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(54) **Production process of shoe and shoe obtained with it**

(57) The present invention relates to a production process of a shoe comprising a welt (G), the external border (4b) of which is sewn with a seam (C3) above the border (8a) of the outsole (8), whereas the internal border (4a) of the welt is sewn to the upper (T) with a seam (C2)

that bites the internal border (4a) of the welt (G), the lower border (3) of the upper (T) and the pre-sewn pair of borders (1a and 2a) of the insole (1) and of the upper part (2) of the bag-shaped lining (F) that covers the upper (T) internally.

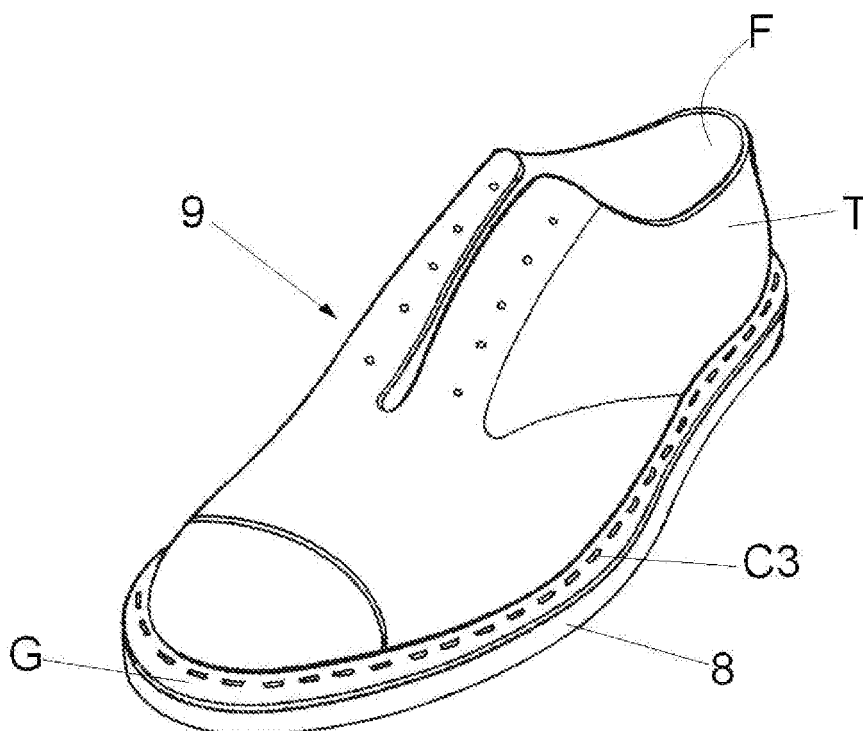


FIG. 8

Description

[0001] The present patent application for industrial invention relates to a production process for shoe and to the shoe obtained with it.

[0002] The process of the invention can be considered as an evolutive variant of a consolidated technology known as "GOOD YEAR", which is commonly used to make shoes that are technically defined as "pre-assembled", in which the upper is pre-assembled on a sole with the help of a last before being coupled with the corresponding outsole.

[0003] More precisely, according to said technology, the upper is prepared first, that is to say the part of the shoe designed to wrap the foot on the sides and on top. Said upper is open on the bottom along the entire perimeter of the foot, it being adapted to be mounted on the sole, under which the outsole is applied.

[0004] As mentioned above, the "pre-assembly" operation of the upper on the sole is made with the help of a "last" (which basically consists in a model that reproduces the three-dimensional shape of a foot), on which the upper is worn, the lower edges of which are then stretched, rolled up and fixed under the borders of the sole, which has been previously centred and held in the centre of the surface of the "last".

[0005] Finally, the outsole is glued and sewn under the sole.

[0006] According to the "GOOD YEAR" technology, the outsole has a larger width than the sole, in such a way that the border of the sole protrudes by a few millimetres outside the upper, along its entire perimeter, except for the horseshoe arch that surrounds the heel of the shoe.

[0007] A finishing welt is fitted on the protruding border of the sole, externally wrapping the lower edge of the upper and covering possible workmanship defects along the entire perimeter band of the upper that is folded and tightened between outsole and sole.

[0008] Said welt basically consists in a flexible leather strap that is bent as an "L", in such a way that the vertical wing can adhere and be sewn on the outside of the upper, whereas the horizontal wing can adhere and be sewn above the protruding edge of the outsole.

[0009] Two seams run along the welt, the first one of them being composed of stitches that cross the upper from the outside towards the inside and are used to fix the welt to the upper, and the second one of them being composed of the high-low stitches that are used to fix the welt to the outsole.

