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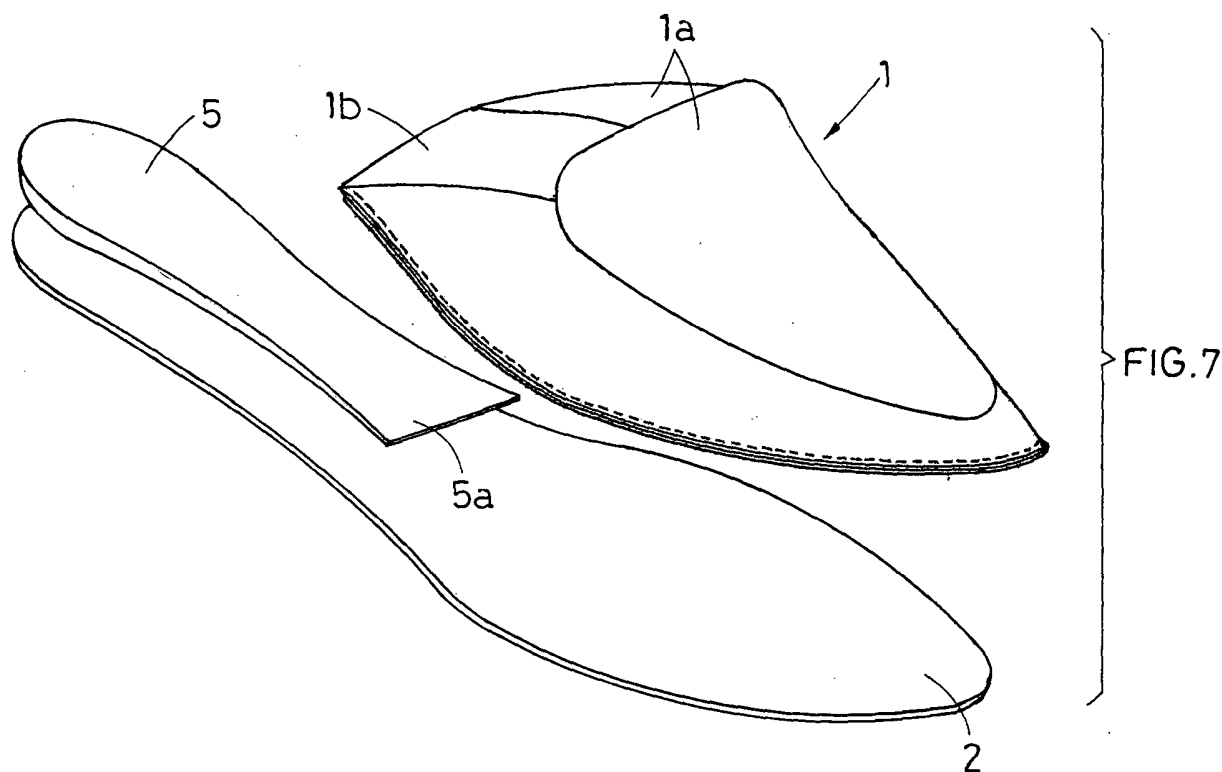
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(54) **Footwear manufacturing process**

(57) The present invention refers to a footwear manufacturing process, which provides for an insole (5) cut at the arch's height, on which a special upper (T) is

mounted, the said upper being composed of a bag (1) that receives the forefoot and is finished with a perimetral band (3) folded below the bag and secured between sole and upper.



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Description

[0001] The present patent application refers to a footwear manufacturing process and to the shoe obtained with it.

[0002] In part, the process of the invention is based on the technique that is currently used to produce "lasted" shoes, meaning that the upper is assembled on a last that reproduces the anatomical configuration of the foot, cut at the neck's height, which is used to assemble the upper with the insole and then fix the sole under the insole.

[0003] More precisely, according to the traditional technique, the insole is temporarily fixed with cramps under the last. Then, the upper is assembled onto the last, wrapping the back and the sides of the last.

[0004] Then, the lower perimetral borders of the upper are manually folded and stretched until they are firmly folded and fixed under the edges of the insole, on which the sole is glued and/or sewn.

[0005] In spite of being strong and resistant, lasted shoes are impaired by flexional rigidity and heaviness, because of the multi-layer structure of the bottom, in which the upper layer coincides with the insole and the lower layer includes the leather sole or the bottom made of rubber, Parà rubber or other materials.

