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(54) **A FRONT INSERT FOR A SKI BOOT FOR SKI MOUNTAINEERING, FOR HOOKING THE SKI BOOT TO A SKI BINDING**

(57) The front insert (100) for a ski boot (S) for ski mountaineering, comprises: an anchoring body (1) comprising two heads (10, 20); a first housing (11), realised in the first head (10); a second housing (21), realised in the second head (20); a first contact element (3) comprising a first hole (31); a second contact element (4) comprising a second hole (41).

The first housing (11) and the first contact element (3) are reciprocally realised and conformed in such a way that the first contact element (3) is insertable and positionable in the first housing (11), so that the first hole (31)

is accessible from outside, and so that the first contact element (3) is decouplable and completely extractable from the first housing (11); the second housing (21) and the second contact element (4) are reciprocally realised and conformed in such a way that the second contact element (4) is insertable and positionable in the second housing (21), so that the second hole (41) is accessible from outside, and so that the second contact element (4) is decouplable and completely extractable from the second housing (21).

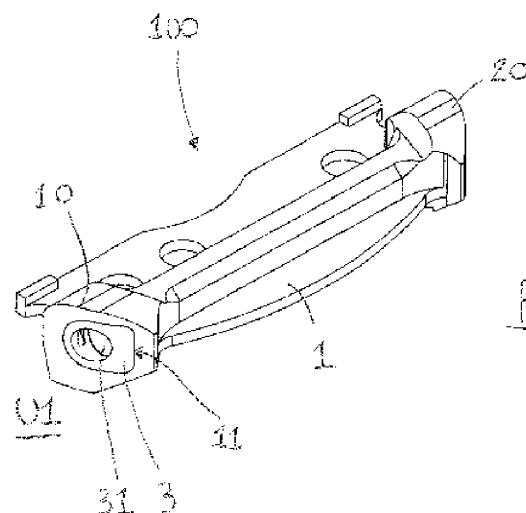


FIG. 2

Description

[0001] The present invention relates to the technical sector concerning equipment used in ski mountaineering.

[0002] In particular, the invention relates to a front insert for a ski boot for ski mountaineering, for enabling the hooking of the ski boot to a ski mountaineering binding, such as a toe-piece of a binding for ski mountaineering.

[0003] A toe-piece of a ski mountaineering binding comprises a base element which is fixed to the ski, and a pair of jaws on which hooking elements, facing one another, are mounted, known by the term "pins", which serve to hook the toe-piece to the front part of a ski boot for ski mountaineering.

[0004] The jaws are mounted rotatably on the base element in such a way as to be movable, owing to the presence of elastic means that are activatable by means of a lever, in order to move the hooking elements (the pins) between a splayed configuration, wherein the hooking elements are moved away from one another by a distance that is such as to enable the insertion between them of a front part of a ski boot for ski mountaineering, and a neared configuration neared hooking configuration wherein the hooking elements are moved towards one another to hook the ski boot.

[0005] The hooking elements of the toe-piece of the binding can thus be moved from the splayed configuration to the neared configuration so that, when placed in the neared hooking configuration, they are in an operating plane that is transversal to the ski and perpendicular to the longitudinal axis of the ski.

[0006] In ski boots for ski mountaineering, in order to enable the hooking of the boots to the ski using the toe-piece of the ski mountaineering binding, special inserts are present, made of metal, such as for example steel, which are inserted and fixed in the front part of the ski boots during the manufacture thereof (for example during the moulding of the ski boot).

[0007] A prior-art front insert (9) for a ski boot for ski mountaineering, such as for example the one illustrated in figure 1, comprises an anchoring body (90), for anchoring and fixing to the front part of a ski boot (not illustrated).

[0008] The anchoring body (90) has an elongate shape and is made in such a way as to comprise two heads (91, 92) at the relative two ends.

[0009] In particular, the anchoring body (90) is made in such a way as to have an extension (length) such that, once it is inserted in the ski boot, the two heads (91, 92) are located at the opposite lateral walls of the front part of the ski boot.

[0010] The known insert (9) also comprises two holes (910) (of which only one is visible in figure 1) which are made in the two heads (91, 92) and which are accessible from outside.

[0011] The two holes (910) are made in such a way that the relative surface (i.e. the walls of the hole) has a

matching shape to that of the hooking elements (i.e. the pins) which are present in the two jaws of the toe-pieces of the ski mountaineering bindings (the pins are not illustrated as they are of known type).

[0012] In this way, when the two jaws of the toe-piece of the binding are activated to move the hooking elements into the neared hooking configuration, the hooking elements (the pins) insert by form coupling in the holes (910), hooking the ski boot to the toe-piece and thus to the ski.

[0013] In substance, the holes (910) have a functional surface in contact with the external surface of the pins, so as to guarantee a reciprocal contact to guarantee the hooking.

[0014] For this purpose, the two holes (910) present in the two heads (91, 92) of the insert (9) mounted in the front part of the ski boot are aligned according to a transversal alignment axis to the ski boot.

[0015] When the ski boot is neared to the ski for hooking, with the front part arranged between the hooking elements of the toe-piece in the splayed configuration, the alignment axis of the holes must be perpendicular to the longitudinal axis of the ski.

[0016] In this way the alignment axis of the holes is located in the operating plane of the hooking elements when placed in the neared hooking configuration: this enables the hooking elements to insert into the holes and carry out the hooking of the ski boot.

[0017] A type of inserts like the above is however not free of drawbacks.

[0018] Between the walls of the hooking elements (the pins) and the walls of the holes, when the toe-piece is hooked to the ski boot, i.e. when the pins are inserted into the holes and the jaws maintained by the elastic means in the neared configuration thereof, a form coupling is established with relative contact forces.

[0019] During skiing, the skis, and therefore the ski boots, are subject to various stresses which can lead to a misalignment between the pins and the holes, i.e. to displacements and dragging of the pins with respect to the walls of the holes, even leading to the unhooking of the toe-piece from the ski boot.

[0020] These displacements and dragging, over time, can cause a deformation of the holes, or at least a deterioration thereof.

[0021] Further, the hooking and unhooking operations of the toe-piece from the ski boot are repeated a very high number of times, i.e. the pins are repeatedly inserted into and extracted from the holes, and this can lead, in the case of a non-perfect alignment, to stresses and blows at the position of the entry to the holes, which can therefore be susceptible to deformations.

[0022] Lastly, when the skier walks with the ski boots on his or her feet, the front part of the ski boot can be subject to blows or impacts, for example when striking a stone, encountering ice, or other objects or obstacles, precisely at the two heads of the insert and thus the entry of the holes, which might therefore be subject to deformations.

[0023] The onset of any deformation or deterioration of the entry of the holes and/or of the walls of the holes in the two heads of the insert can lead to the ineffectiveness of the hooking of the toe-piece to the ski boot: in this case the ski boot will become unusable for skiing, and will have to be replaced with a new ski boot.

[0024] The aim of the present invention is therefore to provide a novel front insert for a ski boot for ski mountaineering, for hooking the ski boot to a ski mountaineering binding, in particular a toe-piece of a ski mountaineering binding, able to obviate the drawbacks set out in the foregoing.

[0025] In particular, the aim of the present invention is to provide a novel front insert for a ski boot for ski mountaineering which can enable the skier to configure and predispose the insert with the holes always perfectly conformed and dimensioned for the coupling and hooking with the hooking elements of a toe-piece of a ski mountaineering binding, and which front does not require an eventual replacement of the ski boot.

[0026] The above aims are attained according to the claims.

