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(54) **Boot, particularly for ski-mountaineering or telemark skiing**

Stiefel, insbesondere zum Skibergsteigen oder Telemarken

Chaussure, en particulier pour ski alpin ou pour télémark

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Description

[0001] The present invention relates to a boot, particularly adapted for the activity of ski-mountaineering or telemark skiing.

[0002] As is known, ski boots for ski-mountaineering have a different structure than regular ski boots since the activity of ski-mountaineering involves going through both downhill and uphill segments and routes over apparently flat terrain.

[0003] It is evident that on the downhill segments it is necessary that the configuration of the boot be substantially similar to that of a classic ski boot (and thus with fastenings to the ski both in the toe zone and at the heel) whereas on the uphill segments (in which generally the ski mountaineer progresses with climbing skins) or on apparently flat terrain it is essential that the boot be fastened to the ski only at the toe zone in order to allow the lifting of the heel when pushing (similarly to what occurs in cross-country skiing).

[0004] Moreover, in order to optimize control of the ski during descent, it is advisable that the shell of the boot, which is associated in a downward region with the sole, be rigidly coupled to the quarter that envelops the lower portion of the calf, whereas, when the ski mountaineer progresses uphill or over apparently flat ground, it is more convenient to ensure the mobility of the ankle and, for this reason, the quarter must be able to freely oscillate with respect to the shell about a pivoting axis that substantially passes through the rotation axis of the ankle.

[0005] For this reason, ski boots for ski-mountaineering are provided with a locking device, which operates between the shell and the quarter and is adapted to pass, on command, between an active position, which is used when going downhill and wherein it locks the relative rotation of the quarter with respect to the shell about the pivoting axis, and an inactive position in which the rotation of the quarter with respect to the shell about the pivoting axis is allowed.

[0006] Generally such locking device is constituted by a lever mechanism, very often cam-based, which has a first end pivoted to a plate that is integral with the quarter and a second, free end with a portion engageable in an engagement seat that is integral with the shell.

[0007] The user, before setting out to ski a downhill segment, brings the locking device to the active position so as to stably engage the second, free end of the lever mechanism in stable engagement with the engagement seat so as to prevent the rotation of the quarter with respect to the shell about the pivoting axis and ensure an optimal stability and rigidity of the boot for executing the descent.

[0008] Before an uphill segment or over apparently flat ground, the user acts on the lever to bring it to the inactive condition, disengaging its second, free end from the engagement seat so as to allow the relative rotation of the quarter with respect to the shell.

[0009] Some athletes have used devices, which have

been offered commercially, for locking the rotation of the quarter with respect to the shell in which the lever mechanism is connected, for example by way of one or two tensioning cables, to the device for fastening the quarter so as to enable the user, by operating on the locking device alone, to simultaneously control the opening and closing of the device for fastening the quarter, with undoubted saving of time and effort.

[0010] This solution, although valid from a conceptual point of view, is not however devoid of drawbacks.

[0011] Firstly, it appears evident that the action necessary to bring the locking device from the inactive condition to the active condition or vice versa still necessitates an intervention on the lever mechanism by exerting a force along a direction perpendicular to the ground and in a position, at the heel, which is not easy to reach: this aspect has considerable drawbacks which, in addition to the difficulty of seeing the elements on which one is acting, are also due to the need to act under tension and with the muscles contracted as well as, especially during competitive events, possibly suffering from cramps.

[0012] Moreover, the lever mechanism used for providing the locking device works on the cam principle but, in any case, in the event of a fall or excessive vibrations, even this contrivance does not guard against the possibility of the second, free end accidentally disengaging from the respective engagement seat, evidently compromising the safety of the user.

[0013] In addition to this it has been found that, partly owing to the (necessary) presence of transmission means within which the tensioning cables slide, the force to be applied in order to bring the locking device from the inactive condition to the active condition and vice versa often appears excessively high, thus compromising the effectiveness of the device itself.

[0014] Italian patent application no. VR2008A000071 filed on 23 June 2008 discloses a boot, particularly for ski-mountaineering or telemark skiing, comprising a shell and a quarter that are mutually pivoted about a pivoting axis, and which is provided with a device for locking the relative rotation of the quarter with respect to the shell about the pivoting axis.

[0015] The locking device is adapted, in particular, to pass between an inactive condition in which the quarter can rotate with respect to the shell about the pivoting axis, and an active condition in which the position of the quarter with respect to the shell is locked angularly about the pivoting axis and the quarter is associated with at least one fastening device which is adapted to pass, on command, between a fastened condition in which the lower portion of the leg of the user is substantially immobilized against the inner surface of the quarter, and a release condition in which the lower portion of the leg does not adhere completely against the inner surface of the quarter.

[0016] The locking device is constituted by at least one locking lever which has a first terminal pivoting portion that is supported rotatably by the shell and extends to-

ward the quarter.

[0017] Such a locking lever has, along its longitudinal extension, an abutment portion that is designed to engage, when the fastening device is in the fastened condition, with a locking element that is formed on the quarter in order to stably lock the rotation of the quarter with respect to the shell about the pivoting axis. The connection means are, in this case, adapted to bring, when the fastening device is in the release condition, the abutment portion of the locking lever to a position spaced from the locking element in order to allow the rotation of the quarter with respect to the shell about the pivoting axis.

[0018] According to the teachings of the above-mentioned patent application, means of elastic contrast are provided which operate between the shell and the locking lever, and are adapted to contrast the transition of the locking lever from the retracted position to the depressed position.

[0019] For the purposes of example, such means of elastic contrast comprise at least one spring that acts, by pushing, between a block supporting the first terminal pivoting portion of the locking lever and an abutment portion that is defined on the locking lever in a position proximate to the first terminal pivoting portion.

[0020] Italian patent application no. VE2008A000039 filed on May 8, 2008 also discloses a boot, particularly for ski-mountaineering, comprising a rigid shell with a sole, an inner sock made of soft material and a quarter that is pivoted to the shell and is provided, at one of its flaps, with a lever for actuating a rod that engages in a retaining element provided on the other flap.

[0021] The boot has a spoiler, which is pivoted to the rear part of the shell, and which is interposed between the rear part of the quarter and the rear part of the inner sock.

[0022] The lever is provided, in particular, with an engagement element that, in the configuration with the lever closed, engages the spoiler thus locking the articulation.

[0023] Specifically, the engagement element is constituted by an appendage that is designed to engage in a seat that is formed in the spoiler.

[0024] The solutions described above, although they facilitate the operations for locking the quarter with respect to the shell, exhibit some drawbacks among which special attention is drawn to the reduced rigidity of the coupling between the lever (or the spoiler) and the quarter in the locked condition which is due, essentially, to the fact that the fastening is achieved by way of pins or protrusions that engage in seats extending at right angles to the axis of the quarter and, consequently, along the direction that is most stressed by any rotation of the tibia about the ankle.

[0025] US4821433-A and US6263593-B1 both disclose ski boots according to the preamble of claim 1.

[0026] The aim of the present invention is to provide a boot, particularly adapted for the activity of ski-mountaineering or telemark skiing, which is capable of overcoming the above-mentioned drawbacks in the known solutions.

[0027] Within this aim, an object of the invention is to provide a boot, particularly adapted for the activity of ski-mountaineering or telemark skiing, which is extremely reliable and practical to use.

[0028] Another object of the invention is to devise a boot, particularly adapted for the activity of ski-mountaineering or telemark skiing, which is capable of ensuring a high level of practicality in use even under extreme conditions of use and is adapted to ensure a high rigidity of the structure shell/quarter structure in the locked condition.

[0029] This aim and these and other objects which will become better apparent hereinafter are all achieved by a boot, particularly for ski-mountaineering or telemark skiing, according to claim 1.

[0030] Further characteristics and advantages of the invention will become better apparent from the description of some preferred, but not exclusive, embodiments of a boot, particularly for ski-mountaineering or telemark skiing, according to the present invention, which are illustrated by way of non-limiting example in the accompanying drawings wherein:

Figure 1 is a perspective view of a boot according to the invention, with the locking device in the active condition;

Figure 2 is another perspective view of the boot, with the locking device in the inactive condition;

Figure 3 is a view from the rear of the boot, with the locking device in the active condition;

Figure 4 is a view similar to Figure 3 which omits, for the purposes of clarity, a portion of the elongated locking element;

Figure 5 is an enlarged-scale perspective view of the locking device in the active condition, seen from the outside of the boot;

Figure 6 is an enlarged-scale perspective view of the locking device in the active condition, seen from the inside of the boot, and

Figure 7 is a view similar to Figure 6 with the locking device in the inactive condition.

