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(54) **SKI BOOT**

(57) Ski boot (1) comprising: a substantially rigid foot-casing (2), which is adapted to accommodate the user's foot; a substantially rigid cuff (3), which is adapted to enclose the lower leg of the user, and is hinged to the foot-casing (2) so as to be able to swing about a first rotation axis (A) substantially perpendicular to the midplane of the ski boot; a protective innerboot (4), which is placed within the foot-casing (2) and is adapted to accommodate and to protect at least the user's foot; and a manually-operated cuff closing assembly (9), which is adapted to tighten the cuff (3) on the user's leg, and in turn comprises: a manually-operated tensioning device (16), which is rigidly fixed on a first lateral side of the cuff (3); a flexible ribbon (19), which has its two ends rigidly fixed to the second lateral side of the cuff (3) opposite to said first lateral side, and extends grazing the front part of the cuff (3) up to reach the tensioning device (16); and a coupling member (18) is fitted in free slidable manner on said flexible ribbon (19), and is structured so as to couple in releasable manner to said tensioning device (16).

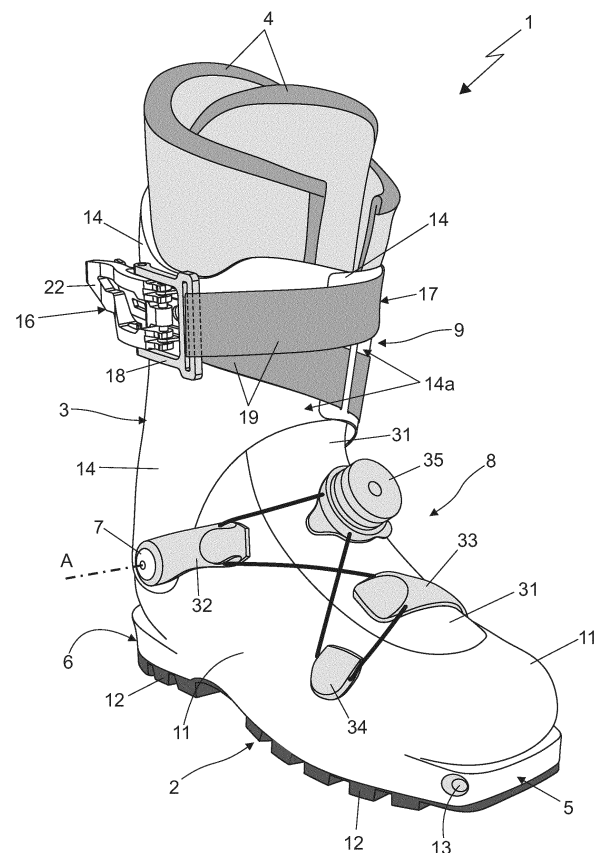


Fig. 1

Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This patent application claims priority from Italian patent application no. 102023000027000 filed on December 18, 2023, the entire disclosure of which is incorporated herein by reference.

TECHNICAL FIELD

[0002] The present invention relates to a ski boot.

[0003] More specifically, the present invention relates to a ski mountaineering or Telemark boot. Use to which the following disclosure will make explicit reference without thereby losing in generality.

BACKGROUND ART

[0004] As is known, ski mountaineering boots currently on the market comprise: a substantially rigid foot-casing generally made of plastic or composite material, which is shaped substantially in the form of a shoe so as to accommodate/ contain the user's foot, and has the lower part specifically structured to be firmly attached to the back of a downhill ski or similar by means of a special ski binding device; a substantially rigid cuff, generally made of plastic or composite material, which is shaped to embrace the lower part of the user's leg from behind, and is hinged to the foot-casing so as to freely rotate about a transversal reference axis that is substantially perpendicular to the vertical midplane of the boot and is moreover locally substantially coincident with the ankle articulation axis; and a protective innerboot with a soft and thermal-insulating structure, which is fitted in removable manner inside the foot-casing and the cuff, and is shaped so as to accommodate and protect both the foot and the leg of the user, roughly up to the height of the calf.

[0005] In addition, the ski mountaineering boots also comprise: a manually-operated foot-casing closing assembly, which is typically placed on the upper part of the foot-casing and is adapted to close/tighten the foot-casing on the user's foot, so as to immobilize the user's foot within the protective innerboot; a manually-operated cuff closing assembly, which is placed on the upper part of the cuff and is adapted to close/tighten the cuff on the user's leg so as to immobilize the user's leg within the protective innerboot; and a manually-operated cuff locking device, which is generally located on the rear part of the cuff, straddling the vertical midplane of the boot, and is structured to selectively lock the cuff rigidly to the foot-casing in a given downhill position.

[0006] In the most modern, high-performance ski boots, the cuff closing assembly is usually made up of one or two lever closing buckles, each of which bridges between the two flaps of the cuff that surround the user's leg at calf height, and is adapted to pull said flaps towards each other; and of an additional tightening strap, with a

Velcro fastening system, which is manually adjustable in length, and is looped around the top of the cuff so as to close/tighten the cuff mouth at same time as the lever closing buckle(s), so as to allow the user to more effectively and precisely adapt the upper part of the cuff to the shape of the calf.

[0007] Although working very well, the cuff closing assembly described above is not appreciated by some users, because the opening and closing of the cuff are both dependent on the separate, but more or less simultaneous, operation of two or three different components, with all the problems this entails when the user finds himself operating in an uncomfortable weather conditions.

SUMMARY OF THE INVENTION

[0008] Aim of the present invention is to realise a cuff closing assembly that can overcome the above-mentioned limits while still offering a high degree of adaptability to the morphology of the user's leg.

[0009] In accordance with these aims, according to the present invention there is provided a ski boot as defined in claim 1 and preferably, though not necessarily, in any of the claims dependent thereon.

BRIEF DESCRIPTION OF THE FIGURES

[0010] The present invention will now be described with reference to the accompanying drawings, which illustrate a non-limiting embodiment thereof, wherein:

- Figure 1 is a perspective view of a ski boot realized according to the teachings of the present invention, with parts removed for clarity's sake;
- Figures 2 and 3 are two opposite side views of the ski boot shown in Figure 1, with parts removed for clarity's sake;
- Figure 4 is a perspective view of the lever closing buckle mounted on the cuff of the ski boot shown in Figure 1, in a first operating configuration and with parts removed for clarity's sake;
- Figure 5 is a partially exploded perspective view of the lever closing buckle shown in Figure 4, with parts removed for clarity's sake;
- Figure 6 is a perspective view of the lever closing buckle shown in Figure 4, in a second operating configuration and with parts removed for clarity's sake; whereas
- Figure 7 is a perspective view of the lever closing buckle shown in Figure 4, in a third operating configuration and with parts removed for clarity's sake.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0011] With reference to Figure 1, number 1 denotes, as a whole, a ski boot that can be advantageously used for practicing ski mountaineering or Telemark.

