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(71)(72) Applicant and Inventor: HA, Mu-Eon [KR/KR]; 9-408, Jukong Apt., Sajik-dong, Dongrae-ku, Pusan 608-120 (KR).

(74) Agent: KOO, Seong, Jin; Sungam Building, 3rd floor, 1436-2 Onchon2-dong, Dongrae-ku, Pusan 607-062 (KR).

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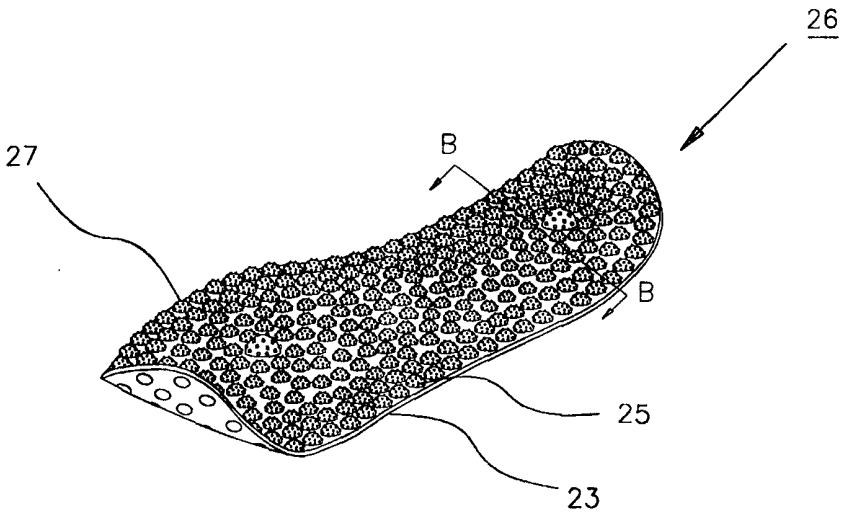

(57) Abstract

Disclosed are an insole (26) for stimulating sole of user and a shoe provided with the insole. The insole for stimulating sole of user has a base plate (23). Numerous protrusions (25) formed as a single unit with the base plate protrude upward on the upper surface of the base plate, thereby allowing pressure to be applied to the sole of user and supporting the weight of the user in absorbing impact. Numerous sub-protrusions (27) jutting outward on the outer surface of the respective protrusions. A shoe for stimulating sole of user has an outer-sole (41), an upper-sole (42) formed at the front portion of the outer-sole. An insole is positioned on the upper surface of the outer-sole. The insole has a base plate and numerous protrusions (45) formed as a single unit with the base plate and protruding upward on the upper surface of the base plate, thereby allowing pressure to be applied to the sole of user and supporting the weight of the user in absorbing impact. Numerous sub-protrusions (47) protrude outward on the outer surface of the respective protrusions. Thus, comfort is improved and protrusions are not damaged, thereby useful life is increased. Also, effectiveness of massage is improved.

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Insole For Stimulating Sole Of User And Shoe Provided With Insole

TECHNICAL FIELD

The present invention relates to an insole and a shoe provided with the insole, and more particularly to an insole and a shoe provided with the insole having protrusions allowing pressure to be applied to the a sole of user and supporting the weight of the user in absorbing impact, whereby improving the comfort and also preventing damage to the protrusions such that the useful life is increased.

BACKGROUND ART

Generally, shoes have been used for protecting the foot of the user and a variety of shoes are currently in use. For example, shoes such as house shoes, which are used indoors, sports shoes which are used outdoors, are manufactured. The appearance of shoes has changed widely, and recently, shoes having various functions are being produced.

One of those shoes having various functions, shoes provided with protrusions for stimulating the sole of the user, is currently being marketed. Such shoes providing a stimulating function is employed in the house shoes which are mainly used indoors, especially sandals, and is not employed in the athletic shoes which are generally used outdoors. The sandal providing a stimulating function utilizes numerous semi-sphered protrusions which allow pressure to be applied to the sole of user.

FIG. 1 is a perspective view showing a conventional sandal for stimulating sole of user. As shown in this drawing, a conventional sandal for stimulating sole of user consists of an outer-sole 11, an insole 13 positioned on the outer-sole 13, and numerous protrusions 15 which protrude upward on upper surface of the outer-sole 13, thereby allowing concentrated pressure to be applied to the sole of

the user, and simultaneously supporting the weight of the user in absorbing impact.

The protrusions and the insole 13 are molded as a single unit and are manufactured with relatively hard material to prevent distortion. The inside of each protrusions 15, as shown in FIG. 2, are of solid construction, such that it can stimulate the sole of the user and sufficiently sustain the weight of the user.

When the user wears the sandals, the sole of the user touches the protrusions 15 which protrude on the insole 13 of the sandal. Thus, the sandal supports the weight of the user and each protrusion 15 presses different areas of the sole, thereby massaging the sole.

However, because the protrusions of conventional sandals are likely to be brittle, the protrusions are easily damaged and the effectiveness of massage is decreased. Also, since the protrusions are not flexible, user feels pain on the sole when wearing them.

DISCLOSURE OF INVENTION

The present invention is devised to solve the foregoing problems. It is an object of the present invention to provide an insole and a shoe provided with the insole having protrusions allowing pressure to be applied to a sole of user and supporting the weight of the user in absorbing an impact, whereby improving the comfort of wearing and preventing damage to the protrusions such that the useful life is increased.

To achieve the above object of the present invention, an insole for stimulating sole of user of the present invention comprises a base plate, numerous protrusions which is molded as a single unit with the base plate and protruding upward on the upper surface of the base plate, thereby allowing pressure to be applied to the sole of the user and simultaneously supporting the weight of the user in absorbing impact, and numerous sub-protrusions protruding outward on outer surface of the respective protrusions.

Here, the base plate is produced with PVC synthesized resin. Preferably, the respective protrusions have a cavity for absorbing impact. It is also

preferable that several folding members for forming an upper-sole of the shoe is formed as a single unit with the base plate positioned on the edge of the base plate. Furthermore, numerous combining-protrusions protruding outward on the bottom of the base plate are preferably inserted into numerous apertures for locking in the combining-protrusions formed on the upper surface of an outer-sole respectively such that the base plate is joined with the outer-sole.

