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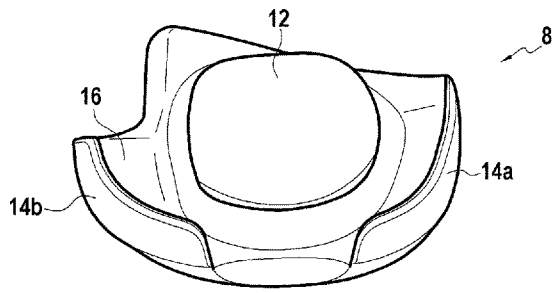
(54) **Title:** MIDSOLE FOR FOOTWEAR AND MATCHING FOOTWEAR

[Fig. 4]



(57) **Abstract:** The invention relates to a midsole for footwear, comprising a main part and a damping insert (8), the insert (8) including: • - a central portion (12), • - a peripheral portion (14a, 14b) intended to extend on the medial, lateral or rear side of the midsole, and • - an intermediate portion (16) linking the central portion (12) to the peripheral portion (14a, 14b). The central portion (12) has a thickness greater than the thickness of the intermediate portion (16), at least part of the peripheral portion (14a, 14b) has a thickness greater than the thickness of the intermediate portion (16), and the main part of the midsole comprises a portion cooperating with the intermediate portion (16) of the damping insert (8). The invention also relates to footwear comprising such a midsole.

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Midsole for footwear and matching footwear

Technical field

[0001] The present invention relates to the field of sports shoes, and particularly to the field of racket sports shoes, such as tennis and badminton.

Prior art

[0002] It is known to manufacture sports shoes by providing for a midsole including a damping element at the level of the heel. The damping element is generally made of a deformable material, and is intended to reduce the stresses exerted on the heel of the user when the latter presses his foot on the ground when he is running, jumping or pressing his foot again.

[0003] It is thus known to provide for a damping element integrated into the midsole and positioned in line with the heel. Such damping elements are positioned and held in the midsole and allow damping the forces exerted on their upper surface, in particular by elastic deformation.

[0004] There are also damping elements in the form of reservoirs containing a fluid. Such damping elements can in particular comprise several individual means separated from each other and with spaces left empty therebetween in order to allow their deformation during a stress.

[0005] Individual means can in particular have a surface exposed to the outside, to be visible to the user or to increase the damping effect.

[0006] However, such damping elements are not entirely satisfactory, either because the damping effect is not as great as the one expected during sports practice, or because the damping effect is not suitable. Particularly, the damping elements are only provided to allow a deformation of a part of the sole located under the heel, without taking into account the motions of the user that lead to urge the damping element. Furthermore, when the damping elements have parts exposed to the outside, the purpose is only aesthetic, or this also weakens the construction of the sole by reducing the holding of the damping element relative to the other components of the sole.

Disclosure of the invention

[0007] The present invention aims at solving the various technical problems mentioned above. Particularly, the present invention aims at proposing a sole for footwear, making it possible to obtain effective cushioning adapted to the user's practice, particularly depending on the sport practiced. The present invention

aims in particular at proposing a sole for footwear having cushioning properties suitable for axial movements or lateral movements.

[0008] Thus, according to one aspect, a midsole for footwear is proposed, comprising a main part extending substantially from the rear to the front of the footwear, and a damping insert positioned at the rear of the midsole, in a housing of the main part, the insert including:

- a central portion, for example in the form of a disc, intended to be positioned under the user's heel,
- a peripheral portion intended to extend on the medial, lateral or rear side of the midsole and of the footwear, and
- an intermediate, for example annular, portion linking the central portion to the peripheral portion.

[0009] Particularly, the central portion has a thickness greater than the thickness of the intermediate portion, at least part of the peripheral portion has a thickness greater than the thickness of the intermediate portion, and the main part of the midsole comprises a portion cooperating with the intermediate portion of the damping insert.

[0010] The damping insert is formed of a single material, preferably monobloc.

[0011] The damping insert is devoid of medial peripheral portion or of rear peripheral portion.

[0012] Thus, the midsole according to the present invention includes a damping insert at the level of the heel that has different portions of different thicknesses and making it possible to obtain the desired cushioning and holding properties peculiar to sports practice. The insert thus includes a central portion intended to be positioned in line with the heel and intended to limit the stresses exerted on the heel when the user places his foot on the ground.

[0013] But the insert also includes a peripheral portion intended to also damp the stresses when the user does not press his foot perpendicularly to the ground, but on the contrary obliquely. Thus, when playing tennis for example, the user, when pressing again his foot at the end of run, may have to place it on the ground on the outer or lateral side of the shoe, in order to be able to move then in the opposite direction. Likewise, when playing badminton for example, the user, on a forward run to catch a drop shot, may have to place his foot on the ground from the back of the shoe, in order to be able to jerk rapidly forward. In these cases, the peripheral portion of the insert is provided to damp such motions that are peculiar to sports practice and to provide more comfort to the user in his classic and repetitive gestures related to the specific sport he is practicing.

[0014] Furthermore, and in order to also provide support to the shoe, including at the level of the heel, in addition to the cushioning, the insert includes an intermediate portion disposed between the central portion and the peripheral portion, and which has a smaller thickness. The peripheral portion forms in particular a hollow area between the central portion and the peripheral portion, intended to cooperate with the main part of the midsole. More specifically, the intermediate portion is intended to cooperate with a portion of the main part having a complementary shape. The main part has in particular a housing in which the insert is positioned, for example from below or from beneath. The housing can be a blind hole or a through housing. Thus, thanks to its specific shape, the insert allows providing both vertical and oblique cushioning, that is to say axial, medial and/or lateral cushioning, while allowing integration with the main part of the midsole which cooperates with the insert via the intermediate portion thereof. The insert is therefore not mechanically retained in the sole only by its upper and lower faces, but also by the intermediate portion which cooperates with a rear portion of the main part of the midsole. The rear portion of the main part of the midsole is in particular positioned between the central portion and the peripheral portion of the insert, and therefore allows exerting holding stresses on the sides of the central and peripheral portions of the insert. The rear portion of the main part ensures holding the insert in position in the midsole, and also allows partly dissociating the damping properties from the central portion and the peripheral portion of the insert.

