EASY ACCESS FOOTWEAR WITH ZIPPER CLOSURE

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ABSTRACT

An article of footwear includes: a main body, a heel portion coupled to the main body using an attachment feature that allows the heel portion to move about an axis, and a zipper closure that secures the heel portion in a closed position relative to the main body. An easy access shoe includes: a main body, a heel portion coupled to the main body, where the heel portion is able to be selectively positioned to allow a size of an access opening formed between the main body and the heel portion to be selectively increased or decreased, and a zipper closure that secures the heel portion to the main body. A shoe includes: a main body, a first hinge section coupled to the main body, a second hinge section coupled to the first hinge section and a heel, and a zipper closure that couples the heel to the main body.
Fig. 7
EASY ACCESS FOOTWEAR WITH ZIPPER CLOSURE

CROSS-REFERENCE TO RELATED APPLICATIONS


BACKGROUND OF THE INVENTION

[0002] Many footwear users may have difficulty putting on and/or taking off footwear for various different reasons. For instance, children may not be able to manipulate laces or other fastening elements. As another example, the elderly may suffer from reduced dexterity, strength, sensation, vision, balance, and/or flexibility that make it difficult to use conventional footwear. In addition, various users may prefer the ease of donning/doffing footwear without having to deal with the time and efforts of a conventional shoe. Various caregivers may also be tasked with putting on or removing footwear and may find it difficult to manipulate various fastening mechanisms or easily place the footwear onto the foot of the user or to remove the footwear from the foot.

[0003] Therefore there exists a need for an easy access shoe that allows users and/or caregivers to more easily put on and/or take off footwear.

BRIEF SUMMARY OF THE INVENTION

[0004] Some embodiments may provide easy access footwear. The footwear may include a main body and a heel section. The heel may be able to be moved relative to the main body. In some embodiments, the heel may be able to rotate about an axis that is perpendicular to a sole of the footwear. When putting on or taking off the footwear, the heel may be moved away from the body to form a larger opening than a standard shoe. When wearing the footwear, the heel may be secured in place using a strap or other appropriate feature.

[0005] Some embodiments may include a zipper closure that runs along the heel. The zipper closure may include an interior lining that protects the wearer from the zipper.

[0006] The shoe may include various other features that improve usability for those with physical limitations. Such features may include, for instance, a fixed tongue, manipulation loops, non-slip sole, and a wide outsole for increased stability.

[0007] The preceding Brief Summary is intended to serve as a brief introduction to various features of some exemplary embodiments of the invention. Other embodiments may be implemented in other specific forms without departing from the spirit of the invention.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0008] The novel features of the invention are set forth in the appended claims. However, for purpose of explanation, several embodiments of the invention are set forth in the following drawings.

[0009] FIG. 1 illustrates a top view of an easy access shoe according to an exemplary embodiment of the invention.

[0010] FIG. 2 illustrates a top view of the shoe of FIG. 1 in an "open" position;

[0011] FIG. 3 illustrates a front perspective view of the shoe of FIG. 1;

[0012] FIG. 4 illustrates a front perspective view of the shoe of FIG. 1 in the open position;

[0013] FIG. 5 illustrates a side perspective view of the shoe of FIG. 1;

[0014] FIG. 6 illustrates a side perspective view of the shoe of FIG. 1 in the open position;

[0015] FIG. 7 illustrates a rear perspective view of the shoe of FIG. 1 in the open position;

[0016] FIG. 8 illustrates a rear view of the shoe of FIG. 1;

[0017] FIG. 9 illustrates a rear view of the shoe of FIG. 1 in the open position;

[0018] FIG. 10 illustrates a rear perspective view of a first alternative easy access shoe in the open position;

[0019] FIG. 11 illustrates a top view of a second alternative easy access shoe;

[0020] FIG. 12 illustrates a rear view of a third alternative easy access shoe;

[0021] FIG. 13 illustrates a rear perspective view of the shoe of FIG. 12;

[0022] FIG. 14 illustrates a rear view of the shoe of FIG. 12 in a closed position;

[0023] FIG. 15 illustrates a side perspective view of the shoe of FIG. 12;

[0024] FIG. 16 illustrates a side perspective view of the shoe of FIG. 12 with a contrasting zipper head; and

[0025] FIG. 17 illustrates a bottom perspective view of the shoe of FIG. 12 with an alternative closure element and an exemplary sole.

