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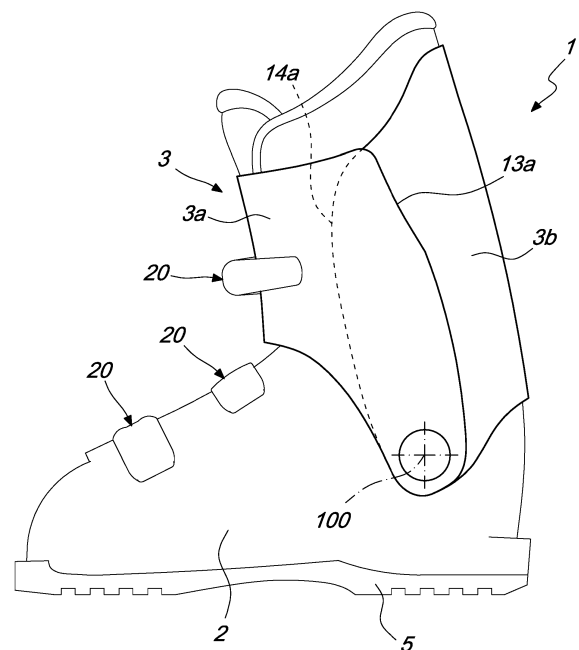
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(54) **SKI BOOT**

(57) A ski boot (1) comprising a pod-shaped shell (2) configured to accommodate the foot of the user, and a leg cuff (3) which comprises a front portion (3a) of the leg cuff (3) and a rear portion (3b) of the leg cuff (3) which have respectively two mutually opposite lateral flaps (13a, 13b; 14a, 14b), the front portion (3a) and the rear portion (3b) being movable, with respect to each other, in order to pass from an open or spaced-apart position of the leg cuff (3), in which at least one portion of at least one pair of mutually opposite matching lateral flaps (13a, 14a; 13b; 14b) are mutually spaced apart, to a closed or brought-together position of the leg cuff (3), in which the mutually opposite matching lateral flaps (13a, 14a; 13b; 14b) are mutually close together; in the closed or brought-together position a first flap (13a) of the front portion (3a) of the leg cuff (3) is arranged externally with respect to the matching flap (14a) of the rear portion (3b) of the leg cuff (3), and the second flap (13b) of the front portion (3a) of the leg cuff (3) is arranged internally with respect to the matching flap (14b) of the rear portion (3b) of the leg cuff (3).



*Fig. 1*

## Description

**[0001]** The present invention relates to a ski boot and a method for providing a ski boot.

**[0002]** Ski boots are constituted by a shell, which is pod-shaped and adapted to accommodate the foot of the user, and by a leg cuff, which connects the boot with the leg and is adapted to wrap around the lower region of the tibia.

**[0003]** Ski boots for ski-mountaineering have a different structure with respect to regular ski boots in that the activity of ski-mountaineering involves executing both downhill and uphill segments and routes, of greater or lesser length, or on apparently flat terrain.

**[0004]** It is evident that on the downhill segments it is necessary that the configuration of the boot be substantially similar to that of a classic ski boot (and thus with fastenings to the ski both in the toe zone and at the heel) while on the uphill segments (in which generally the ski mountaineer progresses with climbing skins) or on apparently flat terrain it is essential that the boot be fastened to the ski only at the toe zone in order to allow the lifting of the heel when pushing (similarly to what occurs in cross-country skiing).

**[0005]** Ski boots for ski-mountaineering are typically provided among other things with a locking device, which acts between the shell and the leg cuff and is adapted to pass, on command, between an operative position, which is used when going downhill and that locks the relative rotation of the leg cuff with respect to the shell about the pivoting axis, and an inactive position in which the rotation of the leg cuff with respect to the shell about the pivoting axis is allowed.

**[0006]** Some types of ski boots have the leg cuff made of two portions: a front portion and a rear portion, which can move with respect to each other in order to pass from an open condition, used for example for engaging and disengaging the foot with the boot, and in some cases, for ski boots for ski-mountaineering or for freeriding, for making an ascent, to a closed condition, in which the two portions are mutually brought close together and wrap around the lower portion of the tibia.

