US 20110154693A1

(19) **United States**

(12) **Patent Application Publication**

Oberschneider

(10) **Pub. No.: US 2011/0154693 A1**

(43) **Pub. Date: Jun. 30, 2011**

(54) **AIR-VENTILATED SHOE SOLE**

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(21) Appl. No.: **13/058,435**

(22) PCT Filed: **Aug. 17, 2009**

(86) PCT No.: **PCT/EP09/05959**

§ 371 (c)(1),
(2), (4) Date: **Mar. 10, 2011**

(30) **Foreign Application Priority Data**

Aug. 21, 2008 (EP) 08014825.7

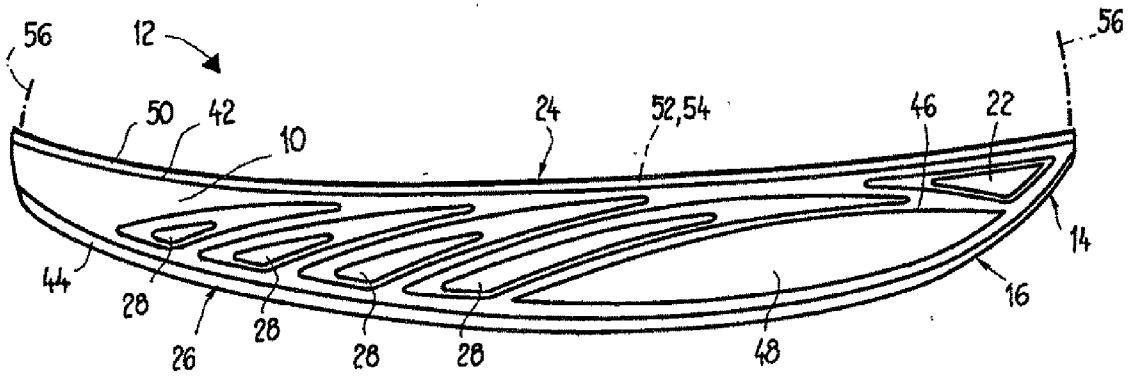
Publication Classification

(51) **Int. Cl.**
A43B 7/06 (2006.01)
A43B 13/14 (2006.01)

(52) **U.S. Cl.** ..... **36/3 B**; 36/25 R

(57) **ABSTRACT**

A mid-sole body has air inlet openings in the heel section and air outlet openings in the midfoot section and/or ball/toe section. The air inlet openings are connected to the air outlet openings via a ventilation channel. The ventilation channel is covered by a cover which is elastically resilient in the direction of the outsole during walking when under strain. The shoe is force-ventilated due to the rolling off of the shoe having such a shoe sole during walking and heat is removed from the shoe sole.