[0027] The features of preferred, but not exclusive, embodiments of the front insert for a ski boot for ski mountaineering of the present invention will be described in the following with reference to the appended tables of drawings, in which:

- figure 1, already mentioned in the foregoing, illustrates, in a schematic perspective view, a prior-art front insert for a ski boot for ski mountaineering;
- figure 2 is a schematic perspective view of the front insert for a ski boot for ski mountaineering of the present invention, in a preferred but not exclusive embodiment;
- figure 3A illustrates, in a schematic perspective view, the front insert of the invention inserted in the front part of a ski boot for ski mountaineering (illustrated only in part), and arranged in a first configuration of use;
- figure 3B illustrates, again in a schematic perspective view, the front insert of the invention, in a second configuration of non-use and maintenance;
- figure 4A is a section view according to a longitudinal plane of the front insert of figure 2, in the first configuration of use;
- figures 4B, 4D and 4F illustrate, in respective schematic views in perspective, the front insert of the invention of figure 2, in a possible sequence which illustrates the steps of transition from the first configuration of use to the second configuration of non-use and maintenance;

- figures 4C, 4E and 4G illustrate respective section views along a longitudinal plane of the front insert in the positions illustrated in figures 4B, 4D and 4F;

- figure 5A illustrates in a longitudinal section view, the front insert of the invention in a possible further embodiment, and in the first configuration of use;

- figures 5B and 5C illustrate, in respective schematic views in section along the same longitudinal plane, the front insert of the invention of figure 5A, in a possible sequence which illustrates the steps of transition from the first configuration of use to the second configuration of non-use and maintenance;

- figure 6A illustrates the front insert of the invention in a schematic perspective view and in a possible further embodiment, and in the first configuration of use;

- figures 6B and 6C illustrate, in respective schematic views in perspective, the front insert of figure 6A, in a possible sequence which illustrates the steps of transition from the first configuration of use to the second configuration of non-use and maintenance;

- figures from 6D to 6F illustrate section views along a longitudinal section plane respectively of figures from 6A to 6C;

- figure 7A illustrates the front insert of the invention in a schematic perspective view and in a possible other and further embodiment, and in the first configuration of use;

- figure 7B is the section view of the insert of figure 7A along a longitudinal section plane;

- figures 7C and 7D illustrate, in respective schematic views in perspective, the front insert of figure 7A, in a possible sequence which illustrates the steps of transition from the first configuration of use to the second configuration of non-use and maintenance.

[0028] With reference to the accompanying tables of drawings, reference numeral (100) denotes the front insert for the ski boot (S) for ski mountaineering of the present invention, in its entirety and in the preferred but not exclusive embodiments thereof.

[0029] The front insert (100) comprises an anchoring body (1) comprising two heads (10, 20) (see for example figure 2) and having dimensions such that the two heads (10, 20), when the insert (100) is fixed to the ski boot (S) for ski mountaineering, are positioned at lateral portions of the front part (AS) of the ski boot (S) (see for example figure 3A in which the ski boot (S) for ski mountaineering is only partly illustrated, in the front part (AS) in which the insert of the invention is present).

[0030] The special characteristics of the front insert (100) of the invention, common to all the various possible embodiments, consist in the fact that it comprises:

a first housing (11), realised in the first head (10);

a second housing (21), realised in the second head (20);

a first contact element (3) comprising a first hole (31);

a second contact element (4) comprising a second hole (41).

[0031] In greater detail, the front insert (100) is such that:

the first housing (11) and the first contact element (3) are reciprocally realised and conformed in such a way that the first contact element (3) is insertable and positionable in the first housing (11), so that the first hole (31) is accessible from outside, and so that the first contact element (3) is decouplable and completely extractable from the first housing (11);

the second housing (21) and the second contact element (4) are reciprocally realised and conformed in such a way that the second contact element (4) is insertable and positionable in the second housing (21), so that the second hole (41) is accessible from outside, and so that the second contact element (4) is decouplable and completely extractable from the second housing (21).

[0032] Thus, in this way, the insert (100) can assume a first configuration of use (U1), when the first contact element (3) is inserted and positioned in the first housing (11) and the second contact element (4) is inserted and positioned in the second housing (21) (see for example figure 3A), and a second configuration of non-use and maintenance (U2), when at least one or both of the first contact element (3) and the second contact element (4) is decoupled and completely extracted from the relative first housing (11) or second housing (21) (see for example figure 3B, which illustrates the situation in which the first contact element (3) has been decoupled and completely extracted from the first housing (11) or figures 5C, 6C or 7D in which both the contact elements have been decoupled and extracted from the relative housings).

[0033] The front insert (100) of the invention is thus realised and configured in such a way that, when the first contact element (3) is inserted and positioned in the first housing (11) and the second contact element (4) is inserted and positioned in the second housing (21), the first hole (31) of the first contact element (3) and the second hole (41) of the second contact element (4) are aligned to one another along an alignment plane which is transversal and perpendicular to the longitudinal axis

of the ski, when the ski boot is rested on the ski, with the front part inserted between a first hooking element and a second hooking element, splayed with respect to one another, of a toe-piece of a ski mountaineering binding fixed to the ski.

[0034] In this way, when the first hooking element and the second hooking element of the toe-piece of the ski mountaineering binding are moved into the neared hooking position thereof, the first hooking element will be able to insert in the first hole, and the second hooking element will be able to insert in the second hole.

[0035] In the accompanying figures of the drawings, the hooking elements of the toe-piece of a ski mountaineering binding have not been illustrated as they are known to the expert in the sector and are not part of the present invention.

[0036] Owing to the special characteristics of the front insert of the invention, as described above, when required the skier will be able to uncouple and extract, from the relative housing, the contact element for which the relative hole has deteriorated, has been deformed or has become worn, and replace it with a new contact element, having a perfectly pristine hole, which will then be inserted and positioned in the housing.

[0037] This operation can be repeated each time a hole of one of the contact elements shows signs of deterioration, deformation or wear.

[0038] The skier will thus have available a ski boot that always has a front insert perfectly suitable to allow an optimal hooking of the ski boot to a ski mountaineering binding, such as a toe-piece of a ski mountaineering binding.

[0039] In practice, when required, by replacing the contact element having a deteriorated, deformed or worn hole, with another contact element having a perfectly pristine hole, the skier will restore, in the insert of the ski boot, the optimal conditions for hooking thereof to the toe-piece of the ski mountaineering binding, without having recourse to the replacement of the whole ski boot with a new ski boot.

[0040] The skier will therefore be able to buy a ski boot in which the front insert of the invention is present, as well as contact elements with relative holes to be used, when required, as replacement parts of the original contact elements when one or both thereof have the relative hole in a deteriorated, deformed or worn state.

[0041] Further and other special aspects of the front insert (100) of the invention, which might be present in the possible various embodiments, are the following.

[0042] The front insert (100) can comprise removable positioning and blocking means (5) of the first contact element (3) and the second contact element (4).

[0043] The removable positioning and blocking means (5) are conformed and configured in such a way as to removably maintain the first contact element (3) in the first housing (11), when the first contact element (3) is inserted and positioned in the first housing (11), and to enable a decoupling and a complete extraction of the first

contact element (3) from the first housing (11) following an application of a force on the first contact element (3), and also to be able to retain, removably, the second contact element (4) in the second housing (21), when the second contact element (4) is inserted and positioned in the second housing (21), and to enable a decoupling and a complete extraction of the second contact element (4) from the second housing (21) following an application of a force on the second contact element (4).

[0044] The front insert (100) can further and in particular comprise a first recess (311) realised in the wall (310) of the first hole (31) and a second recess (411) realised in the wall (410) of the second hole (41).

[0045] The force to be exerted on the first contact element (3) and the second contact element (4) to disengage and decouple them from the removable retaining and blocking means (50) can for example be a traction force, which is applied using a hooked element (not illustrated) which can be inserted in the first recess (311) or in the second recess (411).

[0046] Alternatively, the traction force can be exerted by applying a magnetic force attraction on the first contact element (3) and the second contact element (4), or possibly also in other equivalent ways.