[0015] Preferably, the peripheral portion is exposed on the outside of the footwear.

[0016] Thanks to its peripheral portion exposed on the outside of the footwear, the insert imparts better damping in case of oblique pressure of the foot on the ground, allowing easier deformation of the peripheral portion, particularly in the pressure direction. The deformation then allows absorbing part of the energy released when placing the foot on the ground.

[0017] Preferably, part of the peripheral portion has a thickness greater than the thickness of the central portion.

[0018] The peripheral portion, due to its positioning, generally has a smaller width than the central portion of the insert. In order to provide sufficient cushioning properties, the peripheral portion is provided to have a greater thickness than the central portion, which thus allows having a peripheral portion with a greater volume providing sufficient cushioning despite its small width.

[0019] Preferably, the lower surface of the damping insert, formed by the lower surfaces of the central, intermediate and peripheral portions, is substantially planar.

[0020] The insert has a substantially planar lower surface intended to come into direct contact with the outsole of the footwear. With a substantially planar lower surface, that implies that the difference in thickness between the intermediate portion on the one hand, and the central and peripheral portions on the other hand, is reflected at the upper surface of the insert, at the level of which the intermediate portion will form a groove between the central and peripheral portions intended to cooperate with the main part of the intermediate sole.

[0021] Preferably, the peripheral portion of the insert extends on the lateral side of the footwear. For example, the midsole comprises a single lateral peripheral portion.

[0022] The lateral peripheral portion of the insert makes it possible to mainly damp when the user presses his foot on the ground toward the outside, which generally take place at the end of the run and which can generate significant stress.

[0023] According to a first embodiment, the peripheral portion extends on the rear and lateral side of the footwear, preferably continuously, and the damping insert is devoid of peripheral portion on the medial side of the footwear. For example, the midsole comprises a single rear peripheral portion and a single lateral peripheral portion, preferably continuously, that is to say a single peripheral portion extending both on the rear side and on the lateral side of the footwear.

[0024] Such one embodiment is more specifically intended for badminton or sports in which the user has to perform fast forward runs. The insert according to the first embodiment thus includes a peripheral portion adapted to the areas where the user presses his foot on the ground during his sports practice. Particularly, the peripheral portion extends across the back and on the lateral side of the midsole, while the medial side does not include a peripheral portion of the insert. Such geometry thus promotes damping when the user presses again along the axis and toward the outside of his foot.

[0025] Preferably, the damping insert comprises a material made of TPU, EVA or a foamed material and is preferably monobloc.

[0026] The material of the insert is chosen so as to allow absorption of the energy released when the user presses his foot on the ground, particularly by deformation. The insert can thus be made of an elastically deformable material.

[0027] According to a second embodiment, the peripheral portion extends on the medial and lateral side of the footwear, and the damping insert is devoid of peripheral portion on the rear side of the footwear, between the medial and lateral sides. For example, the midsole comprises a single lateral peripheral portion and a

single medial peripheral portion. In this case, the peripheral portion thus comprises two distinct parts: a medial part and a lateral part.

[0028] Such an embodiment is more specifically intended for tennis or for sports in which the user has to run laterally and press again his foot laterally. The insert according to the second embodiment thus includes a peripheral portion adapted to the areas where the user presses his foot on the ground during his sports practice. Particularly, the peripheral portion extends both on the medial side and the lateral side of the midsole, while the rear side does not include a peripheral portion of the insert. Such geometry thus promotes damping when the user presses again his foot laterally. Furthermore, the rear part of the insert, devoid of peripheral portion, can then cooperate with an axial tab of the main part of the midsole, making it possible to increase the holding of the insert in the sole.

[0029] According to a third embodiment, the peripheral portion extends, preferably only, on the lateral side of the footwear, and the damping insert is devoid of peripheral portion on the rear side and on the medial side of the footwear. For example, the midsole comprises a single lateral peripheral portion.

[0030] In this case, this gives priority to damping when the user presses again his foot, and this improves the mechanical strength of the midsole by encapsulating the insert in the main part of the midsole, at the medial and rear sides.

[0031] Preferably, the damping insert comprises a material made of TPU and is preferably monobloc.

[0032] The material of the insert is chosen so as to allow absorption of the energy released when the user presses his foot on the ground, particularly by deformation. The insert can thus be made of an elastically deformable material, and preferably of TPU, for example based on a supercritical fluid.

[0033] Preferably, the damping insert is disposed in a through housing of the main part.

[0034] The main part being able to hold the insert via a bead cooperating with the intermediate portion, it is then possible to provide for an opening in the main part to expose the central portion, particularly the upper surface of the central portion of the insert. Indeed, the insert does not need to be held in the midsole by contact of the upper and lower surfaces: the groove formed by the intermediate portion between the main portion and the peripheral portion allows cooperation with a corresponding portion of the main part, which matches the shape of the intermediate portion and maintains the mechanical linking between the main part and the insert. In other words, the intermediate portion and the portion of the main part which cooperates with the intermediate portion have complementary

geometries. The upper surface of the central portion of the insert is then no longer necessary to hold the insert in the midsole, but can on the contrary be exposed to the surface of the midsole to further improve the damping effect by avoiding thickness of the main part above the central portion of the insert.

[0035] Preferably, the central portion extends from the lower surface of the midsole in contact with the outsole, up to the upper surface of the midsole in contact with the insole.

[0036] Even more advantageously, the insert being able to be held peripherally to the main part of the midsole, the upper and lower surfaces of the central portion of the insert can then be exposed, that is to say not to be covered with a layer or thickness of the main part of the midsole. This improves thus the effectiveness of the damping of the central portion of the insert, by reducing the intermediate layers between the central portion and the foot in particular. Such a construction also allows providing a greater thickness for the central portion of the insert, without thereby increasing the thickness of the midsole.

[0037] According to another aspect, a sole for footwear comprising a midsole as described above is also proposed.

[0038] According to another aspect, footwear comprising a sole as described above is also proposed.

