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(54) **SHOCK-ABSORBING ADAPTABLE FOOTWEAR WITH A HIDDEN FASTENING SYSTEM**

(57) The invention relates to shock-absorbing adaptable footwear which has a hidden fastening system, comprising at least one cushioning device, a device for supporting the sole of the foot, and an accessory-fastening device arranged in the inner material of the body of the footwear. The cushioning device comprises two sheets

between which there are cushioning elements, arranged on at least one portion of the sole of the footwear. The device for supporting the sole of the foot comprises an area of elastic material that allows the body of the footwear to expand or contract.

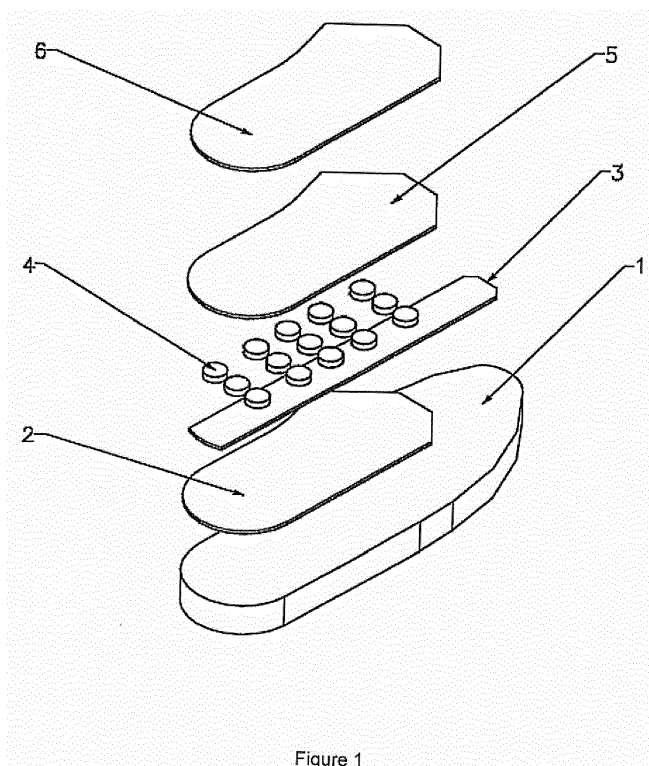


Figure 1

Description

between the assemble formed by the bottom part rigid blade and the rigid shoe sole:

Object of the invention

[0001] Object of the present invention is a new footwear that incorporates a plurality of devices that absorb impacts that occur when walking or running, allow that the body of the footwear can expand and improve its aesthetic appearance.

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The plantar support device is prepared at least in the anterior portion of the footwear and it is ready on the plant of mounted, the concerned plantar support device consists of:

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A lower area of a shape approximately equal to the shape of the sole shoe and smaller dimensions than the dimensions of the sole, that is attached at least for its perimeter to the sole,

Background of the invention

[0002] During the march or the race are produced, on the one hand, a series of impacts of the feet against the ground which are absorbed by the shoe sole, but above all by the joints and bones, and furthermore, transverse expansion of the foot, which also occurs when standing or then having circulation problems in the legs.

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An intermediate zone of elastic material attached to the interior area, whose inner perimeter has shape and dimensions approximately equal to the shape and dimensions of the outer perimeter of the interior area, the outer perimeter of the concerned zone has a form similar to the shape of the shoe sole and smaller dimensions than the dimensions of the aforementioned sole and,

[0003] To cushion the impacts, it has developed multiple solutions, among which outstands the soles and in-soles production that they cushion and absorb impacts, well by the material or materials used in the manufacture or by air chambers inside the soles. Likewise, to absorb and not to compress the foot when expanded, it using stretch fabrics that they yield in some measure in front of the exerted pressure.

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A free zone formed by the same body of footwear and whose perimeter overlaps and is joined by gluing or procedure similar to the outer perimeter of the intermediate zone in such a way that when entering the foot in the footwear and rest it on the floor, foot expands and therefore expands the intermediate zone, only the material of the shoe body looks from outside and the intermediate zone is hidden;

[0004] The biggest drawback of the previous solutions above cited, is that are used mainly in sports shoes or for the free time and primarily for aesthetic reasons, very little applied in footwear that it is used in other life situations in that it requires a certain elegance.

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[0005] The customizable footwear without impacts, with hidden fastening system, advocated a solution to the problems described above, using footwear that incorporates a series of devices that absorb impacts, absorb the expansion of the foot without using elastic materials in the shoe body and can be incorporated during the manufacturing of footwear.

