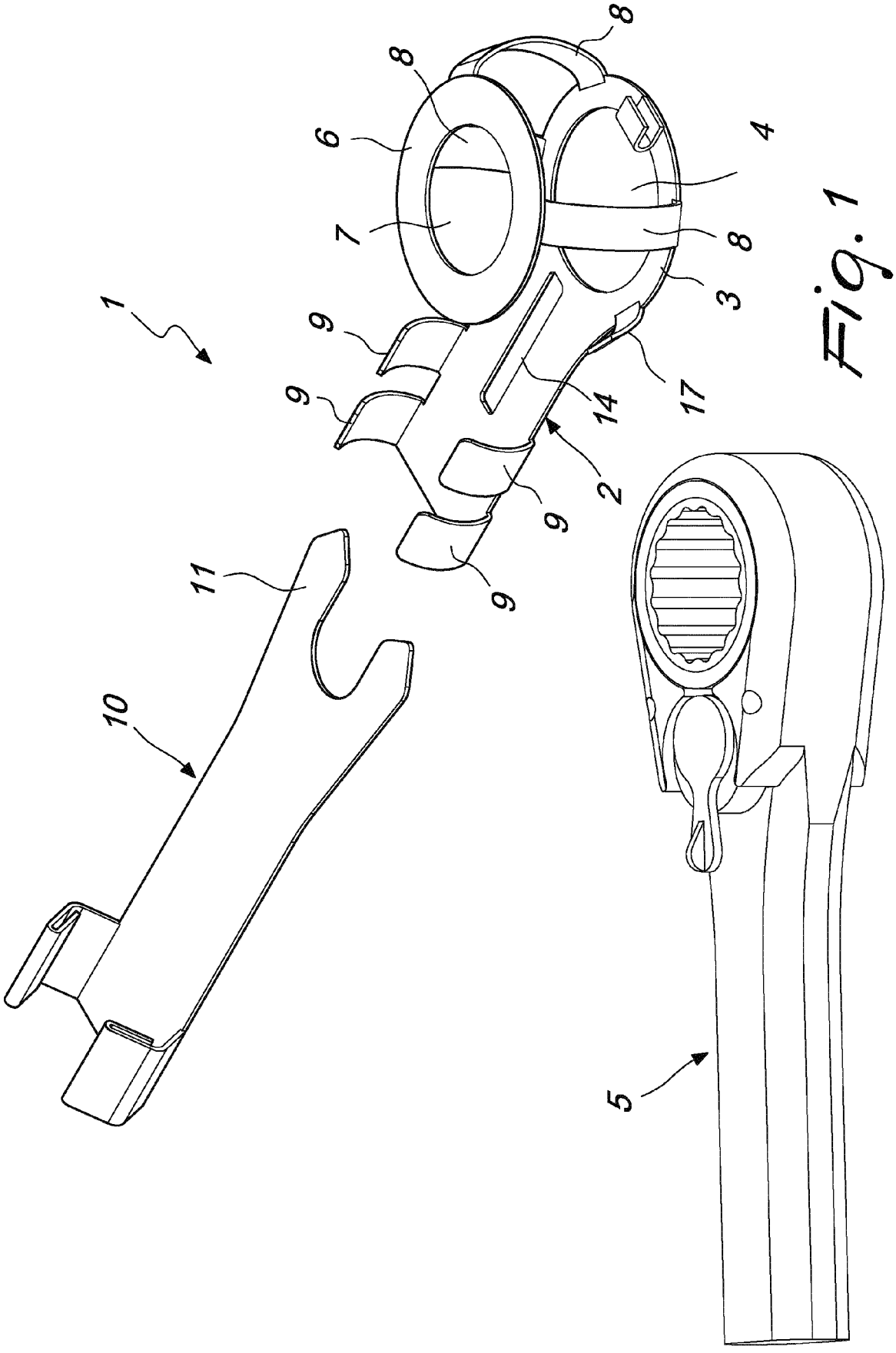

Fig. 1

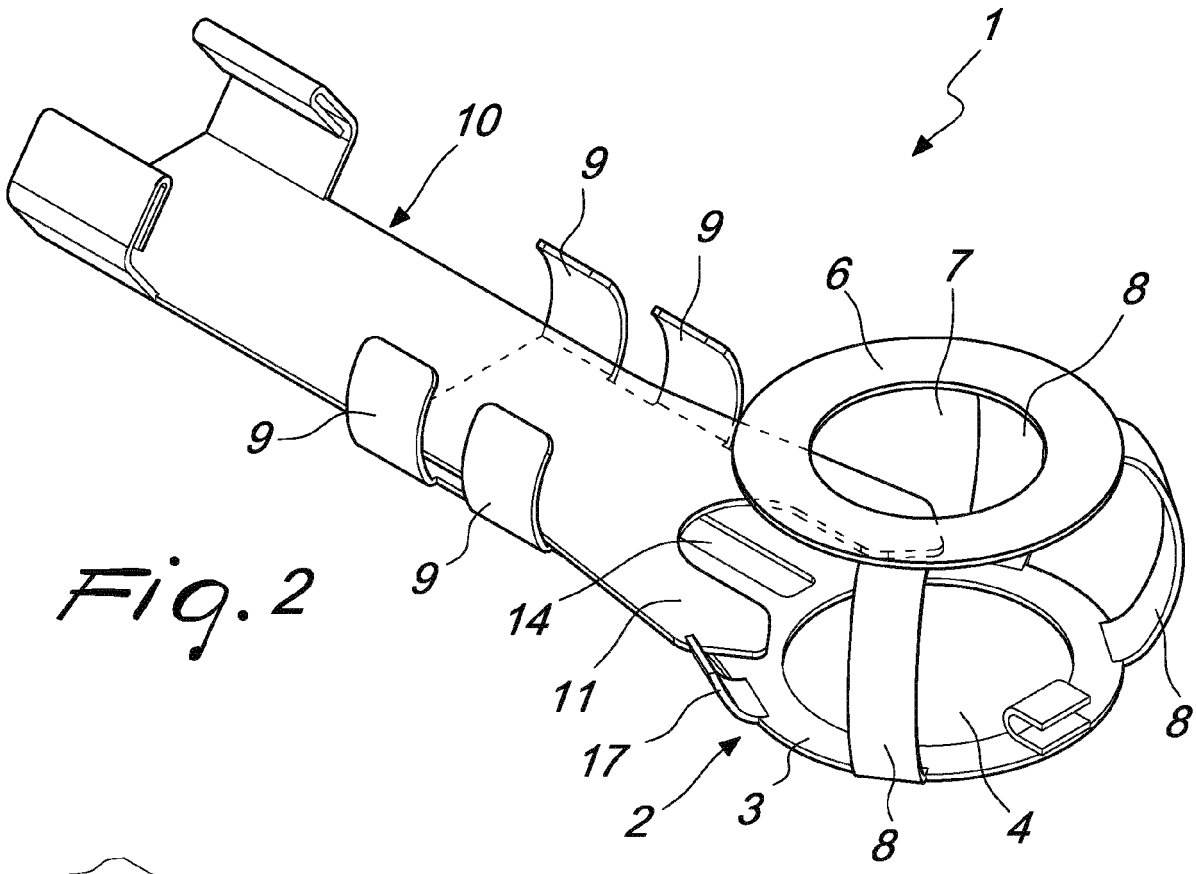

Fig. 2

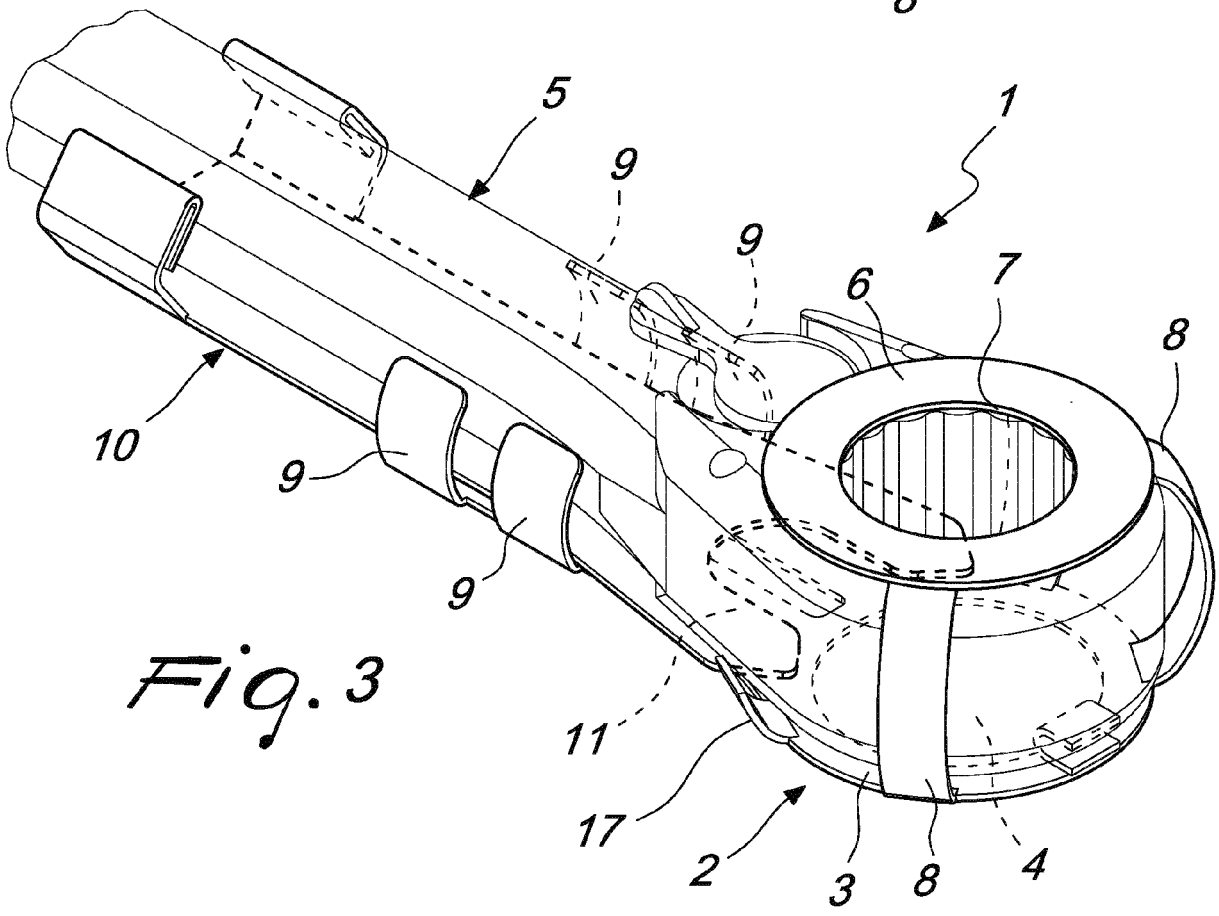

