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(54) **Supporting base for a lever, particularly for sports shoes**

(57) A rotary supporting base (1) for a lever arm (2), particularly for sports shoes, comprising a plate (4) which has an approximately rectangular plan shape and can be associated with a flap of a shoe, two first wings (6a, 6b) protruding from the perimetric longitudinal edges of the plate, approximately at right angles thereto, the wings having a connecting and supporting bridge (7a, 7b) for two second wings (8a, 8b), which are bent and arranged approximately parallel and spaced with respect to the first wings (6a, 6b) so as to form between them two first seats (9a, 9b) for two tabs (10a, 10b) which protrude from one end of a lever arm (2); the first and second wings have first (11a, 11b) and second (12a, 12b) holes which are provided along the same axis so as to constitute second seats for means for the pivoting and support of the lever arm (2).

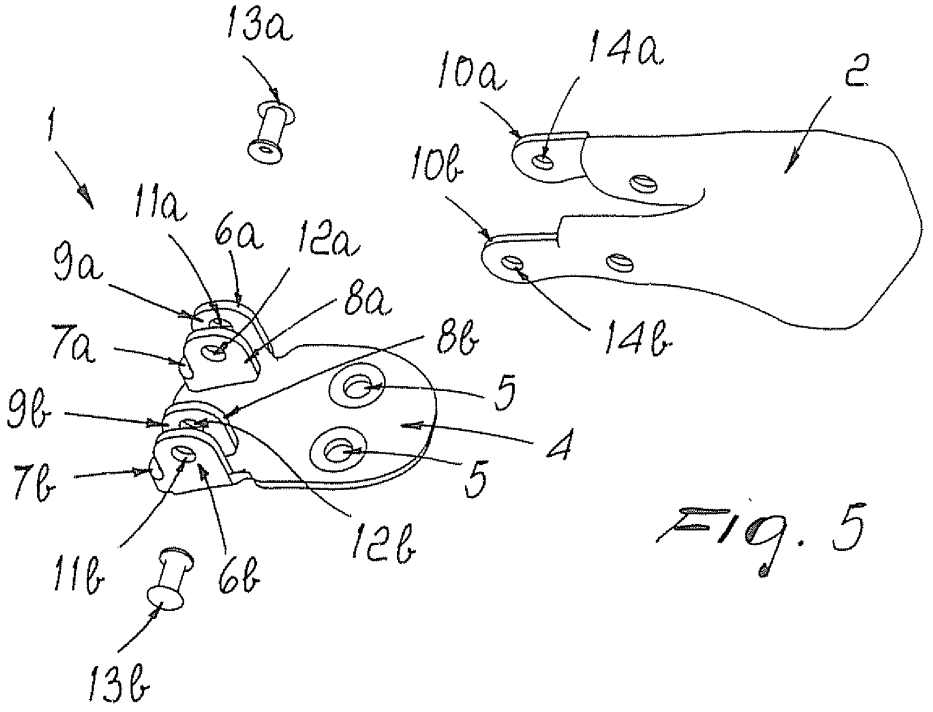

Fig. 5

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Description

[0001] The present invention relates to a supporting base for a lever, particularly for sports shoes.

[0002] Currently, in order to allow the mutual fastening of two flaps of a shoe, such as for example a ski boot or a roller skate or ice skate, it is known to use levers which comprise a base, which can be rigidly coupled to a flap of the shoe and is constituted by a plate which has a substantially rectangular plan shape and has, in a side view, a curved profile which follows the profile of the flap with which it can be associated.

[0003] Two wings protrude from the longitudinal perimetric edges of the plate, approximately at right angles thereto, and two holes are provided in such wings and are suitable for the insertion of appropriately provided rivets which can be inserted in appropriately provided seats or eyes provided on appropriately provided tabs which protrude from a lever arm, so as to rigidly couple rotationally the latter to the wings.

[0004] The lever arm allows to pull a ring element or a grip tooth, the tip of which engages a chosen tooth of a rack which is associated with the other flap to be joined.

[0005] These known types of base, however, suffer a drawback: during the rotation of the lever arm, the wings to which the arm is pivoted are subjected to intense shearing and flexural stresses, and therefore may bend even to the point of breaking.

