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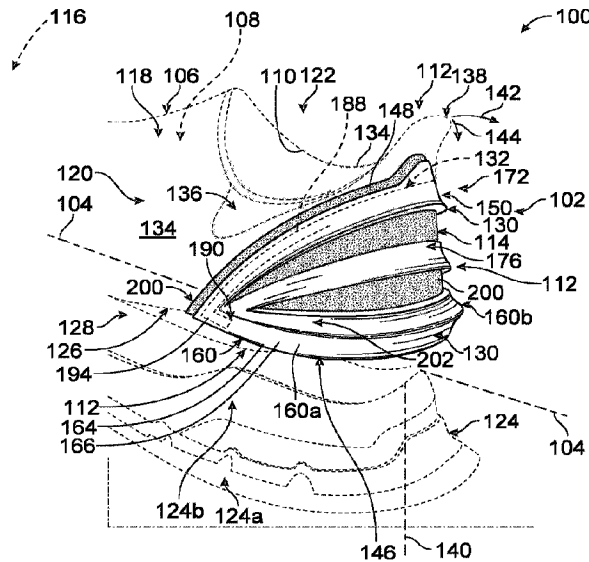


FIG. 1

(57) **Abrégé/Abstract:**

A heel support is provided for an article of footwear that includes an upper defining a foot-receiving cavity having an ankle opening. The heel support includes a cradle configured to be operatively connected to a heel region of the upper. The cradle includes a base and a cradle arm extending outward from the base to a tip portion such that the cradle arm extends upward toward the ankle opening and toward a posterior wall of the heel region. The tip portion is moveable relative to the base between an expanded position and a collapsed position. The heel support includes a metallic spring operatively connected to the cradle such that the spring biases the tip portion of the cradle arm toward the expanded position of the tip portion. The tip portion of the cradle arm is resiliently deflectable toward the collapsed position against the bias of the spring.

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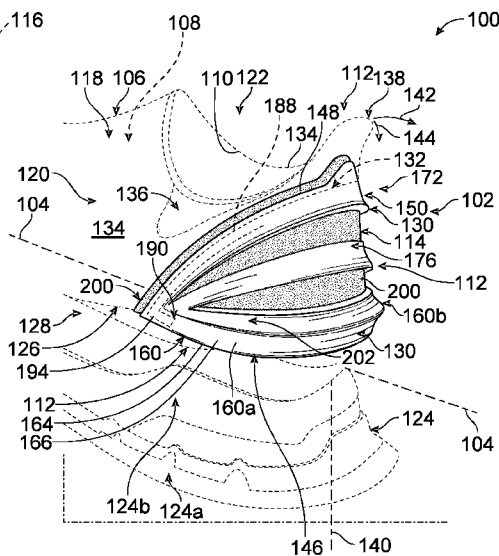


FIG. 1

(57) Abstract: A heel support is provided for an article of footwear that includes an upper defining a foot-receiving cavity having an ankle opening. The heel support includes a cradle configured to be operatively connected to a heel region of the upper. The cradle includes a base and a cradle arm extending outward from the base to a tip portion such that the cradle arm extends upward toward the ankle opening and toward a posterior wall of the heel region. The tip portion is moveable relative to the base between an expanded position and a collapsed position. The heel support includes a metallic spring operatively connected to the cradle such that the spring biases the tip portion of the cradle arm toward the expanded position of the tip portion. The tip portion of the cradle arm is resiliently deflectable toward the collapsed position against the bias of the spring.

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FOOTWEAR HEEL SUPPORT

BACKGROUND

[0001] Putting an article of footwear on an individual's foot often requires the individual to use one or both hands and/or one or more tools (e.g., a shoehorn, etc.), for example to stretch and/or collapse the ankle opening and hold the heel region of the footwear to enable the individual's foot to slide into the foot-receiving cavity of the footwear through the ankle opening.

