

(19)



(11)

EP 3 925 475 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

22.12.2021 Bulletin 2021/51

(51) Int Cl.:

A43B 1/00 (2006.01)

A43B 1/02 (2006.01)

A43B 17/00 (2006.01)

A43B 17/02 (2006.01)

A43B 17/10 (2006.01)

(21) Application number: **21179020.9**

(22) Date of filing: **11.06.2021**

(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

• **Ines Gaspar, Rogelio**

50250 Illueca Zaragoza (ES)

• **Ines Gaspar, Cristina**

50250 Illueca Zaragoza (ES)

(72) Inventor: **INES GASPAS, Francisco Javier**

50250 ILLUECA (Zaragoza) (ES)

(74) Representative: **Ungria López, Javier**

Avda. Ramón y Cajal, 78

28043 Madrid (ES)

(30) Priority: **15.06.2020 ES 202031253 U**

(71) Applicants:

- **Ines Gaspar, Francisco Javier**
50250 Illueca Zaragoza (ES)

(54) **ECOLOGICAL REMOVABLE INSOLE FOR FOOTWEAR**

(57) The present invention relates to an ecological removable insole for footwear comprising an active layer (2) and an outer layer (3) intended to be in contact with a foot, wherein the active layer (2) comprises first holes (4) and second holes (5), with the first holes (4) intended to receive elements with the aim of aromatising or pro-

tecting the inside of the footwear from infections, and the second holes (5) intended to receive elements with the aim of absorbing moisture, the outer layer (3) being made of a breathable and absorbent material, such that it enables the transfer of the aroma and the moisture with the active layer (2).

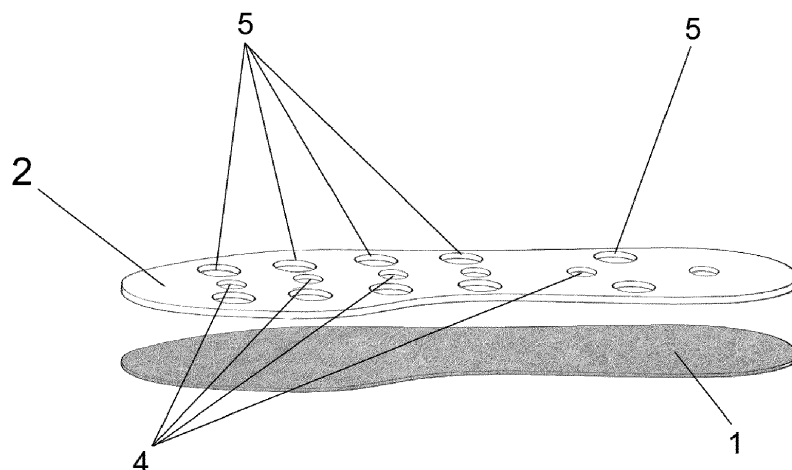


FIG.2

EP 3 925 475 A1

Description

OBJECT OF THE INVENTION

[0001] The present invention relates to a removable insole for footwear which incorporates the possibility of housing absorbent, deodorant, aromatic, antibacterial and fungicidal products, in short, products which can generate benefits for the health of the foot, including corns and calluses in this field.

[0002] The invention has a special application in the field of the industry of insoles for footwear, specifically ecological removable insoles.

TECHNICAL PROBLEM TO BE RESOLVED AND BACKGROUND OF THE INVENTION

[0003] At present there are different types of insoles for footwear on the market which are called ecological due to the materials from which they are made and among which mixtures of natural fibres made of elements such as, for example, cotton, corn or kenaf are used. These fibres provide high comfort and breathability, while acting as a natural bactericide.

[0004] However, insoles with the ability to remove moisture from the inside of footwear while also providing other benefits for the health of the foot, which can include generating an aroma to eliminate the bad smell or protecting against infections by providing some kind of fungicidal or antibacterial element, are not known in the sector.

[0005] The present invention describes an insole which combines these two options in an ecological and natural manner.

DESCRIPTION OF THE INVENTION

[0006] In order to achieve the objectives and avoid the drawbacks mentioned above, the present invention describes a removable footwear insole comprising an active layer and an outer layer, intended to be in contact with a foot.

[0007] The active layer comprises first holes, intended to receive elements with the aim of aromatising or protecting the inside of the footwear, such as extracts of aromatic, fungicidal or antibacterial plants, in the form of capsules, powder or any other form, and second holes, intended to receive elements with the aim of absorbing the moisture generated inside the footwear, such as rice, in the form of grains or powder or, less preferably, chemical products such as talc, boric acid, bicarbonate, or the like.