[0006] The purpose of the present invention is to devise a lasted shoe characterised by the lightness and flexibility typical of moccasins, which are renowned for softness, flexibility, and limited weight.

[0007] As it is known, the lightness and flexibility of moccasins are due to the fact that the insole is missing and they use a bag-shaped upper, whose lower side is directly applied to the sole or bottom.

[0008] Evidently, the absence of insole in moccasins ensures higher lightness and flexibility compared to lasted shoes.

[0009] In view of the aforementioned remarks, the manufacturing process of the invention has been devised, using an insole cut at the arch's height, on which a special upper is mounted, the said upper being composed of a bag that receives the forefoot and is finished with a perimetral band folded below the bag and secured between sole and upper.

[0010] The shoes obtained with the process of the invention are considerably light, in view of the halved weight of the insole and, exceptionally flexible on the mid-sole, being characterised by a moccasin-like structure, that is to say a bag-shaped upper directly applied above the sole.

[0011] For major clarity the description of the invention continues with reference to the enclosed drawings, which are intended for purposes of illustration only and not in a limiting sense, whereby:

- Fig. 1 is a view of a woman's shoe with closed upper, obtained with the process of the invention
- Fig. 2 is a view of a woman's shoe with open upper,

obtained with the process of the invention

- Fig. 3 is a view of a traditional last for lasted shoes, on which the special insole of the process of the invention is secured
- 5 - Fig. 4 is an exploded perspective view of upper, insole and sole of the shoe shown in Fig. 1
- Figs. 5 and 6 show two processing steps of the process of the invention performed on the upper of the shoe shown in Fig. 1
- 10 - Fig. 7 is an exploded perspective view of upper, insole and sole of the shoe shown in Fig. 2
- Figs. 8 and 9 show two processing steps of the process of the invention performed on the upper of the shoe shown in Fig. 2
- 15 - Figs. 10, 11 and 12 show three processing steps of the process of the invention for the production of the bag-shaped upper, it being diagrammatically shown in cross-section with a vertical, transversal plane.

20 **[0012]** With reference to Figs. 4 and 7, the process of the invention makes use of a special upper (T) that comprises a bag (1) in the front, extending from the toe to the arch and formed by a shaped upper layer (1 a) and a lower flat layer (1 b), basically having the shape of the mid-sole of the sole (2).

25 **[0013]** The bag (1) is provided with a perimetral band (3) sewn along and over the edges of the bag (1) in overturned position with respect to the final position.

30 **[0014]** The band (3) is designed to be overturned under the bag (1) and folded under the edges of the lower layer (1b) - as shown in Figs. 11 and 12 - and finally secured between the bag (1) and the sole (2). In case of closed upper (T), as the one shown in Fig. 1, the upper (T) also includes a section (4) designed to enclose the rear and the sides of the heel, joining the bag (1) and, more precisely, the upper layer (1 a).

35 **[0015]** The bottom closing wall is missing in section (4), which is provided with lower free ends (4a) designed to be folded, stretched, rolled up and nailed under an insole (5) extending from the heel to the arch, where it is fixed to the rear transversal edge (1 c) of the lower layer (1 b) of the bag (1).

40 **[0016]** In case of open upper (T1), which leaves the heel exposed, such as the one shown in Fig. 2, the section (4) is missing in the bag (1).

45 **[0017]** The description continues with reference to the sequence of operational steps according to the process of the invention.

50 **[0018]** Firstly, the upper (T, T1) is arranged, paying special attention to sew the perimetral band (3) above or immediately behind the sewing line (C1) that joins the lower layer (1 b) with the upper layer (1 a) of the bag.

[0019] This ensures that the seam (C1) is covered and invisible when the band (3) is overturned under the bag (3), as shown in Fig. 12.

55 **[0020]** The second preliminary step refers to fixing the insole (5) under the last (F) on which the upper (T, T1) is mounted, with ordinary staples, as shown in Fig. 3.

[0021] Once the aforementioned preliminary steps have been completed, the process of the invention continues with the following operations:

- insert and position the upper (T, T1) on the last (F); 5
- fix the free ends (1 c, 4a) of the upper (T, T1) to the insole (5) by means of nails or glue;
- overturn the band (3) under the edges of the bag (1), where the band (3) is rolled up, stretched and secured, preferably by means of glue; 10
- glue the sole (2) under the insole (5), the bag (1) and the folded band (3);
- apply the heel (TA) according to the traditional technique;
- remove the shoe from the last (F); 15
- apply an ordinary insole (6) to cover the insole (5) and the lower layer (1 b) of the bag (1).