[0031] In the embodiments illustrated, individual characteristics shown in relation to specific examples may in reality be interchanged with other, different characteristics, existing in other embodiments.

[0032] Moreover, it should be noted that anything found to be already known during the patenting process is understood not to be claimed and to be the subject of a disclaimer.

[0033] With reference to the Figures, a boot, particularly for ski-mountaineering or telemark skiing, generally designated with the reference numeral 1, comprises a shell 2, which is associated in a downward region with a sole 2a, and a quarter 3.

[0034] In particular, the quarter 3 is pivoted to the shell 2 about a first pivoting axis 100.

[0035] In the embodiment shown in the figures, the first

pivoting axis 100 substantially corresponds to the main rotation axis of the ankle but, as will be explained in more detail hereinbelow, there is no reason why such first pivoting axis 100 cannot be formed at a rear part of the shell 2.

[0036] The boot 1 is provided with a device 4 for locking the relative rotation of the quarter 3 with respect to the shell 2 about the first pivoting axis 100.

[0037] Such locking device 4 is adapted to pass between an inactive condition, which is used by the user for going uphill or over apparently flat terrain and wherein the quarter 3 can rotate with respect to the shell 2 about the first pivoting axis 100, and an active condition, which is necessary in order to be able to execute the downhill segments, in which the position of the quarter 3 with respect to the shell 2 is locked angularly about the first pivoting axis 100.

[0038] The transition of the locking device 4 between the active condition and the inactive condition occurs following the transition of at least one actuation body 13, which is constituted for example by a pull lever 13a, between an open condition and a closed condition and vice versa.

[0039] Advantageously, the quarter 3 is associated with at least one fastening device 5 which is adapted to pass, on command, between a fastened condition in which the lower portion of the leg of the user is substantially immobilized against the inner surface of a thermal inner sock accommodated inside the quarter 3, and a release condition in which the outer surface of the thermal inner sock does not adhere completely against the inner surface of the quarter 3.

[0040] In practice the fastening device 5 makes it possible, on command, to contract/expand the size of the upper portion of the quarter 3 in a radial direction.

[0041] Delving deeper into the details, the locking device 4 comprises at least one elongated locking element 7, that, conveniently, has a first terminal pivoting portion 7a supported rotatably by the shell 2 about a second pivoting axis 101 that is arranged parallel to the first pivoting axis 100.

[0042] The elongated locking element 7 has at least one locking body 7b which is designed to engage an abutment element 10 that is formed on the quarter 3 in order to lock stably, when the locking device 4 is brought to the active condition with the actuation body 13 in the closed condition, the rotation of the quarter 3 with respect to the shell 2 about the first pivoting axis 100.

[0043] According to the present invention, the locking body 7b comprises at least one retention body 7c that can move with respect to the elongated locking element 7 while the abutment element 10 has at least one abutment portion 10a for the retention body 7c, the abutment portion 10a being arranged at the end opposite with respect to the elongated locking element 7.

[0044] The actuation body 13 is, specifically, connected kinematically to the locking body 7b in order to actuate the movement of the retention body 7c with respect to

the elongated locking element 7.

[0045] According to a preferred embodiment, the retention body 7c can be constituted by a hook which can rotate with respect to the elongated locking element 7 about an articulation axis 103. Conveniently, as inter alia is shown in the figures, the articulation axis 103 is arranged substantially parallel to the direction of longitudinal extension 102 of the elongated locking element 7.

[0046] Alternatively, the locking body 7b can be constituted by a latch element that forms, for example at one of its longitudinal ends, the retention body 7c and that can move along a direction of movement or, again, the articulation axis 103 can be arranged at right angles with respect to the direction of longitudinal extension 102.

[0047] According to a preferred embodiment, the actuation body 13 is associated with the device 5 for fastening the quarter 3 which is adapted to pass, following the transition of the actuation body 13 between the closed condition and the open condition, between a fastened condition, in which the outer surface of the thermal inner sock is substantially immobilized against the inner surface of the quarter 3, and a release condition, in which the outer surface of the thermal inner sock does not adhere completely against the inner surface of the quarter 3.

[0048] Conveniently, the locking device 4 has elastic loading means 29 which act between a portion of the elongated locking element 7 and the locking body 7b.

[0049] The elastic loading means 29 are advantageously constituted by a spring 29a and, more specifically, by a torsion or "trap" spring, and are adapted to keep, when the actuation body 13 is in the closed condition, the retention body 7c engaged with the abutment portion 10a.

[0050] With reference to the embodiment, the spring 29a keeps the hook in the condition shown in Figures 5 and 6 so as to come out from under the inner surface of the elongated locking element 7 and engage with the abutment portion 10a that is arranged on the quarter 3 at the end opposite with respect to the elongated locking element 7.

[0051] In this case, the kinematic connection means 20 are adapted to move, following the transition of the actuation body 13 from the closed condition to the open condition, the locking body 7b in contrast with the action of the elastic loading means 29 in order to disengage the retention body 7c from the abutment portion 10a (as shown in Figure 7).

[0052] In practice, the kinematic connection means 20 can be constituted by a cable 21, typically sheathed, which has a first end connected to the actuation body 13 and a second end integral with an engagement portion that is formed on the locking body 7b in a position spaced from the articulation axis 103.

[0053] The actuation body 13 is conveniently provided with means for keeping in the open condition in order to allow, in such open condition, a traction action on the kinematic connection means 29 so as to prevent the movement of the actuation body 13 as a result of the

action of the spring 29a.

[0054] The means for keeping the actuation body 13 in the open condition can be provided by the cable 21, for example by bringing its end that is connected to the actuation body 13, when the actuation body 13 is brought to the open condition, beyond the fulcrum axis 105 of the actuation body 13 so as to exert, on the actuation body 13, a force that tends to keep it (or to return it, in the event of small oscillations) in the open condition.

[0055] Advantageously, the fastening device 5 is constituted, for example, by a Velcro® strip 5a or by a band that is designed to be wrapped, at least partially, around the quarter 3 and that is connected, by way of a hook 5b, to the actuation body 13 and coupled, at its opposite end, to an abutment portion 5c.

[0056] Alternatively, the Velcro® strip 5a or the band can keep the actuation body 13 in the closed condition by performing, in such condition, the same function performed by the cable 21 in the open condition: in essence, the band tends to exert, when the actuation body 13 is brought to the closed condition, a traction action on the actuation body 13 which tends to keep it (or to return it, in the event of small oscillations) in the closed condition.

[0057] Naturally, there is no reason why other types of means cannot be used to keep the actuation body 13 in the open condition and/or in the closed condition, such as, for example, springs.

[0058] According to a preferred embodiment, the actuation body 13 and the abutment portion 5c are directly supported by the elongated locking element 7 and, in particular, by engagement appendages 17 that are arranged on opposite sides with respect to the direction of longitudinal extension 102 of the elongated locking element 7 in order to wrap around respective side portions of the quarter 3.

[0059] Conveniently, the locking body 7b in the condition of disengagement from the abutment portion 10a is positioned inside the elongated locking element 7 so as to prevent any hindrance to the activity underway.

[0060] To this end, on the rear side of the elongated locking element 7, it is possible for a protective housing 7d to be applied, containing the locking body 7b.

[0061] The boot 1 is moreover provided with centering and torsional stiffening elements, generally designated with the reference numeral 30, which act between the quarter 3 and the elongated locking element 7 with the locking device 4 in the active condition.

[0062] Delving deeper into the details, the centering and torsional stiffening elements 30 comprise a rib 31 that protrudes from the rear part of the quarter 3 and extends substantially in parallel to the direction of longitudinal extension of the quarter 3 and an insertion seat 32, shaped complementary to the rib 31, that is defined in the elongated locking element 7 and is designed, with the locking device 4 in the active condition, to receive the rib 31.

