



(12) **EUROPEAN PATENT APPLICATION**  
published in accordance with Art. 153(4) EPC

(43) Date of publication:  
**14.06.2023 Bulletin 2023/24**

(51) International Patent Classification (IPC):  
**A43B 13/36** <sup>(2006.01)</sup>

(21) Application number: **21855670.2**

(52) Cooperative Patent Classification (CPC):  
**A43B 13/36**

(22) Date of filing: **09.08.2021**

(86) International application number:  
**PCT/ES2021/070605**

(87) International publication number:  
**WO 2022/034256 (17.02.2022 Gazette 2022/07)**

(84) Designated Contracting States:  
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR**  
Designated Extension States:  
**BA ME**  
Designated Validation States:  
**KH MA MD TN**

(71) Applicant: **Acin y Moral, S.L.**  
**28010 Madrid Madrid (ES)**

(72) Inventor: **JOVER TODOLI, Juan**  
**28010 Madrid (ES)**

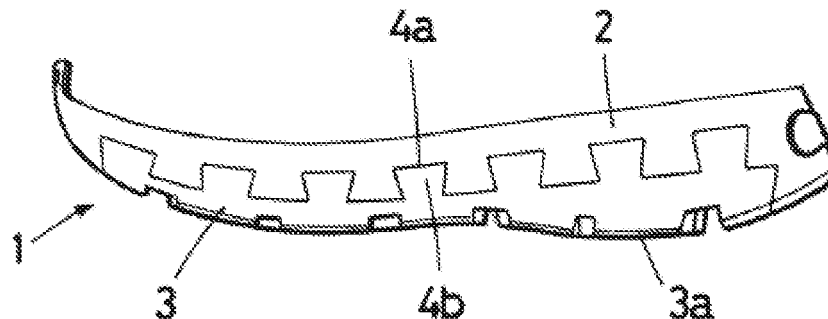
(74) Representative: **Lahidalga de Careaga, Jose Luis**  
**Arturo Soria, 262 Bajo B**  
**28033 Madrid (ES)**

(30) Priority: **10.08.2020 ES 202031799 U**

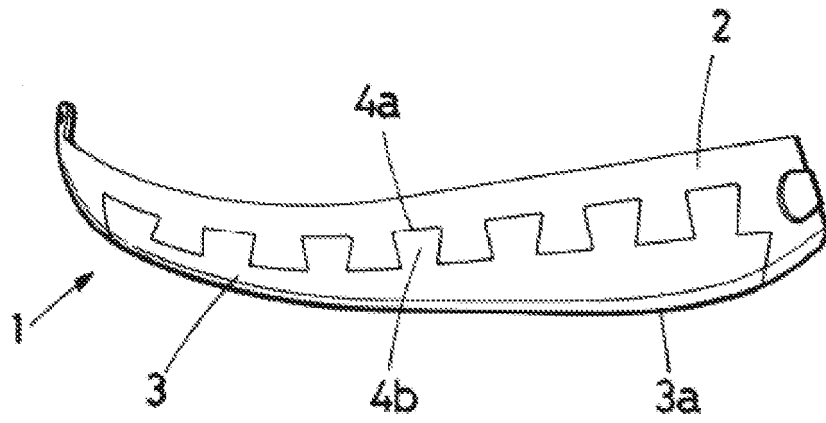
(54) **FOOTWEAR SOLE WITH INTERCHANGEABLE OUTSOLE**

(57) A footwear sole with an interchangeable outsole, where the sole is divided into at least two parts; an upper part or midsole (2) fixed to the body of the footwear, and an interchangeable lower part or outsole (3) that is removably attached to the fixed midsole by means of a mechanical dovetail attachment system (4a, 4b) of the lower side of the fixed midsole (2) to the upper side of

the interchangeable outsole, enabling the replacement of the same by another similar outsole or another different outsole, either with a different type of surface (3a), and/or a different height, and/or with a different structure and/or a different appearance, such as colour, texture and/or material.



**FIG.1-A**



**FIG.1-B**

## Description

### OBJECT OF THE INVENTION

[0001] The invention, as expressed in the present descriptive memory, refers to a shoe sole with interchangeable outsole providing, to the function for which it is intended, advantages and characteristics, which are described in detail below.

[0002] More specifically, the object of the invention is centered on a footwear sole which presents the particularity of comprising a fixed upper part and an interchangeable lower part in order to be able to change the sole thereof, either to use one type or another of surface, to modify its height, to put it new when it has worn out, to adapt it to physical needs due to problems of dysmetry or, simply, to change its appearance, being able, optionally, to further comprise an intermediate piece to increase to a greater extent the height of the sole.