[0022] It must be noted that the ends (4a) of the section (4) are folded, stretched and secured under the edges of the insole (5), as shown in Fig. 1, while the rear end (1 c) of the bag (1) is simply laid and secured above the transversal edge (5a) of the insole (5). 20

[0023] In order to provide soft support for the forefoot, the lower layer (1 b) of the bag (1) can be obtained with a double layer of thin material, stuffed with a thin pad of foam rubber or other suitable material. 25

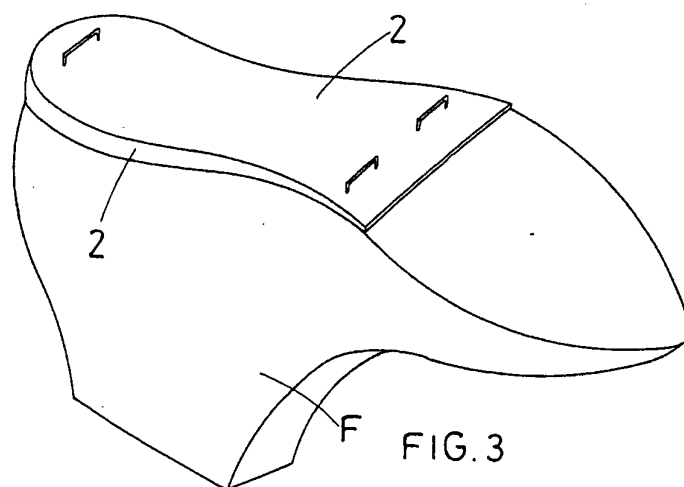
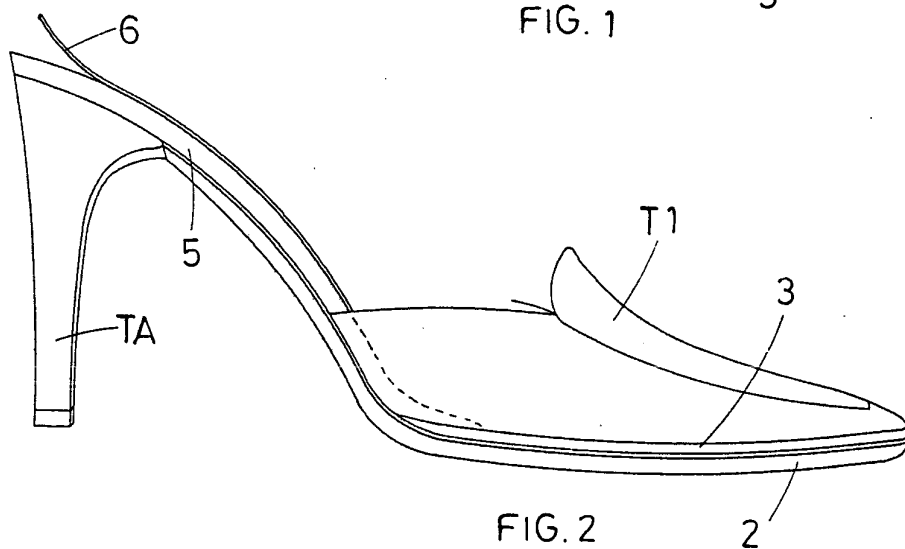
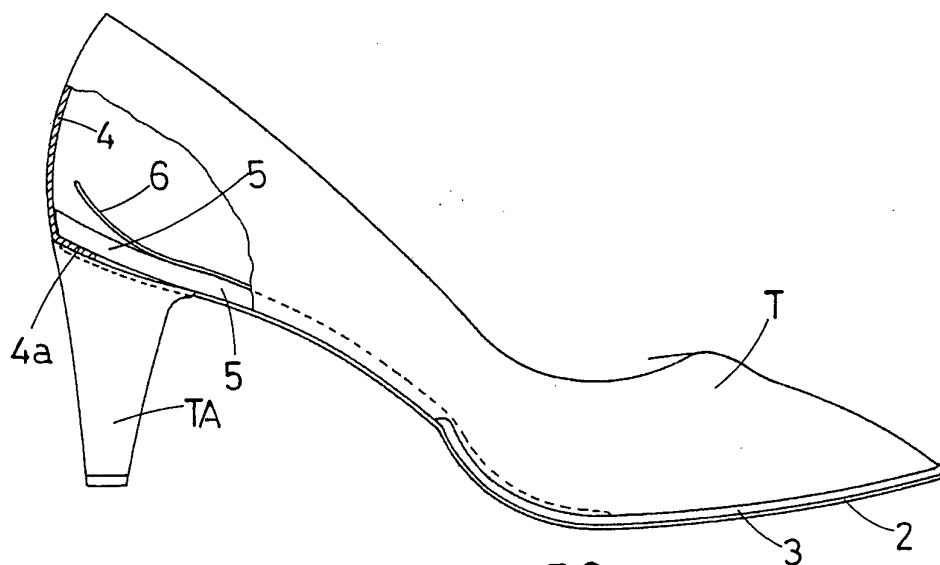
[0024] With reference to the band (3), it must be noted that the band (3) can be obtained with a different material with a different colour compared to the upper layer (1 a) of the bag (1), thus creating a different chromatic finishing for the two overlapped parts (1 a, 3) of the upper (T, T1). 30