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The device accessories anchorage is provided on the inside of the body of the shoe, the device accessories anchorage is destined to the accessory parts of the footwear, as cords, ropes or strips are anchored in it,

Description of the invention

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Brief description of the figures

[0006] Adaptable footwear without impacts with hidden fixing system, object of the present invention comprises at least, one or more of the following elements: cushioning device, plantar support device of and accessories anchorage device, such that:

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Figure 1: shows a view in perspective of an exhibition of the damping device.

The damping device is arranged in at least to the posterior portion of the upper surface of the sole shoe referred and consists of: a lower rigid blade, whose form and dimensions are approximately equal to the shape and dimensions of the portion of the sole in which it is ready; a rigid blade attached to the bottom blade, width less than the width of the bottom blade and of length greater than the length of the referred bottom blade: a rigid upper blade whose form and the dimensions are approximately equal to the form and dimensions of the bottom blade; one or more cushions arranged elements between the bottom blade and top blade and one or more means of union

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Figure 2: shows a longitudinal section of a feminine heel shoe that incorporates two devices cushions, one in its anterior portion and other provisions in its posterior portion.

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Figure 3: shows a view of a cross section of plantar support device.

Figure 4: it shows a detail of the anchorage accessories device.

Preferred Embodiment

[0008] Figures 1-4 show different footwear devices without impact with hidden fixing system, object of the present description.

[0009] Figure 1 shows a shoe that incorporates a single damping device arranged in the posterior portion of the sole (1) and which it has provided a conventional template (6), the referred damping device consists of:

- A rigid bottom sheet (2), whose shape and dimensions are approximately equal to the shape and dimensions of the posterior portion of the sole in which it is located,
- A rigid (3) blade attached to the bottom blade, width less than the width of the bottom blade and of length greater than the length of the referred bottom blade, and is attached by means of fixing the sole,
- A top sheet (5) rigid whose shape and dimensions are approximately equal to the shape and dimensions of the bottom blade, one or more elements shock absorbers (4) preferably comprising springs and/or dampers, arranged between the bottom blade and top blade and one or more means of union between the bottom blade set - rigid blade with the shoe sole

[0010] The design of damping device options are as follows:

- The lower blade can be embedded in the shoe sole.
- The damping device can be incorporated in the plant of mounted and therefore to be manufactured beside this one and,
- The footwear can incorporate damping devices in its anterior, posterior, or central portion, or more than one of the concerned portions or whole sole, for example in Figure 2 is shown a cross section of a heel feminine shoe, that incorporates two damping devices, one disposed in its posterior area and another in its previous area, can be arranged in the area of the heel.

[0011] Another example of the incorporation of the damping device is shown in Figure 2, which shows a heel shoe, preferably feminine, in which it has arranged two damping devices, one in the back portion or area of the heel and the other in the previous or top portion, in this preferential realization the bottom blade of the two devices are incorporated in the plant of mounted and this is joins to the shoes subsequently.

[0012] Figure 3 shows a cross section of a footwear that incorporates a plant of mounted support device (8), arranged in its anterior portion and two anchoring accessories devices (12). The support device of the plant of mounted consists of:

- An interior (9) area in an approximately equal shape to the shape of the sole shoe dimensions than the dimensions of the aforementioned sole, the above mentioned inner zone is attached at least by its perimeter to the aforementioned sole, this interior zone can be the mounting insole.
- An intermediate zone (10) of elastic material, whose inner perimeter is attached to the outer perimeter of the interior zone (9) and whose outer perimeter has a shape similar to the shape of the shoe sole and smaller than the dimensions of the aforementioned sole and
- A free zone (15) shaped by the same body of footwear and whose perimeter is overlaps and is attached by gluing or similar procedure, to the outer perimeter of the intermediate zone.

[0013] With this plant of mounted support device design, by introducing the foot in the shoe and supporting it on the ground, the foot expands and therefore expands the intermediate zone, only the material of the body of the shoe looks from outside and the intermediate zone is hidden, already all the intermediate area is in contact with the shoe sole,

An option of design of the support device of the plant of mounted is that the inner zone of the same one, is the plant of mounted of the footwear or that this inner zone is attached to the superior face of the plant of mounted.

