(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 723 746 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
31.07.1996 Bulletin 1996/31

(51) Int. Cl.[6]: **A43C 1/00**, A43B 5/00

(21) Application number: **96100486.8**

(22) Date of filing: **15.01.1996**

(84) Designated Contracting States:
AT CH DE ES FR GB IT LI

(30) Priority: **27.01.1995 IT TV950009**

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(54) Fastening device, particularly for sports shoes

(57) A fastening device that can be used particularly for sports shoes with laces, such as for example snowboarding boots, climbing boots, trekking boots, or skating boots. The device includes a first pair of locking elements (10a,10b) that are associated with the first flap (5) and the second flap (6) to be joined of the shoe, and a second pair of guiding elements (12a,12b) that are associated with the first (5) and second (6) flaps. Each one of the first and second pairs of locking and guiding elements is associated with the first and second flaps and is arranged at a same directrix (13). It is thus possible to adjust the degree of fastening in desired regions, according to the specific sport.

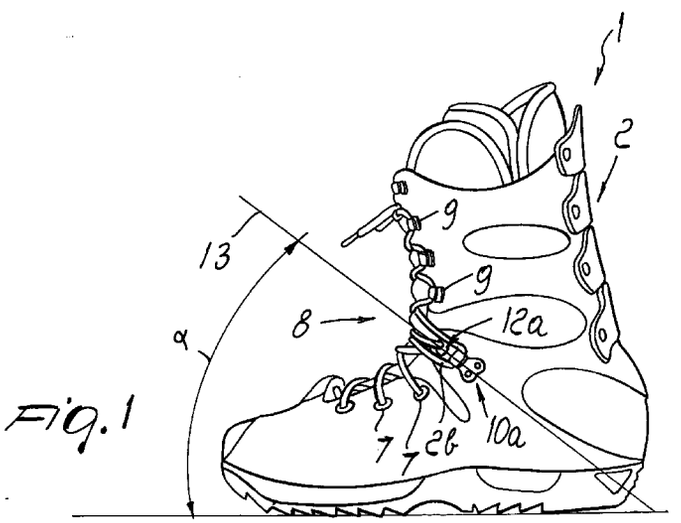

Fig. 1

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Description

The present invention relates to a fastening device, particularly for sports shoes provided with laces, such as for example snowboarding boots, climbing boots, trekking boots, or skating boots.

Sports shoes that use laces are currently fastened with rings that are applied to the pair of flaps to be joined approximately in a symmetrical fashion with respect to the longitudinal median axis of the upper, and with two lace locking hooks that are also applied at the flaps to be joined and affect the foot instep region.

The rings allow an easy sliding of the lace, whereas the hooks allow to lock said lace, preventing it from sliding and thus presetting the intended degree of fastening on the metatarsal region.

The latter is necessary for shoes for particular sports activities, such as soft snowboarding boots, high boots for climbing or trekking, skating boots, etc., for which the heel must be retained in its seat by means of a traction applied approximately at 45° to the instep.

However, these conventional fastening devices have some drawbacks, including the impossibility to perform effective adjustment, specifically in the foot instep region, because the laces are locked thereat by the respective hooks.

Said hooks are also usually larger than the other hooks used to guide the lace and have such a shape that the lace is coupled to said hooks by interference or in a snap-acting fashion, so as to produce a friction that is greater than the tension applied to the lace, so as to lock it in the selected position.

It would be useless to increase the degree of tension of the laces, since one would achieve a tight fastening only of the metatarsal region, whereas after their snap-action coupling at the larger hooks, one would not be able to achieve an equally optimum fastening of the foot instep region, which is particularly important for heel locking.

The aim of the present invention is therefore to solve the described technical problems, eliminating the drawbacks of the mentioned prior art by providing a device that allows to achieve optimum fastening also, and most of all, at the foot instep region, in order to optimally lock the heel inside the shoe.

Within the scope of this aim, an important object is to provide a device that is structurally very simple and allows the user to achieve locking quickly and easily, especially in the foot instep region.

Another important object is to provide a device that is reliable and safe in use.

Another object is to provide a device that has low costs and can be manufactured with conventional machines and equipment.

