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(54) **SPORTS FOOTWEAR COMPRISING A SHELL AND A CUFF ARTICULATED TO EACH OTHER**

(57) The present invention relates to a sports footwear (1) of the kind comprising a shell (3), made of a substantially rigid material, and a cuff (5), also made of a substantially rigid material. According to the invention, the cuff (5) comprises at least a first cuff portion (5a), which is articulated to the shell (3), and a second cuff portion (5b), which is articulated to the first cuff portion

(5a), said first cuff portion being designed so as to wrap the ankle and the instep of the user and said second cuff portion being designed so as to wrap the lower portion of the calf and of the shin of the user. The present invention can be applied, for instance, in the field of ski boots, both to mountaineering ski boots and to alpine ski boots.

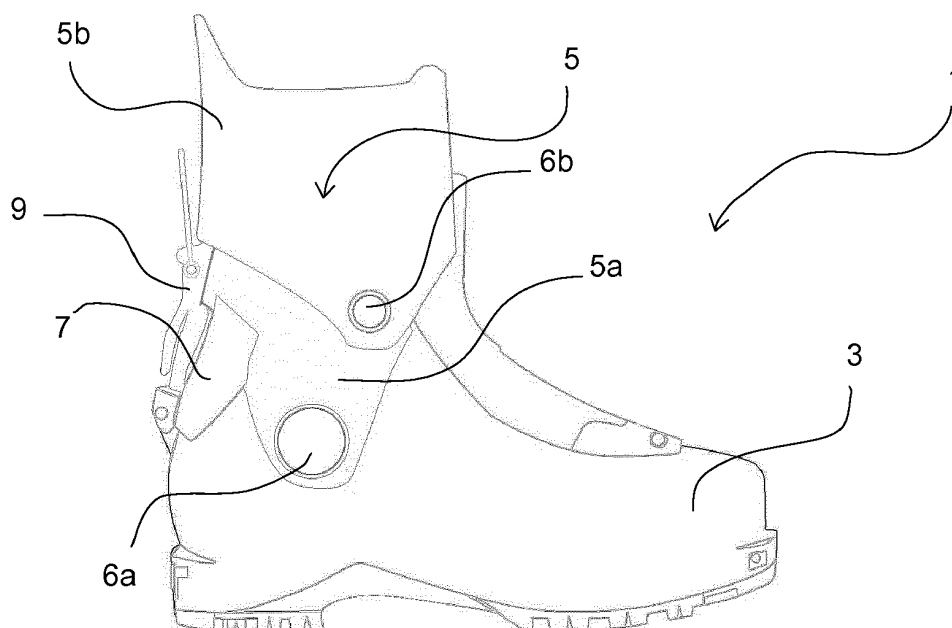


FIG. 1a

Description

Technical Field of the Invention

[0001] The present invention relates to a sports footwear, of the kind comprising a shell, made of a substantially rigid material, and a cuff, also made of a substantially rigid material and articulated to said shell.

[0002] The present invention can be applied, for example, in the field of ski boots, both for ski mountaineering boots and for alpine ski boots.

Prior Art

[0003] Sports footwear are known which comprise an inner element made of a substantially soft material and an outer element made of a substantially rigid material.

[0004] A typical example of this kind of sports footwear are ski boots, which have an inner liner made of a substantially soft material and an outer shell made of a substantially rigid material.

[0005] In general, said sports footwear further comprise a cuff, adapted to receive the lower part of the user's leg, which cuff is also made of a substantially rigid material and is connected to the outer shell.

[0006] Said cuff is generally articulated to the shell (in particular at the malleolar region), so as to allow, if desired, a rotation of the cuff with respect to the shell.

[0007] More in detail, when the user is skiing, it is preferable that the cuff is blocked with respect to the shell, so that even slight movements of the user's leg are rigidly transmitted to the ski boot and, from this, to the ski.

[0008] Instead, when the user has to walk, it is preferable that the cuff is free to rotate relative to the shell, so as to make walking more comfortable.

