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(54) Title: OUTSOLE FOR SHOES

(57) Abstract: Disclosed is an outsole for shoes capable of enhancing ventilation and cushion force and removing and preventing an offensive odor and bacteria propagation caused due to the sweat secreted from feet or shoes. The outsole includes a reentrant chamber having an antibiotic and fragrant material retaining chamber in and from which an antibiotic and fragrant material is attached and detached by means of an opening and closing part and having a plurality of auxiliary reentrant chambers, the antibiotic and fragrant material retaining chamber defined by a retaining wall formed as integral with the reentrant chamber; and a cushion cover covered and fixedly attached on the top surface of the reentrant chamber to thereby form an air chamber and having a plurality of buffering protrusions being in contact with the top surface of the reentrant chamber on the bottom surfaces thereof and an air flowing hole over the antibiotic and fragrant material retaining chamber, through which air flowing through an air induction groove and an air discharging hole formed by the retaining wall is discharged to one or more discharging holes formed on the front side of the cushion cover.
OUTSOLE FOR SHOES

Technical Field

The present invention relates to an outsole for shoes and more particularly, to an outsole for shoes which is capable of enhancing ventilation and cushion force and removing and preventing an offensive odor and bacteria propagation caused due to the sweat secreted from the shoes or feet.

Background Art

A conventionally proposed outsole for shoe is placed on the lower portion of the shoe, in order to protect the sole of a user's foot. The outsole has a thickness thicker than midsole or insole. Therefore, the outsole is one of important components serving to support the lower portion of the shoe.

Generally, the shoe allows the propagation of all kinds of bacteria therein, since the sweat secreted from the user's feet upon wearing and caused from the internal space thereof are not naturally emitted to the outside. So, the following problems are arisen: A bad smell may be generated from the shoe; and all kinds of bacteria such as athlete's foot bacteria, eczematous bacteria and so on that are parasitic on the feet are rapidly propagated. The inventor has developed an outsole for shoes that is capable of obviating the above problems suffered in the conventional outsole for shoes, which is at present registered as Korean Utility Model Registration No. 166185.

In the document cited, the outsole for shoes is provided with an air cap thereon, through which a contaminated air in the shoe flows to the outside and a fresh air from the outside is induced to the shoe, thereby preventing the generation of the sweat secreted from the sole of a foot and the generation of the athlete's foot or eczema and with an embossing face and a plurality of springs formed on a midsole, thereby providing a buffering effect of absorbing shocks applied to the shoe with the tension generated from the embossing face and the springs.

However, the prior art of the inventor has some problems that
it is difficult to fix and attach the springs on the outsole upon fabricating, that since the cushion force of shoe is dependent upon the elastic force of the spring, the elasticity may be reduced after elapsing of time, which results in the decrement of the cushion force, that in use, if any one of the springs is damaged, the shoe fails to exert its original cushion force and undesirable overload is delivered to the foot.

Disclosure of the Invention

Accordingly, the present invention is directed to an improved outsole for shoe that substantially obviates one or more of the limitations and disadvantages of the related art.

An object of the present invention is to provide an outsole for shoes that is capable of completely removing an offensive odor and bacteria propagation caused due to the sweat secreted from a foot, providing all kinds of convenience in manufacturing and enhancing its cushion force and durability.

To achieve this and other objects of the present invention, there is provided an outsole for shoes including: a reentrant chamber having an antibiotic and fragrant material retaining chamber in and from which an antibiotic and fragrant material is attached and detached by means of an opening and closing part and having a plurality of auxiliary reentrant chambers, the antibiotic and fragrant material retaining chamber defined by a retaining wall formed as integral with the reentrant chamber: and a cushion cover covered and fixedly attached on the top surface of the reentrant chamber to thereby form an air chamber and having a plurality of buffering protrusions being in contact with the top surface of the re-entrant chamber on the bottom surfaces thereof and an air flowing hole over the antibiotic and fragrant material retaining chamber, through which air flowing through an air inducting groove and an air discharging hole defined by the retaining wall is discharged to one or more discharging holes formed on the front side of the cushion cover.

Brief Description of the Drawings
Fig. 1 is a perspective view illustrating a configuration of an outsole for shoes according to the present invention:

Fig. 2 is an exploded perspective view of Fig. 1:

Fig. 3 is a sectional view illustrating the assembled state of Fig. 2:

Fig. 4 is a sectional view taken along the line A–A in Fig. 1:

and

Fig. 5 is a sectional view taken along the line B–B in Fig. 1.

