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(54) **An insole for footwear**

(57) An insole for footwear, of the type which is intended to be interposed, inside the footwear, between the user's foot and the sole, comprises an insole body (4) having a first surface (2) and a second surface (3) which are arranged opposite one another and, in use, face the user's foot and the sole, respectively, at least one of the surfaces being provided with a plurality of resiliently deformable appendages (6, 7, 8). The appendages are formed on the second surface (3) and have a shape with an intermediate portion (9) which is narrower than the outermost portion (10).

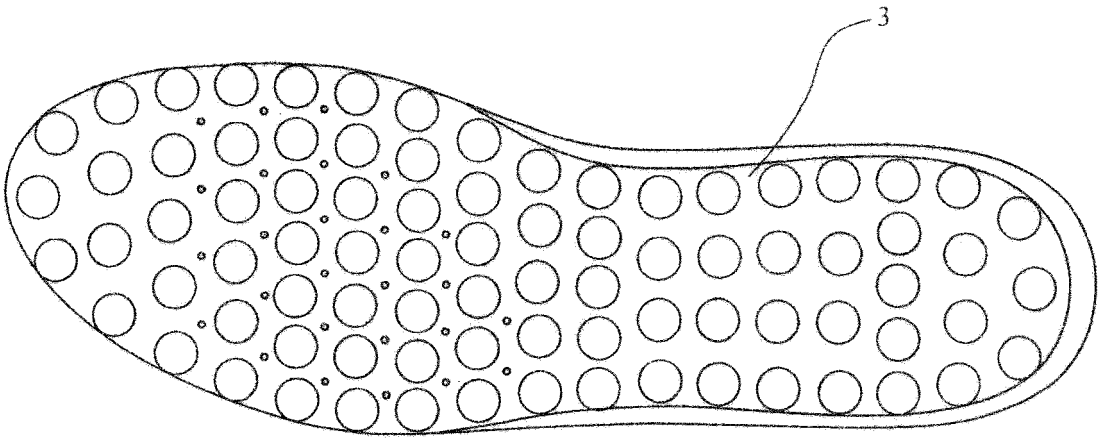

Fig. 3

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Description

Technical field

[0001] The present invention relates to an insole for footwear of the type which is intended to be interposed, inside the footwear, between the sole of the user's foot and the facing surface of the footwear sole, with an insole body having a first surface which faces the user's foot in use and an opposite, second surface which faces the footwear sole, at least one of the surfaces being provided with a plurality of resiliently deformable appendages.

Background art

[0002] Insoles including these features are known, for example, from US5,400526, W02007/064176, from DE10314606, and yet others.

[0003] Most typically, these insoles have a plurality of appendages which are distributed variously over the first surface and are directed towards the user's foot. These appendages lead to a distribution of the plantar load, improving the comfort of the footwear and sometimes facilitating sports usage thereof.

Description of the invention

[0004] The invention proposes to modify the known insoles, providing improved foot support.

[0005] In one embodiment of the invention, an insole is proposed which can offer a load-carrying capacity that is differentiated according to localized plantar loads.

Brief description of the drawings

[0006] The characteristics and the advantages of the invention will become clearer from the detailed description of a preferred but not exclusive embodiment thereof which is described by way of non-limiting example with reference to the appended drawings, in which:

Figure 1 is a side view of an insole for footwear according to the present invention,
Figure 2 is a plan view of the insole of Figure 1, from above, and
Figures 3 and 4 are two different plan views of the insole of Figure 1, from below.

Preferred embodiment of the invention

[0007] An insole formed in accordance with the present invention is generally indicated 1 in the drawings. The insole 1 is of the type which is intended to be interposed, in use, between the user's foot and the sole of the footwear, inside the footwear. The insole 1 is preferably formed by moulding with materials of the class known as thermoplastic polyurethane elastomers (TPU) and comprises a body 4 which is tapered from a heel region towards a toe region and in which two opposed surfaces 2, 3 are defined. The first surface 2 faces inwardly relative to the footwear, is substantially smooth, and serves as a support for the user's foot whereas the second surface 3 bears a plurality of appendages 6, 7 and 8 of substantially identical shape which are circular in plan, and are preferably formed with mixtures of different densities. Appendages of identical shape but having different resiliences and hence different load-carrying capacities can thus be provided in the various regions of the sole. The appendages 6-8 are arranged on the surface 3 of the body 4 with a matrix-like distribution, being aligned in approximately parallel rows all arranged transversely and preferably perpendicularly with respect to the longitudinal toe-heel line of the insole 1. In a preferred version, the different mixtures are made evident by different colours of the appendages which are shown, by way of example, in a red colour for the mixture of greatest density (maximum load-carrying capacity), orange for the medium-density mixture, and grey for the softest and least dense mixture. All three mixtures are co-moulded simultaneously in a single mould.