[0014] Figures 3 and 4 show accessories anchorage devices, the accessories can be strings, strings or strips. These accessories anchoring devices are arranged in the inner part of the body of the shoe. Each of the above-named anchorage means may consist of two or more cuts (13) made in the interior of the footwear body material, these cuts may be reinforced in its edges and a piece of booster (14) is available in the area where it has made cuts. The incorporation of the anchoring devices enables on the one hand to incorporate supplementary fixing 10 means of the footwear and on the other hand to vary the aesthetics of the footwear, for example, according to the different garments with which you want to combined, without having to have a multitude of different models of footwear and also to convert, for example a shoe in a boot or even in a boot of high cane. In addition, cuts in which attachments are set to be on the inside of the shoe it is not appreciated on the outside of the body of the shoe.

[0015] The damping device has the function of cushioning the impacts or hits against the floor, is essential in high heel shoes, and therefore avoid the damages and pains in the joints. The concerned device produces great comfort in the march or in the race.

[0016] The plant of mounted support device and therefore of the fingers, allows the shoe body adapts to the foot that wears it, without pressing it, allowing that the device ensemble of plant of mounted support -body of

the footwear widens.

[0017] Finally, being the accessories anchorage devices arranged in the inside of the body of the shoe material, these are not perceived on the outside of the shoe body. And these devices allow 30 incorporate to the shoes, cords, ropes or strips in different ways, so it can incorporate additional removable shape, supplementary means of subsection of the footwear at the foot and different accessories that allow modifying the exterior aspect of the footwear, for example transforming a shoe into a boot or into a boot of high cane.

Claims

1. Adaptable shoe without impacts with fixing system hidden, characterized because it includes at least one or more of the following elements: device of cushioning, plant of mounted support device and accessories anchor device, such that:
The damping device is attached at least to the posterior portion of the upper surface of the shoe sole referred, and it consists of: a rigid bottom blade, whose shape and dimensions are approximately equal to the shape and dimensions of the portion of the outsole which is located; a rigid blade attached to the blade lower width less than the width of the bottom blade and of length greater than the length of referred bottom blade; a rigid upper blade whose shape and dimensions are approximately equal to the shape and dimensions of the bottom blade; one or more cushions items arranged between the bottom blade and the upper blade and one or more means of union between the set of the bottom blade - rigid blade and the sole of the shoe:
The support plantar device is prepared at least in the posterior portion of footwear and its shape and dimensions are approximately equal to the shape of the portion of the sole where is located, and is joined at least by its perimeter to the body of the shoe which consists in:

An inner zone approximately equally to the shape of the shoe sole and smaller dimensions than the dimensions of the sole, which is attached at least by its perimeter to the sole.

An intermediate zone of elastic material attached to the interior area, whose inner perimeter has shape and dimensions approximately equal to the shape and dimensions of the outer perimeter of the interior area, the outside perimeter of the aforementioned intermediate zone has a shape similar to the shape of the footwear sole and smaller dimensions than the dimensions of the aforementioned sole.

A free zone shaped by the same body of footwear and whose perimeter overlap and is attached by gluing or procedure similar to the outer

perimeter of the area intermediate;

The anchorage accessories device is provided on the inside of the shoe body, the above-mentioned accessories anchorage device it is destined to in it, accessory parts of the footwear being anchored.

2. Adaptable footwear without impacts, with fixing system hidden, according to claim 1, characterized because the lower blade is embedded in the sole of the shoe.
3. Adaptable footwear without impacts with hidden fixing system, according to claim 1 or characterized because damping device is built into the floor mounted.
4. Adaptable footwear without impacts with hidden fixing system, according to any of the above claims, characterized because the damping device is disposed in its anterior portion.
5. Adaptable footwear without impacts with hidden fixing system, according to any of the Previous claims, characterized because the damping device is disposed in its central portion.
6. Adaptable footwear without impacts with hidden fixing system, according to any of claims 1-3, because the damping device is characterized arranged on the entire sole.
7. Adaptable footwear without impacts with hidden fixing system, according to any of the above claims, characterized because each of the above-named device accessories anchorage consists of two or more cuts made in the inside material of the body of the footwear.
8. Adaptable footwear without impacts with hidden fixing system, according to claim 7, characterized because the cuts are reinforced in its edges.
9. Adaptable footwear without impacts with hidden fixing system, according to claim 7 or 8, characterized for a reinforcing element is available in the inner material area of the footwear body where cuts have been realized.
10. Adaptable footwear without impacts with hidden fixing system, according to any of the previous claims, characterized because the area lower support device is assembled of footwear plantar
11. Adaptable footwear without impacts with hidden fixing system, according to any of the above claims, characterized because the interior of the device area of support plantar is attached to the upper surface

