



(11)

EP 1 430 799 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
23.06.2004 Bulletin 2004/26

(51) Int Cl.⁷: **A43B 3/26**, A43B 5/16,
A43C 11/06, A43B 5/04

(21) Application number: **03028726.2**

(22) Date of filing: **12.12.2003**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
 HU IE IT LI LU MC NL PT RO SE SI SK TR**
 Designated Extension States:
AL LT LV MK

(30) Priority: 18.12.2002 IT TV20020153

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(54) **Size adjustable sports shoe**

(57) A sports shoe comprising a semirigid shell (8) divided into a heel unit (5) and a separate toe unit (7), which are slidingly associated, the shell (8) containing a soft innerboot (9) that comprises a detachable inter-

connection (12) for connection of an element (13) for at least partial covering and/or fastening of the soft innerboot (9), the covering and/or fastening element (13) being conveniently associated with the toe unit (7) and protruding therefrom.

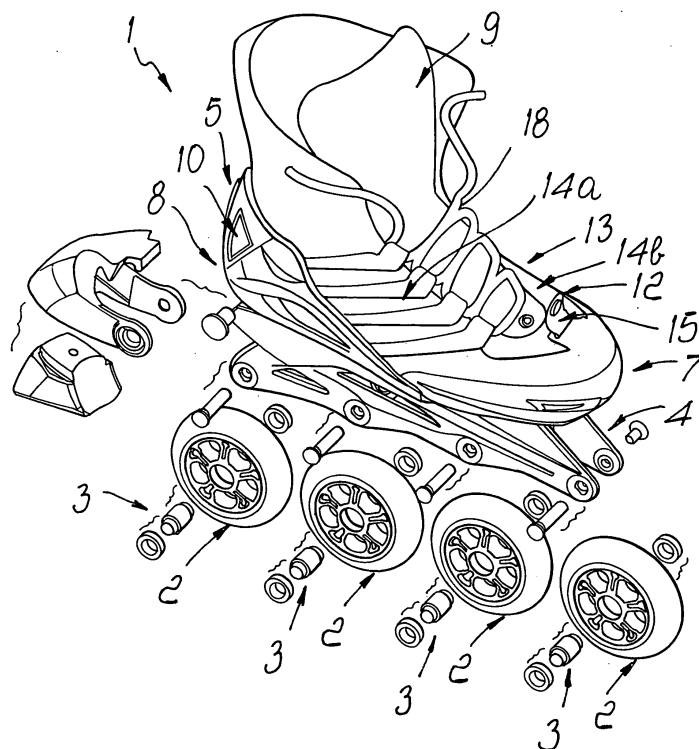


Fig. 3

Description

[0001] The present invention relates to a sports shoe, such as for example a roller skate or ice skate.

[0002] Adjustable-size skates are currently commercially available which are usually constituted by a shell divided into a heel unit and a separate toe unit, which are slidably associated along an axis that lies longitudinally to the shoe.

[0003] A supporting frame for an ice-skating blade or for a plurality of wheels is associated with the heel unit in a downward region.

[0004] The user can insert his foot within a soft innerboot that is accommodated inside the shell and can then fasten his foot inside the sports shoe by activating closure means arranged transversely to the shell or transversely to the two flaps of the soft innerboot.

[0005] Said soft innerboot further has means that are elastically deformable at least in a longitudinal direction in order to allow an elongation that is equal to the elongation of the shell.

[0006] The main drawback of this known type of sports shoe is the fact that a selected elongation of the shell, obtained by sliding the toe unit forward with respect to the heel unit, is often not matched by an equally effective elongation of the soft innerboot.

[0007] Accordingly, there is the drawback of having available a known type of sports shoe that can be used comfortably for only part of the size range and not all over the size range for which the shoe was designed.

[0008] In particular, the elongation of the soft innerboot often must be achieved by inserting the foot in such innerboot, with consequent user discomfort.

[0009] Another important drawback consists in that due to manufacturing requirements the shell often does not surround the soft innerboot completely but does so only partially at the toe and heel.

