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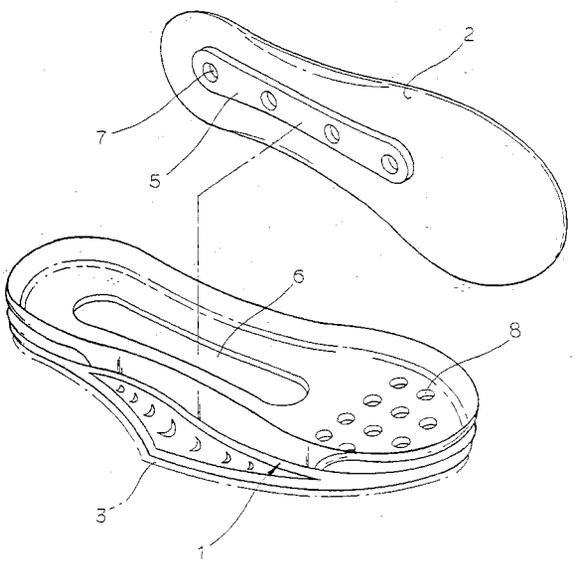
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(54) Shoe sole without a heel

(57) Disclosed is a shoe sole which is capable of elastically supporting a rear part of a shoe by installing a plurality of heel reinforcement rod at predetermined positions between the center portion and the rear portion of an inner cover and by attaching the inner cover to the upper surface of the middle portion of the shoe sole. The shoe sole includes a middle plate (1), an inner cover(2), a sole plate(3) and a heel reinforcement rod (5). The inner cover (2) is made of hardened synthetic resins having a thickness of between 1.5mm and 3mm. The reinforcement rod(5) extends from the center portion to the rear portion of the inner cover(2). This reinforcement rod(5) is made of hardened synthetic resins having a thickness of between 2mm and 4mm. A rod receiving groove(6) is formed at the upper surface of the middle plate (1), and the inner cover (2) is attached to the upper surface of the middle plate (1) in a state that the reinforcement rod(5) is inserted into an inner space of the inner cover (2). In the manufacturing process of the shoe, the inner cover has functions of attaching an outer cover of the shoe to the sole and of supporting the rear part of the shoe. Consequently, the manufacturing process of the shoe according to the present invention is simple and the manufacturing cost is reduced significantly.

【Fig 1】



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Description

Background of the Invention

1. Field of the Invention

[0001] The present invention relates to a shoe sole without a heel, more particularly to a shoe sole having a middle plate, an inner cover made of hardened synthetic resins and a sole plate, which has a simple manufacturing process and can be manufactured at a low cost, in which a reinforcement rod is attached to a lower surface of the inner cover between the center portion and the rear portion of the inner cover, the inner cover having the reinforcement rod is attached to the upper surface of the middle portion of the shoe sole so that a rear part of the shoe is elastically supported by the reinforcement rod. Consequently, in the manufacturing process of the shoe, the inner cover has functions of attaching an outer cover of the shoe to the sole and of elastically supporting the rear part of the shoe.

2. Description of the Related Art

[0002] Up to the present, a variety of endeavors for developing a shoe without a heel have been proposed. When a person walks on a road with wearing on the shoe without the heel, the rear portion of the shoe does not touch with the ground and the front portion of the shoe only touches with the ground. Accordingly, when the person walks a short distance, he/she can act to the best of one's exercise.

[0003] However, the weight of the person is concentrated toward the rear side of the shoe owing to the lack of the heel. As a result, the rear side of the shoe is hanging down owing to the use for a long time.

[0004] Accordingly, a variety of endeavors for solving this problem have been proposed. One approach is, the shoe structure having an athletic function(Korean Patent Registration No. 96-014893) has been proposed.

[0005] In this patent, a wedge-shaped cut-away portion is formed at a position between a front lower portion and a rear lower portion of a shoe sole having a soft cushion in a shoe without the heel. The ">"-shaped cushion member is inserted into the wedge-shaped cut-away portion. An interior of the rear middle portion of the sole is filled with a hardened supporting panel.

[0006] When a person puts on the shoe without the heel according to the above patent, the shoe sole repeatedly bends and is unfolded. At this time, the middle plate of soft material is worn away and split at a junction of the shoe sole, the cushion member and the supporting panel. When the middle plate of soft material is worn away, an unpleasant noise may be generated.