This aim, these objects, and others which will become apparent hereinafter are achieved by a fastening device for sports shoes with laces comprising at least one first pair of locking elements that are associated with a first flap and a second flap to be joined of said shoe, characterized in that it comprises at least one second pair of guiding elements that are associated with said first and second flaps to be joined, each one of said first and second pairs of locking and guiding elements being arranged at a same directrix.

Further characteristics and advantages of the invention will become apparent from the detailed description of a particular but not exclusive embodiment, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

figure 1 is a first side view of the shoe;
figure 2 is a detail view of the device applied to the shoe;
figure 3 is an elevated perspective view of the shoe;
figure 4 is a second side view of the shoe.

With reference to the above figures, the fastening device according to the present invention is associated with a sports shoe, designated by the reference numeral 1, such as for example a snowboarding boot, climbing boot, trekking boot, or skating boot, which comprises laces that, for the sake of convenience in exposition, are referenced as first lace 2a and second lace 2b.

In a region of an upper 3 that affects the metatarsal region and is proximate to edges 4a and 4b of a first flap 5 and of a second flap 6 to be joined, the shoe has a plurality of guiding elements, such as eyelets 7. As an alternative, it is possible to provide other guiding elements, such as rings or hooks.

A plurality of guiding elements, such as hooks 9 for the sliding engagement of the first and second laces, are also provided at the tibial region 8, proximate to edges 4a and 4b of first flap 5 and of second flap 6 to be joined.

The fastening device comprises a first pair of locking elements 10a and 10b for the laces. Each locking element consists of a hook, with which one of said first and second laces engages by interference or in a snap-acting fashion.

The pair of locking elements 10a and 10b is associated with a region of upper 3 that is proximate, but not adjacent, to edges 4a and 4b of first flap 5 and of second flap 6 in the foot instep region 11, producing a friction force against the lace that is greater than the tension that acts on said lace portion, thus locking it in the selected position.

The device also comprises at least one second pair of guiding elements 12a and 12b, each of which is arranged proximate to edges 4a and 4b of first flap 5 and of second flap 6 in the interspace between the edges and the first pair of locking elements 10a and 10b.

Each one of said first and second pairs of locking and guiding elements is arranged at a same directrix 13.

Advantageously, first directrix 13 forms an angle α with respect to the resting plane of the sole 14 of shoe

1; said angle α is preferably between 30° and 60°, considering a counterclockwise rotation as positive.

The use of the device is as follows: after affecting the last eyelet 7 located ahead of the foot instep region 11 at second flap 6, a portion of first lace 2a is engaged with guiding element 12a that is provided at first flap 5 and is then carried over to engage locking element 10b that is located on second flap 6.

Vice versa, after affecting the last eyelet 7 located ahead of the foot instep region 11 at first flap 5, a portion of second lace 2b is engaged with guiding element 12b provided at second flap 6 and is then carried over to engage locking element 10a that is located on first flap 5.

Then the first lace and the second lace are made to interact with hooks 9 and then tied.

The guiding elements allow to make the lace slide also in the region affected by the locking elements, before engaging them.

It is thus possible to easily apply tension to the laces in the foot instep region 11 as well, in order to produce a 45° traction of the desired intensity that is adapted to ensure heel locking.

The fastening device thus obtained therefore allows to position the foot in the most correct condition, in relation to the sport, and to maintain the engagement in the selected position throughout sports practice.

The inclination along the directrix 13 arranged at 45° with respect to the sole resting plane of the shoe ensures correct positioning of the heel inside the shoe.

In practice, the materials employed, as well as the dimensions of the components of the device, may be any according to the requirements.

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. Fastening device for sports shoes with laces, comprising at least one first pair (10a,10b) of locking elements that are associated with a first flap (5) and a second (6) flap to be joined of said shoe (1), characterized in that it comprises at least one second pair (12a,12b) of guiding elements that are associated with said first (5) and second (6) flaps to be joined, each one of said first and second pairs of locking and guiding elements being arranged at a same directrix (13).

2. Device according to claim 1, for shoes that comprise a first lace (2a) and a second (2b) lace and have, in the regions of the upper that affect the metatarsal region and the tibial region and are proximate to the edges (4a,4b) of said first (5) and second (6) flaps to be joined, a plurality of guiding element for sliding engagement with said first and second laces, characterized in that said first pair (10a,10b) of locking elements and said second pair (12a,12b) of guiding elements are associated with the upper (3) at the foot instep region (11).

