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(54) **REPLACEABLE HEEL CUSHION CAVITY**

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(57) **ABSTRACT**

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A footbed can be removed from a shoe that includes an outsole, an insole board above the outsole and cemented to the outsole, an upper cemented to the insole board, and a first heel cushion in a cavity formed in a heel portion of the insole board. The first heel cushion can be removed from the cavity, and a second heel cushion can be inserted in the cavity. The second heel cushion can have a different hardness value from the first heel cushion. The footbed can be re-inserted in the shoe above the insole board and over the second heel cushion.

Publication Classification

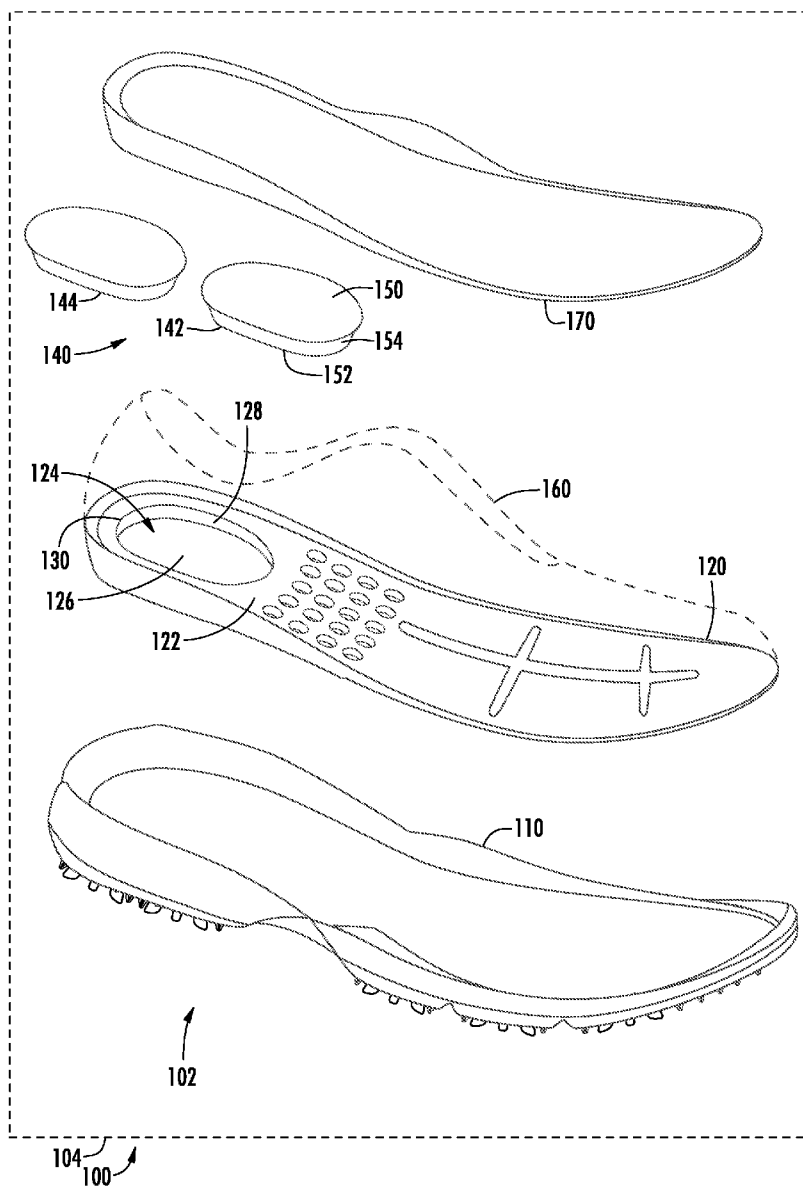
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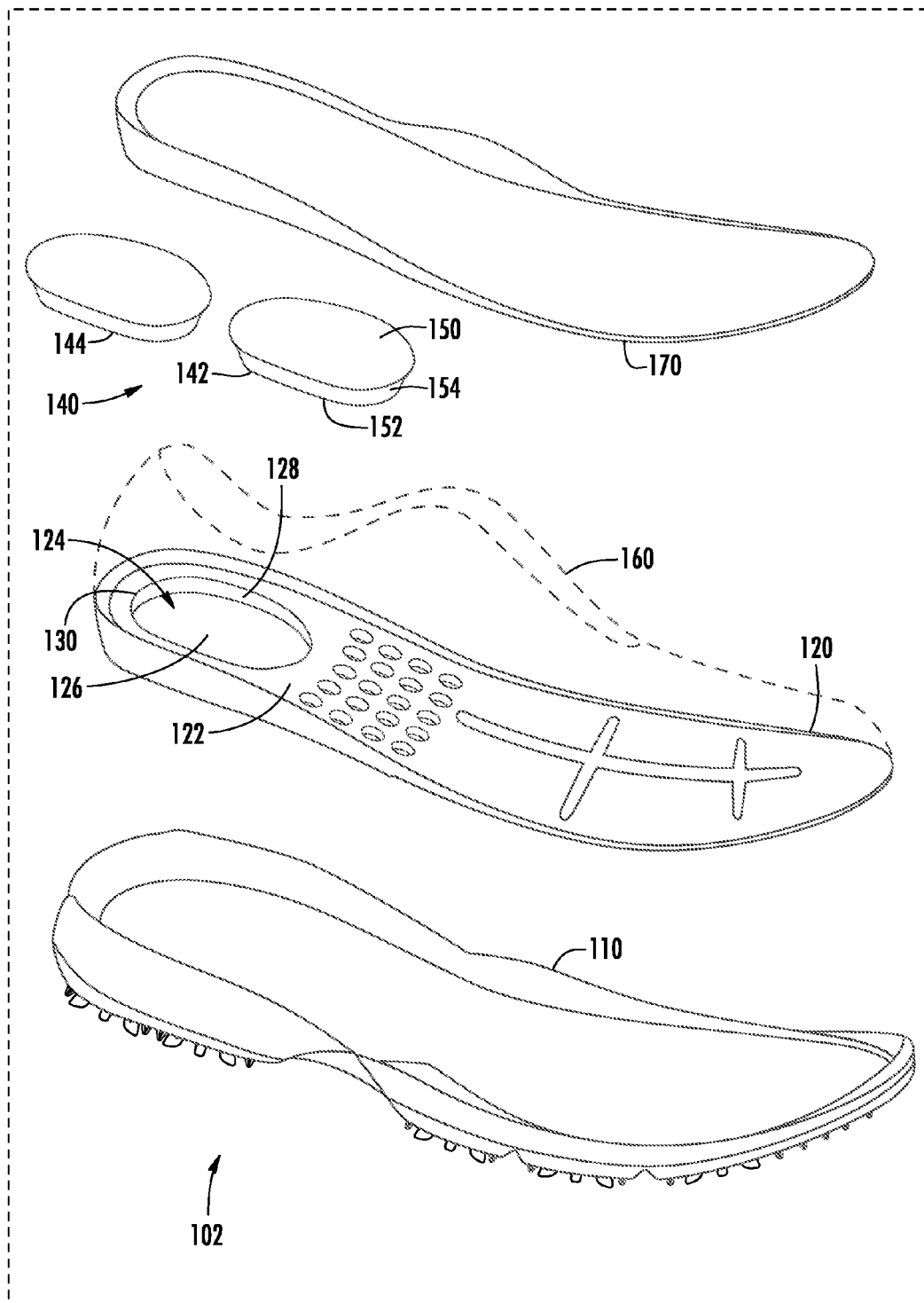