Fig. 3

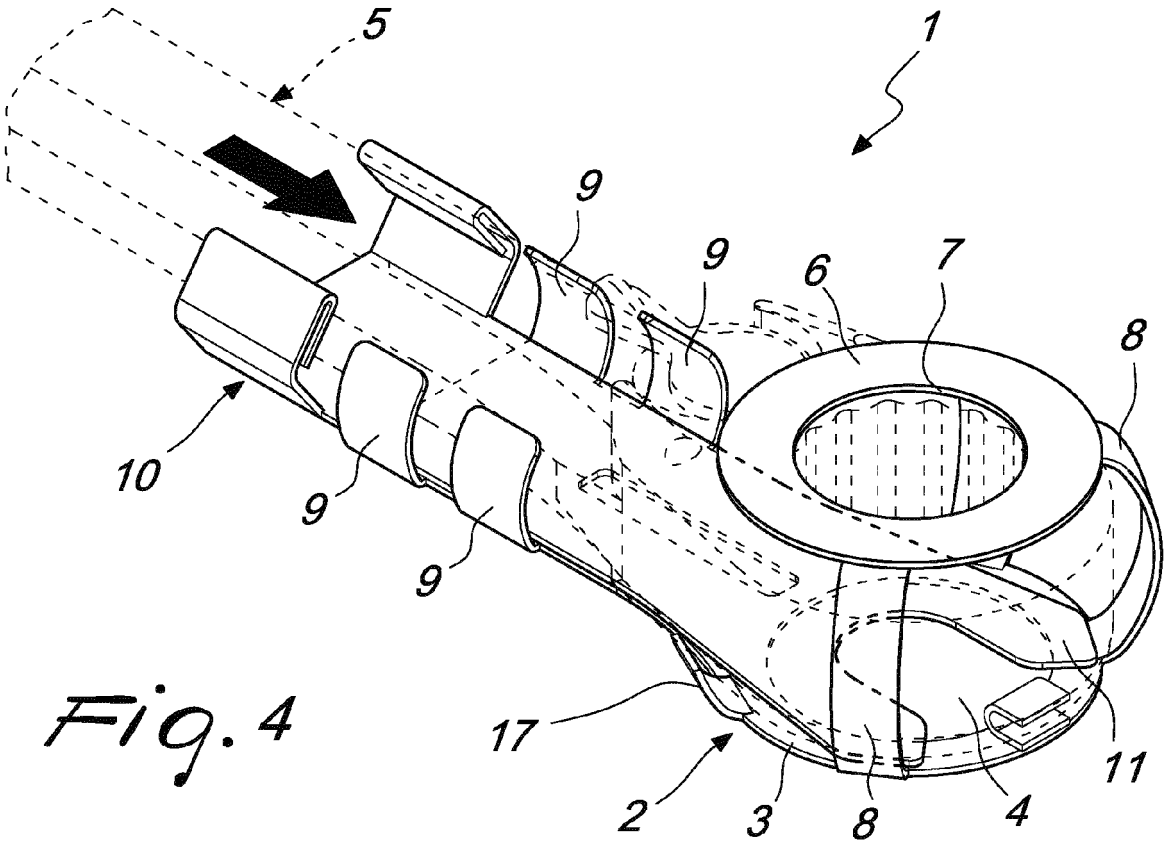

Fig. 4

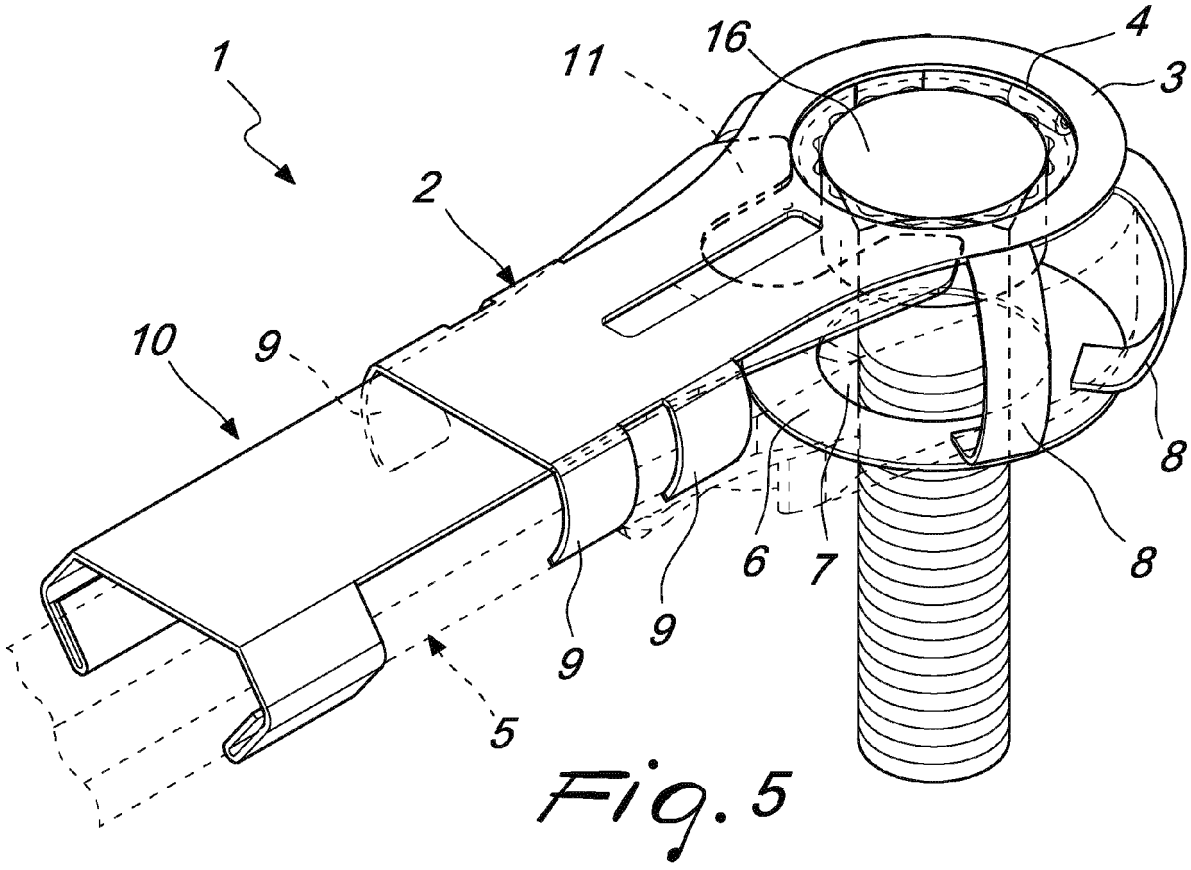

Fig. 5