[0012] The ski boot 1 firstly comprises: a substantially rigid foot-casing 2, which is shaped roughly in the form of a shoe so as to accommodate/contain the user's foot, and preferably has the lower part specifically structured/shaped to couple/engage in a rigid and stable, though easily releasable, manner to a ski binding device of known type (not shown), or rather to a ski mountaineering or Telemark binding device, which in turn is stably fixed to the back of a generic downhill ski or similar equipment; a substantially rigid cuff 3, which is shaped so as to enclose the lower part of the user's leg, and is pivotally joined to the foot-casing 2 so as to freely swing about a transversal rotation axis A that is locally substantially perpendicular to the boot vertical midplane, and is preferably also substantially coincident with the articulation axis of the user's ankle; and a protective innerboot 4 advantageously with a soft and/or thermal-insulating structure, which is located inside the foot-casing 2 and preferably also inside the cuff 3, and is shaped/structured so as to accommodate/contain within itself the foot and preferably also the lower part of the user's leg.

[0013] More specifically, the lower part of foot-casing 2 preferably has a front tip 5 and a rear heel 6.

[0014] The front tip 5 is preferably structured so as to couple/engage in a stable, though easily releasable manner to the toe-piece (not shown) of a ski binding device which, in turn, is stably attached to the back of a generic downhill ski or the like. The rear heel 6, on the other hand, is preferably structured so as to couple/engage in a stable, though easily releasable manner to the heel-piece (not shown) of a ski binding device which, in turn, is stably attached to the back of a generic downhill ski or the like.

[0015] Preferably, the lower part of the foot-casing 2 moreover has a treaded profile so as to grip on snow and/or ice and, and thus allow the user to walk on snow and ice in relative safety.

[0016] The cuff 3, in turn, is preferably pivotally joined to the foot-casing 2 so as to be able to swing freely back and forth while remaining on a swinging plane orthogonal to the rotation axis A and substantially coincident with the boot vertical midplane.

[0017] In more detail, the cuff 3 is preferably connected to foot-casing 2 via a pair of connecting hinges 7, which are placed on the inner and outer lateral sides of the foot-casing 2 and of the cuff 3, aligned along rotation axis A.

[0018] The protective innerboot 4, on the other hand, is preferably structured/shaped so as to prevent the foot and advantageously also the user's leg from coming into direct contact with the foot-casing 2 and the cuff 3 respectively, so as to minimise heat loss to the outside.

[0019] With reference to Figures 1, 2 and 3, in addition, the ski boot 1 comprises: a manually-operated foot-casing closing assembly 8, which is structured to selectively tighten the foot-casing 2 against the user's foot, so as to immobilise the user's foot inside the foot-casing 2, or rather inside the protective innerboot 4; and a manually-operated cuff closing assembly 9, which is structured to

selectively tighten the cuff 3 against the user's leg, so as to immobilise the user's leg within the cuff 3, or rather within the innerboot 4.

[0020] Preferably, ski boot 1 moreover includes a manually-operated cuff locking device 10, which is structured so as to selectively lock the cuff 3 in rigid manner to the foot-casing 2 in a predetermined downhill position, wherein the cuff 3 is tilted forward with respect to the vertical by a given angle advantageously ranging between 5° and 25°.

[0021] More in detail, the cuff locking device 10 is preferably structured so as to, on choice and alternatively, rigidly connect the cuff 3 to the foot-casing 2 in the downhill position mentioned above, or fully unlock/release the cuff 3 from the foot-casing 2, so as to allow the cuff 3 to freely swing back and forth on the foot-casing 2 about the rotation axis A, while remaining on the midplane of the boot.

[0022] With reference to Figures 1, 2 and 3, the foot-casing 2 in particular is preferably made of plastic and/or composite material.

[0023] More in detail, the foot-casing 2 preferably comprises: a substantially rigid shell 11 shaped roughly like an oblong vessel, which is preferably made of plastic and/or composite material, and is shaped so as to accommodate/contain the user's foot, preferably roughly up to the ankle height; and advantageously also a sole 12 made of vulcanised rubber or other elastomeric material with a high coefficient of friction, which preferably has a tread profile and is firmly fixed to the bottom wall of shell 11 preferably by gluing.

[0024] In addition, the foot-casing 2 preferably also includes a front rigid insert 13 and optionally a rear rigid insert (not shown in the figures).

[0025] The rigid front insert 13 is preferably made of metallic material, and is stably embedded/incorporated in the bottom wall of shell 11 roughly at the tip 5 of foot-casing 2. The rigid front insert 13, in addition, is preferably structured so as to surface/emerge outside of shell 11 on opposite sides of the tip 5, advantageously in a substantially specular position with respect to the midplane of the boot, so as to couple/engage in known manner with the toe-piece (not shown) of the ski mountaineering binding device.

[0026] The rear rigid insert, on the other hand, is preferably made of metal material, and is recessed into shell 11 at heel 6 so as to surface/emerge outside of shell 11 and couple/engage in known manner to the heel-piece (not shown) of the same ski mountaineering binding device.

[0027] With reference to Figures 1, 2 and 3, similarly to the foot-casing 2, also the cuff 3 is preferably made of plastic and/or composite material.

[0028] More in detail, the cuff 3 preferably comprises a substantially rigid and roughly saddle-shaped, supporting body 14, which is preferably made of plastic and/or composite material and is shaped so as to embrace the upper part of the foot-casing 2, or rather of shell 11, and at

same time cover the rear part of the user's leg, from the ankle substantially up to calf height.

[0029] The lower part of supporting body 14, moreover, is preferably connected in freely rotatable manner to the foot-casing 2, or rather to shell 11, via the connecting hinges 7, which in turn are preferably made of metal material.

[0030] In addition, the upper part of supporting body 14 is preferably provided with two oblong and flexible, protruding lateral flaps 14a, which extend forward from opposite sides of supporting body 14, and thus of the boot vertical midplane, and are preferably also C-bent towards each other, so as to embrace the leg of the user more or less at calf height, and advantageously to form a substantially tubular structure that surrounds the user's leg more or less at calf height.

[0031] With reference to Figures 1, 2 and 3, the protective innerboot 4, on the other hand, is preferably made of polymeric material foam, and is preferably inserted into the foot-casing 2 and advantageously also into the cuff 3 in a manually removable/extractable manner.

[0032] In the example shown, in particular, the protective innerboot 4 is preferably shaped substantially like a boot, and is preferably dimensioned to accommodate and protect the foot and lower part of the user's leg, advantageously at least up to the top of cuff 3.

[0033] With reference to Figures 1, 2 and 3, the foot-casing closing assembly 8 is preferably located on the foot-casing 2 above the instep, and is structured so as to selectively tighten the foot-casing 2, or rather the shell 11, against the user's foot, in order to immobilise the user's foot inside the foot-casing 2, or rather inside the protective innerboot 4.