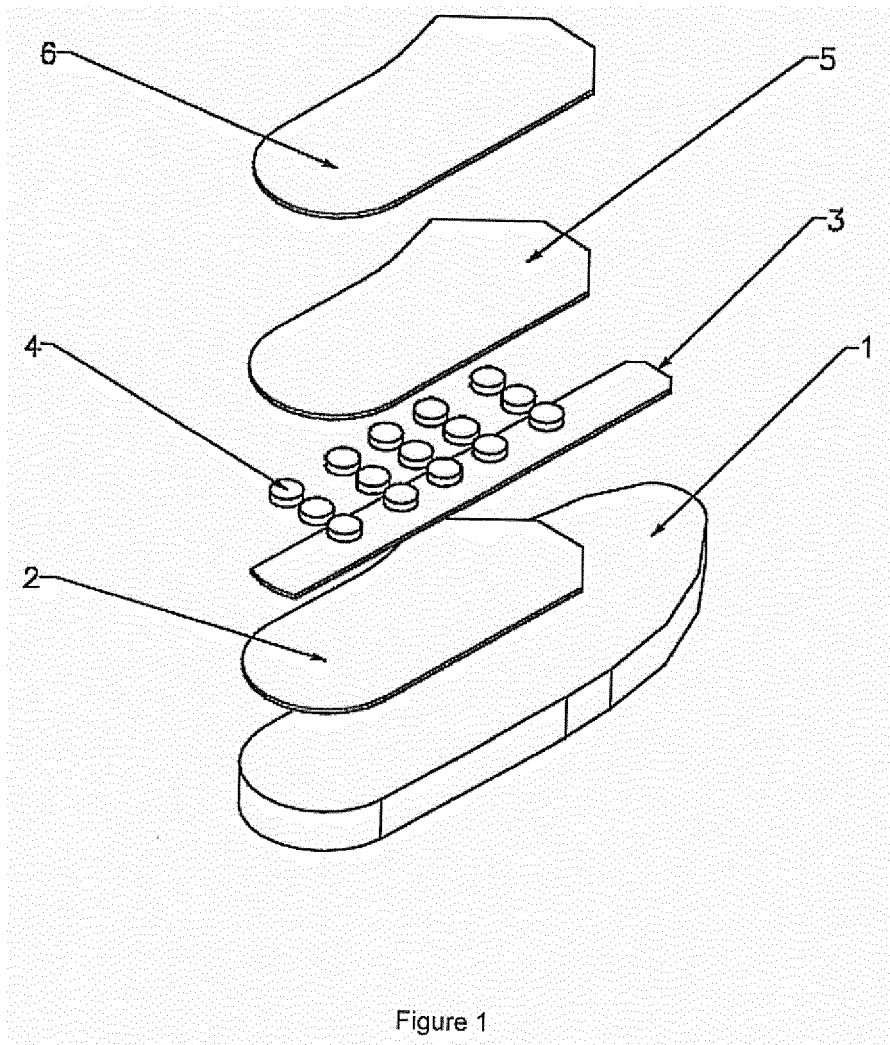
of the plant of mounted.

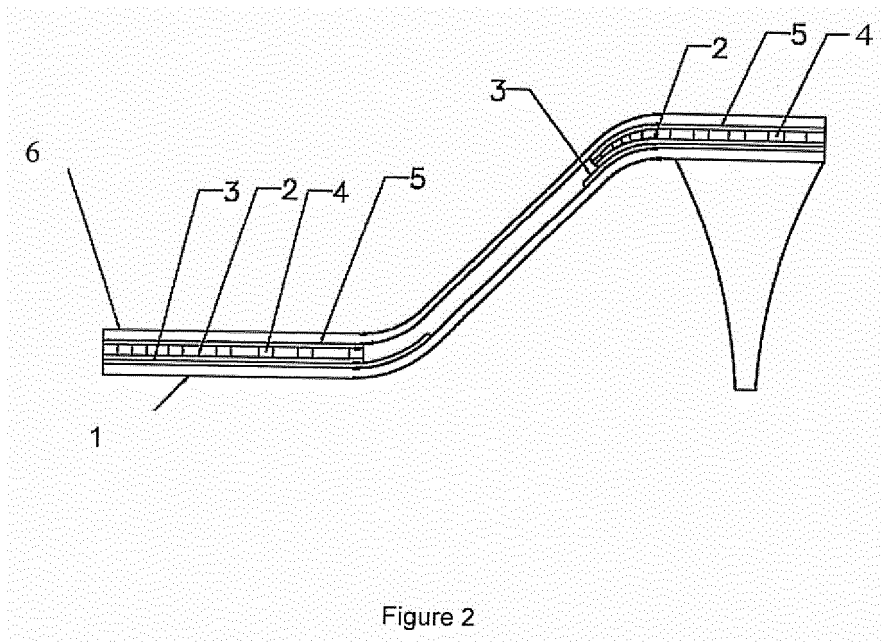
12. Adaptable footwear without impacts, according to any of the preceding claims, characterized because the plantar support device is arranged in the portion rear of the shoe 5
13. Adaptable footwear without impacts, according to any of the above claims characterized because the plantar support device is arranged in the portion central footwear. 10
14. Adaptable footwear without impacts, according to any of the preceding claims, characterized because the plantar support device is arranged along the entire length of the shoe sole. 15