### FIELD OF APPLICATION OF THE INVENTION

[0003] The field of application of the present invention is framed within the sector of the industry dedicated to the manufacture of footwear, focusing particularly on the field of soles for footwear.

### BACKGROUND OF THE INVENTION

[0004] As is well known, there are many types of footwear with different types of soles which, in turn, have different types of soles, each one being designed for one type of footwear and use or another. However, until now, the sole of the footwear is a fixed and inseparable part of the footwear itself.

[0005] Thus, for example, in the case of sports footwear, there are different types of soles with different types of sole, depending on the use or type of sport for which it is intended. For example, the sole of a running shoe designed for running has much more relief, to promote grip, than the sole of a walking shoe, which will have less relief. Similarly, the sole of a tennis shoe designed for playing tennis on clay is much smoother than the sole of a tennis shoe designed for playing quick tennis or a cement surface, which has much more relief.

[0006] On other occasions, it happens that, for daily use, a shoe with a small sole is more practical, since it is more comfortable if you have to work or walk a lot, but for going out or partying it may be more aesthetic to have a high platform sole.

[0007] In such cases, as in many others, it would be advantageous if, instead of having to have a different complete type of footwear for each type of activity, one could have a single type of footwear and could change only the sole type of sole, as desired for one occasion and another and keep the rest of the footwear unchanged.

[0008] The objective of the present invention is, there-

fore, to provide the market with a new type of sole for footwear which makes it possible to provide an answer to said problem.

[0009] On the other hand, and in reference to the current state of the art, it should be noted that, at least on the part of the applicant, it is not known of the existence of any other footwear sole with interchangeable sole, or similar invention that presents technical and structural characteristics equal or similar to those presented by the sole claimed herein.

### DESCRIPTION OF THE INVENTION

[0010] The sole of footwear with interchangeable outsole that the invention proposes, allows to satisfactorily reach the objectives previously indicated, being the characterizing details that make it possible and that distinguish it conveniently collected in the final claims that accompany the present description.

[0011] What the invention proposes, as has been pointed out above, is a footwear sole which is distinguished by being divided into two or more parts, comprising, essentially, at least an upper part which is fixed to the body of the footwear and a lower part, whose lower face determines the sole of the sole, that is, the surface which remains in contact with the ground, which is of an interchangeable character thanks to its removable coupling to the fixed part, allowing advantageously to change it for another or other different ones, with different objectives.

[0012] In particular, the fact that the lower part of the sole of the invention is interchangeable allows:

- to be able to change the type and/or structure of the sole, for example a smooth one for one with accentuated relief, to use one type or another of surface as desired for carrying out one type or another of activity,
- to change the height of the sole and, consequently, the height of the footwear, by changing a thin lower part for a thicker one or vice versa,
- to put in a new piece when the sole has been worn out by use,
- to adapt it to physical needs due to dysmetry problems,
- or to change its appearance, allowing a change of color, texture, and/or material.

[0013] For this purpose, and more specifically, the fixed upper part and the interchangeable lower part are joined together by means of a system of mechanical coupling by tongue and groove of the lower face of the fixed upper part with the upper face of the interchangeable lower part.

**[0014]** In one embodiment, said coupling system is formed by a plurality of transverse channels, and complementary projections, of dovetailed section configuration, in which, as is known to the expert, they are wider at the distal part than at the neck, so that the lower part can only be inserted laterally for its coupling to the upper part by sliding the projections of the lower part through the channels created for its fastening to the lower face of the upper part.

**[0015]** In addition, optionally, said coupling system also includes a channel, and corresponding projection, for additional coupling in the front part (toe) and in the rear part (heel) of the sole, with a circular configuration similar to a "light bulb", to give greater support to said parts, since they are the most vulnerable parts when stepping on them.

**[0016]** And, in another option of realization, said coupling system is formed by a plurality of transversal channels, and complementary projections, with a circular or "light bulb" shaped section configuration.

**[0017]** In addition, preferably, the opposite sides of each of the parts comprising the sole have a closed partition such that, once these parts are coupled, the channels and projections of the coupling system are hidden and only a straight line is visible at the junction between the two parts.

**[0018]** Likewise, in the preferred embodiment of the invention, additional outer stops are included which fit into holes located in correspondence, to ensure the coupling between both parts of the sole.

