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(54) Improvements introduced in footwear manufacturing processes

(57) The footwear manufacturing process, according to the improvements of the invention, is based on initially producing a double insole (4) and a double sole (5), each formed by separate pieces (6 - 7) and (9 - 10), secured in the first case by means of sewing and gluing, with the lower piece (7) being antibacterial and the upper piece (6), which constitutes the insole itself, being made of a material that feels soft to the foot, while the lower piece (9) of the double sole (5) has a larger outer perimeter than the upper piece (10) which is made of an elastomer material, both pieces having cuts (13 - 14), and are secured to each other and finally both sets (4) and (5) are attached to each other, to jointly receive, by means of an outer band (12) along the perimeter of the double sole (5), the side flaps (2) of the upper itself (1), followed by the definitive securing of the outsole below (3).

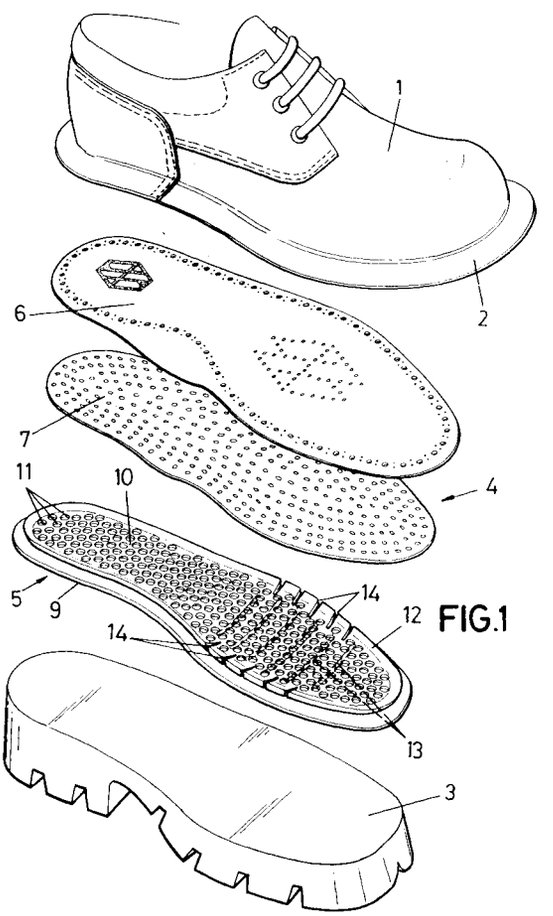

FIG.1

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Description

PURPOSE OF THE INVENTION

[0001] The invention refers to a series of improvements introduced in footwear manufacturing processes, and specifically in the way that the group of pieces forming the base are produced and secured to the corresponding upper and outsole, allowing for the most comfortable footwear possible, with an optimal appearance and, more importantly, which are very durable without taking anything away from the wearer's comfort, and also resulting in a simple, quick and economical manufacturing process.

BACKGROUND OF THE INVENTION

[0002] In footwear manufacturing processes, as far as so-called "dress shoes" are concerned, made up of a foundation based on several thin layers, an upper and the corresponding outsole, the operational phases require highly specialized personnel, precision, and high-technology machinery, as well as the time necessary to produce all the components, join them and finally produce the footwear.

[0003] One way of producing footwear of the type previously referred to consists of manufacturing what is called the "base" (foundation), made up of the lower sole, an internal insole and in between a thin layer to which the upper is precisely secured, in such a way that the middle piece or layer serving as a sole is initially made overlarge in order to, after having secured the upper on the top part, definitively secure it by sewing and gluing, with the peculiarity that the outsole is also made overlarge so that, once the upper has been secured to the thin layer which makes up the aforementioned sole, and the insole secured to it by the inner or upper part, the outsole is trimmed, which results in a waste of time and, more importantly, a finish that leaves a lot to be desired.

[0004] In addition, in footwear manufacturing processes, normally aspects such as giving the base enough flexibility so that it feels comfortable to the wearer are not taken into account, unless to the detriment of quality, thus resulting in footwear that does not last as long.

DESCRIPTION OF THE INVENTION

[0005] The improvements of the invention mean a new process of producing footwear, which eliminates the aforementioned drawbacks and in addition, produces comfortable, durable footwear, which is flexible at the same time, and therefore of the best quality, without increasing manufacturing time, nor using complex operational processes, but rather just the opposite, as the duration of the process is reduced considerably and the operational phases are simple.