SUMMARY

[0002] In one aspect, a heel support is provided for an article of footwear that includes an upper defining a foot-receiving cavity having an ankle opening. The heel support includes a cradle configured to be operatively connected to a heel region of the upper. The cradle includes a base and a cradle arm extending outward from the base to a tip portion of the cradle arm such that the cradle arm extends upward toward the ankle opening and toward a posterior wall of the heel region when the cradle is operatively connected to the heel region. The tip portion of the cradle arm is moveable relative to the base between an expanded position and a collapsed position. The heel support includes a metallic spring operatively connected to the cradle such that the spring biases the tip portion of the cradle arm toward the expanded position of the tip portion. The tip portion of the cradle arm is resiliently deflectable toward the collapsed position against the bias of the spring.

[0003] In another aspect, an article of footwear includes an upper defining a foot-receiving cavity having an ankle opening. The upper includes a heel region having a posterior wall. The article of footwear includes a heel support that includes a cradle operatively connected to the heel region of the upper. The cradle includes a base and a cradle arm extending outward from the base to a tip portion of the cradle arm such that the cradle arm extends upward toward the ankle opening and toward a posterior wall of the heel region. The tip portion of the cradle arm is moveable relative to the base between an expanded position and a collapsed position. The heel support includes a metallic spring operatively connected to the cradle such that the spring biases the tip portion of the cradle arm toward the expanded position of the tip portion. The tip portion of the cradle arm is resiliently deflectable toward the collapsed position against the bias of the spring.

[0004] In another aspect, a method is provided for assembling an article of footwear that includes an upper and a heel support that includes a cradle. The method includes operatively connecting a metallic spring to a cradle arm of the cradle having a tip portion that is moveable between an expanded position and a collapsed position such that the spring biases the tip portion toward the expanded position. The method also includes mounting the cradle to a heel region of the upper of the article of footwear such that the tip portion of the cradle arm is resiliently deflectable from the expanded position toward the collapsed position.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] Figure 1 is a partially-exploded perspective view illustrating a portion of an article of footwear according to an implementation.

[0006] Figure 2 is an exploded perspective view illustrating a heel support according to an implementation.

[0007] Figure 3 is a right side elevational view of the heel support shown in Figure 2 according to an implementation.

[0008] Figure 4 is a left side elevational view of the heel support shown in Figure 2 according to an implementation.

[0009] Figure 5 is a bottom plan view of the heel support shown in Figure 2 according to an implementation.

[0010] Figure 6 is a rear elevational view of the heel support shown in Figure 2 according to an implementation.

[0011] Figure 7 is a top plan view of the heel support shown in Figure 2 according to an implementation.

[0012] Figures 8 and 9 are schematic diagrams illustrating operation of the heel support shown in Figure 2 within the footwear shown in Figure 1 according to an implementation.

[0013] Figure 10 is a flow chart illustrating a method for assembling an article of footwear according to an implementation.

DETAILED DESCRIPTION

[0014] The foregoing summary, as well as the following detailed description of certain implementations and implementations will be better understood when read in conjunction with the appended drawings. As used herein, an element or step recited in the singular and preceded by the word "a" or "an" should be understood as not necessarily excluding the plural of the

elements or steps. Further, references to "one implementation" or "one implementation" are not intended to be interpreted as excluding the existence of additional implementations or implementations that also incorporate the recited features. Moreover, unless explicitly stated to the contrary, implementations "comprising" or "having" an element or a plurality of elements having a particular property can include additional elements not having that property.

[0015] While various spatial and directional terms, such as "top," "bottom," "upper," "lower," "vertical," "upward," and/or the like are used to describe implementations and implementations of the present application, it is understood that such terms are merely used with respect to the orientations shown in the drawings. The orientations can be inverted, rotated, or otherwise changed such that the spatial and directional terms apply differently, for example if the structure is flipped 180°: top becomes bottom; upward becomes downward; upper becomes lower; left becomes right; vice versa; and/or the like. Moreover, and for example, vertical may become horizontal when the structure is rotated 90°.

