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(54) **FOOTWEAR SOLE**

(57) Shoe insert (1) comprised of numerous elements that provide shock absorption, elements that are made up of numerous cavities (2), each corresponding with pivots or shock absorbing (3) elements, which extend out from the bottom part of the insert; shock absorption elements (2, 3) configured in such way that, when compressed by the user's weight, they compress and absorb the shock that is produced by the stepping action, thus achieving a sensation of well being and comfort.

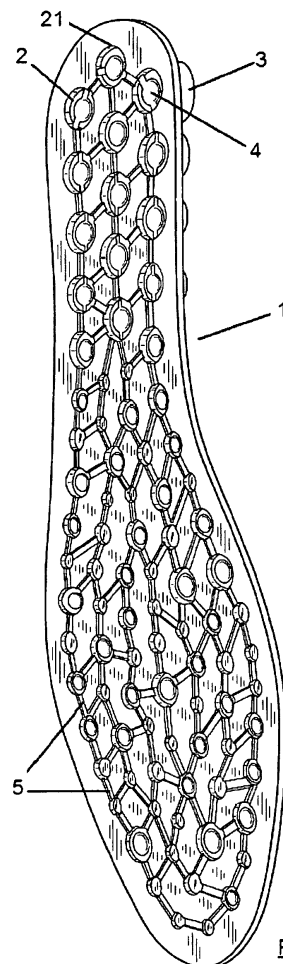


FIG. 1

Description

[0001] The objective of this invention is a shoe insert comprised of multiple shock absorbers for the foot while achieving a sensation of well being and comfort.

PRIOR STATE OF THE ART

[0002] Presently there are different types of shoe insoles that exist with shock absorption properties, which are generally based on the insertion of a spring or other similar shock absorption element into the shoe insole. However, these solutions are technically complicated because they require complicated manufacturing processes.

[0003] Among the shock absorption inserts we have the PCT W09947014 which describes an insert with multiple support elements that provide shock absorption in combination with an air chamber that is created between the two parts that make up the insert. Also, these support elements are interconnected through many air passages.

EXPLANATION OF THE INVENTION

[0004] The shoe insert that is recommended by this invention consists essentially of an insert, manufactured as one piece of polymeric material with a low level of residual deformation. The top side of this insert, in other words, the side that is normally facing the foot, is comprised of a series of spaces that correspond to the pivots or shock absorbers that protrude from the bottom side of the insert. These shock absorption elements are configured in a way that when compressed by the user's weight they give in, absorbing the shock from the foot step and consequently obtaining a sensation of well being and comfort.

[0005] In the spaces that make up the inside part of the shock absorbing elements or pivots, a base has been inserted which does not completely fill in the shock absorbing area because this way, when weight is added, the outer ring of the space gives in until it is supported on to the inner base or pivot, which provides a second and harder shock absorption and at the same time, assists in returning the shock absorbers to their initial position when the weight of the foot ceases to press on them thus preventing any loss of efficiency with usage and from walking.

[0006] These inner pivots will adapt to each point on the foot they are in contact with and in accordance with the weight they are supporting at that time, forming a type of regulated support at the bottom of the foot in accordance with the amount of surface contact area and weight it supports at each point.

[0007] As an advantage, the described shock absorbing insert also has the ability to circulate air from the heel to the foot sole, as in the natural way of walking. This double effect of the shock absorption and ventilation is produced by the same mechanism that creates the shock

absorption pivots; in other words, by their compression. This way, when they are compressed, the air is forced out through these cavities, circulating through the channels that inter-connect the shock absorbers, and producing an air flow that provides a necessary sensation of comfort throughout the length and width of the bottom of the sole.

[0008] This sensation and effect is accompanied by its combination with a translucent insole, which in addition to the aesthetic effect provided by these shock absorbers, it has numerous micro-orifices that cover the bottom of the sole, which enable air to escape and re-circulate throughout the entire shoe.