[0034] More specifically, the foot-casing closing assembly 8 is preferably located on the upper part of foot-casing 2, astride two opposite and facing flaps of shell 11, and is structured so as to selectively pull one towards the other and then lock said opposite flaps in their new position, so as to locally tighten the shell 11.

[0035] The cuff closing assembly 9, on the other hand, is located on the upper part of cuff 3 and is structured so as to selectively tighten the upper part of cuff 3 against the user's leg.

[0036] More specifically, the cuff closing assembly 9 straddles the two inner and outer lateral flaps 14 of cuff 3, passing grazing the front of cuff 3, or rather grazing the two lateral flaps 14a of body 14, and is structured so as to selectively pull one towards the other and then lock in their new position the same side flaps of cuff 3.

[0037] With reference to Figures 1, 2, 3 and 4, in particular, the cuff closing assembly 9 comprises: a manually-operated tensioning device 16, which is rigidly fixed on the outer lateral side of cuff 3, or preferably on the outer lateral side of supporting body 14, preferably more or less horizontally aligned with the two protruding lateral flaps 14a of the cuff 14; a transversal band 17 with a flexible and preferably also substantially inextensible structure, which is rigidly fixed on the inner lateral side

of cuff 3, or rather on the inner lateral side of supporting body 14, and extends grazing the front part of cuff 3, or rather grazing the two lateral flaps 14a of the body 14, up to reach the tensioning device 16; and a coupling member 18, which is located on the transversal band 17 and is structured so as to couple in a stable, though easily releasable manner to the tensioning device 16.

[0038] The tensioning device 16, in addition, is structured so as to selectively tighten and then keep tightened the transversal band 17, when the coupling member 18 is coupled to the same tensioning device 16.

[0039] More in detail, the transversal band 17 preferably has a substantially V-shaped structure, and has its two ends rigidly fixed on the inner lateral side of cuff 3, or rather on the inner lateral side of body 14, one spaced above the other. The coupling member 18, in addition, is preferably located substantially on the vertex of the V.

[0040] With reference to Figures 1, 2 and 3, in particular, the transversal band 17 preferably comprises a flexible ribbon 19 advantageously with a substantially inextensible structure, which has its two ends rigidly fixed on the inner side of cuff 3, or rather on the inner side of supporting body 14, and extends grazing the front part of cuff 3, or rather grazing the two lateral flaps 14a of supporting body 14, up to reach the tensioning device 16.

[0041] The coupling member 18, in turn, is preferably inserted/ fitted in free slidable manner on the flexible ribbon 19, or rather on an intermediate segment of the flexible ribbon 19.

[0042] Preferably, one of the two ends of the flexible ribbon 19 is moreover fixed to the cuff 3, or rather to the supporting body 14, in a manually adjustable manner, so that the nominal length of the transversal band 17, or rather of the section of ribbon up to the coupling member 18, can be adjusted as desired.

[0043] More in detail, a first end of flexible ribbon 19 is fixed to the cuff 3, or rather to the body 14, in a manually adjustable manner, preferably by means of a self-locking mechanical member 20 preferably of the manually releasable type, which is rigidly fixed to the inner side of cuff 3, or rather to the inner side of supporting body 14, and is engaged, advantageously in a pass-through and slidable manner, by an end section of the flexible ribbon 19.

[0044] The second/other end of flexible ribbon 19, in turn, is preferably fixed to the inner side of cuff 3, or rather to the inner side of body 14, in a rigid and advantageously also substantially unremovable manner via at least one screw, snap button, rivet or other mechanical anchoring member.

[0045] In addition, the flexible ribbon 19 is preferably also bent in a substantially V shape, and has the two ends rigidly fixed on the inner side of cuff 3, or rather on the inner side of body 14, one spaced above the other.

[0046] The coupling member 18, in turn, is preferably fitted in free slidable manner on the flexible ribbon 19 so as autonomously arrange itself at the bend or elbow of the flexible ribbon 19 bent in a substantially V-shape.

[0047] With reference to Figures 4, 5, 6 and 7, the

tensioning device 16 in turn comprises: a support base 21 preferably made of metal material, which is fixed/adapted to be fixed in rigid manner on the cuff 3, or rather on the outer surface of body 14; and a manually-operated tensioning lever 22, which is preferably made of metal material, and is butt-hinged to the support base 21 so as to freely rotate with respect to the latter about a rotation axis B, which is advantageously locally substantially parallel to the outer surface of the cuff 3.

[0048] In more detail, the proximal end of the tensioning lever 22 is preferably fitted in free rotatable manner on a transversal pin 23 that extends coaxial to axis B and is firmly secured/supported by the support base 21.

[0049] The tensioning lever 22, in addition, is provided with at least one housing seat 24, which is made on the central segment of the lever, advantageously on the rear side of the latter, and is adapted to be engaged in a removable manner by the coupling member 18.

[0050] The housing seat 24, therefore, is made on the body of tensioning lever 22 in an eccentric position with respect to the lever rotation axis, i.e. at a predetermined distance from axis B.

[0051] Moreover, the tensioning lever 22 is hinged to the support base 21 so as to rotate, about axis B, to and from a tightening position (see Figures 1, 2 and 4) wherein the tensioning lever 22 preferably extends substantially grazing /parallel to the outer surface of the cuff 3 and/or above the support base 21, advantageously arranging the housing seat 24 above the support base 21, on the opposite side of the lever rotation axis B with respect to the transversal band 17.

[0052] More specifically, the housing seat 24 of the tensioning lever 22 preferably consists of an advantageously substantially straight, transversal groove that extends on the rear side of tensioning lever 22 substantially parallel to rotation axis B and advantageously for the entire width of the same tensioning lever 22.

[0053] When the tensioning lever 22 is arranged in said tightening position, the mouth of the housing seat 24, or rather the mouth of the transversal groove, directly faces the outer surface of cuff 3 and/or the support base 21.

[0054] The coupling member 18, in turn, preferably comprises an advantageously substantially straight, transversal pin that is adapted to engage said transversal groove, preferably for substantially the entire length of the same groove.

[0055] With reference to Figures 4, 5, 6 and 7, the tensioning device 16 additionally comprises: a manually-operated retaining lever 25, which is preferably made of metal material, and is butt-hinged on the support base 21 so as to freely rotate onto the same swinging plane of the tensioning lever 22 to and from a closing position, in which it is substantially skimmed over the side of tensioning lever 22 wherein the housing seat 24 is located, so as to prevent the coupling member 18 to come out of the same housing seat 24; and an elastic member 26, which is preferably interposed between the retaining lever 25 and the tensioning lever 22, and is capable of bringing

and maintaining, in elastic manner, the retaining lever 25 in said closing position.

[0056] More specifically, the retaining lever 25 is preferably butt-hinged to the support base 21 so as to freely rotate about axis B to and from said closing position.

[0057] In even more detail, the proximal end of retaining lever 25 is preferably fitted on transversal pin 23 in free rotatable manner.