Best Mode for Carrying Out the Invention

Now, an explanation of the configuration and operation of an outsole for shoes according to the present invention will be hereinafter discussed with the accompanying drawings.

Fig. 1 is a perspective view illustrating a configuration of an outsole for shoes according to the present invention. Fig. 2 is an exploded perspective view of Fig. 1, and Fig. 3 is a sectional view illustrating the assembled state of Fig. 2.

An outsole 1 for shoes of the present invention includes a reentrant chamber 2 and a cushion cover 3 molded out of rubber having an excellent cushion force and covered and fixed on the top portion of the reentrant chamber 2 thus to form a closed type of air chamber 4.

The reentrant chamber 2 is provided with an antibiotic and fragrant material retaining chamber 5 and an opening and closing part 7 that is installed on the bottom portion of the outsole 1, while communicating with the antibiotic and fragrant material retaining chamber 5, so that an antibiotic and fragrant material 6 in the antibiotic and fragrant material retaining chamber 5 can be exchanged with new one.

The opening and closing part 7 is composed of a fixed opening 8 with a female screw 8b on the inner peripheral surface of an opening and closing hole 8a formed in an insert molding manner as integral with the outsole 1 upon molding and a cap 9 with a male screw 9a that is opened and closed on the fixed opening 8 in a screw manner. The cap 9 is provided with a plurality of tool coupling
holes 9b through which a tool such as a general driver or a separate special purpose tool 10 is coupled to open and close the cap 9.

On the rear side of the interior of the air chamber 4, that is, on the portion of the outsole 1 where the heel of the foot is disposed, there are provided a plurality of auxiliary reentrant chambers 11 for increasing the cushion force of the outsole 1 and supplying a more large amount of air to the outsole 1 during a user’s walking. The antibiotic and fragrant material retaining chamber 5 has a retaining space defined by a retaining wall 12 molded as integral with the outsole 1, and the cushion cover 3 over the antibiotic and fragrant material retaining chamber 5 forms an air flowing hole 13 for flowing air to the antibiotic and fragrant material retaining chamber 5, such that the air is discharged to the front side of the outsole 1, with the components of the antibiotic and fragrant material 6 dispersed in the air. The retaining wall 12 is provided with an air discharging hole 14 for supplying the air flowing through the air flowing hole 13 and the air containing the components of the antibiotic and fragrant material 6 to the front side of the reentrant chamber 2 via an air induction groove 15 formed on the retaining wall 12.

The reentrant chamber 2 of the outsole 1 for the shoes according to the present invention forms the air chamber 4 in cooperation with the cushion cover 3 covered and closed fixed on the top portion thereof, thereby absorbing all kinds of shocks applied to the shoes during walking and supplying much air and the components of the antibiotic and fragrant material 6 to the interior of the shoe retaining chamber 5. The cushion cover 3 is desirably molded out of a soft rubber having a good cushion force. The cushion cover 3 includes a plurality of buffering protrusions 16 separated at predetermined intervals and being in close contact with the top surface of the reentrant chamber 2 on the bottom portions thereof, the air flowing hole 13 formed to correspond with the air induction groove 15 and a plurality of air discharging holes 17 on the portion where the front side of a user’s foot is placed, through which the air charged in the interior of the shoe is discharged.

Even if an additional illustration is not made in the present
invention, it is possible to configure the air chamber 4 in a completely closed type not to flow and discharge air thereto and therefrom, for the purpose of obtaining a simple cushion reinforcing effect.

In the drawings, the reference numeral '18' denotes a midsole, '19' denotes an insole and '20' denotes a check valve.

The outsole 1 for shoes according to the present invention can be applied to all kinds of shoes, so that it provides various functions of supplying a fresh air for ventilation within the shoe and the components of an antibiotic and fragrant material and reliably buffering all kinds of shocks applied to the shoes, in addition to its inherent function of supporting the lower portion of the shoe. Now, an explanation of functions and operations of the outsole for shoes according to the present invention is described below.