[0009] Throughout the description and claims, the word "comprises" and its synonyms do not intend to exclude other technical characteristics, additions, components or steps. For experts in the field, other objectives, advantages and characteristics of this invention will in part be derived from the description and in part from placing the invention into practice. The following examples and drawings provide an illustration and are not intended to limit this invention. Additionally, this invention covers all the possible combinations of particular and preferred embodiments indicated herein.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010]

FIG. 1 shows a top view of the insert, purpose of this invention.

FIG. 2 shows a detailed view of the insert's heel shown in fig. 1.

FIG. 3 shows a view of the bottom part of the insert, purpose of this invention.

DETAILED DESCRIPTION OF THE APPLICATION METHODS

[0011] As can be observed in fig. 1 the shoe insert that is recommended in this invention consists essentially of

a one-piece insert (1) manufactured from polymeric material with a low level of residual deformation, soft enough so that the shock absorbing effect is achieved through compression, but with enough quality for it to recover and not deform permanently prior to the timeframe guaranteed by the terms of use; this insert is made of

multiple elements that provide shock absorption, which consists of numerous cavities (2), each corresponding with the pivots or shock absorbing elements (3), which extend out from the bottom part of the insert (fig.3);

an area where the aforementioned shock absorbing elements (2, 3) are configured so when they are compressed by the user's weight, they give in and absorb the shock produced by the action of stepping.

[0012] In the mentioned cavities, (2) which as indicated make up the inside of the shock absorbing elements (3), an inner base or pivot (4) has been inserted, which does not entirely fill the cavity area of the shock absorbing elements; (3) because this way, the weight causes the outer ring to give in (21) until it is supported on the base or inside pivot (4), which in turn acts as a stronger, second shock absorber, which at the same time helps the shock absorbers to spring back to their initial position when the weight of the foot stops exerting pressure over them and don't lose efficacy with use or from walking.

[0013] These inner pivots (4) will adapt to each point of the foot they are in contact with and depending on the weight they are supporting at each moment, they produce a type of controlled support at the bottom of the foot.

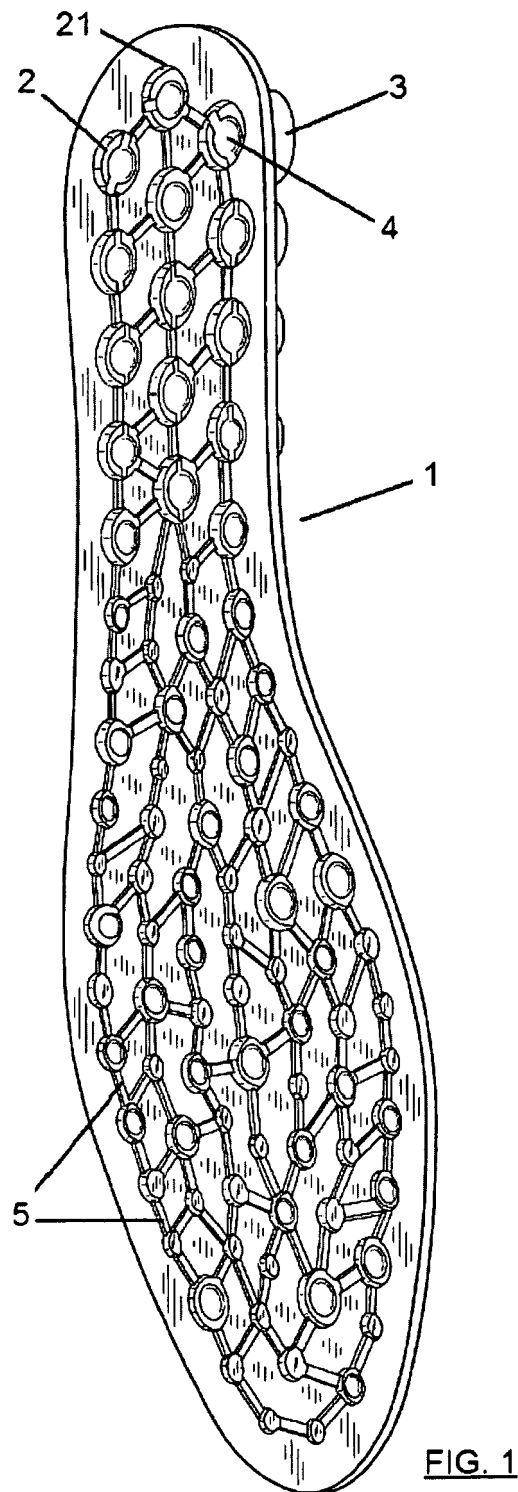
[0014] In an embodiment of this invention, the insert (1) is also comprised of multiple channels (5) joining the shock absorbing elements (2, 3, 4) which are configured to circulate air from the heel to the sole.