[0008] Moreover, the outer layer is made of a breathable and absorbent material, such that it enables the transfer of the aroma or of antibacterial or fungicidal elements and the moisture with the active layer.

[0009] The holes can be blind holes, in the shape of cavities, for retaining the elements that they receive, or

they can also be through holes, for which the insole incorporates an inner layer, intended to be in contact with the inner base of the footwear and thus retain the elements of the holes. This inner layer is preferably made of natural fibres, moreover, of a highly breathable and not very dense material, for which reason it is accompanied by an additional layer which prevents aromatic or moisture-absorbent elements from escaping if they are in the form of powder.

[0010] Furthermore, the holes can have a geometry which can be circular, polygonal or sinusoidal, without all of them having to have the same geometry, such that they can cover as much of the surface of the insole as possible. With this objective, there can also be an indeterminate number.

[0011] One manner of placement is with the first holes located in a central area of the active layer and the second holes located flanking the first holes.

BRIEF DESCRIPTION OF THE FIGURES

[0012] To complete the description of the invention, and for the purpose of helping to make the features thereof more readily understandable, according to a preferred exemplary embodiment thereof, a set of drawings is included wherein, by way of illustration and not limitation, the following figures have been represented:

- Figure 1 represents a plan view of the inner layer of the insole, made of an ecological fibre.
- Figure 2 represents an exploded perspective view of the insole of the invention with the inner layer made of ecological fibres and the active layer with the holes.
- Figure 3 represents an exploded perspective view of the insole of the invention with the three-layer embodiment, inner layer made of ecological fibres, active layer with the holes and outer layer made of breathable fabric and outer layer.

[0013] A list of the references used in the figures is provided below:

1. Inner layer.
2. Active layer.
3. Outer layer.
4. First holes.
5. Second holes.

DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

[0014] The present invention consists of a removable insole for footwear. The insole is ecological and has an inner layer (1) which is made with natural fibres, preferably coconut fibre, although they can be ecological fibres of another type. This inner layer (1) is the one which is in contact with the base of the shoe.

[0015] The insole also incorporates an active layer (2), made of felt with a composition of 50% flax and 50% hemp, which is conveniently equipped with first holes (4) and second holes (5) for incorporating elements intended to aromatise and absorb moisture inside the footwear, respectively.

[0016] The first holes (4) are intended to receive extracts of aromatic plants which will give off aromas, weakening as time passes. The extracts of aromatic plants can be in the form of capsules or powder. These plants have deodorising and aromatising properties such that they not only neutralise the smell inside the shoe, but they also provide a more pleasant aroma.

[0017] The second holes (5) are intended to absorb moisture and to do so they are filled with rice in grains or in powder.

[0018] One manner of distributing the holes (4, 5) consists of locating the first holes (4) in a central area longitudinally along the active layer (2). The second holes (5) are located flanking the central area.

[0019] It must be taken into account that the holes (4, 5) are through holes, for which reason the inner layer (1), made of coconut fibre or similar, is not very dense, and for which reason it is accompanied by an additional layer made of a lightweight material, such as a fine cotton fabric, which prevents aromatic or moisture-absorbent elements from escaping if they are in the form of powder.

[0020] On the active layer (2), covering the holes (4, 5), is an outer layer (3), formed by a breathable and absorbent fabric which enables both the outlet of aromas and the passage of moisture with respect to the active layer.

[0021] In any case, it must be clarified that the fact that the outer layer (3) is breathable and absorbent does not mean that the others are not. This is only a manner of emphasising that the outer layer (3), which is ultimately the one which acts as an intermediary between the active layer (2) and the user's foot, must be so.

[0022] In an alternative embodiment of the insole of the invention, the inner layer (1) is removed, leaving the insole only formed by an active layer (2) and an outer layer (3). To do so, the holes (4, 5) are not through holes, but rather blind holes, having the shape of cavities, like depressions formed by means of applying a suitable pressure on the active layer (2) without piercing it. The cavities created are large enough to house both the capsules of aromatic plant extract and the grains of rice.

[0023] The shape of both the holes (4, 5) and the cavities is generic, being able to be circular, rectangular, triangular, sinusoidal, without all of them having to have the same geometry and having, preferably, a combination of the different geometries, such that the space of the insole is used as much as possible. Likewise, the number of holes (4, 5) can be any number with the requirement that the active layer (2) remains sufficiently rigid so as not to break with the movement inherent to walking.

[0024] Lastly, it must be considered that the present

invention must not be limited by the embodiment described herein. Other configurations may be carried out by those skilled in the art based on the present description. Accordingly, the scope of the invention is defined by the following claims.