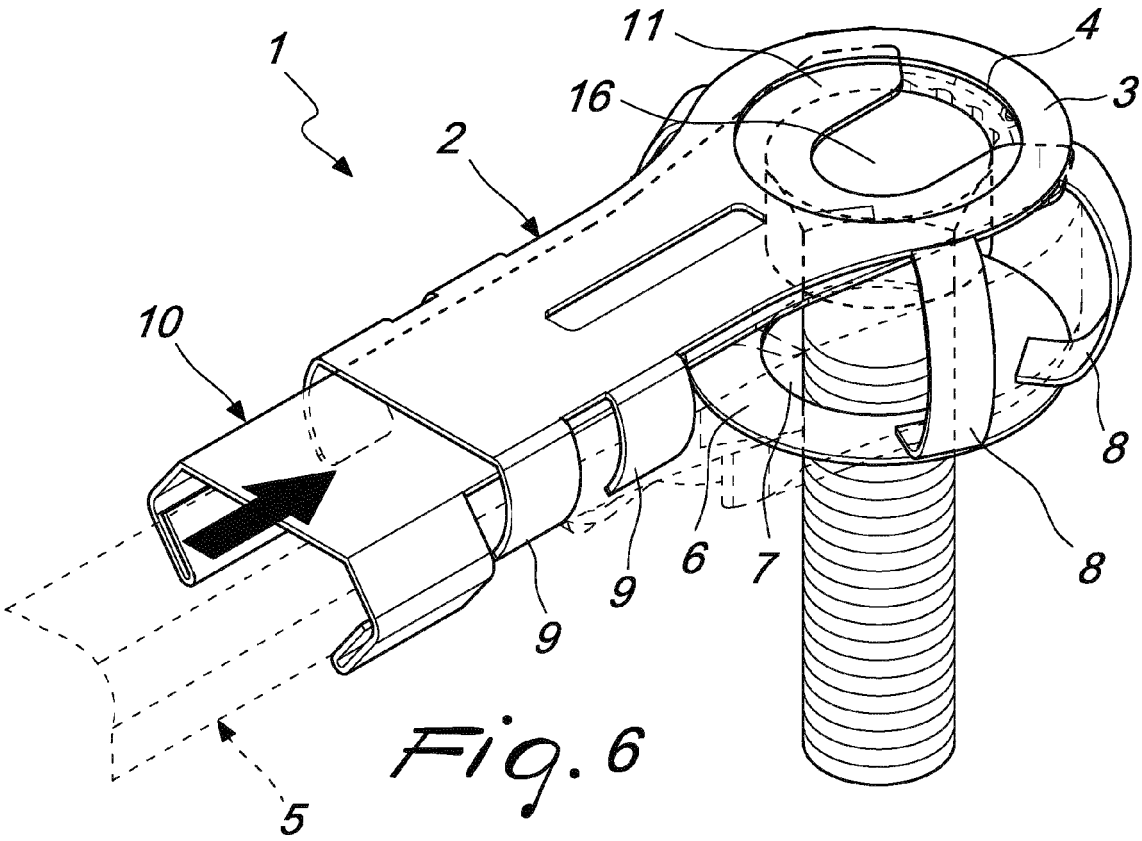

Fig. 6

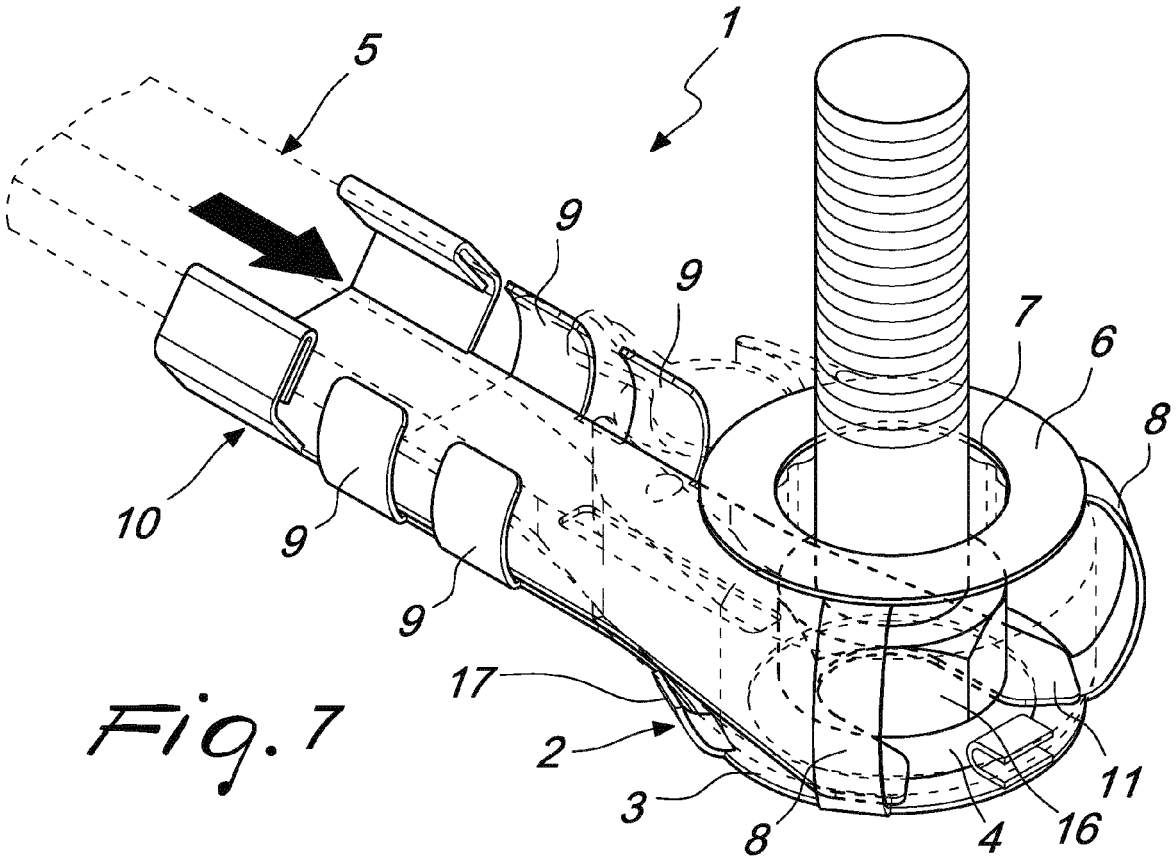

Fig. 7

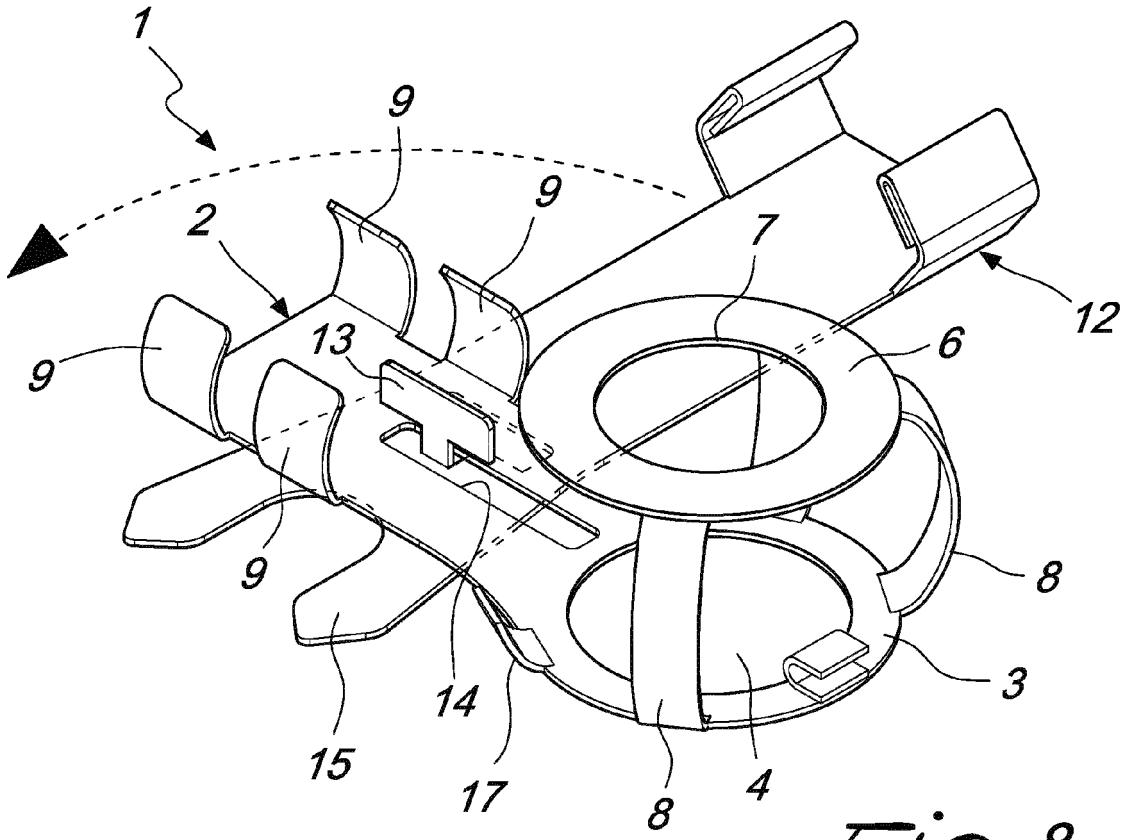

Fig. 8