[0010] The shoes obtained with the "GOOD YEAR" technology are characterised by resistance and reliability, as well as waterproofness, since the upper is protected by a thick bottom, formed by sole and outsole, and is laterally surrounded by the welt that prevents the passage of water between outsole and sole.

[0011] On the other hand, the shoes obtained with the "GOOD YEAR" technology are impaired by poor comfort,

due to their weight and rigidity, that prevent them from being softly, following the natural articulation of the foot during walking.

[0012] Rigidity is basically due to the presence of said "pre-assembly" sole, the thickness of which, normally a couple of millimetres, is added to the thickness of the outsole, creating a thick layered bottom, which is further stiffened by the layer of glue used to glue the outsole to the sole, before the final sewing of the welt to the sole.

[0013] The critical examination of this type of shoes has resulted in the industrial process of the invention, the main purpose of which is to modify the process defined as "GOOD YEAR" in such a way to obtain shoes that are light, flexibly and comfortable, while maintaining the aforementioned resistance and waterproofness that are typical of the traditional "GOOD YEAR" process.

[0014] To that end, the new industrial process of the invention has been devised, the main peculiarity of which consists in the elimination of a traditional sole, and in the introduction of a bag-shaped lining that is provided, along the perimeter of the insole, a lower protruding border on which both the edges of the upper and the edges of the welt are sewn externally.

[0015] This means that only the insole of the bag-shaped lining is situated between the foot of the user and the outsole of the shoe, being characterised by insignificant thickness, rigidity and weight, since the lining is traditionally made with fabric or light, thin leather.

[0016] Another advantage of the shoe obtained with the new process of the invention consists in the fact that it does not use glue to glue the outsole, which is simply sewn to the welt, and not glue to the insole of the bag-shaped lining, thus ensuring better perspiration for the foot that is practically cancelled in the GOOD YEAR process due to the layer of glue applied between sole and outsole.

[0017] For purposes of clarity, the description of the process of the invention continues with reference to the enclosed drawings, which are intended for purposes of illustration only and not in a limiting sense, wherein:

- fig. 1 is a perspective diagrammatic view of the bag-shaped lining used in the production process of the invention;
- fig. 1A is a cross-section of fig. 1 with plane I-I;
- fig. 2 is a perspective diagrammatic view of the upper of the shoe already coupled with the bag-shaped lining, before being worn on the last;
- fig. 2A is a cross-section of fig. 2 with plane II-II;
- fig. 3 is a perspective diagrammatic view of the last on which the upper with bag-shaped lining is worn;
- fig. 4 is a perspective diagrammatic view of the upper and bag-shaped lining worn on the last;
- fig. 4A is a cross-section of fig. 4 with plane IV-IV;
- fig. 5 is a perspective diagrammatic view of the welt sewn to the upper;
- fig. 5A is a cross-section of fig. 5 with plane V-V;
- fig. 6 is basically the same as fig. 5, except for it

shows the pad under the insole of the bag-shaped lining;

- fig. 7 is a perspective diagrammatic view of the welt sewn both to the upper and the outsole;
- fig. 7A is a cross-section of fig. 7 with plane VII-VII;
- fig. 8 is a perspective diagrammatic view of the shoe obtained with the process of the invention.

[0018] Referring to the enclosed figures, the process of the invention provides first of all for preparation of the lining (F) of the upper (T).

[0019] In this case the lining (F) is a bag-shaped lining, which comprises a first lower part and a second upper part, which are both shaped and mutually sewn.

[0020] More precisely, the lower part has the same shape as the template of the last, being adapted to cover the lower surface of the foot and be held on the outsole.

[0021] For the sake of brevity, the lower part is hereinafter defined as: insole (1).

[0022] The upper part (2) is shaped in such a way to wrap the sides and back of the foot, just like the upper (T), of which it is a perfect copy, since these two parts of the shoe must perfectly adhere one (2) inside the other (T).

[0023] The perimeter borders (1 a) of the insole (1) are joined to the lower borders (2a) of the second part (2) by means of a perimeter seam (C1), thus creating the bag-shaped lining (F), as shown in figs. 1 and 1A.

[0024] Both lower borders (1 a and 2a) remain outside the bag-shaped lining (F), but the border (1 a) is inside the border (2a) .

[0025] After preparing the upper (T) according to the known art, the upper (T) is traditionally coupled with the bag-shaped lining (F).

[0026] As shown in figs. 2 and 2A, the bag-shaped lining (F) is externally covered by the upper (T), the lower borders (3) of which perimetally hang under the pair of pre-sewn borders (1 a and 2a) of the lining (F).