**[0019]** Finally it should be noted that, in a variant of realization, the sole further comprises, in addition, an intermediate part which likewise couples in a removable manner between the fixed upper part and the interchangeable lower part of the sole, thus making it possible to increase the height of the sole.

**[0020]** For this purpose, said intermediate part has coupling means on its upper face and on its lower face that fit complementarily with the coupling means on the lower face of the fixed upper part and with the means on the upper face of the interchangeable lower part.

## DESCRIPTION OF THE DRAWINGS

**[0021]** In order to complement the description that is being made and with the purpose of helping to a better understanding of the characteristics of the invention, the present descriptive memory is accompanied, as an integral part of the same, by a set of drawings in which the following has been represented with illustrative and not limiting character:

Figures number 1-A and 1-B.- Show two side elevation views of a first example of realization of the sole of footwear with interchangeable sole, object of the invention, specifically an example with dovetail-shaped channel-based coupling, where the interchangeable lower part is of a type with a higher relief

sole in figure 1-A and of another type with a smoother sole in figure 1-B.

Figure 2 shows a side elevation view of another example of the sole of the invention, in this case an example, also with dovetail channels as a means of coupling between the two parts of the sole and with additional coupling channels at the respective ends of the toe and heel.

Figure number 3.- Shows a perspective view of another example of the sole of the invention similar to that shown in figure 2, represented with its two parts in partially coupled position, appreciating the configuration of the same, in particular of the upper face of the interchangeable lower part.

Figure 4.- Shows an upper perspective view of another example of the fixed upper part of the sole of the invention, specifically an example with circular or bulb-shaped channels, as a means of coupling its lower face with the interchangeable lower part.

Figure 5.- Shows a side elevation view of the upper part of the sole shown in figure 4, showing the closed lateral partition of the same.

Figures 6 and 7.- Show two views, in top perspective and side elevation respectively, of an example of the interchangeable lower part of the sole of the invention, with coupling means complementary to the fixed upper shown in figures 4 and 5.

Figure number 8.- Shows a lower plan view of the fixed upper and the interchangeable lower part of the sole of the invention, according to the example of said parts shown in figures 4 to 7, represented in the initial phase of coupling.

Figure 9.- Shows a perspective view of the sole of the invention, according to the example shown in figure 8, in this case represented with the two parts comprising once completely coupled.

Figure 10.- Shows a perspective view of an example of the intermediate part that, optionally, comprises the sole of the invention, showing its configuration.

And, figure number 11.- Shows a perspective view of an example of the sole of the invention that includes an intermediate part, represented with the three parts that it comprises in coupling phase, appreciating the configuration of each one of them.

## PREFERRED EMBODIMENT OF THE INVENTION

**[0022]** In view of the aforementioned figures, and in accordance with the numbering adopted, several exam-

ples of non-limiting embodiments of the sole of the invention can be observed therein, which comprises what is indicated and described in detail below.

**[0023]** Thus, as can be seen in said figures, the sole (1) is divided into at least two parts, a fixed upper part (2), which is fixed to the body of the footwear (not shown) in a conventional manner, and an interchangeable lower part (3) which is removably coupled to the fixed part, allowing the substitution of the same for another one the same or for a different one, either with a different type of sole (3a), defined by its lower face (Figures 1-A and 1-B), and/or with a different height, and/or with a different structure to compensate for problems of dysmetry, and/or with a different appearance, such as color, texture, and/or material.

**[0024]** In any case, the fixed upper part (2) and the interchangeable lower part (3) are joined together by a system of mechanical coupling by tongue-and-groove joint (4a, 4b) of the lower face of the fixed upper part (2) with the upper face of the interchangeable lower part (3).

**[0025]** Figures 1 to 3 show how, in one embodiment, the coupling system is made up of a plurality of transverse channels (4a), and complementary projections (4b), with a dovetail section configuration, so that the interchangeable lower part (3) can only be inserted laterally for coupling to the fixed upper part (2).

**[0026]** Referring to figure 2, it can be seen how, optionally, said coupling system comprises an additional channel (4a'), and corresponding additional projection (4b'), at the front and at the rear of the sole, in this case with a circular-shaped configuration.

**[0027]** Figures 4 to 11 show how, in another embodiment, the coupling system is formed by a plurality of transversal channels (4a), and complementary projections (4b), with a circular section configuration which, likewise, means that the lower part can only be inserted laterally for coupling to the fixed upper part (2).

