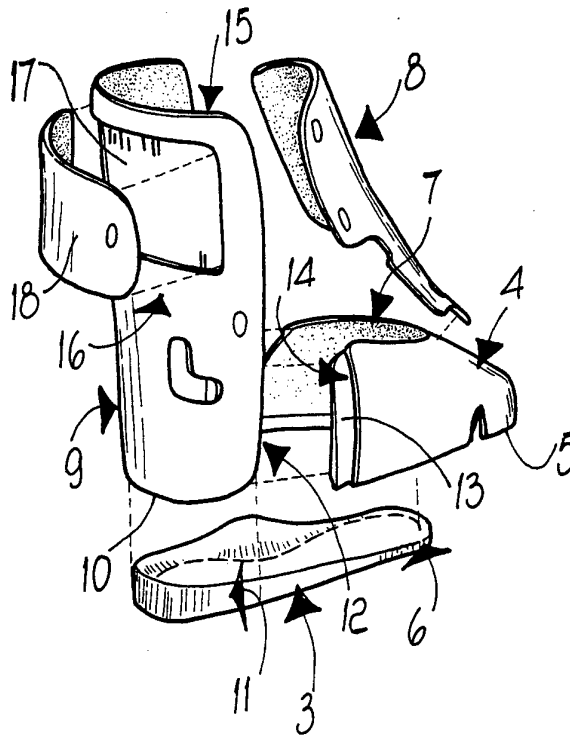




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(54) Title: INNERBOOT FOR SPORTS SHOES



(57) Abstract

Innerboot particularly usable for sports shoes such as ski boots, roller skates or ice skates, including a plurality of separate soft elements (3, 4, 8, 9) which are individually molded. The separate soft elements are associable inside the shoe so as to surround the foot and part of the user's leg. A product comparable to a stitch-free innerboot is thus obtained starting from individual elements.

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INNERBOOT FOR SPORTS SHOES

Technical Field

The present invention relates to an innerboot for sports shoes, such as for example ski boots, roller skates or ice skates.

Background Art

It is in fact currently known to use innerboots
5 arranged inside ski boots and said skates, which substantially have the purpose of improving comfort for the user.

It is known to manufacture innerboots for ski boots which are obtained from a single film of thermoplastic
10 material, molded so as to obtain two halves of the innerboot, as seen in a top plan view.

However, these conventional innerboots and the related method for manufacturing them have some drawbacks: first of all it is necessary to weld the two halves of the innerboot
15 through a further manufacturing step, with a consequent increase in the overall production cost.

Innerboots for ski boots are also known which are obtained by means of the following method: two half-innerboots, which match the vertical central cross-section
20 of the outer boot, are hot-molded by means of vacuum or pressure stretch-forming, against a respective concave or convex mold, of portions of a strip of partially cross-linked closed-cell foamed material, or by means of injection between two parts of a mold. The half-innerboots, after the
25 leveling of their edges, are glued or welded together.

Even this solution has drawbacks: the innerboot obtained requires a glueing or welding step, and thus has

discontinuous regions which can cause discomfort for the user. Furthermore, this method does not allow to control the thickness in the case of blow-molding, because the thickness is lower where the material is stretched the most.

5 It is also known to manufacture innerboots from a single element obtained by foaming or thermoforming or by injection. These innerboots require an internal lining which is inserted at the adapted last which forms the mold. Once the innerboot has been extracted, it is necessary to finish
10 it by perimetrically stitching the lining to it. The lining is then folded for final finishing at the perimetric edges of the rear opening of said innerboot.

Therefore, these solutions too have drawbacks, because they require manufacturing steps such as the insertion of
15 the lining in the last of the mold and the various stitching operations.

Disclosure of the Invention

The aim of the present invention is to eliminate the drawbacks described above in known types by providing an innerboot which allows to ensure a considerable degree of
20 comfort to a user once the ski boot or skate has been put on, said innerboot having very low manufacturing costs and avoiding the presence of stitches or regions of mutual connection among various elements, which can cause discomfort to the user and increase the time required to
25 manufacture the innerboot.

Within the scope of the above aim, an important object is to provide a comfortable innerboot which is to be arranged inside a boot or a skate and has thicknesses and materials which can be controlled and differentiated

specifically according to the particular region of the foot.