FIG. 1

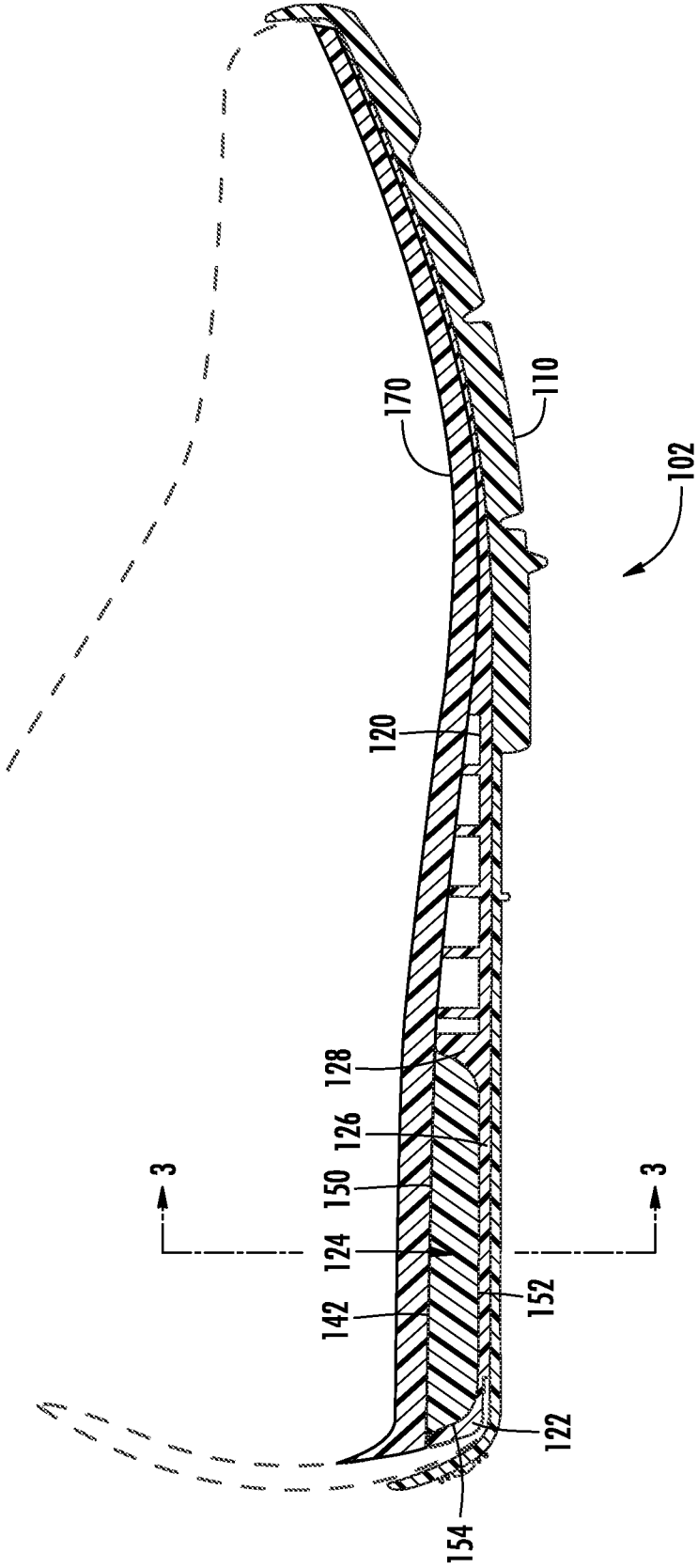


FIG. 2

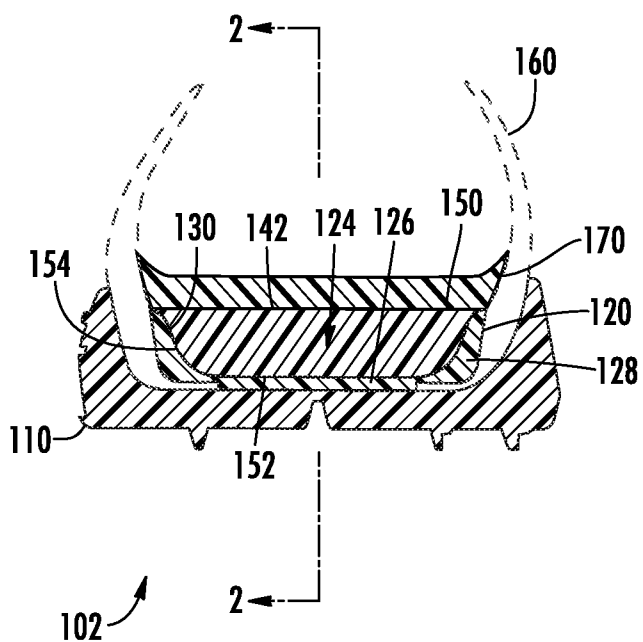


FIG. 3

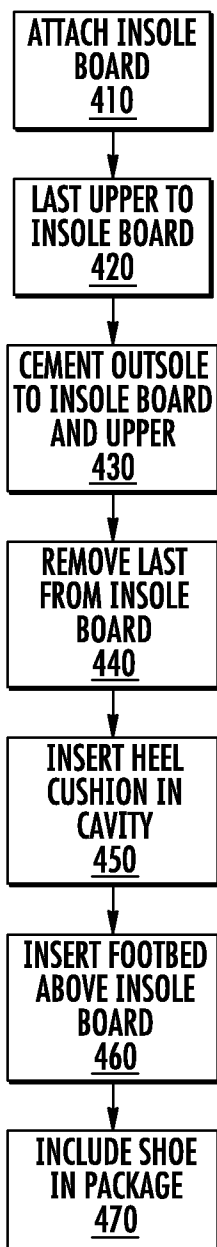


FIG. 4

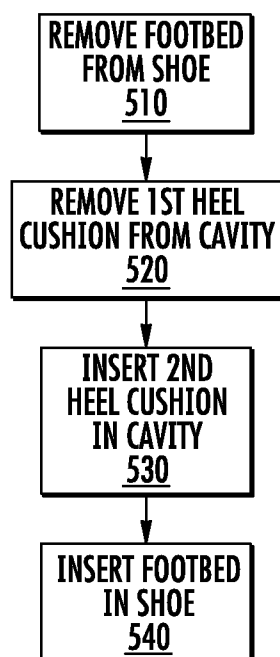


FIG. 5

REPLACEABLE HEEL CUSHION CAVITY

BACKGROUND

[0001] Many different techniques and tools have been used to improve cushioning in shoes. Some of these techniques and tools have been directed to providing shoes with desired cushioning characteristics such as a desired hardness/softness, a desired amount of energy return when a shoe cushion is decompressed, etc. Different materials, designs, and manufacturing techniques have been used to produce such cushioning characteristics.

SUMMARY

[0002] While desirable cushioning may have been achieved in some shoes for some shoe users, different users can have different physical features and different preferences. Accordingly, some users may prefer different cushioning characteristics than other users. The tools and techniques described herein are related to replaceable heel cushions. Such cushions may allow a user to personalize the heel cushioning characteristics of his/her shoes by replacing existing heel cushions with other cushions, such as other cushions that have different cushioning characteristics.

[0003] According to one embodiment, a footbed can be removed from a shoe that includes an outsole, an insole board above the outsole (i.e., at least a portion of the insole board being positioned above at least a portion of the outsole) and cemented to the outsole, an upper cemented to the insole board, and a first heel cushion in a cavity formed in a heel portion of the insole board. The first heel cushion can be removed from the cavity, and a second heel cushion can be inserted in the cavity. The second heel cushion can have a different hardness value from the first heel cushion. The footbed can be re-inserted in the shoe above the insole board and over the second heel cushion.

[0004] According to another embodiment, a cement-constructed shoe product can include a shoe that includes an outsole and an insole board that is above the outsole and cemented to the outsole. The shoe can also include an upper cemented to the insole board and a removable heel cushion in (i.e., at least partially in) a cavity formed in a heel portion of the insole board. The heel cushion can be in the cavity without being permanently secured in the cavity. A removable footbed can be positioned within the upper and positioned over the insole board and the heel cushion. The footbed can be positioned without being permanently secured to the insole board or the heel cushion.

[0005] According to yet another embodiment, an insole board can be attached to a last. The insole board can define an upwardly-facing cavity in a heel portion of the insole board. An upper can be lasted to the insole board, and an outsole can be cemented to the insole board and to the upper, with at least a portion of the outsole being positioned below the insole board. The last can be removed from the insole board and a heel cushion can be inserted in the cavity. A footbed can be inserted above the insole board in a shoe that includes the footbed, the heel cushion, the insole board, and the outsole. The insertion of the heel cushion and the insertion of the footbed can be performed without permanently securing the heel cushion or the footbed in place within the shoe.

