DETACHABLE SANDAL COVERINGS

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ABSTRACT

Articles of footwear configured to transition between an open-toed configuration and a closed-toed configuration are described. An open-toed article of footwear may include a sole, a toe bumper, a heel bumper, a toe cushion, a strap assembly, and a plurality of magnetic elements embedded within a portion of the strap assembly. Described embodiments also include a removable cover configured to conformably engage with the strap assembly of an open-toed article of footwear to cover at least a portion of sole between the strap assembly and the toe end of the sole, including a plurality of magnetic elements embedded in locations corresponding to the locations of the plurality of magnetic elements embedded within the strap assembly.
DETACHABLE SANDAL COVERINGS

CROSS REFERENCES

[0001] This application claims priority to U.S. provisional patent application No. 62/248,216, titled “DETACHABLE SANDAL COVERINGS,” filed Oct. 29, 2015, which is incorporated by reference in its entirety for all purposes.

BACKGROUND

[0002] The present disclosure relates generally to footwear and more particularly to open-toed footwear such as sandals and flip flops. The use of open-toed footwear may be limited to certain times of the year when the weather is sufficiently warm or to certain occasions or venues where open-toed footwear is appropriate. For example, if the outside temperature in the morning is too cold for open-toed footwear, but warms up in the afternoon, a wearer may have to either switch from closed-toes shoes in the morning to open-toed shoes in the afternoon or be limited to wearing one type of footwear for the entire day. As another example, if a wearer transitions from an occasion or venue where open-toed footwear is appropriate to one where open-toed footwear is inappropriate, the wearer may again have to switch footwear.

[0003] Switching footwear may be cumbersome or otherwise undesirable because a wearer would have to carry both types of footwear with them. Furthermore, if the wearer owns a particularly comfortable pair of open-toed footwear or footwear that has been customized to fit their feet, the wearer may not wish to switch to a closed-toed footwear even if the temperature or occasion requires it. Accordingly, there may be a need for an open-toed footwear that can be easily transitioned into a closed-toed footwear to solve some or all of the above-mentioned problems.

SUMMARY

[0004] The described features generally relate to footwear that can be transitioned from an open-toed configuration to a closed-toed configuration. Embodiments include an open-toed article of footwear, such as a sandal, and a removable cover configured to cover at least a toe portion of the sandal, thereby transitioning the sandal from an open-toed configuration to a closed-toed configuration. In various embodiments, the sandal and the cover each include one or more embedded magnetic or ferromagnetic elements arranged and configured to magnetically couple the cover to the sandal.

[0005] In one embodiment, a sandal is described including a sole with a toe end, a heel end, an inner foot lateral edge, and an outer foot lateral edge. The sandal may also include a toe bumper that includes a raised edge extending along at least a portion of the toe end of the sole and a heel bumper that includes a raised edge extending along at least a portion of the heel end of the sole. In accordance with various embodiments, the sandal may also include a toe cushion integrated into the sole proximal to the toe end of the sole, which may be made from an absorbable material such as sorbothane. The sandal may also include a strap assembly that includes a toe strap and a vamp, such that the vamp forms an arc extending between the inner foot lateral edge and the outer foot lateral edge, and such that the toe strap extends between the vamp and the sole. In some embodiments, the toe strap is made from a suede material. The sandal may also include a plurality of magnetic elements embedded within the vamp.

[0006] In a particular embodiment, the sandal includes a first magnetic element embedded in the vamp near the inner foot lateral edge of the sole and a second magnetic element embedded in the vamp near the outer foot lateral edge of the sole. Additionally or alternatively, the sandal may include a third magnetic element embedded in the vamp near an attachment point of the toe strap and the vamp. In certain aspects, the sandal may also include a hooking element fixedly coupled with the sole of the sandal near the toe end of the sole.

[0007] The sole of the sandal may be made from a plurality of layers and may include a top layer adhered to a bottom layer. In some examples, both the top layer and the bottom layer are made from an ethylene-vinyl acetate (EVA), and the EVA of the top layer may be configured to be more absorbable than the EVA of the bottom layer.

[0008] In accordance with certain aspects, the vamp of the sandal and the bottom layer of the sole are molded from a unitary piece of polymeric material. The sandal includes an air-filled heel cushion embedded near the heel end of the sole in some examples and may also include a raised arch support portion in the sole located near the inner foot lateral edge of the sole.