[0009] Ski boots of the type described above which are provided with locking devices which can be switched from a first configuration, in which the rotation of the cuff relative to the shell is blocked (configuration suitable for skiing), to a second configuration, in which the rotation of the cuff with respect to the shell is allowed (configuration suitable for walking), and vice versa, are known from the art.

[0010] Ski boots having such a structure are particularly suitable for ski mountaineering: when going uphill, the locking device is kept in the second configuration, in which the cuff of the ski boot is free to rotate relative to the shell; on the other hand, when going downhill, the locking device is kept in the first configuration, in which the cuff of the ski boot is blocked relative to the shell.

[0011] Despite the possibility of selectively allowing or preventing the rotation of the cuff relative to the shell, footwear of the type described above are not able to provide sufficient comfort for the user when he/she has to walk.

[0012] The object of the present invention is to overcome the limitations of prior art by providing a sports footwear which is particularly comfortable during walking.

[0013] This and other objects are achieved by a sports footwear as claimed in the attached claims.

Summary of the Invention

[0014] The sports footwear according to the invention comprises a shell, made of a substantially rigid material, and a cuff, also made of a substantially rigid material, wherein the cuff comprises at least a first cuff portion, which is articulated to the shell, and at least a second cuff portion, which is articulated to the first cuff portion.

[0015] Each of said first cuff portion and said second cuff portion is designed so as to wrap a respective portion of the user's leg.

[0016] It is possible to provide that the cuff comprises more than two cuff portions, each cuff portion being designed so as to wrap a respective portion of the user's leg, in which case the first cuff portion is articulated to the shell and each of the further cuff portions is articulated to the preceding cuff portion.

[0017] In this context, "to wrap" means that each cuff portion has a substantially tubular shape and is designed so as to at surround a substantial part of a respective portion of the user's leg.

[0018] According to a preferred embodiment of the invention, the first cuff portion is articulated to the shell at both sides - i.e. medial and lateral sides - of the sports footwear, preferably at the malleolar region.

[0019] According to an alternative embodiment of the invention, the first cuff portion is articulated to the shell at the rear region thereof.

[0020] According to a preferred embodiment of the invention, the second cuff portion is articulated to the first cuff portion at both sides - i.e. medial and lateral sides - of the sports footwear.

[0021] According to an alternative embodiment of the invention, the second cuff portion is articulated to the first cuff portion at the rear region thereof.

[0022] According to a preferred embodiment of the invention, the sports footwear comprises a single locking device, which can be switched from a first position, in which it simultaneously blocks both the rotation of the second cuff portion relative to the first cuff portion and the rotation of the first cuff portion relative to the shell, to a second position, in which both the rotation of the second cuff portion relative to the first cuff portion and the rotation of the first cuff portion relative to the shell are allowed, and vice versa.

[0023] According to another preferred embodiment of the invention, the sports footwear comprises a first locking device, which can be switched from a first position, in which it blocks the rotation of the first cuff portion relative to the shell, to a second position, in which the rotation of the first cuff portion relative to the shell is allowed, and vice versa, and it further comprises a second locking device, which can be switched from a first position, in which it blocks the rotation of the second cuff portion relative to the first cuff portion, to a second position, in

which the rotation of the second cuff portion relative to the first cuff portion is allowed, and vice versa.

[0024] In this preferred embodiment, the first and second locking devices are separate and independent from each other.

Brief Description of the Drawings

[0025] Further features and advantages of the invention will become more evident from the following detailed description of a preferred embodiment of the invention, given by way of non-limiting example, with reference to the attached Figures, in which:

Figure 1a schematically shows a side view of a sports footwear according to the invention, in a first configuration;

Figure 1b schematically shows a side view of a sports footwear according to the invention, in a second configuration;

Detailed Description of a Preferred Embodiment of the Invention

[0026] In the preferred embodiment of the invention described here below, reference will be made to the application of the invention to a ski boot comprising a shell and a cuff articulated to each other.