[0006] This Summary is provided to introduce a selection of concepts in a simplified form. The concepts are further described below in the Detailed Description. This Summary

is not intended to identify key features or essential features of the claimed subject matter, nor is it intended to be used to limit the scope of the claimed subject matter. Similarly, the invention is not limited to implementations that address the particular techniques, tools, environments, disadvantages, or advantages discussed in the Background, the Detailed Description, or the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1 is a side exploded perspective view of a shoe product including a shoe with a heel cushion. The shoe product may also include an additional shoe and additional heel cushions that are not shown in FIG. 1 for the sake of simplicity.

[0008] FIG. 2 is a side sectional view of the shoe of FIG. 1 taken along line 2-2 of FIG. 3.

[0009] FIG. 3 is a rear sectional view of the shoe of FIG. 1 taken along line 3-3 of FIG. 2.

[0010] FIG. 4 is a flowchart of a replaceable heel cushion technique.

[0011] FIG. 5 is a flowchart of another replaceable heel cushion technique.

[0012] The description and drawings may refer to the same or similar features in different drawings with the same reference numbers.

DETAILED DESCRIPTION

[0013] Referring to FIGS. 1-3, an example of a shoe product (100) including a shoe (102) with a removable heel cushion will be discussed. The shoe product (100) may include a shoe package (104), and may include at least one more shoe (e.g., a pair of shoes) and multiple heel cushions for each shoe (102) in the shoe package (104). A heel cushion in the shoe (102) may be replaced with another cushion having different cushioning characteristics, such as one of the other heel cushions in the shoe package (104), or even another heel cushion that is not included in the package (104).

[0014] The shoe (102) can be a cement-constructed shoe, such as a golf shoe, and the shoe may have cleats, as shown. The shoe can include an outsole (110) and an insole board (120). The insole board (120) can be positioned generally above the outsole (110) and can be cemented to the outsole (110). For example, at least a portion of the insole board (120) may be positioned above at least a portion of the outsole (110). This may include sides and ends of the outsole (110) extending up and above the sides and ends of the insole board (120), as can be seen in FIGS. 2-3.

[0015] A heel portion (122) of the insole board (120) can define an upwardly facing cavity (124) therein. More specifically, the cavity (124) can be generally oval-shaped and can be defined by a generally flat floor (126) and upwardly extending walls (128) of the insole board (120) that slope outward as they extend up to a rim (130), as can be seen in FIGS. 2-3. The cavity (124) may extend only partially through the insole board (120), as shown in FIGS. 1-3, or at least a portion of the cavity may extend completely through the insole board (120). Accordingly, the outsole (110), or a layer between the outsole (110) and the insole board (120), may form at least a portion of the floor of the cavity (124).

[0016] The shoe product (100) can include a set of heel cushions (140), which can include a first heel cushion (142) and a second heel cushion (144). Each heel cushion (142 and 144) can include a top surface (150), an opposing bottom

surface (152), and a side surface (154) extending between the periphery of the bottom surface (152) and the periphery of the top surface (150). The side surface (154) may slope outwardly as it extends upward, which can match the walls (128) defining the sides of the cavity (124). The shoe (102) can include, for example, the first heel cushion (142) positioned in the cavity (124) with the bottom surface (152) of the first heel cushion (142) resting on the floor (126) that defines the bottom of the cavity (124) and at least a portion of the top surface (150) at or above the rim (130) of the cavity (124).

[0017] The heel cushions in the set of heel cushions (140) can each have different cushioning characteristics, such as different hardness values and/or different thicknesses. The set of heel cushions (140) may include more heel cushions, such as three or more heel cushions for each shoe (102). For example, the set of heel cushions (140) may include three heel cushions, with three different hardness values. For example, the differences in Asker C SRIS0101 durometer hardness values (SRIS refers to "Society of Rubber Industry [Japan] Standards" in force as of December 2011) may be differences of at least ten units, with values in a range of from 50 to 100 Asker C SRIS0101 durometer hardness values. In one example, these can include a heel cushion with an Asker C SRIS0101 durometer hardness value of 50, a heel cushion with an Asker C SRIS0101 durometer hardness value of 60, and a heel cushion with an Asker C SRIS0101 durometer hardness value of 70. The different heel cushions may be color-coded to indicate their hardness, or each heel cushion may include some other indicia of its hardness (e.g., printed words on the heel cushions indicating "firm", "standard", and "soft").