[0063] Advantageously, the rib 31 has tapered longitudinal ends 31a in order to facilitate its coupling with the

insertion seat 32.

[0064] As shown in the figures, the first pivoting axis 100 can be arranged at the ankle region while the second pivoting axis 101 is arranged at a rear portion of the shell 2.

[0065] However, there is no reason why the first pivoting axis 100 cannot be arranged at a rear portion of the shell 2, and the second pivoting axis 101 be arranged at the ankle region.

[0066] In order to allow the user to optimize the shape structure of the boot 1 for downhill skiing, the boot 1 is advantageously provided with means of adjusting the angular position of the quarter 3 with respect to the shell 2 about the first pivoting axis 100 when the locking device 4 is in the active condition.

[0067] In particular, adjustment of the angular position can be achieved by applying, for example by way of screws 12, plates 11 on the quarter 4 which form abutment portions 10a that are arranged in different positions along the direction of longitudinal extension of the quarter 3.

[0068] The fastening device 5 can be associated with or substituted by a millimetric belt for adjusting the tensioning.

[0069] In this case, the millimetric adjustment belt comprises an actuation clasp that provides the actuation body 13 in order to allow its transition from the fastened condition to the release condition and vice versa and the transition of the locking device 4 from the active condition to the inactive condition and vice versa.

[0070] Alternatively, it is possible for the actuation body 13 to be constituted by a ratchet gear for adjusting the tensioning of the fastening device 5 which is constituted substantially by a lever mechanism that has a retaining hook which can be associated selectively with a plurality of tensioning slots defined in a support which is fixed to an engagement appendage 17.

[0071] The engagement of the retaining hook with the different tensioning slots makes it possible to radially and progressively contract the quarter 3 thus allowing the transition of the fastening device 5 from the fastened condition to the release condition and vice versa and, simultaneously, as explained above, the transition of the locking device 4 from the active condition to the inactive condition and vice versa.

[0072] It thus appears evident that the various transition maneuvers are quick and extremely precise: in this regard it has moreover been found that, when the fastening device 5 is brought to the fastened condition, or more generally when the actuation body 13 is brought to the closed condition, thanks to the presence of the centering and torsional stiffening elements 30, there is an extremely precise relative positioning between the retention body 7c and the abutment portion 10a.

[0073] The coordinated action of the elastic loading means 29 makes it possible, moreover, for the retention body 7c to be engaged on the abutment portion 10a thus ensuring an extremely effective grip, since in practice

any rotation movement is prevented between the quarter 3 and the elongated locking element 7.

[0074] Thanks to the action of the elastic loading means 29, if, for various reasons, the retention body 7c should not be correctly engaged in the respective abutment portion 10a, then the movement of the quarter 3 with respect to the shell 2 will determine a correct coupling and the mutual and stable locking of the locking device 4.

[0075] The operation of the boot 1, particularly adapted for the activity of ski-mountaineering or telemark skiing, according to the present invention is evident from the foregoing description.

[0076] In particular, the user, by acting on the actuation body 13, which is advantageously also connected to the fastening device 5, is able to intervene in the condition of the locking device 4.

[0077] By way of example, the skier, before going through a downhill segment, during which it is necessary that, at the same time, the fastening device 5 be in the fastened condition and the locking device 4 in the active condition, acts on the actuation body 13 by tensioning the fastening device 5 in order to reduce the radial size of the quarter 3, thus immobilizing the lower portion of the calf inside it.

[0078] Simultaneously, the kinematic connection means 20, which are constituted by the cable 21, are released, thus allowing the spring 29 to cause the retention body 7c to engage with the abutment portion 10a and causing, consequently, the transition of the locking device 4 to the active condition and the locking of the relative rotation between the shell 2 and the quarter 3 about the pivoting axis 100.

[0079] Then, once a descent has been completed and in any case before commencing an uphill segment or on apparently flat ground, the skier, acting exclusively on the actuation body 13 in this case too, brings the fastening device 5 to the release condition in order to allow the movement of the shin inside the quarter 3.

[0080] In this case, the movement of the actuation body 13 causes a traction action on the cable 21 which makes the retention body 7c rotate, about the articulation axis 103, so as to disengage it from the abutment portion 10a.

[0081] All the characteristics of the invention, indicated above as advantageous, convenient or similar, may also be missing or be substituted by equivalent characteristics.

[0082] The invention, thus conceived, is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0083] In practice it has been found that in all the embodiments the invention has achieved the intended aim and objects.

[0084] In particular, it has been found that the operations necessary to bring the locking device 4 from the active condition to the inactive condition and vice versa can occur simply by acting on the actuation body 13 and, in particular, by performing movements that are parallel

to the ground.

[0085] In practice the materials employed as well as the dimensions may be any according to requirements.

[0086] Moreover, all the details may be substituted by other, technically equivalent elements.

[0087] Where the technical features mentioned in any claim are followed by reference numerals and/or signs, those reference numerals and/or signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference numerals and/or signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference numerals and/or signs.

Claims

1. A boot (1), particularly for ski-mountaineering or telemark skiing, comprising a shell (2) and a quarter (3) which are mutually articulated about a first pivoting axis (100) and a locking device (4) for locking the relative rotation of said quarter (3) with respect to said shell (2) about said first pivoting axis (100), said locking device (4) being adapted to pass between an inactive condition, in which said quarter (3) can rotate with respect to said shell (2) about said first pivoting axis (100), and an active condition, in which the position of said quarter (3) with respect to said shell (2) is locked angularly about said first pivoting axis (100), as a consequence of the transition of at least one actuation body (13) of said locking device between an open condition and a closed condition, said locking device (4) comprising an elongated locking element (7) which has a first terminal pivoting portion (7a) that is supported rotatably by said shell (2) about a second pivoting axis (101) which is substantially parallel to said first pivoting axis (100), said elongated locking element (7) having at least one locking body (7b) which is designed to engage an abutment element (10) formed on said quarter (3) in order to lock stably, with said locking device (4) in the active condition and with said actuation body (13) in the closed condition, the rotation of said quarter (3) with respect to said shell (2) about said first pivoting axis (100), wherein said at least one locking body (7b) comprises at least one retention body (7c) that can move with respect to said elongated locking element (7) and said at least one abutment element (10) has at least one abutment portion (10a) for said retention body (7c) which is arranged on the side opposite with respect to said elongated locking element (7), said at least one actuation body (13) being connected kinematically to said at least one locking body (7b) for actuating the movement of said retention body (7c) with respect to said elongated locking element (7), **characterised in that** said retention body (7c) comprises a hook which is rotatable with respect to said elongated locking element (7) about

an articulation axis (103), that is arranged substantially parallel to the direction of longitudinal extension (102) of said elongated locking element (7).

2. The boot (1) according to claim 1, **characterized in that** said at least one actuation body (13) is associated with at least one device (5) for fastening said quarter (3) which is adapted to pass, as a consequence of the transition of said actuation body between said closed condition and said open condition, between a fastened condition (5), in which the lower portion of the leg of the user is substantially immobilized against the inner surface of said quarter (3), and a release condition, in which the lower portion of said leg does not adhere completely against the inner surface of said quarter (3).
3. The boot (1) according to one or more of the preceding claims, **characterized in that** it comprises elastic loading means (29) which act between said elongated locking element (7) and said locking body (7b) and are adapted to keep, when said actuation body (13) is in the closed condition, said retention body engaged with said abutment portion (10a), kinematic connection means (20) being provided for connecting kinematically said actuation body (13) to said at least one locking body (7b) that are adapted to move, as a consequence of the transition of said actuation body (13) from said closed condition to said open condition, said locking body (7b) in contrast to the action of said elastic loading means in order to disengage said retention body (7c) from said abutment portion (10a).
4. The boot (1) according to one or more of the preceding claims, **characterized in that** said locking body (7b) in the condition of disengagement from said abutment portion (10a) is inside said elongated locking element (7).
5. The boot (1) according to one or more of the preceding claims, **characterized in that** it comprises centering and torsional stiffening elements (30) which act between said quarter (3) and said elongated locking element (7) when said locking device (7) is in the active condition.
6. The boot (1) according to one or more of the preceding claims, **characterized in that** said centering and torsional stiffening elements (30) comprise a rib (31) that protrudes from the rear part of said quarter (3) and extends substantially in parallel to the direction of longitudinal extension of said quarter (3) and an insertion seat (32) that is shaped complementary to said rib (31) formed in said elongated locking element (7) and designed, when said elongated locking element (7) is in said active condition, to receive said rib (31).