[0027] Such embodiment is in no way to be understood as limiting the scope of the invention, and the invention can be applied to any sports footwear comprising a shell and a cuff articulated to each other, in particular in case it is considered that it is necessary or advantageous to provide that - depending on the user's need - said sports footwear can assume a configuration in which said shell and said cuff are movable relative to each other, or a configuration in which said shell and said cuff are blocked relative to each other.

[0028] With reference to the attached Figures 1a - 1b, a ski boot 1 is schematically shown.

[0029] Said ski boot comprises an inner element or inner liner, made of a substantially soft material, and an outer shell 3, made of a substantially rigid material and configured to receive the user's foot. Said ski boot 1 further comprises a cuff 5, adapted to receive the lower portion of the user's leg.

[0030] According to the invention, said cuff 5 comprises a first cuff portion 5a, which is articulated to the shell 3, and a second cuff portion 5b, which is articulated to the first cuff portion 5a.

[0031] The first cuff portion 5a has a substantially tubular shape and surrounds a substantial part of a lower portion of the user's leg, immediately above the shell (e.g. the region of the ankle and instep of the user).

[0032] In other words, said first cuff portion has a rear section (configured to cover the rear part of the portion of the user's leg), a front section (configured to cover the front part of the portion of the user's leg) and a pair of

side sections joining together the rear section and the front section at both opposite sides - i.e. the medial and lateral sides - of the ski boot.

[0033] The second cuff portion 5b also has a substantially tubular shape and surrounds a substantial part of a lower portion of the user's leg, immediately above the first cuff portion (e.g. the lower portion of the calf and shin of the user).

[0034] In other words, said second cuff portion has a rear section (configured to cover the rear part of the corresponding portion of the user's leg), a front section (configured to cover the front part of the corresponding portion of the user's leg) and a pair of side sections joining the rear section and the front section at both opposite sides - i.e. the medial and lateral sides - of the ski boots.

[0035] In other words, the cuff 5 of the sports footwear according to the invention can be considered as consisting of two or more cuff portions having a substantially tubular shape and stacked on each other, wherein the wall of the first cuff portion partially overlaps the shell for being articulated to said shell, and the wall of each of the further cuff portions partially overlaps the preceding cuff portion for being articulated thereto.

[0036] More particularly, with reference to the embodiment shown in Figures 1a - 1b, the cuff 5 can be considered as consisting of two cuff portions 5a, 5b, having a substantially tubular shape and stacked on each other, wherein the wall of the first cuff portion or lower cuff portion 5a partially overlaps the shell 3 for being articulated to said shell, and the wall of the second cuff portion or upper cuff portion 5b partially overlaps the first cuff portion or lower cuff portion for being articulated thereto.

[0037] Preferably, the first cuff portion 5a is articulated to the shell 3 at both sides of the ski boot, more particularly at the malleolar region, by means of respective articulation pins 6a.

[0038] Alternatively, the first cuff portion 5a could be articulated to the shell 3 at the rear region of the ski boot.

[0039] Preferably, the second cuff portion 5b is articulated to the first cuff portion 5a at both sides of the ski boot, by means of respective articulation pins 6b.

[0040] Alternatively, the first cuff portion 5a could be articulated to the shell 3 at the rear region of the ski boot.

[0041] The ski boot 1 can further comprise a spoiler 7, arranged between the shell 3 and the cuff 5, at the rear region of the ski boot.

[0042] In the embodiment of the invention shown in Figures 1a - 1b, the ski boot 1 comprises a single locking device 9 for selectively allowing and preventing both the rotation of the first cuff portion 5a and of the shell relative to each other and the rotation of the second cuff portion 5b and of the first cuff portion 5a relative to each other.