**[0007]** In some cases the front portion of the leg cuff is rotatably supported on the rear portion, so that the flaps of the front portion, when the leg cuff is in the closed condition, are arranged externally with respect to the matching flaps of the rear portion, or vice versa.

**[0008]** With reference to such type of product, it should be noted that if the front portion of the leg cuff is hinged directly on the shell, then it is particularly difficult to handle and correctly size the folding of the longitudinal flaps in order to ensure a correct coupling in the closed condition.

**[0009]** The aim of the present invention is to provide a ski boot that is capable of improving the known art in one or more of the above mentioned aspects.

**[0010]** Within this aim, an object of the invention is to provide a ski boot that is extremely practical in the transition of the leg cuff from the open condition to the closed

condition.

**[0011]** Another object of the invention is to provide a ski boot that has optimized rigidity and support both of the flank directed inward and of the flank directed outward.

**[0012]** Another object of the invention is to devise a method for providing a ski boot that is highly reliable, easy to implement and of low cost.

**[0013]** This aim and these and other objects which will become better apparent hereinafter are achieved by a ski boot according to claim 1, optionally provided with one or more of the characteristics of the dependent claims.

**[0014]** Further characteristics and advantages of the invention will become better apparent from the description of a preferred, but not exclusive, embodiment of the ski boot according to the invention, which is illustrated by way of non-limiting example in the accompanying drawings wherein:

Figure 1 is a side view from the innermost side of the ski boot according to the invention with the front portion and the rear portion in the closed or brought-together position of the leg cuff;

Figure 2 is a side view from the outermost side of the ski boot according to the invention with the front portion and the rear portion in the closed or brought-together position of the leg cuff;

Figure 3 is a view from above of the ski boot according to the invention with the front portion and the rear portion in the closed or brought-together position of the leg cuff.

**[0015]** With reference to the figures, the present invention relates to a ski boot, generally designated by the reference numeral 1, comprising a shell 2, which is pod-shaped and configured to accommodate the foot of the user, and a leg cuff 3.

**[0016]** The leg cuff 3 comprises a front portion 3a of the leg cuff 3 and a rear portion 3b of the leg cuff 3 which have respectively two mutually opposite lateral flaps 13a, 13b; 14a, 14b.

**[0017]** Both the front portion 3a and the rear portion 3b have a concavity directed toward the inside of the leg cuff 3.

**[0018]** The front portion 3a and the rear portion 3b are movable, with respect to each other, in order to pass from an open or spaced-apart position of the leg cuff 3, in which at least one portion of at least one pair of mutually opposite matching lateral flaps 13a, 14a; 13b; 14b are mutually spaced apart, to a closed or brought-together position of the leg cuff, in which the mutually opposite matching lateral flaps 13a, 14a; 13b; 14b are mutually close together.

**[0019]** According to the present invention, in the closed or brought-together position of the leg cuff 3, a first flap 13a of the front portion 3a of the leg cuff 3 is arranged externally with respect to the matching flap 14a of the

rear portion 3b of the leg cuff 3, while the second flap 13b of the front portion 3a of the leg cuff 3 is arranged internally with respect to the matching flap 14b of the rear portion 3b of the leg cuff 3.

**[0020]** Conveniently, the rear portion 3b of the leg cuff 3 can rotate, about an axis that is substantially parallel to the axis 100 of the ankle of the user with respect to the shell 2.

**[0021]** Conveniently, the front portion 3a of the leg cuff 3 can rotate, about an axis that is substantially parallel to the axis 100 of the ankle of the user with respect to the shell 2.

**[0022]** Advantageously, both the front portion 3a of the leg cuff 3 and the rear portion 3b of the leg cuff 3 can rotate, about an axis that is substantially parallel to the axis of the ankle 100 of the user with respect to the shell 2.

**[0023]** In this regard, the rotation axis of the front portion 3a can coincide with, or be different from, the rotation axis of the rear portion 3b.