Meanwhile, it is preferable that the base plate is an elastic body produced with a forming agent and an ethylene vinyl acetate. More preferably, the forming agent is one selected from the group consisting of benzene sulfornyl hydrizine, azo nitlile and diazo acetate amide.

Also, to achieve the above object of the present invention, a shoe for stimulating sole of user of the present invention comprises an outer-sole, an upper-sole formed at the front portion of the upper surface of the outer-sole; and an insole installed on upper surface of the outer-sole, wherein the insole includes a base plate, numerous protrusions formed as a single unit with the base plate and protruding upwardly on upper surface of the base plate, thereby allowing pressure to be applied to the sole of the user and simultaneously supporting the weight of the user in absorbing impact, and numerous sub-protrusions protruding outward on outer surface of the respective protrusions.

Here, the base plate is produced with PVC synthesized resin. Preferably, the respective protrusions have a cavity for absorbing impact. More preferably, numerous combining-protrusions protruding outward on the bottom of the base plate are inserted into numerous apertures for locking in the combining-protrusions formed on the upper surface of the outer-sole respectively such that the base plate is combined with the outer-sole.

In addition, it is preferable that the base plate is an elastic body produced with a forming agent and an ethylene vinyl acetate. More preferably, the forming agent is one selected from the group consisting of benzene sulfornyl hydrizine, azo nitlile and diazo acetate amide.

According to an alternative aspect of the present invention , a shoe for stimulating sole of user of the present invention comprises an outer-sole, an upper-sole formed at the front portion of the upper surface of the outer-sole; and an insole installed on the upper surface of the outer-sole, wherein the insole includes a base plate produced with PVC synthesized resin, numerous combining-

protrusions which protrudes outward from the bottom of the base plate to be inserted into numerous apertures for locking in the combining-protrusions formed on the upper surface of the outer-sole respectively such that the base plate is joined with the outer-sole, numerous protrusions having cavities for absorbing impact formed as a single unit with the base plate and protruding upwardly on upper surface of the base plate, thereby allowing pressure to be a applied to the sole of the user and simultaneously supporting the weight of the user in absorbing impact, and numerous sub-protrusions protruding outwardly on the outer surface of the respective protrusions.

According to still another alternative aspect of the present invention, a shoe for stimulating sole of user of the present invention comprises an outer-sole, an upper-sole formed at the front portion of the upper surface of the outer-sole, and an insole installed on the upper surface of the outer-sole, wherein the insole includes a base plate produced with EVA, numerous protrusions formed as a single unit with the base plate and protruding upward on upper surface of the base plate, thereby allowing pressure to be applied to the sole of the user and simultaneously supporting the weight of the user in absorbing impact, and numerous sub-protrusions protruding outward on the outer surface of the respective protrusions.

Therefore, the comfort of wearing is improved and the protrusions are not damaged, thereby the useful life is increased. Consequently, the effectiveness of massage is increased.

BRIEF DESCRIPTION OF THE DRAWINGS

The above object and other advantages of the present invention will become more apparent by describing in detail preferred embodiments thereof with reference to the attached drawings in which:

FIG. 1 is a perspective view showing a conventional sandal for stimulating sole of user;

FIG. 2 is a cross-sectional view of FIG. 1 according to line A-A;

FIG. 3 is a perspective view showing a first embodiment of an insole for

stimulating sole of user of the present invention;

FIG. 4 is a cross-sectional view of FIG. 3 according to line B-B;

FIG. 5 is a perspective view showing the position in which the insole in FIG. 3 is attached to the outer-sole of boots;

FIG. 6 is a cross-sectional view showing the state of the insole of FIG. 3 when pressed;

FIG. 7 is a perspective view showing a second embodiment of an insole for stimulating sole of user of the present invention;

FIG. 8 is a cross-sectional view of FIG. 7 according to line C-C;

FIG. 9 is a perspective view showing a first embodiment of shoes for stimulating sole of user of the present invention;

FIG. 10 is a perspective view showing a second embodiment of shoes for stimulating sole of user of the present invention; and

FIG. 11 is a perspective view showing the state of the insole of FIG. 10 after being completed.

BEST MODE FOR CARRYING OUT OF THE INVENTION

A first embodiment, a second embodiment of an insole for stimulating sole of user and a first embodiment, a second embodiment of a shoes for stimulating sole of user according to the present invention will be described in detail with reference to accompanying drawings.

FIG. 3 is a perspective view showing a first embodiment of an insole for stimulating sole of user of the present invention. As shown in this drawing, an insole 26 of shoe for stimulating sole of user of the present invention is composed of a base plate 23, numerous protrusions 25 formed as a single unit with the base plate 23 and protruding upward on the upper surface of the base plate 23, thereby allowing pressure to be applied to the sole of the user and simultaneously supporting the weight of the user in absorbing impact, and numerous sub-protrusions 27 protruding outward on the outer surface of the respective

protrusions 25.

The base plate 23 is produced with PVC synthesized resin. Respective protrusions 25, as shown in FIG. 4, have cavities 29 for absorbing the impact inside. The cavities 29 are filled with air such that they play role as air cushions.

Hereinafter, operation and effect of the insole of the shoe according to the present invention will be described.

User inserts the insole 26 into the bottom of shoes such as boots 26 and wears the boots 26. When user walks while wearing the boots 26, respective protrusions 25, as shown in FIG. 6, are compressed by the weight of the user such that the cavities 29, which are inside the protrusions 25, retract.

Accordingly, air which fills the cavity 29 is compressed, thereby inner air pressure of the cavity 29 increases and the protrusions 25 have elastic restoration force. While the protrusions 25 are compressed by the weight of the user, the protrusions 25 and sub-protrusions 27 massage the whole area of the sole of the user such that blood circulation and metabolism are promoted.

