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(54) **SKI BOOT**

(57) The present invention relates to a ski boot (10) comprising a shell (12), a cuff (14), at least one pair of flaps (F1, F2; F3, F4) configured and arranged at a first region (Z1) of the shell (12) and at a second region (Z2) of the cuff (14), one or more traction elements (16, 116, 216) configured to operatively tighten said at least one pair of flaps (F1, F2; F3, F4) and arranged at least partially at the first region (Z1) and at the second region (Z2), and a reel-based tightening device (18) comprising at least one actuation element (42). Specifically, the reel-based tightening device (18) is arranged and configured to tension at least one end portion (16b, 16a, 116b, 216b) of said one or more traction elements (16, 116, 216) so that an actuation of a single actuation element (42) is adapted to cause the tightening of said at least one pair of flaps (F1, F2; F3, F4) at the first region (Z1) and at the second region (Z1).

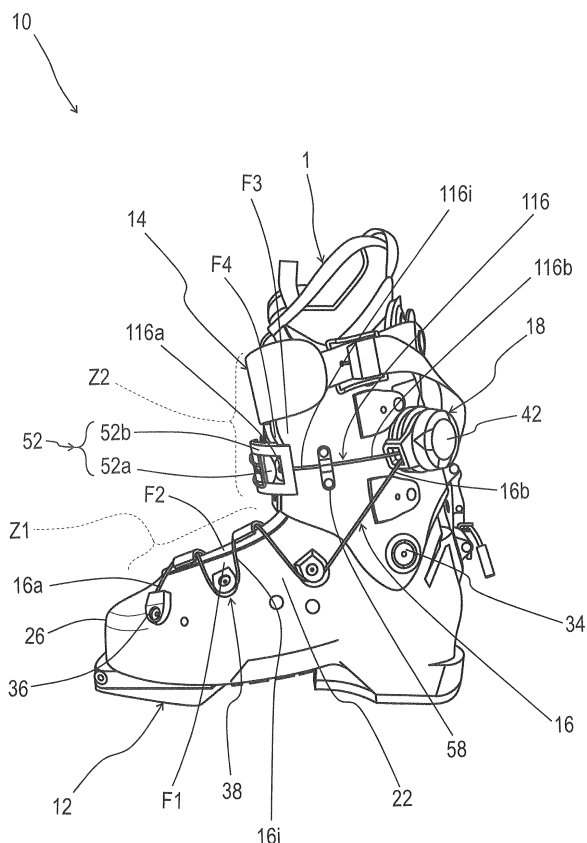


Fig. 21

Description

TECHNICAL FIELD OF THE INVENTION

[0001] The present invention relates to an improvement to a ski boot provided with a pair of flaps for attaining the releasable tightening thereof around the foot and the lower part of the leg of the user, by means of a fastening assembly comprising a reel-based tightening device.

STATE OF THE PRIOR ART

[0002] Ski boots such as for example boots for alpine skiing and for cross-country skiing, are disclosed in the prior art.

[0003] A ski boot is typically designed to support and protect the foot, the ankle and the lower part of the leg of a user connecting them to the ski. Specifically, the ski boot is configured to support the foot, the ankle and the lower part of the leg so that the movement of the latter allows a mutual transmission of forces from the foot of the user to the ski through the boot. In this condition, there is ensured an appropriate control of the ski.

[0004] Furthermore, a ski boot generally comprises an outer shell made with one or more materials which confer a substantial degree of rigidity, such as for example polymers of various rigidity, depending on the characteristics of the boot. The outer shell further provides for at least one pair of flaps which can be reversibly approached and/or overlapped each other to allow the insertion/removal of the foot from the ski boot.

[0005] In order to achieve a releasable tightening around the foot and the lower part of the leg of the user, the ski boot further comprises a fastening assembly which is adapted to tighten said at least one pair of flaps so as to secure the foot and the lower part of the leg to the ski boot.

[0006] The patent document US2020245711 discloses a ski boot comprising a shell and a cuff connected to each other. Such ski boot further includes a fastening assembly provided with two reel-based tightening devices adapted to tension two traction cables which, through the redirecting members, are configured to associate the flaps of the boot and to operatively tighten them to each other.

[0007] Although such prior art ski boots and the relevant fastening systems function appropriately in most cases, they reveal drawbacks.

[0008] In particular, prior art ski boots are complex to manufacture given that they provide for a plurality of devices that are complex to manufacture. Such devices that are complex to manufacture must be fixed on various portions of the shell and of the cuff, therefore complicating the steps for designing and manufacturing the ski boot, and therefore increasing the costs thereof.

[0009] For example, the ski boot US2020245711 comprises a plurality of reel-based tightening devices, each having an inherent high construction complexity, which

are variously arranged on the shell and/or cuff. This condition complicates a step for designing of the ski boot given that it provides for a plurality of reel-based tightening devices, and therefore complicating a manufacturing step.

[0010] Furthermore, the step for designing the ski boot is limited by the need to have to provide for a plurality of reel-based tightening devices. In particular, there arises the need to provide for various areas of the ski boot on which to fix said plurality of reel-based tightening devices, and such areas must be suitably designed for the purpose. Furthermore, for the same reason, desired aesthetic characteristics of the ski boot are limited by the presence of said plurality of reel-based tightening devices.

[0011] Furthermore, the various areas of the ski boot provide for a plurality of reel-based tightening devices, increasing the likelihood that the latter in operating conditions might inadvertently collide with objects, causing a damage thereto.

[0012] Furthermore, the prior art ski boots and the respective fastening assemblies are not intuitive to use.

[0013] For example, the ski boot US2020245711 comprises a plurality of reel-based tightening devices which must be actuated to obtain a releasably tightening of the ski boot.

[0014] As a result, there arises the need to provide a ski boot which overcome at least one of the above-mentioned drawbacks.

SUMMARY OF THE INVENTION

[0015] An object of the present invention is to provide a ski boot which provides for a construction that is simple to design and manufacture, while ensuring an intuitive use at the same time.

[0016] In the context of the task outlined above, an object of the present invention is to provide a ski boot that is configured to comprise a reduced number of devices that are complex to manufacture.

[0017] A further object is to obtain a ski boot that is configured to ensure a wide choice of characteristics at the design stage.

[0018] A further object is to obtain a ski boot that is configured to ensure reliable tightening around the foot and around the lower part of the leg of the user.

[0019] A further object is to obtain a ski boot that is configured to ensure a comfortable tightening process.

[0020] A further object is to obtain a boot that is configured to ensure comfortable steps for introducing/removing the foot.

[0021] A further object is to obtain a ski boot that is configured to ensure durability of the components thereof.

[0022] A further object is to obtain a ski boot that is configured to ensure ease of use.

[0023] A further object is to obtain a ski boot which provides for an alternative construction with respect to

the prior art ones.

[0024] These and other tasks, objects and advantages outlined above, as well as others which will be more apparent in the description below, are achieved through a ski boot as defined in the independent claim. Preferred embodiments are defined in the dependent claims.

BRIEF DESCRIPTION OF THE FIGURES

[0025] The further characteristics and advantages of the ski boot will become more apparent in the following description relating to embodiments provided purely by way of non-limiting example, with reference to the figures below, wherein:

- Fig. 1 shows a first lateral view of a ski boot, according to a first preferred embodiment of the present invention, in an opening position adapted to insert/remove the foot of a user;
- Fig. 2 shows the first lateral view of the ski boot of Fig. 1, in a closing position;
- Fig. 3 shows a second lateral view of the ski boot of Fig. 2;
- Fig. 4 shows a front view of the ski boot of Fig. 2;
- Fig. 5 shows a rear view of the ski boot of Fig. 2;
- Fig. 6 shows a first lateral view of a ski boot, according to a second preferred embodiment of the present invention, in an opening position adapted to insert/remove the foot of a user,
- Fig. 7 shows the first lateral view of the ski boot of Fig. 6, in a closing position;
- Fig. 8 shows a second lateral view of the ski boot of Fig. 7;
- Fig. 9 shows a front view of the ski boot of Fig. 7;
- Fig. 10 shows a rear view of the ski boot of Fig. 7;
- Fig. 11 shows a first lateral view of a ski boot, according to a third preferred embodiment of the present invention, in an opening position adapted to insert/remove the foot of a user,
- Fig. 12 shows the first lateral view of the ski boot of Fig. 11, in a closing position;
- Fig. 13 shows a second lateral view of the ski boot of Fig. 12;
- Fig. 14 shows a front view of the ski boot of Fig. 12;
- Fig. 15 shows a rear view of the ski boot of Fig. 12;
- Fig. 16 shows a first lateral view of a ski boot, according to a fourth preferred embodiment of the present invention, in an opening position adapted to insert/remove the foot of a user,
- Fig. 17 shows the first lateral view of the ski boot of Fig. 16, in a closing position;
- Fig. 18 shows a second lateral view of the ski boot of Fig. 17;
- Fig. 19 shows a front view of the ski boot of Fig. 17;
- Fig. 20 shows a rear view of the ski boot of Fig. 17;
- Fig. 20 shows a rear view of the ski boot of Fig. 17;
- Fig. 21 shows a lateral view of a ski boot, according to a fifth preferred embodiment of the present inven-

tion;

- Fig. 22 shows a front perspective view of the ski boot of Fig. 21, in an opening position adapted to insert/remove the foot of a user;
- Fig. 23 shows a lateral view of a ski boot, according to a sixth preferred embodiment of the present invention;
- Fig. 24 shows a front perspective view of the ski boot of Fig. 23, in an opening position adapted to insert/remove the foot of a user;
- Fig. 25 shows a first front perspective view of the ski boot, according to a seventh preferred embodiment of the present invention, in an opening position adapted to insert/remove the foot of a user;
- Fig. 26 shows a second front perspective of the ski boot of Fig. 25.

DETAILED DESCRIPTION OF THE INVENTION

[0026] In the present description there may be used expressions such as "lateral", "external", "internal", "front", "rear", "upper", "lower", "high", "low" and the like; the person skilled in the art will have no difficulty understanding that such terms refer to a ski boot and its components as observed by a user who wears the boot in the normal condition of use, and as shown in the attached figures.

[0027] Below, there are described various embodiments of the ski boot 10 according to the present invention.

FIRST EMBODIMENT

[0028] With reference to Figs. 1 to 5, there is shown a first embodiment of the ski boot 10 according to the present invention.

[0029] The ski boot 10 comprises a shell 12 and a cuff 14 made of substantially rigid material, and connected to each other. The materials with which the shell 12 and the cuff 14 may be made may be polymeric materials preferably thermoplastics, such as for example materials based on polyurethanes, polyamides, polyolefins and the like.

[0030] The ski boot 10 further comprises one or more traction elements 16, that is at least one traction element 16, and a reel-based tightening device 18.

[0031] The shell 12 is operatively adapted to receive the foot of a user. While, the cuff 14 is operatively adapted to receive the lower part of the leg of the user. Preferably, there may be provided for an inner shoe 1 made of substantially soft material. The inner shoe 1, generally provided with respective tightening means 3, is housed and supported possibly removably in the shell 12 and the cuff 14, the latter made of material that is stiffer than that of the inner shoe 1. Said inner shoe 1 is configured to in turn receive the foot and the lower part of the leg of the user.

[0032] In particular, the shell 12 is provided with a sole

20, substantially defining a plane for supporting the foot, from whom there depart on opposite longitudinal sides a first side wall 22 and a second side wall 24, which are substantially opposite to each other with respect to a median sagittal plane M1 of the ski boot 10. The first 22 and second 24 side walls, are adapted to be arranged, respectively, on the outer side part of the foot and on the inner side of the foot extending between a tip 26, located in an area close to the tip of the foot, and a heel 28, located at an area near the heel of the foot, affecting the lateral regions of the foot and substantially passing through the malleoli region.

[0033] The cuff 14 may provide for various configurations and it may be connected by means of articulation means so that it is adapted to be rotated as a whole with respect to the shell 12. Alternatively, like in the present first embodiment and in the subsequent embodiments, the cuff 14 may be connected by means of articulation means so that a portion thereof is articulated with respect to the shell 12.

[0034] In particular, in the present embodiment, the cuff 14 comprises a first portion 30, such as the front portion 30, and a second portion 32, such as the rear portion 32, which are adapted to be mutually coupled so as to form a substantially tubular body defining said cuff 14. The first 30 and second 32 portions of the cuff 14 are preferably configured and arranged so as to receive, respectively, the front area and the rear area of the lower part of the leg of the user.

[0035] In particular, the first portion 30 is preferably connected to the shell 12 extending upwards from the first 22 and second 24 side walls. For example, the first portion 30 is formed as a single piece with or fixed to said first 22 and second 24 side walls. While, the second portion 32 is preferably rotatably connected, that is it is articulated, to the shell 12 by means of adapted articulation means 34, for example arranged substantially at or near the malleolar regions.

[0036] In this condition, the first 30 and second 32 portions, of the cuff 14 can be reversibly diverged, opened or moved mutually between an opening position (see Fig. 1) wherein the first 30 and second 32 portions, are substantially at least partially de-coupled or disengaged with respect to each other so as to allow the user to insert or remove the foot from the boot 10, and a closing position (see Figs. 2 to 5) wherein the first 30 and second 32 portions, are coupled to each other so as to close the boot 10 around the foot and to the lower part of the leg of the user.

[0037] The boot 10 further comprises at least one pair of flaps of said shell 12 and of said cuff 14, such as first flap F1 and a second flap F2, to be approached/moved away to obtain a releasable fastening thereof around the foot and around the lower part of the leg of the user, so as to obtain a releasable tightening of the ski boot 10. Said at least one pair of flaps of said shell and of said cuff, such as the first flap F1 and the second flap F2, is arranged at a first region Z1 of the shell 12 and at a second region Z2 of

the cuff 14. Under operative conditions, said first region Z1 is substantially adapted to receive the dorsum of the foot, while said second region Z2 of the cuff 14 is substantially adapted to receive the lower part of the leg of the user, preferably the front area of the lower part of the leg of the user. Preferably, at at least said second region Z2 the flaps of said at least one pair of flaps, such as the first flap F1 and the second flap F2, can be at least partially overlapped with respect to each other. Therefore, the tightening of the boot 10 according to the present invention may entail at the second region Z2 the approaching of the interface edges of said flaps or the slidable superimposition of a flap with respect to another flap, and at the first region Z1 the approaching of the interface edges of said flaps or the slidable superimposition of a flap with respect to another flap.

[0038] There may be provided for different configurations for said at least one pair of flaps to be approached/moved away so as to obtain a releasable fastening thereof around the foot and around the lower part of the leg of the user, so as to obtain a releasable tightening of the ski boot 10.

[0039] In the present first embodiment like in some subsequent preferred embodiments, said at least one pair of flaps preferably comprises the first flap F1 and the second flap F2 which are formed extending respectively from the first side wall 22 and from the second side wall 24 of the shell 12. In particular, the first flap F1 is configured and shaped to extend from the first side wall 22 so as to be arranged at both the first region Z1 of the shell 12, adapted to receive the dorsum of the foot, and the second region Z2 of the first portion 30 of the cuff 14, adapted to receive the lower part of the leg. In other words, the first flap F1 is shaped and configured so as to define both a part of the shell 12 at the first region Z1, and a part of the first portion 30 of the cuff 14 at the second region Z2. While, the second flap F2 is configured and shaped to extend from the second side wall 24 so as to be arranged at both the first region Z1 of the shell 12, adapted to receive the dorsum of the foot, and the second region Z2 of the first portion 30 of the cuff 14, adapted to receive the lower part of the leg. In other words, the second flap F2 is shaped and configured so as to define both a part of the shell 12 at the first region Z1, and a part of the first portion 30 of the cuff 14 at the second region Z2.

[0040] Therefore, in the present preferred embodiment like in some subsequent preferred embodiments, the boot 10 preferably comprises a single pair of flaps, such as the first flap F1 and the second flap F2, each of which is configured and shaped so as to be arranged extending at both the first region Z1 and the second region Z2, defining at least one portion of both shell 12 and of the cuff 14.

[0041] As explained below, this configuration shall not be deemed as limiting given that there may be provided for further embodiments in which said at least one pair of flaps comprises two or more pairs of flaps, wherein each pair is arranged in only one of said first Z1 and second Z2 regions, and not in the other.

[0042] Furthermore, in the present embodiment like in some subsequent preferred embodiments, the first flap F1 and the second flap F2 are configured and shaped so that they can be overlapped with respect to each other, preferably at both the first region Z1 and the second region Z2, given that they can essentially slide on each other when tightening the boot 10.

[0043] Said one or more traction elements 16 are configured substantially to associate and to operatively approach/tighten said at least one pair of flaps, such as the first flap F1 and the second flap F2 to each other. Furthermore, said one or more traction elements 16 are arranged at least partially at the first region Z1 and at the second region Z2 by means of a respective intermediate portion 16i.

[0044] In the present first embodiment, said one or more traction elements 16 consist of a single first traction element 16, such as a cable or rope, preferably made of metal material and possibly stranded, which is flexible and substantially inextensible.

[0045] Said first traction element 16 comprises respective first end portion 16a and second end portion 16b which are connected to each other by a respective intermediate portion 16i. In particular, the first end portion 16a is constrained, anchored or fixed by means of a first cable lug device 36 to a portion of the shell 12, preferably near the tip 26, and the second end portion 16b is connected to the reel-based tightening device 18.

[0046] Furthermore, this first traction element 16 is configured and substantially arranged to associate and to operatively approach/tighten said at least one pair of flaps to each other, such as the first flap F1 and the second flap F2, and it is at least partially arranged at the first region Z1 and at the second region Z2 by means of the respective intermediate portion 16i.

[0047] In particular, the intermediate portion 16i of the first traction element 16 is configured to tighten the first F1 and second F2 flaps of said at least one pair of flaps through the first redirecting means 38 adapted to be engaged in a passing and sliding manner from said first traction element 16, suitably diverting the sliding direction thereof. The first redirecting means 38 are preferably arranged and fixed on different areas of both first F1 and second F2 flaps, at the first region Z1 and at the second region Z2.

[0048] Said reel-based tightening device 18 can be constrained to the shell 12 or cuff 14 and it is arranged and configured to reversibly tension said one or more traction elements 16. In the present embodiment like in some subsequent preferred embodiments, the reel-based tightening device 18 can be preferably fixed to the cuff 14, and more preferably to the second portion 32 of the cuff 14.

[0049] The reel-based tightening device 18 substantially comprises a containment housing 40 in which there is housed a winding mechanism provided with at least one reel element with which there is associated said second end portion 16b of the first traction element 16.

The winding mechanism is operatively connected to at least one element 42 for actuating the reel-based tightening device 18, such as for example a knob element 42, which is fitted on the containment housing 40. By means of the actuation element 42, the user may drive in rotation said at least one reel element in a first direction of rotation, or winding direction, so that said first traction element 16 is wound around the reel element, therefore obtaining a progressive approaching of said at least one pair flaps, such as the first flap F1 and the second flap F2, and therefore the desired tightening action thereof, or in the opposite rotation direction, or unwinding direction, to obtain the unwinding of the first traction element 16 from the reel element and therefore allow the moving away of said at least one pair of flaps, such as the first flap F1 and the second flap F2.

[0050] Said winding mechanism further comprises suitable retaining means adapted to retain the progressive position of said at least one reel element, so as to maintain the tensioning condition of the first traction element 16 achieved progressively, both in the winding direction and possibly in the unwinding direction, therefore allowing to carry out a fine and continuous adjustment of the closure of said at least one pair of flaps, such as the first flap F1 and the second flap F2, further providing for end-of-stroke for the rotary movement of the reel element, both in the winding direction and in the unwinding direction.

[0051] Possibly, following a command action by the user, for example carried out acting by pressing on the actuation element 42 or on a specific button, the retaining means may further release said at least one reel element, allowing the latter to rotate freely in the unwinding direction so as to allow the quick release of the traction element 16.

[0052] Generally, the reel-based tightening device 18 is of the known type and therefore they will not be described further. For example, in the present first embodiment, a reel-based tightening device 18 which may be advantageously incorporated in the ski boot 10 according to the present invention is described in document EP0056953.

[0053] In particular, the reel-based tightening device 18 is arranged and configured to tension at least one end portion of said one or more traction elements 16 so that a preferably manual actuation, by the user, of a single actuation element 42 of the reel-based tightening device 18 is adapted to cause the tightening of said at least one pair of flaps, such as the first flap F1 and the second flap F2, at the first region Z1 and at the second region Z2. In other words, the reel-based tightening device 18 is arranged and configured so that the actuation of a single actuation element 42 is adapted to cause the tightening of the flaps in both first Z1 and second Z2 regions tensioning the end portions of each of said one or more traction elements 16, in a preferably substantially simultaneous manner.

[0054] In the present first embodiment, the reel-based

tightening device 18 is arranged and configured to tension the second end portion 16b of the single first traction element 16 so that a preferably manual actuation, by the user, of a single actuation element 42 of the reel-based tightening device 18 is adapted to cause the tightening of said at least one pair of flaps, such as the first flap F1 and the second flap F2, at the first region Z1 and at the second region Z2 substantially by means of the respective intermediate portion 16i.

[0055] Advantageously, this condition allows to obtain a ski boot 10 which provides for a construction that is simple to design and manufacture, while ensuring an intuitive use at the same time.

[0056] As a matter of fact, for example, there can be used a single reel-based tightening device 18, having an inherent high construction complexity, and not a plurality of reel-based tightening devices like instead it is provided for in US2020245711. Therefore, this allows to advantageously simplify a step for designing and manufacturing the ski boot, given that it provides for a single area of the ski boot on which the reel-based tightening device is fixed, allowing extensive design options. Furthermore, in this first embodiment, the use of a single traction element 16 further contributes to the simplification of the construction or structure of the ski boot 10.

[0057] Furthermore, this condition allows to obtain a ski boot 10 which provides for a reliable tightening around the foot and around the lower part of the leg of the user. As a matter of fact, both the first region Z1 and the second region Z2 can be fastened with a single reel-based tightening device 18.

[0058] Furthermore, this condition allows to obtain a ski boot 10 which provides for an intuitive use. As a matter of fact, by acting on a single reel-based tightening device 18, that is on a single actuation element 42 of the latter, and not on a plurality of reel-based tightening devices, a step for the reversible fastening of the ski boot 10 around the foot and around the lower part of the leg of the user is particularly intuitive.