7. The boot (1) according to one or more of the preceding claims, **characterized in that** said rib (31) has tapered longitudinal ends (31a).

8. The boot (1) according to one or more of the preceding claims, **characterized in that** said elongated locking element (7) is arranged externally with respect to said quarter.

9. The boot (1) according to one or more of the preceding claims, **characterized in that** said first pivoting axis (100) is arranged at the ankle region and **in that** said second pivoting axis (101) is arranged at a rear portion of said shell.

10. The boot (1) according to one or more of the preceding claims, **characterized in that** said first pivoting axis (100) is arranged at a rear portion of said shell (2) and **in that** said second pivoting axis (101) is arranged at the ankle region.

Patentansprüche

1. Ein Stiefel (1), insbesondere zum Skibergsteigen oder Telemarken, der eine Schale (2) und einen Quarter (3) umfasst, welche gelenkig um eine erste Schwenkachse (100) miteinander verbunden sind, und eine Blockiervorrichtung (4) zum Blockieren der Relativedrehung des Quarters (3) im Verhältnis zu der Schale (2) um die erste Schwenkachse (100); wobei die Blockiervorrichtung (4) ausgebildet ist, um zwischen einem inaktiven Zustand, in welchem sich der Quarter (3) mit Bezug auf die Schale (2) um die erste Schwenkachse (100) drehen kann, und einem aktiven Zustand zu wechseln, in welchem die Position des Quarters (3) mit Bezug auf die Schale (2) winklig um die erste Schwenkachse (100) blockiert ist; als Konsequenz des Übergangs mindestens eines Auslösekörpers (13) der Blockiervorrichtung zwischen einem offenen Zustand und einem geschlossenen Zustand; wobei die Blockiervorrichtung (4) ein lang gestrecktes Blockierelement (7) umfasst, das einen ersten terminalen Schwenkabschnitt (7a) hat, welcher von der Schale (2) um eine zweite Schwenkachse (101) drehbar getragen wird, die im Wesentlichen parallel zu der ersten Schwenkachse (100) ist; wobei das lang gestreckte Blockierelement (7) mindestens einen Blockierkörper (7b) hat, der konstruiert ist, um mit einem an dem Quarter (3) geformten Widerlagerelement (10) in Eingriff zu stehen, um, wenn die Blockiervorrichtung (4) im aktiven Zustand und der Auslösekörper (13) im geschlossenen Zustand ist, die Drehung des Quarters (3) im Verhältnis zu der Schale (2) um die erste Schwenkachse (100) fest zu blockieren, wobei der mindestens eine Blockierkörper (7b) mindestens einen Haltekörper (7c) umfasst, der sich im Verhältnis zu dem lang ge-

- streckten Blockierelement (7) bewegen kann, und das mindestens eine Widerlagerelement (10) mindestens einen Widerlagerabschnitt (10a) für den Haltekörper (7c) hat, der auf der dem lang gestreckten Blockierelement (7) gegenüberliegenden Seite angeordnet ist; wobei der mindestens eine Auslösekörper (13) kinematisch mit dem mindestens einen Blockierkörper (7b) verbunden ist, um die Bewegung des Haltekörpers (7c) im Verhältnis zu dem lang gestreckten Blockierelement (7) auszulösen;
- dadurch gekennzeichnet, dass** der Haltekörper (7c) einen Haken umfasst, der im Verhältnis zu dem lang gestreckten Blockierelement (7) um eine Gelenkachse (103) drehbar ist, die im Wesentlichen parallel zur Richtung der Längserstreckung (102) des lang gestreckten Blockierelements (7) angeordnet ist.
2. Der Stiefel (1) gemäß Anspruch 1, **dadurch gekennzeichnet, dass** der mindestens eine Auslösekörper (13) mit mindestens einer Vorrichtung (5) zur Befestigung des Quarters (3) verknüpft ist, die ausgebildet ist, um infolge des Übergangs des Auslösekörpers zwischen dem geschlossenen Zustand und dem offenen Zustand zwischen einem befestigten Zustand (5), in welchem der untere Teil des Beins des Benutzers im Wesentlichen gegen die Innenfläche des Quarters (3) immobilisiert ist, und einem gelösten Zustand zu wechseln, in dem der untere Teil des Beins nicht vollständig an der Innenfläche des Quarters (3) anliegt.
 3. Der Stiefel (1) gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** er elastische Spannmittel (29) umfasst, die zwischen dem lang gestreckten Blockierelement (7) und dem Blockierkörper (7b) wirken und ausgebildet sind, um, wenn der Auslösekörper (13) im geschlossenen Zustand ist, den Haltekörper im Eingriff mit dem Widerlagerabschnitt (10a) zu halten, wobei kinematische Verbindungsmittel (20) bereitgestellt sind, um den Auslösekörper (13) kinematisch mit dem mindestens einen Blockierkörper (7b) zu verbinden, die ausgebildet sind, um sich infolge des Übergangs des Auslösekörpers (13) von dem geschlossenen Zustand in den offenen Zustand zu bewegen, wobei der Blockierkörper (7b) im Kontrast zur Wirkung der elastischen Spannmittel steht, um den Haltekörper (7c) von dem Widerlagerabschnitt (10a) zu lösen.
 4. Der Stiefel (1) gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** der Blockierkörper (7b) sich, im Zustand der Trennung von dem Widerlagerabschnitt (10a), innerhalb des lang gestreckten Blockierelements (7) befindet.
 5. Der Stiefel (1) gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** er Zentrier- und Torsionsversteifungselemente (30) umfasst, die zwischen dem Quarter (3) und dem lang gestreckten Blockierelement (7) wirken, wenn die Blockiervorrichtung (7) im aktiven Zustand ist.
 6. Der Stiefel (1) gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** die Zentrier- und Torsionsversteifungselemente (30) eine Rippe (31) umfassen, die aus dem hinteren Teil des Quarters (3) herausragt und sich im Wesentlichen parallel zur Richtung der Längserstreckung des Quarters (3) erstreckt, und einen Aufnahmesitz (32), welcher komplementär zu der in dem lang gestreckten Blockierelement (7) geformten Rippe (31) geformt und konstruiert ist, um die Rippe (31) aufzunehmen, wenn das lang gestreckte Blockierelement (7) in dem aktiven Zustand ist.
 7. Der Stiefel (1) gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** die Rippe (31) spitz zulaufende Längsenden (31a) hat.
 8. Der Stiefel (1) gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** das lang gestreckte Blockierelement (7) außerhalb des Quarters angeordnet ist.
 9. Der Stiefel (1) gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** die erste Schwenkachse (100) sich im Knöchelbereich befindet, und dadurch, dass die zweite Schwenkachse (101) sich in einem hinteren Teil der Schale befindet.
 10. Der Stiefel (1) gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** die erste Schwenkachse (100) sich in einem hinteren Teil der Schale (2) befindet, und dadurch, dass die zweite Schwenkachse (101) sich im Knöchelbereich befindet.
- ### Revendications
1. Chaussure (1), en particulier pour le ski de randonnée alpine ou le ski télémart, comprenant une coque (2) et un quartier (3), qui sont articulés mutuellement autour d'un premier axe de pivotement (100) et un dispositif de verrouillage (4), destiné à verrouiller la rotation relative dudit quartier (3) par rapport à ladite coque (2) autour dudit premier axe de pivotement (100), ledit dispositif de verrouillage (4) étant adapté pour passer entre une condition inactive, dans laquelle ledit quartier (3) peut tourner par rapport à ladite coque (2) autour dudit premier axe de pivotement (100) et une condition active, dans laquelle la position dudit quartier (3) par rapport à ladite coque