Brief description of the drawings

[0039] Figure 1 represents a first embodiment of a sole for footwear, including a midsole with an insert according to the present invention;

[0040] Figure 2 represents a partial exploded view of the sole illustrated in Figure 1;

[0041] Figure 3 represents an exploded view of the sole illustrated in Figure 1;

[0042] [Figure 4 represents a perspective view of the insert of the sole illustrated in Figure 1;

[0043] Figure 5 represents a top view of the insert of the sole illustrated in Figure 1;

[0044] Figure 6 represents a partial exploded view of a second embodiment of a sole for footwear, including a midsole with an insert according to the present invention;

[0045] Figure 7 represents a perspective view of the main part of the midsole of the second embodiment;

[0046] Figure 8 represents a perspective view of the insert of the sole illustrated in Figure 6;

[0047] Figure 9 represents a top view of the insert of the sole illustrated in Figure 6;

[0048] Figure 10 represents a perspective view of a third embodiment of a sole for footwear, including a midsole with an insert according to the present invention;

[0049] Figure 11 represents a perspective view of the main part of the midsole of the third embodiment; and

[0050] Figure 12 represents a perspective view of the insert of the sole illustrated in Figure 10.

Description of the embodiments

[0051] Figures 1 to 5 illustrate a first embodiment of a sole 1 for footwear according to the invention. The sole 1 is for example designed for footwear intended for the practice of a sporting activity, in particular tennis.

[0052] As illustrated in Figures 1 to 3, the sole 1 includes, conventionally, in particular a midsole 2 and an outsole 4. An insole (not represented) can also be provided above the midsole 2 when the sole 1 is integrated into the footwear.

[0053] The sole 1 extends on the one hand from a rear part 1a located at the level of the heel of the user, up to a front part 1b located at the level of the toes of the user and, on the other hand, between a medial side located on the side of the sagittal plane of the user, and a lateral side located on the side opposite to the sagittal plane of the user.

[0054] The midsole 2 includes in particular a main part 6 and a damping insert 8 disposed in the rear part of the midsole 2. The damping insert 8 aims at providing flexibility and cushioning to the sole 1, particularly at the level of the user's heel, while the main part 6 aims at providing some holding and comfort to the rest of the user's foot.

[0055] The main part 6 of the midsole 2 extends from the rear part 1a to the front part 1b of the sole 1 and/or of the footwear, or even from the rear end to the front end of the sole 1 and/or of the footwear. The main part 6 includes in particular a lower surface 6a intended to come into contact with the outsole 4 or to be exposed on the underside of the footwear, one or several side wall(s) 6b exposed or covered by the outsole 4 and an upper surface 6c intended to be covered by an insole (not represented). The main part 6 also includes, on the rear side of the midsole 2, a housing 10 configured to receive the damping insert 8. More specifically, the housing 10 can be a blind hole or, as illustrated in the figures, a through hole, having a shape complementary to that of the insert 8, in particular to allow it to be held in the midsole 2.

[0056] As can be observed in Figures 2 and 3, the side wall 6b of the main part 6 can comprise a crenellated part, particularly on the rear part of the midsole 2, which is intended to cooperate with exposed parts of the damping insert 8, as described below.

[0057] The damping insert 8, or insert 8, has a lower surface 8a, side walls 8b and an upper surface 8c.

[0058] The insert 8 is configured to be positioned in the housing 10 of the main part 6, preferably from the bottom, that is to say from the underside of the sole 1. The insert 8 thus has a shape complementary to that of the housing, for example an upper surface 8c complementary to a portion of the lower surface 6a of the main part 6, and more specifically to the rear portion of the lower surface 6a of the main part 6. For example, thanks to the complementary shape of the insert 8 and of the housing 10, a lower surface 8a of the insert 8 can be in the continuity of the lower surface 6a of the main part 6, so as to form a substantially continuous lower surface of the midsole 2.

[0059] Likewise, the insert 8 may have one or several side wall(s) 8b complementary to the side wall(s) 6b of the main part 6, so as to form a substantially continuous side wall of the midsole 2.

[0060] Furthermore, in the case of a through or opening housing 10 of the main part 6, the insert 8 may have an upper surface 8c complementary to the upper surface 6c of the main part 6, so as to form a substantially continuous upper surface of the midsole 2.

[0061] Particularly, the geometric shape of the insert 8 is designed so as to promote cushioning of the heel during sports practice, whether vertically or obliquely. This is in particular the case for tennis, for example, for which the user, when pressing (again) his foot, may have to place it on the ground in a slanted direction relative to the vertical and to the horizontal. In order to provide cushioning to the heel during such motions along a slanted direction, but also during vertical pressures, the insert 8 includes on the one hand a central portion 12 and one or several peripheral portion(s) 14, for example a medial peripheral portion 14a and a lateral peripheral portion 14b. Finally, between the central portion 12 and the peripheral portions 14, the insert 8 includes an intermediate portion 16 that allows linking together the central portion 12 and the peripheral portion(s) 14. Thus, and as can be seen in the figures, the insert 8 is advantageously monobloc, that is to say formed in one piece.

[0062] The central portion 12 has for example the shape of a disc. The upper surface of the central portion 12 is intended to form, in the case of a through housing 10, part of the upper exposed surface of the midsole 2. The central portion

12 is intended to be positioned under the heel, in line with the heel, and is designed to absorb the stresses occurring when the user places his foot vertically on the ground. The central portion 12 also needs to withstand the weight of the user, during use, in particular static use, of the footwear and is designed accordingly.

[0063] The peripheral portion(s) 14 of the insert 8 are intended to provide cushioning when the user places his foot on the ground obliquely relative to the vertical, for example when pressing again his foot at tennis. The peripheral portion(s) 14 are intended to extend on the sides of the midsole 2, and more specifically to be exposed on the sides of the sole 1. Thus, in the case illustrated in Figures 1 to 5, the insert 8 comprises a medial peripheral portion 14a and a lateral peripheral portion 14b providing comfort and cushioning during the lateral movements of the user that the central portion 12 cannot provide. When the user presses again his foot, the latter will urge the medial 14a and lateral 14b peripheral portions of the insert 8 which will damp the stresses applied by the foot on the ground, in particular by deforming toward the outside of the sole. This results in better comfort for the user.