[0059] Furthermore, this condition allows to obtain a ski boot 10 which provides for a simple use. As a matter of fact, by acting on a single reel-based tightening device 18, that is on a single actuation element 42 of the latter, a step for reversible fastening the ski boot 10 around the foot and around the lower part of the leg of the user is particularly simple.

[0060] Furthermore, this condition allows to obtain a ski boot 10 that is configured to ensure durability of the components thereof. As a matter of fact, providing for the use of a single reel-based tightening device 18, having an inherent high construction complexity and resulting reduced strength, there is reduced the probability that the latter may collide inadvertently with objects under operative conditions, causing a damage thereto.

[0061] Preferably, the first redirecting means 38 include one or more first redirecting members 44, such as for example cable glands and/or elements provided with a pulley rotatably connected between a covering

plate and a fixing plate which can be constrained to the shell 12 or to the cuff 14, for example as described in the patent document EP0689392. In the present first embodiment, the first redirecting members 44 are preferably elements each provided with a pulley.

[0062] In particular, said first redirecting members 44 are arranged and fixed on different areas of both first F1 and second F2 flaps, at the first region Z1 and at the second region Z2.

[0063] In the present first embodiment, the ski boot 10 includes a plurality (seven in the shown example) of first redirecting members 44 which are adapted to guide the first traction element 16 along a first fastening path P1 between the reel-based tightening device 18, preferably fixed to the second portion 32 of the cuff 14, and the first cable lug device 36, preferably fixed near the tip 26 of the shell 12.

[0064] A first assembly of first redirecting members 44 (four redirecting members) are arranged on the shell 12 at the first region Z1, on different areas of both first F1 and second F2 flaps. While, a second assembly of first redirecting members 44 (two redirecting members) are arranged on the cuff 14, or on the first portion 30 of the latter, at the second region Z2, on different areas of both first F1 and second F2 flaps. Furthermore, a third assembly of first redirecting members (one redirecting member) is arranged on the cuff 14, that is on the second portion 32 of the latter. In particular, the first traction element 16 is guided by means of first redirecting members 44 between the first cable lug device 36 and the reel-based tightening device 18 following a first zig-zag fastening path P1, substantially forming a succession of W-like shapes, passing through the first region Z1 and the second region Z2 in which the first redirecting members 44 are associated with the two flaps in an alternating manner.

[0065] Preferably, in the present embodiment like in some subsequent preferred embodiments, said cuff 14 comprises the first portion 30 and the second portion 32 which are formed distinct and adapted to be coupled to each other so as to form a substantially tubular body defining said cuff 14. Said first 30 and second 32 portions can be mutually moved between an opening position and a closing position.

[0066] In particular, at least one of said one or more traction elements 16 is arranged and configured to tighten said first 30 and second 32 portions, so that the preferably manual actuation of the actuation element 42 of the reel-based tightening device 18 is also adapted to substantially reversibly cause a movement from said opening position to said closing position of the first 30 and second 44 portions of the cuff 14 substantially by means of the respective intermediate portion.

[0067] In the present first embodiment, the single traction element 16 is connected through its first 16a and second 16b end portions respectively to the shell 12 and to the second portion 32 of the cuff 14, and therefore mutually associates the first 30 and second 32 portions of

the cuff 14 through its intermediate portion 16i by means of the first redirecting members 44 of the first return means 38.

[0068] Advantageously, this condition allows to obtain a ski boot 10 which ensures comfortable steps for introducing/removing the foot given that the portions of the cuff 14 can be diverged, while at the same time ensuring a comfortable and intuitive tightening process by means of the reel-based tightening device 18.

[0069] Preferably, in the present embodiment like in some subsequent preferred embodiments, the reel-based tightening device 18 is constrained to the second portion 32, such as the rear portion 32, of the cuff 14.

[0070] Advantageously, this condition allows to obtain a ski boot 10 which is configured to further ensure the durability of the components thereof. As a matter of fact, arranging the reel-based tightening device 18 substantially in a rear area of the ski boot 10, allows to further reduce the likelihood that the reel-based tightening device 18 may collide inadvertently in operative conditions, causing a damage thereto.

SECOND EMBODIMENT

[0071] With reference to Figs. 6 to 10, there is shown a second embodiment of the ski boot 10 according to the present invention.

[0072] In the second embodiment, the ski boot 10 is substantially similar to the first embodiment, and it may provide for its variants, one or more elements and advantages described above. The difference between the ski boot 10 of the second embodiment and that of the first embodiment substantially lies in the number and the configuration of traction elements, in the connection thereof to the reel-based tightening device and to the shell/cuff, and in the path that they follow. Therefore, the components which are substantially unchanged will not be described again and the same reference numerals will be used.

[0073] The ski boot 10 comprises a shell 12 and a cuff 14, which are substantially similar to the description outlined above relating to the first embodiment, and wherein preferably the cuff 14 comprises a first portion 30 and a second portion 32 which are adapted to be mutually coupled so as to form a substantially tubular body defining said cuff 14. The first 30 and second 32 portions of the cuff 14 are preferably configured and arranged so as to receive, respectively, the front area and the rear area of the lower part of the leg of the user.

[0074] In particular, the first portion 30 is preferably connected to the shell 12 extending upwards from the first 22 and second 24 side walls. For example, the first portion 30 is formed as a single piece with or fixed to said first 22 and second 24 side walls. While, the second portion 32 is preferably rotatably connected, that is it is articulated, to the shell 12 by means of suitable articulation means 34, for example arranged substantially at or near the malleolar regions.

[0075] In the second embodiment, said one or more traction elements include a first traction element 16 and a second traction element 116, such as cables or ropes, preferably made of metal material and possibly stranded, which are flexible and substantially inextensible. Said first 16 and second 116 traction elements, are substantially provided distinct from each other.

[0076] Said first traction element 16 comprises respective first end portion 16a and second end portion 16b which are connected to each other by a respective intermediate portion 16i. In particular, the respective first end portion 16a is constrained, anchored or fixed by means of a first cable lug device 36 to a portion of the shell 12, preferably near the tip 26, and the respective second end portion 16b is connected to the reel-based tightening device 18.

[0077] While said second traction element 116 comprises respective first end portion 116a and second end portion 116b which are connected to each other by a respective intermediate portion 116i. In particular, the respective first end portion 116a is constrained, anchored or fixed by means of a second cable lug device 46 to a portion of the cuff 14, preferably at or near the first portion 30, and the respective second portion 116b is connected to the reel-based tightening device 18. In the present embodiment, said second cable lug device 46, better shown and numbered in Fig. 9, is substantially an eyelet terminal fixed in the same fixing point of a first redirecting member 44.

[0078] Said first traction element 16 is substantially configured to associate and to operatively approach/-tighten said at least one pair of flaps, such as the first flap F1 and the second flap F2 to each other, and it is arranged at least partially at the first region Z1 and at the second region Z2 by means of the respective intermediate portion 16i.

[0079] In particular, the intermediate portion 16i of the first traction element 16 is configured to tighten the first F1 and second F2 flaps of said at least one pair of flaps through the first redirecting means 38 adapted to be engaged in a passing and sliding manner from said first traction element 16, suitably diverting the sliding direction thereof. The first redirecting means 38 are preferably arranged and fixed on different areas of both first F1 and second F2 flaps, at the first region Z1 and at the second region Z2.

[0080] Similarly to first embodiment, the first redirecting means 38 preferably include a plurality of first redirecting members 44, such as for example cable glands and/or elements provided with a pulley rotatably connected between a covering plate and a fixing plate which can be constrained to the shell 12 or to the cuff 14, for example as described in the patent document EP0689392. In the present second embodiment, the first redirecting members 44 are preferably elements each provided with a pulley.

[0081] In particular, said first redirecting members 44 are arranged and fixed on different areas of both first F1

and second F2 flaps, at the first region Z1 and at the second region Z2.

[0082] In the present second embodiment, the ski boot 10 includes a plurality (six in the shown example) of first redirecting members 44 which are adapted to guide the first traction element 16 along a first fastening path P1 between the reel-based tightening device 18, preferably fixed to the second portion 32 of the cuff 14, and the first cable lug device 36, preferably fixed near the tip 26 of the shell 12.

[0083] A first assembly of first redirecting members 44 (three redirecting members) are arranged on the shell 12 at the first region Z1, and a second assembly of first redirecting members 44 (three redirecting members) are arranged on the cuff 14 at the second region Z2. In particular, the first traction element 16 is guided by means of first redirecting members 44 between the first cable lug device 36 and the reel-based tightening device 18 following a first zig-zag fastening path P1, substantially forming a succession of W-like shapes, passing through the first region Z1 and the second region Z2 in which the first redirecting members 44 are associated with the two flaps in an alternating manner.

[0084] While said second traction element 116 is substantially configured to associate and to operatively approach/tighten said at least one pair of flaps, such as the first flap F1 and the second flap F2 to each other, and it is preferably arranged at the first region Z2 by means of the respective intermediate portion 116i. Preferably, said second traction element 116 is not arranged at the first region Z1, so as to operatively tighten the respective flaps at the second region Z2 only.

[0085] In particular, the intermediate portion 116i of the second traction element 116 is configured to tighten the first F1 and second F2 flaps of said at least one pair of flaps through the second redirecting means 48 adapted to be engaged in a passing and sliding manner from said second traction element 116, suitably diverting the sliding direction thereof. The second redirecting means 48 are preferably arranged and fixed on different areas of both first F1 and second F2 flaps, predominantly or wholly at the second region Z2.

[0086] The second redirecting means 48 preferably include one or more second redirecting members 50, such as for example cable glands and/or elements provided with a pulley rotatably connected between a covering plate and a fixing plate which can be constrained to the cuff 14, for example as described in the patent document EP0689392. In the present second embodiment, the second redirecting members 50 are preferably elements each provided with a pulley.

[0087] In particular, said second redirecting members 50 are arranged and fixed on different areas of both first F1 and second F2 flaps, predominantly or wholly at the second region Z2.

[0088] In the present second embodiment, the ski boot 10 includes a plurality (three in the shown example) of second redirecting members 50 which are adapted to

guide the second traction element 116 along a second fastening path P2 between the reel-based tightening device 18, preferably fixed to the second portion 32 of the cuff 14, and the second cable lug device 46, preferably fixed at or near the first portion 30 of the cuff 14.

[0089] A first assembly of second redirecting members 50 (three redirecting members) are arranged on the cuff 14 at the second region Z2. In particular, the second traction element 116 is guided by means of the second redirecting members 50 between the second cable lug device 46 and the reel-based tightening device 18 following a second zig-zag fastening path P2, substantially forming a succession of W-like shape, passing through the second region Z2 in which the second redirecting members 50 are associated with the two flaps in an alternating manner.

[0090] In the present second embodiment, the reel-based tightening device 18 is arranged and configured to tension the second end portion 16b of the first traction element 16 and to tension the second end portion 116b of the second traction element 116 so that a preferably manual actuation, by the user, of a single actuation element 42 of the reel-based tightening device 18 is adapted to cause the tightening of said at least one pair of flaps, such as the first flap F1 and the second flap F2, at the first region Z1 and at the second region Z2 substantially by means of the respective intermediate portions 16i and 116i.

[0091] Similarly to first embodiment, in the present second embodiment a reel-based tightening device 18 which may be advantageously incorporated in the ski boot 10 according to the present invention may be described in document EP0056953 or there may be incorporated the one described in document EP0297342.

[0092] This condition allows to obtain the advantages described above for the first embodiment of the ski boot 10.

[0093] Furthermore, the use of two first 16 and second 116 traction elements, allows to further ensure a reliable tightening of the ski boot 10 around the foot and around the lower part of the leg of the user.

[0094] Preferably, the first traction element 16 and the second traction element 116 extend from the reel-based tightening device 18 at least partially on opposite lateral sides of the cuff 14 with respect to the median sagittal plane M1 of the ski boot 10.

[0095] Advantageously, this condition allows to obtain a ski boot 10 which ensures a reliable and comfortable tightening around the foot and around the lower part of the leg of the user. As a matter of fact, the traction by means of the two first 16 and second 116 traction elements, occurs on the opposite lateral sides of the cuff 14 and they are substantially balanced with respect to each other, therefore making the tightening around the foot and above all around the lower part of the leg of the user reliable and comfortable.

[0096] Preferably, the first redirecting means 38 and the second redirecting means 48 are configured so that

the first fastening path P1 of the first traction element 16 and the second fastening path P2 of the second traction element 116 cross each other preferably at said second region Z2.

[0097] Advantageously, this condition allows to obtain a ski boot 10 which envisages an alternative method for tightening around the foot and around the lower part of the leg of the user, to provide different comfort characteristics when closing.

THIRD EMBODIMENT

[0098] With reference to Figs. 11 to 15, there is shown a third embodiment of the ski boot 10 according to the present invention.

[0099] In the third embodiment, the ski boot 10 is substantially similar to the first and/or to the second embodiment, and it may provide their variants, one or more elements and advantages described above. The difference between the ski boot 10 of the third embodiment and that of the first and of the second embodiment substantially lies in the number and the configuration of traction elements, in the connection thereof to the reel-based tightening device and to the shell/cuff, and in the path that they follow. Therefore, the components which are substantially unchanged will not be described again and the same reference numerals will be used.

[0100] The ski boot 10 comprises a shell 12 and a cuff 14, which are substantially similar to the description outlined above relating to the first and the second embodiment, and wherein preferably the cuff 14 comprises a first portion 30 and a second portion 32 which are adapted to be mutually coupled so as to form a substantially tubular body defining said cuff 14. The first 30 and second 32 portions of the cuff 14 are preferably configured and arranged so as to receive, respectively, the front area and the rear area of the lower part of the leg of the user.

[0101] In particular, the first portion 30 is preferably connected to the shell 12 extending upwards from the first 22 and second 24 side walls. For example, the first portion 30 is formed as a single piece with or fixed to said first 22 and second 24 side walls. While, the second portion 32 is preferably rotatably connected, that is it is articulated, to the shell 12 by means of suitable articulation means 34, for example arranged substantially at or near the malleolar regions.

[0102] In the third embodiment, said one or more traction elements 16 consist of a single first traction element 16, such as a cable or rope, preferably made of metal material and possibly stranded, which is flexible and substantially inextensible.

[0103] Said first traction element 16 comprises respective first end portion 16a and second end portion 16b which are connected to each other by a respective intermediate portion 16i. In particular, in the present second embodiment, the first 16a and second 16b end portions, are both connected to the reel-based tightening device 18.

[0104] Said first traction element 16 is substantially configured to associate and to operatively approach/tighten said at least one pair of flaps, such as the first flap F1 and the second flap F2 to each other, and it is arranged at least partially at the first region Z1 and at the second region Z2 by means of the respective intermediate portion 16i.

[0105] In particular, the intermediate portion 16i of the first traction element 16 is configured to tighten the first F1 and second F2 flaps of said at least one pair of flaps through the first redirecting means 38 adapted to be engaged in a passing and sliding manner from said first traction element 16, suitably diverting the sliding direction thereof. The first redirecting means 38 are preferably arranged and fixed on different areas of both first F1 and second F2 flaps, at the first region Z1 and at the second region Z2.

[0106] Similarly to first embodiment, the first redirecting means 38 preferably include a plurality of first redirecting members 44, such as for example cable glands and/or elements provided with a pulley rotatably connected between a covering plate and a fixing plate which can be constrained to the shell 12 or to the cuff 14, for example as described in the patent document EP0689392. In the present third embodiment, the first redirecting members 44 provide for a combination of elements each provided with a pulley and simple cable glands.

[0107] In particular, said first redirecting members 44 are arranged and fixed on different areas of both first F1 and second F2 flaps, at the first region Z1 and at the second region Z2.

[0108] In the present third embodiment, the ski boot 10 includes a plurality (nine in the shown example) of first redirecting members 44 which are adapted to guide the first traction element 16 along a first fastening path P1 between its two first 16a and second 16b end portions, which are both fixed to the reel-based tightening device 18, and the latter preferably fixed to the second portion 32 of the cuff 14.

[0109] A first assembly of first redirecting members 44 (six redirecting members) are arranged on the shell 12, and a second assembly of first redirecting members 44 (three redirecting members) are arranged on the cuff 14. In particular, the first traction element 16 is guided by means of first redirecting members 44 between its end portions fixed to the reel-based tightening device 18 following a first fastening path P1 at least partially zig-zag, substantially forming a succession of W-like shapes, passing through the first region Z1 and the second region Z2.

[0110] In the present third embodiment, the reel-based tightening device 18 is arranged and configured to tension the first end portion 16a and to tension the second end portion 16b of the single first traction element 16 so that a preferably manual actuation, by the user, of a single actuation element 42 of the reel-based tightening device 18 is adapted to cause the tightening of said at least one

pair of flaps, such as the first flap F1 and the second flap F2, at the first region Z1 and at the second region Z2 substantially by means of the respective intermediate portion 16i.

[0111] Similarly to the first and the second embodiment, in the present third embodiment, a reel-based tightening device 18 which may be advantageously incorporated in the ski boot 10 according to the present invention is described in document EP0056953.

[0112] This condition allows to obtain the advantages described above for the first and for the second embodiment of the ski boot 10.

[0113] Furthermore, the use of a first traction element 16 which is tensioned by means of the reel-based tightening device 18 at both end portions thereof allows an alternative method for tightening around the foot and around the lower part of the leg of the user, to provide different comfort characteristics when closing.

[0114] Preferably, the first end portion 16a and the second end portion 16b of the first traction element 16 extend from the reel-based tightening device 18 at least partially on opposite lateral sides of the cuff 14 with respect to the median sagittal plane M1 of the ski boot 10.

[0115] Advantageously, this condition allows to obtain a ski boot 10 which ensures a reliable and comfortable tightening around the foot and around the lower part of the leg of the user. As a matter of fact, the traction of the first traction element 16 occurs on the opposite lateral sides of the cuff 14 substantially balanced, therefore making the tightening around the foot and above all around the lower part of the leg of the user reliable and comfortable.

[0116] Preferably, the first redirecting means 38 are configured so that the first fastening path P1 of the first traction element 16 crosses itself in one or more points of said first region Z1 and/or of said second region Z2.

[0117] Advantageously, this condition allows to obtain a ski boot 10 which further ensures a reliable tightening of the ski boot 10 around the foot and around the lower part of the leg of the user. As a matter of fact, the points in which the first fastening path P1 crosses itself provide a reliable fastening of the first F1 and second F2 flaps of the ski boot 10, besides ensuring an alternative method for tightening around the foot and around the lower part of the leg of the user, to provide different characteristics of comfort when closing.

FOURTH EMBODIMENT

[0118] With reference to Figs. 16 to 20, there is shown a fourth embodiment of the ski boot 10 according to the present invention.

[0119] In the fourth embodiment, the ski boot 10 is substantially similar to the first and/or to the second embodiment and/or to the third embodiment, and it may provide their variants, one or more elements and advantages described above. The difference between the ski boot 10 of the fourth embodiment and that of the

first, of the second and of the third embodiment substantially lies in the number and the configuration of traction elements, in the connection thereof to the reel-based tightening device and to the shell/cuff, and in the path that they follow. Therefore, the components which are substantially unchanged will not be described again and the same reference numerals will be used.

[0120] The ski boot 10 comprises a shell 12 and a cuff 14, which are substantially similar to the description outlined above relating to the first, the second and the third embodiment, and wherein preferably the cuff 14 comprises a first portion 30 and a second portion 32 which are adapted to be mutually coupled so as to form a substantially tubular body defining said cuff 14. The first 30 and second 32 portions of the cuff 14 are preferably configured and arranged so as to receive, respectively, the front area and the rear area of the lower part of the leg of the user.

[0121] In particular, the first portion 30 is preferably connected to the shell 12 extending upwards from the first 22 and second 24 side walls. For example, the first portion 30 is formed as a single piece with or fixed to said first 22 and second 24 side walls. While, the second portion 32 is preferably rotatably connected, that is it is articulated, to the shell 12 by means of suitable articulation means 34, for example arranged substantially at or near the malleolar regions.

[0122] In the fourth embodiment, said one or more traction elements include a first traction element 16 and a second traction element 116, and a third traction element 216, such as cables or ropes, preferably made of metal material and possibly stranded, which are flexible and substantially inextensible. Said first 16, second 116 and third 216 traction elements, are substantially provided distinct from each other.

[0123] Said first traction element 16 comprises respective first end portion 16a and second end portion 16b which are connected to each other by a respective intermediate portion 16i. In particular, the respective first end portion 16a is constrained, anchored or fixed by means of a first cable lug device 36 to a portion of the shell 12, preferably near the tip 26, and the respective second end portion 16b is connected to the reel-based tightening device 18 (in Figs. 16, 17 and 20 the first traction element 16 is shown with a dashed line in a non-exposed part and arranged beneath the cuff 14). While said second traction element 116 comprises respective first end portion 116a and second end portion 116b which are connected to each other by a respective intermediate portion 116i. In particular, the respective first end portion 116a is constrained, anchored or fixed by means of a second cable lug device or by means of an anchoring device 52, possibly of the releasable type, to a portion of the cuff 14, preferably at or near the first portion 32, and the respective second end portion 116b is connected to the reel-based tightening device 18. Furthermore, said third traction element 216 comprises respective first end portion 216a and second end portion 216b which are

connected to each other by a respective intermediate portion 216i. In particular, the respective first end portion 216a is constrained, anchored or fixed by means of a third cable lug device 54 to a portion of the cuff 14, preferably at the first portion 30, and the respective second portion 216b is connected to the reel-based tightening device 18.

[0124] Said first traction element 16 is substantially configured to associate and to operatively approach/tighten said at least one pair of flaps, such as the first flap F1 and the second flap F2 to each other, and it is preferably arranged at the first region Z1 by means of the respective intermediate portion 16i. Preferably, said first traction element 16 is not arranged at the second region Z2, so as to operatively tighten the respective flaps at the first region Z1 only.

