

Description

The present invention relates to a sole for a shoe, the sole having a massaging effect in that it is able to stimulate the sole of the foot of the wearer of the shoe.

There is known a sole consisting of two sheets which are sealed at the peripheral edge portion thereof to form a hollow portion therein, and liquid is injected to fill the hollow portion. When the wearer walks, the liquid moves within the hollow portion due to the pressure of the foot of the wearer. However, the liquid moves in an arbitrary direction thereby causing a seasickness phenomenon and the feeling of fatigue. Moreover, the liquid sometimes leaks from the sole to the exterior with the lapse of time.

In FR-A-2508779, there is disclosed a sole for a shoe, the sole having a hollow portion, capable of accommodating a liquid, formed between a cover member and a base plate, which base plate comprises:

a recessed area defined by wall portions of the base plate; and

a plurality of protruding blades arranged in the recessed area so as to lie substantially parallel to each other and substantially perpendicular to an axis running from the heel to the toe of the sole, each of which protruding blades extends in a slanted direction outwardly from the recessed area.

The object of the present invention is to give direction to the liquid in the sole so that the liquid moves in a predetermined direction during use of the shoe thereby stimulating the entire sole of the foot.

The other object of the present invention is to prevent the liquid from leaking from the sole.

According to the present invention, there is provided a sole for a shoe, the sole having a hollow portion, liquid is filled in said hollow portion, formed between a cover member and a base plate, which base plate comprises:

a recessed area defined by wall portions of the base plate; and

a plurality of protruding blades arranged in the recessed area so as to lie substantially parallel to each other and substantially perpendicular to an axis running from the heel to the toe of the sole, each of which protruding blades extends in a slanted direction outwardly from the recessed area;

wherein the sole further comprises:

a plurality of web members one of which is situated at each end of each protruding blade and each of which connects an end of a protruding blade to an adjacent wall portion defining the recessed area;

a plurality of notches in the outward edge of each blade, for allowing movement of the liquid

within the recessed area; and

a thin portion in the periphery of the wall portion of the base plate sealed at a thick portion in the periphery of the cover member.

The sole of the invention is, for instance, a full sole, a half sole, or a mid-sole (i.e. an insole).

Preferably, the thin portion in the periphery of the wall portion of the base plate has approximately the same thickness as the thick portion in the periphery of the cover member.

Preferably, the protruding blades extend in a slanted fashion in a direction away from the toe and towards the heel of the sole.

Preferably, the web members have a height less than the height of the protruding blades.

The base plate can be made of thermoplastic polyvinyl material. The cover member is preferably made of the same material as the base plate.

Liquid such as water is injected into, and fills, the hollow portion provided between the base plate and the cover member. The liquid mainly moves in the gaps provided between the blades reciprocally, and further in a direction perpendicular to the longitudinal direction of the blades through the webs and the notches reciprocally.

Reference will now be made, by way of example, to the drawings in which:

Fig. 1 is a partially broken front view showing a mid-sole or sole for a shoe;

Fig. 2 is a sectional view taken along the line a-a of Fig. 1;

Fig. 3 is an enlarged sectional view of one of the blades of the mid-sole or sole; and

Fig. 4 is an enlarged front view showing one of the notches in the blade.

Referring now to the drawings, embodiments of the present invention applied to a mid-sole or sole for a shoe are described hereinafter.

Referring to Figs. 1 and 2, the mid-sole is composed of a base plate 1 having a configuration similar to that of the sole of a shoe, a cover member 2 sealed at the periphery of the base plate 1, a plurality of protruding blades 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 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978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

The base plate 1 is made of polyvinyl chloride as a thermoplastic resin, and has a configuration similar to that of the sole of a shoe as shown in Fig. 1. There is provided a recessed area 11 on the upper surface of the base plate 1 within the area corresponding to the sole of a foot, and this recessed area is enclosed by a wall portion 12.

The upper half portion of the base plate 1 is wide, and therefore it is possible to cut away a part of the upper half, in accordance with the size of the shoe.