[0064] However, the insert 8 is devoid of rear peripheral portion, leaving a gap between the medial peripheral portion 14a and the lateral peripheral portion 14b. The space between the medial peripheral portion 14a and the lateral peripheral portion 14b is intended to be filled by a portion of the side wall 6b of the main part 6, in order to form a substantially continuous side wall of the midsole 2.

[0065] Conversely, the intermediate portion 16 of the insert 8 has no specific cushioning function but allows linking the peripheral portions 14 and the central portion 12 of the insert 8, and forming a shape complementary to that of the housing 10 of the main part 6. The intermediate portion 16 may for example have a generally annular shape. This results in a monobloc or one-piece insert. The shape of the intermediate portion 16 allows in particular ensuring very good holding of the insert 8 relative to the main part 6, even if the main part does not surround or does not cover the rear part of the insert 8. Therefore, this allows providing for peripheral portions of the insert 8 that can be exposed, over all or part of the rear part of the midsole 2, to deform during the absorption of the stresses, while keeping a significant mechanical holding between the insert 8 and the main part 6.

[0066] In order to provide comfort and cushioning, the central portion 12 and the peripheral portions 14 of the insert 8 have a determined thickness that is sufficient to form damping elements. The central portion 12 and the peripheral portions 14, in particular, have, at least partly, a thickness or a height greater than the thickness of the intermediate portion 16. Particularly, the peripheral portions 14

may have a reduced width, they may have a thickness greater than that of the central portion 12 in order to have a sufficient damping volume.

[0067] Advantageously, the damping insert 8 is formed of a single material. The insert 8 can for example comprise an elastically deformable material such as an elastomer or TPU. In particular, TPU exhibits better durability over time, keeping its cushioning properties longer than other materials. The insert 8 can also comprise a foamed, structured or, on the contrary, solid material.

[0068] Figures 6 to 9 illustrate a second embodiment of a sole 1' according to the present invention. In this second embodiment, the elements identical to those of the first embodiment are designated by the same references.

[0069] The second embodiment relates more specifically to a sole 1' for footwear intended to practice badminton, that is to say to practice sports requiring forward pressures, in particular using long strides. The sole 1' thus includes an insert 8' whose geometry differs substantially, at the peripheral portions 14, from that of the insert 8 of the first embodiment.

[0070] The geometric shape of the insert 8' is designed to promote heel cushioning during sports practice, whether vertically or obliquely forward. This is in particular the case for badminton for example, for which the user, when he presses (again) his foot, may have to place it far forward and in a slanted direction relative to the vertical and to the horizontal. In order to provide cushioning to the heel during such motions along a slanted direction, but also during vertical pressures, the insert 8' includes, in addition to the central portion 12, several peripheral portions 14, for example a rear peripheral portion 14c and a lateral peripheral portion 14b. Particularly, the rear peripheral portion 14c can be rounded.

[0071] The peripheral portion(s) 14 of the insert 8' are intended to provide cushioning when the user places his foot on the ground forward, for example to catch a drop shot, which thereby exerts crushing stresses on the rear part of the footwear, in particular in the buttress area. When the user presses his foot forward, the latter will urge the rear peripheral portion 14c of the insert 8' which will be crushed and deformed toward the outside to damp the stresses applied by the foot on the ground. This results in better comfort for the user.

[0072] However, the insert 8' is devoid of medial peripheral portion, leaving a medial space which is formed by a portion of the side wall 6b of the main part 6, in order to form a substantially continuous side wall of the midsole 2.

[0073] Advantageously, the damping insert 8′ is formed of a single material. The insert 8′ can for example comprise an elastically deformable material such as an elastomer or TPU or EVA, for example based on a supercritical fluid. The insert 8′ can also comprise a foamed, structured or, on the contrary, solid material.

[0074] Figures 10 to 12 illustrate a third embodiment of a sole 1″ according to the present invention. In this third embodiment, the elements identical to those of the first embodiment are designated by the same references.

[0075] The third embodiment also relates to a sole 1″ for footwear intended to practice tennis. The sole 1″ includes an insert 8″ whose geometry differs substantially, at the peripheral portions 14, from that of the inserts 8 and 8′ of the first and second embodiments.

[0076] The geometric shape of the insert 8″ is thus designed so as to allow a better mechanical strength of the sole during sports practice, in particular over the long term. Thus, in order to limit the possible risks of tearing during high stresses, and in particular on an already worn sole, the pad 8" has no medial peripheral portion but is, on the contrary, encapsulated in the main part 6 of the midsole 2. However, and in order to always provide cushioning to the heel, especially when pressing again his foot at the end of run, the insert 8″ still comprises a lateral peripheral portion 14b making it possible to limit the stresses appearing at the end of run.

[0077] The insert 8' is devoid of medial peripheral portion, leaving a medial space which is formed by a portion of the side wall 6b of the main part 6, in order to form a lateral wall of the midsole 2 which is substantially continuous and mechanically strengthened.

[0078] Advantageously, the damping insert 8″ is formed of a single material. The insert 8″ can for example comprise an elastically deformable material such as an elastomer or TPU. In particular, TPU exhibits better durability over time, keeping its cushioning properties longer than other materials. The insert 8″ can also comprise a foamed, structured or, on the contrary, solid material.

[0079] Thus, thanks to the midsole according to the present invention, it becomes possible to have improved cushioning for the user, including during oblique motions relative to the vertical. More specifically, the positioning and distribution of the peripheral portions of the damping insert according to the present invention allows locally increasing the cushioning and the comfort for the user, in particular in connection with very specific motions peculiar to some sports practices. It is therefore possible to adapt the shape of the damping insert to make it suitable for sports practice, in order to improve comfort.

