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(54) **SELF-SCALABLE FOOTWEAR**

(57) The present invention relates to a self-scalable casual footwear that allows involve two subsequent footwear sizes, comprising an upper of bi-elastic material (1) and a mono-elastic (2), a bi-material outsole (3) and a

mounting insole (4). Such footwear does not require additional components to fit, such as laces, rubber bands, straps, velcro, zippers, hooks, eyelets or any other that is treated as a resource for the purpose of this invention.

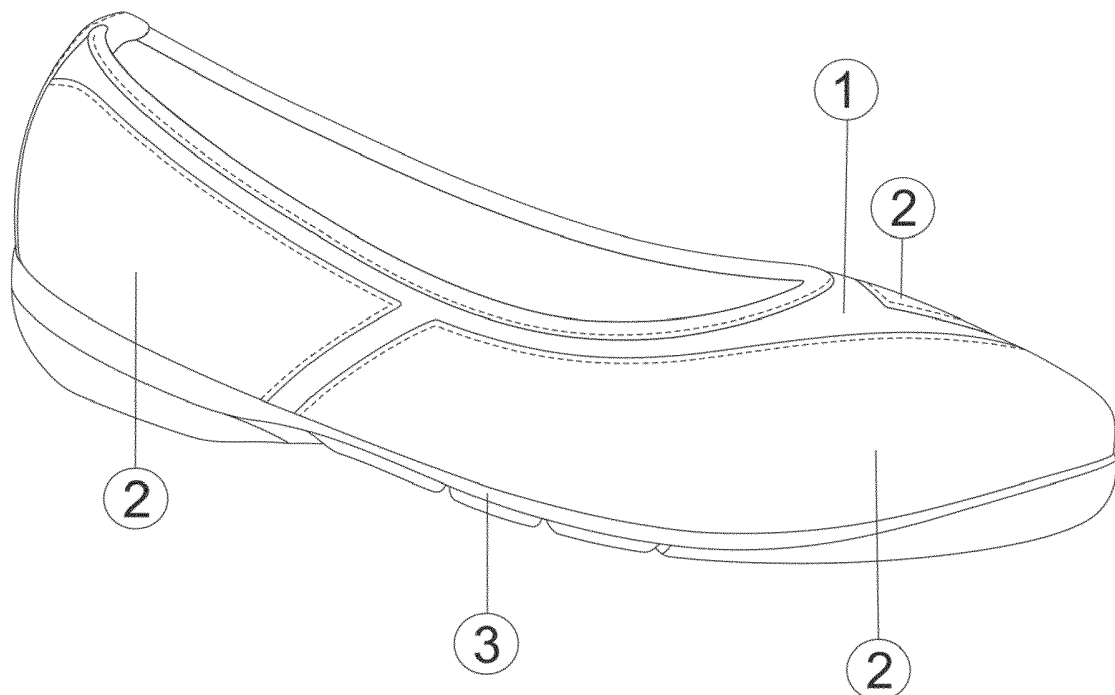


FIG. 1

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Description

FIELD OF THE INVENTION

[0001] The present invention belongs to the field of footwear engineering, and describes a self-scalable casual footwear that allows involve two subsequent footwear sizes, both on foot length and several widths / perimeters and heights that the same foot length can hold without the need for additional components for adjustment, such as laces, rubber bands, straps, velcro, zippers, hooks, eyelets or any other that is treated as a resource for the purpose of this invention.

BACKGROUND OF THE INVENTION

[0002] The availability of footwear in the market is through not self-scalable fixed numbering, requiring the user understands the dimensions of their feet in order to buy a footwear such as length and width measures. Therefore, in a global scale, some markets have besides length the choice of the width that can vary between three or more measurements, thus generating an increase in both volume and in logistics and storage of these products in stores, consequently requiring larger storage area. In other markets there is available only the choice of the size (length of the footwear) with a standard width determined by each manufacturer, so limiting the consumer choice. This way, the proposed footwear aims at overcoming this limitation by providing its users with increased comfort due to its flexibility.

STATE OF THE ART

[0003] There have been presented several solutions/adaptations of footwear in order to allow the use of two subsequent footwear sizes, but none that met so broadly such needs as in the present invention. For example:

[0004] The document CN20237514U differs from the present invention because only the requisite of width of the footwear is met, the outsole being static in relation to the length. The present invention meets both the width and length needs in all of its component parts and is intended for adult female public.