[0125] In particular, the intermediate portion 16i of the first traction element 16 is configured to tighten the first F1 and second F2 flaps of said at least one pair of flaps through the first redirecting means 38 adapted to be engaged in a passing and sliding manner from said first traction element 16, suitably diverting the sliding direction thereof. The first redirecting means 38 are preferably arranged and fixed on different areas of both first F1 and second F2 flaps, at the first region Z1.

[0126] Preferably, the first redirecting means 38 include one or more redirecting members 44 and possibly one or more guide grooves 56. Said one or more first redirecting members 44 may be cable glands or elements provided with a pulley rotatably connected between a covering plate and a fixing plate which can be constrained to the shell 12 or to the cuff 14, for example as described in the patent document EP0689392. In the present fourth embodiment, the first redirecting means 38 comprise a single first redirecting member 44 defined by a cable gland. However, this embodiment shall not be deemed as limiting and the first redirecting means 38 may include a plurality of first redirecting members 44, such as for example cable glands and/or elements provided with a pulley rotatably connected between a covering plate and a fixing plate which can be constrained to the shell 12, for example as described in the patent document EP0689392. While the guide groove 56 is formed on an outer surface portion of the shell 12, and it is adapted to guide the intermediate portion 16i through the malleolar region of the shell 12 towards the reel-based tightening device 18 (the guide groove 56 and shown in Figs. 16, 17 and 20 with a dashed line).

[0127] In particular, said single first redirecting member 44 is arranged and fixed at the first region Z1 on a first F1 or second F2 flap, different from the one to which there is fixed the first cable lug element 36.

[0128] In the present fourth embodiment, the ski boot 10 includes said single first redirecting member 44 which is adapted to guide the first traction element 16 along a first fastening path P1 between the reel-based tightening device 18, preferably fixed to the second portion 32 of the cuff 14, and the first cable lug device 36, preferably fixed near the tip 26 of the shell 12.

[0129] While said second traction element 116 is substantially configured to associate and to operatively approach/tighten said at least one pair of flaps, such as the first flap F1 and the second flap F2 to each other, and it is preferably arranged at the first region Z2 by means of the respective intermediate portion 116i. Preferably, said second traction element 116 is not arranged at the first region Z1, so as to operatively tighten the respective flaps at the second region Z2 only.

[0130] In particular, the intermediate portion 116i of the second traction element 116 is configured to tighten the first F1 and second F2 flaps of said at least one pair of flaps through the second redirecting means 48 adapted to be engaged in a passing and sliding manner from said second traction element 116, suitably diverting the sliding direction thereof. The second redirecting means 48 are preferably arranged and fixed on different areas of both first F1 and second F2 flaps, predominantly or wholly at the second region Z2.

[0131] Preferably, the second redirecting means 48 include one or more second redirecting members 50, such as for example cable glands and/or elements provided with a pulley rotatably connected between a covering plate and a fixing plate which can be constrained to the cuff 14, for example as described in the patent document EP0689392. In the present fourth embodiment, the second redirecting means 48 comprise a single second redirecting member 50 defined by a cable gland. However, this embodiment shall not be deemed as limiting and the second redirecting means 48 may include a plurality of second redirecting members 50, such as for example cable glands and/or elements provided with a pulley rotatably connected between a covering plate and a fixing plate which can be constrained to the cuff 14, for example as described in the patent document EP0689392.

[0132] In particular, said single second redirecting member 50 is arranged and fixed at the second region Z2 on a first F1 or second F2 flap which is on one side of the cuff 14, that is on a flap, which is opposite to the one to which there is fixed the anchoring device 52 with respect to the median sagittal plane M1.

[0133] Furthermore, said third traction element 216 is preferably configured to allow the tightening, coupling to each other, of the first portion 30 and of the second portion 32 of the cuff 14, substantially contributing to the closing of the latter. Alternatively or additionally, said third traction element 216 may be configured and arranged, similarly to the second traction element 116, to substantially associate and to operatively approach/tighten said at least one pair of flaps, such as the first flap F1 and the second flap F2 to each other, at the second region Z2 by means of the respective intermediate portion 216i.

[0134] Said third traction element 216 is fixed by means of its two first 216a and second 216b end portions, respectively to the third cable lug device 54 and to the reel-based tightening device 18, and it is guided between the latter through a third path P3 which preferably does not provide for redirecting means. Therefore, the third

traction element 216 is arranged and configured to tighten said first 30 and second 32 portions, of the cuff 14 so that the preferably manual actuation of the actuation element 42 of the reel-based tightening device 18 is also adapted to substantially releasably cause a movement from said opening position to said closing position of the first 30 and second 32 portions of the cuff 14 substantially by means of the respective intermediate portion 216i.

[0135] In the present fourth embodiment, the reel-based tightening device 18 is arranged and configured to tension the second end portion 16b of the first traction element 16, to tension the second end portion 116b of the second traction element 116 and to tension the second end portion 216b of the third traction element 216, so that a preferably manual actuation, by the user, of a single actuation element 42 of the reel-based tightening device 18 is adapted to cause the tightening of said at least one pair of flaps, such as the first flap F1 and the second flap F2, at the first region Z1 and at the second region Z2, and it is also adapted to cause the tightening of said first 30 and second 32 portions of the cuff 14, that is the movement from said opening position to said closing position, substantially by means of the respective intermediate portions of the traction elements.

[0136] Unlike the first, and the third embodiment, in the present fourth embodiment a reel-based tightening device 18 which may be advantageously incorporated in the ski boot 10 according to the present invention is described in document EP0297342.

[0137] This condition allows to obtain the advantages described above for the first, the second and for the third embodiment of the ski boot 10.

[0138] Furthermore, the use of a first traction element 16 adapted to act at the first region Z1 or a second traction element 116 adapted to act at the second region Z2, further ensures a reliable tightening of the ski boot 10 around the foot and around the lower part of the leg of the user. As a matter of fact, this condition allows to provide for a different tightening degree at the shell 12 and at the cuff 14. Possibly, the reel-based tightening device 18 may be configured so that upon obtaining the tightening of the ski boot, there may be carried out a fine adjustment of the tensioning degree of one or more of the first 16, second 116 and third 216 traction elements, depending on the needs of the user. Alternatively or additionally, the reel-based tightening device 18 may be configured so as to allow to carry out an adjustment to differentiate a winding degree or speed of one or more of the first 16, second 116 and/or third 216 traction elements, with respect to the others depending on the needs of the user.

[0139] Furthermore, the use of a third traction element 216 further ensures a reliable tightening of the ski boot 10.

[0140] Preferably, the second traction element 116 and the third traction element 216 extend from the reel-based tightening device 18 at least partially on opposite lateral sides of the cuff 14 with respect to the median sagittal plane M1 of the ski boot 10.

[0141] Advantageously, this condition allows to obtain a ski boot 10 which ensures a reliable and comfortable tightening around the foot and around the lower part of the leg of the user. As a matter of fact, the traction by means of the two second 116 and third 216 traction elements, occurs on the opposite lateral sides of the cuff 14 and they are substantially balanced with respect to each other, therefore making the tightening around the foot and above all around the lower part of the leg of the user reliable and comfortable. Furthermore, this condition allows to provide for an alternative method for tightening around the foot and around the lower part of the leg of the user, to provide different comfort characteristics when closing.

FIFTH EMBODIMENT

[0142] With reference to Figs. 21 and 22, there is shown a fifth embodiment of the ski boot 10 according to the present invention.

[0143] In the fifth embodiment, the ski boot 10 is substantially similar to one or more of the preceding embodiments, and it may provide their variants, one or more elements and advantages described above. The difference between the ski boot 10 of the fifth embodiment and that of the preceding embodiments substantially lies in the configuration of the cuff and in the number of pairs of flaps arranged at the first region Z1 and at the second region Z2. Therefore, the components which are substantially unchanged will not be described again and the same reference numerals will be used.

[0144] The ski boot 10 comprises a shell 12 and a cuff 14. The cuff 14 is rotatably connected, that is it is articulated, to the shell 12 by means of suitable articulation means 34, for example arranged substantially at or near the malleolar regions.

[0145] In particular, the boot 10 comprises a first pair or flaps of said shell 12, such as a first flap F1 and a second flap F2, and a second pair of flaps of said cuff 14, such as a third flap F3 and a fourth flap F4, to be approached/moved away to obtain a releasable fastening thereof around the foot and around the lower part of the leg of the user, so as to obtain a releasable tightening of the ski boot 10. Preferably, the third flap F3 and the fourth flap F4 are configured so as to be arranged at the front area of the lower part of the leg of the user and which can be mutually approached/moved away therein. The first pair of flaps and the second pair of flaps are substantially distinct from each other.

[0146] Said first pair of flaps of the shell, such as the first flap F1 and the second flap F2, is arranged at the first region Z1 of the shell 12. While said second pair of flaps of the cuff, such as the third flap F3 and the fourth flap F4, is arranged at the second region Z2 of the cuff 14. Under operative conditions, said first region Z1 is substantially adapted to receive the dorsum of the foot, while said second region Z2 of the cuff 14 is substantially adapted to receive the lower part of the leg of the user, preferably the

front area of the lower part of the leg of the user. Preferably, at both first Z1 and second Z2 regions, the flaps can be at least partially overlapped with respect to each other.

[0147] There may be provided for different configurations for the pairs of flaps to be approached/moved away so as to obtain a releasable fastening thereof around the foot and around the lower part of the leg of the user, so as to obtain a releasable tightening of the ski boot 10.

[0148] In the present embodiment, said first pair of flaps preferably comprises the first flap F1 and the second flap F2 which are formed extending respectively from the first side wall 22 and from the second side wall 24 of the shell 12. While said second pair of flaps preferably provides for that the third flap F3 and the fourth flap F4 be formed substantially extending respectively from opposite lateral portions of the cuff 14.

[0149] In the fifth embodiment, said one or more traction elements include a first traction element 16 and a second traction element 116, such as cables or ropes, preferably made of metal material and possibly stranded, which are flexible and substantially inextensible. Said first 16 and second 116 traction elements, are substantially provided distinct from each other.

[0150] Said first traction element 16 comprises respective first end portion 16a and second end portion 16b which are connected to each other by a respective intermediate portion 16i. In particular, the respective first end portion 16a is constrained, anchored or fixed by means of a first cable lug device 36 to a portion of the shell 12, preferably near the tip 26, and the respective second end portion 16b is connected to the reel-based tightening device 18. While said second traction element 116 comprises respective first end portion 116a and second end portion 116b which are connected to each other by a respective intermediate portion 116i. In particular, the respective first end portion 116a is constrained, anchored or fixed by means of a second cable lug device or by means of an anchoring device 52, possibly of the releasable type, to a portion of the cuff 14, preferably at a portion of the third flap F3, and the respective second end portion 116b is connected to the reel-based tightening device 18.

[0151] Preferably, the anchoring device 52 is of the releasable type and it comprises an anchoring base 52a and an anchoring element 52b which are configured to be suitable to be engaged or hooked removably with respect to each other. The anchoring base 52a is preferably fixed to a portion of the fourth flap F4 of the cuff 14, and the anchoring element 52b is arranged at and fixed to the first end portion 116a of the second traction element 116. This allows to obtain a simple and wide opening of the second pair of flaps, such as the third flap F3 and the fourth flap F4, to ensure comfortable steps for introducing/removing the foot.

[0152] In the present most preferred embodiment, the anchoring base 52a provides for a rack formed by a plurality of transverse teeth, which define a correspond-

ing plurality of anchoring seats, in which there may be selectively received the anchoring element 52b, so as to allow to change the relative engagement position, therefore allowing to change the tension that can be applied to the second traction element 116. This allows to obtain a simple macroscopic adjustment of the tightening degree of the second pair of flaps, such as the third flap F3 and the fourth flap F4.

[0153] Said first traction element 16 is substantially configured to associate and to operatively approach/tighten said first pair of flaps, such as the first flap F1 and the second flap F2 to each other, and it is preferably arranged at the first region Z1 by means of the respective intermediate portion 16i. Preferably, said first traction element 16 is not arranged at the second region Z2, so as to operatively tighten the respective flaps at the first region Z1 only.

[0154] In particular, the intermediate portion 16i of the first traction element 16 is configured to tighten the first F1 and second F2 flaps of said at least one pair of flaps through the first redirecting means 38 adapted to be engaged in a passing and sliding manner from said first traction element 16, suitably diverting the sliding direction thereof. The first redirecting means 38 are preferably arranged and fixed on different areas of both first F1 and second F2 flaps, at the first region Z1.

[0155] While said second traction element 116 is substantially configured to associate and to operatively approach/tighten said second pair of flaps, such as the third flap F3 and the fourth flap F4 to each other, and it is preferably arranged at the second region Z2 by means of the respective intermediate portion 116i. Preferably, said second traction element 116 is not arranged at the first region Z1, so as to operatively tighten the respective flaps at the second region Z2 only.

[0156] In particular, the intermediate portion 116i of the second traction element 116 is configured to tighten the third F3 and fourth F4 flaps of said second pair of flaps through a guide element 58 adapted to be engaged in a passing and sliding manner from said second traction element 116. The guide element 58 is preferably arranged and fixed on an area of the third flap F3.

[0157] In the present fifth embodiment, the reel-based tightening device 18, preferably fixed to a substantially lateral side of the cuff 14, is arranged and configured to tension the second end portion 116b of the first traction element 16 and to tension the second end portion 116b of the second traction element 116 so that a preferably manual actuation, by the user, of a single actuation element 42 of the reel-based tightening device 18 is adapted to cause the tightening of said first pair of flaps, such as the first flap F1 and the second flap F2, at the first region Z1 and it is further adapted to cause the tightening of said second pair of flaps, such as the third F3 and the fourth F4 flap, at the second region Z2.

[0158] Similarly to preceding embodiments, in the present fifth embodiment a reel-based tightening device 18 which may be advantageously incorporated in the ski

boot 10 according to the present invention may be the one described in document EP0056953 or there may be incorporated the one described in document EP0297342.

[0159] This condition allows to obtain the advantages described above for the preceding embodiments of the ski boot 10.

[0160] Furthermore, the use of a first traction element 16 adapted to act at the first region Z1 or a second traction element 116 adapted to act at the second region Z2, through respective pairs of flaps, further ensures a reliable tightening of the ski boot 10 around the foot and around the lower part of the leg of the user. As a matter of fact, this condition allows to provide for a different tightening degree at the shell 12 and at the cuff 14.

SIXTH EMBODIMENT

[0161] With reference to Figs. 23 and 24, there is shown a sixth embodiment of the ski boot 10 according to the present invention.

[0162] In the sixth embodiment, the ski boot 10 is substantially similar to the fifth embodiment, and it may provide for its variants, one or more elements and advantages described above. The difference between the ski boot 10 of the sixth embodiment and that of the fifth embodiment substantially lies in the configuration of the shell and of the cuff. Therefore, the components which are substantially unchanged will not be described again and the same reference numerals will be used.

[0163] The ski boot 10 comprises a shell 12 and a cuff 14. The cuff 14 is rotatably connected, that is it is articulated, to the shell 12 by means of suitable articulation means 34, for example arranged substantially at or near the malleolar regions.

[0164] In particular, the boot 10 comprises a first pair or flaps of said shell 12, such as a first flap F1 and a second flap F2, and a second pair of flaps of said cuff 14, such as a third flap F3 and a fourth flap F4, to be approached/moved away to obtain a releasable fastening thereof around the foot and around the lower part of the leg of the user, so as to obtain a releasable tightening of the ski boot 10. The first pair of flaps and the second pair of flaps are substantially distinct from each other.

[0165] Said first pair of flaps, such as the first flap F1 and the second flap F2, is arranged at the first region Z1 of the shell 12 and at the second region Z2 of the cuff 14. In particular, similarly to the first to the fourth embodiments, the first pair of flaps comprises the first flap F1 and the second flap F2 which are formed starting from the first 22 and second 24 side walls of the shell 12 so as to extend at both the first region Z1 of the shell 12, adapted to receive the dorsum of the foot, and the second region Z2 of the cuff 14, adapted to receive the lower part of the leg.

[0166] While said second pair of flaps of the cuff, such as the third flap F3 and the fourth flap F4, is arranged at the second region Z2 of the cuff 14, substantially so as to be operatively superimposed therein on a part of the first

pair of flaps. Said second pair of flaps preferably provides for that the third flap F3 and the fourth flap F4 be formed substantially extending respectively from opposite lateral portions of the cuff 14.

[0167] In the sixth embodiment, said one or more traction elements include a first traction element 16 and a second traction element 116, such as cables or ropes, preferably made of metal material and possibly stranded, which are flexible and substantially inextensible. Said first 16 and second 116 traction elements, are substantially provided distinct from each other.

[0168] Said first traction element 16 comprises respective first end portion 16a and second end portion 16b which are connected to each other by a respective intermediate portion 16i. In particular, the respective first end portion 16a is constrained, anchored or fixed by means of a first cable lug device 36 to a portion of the shell 12, preferably near the tip 26, and the respective second end portion 16b is connected to the reel-based tightening device 18. While said second traction element 116 comprises respective first end portion 116a and second end portion 116b which are connected to each other by a respective intermediate portion 116i. In particular, the respective first end portion 116a is constrained, anchored or fixed by means of a second cable lug device or by means of an anchoring device 52, possibly of the releasable type, to a portion of the cuff 14, preferably at a portion of the fourth flap F4, and the respective second end portion 116b is connected to the reel-based tightening device 18.

[0169] Said first traction element 16 is substantially configured to associate and to operatively approach/tighten said first pair of flaps, such as the first flap F1 and the second flap F2 to each other, and it is preferably arranged at the first region Z1 by means of the respective intermediate portion 16i. Preferably, said first traction element 16 is not arranged at the second region Z2, so as to operatively tighten the respective flaps at the first region Z1 only.

[0170] In particular, the intermediate portion 16i of the first traction element 16 is configured to tighten the first F1 and second F2 flaps of said at least one pair of flaps through the first redirecting means 38 adapted to be engaged in a passing and sliding manner from said first traction element 16, suitably diverting the sliding direction thereof. The first redirecting means 38 are preferably arranged and fixed on different areas of both first F1 and second F2 flaps, at the first region Z1.

[0171] While said second traction element 116 is substantially configured to associate and to operatively approach/tighten said second pair of flaps, such as the third flap F3 and the fourth flap F4 to each other, and it is preferably arranged at the second region Z2 by means of the respective intermediate portion 116i. Preferably, said second traction element 116 is not arranged at the first region Z1, so as to operatively tighten the respective flaps at the second region Z2 only.

[0172] In the present sixth embodiment, the reel-based

tightening device 18, preferably fixed to a substantially lateral side of the cuff 14, is arranged and configured to tension the second end portion 116b of the first traction element 16 and to tension the second end portion 116b of the second traction element 116 so that a preferably manual actuation, by the user, of a single actuation element 42 of the reel-based tightening device 18 is adapted to cause the tightening of said first pair of flaps, such as the first flap F1 and the second flap F2, at the first region Z1 and it is further adapted to cause the tightening of said second pair of flaps, such as the third F3 and the fourth F4 flap, at the second region Z2.

[0173] This condition allows to obtain the advantages described above for the preceding embodiments of the ski boot 10.

[0174] Furthermore, the use of such configuration of the first F1 to the fourth F4 flaps, ensures a reliable support, in particular at the lower part of the leg of the user, in the use conditions.

SEVENTH EMBODIMENT

[0175] With reference to Figs. 25 and 26, there is shown a seventh embodiment of the ski boot 10 according to the present invention.

[0176] In the seventh embodiment, the ski boot 10 is substantially similar to the sixth embodiment, and it may provide for its variants, one or more elements and advantages described above. The difference between the ski boot 10 of the seventh embodiment and that of the sixth embodiment substantially lies in the configuration of the cuff. Therefore, the components which are substantially unchanged will not be described again and the same reference numerals will be used.

[0177] The ski boot 10 comprises a shell 12 and a cuff 14. The cuff 14 is rotatably connected, that is it is articulated, to the shell 12 by means of suitable articulation means 34, for example arranged substantially at or near the malleolar regions.

[0178] In particular, the boot 10 comprises a first pair or flaps of said shell 12, such as a first flap F1 and a second flap F2, and a second pair of flaps of said cuff 14, such as a third flap F3 and a fourth flap F4, to be approached/moved away to obtain a releasable fastening thereof around the foot and around the lower part of the leg of the user, so as to obtain a releasable tightening of the ski boot 10. The first pair of flaps and the second pair of flaps are substantially distinct from each other.

[0179] Said first pair of flaps, such as the first flap F1 and the second flap F2, is arranged at the first region Z1 of the shell 12 and at the second region Z2 of the cuff 14. In particular, similarly to the first to the fourth and the sixth embodiments, the first pair of flaps comprises the first flap F1 and the second flap F2 which are formed starting from the first 22 and second 24 side walls of the shell 12 so as to extend at both the first region Z1 of the shell 12, adapted to receive the dorsum of the foot, and the second region Z2 of the cuff 14, adapted to receive the lower part

of the leg.

[0180] While said second pair of flaps of the cuff, such as the third flap F3 and the fourth flap F4, is arranged at the second region Z2 of the cuff 14, substantially so as to be operatively superimposed on the first pair of flaps. Said second pair of flaps preferably provides for that the third flap F3 and the fourth flap F4 be formed substantially extending respectively from opposite lateral portions of the cuff 14.

[0181] In particular, said fourth flap F4 comprises a plate element 60. Said plate element 60 is formed distinct from the rest of the cuff 14 and it is fixed to the latter by means of one or more flexible connection elements 62, such as for example one or more cable or band connection elements.

[0182] In the seventh embodiment, said one or more traction elements include a first traction element 16 and a second traction element 116, such as cables or ropes, preferably made of metal material and possibly stranded, which are flexible and substantially inextensible. Said first 16 and second 116 traction elements, are substantially provided distinct from each other.

[0183] Said first traction element 16 comprises respective first end portion 16a and second end portion 16b which are connected to each other by a respective intermediate portion 16i. In particular, the respective first end portion 16a is constrained, anchored or fixed by means of a first cable lug device 36 to a portion of the shell 12, preferably near the tip 26, and the respective second end portion 16b is connected to the reel-based tightening device 18. While said second traction element 116 comprises respective first end portion 116a and second end portion 116b which are connected to each other by a respective intermediate portion 116i. In particular, the respective first end portion 116a is constrained, anchored or fixed by means of a second cable lug device or by means of an anchoring device 52, possibly of the releasable type, to a portion of the plate element 60 of the fourth flap F4 of the cuff 14, and the respective second end portion 116b is connected to the reel-based tightening device 18.