CLAIMS

1. A midsole (2) for footwear, comprising a main portion (6) extending substantially from the rear to the front of the footwear, and a damping insert (8, 8', 8″) formed of a single material, preferably monobloc, and positioned at the rear of the midsole (2), in a housing (10) of the main part (6), the insert (8, 8', 8″) including:

- a central portion (12), for example in the form of a disc, intended to be positioned under the user's heel,
- a peripheral portion (14) intended to extend on the medial, lateral or rear side of the midsole (2) and of the footwear, and
- an intermediate, for example annular, portion (16) linking the central portion (12) to the peripheral portion (14),

wherein the central portion (12) has a thickness greater than the thickness of the intermediate portion (16), wherein at least part of the peripheral portion (14) has a thickness greater than the thickness of the intermediate portion (16), and wherein the main part (6) of the midsole (2) comprises a portion cooperating with the intermediate portion (16) of the damping insert (8, 8', 8″)

wherein the damping insert (8, 8′, 8″) is devoid of medial peripheral portion or of rear peripheral portion.

2. The midsole (2) according to the preceding claim, wherein the peripheral portion (14) is exposed on the outside of the footwear.

3. The midsole (2) according to claim 1 or 2, wherein at least a part of the peripheral portion (14) has a thickness greater than the thickness of the central portion (12).

4. A midsole (2) according to any one of the preceding claims, wherein the lower surface (8a) of the damping insert (8, 8', 8″), formed by the lower surfaces of the central (12), intermediate (16) and peripheral (14) portions, is substantially planar.

5. The midsole (2) according to any one of the preceding claims, wherein the peripheral portion (14) extends on the rear and lateral side of the footwear, for example comprises a single rear peripheral portion and a single lateral peripheral portion, preferably continuously, and wherein the damping insert (8', 8″) is devoid of peripheral portion on the medial side of the footwear.

6. The midsole (2) according to the preceding claim, wherein the damping insert (8') comprises a material made of TPU, EVA or a foamed material and is preferably monobloc.

7. The midsole (2) according to any one of claims 1 to 4, wherein the peripheral portion (14) extends on the medial and lateral side of the footwear, for example comprises a single medial peripheral portion and a single lateral peripheral portion, and wherein the damping insert (8) is devoid of peripheral portion on the rear side of the footwear, between the medial and lateral sides.

8. The midsole (2) according to any one of claims 1 to 4, wherein the peripheral portion (14) extends, preferably only, on the lateral side of the footwear, for example comprises a single lateral peripheral portion, and wherein the damping insert (8″) is devoid of peripheral portion on the rear side and on the medial side of the footwear.

9. The midsole (2) according to claim 7 or 8, wherein the damping insert (8, 8″) comprises a material made of TPU and is preferably monobloc.

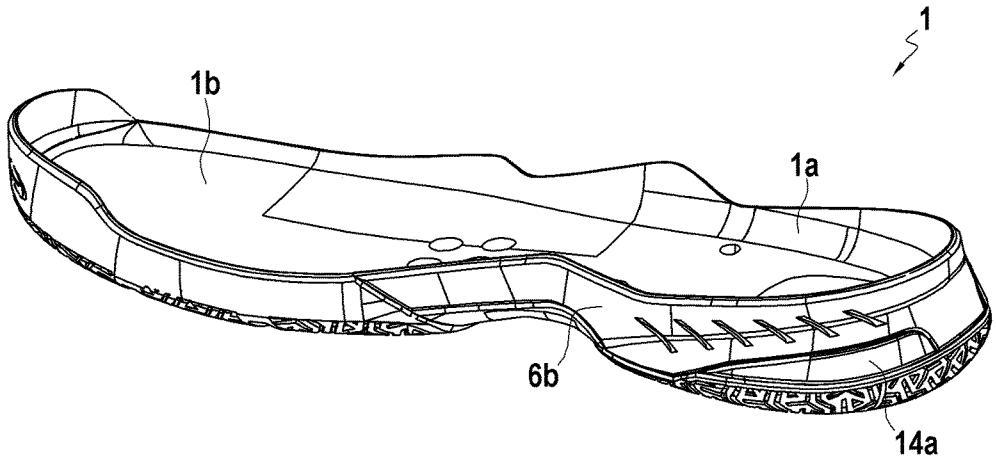
10. The midsole (2) according to any one of the preceding claims, wherein the damping insert (8, 8', 8″) is disposed in a through housing (10) of the main part (6).

11. The midsole (2) according to any one of the preceding claims, wherein the central portion (12) extends from the lower surface of the midsole (2) in contact with the outsole, up to the upper surface of the midsole (2) in contact with the insole.

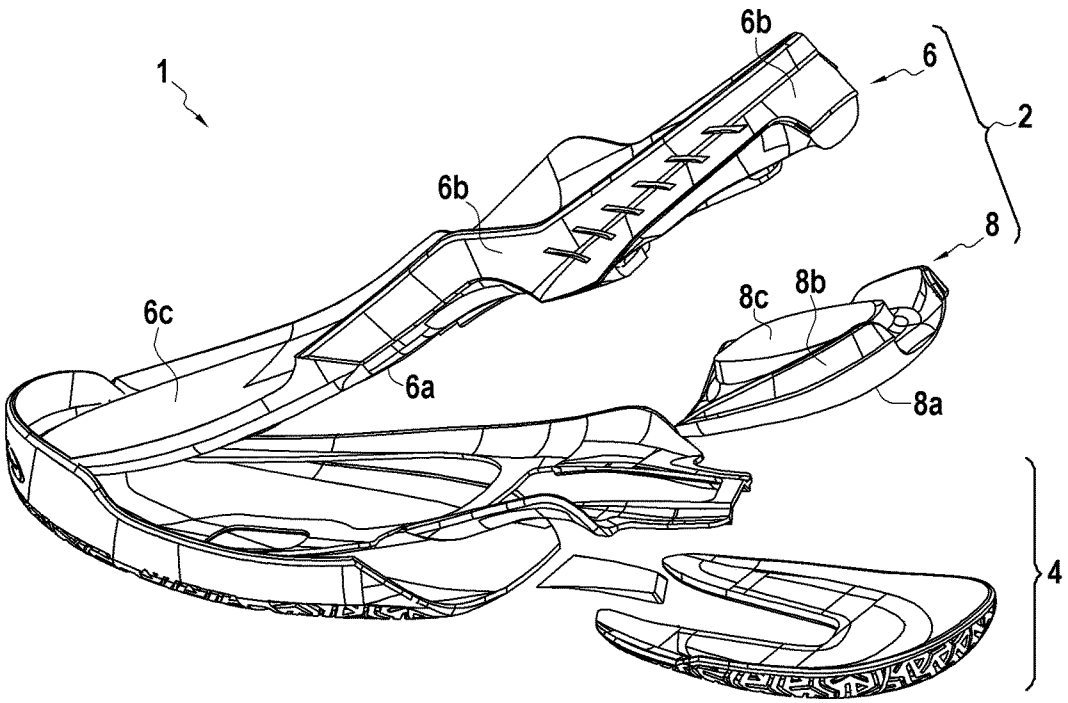
12. A sole (1, 1', 1″) for footwear, comprising a midsole (2) according to any one of the preceding claims.