Another object is to provide a comfortable innerboot which has low manufacturing costs, is reliable and safe in use and can be manufactured with known facilities and
5 equipment.

This aim, these objects and others which will become apparent hereinafter are achieved by an innerboot for sports shoes characterized in that it comprises a plurality of separate soft elements which are individually molded flat or
10 semi-flat and are associable inside said sports shoe so as to surround the foot and part of the user's leg.

Brief description of the drawings

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

figure 1 is a perspective exploded view of the separate soft elements which form the innerboot;

figure 2 is a view, similar to the preceding one, of a
20 different embodiment for said separate soft elements;

figure 3 is a sectional view, taken along a median transverse plane of a shoe, showing the arrangement of some of the elements according to the invention; and

figure 4 is a side elevated view of the position
25 assumed by the separate elements once they have been arranged inside the shoe.

Ways of carrying out the invention

With reference to the above figures, the reference numeral 1 designates the innerboot-like configuration which

can be assumed by a plurality of separate soft elements once they are associated inside an item of sports shoe 2, such as for example a ski boot, a roller skate, an ice skate or a motorcycling boot.

5 The innerboot, in its function, is thus obtained from a plurality of separate soft elements which are individually molded flat or semi-flat, thus without requiring the internal last of the mold; each element affects a particular part or region of the user's foot and leg.

10 A first element 3 is thus defined in the particular embodiment and is constituted by a plantar insert on which the foot rests and above which a second element 4 can be arranged; said second element surrounds the front and lateral region of the foot, and its first lower perimetric
15 edges 5 are arranged outside the second lateral perimetric edges 6 of the first element 3.

Said second element 4 also has a recess 7 at the foot instep region.

A third element 8, such as a tongue suitable to affect
20 the entire foot instep region of the user and part of the tibial region, can be arranged at said recess.

The innerboot 1 also comprises a fourth element 9 which is constituted by a flap surrounding the user's leg to the rear and has third lower perimetric edges 10 which can be
25 arranged adjacent to the second lateral perimetric edges 6 of the plantar insert in the heel region 11.

The flap 9 is connected, at the fourth lateral perimetric edges 12, on the outside of adapted wings 13 which protrude from the fifth rear perimetric edges 14 of
30 the second element 4.

Advantageously, proximate to the upper end 15 of the flap it is possible to provide, at the lateral surface 16, a seat 17 for the association of an adapted insert 18.

The use of the innerboot is thus as follows: once all 5 the separate soft elements have been produced, for example by individual molding, they can be inserted and subsequently connected inside the shell or the upper of the shoe so as to form a structure which, as a whole, acts as an innerboot without having to perform any mutual pre-assembly or 10 stitching of the various elements.

Furthermore, the fact that a plurality of separate elements is available allows to differentiate the thicknesses and the materials of said elements according to the specific requirements, so as to considerably increase 15 the user's comfort.

It is also possible, for example, to replace individual elements according to specific anatomical requirements of the user, according to the use of the shoe, as well as in case of wear.

20 The innerboot according to the invention is naturally susceptible to numerous modifications and variations, all of which are within the scope of the same inventive concept.

For example, as illustrated in figure 2, if it is necessary to use a sports shoe constituted by a rear-entry 25 ski boot, the innerboot 101 is constituted by a first element 103, such as a plantar insert, on which the user's foot rests. A second element 104 can be arranged above the first element and surrounds the front and lateral region of the foot. The first lower perimetric edges 105 of said 30 second element are arranged outside the second lateral

perimetric edges 106 of the first element 103.

The innerboot 101 also comprises a fourth element 109 which is constituted by a flap surrounding the user's leg in a front region and laterally surrounding the malleolar region. The fourth element 109 is provided with third lower perimetric edges 110 which can be arranged adjacent to the second lateral perimetric edges 106 of the plantar insert in the malleolar region 119. The fourth element is provided, in a front region, with an adapted opening 120 at which it is possible to arrange a wing 113 which protrudes from the fifth rear perimetric edges 114 of the second element 104.

The innerboot 101 also comprises a third element 108, such as a tongue, which surrounds the user's leg to the rear and can be arranged so that its lower end is at the second lateral perimetric edges 106 of the first element 103.