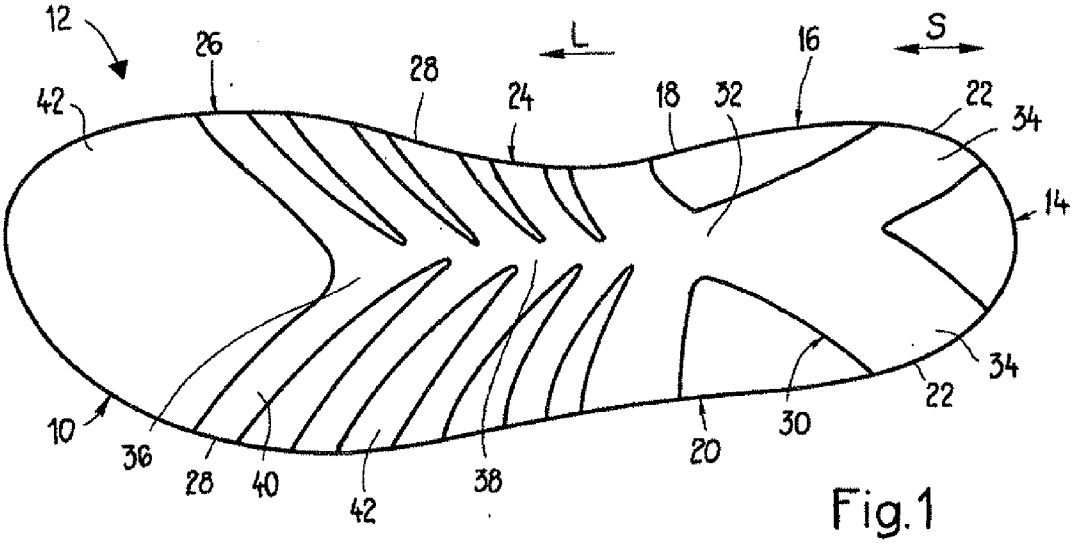


Fig.1

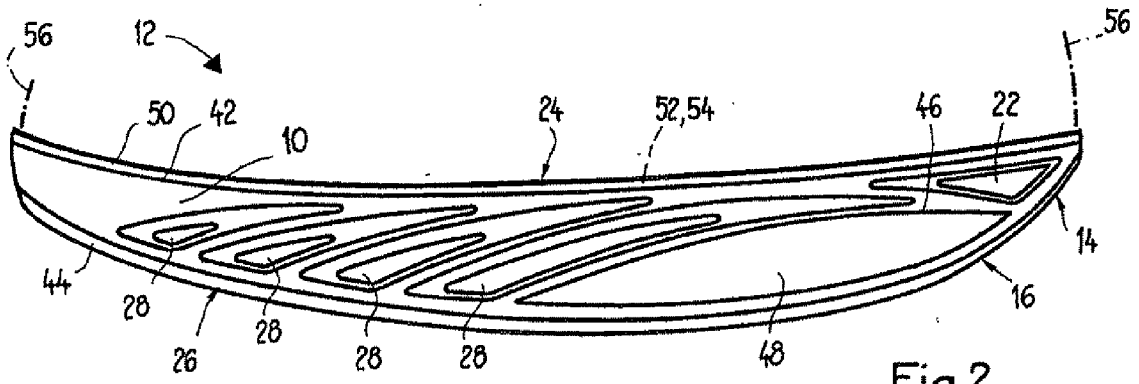


Fig.2

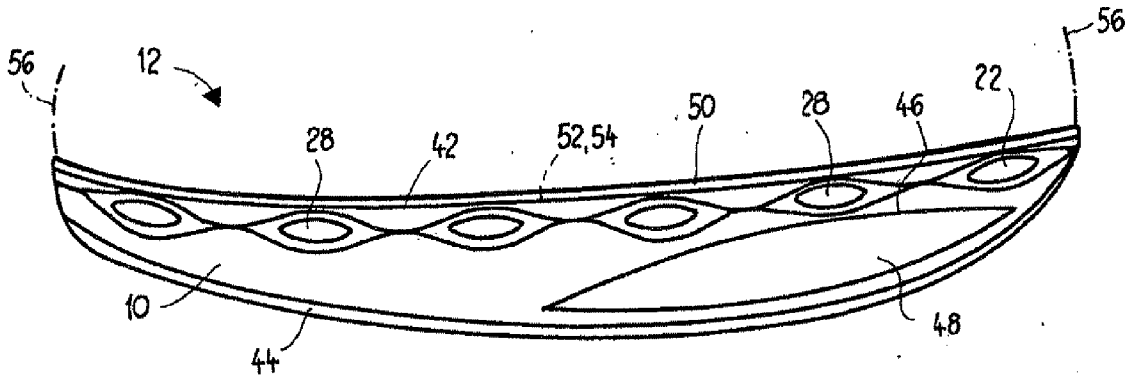


Fig.3

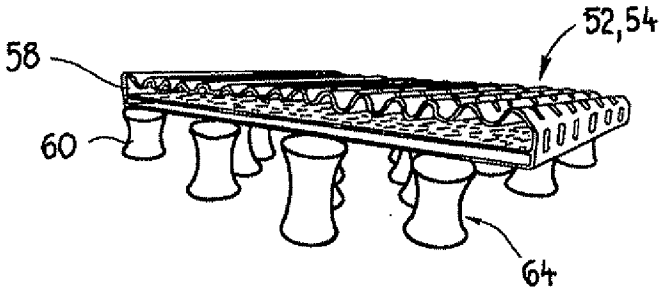


Fig.4

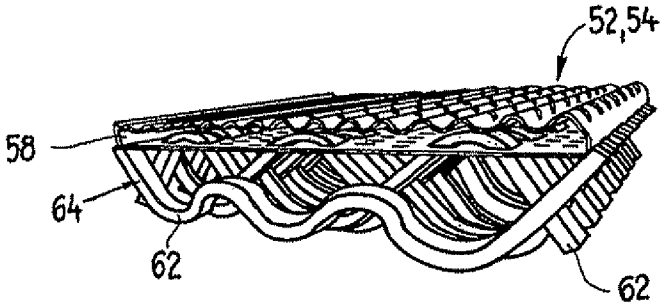


Fig.5

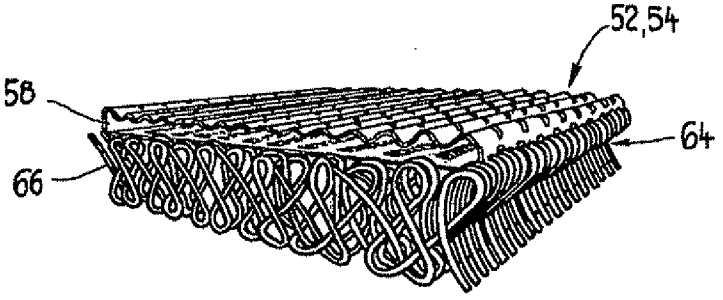


Fig.6

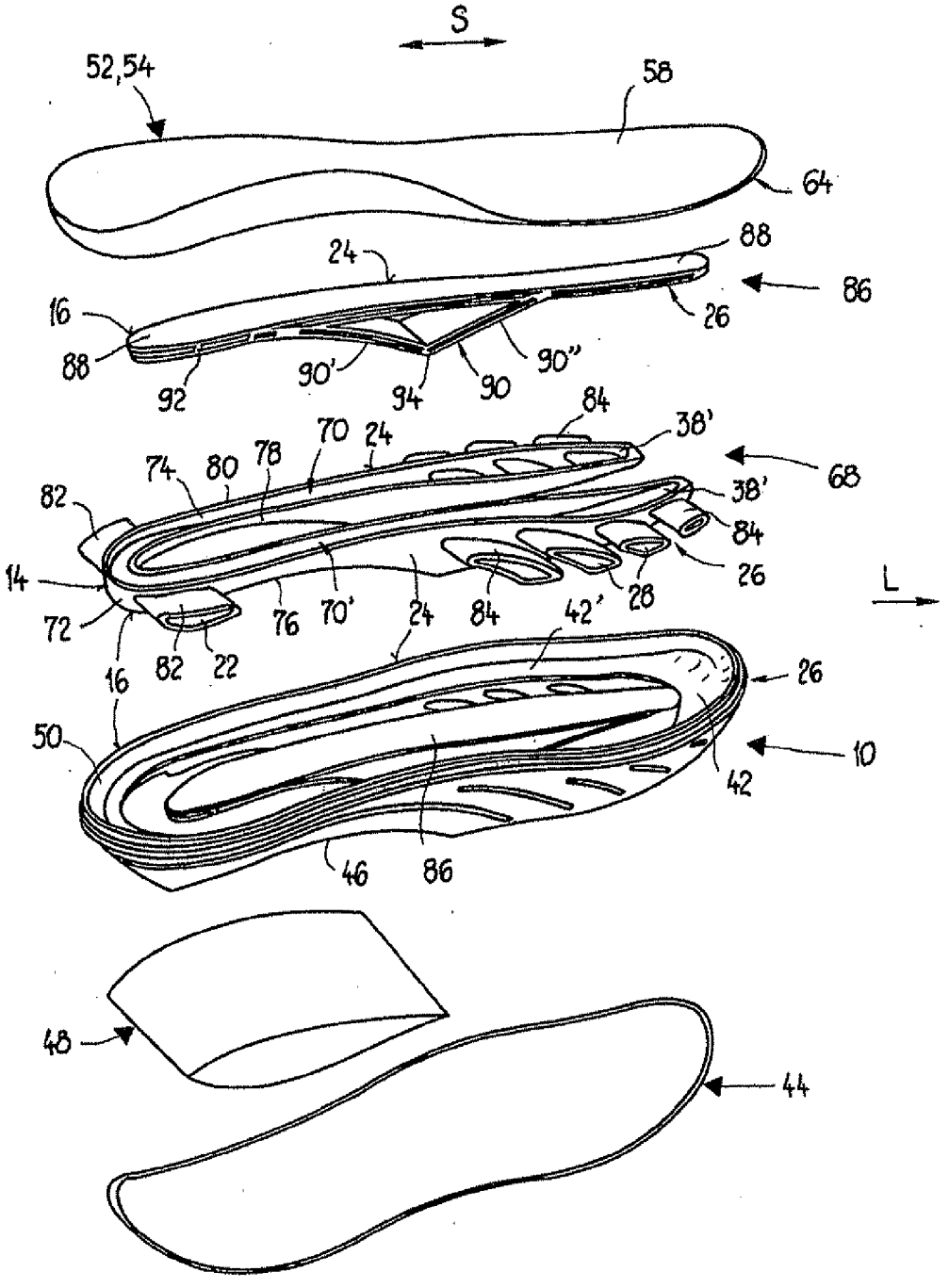

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Fig.7

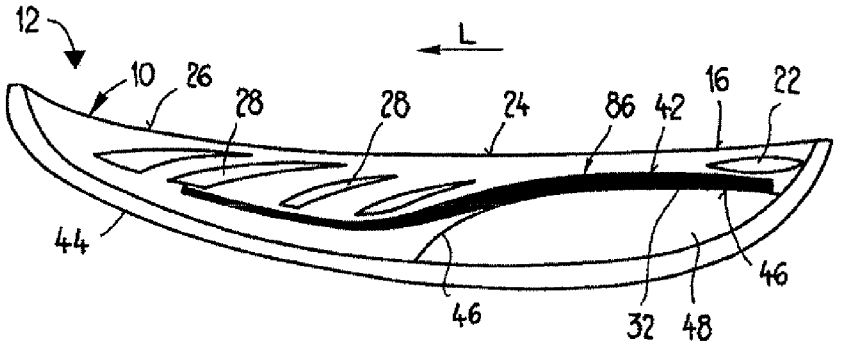

Fig.8

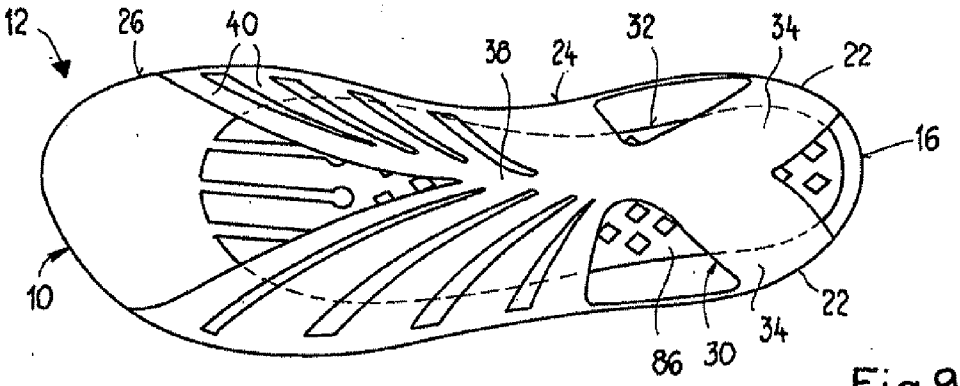

Fig.9

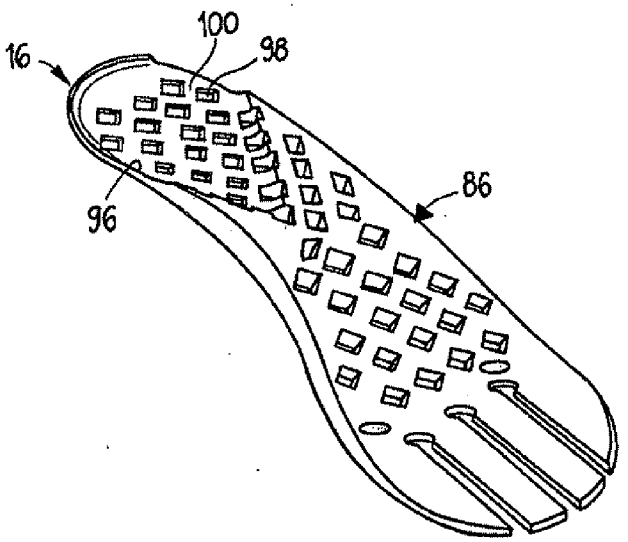

Fig.10

AIR-VENTILATED SHOE SOLE

[0001] The present invention relates to a shoe sole according to the preamble of patent claim **1** and to a walking device with a shoe sole according to claim **13**.

[0002] A special shoe sole structure for walking devices is known by the name "Masai Barefoot Technology", MBT for short, and also known under the Swiss Masai label. A characteristic feature of the MBT is a form of sole that is rounded convexly in the walking direction, with an inserted soft heel part, known as the "Masai sensor". The midsole has a reinforcing element—known as a "shank"—integrated in it, which reinforces the midsole in such a way that it is substantially flexurally rigid even in the portion thereof that is above the soft heel part. The shoe sole structure of the MBT walking device, deliberately soft and made to act in a destabilizing manner for this reason, means that the foot loses the hold and support that is characteristic of physiological locomotion. This has an impact on major parts of the postural and supporting musculature, because