[0005] The document ES1061431 is not in conflict with the present invention, because it is a product for the children's segment, as the outsole allows only adjustment in length, the width getting adjustable by a velcro system. Differently, the present invention meets both the width and length needs in all its component parts.

[0006] The document FR1562221A is not in conflict with the present invention, because the adjustment takes place only in the length of the foot and in the heel region.

[0007] The document GB913182A is different from the present invention, since it refers only to elasticity on the footwear length.

[0008] The document US8935861 B2 is not in conflict

with the present invention, as the outsole does not include lengthening the width of the foot.

[0009] The document US8938890B2 differs from the present invention, since the described outsole has a manual adjustment in the length of the footwear and does not include a width sizing. The upper restricts the lengthening on the instep (midfoot), limiting the area, offering lengthening only in the hindfoot and forefoot region.

BRIEF DESCRIPTION OF THE INVENTION

[0010] The present invention has the objective of providing the use of a footwear which allows to involve two subsequent footwear sizes, since, at the same time as different people with the same length of feet may have different widths/perimeters, either in the regions of the hindfoot, midfoot and forefoot, the individual himself/herself does not have symmetry of the members in question.

[0011] By associating elastic materials with techniques in the production process and based on numbering anthropometric scale of French point used in Brazil, that determines the difference in size of each spacing each 6.66 millimeters for female footwear, it is assigned the size of a footwear multiplied by 6.66 millimeters, and, for example, size 35 corresponds to the length of 233.1 millimeters, considering this the actual measurement of the foot length.

BRIEF DESCRIPTION OF DRAWINGS

[0012]

FIG. 1 shows a perspective view of the footwear described in the present invention;

FIG. 2 shows the mounting insole, showing the narrower areas (5) as described in the present invention;

FIG. 3 shows the outsole as described in the present invention;

FIG. 4 shows the bi-elastic material of upper, highlighting the three layers that comprise it: the first and third layer (8) of synthetic knitted fabric and the second layer (9) of latex foam material with SBR; and

FIG. 5 shows a side sectional view of the outsole highlighting the two layers (6 and 7) that compose it.

DETAILED DESCRIPTION OF THE INVENTION

[0013] The present invention relates to a casual footwear that allows involve two subsequent footwear sizes, comprising an upper of bi-elastic material (1) and a mono-elastic (2), an outsole of bi-material (3) and a mounting insole (4).

[0014] The upper, the top part of the footwear, is manufactured with a bi-elastic material (1) and a mono-elastic material (2). The first ensures a lengthening in the vertical and horizontal direction (length and width of feet), and is composed of materials having an elastic property and divided into three layers: the first and third (8) layers of

synthetic knitted fabric with a yarn composition in the range of 83% to 97% of PES (polyester), and is more suitable the composition of 90% PES and 10% of PUR. The composition of the fabric yarns may be of synthetic or natural origin associated with a PUR yarn in the process of manufacturing the knitting for interlacing the yarns, thereby securing its elasticity. There also can be used synthetic laminates with a bi-elastic property to replace the knitted fabric. The second layer (9) is composed of latex foam material with SBR (styrene butadiene rubber) with 1.3 to 5 mm of thickness and specific gravity of 140 kg/m³ and 350 kg/m³, the most suitable thickness and specific gravity being 2 mm and 270 kg/m³.

[0015] The union between the layers is accomplished with an adhesive film of thermo-sticky PU, but other adhesives alternatives may also be applied in the liquid state (when the adhesive is applied at ambient temperature without the need for heat usage to reactivate its properties) or in the semi-solid/paste state (hot melting, when it is necessary to liquefy it with a high temperature to activate its stickiness properties). The mono-elastic material (2) has only lengthening in its width, and is composed of a base of PES (polyester) fabric and a PU (polyurethane) coating, and is considered a "laminated fabric" or "synthetic laminate". It is set in the bi-elastic material (1) by an adhesive film with thermo-sticky PU resin and seams around the edges, it is arranged in three parts (pieces) that limit the excessive lengthening of the footwear in the heel area, toecap (front of the footwear) and parts of the sides. In areas where it is not fixed, it allows the bi-elastic material (1) to hold the property of the lengthening, allowing the footwear to fit the size and width of the foot without causing an excessive pressure (tighten the foot) or a play (the footwear drops out of the foot), allowing for a safe walking.