**[0024]** It is also possible for both the front portion 3a and the rear portion 3b to be able to rotate, about the respective or the same axis, with respect to the shell 2.

**[0025]** However, there is no reason why the front portion 3a cannot be associated rotatably with the rear portion 3b about a respective axis, with the rear portion 3b associated rotatably with the shell 2, or why the rear portion 3b cannot be associated rotatably with the front portion 3a about a respective axis, with the front portion 3a associated rotatably with the shell 2.

**[0026]** Obviously, there is no reason why the front portion 3a and/or the rear portion 3b cannot have a different movement, for example translation or roto-translation, with respect to the shell 2 during the transition from the open or spaced-apart position to the closed or brought-together position and vice versa.

**[0027]** Advantageously, the ski boot 1 comprises a locking device, which acts between the shell 2 and the leg cuff 3 and is adapted to pass, on command, between an operative position, in which it blocks the relative rotation of the leg cuff 3 with respect to the shell 2 about the pivoting axis, and a non-operative position, in which the rotation of the leg cuff 3 with respect to the shell 2 about the pivoting axis is allowed.

**[0028]** With reference to the embodiment shown in the figures, the pivoting axis can correspond to the axis of the ankle 100.

**[0029]** The ski boot 1 is provided with fastening clasps 2a and a sole 5.

**[0030]** The ski boot 1 further comprises a tongue 4 which is associated with the shell 2 and is accommodated, at least partially, within the leg cuff 3.

**[0031]** With reference to the embodiment shown in the figures, the first flap 13a of the front portion 3a of the leg cuff 3 is arranged on the innermost flank of the ski boot 1; the second flap 13b will instead be arranged on the outermost flank of the ski boot 1.

**[0032]** In this manner, on the innermost flank, the flap 13a of the front portion 3a will be arranged externally,

while on the outermost flank of the boot 1, the flap 13b of the front portion 3a will be tucked inward into the leg cuff 3.

**[0033]** This particular embodiment makes it possible to obtain a greater rigidity and a greater support on the outward flank of the boot, flank that typically is under the heaviest stress.

**[0034]** Obviously it is possible, in some applications or for some types of ski boots, to have the flaps arranged in reverse, and therefore the flap 13a of the front portion 3a is tucked inside.

**[0035]** The leg cuff 3 in the open or spaced-apart position has both of the mutually opposite pairs of matching lateral flaps 13a, 14a; 13b; 14b mutually spaced apart.

**[0036]** When the leg cuff 3 is instead in the closed or brought-together position, both of the mutually opposite matching lateral flaps 13a, 14a; 13b; 14b are mutually close together.

**[0037]** The use of the ski boot 1 according to the invention is substantially similar to the use of a traditional ski boot or of a ski boot for ski-mountaineering.

**[0038]** In practice it has been found that the invention fully achieves the intended aim and objects by providing a very performing ski boot yet is capable of ensuring a convenient and effective transition from the position in which the leg cuff is open to the position in which the leg cuff is closed.

**[0039]** Firstly, having provided the leg cuff in two portions makes it possible to obtain a greater structural rigidity than that of a conventional leg cuff.

**[0040]** Furthermore, the contrivance of asymmetrically arranging the flaps of the rear portion and of the front portion makes it possible to optimize the rigidity and support of the innermost flank and of the outermost flank of the boot, as well as making the operations to close the leg cuff easier.

**[0041]** The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims. Moreover, all the details may be substituted by other, technically equivalent elements.

**[0042]** In practice the materials employed, provided they are compatible with the specific use, and the contingent dimensions and shapes, may be any according to requirements and to the state of the art.

**[0043]** The disclosures in Italian Patent Application No. 102020000026254 from which this application claims priority are incorporated herein by reference.