[0006] Moreover, the lever arm is kept pivoted to the wings by means of rivets, one end of which is upset; due to the intense stresses, particularly flexural stresses, imparted to said upset end during the actuation of the lever arm, the rivet can be torn out of the respective first seat formed in the lever arm, thus disengaging the arm from the base.

[0007] The aim of the present invention is to solve the above-mentioned problems, eliminating the drawbacks of the cited background art, by providing a supporting base for a lever, particularly for sports shoes, which is solid, so that it can withstand effectively the stresses imparted during the actuation of the lever arm or during use of the sports shoe.

[0008] Within this aim, an object of the invention is to provide a supporting base for a lever which ensures optimum stability of the connection of the lever arm to the base.

[0009] Another object is to provide a supporting base for a lever which can also be used in association with ordinary known types of lever arm.

[0010] Another object is to provide a supporting base for a lever which is structurally simple and has low manufacturing costs.

[0011] This aim and these and other objects, which will become better apparent hereinafter, are achieved by a rotary supporting base for a lever arm, particularly for sports shoes, which comprises a plate which has an approximately rectangular plan shape and can be associated with a flap of a shoe, characterized in that two first wings protrude from the perimetric longitudinal edges of said plate, approximately at right angles thereto, said wings having a connecting and supporting bridge for two second wings, which are bent and arranged approximately parallel and spaced with respect to said first wings so as to form between them two first seats for two tabs which protrude from one end of a lever arm, said first and second wings having first and second holes which are provided along the same axis so as to constitute second seats for means for the pivoting and support of said lever arm.

[0012] The method for obtaining said rotary supporting base for a lever arm, particularly for sports shoes, is characterized in that it comprises, even in a different sequence, the following steps:

a) obtaining, starting from a flat sheet, a flat plate which has a substantially rectangular plan shape and from the longitudinal perimetric edges of which two first wings and two second wings, mutually connected by a bridge, protrude;
b) obtaining first and second holes in said first and second wings;
c) bending said bridges so as to arrange said second wings so that they are parallel and spaced with respect to said first wings and so that said first and second holes are axially mutually aligned;
d) bending at 90° said first and second bent wings so as to arrange them at right angles to said plate.

[0013] Further characteristics and advantages of the invention will become better apparent from the following detailed description of a particular but not exclusive embodiment thereof, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a perspective view of a base according to the invention;
Figure 2 is a plan view of the base of Figure 1;
Figure 3 is a side view of the base of Figure 1;
Figure 4 is a rear view of the base of Figure 1;
Figure 5 is an exploded perspective view of the base of Figure 1 and of a lever arm which can be associated therewith;
Figure 6 is a plan view of the base of Figure 1 in a step of its manufacture;
Figure 7 is a side view of a base according to the invention, which supports a lever arm with which a grip tooth fixed to a rack is associated;
Figure 8 is a plan view of the base of Figure 7.

[0014] In the exemplary embodiments that follow, individual characteristics, given in relation to specific examples, may actually be interchanged with other different characteristics that exist in other exemplary embodiments.

[0015] Moreover, it is noted that anything found to be already known during the patenting process is under-

stood not to be claimed and to be the subject of a disclaimer.

[0016] With reference to the figures, the reference numeral 1 generally designates a supporting base for a lever arm 2, particularly for sports shoes, which are not shown in the accompanying figures.

[0017] Such base can be obtained for example by stamping or blanking or laser cutting a flat plate.

[0018] The lever arm 2 allows to pull a ring element or a grip tooth 2a, the tip of which engages a chosen tooth of a rack 3 which is associated with the other flap to be joined, which is also not shown.

[0019] The base 1 comprises a plate 4, which has an approximately rectangular plan shape and can be associated with a flap of a shoe, which is not shown in the accompanying figures; the plate 4 is preferably made of metal.

[0020] Advantageously, on the plate 4 there are means suitable for fixing it to the flap, which are constituted for example by appropriately provided openings or eyes 5 which are suitable for the insertion of appropriately provided screws or rivets, which are not shown in the accompanying figures and can be fixed to the flap.

[0021] Two first wings, designated respectively by the reference numerals 6a and 6b, protrude advantageously from the longitudinal perimetric edges 4a, 4b of the plate 4, approximately at right angles thereto, and have, in a side view, an approximately rectangular shape with rounded upper ends.