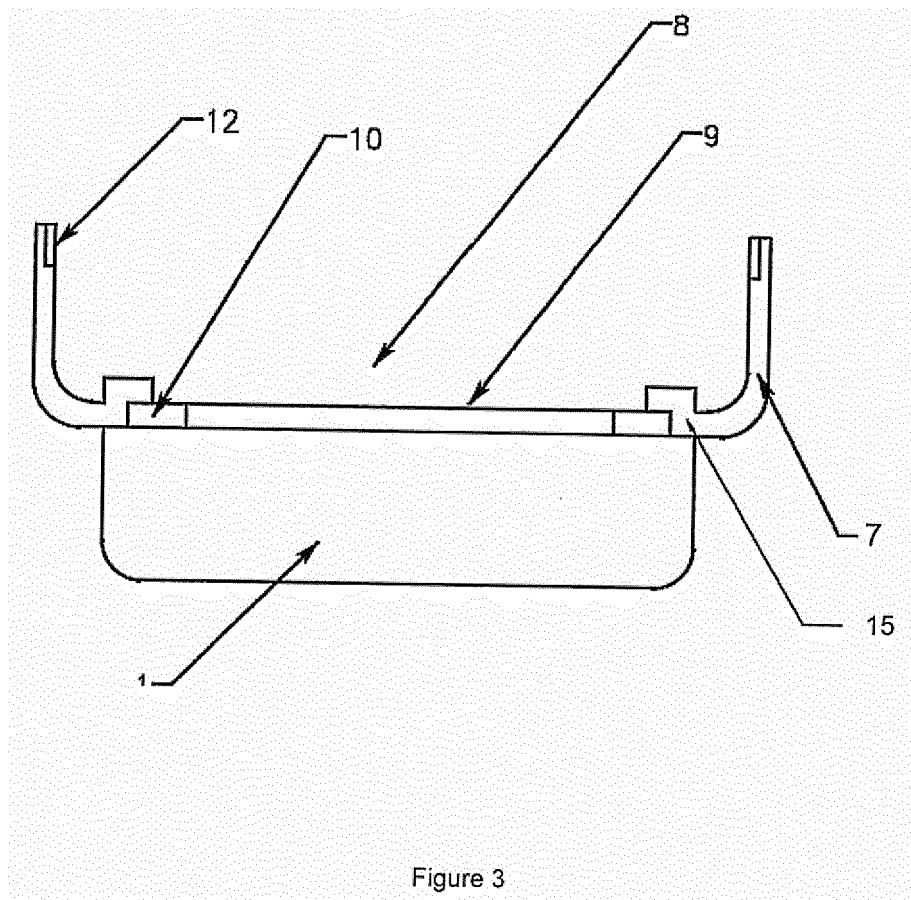
Amended claims under Art. 19.1 PCT

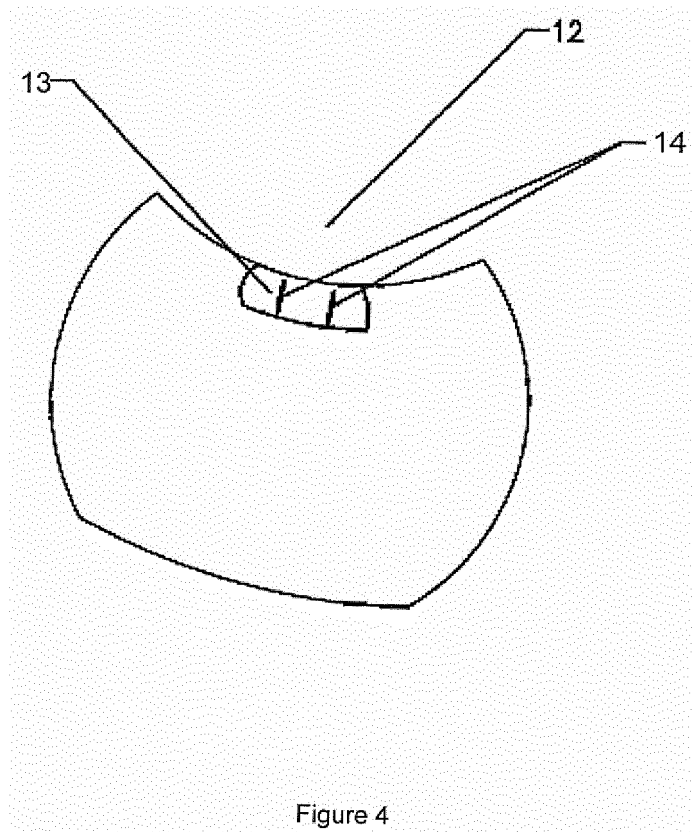
1. Adaptable footwear without impacts with hidden fixing system that it **characterized by** comprising at least one damping device on which it has arranged a conventional insole (6); a plantar support device (8), arranged in its anterior portion and two devices of anchorage of accessories (12) 20
2. Adaptable footwear without impacts with hidden fixing system according to claim 1, **characterized by** damping device comprises: a rigid bottom blade (2); a rigid blade (3) attached to the lower blade (2); a top rigid blade (5); at least one shock absorber element (4); and at least one means of union between the bottom blade (2) and (3) rigid-blade with the (1) shoe sole. 25
3. Adaptable footwear without impacts with hidden fixing system according to claim 2 which is **characterized by** the absorber element (4) is a spring or similar, arranged between the bottom blade (2) and top blade (5). 30
4. Adaptable footwear without impacts with hidden fixing system according to claim 1 **characterized by** that plantar support device (8) includes: an inner area (9) attached at least by its perimeter to the sole (1); an intermediate zone (10) attached to the outer perimeter of the inner area (9); and a free zone (15) whose perimeter is attached to the outer perimeter of the intermediate zone (10). 35
5. Adaptable footwear without impacts with hidden fixing system according to claim 1 **characterized by** each anchorage accessories (12) devices has two or more cuts (13) inside the body of the shoe and have a piece of (14) reinforcement in the area where the cuts has been made (13). 40

6. Adaptable footwear without impacts with hidden fixing system according to the claim 2 that is characterized because the inferior blade (2) is absorbed in the footwear sole
7. Adaptable footwear without impacts with hidden fixing system according to the claim 1 and 2 that is characterized because the damping device is incorporated in the plant of mounted.