[0016] The mounting insole (4) is developed with a web of 100% of PES, a resin non-woven fabric with a grammage of between 140 and 500 g/m² and with specific design, so that, during the manufacturing process of positioning the upper in the mold, allows the length accuracy and not leaving the footwear loose or warped, and when gluing / setting the outsole, the narrower areas (5) are cut and removed to allow the lengthening of the footwear not to be compromised.

[0017] The bi-material outsole (3) of TR (thermoplastic) forms two layers, the first (7) being soft and elastic with a hardness between 20 and 25 Shore A, preferably of 22 Shore A and a thickness between 0.9 and 2.0 mm, preferably of 1.5 mm, in the sole of the foot region (forefoot and midfoot) enabling the lengthening safely, since when reducing the thickness, a low resistance to lengthening occurs and otherwise make rigid the material for lengthening, and a thickness between 8 and 11 mm, preferably of 9 mm, in the heel region (hindfoot), guaranteeing the quality to absorb the impact when walking, without deformation or excessive rigidity.

[0018] The second layer (6), which is in contact with the ground, is soft and resistant to wear (abrasion) with

a hardness between 70 and 80 Shore A, preferably of 80 Shore A. The wavy design on its surface enables a greater adherence and ensures the safety when walking, and its application is divided distinctly in the three regions of the foot, more statically covering the entire area of the hindfoot, without significant sizing, in the midfoot/forefoot divided into fifteen insulated parts and with distinct shapes enabling the outsole lengthening in the width and length of the foot and in the forefoot statically occupying part of the toecap/tip of the footwear without significant sizing.

[0019] While the invention has been described widely, it is obvious to those skilled in the art that various changes and modifications may be made seeking design improvements without said changes are not covered by the scope of the invention.

Claims

1. Self-scalable footwear **characterized in that** it comprises a bi-elastic material upper (1) and a mono-elastic (2), a bi-material outsole in TR (3) and a mounting insole (4).
2. Self-adjusting footwear, according to claim 1, **characterized in that** the bi-elastic material (1) of the upper is divided in three layers (8 and 9).
3. Self-scalable footwear, according to claim 2, **characterized in that** the first and third layers (8) are of synthetic knitted fabric or synthetic laminates with bi-elastic property with a yarn composition in the range of 83% to 97% of PES (polyester), preferably 90% of PES, and 3% to 17% of PUR (elastomeric polyurethane or elastane), preferably 10% of PUR.
4. Self-scalable footwear, according to claim 3, **characterized in that** the composition of the yarns is of synthetic or natural origin associated with a PUR yarn.
5. Self-scalable footwear, according to claim 3, **characterized in that** synthetic laminates are optionally used with a bi-elastic property in replacing the knitted fabric.
6. Self-scalable footwear, according to claim 2, **characterized in that** the layers (8 and 9) are joined with an adhesive film with thermo-sticky PU, or alternatively with adhesives in liquid or semi-solid/paste state.
7. Self-scalable footwear, according to claim 2, **characterized in that** the second layer (9) is composed of a latex foam material with SBR (styrene butadiene rubber) with a thickness of 1.3 to 5 mm, preferably 2 mm, and specific gravity between 140 kg/m³ and

350 kg/m³, preferably 270 kg/m³.