[0022] Two bridges, designated by the reference numerals 7a and 7b, protrude from one of the transverse ends of the two first wings 6a, 6b, preferably the one directed toward the rack 3, and blend and support two second wings 8a, 8b, which are preferably approximately similar in shape to the first wings 6a, 6b.

[0023] Advantageously, each bridge 7a, 7b has an approximately U-shaped plan configuration and is blended with a second wing 8a, 8b which has the same shape as the first wing 6a, 6b with which it is associated.

[0024] Advantageously, starting from the condition shown in Figure 6, the second wings 8a, 8b undergo a first bending at approximately 180°, which arranges them approximately parallel and spaced with respect to the contiguous first wings 6a, 6b; this is followed by a second bending at approximately 90° of the first and second wings, which arranges them approximately at right angles to the plate 4, so that two first seats 9a, 9b for two appropriately provided tabs 10a, 10b which protrude from one end of the lever arm 2 are formed respectively between the first wings 6a, 6b and the contiguous second wings 8a, 8b.

[0025] Advantageously, the bridges 7a, 7b are lower than the first and second wings.

[0026] Advantageously, first and second holes, designated respectively by the reference numerals 11a, 11b and 12a, 12b, are provided in the first wings 6a, 6b and in the second wings 8a, 8b respectively, along the same axis, so as to constitute second seats for appropriately provided pivoting and supporting means for the lever arm 2.

[0027] Advantageously, the pivoting and supporting means can be constituted by appropriately provided rivets 13a, 13b, which can be associated with the first and second holes of the first and second wings, and with a third hole or slot 14a, 14b which is formed within the tabs 10a, 10b at the first and second holes.

[0028] As an alternative, such means for pivoting to the lever arm 2 can be constituted by screws, not shown in the accompanying figures, which can be inserted within one of the first or second holes of each pair of a first wing and a second wing which are mutually parallel and spaced, the stem of the screws, which passes within the second or first hole of the contiguous second or first wing, is locked by means of a complementarily threaded nut.

[0029] The use of the invention is therefore as follows. After arranging the tabs 10a, 10b of the lever arm 2 within the seats 9a, 9b of the base 1 and after fixing them rotatably to the first and second wings by way of the appropriate pivoting and supporting means, the base 1, with the lever arm 2 and a grip tooth or ring 2a associated therewith, can be associated with a first flap of a shoe, not shown in the accompanying figures, which corresponds to a second flap, also not shown, to which the rack 3 is conveniently fixed.

[0030] By engaging the grip tooth or ring 2a with the rack 3 and by acting on the lever arm 2, it is possible to pull the grip tooth or ring 2a, thus mutually fastening the first and second flaps of the shoe.

[0031] It has thus been found that the invention has achieved the intended aim and objects, a rotary supporting base for a lever arm particularly for sports shoes having been provided which, thanks to the presence of the first and second wings for supporting the lever arm, is very strong and stable and therefore withstands in an optimum manner the stresses imparted during the actuation of said lever arm and during use of the shoe.

[0032] Further, thanks to the presence of the first and second wings, the rivets or screws which rotatably connect the lever arm to the base are supported at both of their ends, thus reducing the flexural stresses applied thereto and consequently reducing the risk of tearing the lever arm off the base.

[0033] Moreover, the base according to the invention can be used also in combination with ordinary known types of lever arm.

[0034] Further, the production costs of the supporting base according to the invention remain low, since it is provided only by means of components which are easy to manufacture and/or assemble.

[0035] The invention is of course susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0036] The materials used, as well as the dimensions that constitute the individual components of the invention, may of course be more pertinent according to specific requirements.

[0037] The various means for performing certain different functions need not certainly coexist only in the illustrated embodiment but can be present per se in many embodiments, including ones that are not illustrated.

[0038] The characteristics indicated as advantageous, convenient or the like may also be omitted or be replaced with equivalents.

[0039] The disclosures in Italian Patent Application No. TV2006A000209 from which this application claims priority are incorporated herein by reference.