And, when weight of the user is removed from the sole while the user takes a step, the weight of the user which compresses the protrusions 25 is removed such that the protrusions 25 expand by air pressure which is contained in the cavities 29 and the elastic restoration forces itself to come back to the original shape. The operation of retraction and expansion of the protrusions 25 are repeated while the user walks in wearing the boots 26.

Because the protrusions 25 which are compressed by the weight of the user are flexibe due to the cavities 29 and are not brittle in comparison with the protrusions 15 of conventional shoes, the protrusions 25 are not damaged easily. And, the sole of the user is massaged such that blood circulation and metabolism of the user are promoted, thereby the health of the user is improved. Also, because the protrusions 25 have elasticity, the comfort of wearing is improved. Furthermore, the sub-protrusions 25 stimulate the complete sole of the user in densely concentrated points such that the effectiveness of massage is improved.

The above insole is applied to sandals as well as to boots.

FIG. 7 is a perspective view showing a second embodiment of an insole for stimulating sole of user of the present invention. An insole of shoe for

stimulating sole of user of this embodiment is, like the first embodiment of the insole of the present invention, composed of a base plate 33, numerous protrusions 35 formed as a single unit with the base plate 33 and protruding upward on the upper surface of the base plate 33, thereby allowing pressure to be applied to the sole of the user and simultaneously supporting the weight of the user in absorbing impact, and numerous sub-protrusions 37 protruding outward on the outer surface of the respective protrusions 35.

The base plate 33, the protrusions 35 and sub-protrusions 37 are made of an elastic body produced with a forming agent and an ethylene vinyl acetate. The forming agent is one selected from the group consisting of benzene sulfornyl hydrizine, azo nitlile and diazo acetate amide. Thus, the protrusions 35 and the sub-protrusions 37 suppcrt the weight of the user in absorbing impact due to its elastic force. The protrusion 35, as shown in FIG. 8, does not have a cavity.

The operation and effect of this embodiment is the same as the first embodiment of the insole of the present invention.

FIG. 9 is a perspective view showing a first embodiment of shoes for stimulating sole of user of the present invention. A shoe for stimulating sole of user of this embodiment is composed of an outer-sole 41, an upper-sole 42 formed at front portion of the upper surface of the outer-sole 41, and an insole 46 positioned on the upper surface of the outer-sole 41.

The insole 46 includes a base plate 43 produced with PVC synthesized resin, numerous protrusions 45 having cavities for absorbing impact inside, formed as a single unit with the base plate 43 and protruding upward on the upper surface of the base plate 43, thereby allowing pressure to be applied to the sole of the user and simultaneously supporting the weight of the user in absorbing impact, and numerous sub-protrusions 47 protruding outward on the outer surface of the respective protrusion 45.

The base plate 43 has numerous combining-protrusions 48 which protrudes outward on the bottom of the base plate 43, and the combining-protrusions 48 are inserted into numerous apertures 44 for locking in the combining-protrusions 48 formed on upper surface of the outer-sole 41 respectively such that the base plate 43 is joined with the outer-sole 41.

To attach the base plate 43 on the outer-sole 41, a female screw portion is

formed inside of the apertures 44 and a male screw portion is formed on the outer surface of the combining-protrusions 48.

Therefore, after the outer-sole 41 and the upper-sole 42 of the shoes are set into place, the combining-protrusions 48 of the base plate 43 are inserted into the apertures 44 of the outer-sole 41 such that the insole 46 is locked in with the outer-sole 41, assembly of the shoes is completed.

The operation and effect of this embodiment is also the same as the first embodiment of the insole of the present invention.

Meanwhile, the combining-protrusion employed in the previous embodiment can have a stopping jaw instead of the male screw portion.

In the foregoing first embodiment of the shoe for stimulating sole of user, it is described that the upper-sole is installed respectively. However, the upper-sole can be formed as a single unit with the insole, as shown in the following second embodiment of the shoe for stimulating sole of user.

FIG. 10 is a perspective view showing a second embodiment of shoes for stimulating sole of user of the present invention. A shoe for stimulating sole of user of this embodiment is composed of an outer-sole 51 and an insole 46 installed on the upper surface of the outer-sole 41.

The insole 56, like the first embodiment of the shoe of the present invention, is composed of a base plate 53 produced with PVC synthesized resin, numerous protrusions 55 formed as a single unit with the base plate 53 and protruding upwardly on the upper surface of the base plate 53, and numerous sub-protrusions 57 protruding outward on the outer surface of the respective protrusions 55.

A front folding member 61 and a rear folding member 63 for forming an upper-sole of the shoe are formed as a single unit with the base plate 53 on the edge of the base plate 53. Thus, the front folding member 61 and the rear folding member 63, as shown in FIG. 11, are joined together with each other such that the upper-sole is formed. And, the insole 56 formed as a single unit with the upper-sole is attached on the outer-sole 51 such that the assembly of the shoe is completed.

Meanwhile, the base plate, the protrusions and the sub-protrusions can be an elastic body produced with a forming agent and an ethylene vinyl acetate. The

forming agent is preferably selected from the group consisting of benzene sulfornyl hydrizine, azo nitlile and diazo acetate amide.

Consequently, due to the insole and a shoe provided with the insole in accordance with the present invention, the comfort is improved and the protrusions are not damaged, thereby useful life is increased. Also, effectiveness of massage is improved.

While the present invention has been particularly shown and described with reference to particular embodiment thereof, it will be understood by those skilled in the art that various changes in form and details may be effected therein without departing from the spirit and scope of the invention as defined by the appended claims.

CLAIMS:

1. An insole of shoe for stimulating sole of user comprising:

a base plate;

numerous protrusions formed as a single unit with said base plate and protruding upward on the upper surface of said base plate, thereby allowing pressure to be applied to the sole of the user and simultaneously supporting the weight of said user in absorbing impact; and

numerous sub-protrusions protruding outward on the outer surface of said respective protrusions.

2. The insole of shoe for stimulating sole of user as claimed in claim 1, wherein said base plate is produced with PVC synthesized resin.