4; and a translucent insole comprised in itself of multiple micro-orifices that cover the entire foot sole and are configured to enable air to escape and be re-circulated.

6. Shoe that is **characterized in that** it is comprised of an insert as the one described in claims 1 to 4 or the insole of claim 5.

Claims

1. Foot insert (1) manufactured as one-piece from polymeric material with a low level of residual deformation, soft enough to provide shock absorption when compressed, but of sufficient quality for it to spring back and not permanently deform, **characterized in that** it comprises a plurality shock absorbers consisting of multiple cavities (2), each corresponding with the pivots or shock absorbing (3) elements, which extend out from the bottom part of the insert, and where the aforementioned shock absorbing elements (2, 3) are configured so that when compressed by the user's weight, they give in and absorb the shock produced by stepping.
2. An insert, in accordance with claim 1 where the cavities (2) house an inner base or pivot (4) that does not completely fill the cavities (2) of the shock absorbing elements (3).
3. Insert in accordance with claim 2 where the inner pivots (4) are configured to adapt to each of the points of the foot they come in contact with and depending on the weight they support at the time, they produce a type of controlled support at the bottom of the foot.
4. Insert in accordance with prior claims, where the insert (1) also incorporates multiple channels (5) that connect the shock absorbing elements (2,3,4) which are configured to circulate air from the heel area to the sole.
5. Shoe insole **characterized in that** it is comprised of an insert (1) as the one described in claims 1 to