DETAILED DESCRIPTION OF THE INVENTION

[0026] The following detailed description is of the best currently contemplated modes of carrying out exemplary embodiments of the invention. The description is not to be taken in a limiting sense, but is made merely for the purpose of illustrating the general principles of the invention, as the scope of the invention is best defined by the appended claims.

[0027] Various inventive features are described below that can each be used independently of one another or in combination with other features. Broadly, some embodiments of the present invention generally provide easy access footwear. Such footwear may allow users and/or caregivers to more easily put on and take off the footwear.

[0028] Throughout the specification, the term “shoe” may be used to refer to any type of footwear such as sneakers, dress shoes, boots, sandals, etc. The term “hinge” may be used to refer to any set of components that allows rotational movement among two or more elements. Various features will be described from the perspective of a wearer (e.g., a top view indicates the view of a wearer looking down at the shoes being worn as the wearer stands upright). The term “sole” may refer to the bottom surface of a shoe and may be assumed to be a plane that defines a horizontal axis in reference to the shoe features. In addition, although some features may be described as parallel or perpendicular to other features, one of ordinary skill in the art will understand that different embodiments may be implemented with slightly different alignments than those described (e.g., due to style of shoe, exterior features, etc.).

[0029] A first exemplary embodiment provides an article of footwear including: a main body; a heel portion coupled to the main body using an attachment feature that allows the heel portion to move about an axis; and a zipper closure that secures the heel portion in a closed position relative to the main body.
A second exemplary embodiment provides an easy access shoe including: a main body; a heel portion coupled to the main body, where the heel portion is able to be selectively positioned to allow a size of an access opening formed between the main body and the heel portion to be selectively increased or decreased; and a zipper closure that secures the heel portion to the main body in a closed position.

A third exemplary embodiment provides a shoe having: a main body; a first hinge section coupled to the main body; a second hinge section coupled to the first hinge section and a heel; and a zipper closure that couples the heel to the main body in a closed position.

FIG. 1 illustrates a top view of an easy access shoe 100 according to an exemplary embodiment of the invention. Specifically, this figure shows the shoe in a “closed” position such as would be used when the shoe is worn by a user (or “wearer”). As shown, the shoe may include a main body 110, a heel portion 120, a movable attachment feature 130, and a fastener 140.

The main body 110 of the shoe 100 may include elements found in various different types of footwear, such as an upper with a tongue, laces, straps, and/or other appropriate elements, a sole, an insole, etc. Different embodiments may include different specific elements or types of elements depending on the type of footwear (e.g., athletic shoes, dress shoes, lace-up shoes, slip-on shoes, boots, sandals, etc.).

The heel portion 120 may generally be implemented as a “T” shaped element that is able to be coupled to the body 110 to form a complete unit of footwear that is able to be worn by a user when in the closed position. As shown, the heel portion 120 may extend from an outside wall of the main body 110 to an inside wall of the main body. In this example, the outside wall is on the right and the inside wall is on the left of the right shoe 100 as viewed from above. In this context, “inside” and “outside” refer to the relative position of the shoe on a wearer rather than to the interior and exterior of the shoe itself. As shown, the heel 120 may be symmetrical about a center line (not shown) that runs vertically down the shoe 100 in the view of FIG. 1.

The attachment feature 130 may be a connecting feature that allows the heel 120 to be movably coupled to the body 110. The connecting feature may include, for instance, a hinge (e.g., a plate hinge, a hinge formed by a rod or post extending through a portion of a heel section that is able to be received by an appropriate hole or socket in the main body, a section of fabric or other pliable material, etc.), a strap, a post, and/or other appropriate elements that may allow the heel 120 to be moved relative to the body 110.

The fastener 140 may allow the heel 140 to selectively be fixed in the closed position or the open position relative to the body 110. Such a fastener may include, for instance, one or more straps, latches (e.g., a butt-join panel latch, a coffin lock, a post and hole latch, etc.), buttons, buckles, magnets, clips, and/or other appropriate elements that may allow the heel 120 to be securely held in place in the closed position. The fastener 140 may be configured such that the feature is easily manipulated without requiring fine motor skills, vision, sensation, flexibility, strength, and/or energy.