**[0028]** Furthermore, preferably, the opposite sides of each of the parts (2, 3) comprising the sole (1) have a closed partition (5) such that, once these parts are coupled, the channels (4a) and projections (4b) of the coupling system are concealed and only a line of connection between the two parts is visible.

**[0029]** Optionally, additional outer stops (6) are included which protrude slightly sideways and fit into corresponding holes (7).

**[0030]** Finally, referring to Figures 10 and 11, it can be seen how, in a variant of realization, the sole (1) also includes an intermediate part (8) which is removably coupled between the fixed upper part (2) and the interchangeable lower part (3) by means of the same type of tongue and groove mechanical coupling system (4a, 4b) of which it is provided on its upper face and on its lower face to engage respectively with the coupling means of the lower face of the fixed upper part (2) and with the coupling means of the upper face of the interchangeable lower part (3).

**[0031]** Thus, in the preferred embodiment, said inter-

mediate part (8) has protrusions (4b) on its upper face that fit with the channels (4a) of the lower face of the fixed upper part (2), and with channels (4a) on its lower face that fit with the protrusions (4b) of the upper face of the interchangeable part (3). Furthermore, in this case both opposite sides have closed partitions (5), one protruding on the upper side and the other on the lower side, as opposed to the partitions (5) of the fixed upper part (2) and of the interchangeable lower part (3).

**[0032]** Having sufficiently described the nature of the present invention, as well as the manner of putting it into practice, it is not considered necessary to further explain it so that any person skilled in the art may understand its scope and the advantages deriving therefrom, it being noted that, within its essentiality, it may be put into practice in other forms of realization which differ in detail from the one indicated by way of example, and to which the protection claimed will also apply provided that its fundamental principle is not altered, changed or modified.

## Claims

1. - Shoe sole with interchangeable outsole comprising:

a fixed upper part (2), which is fixed to the body of the footwear, and

an interchangeable lower part (3)

wherein the interchangeable lower part (3) is removably coupled to the fixed part by means of a tongue and a groove mechanical coupling system (4a, 4b) between the lower face of the fixed upper part (2) and the upper face of the interchangeable lower part (3), allowing the substitution of the interchangeable lower part (3) for a different one

wherein the interchangeable lower part can be of a different type of sole (3a), a sole of different height, a sole of different structure, a sole with different appearance, such as color, texture, or material.

2. - The shoe sole according to claim 1, wherein the coupling system (4a, 4b) is formed by a plurality of transverse channels (4a), and complementary projections (4b), of dovetail section configuration, so that the interchangeable lower part (3) can only be inserted laterally for its coupling to the fixed upper part (2).
3. - The shoe sole according to claim 1, wherein the coupling system (4a, 4b) comprises an additional channel (4a'), and corresponding additional projection (4b'), at the front and at the rear of the sole with a circular shaped configuration.
4. - The shoe sole according to claim 1, wherein the

coupling system (4a, 4b) is made up of a plurality of transversal channels (4a), and complementary projections (4b), with a circular section configuration which means that the lower part (3) can only be inserted laterally for its coupling to the fixed upper part (2).

5. - The shoe sole according to claim 2, wherein because the opposite sides of each of the parts (2, 3) of the sole (1) have a closed partition (5) such that, once these parts are coupled, the channels (4a) and projections (4b) of the coupling system are hidden and only a line of union between the two parts is visible.
6. - The shoe sole according to claim 2, wherein, additional external stops (6) are included which fit into holes (7) located in correspondence.
7. - The shoe sole according to claim 1, wherein it further comprises an intermediate part (8) which is removably coupled between the fixed upper part (2) and the interchangeable lower part (3).
8. - The shoe sole according to claim 7, wherein in that the intermediate part (8) is joined by means of a tongue and groove mechanical coupling system (4a, 4b) of which it is provided on its upper face and on its lower face to fit respectively with the coupling means of the lower face of the fixed upper part (2) and with the coupling means of the upper face of the interchangeable lower part (3).