[0007] The process for producing the shoe without the heel according to the prior art comprises the steps of inserting the cushion member into the wedge-shaped cut-away portion, molding the supporting member in the interior of the shoe sole, and attaching an outer cover to the upper surface of the middle plate of the shoe sole. In the step of attaching, paper members are pressed and inserted into the total circumference of the lower portion in an inner cover. Thereafter, the inner cover is attached to the upper surface of the outer cover.

[0008] Because the conventional invention comprises the steps of inserting the cushion member into the wedge-shaped cut-away portion and the molding the supporting member in the interior of the shoe sole, the manufacturing process of the shoe without the heel is complicated. Consequently, the manufacturing cost of the shoe increases significantly.

Summary of the Invention

[0009] The present invention is contrived to solve the foregoing problems. It is an object of the present invention to provide a shoe sole having a middle plate, an inner cover made of hardened synthetic resins and a sole plate, which has a simple manufacturing process and can be manufactured at a low cost, in which a reinforcement rod is attached to a lower surface of the inner cover between the center portion and the rear portion of the inner cover, the inner cover having the reinforcement rod is attached to the upper surface of the middle portion of the shoe sole so that a rear part of the shoe is elastically supported by the reinforcement rod. Consequently, in the manufacturing process of the shoe, the inner cover has functions of attaching an outer cover of the shoe to the sole and of elastically supporting the rear part of the shoe.

[0010] In order to achieve the above object, the present invention provides a shoe sole including a middle plate, an inner cover attached to a whole upper surface of the middle plate, a sole plate attached to a whole bottom surface of the middle plate, and a heel reinforcement rod disposed at a predetermined position thereof , the shoe improvement comprising;

the inner cover is made of hardened synthetic resins having a thickness of between 1.5mm and 3mm, the reinforcement rod extends from the center portion to the rear portion of the inner cover, the reinforcement rod is made of hardened synthetic resins having a thickness of between 2mm and 4mm, and a rod receiving groove is formed at the upper surface of the middle plate.

[0011] Preferably, the reinforcement rod can be released from the lower surface of the inner cover.

Brief Description of the Drawings

[0012] The above object and other characteristics and advantages of the present invention will become more apparent by describing in detail a preferred embodiment thereof with reference to the attached drawings, in which:

FIG. 1 is an exploded perspective view of a shoe

sole without a heel according to a preferred first embodiment of the present invention;

FIG. 2 is a side elevational view, partly in cross section, of a shoe which is provided with the shoe sole, showing the using state of the shoe sole without the heel as illustrated in FIG. 1;

FIG. 3 is a sectional view taken along line A-A of FIG.2;

FIG. 4 is an enlarged view of "A" section illustrated in FIG.1;

FIG. 5 is an exploded perspective view of a shoe sole without a heel according to a preferred second embodiment of the present invention; and

FIG. 6 is a side elevational view, partly in cross section, of a shoe which is provided with the shoe sole, showing the using state of the shoe sole without the heel as illustrated in FIG. 5.

Detailed Description of the Invention

[0013] Hereinafter, preferred embodiments of the present invention will be explained in more detail with reference to the accompanying drawings.

[0014] FIGS. 1 to 4 show a shoe sole according to a preferred first embodiment of the present invention.

[0015] Referring to FIGS. 1 to 4, an liner(9) is attached to an upper surface of a hardened inner cover(2). Alternatively, this liner(9) can be inserted into an aperture between a bottom surface of a shoe and the upper surface of the inner cover(2). An outer cover (10) forms an outer shape of the shoe and encloses a person's foot.

[0016] A shoe sole (4) comprises a middle plate (1) made of soft synthetic resins such as EVA and having a cushion, the hardened inner cover(2) attached to the whole upper surface of the middle plate(1), and a sole plate(3) attached to the whole bottom surface of the middle plate(1).