[0043] In detail, the locking device 9 can be switched from a first position (shown in Figure 1a), in which it simultaneously blocks both the rotation of the first cuff portion 5a relative to the shell 3 and the rotation of the second cuff portion 5b relative to the first cuff portion 5a, to a second position (shown in Figure 1b), in which both the

rotation of the second cuff portion 5b relative to the first cuff portion 5a and the rotation of the first cuff portion 5a relative to the shell 3 are allowed, and vice versa.

[0044] Nevertheless, it is possible to envisage an alternative embodiment, in which the ski boot comprises a first locking device for selectively allowing and preventing the rotation of the first cuff portion and of the shell relative to each other and a second locking device for selectively allowing and preventing the rotation of the second cuff portion and of the first cuff portion relative to each other.

[0045] In detail, the first locking device can be switched from a first position, in which it blocks the rotation of the first cuff portion relative to the shell, to a second position, in which the rotation of the first cuff portion relative to the shell is allowed, and vice versa. Analogously, the second locking device can be switched from a first position, in which it blocks the rotation of the second cuff portion relative to the first cuff portion, to a second position, in which the rotation of the second cuff portion relative to the first cuff portion is allowed, and vice versa.

[0046] In this case, the first locking device and the second locking device are preferably independent from each other.

[0047] From the above disclosure, it is evident that the invention achieves the object set forth above, as the comfort of the user while walking is significantly increased by the fact that the cuff is formed by a plurality of cuff portions, separate and independent from one another, each of which is designed so as to wrap a portion of the user's leg.

[0048] It is also evident that the embodiment disclosed above in detail shall in no way be considered as limiting and several modifications and variants within the reach of those skilled in the art can be implemented, without departing from the scope of protection defined by the appended claims.

[0049] More particularly, although the invention has been described with reference to a ski boot, it can also be applied to other kinds of sports footwear comprising a shell and a cuff articulated to each other, such as roller skates.

Claims

1. Sports footwear (1), comprising a shell (3), made of a substantially rigid material and designed for receiving the foot of a user, and a cuff (5), also made of a substantially rigid material and designed for receiving the lower portion of the leg of said user, **characterized in that** said cuff (5) comprises at least a first cuff portion (5a), which is articulated to said shell (3), and at least a second cuff portion (5b), which is articulated to said first cuff portion (5a), said first cuff portion (5a) having a substantially tubular shape and being designed so as to surround at least a substantial part of a corresponding portion of the user's leg and said second cuff portion (5b) having a substan-

tially tubular shape and being designed so as to surround at least a substantial part of a corresponding portion of the user's leg.

2. Sports footwear (1) according to claim 1, wherein said first cuff portion (5a) is articulated to said shell (3) at both opposite sides of said sports footwear.
3. Sports footwear (1) according to claim 1 or 2, wherein said second cuff portion (5b) is articulated to said first cuff portion (5a) at both opposite sides of said sports footwear.
4. Sports footwear (1) according to claim 1, wherein said first cuff portion (5a) is articulated to said shell (3) at the rear region of said sports footwear.
5. Sports footwear (1) according to claim 1 or 4, wherein said second cuff portion (5b) is articulated to said first cuff portion (5a) at the rear region of said sports footwear.
6. Sports footwear (1) according to any of the claims 1 - 5, wherein said sports footwear (1) comprises a locking device (9) for selectively allowing and preventing both the relative rotation between said first cuff portion (5a) and said shell (3) and the relative rotation between said second cuff portion (5b) and said first cuff portion (5a).
7. Sports footwear (1) according to claim 6, wherein said locking device (9) is switchable from a first position, in which it simultaneously blocks both the rotation of said second cuff portion (5b) relative to said first cuff portion (5a) and the rotation of said first cuff portion (5a) relative to said shell (3), to a second position, in which both the rotation of said second cuff portion (5b) relative to said first cuff portion (5a) and the rotation of said first cuff portion (5a) relative to said shell (3) are allowed, and vice versa.
8. Sports footwear (1) according to any of the claims 1 - 5, wherein said sports footwear (1) comprises a first locking device for selectively allowing and preventing the relative rotation between said first cuff portion and said shell and a second locking device for selectively allowing and preventing the relative rotation between said second cuff portion and said first cuff portion.
9. Sports footwear (1) according to claim 8, wherein said first locking device is switchable from a first position, in which it blocks the rotation of said first cuff portion relative to said shell, to a second position, in which the rotation of said first cuff portion relative to said shell is allowed, and vice versa, and wherein said second locking device is switchable from a first position, in which it blocks the rotation of said second

cuff portion relative to said first cuff portion, to a second position, in which the rotation of said second cuff portion relative to said first cuff portion is allowed, and vice versa.