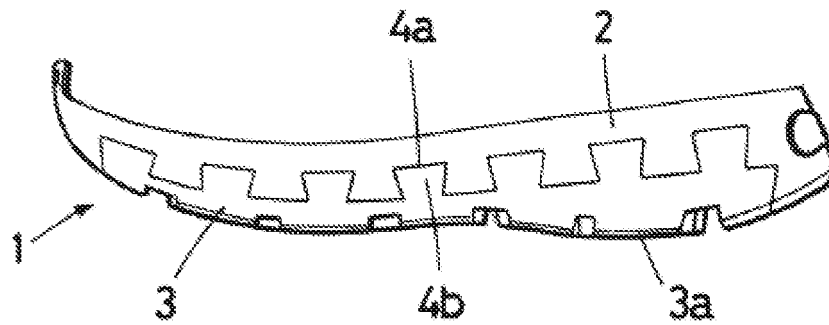
35

40

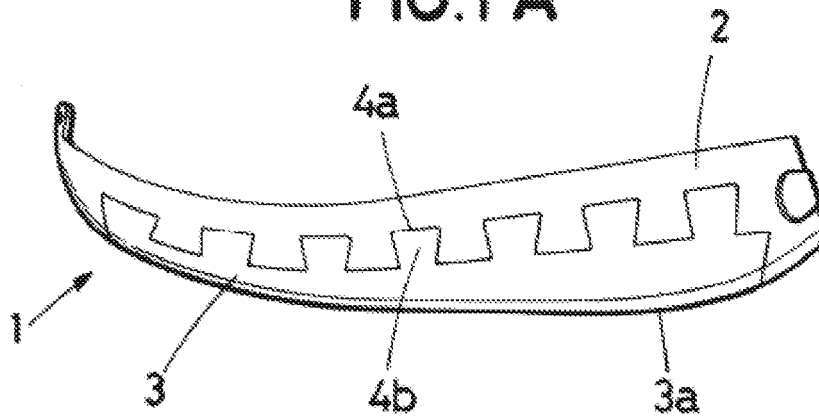
45

50

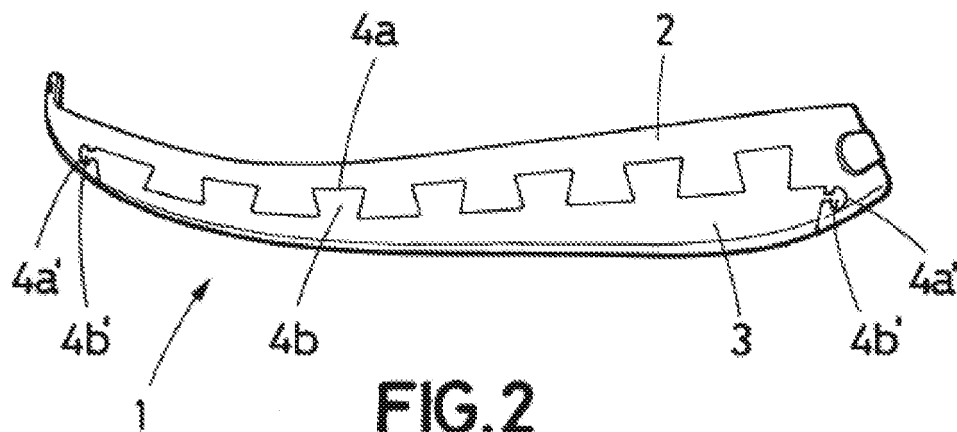
55



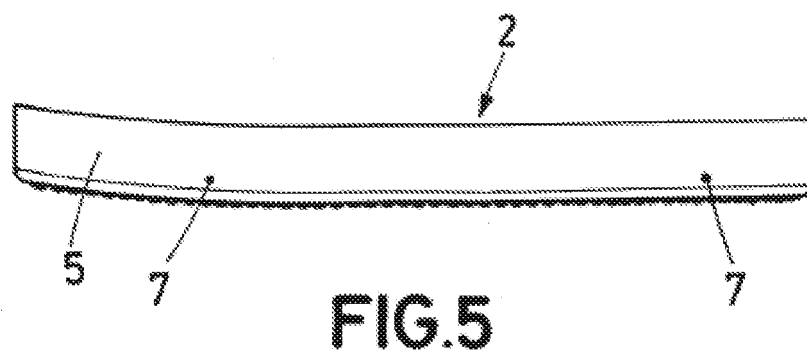
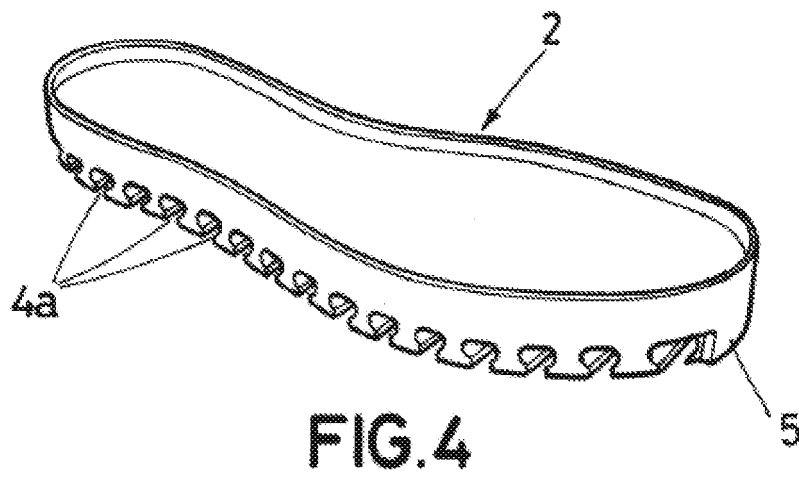
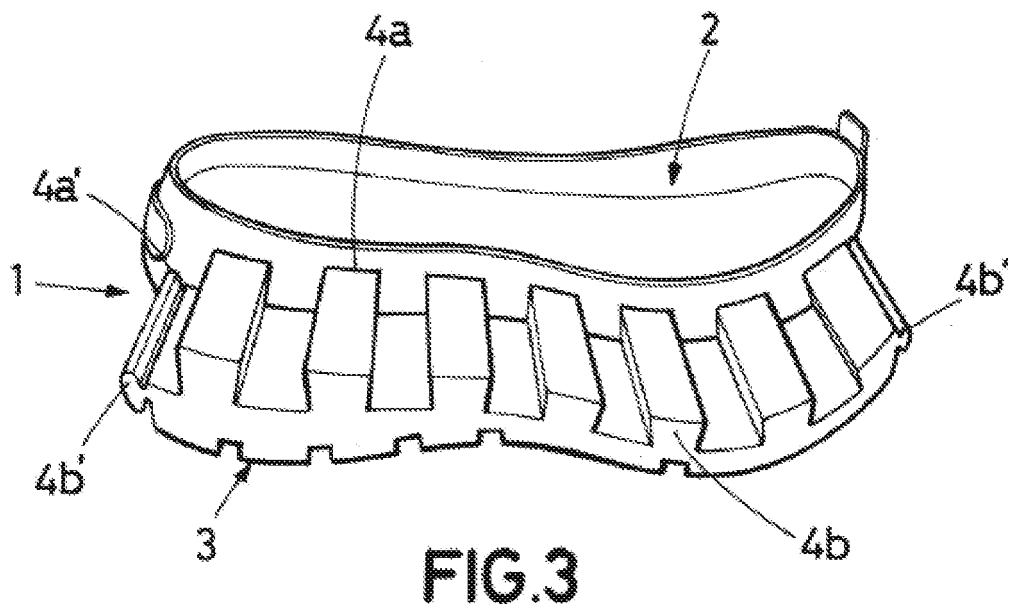
**FIG. 1-A**