[0016] Slipping an individual's foot into the upper of an article of footwear can be difficult without using one or both hands and/or one or more tools (e.g., a shoehorn, etc.). For example, a hand and/or tool may be required to stretch the ankle opening of the footwear and hold the heel region of the upper in the stretched position to enable the foot to be successfully inserted into the foot-receiving cavity of the upper. The heel supports and methods disclosed herein alleviate this difficulty by providing a resiliently collapsible heel support that enables an individual's foot to be received into the foot-receiving cavity of the upper of an article of footwear without the use of a hand and/or other tools (e.g., only the individual's foot is used for successful insertion into the foot-receiving cavity, etc.). The heel inserts and methods disclosed herein thus enhance the ease of foot entry, allowing hands-free foot entry into an article of footwear.

[0017] Certain implementations of the application provide a heel support for an article of footwear that includes an upper defining a foot-receiving cavity having an ankle opening. The heel support includes a cradle configured to be operatively connected to a heel region of the upper. The cradle includes a base and a cradle arm extending outward from the base to a tip portion of the cradle arm such that the cradle arm extends upward toward the ankle opening and toward a posterior wall of the heel region when the cradle is operatively connected to the heel region. The tip portion of the cradle arm is moveable relative to the base between an expanded position and a collapsed position. The heel support includes a metallic spring operatively connected to the cradle such that the spring biases the tip portion of the cradle arm toward the expanded position of the tip portion. The tip portion of the cradle arm is resiliently

deflectable toward the collapsed position against the bias of the spring. Certain implementations of the application ease foot entry into an article of footwear by enabling hands-free foot entry into the article of footwear.

[0018] With references now to the figures, Figure 1 illustrates an article of footwear 100 that includes a heel support 102 that is configured to facilitate (e.g., ease, assist, etc.) entry of an individual's foot into the footwear 100. The footwear 100 extends a length along a longitudinal axis 104. The footwear 100 includes an upper 106 that extends a length along the longitudinal axis 104. The upper 106 defines a foot-receiving cavity 108 having an ankle opening 110. The foot-receiving cavity 108 is configured to receive an individual's foot (e.g., as shown in Figure 9, etc.) therein through the ankle opening 110. The footwear 100 illustrated herein is depicted as an athletic shoe, but the footwear 100 is not limited to athletic shoes generally nor the specific type, design, category, and/or the like of athletic shoe illustrated herein. Rather, the footwear 100 may include any article of footwear (e.g., any type, design, category, functionality, etc.), such as, but not limited to, leisure shoes, dress shoes, work shoes, sandals, slippers, boots, booties, and/or the like.

[0019] As shown in Figure 1 and will be described below, the heel support 102 is configured to be installed to a heel region 112 of the upper 106 of the footwear 100. The heel region 112 generally includes portions of the footwear 100 corresponding with the posterior (i.e., rear or back) portions of a human foot (e.g., including the heel, including the calcaneus bone, including at least a portion of the Achilles tendon, etc.) when the footwear 100 is worn by a human individual. For example, the heel region 112 of the upper 106 includes a posterior wall 114 that is configured to extend behind and support the posterior of an individual's heel when the individual's foot is received within the foot-receiving cavity 108 of the upper 106 (e.g., as shown in Figure 9, etc.).

[0020] The upper 106 of the footwear 100 includes a forefoot region 116 (not visible in Figure 1 but shown in Figures 8 and 9) that generally includes portions of the footwear 100 corresponding with the anterior (i.e., front) portions of a human foot (e.g., including the toes, the joints connecting the metatarsals with the phalanges, etc.) when the footwear 100 is worn by a human individual. For example, the forefoot region 116 of the upper 106 extends over at least a portion of the anterior of an individual's foot when the individual's foot is received within the foot-receiving cavity 108, for example as shown in Figure 9, etc. A midfoot region 118 of the footwear 100 is disposed between the heel region 112 and the forefoot region 116 and generally includes portions of the footwear 100 corresponding with an arch area of the human foot (e.g., including the navicular joint, etc.) when the individual's foot is received

within the foot-receiving cavity 108 of the upper 106 (e.g., as shown in Figure 14, etc.). The upper 106 of the footwear 100 includes a left side 120 and an opposite right side 122. As described above, the left side 120 may become a “right” side and vice versa if the orientation of the footwear 100 is changed (e.g., rotated 180° about the longitudinal axis 104, etc.).