There is provided a thin portion 13 at the periphery of the wall portion 12 of the base plate 1 through an offset, as shown in Fig. 2. The thin portion 13 is thin in comparison with the thickness of the wall portion 12.

There are provided a plurality of blades 10 protruding from the surface of the recessed area 11, integral with the base plate 1, and a plurality of webs 10a connected to the inner portion of the wall portion 12 of the base plate 1. As shown in Fig. 3, the webs 10a are thin and low as compared to the blades 10 thereby making it possible for the water W to move.

Each of the blades 10 is disposed in a direction perpendicular to the longitudinal direction of the base plate 1, and, as shown in Fig. 2, the blades are slanted in the same direction, i.e. towards the heel. Furthermore, the height of the blades is higher than that of the wall portion 12. Moreover, there are provided three notches 10b in the outward edge of each blade and the size of each notch is such as to allow the passage of the water W easily.

The flexible cover member 2 is sealed to the peripheral portion of the base plate 1 by the use of a high frequency heating method. The cover member 2 is made of polyvinyl chloride, similarly to the base plate 1 and there is provided a thick portion 21 through an offset portion at the periphery thereof. The thick portion 21 is thick as compared to the rest of the cover member 2, and the thickness of the thick portion 21 is approximately the same as that of the thin portion 13 of the base plate 1.

The upper half portion that can be cut away, as noted above, corresponds to the thin portion 14 of the base plate 1 and the thick portion 21 of the cover member 2.

The cover member 2 is sealed at the peripheral edge portion of the base plate 1 by the use of a high frequency heating means so that a sealed hollow portion is provided within the space enclosed by the base plate 1 and the cover member 2. Water W is injected into the hollow portion from an injection inlet (not shown) mounted at the surface between the thin portion 13 of the base plate 1 and the thick portion 21 of the cover member 2.

As mentioned above, the thin portion 13 of the base plate 1 is offset with respect to the periphery of the wall portion 12, and furthermore the thick portion 21 of the cover member 2 is offset with respect to the cover 2. Therefore, when the thin portion and the thick portion are sealed, they become an integral body since the base plate is made of the same material as the cover member. The adhering area between the thin portion of the base plate and the thick portion of the cover member is wide, and therefore a strong adhesive force can be obtained.

Therefore, the blades 10 and the webs 10a deform under the weight of the wearer of the shoe, and the water W moves in a direction perpendicular to the longitudinal direction of the blades, i.e. the vertical direction in Fig. 1. Moreover, since the liquid is able to pass the blades easily by means of the provision of the notches 10b, the movement of the liquid is effected smoothly, and further since the liquid moves in a predetermined direction, the massage effect upon the sole of the foot is increased.

Claims

1. A sole for a shoe, the sole having a hollow portion, liquid (W) is filled in said hollow portion, formed between a cover member (2) and a base plate (1), which base plate (1) comprises:
 - a recessed area (11) defined by wall portions (12) of the base plate (1); and
 - a plurality of protruding blades (10) arranged in the recessed area (11) so as to lie substantially parallel to each other and substantially perpendicular to an axis running from the heel to the toe of the sole, each of which protruding blades (10) extends in a slanted direction outwardly from the recessed area (11);
 - characterized in that the sole further comprises:
 - a plurality of web members (10a) one of which is situated at each end of each protruding blade (10) and each of which connects an end of a protruding blade (10) to an adjacent wall portion (12) defining the recessed area (11);
 - a plurality of notches (10b) in the outward edge of each blade (10), for allowing movement of the liquid (W) within the recessed area (11); and
 - a thin portion (13) in the periphery of the wall portion (12) of the base plate (1) sealed at a thick portion (21) in the periphery of the cover member (2).
2. A sole as claimed in claim 1, wherein the thin portion (13) in the periphery of the wall portion (12) of the base plate (1) has approximately the same thickness as the thick portion (21) in the periphery of the cover member (2).
3. A sole as claimed in claim 1 or 2, wherein the protruding blades (10) extend in a slanted fashion in a direction away from the toe and towards the heel of the sole.

There is provided a thin portion 13 at the periphery of the wall portion 12 of the base plate 1 through an offset, as shown in Fig. 2. The thin portion 13 is thin in comparison with the thickness of the wall portion 12.