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

Claims

1. A rotary supporting base for a lever arm, particularly for sports shoes, comprising a plate which has an approximately rectangular plan shape and can be associated with a flap of a shoe, **characterized in that** two first wings protrude from the perimetric longitudinal edges of said plate, approximately at right angles thereto, said wings having a connecting and supporting bridge for two second wings, which are bent and arranged approximately parallel and spaced with respect to said first wings so as to form between them two first seats for two tabs which protrude from one end of a lever arm, said first and second wings having first and second holes which are provided along the same axis so as to constitute second seats for means for the pivoting and support of said lever arm.

2. The base according to claim 1, **characterized in that** said first and second wings are approximately similar in shape and said bridges protrude from one of the transverse ends of said first wings and have an approximately U-shaped configuration in plan view.

3. The base according to claim 1, **characterized in that** said bridges are less high than said first and second wings.

4. The base according to one or more of the preceding claims, **characterized in that** said pivoting and supporting means are constituted by appropriately provided rivets, which can be associated with said first and second holes and with a third hole or slot which is formed in said tabs of said lever arm.

5. The base according to one or more of the preceding claims, **characterized in that** said pivoting and supporting means are constituted by screws which can be inserted into one of said first or second holes of each pair of said first and second parallel and mutually spaced wings, the stem of which passes within said second or first hole of said contiguous second or first wing and is locked by means of a complementarily threaded nut.

6. A method for obtaining a rotary supporting base for a lever arm, particularly for sports shoes, **characterized in that** it comprises, even in a different sequence, the following steps:

   a) obtaining, starting from a flat sheet, a plate which has an approximately rectangular plan shape and from the longitudinal perimetric edges of which two first wings and two second wings protrude, said wings being mutually connected by a bridge;
   b) obtaining first and second holes in said first and second wings;
   c) bending said bridges so as to arrange said second wings so that they are parallel and spaced with respect to said first wings and so that said first and second holes are mutually axially aligned;
   c) bending at 90° said first and second bent wings so as to arrange them at right angles to said plate.

7. The method according to claim 6, **characterized in that** said plate is obtained by stamping or blanking or cutting said sheet.