(2) est verrouillée de manière angulaire autour dudit premier axe de pivotement (100), à titre de conséquence de la transition d'au moins un ensemble d'actionnement (13) dudit dispositif de verrouillage entre une condition ouverte et une condition fermée, ledit dispositif de verrouillage (4) comprenant un élément de verrouillage allongé (7), qui a une première partie terminale de pivotement (7a), qui est supportée à rotation par ladite coque (2) autour d'un second axe de pivotement (101), qui est sensiblement parallèle audit premier axe de pivotement (100), ledit élément de verrouillage allongé (7) ayant au moins un ensemble de verrouillage (7b), qui est conçu pour mettre en prise un élément de butée (10), formé sur ledit quartier (3), afin de verrouiller de manière stable, avec ledit dispositif de verrouillage (4) dans la condition active et avec ledit ensemble d'actionnement (13) dans la condition fermée, la rotation dudit quartier (3) par rapport à ladite coque (2) autour dudit premier axe de pivotement (100), dans laquelle ledit au moins un ensemble de verrouillage (7b) comprend au moins un ensemble de rétention (7c), qui peut se déplacer par rapport audit élément de verrouillage allongé (7) et ledit au moins un élément formant butée (10) a au moins une partie formant butée (10a) dudit ensemble de rétention (7c) qui est agencée sur le côté opposé par rapport audit élément de verrouillage allongé (7), ledit au moins un ensemble d'actionnement (13) étant relié de manière cinématique audit au moins un ensemble de verrouillage (7b), pour actionner le mouvement dudit ensemble de rétention (7c) par rapport audit élément de verrouillage allongé (7),

caractérisée en ce que

ledit ensemble de rétention (7c) comprend un crochet qui peut tourner par rapport audit élément de verrouillage allongé (7) autour d'un axe d'articulation (103), qui est agencé de manière sensiblement parallèle à la direction de l'extension longitudinale (102) dudit élément de verrouillage allongé (7).

2. Chaussure (1) selon la revendication 1, **caractérisée en ce que** ledit au moins un ensemble d'actionnement (13) est associé au au moins un dispositif (5), destiné à fixer ledit quartier (3), qui est adapté pour passer, à titre de conséquence de la transition dudit ensemble d'actionnement, entre ladite condition fermée et ladite condition ouverte, entre une condition fixée (5), dans laquelle la partie inférieure de la jambe de l'utilisateur est sensiblement immobilisée contre la surface intérieure dudit quartier (3) et une condition de libération, dans laquelle la partie inférieure de ladite jambe n'adhère pas complètement contre la surface intérieure dudit quartier (3).
3. Chaussure (1) selon une ou plusieurs des revendications précédentes,

caractérisée en ce

qu'elle comprend des moyens de charge élastiques (29), qui agissent entre ledit élément de verrouillage allongé (7) et ledit ensemble de verrouillage (7b) et sont adaptés pour maintenir, lorsque ledit ensemble d'actionnement (13) est dans la condition fermée, ledit ensemble de rétention en prise avec ladite partie formant butée (10a), des moyens de liaison cinématique (20) étant prévus pour relier de manière cinématique ledit ensemble d'actionnement (13) audit au moins un ensemble de verrouillage (7b) qui sont adaptés pour déplacer, à titre de conséquence de la transition dudit ensemble d'actionnement (13) de ladite condition fermée à ladite condition ouverte, ledit ensemble de verrouillage (7b) contrairement à l'action desdits moyens de charge élastiques, afin de dégager ledit ensemble de rétention (7c) de ladite partie formant butée (10a).

4. Chaussure (1) selon une ou plusieurs des revendications précédentes, **caractérisée en ce que** ledit ensemble de verrouillage (7b), dans la condition de dégagement de ladite partie formant butée (10a), est à l'intérieur dudit élément de verrouillage allongé (7).
5. Chaussure (1) selon une ou plusieurs des revendications précédentes, **caractérisée en ce que** qu'elle comprend des éléments de centrage et de raidissement en torsion (30), qui agissent entre ledit quartier (3) et ledit élément de verrouillage allongé (7), lorsque ledit dispositif de verrouillage (7) est dans la condition active.
6. Chaussure (1) selon une ou plusieurs des revendications précédentes, **caractérisée en ce que** lesdits éléments de centrage et de raidissement en torsion (30) comprennent une nervure (31), qui fait saillie depuis la partie arrière dudit quartier (3) et s'étend sensiblement parallèlement à la direction de l'extension longitudinale dudit quartier (3) et un siège d'insertion (32), qui est formé en complément de ladite nervure (31), formée dans ledit élément de verrouillage allongé (7) et conçu, lorsque ledit élément de verrouillage allongé (7) est dans ladite condition active, pour loger ladite nervure (31).
7. Chaussure (1) selon une ou plusieurs des revendications précédentes, **caractérisée en ce que** ladite nervure (31) a des extrémités longitudinales amincies (31a).
8. Chaussure (1) selon une ou plusieurs des revendications précédentes,

caractérisée en ce que

ledit élément de verrouillage allongé (7) est agencé extérieurement par rapport audit quartier.

9. Chaussure (1) selon une ou plusieurs des revendications précédentes, 5
caractérisée en ce que
 ledit premier axe de pivotement (100) est agencé sur la région de la cheville et **en ce que** ledit second axe de pivotement (101) est agencé sur une partie arrière de ladite coque. 10
10. Chaussure (1) selon une ou plusieurs des revendications précédentes, 15
caractérisée en ce que
 ledit premier axe de pivotement (100) est agencé sur une partie arrière de ladite coque (2) et **en ce que** ledit second axe de pivotement (101) est agencé sur la région de la cheville. 20

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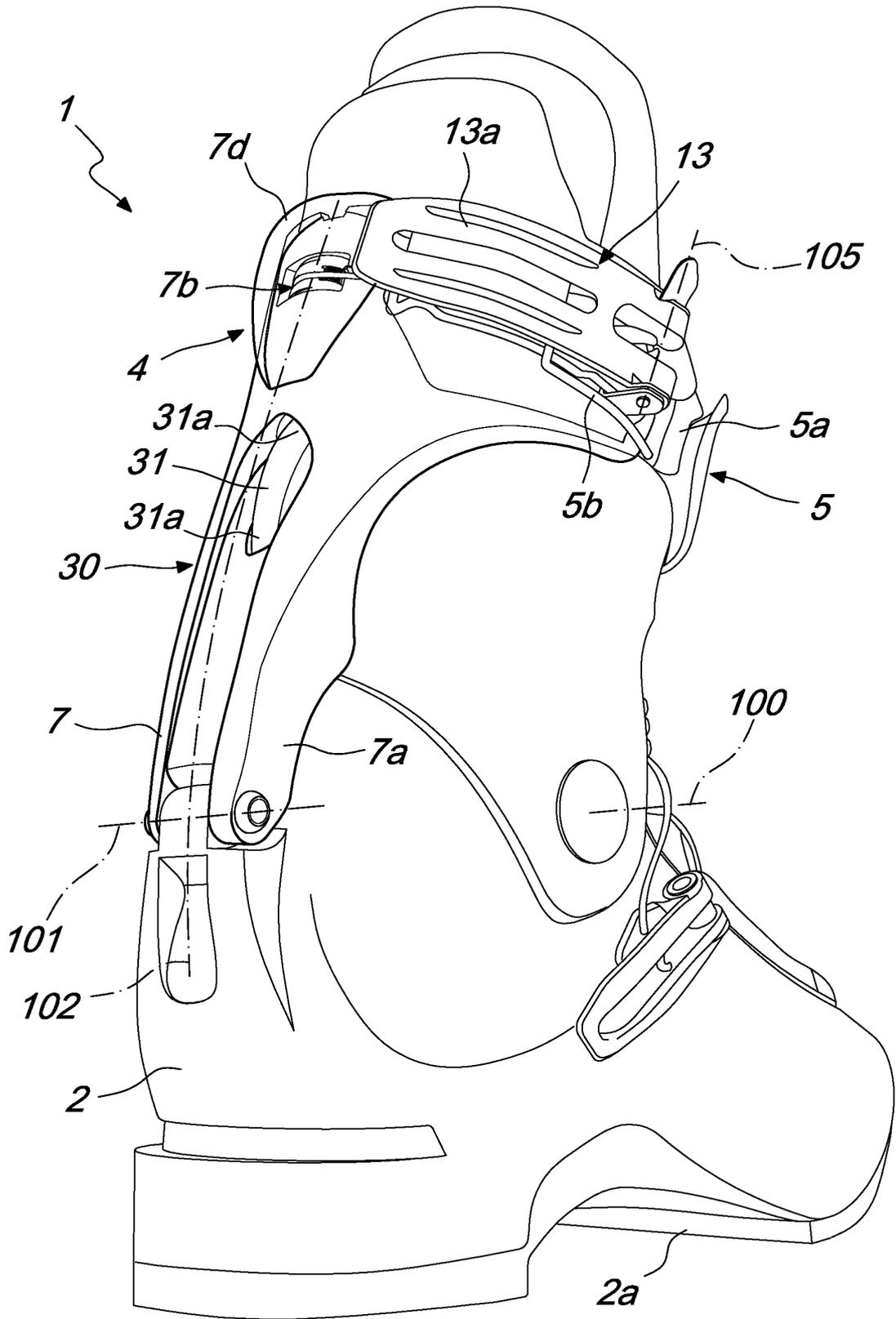