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10. Sports footwear (1) according to claim 8 or 9, wherein said first locking device and said second locking device are separate and independent from each other.

11. Sports footwear (1) according to any of the preceding claims, wherein said sports footwear (1) is a ski boot or a roller skate.

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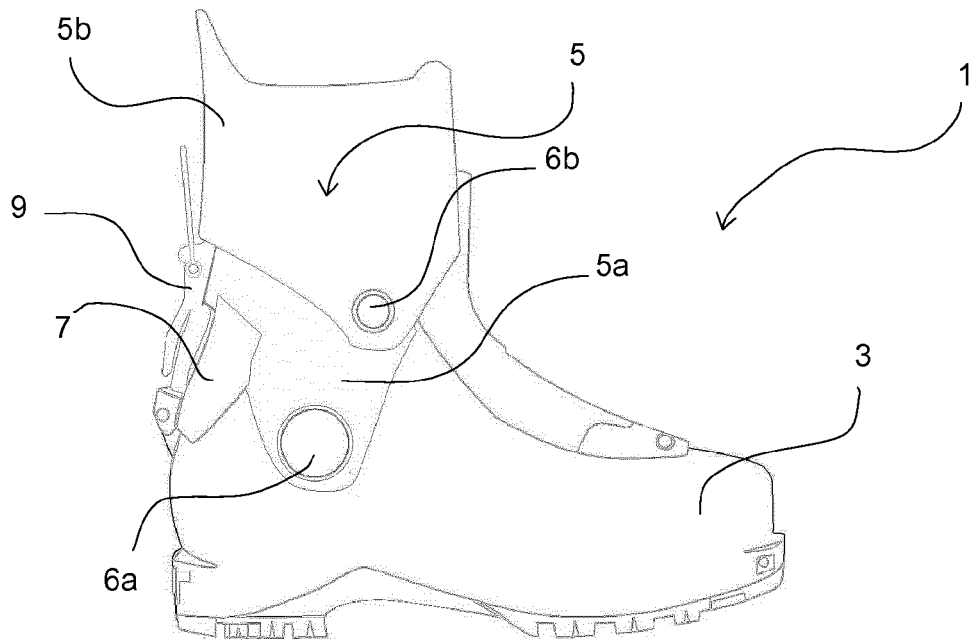