[0008] All of the appendages 6, 7, 8 have a substantially hourglass-like shape with an intermediate region 9 which has a cross-section that is both narrower than an outermost region 10, remote from the body 4, and narrower than a root 11 by which the appendage is attached to the body 4.

[0009] The appendages have a waisted region in the intermediate portion with a radial junction both towards the outermost portion and towards the root.

[0010] The body 4 also has a plurality of through ventilation holes 11 in one or more regions 10 so that the compression of the insole during walking leads to a variation in the volume of the space underlying the second surface 3 (between the insole body and the footwear sole) as a result of the compression of the appendages 6, 7, 8, and a consequent forced circulation of air through the holes 11.

[0011] The insole of the invention thus achieves the results discussed above with the addition of many advantages which are connected mainly with improved walking comfort, differentiated load-carrying capacity, the ability to adapt automatically to the user's morphology, and improved foot ventilation.

Claims

1. An insole for footwear, of the type which is intended to be interposed, inside the footwear, between the user's foot and the sole, with an insole body (4) having a first surface (2) and a second surface (3) which are arranged opposite one another and, in use, face the user's foot and the sole, respectively, at least one of the surfaces being provided with a plurality of resiliently deformable appendages (6, 7, 8), **characterized in that** the appendages are formed on the

second surface (3) and have a shape with an intermediate portion (9) which is narrower than the outermost portion (10).

2. An insole for footwear according to Claim 1 in which the appendages have a waisted region in the intermediate portion.

3. An insole for footwear according to Claim 2 in which the waisted region has a radial junction with the outermost portion.

4. An insole for footwear according to Claim 3 in which the appendage has a root (11) at the end remote from the outermost portion (10) and the waisted region has a radial junction with the root, with a substantially hourglass-like shape.

5. An insole for footwear according to one or more of the preceding claims, comprising a plurality of appendages in a matrix-like arrangement.

6. An insole for footwear according to one or more of the preceding claims in which the appendages have differentiated resiliences and/or different colours.

7. An insole for footwear according to Claim 6 in which the appendages have different densities.

8. An insole for footwear according to one or more of the preceding claims, made of thermoplastic polyurethane elastomer mixtures (TPU).

9. An insole for footwear according to one or more of the preceding claims with an insole body through which a plurality of ventilation holes (11) extend in at least one region of the insole body.

10. An insole for footwear according to Claim 9 in which the insole body is tapered.

11. A method of manufacturing an insole according to one or more of the preceding claims in which an insole body is produced by injection moulding integrally with the appendages.

12. A method according to Claim 11 in which the appendages are co-moulded with mixtures of different densities.

13. A method according to Claim 11 or Claim 12 in which the appendages are co-moulded with mixtures of different colours.