the body must now be actively kept in balance. On account of these constantly required minimal compensating movements and adaptations of the musculature of the foot in seeking to maintain a stable standing position, wearing MBT walking devices achieves the effect of performing a kind of permanent coordination training and works additional parts of the musculature of the skeleton. In particular, neglected muscles are trained, posture and gait pattern are improved and the body is toned and shaped. Furthermore, wearing MBT walking devices can alleviate back, hip, leg and foot ailments and joint, muscle, ligament or tendon injuries as well as relieve hip and knee joints. On the one hand, the MBT walking device leads to improved blood circulation, and consequently to the foot being heated up, and, on the other hand, the shoe sole has a considerable thickness, with correspondingly good thermal insulating properties. There is therefore a need to provide a shoe sole that is better able to remove heat.

[0003] There is also the same need for shoe soles of a different structure, in particular shoe soles for sport shoes. For example, shoes of the "ClimaCool" series from the Adidas company have air openings on the sole.

[0004] An object of the present invention is to provide a shoe sole that has improved heat removal properties.

[0005] This object is achieved by a shoe sole that has the features of patent claim **1**.

[0006] A midsole body has at least one air inlet opening in the heel region, and air outlet openings in the midfoot region and/or in the ball/toe region. The air inlet opening and the air outlet openings are connected to one another by means of a ventilation channel. This is covered by a cover on the side of the midsole body that is facing away from the outsole—on the upper side of said midsole body. This cover is elastically compliant, in the direction of the outsole, when under load during walking. Since the cover is elastic, it returns to its original form again when the load is relieved.

[0007] Consequently, the rolling motion during walking inevitably causes a constant exchange of air in the shoe sole, which leads to improved heat dissipation. The air ventilation thereby enforced has the effect that air enters the shoe sole through the air inlet opening and leaves again at the air outlet openings, which counteracts a buildup of heated air under the foot.

[0008] The heated air in the ventilation channel is forced through the air outlet openings by the compression of the sole, or the cover thereof, when the heel is put down, in a way corresponding to the subsequent rolling motion. In the course of the rolling motion, the heel region is relieved of load, which leads to fresh air being sucked into the ventilation channel through the air inlet opening. A rolling motion that is optimal for this purely mechanical principle, and associated optimal air ventilation, are achieved with shoe soles according to claim **9**. With conventional shoe soles, it is unlikely that such efficient air ventilation can be achieved.

[0009] Further preferred embodiments of the shoe sole according to the invention are specified in the further dependent patent claims.