[0058] The retaining lever 25, in addition, is arranged beneath the tensioning lever 22 so as to freely move between the support base 21 and the same tensioning lever 22, and the elastic member 26 is adapted to keep the retaining lever 25 in abutment against the rear side of tensioning lever 22 wherein the access opening of housing seat 24 is located, so as to prevent the coupling member 18 to come out of the housing seat 24.

[0059] In other words, when in the closing position, the retaining lever 25 bridges above the mouth of housing seat 24, or rather above the mouth of the transversal groove, so as to retain the coupling member 18 within the housing seat 24.

[0060] With reference to Figures 1 to 7, in the example shown, in particular, the support base 21 has a substantially platelike structure, so as to be arranged with one of the two major faces stably resting on the outer surface of cuff 3.

[0061] In addition, transversal pin 23 is preferably arranged spaced above the support base 21, and is advantageously connected to the same support base 21 by means of a pair of protruding support lugs 27, which extend cantilevered from the support base 21 more or less perpendicular to the upper face of the same support base 21.

[0062] The tensioning lever 22, on the other hand, preferably has a substantially platelike oblong structure, and is preferably provided with a large, pass-through central slit 28, which starts at proximal end of the same lever, extends substantially astride the midplane of the lever, and advantageously ends beyond the housing seat 24. In other words, the central slit 28 intersects the housing seat 24, or rather the transversal groove.

[0063] More in detail, the tensioning lever 22 is preferably substantially U-shaped. In addition, the free ends of the two arms/prongs of the U-shaped tensioning lever 22 are fitted in free rotatable manner on transversal pin 23, advantageously at the two axial ends of the same transversal pin 23.

[0064] The housing seat 24 of tensioning lever 22, on the other hand, preferably consists of a transversal rectilinear groove that extends along both arms/prongs of the U-shaped tensioning lever 22, and advantageously has a profile shaped like an overturned T or a dovetail profile.

[0065] With reference to Figures 4, 5, 6 and 7, on the other hand, the retaining lever 25 preferably has a substantially ribbon-like structure and/or a length substantially equal to the tensioning lever 22, and is preferably at least partially accommodated within the central pass-through slit 28 of the tensioning lever 22.

[0066] In more detail, the proximal end of retaining lever 25 is preferably fitted in free rotatable manner on the transversal pin 23, between the free ends of the two arms/ prongs of U-shaped tensioning lever 22.

[0067] The elastic member 26, on the other hand, preferably includes a torsion spring that is fitted on the transversal pin 23, advantageously beside the proximal end of retaining lever 25.

[0068] With reference to figures 1, 2, 3 and 4, the flexible ribbon 19 preferably has a width ranging between 2 and 8 cm (centimetres) and is preferably made of high-resistance synthetic fabric.

[0069] Preferably the self-locking mechanical member 20 in turn includes a cinch buckle or a manually-releasable, self-locking buckle.

[0070] With reference to Figures 4, 5 and 6, finally, the coupling member 18 is preferably made of metal material, and preferably comprises: a substantially U-shaped or horseshoeshaped, rigid bracket 30 which has, on the central segment, a rectilinear slit 31 adapted to be engaged in free slidable manner by the flexible ribbon 19; and a rigid and preferably also substantially rectilinear, transversal rod 32, which bridges between the two ends of bracket 30, and is adapted to engage the housing seat 24, or rather the transversal groove present on the central segment of tensioning lever 22.

[0071] More specifically, the rigid bracket 30 is preferably dimensioned so as to embrace the tensioning lever 22 on opposite sides of the latter, and the transversal rod 32 is dimensioned so as to engage the transversal groove present on the central segment of tensioning lever 22, protruding cantilevered form both ends of the same groove.

[0072] With reference to Figures 1, 2 and 3, on the other hand, the foot-casing closing assembly 8 preferably comprises: a ribbon-like element 30 with a flexible and preferably also substantially inextensible structure, advantageously made of polymeric material, which has its proximal end attached in free swingable manner to the inner side of foot-casing 2, at connecting hinge 7, and extends obliquely along the inner side of the foot-casing 2, towards the upper part of the foot-casing 2 and the midplane of the boot, preferably so as to reach and rise above the gaiter or front tongue 31 of the foot-casing 2, in the area above the upper part of the instep; an oblong shaped, rear fairlead member 32, which is fixed in free swingable manner to the outer side of foot-casing 2, at connection hinge 7, and extends obliquely on the outer side of foot-casing 2, towards the upper part of the foot-casing 2 and/or the distal end of ribbon-like element 30; a pair of front fairlead members 33 and 34, which are rigidly attached to the inner and outer sides of the foot-casing 2, one in front of the other more or less in the forefoot area; and a manually-operated cable winding winch 35, which is located on the distal end of the ribbon-like element 30 and is provided with a flexible cable, advantageously with a substantially inextensible structure, that comes out of the same cable winding winch 35, engages in free slid-

able manner the fairlead members 32, 33 and 34, and finally has the terminal end rigidly anchored to the base of the same cable winding winch 35 or enters again into the cable winding winch 35.

[0073] The cable winding winch 35 is a component already well-known and easily available on the market, so it won't be further described.

[0074] Similarly, the cuff locking device 10 is a component already well-known and easily available on the market, so it won't be further described.

[0075] Operation of ski boot 1 is easily inferable from the above and needs no further explanations.

[0076] The advantages connect to the special structure of the cuff closing assembly 9 are noteworthy.

[0077] The transversal band 17 with a V-shaped structure allows to more evenly tighten the upper part of the cuff 3.

[0078] In addition, the tightening by means of the flexible ribbon 19 in combination with the coupling member 18 fitted in free slidable manner on the same flexible ribbon 19 allows the cuff closing assembly 9 to adapt itself more effectively to the morphology of the user's leg.

[0079] Last but not least, the cuff closing assembly 9 no longer requires an additional tightening strap, looped around the top of the cuff, with the improved functionality that this entails.

[0080] In fact, the opening and closing of cuff 3 now are both subordinated to operation of the sole tensioning device 16.

[0081] Finally, it is clear that modifications and variations may be made to ski boot 1 without thereby departing from the scope of the present invention.

[0082] For example, as an alternative to the mechanical self-locking member 20, the first end of flexible ribbon 19 may be attached to the cuff 3, or rather to the body 14, in a manually adjustable manner, by means of a Velcro-type hook-and-loop fastener.

[0083] More specifically, the cuff closing assembly 9 may comprise: a ring buckle, which is firmly fixed to cuff 3, or to supporting body 14, and is adapted to be engaged in a pass-through and free slidable manner by the end section of the flexible ribbon 19; and a pair of Velcro pieces, which are arranged on the end section of the flexible ribbon 19 one next the other, and are adapted of hold, one firmly superimposed to the other, the two consecutive segments of flexible ribbon 19 that are arranged respectively upstream and downstream of the ring buckle.