[0010] Thereby, a further drawback is due to the fact that the exposed parts of the soft innerboot can be subjected to wear or damage.

[0011] The aim of the present invention is therefore to solve the noted technical problems, eliminating the drawbacks of the cited known art, by providing a sports shoe of adjustable size that allows the user to have at his disposal all the sizes planned during design.

[0012] Within this aim, an object of the present invention is to provide a sports shoe that is comfortable to wear regardless of the preset size.

[0013] Another important object of the present invention is to provide a sports shoe that allows to protect the soft innerboot against wear and any damage.

[0014] Another object of the present invention is to provide a sports shoe that is structurally simple and has low manufacturing costs.

[0015] This aim and these and other objects that will become better apparent hereinafter are achieved by a sports shoe, comprising a semirigid shell divided into a heel unit and a separate toe unit, which are slidably as-

sociated, and a soft innerboot that can be accommodated in said shell, characterized in that it comprises means for detachable interconnection between said soft innerboot and an element for at least partial covering and/or fastening of said soft innerboot, said element being associated with said toe unit and protruding therefrom.

[0016] Further characteristics and advantages of the invention will become better apparent from the detailed description of an embodiment of the sports shoe according to the present invention, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is an exploded perspective view of an embodiment of the sports shoe according to the present invention;

Figures 2 and 3 are two further partially exploded perspective views of the sports shoe shown in Figure 1.

[0017] In the examples of embodiments that follow, individual characteristics, given in relation to specific examples, may actually be interchanged with other different characteristics that exist in other examples of embodiment.

[0018] With reference to the figures, the numeral 1 designates a sports shoe, such as for example a roller skate, with four wheels 2 arranged in line.

[0019] Said wheels 2 are associated, by way of mechanical means 3 of a known type, with a supporting frame 4 whose transverse cross-section is arch-shaped, i.e. is like an inverted U.

[0020] In particular, the wheels 2 are associated between the downward-pointing wings of the frame 4.

[0021] A box-like heel unit, designated by the reference numeral 5, is associated above the rear portion of said frame 4 and is open at the front and top.

[0022] At the front of the heel unit 5, the frame 4 has, in an upward region, guides 6 for the longitudinal sliding of a toe unit 7, from the lower surface of which, not shown, an edge 7a protrudes laterally and frontally and is designed to contain the foot of the user.

[0023] The toe unit 7 and the heel unit 5 constitute a shell, generally designated by the reference numeral 8, that is advantageously made of semirigid material and is adapted to contain a soft innerboot 9 for accommodating the foot of the user.

[0024] The soft innerboot 9 can be associated with the heel unit 5 advantageously by further interlocking means.

[0025] For example, such interlocking means are associated laterally with the soft innerboot 9, approximately to the rear of the malleolar region, and comprise at least a pair of rigid cleats 10, only one of which is shown in the figures.

[0026] Said cleats 10 can be arranged within complementarily shaped openings 11 formed in the heel unit 5, so as to ensure mutual locking once the foot has been

inserted in the skate.

[0027] The sports shoe 1 further comprises detachable interconnection means, designated by the reference numeral 12, for interconnection between the soft innerboot 9 and an element for the at least partial covering and/or fastening of said soft innerboot 9, such as for example a sheath or overshoe 13.

[0028] Said overshoe 13 is associated with the toe unit 7 at its front region and has two lateral flaps, respectively designated by the reference numerals 14a and 14b, that protrude to the rear of said toe unit 7 toward the heel unit 5.

[0029] As shown in Figure 3, said pair of flaps 14a and 14b affects or are adapted to enclose the soft innerboot 9 laterally, interposing itself partially between said innerboot and the sides of the heel unit 5.

[0030] The connection between the overshoe 13 and the soft innerboot 9 is achieved by way of said detachable interconnection means 12: in this particular embodiment, shown merely by way of example, said means 12 are advantageously constituted by a tongue 15 that protrudes from the innerboot 9 approximately proximate to the toe region, can be arranged through a slot 16 formed transversely in the overshoe 13 and is provided with engagement means, designated by the reference numerals 17a and 17b, for engagement with said soft innerboot 9.