There are provided a plurality of blades 10 protruding from the surface of the recessed area 11, integral with the base plate 1, and a plurality of webs 10a connected to the inner portion of the wall portion 12 of the base plate 1. As shown in Fig. 3, the webs 10a are thin and low as compared to the blades 10 thereby making it possible for the water W to move.

Each of the blades 10 is disposed in a direction perpendicular to the longitudinal direction of the base plate 1, and, as shown in Fig. 2, the blades are slanted in the same direction, i.e. towards the heel. Furthermore, the height of the blades is higher than that of the wall portion 12. Moreover, there are provided three notches 10b in the outward edge of each blade and the size of each notch is such as to allow the passage of the water W easily.

The flexible cover member 2 is sealed to the peripheral portion of the base plate 1 by the use of a high frequency heating method. The cover member 2 is made of polyvinyl chloride, similarly to the base plate 1 and there is provided a thick portion 21 through an offset portion at the periphery thereof. The thick portion 21 is thick as compared to the rest of the cover member 2, and the thickness of the thick portion 21 is approximately the same as that of the thin portion 13 of the base plate 1.

The upper half portion that can be cut away, as noted above, corresponds to the thin portion 14 of the base plate 1 and the thick portion 21 of the cover member 2.

The cover member 2 is sealed at the peripheral edge portion of the base plate 1 by the use of a high frequency heating means so that a sealed hollow portion is provided within the space enclosed by the base plate 1 and the cover member 2. Water W is injected into the hollow portion from an injection inlet (not shown) mounted at the surface between the thin portion 13 of the base plate 1 and the thick portion 21 of the cover member 2.

As mentioned above, the thin portion 13 of the base plate 1 is offset with respect to the periphery of the wall portion 12, and furthermore the thick portion 21 of the cover member 2 is offset with respect to the cover 2. Therefore, when the thin portion and the thick portion are sealed, they become an integral body since the base plate is made of the same material as the cover member. The adhering area between the thin portion of the base plate and the thick portion of the cover member is wide, and therefore a strong adhesive force can be obtained.

Therefore, the blades 10 and the webs 10a deform under the weight of the wearer of the shoe, and the water W moves in a direction perpendicular to the longitudinal direction of the blades, i.e. the vertical direction in Fig. 1. Moreover, since the liquid is able to pass the blades easily by means of the provision of the notches 10b, the movement of the liquid is effected smoothly, and further since the liquid moves in a predetermined direction, the massage effect upon the sole of the foot is increased.

Claims

1. A sole for a shoe, the sole having a hollow portion, liquid (W) is filled in said hollow portion, formed between a cover member (2) and a base plate (1), which base plate (1) comprises:
 - a recessed area (11) defined by wall portions (12) of the base plate (1); and
 - a plurality of protruding blades (10) arranged in the recessed area (11) so as to lie substantially parallel to each other and substantially perpendicular to an axis running from the heel to the toe of the sole, each of which protruding blades (10) extends in a slanted direction outwardly from the recessed area (11);
 - characterized in that the sole further comprises:
 - a plurality of web members (10a) one of which is situated at each end of each protruding blade (10) and each of which connects an end of a protruding blade (10) to an adjacent wall portion (12) defining the recessed area (11);
 - a plurality of notches (10b) in the outward edge of each blade (10), for allowing movement of the liquid (W) within the recessed area (11); and
 - a thin portion (13) in the periphery of the wall portion (12) of the base plate (1) sealed at a thick portion (21) in the periphery of the cover member (2).
2. A sole as claimed in claim 1, wherein the thin portion (13) in the periphery of the wall portion (12) of the base plate (1) has approximately the same thickness as the thick portion (21) in the periphery of the cover member (2).
3. A sole as claimed in claim 1 or 2, wherein the protruding blades (10) extend in a slanted fashion in a direction away from the toe and towards the heel of the sole.



4. A sole as claimed in any of claims 1 to 3, wherein the web members (10a) have a height less than the height of the protruding blades (10).