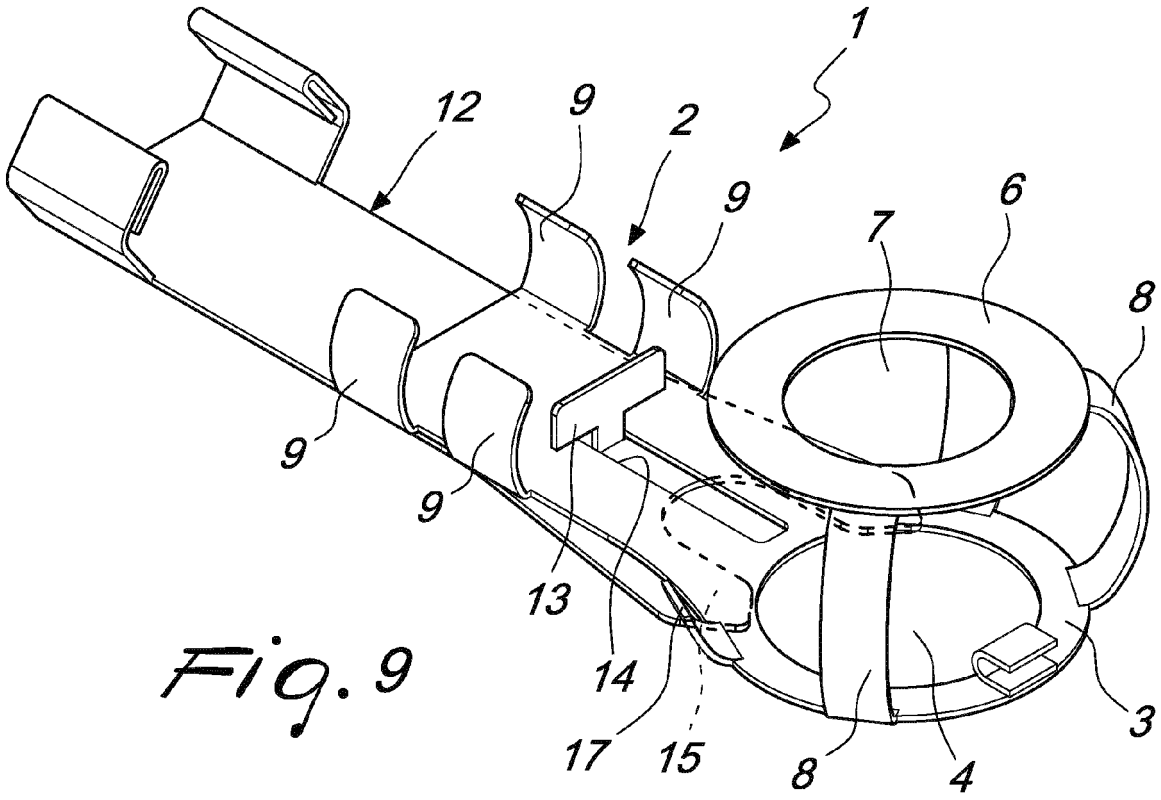

Fig. 9

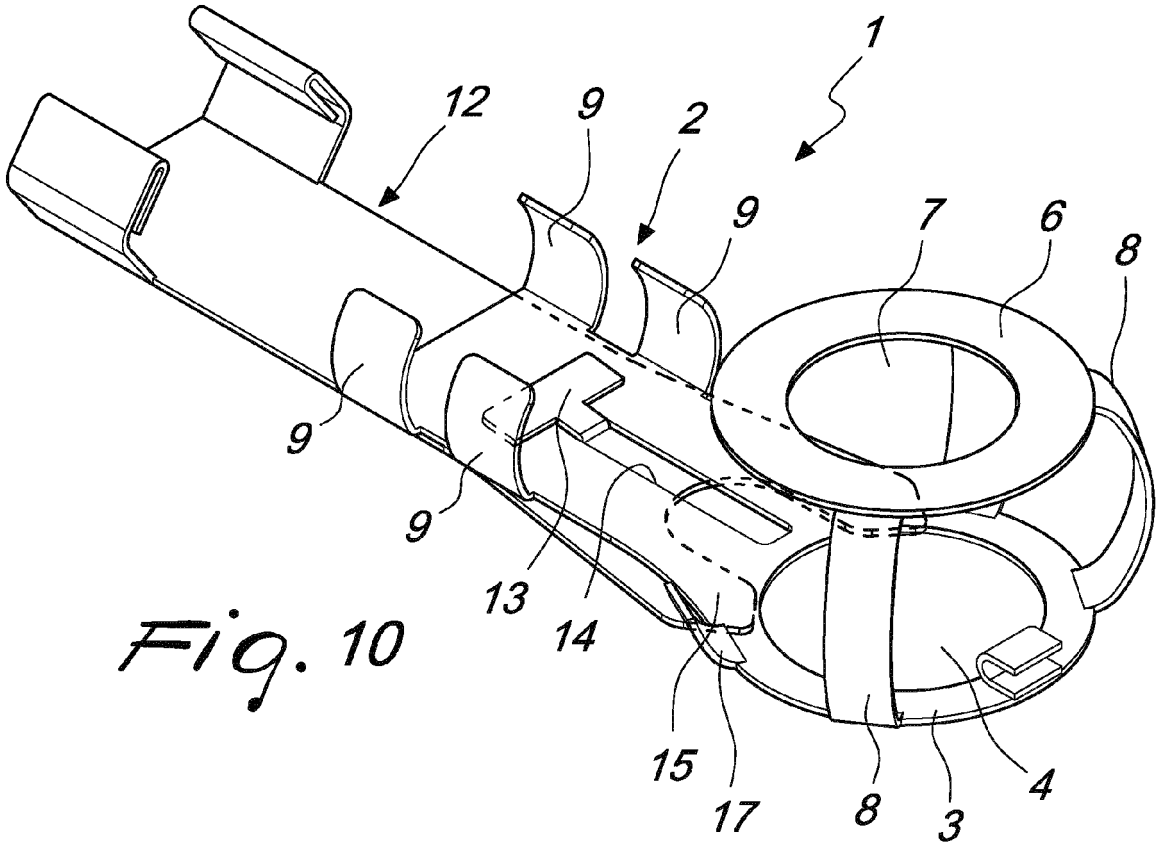

Fig. 10

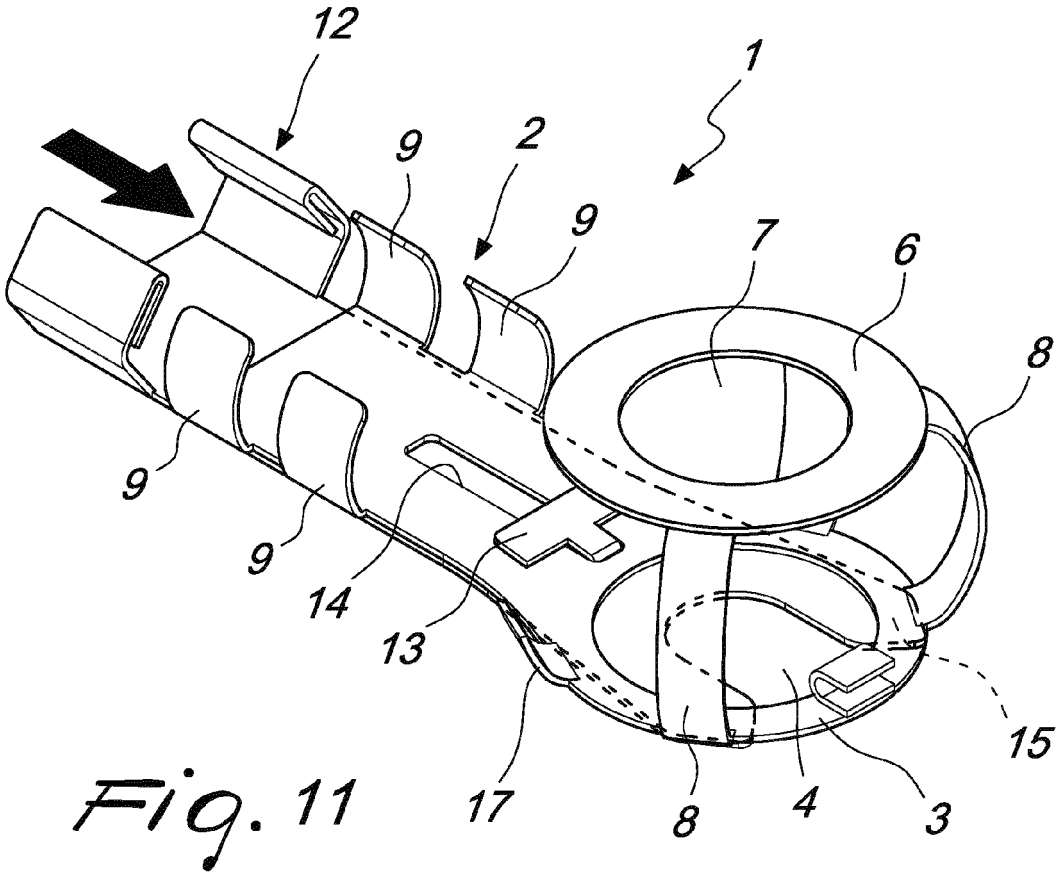