[0006] More specifically, the footwear produced in accordance with the improvements, based on securing a series of pieces to each other, that will make up the base unit with the outsole and its attachment to the upper, is characterized in the first place by the fact that the insole, which must be secured to the lower piece referred to from now on as "sole" and onto which the upper is secured, is complemented by a second insole that is secured to the lower surface of the former, in other words, the insole itself, with the peculiarity that this second insole is antibacterial in nature and is attached to the main insole by means of concentric stitching around the perimeter, in order to avoid shifting during normal use of the footwear.

[0007] The sole is made up of two pieces secured to each other by an injection process, one lower and the other upper, the latter preferably of an elastomer material, of a lesser perimeter and with a raised edge which forms a hollow all along said raised perimeter, where the aforementioned double insole will be placed, with the peculiarity that the lower piece of the sole projects out around the piece of elastomer material that is attached to it by a molding process, in order to secure the upper, by means of the flap around the upper itself, to the band or edge around the perimeter, having ensured that these two pieces which have formed a single unit, in other words, the lower piece of the sole with the elastomer piece attached to its upper surface, have been cut in specific areas, the first of which is crosswise in relation to the sole of the foot in order to lend the unit efficient flexibility, while on the piece of elastomer material the cuts are made on the sides corresponding to the elevated area of the sole itself, thus giving it enough elasticity to make it comfortable and flexible while walking.

[0008] The upper is attached to the sole first of all by means of gluing it to the area of the perimeter that projects out on the lower piece of said sole, and later is secured definitively by sewing it, in such a way that the flap around the border of the upper, once it is secured, is flattened down and superposed on the lower part of the sole around the perimeter, so that this flap is between the lower part of the sole and the outsole itself, which will be attached by using glue or even by sewing.

[0009] The double insole made as described above is placed on the hollowed area of the elastomer piece of the sole, adapting to it and forming as a whole an anatomical shape for the wearer's foot; this elastomer piece has perforations to allow for efficient transpiration, and the insole may also have perforations to facilitate transpiration, while the purpose of the antibacterial insole is to provide a hygienic and therapeutic effect to the wearer's foot.

[0010] Needless to say, the upper may have any shape and design and may be made of any type of suitable material, and the same for the rest of the pieces that make up the base unit, and of course the outsole.

[0011] It should be mentioned that all the pieces are made with their specific measurements, and it is not necessary to trim them once they are assembled, as tra-

ditionally occurs, thus the footwear has an optimum finish. In other words, the double insole is produced with its exact and final dimensions by die cutting, and the same occurs with the double sole, although in this case it is achieved by means of injection molding, but always with its final dimensions so that later operational phases for finishing are avoided.

DESCRIPTION OF THE DRAWINGS

[0012] In order to complement the description that is being made and in order to aid in the understanding of the characteristics of the invention, in accordance with a preferred example for the practical execution of said invention, a set of drawings of an illustrative rather than restrictive nature is attached as an integral part of this description. The drawings show the following:

[0013] Figure 1: Shows a representation, according to an exploded view, of the different parts and pieces that are involved in the manufacture of footwear, in accordance with the improvements of the invention.

[0014] Figure 2: Shows an upper view of the unit that the two insoles make up, in other words, the antibacterial one and the insole itself, onto which the former will be secured to its underside by sewing and gluing.

[0015] Figure 3: Shows a detailed view, in perspective and with a section lifted, of the whole formed by the double sole and the double insole represented in Figures 1 and 2.

[0016] Figure 4: Shows, finally, a cross section of a part of the footwear produced in accordance with the improvements of the invention.

PREFERRED EXECUTION OF THE INVENTION

[0017] As can be seen in the aforementioned figures, the footwear that is obtained by means of the improvements of the invention is made up of an upper (vamp) (1), that is conventional and that could be made with any design or material, which is complemented by the classic side flaps (2) by means of which it is attached to the base, in such a way that in addition to the upper (1) the footwear includes the corresponding outsole (3), also conventional and which can also be of any type. A double insole (4) and a double sole (5) are also included, in such a way that the latter is superposed on the outsole (3), while the double insole (4) is superposed on the aforementioned double sole (5), with the upper (1) being secured by its lower flaps (sides) (2), specifically to the double sole (5), as will be set forth further on.