8. Adaptable footwear without impacts with hidden fixing system according to the claim 1 and 2 that is characterized because the damping device is incorporated in its anterior portion.
9. Adaptable footwear without impacts with hidden fixing system according to the claim 1 and that is characterized because the damping device is incorporated in its central.the plant of mounted.
10. Adaptable footwear without impacts with hidden fixing system according to the claim 1 and 2 that is characterized because the damping device is incorporated in all the sole.
11. Adaptable footwear without impacts with hidden fixing system according to the claim 1 that is characterized because the inner area of the plantar support device (8) is the plant of mounted on of the footwear.
12. Adaptable footwear without impacts with hidden fixing system according to the claim 1 that is characterized because the inner area of the plantar support device (8) It is attached to top of shoe-mounted plant. 45









INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES2016/000027

A. CLASSIFICATION OF SUBJECT MATTER

A43B13/00 (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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2008263894 A1 (NAKANO KIYOTAKA) 30/10/2008, Paragraphs 21 and 22 and figure 1.	1-6
X	US 2007023955 A1 (HO DANNY) 01/02/2007, Paragraphs 23 and 71 and figure 7.	1-6
X	ES 1056541U U (ESCALONA DIAZ MANUEL) 01/04/2004, claims and figures.	1-6

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

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"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
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Date of the actual completion of the international search
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INTERNATIONAL SEARCH REPORT

International application No.

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Information on patent family members

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
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