Claims

1. An ecological removable insole for footwear **characterised in that** it comprises an active layer (2) and an outer layer (3), intended to be in contact with a foot, wherein:
 - the active layer comprises:
 - first holes (4), intended to receive elements with the aim of aromatising or protecting the inside of the footwear from infections, and
 - second holes (5), intended to receive elements with the aim of absorbing moisture;
 - the outer layer (3) is made of a breathable and absorbent material, such that it enables the transfer of the aroma and the moisture with the active layer (2).
2. The ecological removable insole for footwear, according to claim 1, **characterised in that** the elements intended to fill the first holes (4) are extracts of aromatic, antibacterial or fungicidal plants and the element intended to fill the second holes (4) is rice.
3. The ecological removable insole for footwear, according to claim 1, **characterised in that** the active layer (2) is formed by a mixture of flax and hemp.
4. The ecological removable insole for footwear, according to claim 1, **characterised in that** the active layer (2) is breathable and absorbent.
5. The ecological removable insole for footwear, according to claim 2, **characterised in that** the extracts of aromatic plants are incorporated in a form to be selected from capsules and powder and the rice is incorporated in a form to be selected from grains and powder.
6. The ecological removable insole for footwear, according to claim 1, **characterised in that** the holes (4, 5) are blind holes, for retaining the elements that they receive.
7. The ecological removable insole for footwear, according to claim 1, **characterised in that** the holes (4, 5) are through holes, for which reason the insole incorporates an inner layer (1), intended to be in contact with the inner base of the footwear.

8. The ecological removable insole for footwear, according to claim 7, **characterised in that** it incorporates an additional layer of a breathable and absorbent material between the inner layer (1) and the active layer (2) for retaining the elements that it receives when they are in the form of powder. 5
9. The ecological removable insole for footwear, according to claim 7, **characterised in that** the inner layer (1) is breathable and absorbent. 10
10. The ecological removable insole for footwear, according to claim 6 or 7, **characterised in that** the holes (4, 5) have a geometry to be selected from circular, polygonal and sinusoidal. 15
11. The ecological removable insole for footwear, according to claim 6 or 7, **characterised in that** the first holes (4) are located in a central area of the active layer (2) and the second holes (5) are located flanking the first holes (4). 20