[0047] In other preferred aspects, the first contact element (3) can be conformed in such a way as to comprise a head (300), in which the first hole (31) is realised, with the first housing (11) which is conformed in such a way as to comprise a first external housing seat (11A) delimited by walls having a shape such as to be able to receive, by form coupling, the head (300) of the first contact element (3) and preferably to define an anti-rotational coupling so as to prevent a rotation of the first contact element (3) with respect to the first housing (11).

[0048] Correspondingly, the second contact element (4) is conformed in such a way as to comprise a head (400) in which the second hole (41) is realised, with the second housing (21) being conformed in such a way as to comprise a first external housing seat (21A) delimited by walls having a shape such as to be able to receive, by form coupling, the head (400) of the second contact element (4) and preferably to define an anti-rotational coupling so as to prevent a rotation of the second contact element (4) with respect to the second housing (21).

[0049] In the various illustrated embodiments, the first contact element (3) can be realised in such a way as to comprise a tang (301) internal of the head (300), with the first housing (11) in this case comprising a second internal housing seat (11B) having a shape such as to be able to receive, by form coupling, the tang (301) of the first contact element (3).

[0050] Correspondingly, the second contact element (4) can be realised in such a way as to comprise a tang (401) internal of the head (400), with the second housing (21) comprising a second internal housing seat (21B) having a shape such as to be able to receive, by form coupling, the tang (401) of the second contact element (4).

[0051] In the preferred embodiment illustrated in figures from 4A to 4G, the removable positioning and blocking means (5) can be made in such a way as to comprise elastic means (50) (for example a traction spring) which are positioned in a seat (55) realised in the anchoring body (1) and communicating with the first housing (11) and the second housing (21).

[0052] The elastic means (50) further comprise removable hooking elements (51) for hooking with the first contact element (3) and the second contact element (4) and are configured in such a way as to maintain the first contact element (3) in the first housing (11) and retain the second contact element (4) in the second housing (21).

[0053] The elastic means (50) are also configured so as to enable extraction of the first contact element (3) from the first housing (11) following application of a traction force on the first contact element (3) up to a position wherein the first contact element (3) is completely extracted and decoupled from the first housing (11) and the removable hooking element (51) is accessible from outside (see for example figures 4E and 4F) so that it can be disengaged from the first contact element (3), and so as to enable extraction of the second contact element (4) from the second housing (21) following an application of a traction force on the second contact element (4), up to a position in which the second contact element (4) is completely extracted and decoupled from the second housing (21) and the removable hooking element (51) is accessible from outside so that it can be disengaged from the second contact element (4).

[0054] For example, the removable hooking elements (51) can be made in such a way as to comprise a first hook (53) and a second hook (54), and wherein the first contact element (3) is conformed in such a way as to comprise (for example in the relative tang (301)) a through-hole (302) for inserting the first hook (53) and wherein the second contact element (4) is conformed in such a way as to comprise (for example in the relative tang (401)) a through-hole (402) for inserting the second hook (54).

[0055] In the preferred embodiment illustrated in figures from 5A to 5C, the removable positioning and blocking means (5) can be made in such a way as to comprise magnetic means (60) (for example constituted by permanent magnets) which are positioned in a seat (65) realised in the anchoring body (1) and communicating with the first housing (11) and the second housing (21).

[0056] The magnetic means (60) are configured in such a way as to provide a magnetic force attraction on the first contact element (3), when inserted in the first housing (11), so as to retain the first contact element in the first housing (11), and to enable extraction of the first contact element (3) from the first housing (11) when on the first contact element (3) a traction force is exerted that is greater than the magnetic force attraction.

[0057] Correspondingly, the magnetic means (60) are such as to provide a magnetic force attraction on the second contact element (4), when inserted in the second

housing (21), to retain the second contact element (4) in the second housing (21), and also to allow extraction of the second contact element (4) from the second housing (21) when on the second contact element (4) a traction force is exerted that is greater than the magnetic force attraction.

[0058] In the preferred embodiment illustrated in figures from 6A to 6F, the removable positioning and blocking means (5) can be realised in such a way as to comprise a first thread (71) realised in the first contact element (3) and a second thread (72) realised in the walls of the first housing (11) and complementary to the first thread (71), and also a third thread (73) realised in the second contact element (4) and a fourth thread (74) realised in the walls of the second housing (21) and complementary to the third thread (73).

[0059] In this way, the first contact element (3) can be inserted in the first housing (11) by screwing and extracted and decoupled from the first housing (11) by unscrewing, and the second contact element (4) can be inserted in the second housing (21) by screwing, and extracted and decoupled from the second housing (21) by unscrewing.

[0060] Figures from 7A to 7D illustrate a further possible embodiment.

[0061] In this embodiment, the removable positioning and blocking means (5) can be realised in such a way as to comprise a first screw (81) and a first screw seat (82) realised in a first head (10) of the anchoring body (1) and parallel to the first housing (11), and a second screw (85) and a second screw seat (86) realised in a second head (20) of the anchoring body (1) and parallel to the second housing (21).

[0062] The first screw (81), once the first contact element (3) has been inserted and positioned in the first housing (11), is screwable into the first screw seat (82) in such a way that the head of the first screw (81) abuts against the first contact element (3) maintaining the first contact element (3) positioned in the first housing (11), and the first screw (81) is unscrewable from the first screw seat (82) to enable a complete extraction of the first contact element (3) from the first housing (11).

[0063] The second screw (85), once the second contact element (4) is inserted and positioned in the second housing (21), is screwable into the second screw seat (86) in such a way that the head of the second screw (85) abuts against the second contact element (4) maintaining the second contact element (4) positioned in the second housing (21), and wherein the second screw (85) is unscrewable from the second screw seat (86) to enable a complete extraction of the second contact element (4) from the second housing (21).

[0064] The removable positioning and blocking means (5) for the first contact element and the second contact element can also be realised in other equivalent ways, not described and illustrated, but in any case falling within the scope of protection of the present invention.

[0065] The present invention also relates to a ski boot

(S) for ski mountaineering comprising a front insert, for hooking the ski boot (S) to a toe-piece of a ski mountaineering binding (A), wherein the front insert is realised according to the front insert (100) of the present invention and previously described.

[0066] Further, the present invention also relates to a kit for ski mountaineering.

[0067] The kit for ski mountaineering comprises:

a ski boot (S) for ski mountaineering comprising a front insert, for hooking the ski boot (S) to a toe-piece of a ski mountaineering binding (A), wherein the front insert is realised according to the front insert (100) of the present invention and previously described;

at least a replacement contact element, having a hole, realised and conformed in such a way as to be insertable and positionable equally in the first housing (11) or in the second housing (21) of the front insert (100), following the decoupling and complete extraction of the first contact element (3) from the first housing (11) or of the second contact element (4) from the second housing (21), so that the relative hole is accessible from outside, and so as to be in turn decouplable and completely extractable from the first housing (11) or from the second housing (21).

Claims

1. A front insert (100) for a ski boot (S) for ski mountaineering, comprising:

an anchoring body (1) comprising two heads (10, 20) and having dimensions such that the two heads (10, 20), when the insert (100) is fixed to the ski boot (S), are positioned at lateral portions of the front part (AS) of the ski boot (S);
characterised in that it comprises:

a first housing (11), realised in the first head (10);

a second housing (21), realised in the second head (20);

a first contact element (3) comprising a first hole (31);

a second contact element (4) comprising a second hole (41);

the first housing (11) and the first contact element (3) are reciprocally realised and conformed in such a way that the first contact element (3) is insertable and positionable in the first housing (11), so that the first hole (31) is accessible from outside, and so that the first contact element (3) is decouplable and completely extractable from the first housing (11);