8. Self-scalable footwear, according to claim 1, **characterized in that** the mono-elastic material (2) of the upper is composed of a fabric of PES (polyester) base and a coating of PU (polyurethane). 5
9. Self-scalable footwear, according to claim 8, **characterized in that** the mono-elastic material (2) is set in the bi-elastic material (1) by an adhesive film with thermo-sticky PU resin and seams around the edges. 10
10. Self-scalable footwear, according to claim 9, **characterized in that** the mono-elastic material (2) limits the excessive elongation of the footwear in the heel region, toecap (front of the footwear) and in portions of the sides. 15
11. Self-scalable footwear, according to claim 1, **characterized in that** the mounting insole (4) is developed with a web of 100% of PES, a resin non-woven fabric with a grammage of between 140 and 500 g/m² and with specific design. 20
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12. Self-scalable footwear, according to claim 1, **characterized in that** the bi-material outsole (3) forms two layers (6 and 7).
13. Self-scalable footwear, according to claim 12, **characterized in that** the layer (7) is soft and elastic with a hardness between 20 and 25 Shore A, preferably of 22 Shore A, and thickness between 0.9 and 2.0 mm, preferably of 1.5 mm in the sole of the foot region, and a thickness between 8 and 11 mm, preferably of 9 mm in the heel region. 30
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14. Self-scalable footwear, according to claim 12, **characterized in that** the layer (6) is soft and resistant to wear (abrasion) with a hardness between 70 and 80 Shore A, preferably of 80 Shore A. 40

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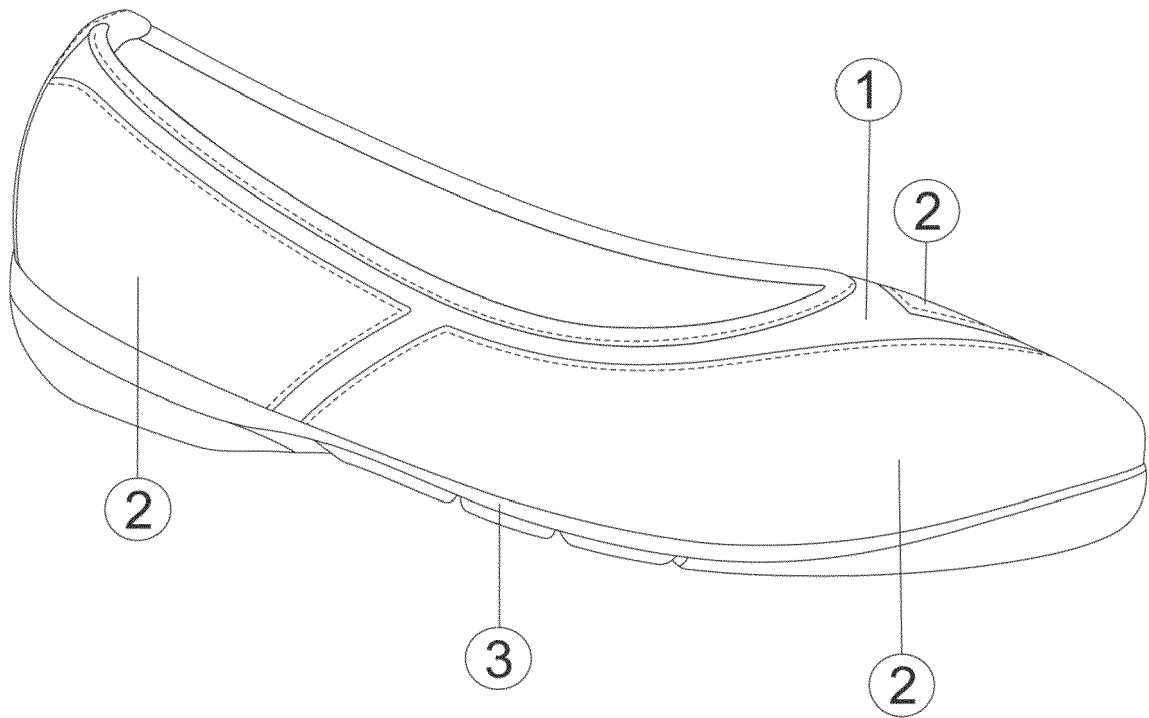