**[0044]** Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

## Claims

1. A ski boot (1) comprising a pod-shaped shell (2) configured to accommodate the foot of the user, and a leg cuff (3) which comprises a front portion (3a) of the leg cuff (3) and a rear portion (3b) of the leg cuff (3) which have respectively two mutually opposite lateral flaps (13a, 13b; 14a, 14b), said front portion (3a) and said rear portion (3b) being movable, with respect to each other, in order to pass from an open or spaced-apart position of the leg cuff (3), in which at least one portion of at least one pair of mutually opposite matching lateral flaps (13a, 14a; 13b, 14b) are mutually spaced apart, to a closed or brought-together position of the leg cuff, in which the mutually opposite matching lateral flaps (13a, 14a; 13b, 14b) are mutually close together, **characterized in that** in said closed or brought-together position a first flap (13a) of said front portion (3a) of said leg cuff (3) is arranged externally with respect to the matching flap (14a) of the rear portion (3b) of said leg cuff (3), and the second flap (13b) of said front portion (3a) of said leg cuff (3) is arranged internally with respect to the matching flap (14b) of the rear portion (3b) of said leg cuff (3).
 

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2. The ski boot (1) according to claim 1, **characterized in that** said rear portion (3b) of said leg cuff (3) can rotate about an axis (100) that is substantially parallel to the axis (100) of the ankle of the user with respect to said shell (2).
 