- the second housing (21) and the second contact element (4) are reciprocally realised and conformed in such a way that the second contact element (4) is insertable and positionable in the second housing (21), so that the second hole (41) is accessible from outside, and so that the second contact element (4) is decouplable and completely extractable from the second housing (21); wherein the insert (100) can thus assume a first configuration of use (U1), when the first contact element (3) is inserted and positioned in the first housing (11) and the second contact element (4) is inserted and positioned in the second housing (21), and a second configuration of non-use and maintenance (U2), when at least one between the first contact element (3) and the second contact element (4) is decoupled and completely extracted from the relative first housing (11) or second housing (21).
2. The front insert (100) of claim 1, comprising removable positioning and blocking means (5) of the first contact element (3) and the second contact element (4), the removable positioning and blocking means (5) being conformed and configured in such a way as to removably maintain the first contact element (3) in the first housing (11), when the first contact element (3) is inserted and positioned in the first housing (11), and to enable a decoupling and a complete extraction of the first contact element (3) from the first housing (11) following an application of a force on the first contact element (3), and also to be able to retain, removably, the second contact element (4) in the second housing (21), when the second contact element (4) is inserted and positioned in the second housing (21), and to enable a decoupling and a complete extraction of the second contact element (4) from the second housing (21) following an application of a force on the second contact element (4).
 3. The front insert (100) of any one of the preceding claims, comprising a first recess (311) realised in the wall (310) of the first hole (31) and a second recess (411) realised in the wall (410) of the second hole (41).
 4. The front insert (100) of any one of the preceding claims, wherein:

the first contact element (3) is conformed in such a way as to comprise a head (300), in which the first hole (31) is realised,

the first housing (11) is conformed in such a way as to comprise a first external housing seat (11A) delimited by walls having a shape such as to be able to receive, by form coupling, the head (300) of the first contact element (3) and to define an anti-rotational coupling so as to prevent a rotation of the first contact element (3) with respect to the first housing (11),

the second contact element (4) is conformed in such a way as to comprise a head (400) in which the second hole (41) is realised,

the second housing (21) is conformed in such a way as to comprise a first external housing seat (21A) delimited by walls having a shape such as to be able to receive, by form coupling, the head (400) of the second contact element (4) and to define an anti-rotational coupling so as to prevent a rotation of the second contact element (4) with respect to the second housing (21).
 5. The front insert (100) of claim 4, wherein:

the first contact element (3) comprises a tang (301) internal of the head (300);

the first housing (11) comprises a second internal housing seat (11B) having a shape such as to be able to receive, by form coupling, the tang (301) of the first contact element (3),

the second contact element (4) comprises a tang (401) internal of the head (400),

the second housing (21) comprises a second internal housing seat (21B) having a shape such as to be able to receive, by form coupling, the tang (401) of the second contact element (4).
 6. The front insert (100) of any one of the preceding claims from 2 to 5, wherein the removable positioning and blocking means (5) comprise elastic means (50) which are positioned in a seat (55) realised in the anchoring body (1) and communicating with the first housing (11) and the second housing (21), wherein the elastic means (50) comprise removable hooking elements (51) for hooking with the first contact element (3) and the second contact element (4) and are configured so as to maintain the first contact element (3) in the first housing (11) and retain the second contact element (4) in the second housing (21) and are further configured so as to enable extraction of the first contact element (3) from the first housing (11) following application of a traction force on the first contact element (3) up to a position wherein the first contact element (3) is completely extracted and decoupled from the first housing (11) and the removable hooking element (51) is accessible from outside so that it can be disengaged from the first contact element (3), and so as to enable extraction of the second contact element (4) from the second housing (21) following an application of a traction force on the second contact element (4) up to a position in which the second contact element (4) is completely extracted and decoupled from the second housing

(21) and the removable hooking element (51) is accessible from outside so that it can be disengaged from the second contact element (4).

7. The front insert (100) of claim 6, wherein the removable hooking elements (51) comprise a first hook (53) and a second hook (54), and wherein the first contact element (3) is conformed in such a way as to comprise a through-hole (302) for inserting the first hook (53) and wherein the second contact element (4) is conformed in such a way as to comprise a through-hole (402) for inserting the second hook (54). 5
8. The front insert (100) of any one of the preceding claims from 2 to 5, wherein the removable positioning and blocking means (5) comprise magnetic means (60) which are positioned in a seat (65) realised in the anchoring body (1) and communicating with the first housing (11) and the second housing (21), the magnetic means (60) being configured in such a way as to provide a magnetic force attraction on the first contact element (3), when inserted in the first housing (11), so as to retain the first contact element in the first housing (11), and to enable extraction of the first contact element (3) from the first housing (11) when on the first contact element (3) a traction force is exerted that is greater than the magnetic force attraction, and in such a way as to provide a magnetic force attraction on the second contact element (4), when inserted in the second housing (21), to retain the second contact element (4) in the second housing (21), and also to allow extraction of the second contact element (4) from the second housing (21) when on the second contact element (4) a traction force is exerted that is greater than the magnetic force attraction. 10 15 20 25 30 35
9. The front insert (100) of any one of the preceding claims from 2 to 5, wherein the removable positioning and blocking means (5) comprise a first thread (71) realised in the first contact element (3) and a second thread (72) realised in the walls of the first housing (11) and complementary to the first thread (71) in such a way that the first contact element (3) can be inserted in the first housing (11) by screwing and extracted and decoupled from the first housing (11) by unscrewing, and wherein the removable positioning and blocking means (5) comprise a third thread (73) realised in the second contact element (4) and a fourth thread (74) realised in the walls of the second housing (21) and complementary to the third thread (73) in such a way that the second contact element (4) can be inserted in the second housing (21) by screwing and extracted and decoupled from the second housing (21) by unscrewing. 40 45 50 55
10. The front insert (100) of any one of the preceding claims from 2 to 5, wherein the removable positioning

and blocking means (5) comprise a first screw (81) and a first screw seat (82) realised in a first head (10) of the anchoring body (1) and parallel to the first housing (11), wherein the first screw (81), once the first contact element (3) is inserted and positioned in the first housing (11), is screwable into the first screw seat (82) in such a way that the head of the first screw (81) abuts against the first contact element (3), maintaining the first contact element (3) positioned in the first housing (11), and wherein the first screw (81) is unscrewable from the first screw seat (82) to enable a complete extraction of the first contact element (3) from the first housing (11), the removable positioning and blocking means (5) further comprising a second screw (85) and a second screw seat (86) realised in a second head (20) of the anchoring body (1) and parallel to the second housing (21), wherein the second screw (85), once the second contact element (4) is inserted and positioned in the second housing (21), is screwable into the second screw seat (86) in such a way that the head of the second screw (85) abuts against the second contact element (4) maintaining the second contact element (4) positioned in the second housing (21), and wherein the second screw (85) is unscrewable from the second screw seat (86) to enable a complete extraction of the second contact element (4) from the second housing (21).

11. A ski boot (S) for ski mountaineering comprising a front insert, for hooking the ski boot (S) to a toe-piece of a ski mountaineering binding, wherein the front insert (100) is realised according to the front insert of any one of the preceding claims from 1 to 10. 30 35

12. A kit for ski mountaineering, comprising:

a ski boot (S) for ski mountaineering comprising a front insert, for hooking the ski boot (S) to a toe-piece of a ski mountaineering binding (A), wherein the front insert is realised as according to the front insert (100) of any one of the preceding claims from 1 to 10;

at least a replacement contact element, having a hole, realised and conformed in such a way as to be insertable and positionable equally in the first housing (11) or in the second housing (21) of the front insert (100), following the decoupling and complete extraction of the first contact element (3) from the first housing (11) or of the second contact element (4) from the second housing (21), so that the relative hole is accessible from outside, and so as to be in turn decouplable and completely extractable from the first housing (11) or from the second housing (21).