In addition to the attachment feature 130 and fastener 140 described above, the heel may be attached to the body in various other appropriate ways (e.g., fabric or other interior or exterior surface materials or structural materials of the shoe body may be stitched to the similar materials on the heel, various adhesive elements may be used to attach portions of the heel to the body, the heel may be at least partially secured to the body using one or more elastic straps, etc.).

FIG. 2 illustrates a top view of the shoe 100 in an “open” position. Such an open position may allow a wearer’s foot to be placed into (or removed from) the shoe by allowing the foot to enter or exit the shoe body 110 via the rear opening (or “access opening”) formed when the heel 120 is in the open position. As shown, the side-to-side extension of the heel may allow for the largest possible width rear opening.

Different embodiments may allow the heel 120 to be moved in various different ways in order to form an easy access opening. For instance, as shown, the heel may be able to rotate away from the back of the shoe 100 on one side. As another example, the heel 120 may be able to be detached from the shoe on both sides and moved away from the body 110. As still another example, the heel 120 may be able to be rotated down and back away from the body 110 using a hinge with an axis of rotation parallel to the sole of the shoe 100. The symmetrical heel 120 configuration may allow easy access, as the shoe 100 is able to provide a completely unobstructed path such that the shoe may be able to be placed on the wearer’s foot. Configurations where the heel is not symmetrical about the center of the shoe (e.g., if the hinge was located at the rear of the shoe along the center line (not shown), provide a partially obstructed path that may make it difficult for some users to wear the shoe.

In this example, the fastener 140 includes a fixed loop 210 and a strap 220. The fixed loop 210 may be secured to the heel portion 120 and the strap 220 may be selectively passed through the loop 210 and secured to itself (e.g., using a hook-and-loop strap).

Alternatively, the fastener 140 may be implemented integrally to the attachment feature 130. For instance, the attachment feature may include a locking spring hinge that is able to lock into an open or closed position. Such an element may be moved from one position to the other by, for instance, applying a threshold force sufficient to dislodge the element from a first position. The element may then allow the heel 120 to move between the open and closed position before being locked in the desired position by application of a similar threshold force.

Different embodiments may implement the feature 140 in various different ways. For instance, some embodiments may attach a loop to the body of the shoe and a strap to the heel portion. As another example, some embodiments may include a pair of fasteners, with one located on each side of the heel 210. In such embodiments, the attachment feature 130 may be omitted such that the heel 120 may be moved away from (or secured to) the rear of the body 110 using the pair of fasteners.

FIG. 3 illustrates a front perspective view of the shoe 100. FIG. 4 illustrates a front perspective view of the shoe 100 in the open position.

FIG. 5 illustrates a side perspective view of the shoe 100. FIG. 6 illustrates a side perspective view of the shoe 100 in the open position.

As shown, the shoe may include an additional securing or stability feature 500. The stability feature may include a vertical strap 610 that is able to be attached to an attachment region 620. The vertical strap 610 and attachment region 620 may be implemented using, for example, hook-and-loop material. Different embodiments may include different and/or additional stability features. The stability feature(s) may
help provide additional support for a user when the shoe is in the closed position by helping to secure the heel to the main body.

[0046] FIG. 7 illustrates a rear perspective view of the shoe 100 in the open position. As shown, the shoe may include a hinge 710 or other appropriate attachment feature, a tongue 720, body coupling regions 730 and heel coupling regions 740.

[0047] The hinge 710 may include a rotationally movable element as shown and various attachment features (not shown) that may allow the hinge to be attached to the body 110 and the heel 120. Such attachment features may include plates or tabs extending from the rotationally movable element that may be attached to the body 110 or heel 120 in various appropriate ways (e.g., using adhesives, by sewing the attachment features into the show sections, etc.). The hinge 710 or other connecting feature may be made of various appropriate materials (e.g., metal, plastic, etc.).

[0048] The tongue 720 of some embodiments may be configured to be immobile such that the tongue is not able to move away from the top of the shoe 100. In this way, a user does not have to position or hold the fixed tongue 720 when putting on the shoe 100. Other styles of shoe (e.g., shoes having straps or other features rather than tongues) may be configured in a similar manner such that an unimpeded opening is formed with the shoe is in the open position.