While a user is wearing the shoes with the outsole 1 of the present invention and is walking, his body's load is sent to the outsole 1 through the insole 19 and the midsole 18 and then applied to the cushion cover 3, such that the cushion cover 3 is compressed downward by characteristics of the material itself. At this time, the plurality of buffering protrusions 16 formed on the cushion cover 3 are compressed due to the load of the user's body, thereby allowing the air in the interior of the air chamber 4 formed by the outsole 1 and the cushion cover 3 to be compressed. On the other hand, air is induced to the air induction groove 15 through the air flowing hole 13, and the compressed air within the air chamber 4 is moved forward, such that the air is discharged through the plurality of air discharging holes 17 in an upward direction of the midsole 18 and the insole 19.

The air induced to the air induction groove 15 is allowed to compress the air existing in the antibiotic and fragrant material retaining chamber 5, such that the compressed air is discharged through the air discharging hole 14 to the air discharging holes 17 on the front side of the outsole 1. According to the present invention, when the air in the air induction groove 15 is compressed and conveyed to the air discharging hole 14, it is mixed with the air containing the components of the antibiotic and fragrant material 6 retained in the antibiotic and fragrant material retaining chamber 5 and
then discharged to the interior of the shoe through the air discharging holes 17. Therefore, the outsole 1 for shoes according to the present invention can remove the bad smell out of the interior of the shoe and suppress and prevent the propagation of all kinds of bacteria such as the athlete’s foot, eczema and so on.

When the air on the air induction groove 15 is discharged to the air discharging hole 14, new air is induced to the air induction groove 15 through the air flowing hole 13, mixed to the air containing the components of the antibiotic and fragrant material 6, and discharged to the air discharging holes 17, in the same manner as above.

On the other hand, when the components of the antibiotic and fragrant material 6 retained in the antibiotic and fragrant material retaining chamber 5 are all consumed, the cap 9 of the opening and closing part 7 attached on the bottom portion of the outsole 1 is opened by coupling the special purpose tool 10 or a tool such as a driver to the tool coupling holes 9b. Next, the consumed antibiotic and fragrant material 6 is exchanged with new one and then, the cap 9 is screw-coupled on the fixed opening 8 and closed. Thereby, the outsole 1 for shoes according to the present invention has the same antibiotic and fragrant effect as before exchange.

As clearly apparent from the foregoing, an outsole for shoes according to the present invention is provided with a reentrant chamber with an antibiotic and fragrant material retaining chamber for retaining an antibiotic and fragrant material, a cushion cover molded out of a soft rubber and closely fixed on the top surface of the reentrant chamber, thereby forming an air chamber with an air flowing hole and one or more air discharging holes, such that the load of a user’s body during walking is applied to the cushion cover and compress it and thus, the air within the air chamber is compressed with the air flowing into the air flowing hole and finally discharged to the air discharging holes, together with the components dispersed from the antibiotic and fragrant material.

Thereby, the outsole for shoes according to the present invention is capable of effectively removing a bad smell caused due to the sweat secreted from a user’s foot and previously preventing the
generation of the causes of the bad smell by virtue of the components of the antibiotic and fragrant material.

**Industrial Applicability**

The outsole for shoes according to the present invention is provided with the cushion cover fabricated in an injection molding manner and attached on the top surface of the outsole, thereby exerting good ventilation and cushion force. Therefore, the outsole for shoes according to the present invention is easy to fabricate at a low production expense and more improved durability when compared as the existing outsole using springs.
WHAT IS CLAIMED IS:

1. An outsole for shoes comprising:
   a reentrant chamber having an antibiotic and fragrant material retaining chamber in and from which an antibiotic and fragrant material is attached and detached by means of an opening and closing part and having a plurality of auxiliary reentrant chambers, said antibiotic and fragrant material retaining chamber defined by a retaining wall formed as integral with said reentrant chamber; and a cushion cover covered and fixedly attached on the top surface of said reentrant chamber to thereby form an air chamber and having a plurality of buffering protrusions being in contact with the top surface of said reentrant chamber on the bottom surfaces thereof and an air flowing hole over said antibiotic and fragrant material retaining chamber, through which air flowing through an air induction groove and an air discharging hole formed by said retaining wall is discharged to one or more discharging holes formed on the front side of said cushion cover.

2. The outsole for shoes as defined in claim 1, wherein said opening and closing part comprises: a fixed opening with an opening and closing hole fixed on said outsole and with a female screw on the inner peripheral surface of said opening and closing hole; and a cap with a male screw coupled with said female screw of said fixed opening and with a plurality of tool coupling holes.
Fig. 2