[0017] The inner cover(2) is made of hardened synthetic resins having a thickness of between 1.5mm and 3mm. A reinforcement rod(5) is attached to the lower surface of the inner cover(2) and extends from the center portion to the rear portion of the inner cover(2). This reinforcement rod(5) is made of hardened synthetic resins having a thickness of between 2mm and 4mm. A rod receiving groove (6) is formed at the upper surface of the middle plate(1). A plurality of through holes (7) are formed through the reinforcement rod(5) so that the weight of the reinforcement rod(5) is reduced significantly. Further, a plurality of grooves(8) are formed at a front side of the upper surface of the middle plate(1) so that the weight of the middle plate(8) is reduced significantly. Consequently, it is possible to reduce a quantity of materials which is necessary to produce the reinforcement rod(5) and the middle plate(1).

[0018] FIGS. 5 and 6 show a shoe sole according to a preferred second embodiment of the present invention.

[0019] Referring to FIGS. 5 and 6, the preferred second embodiment of the present invention is constituted in the same manner as discussed above with respect to drawings FIGS. 1 to 4. In other words, the inner cover (2) made of hardened synthetic resins is attached to the upper surface of the middle plate (1) of which the rod receiving groove (6) is formed at the upper surface thereof.

[0020] However, in the above first embodiment of the present invention, the reinforcement rod(5), which is made of a hardened synthetic resin and has a thickness greater than that of the inner cover(2), is attached to the lower surface of the inner cover(2)and extends from the center portion and the rear portion of the inner cover(2).

[0021] Alternatively, in the second embodiment of the present invention, the reinforcement rod(5), which is made of a hardened synthetic resin and have a thickness of between 2mm and 4mm, is inserted into the rod receiving groove(6) formed at the upper surface of the middle plate(1). The inner cover(2), which is made of hardened synthetic resins and has a thickness of between 1.5mm and 3mm, is attached to the upper surface the reinforcement rod(5) under the state that the reinforcement rod(5) is inserted into the rod receiving groove (6).

[0022] Hereinbelow, the assembling process and the operation of the shoe sole according to the present invention as described above will be described with reference to FIGS. 1 to 6.

[0023] At first, as shown in FIGS. 1 to 4, the whole lower portion of the outer cover(10) is disposed just below an outer lower portion of the inner cover(2). Under this state, a predetermined bonding agent is applied to the lower portion of the outer cover(10) and the outer lower portion of the inner cover (2) so that the outer cover (10) and the inner cover(2) are combined with each other.

[0024] Thereafter, the lower surface of the inner cover (2) is attached to the upper surface of the middle plate (1) by using a predetermined bonding agent. At this time, the reinforcement rod(5) of the inner cover(2) is inserted into the rod receiving groove(6).

[0025] The middle plate(1) is made of soft synthetic resins such as EVA and has a cushion. Since the middle plate(1) may be easily worn out, the durable sole plate (3) is attached to the lower surface of the middle plate (1) by using a predetermined bonding agent. Consequently, it is possible to prevent the sole from being worn out.

[0026] Finally, the liner(9) is attached to the upper surface of the inner cover(2) within the outer cover(10).

[0027] As described above, the process, which comprises the steps of attaching the inner cover(2) to the outer cover(10) and attaching the sole plate(3) and attaching the liner(9) in the preferred second embodiment of the present invention discussed above with respect to drawings FIGS. 5 and 6, is performed in the same manner as the preferred first embodiment of the present invention.

[0028] However, in the preferred second embodiment of the present invention, the inner cover(2) and the reinforcement rod(5) are separated from each other. Accordingly, the reinforcement rod(5) of the inner cover(2) is inserted into the rod receiving groove(6) and is attached thereto by using the predetermined bonding agent. Thereafter, the lower surface of the inner cover (2) is attached to the upper surface of the middle plate (1) by using a predetermined bonding agent.

[0029] As described above, in the present invention, the inner cover(2) having the reinforcement rod(5) is attached to the middle plate(1), or the inner cover(2) is attached to the upper surface of the middle plate (1) after the reinforcement rod(5) being attached to the middle plate (1). If a person puts on this shoe having the structure as described above and walks on a road, the weight of the person is applied to the inner cover(2).