**FIG. 1-B**



**FIG. 2**



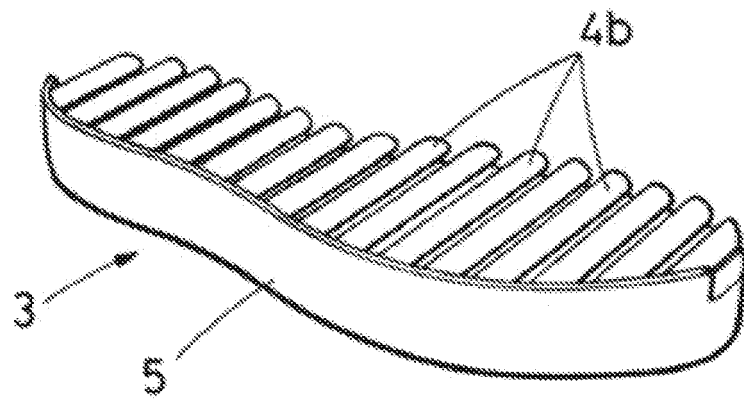


FIG. 6

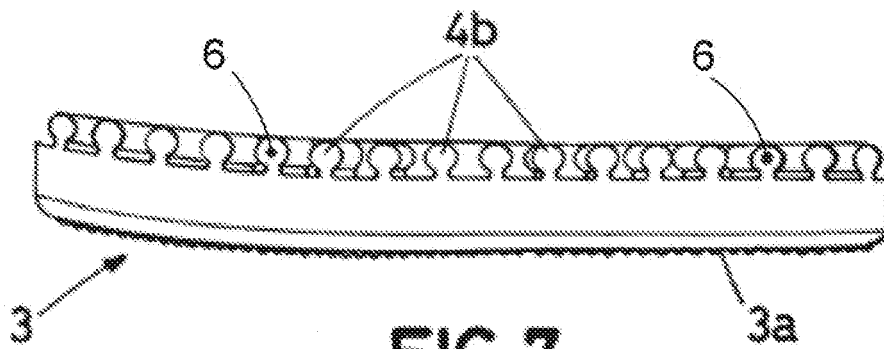


FIG. 7