FIG. 1

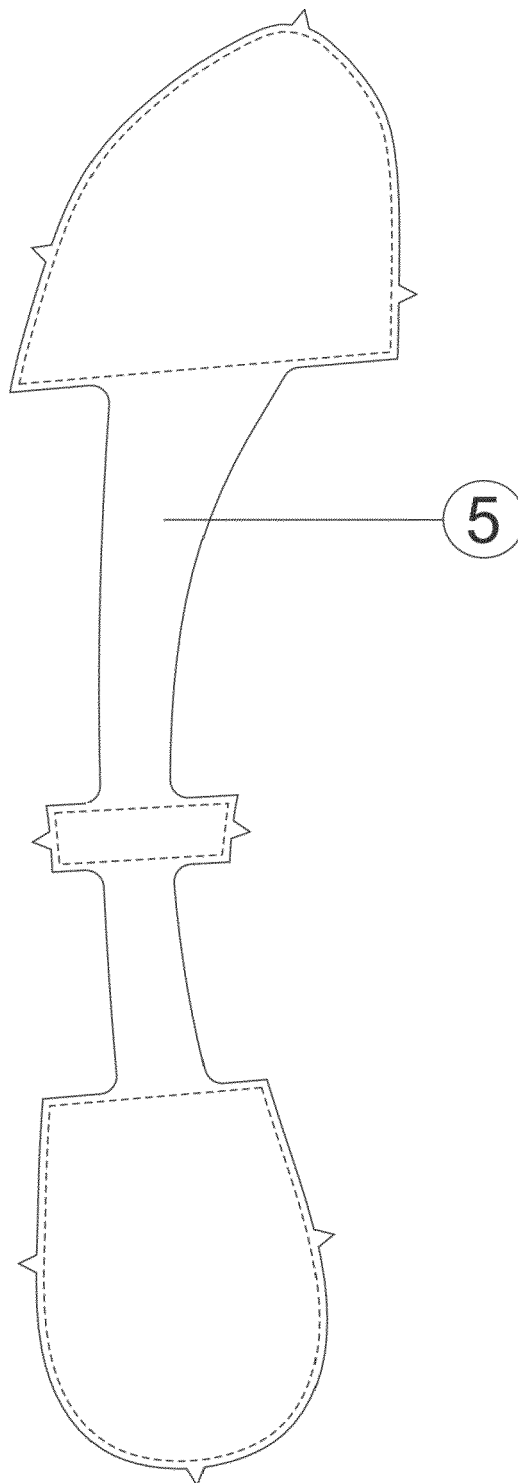


FIG. 2

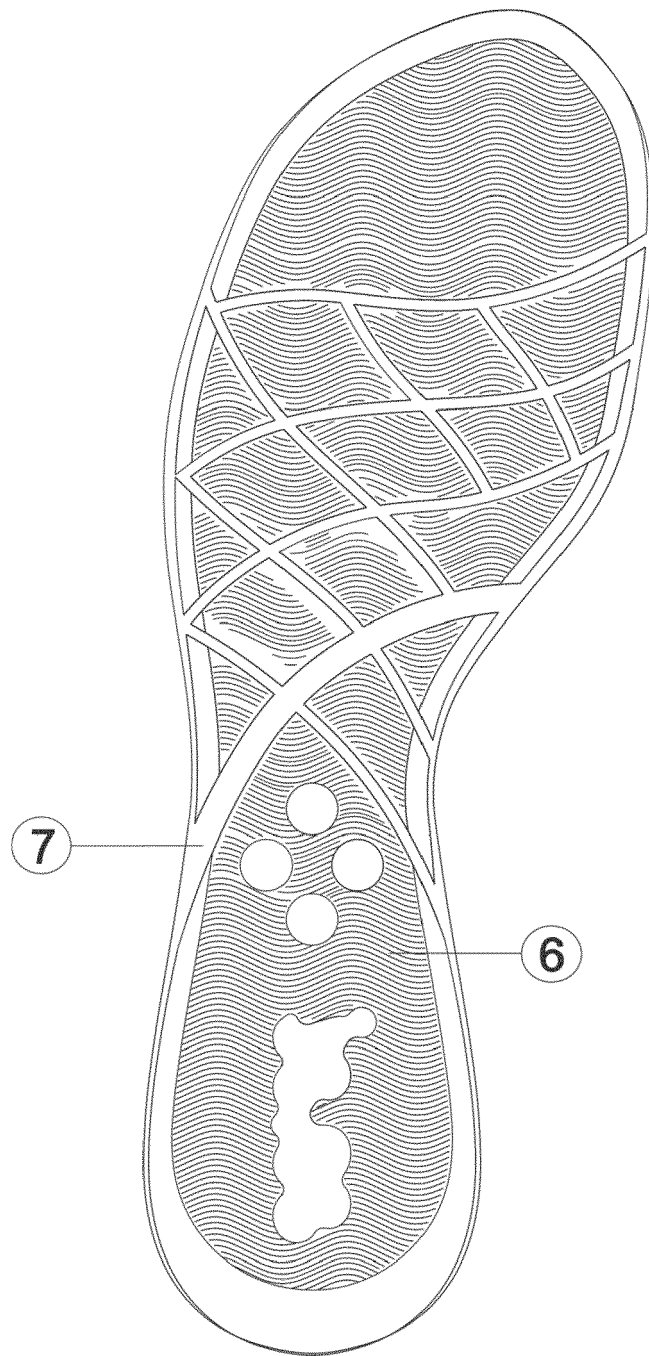


FIG. 3

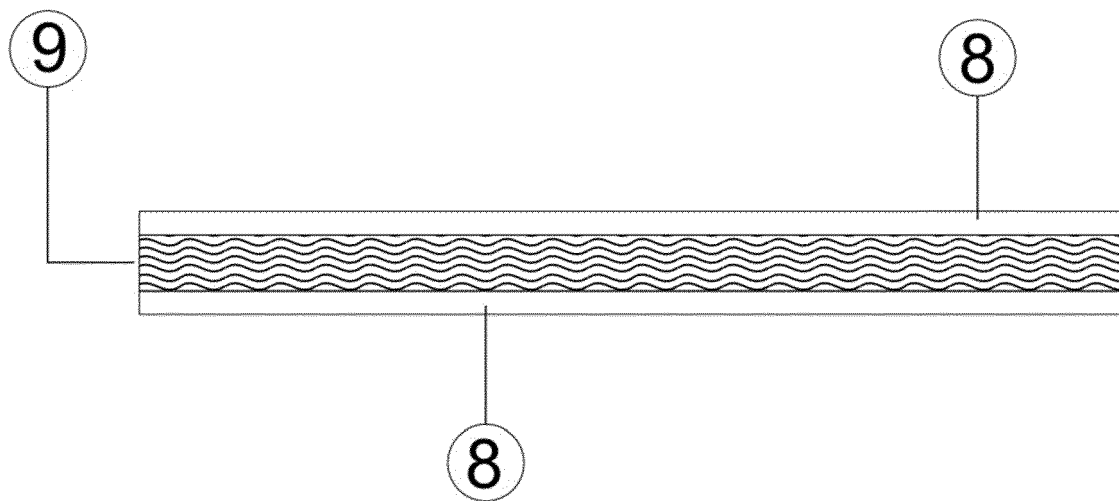


FIG. 4

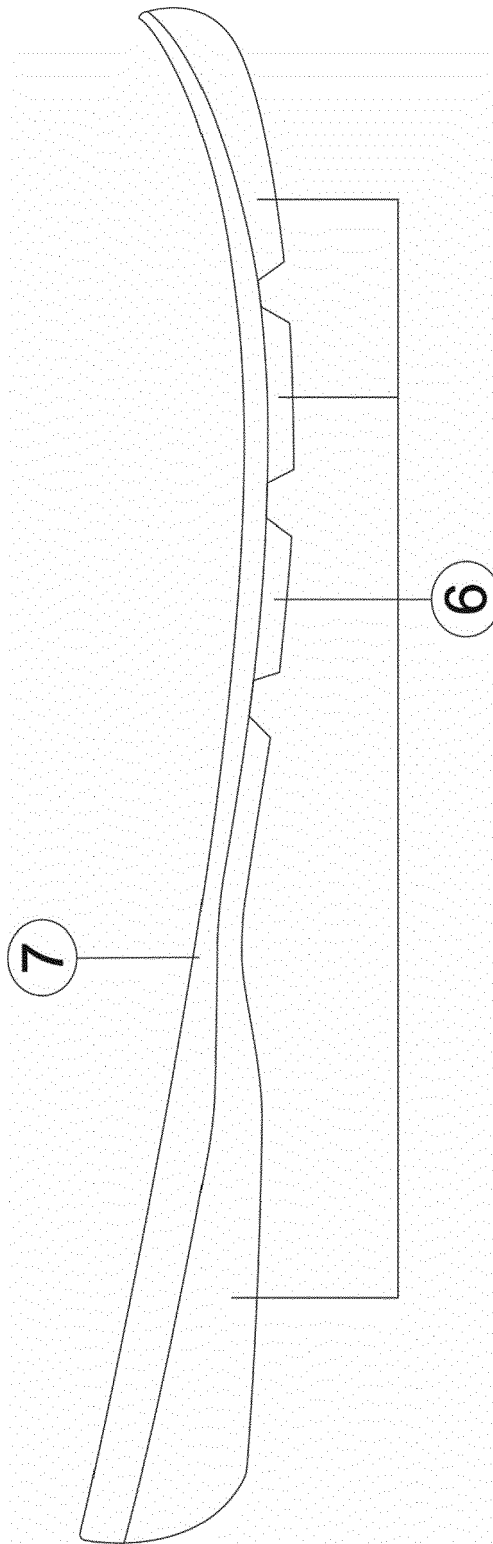


FIG. 5



EUROPEAN SEARCH REPORT

Application Number
EP 16 15 0616

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 03/013301 A1 (BENETTON SPA [IT]; CALVANI ROMANO [IT]; BACCHIEGA FLAVIO [IT]) 20 February 2003 (2003-02-20) * the whole document *	1-14	INV. A43B3/26 A43B3/08 A43B13/12 A43B13/14 A43B23/02 A43B23/04
X	US 2014/259774 A1 (MINDEN ELIZABETH GAYNOR [US]) 18 September 2014 (2014-09-18) * paragraphs [0025] - [0042]; figures *	1-14	
X	WO 02/051273 A2 (TIMBERLAND CO [US]; CLARK DOUGLAS E [US]; OPIE STEPHEN D [US]; SPILLER) 4 July 2002 (2002-07-04) * the whole document *	1-14	
X	US 2007/039209 A1 (WHITE JAY [US] ET AL) 22 February 2007 (2007-02-22) * paragraphs [0039] - [0044]; figures 2a,6a,6b *	1-14	