13. Footwear comprising a sole (1, 1', 1″) according to the preceding claim.

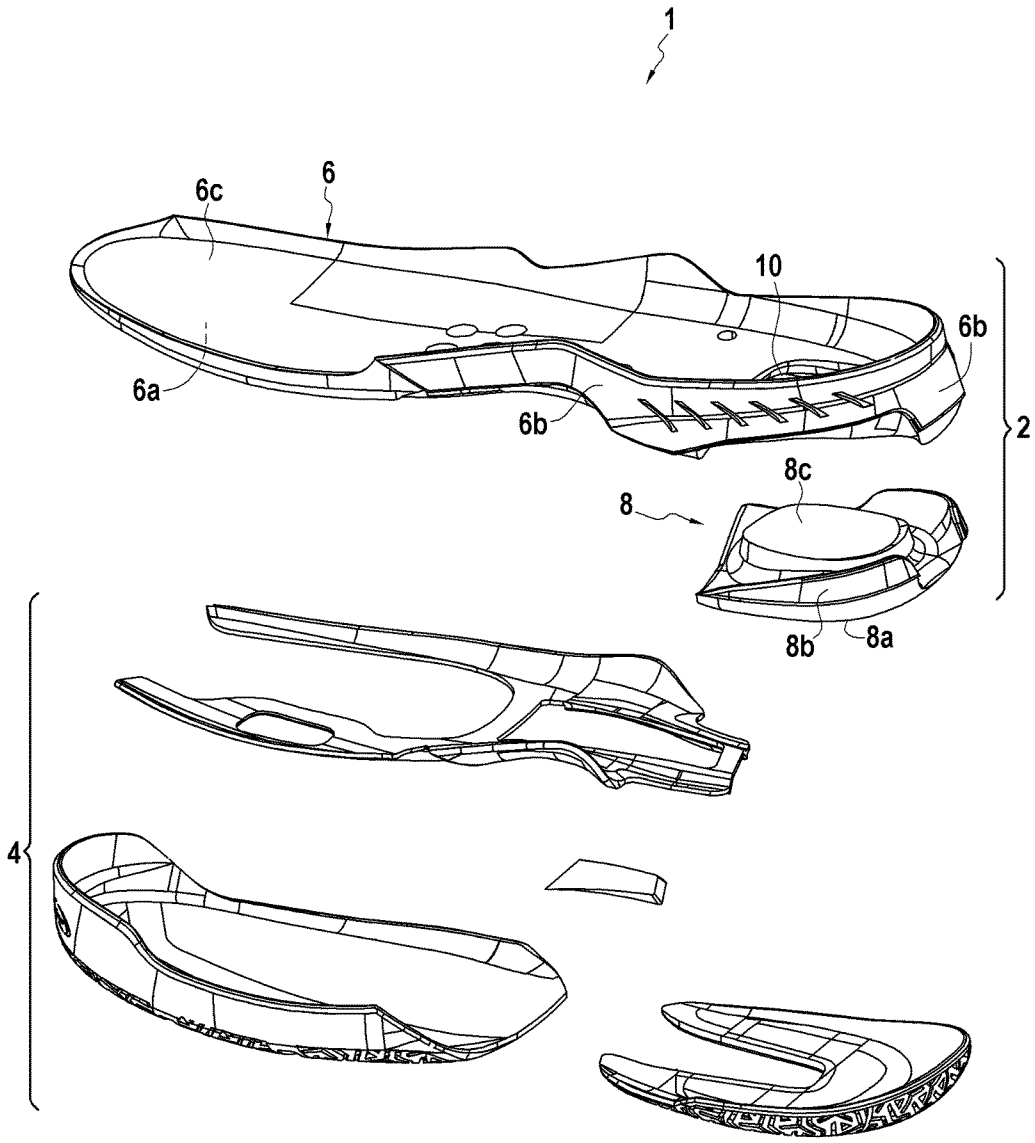
[Fig. 1]



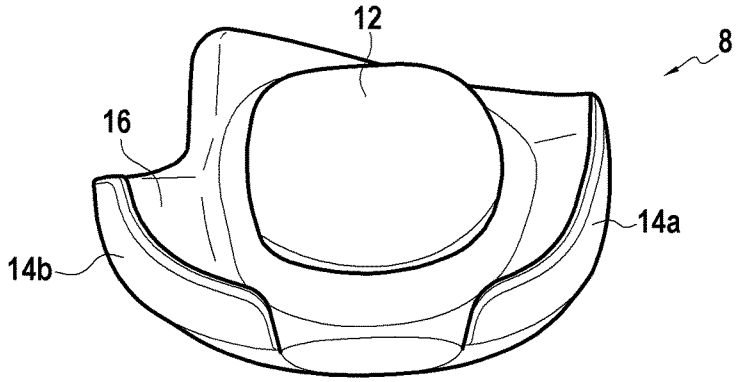
[Fig. 2]