[0184] Said first traction element 16 is substantially configured to associate and to operatively approach/tighten said first pair of flaps, such as the first flap F1 and the second flap F2 to each other, and it is preferably arranged at the first region Z1 by means of the respective intermediate portion 16i. Preferably, said first traction element 16 is not arranged at the second region Z2, so as to operatively tighten the respective flaps at the first region Z1 only.

[0185] In particular, the intermediate portion 16i of the first traction element 16 is configured to tighten the first F1 and second F2 flaps of said at least one pair of flaps through the first redirecting means 38 adapted to be engaged in a passing and sliding manner from said first traction element 16, suitably diverting the sliding direction thereof. The first redirecting means 38 are preferably arranged and fixed on different areas of both first F1

and second F2 flaps, at the first region Z1.

[0186] While said second traction element 116 is substantially configured to associate and to operatively approach/tighten said second pair of flaps, such as the third flap F3 and the fourth flap F4 to each other, and it is preferably arranged at the second region Z2 by means of the respective intermediate portion 116i. Preferably, said second traction element 116 is not arranged at the first region Z1, so as to operatively tighten the respective flaps at the second region Z2 only.

[0187] In particular, the intermediate portion 116i of the second traction element 116 is configured to tighten the third F3 and fourth F4 flaps of said second pair of flaps.

[0188] In the present fifth embodiment, the reel-based tightening device 18, preferably fixed to a substantially lateral side of the cuff 14, is arranged and configured to tension the second end portion 116b of the first traction element 16 and to tension the second end portion 116b of the second traction element 116 so that a preferably manual actuation, by the user, of a single actuation element 42 of the reel-based tightening device 18 is adapted to cause the tightening of said first pair of flaps, such as the first flap F1 and the second flap F2, at the first region Z1 and it is further adapted to cause the tightening of said second pair of flaps, such as the third F3 and the fourth F4 flap, at the second region Z2.

[0189] This condition allows to obtain the advantages described above for the preceding embodiments of the ski boot 10.

[0190] Furthermore, the use of such configuration of the second pair of flaps, and in particular of the fourth F4 flap, ensures a reliable support, in particular at the lower part of the leg of the user, in the use conditions.

[0191] Furthermore, the use of such configuration of the second pair of flaps, and in particular of the fourth flap F4, further ensures comfortable steps for introducing/removing the foot.

[0192] It is clear that with respect to what has been described so far, further embodiments of the ski boot 10 are possible without departing from the claimed scope of protection.

[0193] As a matter of fact, in the embodiments described above, the ski boot 10 has been described and designed by providing for at least one pair of flaps, such as the first flap F1 and second flap F2, which can be at least partially overlapped at both the first region Z1 and the second region Z2. However, there may be provided for further embodiments in which the ski boot 10 provides for at least one pair of flaps, such as the first flap F1 and second flap F2, which for example can be at least partially overlapped at the second region Z2 and not suitable to be overlapped but substantially arranged adjacent to each other at the first region Z1. Preferably, the embodiments which provide for flaps which can be overlapped at both the first Z1 and second Z2 regions confer greater wearability to the foot of the user and therefore greater comfort. While the embodiments which for example provide for flaps which can be overlapped at the second region Z2

only, allow to obtain better mechanical characteristics in particular of the shell 12.

[0194] Furthermore, in the first to the fourth embodiments as described above, the ski boot 10 has been described and designed providing for a single pair of flaps, such as the first flap F1 and second flap F2. However, there may be provided for further embodiments in which the ski boot 10 provides for two or more pairs of flaps, for example a first pair of flaps arranged at the first region Z1 and a second pair of flaps arranged at the second region Z2, as described for the fifth to the seventh embodiments. This condition allows to ensure versatility in designing the boot 10.

[0195] Furthermore, preferably, as provided for the embodiments described and designed above, said one or more traction elements, such as the first traction element 16, the second traction element 116 and the third traction element 216, are configured so as to be arranged outside the shell 12 and the cuff 14 (that is they are substantially visible) at the respective first region Z1 and second region Z2 on which they act. This embodiment is particularly advantageous given that it is easy to design and manufacture, while at the same time ensuring a reliable tightening around the foot and around the lower part of the leg of the user tightening the latter substantially from the external, and as a result obtaining an excellent control of the ski in the use conditions.

[0196] Furthermore, preferably, as provided for the second to the seventh embodiments described and designed above, the second traction element 116 is configured so as to be arranged at the second region Z2 to at least partially wind the front area of the lower part of the leg of the user that is the front area of the cuff 14. This embodiment is particularly advantageous given that it ensures a reliable tightening around the lower part of the leg of the user.

[0197] Furthermore, there may be provided for a combination of embodiments described above. For example, in a further possible embodiment, the ski boot 10 may comprise a pair of traction elements in which a traction element, similarly to the third embodiment, is tensioned on both end portions by the reel-based tightening device 18. While another traction element, similarly to first embodiment, is fixed with an end portion to a cable lug device and it is tensioned by the reel-based tightening device 18 with the other end portion. In this possible variant, similarly to fourth embodiment, a reel-based tightening device 18 which may be advantageously incorporated in the ski boot 10 is described in document EP0297342.

[0198] In the light of the above, it is clear that significant results have been achieved, overcoming the drawbacks of the prior art, allowing to obtain a ski boot 10 which provides for a construction that is simple to design and manufacture, while ensuring an intuitive use at the same time.

[0199] Furthermore, the ski boot 10 is configured so as to comprise a reduced number of devices that are complex to manufacture, such as reel-based tightening de-

vices.

[0200] Furthermore, the ski boot 10 is configured to ensure a wide choice of characteristics at the design stage.

[0201] Furthermore, the ski boot 10 is configured to ensure reliable tightening around the foot and around the lower part of the leg of the user.

[0202] Furthermore, the ski boot 10 is configured to ensure comfortable steps for introducing/removing the foot.

[0203] Furthermore, the ski boot 10 is configured to ensure ease of use.

[0204] Furthermore, the ski boot 10 provides for an alternative construction with respect to the prior art ones.

[0205] Naturally, the materials and equipment used to implement the present invention, as well as the shape and size of the individual components, may be the most appropriate depending on the specific requirements.

Claims

1. Ski boot (10) comprising:

- a shell (12) and a cuff (14) made of substantially rigid material which are connected to each other and configured to respectively receive the foot and the lower part of the leg of the user,
- at least one pair of flaps (F1, F2; F3, F4) of said shell (12) and of said cuff (14) to be approached/moved away, said at least one pair of flaps (F1, F2; F3, F4) being configured and arranged at a first region (Z1) of the shell (12) adapted to receive the dorsum of the foot and at a second region (Z2) of the cuff (14) adapted to receive the lower part of the leg,
- one or more traction elements (16, 116, 216) configured to operatively tighten said at least one pair of flaps (F1, F2; F3, F4), and arranged at least partially at said first region (Z1) and at said second region (Z2), and
- a reel-based tightening device (18) comprising at least one actuation element (42), **characterised in that**

said reel-based tightening device (18) is arranged and configured to tension at least one end portion (16b, 16a, 116b, 216b) of said one or more traction elements (16, 116, 216) so that an actuation of a single actuation element (42) is adapted to cause the tightening of said at least one pair of flaps (F1, F2; F3, F4) at said first region (Z1) and at said second region (Z2).

2. The ski boot (10) according to claim 1, wherein said flaps (F1, F2; F3, F4) are flaps at least partially overlapping each other at said second region (Z2).

3. The ski boot (10) according to claim 1 or 2, wherein said one or more traction elements (16, 116, 216) comprise:

- a first traction element (16) adapted to be connected by means of a respective first end portion (16a) to said shell (12) or to said cuff (14), and being configured and arranged to operatively tighten said at least one pair of flaps (F1, F2; F3, F4) at said first region (Z1) and at said second region (Z2),

said reel-based tightening device (18) being arranged and configured to tension a second end portion (16b) of said first traction element (16).

4. The ski boot (10) according to any of the preceding claims, wherein said one or more traction elements (16, 116, 216) comprise:

- a second traction element (116) adapted to be connected by means of a respective first end portion (116a) to said shell (12) or to said cuff (14), and being configured and arranged to operatively tighten said at least one pair of flaps (F1, F2; F3, F4) at said second region (Z2),

said reel-based tightening device (18) being arranged and configured to tension a second end portion (116b) of said second traction element (116).

5. The ski boot (10) according to any of the preceding claims, wherein said one or more traction elements (16, 116, 216) comprise:

- a first traction element (16) configured and arranged to operatively tighten said at least one pair of flaps (F1, F2; F3, F4) at said first region (Z1), and
- a second traction element (116) configured and arranged to operatively tighten said at least one pair of flaps (F1, F2; F3, F4) at said second region (Z2),

said reel-based tightening device (18) being arranged and configured to tension at least one end portion (16b, 16a, 116b) of said first traction element (16) and of said second traction element (116).

6. The ski boot (10) according to any of the preceding claims, wherein said one or more traction elements (16, 116) comprise:

- a first traction element (16) configured and arranged to operatively tighten said at least one pair of flaps (F1, F2; F3, F4) at only said first region (Z1), and
- a second traction element (116) configured and

arranged to operatively tighten said at least one pair of flaps (F1, F2; F3, F4) at only the second region (Z2),

said reel-based tightening device (18) being arranged and configured to tension at least one end portion (16b, 16a, 116b) of said first traction element (16) and of said second traction element (116).

7. The ski boot (10) according to any of the preceding claims, wherein said one or more traction elements (16, 116, 216) comprise:

- a first traction element (16) configured and arranged to operatively tighten said at least one pair of flaps (F1, F2; F3, F4) at said first region (Z1) and at said second region (Z2), and

said reel-based tightening device (18) is arranged and configured to tension a first end portion (16a) and a second end portion (16b) of said first traction element (16).

8. The ski boot (10) according to any of the preceding claims, further comprising redirecting means (38, 48) adapted to be connected to said shell (12) and/or to said cuff (14) and which can be engaged in a passing and sliding manner by said one or more traction elements (16, 116, 216) to redirect the sliding path thereof at said regions (Z1, Z2).

9. The ski boot (10) according to any of the preceding claims, wherein said cuff (14) comprises a first portion (30) and a second portion (32) adapted to be coupled to each other so as to define said cuff (14), said portions (30, 32) being mutually movable between an opening position wherein said portions are at least partially disengaged and a closing position wherein said portions are coupled to each other.

10. The ski boot (10) according to the preceding claim, wherein said first portion (30) comprises at least a part of said at least one pair of flaps (F1, F2, F3, F4), said second portion (32) being articulated by means of articulation means (34) to said shell (12), and said reel-based tightening device (18) being fixed to said second portion (32).

11. The ski boot (10) according to claim 9 or 10, wherein at least one of said one or more traction elements (16, 116, 216) is arranged and configured to operatively tighten said portions (30, 32) of said cuff (14) so that the operation of said actuation element (42) is further adapted to cause the movement of said portions (30, 32) from said opening position to said closing position.

12. The ski boot (10) according to any of the preceding

claims, wherein said at least one pair of flaps (F1, F2; F3, F4) consists of a single pair of flaps (F1, F2) configured and arranged at said first region (Z1) and at said second region (Z2).

13. The ski boot (10) according to any of the preceding claims, wherein said at least one pair of flaps (F1, F2; F3, F4) comprises at least a first pair of flaps (F1, F2) configured and arranged at said first region (Z1), and at least one second pair of flaps (F3, F4) configured and arranged at said second region (Z2).

14. The ski boot (10) according to any of the preceding claims, wherein said one or more traction elements (16, 116, 216) are configured so as to be arranged outwardly said shell (12) and said cuff (14) at said first region (Z1) and at said second region (Z2).

15. The ski boot (10) according to any of the preceding claims, wherein a first end portion (16a, 116a, 216a) of at least one of said one or more traction elements (16, 116, 216) is releasably connectable to a portion of said shell (12) or of said cuff (14) by means of a releasable anchoring device (52).

