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## (54) Foot support or insole able to generate a localized pressure at precise points of the sole of the foot, to hence create a massage on those points

(57) A foot support or insole (1) to be used in a shoe or in a sock, for an adult or child, said insole presenting a layered formation comprising at least one yieldable intermediate layer (5). On the upper layer (3) a plurality of projections (15, 17) are present, arranged to lie in correspondence with predefined regions of the sole of the foot to hence generate a localized pressure on them, said regions corresponding at least to the medial zone and to the central part of the sole of the foot and corresponding to those reflex zones of the foot defined in reflexology methodology.

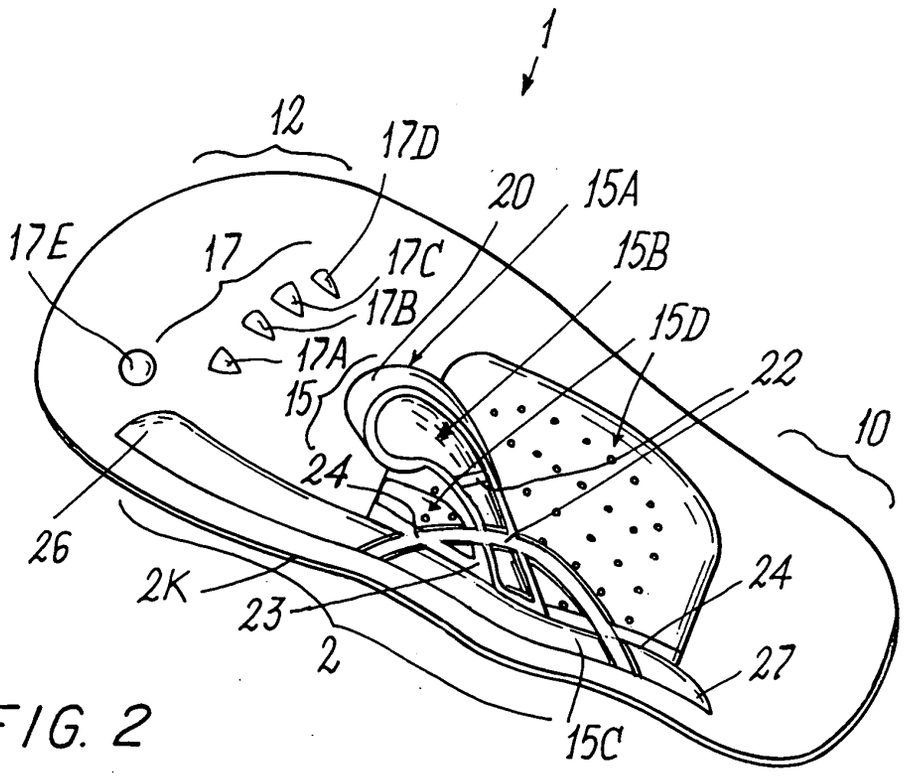


FIG. 2

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## Description

**[0001]** The present invention relates to a foot support or insole in accordance with the introduction to the main claim.

**[0002]** According to reflexology methodology, the feet and in particular the soles of the foot are known to present zones, known as reflex zones, corresponding to predefined zones of the body and to internal organs of this latter. Stimulating these zones by localized pressure and massage leads to demonstrated effects on the functionality and/or development of the corresponding zones of the body or of the internal organs thereof.

**[0003]** Likewise, insoles for insertion into a shoe or sock are known, mainly to give the user wearing such shoes or socks a particular comfort during user movement. These insoles generally present a layered structure in which at least a surface layer is yieldable under the weight of the user.

**[0004]** An object of the present invention is to provide an insole to be associated with a shoe or a sock which enables the reflex zones of the foot to be stimulated in accordance with reflexology techniques, while providing high comfort to the user wearing the shoe or sock.

**[0005]** Another object is to provide an insole of the stated type which is easy to use and to insert into the shoe if the insole is not integral therewith.

**[0006]** These and other objects which will be apparent to the expert of the art are attained by an insole in accordance with the accompanying claims.