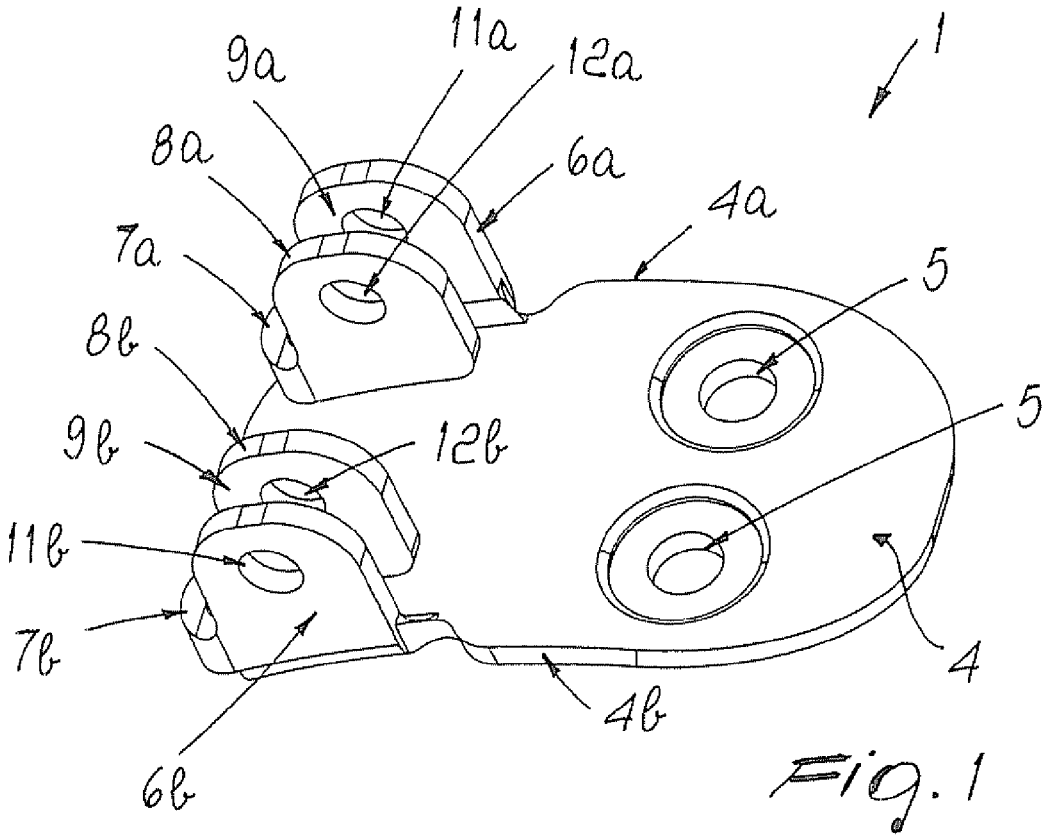
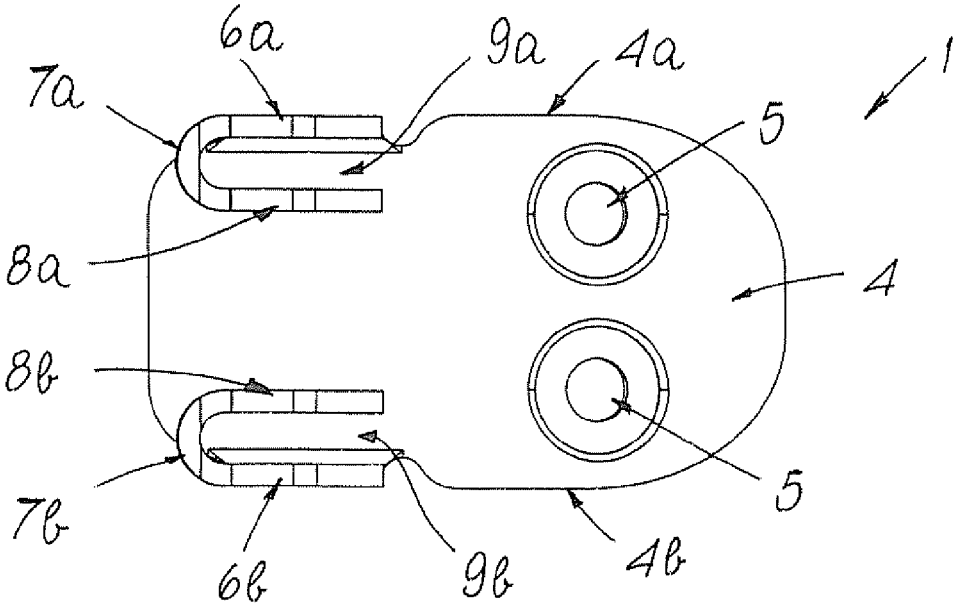

1
9a
11a
12a
8a
6a
4a
7a
5
8b
5
9b
12b
11b
7b
4
4b
6b

Fig. 1


6a
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1
7a
5
8a
4
8b
7b
5
6b
9b
4b