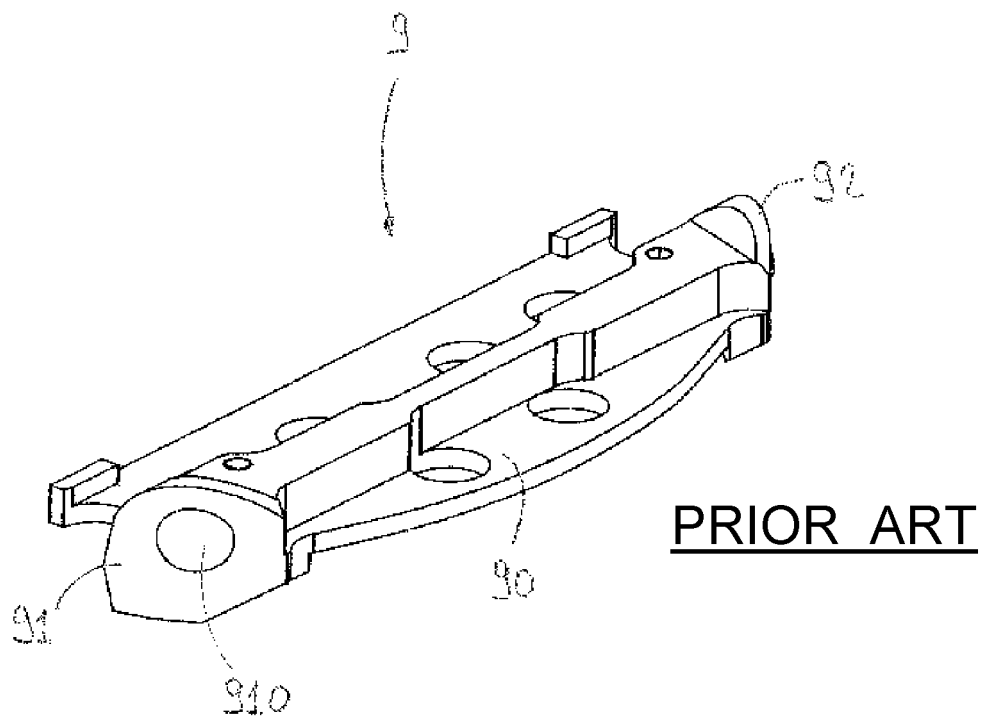


FIG. 1

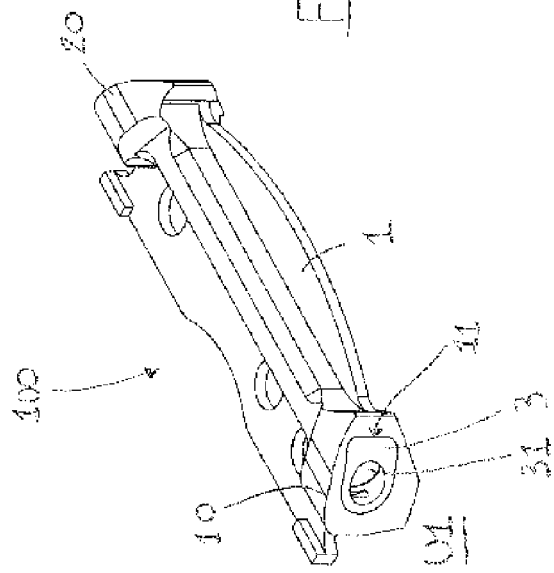


FIG. 2

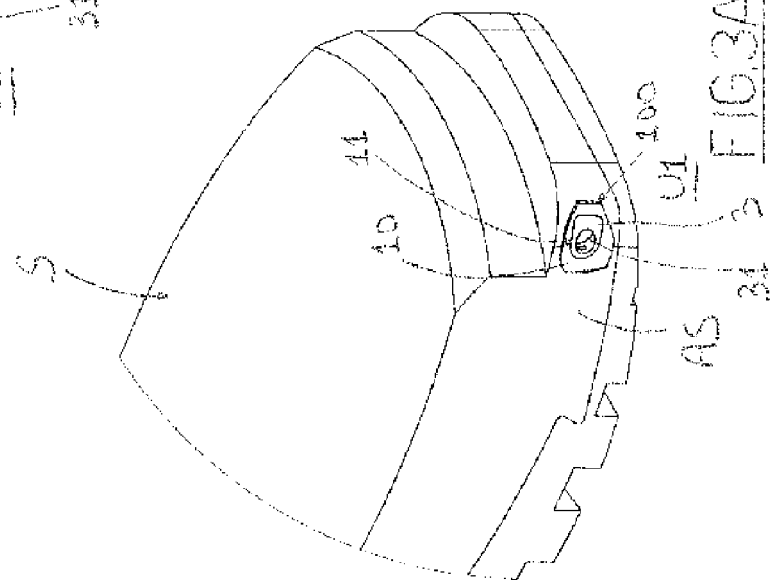


FIG. 3A

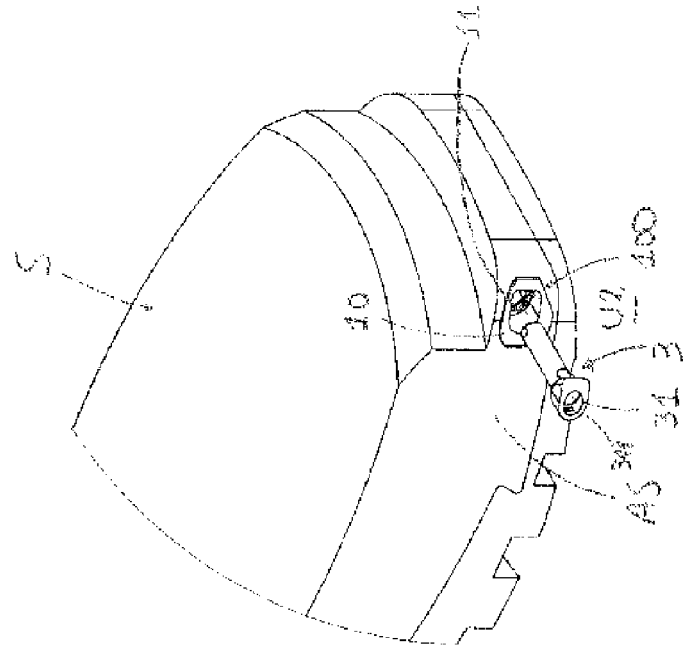
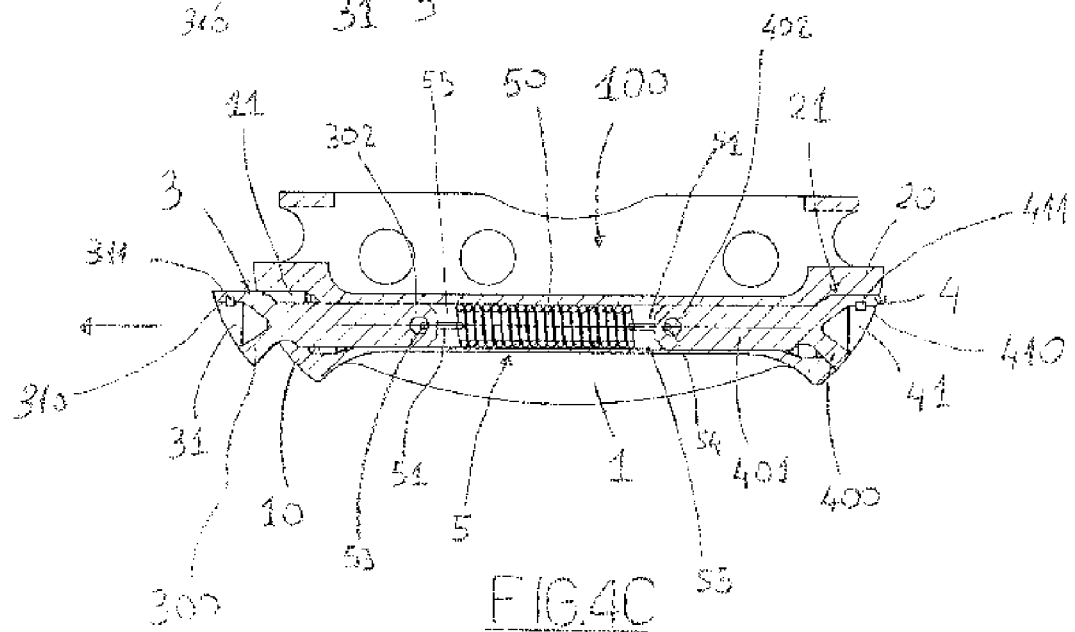
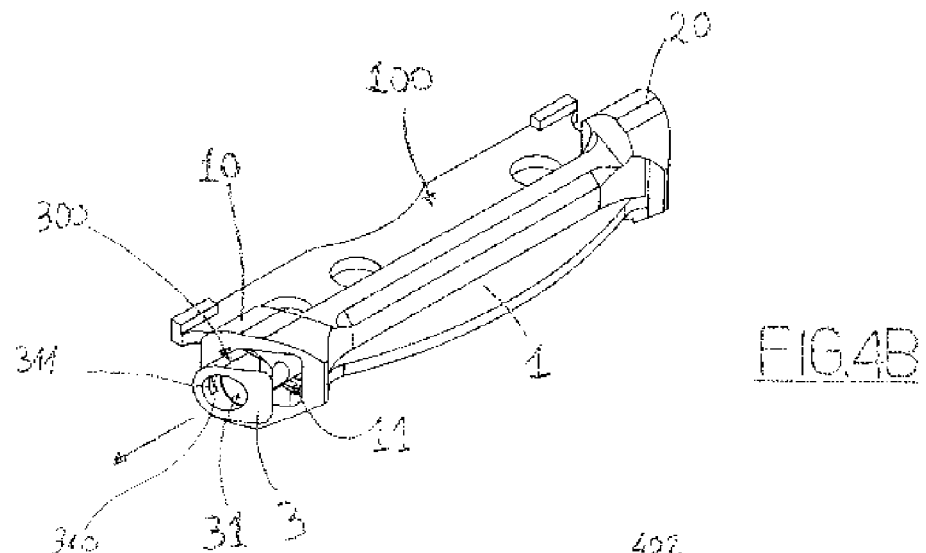