[0009] In another embodiment described in accordance with the present disclosure, an article of footwear is provided that includes a sole with a toe end, a heel end, an inner foot lateral edge, and an outer foot lateral edge and a toe bumper that includes a raised edge extending along at least a portion of the toe end of the sole. The article of footwear may also include a toe cushion integrated into the sole proximal to the toe end of the sole and a strap assembly that includes a toe strap and a vamp, such that the vamp forms an arc from the inner foot lateral edge to the outer foot lateral edge and such that the toe strap extends from a central portion of the vamp to the sole. In accordance with various embodiments, the article of footwear includes a plurality of magnetic elements within the vamp and a removable cover configured to conformably engage with the strap assembly to cover at least a portion of the sole between the vamp and the toe end of the sole, the removable cover including a plurality of magnetic elements embedded in locations corresponding to the locations of the plurality of magnetic elements embedded within the vamp. In some examples, the removable cover comprises a felt material.

[0010] In certain aspects, the article of footwear includes a first magnetic element embedded in the vamp near the inner foot lateral edge of the sole, a second magnetic element embedded in the vamp near the outer foot lateral edge of the sole, and a third magnetic element embedded in the vamp near an attachment point of the toe strap and the vamp.

[0011] In accordance with embodiments, the article of footwear may include a fourth magnetic element embedded in the removable cover in a location corresponding to the first magnetic element embedded in the vamp, a fifth magnetic element embedded in the removable cover in a location corresponding to the second magnetic element embedded in the vamp, and a sixth magnetic element embedded in the removable cover in a location corresponding to the third magnetic element embedded in the vamp.
In some embodiments, the article of footwear further includes a first hooking element fixedly coupled with the sole near the toe end. The article of footwear may also include a second hooking element fixedly coupled with the removable cover and configured to removably engage with the first hooking element fixed to the sole.

Certain embodiments of the present disclosure may include some, all, or none of the above advantages or features. One or more other technical advantages or features may be readily apparent to those skilled in the art from the figures, descriptions, and claims included herein. Moreover, while specific advantages or features have been enumerated above, various embodiments may include all, some, or none of the enumerated advantages or features.

Further scope of the applicability of the described methods and apparatuses will become apparent from the following detailed description, claims, and drawings. The detailed description and specific examples are given by way of illustration only, since various changes and modifications within the spirit and scope of the description will become apparent to those skilled in the art.

**BRIEF DESCRIPTION OF THE DRAWINGS**

A further understanding of the nature and advantages of the embodiments may be realized by reference to the following drawings. In the appended figures, similar components or features may have the same reference label. Further, various components of the same type may be distinguished by following the reference label by a dash and a second label that distinguishes among the similar components. If only the first reference label is used in the specification, the description is applicable to any one of the similar components having the same first reference label irrespective of the second reference label.

**FIG. 1A** is a perspective view of an article of footwear in accordance with various embodiments;

**FIG. 1B** is a front detailed view of the article of footwear of FIG. 1A; and

**FIG. 2** is a perspective view of an article of footwear and a removable cover in accordance with various embodiments.

**DETAILED DESCRIPTION**

The described features generally relate to open-toed footwear configured to transition from an open-toed configuration to a closed-toed configuration. In accordance with various embodiments, an open-toed article of footwear, such as a sandal, is described that is configured to removably couple with a cover that encloses at least the toe portion of the sandal. In particular embodiments, the sandal and the removable cover each include one or more magnetic or ferromagnetic elements that are arranged and configured to magnetically couple the cover to the sandal. Additionally or alternatively, the sandal and removable cover may each include a hooking element to further secure the removable cover to the sandal.

**FIG. 1A** illustrates a perspective view of an embodiment of a sandal 100 in accordance with the present description. The sandal 100 includes a sole 105 with a toe end 110, a heel end 115, an inner foot lateral edge 120, and an outer foot lateral edge 125. It may be appreciated that because the illustrated sandal 100 corresponds with the right foot of a wearer, the inner foot lateral edge 120 is located on the left side of the sandal 100 (as viewed from the top), whereas the inner foot lateral edge 120 of the left-foot sandal 100 would be located on the right side of the sandal 100 (as viewed from the top).

The sole 105 may be made from a single material or may be a composite of two or more layers of material. For example, the sole 105 may include a top layer 170 that is adhered, sewed, overmolded, or otherwise coupled with a bottom layer 175. Although two layers 170, 175 are depicted in FIG. 1A, any number of layers may be coupled together to form the sole 105. In some examples, the two layers 170, 175 are made from different materials, or different variations or blends of the same material, and are each configured or tailored for a particular purpose or to exhibit particular characteristics. For example, because the bottom layer 175 contacts the walking surface, it may be configured to be tougher or more durable (i.e., wear down less quickly) than the top layer 170. Similarly, because the top layer 170 directly contacts the wearer’s foot, it may be configured to be softer or more absorbable than the bottom layer 175. It may be appreciated that the materials of either the bottom layer 175 or the top layer 170 may be tailored for a variety of other desirable characteristics such as slip resistance, moisture absorption, anti-microbial characteristics, moldability, and heat resistivity.