Fig. 1

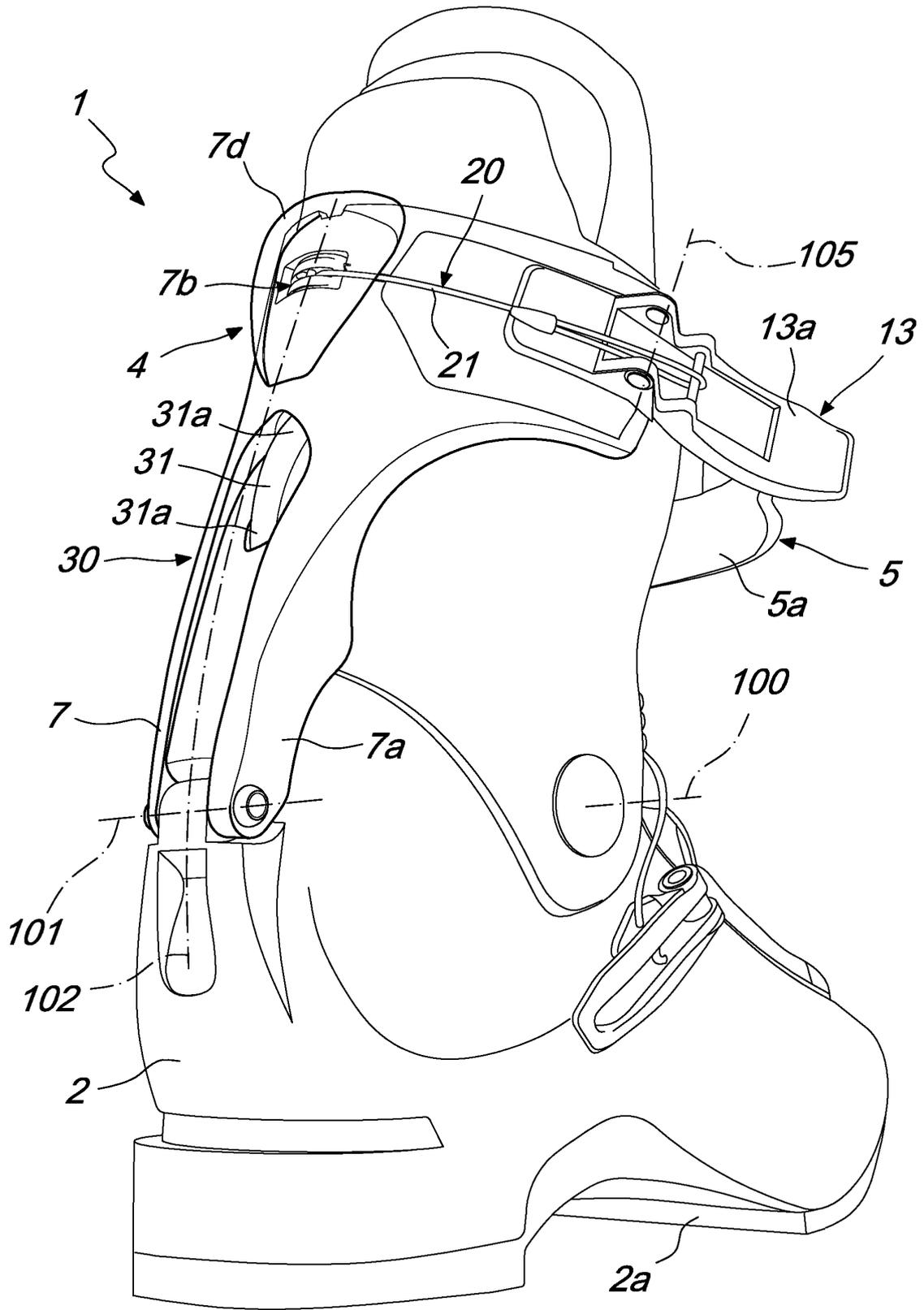


Fig. 2

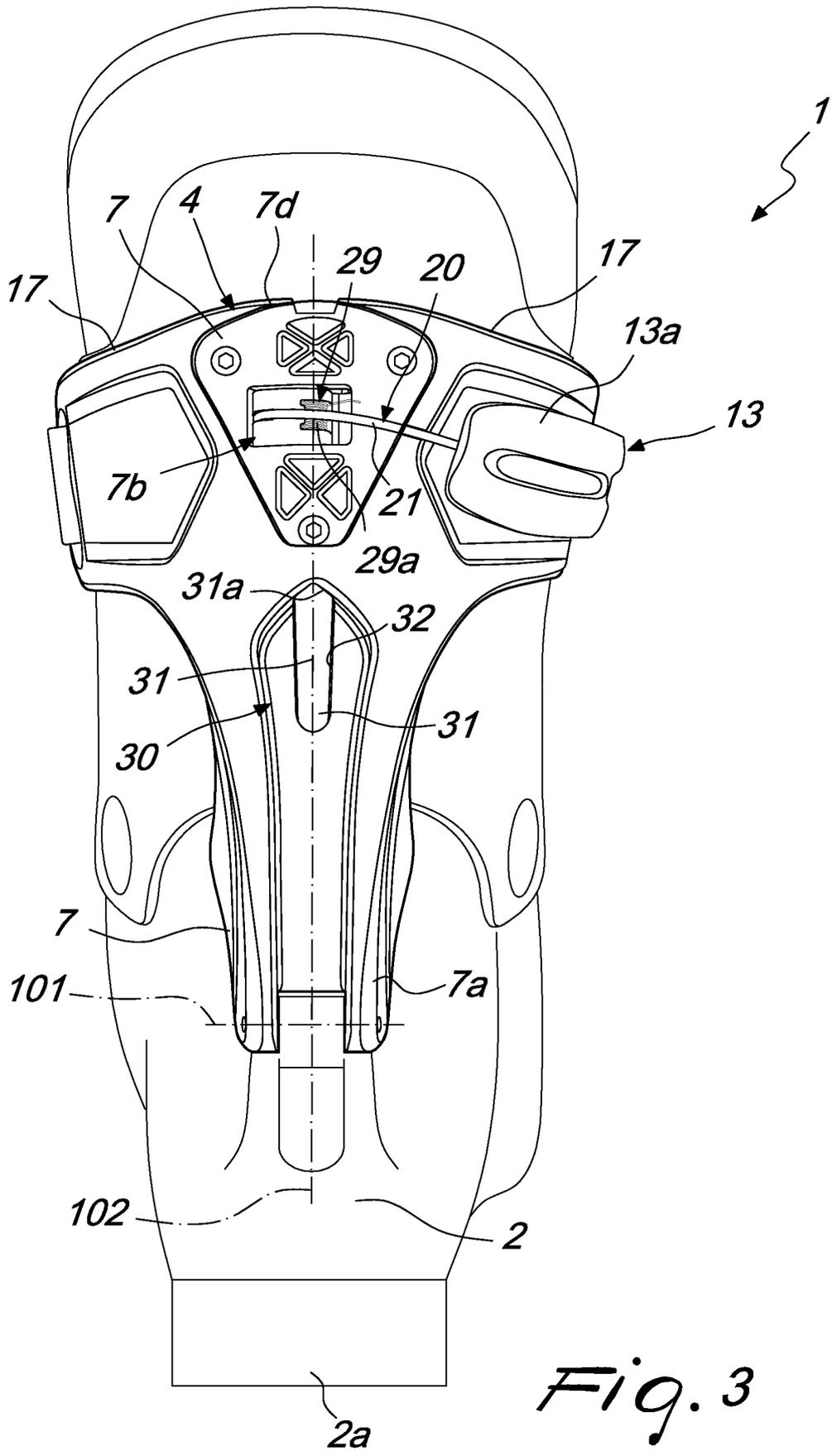
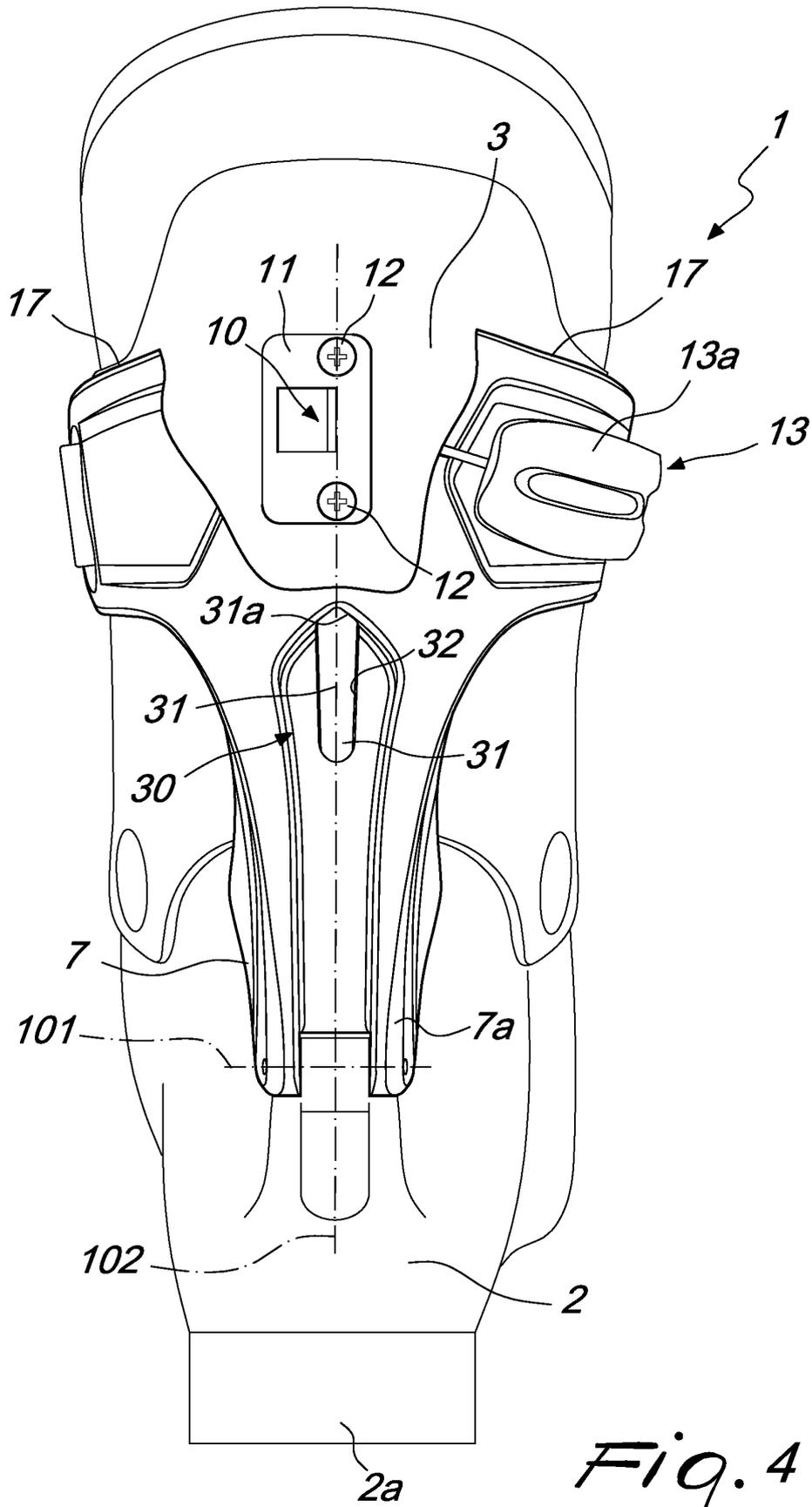