[0031] In particular, the engagement means 17a and 17b can be constituted advantageously for example by a press-stud.

[0032] The overshoe 13, moreover, can comprise fastening means for fastening the shoe 1 around the user's foot, such as for example laces 18 guided between the flaps 14a and 14b of the overshoe 13.

[0033] Operation of the sports shoe is therefore as follows: with reference to the figures, when the toe unit is moved forward, the overshoe is forced to follow such movement, thus applying to the soft innerboot a traction with a point of application located at the detachable interconnection means.

[0034] In this manner, the elongation of the soft innerboot occurs before foot insertion and is not due to the insertion of the user's foot.

[0035] It has thus been found that the invention has achieved the intended aim and objects, a size-adjustable sports shoe having been provided which allows the user to have at his disposal all the sizes planned during design.

[0036] The sports shoe according to the invention, moreover, is very comfortable regardless of the preset size, since the soft innerboot is deformed by the necessary extent before foot insertion.

[0037] Moreover, the overshoe preserves the soft innerboot from wear and any damage, since it covers the lower part of said innerboot, i.e., the part that is particularly subjected to contacts with the ground or with other objects.

[0038] The sports shoe, finally, is very simple from the

structural standpoint and therefore has low manufacturing costs.

[0039] The invention is of course susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0040] The materials used, as well as the dimensions that constitute the individual components of the invention, may be more pertinent according to specific requirements.

[0041] Various means for performing functions as the ones required by the present invention and set forth in the illustrated preferred embodiment can be envisaged by those skilled in the art which are technically equivalent with those herein illustrated.

[0042] The disclosures in Italian Patent Application No. TV2002A000153 from which this application claims priority are incorporated herein by reference.

[0043] 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 sports shoe, comprising a semirigid shell (8) divided into a heel unit (5) and a separate toe unit (7), which are slidably associated, and a soft innerboot (9) that can be accommodated in said shell (8), **characterized in that** it comprises interconnection means (12) for detachable interconnection between said soft innerboot (9) and an element (13) for at least partial covering and/or fastening of said soft innerboot, said element (13) being associated with said toe unit (7) and protruding therefrom.
2. The sports shoe according to claim 1, **characterized in that** said element for covering and/or fastening said soft innerboot (9) comprises a sheath or overshoe (13) that is associated with said toe unit (7) at its front region.
3. The sports shoe according to claims 1 and 2, **characterized in that** said element (13) for covering and/or fastening said soft innerboot (9) comprises two lateral flaps (14a, 14b) that protrude to the rear of said toe unit and so as to be arranged laterally to said soft innerboot (9), by partial interposition between said soft innerboot (9) and the sides of said heel unit (5).
4. The sports shoe according to one or more of the preceding claims, **characterized in that** said interconnection means (12) for detachable interconnection between said covering and/or fastening ele-

ment (13) and said soft innerboot (9) comprise a tongue (15) that protrudes from said soft innerboot (9) proximate to the toe region (5), said tongue (15) can be arranged through a slot (16) formed transversely in said element (13) and is provided with engagement means (17a, 17b) for engaging said soft innerboot (9). 5

5. The sports shoe according to claims 1 and 4, **characterized in that** said engagement means (17a, 17b) comprise a press-stud that interacts between the free end of said tongue (15) and the toe region of said soft innerboot (9). 10

6. The sports shoe according to one or more of the preceding claims, **characterized in that** said element (13) for covering and/or fastening said soft innerboot comprises fastening means (18) for fastening said sports shoe around the user's foot, such as one or more laces guided between said lateral flaps (14a, 14b) of said sheath or overshoe (13). 15 20

7. The sports shoe according to one or more of the preceding claims, **characterized in that** it comprises interlocking means for detachable interconnection between said soft innerboot (9) and said heel unit (5) which are provided by two or more interlocking cleats (10) that protrude laterally to said soft innerboot (9) and are insertable within complementarily shaped openings (11) formed in said heel unit (5). 25 30