**[0007]** The present invention will be more apparent from the accompanying drawing, which is provided by way of non-limiting example and in which:

Figure 1 is a view of an insole of the invention seen from above;
Figure 2 is a perspective view of the insole of Figure 1;
Figure 3 is a section through that part of the insole of Figure 1 indicated by A; and
Figure 4 shows a variant of the insole of Figure 1.

**[0008]** With reference to said figures, an insole is indicated overall by 1 and comprises a layered body 2 presenting a plurality of layers 3, 4, 5 and 6. Specifically, in the embodiment of the figures, the body 2 comprises (from top to bottom) an upper layer 3 for example of hide, a first internal layer 4 of activated carbon, a second internal layer 5 defined by a mesh containing air, and a lower layer 6 of non-woven fabric. By virtue of its formation, the insole can retain air within its body 2 to create a pressure which forces the air out through a front region of the insole.

**[0009]** The body 2 can also be divided into three "macrozones": a completely flat heel zone 10, a medial zone 11 in correspondence with the plantar arch of the user's foot, and a metatarsal or front zone 12 in correspondence with the toes of the foot.

**[0010]** The flat heel zone 10 enables the heel of the user's foot to completely adhere to it; in the medial zone 11, a plurality of yieldable soft projecting elements 15 are present on which the plantar arch of the user's foot rests. By virtue of this medial zone formation, the heel completely relaxes on the flat zone 10 to enable the Achilles heel of the user to lengthen and stretch. This can lead to benefits in that, according to reflexology, stretching the Achilles tendons enables the gemellus muscles to stretch, with activation of a sort of physiological circulation pump at the level of the upper limbs.

**[0011]** The heel zone 10 defines a neutral zone of the insole 1, whereas the medial zone 11 defines an active zone from the reflexology treatment viewpoint, in that the plantar arch of the user's foot rests on a soft cushioned zone shaped to generate micromassage on said arch.

**[0012]** By virtue of the projecting shape of the elements 15, there is also a movement effect on the inevitable perspiration generated in correspondence with the arch of the foot, urging it towards the front part and heel part of the foot. If the insole is associated with an open shoe, such as a sandal, or one which allows transpiration through its vamp or sole, this movement effect on the perspiration enables this latter to reach the end parts of the shoe, enabling the perspiration to vaporize outwards from the shoe or from the foot arch.

**[0013]** In the front metatarsal zone 12 of the insole 1 further projections 17 are present, preferably in the form of droplets, able to lie between the toes of the user's foot. These projections 17 provide a sort of proprioceptive gymnastic effect, i.e. relative to the proprioceptors or receptors sensitive to stimuli located in the muscles, in the tendons or in the articulations, of known function. The metatarsal zone 12 defines a reflexologically passive zone.

**[0014]** The different massage effects occur by virtue of the mesh defining the internal layer 5 of the insole. In this respect, the insole retains, mainly within said layer but also in the activated carbon layer 4 above it, air which during the movement of the user is forced out into the metatarsal zone 12 or passive zone. In the active zone or medial zone 11, the air contained mainly within the layer 5 is subjected to pressure generated mechanically by the weight of the user when assuming a vertical posture while walking. This pressure and possible movement of said air (when the user moves) generates the massage effect on the user's plantar arch, with positive reflexological effects.

**[0015]** The aforesaid massage takes place mainly within the medial zone 11. With reference to plantar reflexology, reflex zones having a precise connection with internal organs of the. human body can be identified in the sole of the foot. In particular, reflex zones of the hypophysis, of the lymphatic system, of the solar plexus, of the kidney-ureter-bladder group, of the organs of the digestive system and of the vertebral column can be identified. These organs are of primary importance in a

child, in particular in a child between two and nine years old. The projecting elements 15 of the medial (active) zone and the projections 17 of the front (passive) zone 12 are present within these zones.

**[0016]** These latter comprise four pieces 17A, 17B, 17C and 17D positioned in correspondence with those foot regions lying between its toes and at their base.