Fig. 2

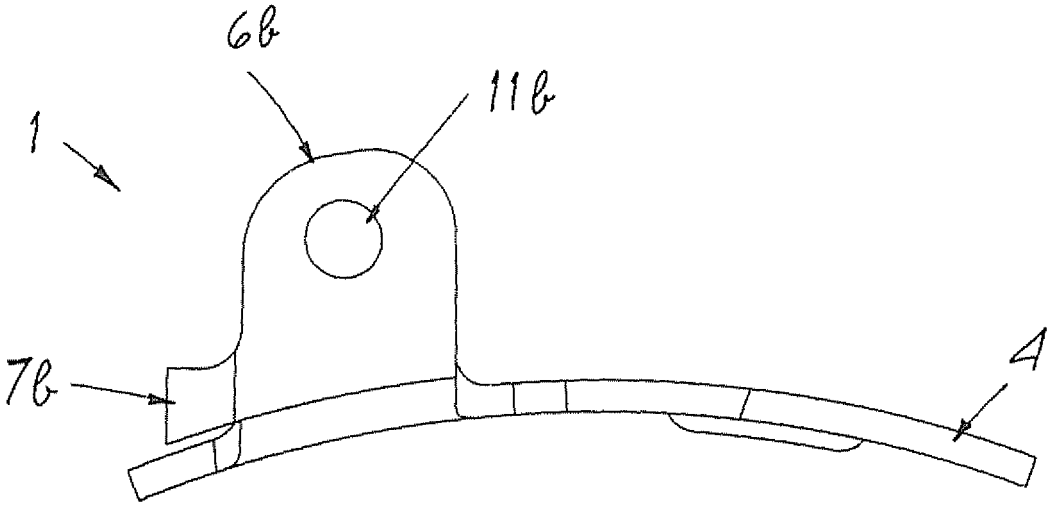

Fig. 3

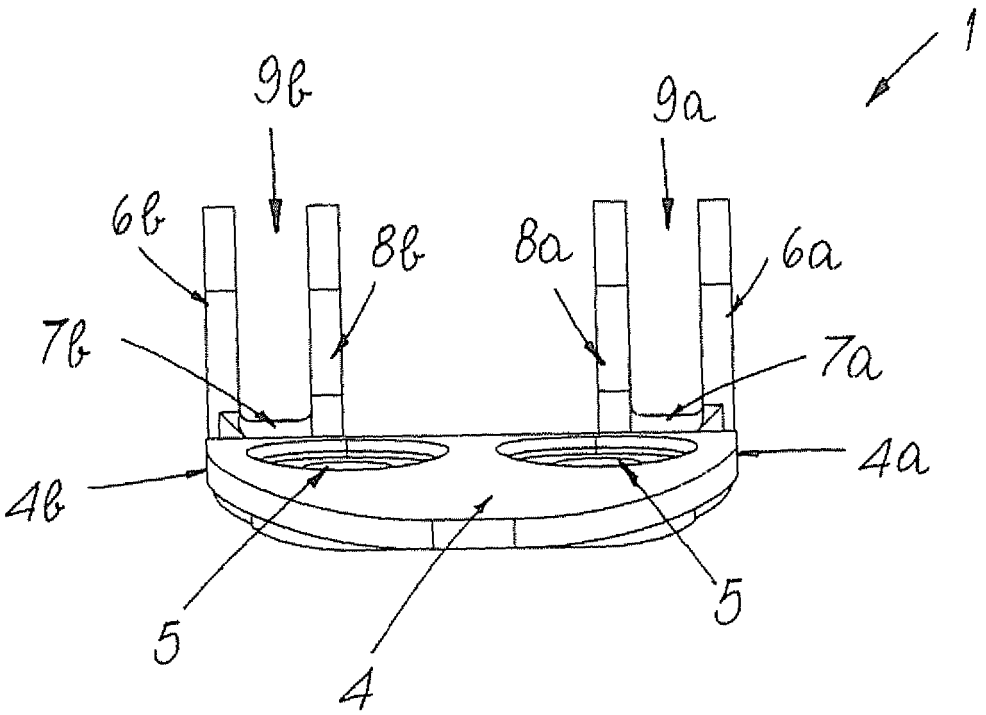

Fig. 4

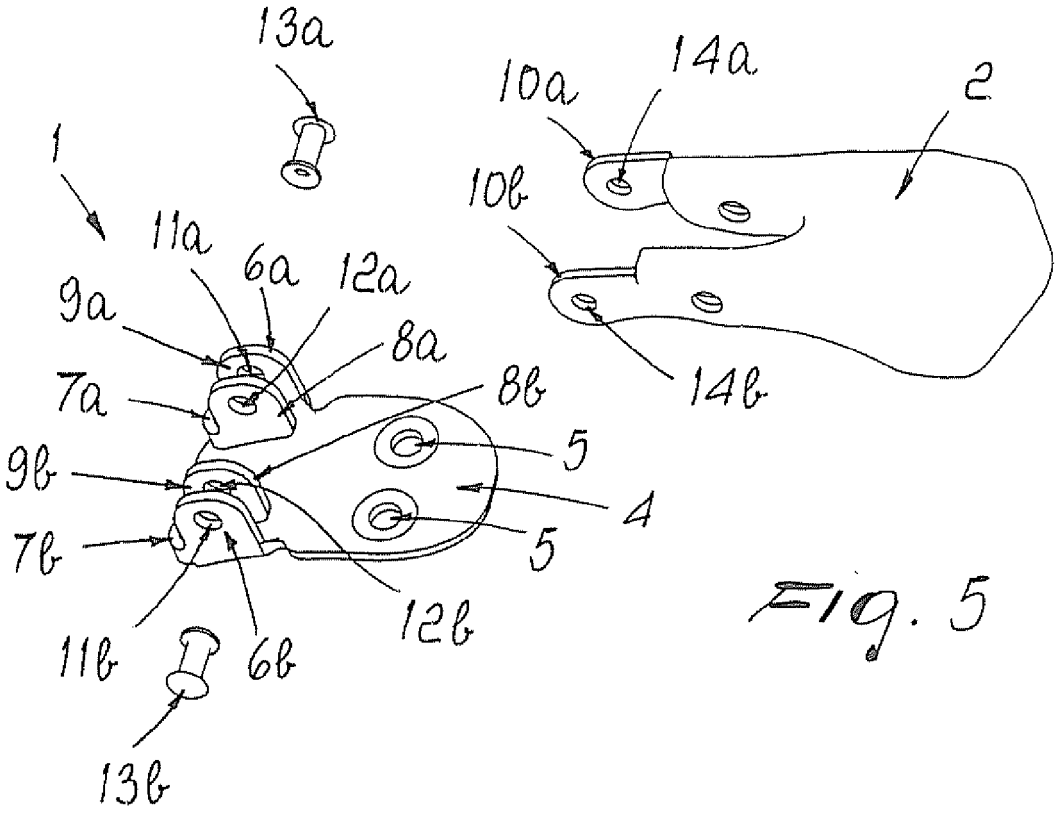
13a
14a
10a
2
1
10b
11a
6a
12a
9a
8a
7a
8b
5
9b
4
7b
5
12b
11b
6b
13b
14b