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3. The ski boot (1) according to claim 1 or 2, **characterized in that** said front portion (3a) of said leg cuff (3) can rotate about an axis that is substantially parallel to the axis (100) of the ankle of the user with respect to said shell (2).
 

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4. The ski boot (1) according to one or more of the preceding claims, **characterized in that** it comprises a locking device, which acts between said shell (2) and said leg cuff (3) and is adapted to pass on command between an operative position, in which it blocks the relative rotation of said leg cuff (3) with respect to said shell (2) about a pivoting axis, and a non-operative position, in which the rotation of said leg cuff (3) with respect to said shell (2) about said pivoting axis is allowed.
 

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5. The ski boot (1) according to one or more of the preceding claims, **characterized in that** said pivoting axis corresponds to the axis of the ankle (100).
 

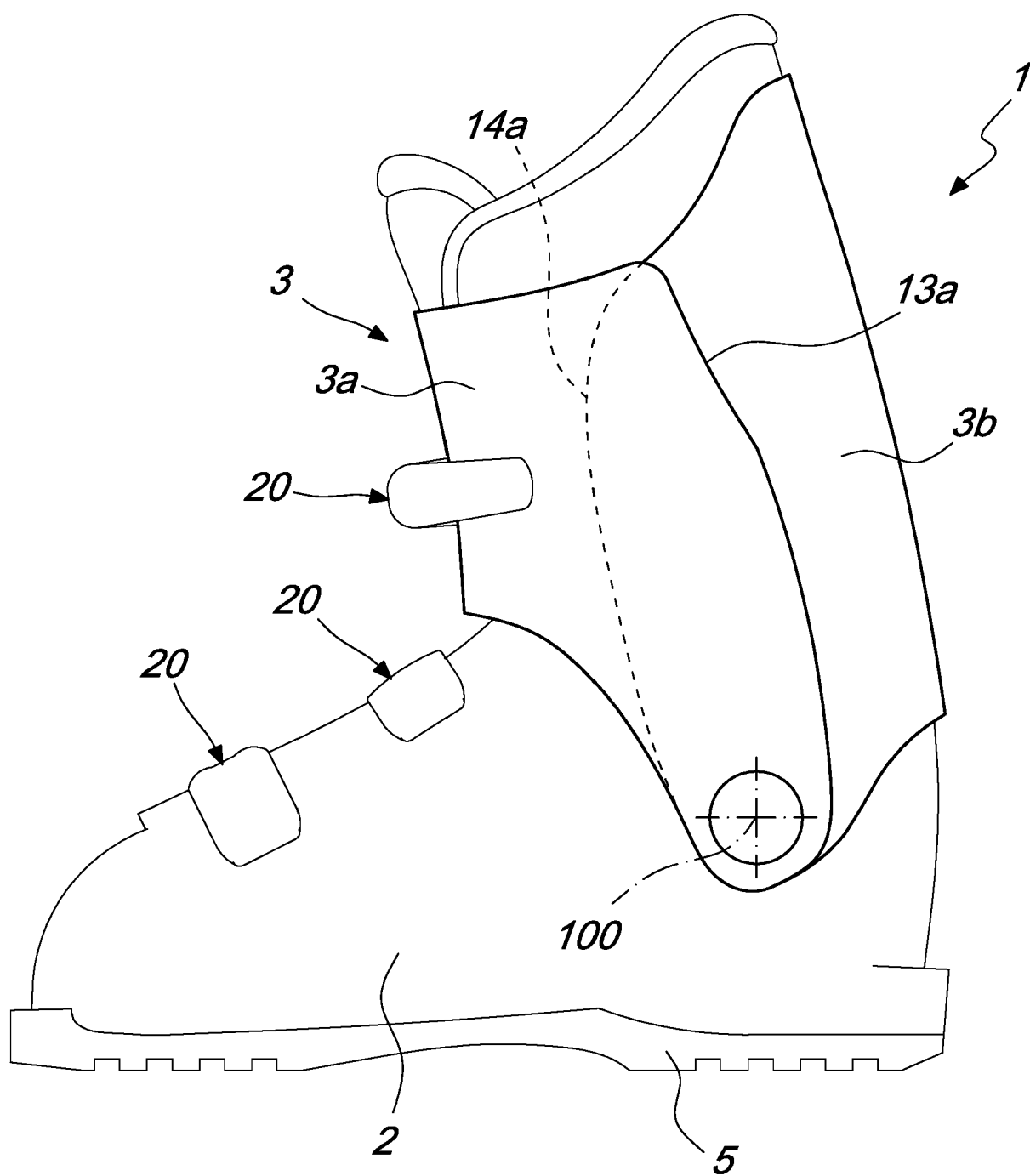
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6. The ski boot (1) according to one or more of the preceding claims, **characterized in that** it comprises a tongue which is associated with said shell (2) and is accommodated at least partially within said leg cuff (3).
 