[0010] The invention is explained in more detail on the basis of exemplary embodiments that are represented in the drawing, in which purely schematically:

[0011] FIG. **1** shows a plan view of a midsole body of a shoe sole according to the invention, with two air inlet openings in the heel region, which are flow-connected by way of a ventilation channel to inner and outer air outlet openings in the midfoot region and in the ball/toe region;

[0012] FIG. **2** shows a side view of a shoe sole according to the invention, with air inlet openings and air outlet openings that are formed on the midsole body and extend in the direction of the outsole, the midsole body having a heel recess in which a soft heel part is arranged;

[0013] FIG. **3** likewise shows a side view of a further embodiment of a shoe sole according to the invention, likewise with a soft heel part arranged in a heel recess of the midsole body, and air inlet and air outlet openings, which however are arranged in an upper peripheral region of the midsole body;

[0014] FIG. **4** shows a perspective representation of a preferred embodiment of a cover for the ventilation channel, with an air-permeable carrier layer and double-conical elastic supporting elements protruding from the latter;

[0015] FIG. **5** shows, in a representation identical to that of FIG. **4**, a further preferred embodiment of the cover, which likewise has an air-permeable carrier layer, from which however elastically deformable wave-shaped supporting strips protrude;

[0016] FIG. **6** shows, in a representation identical to that in FIGS. **4** and **5**, a further particularly preferred embodiment of the cover, with an air-permeable carrier layer and a supporting layer formed as a knitted spacer fabric;

[0017] FIG. **7** shows an exploded representation of a possible embodiment of the shoe sole according to FIG. **2**;

[0018] FIG. **8** shows a side view of a further possible embodiment of the shoe sole according to FIG. **2**;

[0019] FIG. **9** shows a plan view of the shoe sole according to FIG. **8**, the midsole body being transparent and the ventilation channel being shown colored gray; and

[0020] FIG. **10** shows a perspective representation of a reinforcing element of the embodiment according to FIGS. **8** and **9**.

[0021] FIG. **1** shows a plan view of a midsole body **10** of a midsole **12**. It has in a rear portion **14**, seen in the walking direction L, of a heel region **16** a respective air inlet opening **22** both on the shoe sole inner side **18** and on the shoe sole outer side **20**. The shoe sole inner side **18** should be understood as meaning the side facing the other shoe sole of a pair and the shoe sole outer side **20** should be understood as meaning the side of the shoe sole facing away therefrom.

[0022] Furthermore, the midsole body **10** has in a midfoot region **24** and in a ball/toe region **26** in each case five air outlet openings **28**, both on the shoe sole inner side and on the shoe sole outer side. Seen in the walking direction L, the midfoot region **24** adjoins the heel region **16** and the ball/toe region **26** adjoins the midfoot region **24**, each of these regions extending approximately over one third of the length of the shoe sole.

[0023] The air inlet openings **22** and the air outlet openings **28** are connected to one another by way of a ventilation channel **30** formed by a depression in the midsole body **10**. This channel has in the heel region **16** a heel portion **32** with two legs **34** arranged in a V-shaped manner. Each of these legs **34** leads to one of the two air inlet openings **22**. Adjoining the heel portion **32**, the ventilation channel **30** has a distributor portion **36**, the main channel portion **38** of which, flow-connected to the legs **34** of the heel portion **32**, runs up to the ball/toe region **26**, in the longitudinal direction of the shoe S. Seen in the direction at right angles to the longitudinal direction of the shoe S, the main channel portion **38** is offset with respect to the longitudinal center of the shoe in the direction of the shoe sole inner side **18**, to run under the inner instep.

[0024] Branch channel portions **40** branch off from both sides of the main channel portion **38**, each of these branch channel portions **40** running to one of the air outlet openings **28**.

[0025] Both the air inlet openings **22** and the air outlet openings **28** have a width of preferably at least 4 mm and a length that is preferably at least twice the stated width. Correspondingly, the ventilation channel **30** also has, measured in a direction at right angles to the upper surface **42**, on the footbed side, of the midsole body **10**, with respect to said surface a depth of preferably at least 4 mm. The width of the ventilation channel **30** is preferably greater everywhere than the depth, preferably at least twice as great.

[0026] On the side of the surface **42**, the ventilation channel **30** is covered by an elastically compliant cover **52**, which is not shown in FIG. **1** but preferred embodiments of which are described in connection with FIGS. **4** to **6**.

[0027] FIG. **2** shows a side view of a midsole **12** of the shoe sole, the midsole body **10** of which has in the rear portion **14** of the heel region **16**—on each of both sides—an air inlet opening **22** and in the midfoot region **24** and the ball/toe region **26** a total of 4 air outlet openings **28**, which are arranged successively one behind the other in the longitudinal direction of the shoe S and overlapping in an imbricated manner as a result of their slanted orientation and length. The air inlet opening **22** and the air outlet openings **28** are flow-connected to one another by a ventilation channel **30** in a way corresponding to FIG. **1**; this ventilation channel has four branch channel portions **40** on both sides.

[0028] The midsole body **10** has on its underside, which is facing an outsole **44**, a heel recess **46**, in which a soft heel part **48** is arranged. Seen in the longitudinal direction of the shoe S, this soft heel part extends from the rear portion **14** of the heel region **16** to approximately the middle of the midsole **12** and runs over the entire width of the midsole **12** with an at least approximately constant cross section in the form of a convex-convex lens. In the unloaded state, the soft heel part **48** and the midsole body **10** keep the outsole in a form in which it is rounded in a continuously convex manner in the longitudinal direction of the shoe sole S, as is generally known from MBT walking devices. The soft heel part **48** has a greatest thickness of about 20 mm. Correspondingly, the greatest thickness of the midsole body **10** is approximately 30 mm.

[0029] It should be mentioned at this point that the midsole body **10** has a peripheral bead **50**, which protrudes in the upward direction with respect to the surface **42**. On the one hand, this bead serves for fastening the midsole **12** to an upper **56** and on the other hand the aforementioned cover **52** is arranged in the depression delimited by the surface **42** and the bead **50**.