Fig. 5

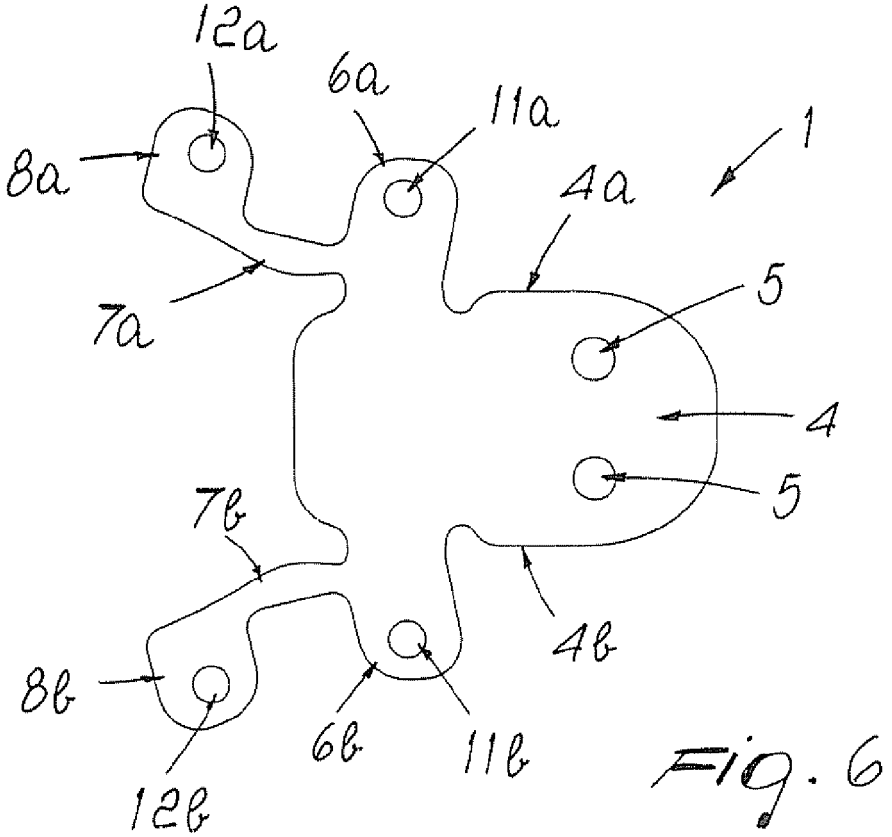
12a
6a
11a
1
8a
4a
7a
5
4
5
7b
4b
8b
6b
11b
12b