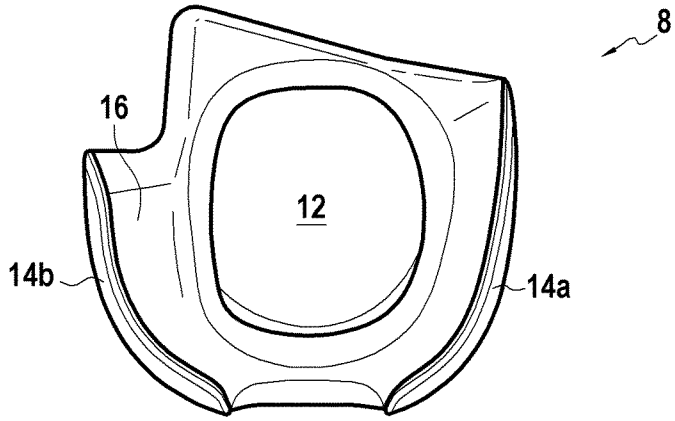
[Fig. 3]



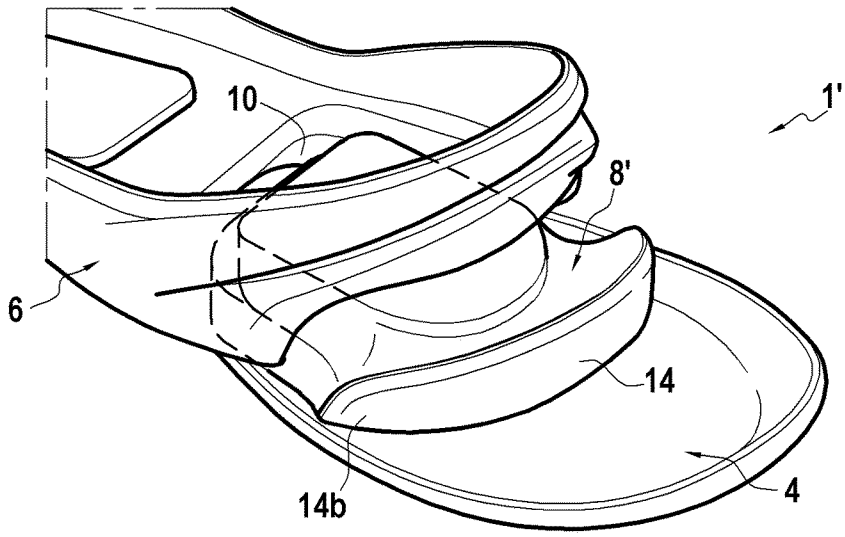
[Fig. 4]



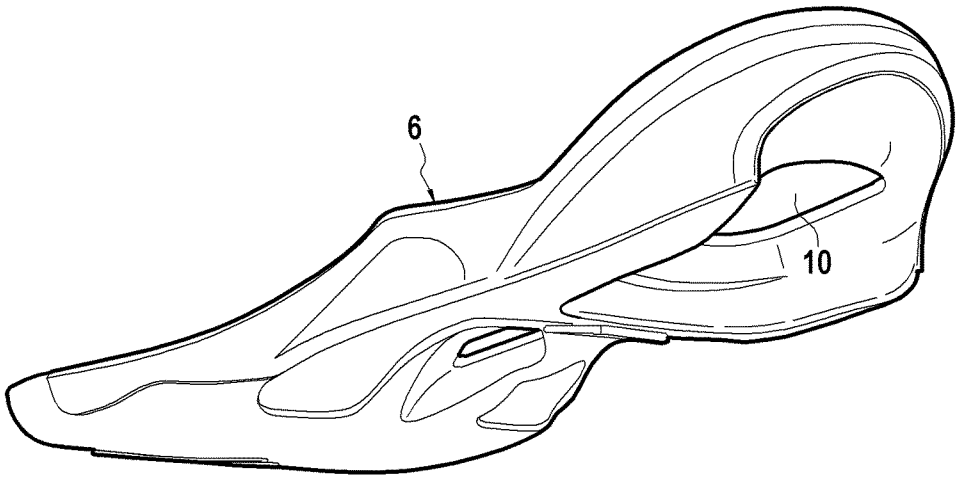
[Fig. 5]



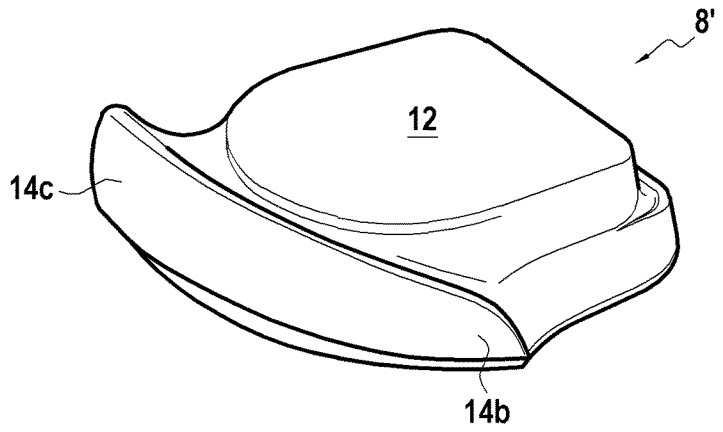
[Fig. 6]



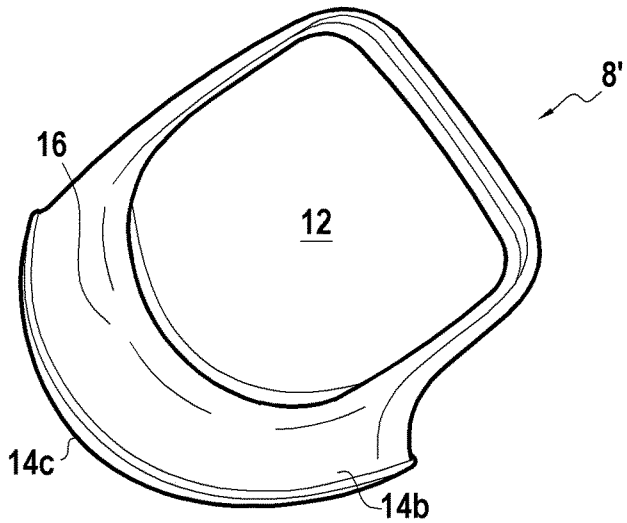
[Fig. 7]