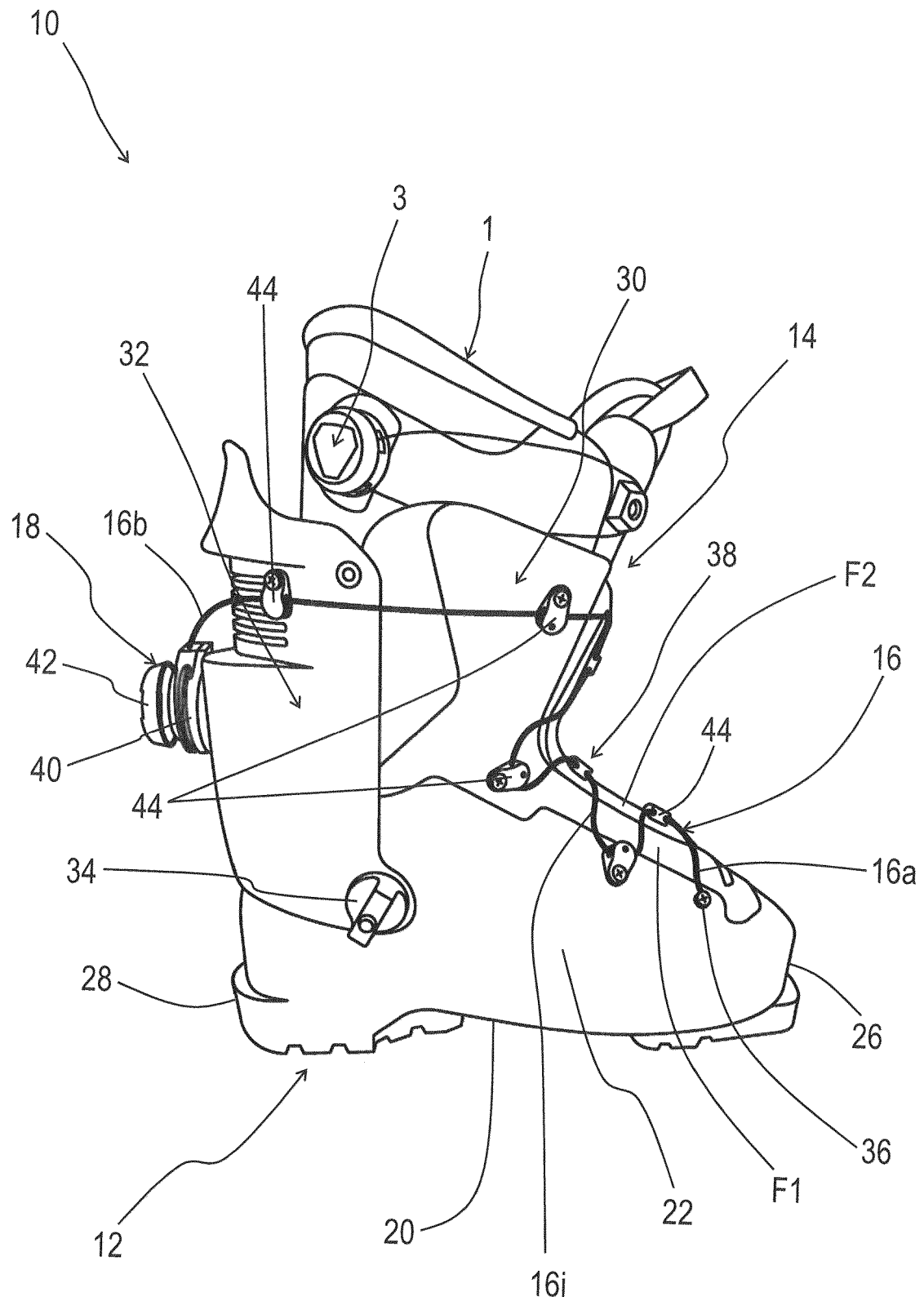


Fig. 1

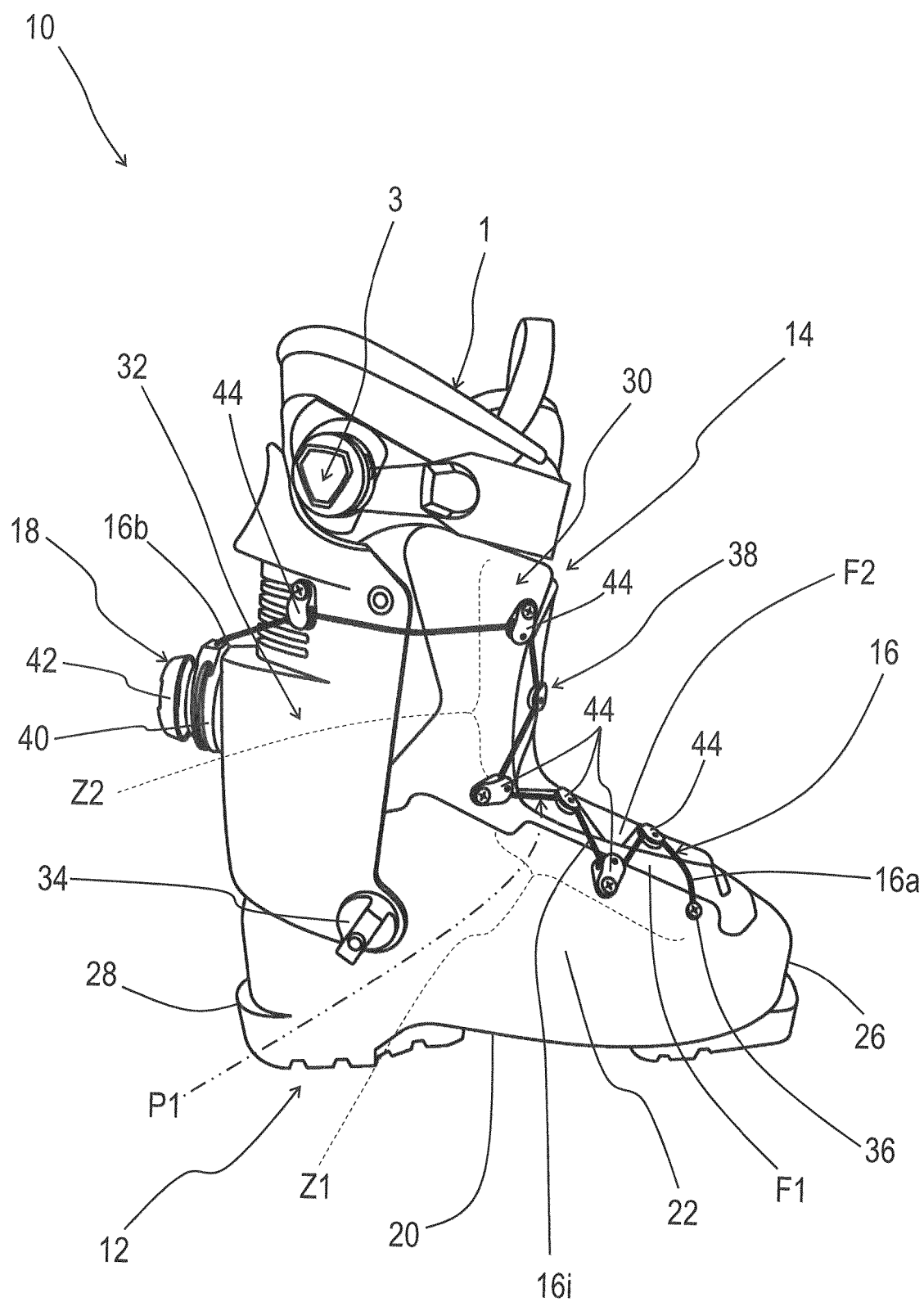


Fig. 2

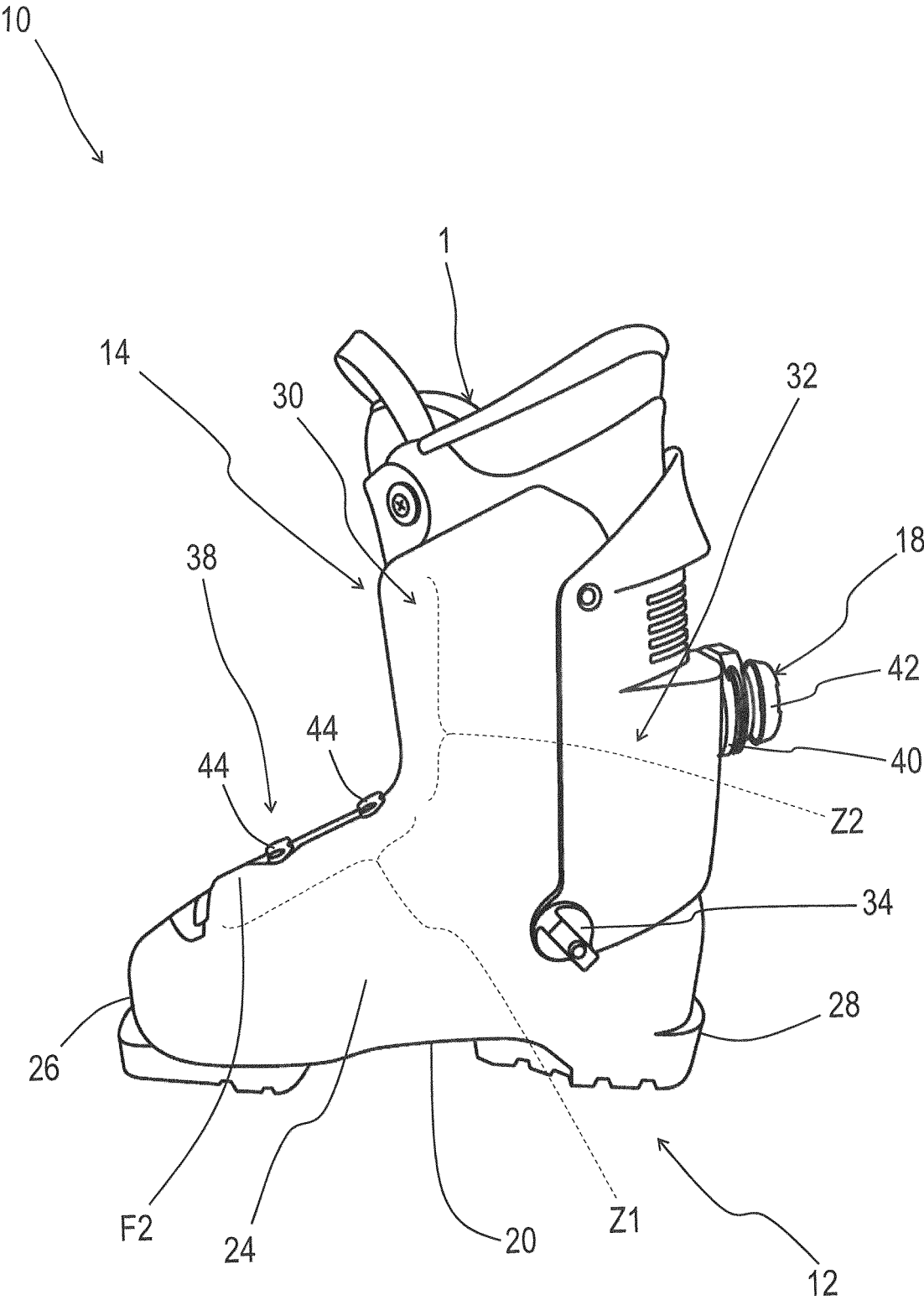


Fig. 3

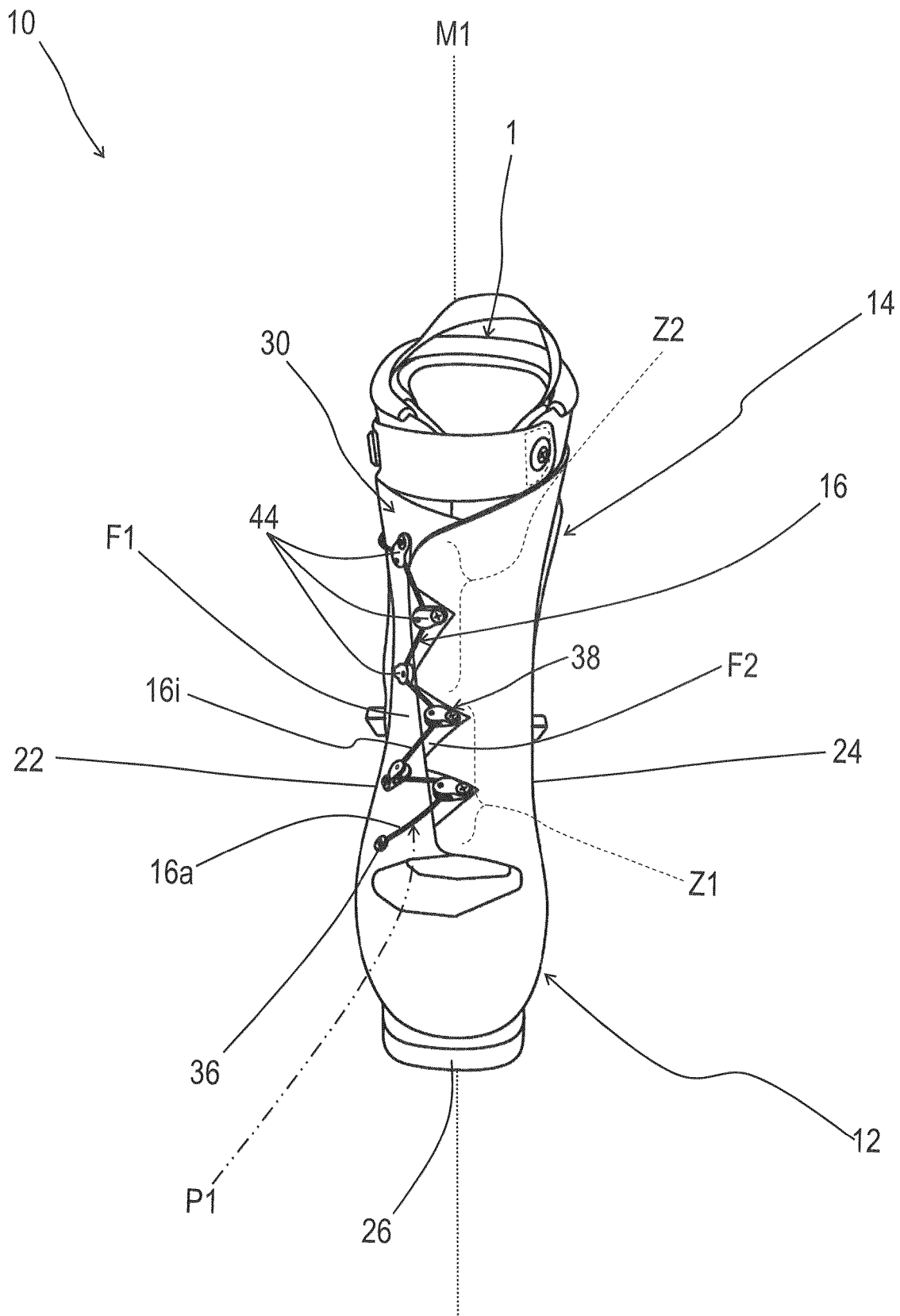


Fig. 4

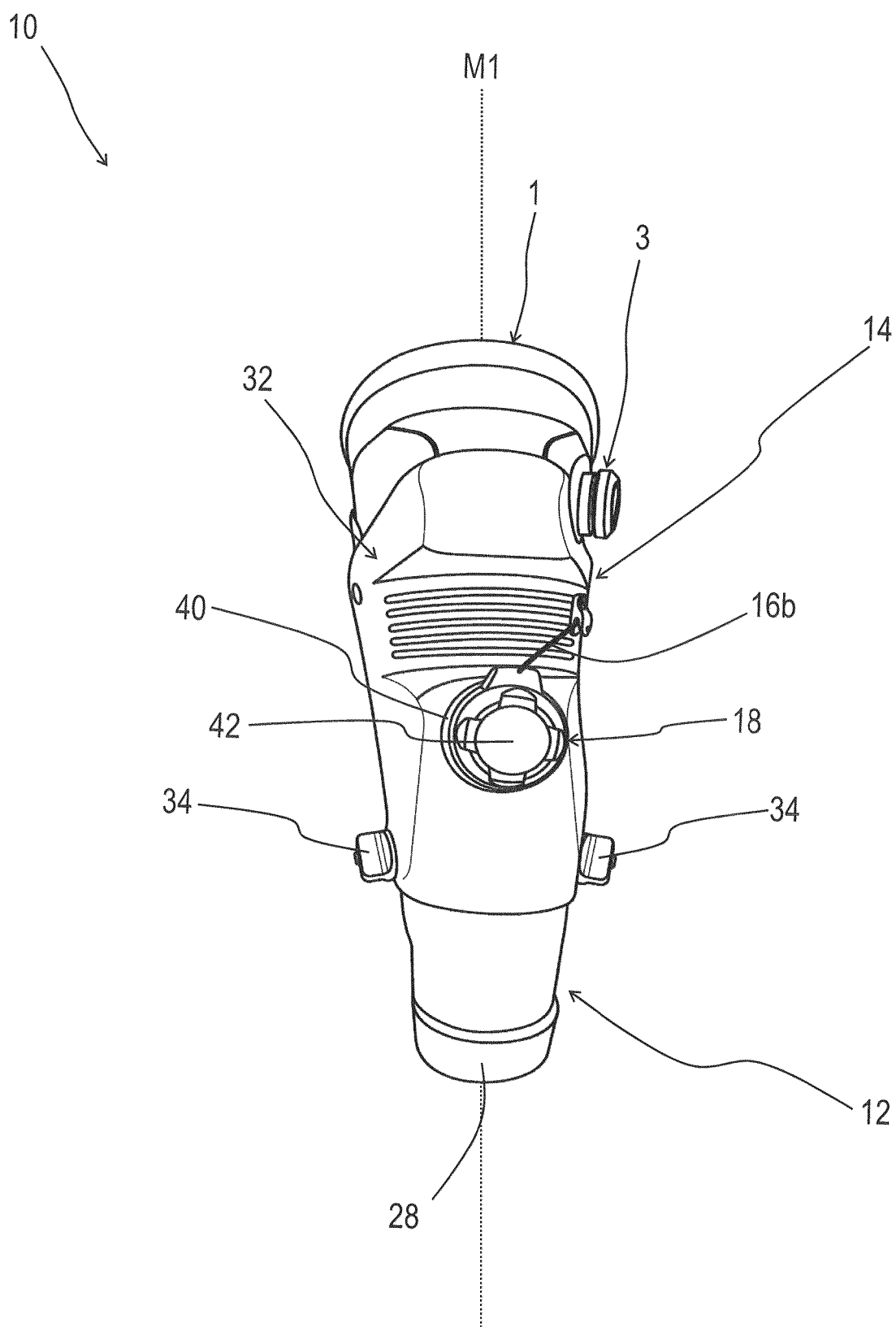


Fig. 5

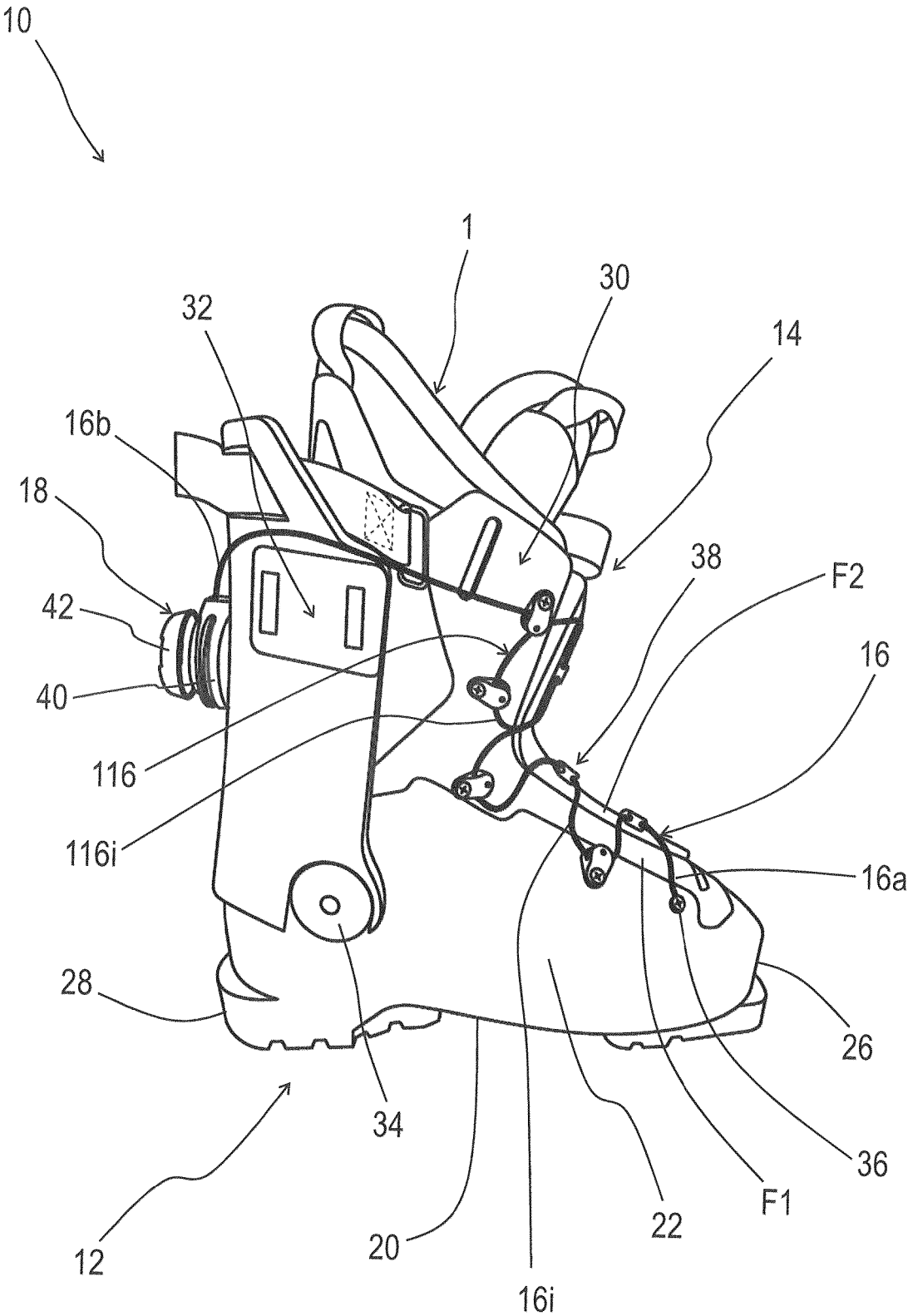


Fig. 6

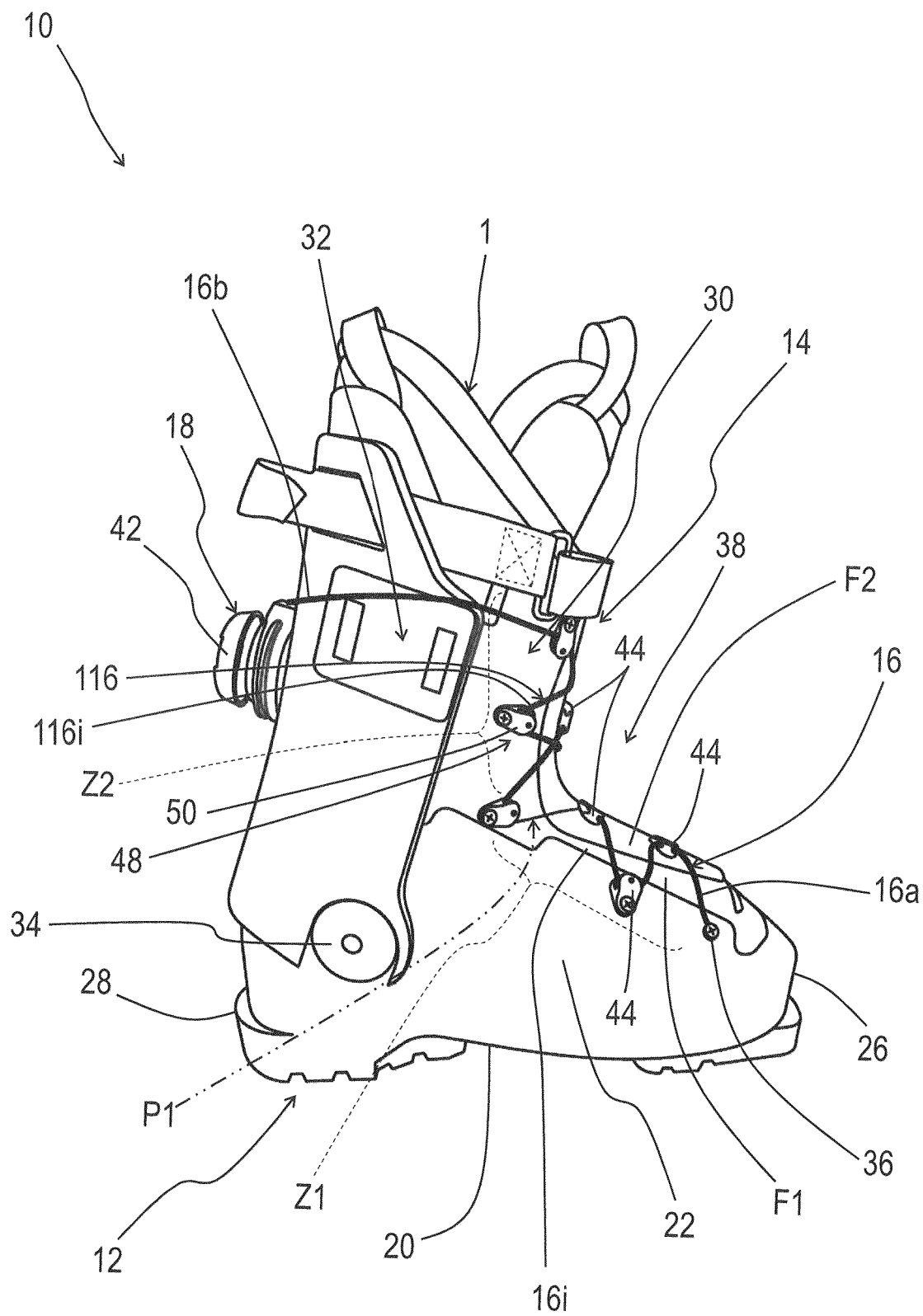


Fig. 7

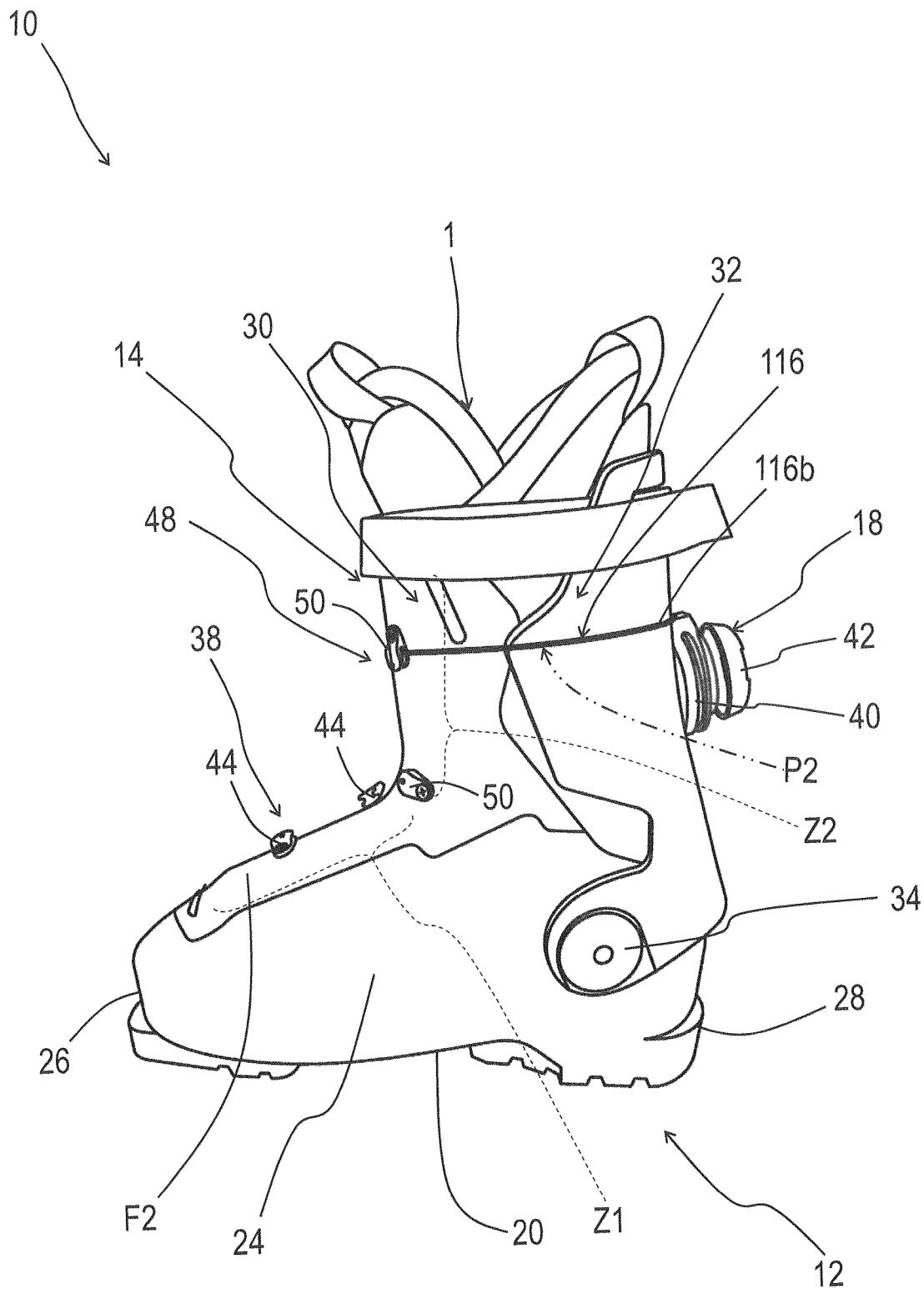


Fig. 8