Patentansprüche

1. Sohle für einen Schuh, wobei die Sohle einen Hohlraum aufweist, der mit Flüssigkeit gefüllt und zwischen einem Abdeckteil (2) und einer Grundplatte (1) gebildet ist, und die Grundplatte (1) umfaßt
 - einen ausgesparten Bereich (11), der von Wandteilen (12) der Grundplatte (1) bestimmt wird, und
 - eine Anzahl hervorstehender Lamellen (10), die im ausgesparten Bereich (11) so angeordnet sind, daß sie im wesentlichen zueinander parallel verlaufen und im wesentlichen senkrecht auf einer Achse stehen, die von Absatz zur Schuhspitze verläuft, und jede der hervorstehenden Lamellen (10) aus dem ausgesparten Bereich (11) schräg nach außen verläuft, und die Sohle zudem umfaßt
 - eine Anzahl Stegteile (10a), von denen sich je eines an jedem Ende einer jeden hervorstehenden Lamelle (10) befindet und jedes Stegteil ein Ende einer hervorstehenden Lamelle (10) mit einem nahegelegenen Wandteil (12) verbindet, der den ausgesparten Bereich (11) bestimmt,
 - eine Anzahl Kerben (10b) in der Außenkante jeder Lamelle (10), um die Bewegung der Flüssigkeit (W) im ausgesparten Bereich (11) zu gestatten, und
 - einen dünnen Teil (13) im Rand des Wandteils (12) der Grundplatte (1), der mit einem dicken Teil (21) im Rand des Abdeckteils (2) dicht verbunden ist.
2. Sohle nach Anspruch 1, wobei der dünne Teil (13) im Randbereich des Wandteils (12) der Grundplatte (1) ungefähr genauso dick ist wie der dicke Teil (21) im Randbereich des Abdeckteils (2).
3. Sohle nach Anspruch 2 oder 3, wobei die herausragenden Lamellen (10) schräg verlaufen, und zwar in einer Richtung weg von der Spitze und hin zum Absatz der Sohle.
4. Sohle nach irgendeinem der Ansprüche 1 bis 3, wobei die Stegteile (10a) niedriger sind als die herausragenden Lamellen (10).

Revendications

1. Semelle pour chaussure, la semelle ayant une cavité, un liquide (W) étant contenu dans ladite cavité, formée entre un élément de recouvrement (2) et une plaque de base (1), laquelle plaque de base (1) comprend :
 - une région creusée (11) définie par des parties de paroi (12) de la plaque de base (1) ; et
 - une pluralité de lamelles saillantes (10) disposées dans la région creusée (11) de manière à s'étendre sensiblement parallèlement entre elles et sensiblement perpendiculairement à un axe allant du talon à la pointe de la semelle, chacune des lamelles saillantes (10) s'étendant dans une direction inclinée de la région creusée (11) vers l'extérieur ;
 - caractérisée en ce que la semelle comprend en outre :
 - une pluralité de voiles (10a) dont un est situé à chaque extrémité de chaque lamelle saillante (10), et dont chacun relie une extrémité d'une lamelle saillante (10) à une partie de paroi adjacente (12) qui définit la région creusée (11) ;
 - une pluralité d'encoches ménagées (10b) dans le bord extérieur de chaque lamelle (10), pour laisser le liquide (W) se déplacer dans la région creusée (11) ; et
 - une partie mince (13) ménagée dans la périphérie de la partie paroi (12) de la plaque de base (1), soudée à une partie épaisse (21) de la périphérie de l'élément de recouvrement (2).
2. Semelle selon la revendication 1, dans laquelle la partie mince (13) de la périphérie de la partie paroi (12) de la plaque de base (1) a approximativement la même épaisseur que la partie épaisse (21) dans la périphérie de l'élément de recouvrement (2).
3. Semelle selon la revendication 1 ou 2, dans laquelle les lamelles saillantes (10) s'étendent en oblique dans une direction qui s'éloigne de la pointe et se dirige vers le talon de la semelle.
4. Semelle selon une quelconque des revendications 1 à 3, dans laquelle les voiles (10a) ont une hauteur inférieure à la hauteur des lamelles saillantes (10).

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