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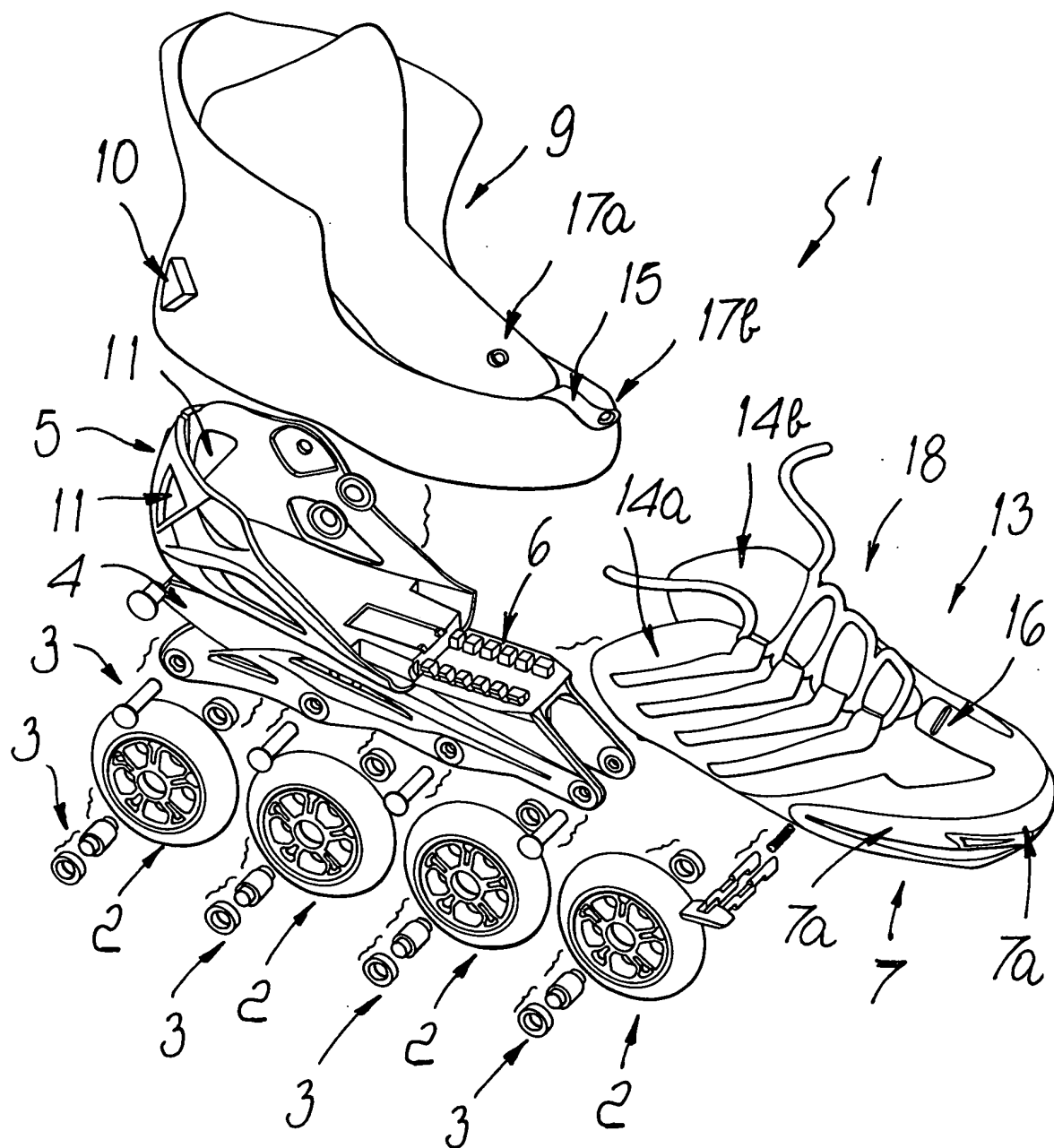
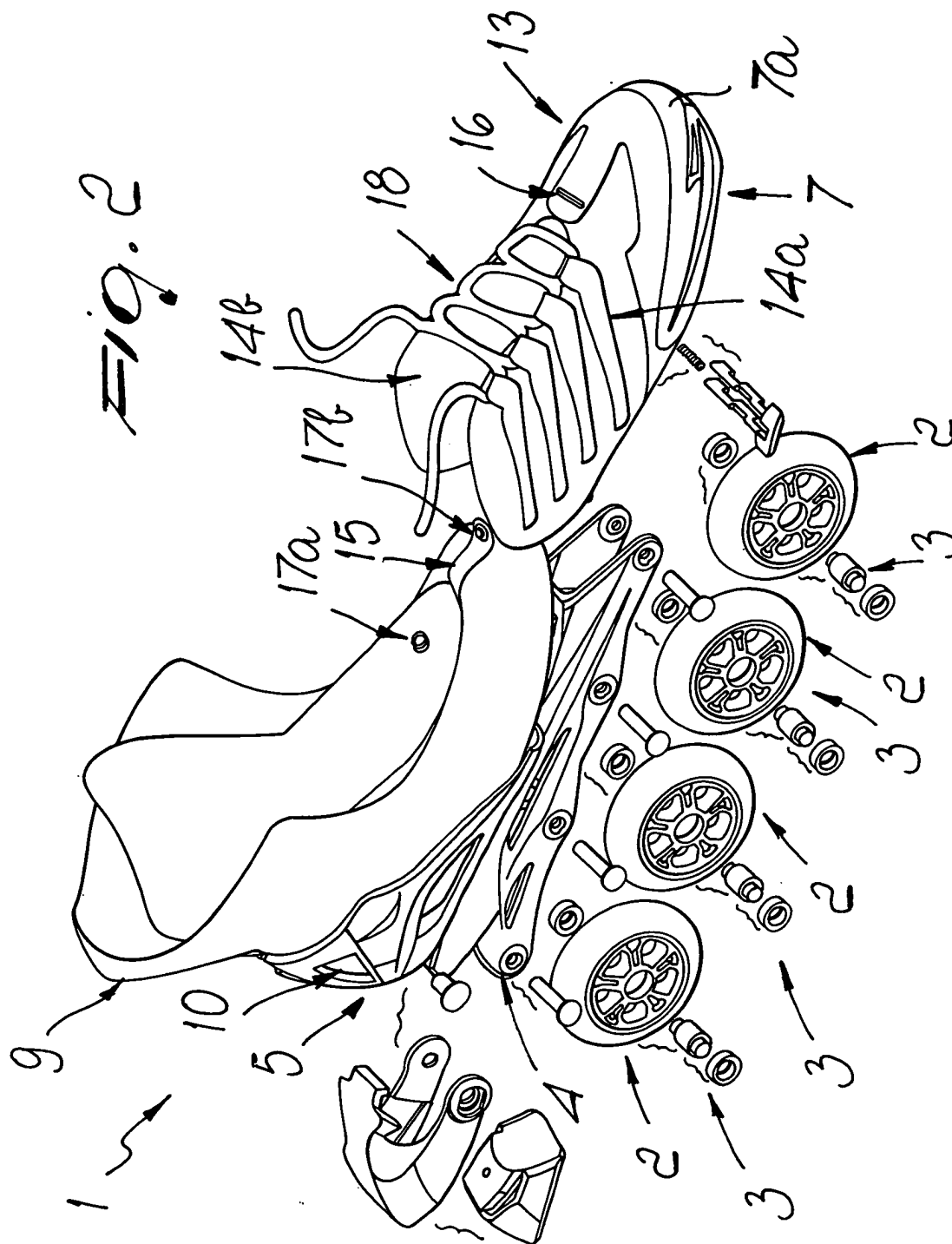