**[0017]** These pieces are preferably of droplet or triangular shape, with a vertex or tapered part facing the medial zone 11. Finally, the projections 17 comprise a piece 17E of shape close to circular, positioned below the hallus. According to reflexology, the pieces 17A-17D are positioned in the reflex zones corresponding to the lymphatic system, while the piece 17E is positioned in the reflex zone corresponding to the hypophysis.

**[0018]** The projecting elements 15 comprise a portion 15A positioned substantially to correspond to the central part of the user's plantar arch corresponding to the reflex zone of the solar plexus. The portion 15A is positioned in correspondence with the end of an elongate portion 15B disposed between a central part of the medial zone 11 (where the portion 15A is present) and an inner edge 2K (with reference to the foot) of the insole in proximity to and along which an elongate portion 15C is present. The portion 15B is arranged to lie in correspondence with the kidney-ureter-bladder group of the user's plantar arch; the portion 15C however is arranged to lie in correspondence with the reflex zone of the said plantar arch corresponding to the vertebral column and generates a lateral thrust on the user's foot to facilitate its bearing during walking and to stabilize posture. Finally, the medial zone 11 comprises a portion 15D positioned about the portion 15B and arranged to lie in correspondence with that region of the plantar arch corresponding to the reflex zone of the organs of the digestive system.

**[0019]** The projecting elements 15 are of different thicknesses one to another, and present different individual thicknesses in different regions. In particular, the portion 15A presents its greatest thickness in its curved region 20 lying towards the front zone 12 of the insole. The portion 15B has its greatest thickness in that region 21 close to the portion 15A and presents recesses 22 along it. These recesses functionally cooperate with recesses 23 and 24 provided in the portions 15D and 15C respectively, and define a sort of vent channel for perspiration. The portion 15C has its greatest thickness in that end 26 close to the front metatarsal zone 12 of the insole and decreases at its opposite end 27 close to the heel zone 10. The portion 15D, divided in two by the portion 15B, is substantially of cushion shape.

**[0020]** In the embodiment of Figure 4, the projecting piece 17A is directly connected to the portion 15D, and for this purpose is prolonged towards said portion 15D by a prolongation 30. This formation is particularly useful when the insole is used by a pregnant woman, as said prolongation 30 becomes positioned in the reflex zone of the sole of the foot corresponding to the thyroid gland.

**[0021]** By virtue of the invention, an insole or foot support can be formed for insertion into a shoe or into a sock, for a child or adult, which presents a surface formation such as to exert on the sole of the foot of a user, wearing the shoe or sock, a massage in accordance with a reflexology technique. The insole can be formed as described or comprise other formations such as to create on that surface making contact with the foot a plurality of projections providing a reflexological massage at least when the shoe or sock is worn by the user and the user presses on the insole.

## Claims

1. A foot support or insole (1) to be used in a shoe or in a sock, for an adult or child, said insole presenting a layered formation comprising at least one yieldable intermediate layer (5), **characterised by** comprising on the upper layer (3) a plurality of projections (15, 17) arranged to lie in correspondence with predefined regions of the sole of the foot, to hence generate a localized pressure on them, said regions corresponding at least to the medial zone and to the central part of the sole of the foot and corresponding to those reflex zones of the foot defined in reflexology methodology.

2. An insole as claimed in claim 1, **characterised in that** the projections (15, 17) are present on the upper layer (3).

3. An insole as claimed in claim 1, **characterised in that** the projections (15) are provided in a medial zone (11) of the insole arranged to lie in correspondence with the plantar arch of the user wearing the sock or shoe with which the insole is associated.

4. An insole as claimed in claim 2, **characterised in that** the projections (17) are provided in correspondence with a front zone (12) of the insole and are arranged to lie in correspondence with the metatarsal zone of the user's foot.

5. An insole as claimed in claim 4, **characterised in that** the projections (17) are positioned in such a manner as to lie in a region of the metatarsal zone between the fingers of the user's foot and at the base of these fingers.

6. An insole as claimed in claim 5, **characterised in that** the projections (17) are of droplet shape with their tapered part facing the medial zone (11) of the insole.