Advantageously, at the lateral surface 116 of the fourth element 109 it is possible to provide an adapted seat 117 for an insert 118, for example a protective one.

The materials and the dimensions of the individual components of the innerboot according to the invention may also naturally be the most pertinent according to the specific 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 scope of each element identified by way of example by such reference signs.

CLAIMS

1 1. Innerboot for sports shoes, characterized in that it
2 comprises a plurality of separate soft elements (3,4,8,9,
3 103,104,109) which are individually molded flat or semi-flat
4 and are associable inside said sports shoe so as to surround
5 the foot and part of the user's leg.

1 2. Innerboot according to claim 1, characterized in
2 that each one of said separate soft elements which form said
3 innerboot affect a particular region of the user's foot and
4 leg.

1 3. Innerboot according to claim 2, characterized in
2 that said separate elements comprise a first element, such
3 as a plantar insert (3), on which the foot rests and above
4 which it is possible to arrange a second element (4)
5 surrounding the front and lateral region of the foot.

1 4. Innerboot according to claim 3, characterized in
2 that said second element (4) has first lower perimetric
3 edges (5) which can be arranged outside second lateral
4 perimetric edges (6) of said first element.

1 5. Innerboot according to claim 4, characterized in
2 that said second element has a recess (7) at the foot instep
3 region.

1 6. Innerboot according to claim 5, characterized in
2 that a third element, such as a tongue (8) suitable to
3 affect the entire foot instep region of the user and part of
4 the tibial region, can be arranged at said recess.

1 7. Innerboot according to claim 6, characterized in
2 that said separate elements comprise a fourth element, such
3 as a flap (9) surrounding the user's leg to the rear and

4 has third lower perimetric edges (10) which can be arranged
5 adjacent to said second lateral perimetric edges (6) of said
6 first element in the heel region (11).

1 8. Innerboot according to claim 7, characterized in
2 that said fourth element (9) is connected, at fourth lateral
3 perimetric edges, on the outside of adapted wings which
4 protrude from fifth rear perimetric edges (12) of said
5 second element (4).

1 9. Innerboot according to claim 8, characterized in
2 that a seat (17) for an insert (18) is formed at the lateral
3 surface (16) proximate to the upper end of said flap.

1 10. Innerboot according to one or more of the preceding
2 claims, characterized in that said second element (104)
3 affects the front and side region of the foot and has, at
4 fifth rear perimetric edges (114), an adapted wing (113)
5 which can be arranged at an adapted opening (120) formed
6 frontally with respect to a fourth element (109), such as a
7 flap, which frontally surrounds the user's leg and laterally
8 surrounds the malleoli.

1 11. Innerboot according to claim 10, characterized in
2 that said fourth element (109) is connected, in a downward
3 region, at third lower perimetric edges (110), laterally to
4 second lateral perimetric edges (106) of said first element
5 (103).

1 12. Innerboot according to claim 11, characterized in
2 that said fourth element (109) is frontally provided with a
3 seat (117) for an insert (118) at its lateral surface (116).

1 13. Innerboot according to claim 12, characterized in
2 that it comprises a third element (108), such as a tongue,
3 surrounding the user's leg to the rear and the lower end of

4 which can be arranged laterally with respect to said second
5 lateral perimetric edges (106) of said first element (103).

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 93/02621

A. CLASSIFICATION OF SUBJECT MATTER
IPC 5 A43B5/04 A43B19/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 5 A43B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CH,A,626 793 (RAICHLE) 15 December 1981 see the whole document ---	1
A	CH,A,578 325 (H. KASTINGER) 13 August 1976 see the whole document ---	1
A	DE,U,86 05 432 (A. MAYER) 28 May 1986 see the whole document ---	1
A	US,A,4 534 122 (D. MACPHAIL) 13 August 1985 see the whole document -----	1

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Patent family members are listed in annex.

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25 January 1994

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 93/02621

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CH-A-626793	15-12-81	NONE	
CH-A-578325	13-08-76	AT-A- 333155	10-11-76
DE-U-8605432	17-04-86	NONE	
US-A-4534122	13-08-85	CA-A- 1194298	01-10-85