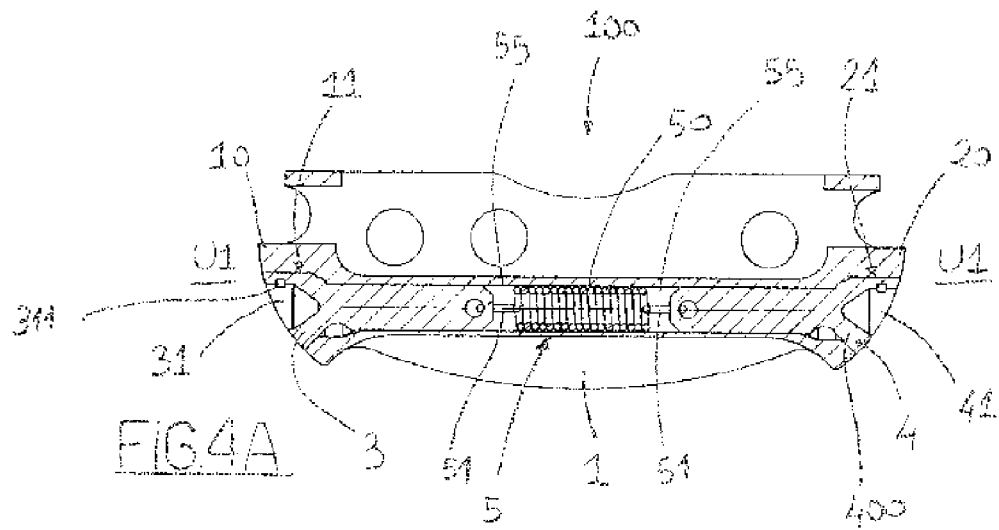
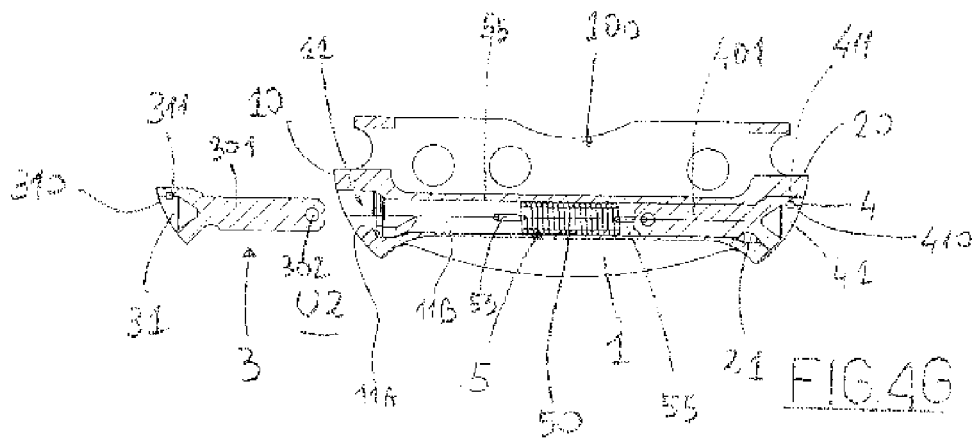
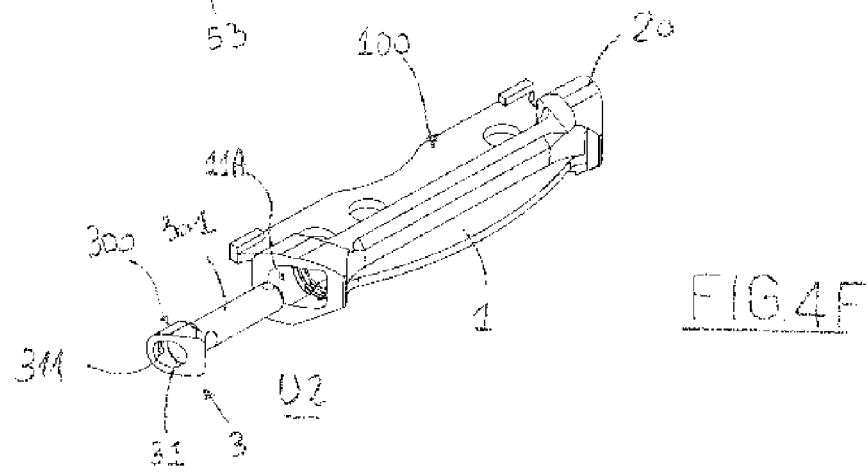
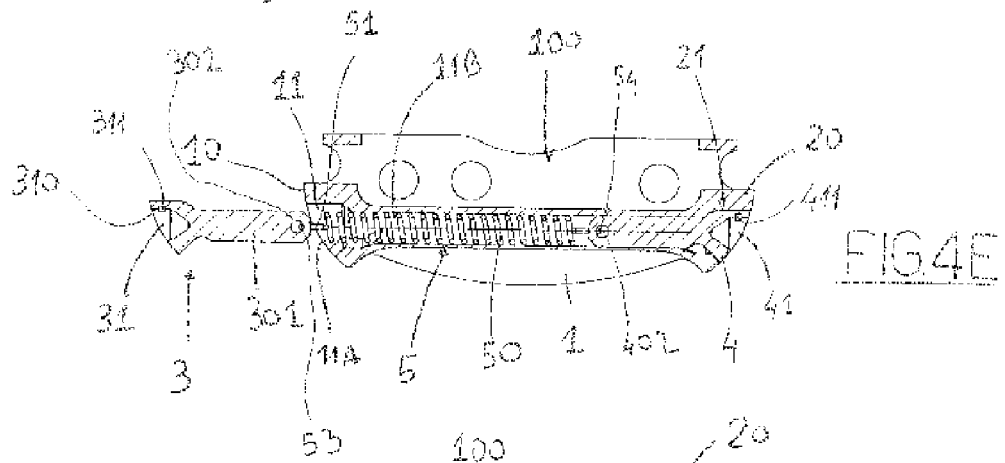
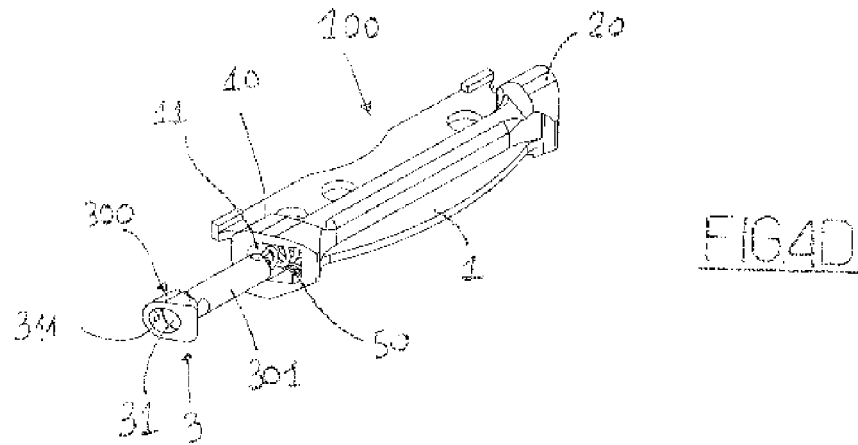
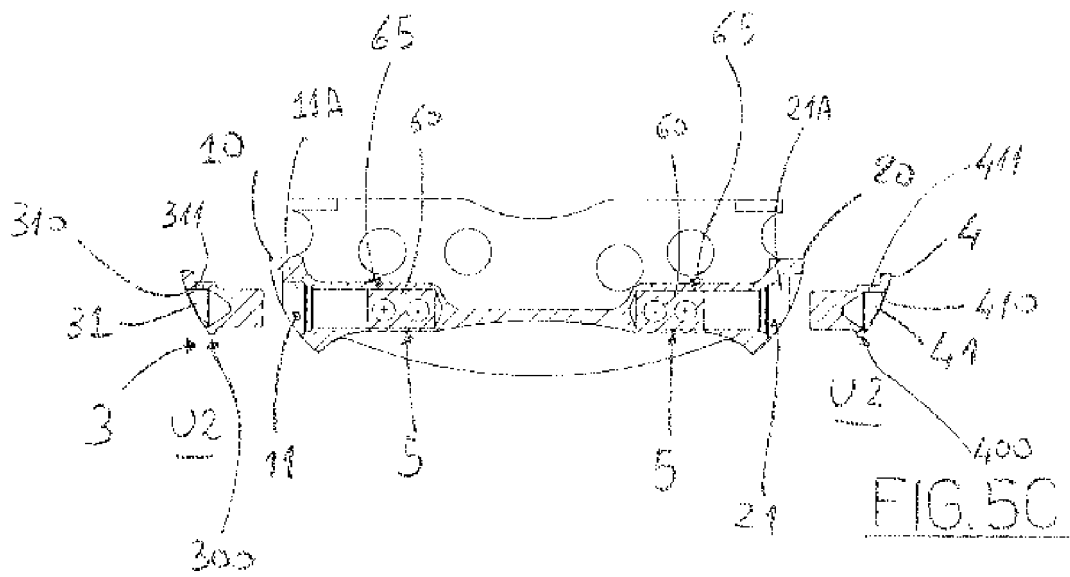
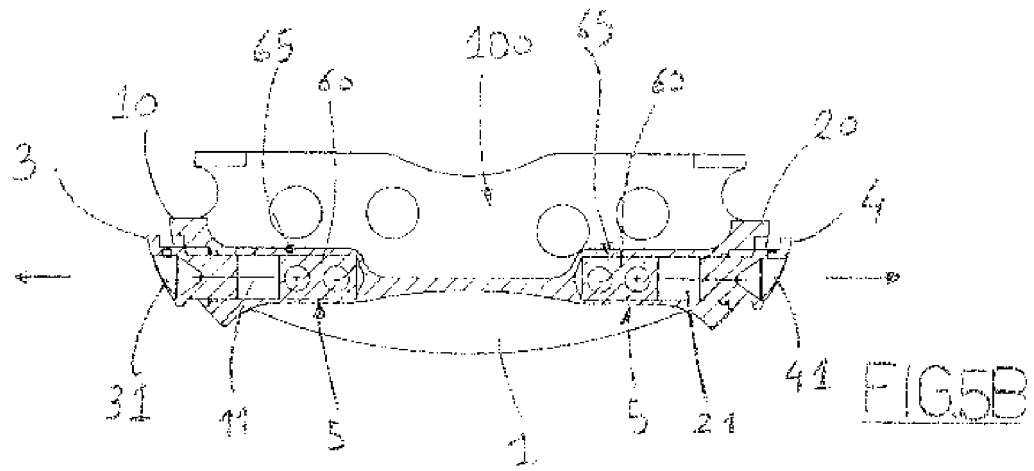