In some examples, one or both of the layers 170, 175 of the sole 105 are made from a polymeric material such as ethylene-vinyl acetate (EVA). The EVA used for each layer 170, 175 may be blended or processed to yield different material properties such as increased toughness, durability, absorbability, or softness.

In accordance with various embodiments, the sole 105 may include one or more features to help prevent a wearer’s foot from slipping or sliding relative to the sole 105 while the wearer is walking or running. Over time, this relative slipping between the wearer’s foot and the sole 105, known as foot drift, may cause uneven wear of the sole 105 and/or uneven foot impressions within the sole 105, thereby causing the wearer’s foot to become misaligned with the sole 105. Such misalignment may cause improper pronation or supination and may lead to discomfort in the feet (e.g., plantar fasciitis), legs, or lower back of the wearer. In some embodiments, these foot-drift prevention features include one or more raised edges and/or indented portions (i.e., wells) that are integrated with the sole 105.

For example, with reference to FIG. 1A, the sole 105 may include a toe bumper 130 that extends at least partially around the toe end 110 of the sole 105. The toe bumper 130 is generally configured to prevent the toes of the wearer from sliding off the toe end 110 of the sole 105, which may prevent foot drift and/or prevent the user from scraping or stubbing their toes on the walking surface. In some embodiments, the toe bumper 130 includes a raised edge of the toe end 110 of the sole 105. The toe bumper 130 may be made from the same material as the rest of the sole 105 and may be molded or otherwise formed from a unitary piece with the sole 105. Alternatively, the toe bumper 130 may be made from a separate material as the sole 105 and may be adhered or otherwise coupled with the toe end 110 of the sole 105. The height of the raised edge of the toe bumper 130 may be uniform around the length of the toe end 110. In other examples, the height of the raised edge of the toe bumper 130 tapers from a maximum near where the big
In some embodiments of the present invention, the sole 105 may include a heel bumper 135 that extends at least partially around the heel end 115 of the sole 105. Similar to the toe bumper 130, the heel bumper 135 is general configured to prevent relative sliding of a wearer’s heel with respect to the sole 105. The heel bumper 135 may include a raised edge of the heel end 115 of the sole 105 and may be molded or otherwise formed from a unitary piece with the sole 105. Alternatively, the heel bumper 135 may be made from a separate material as the sole 105 and may be adhered or otherwise coupled with the heel end 115 of the sole 105. In some examples, the sole 105 may also include a heel well 140 (i.e., an indented portion) in the sole 105 near the heel end 115 that is configured to at least partially cup the wearer’s heel. The combination of the heel well 140 and the heel bumper 135 may help prevent the wearer’s heel from sliding relative to the sole 105, thereby preventing foot drift and maintaining proper alignment of the wearer's foot on the sole 105.

In accordance with certain aspects, the sandal 100 may also include a heel cushion 145 located near or within the heel well 140 of the sole 105. In general, the heel cushion 145 is configured to provide additional shock absorption for the wearer’s heel during walking to increase the wearer’s comfort level. The heel cushion 145 may be made from a polymeric material and is filled with air in some embodiments. In some examples, the heel cushion 145 is coupled to a top surface of the sole 105 through adhesion, sewing, or other similar attachment methods. Additionally or alternatively, the heel cushion 145 may be embedded within a cutout of the sole 105 sized to at least partially house the heel cushion 145.

In accordance with embodiments of the present invention, the sandal 100 may also include a toe cushion 150 located near the toe end 110 of the sole 105. In general, the toe cushion 150 provides additional shock absorption for the toes and/or the front portion of the wearer’s foot. The toe cushion 150 may be made from any absorbable polymeric or cloth material. In some examples, the toe cushion 150 is made from sorbothane. The toe cushion 150 may be adhered, sewed, or otherwise coupled with the top surface of the sole 105. In some embodiments, the toe cushion 150 is partially embedded within a cutout of the sole 105 sized to at least partially house the toe cushion 150.