[0084] In addition or alternatively, the tensioning device 16 may be rigidly fixed to the inner side of cuff 3, while the transversal band 17 is rigidly fixed to the outer side-wall of cuff 3.

[0085] In a not-shown embodiment variation, moreover, the retaining lever 25 may be butt-hinged to the tensioning lever 22 so as to freely rotate about a third rotation axis parallel to axis B to and from a closing position, in which it is substantially skimmed over the side of tensioning lever 22 wherein the housing seat 24 is

located, so as to prevent the coupling member 18 from coming out of the same housing seat 24.

[0086] Clearly, also in this variation, the tensioning device 16 is advantageously provided with an elastic member 26, which is preferably interposed between the retaining lever 25 and the tensioning lever 22, and is adapted to elastically bringing and hold the retaining lever 25 in said closing position.

[0087] Finally, in a different embodiment, the tensioning device 16 and the coupling member 18 may be used also to tighten transversal holding bands with traditional structure.

[0088] That is, transversal holding bands that preferably include a flexible ribbon-like element, which is made of polymeric material and advantageously also has a substantially inextensible structure.

Claims

1. Ski boot (1) comprising: a substantially rigid foot-casing (2), which is adapted to accommodate the user's foot; a substantially rigid cuff (3), which is adapted to enclose the lower leg of the user, and is hinged to the foot-casing (2) so as to be able to swing about a first rotation axis (A) substantially perpendicular to the midplane of the ski boot; a protective innerboot (4), which is placed within the foot-casing (2) and is adapted to accommodate and to protect at least the user's foot; a manually-operated foot-casing closing assembly (8), which is capable of tightening the foot-casing (2) on the user's foot; and a manually-operated cuff closing assembly (9), which is adapted to tighten the cuff (3) on the user's leg;

the cuff closing assembly (9) comprising: a manually-operated tensioning device (16), which is rigidly fixed on a first lateral side of the cuff (3); a flexible transversal band (17), which is rigidly fixed to a second lateral side of the cuff (3) opposite to said first lateral side, and extends grazing to the front part of the cuff (3) up to reach said tensioning device (16) and a coupling member (18), which is located on the transversal band (17) and is structured so as to couple in releasable manner to said tensioning device (16);

the ski boot (1) being **characterised in that** the transversal band (17) comprises a flexible ribbon (19), which has its two ends rigidly fixed to the second lateral side of the cuff (3) and extends grazing the front part of the cuff (3) up to reach the tensioning device (16); and **in that** the coupling member (18) is fitted in free slidable manner on said flexible ribbon (19).

2. Ski boot according to Claim 1, wherein the flexible

ribbon (19) is bent in a substantially V shape, and has the two ends fixed on the second lateral side of the cuff (3), one spaced above the other; the coupling member (18) being placed on the bend of the flexible ribbon (19).

3. Ski boot according to Claim 1 or 2, in which one of the two ends of the flexible ribbon (19) is fixed to the cuff (3) in a manually adjustable manner.
4. Ski boot according to Claim 3, wherein the first end of the flexible ribbon (19) is fixed to the cuff (3) via a mechanical self-locking member (20) that, in turn, is rigidly fixed to the second lateral side of the cuff (3).
5. Ski boot according to any one of the preceding claims, wherein said tensioning device (16) comprises: a support base (21), which is rigidly fixed to the cuff (3); and a manually-operated tensioning lever (22), which is butt-hinged to the support base (21) so as to be able to freely rotate about a second rotation axis (B), and is provided with at least one housing seat (24) adapted to be engaged in removable manner by said coupling member (18).
6. Ski boot according to Claim 5, wherein said tensioning device (16) additionally comprises: a manually-operated retention lever (25), which is butt-hinged to the support base (21) or to the tensioning lever (22) so as to freely rotate from or towards a closing position, in which it is substantially skimmed over the side of the tensioning lever (22) where the housing seat (24) is located, so as to prevent the exit of the coupling member (18) from said housing seat (24); and an elastic member (26), which is adapted to bring and to maintain, in an elastic manner, the retention lever (25) in said closing position.
7. Ski boot according to claim 6, wherein the retaining lever (25) is butt-hinged to said support base (21) so as to freely rotate about said second rotation axis (B).
8. Ski boot according to Claim 7, wherein the retaining lever (25) is butt-hinged to said tensioning lever (22) so as to freely rotate about a third rotation axis parallel to said second rotation axis (B).
9. Ski boot according to any one of Claims 5 to 8, wherein the tensioning lever (22) is substantially U-shaped, and the free ends of the two arms/prongs of the tensioning lever (22) are fitted in rotatable manner onto a transversal pin (23) fixed to said support base (21).
10. Ski boot according to Claim 9, wherein the proximal end of the retaining lever (25) is fitted in freely rotatable manner on said transversal pin (23), between the free ends of the two arms/prongs of the U-shaped

tensioning lever (22).

11. Ski boot according to any one of Claims 5 to 10,
wherein said housing (24) includes a transversal
rectilinear groove that extends on the central seg- 5
ment of the tensioning lever (22) parallel to said
second rotation axis (B), advantageously for the
entire width of the same tensioning lever (22).
12. Ski boot according to Claim 11, wherein said trans- 10
versal rectilinear groove has a profile shaped sub-
stantially like an overturned-T or like a dovetail.
13. Ski boot according to any of the preceding claims,
wherein the first lateral side of the cuff (3) the outer 15
lateral side of the cuff (3), and the second lateral side
of the cuff (3) is the inner lateral side of the cuff (3).