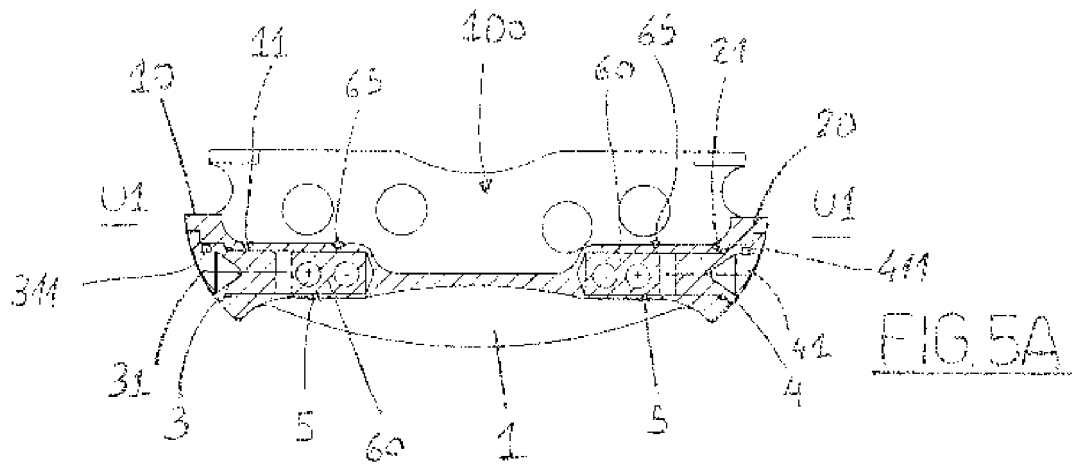
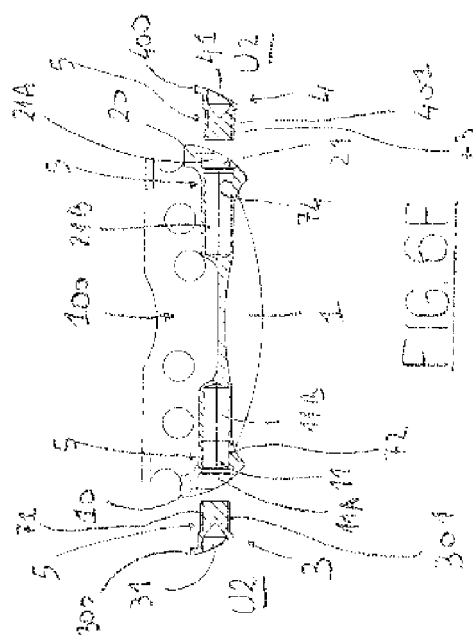
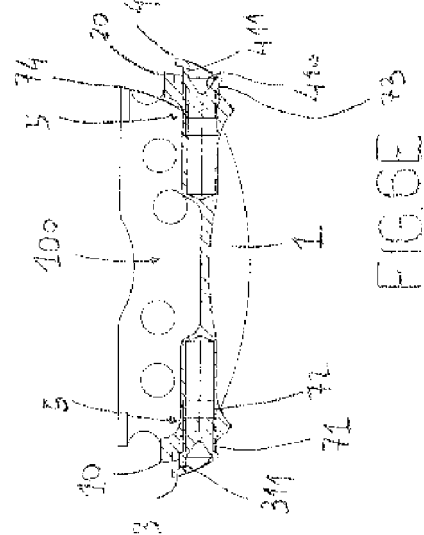
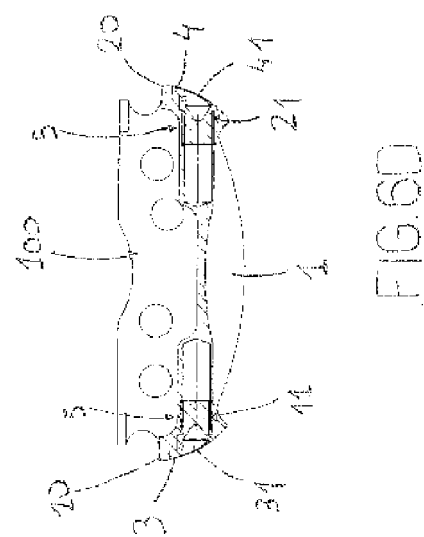
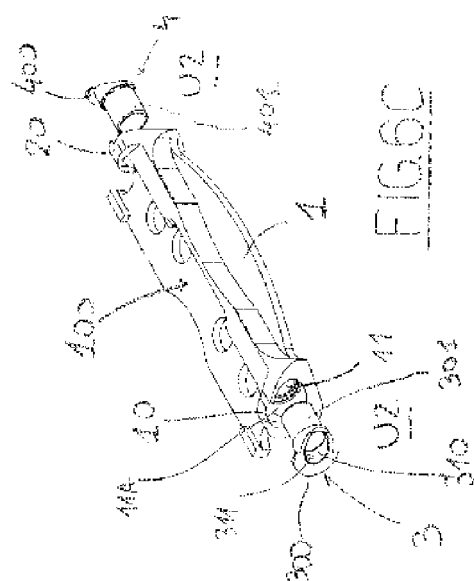
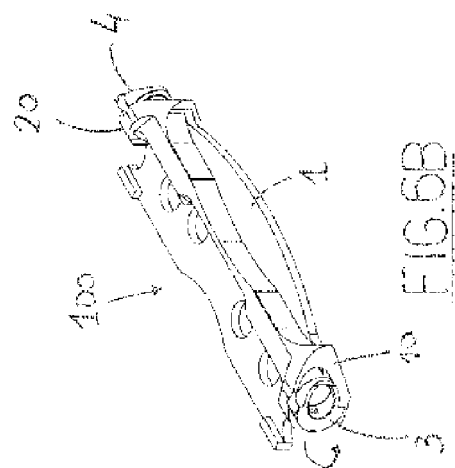
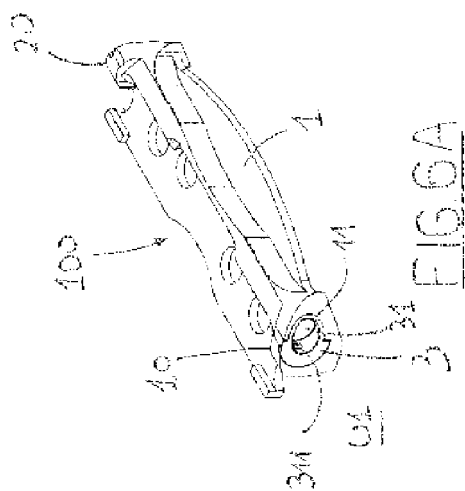