[0049] The coupling regions 730-740 may allow the heel 120 and body 110 to be securely fastened together when the shoe is in the closed position. In some embodiments, the coupling regions may include concave regions on the body and convex regions on the shoe (or vice versa). The coupling regions may fit together in various appropriate ways (e.g., as flat surfaces having matching thicknesses as shown, as curved complementary regions or other complementary shapes, etc.).

[0050] FIG. 8 illustrates a rear view of the shoe 100. FIG. 9 illustrates a rear view of the shoe 100 in the open position.

[0051] FIG. 10 illustrates a rear perspective view of a first alternative easy access shoe 1000 in the open position. In this example, the shoe includes a protruding “lip” 1010 that forms a partially enclosed heel cup to generate a more secure fit when the shoe is worn. Such a lip may extend upwards from the sole approximate one half inch to one inch and may provide a smaller opening when the shoe is in the open position that still allows a user to easily change into or take off the shoe.

[0052] FIG. 11 illustrates a top view of a second alternative easy access shoe 1100. In this example, the shoe is a loafer or mocassin style shown with no external straps or other visible connecting features. The two connecting regions 1110 and 1120 may each include one or more connecting features such as a post hinge, magnetic connectors, latches, canvas, etc.

[0053] In some embodiments, the connecting regions may include one or more spring hinges or other appropriate features that may allow the heel to move relative to the body of the shoe. In some embodiments, such spring hinges may be manipulated by a wearer through positioning or movement of the foot within the shoe. For instance, when a foot slides into the shoe opening, the heel section may automatically be drawn closed by an attachment such as a strap inside the shoe. As another example, a user may “unlock” a shoe for removal by twisting or otherwise positioning a foot within the shoe.

[0054] FIG. 12 illustrates a rear view of a third alternative easy access shoe 1200. As shown, the shoe may include a zipper closure 1210 that runs along the top of lip 1010 and the bottom of the movable heel 120 and up to the top of the shoe wall as illustrated. In this example, hinge 1220 may be “hidden” or invisible such that the exterior and interior of the shoe appear to form continuous surfaces when the shoe 1200 is in a closed position.

[0055] FIG. 13 illustrates a rear perspective view of the shoe 1200. As shown, the shoe may include a shield or protective element 1310. The shield may provide a soft, smooth surface when the shoe is worn to protect from catching skin or clothing on the zipper 1210 and/or otherwise causing discomfort. The shield 1310 may run along the inside surface of the show and be attached to the lip 1010 and/or heel portion 120. The shield 1310 may be made of various appropriate materials (e.g., spandex).

[0056] FIG. 14 illustrates a rear view of the shoe 1200 in a closed position.

[0057] FIG. 15 illustrates a side perspective view of the shoe 1200. As shown, the shoe may include an additional loop 1510 for grabbing, placing, and/or otherwise manipulating the shoe. Such a loop may be used by a grabber or reacher tool (e.g., a pole or rod with a hook at one end) that allows users with limited physical capabilities to manipulate the shoe. In addition, this view shows hidden hinge 1520, where the hinge is concealed within the wall of the shoe 1200 so as to be imperceptible to others.

[0058] FIG. 16 illustrates a side perspective view of the shoe 1200 with a contrasting zipper head 1610 and interior 1620. The zipper head 1610 may be a different color than the exterior of the shoe in order to aid visually impaired users. Likewise, as shown, other features such as the interior 1620 of the shoe 1200 may include contrasting colors or other visual aid features for those with impairments such as macular degenerations, cataracts, retinopathy, etc. Alternatively or conjunctively to using contrasting colors, some embodiments may include other differentiating features that may aid users in identifying and/or manipulating various aspects of the shoe 1200. Such features may include visual features (e.g., color, patterns, graphics, etc.), tactile features (e.g., changes in texture, hardness, friction, material type, etc.), and/or other appropriate features that may help users identify the various components of the shoe.

[0059] FIG. 17 illustrates a bottom perspective view of the shoe 1200 with an alternative closure element 1710 and an exemplary sole 1720. The closure element 1710 (or “manipulation feature”) may be attached to the zipper head and may allow users with grip or reach limitations to manipulate the zipper. The closure element may include a receptacle such as a hole, loop, or other appropriate feature that allows the closure to be manipulated by a grabber or other appropriate tool. The closure element may be a contrasting color to the other external features of the shoe. The closure element may be able to be secured to the side of the shoe (e.g., using hook-and-loop elements).