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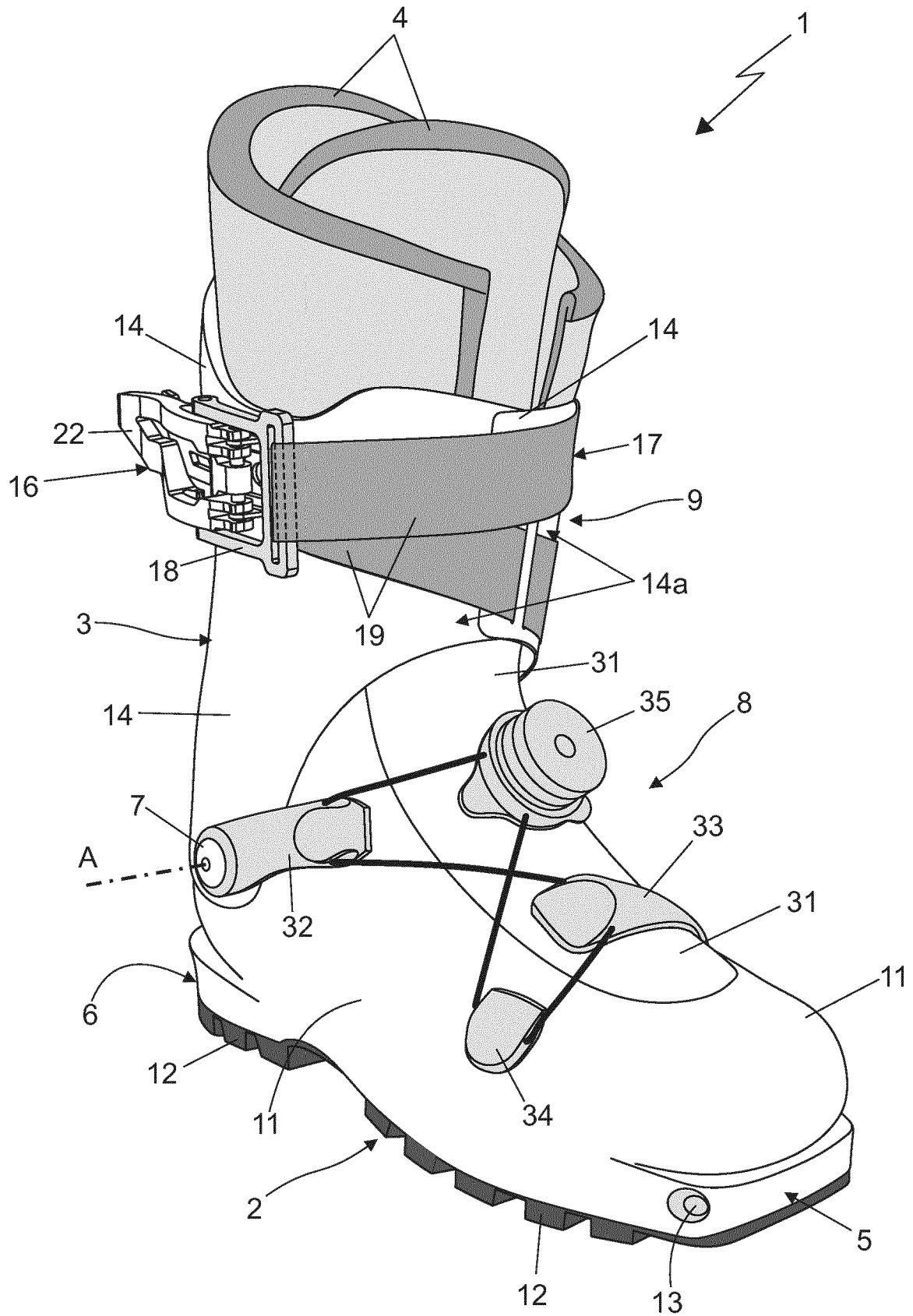