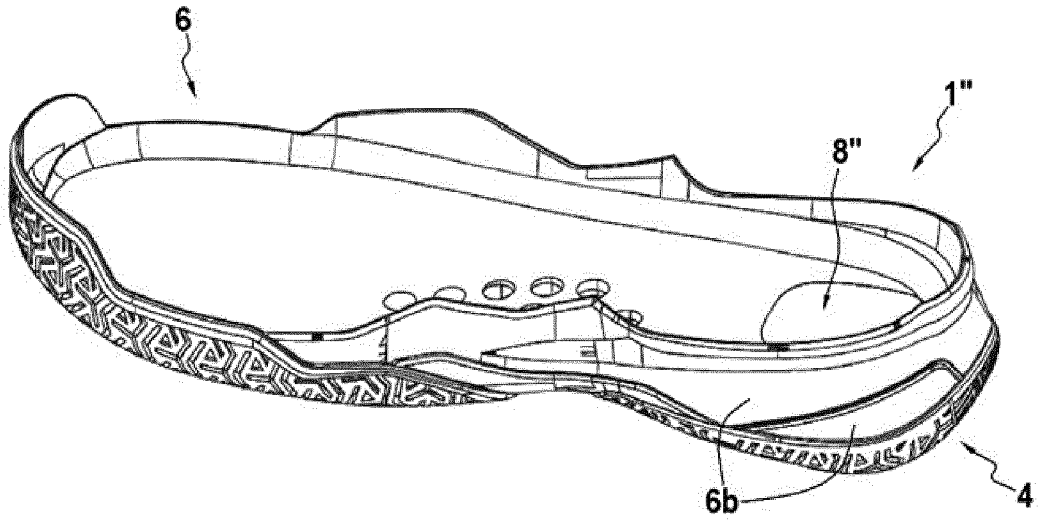
[Fig. 8]



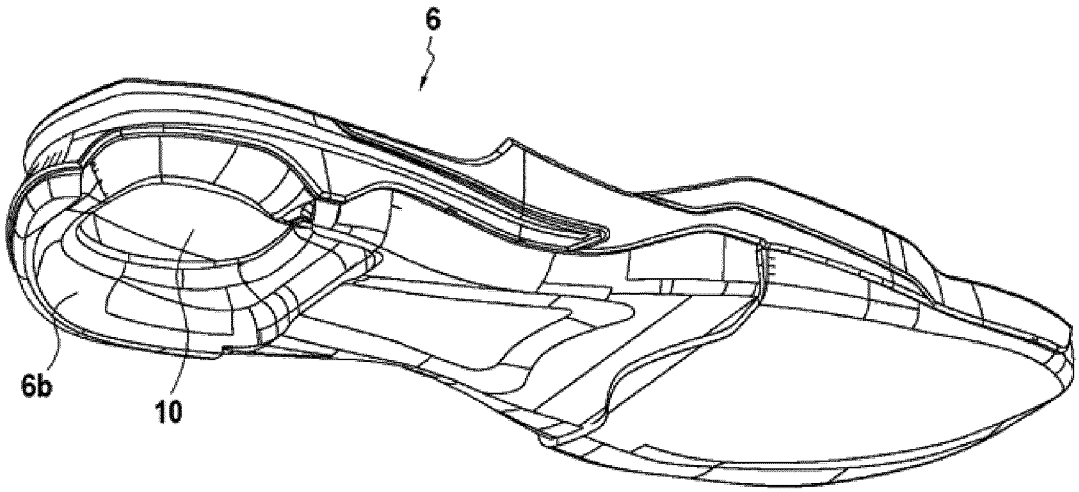
[Fig. 9]



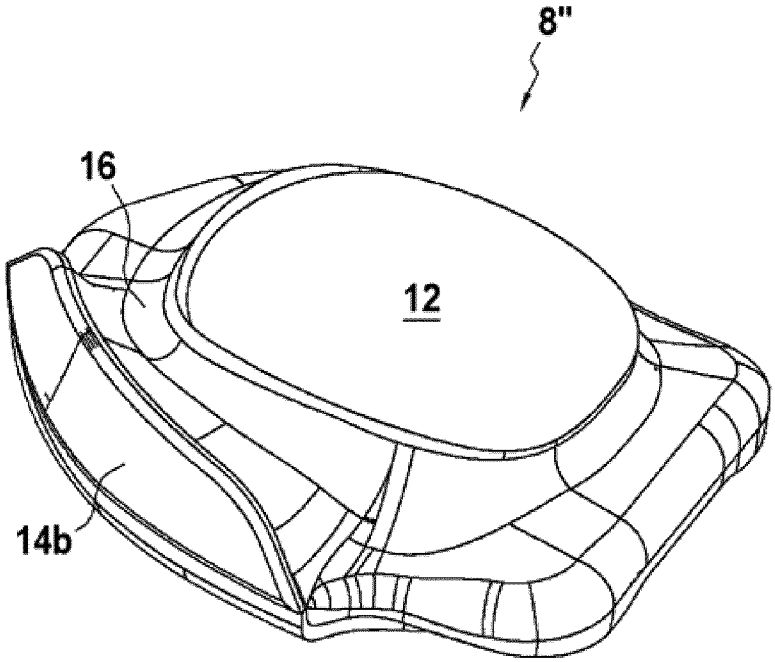
[Fig. 10]



[Fig. 11]



[Fig. 12]



INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2021/076655

A. CLASSIFICATION OF SUBJECT MATTER
INV. A43B5/10 A43B13/18 A43B21/32
ADD.

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)
A43B

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)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 2015/013185 A1 (ELDER ZACHARY M [US] ET AL) 15 January 2015 (2015-01-15) paragraph [0049] - paragraph [0104] figures 1A-4F, 8	1-3,7,9, 12,13 4-6,8, 10,11
A	DE 20 2019 106097 U1 (LOUIS STEITZ SECURA GMBH CO KG [DE]) 16 January 2020 (2020-01-16) paragraph [0025] - paragraph [0044] figures 1-5	1-13

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
11 January 2022	19/01/2022

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Papatheofrastou, M

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2021/076655

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		US 2017188659 A1	06-07-2017
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