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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 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 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 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 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 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.

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 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 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 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 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 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 semi-flat and are associative 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 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 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 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.

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.

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
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
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
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
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 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 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 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.

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

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

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

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

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

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

7. Innerboot according to claim 6, characterized in that said separate elements comprise a fourth element, such 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).

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

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

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

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

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

13. Innerboot according to claim 12, characterized in
that it comprises a third element (108), such as a tongue,
surrounding the user's leg to the rear and the lower end of
which can be arranged laterally with respect to said second lateral perimetric edges (106) of said first element (103).
### INTERNATIONAL SEARCH REPORT

**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**

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**Date of the actual completion of the international search**

25 January 1994

**Date of mailing of the international search report**

22-02-1994

**Name and mailing address of the ISA**

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