7. An insole as claimed in claim 4, **characterised in that** said projections (17) are positioned in correspondence with a region of the sole of the user's

foot which according to the reflexological technique corresponds to the lymphatic system.

**8.** An insole as claimed in claim 4, **characterised in that** a projection (17E) is provided in correspondence with the hallus of the foot.

**9.** An insole as claimed in claim 3, **characterised in that** the projections of the medial zone (11) comprise an elongate portion (15C) positioned in proximity to the inner edge (2K) of the insole.

**10.** An insole as claimed in claim 9, **characterised in that** the elongate portion (15C) presents differential thicknesses and comprises a first end (26) facing the front zone (12) of the insole (1) which has a greater thickness than that end (27) positioned in correspondence with a heel zone (10) of said insole.

**11.** An insole as claimed in claim 10, **characterised in that** the heel zone (10) is flat.

**12.** An insole as claimed in claim 3, **characterised in that** the projections of the medial zone (11) comprise a portion (15A) positioned in correspondence with a zone of the plantar arch which according to the reflexological technique corresponds to the solar plexus.

**13.** An insole as claimed in claim 3, **characterised in that** the projections of the medial zone (11) comprise a portion (15B) positioned in correspondence with a zone of the plantar arch which according to the reflexological technique corresponds to the kidney-ureter-bladder group.

**14.** An insole as claimed in claim 3, **characterised in that** the projections of the medial zone (11) comprise a portion (15D) positioned in correspondence with a region of the plantar arch which according to the reflexological technique corresponds to the organs of the digestive system.

**15.** An insole as claimed in claim 9, **characterised in that** the elongate portion (15C) corresponds, in the reflexological technique, to the vertebral column region.

**16.** An insole as claimed in claim 1, **characterised in that** in correspondence with the projections (15, 17) the upper layer (3) presents recesses (22, 23, 24) which facilitate movement of perspiration from the centre of the plantar arch towards opposing ends or towards the edge of the insole.

**17.** An insole as claimed in claim 1, **characterised in that** said intermediate layer (5) is defined by a mesh structure.

**18.** An insole as claimed in claim 1, **characterised in that** the layered formation comprises a further intermediate layer of activated carbon.