[0027] After coupling the upper (T) with the bag-shaped lining (F), the following operations can be performed with the help of a last (FO).

[0028] The first operation consists in the application of a heel piece (S) of semirigid material under the last (FO), the front of which remains uncovered, since the heel piece (S) extends from the heel to the arch, as shown in fig. 3.

[0029] The bag-shaped lining (F) is now worn on the last (FO), the surface of which is covered by the insole (1) that also covers the heel piece (S), although only partially, since the insole (1) is interrupted before the heel, whereas the second upper part (2) of the bag-shaped lining (F) adheres on the remaining lateral surface of the last (FO).

[0030] During this operation the borders (1 a and 2a) protrude under the surface of the last (FO), being situated slightly behind the perimeter of said surface, whereas the lower borders (3) of the upper (T) hang free on the outside of the perimeter of the surface of the last (FO),

as shown in figs. 4 and 4A .

[0031] The next operation consists in making the upper (T) adhere perfectly on the outside of the lining (F); during this operation the lower borders (3) of the upper (T) are glued on the outside of the lower borders (2a) of the second upper part (2) of the lining (F).

[0032] During the gluing operation, the rear section (3a) of the lower borders (3) of the upper (T) is stretched, rolled up and glue under the rear border of said heel piece (S), then fixing said rear section (3a) with nails (C), as shown in fig. 4.

[0033] The folding and nailing operation affects a rear section (3a) that practically corresponds to the external profile of the heel of the shoe, where the welt is not generally applied.

[0034] The next operation consists in fixing the welt (G) on the outside of the upper (T), which is sewn to the pair of borders (3 and 2a) that have been previously glued together.

[0035] More precisely, the internal border (4a) of the welt (G) is fixed outside the lower border (3) of the upper (T) by means of a seam (C2) that bites the internal border (4a) of the welt (G), the lower border (3) of the upper (T) and the pre-sewn pair of lower borders (1 a and 2a) of the bag-shaped lining (F), as shown in figs. 5 and 5A.

[0036] Said seam (C2) runs near to and outside of the seam (C1).

[0037] The following operation consists in trimming the borders (1a, 2a and 3) in such a way to eliminate the exceeding part beyond the internal border (4a) of the welt (G), which acts as reference line for said trimming operation.

[0038] In other words it can be said that the result of the trimming operation is a cord (5) with regular thickness, formed of the borders (1a, 2a, 3 and 4a) sewn together; said cord (5) runs along the perimeter of the insole (1) and defines a central "tub" (6), designed to be filled with a layer (7) of cork or felt, in order to compensate the thickness of said cord (5) and obtain a flat regular surface under the insole (1) of the lining (F), for application of the outsole (8), as shown in fig. 6.

[0039] The last operation consists in mounting the outsole (8), the perimeter border (8a) of which is glued under the external border (4b) of the welt (G), on which the outsole (8) is fixed safely and firmly by means of a vertical seam with up-down-up direction (C3).

[0040] The seam (C3) runs all around the base strap of the upper (T), whereas the seam (C2) with horizontal external-internal-external direction remains hidden under the welt (G) and under the base strap of the upper, as shown in figs. 7 and 7A.

[0041] Now the shoe (9) is removed from the last (FO) and subjected to the final operations of known type for heel mounting and finishing.

[0042] Fig. 8 shows the shoe (9), **characterised in that** the outsole (8), on the front half of the foot, is dominated only by the insole (1) of the bag-shaped lining (F), with the only interposition of a thin, light and flexible layer

(7) of cork or felt.

Claims

1. Production process of shoes **characterised in that** it comprises the following sequence of operations:

a) - manufacturing of a bag-shaped lining (F), which comprises a first lower part or insole (1) and a second upper part (2), which are both shaped and mutually sewn by means of a perimeter seam (C1), in such a way that the perimeter borders (1 a) of the insole (1) and the lower borders (2a) of the second part (2) are external to the perimeter seam (C1) that joins the said borders (1 a and 2a);
 b) - coupling of the said bag-shaped lining (F) with the corresponding premanufactured upper (T);
 c) - insertion of the last (FO) inside the bag-shaped lining (F);
 d) - gluing of the upper (T) externally to the lining (F), including the lower borders (3) of the upper (T), which are glued externally to the lower border (2a) of the upper part (2) of the bag-shaped lining (F);
 e) - application to the upper (T) of the welt (G), whose internal border (4a) is fixed externally to the lower border (3) of the upper (T), by means of a seam (C2) that bites the internal border (4a) of the welt (G), the lower border (3) of the upper (T) and the said pre-sewn pair of borders (1 a and 2a) of the bag-shaped lining (F);
 f) - trimming of borders sewn together (1a, 2a and 3), in such a way to eliminate the exceeding part beyond the internal border (4a) of the welt (G), which acts as reference line for the said trimming operation, from which a cord (5) with regular thickness is obtained, which runs along the perimeter of the insole (1) and defines a central "tub" (6);
 g) - filling of the said "tub" (6) with a layer (7) of cork or felt, in order to compensate the thickness of the said cord (5) and obtain a flat regular surface for application of the sole (8).
 h) - mounting on the last (FO) of the sole (8), whose perimeter border (8a) is first glued under the external border (4b) of the welt (G), on which it is successively sewn along the perimeter with a vertical seam (C3).
 i) - extraction of the shoe (9) from the last (FO) and final mounting operations of heel and finish.