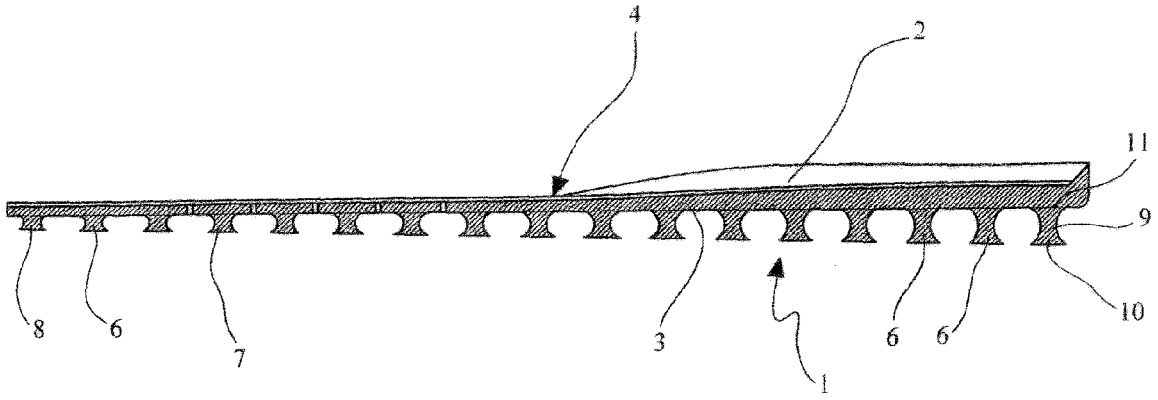

Fig. 1

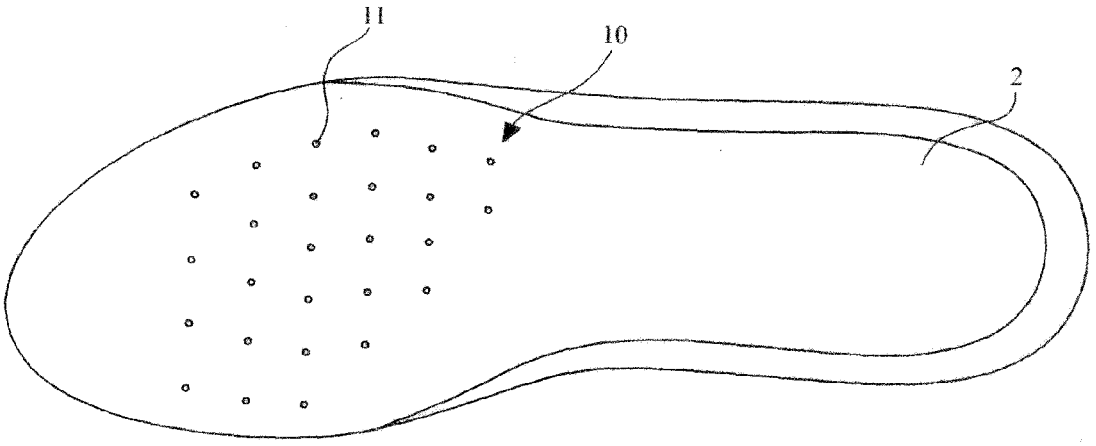

Fig. 2

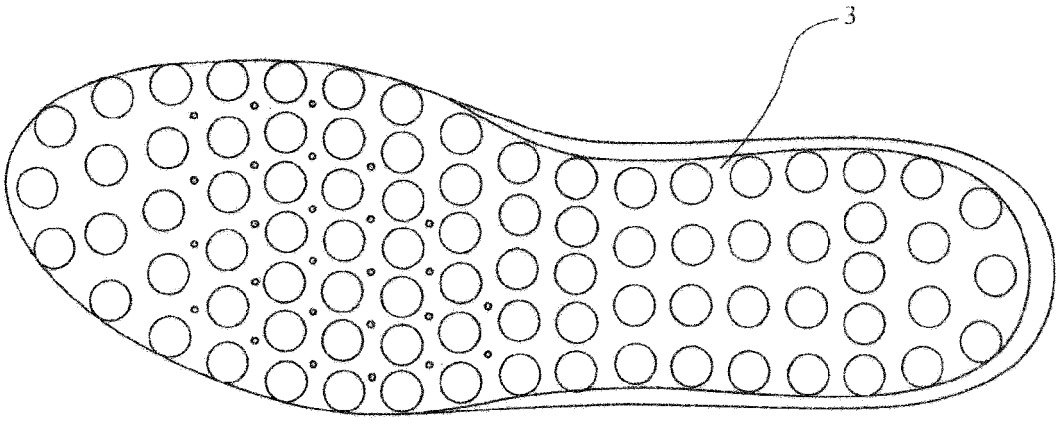

Fig. 3

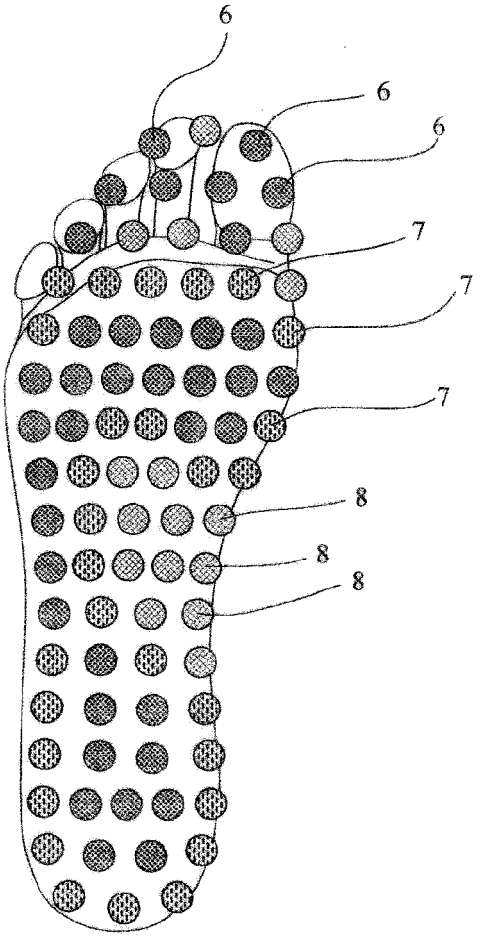

Fig. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 10 15 0307

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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TECHNICAL FIELDS SEARCHED (IPC)

A43B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	20 May 2010	Herry, Manuel

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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EPO FORM 1503 03.82 (P04C01)

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