3. Device according to claim 2, characterized in that said at least one first pair (10a,10b) of locking elements is constituted by a hook with which said first (2a) and second (2b) laces engage by interference or in a snap-acting fashion.

4. Device according to one or more of the preceding claims, characterized in that said second pair (12a,12b) of guiding elements is associated with a region of said upper (3) that is adjacent to said edges (4a,4b) of said first (5) and second (6) flaps in the foot instep region (11).

5. Device according to claim 3, characterized in that said first pair of locking elements (10a,10b) is associated with a region of said upper (3) that is arranged in a region that is proximate, but not adjacent, to said edges (4a,4b) of said first (5) and second flaps (6).

6. Device according to claim 5, characterized in that said second pair (12a,12b) of guiding elements is located in the interspace between said edges (4a,4b) and said first pair (10a,10b) of locking elements.

7. Device according to one or more of the preceding claims, characterized in that said first (10a,10b) and second (12a,12b) pairs of locking and guiding elements are arranged at a same directrix (13) that forms an acute angle α, assuming a counterclockwise rotation as positive, with respect to the resting surface of the sole of said shoe.

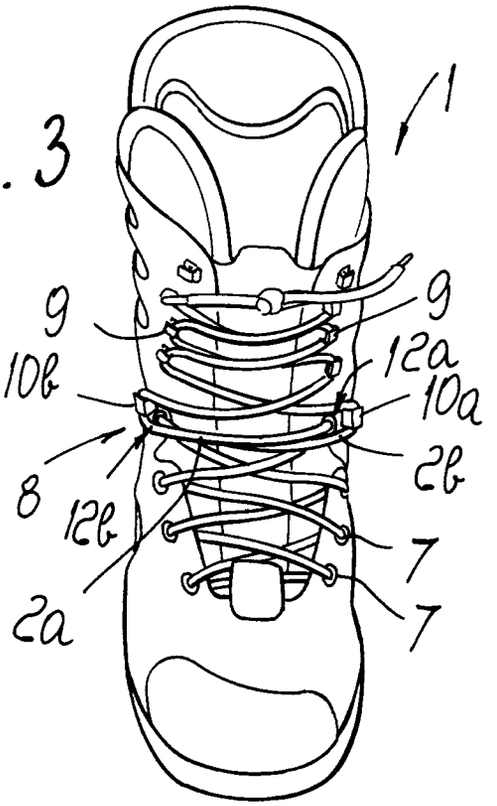
8. Device according to claim 7, characterized in that said angle α is between 30° and 60°, preferably 45°.

9. Device according to one or more of the preceding claims, characterized in that after affecting the last one (7) of said plurality of guiding elements that affect the metatarsal region, which is located ahead of the foot instep region (11) at said second flap (6), a portion of said first lace (2a) engages said guiding element (12a) arranged on said first flap (5) and is then carried over to engage said locking element (10b) located on said second flap (6).

10. Device according to one or more of the preceding claims, characterized in that after affecting the last one (7) of said plurality of guiding elements that affect the metatarsal region, which is located ahead

of the foot instep region (11) at said first flap (5), a portion of said second lace (2b) engages said guiding element (12b) arranged on said second flap (6) and is then carried over to engage said locking element (10a) located on said second flap (6).