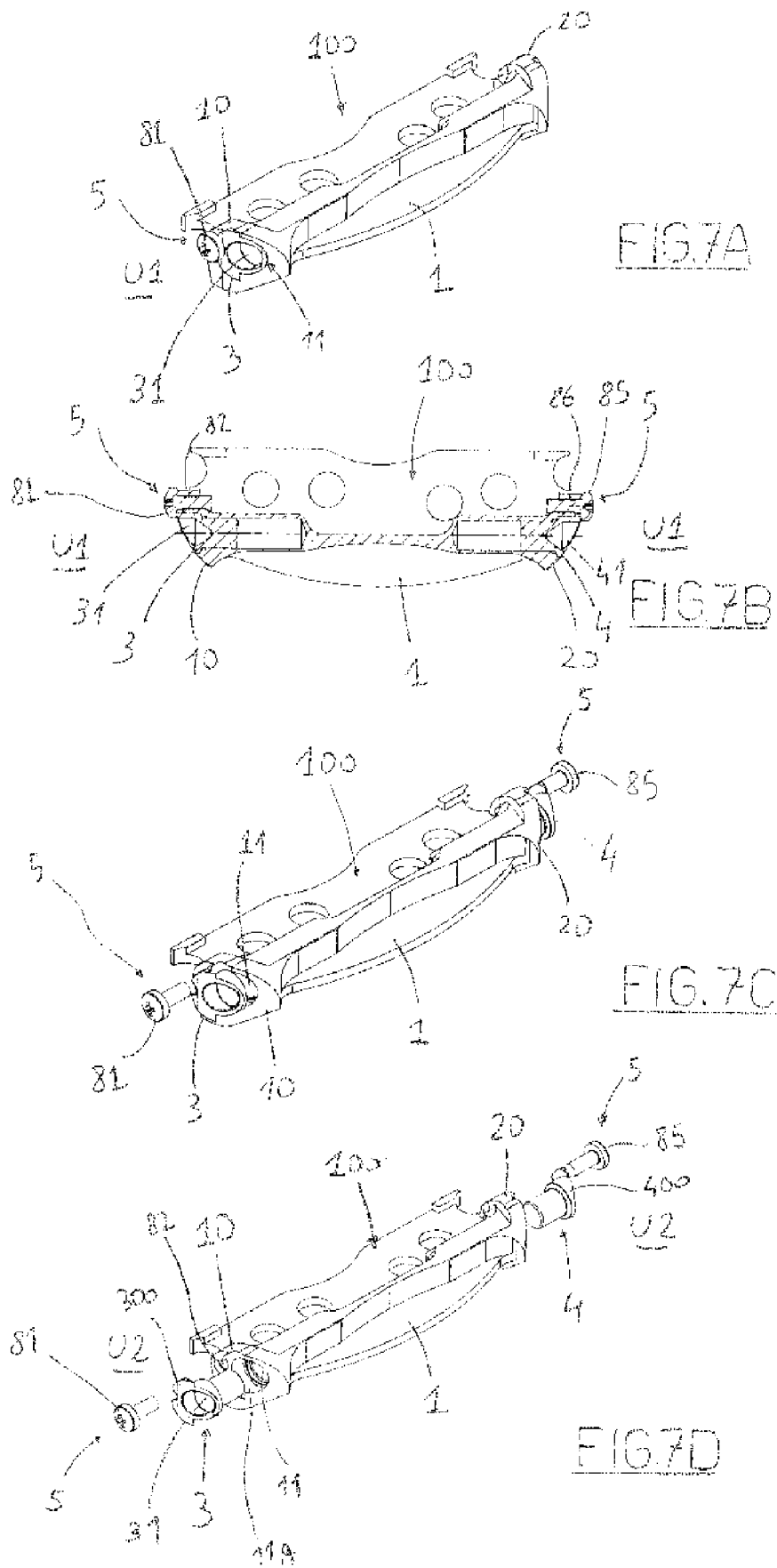
FIG. 3B













EUROPEAN SEARCH REPORT

Application Number
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A	DE 10 2015 105341 A1 (MARKER DEUTSCHLAND GMBH [DE]) 13 October 2016 (2016-10-13) * paragraph [0036] - paragraph [0049] * * figures 1-5 *	1-12	
			TECHNICAL FIELDS SEARCHED (IPC)
			A43B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 15 November 2021	Examiner Papatheofrastou, M
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82