[0030] The soft heel part is preferably produced from an open-cell polyurethane elastomer foam (PUR Shore 30 C) and the midsole body **10** from a polyurethane elastomer (PUR Shore 58 C) or an ethylene vinyl acetate (EVA); this applies to all the embodiments shown.

[0031] FIG. **3** shows a midsole **12** of the shoe sole that is formed identically to that according to FIG. **2**, but with the air inlet openings **22** and the air outlet openings **28** now being of an oval form and running in a row one behind the other in an upper peripheral region of the midsole body **10**. Here, too, the air inlet openings **22** and the air outlet openings **28** are connected to one another by way of a corresponding ventilation channel **30**.

[0032] The elastically deformable cover **52** for the ventilation channel **30** is preferably formed by an insole **54**, which is placed onto the upper surface **42** of the midsole body **10** and extends on all sides as far as the bead **50** or the upper that is fastened to the midsole body **10** and is lying against the bead **50**.

[0033] The embodiment of the insole **54** that is shown in FIG. **4** has an upper, air-permeable carrier layer **58**, from which supporting elements **60** protrude in the downward direction, in the fitted state toward the midsole body **10**, arranged in a grid pattern and at a distance from one another. These supporting elements are preferably formed as double cones and produced from an elastic synthetic material. In their length, they optimally match the depressions in the midsole body **10**. In the fitted state, they rest with their free end on the midsole body **10**.

[0034] A further embodiment of the insole **54** is represented in FIG. **5**. It likewise has an upper, air-permeable carrier layer **58**. Wave-shaped, elastically deformable supporting strips **62** protrude from it in the downward direction. These strips preferably run in planes that extend at right angles to the carrier layer **58** and parallel to one another. In the fitted state, the supporting strips **62** rest with wave crests facing away from the carrier layer **58** on the midsole body **10**.

[0035] The supporting elements **60** or the supporting strips **62** consequently form an elastically compliant supporting layer **64** for the carrier layer **58**.

[0036] In the case of the particularly preferred embodiment of the insole **54** that is shown in FIG. **6**, the supporting layer **64** is made in the form of a knitted spacer fabric **66**. The upper side forms the air-permeable carrier layer **58** and elastically deformable pile threads, also known as spacer threads, run from these in the downward direction. Knitted fabrics of this type are produced, for example, by the company Müller Textil GmbH, Wiehl-Drabenderhöhe (DE) and are marketed under the name "3mesh". Possible embodiments of the spacer fabric **66** are disclosed, for example, in EP 1 775 362 A and EP 1 860 218 A.

[0037] An exploded perspective representation of a preferred embodiment of the shoe sole according to FIG. **2** is shown in FIG. **7**. The midsole body **10** is provided with the heel recess **46**. The soft heel part **48** is inserted in the heel recess **46**, in the present case filling the space. As known from MBT walking devices, the outsole **44** is fastened to the midsole body **10** and the soft heel part **48**, whereby it is kept in the convex form, compare FIGS. **2** and **3**. It consists, for example, of rubber and has a Shore A hardness of 55 to 65.

[0038] A ventilation insert element **68**, which in FIG. **7** is represented as detached from the midsole body **10**, is however integrated in the latter. Seen in plan view, the ventilation insert element **68** has a U shape, the two parallel legs **70**, **70'** running in the longitudinal direction of the shoe sole S and being connected to one another at their rear end, seen in the walking

direction L, by way of an arc portion **72**. The two legs **70**, **70'** and the arc portion **72** are formed by a cross-sectionally U-shaped channel wall **74**, this channel wall **74** a delimiting in the region of the legs **70**, **70'** a respective main channel portion **38'**. The legs **70**, **70'** and the arc portion **72** are open in the upward direction on the side facing away from the outsole **44**. The channel wall **74** forms a bottom part **76** as well as an inner wall part **78** and an outer wall part **80**, these two wall parts **78**, **80** protruding from the bottom part **76** in the upward direction. In the integrated state of the ventilation insert element **68**, the exposed upper periphery of the wall parts **78**, **80** is in line with the upper surface **42** of the midsole body **10**. In the heel region **16**, the depth of the U-shaped cross section, measured from the free periphery of the wall parts **78**, **80** to the bottom part **76**, is preferably at least 4 mm. Furthermore, the wall parts **78**, **80** are preferably at a distance from one another of at least 8 mm. In the midfoot region **24**, said depth increases in a way corresponding to the form of the heel recess **46** and then decreases continuously, in the direction of the end at the front in the walking direction L.

[0039] In the arc portion **72**, which in the integrated state comes to lie in the rear portion **14** of the heel region **16**, a respective air inlet tube stub **82** protrudes from the outer wall part **80** in the direction of the shoe sole inner side **18** and in the direction of the shoe sole outer side **20**. These stubs are flow-connected to the main channel portions **38'** and their outer free ends form the air inlet openings **22**.

[0040] Correspondingly, in the midfoot region **24** and in the ball/toe region **26**, air outlet tube stubs **84** protrude from the outer wall part **80** in the outward direction. These, too, are flow-connected to the assigned main channel portion **38'**, form the branch channel portions **40** and, with their free ends, form the air outlet openings **28**.