A	DE 203 07 010 U1 (BENETTON SPA [IT]) 3 July 2003 (2003-07-03) * the whole document *	1-14	TECHNICAL FIELDS SEARCHED (IPC)
A	WO 2010/012401 A1 (O'CONNOR MICHAEL JOHN [CN]; BAGNALL PHILIP ROSS [CN]) 4 February 2010 (2010-02-04) * the whole document *	1-14	A43B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 18 January 2017	Examiner Cianci, Sabino
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
ON EUROPEAN PATENT APPLICATION NO.**

EP 16 15 0616

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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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35

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45

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 03013301 A1	20-02-2003	AT 292902 T	15-04-2005
		DE 60203716 D1	19-05-2005
		DE 60203716 T2	09-03-2006
		EP 1411792 A1	28-04-2004
		ES 2242878 T3	16-11-2005
		IT TV20010107 A1	03-02-2003
		US 2004148804 A1	05-08-2004
		WO 03013301 A1	20-02-2003

US 2014259774 A1	18-09-2014	NONE	

WO 02051273 A2	04-07-2002	AT 334607 T	15-08-2006
		CA 2432697 A1	04-07-2002
		DE 60122007 T2	01-03-2007
		EP 1349464 A2	08-10-2003
		JP 2004535211 A	25-11-2004
		KR 20040011451 A	05-02-2004
		TW 558424 B	21-10-2003
		US 2002088145 A1	11-07-2002
		US 2005022426 A1	03-02-2005
		WO 02051273 A2	04-07-2002

US 2007039209 A1	22-02-2007	US 2007039205 A1	22-02-2007
		US 2007039208 A1	22-02-2007
		US 2007039209 A1	22-02-2007
		US 2007043582 A1	22-02-2007
		WO 2007024875 A2	01-03-2007

DE 20307010 U1	03-07-2003	AT 306828 T	15-11-2005
		DE 20307010 U1	03-07-2003
		DE 60301935 T2	13-07-2006
		EP 1424019 A1	02-06-2004
		ES 2250819 T3	16-04-2006
		US 2004098881 A1	27-05-2004

WO 2010012401 A1	04-02-2010	NONE	

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- CN 20237514 U [0004]
- ES 1061431 [0005]
- FR 1562221 A [0006]
- GB 913182 A [0007]
- US 8935861 B2 [0008]
- US 8938890 B2 [0009]