[0018] The heel cushions may also have different thicknesses, with harder cushions being thinner than softer cushions. The thickness of each heel cushion (from the bottom surface (152) to the top surface (150)) may be sufficient to prevent the heel cushion from "bottoming out" in the cavity (124), and may be sufficient to keep at least a portion of the top surface (150) at or above the rim (130) of the cavity (124), even when under load from a typical user (e.g., under a load from a 250-pound person walking). The different thicknesses can be sufficient to offset the amount of compression set (the amount, which can be expressed as a percentage of deflection, by which a foam specimen does not return to its original thickness following release of a compressive load) that occurs in the cavity under the weight of a user's foot. In one example, the heel cushion with an Asker C SRIS0101 durometer hardness value of 50 has a thickness of 14 millimeters, the heel cushion with an Asker C SRIS0101 durometer hardness value of 60 has a thickness of 13 millimeters, and the heel cushion with an Asker C SRIS0101 durometer hardness value of 70 has a thickness of 12 millimeters.

[0019] Referring still to FIGS. 1-3, the shoe (102) can also include an upper (160) (shown in dashed lines in FIGS. 1-3), which can be cemented between the insole board (120) and the outsole (110), and can extend up and around the insole board (120).

[0020] The shoe (102) can also include a footbed (170) seated over the insole board (120) and over the top surface (150) of the first heel cushion (142). The footbed (170) can be seated without being permanently secured to the insole board (120), or without being secured at all to the insole board (120). Indeed, the footbed (170) may be seated without being secured or permanently secured within the shoe (102) at all. For example, the footbed (170) may be secured to the insole

board (120) with a temporary adhesive that allows the footbed (170) to be removed. Alternatively, the footbed (170) may be seated without any adhesive or other securing mechanism, again allowing the footbed (170) to be removed. The first heel cushion (142) can also be seated in the cavity (124) (i.e., at least partially in the cavity, although a top portion of the first heel cushion (142) may extend above the cavity) without being permanently secured or secured at all. This can allow the first heel cushion (142) to be removed so that the first heel cushion (142) can be replaced with a different heel cushion, such as the second heel cushion (144), which can have different cushioning characteristics from the first heel cushion (142).

[0021] Accordingly, the shoe product (100) and techniques related to shoes or shoe products can provide one or more benefits, such as allowing a user to personalize the cushioning characteristics of the heel portion of the shoe (102). However, the subject matter defined in the appended claims is not necessarily limited to the benefits described herein. A particular implementation of the invention may provide all, some, or none of the benefits described herein.

[0022] Techniques related to replaceable heel cushions, such as techniques for making and/or using replaceable heel cushion shoes, will now be described. Although operations for the various techniques are described herein in a particular, sequential order for the sake of presentation, it should be understood that this manner of description encompasses rearrangements in the order of operations, unless a particular ordering is required. For example, operations described sequentially may in some cases be rearranged or performed concurrently. Techniques described herein with reference to flowcharts may be used with one or more of the systems described herein and/or with one or more other systems. Moreover, for the sake of simplicity, flowcharts may not show the various ways in which particular techniques can be used in conjunction with other techniques.

[0023] Examples of manufacturing techniques and materials for use in constructing the components for the shoe (102) and extra heel cushions in the set of heel cushions (140) will now be discussed. However, it should be understood that other techniques may be used, such as other materials or other methods of manufacturing using those materials. In an example, the footbed (170) can be made from polyurethane or ethylene-vinyl acetate, either of which may be molded using a technique such as compression molding. The insole board (120) can be made from thermoplastic polyurethane or thermoplastic rubber, either of which may be molded using a technique such as injection molding. The outsole (110) can be made from rubber, thermoplastic polyurethane or thermoplastic rubber, either of which may be molded. For example, rubber can be compression molded, and thermoplastic polyurethane or thermoplastic rubber can be injection molded.