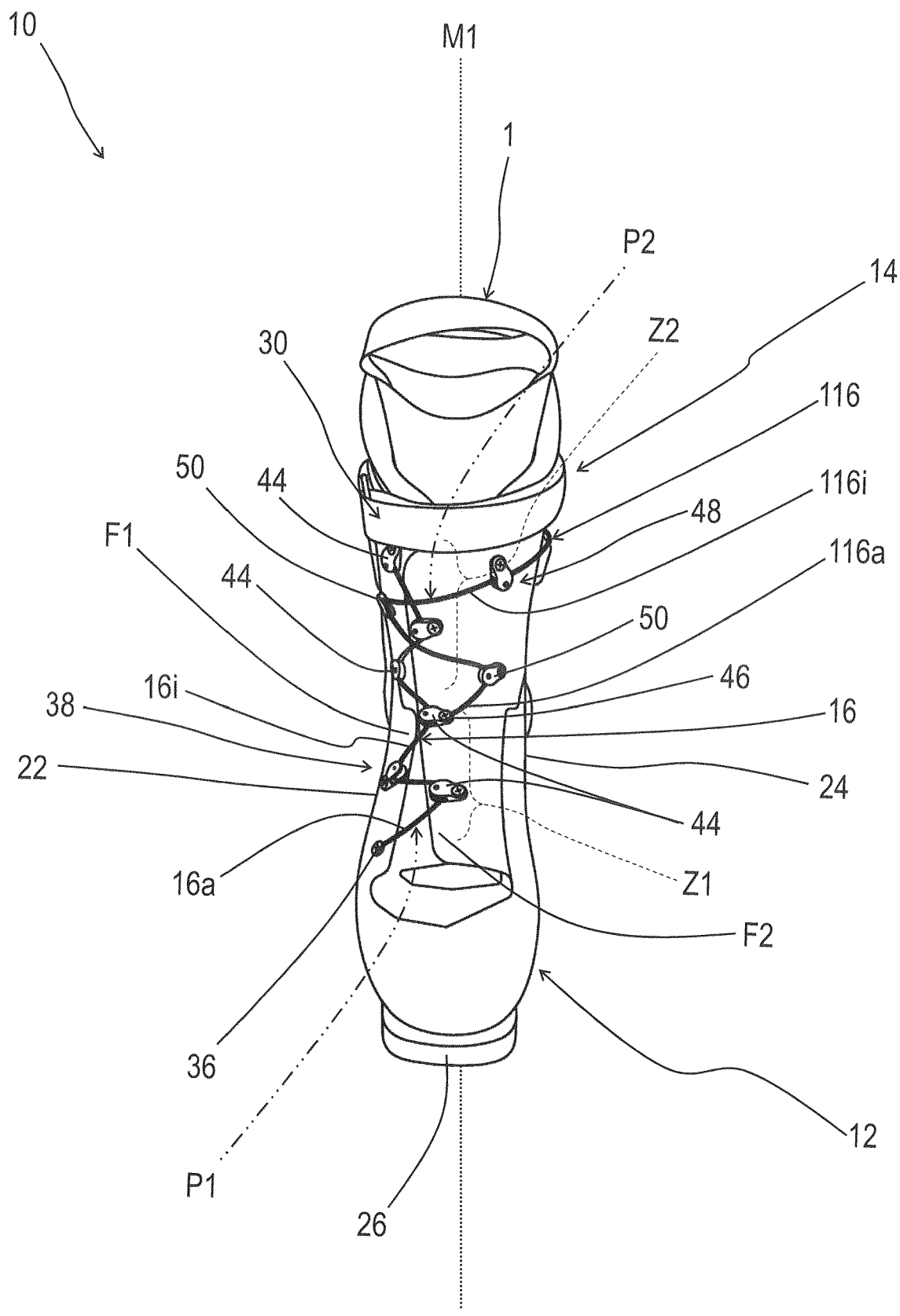


Fig. 9

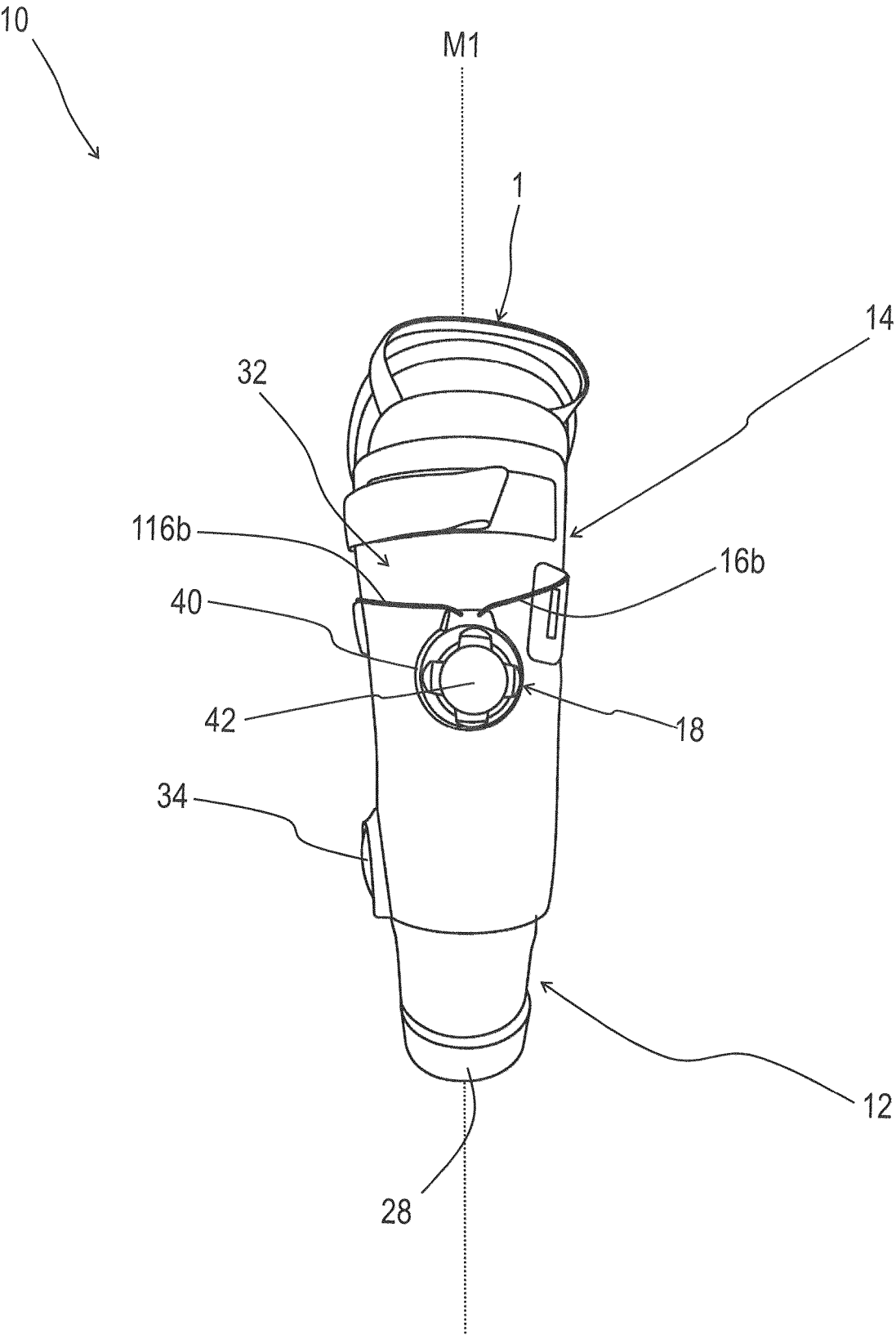


Fig. 10

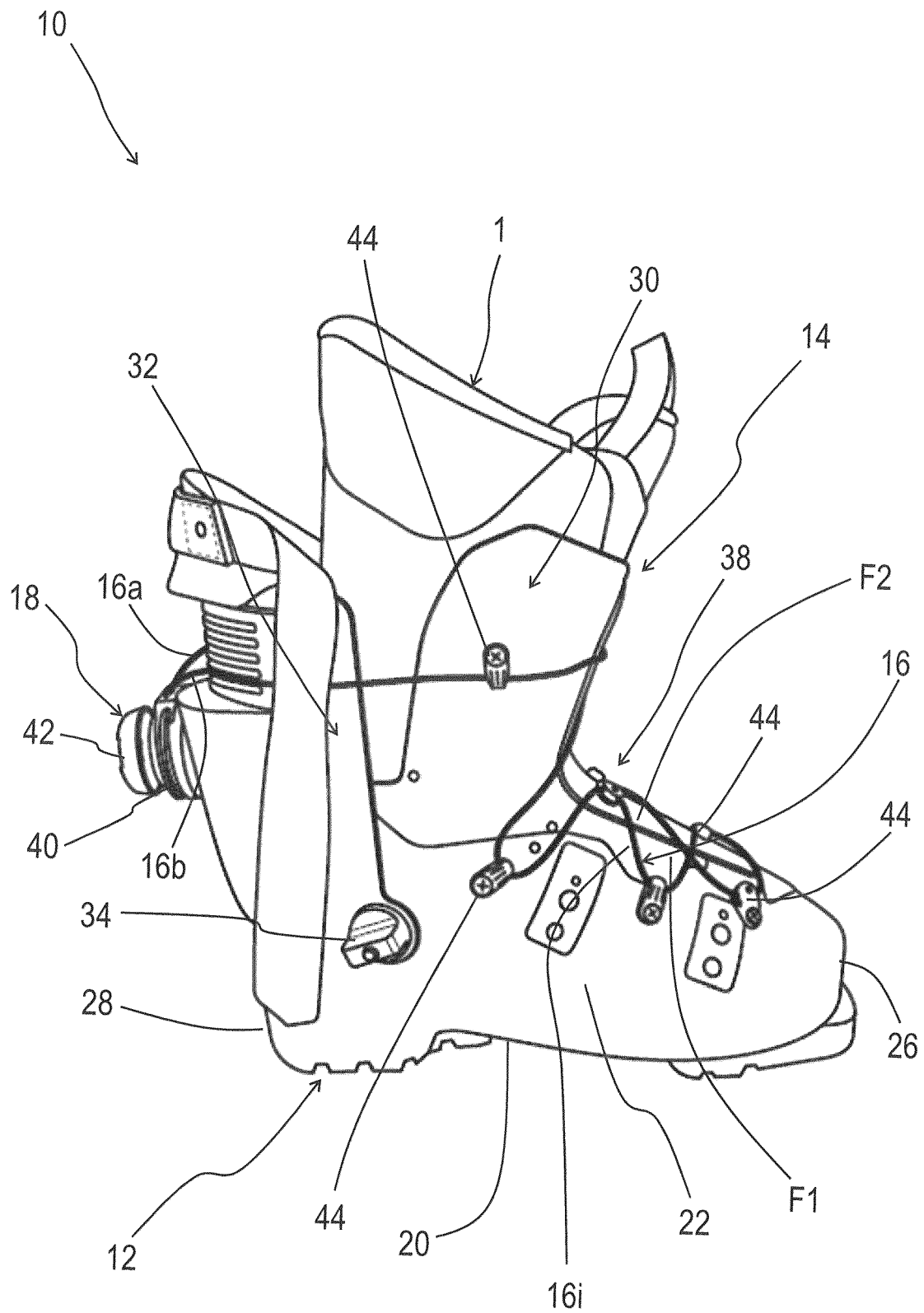


Fig. 11

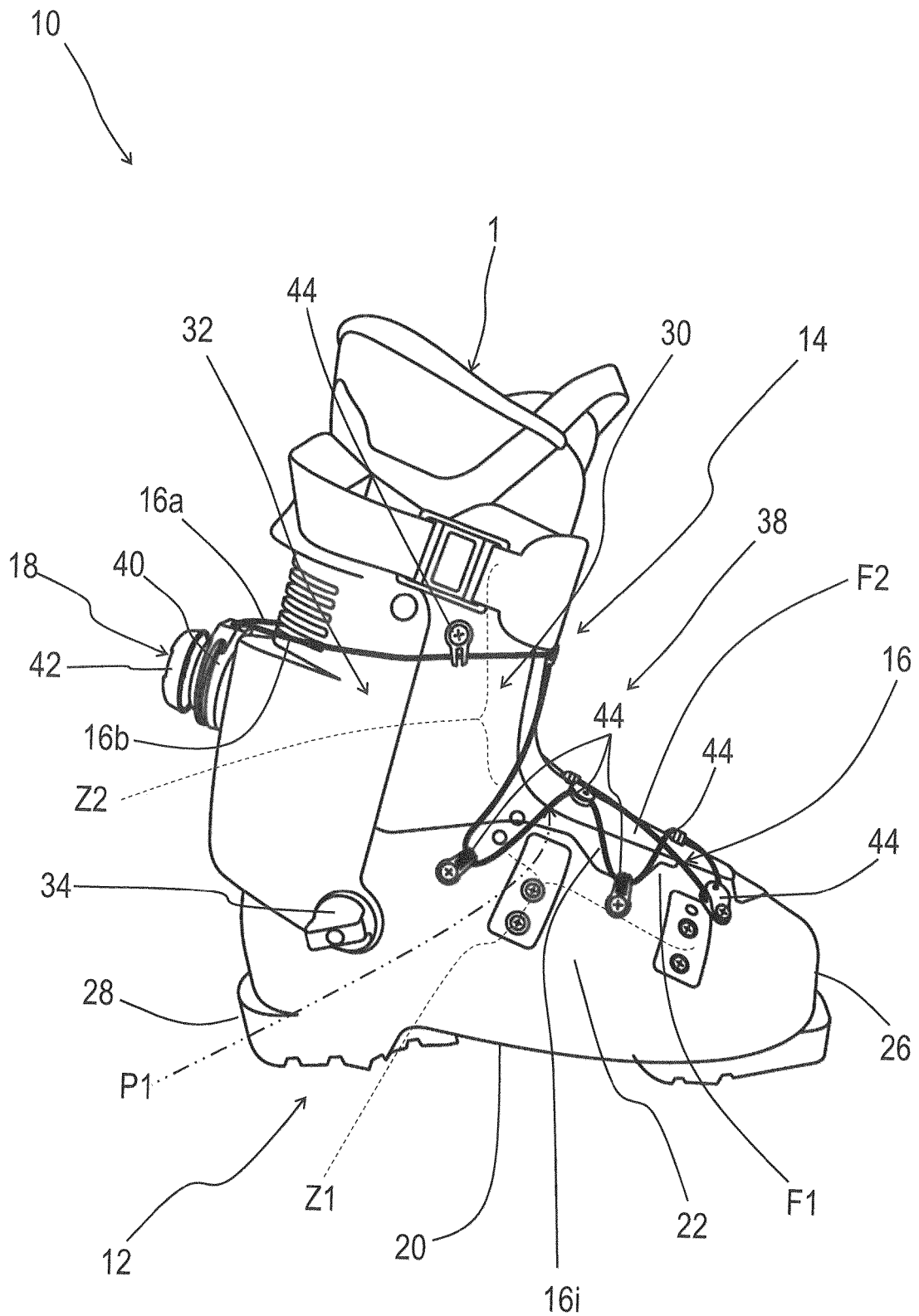


Fig. 12

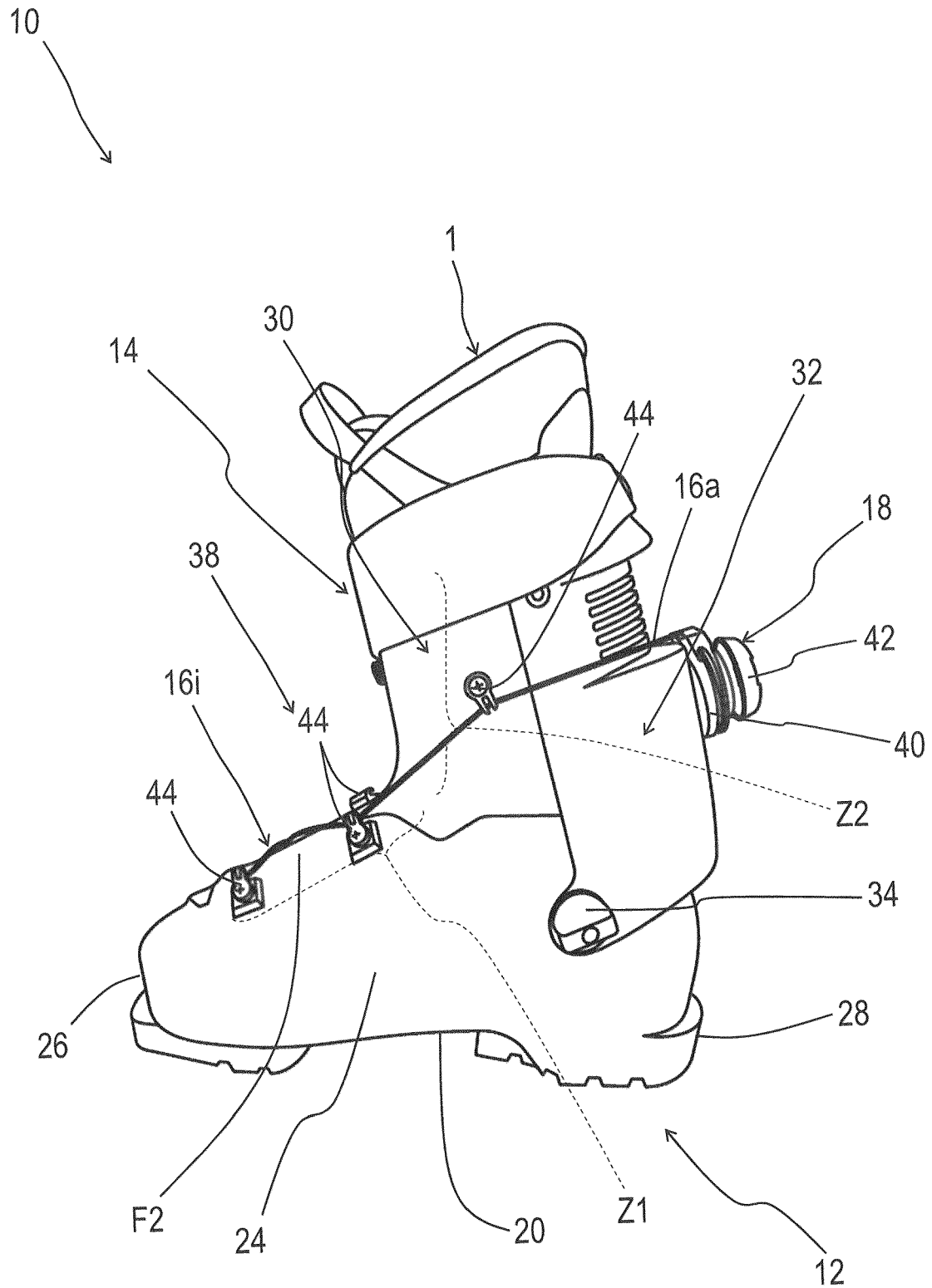


Fig. 13

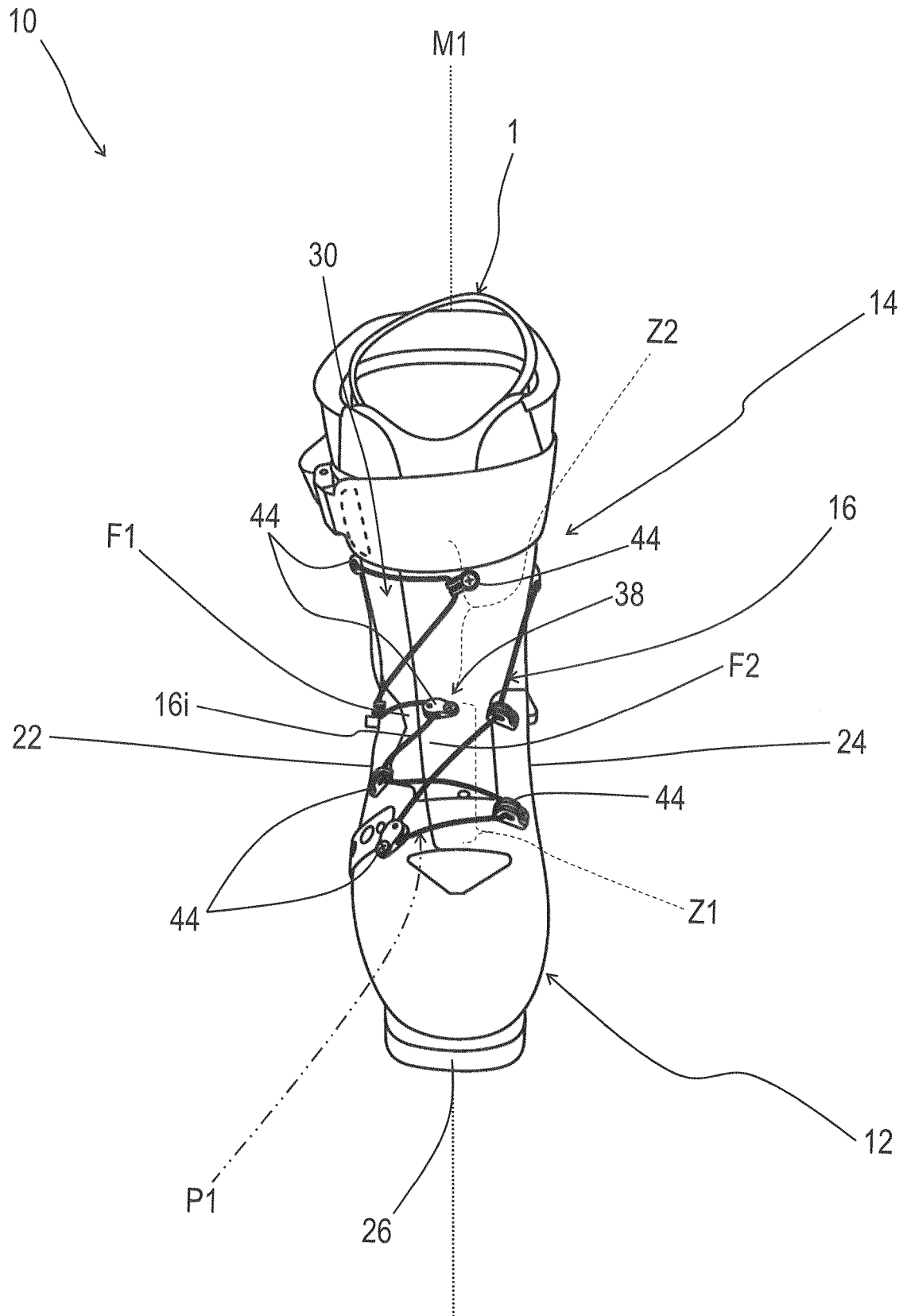


Fig. 14

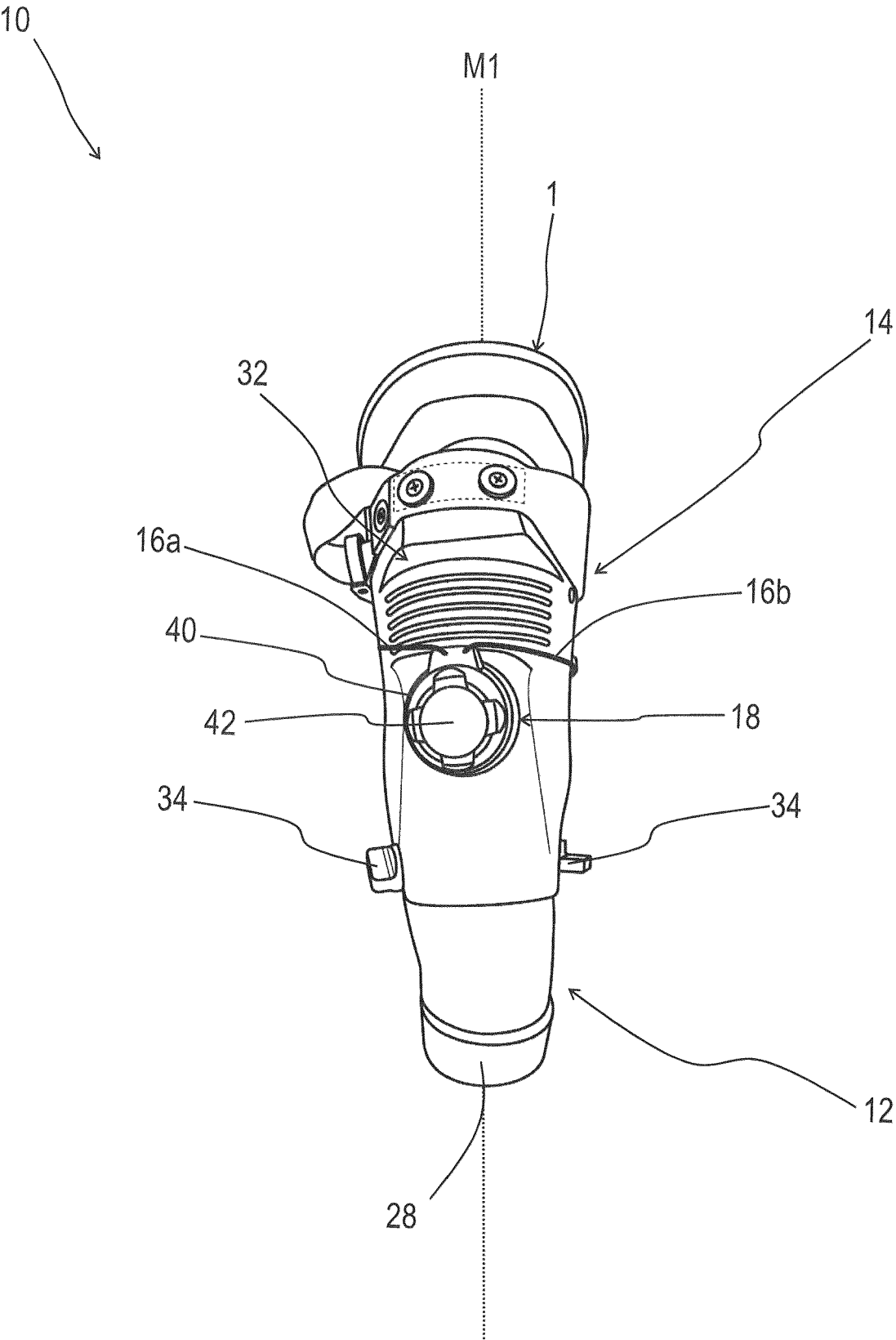


Fig. 15

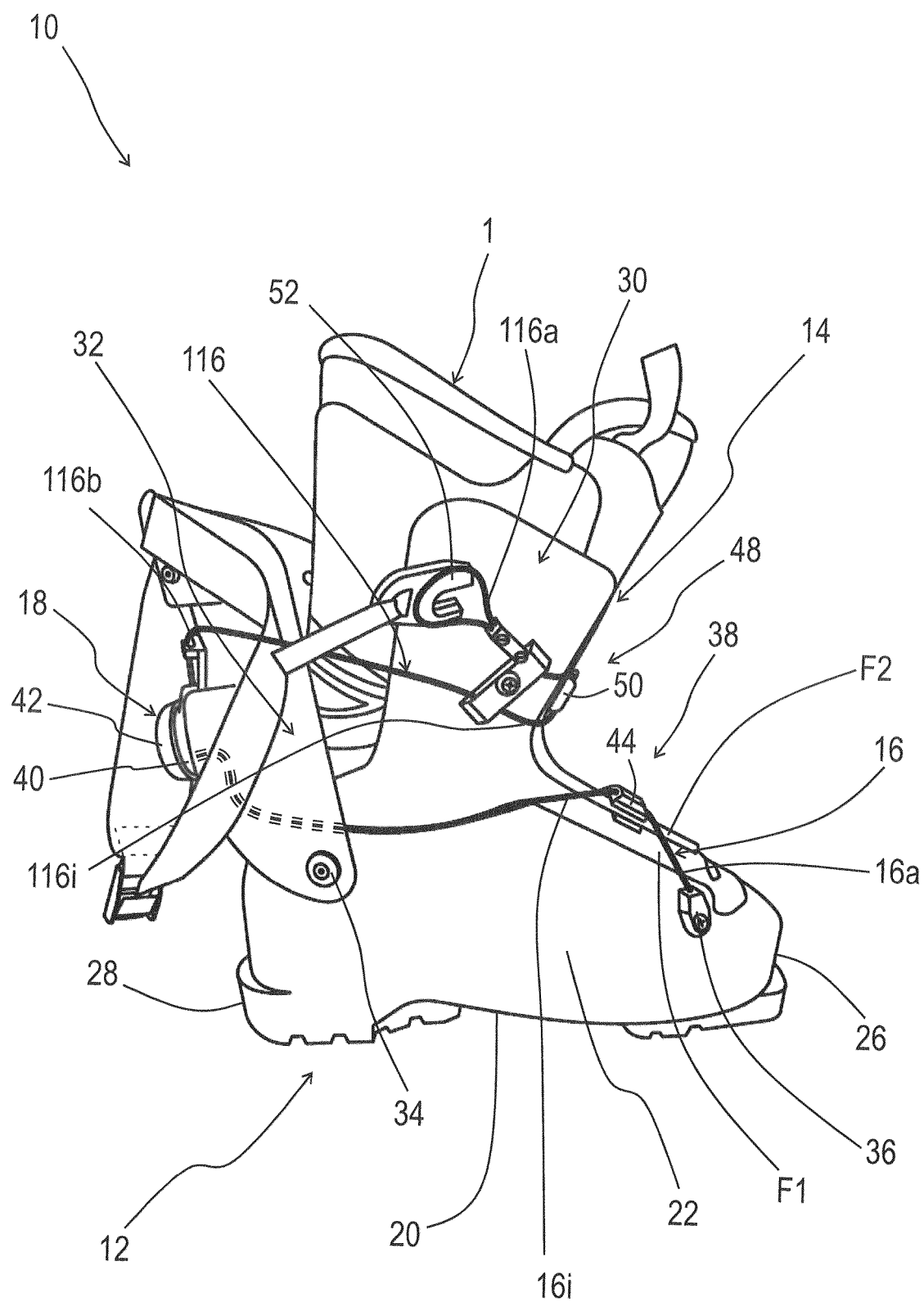