Fig. 11

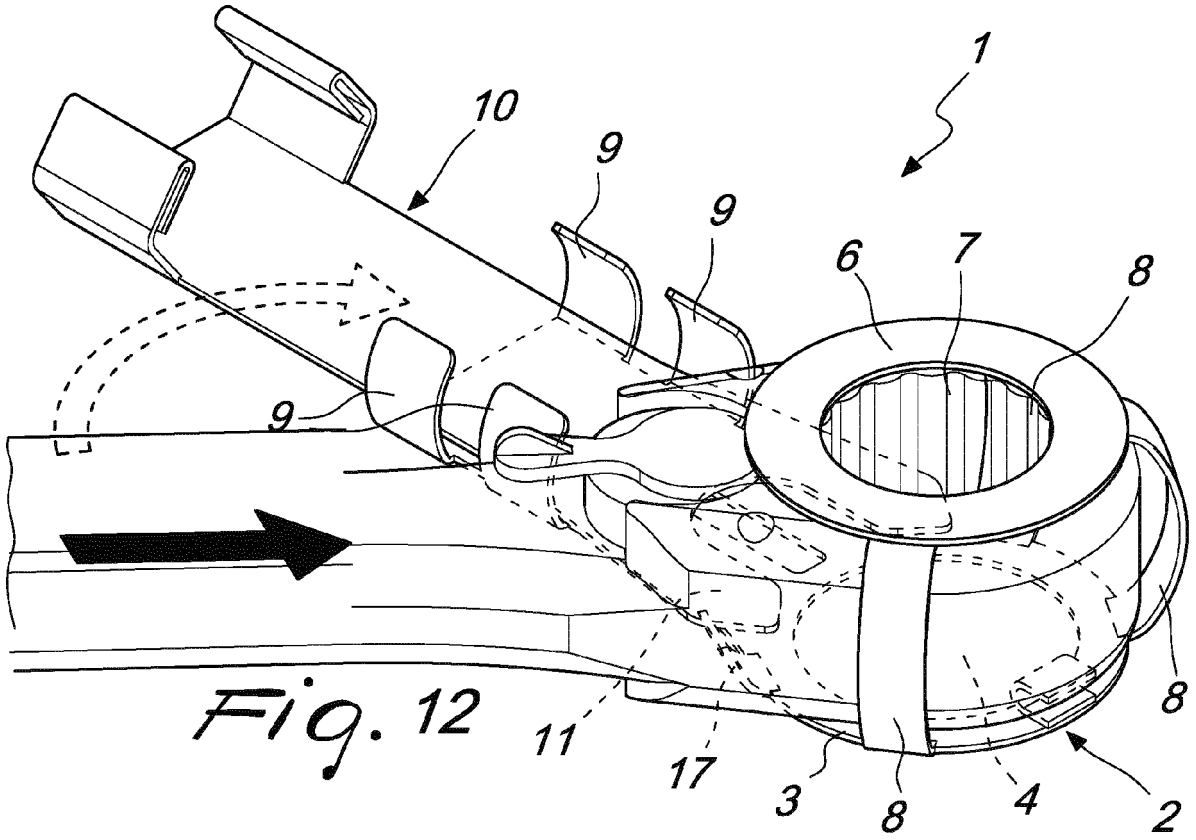

Fig. 12

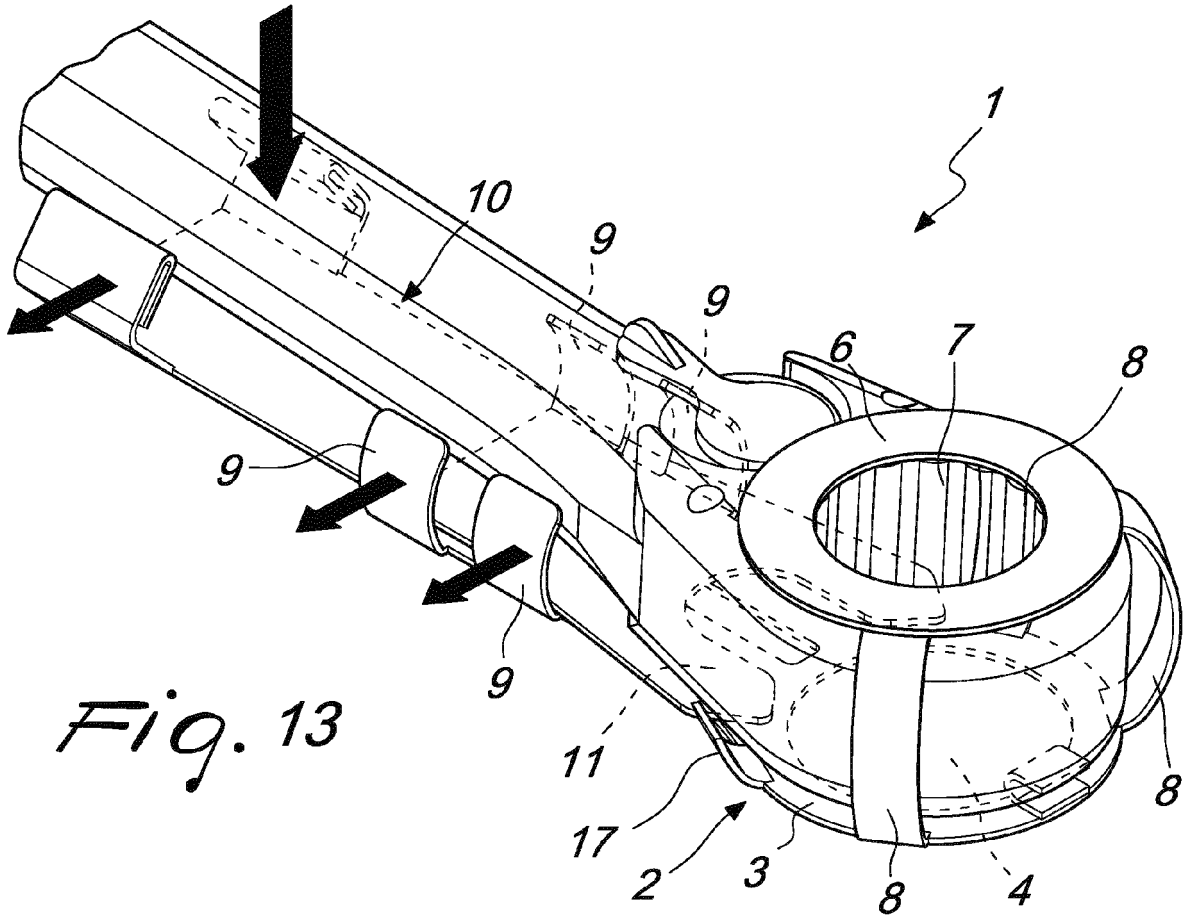

Fig. 13