FIG. 1a

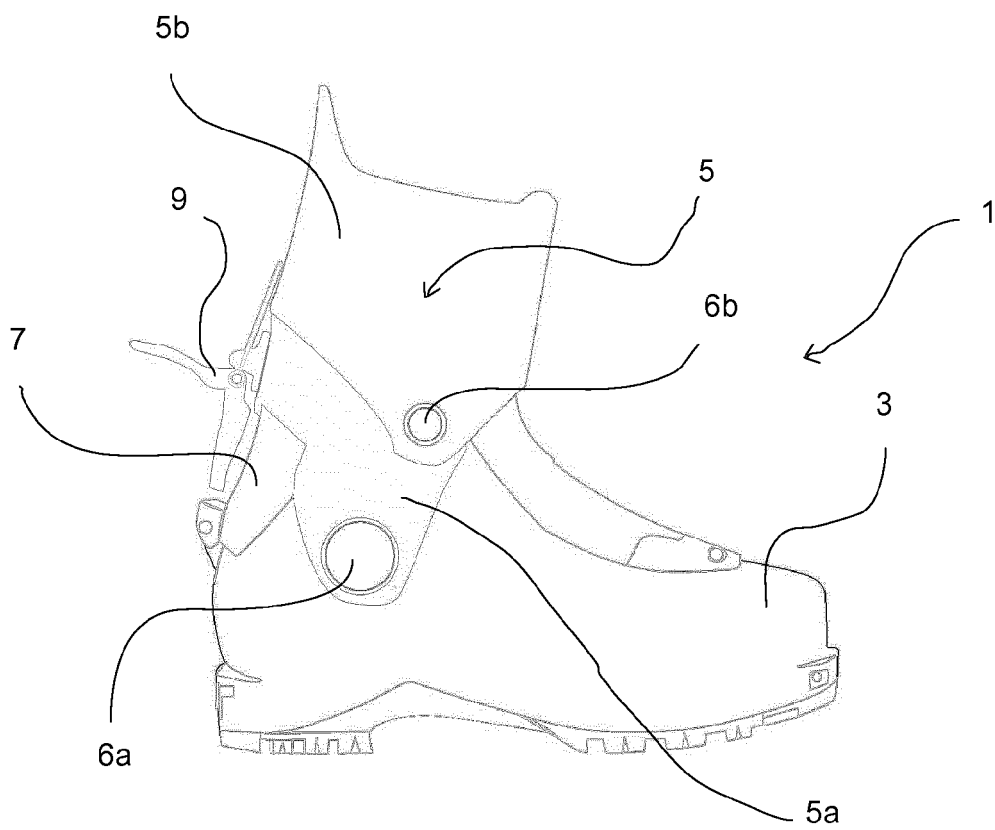


FIG. 1b



EUROPEAN SEARCH REPORT

Application Number
EP 19 16 2374

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EPO FORM 1503 03.82 (P04C01)

DOCUMENTS CONSIDERED TO BE RELEVANT															
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)												
A	EP 2 471 397 A1 (SCARPA CALZATURIFICIO SPA [IT]) 4 July 2012 (2012-07-04) * figure 3 * * paragraph [0015] * -----	1-11	INV. A43B5/04 A43B5/16												
A	US 5 381 613 A (POZZOBON ALESSANDRO [IT] ET AL) 17 January 1995 (1995-01-17) * figures 1-4, 14 * * claim 1 * -----	1-11													
			TECHNICAL FIELDS SEARCHED (IPC)												
			A43B												
The present search report has been drawn up for all claims															
Place of search The Hague		Date of completion of the search 13 May 2019	Examiner Ariza De Miguel, Jon												
<table border="0"><tr><td>CATEGORY OF CITED DOCUMENTS</td><td>T : theory or principle underlying the invention</td></tr><tr><td>X : particularly relevant if taken alone</td><td>E : earlier patent document, but published on, or after the filing date</td></tr><tr><td>Y : particularly relevant if combined with another document of the same category</td><td>D : document cited in the application</td></tr><tr><td>A : technological background</td><td>L : document cited for other reasons</td></tr><tr><td>O : non-written disclosure</td><td>.....</td></tr><tr><td>P : intermediate document</td><td>& : member of the same patent family, corresponding document</td></tr></table>				CATEGORY OF CITED DOCUMENTS	T : theory or principle underlying the invention	X : particularly relevant if taken alone	E : earlier patent document, but published on, or after the filing date	Y : particularly relevant if combined with another document of the same category	D : document cited in the application	A : technological background	L : document cited for other reasons	O : non-written disclosure		P : intermediate document	& : member of the same patent family, corresponding document
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A : technological background	L : document cited for other reasons														
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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 19 16 2374

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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13-05-2019

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 2471397 A1	04-07-2012	EP 2471397 A1	04-07-2012
		IT 1403458 B1	17-10-2013
US 5381613 A	17-01-1995	EP 0521432 A2	07-01-1993
		JP H05184402 A	27-07-1993
		US 5381613 A	17-01-1995