2. Process according to the above claim **characterised in that** a heel piece (S) is applied under the plant of the last (FO) after operation b) and before operation c).

3. Process according to the above claim, **characterised in that** during operation d) the rear section (3a) of the lower borders (3) of the upper (T) is stretched, rolled up and glued under the rear border of the said heel piece (S), where it is fixed with nails (C).

4. Shoe obtained with the process according to the above claims, **characterised in that** it comprises a welt (G), whose external border (4b) is sewn with an up-down seam (C3) above the border (8a) of the sole (8), while the internal border (4a) of the welt is sewn to the upper (T) with a seam (C2) that bites the internal border (4a) of the welt (G), the lower border (3) of the upper (T) and the pre-sewn pair of borders (1 a and 2a) of the insole (1) and of the upper part (2) of the bag-shaped lining (F) that covers the upper (T) internally.

5. Shoe according to the above claim **characterised in that** on the front half of the foot the sole (8) is dominated by the insole (1) of the bag-shaped lining (F), with the interposition of a thin, light and flexible layer (7) of cork or felt.

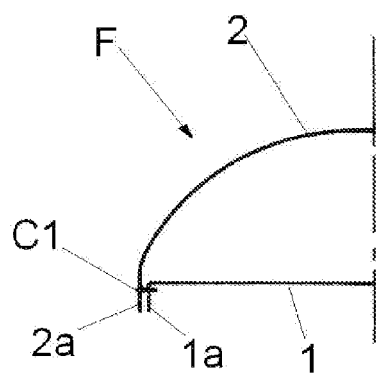


FIG. 1A

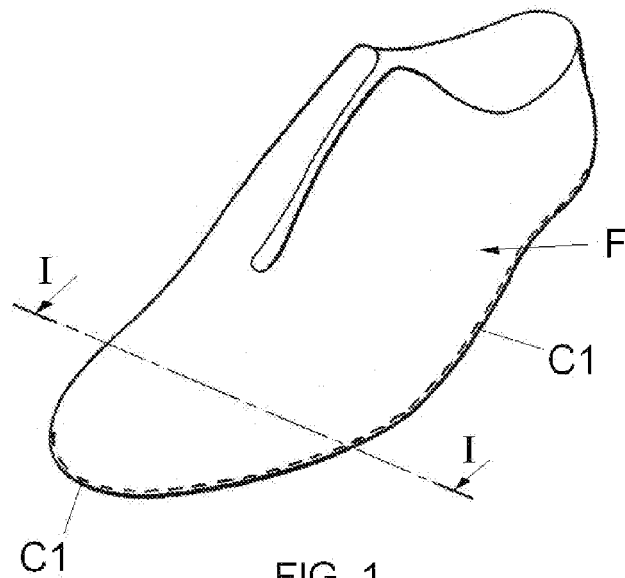


FIG. 1

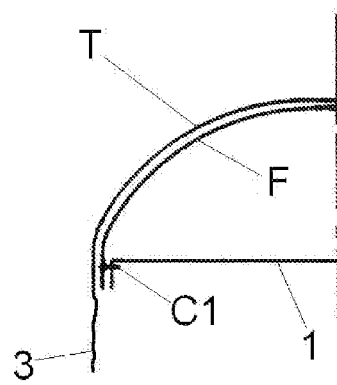


FIG. 2A

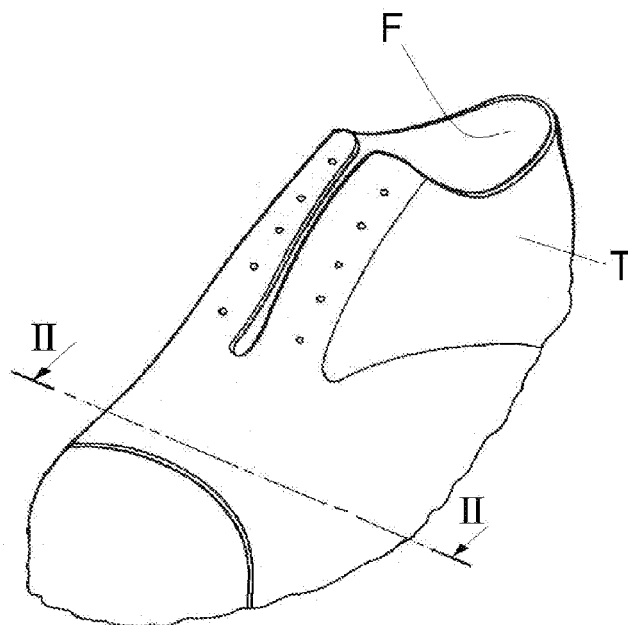
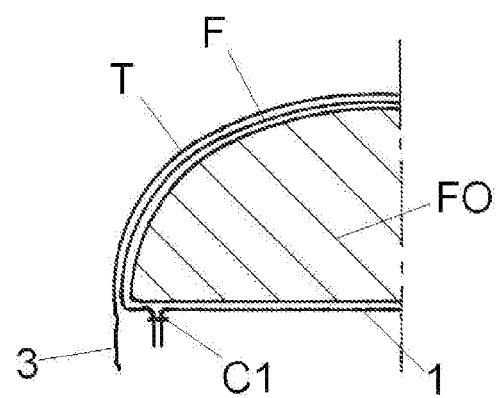
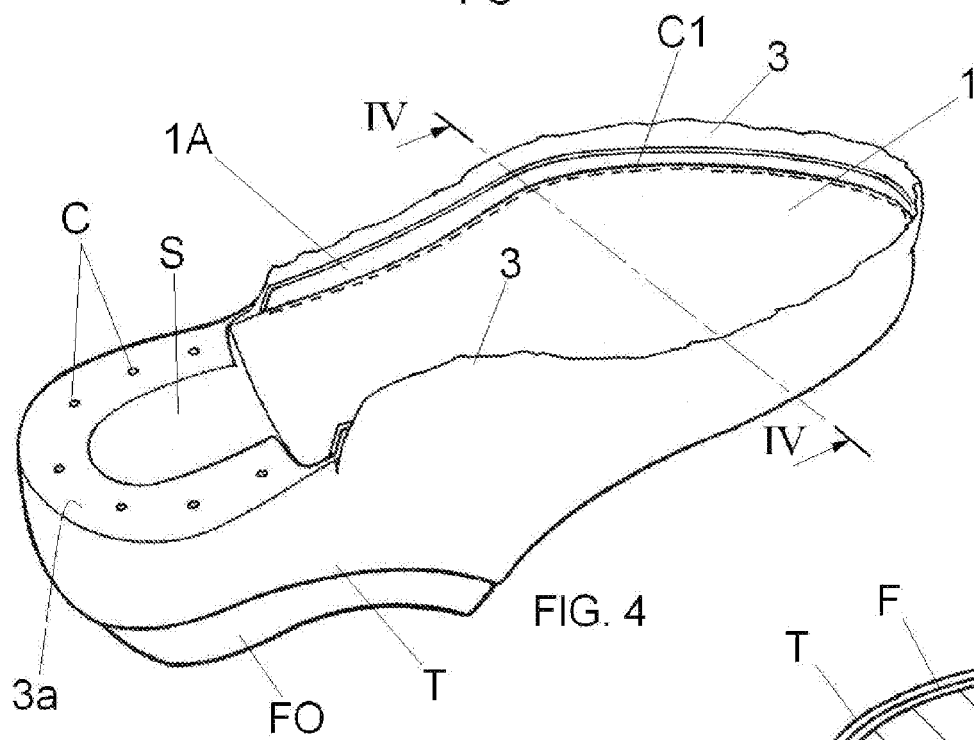
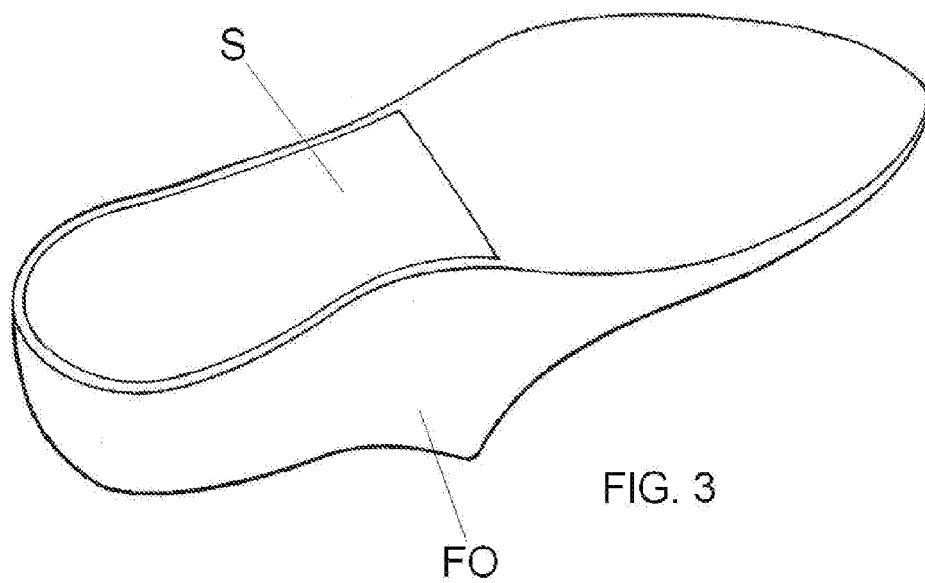
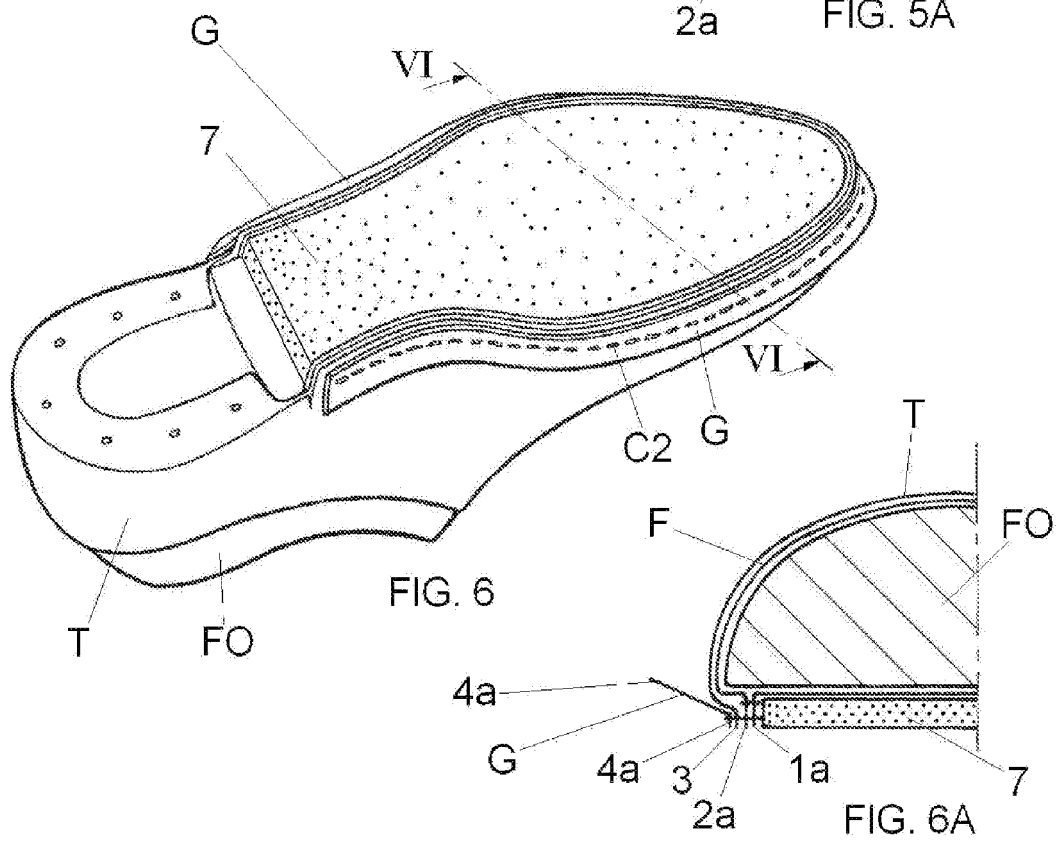
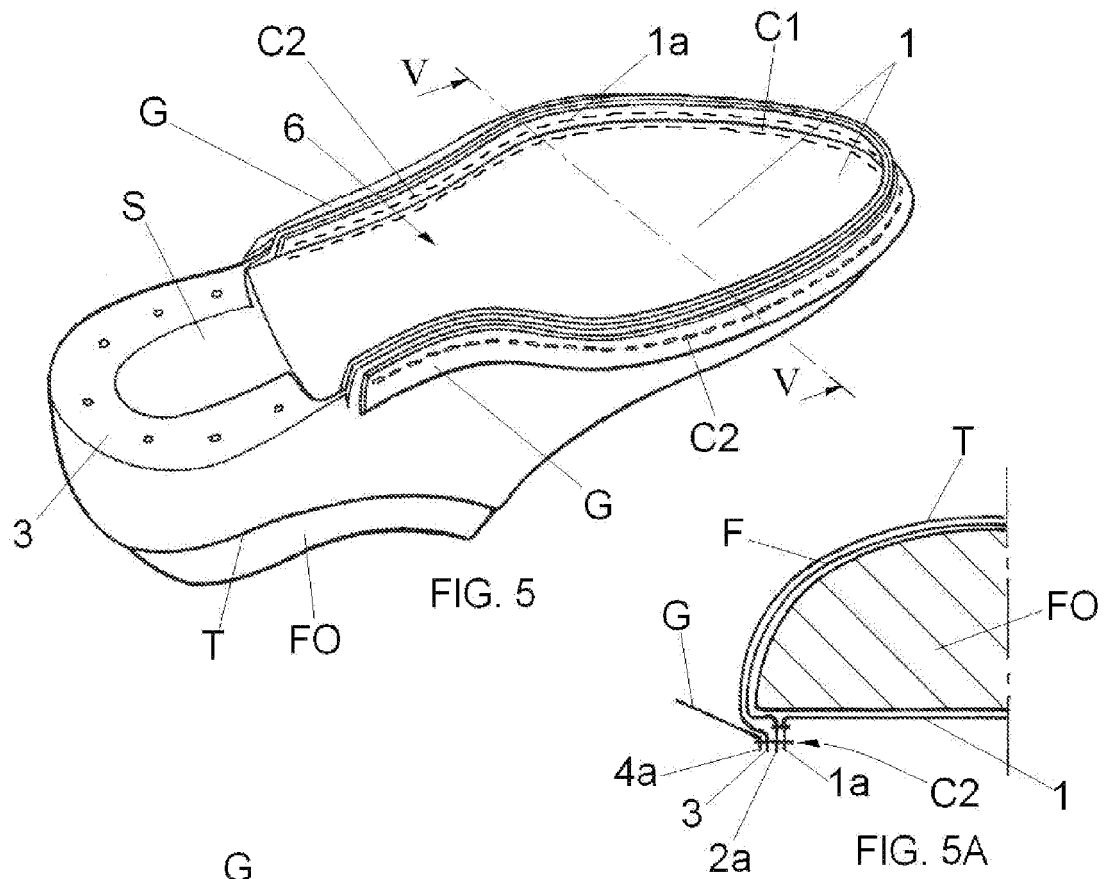