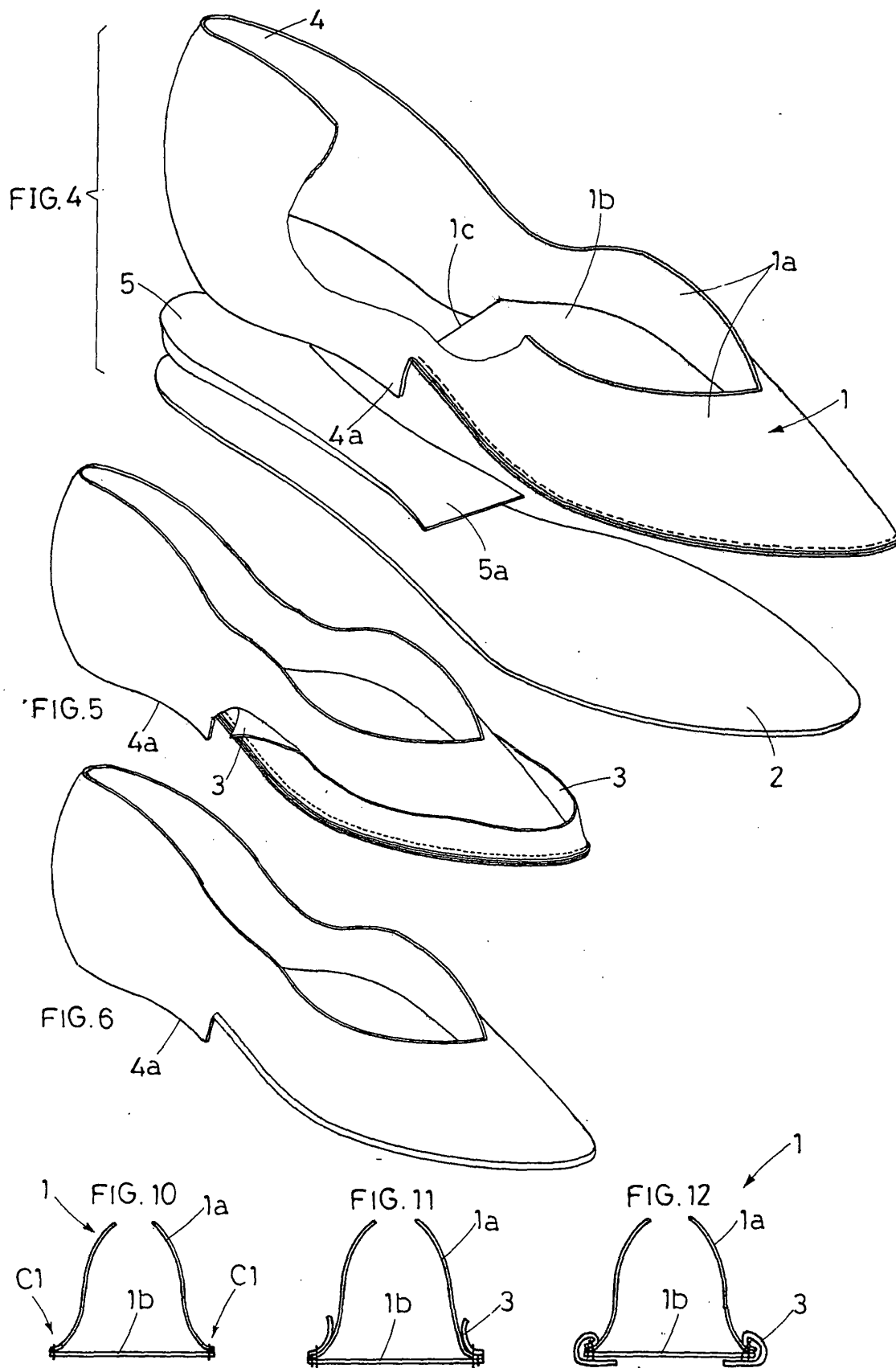
Claims

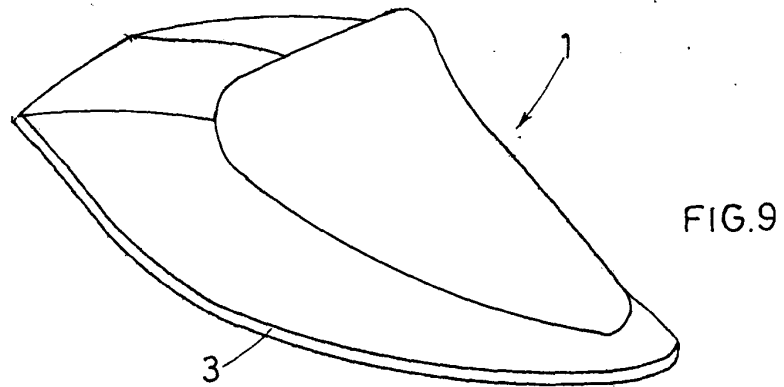
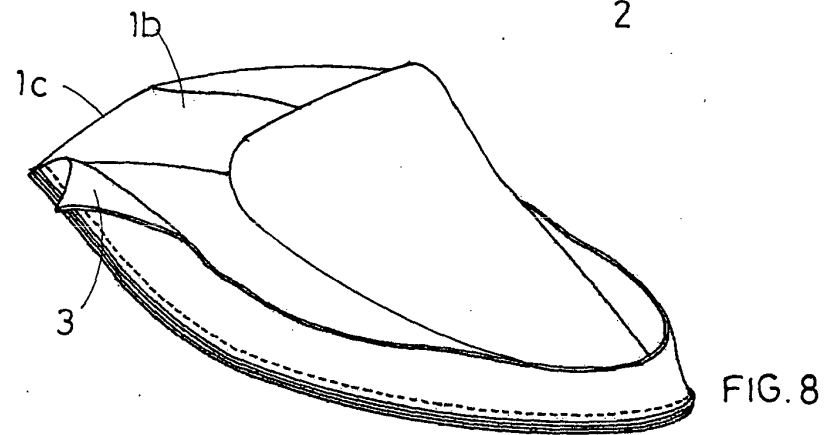
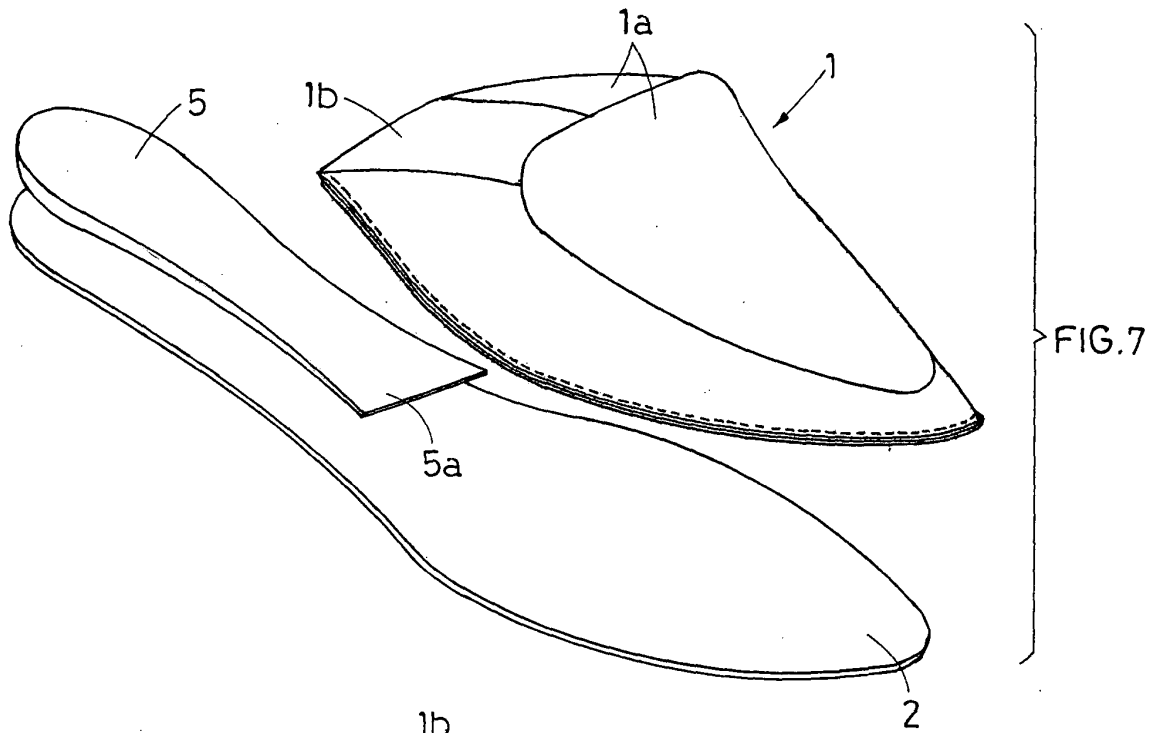
1. Footwear manufacturing process, of the type using an ordinary last (F) to assemble the different parts of the shoe, **characterised in that** it includes the following operational steps: 40
 - arrangement of a special upper (T, T1) that comprises a bag (1) in the front, extending from the toe to the arch and formed by a shaped upper layer (1 a) and a lower flat layer (1b), the bag (1) being provided with a perimetral band (3) sewn along and over the edges of the bag (1) in overturned position with respect to the final position; 50
 - arrangement of an insole (5) cut at the arch's height and fixed under the last (F) with ordinary staples;
 - insert and position the upper (T, T1) on the last (F); 55
 - fix the free ends (1 c, 4a) of the upper (T, T1) to the insole (5) by means of nails or glue;
 - overturn the band (3) under the lateral edges