[0024] The heel cushions (142 and 144) can be made with foam material such as polyurethane or ethylene-vinyl acetate, such as using a compression molding technique. Different hardness values may be produced by packing less or more material in the mold. If more air pockets are left in the material because less material is packed in the mold, the material will be softer. Accordingly, different amounts of material per unit volume of the mold may be used to produce different hardness, such as the different hardness values discussed above.

[0025] Referring to the flowchart of FIG. 4, a construction technique related to replaceable heel cushions will be

described. The technique can include attaching (410) an insole board to the bottom of a last (a form that the shoe is made around, which may be made of a rigid polymer material), which can give the resulting shoe its shape. For example, this attachment may be performed by temporarily cementing at least a portion of the insole board to the last (e.g., with a dot of cement at the heel and a dot of cement at the toe). The insole board can define an upwardly facing cavity in a heel portion of the insole board.

[0026] An upper can be lasted (420) to the insole board. For example, this can include positioning the upper relative to the insole board as shown in FIGS. 2-3, and cementing the upper to the insole board. Accordingly, the upper can be cemented to the insole board and can extend up and around the insole board. Additionally, an outsole can be cemented (430) to the insole board and to the upper, with at least a portion of the outsole being positioned below the insole board. A heat tunnel may be used to dry the cement for better outsole adhesion, and to set the box toe and the counter. The last can be removed (440) from the insole board. The box toe and counter (which can each be sandwiched between the upper and lining) can keep the shoe's shape after the shoe has been "de-lasted").

[0027] A heel cushion can be inserted (450) in the cavity, and a footbed can be inserted (460) above the insole board in a shoe that includes the footbed the heel cushion, the insole board, and the outsole. Inserting (450) the heel cushion and inserting (460) the footbed can be performed without permanently securing the heel cushion or the footbed in place within the shoe.

[0028] The heel cushion may extend from a floor of the cavity to at least as high as a rim of the cavity when the heel cushion is positioned in the cavity.

[0029] The technique of FIG. 4 may further comprise including (470) the shoe in a package. The package can include a set of heel cushions, where the set includes the heel cushion in the cavity and a heel cushion that is not in a cavity in an insole board. The set of heel cushions may include a first heel cushion that is harder and thinner than a second heel cushion in the set. The first heel cushion may have an Asker C SRIS0101 durometer hardness value that differs by at least ten Asker C SRIS0101 durometer hardness value units from an Asker C SRIS0101 durometer hardness value of the second heel cushion. All or part of the technique of FIG. 4 may also be performed together with all or part of the replaceable heel cushion technique of FIG. 5, which will now be discussed.

[0030] The technique of FIG. 5 can include removing (510) a footbed from a shoe. The shoe can include an outsole, an insole board above the outsole and cemented to the outsole, an upper cemented to the insole board, and a first heel cushion in a cavity formed in a heel portion of the insole board. These components may or may not be cemented directly to the other recited components. For example, there may be an additional layer between the insole board and the outsole, and that additional layer can be cemented to the insole board and the outsole, thereby cementing both the insole board and the outsole to each other. Alternatively, the upper may be cemented directly to the insole board and to the outsole, and the insole board may be cemented directly to the outsole.

[0031] The first heel cushion can be removed (520) from the cavity. A second heel cushion can be inserted (530) in the cavity, where the second heel cushion has a different hardness value from the first heel cushion. Additionally, the footbed can be inserted (540) in the shoe.

[0032] The first heel cushion and the second heel cushion can each extend from a floor of the cavity to at least as high as a rim of the cavity when the respective heel cushion is positioned in the cavity. In addition, the second heel cushion may have an Asker C SRIS0101 durometer hardness value that differs by at least ten Asker C SRIS0101 durometer hardness value units, from an Asker C SRIS0101 durometer hardness value of the first heel cushion.

[0033] The shoe may include cleats, such as cleats that are typically used in golf shoes. In addition, the cavity can be defined by walls and a floor in the heel portion of the insole board, as has been discussed above.

[0034] While the invention has been particularly shown and described with reference to preferred embodiments thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention. For example, the heel cushions and/or the cavity in the insole board may be different shapes from those discussed and described above. In addition, the shoe may be some other type of shoe, such as a running shoe, etc.