Fig. 6

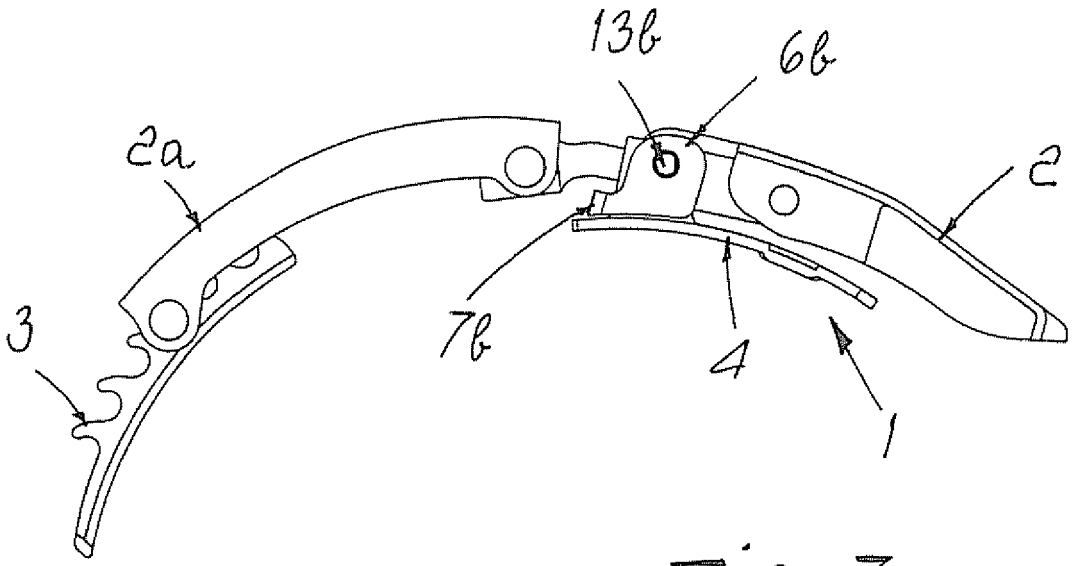

Fig. 7

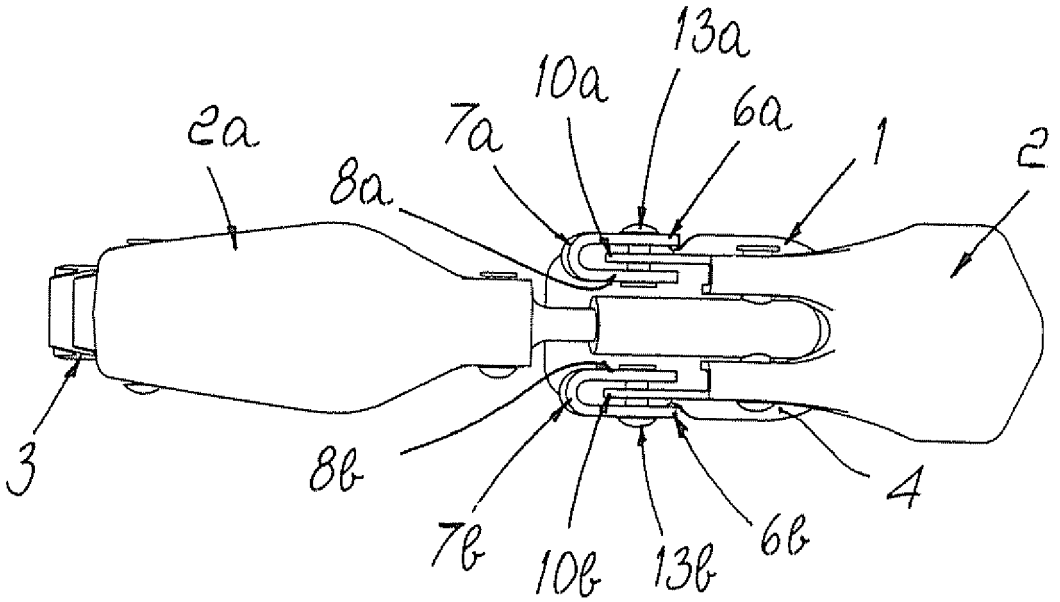

Fig. 8

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EUROPEAN SEARCH REPORT

Application Number
EP 07 11 7894

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TECHNICAL FIELDS SEARCHED (IPC)

A43C
B21D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	28 February 2008	Vesin, Stéphane

CATEGORY OF CITED DOCUMENTS

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