[0041] The ventilation insert element **68** is preferably produced from TPU with a Shore A hardness of 85 by the injection-molding process.

[0042] FIG. **7** also shows a reinforcing element **86**, which has at least in the heel region **16** and midfoot region **24** such a stability that the midsole **12** is at least approximately flexurally rigid, with respect to loads during standing and walking, in its portion located above the soft heel part **48**. In the state in which it is integrated in the midsole body **10**, the reinforcing element **86** is enclosed by the ventilation insert element **68**. Seen in the direction at right angles to the longitudinal direction of the shoe sole S, the reinforcing element **86** is consequently located in a central region of the midsole body **10**, one of the two main channel portions **38'** being arranged in the direction of the shoe sole inner side **18** and one in the direction of the shoe sole outer side **20**.

[0043] The reinforcing element **86**, which is likewise preferably produced by the injection-molding process, has an upper, tongue-shaped, plate-like carrying part **88** and a V-shaped supporting part **90**, protruding from the latter in the downward direction. Both the carrying part **88** and the supporting part **90** are of a double-walled form, the two walls respectively being fixedly connected to one another by way of ribs **92**. In the state in which it is integrated in the midsole body **10**, the carrying part **82** lies close to the surface **42**, as the midsole body **10** in FIG. **7** indicates; here, the reinforcing element **86** is already integrated in the midsole body **10**. It extends between the two legs **70**, **70'** from the inner wall part **78** in the arc portion **72** forward in the walking direction L into a front portion of the ball/toe region **26**. The reinforcing element **86** is preferably rigidly formed and produced, for example, from nylon 12 in the heel region **16** and the midfoot region **24**, while it may be flexibly formed and consist, for example, of TPU in the ball/toe region **26**.

[0044] The supporting part **90** is likewise stably formed, the rear leg **90'**, seen in the walking direction L, of the supporting part **90** being shaped in a way corresponding to the heel recess **46** and this rear leg **90'** meeting the front leg **90"** at the front end, seen in the walking direction L, of the heel recess **46**, where it forms a tilting edge **94**.

[0045] The prefabricated reinforcing element **86** and the prefabricated ventilation insert element **68** may be placed in a cavity of an injection mold for the injection-molding of the midsole body **10**, injection of PUR Shore 58 C, for example, taking place after the mold has been closed for the purpose of molding the midsole body **10**. In this case, the injection mold may have supporting ribs for the channel wall **74** and slides engaging in the air inlet tube stubs **82** and the air outlet tube stubs **84**, in order to prevent the ventilation insert element **68** from being compressed during the injection-molding of the midsole body **10**.

[0046] As a result of the exploded representation, the midsole body **10** shown in FIG. **7** has depressions and clearances that are formed to match the ventilation insert element **68**.

[0047] Furthermore, FIG. **7** shows the insole **54**, which forms the cover **52** and . . . onto the surface **42** formed by the midsole body **10**, possibly the reinforcing element **86** and the exposed face of the outer wall part **80** and inner wall part **78**.

[0048] Around the periphery, the insole **54** is enclosed by the relatively high bead **50**. The carrier layer **58** of the insole **54** is preferably formed in the manner of a footbed and is correspondingly adapted to the thickness of the supporting layer **64**. Furthermore, the surface **42** has between the outer wall part **80** and the bead **50** a continuous strip-like surface part **42'**, both on the shoe sole inner side **18** and on the shoe sole outer side **20**, so that the supporting layer **64** is supported peripherally along the bead **50** by way of the reinforcing element **86** in a wide middle portion over the entire length of the midsole body **10**.

[0049] FIGS. **8** and **9** show a further possible embodiment of the reinforcing element **86** for a midsole **12** according to FIG. **2** or **3**, which is formed with a ventilation channel **30** corresponding to FIG. **1**.

[0050] In FIG. **10**, the reinforcing element **86** is shown in a perspective representation obliquely from above. Its task is precisely the same as that described above in connection with the embodiment according FIG. **7** and known from MBT walking devices. In FIGS. **8** and **9**, the outlines of the midsole **12** are indicated and the reinforcing element **86** is shown in a dark color.

[0051] In the heel region **16**, the sheet-like reinforcing element **86** runs in the midsole body **10** along the heel recess **46** and, in the midfoot region **24** and in a rear portion of the ball/toe region **26**, seen in walking direction L, it runs in the interior of the midsole body **10** at a distance below the ventilation channel **30**. Since the wall thickness of the midsole body **10** between the heel recess **46** and the surface **42** is much smaller in the heel region **16** than in the midfoot region **24** and the ball/toe region **26**, the insertion of the reinforcing element **86** known from MBT walking devices could lead to an inadequate depth of the ventilation channel **30** in the heel portion **32**. This is particularly clear from FIG. **9**, where the ventilation channel **30** is shown colored gray. In order to counteract the stated disadvantage, the reinforcing element **86** has in the heel region **16** a channel-like recess **96**, which is V-shaped in plan view and corresponds to the heel portion **32**. In order

nevertheless to ensure the necessary flexural rigidity of the reinforcing element **86**, it may, for example, have supporting ribs running on the underside along the webs **100** that separate the clearances **98** from one another. Even if they protrude into the soft heel part **48**, because of their small height, they do not change the behavior of the shoe sole or the properties thereof. It is also possible to form the reinforcing element **86** in the heel region **16** from a more stable material.