Fig. 1

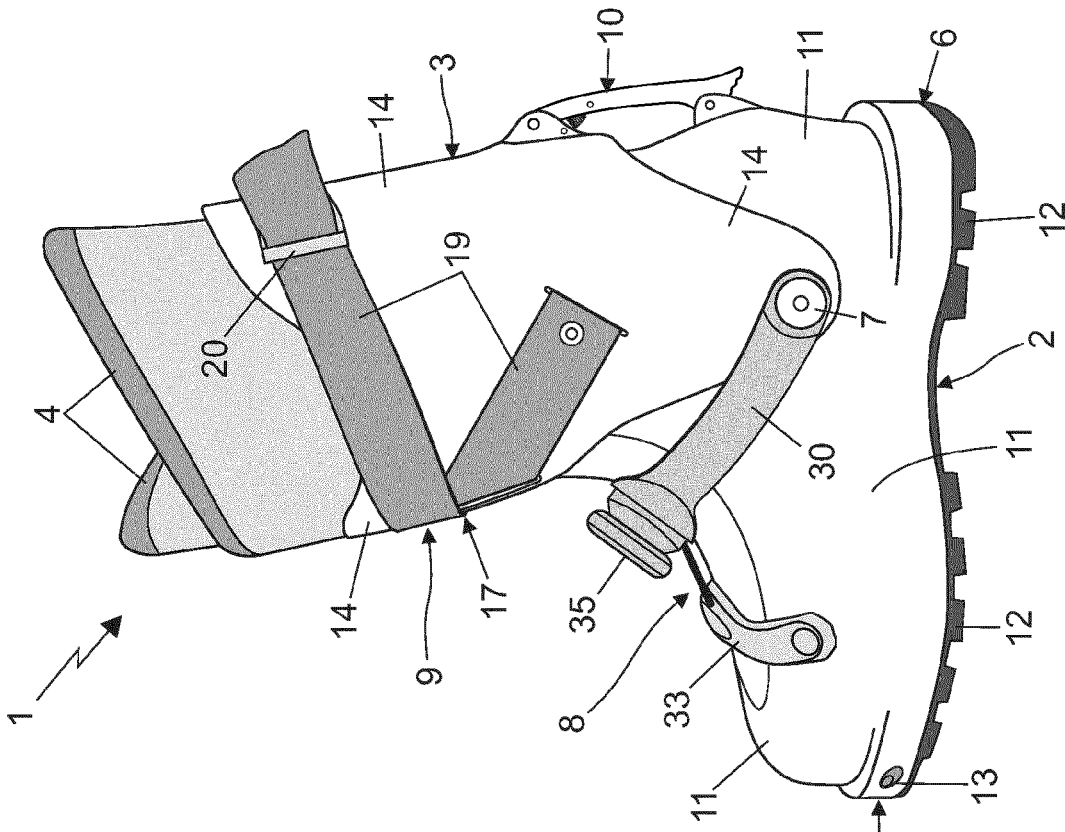


Fig. 3

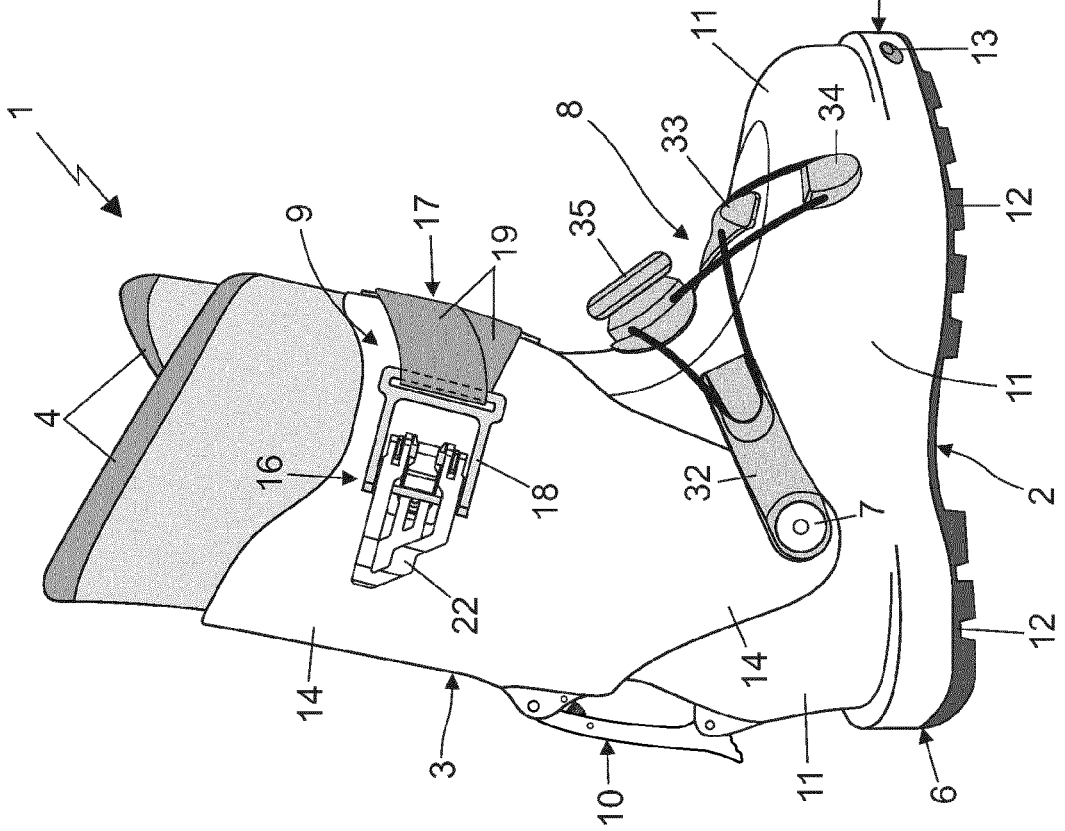


Fig. 2

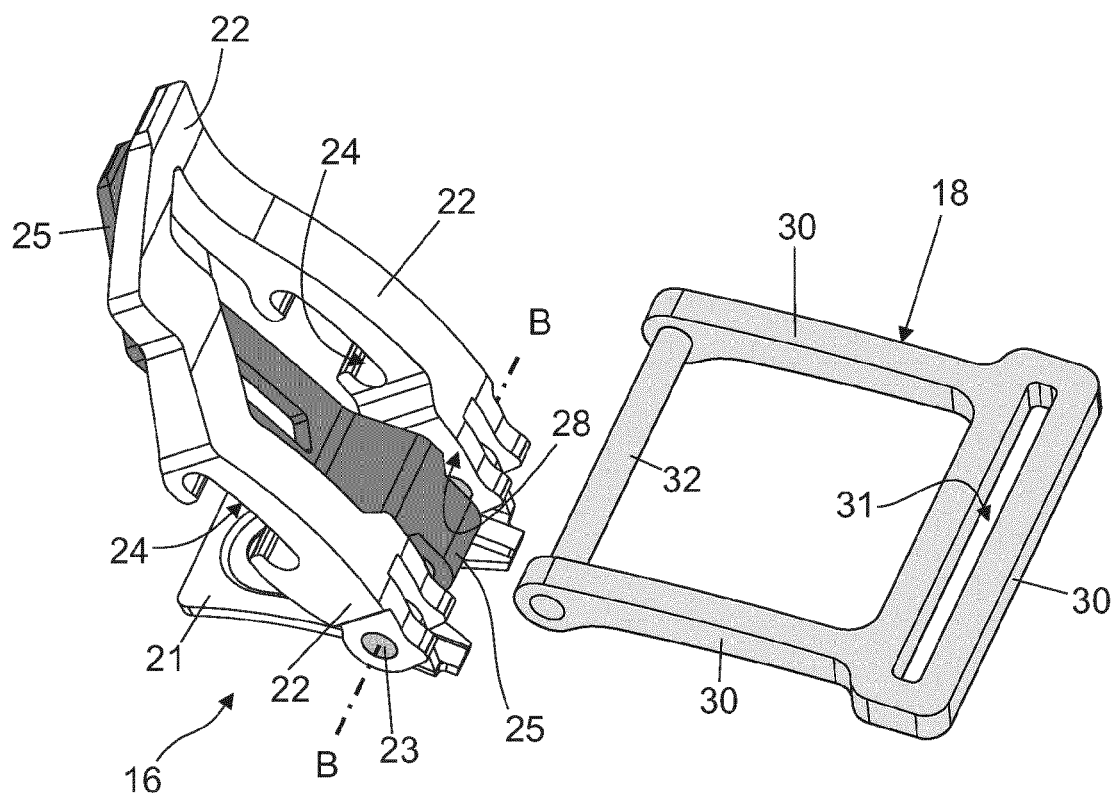
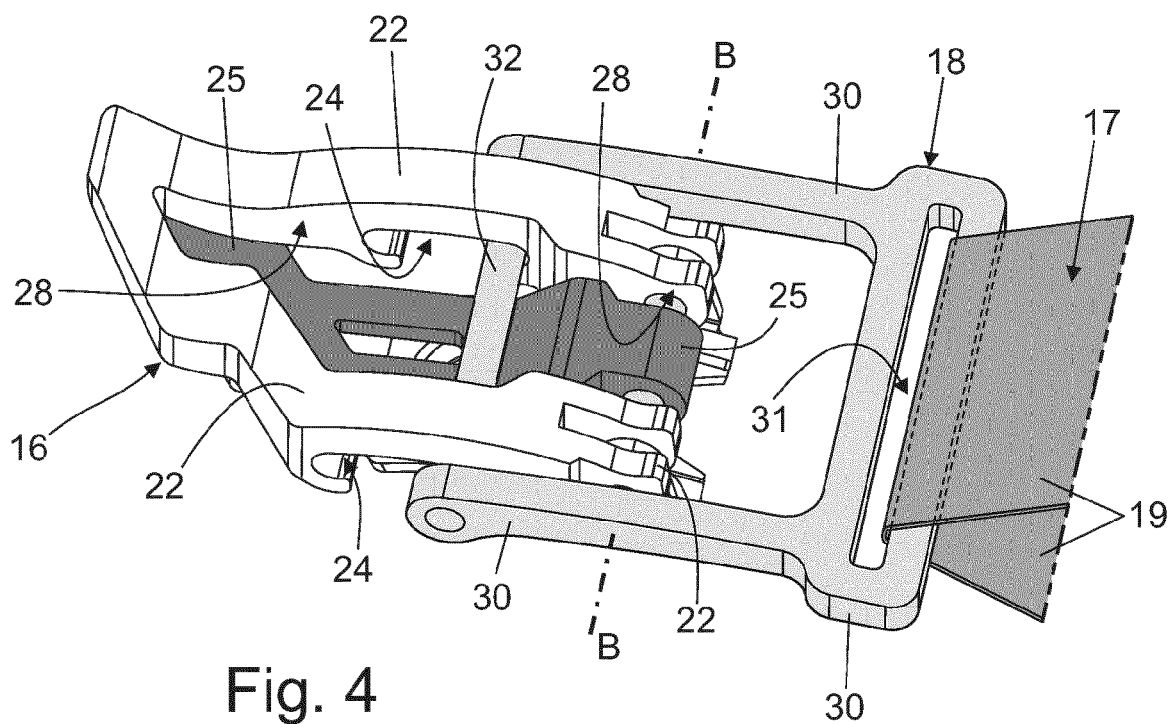