I claim:

1. A method comprising:

removing a footbed from a shoe comprising an outsole, an insole board above the outsole and cemented to the outsole, an upper cemented to the insole board, and a first heel cushion in a cavity formed in a heel portion of the insole board;

removing the first heel cushion from the cavity;

inserting a second heel cushion in the cavity, the second heel cushion having a different hardness value from the first heel cushion; and

inserting the footbed in the shoe above the insole board and over the second heel cushion.

2. The method of claim 1, wherein the first heel cushion extends from a floor of the cavity to at least as high as a rim of the cavity when the first heel cushion is positioned in the cavity, and the second heel cushion extends from a floor of the cavity to at least as high as the rim of the cavity when the second heel cushion is positioned in the cavity.

3. The method of claim 1, wherein the second heel cushion has an Asker C SRIS0101 durometer hardness value that differs by at least ten Asker C SRIS0101 durometer hardness value units from an Asker C SRIS0101 durometer hardness value of the first heel cushion.

4. The method of claim 1, wherein the shoe comprises cleats.

5. The method of claim 1, wherein the cavity is defined by walls and a floor in the heel portion of the insole board.

6. The method of claim 1, wherein the shoe is a golf shoe.

7. The method of claim 1, wherein the upper is cemented directly to the insole board and to the outsole, and wherein the insole board is cemented directly to the outsole.

8. A cement-constructed shoe product comprising:

a shoe comprising:

an outsole;

an insole board above the outsole and cemented to the outsole;

an upper cemented to the insole board;

a removable heel cushion in a cavity formed in a heel portion of the insole board, the heel cushion not being permanently secured in the cavity; and

a removable footbed positioned within the upper and positioned over the insole board and the heel cushion, the

removable footbed not being permanently secured to the insole board or to the heel cushion.

9. The shoe product of claim **8**, wherein the heel cushion extends from a floor of the cavity to at least as high as a rim of the cavity when the heel cushion is positioned in the cavity.

10. The shoe product of claim **8**, wherein the heel cushion is not secured in the cavity.

11. The shoe product of claim **8**, wherein the footbed is not secured to the insole board or to the heel cushion.

12. The shoe product of claim **8**, wherein the heel cushion is one of a pair of heel cushions in the shoe product, the pair of heel cushions comprising a first heel cushion that is harder and thinner than a second heel cushion in the pair of heel cushions.

13. The shoe product of claim **8**, wherein the heel cushion is one of a pair of heel cushions in the shoe product and wherein the shoe product comprises a package containing the shoe with the pair of heel cushions, with one of the heel cushions in the pair seated in the cavity in the shoe and the other heel cushion in the pair not seated in a cavity in a shoe.

14. A method comprising:

attaching an insole board to a last, the insole board defining an upwardly-facing cavity in a heel portion of the insole board;

lasting an upper to the insole board;

cementing an outsole to the insole board and to the upper, with at least a portion of the outsole being positioned below the insole board;

removing the last from the insole board;

inserting a heel cushion in the cavity; and

inserting a footbed above the insole board in a shoe comprising the footbed, the heel cushion, the insole board, and the outsole, inserting the heel cushion and inserting the footbed being performed without permanently securing the heel cushion or the footbed in place within the shoe.

15. The method of claim **14**, wherein the heel cushion extends from a floor of the cavity to at least as high as a rim of the cavity when the heel cushion is positioned in the cavity.

16. The method of claim **14**, further comprising including the shoe in a package, the package comprising a set of heel cushions comprising the heel cushion in the cavity and a heel cushion that is not in a cavity in an insole board.

17. The method of claim **16**, wherein the set of heel cushions comprise a first heel cushion that is harder and thinner than a second heel cushion in the set of heel cushions.

18. The method of claim **16**, wherein the set of heel cushions comprise a first heel cushion and a second heel cushion, the first heel cushion having an Asker C SRIS0101 durometer hardness value that differs by at least ten Asker C SRIS0101 durometer hardness value units from an Asker C SRIS0101 durometer hardness value of the second heel cushion.

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