Fig. 3



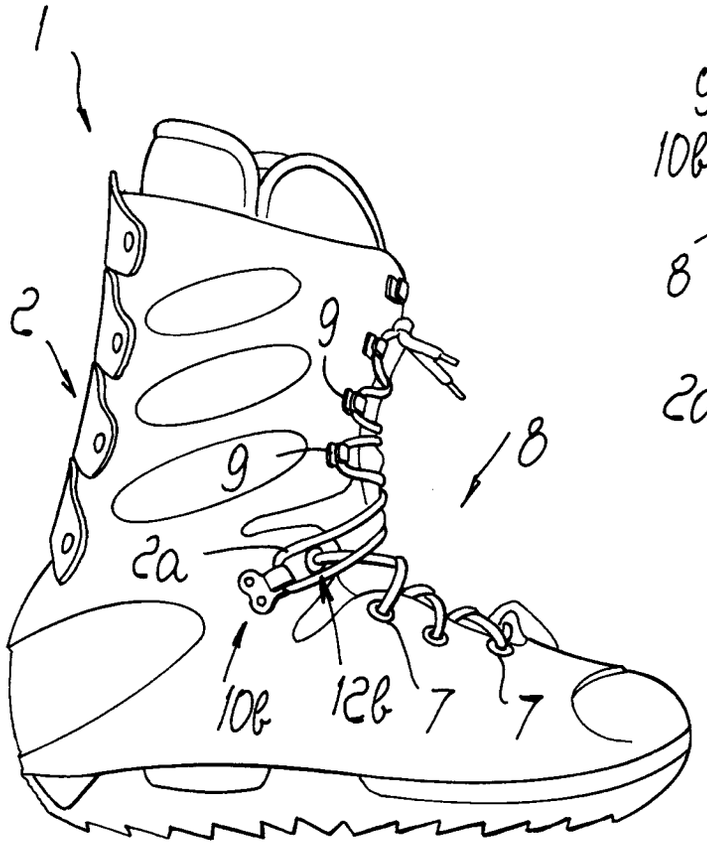


Fig. 4

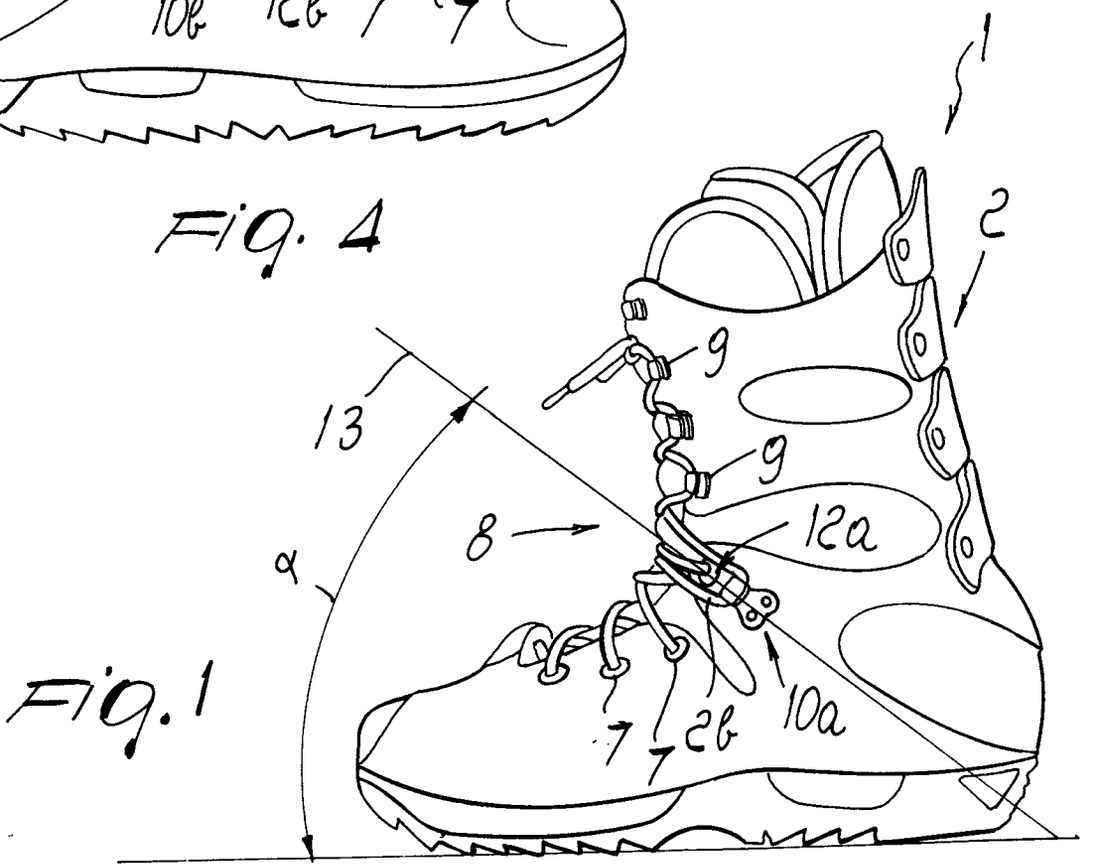


Fig. 1

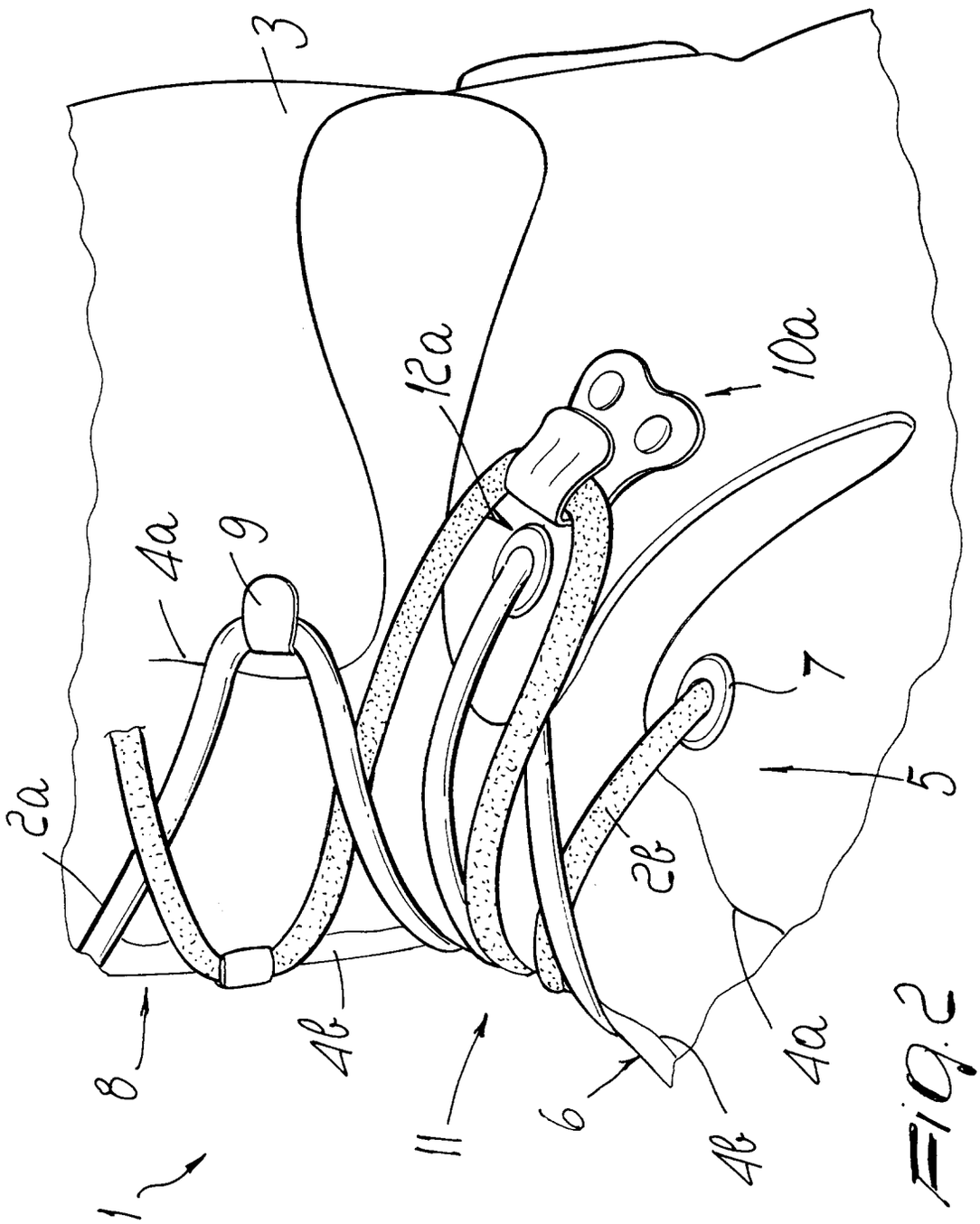


Fig.2

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 96 10 0486

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	CH-A-674 445 (RAICHLE SPORTSCHUH) * the whole document * ---	1	A43C1/00 A43B5/00
A	WO-A-85 00959 (KARA INTERNATIONAL) * the whole document * -----	1	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

A43C
A43B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	2 April 1996	Declerck, J

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
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

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