FIG. 2





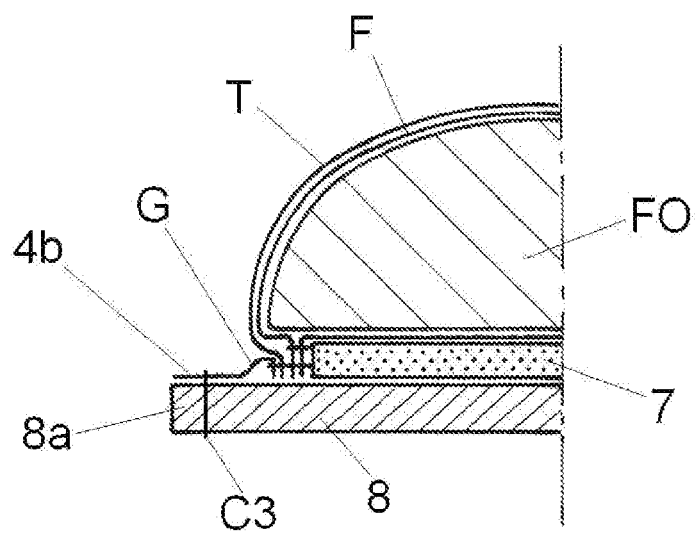
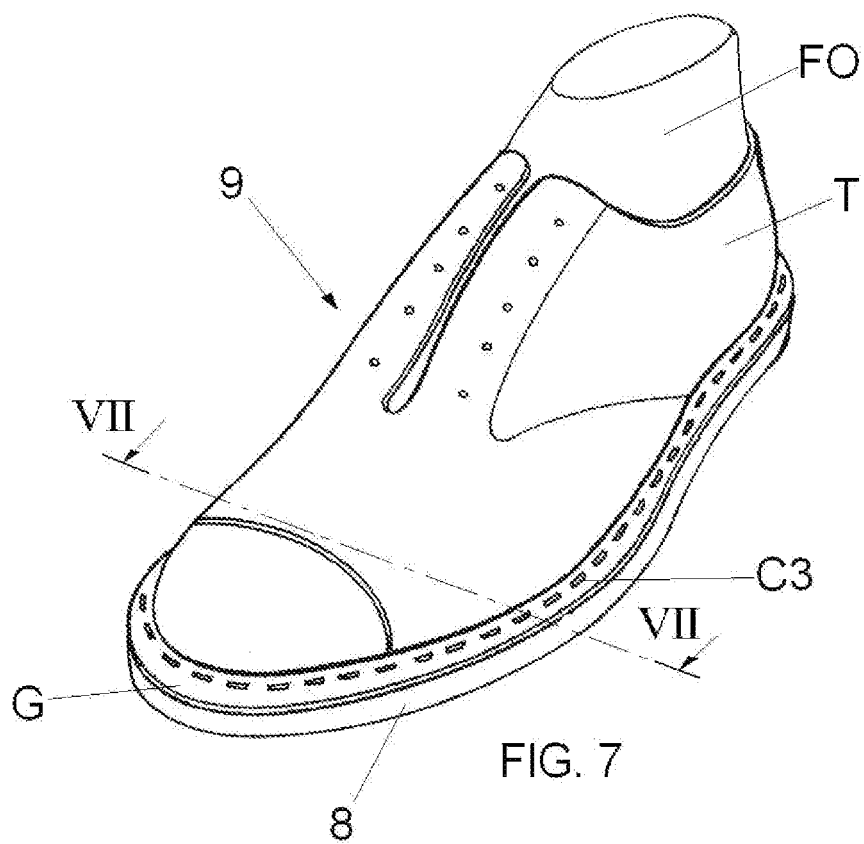