[0060] The sole 1720 may include an anti-slip texture as shown. In addition, some embodiments may include a wider outer sole than standard footwear to provide improved stability. Some embodiments may include textured and/or fragments inner and/or outer soles to optimize somatosensory feedback for individuals with sensory impairment.

[0061] One of ordinary skill in the art will recognize that the footwear described above in reference to FIGS. 1-17 was presented for example purposes only and that different embodiments may be implemented in various different ways.
without departing from the spirit of the invention. For instance, although the heel of some embodiments is shown as rotating at an inside connection point, the heel may rotate from an outside connection point in some embodiments. As another example, although the securing strap of some embodiments is shown as passing through a loop, different embodiments may fix one end of such a strap (e.g., using adhesive) and allow the other end to be attached to an associated region on the shoe body (e.g., using hook and loop connectors). In addition, different embodiments may use elements having different shapes and/or relative sizes that shown. Furthermore, different embodiments may be implemented using various different combinations of materials (e.g., rubber, foam, leather, canvas or other fabric, synthetic materials, plastic, metal, etc.) in addition to and/or in place of those described above.

[0062] The foregoing relates to illustrative details of exemplary embodiments of the invention and modifications may be made without departing from the spirit and scope of the invention as defined by the following claims.

1 claim:

1. An article of footwear comprising:
   a main body;
   a heel portion coupled to the main body using an attachment feature that allows the heel portion to move about an axis; and
   a zipper closure that secures the heel portion in a closed position relative to the main body.

2. The article of footwear of claim 1, wherein the axis is perpendicular to a sole of the article of footwear.

3. The article of footwear of claim 2, wherein the attachment feature comprises a hinge.

4. The article of footwear of claim 1, wherein the zipper closure runs along a lip of the main body of the shoe and an associated surface of the heel portion.

5. The article of footwear of claim 1, wherein the zipper closure comprises a manipulation feature that extends out from the zipper and includes a receptacle that is able to accept a reacher tool.

6. The article of footwear of claim 1 further comprising a tongue that is coupled to the main body such that the tongue is held in a fixed position relative to the main body.

7. The article of footwear of claim 1 further comprising a sole having an anti-slip texture.

8. An easy access shoe comprising:
   a main body;
   a heel portion coupled to the main body, wherein the heel portion is able to be selectively positioned to allow a size of an access opening formed between the main body and the heel portion to be selectively increased or decreased; and
   a zipper closure that secures the heel portion to the main body in a closed position.

9. The easy access shoe of claim 8, wherein the heel portion is coupled to the main body using a hinge.

10. The easy access shoe of claim 9, wherein the hinge allows the heel portion to rotate about an axis that is perpendicular to a sole of the shoe.

11. The easy access shoe of claim 8, wherein the main body comprises a lip extending from a sole and sides of the main body such that a heel cup is formed in the main body adjacent to a section of the heel portion.

12. The easy access shoe of claim 11, wherein the zipper closure runs along the lip.

13. The easy access shoe of claim 12 further comprising a liner element that runs along the zipper closure at an interior surface of the easy access shoe.

14. The easy access shoe of claim 8, wherein the easy access shoe is one of an athletic shoe, a dress shoe, a slip-on shoe, a sandal, and a boot.

15. A shoe comprising:
   a main body;
   a first hinge section coupled to the main body;
   a second hinge section coupled to the first hinge section and a heel; and
   a zipper closure that couples the heel to the main body in a closed position.

16. The shoe of claim 15, wherein the first hinge section and second hinge section form an axis of rotation between the main body and the heel, and wherein the axis of rotation is perpendicular to a sole of the shoe.

17. The shoe of claim 15, wherein the heel extends from an outside wall of the shoe to an inside wall of the shoe forming a symmetrical “U” shape about a center line of the shoe.

18. The shoe of claim 15 further comprising a liner that runs along the zipper closure at an interior surface of the shoe.

19. The shoe of claim 15 further comprising a wide outer sole that provides increased stability.

20. The shoe of claim 15, wherein at least one of an inner sole and an outer sole includes a texture that provides increased somatosensory feedback.