of the bag (1), where the band (3) is rolled up, stretched and secured, preferably by means of glue;

- glue the sole (2) under the insole (5), the bag (1) and the band (3);
 - apply the heel (TA) according to the traditional technique;
 - remove the shoe from the last (F);
 - apply an ordinary insole (6) to cover the insole (5) and the lower layer (1 b) of the bag (1).
2. Manufacturing process as defined in the above claim, **characterised in that**, during the preparation of the upper (T, T1), the perimetral band (3) is sewn above or immediately behind the seam (C1) that joins the lower layer (1 b) and the upper layer (1 a) of the bag (1).
 3. Manufacturing process as defined in the above claims, **characterised in that** it provides for an open upper (T1), which is only composed of the bag (1) with band (3).
 4. Manufacturing process as defined in two claims above, **characterised in that** it provides for a closed upper (T), which is also composed of a section (4) used to enclose the rear and the sides of the heel, joining the upper layer (1 a) of the bag (1), it being provided that the bottom closing wall is missing in the section (4), which is provided with lower free ends (4a) designed to be folded, stretched, rolled up and nailed under an insole (5).
 5. Manufacturing process as defined in the above claims, **characterised in that** the rear end (1c) of the lower layer (1b) of the bag (1) is laid and secured above the transversal edge (5a) of the insole (5). 35
 6. Manufacturing process as defined in the above claims, **characterised in that** the lower layer (1b) of the bag (1) is obtained with a double layer of material, stuffed with a foam rubber pad or other suitable materials.
 7. Shoe obtained with the manufacturing process as defined in the above claims.









European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 05 42 5230

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.7)
X	US 2 392 816 A (GLEASON GEORGE A) 15 January 1946 (1946-01-15) * column 2, line 35 - column 4, line 28; figures *	1,3,4,7	A43B9/14 A43B9/04 A43B9/12
X	EP 0 208 223 A (GRODZKI, GERHARD) 14 January 1987 (1987-01-14) * the whole document *	1,3,4,7	
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A	FR 2 555 025 A (LERICHE RENE) 24 May 1985 (1985-05-24) * the whole document *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A43B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 5 July 2005	Examiner Cianci, S
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

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EPO FORM 1503 03 82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 05 42 5230

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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