[0030] When the user rests his weight on a front side of the sole of a foot and thereafter rests his weight on the heel, the rear portion of the shoe has a tendency to go down due to the concentration of the weight. At this time, because the inner cover(2) supports the sole of the foot and the reinforcement rod(5) extends from the center portion of the rear portion to the lower portion of the inner cover (2) , the rear portion of the shoe does not represent the tendency to go down. Although the center portion and the front portion of the sole of the foot have a tendency to go up, they cannot go up due to the pressure applied by the user's foot at the whole sole of the foot and the whole upper surface of the inner cover (2).

[0031] Because the user steps on the center portion and the front side of the inner cover(2), they cannot go up. At this time, the inner cover(2) is bent as an arch shape and presses down the user's foot so that the bent inner cover(2) massages the user's foot.

[0032] When a person walks on a road with putting on the shoe without the heel as described above, the front portion of the shoe has a tendency to be bent. At this time, since the inner cover(2) is made of hardened synthetic resins having a thickness of between 1.5mm and 3mm, the front portion of the shoe may be bent without any interference.

[0033] As described above, in the shoe sole without the heel, the rod receiving groove is formed at the upper surface of the middle plate in the shoe sole. Further, the inner cover having the reinforcement rod is attached to the upper surface of the middle plate in a state that the reinforcement rod is inserted into the rod receiving groove. Due to this structure, although the user rests his weight on the heel of the shoe, it is possible to prevent the rear portion of the shoe from being bent downwards.

[0034] In the manufacturing process of the shoe according to the present invention, the inner cover has functions of attaching an outer cover of the shoe to the sole and of elastically supporting the rear part of the shoe. Consequently, the manufacturing process of the shoe according to the present invention is simple and the manufacturing cost thereof is reduced significantly.

[0035] While the present invention has been particularly shown and described with reference to a 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.