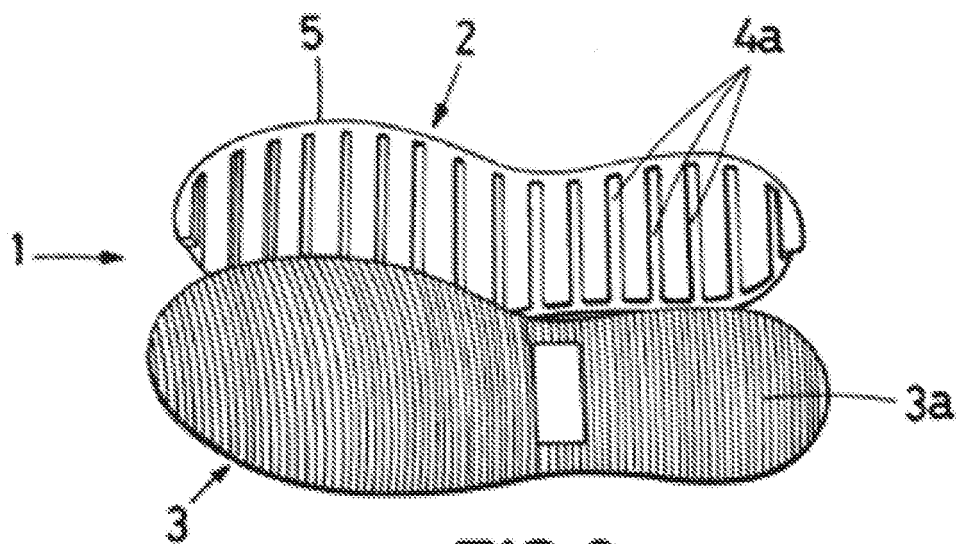
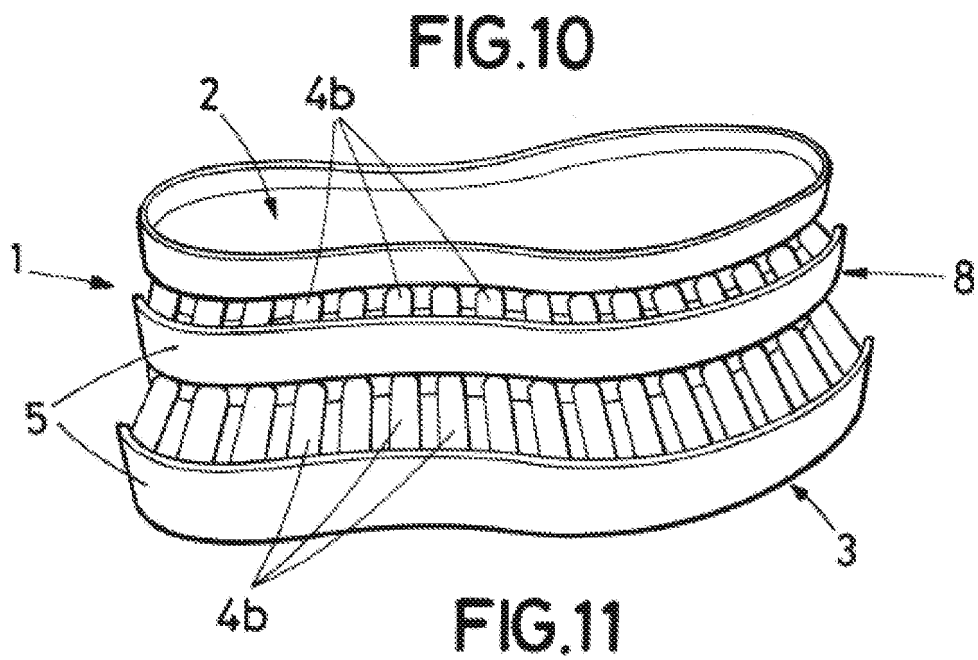
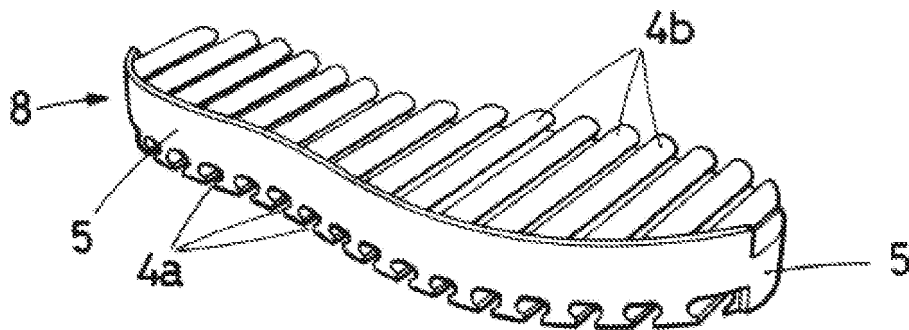
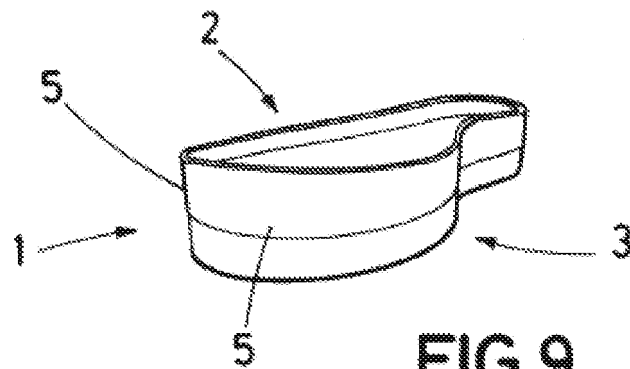