The sandal 100 may also include a strap assembly that includes a toe strap 155 and a vamp 160. The vamp 160 is generally arched and extends between the inner foot lateral edge 120 and the outer foot lateral edge 125 of the sole 105. The height of the arc of the vamp 160 is generally configured to engage with the top portion of a wearer’s foot when inserted into the sandal 100. The toe strap 155 extends between the vamp 160 and the sole 105 and is generally configured to rest between the first toe (i.e., big toe) of a wearer and the toe adjacent to the first toe. In some embodiments, the toe strap 155 is made from a different material than the vamp 160, such as suede or some other soft material. In such examples, the toe strap 155 may be attached to both the vamp 160 and the sole 105 through adhesion, sewing, overmolding or similar attachment methods. In other embodiments, the toe strap 155 may be made from the same material as the vamp 160 and may be molded or otherwise formed from a unitary piece with the vamp 160.

In accordance with various embodiments of the present invention, the sandal 100 includes one or more magnetic or ferromagnetic elements 165 that are at least partially embedded at one or more locations within the vamp 160. In a particular embodiment, the sandal 100 includes a first magnetic element 165 at least partially embedded within the vamp 160 near the inner foot lateral edge 120 and a second magnetic element 165 at least partially embedded within the vamp 160 near the outer foot lateral edge 125. Additionally or alternatively, the sandal 100 may include a magnetic element 165 at least partially embedded within the vamp 160 near the attachment point of the toe strap 155. Although not depicted, it is contemplated that any number of magnetic elements 165 may be embedded within the vamp 160 at any number of locations.

It may be appreciated that the magnetic elements 165 may be made from any material that is either magnetized or that is attracted to a magnetized material. Examples include, but are not limited to, iron, nickel, cobalt and ferromagnetic rare earth elements. The magnetic elements 165 may be formed in any shape and size that is suitable for embedding them into the vamp 160. For example, the magnetic elements 165 may be disk-shaped and may be embedded into cutouts within the vamp 160 sized to at least partially house the magnetic elements 165.

Referring to FIG. 1B, a front detailed view of the toe end 110 of the sole 105 is illustrated in accordance with various embodiments. In certain aspects, the sandal 100 may include a hook element 180 that protrudes from the toe end 110 of the sole 105. In general, the hook element 180 is configured to hook, clip, snap, or otherwise removably couple with a corresponding hook element 215 of a removable cover 205 (described with reference to FIG. 2). In some embodiments, the hook element 180 is formed in a “c” shape that opens downward towards the walking surface of the sandal 100. The hook element 180 may be made from any suitable material such as polymers or metals, and may be fixedly attached to the sole 105 (such as the top layer 170) or may instead be integrated with and formed from the same material as the sole 105.

With reference to FIG. 2, a sandal 100 is shown with a removable cover 205 in accordance with various embodiments. In general the removable cover 205 is configured to removably couple with portions of the sandal 100 to provide a covering for the wearer’s toes and toe portion of the wearer’s foot. The removable cover 205 is generally sized to cover at least the portion of the sandal 100 between the vamp 160 and the toe end 110 of the sole 105. In accordance with various embodiments, the cover 205 includes one or more magnetic or ferromagnetic elements 210 at least partially embedded within the cover 205 and configured to magnetically couple with the magnetic or ferromagnetic elements 165 embedded within the vamp 160. It may be appreciated that the number and locations of the magnetic elements 210 in the cover 205 generally correspond to the number and locations of the magnetic elements 165.
165 in the vamp 160. The strength of the magnetic field between the magnetic elements 210, 165 may be tailored such that the cover 205 remains magnetically coupled with the sandal 100 during walking or running, but can be removed by a wearer.

[0034] In some embodiments, the cover 205 includes a hook element 215 located on the inside edge or rim of the cover 205 near the front end (as viewed from the top) of the cover 205. In general, the hook element 215 is configured to hook, clip, snap, or otherwise removably couple with a corresponding hook element 180 of the sandal 100 (described with reference to FIG. 1B). In certain aspects, the hook element 215 is a metallic hook that is oriented upwards towards the top of the cover 205. Accordingly, the upward-facing hook element 215 of the cover 205 may hook or latch with the downward-facing hook element 180 of the sandal 100. It should be appreciated that the material, shape, orientation, and attachment means (i.e., hook, snap, clip) of the two hook elements 180, 215 may be altered in any number of ways to achieve a secure yet removable attachment between the cover 205 and the sandal 100.

[0035] The cover 205 may be made from a variety of materials to achieve certain characteristics such as warmth, comfort, and/or aesthetic features. For example, the cover 205 may include one or more polymers or polymeric blends, one or more fabrics such as felt, leather, suede, cotton, or any combination of these materials. Moreover, the cover 205 may include an internal frame portion configured to provide the structural rigidity necessary for the cover 205 to maintain its shape and an external lining portion that provides the desired warmth, comfort, or aesthetic characteristics.