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7. The ski boot (1) according to one or more of the preceding claims, **characterized in that** said first flap (13a) of said front portion (3a) of said leg cuff (3) is arranged on the innermost flank of said ski boot (1).
 

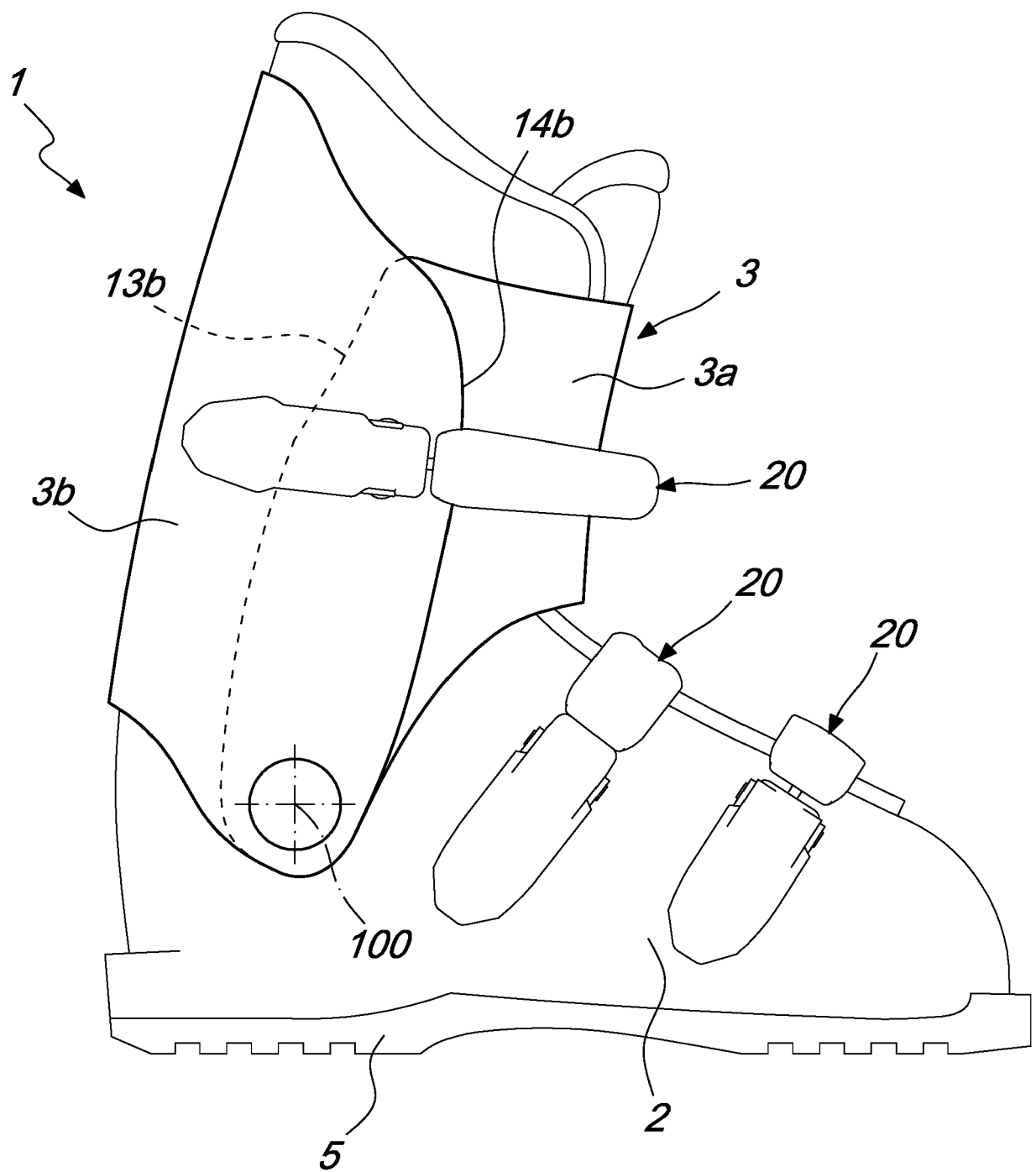
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8. The ski boot (1) according to one or more of the preceding claims, **characterized in that** with said leg cuff (3) in said open or spaced-apart position, both of the mutually opposite pairs of matching lateral flaps (13a, 14a; 13b, 14b) are mutually spaced apart, and with said leg cuff (3) in said closed or brought-together position, both of the mutually opposite matching lateral flaps (13a, 14a; 13b, 14b) are mutually close together.
 

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9. The ski boot (1) according to one or more of the preceding claims, **characterized in that** said front portion (3a) is associated rotatably with said rear portion (3b), or said rear portion (3b) is associated rotatably with said front portion (3a).
 