Fig. 16

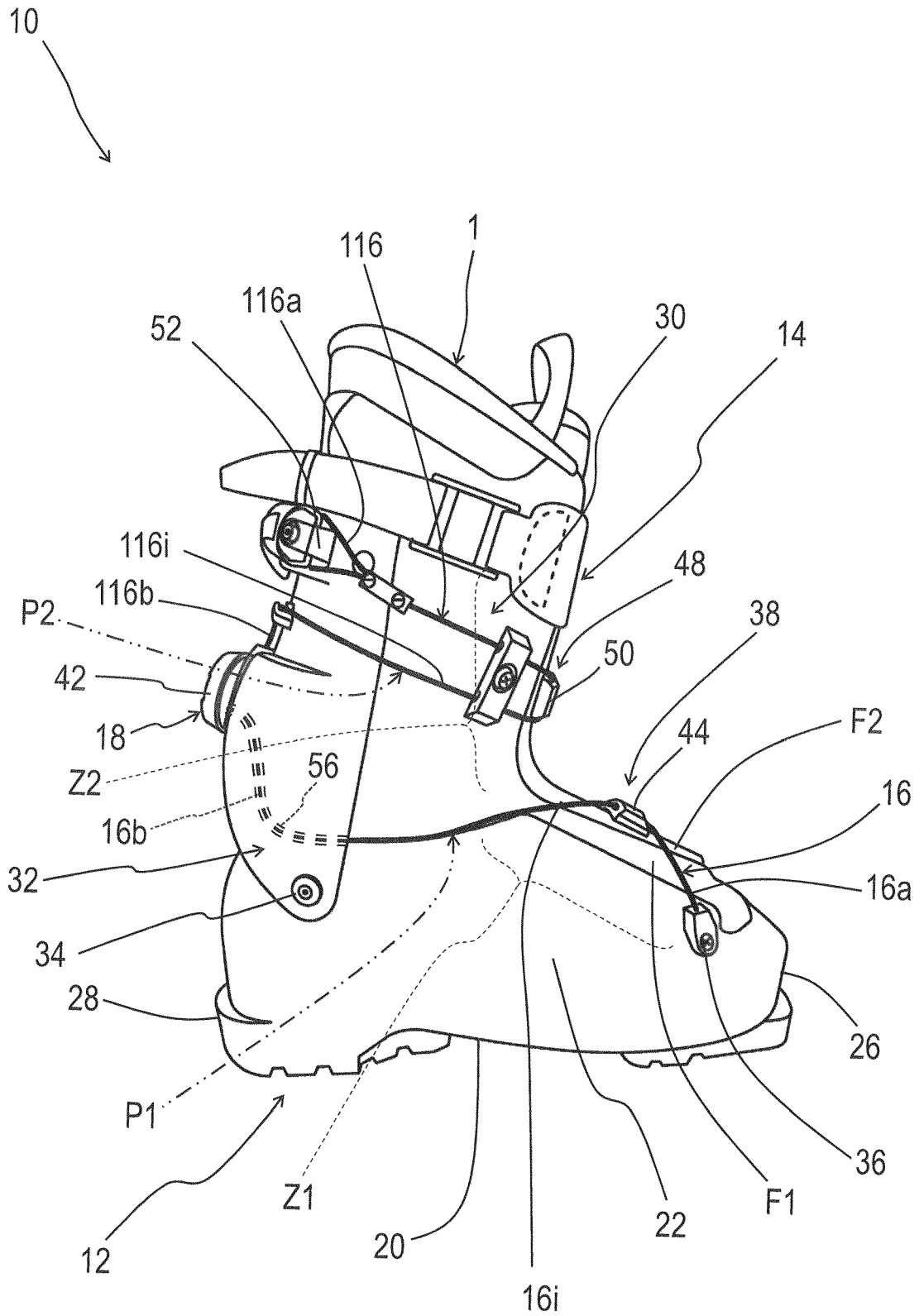


Fig. 17

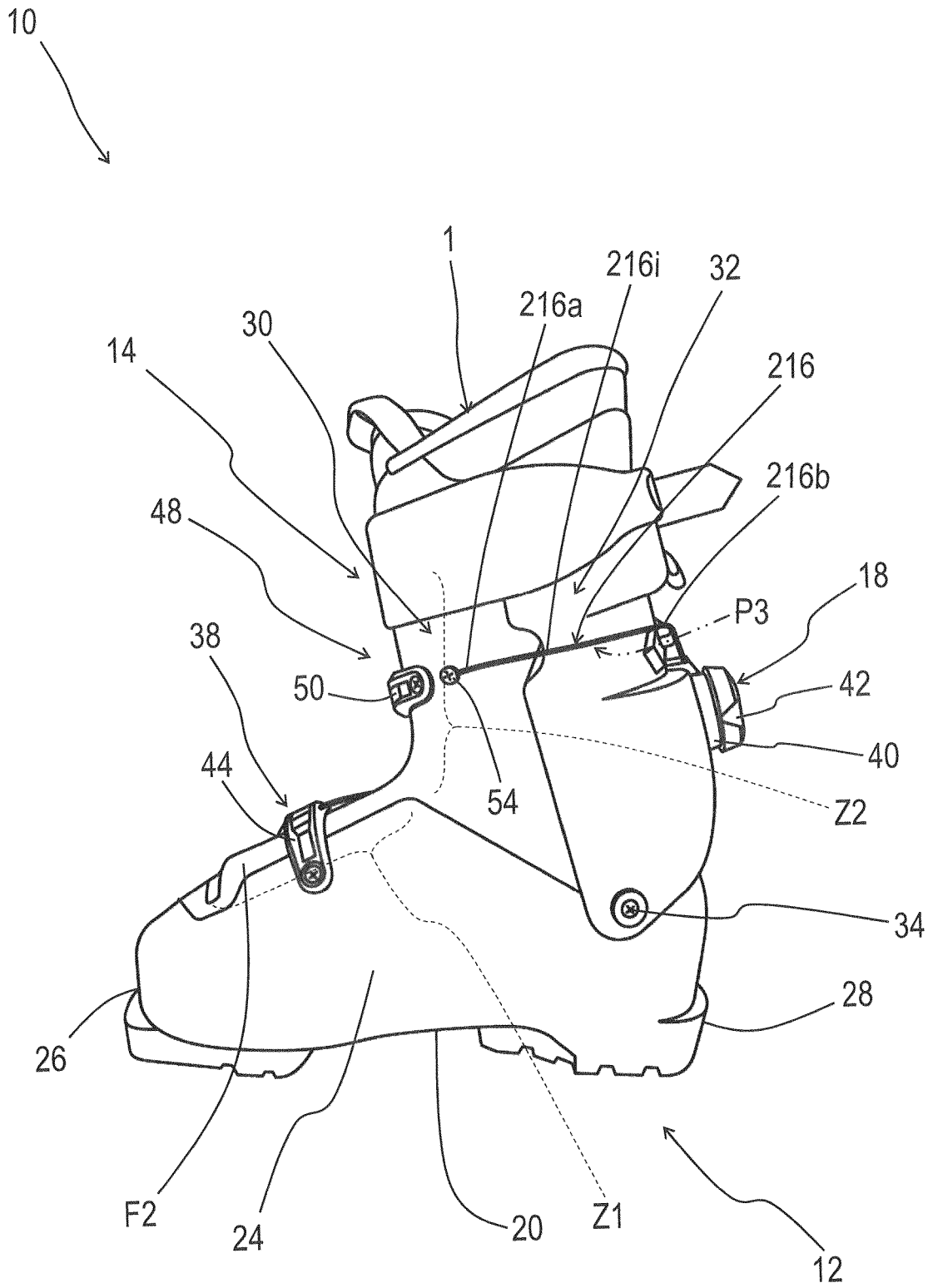


Fig. 18

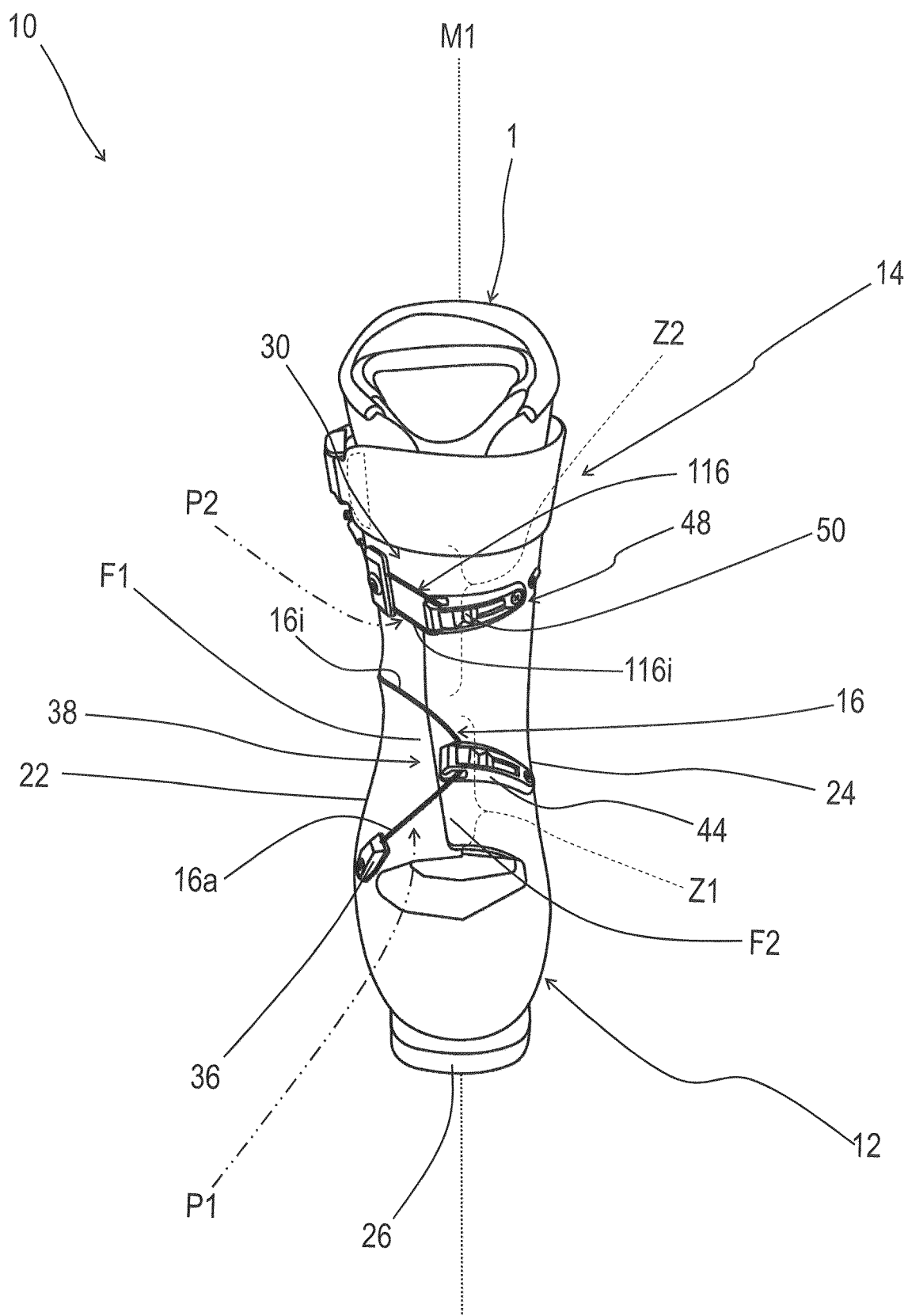


Fig. 19

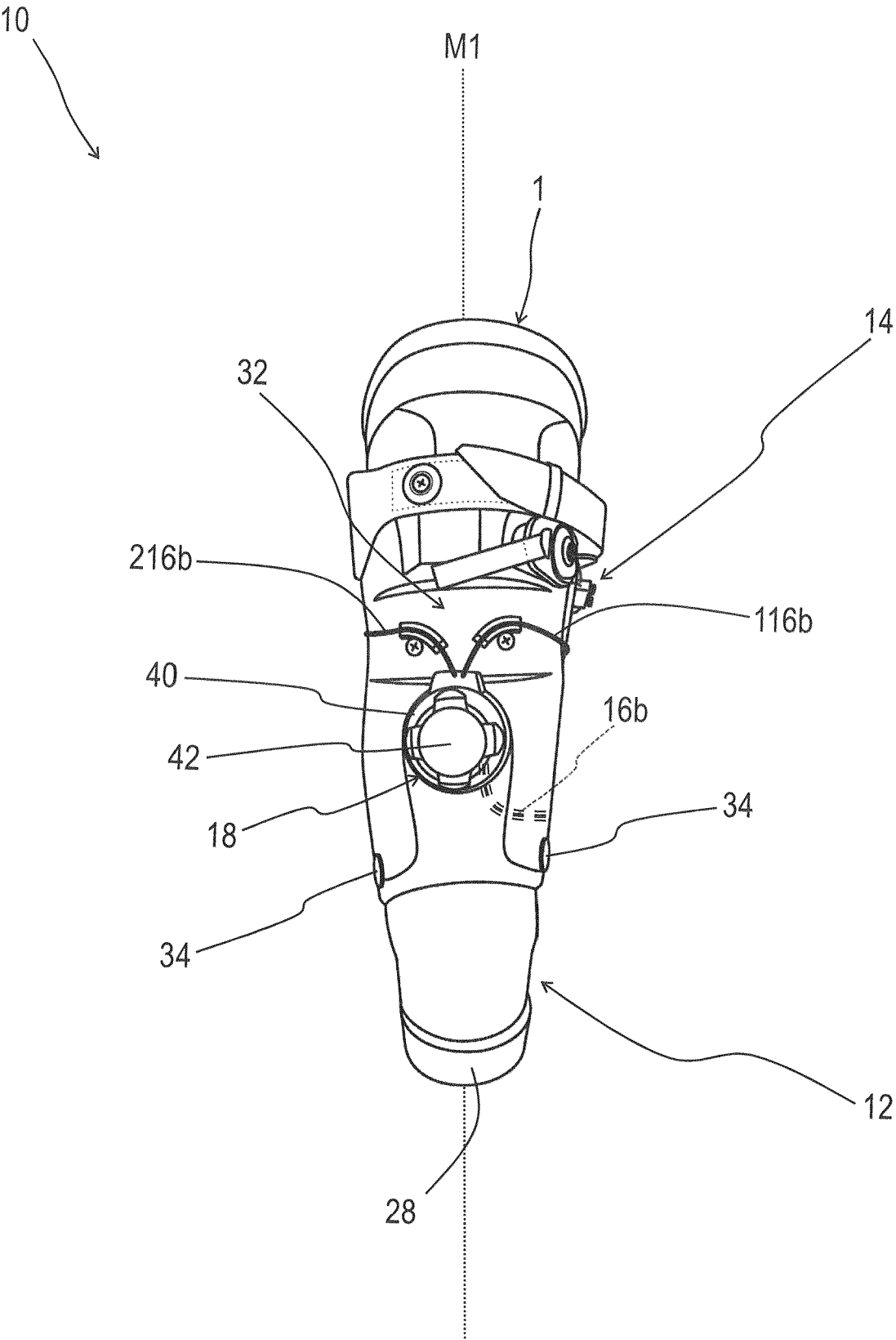


Fig. 20

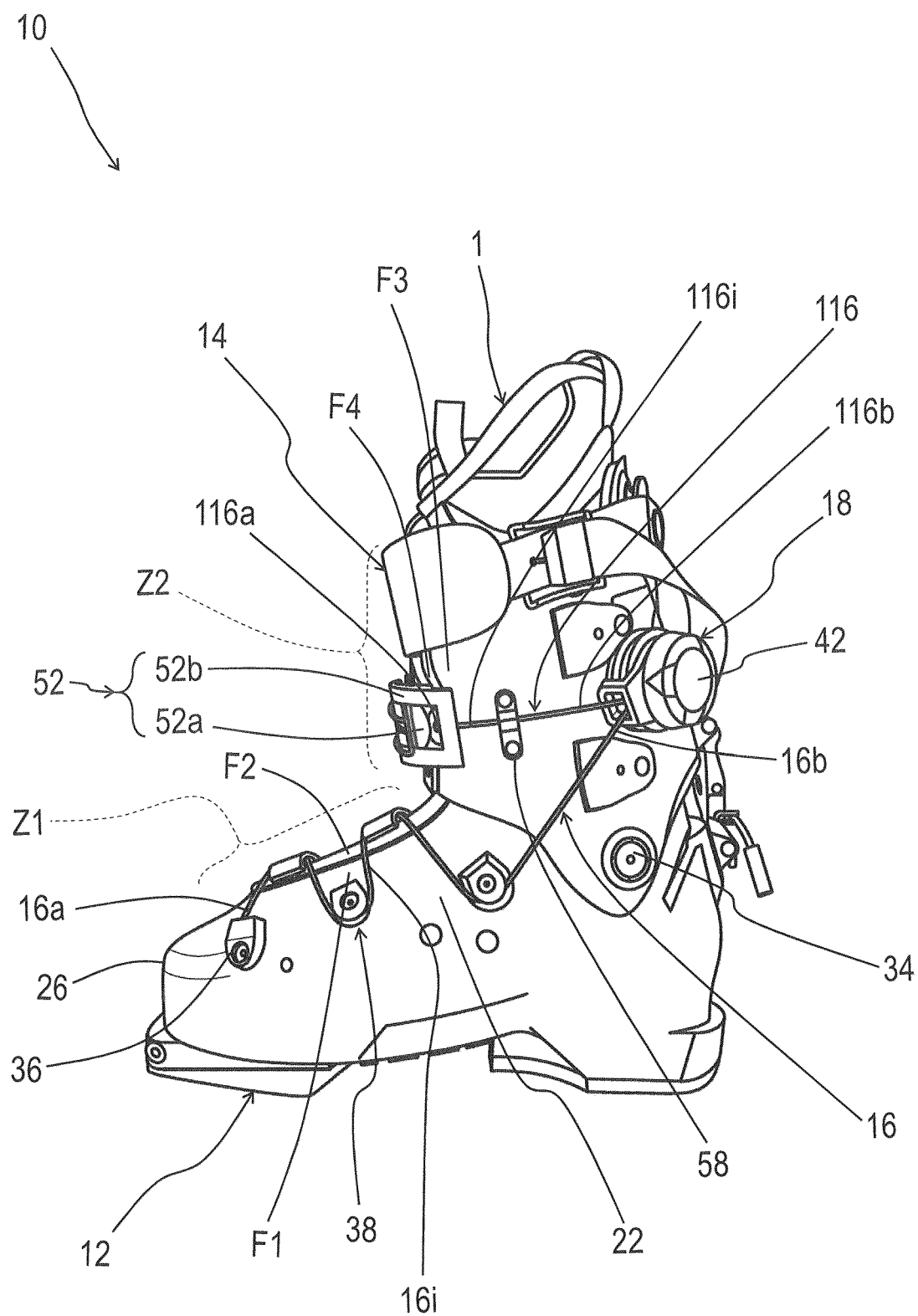


Fig. 21

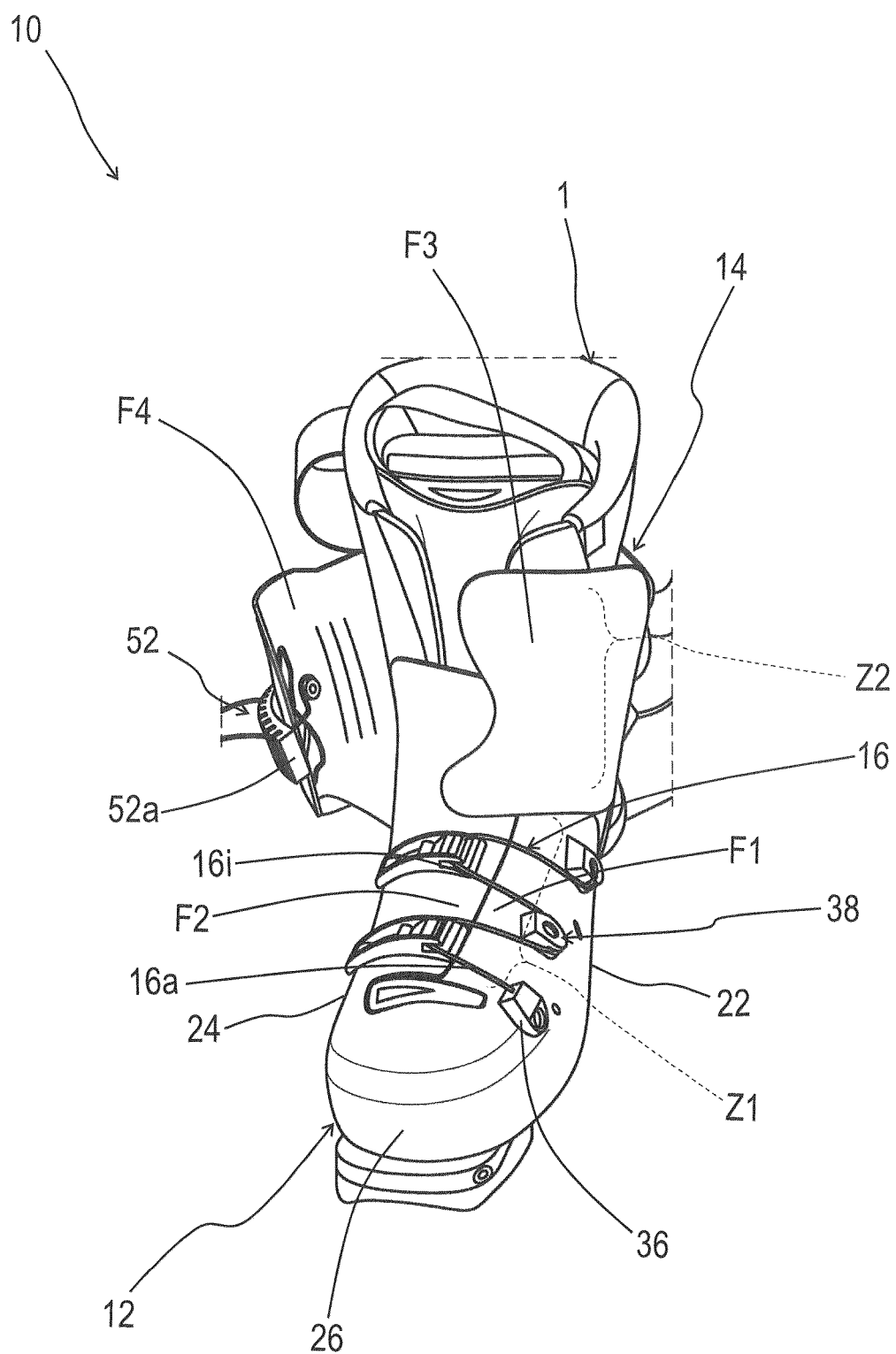


Fig. 22

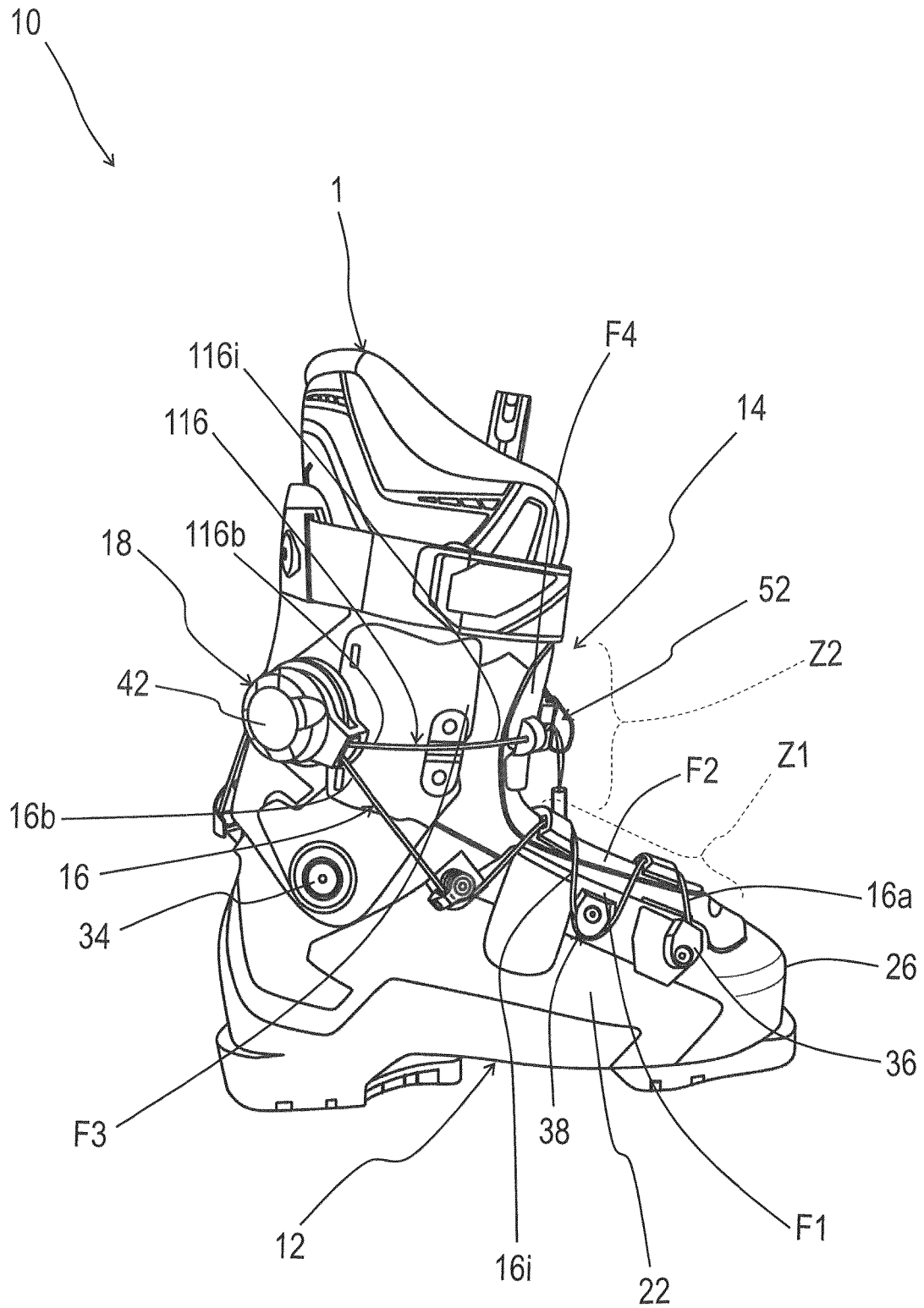


Fig. 23

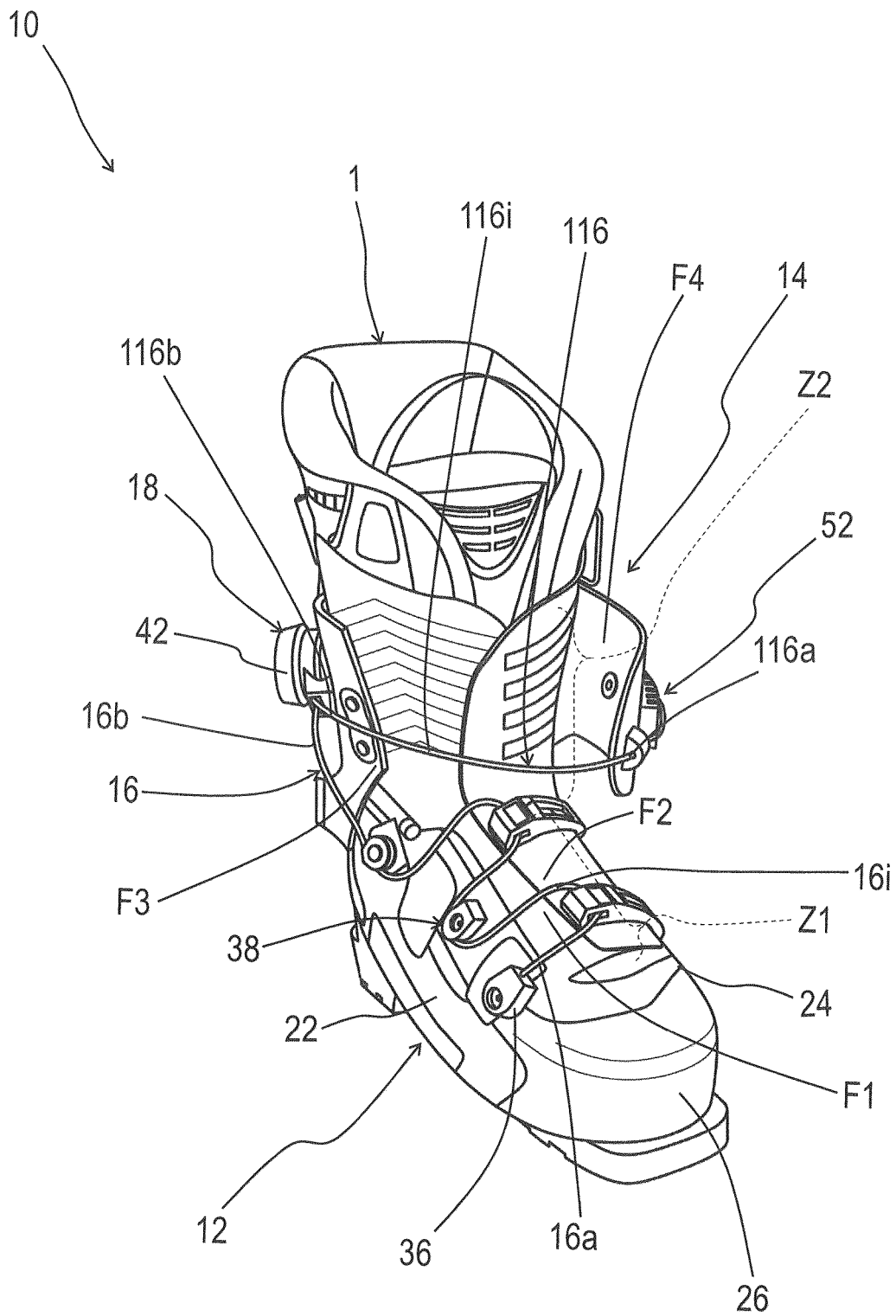