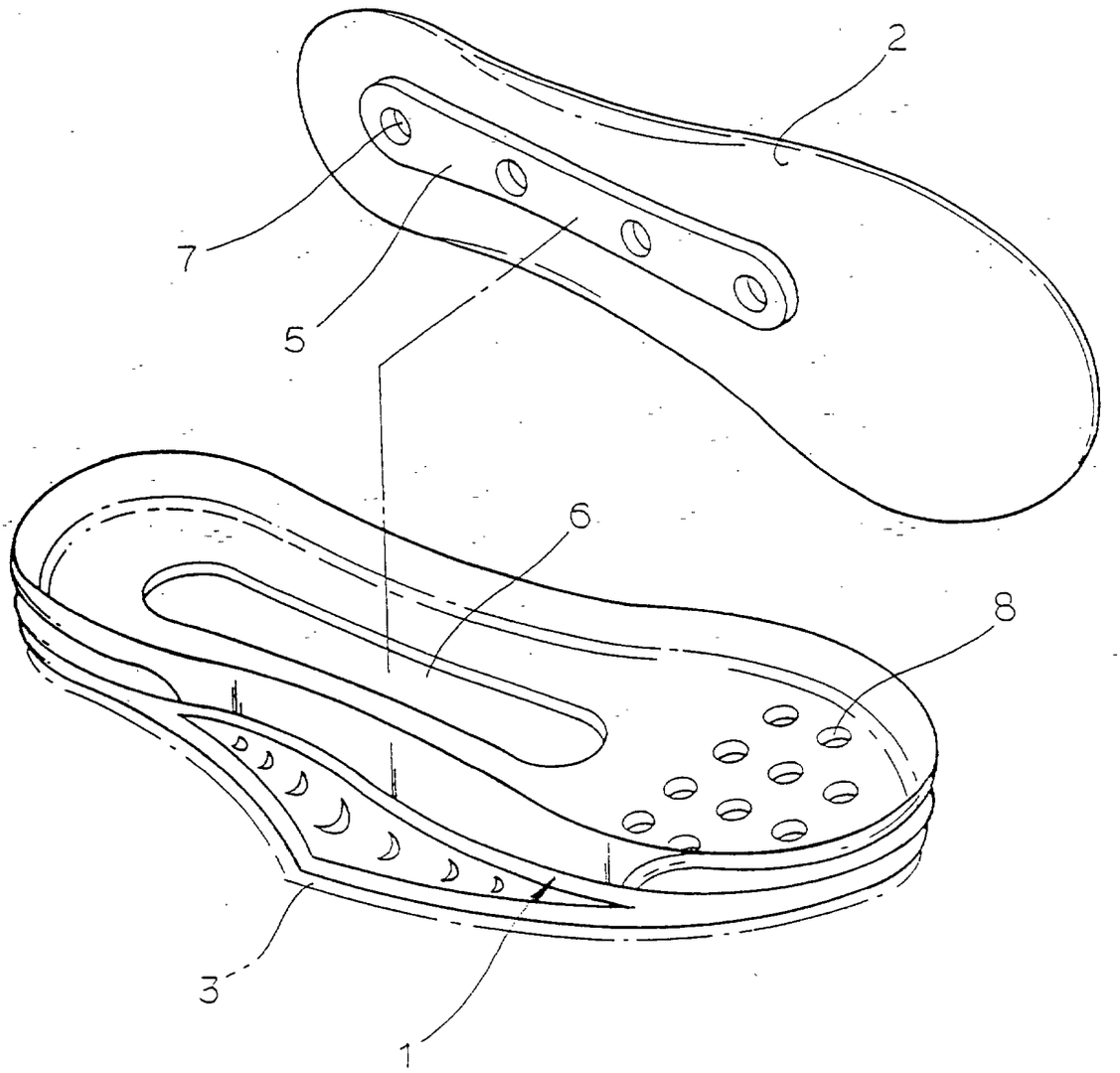
Claims

1. , A shoe sole including a middle plate (1), an inner cover(2) attached to the whole upper surface of the middle plate(1), a sole plate (3) attached to the whole bottom surface of the middle plate(1), and a reinforcement rod(5) disposed at a predetermined position thereof, the shoe improvement comprising;

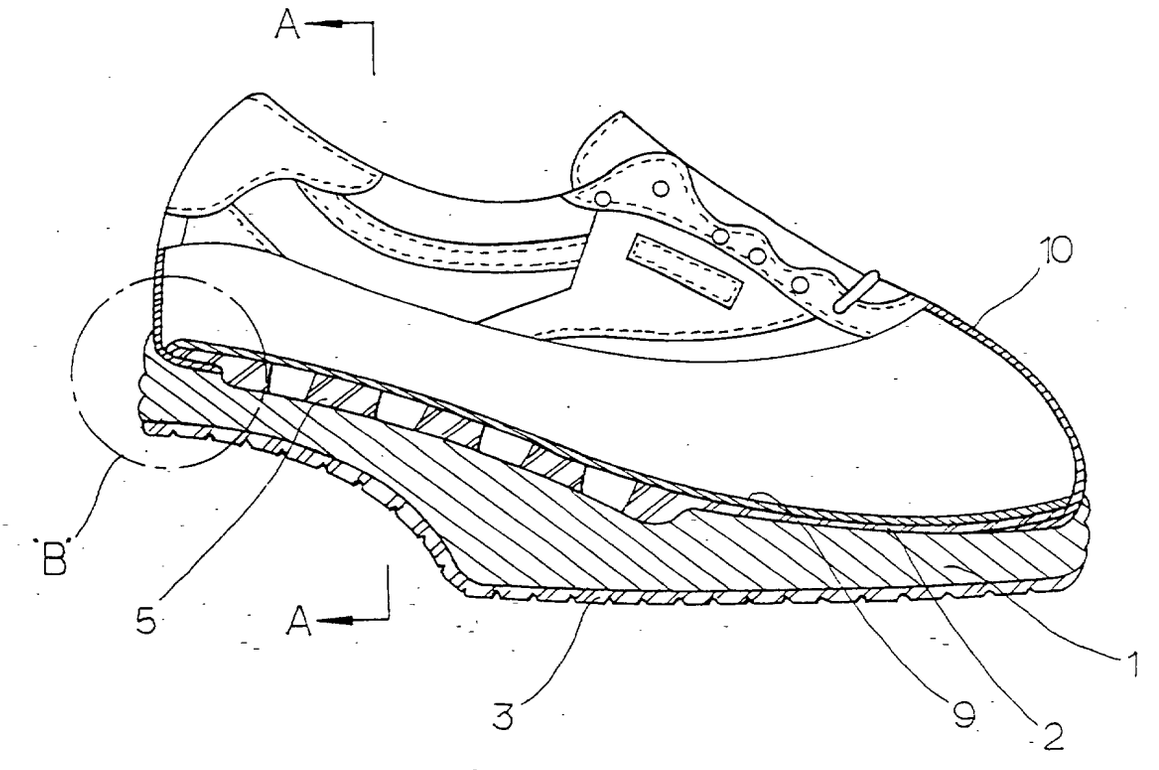
   the inner cover(2) is made of hardened synthetic resins having a thickness of between 1.5mm and 3mm, the reinforcement rod(5) extends from the center portion to the rear portion of the inner cover(2), the reinforcement rod(5) is made of hardened synthetic resins having a thickness of between 2mm and 4mm, a rod receiving groove(6) is formed at the upper surface of the middle plate(1), and the inner cover (2) is attached to the upper surface of the middle plate (1) in a state that the reinforcement rod(5) is inserted into an inner space of the inner cover(2).