Fig. 3



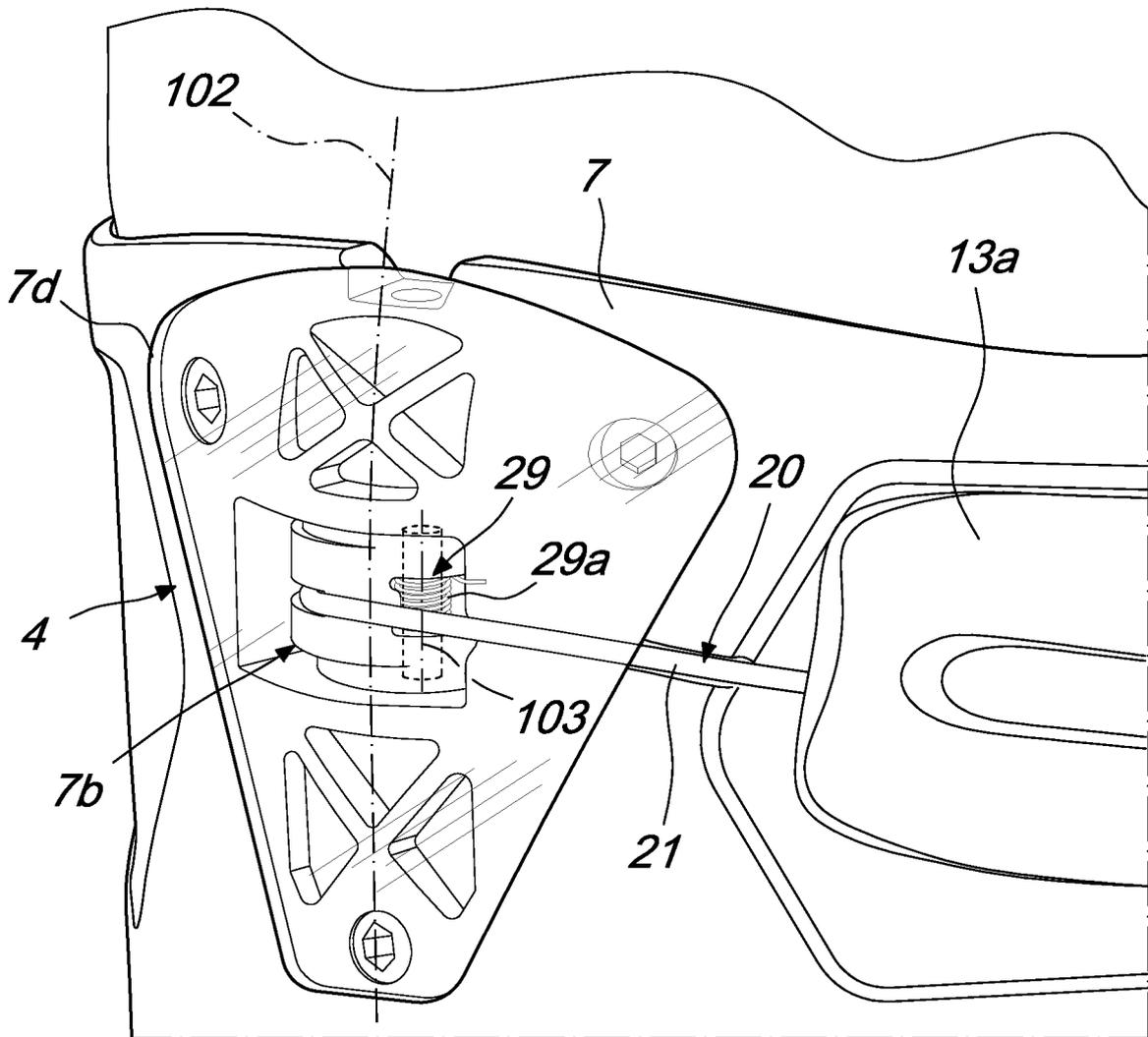


Fig. 5

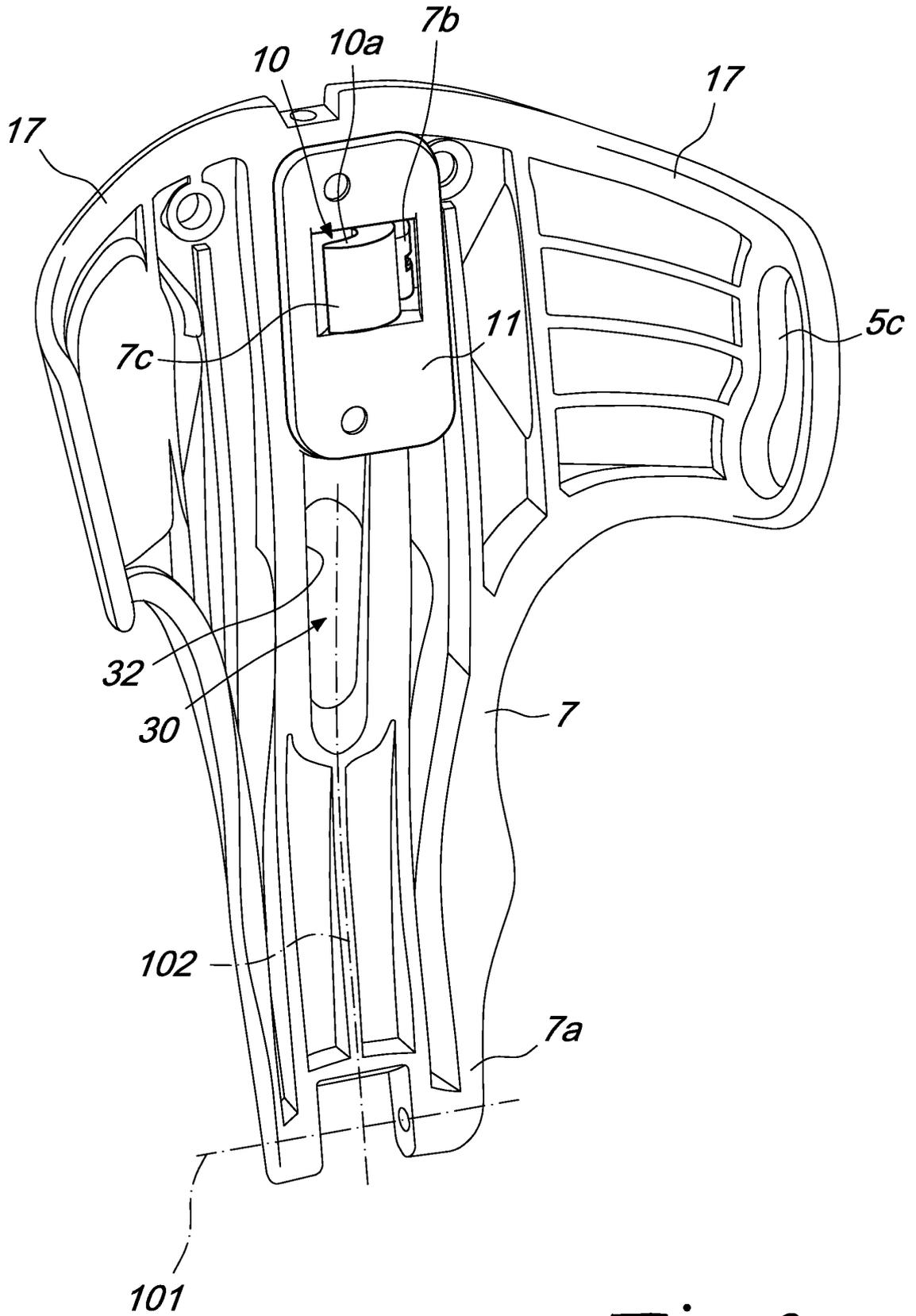


Fig. 6