FIG. 7A

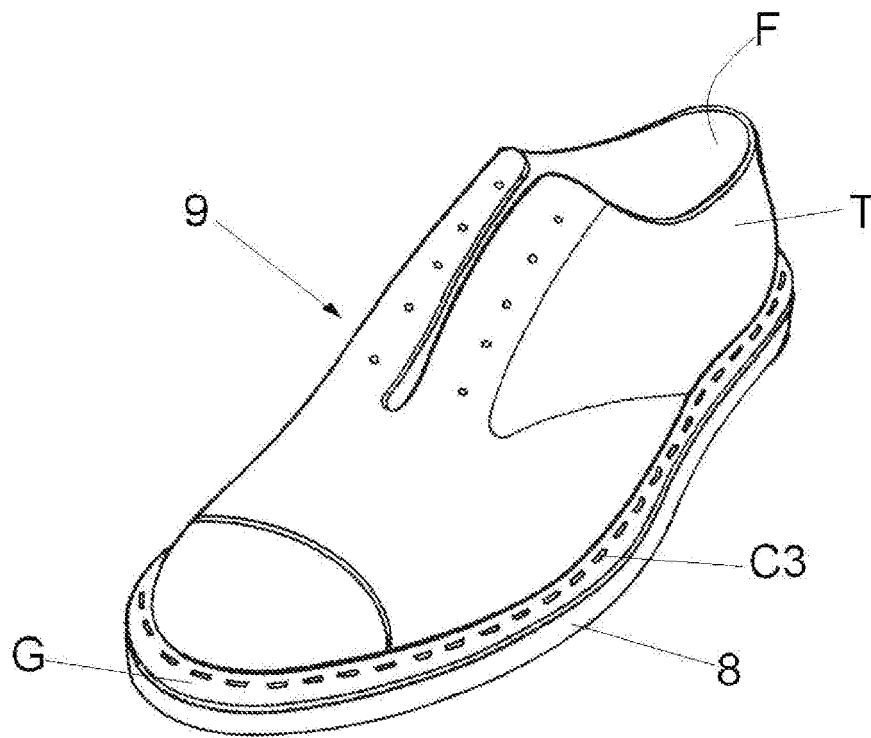


FIG. 8



EUROPEAN SEARCH REPORT

Application Number
EP 10 15 4330

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	FR 414 001 A (HOMMET EUGÈNE-HENRI-RENÉ) 24 August 1910 (1910-08-24) * page 1, column 2 - page 2, column 1; figures *	1-5	INV. A43B9/06
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A	FR 1 009 563 A (GINSBOURGER AIMÉ) 30 May 1952 (1952-05-30) * page 1; figures *	1,4	TECHNICAL FIELDS SEARCHED (IPC) A43B
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 23 June 2010	Examiner Herry, Manuel
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			

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EPO FORM 1503 03 82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 10 15 4330

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23-06-2010

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US 1687529	A	16-10-1928	NONE
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