[0052] In the case of a shoe sole according to FIG. **7**, it is conceivable not to use a ventilation insert element **68**, but to mold the depression for forming the main channel portions **38'** and the connection thereof in the arc portion **72** by a rib from the injection mold, and to mold the branch channel portions directly on the midsole body **10** by means of slides.

[0053] During walking with a shoe sole shown in the figures and described above, when the heel region **16** is put down during a step, on the one hand the soft heel part **48** is compressed, which greatly reduces shocks on the user's body, and on the other hand the cover **52** in the heel region **16** is also deformed in the direction of the midsole body **10**. This leads to a local constriction of the cross section that is delimited by the midsole **10** and the cover **52**, or the carrier layer **58** thereof, and is filled with air. As a result of the rolling action on the ground, this constricted cross section is displaced in the walking direction L over the midfoot region **24** into the ball/toe region **26**. This shifting of the constriction from the heel region **16** into the ball/toe region **26** leads to the expulsion of air from the ventilation channel **30** through the air outlet openings **38**, whereas, after tilting about the tilting edge **94**, or the tilting edge formed by the midsole body **10** at the front end of the heel recess **46**, the cover **52** or the insole **54** is relieved of load in the heel region **16**, which leads to a widening of the cross section again behind the constriction as a result of the elasticity of the cover **52** or the insole **54**, whereby fresh air is sucked into the ventilation channel **30** through the air inlet openings **22**. During walking, air is consequently made to pass through the midsole **12** in a ventilating manner on the basis of a purely mechanical principle. This warmed-up air is expelled through the air outlet openings **28** while fresh, cool air is sucked in through the air inlet openings **22**.

[0054] If the cover **52** or the insole **54** is of an air-permeable form, cool air is also correspondingly forced against the user's foot.

1-13. (canceled)

14. A shoe sole with a midsole, having a midsole body extending over a heel region, a midfoot region and a ball/toe region, and with an outsole, wherein the midsole body has at least one air inlet opening in the heel region, air outlet openings in the midfoot region and/or the ball/toe region, and also a ventilation channel, which connects the air inlet opening to the air outlet openings and is covered on the side facing away from the outsole by means of a cover, which is elastically compliant, in the direction of the outsole, when under load during walking.

15. The shoe sole as claimed in claim **14**, wherein, in a rear portion, seen in the walking direction, of the heel region there is a respective air inlet opening both on the outer side and on the inner side, and in the midfoot region and/or the ball/toe region there are air outlet openings both on the outer side and on the inner side.

16. The shoe sole as claimed in claim **15**, wherein the ventilation channel has in the heel region a V-shaped heel portion, leading with its legs to the air inlet openings, and in the midfoot region and possibly the ball/toe region has a distributor portion, which adjoins the heel portion and has a central main channel portion and branch channel portions, branching off laterally from the latter and leading to the air outlet openings.

17. The shoe sole as claimed in claim **14**, wherein the ventilation channel has two main channel portions, running at least approximately in the longitudinal direction of the shoe sole and connected to the air inlet openings, branch channel portions branching off from one of the main channel portions to the outer air outlet openings and from the other of the main channel portions to the inner air outlet openings.

18. The shoe sole as claimed in claim **14**, wherein the cover has an insole, which has a carrier layer and, on the side of the carrier layer that is facing the midsole body, an elastically compliant supporting layer.

19. The shoe sole as claimed in claim **18**, wherein the supporting layer has a multiplicity of supporting elements arranged at a distance from one another, protruding from the carrier layer and supported on the midsole.

20. The shoe sole as claimed in claim **18**, wherein the supporting layer has a multiplicity of wave-shaped supporting strips, protruding from the carrier layer and supported on the midsole.

21. The shoe sole as claimed in claim **18**, wherein the supporting layer has a knitted spacer fabric, which is supported on the midsole.

22. The shoe sole as claimed in claim **14**, wherein a soft heel part is arranged in a heel recess of the midsole body, the outsole, in the unloaded state, is kept in a form in which it is rounded in a convex manner in the longitudinal direction of the shoe sole by the midsole body and the soft heel part, and the midsole has in the heel region and in the midfoot region a reinforcing element with such a stability that the midsole is at least approximately flexurally rigid, with respect to loads during standing and walking, in its portion located above the soft heel part.

23. The shoe sole as claimed in claim **22**, wherein the reinforcing element is integrated in the midsole body and has a channel-like recess for the ventilation channel.

24. The shoe sole as claimed in claim **17**, wherein, in the transverse direction of the shoe sole, the reinforcing element in the midsole body is arranged in a central region and one of the main channel portions runs on each side of the reinforcing element.

25. The shoe sole as claimed in claim **24**, wherein a ventilation insert element, which is preferably U-shaped in plan view, is integrated in the midsole body, delimits the main channel portions with a cross-sectionally U-shaped channel wall and has air inlet tube stubs, which protrude from the channel wall in the heel region and are flow-connected to the main channel portions, and air outlet tube stubs, which protrude from the channel wall in the midfoot region and/or the ball/toe region and are flow-connected to the main channel portions.

26. A walking device with a shoe sole as claimed in claim **14** and an upper arranged on the shoe sole.

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