25

30

35

40

45

50

55

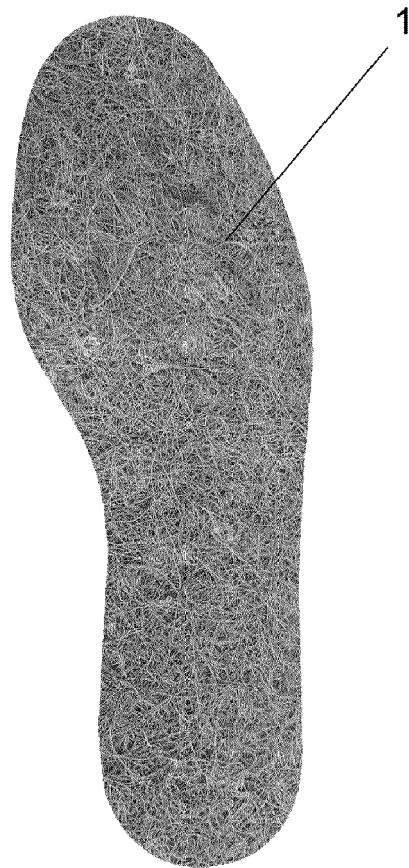


FIG.1

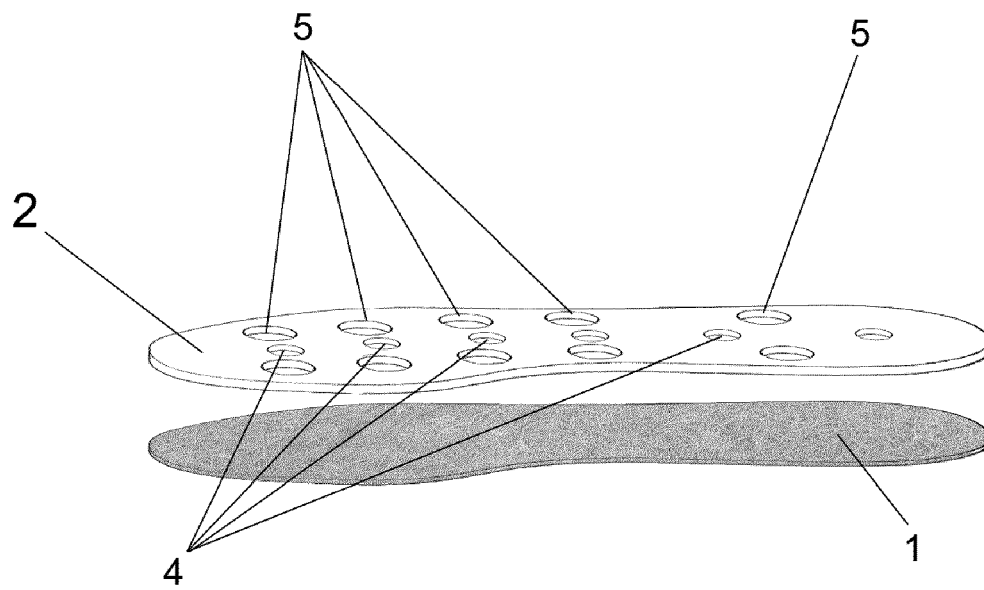


FIG.2

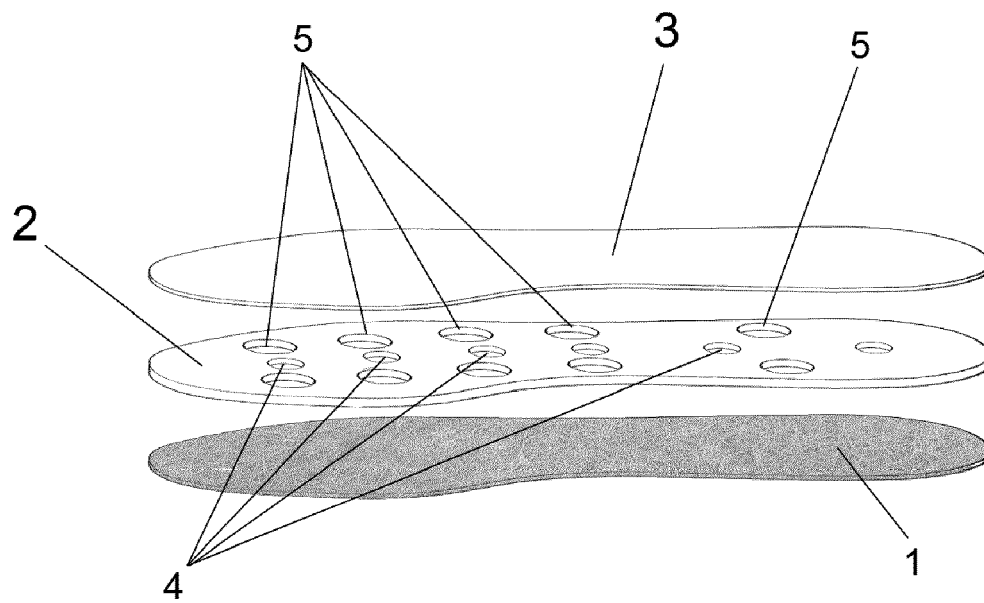


FIG.3



EUROPEAN SEARCH REPORT

Application Number
EP 21 17 9020

5

10

15

20

25

30

35

40

45

50

55

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	CN 110 934 380 A (ZHEJIANG SHOEMAKER FOOTWEAR IND CO LTD) 31 March 2020 (2020-03-31) * figures *	1,7,10,11	INV. A43B1/00 A43B1/02 A43B17/00 A43B17/02 A43B17/10
Y		3	
A		2,4-6,8,9	
X	WO 93/06757 A1 (ADVANCED POLYMER SYSTEMS INC [US]) 15 April 1993 (1993-04-15) * figures *	1	
Y	WO 01/28377 A1 (BONTEX INC [US]) 26 April 2001 (2001-04-26) * figures *	3	
A	KR 101 681 510 B1 (SUNG JIN TF & INSOLE [KR]) 2 December 2016 (2016-12-02) * paragraph [0028] *	1-11	
			TECHNICAL FIELDS SEARCHED (IPC)
			A43B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 25 October 2021	Examiner Gkionaki, Angeliki
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 03.02 (P04C01)

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

EP 21 17 9020

5

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

25-10-2021

10

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CN 110934380 A	31-03-2020	NONE	
WO 9306757 A1	15-04-1993	AU 2789792 A US 5261169 A WO 9306757 A1	03-05-1993 16-11-1993 15-04-1993
WO 0128377 A1	26-04-2001	AU 2116601 A WO 0128377 A1	30-04-2001 26-04-2001
KR 101681510 B1	02-12-2016	NONE	

15

20

25

30

35

40

45

50

55

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82