[0036] To transition the sandal 100 from an open-toed configuration to a closed-toe configuration, a wearer may bring the cover 205 into close proximity with the vamp 160 until the magnetic field between the magnetic elements 165, 210 attracts the cover 205 towards the sandal 100. The magnetic force between the magnetic elements 165, 210 may be strong enough to keep the cover 205 coupled with the sandal 100 during normal use, such as walking or running. To transition the sandal 100 back into an open-toed configuration, the wearer may pull the cover 205 away from the sandal 100.

[0037] The previous description of the disclosure is provided to enable a person skilled in the art to make or use the disclosure. Various modifications to the disclosure will be readily apparent to those skilled in the art, and the generic principles defined herein may be applied to other variations without departing from the spirit or scope of the disclosure. Throughout this disclosure the term “example” or “exemplary” indicates an example or instance and does not imply or require any preference for the noted example. Thus, the disclosure is not to be limited to the examples and designs described herein but is to be accorded the widest scope consistent with the principles and novel features disclosed herein.

1. A sandal, comprising:
   a sole including a toe end, a heel end, an inner foot lateral edge, and an outer foot lateral edge;
   a toe bumper comprising a raised edge extending along at least a portion of the toe end of the sole;
   a heel bumper comprising a raised edge extending along at least a portion of the heel end of the sole;
   a toe cushion integrated into the sole proximal to the toe end of the sole;

2. The sandal of claim 1, comprising a first magnetic element embedded in the vamp near the inner foot lateral edge of the sole and a second magnetic element embedded in the vamp near the outer foot lateral edge of the sole.

3. The sandal of claim 2, comprising a third magnetic element embedded in the vamp near an attachment point of the toe strap and the vamp.

4. The sandal of claim 1, further comprising a hocking element fixedly coupled with the sole near the toe end.

5. The sandal of claim 1, wherein the sole comprises a top layer adhered to a bottom layer.

6. The sandal of claim 5, wherein both the top layer and the bottom layer comprise ethylene-vinyl acetate (EVA), and wherein the EVA of the top layer is configured to be more absorbable than the EVA of the bottom layer.

7. The sandal of claim 5, wherein the vamp and the bottom layer are molded from a unitary piece of polymeric material.

8. The sandal of claim 1, further comprising an air-filled heel cushion embedded near the heel end of the sole.

9. The sandal of claim 1, wherein the toe strap comprises suede.

10. The sandal of claim 1, wherein the toe cushion comprises sorbothane.

11. An article of footwear, comprising:
   a sole including a toe end, a heel end, an inner foot lateral edge, and an outer foot lateral edge;
   a toe bumper comprising a raised edge extending along at least a portion of the toe end of the sole;
   a toe cushion integrated into the sole proximal to the toe end of the sole;

   a strap assembly comprising a toe strap and a vamp, wherein the vamp forms an arc extending between the inner foot lateral edge and the outer foot lateral edge, and wherein the toe strap extends between the vamp and the sole; and

   a plurality of magnetic elements embedded within the vamp.

12. The article of footwear of claim 11, comprising:
   a first magnetic element embedded in the vamp near the inner foot lateral edge of the sole;
   a second magnetic element embedded in the vamp near the outer foot lateral edge of the sole; and
   a third magnetic element embedded in the vamp near an attachment point of the toe strap and the vamp.

13. The article of footwear of claim 12, comprising:
   a fourth magnetic element embedded in the removable cover in a location corresponding to the first magnetic element embedded in the vamp.
a fifth magnetic element embedded in the removable cover in a location corresponding to the second magnetic element embedded in the vamp; and a sixth magnetic element embedded in the removable cover in a location corresponding to the third magnetic element embedded in the vamp.

14. The article of footwear of claim 11, further comprising a first hooking element fixedly coupled with the sole near the toe end.

15. The article of footwear of claim 14, further comprising a second hooking element fixedly coupled with the removable cover and configured to removably engage with the first hooking element.

16. The article of footwear of claim 11, wherein the removable cover comprises a felt material.

17. The sandal of claim 11, wherein the sole comprises a top layer adhered to a bottom layer.

18. The sandal of claim 17, wherein both the top layer and the bottom layer comprise ethylene-vinyl acetate (EVA), and wherein the EVA of the top layer is configured to be more absorbable than the EVA of the bottom layer.

19. The sandal of claim 17, wherein the vamp and the bottom layer are molded from a unitary piece of polymeric material.

20. The sandal of claim 11, further comprising an air-filled heel cushion embedded near the heel end of the sole.