[0018] The double insole (4) is made up of a thin layer (6), preferably of leather or a soft material, as it will form the support surface for the wearer's foot; and sewed or glued to it, on its underside, a second piece (7), antibacterial in nature. Thus this double insole (4) is made up of the superposition and securing of the two pieces to each other by means of a seam (8) joining the aforementioned pieces (6) and (7), made up of the above-mentioned insole itself and the antibacterial insole.

[0019] The double sole (5) is made up of a lower piece of a suitable material, referred to in general by the number (9), on which a second piece (10) of elastomer material will be secured by an injection molding process; the latter piece has a large number of small perforations or holes (11) distributed in such a way as to allow adequate transpiration of the footwear that is produced, with the peculiarity that the lower piece (9) is of a larger perimeter than the upper piece (10), forming a band or edge which extends out along the perimeter (12) onto which the corresponding side flaps (1) of the upper will be secured, as will be set forth further on.

[0020] The aforementioned piece (9) has a series of cuts (13) on the bottom, crosswise in relation to the sole area, while the upper piece of elastomer material (10) has lateral cuts (14), also in relation to the lateral areas of the sole, with the peculiarity that said upper piece of elastomer material (10) has an anatomical shape, in other words, a hollowed, concave surface with a raised perimeter, thus adapting perfectly and appropriately to the foot; in addition, on this piece (10), specifically on the surface whose limits are marked by said raised perimeter, the double insole (4) which has been produced as specified is placed, to form from those two units, or double insole (4) and double sole (5), a single body to which the upper (1) is attached, and to which the corresponding outsole (3) will be attached.

[0021] Based on all the above, the way to carry out the process to produce footwear in accordance with the improvements of the invention, starting, as is logical, with a conventional upper (1) and an outsole (3), consists of producing a double sole (5), first making the lower piece (9) by die cutting, using its final dimensions, and securing the piece of elastomer material (10) to the former by means of injection molding, with the perimeter of this second or elastomer piece being smaller than that of sole piece (9), with the peculiarity that this piece of elastomer material (10) has the aforementioned perforations (11) and with an upturned outer edge, all of which is done at the same time as piece (10) is produced, the same as the lateral cuts (14), while the cuts (13) on the lower piece (9) are also done while it is being produced.

[0022] Once the double sole (5) is produced, as has just been set forth, and the insole of the appropriate dimensions formed by the two pieces (6) and (7) which have been superposed, and sewed and glued to each other, this double insole (4) is secured to the double sole (5), forming a single unit as was previously stated, followed by which the upper (1) is secured by means of its side flaps (2), by superposing part of it on the band (12) or edge which extends out along the perimeter of the double sole (5), with the rest of the side flaps (2) of the upper (1) later being flattened down, and placed against the lower surface of this piece (9) of the double sole, so that it can be secured by means of sewing, then finally secured by means of an adhesive or even by means of sewing to the outsole itself (3), thus producing the final

footwear product, all by means of a process in which the pieces have previously been produced with their exact measurements in order to avoid later trimming.

Claims

1. Improvements introduced in footwear manufacturing processes, that being applicable to that type of footwear which is produced by means of attaching to each other a middle unit made up of a sole and an insole, an upper secured to this middle unit and an outsole that is finally attached at a later time to the aforementioned whole, the upper being conventional both as far as its material and its design are concerned, the same as the outsole itself, are essentially characterized by the fact that both the insole (4) as well as the sole (5) are produced independently in order to later be secured to each other and then to the corresponding upper (1), and finally to secure the outsole (3) to the whole, having planned that the insole be double (4), produced by means of superposing two parts (6) and (7) and securing them by sewing and gluing. The first of these pieces is the insole itself and is made up of a material that feels soft to the foot, such as leather or similar, and the second is made up of an antibacterial insole (7), while the sole (5) is also double and is formed by two thin layers (9) and (10), the first of which is produced by die cutting, with a larger perimeter than the second piece (10) of the sole, the latter being made of an elastomer material and attached to the former during the injection process itself of said piece (10), which has perforations (11) for transpiration and lateral cuts (14) in relation to an outer raised edge along the perimeter of said piece (10), in order to lend enough elasticity to the base, in combination with some cuts made on the bottom (13) of piece (9) itself of the base unit as a whole; with the peculiarity that the band along the edge (12) which is formed by the larger perimeter of piece (9) with respect to piece (10), determines the means of placing the corresponding side and lower flap (2) of the upper (1), once the units corresponding to the double insole (4) and the double sole (5) have been attached to each other, preferably by means of an adhesive, while the upper (1) is initially attached by means of gluing its flap (2) to the band along the perimeter (12) and later by flattening down said flap (2) by means of stitching.