FIG. 8



## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/ES2021/070605

## A. CLASSIFICATION OF SUBJECT MATTER

**A43B13/36** (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
**A43B**

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, INVENES, WPI

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|-----------|-------------------------------------------------------------------------------------|-----------------------|
| X         | WO 2015024534 A1 (PAN WEI) 26/02/2015,<br>the whole document.                       | 1-6                   |
| X         | CN 202890698 U (ZHEJIANG AOKANG SHOES CO LTD)<br>24/04/2013,<br>the whole document. | 1-4                   |
| X         | FR 2924311 A1 (ELBAZ ANGELIQUE) 05/06/2009,<br>page 1 – page 2; figures 1-2.        | 1-2                   |
| X         | CN 209983587 U (SHANDONG ROSUN SHOES CO LTD)24/01/2020,<br>the whole document.      | 1,6                   |
| X         | CN 205456423 U (WENZHOU TEGAR SHOES CO LTD)17/08/2016,<br>the whole document.       | 1, 7-8                |

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

|                                                                                                                                                                         |                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| * Special categories of cited documents:                                                                                                                                | "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention                                         |
| "A" document defining the general state of the art which is not considered to be of particular relevance.                                                               |                                                                                                                                                                                                                                             |
| "E" earlier document but published on or after the international filing date                                                                                            |                                                                                                                                                                                                                                             |
| "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) | "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone                                                                |
| "O" document referring to an oral disclosure use, exhibition, or other means.                                                                                           | "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other documents, such combination being obvious to a person skilled in the art |
| "P" document published prior to the international filing date but later than the priority date claimed                                                                  | "&" document member of the same patent family                                                                                                                                                                                               |

Date of the actual completion of the international search  
17/11/2021

Date of mailing of the international search report  
(22/11/2021)

Name and mailing address of the ISA/

Authorized officer  
C. Marín Calvo

OFICINA ESPAÑOLA DE PATENTES Y MARCAS  
Paseo de la Castellana, 75 - 28071 Madrid (España)  
Facsimile No.: 91 349 53 04

Telephone No. 91 3495594

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES2021/070605

Information on patent family members

| Patent document cited<br>in the search report | Publication<br>date | Patent family<br>member(s)       | Publication<br>date      |
|-----------------------------------------------|---------------------|----------------------------------|--------------------------|
| CN205456423U U                                | 17.08.2016          | NONE                             |                          |
| FR2924311 A1                                  | 05.06.2009          | NONE                             |                          |
| WO2015024534 A1                               | 26.02.2015          | CN204091133U U<br>CN203762396U U | 14.01.2015<br>13.08.2014 |
| CN202890698U U                                | 24.04.2013          | NONE                             |                          |
| CN209983587U U                                | 24.01.2020          | NONE                             |                          |