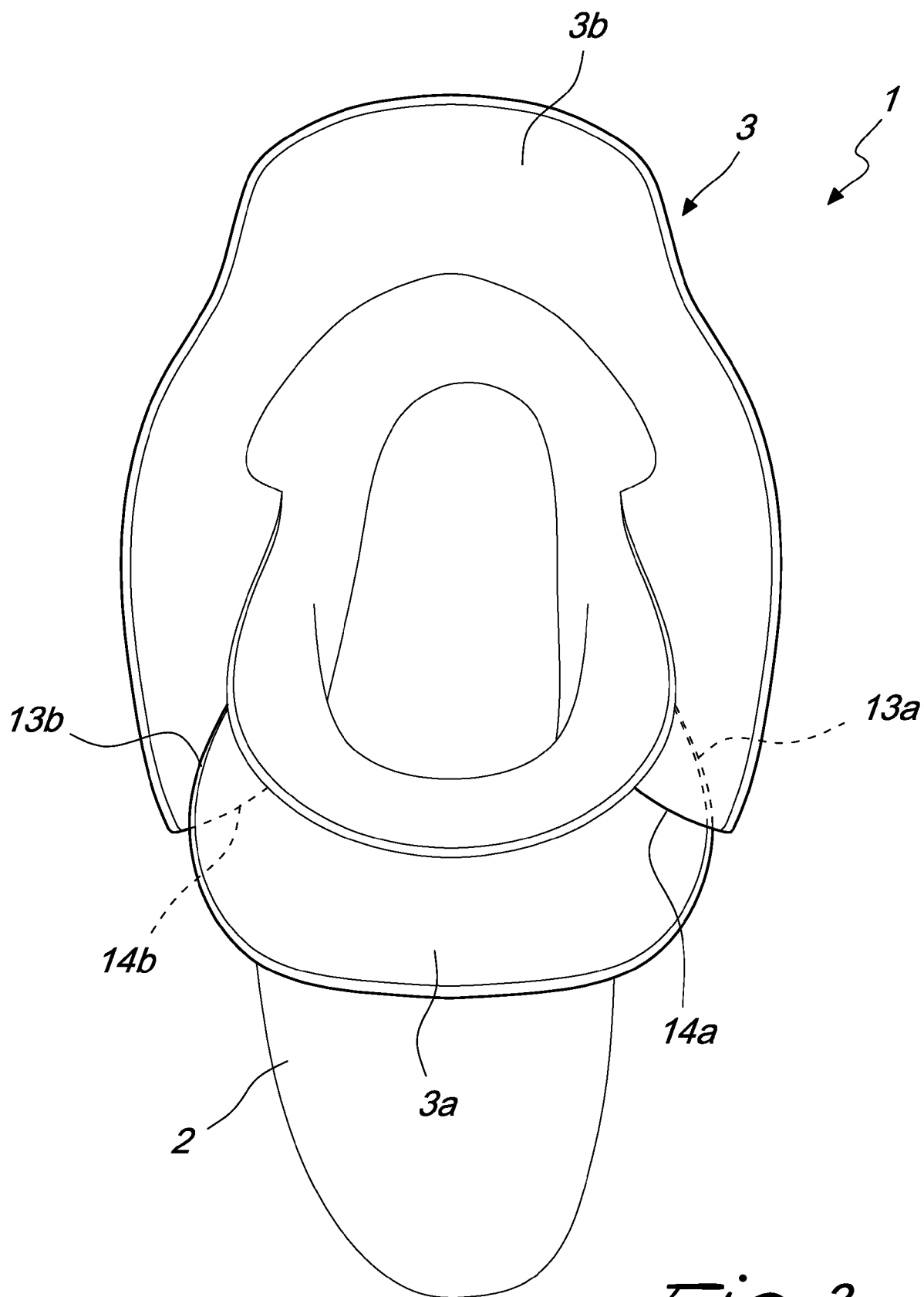
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*Fig. 1*



*Fig. 2*



*Fig. 3*



## EUROPEAN SEARCH REPORT

Application Number

EP 21 20 5672

## DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
<b>X</b>	<b>US 5 005 303 A (BONAVENTURE LAURENT [FR] ET AL) 9 April 1991 (1991-04-09)</b>	<b>1-8</b>	<b>INV.</b>
<b>A</b>	<b>* figures 1-4 *</b>	<b>9</b>	<b>A43B5/04</b>
	<b>* page 9, line 8 - line 18 *</b>		
	<b>* page 5, line 23 - page 6, line 10 *</b>		
	-----		
<b>A</b>	<b>DE 693 04 869 T2 (LANGE INT SA [CH])</b>	<b>9</b>	
	<b>3 April 1997 (1997-04-03)</b>		
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## TECHNICAL FIELDS SEARCHED (IPC)

**A43B**

The present search report has been drawn up for all claims

1

Place of search

Date of completion of the search

Examiner

**The Hague****21 March 2022****Ariza De Miguel, Jon**

## CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone  
 Y : particularly relevant if combined with another document of the same category  
 A : technological background  
 O : non-written disclosure  
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 E : earlier patent document, but published on, or after the filing date  
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& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)



**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 21 20 5672

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
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**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

- IT 102020000026254 [0043]