3. The insole of shoe for stimulating sole of user as claimed in claim 2, wherein said respective protrusions have cavities for absorbing the impact inside.

4. The insole of shoe for stimulating sole of user as claimed in claim 1, wherein several folding members for forming an upper-sole of said shoe is formed as a single unit with said base plate on the edge of said base plate.

5. The insole of shoe for stimulating sole of user as claimed in claim 1, wherein numerous combining-protrusions protruding outward on bottom of said base plate are inserted into numerous apertures for locking in said combining-protrusions formed on the upper surface of an outer-sole respectively such that said base plate is joined with said outer-sole.

6. The insole of shoe for stimulating sole of user as claimed in claim 1, wherein said base plate is an elastic body produced with a forming agent and an

ethylene vinyl acetate.

7. The insole of shoe for stimulating sole of user as claimed in claim 6, wherein said forming agent is one selected from the group consisting of benzene sulfornyl hydrizine, azo nitlile and diazo acetate amide.

8. A shoe for stimulating sole of user comprising:

an outer-sole;

an upper-sole formed at the front portion of the upper surface of said outer-sole; and

an insole positioned on the upper surface of said outer-sole, wherein said insole includes a base plate, numerous protrusions formed as a single unit with said base plate and protruding upward on upper surface of said base plate, thereby allowing pressure to be applied to the sole of user and simultaneously supporting the weight of said user in absorbing impact, and numerous sub-protrusions protruding outward on outer surface of said respective protrusions.

9. The shoe for stimulating sole of user as claimed in claim 8, wherein said base plate is produced with PVC synthesized resin.

10. The shoe for stimulating sole of user as claimed in claim 9, wherein said respective protrusions have cavities for absorbing the impact inside.

11. The shoe for stimulating sole of user as claimed in claim 8, wherein numerous combining-protrusions protruding outward on the bottom of said base plate are inserted into numerous apertures for locking in said combining-protrusions formed on the upper surface of the outer-sole respectively such that said base plate is joined with said outer-sole.

12. The shoe for stimulating sole of user as claimed in claim 8, wherein said base plate is an elastic body produced with a forming agent and an ethylene vinyl acetate.

13. The shoe for stimulating sole of user as claimed in claim 12, wherein said forming agent is one selected from the group consisting of benzene sulfornyl hydrizine, azo nitlile and diazo acetate amide.

14. A shoe for stimulating sole of user comprising:

an outer-sole;

an upper-sole formed at the front portion of the upper surface of said outer-sole; and

an insole installed on the upper surface of said outer-sole, wherein said insole includes a base plate produced with PVC synthesized resin, numerous combining-protrusions which protrude outward on the bottom of said base plate to be inserted into numerous apertures for locking in said combining-protrusions formed on the upper surface of an outer-sole respectively such that said base plate is joined with said outer-sole, numerous protrusions having cavities for absorbing impact inside formed as a single unit with said base plate and protruding upward on the upper surface of said base plate, thereby allowing pressure to be applied to the sole of user and simultaneously supporting the weight of said user in absorbing impact, and numerous sub-protrusions protruding outward on the outer surface of said respective protrusions.

15. A shoe for stimulating sole of user comprising:

an outer-sole;

an upper-sole formed at the front portion of the upper surface of said outer-sole; and

an insole positioned on the upper surface of said outer-sole, wherein said insole includes a base plate produced with EVA, numerous protrusions formed as a single unit with said base plate and protruding upward on the upper surface of said base plate, thereby allowing pressure to be applied to the sole of user and simultaneously supporting the weight of said user in absorbing impact, and numerous sub-protrusions protruding outward on the outer surface of said respective protrusions.