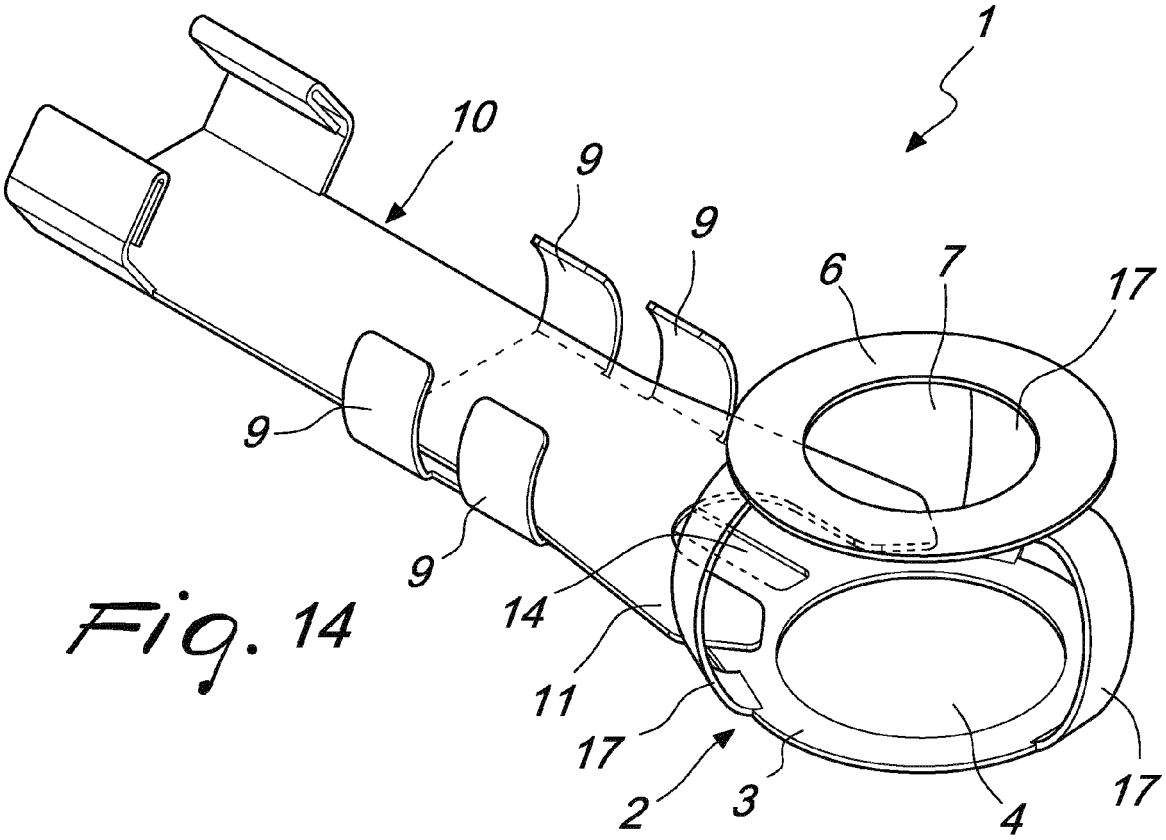

Fig. 14

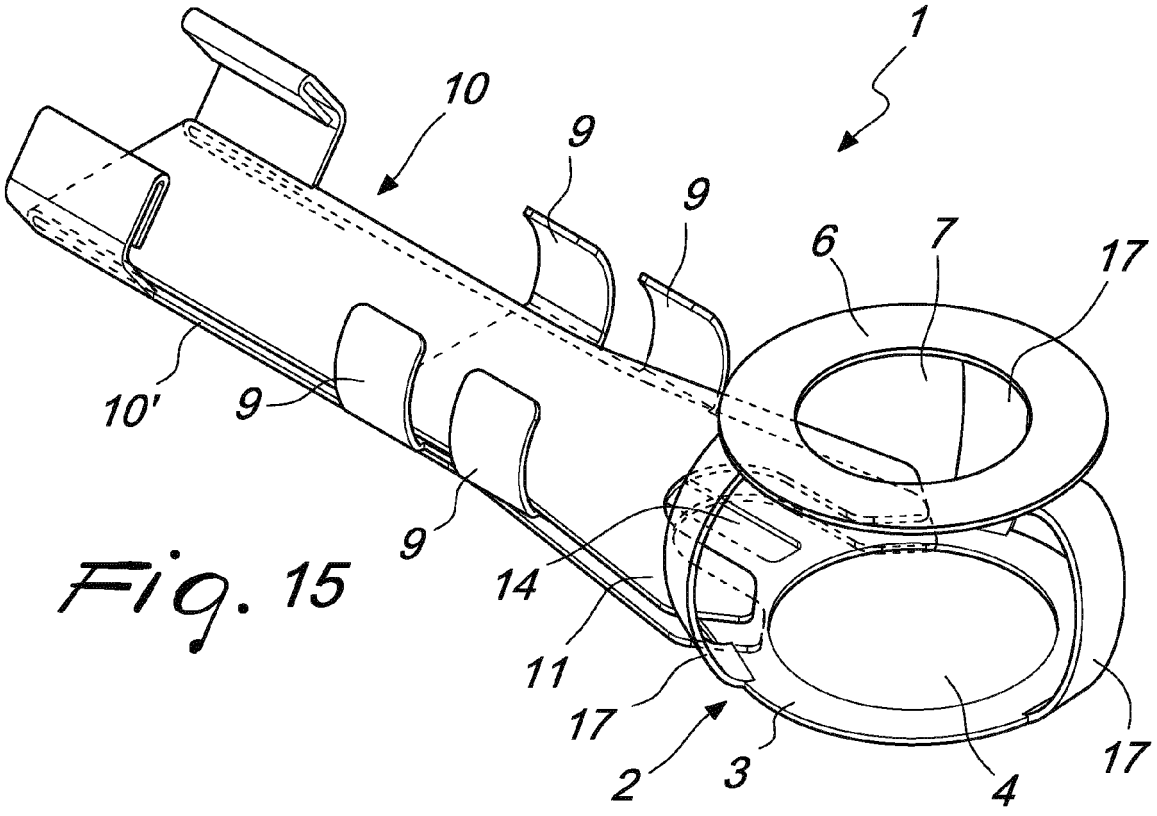

Fig. 15

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EUROPEAN SEARCH REPORT

Application Number
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DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	12 January 2024	Pastramas, Nikolaos

CATEGORY OF CITED DOCUMENTS

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