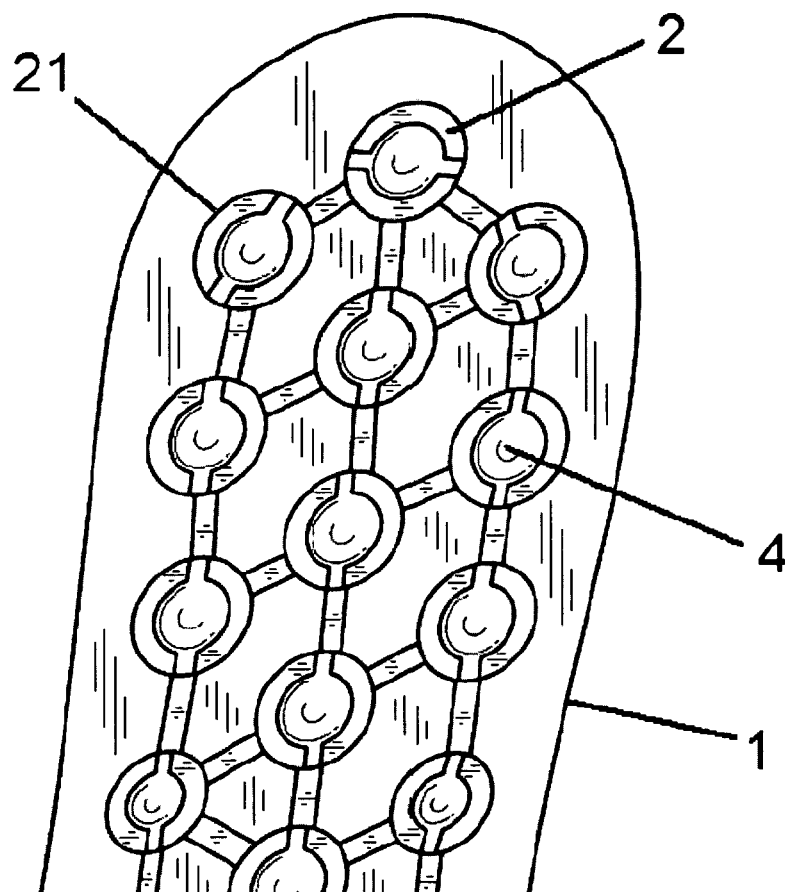


FIG. 2

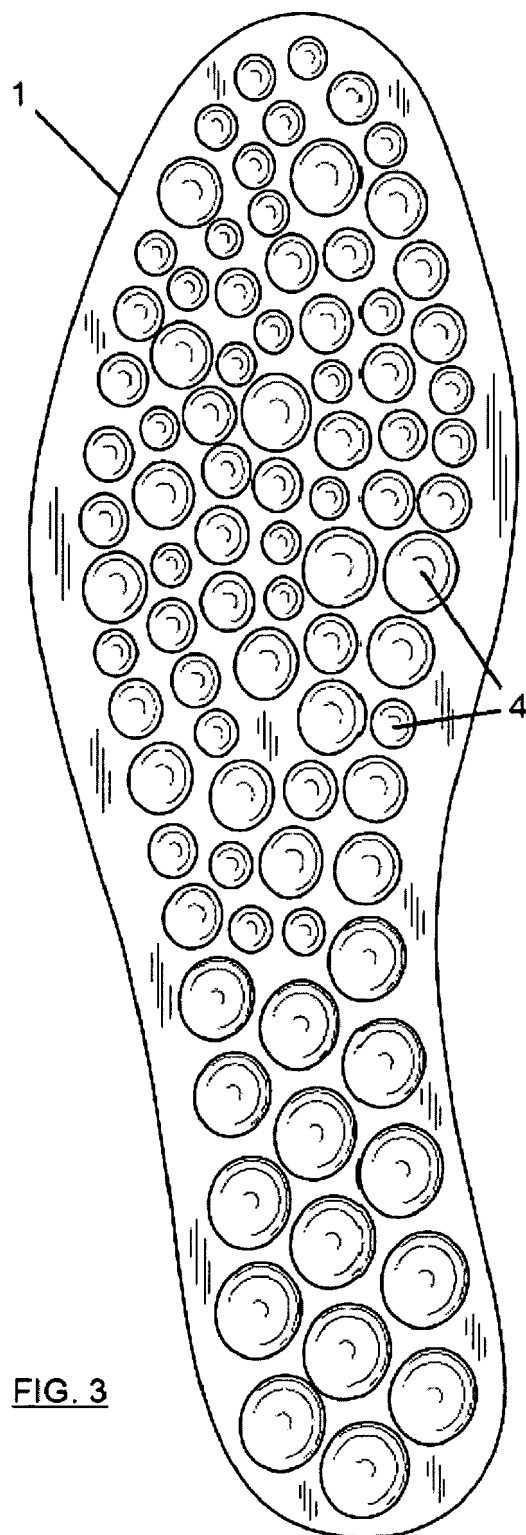


FIG. 3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES 2009/070308

A. CLASSIFICATION OF SUBJECT MATTER

see extra sheet

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)

INVENES,EPODOC,WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KR 100881769B B1 (JUNG YONG HEE; KIM HONG MOON) 04.02.2009, figures 1-7; Abstract of the base of datos WPI. Retrieved from the EPOQUE; AN 2009-G61153.	1-4,6
Y		5
Y	WO 2008148448 A1 (EUROSUOLE SPA; SENSINI ANDREA) 11.12.2008, page 5, line 8 - page 8, line 8; figures 1,4,5.	5
X	KR 200203793Y Y1 (LEE BONG NAM) 15.11.2000, the whole document.	1-4,6
X	US 825515 A (BYRNE; YOUNG) 10.07.1906; page 1, lines 26-68; figures.	1,6
A	DE 9407864U U1 (LIU TIEN AN) 14.07.1994, the whole document.	1-6

☐ 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

19.January.2010 (19.01.2010)

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

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INTERNATIONAL SEARCH REPORT

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CLASSIFICATION OF SUBJECT MATTER

A43B 17/02 (2006.01)

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 9947014 A [0003]