Fig. 1



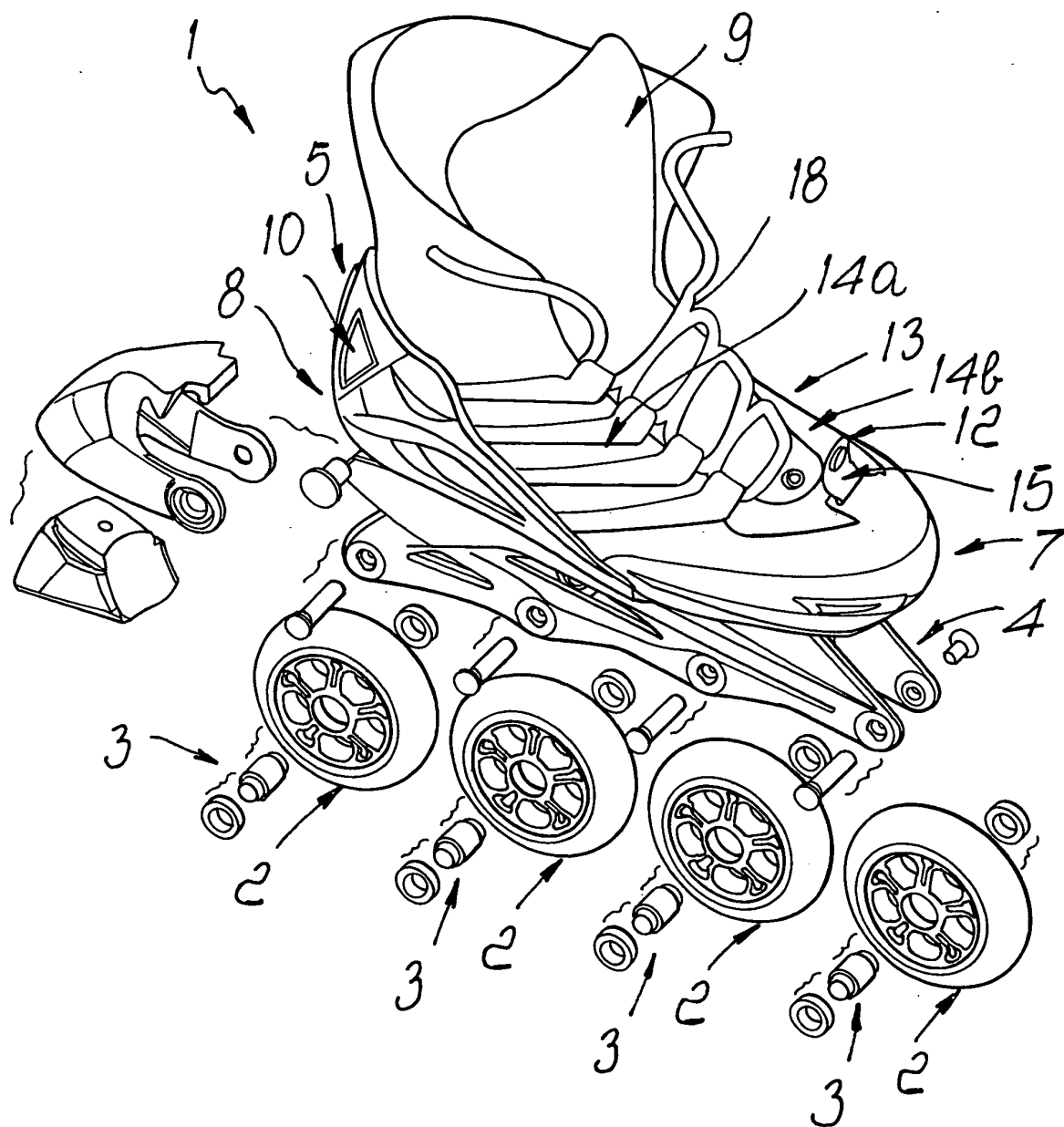


FIG. 3



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 03 02 8726

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	* column 5, line 18 - line 43; figures 1,2 *		

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The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
Munich		10 March 2004	Vesin, S
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			

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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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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