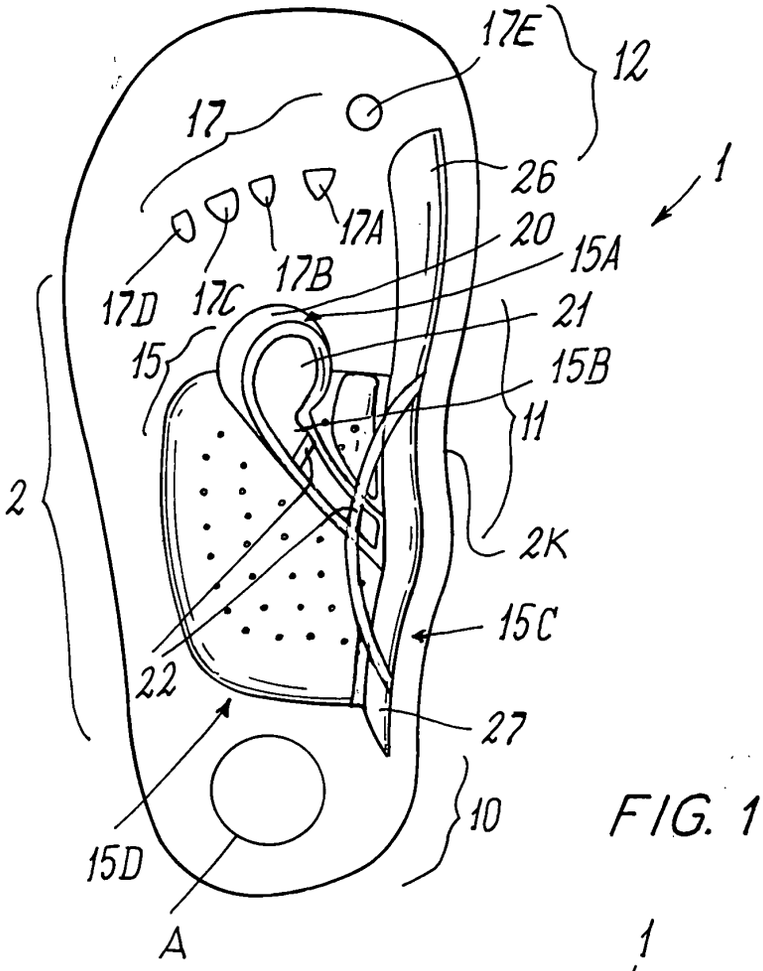
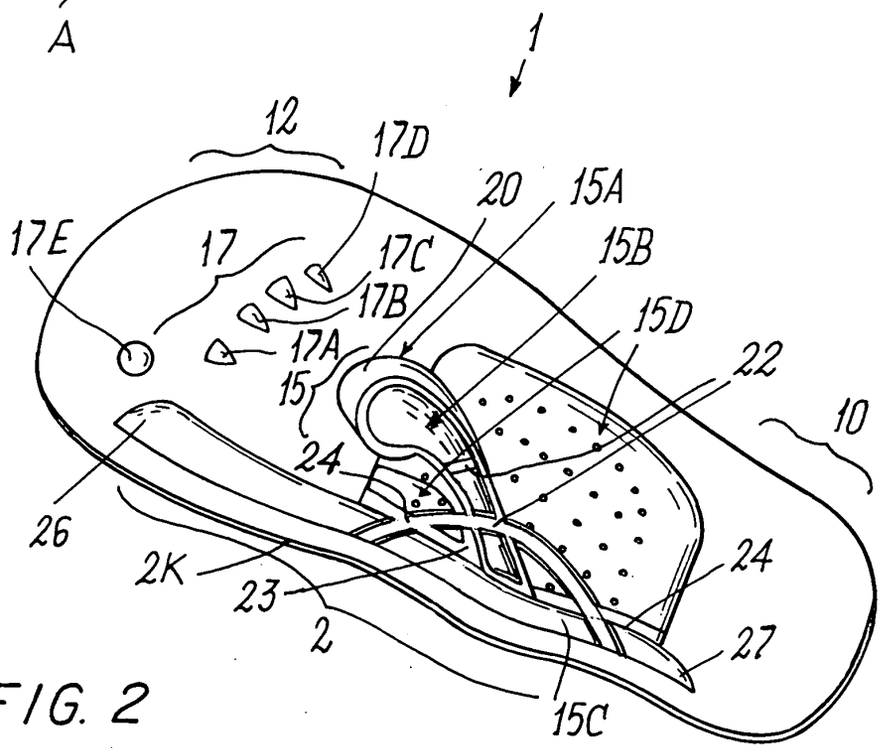