Fig. 6

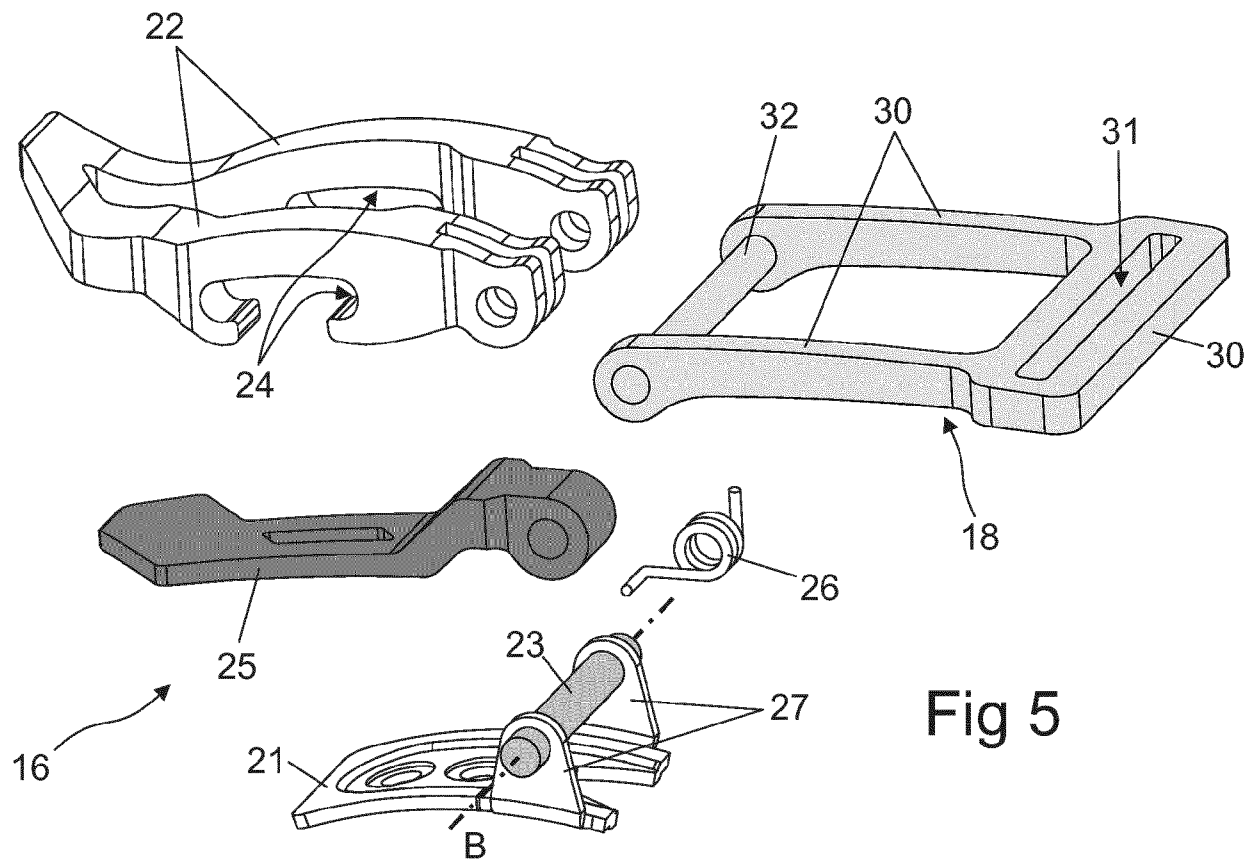


Fig 5

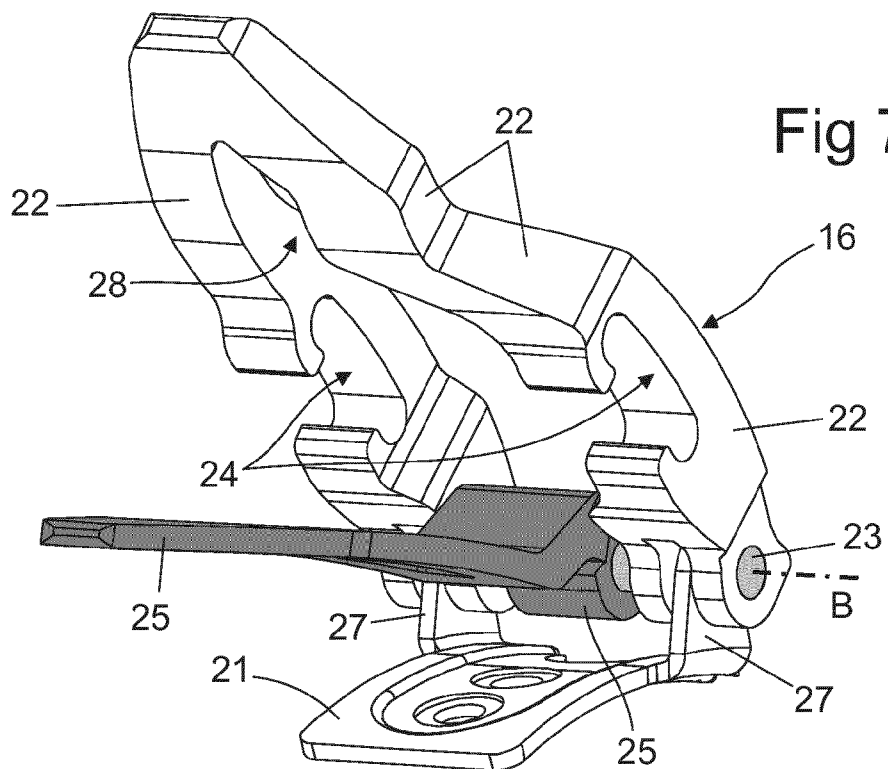


Fig 7



EUROPEAN SEARCH REPORT

Application Number

EP 24 21 9293

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	EP 3 266 327 B1 (SCARPA CALZATURIFICIO SPA [IT]) 1 September 2021 (2021-09-01) * paragraph [0065] - paragraph [0066] * * figure 1 *	1-13	INV. A43B5/04
A	US 9 538 805 B2 (CALZATURIFICIO DAL BELLO S R L [IT] ET AL.) 10 January 2017 (2017-01-10) * column 5, line 13 - column 13, line 44 * * figures 1-6 *	1-13	
A	WO 2016/075621 A1 (SCARPA CALZATURIFICIO SPA [IT]) 19 May 2016 (2016-05-19) * page 4, line 10 - page 17, line 10 * * figures 1-3 *	1-13	
			TECHNICAL FIELDS SEARCHED (IPC)
			A43B A43C
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		8 April 2025	Papatheofrastou, M
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08-04-2025

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