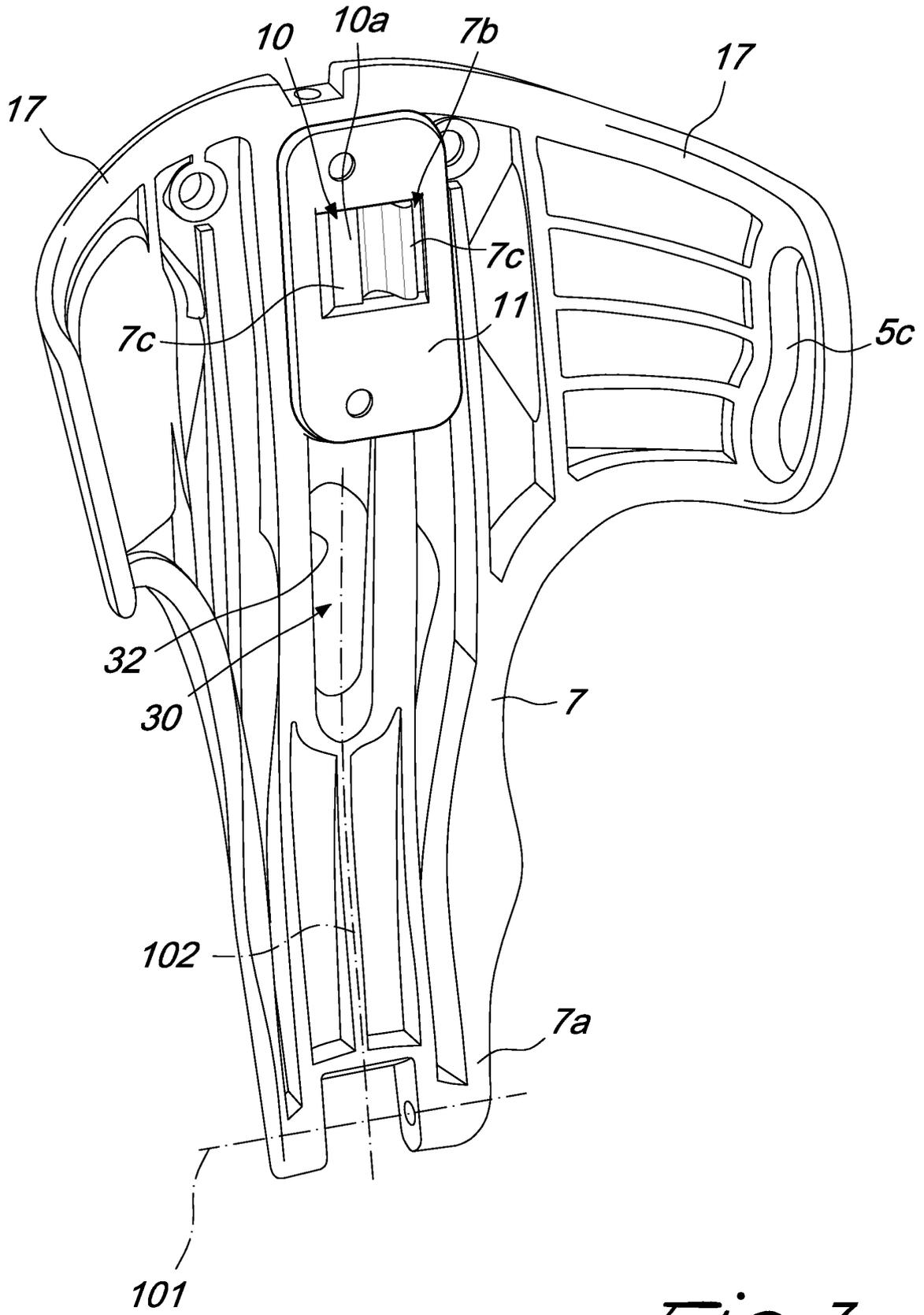


Fig. 7

REFERENCES CITED IN THE DESCRIPTION

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