17E
12
17
26
1
17A
20
15A
17D
17C
17B
21
15
15B
11
2
2K
15C
22
27
10
15D
A

FIG. 1


1
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15A
17E
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17C
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2K
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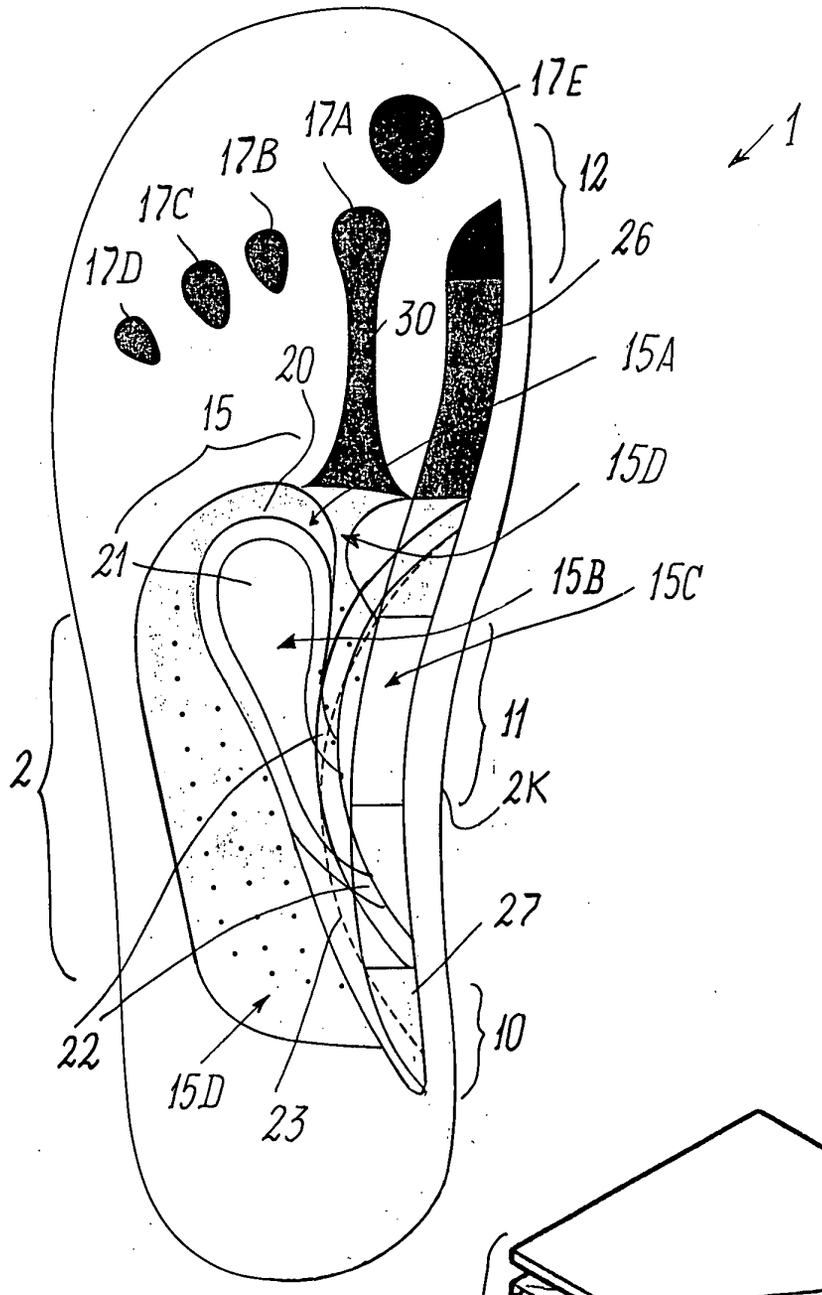
27
2
15C

FIG. 2


17E
17A
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2K
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22
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15D
23

FIG. 4

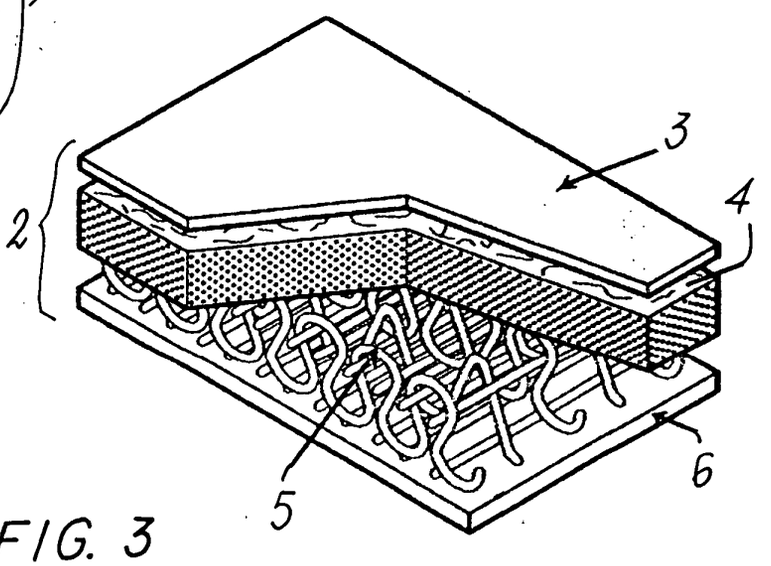
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FIG. 3

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Application Number
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A43B

The present search report has been drawn up for all claims

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