2. The shoe sole as claimed in claim 1, wherein the reinforcement rod(5) is separably attached to the lower surface of the inner cover(2)

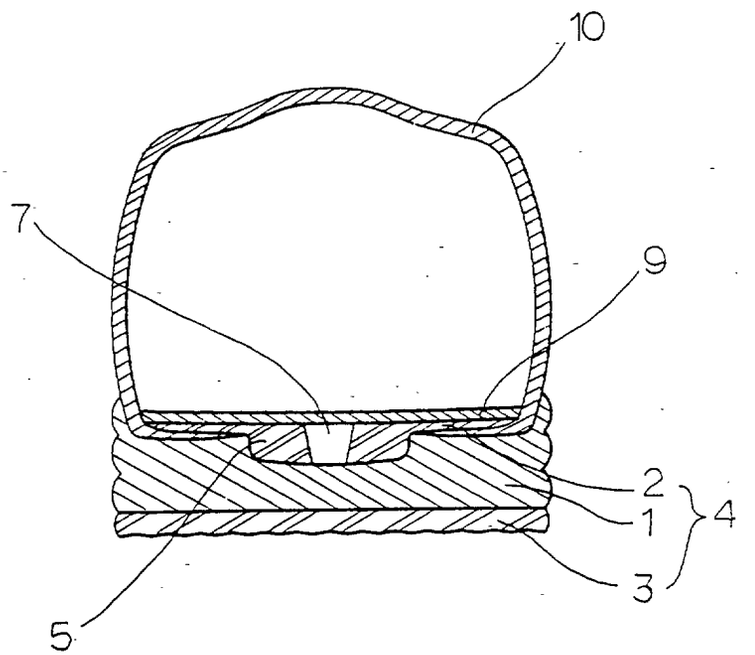
【Fig 1】



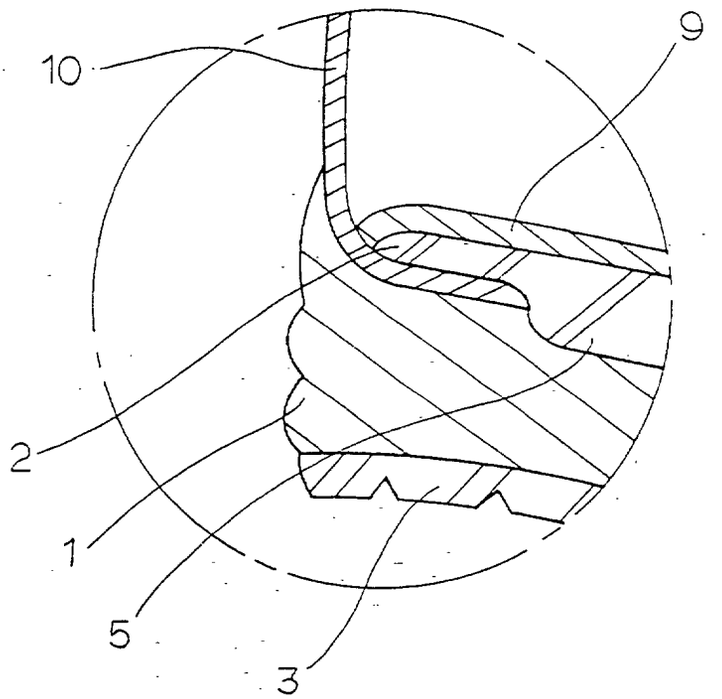
【Fig 2】



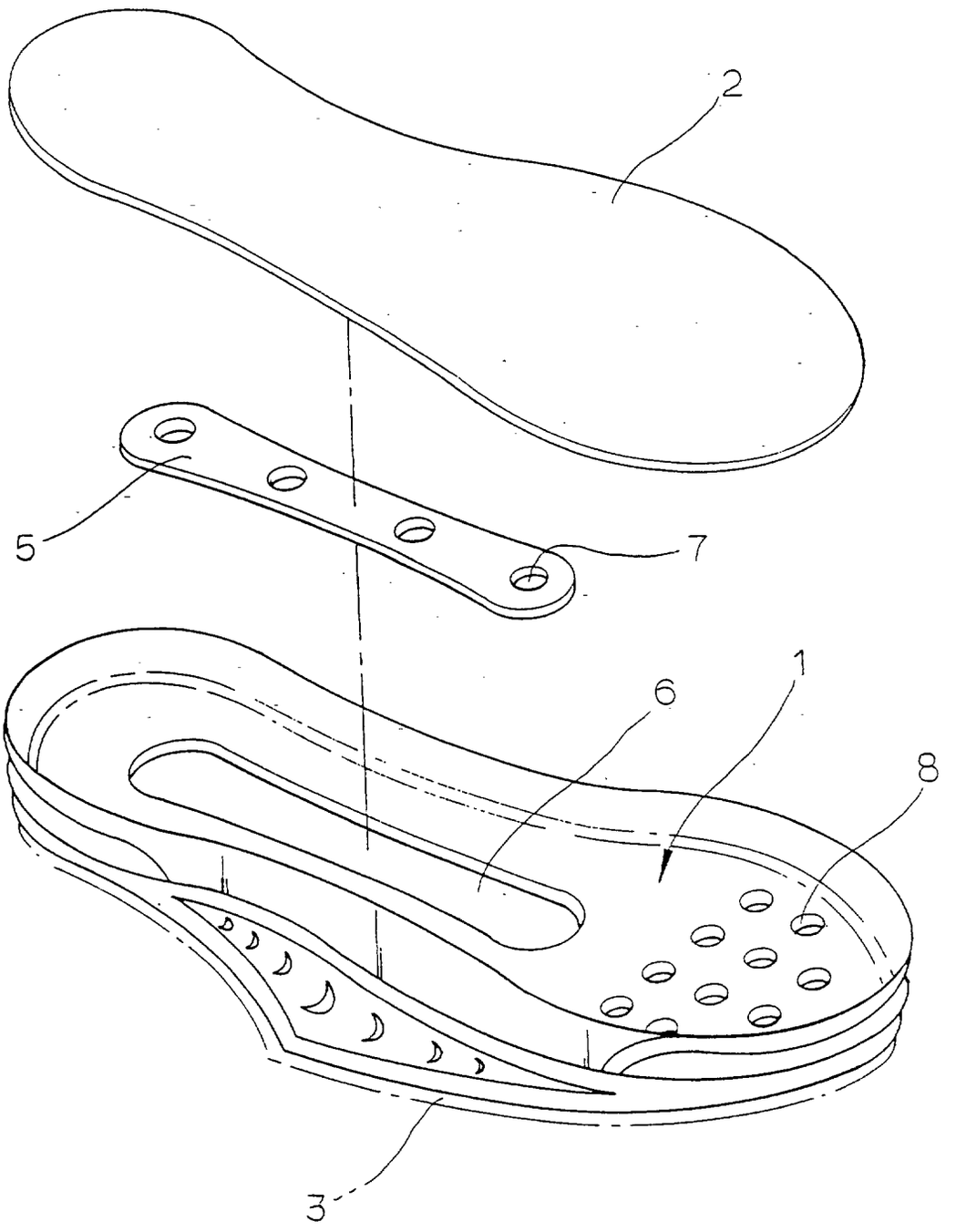
【Fig 3】



【Fig 4】



【Fig 5】



【Fig 6】