Fig. 24

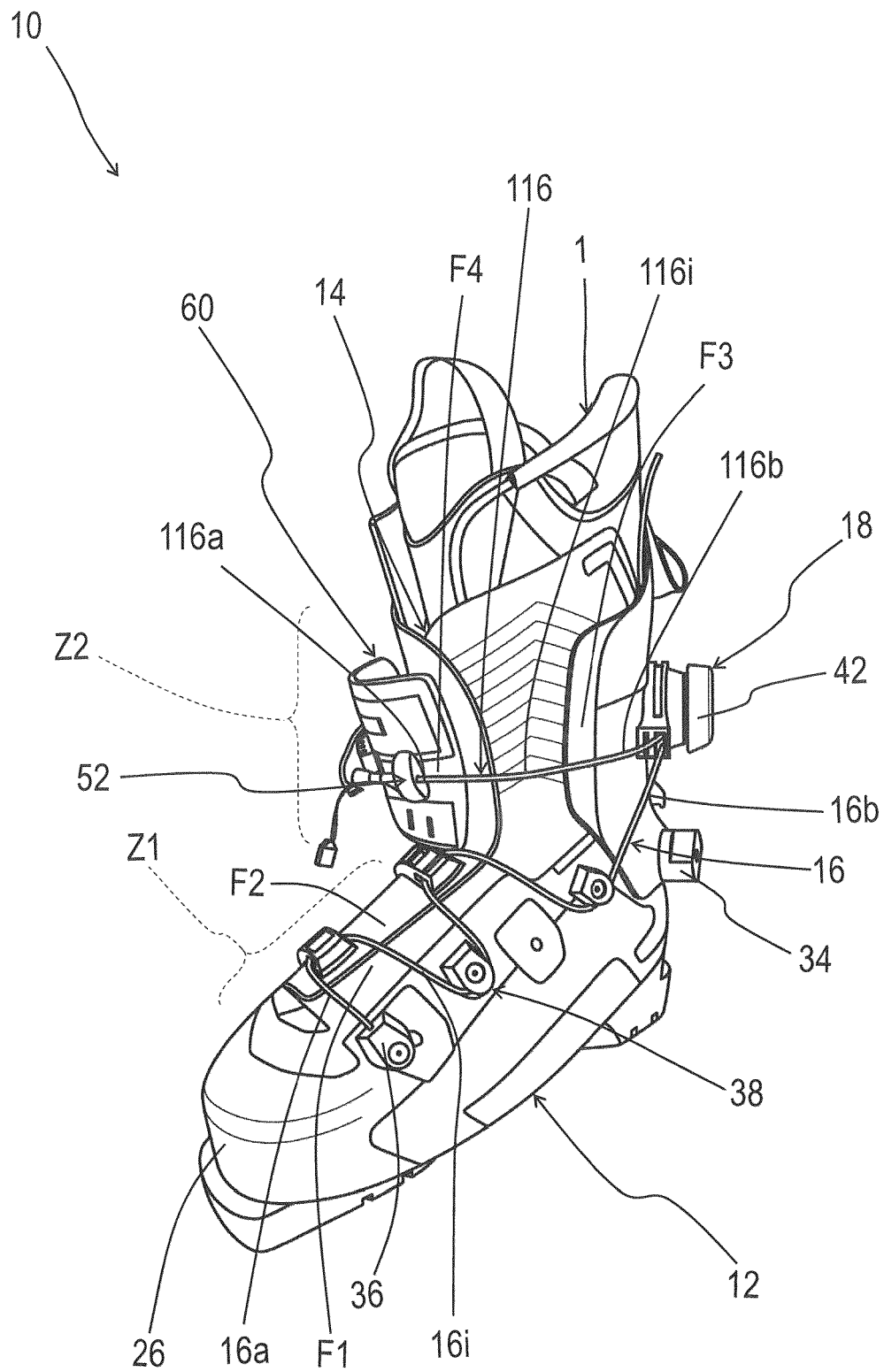


Fig. 25

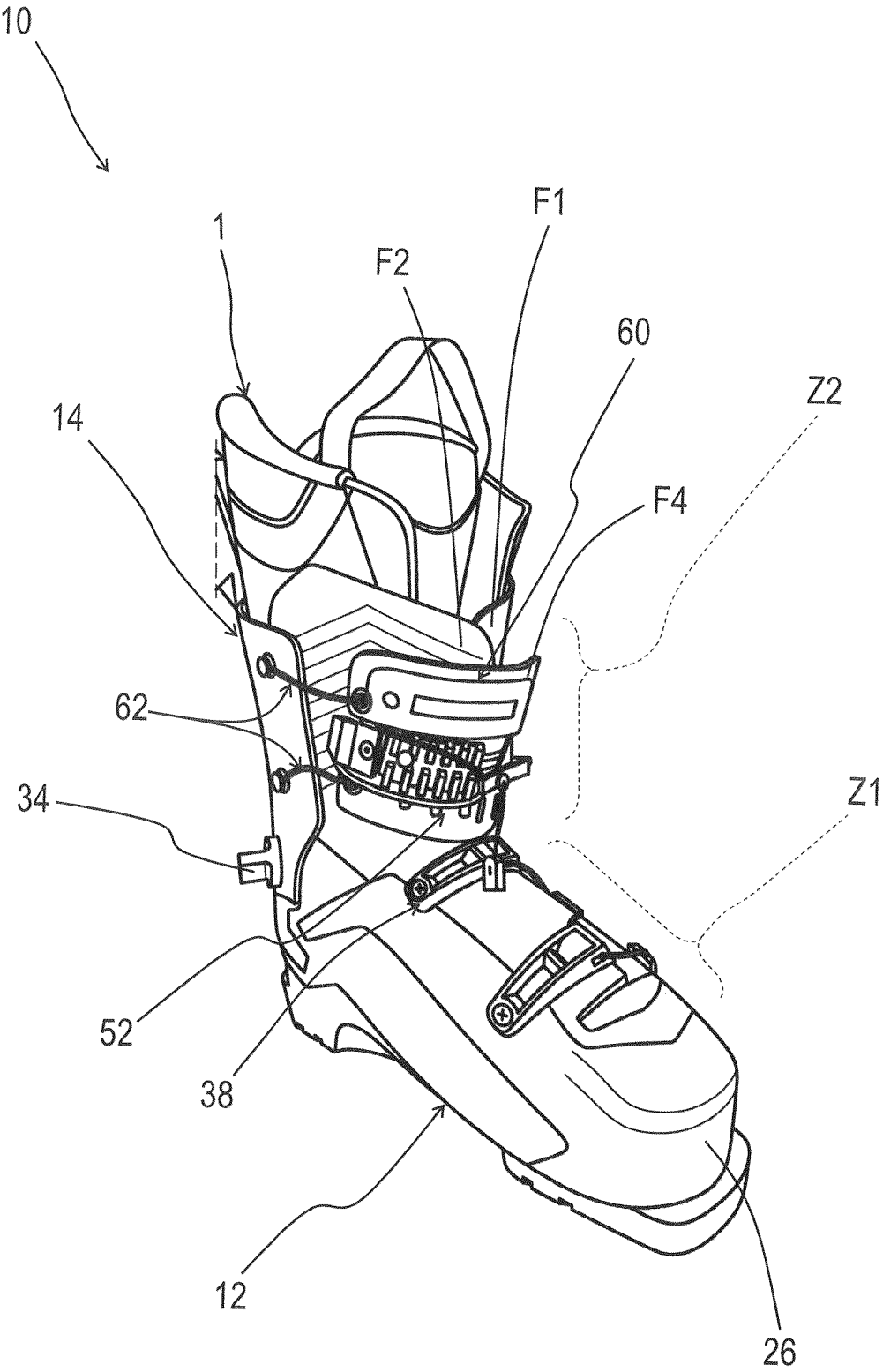


Fig. 26



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Application Number

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Place of search		Date of completion of the search	Examiner
The Hague		8 July 2025	Espeel, Els
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