FIG. 1

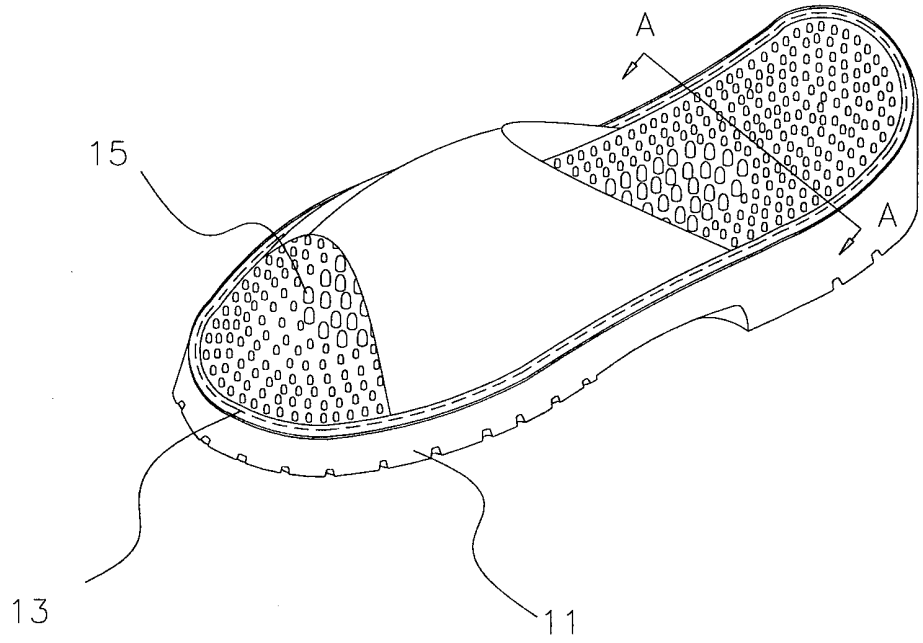


FIG. 2

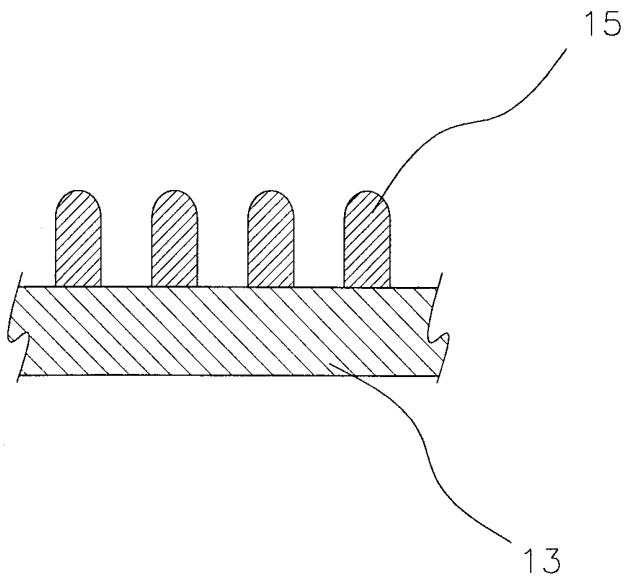


FIG. 3

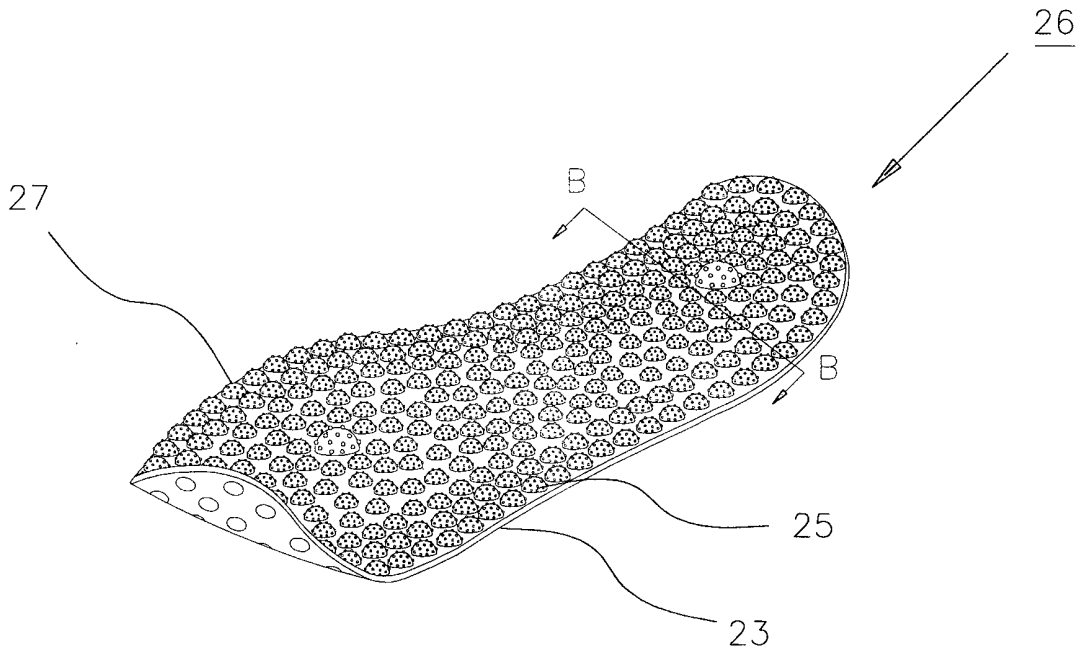


FIG. 4

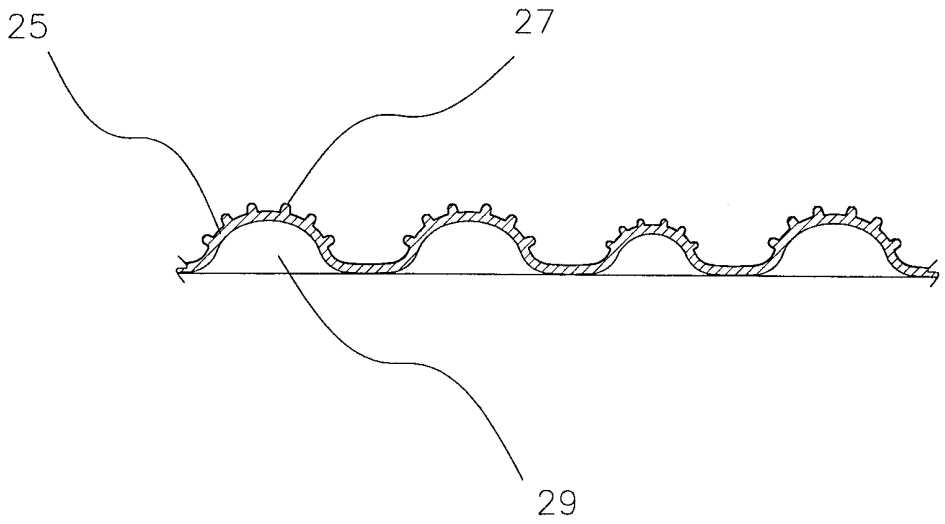


FIG. 5

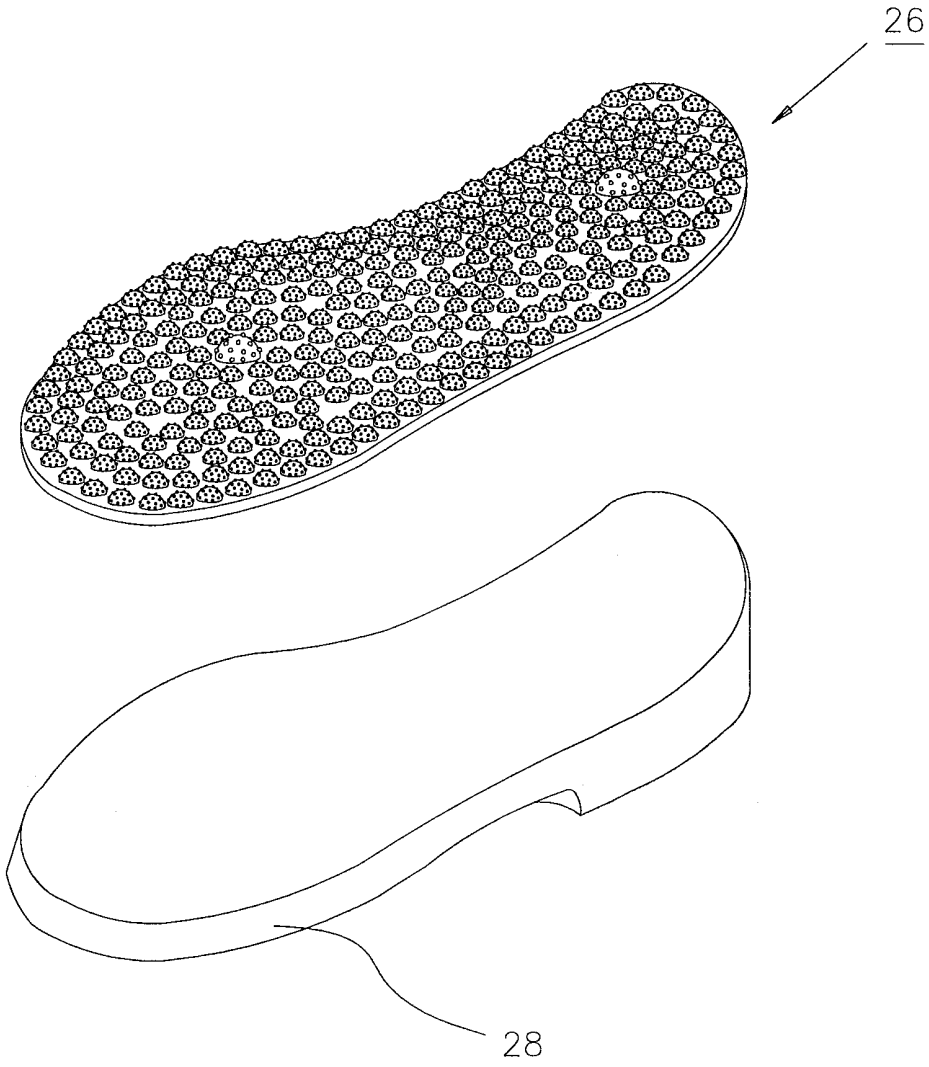


FIG. 6

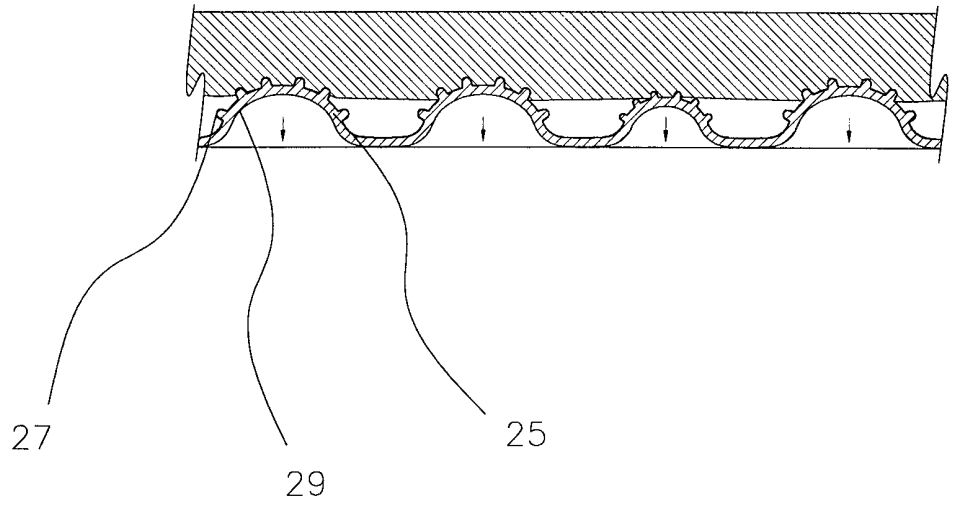


FIG. 7

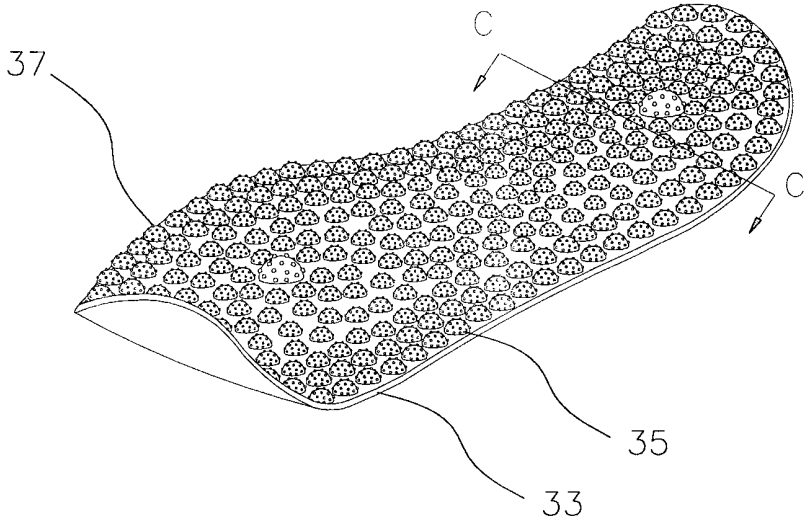