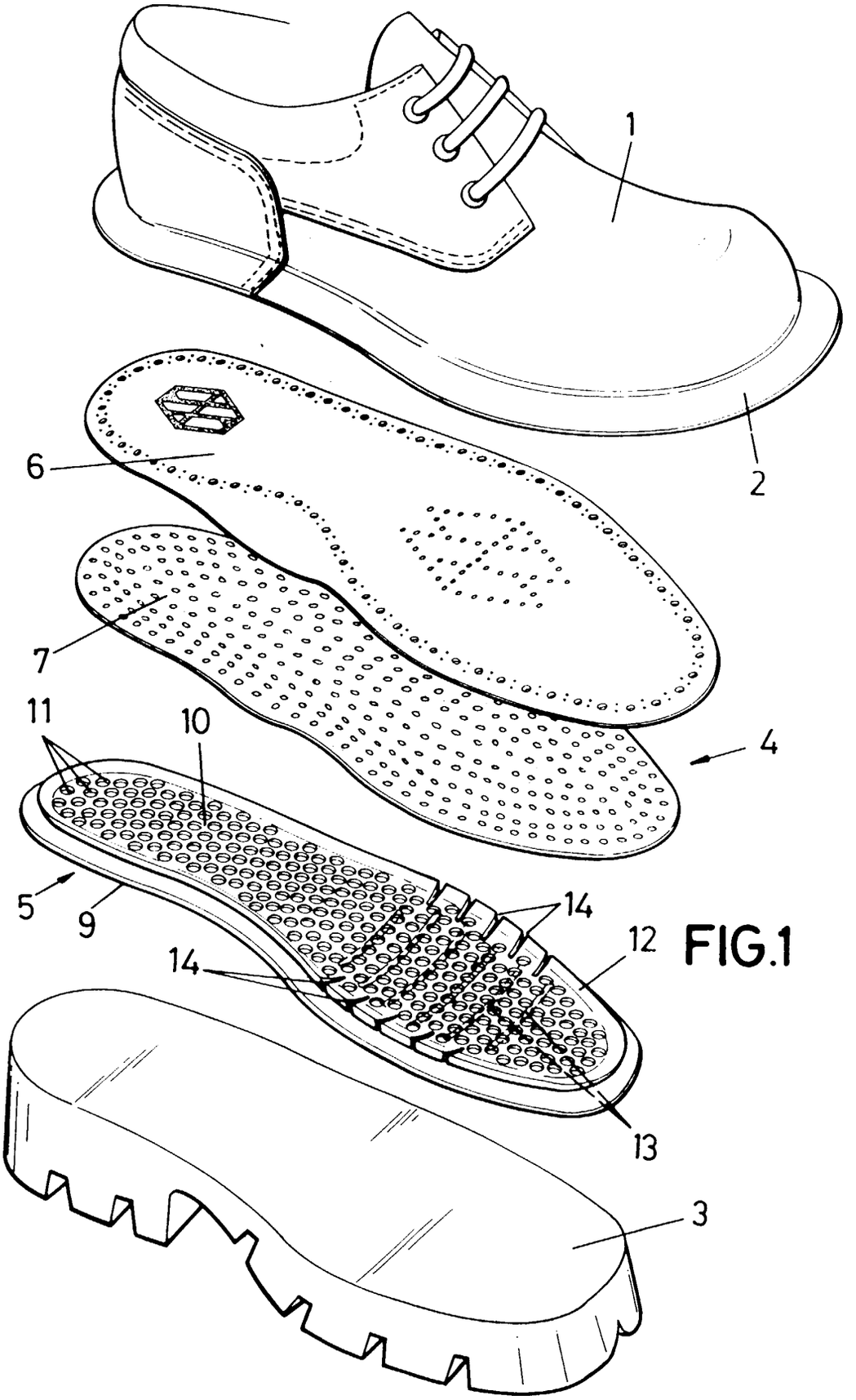

FIG.1

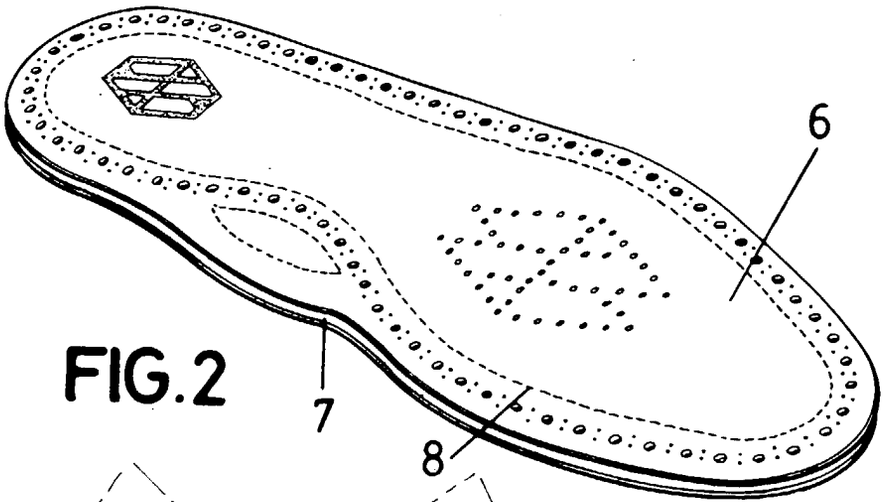

FIG.2

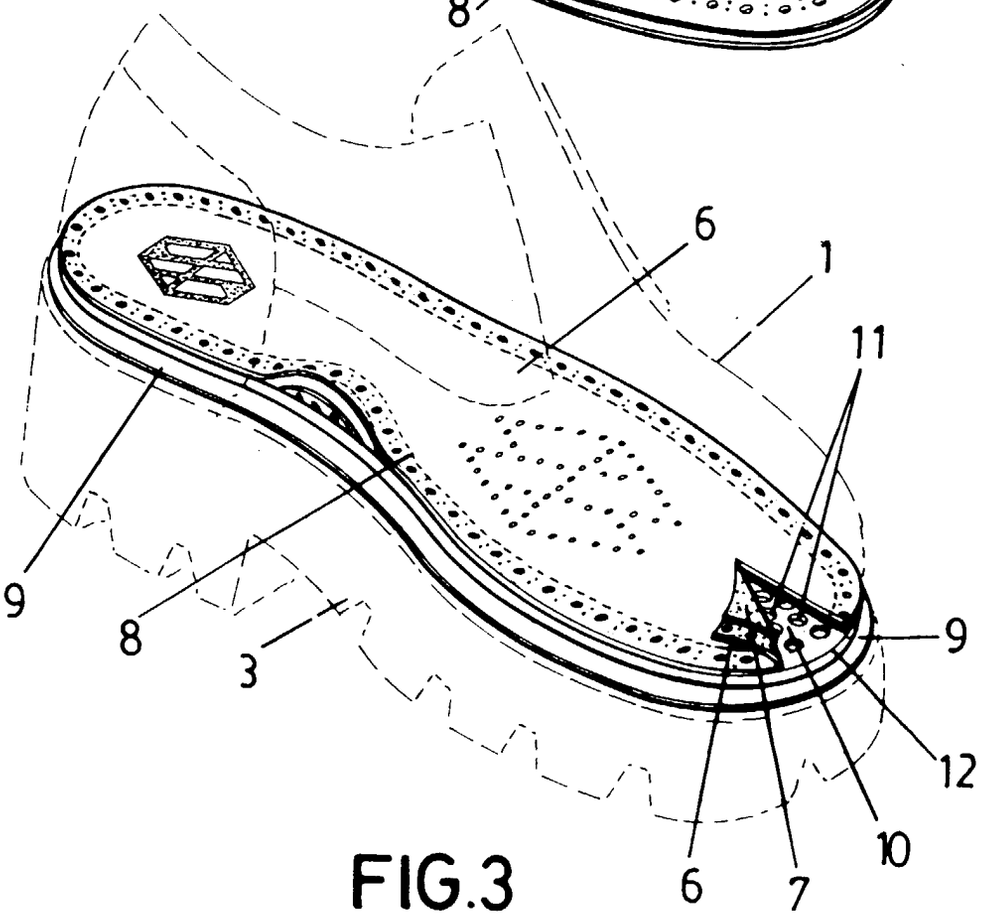

FIG.3

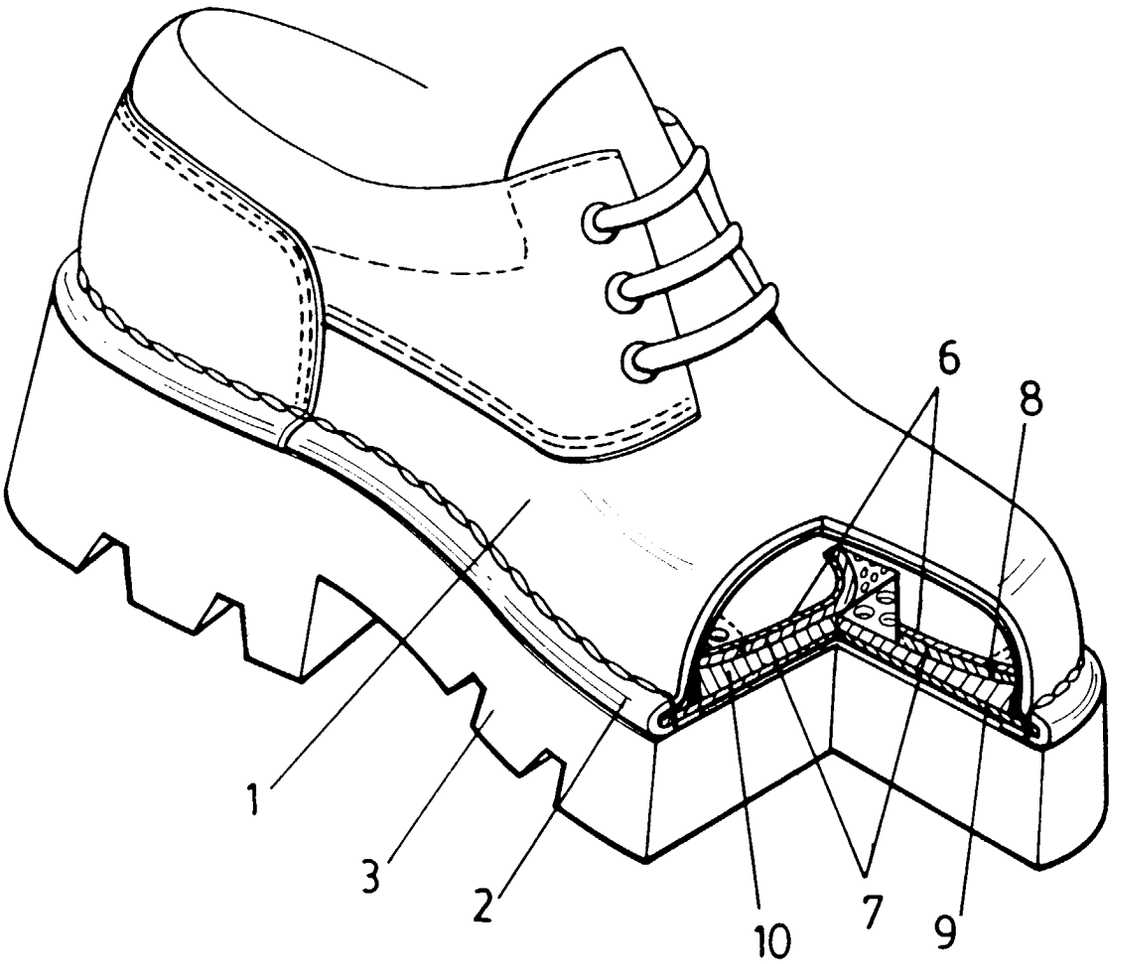

FIG.4

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 99 50 0252

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TECHNICAL FIELDS SEARCHED (Int.Cl.7)

A43B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	5 October 2000	Claudel, B

CATEGORY OF CITED DOCUMENTS

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