FIG. 8

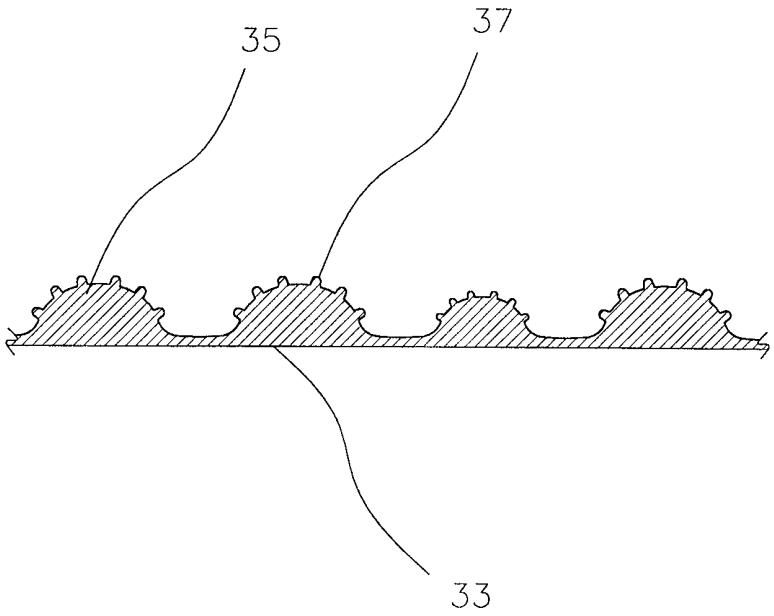


FIG. 9

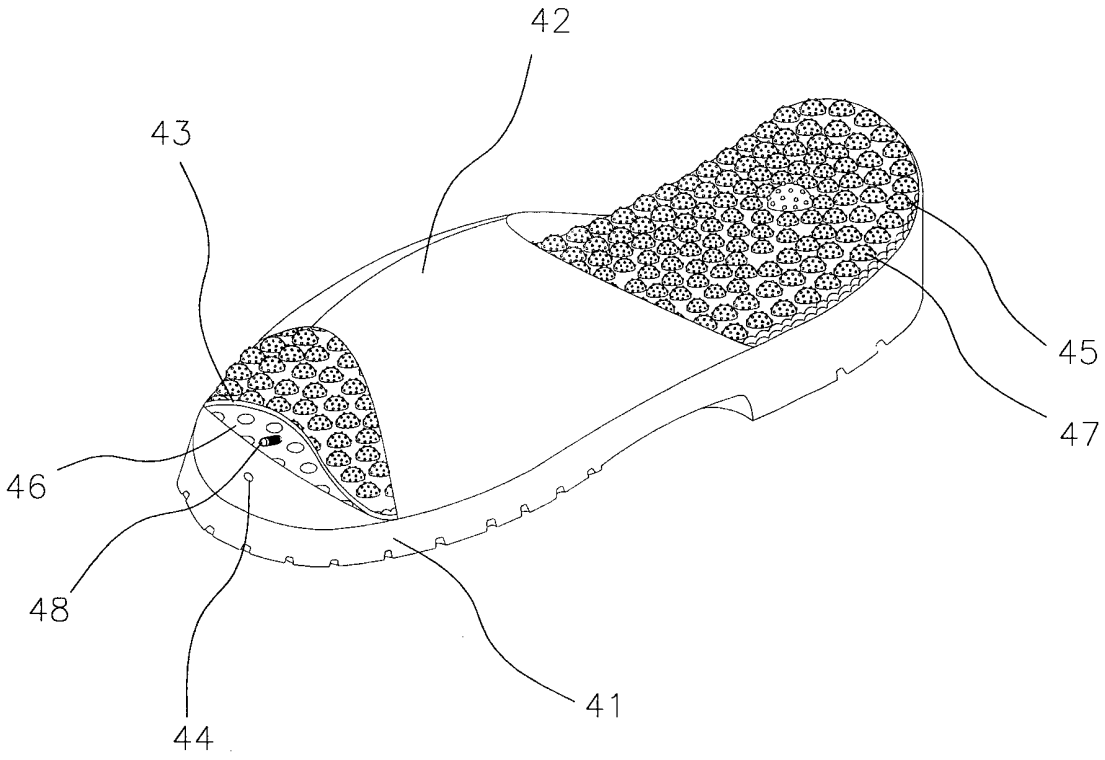


FIG. 10

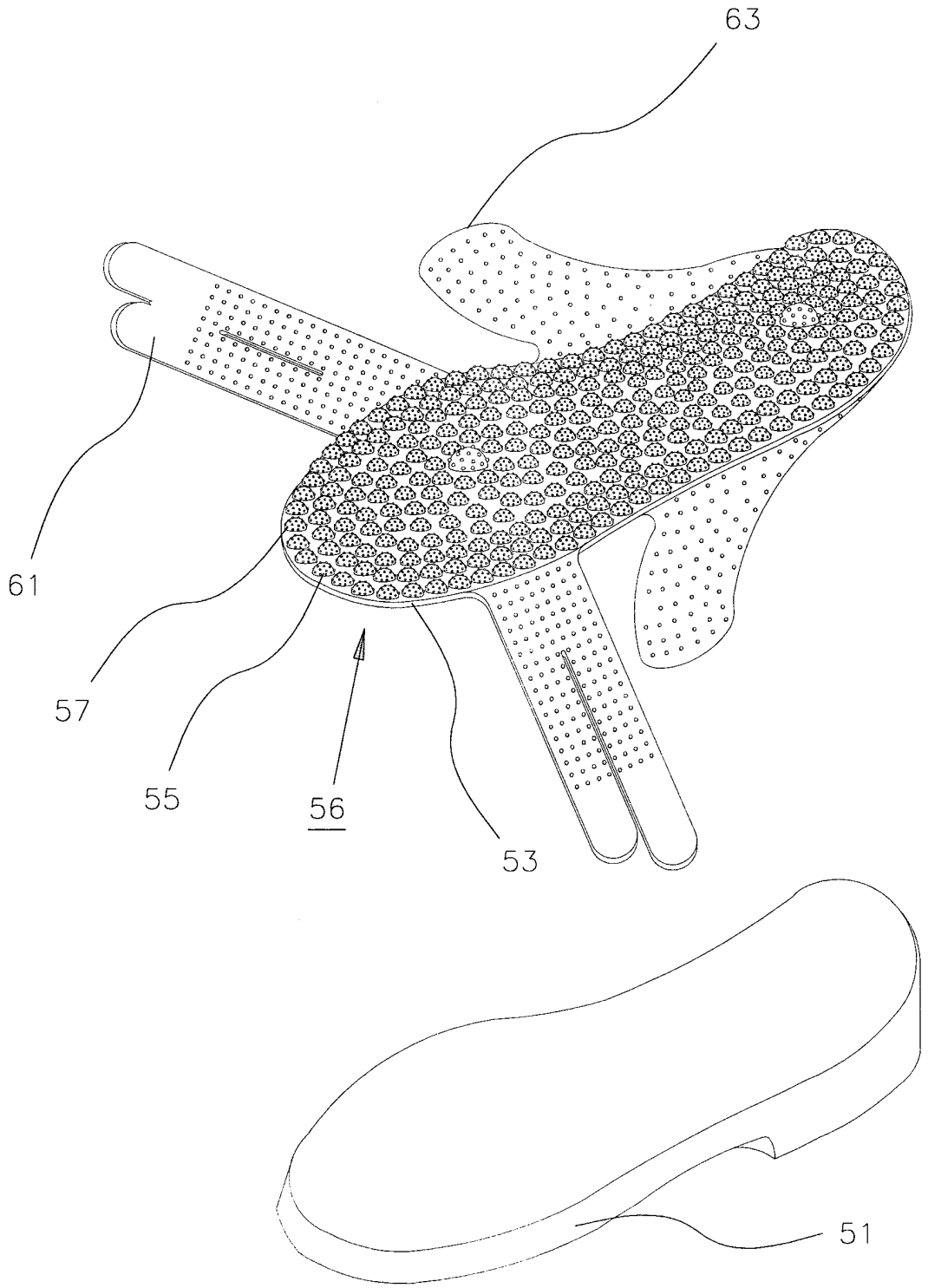
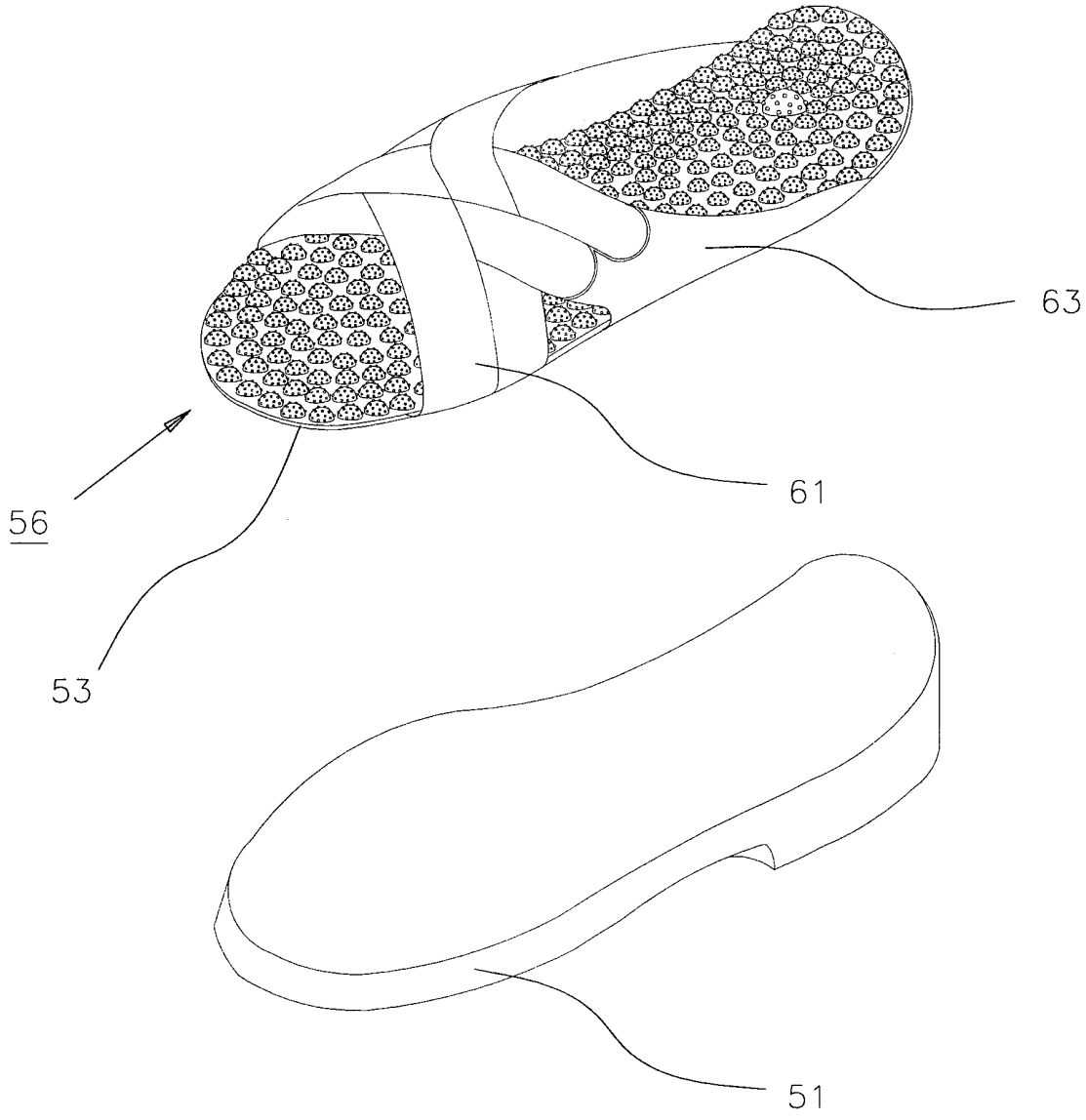


FIG. 11



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR 98/00423

A. CLASSIFICATION OF SUBJECT MATTER

IPC[6]: A 43 B 17/00, 13/38

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)

IPC[6]: A 43 B

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; WPIL; PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 037 462 A1 (DASWICK) 14 October 1981 (14.10.81), totality.	1-15
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☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
19 March 1999 (19.03.99)	07 April 1999 (07.04.99)
Name and mailing adress of the ISA/AT Austrian Patent Office Kohlmarkt 8-10; A-1014 Vienna Facsimile No. 1/53424/535	Authorized officer Losenicky Telephone No. 1/53424/372

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International application No.
PCT/KR 98/00423

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