[0021] The footwear 100 includes a sole structure 124 to which the upper 106 is secured. The sole structure 124 is shown in Figure 1 as exploded from the upper 106 for clarity. The sole structure 124 includes one or more sole components that define any number of layers of the sole structure 124. For example, the sole structure 124 includes an outsole 124a and a midsole 124b in the exemplary implementation shown in Figure 1. In another example, the sole structure 124 has a unitary combination of an outsole and a midsole (which for example may be referred to as a unisole). The sole structure 124 underlies the upper 106. For example, a bottom wall 126 (e.g., a lasting board, etc.) of the upper 106 is secured to an upper side 128 (e.g., of the midsole 124b) of the sole structure 124, for example using any suitable method, means, structure, material, fastener, and/or the like, such as, but not limited to, adhesive, cement, thermal bonding, welding, stitching, sewing, riveting, and/or the like.

[0022] Traditionally, slipping an individual’s foot into the upper of an article of footwear often requires the use of one or both hands and/or one or more tools (e.g., a shoehorn, etc.) to stretch the ankle opening and hold the heel region of the upper in the stretched position as the foot is inserted into the foot-receiving cavity of the upper. The heel support 102 of the present application alleviates this difficulty by enabling an individual’s foot to be received into the foot-receiving cavity of the upper of an article of footwear without the use of a hand and/or other tools (e.g., only the individual’s foot is used for successful insertion into the foot-receiving cavity, etc.). In other words, the various implementations of heel supports and methods disclosed herein enhance the ease of foot entry, allowing hands-free foot entry into an article of footwear. As will be described in more detail below, the heel support 102 includes a cradle 130 and a spring 132.

[0023] Optionally, the upper 106 includes a stretchable material (e.g., an elastic material, a stretchable fabric, a 4-way stretch nylon fabric, etc.) along and/or adjacent the heel region 112 of the upper 106 to increase the amount of stretching of the ankle opening 110 along the longitudinal axis 104, for example to facilitate (e.g., assist, etc.) the functionality of the heel support 102 (e.g., enabling at least partial collapse of the heel region 112 of the upper 106, enabling stretching of the ankle opening 110 along the longitudinal axis 104, enabling entry of an individual’s foot into the footwear 100 without the use of a hand and/or other tools, etc.). For example, in the exemplary implementation of Figure 1, sidewalls 134 of the upper 106

include optional elastic stretch points 136 that increase the amount of stretching of the ankle opening 110 along the longitudinal axis 104. In other words, the stretch points 136 are configured to enable an end 138 of the posterior wall 114 of the heel region 112 of the upper 106 to move along the longitudinal axis 104 and/or otherwise (e.g., along a vertical axis 140, etc.) of the footwear 100 (e.g., in the direction of the arrow 142, in the direction of the arrow 144, etc.). In another example, one or more segments (e.g., the sidewalls 134 within and/or adjacent to the heel region 112, the posterior wall 114 of the heel region 112, etc.) of the upper 106 optionally includes a stretchable material to enable the ankle opening 110 to stretch further along the longitudinal axis 104 and/or otherwise of the footwear 100. In some implementations, the upper 106 does not include a stretchable material.

[0024] Referring now to Figures 1 and 2, the cradle 130 of the heel support 102 includes a base 146 and a cradle arm 148 that extends outward from the base 146 to a tip portion 150 of the cradle arm 148. As will be described below, the spring 132 of the heel support 102 is operatively connected to the cradle arm 148 for providing a spring force that biases the cradle arm 148 against movement in the direction 144.

[0025] Referring now to Figures 3-5, the base 146 of the cradle 130 extends a length along a longitudinal axis 152 from a rear end portion 154 to a front end portion 156. The rear end portion 154 of the base 146 includes a hub 158 of the base 146. The base 146 includes legs 160 that extend outward from the hub 158 along the longitudinal axis 152 to end portions 162 of the legs 160. In the exemplary implementation shown herein, the legs 160 include bottom walls 164 and side walls 166. As shown in Figure 1, when the heel support 102 is installed within the heel region 112 of the upper 106: the bottom walls 164 of the legs 160 extend along the bottom wall 126 of the upper 106 and the upper side 128 of the sole structure 124; and the side walls 166 of the legs 160 extend along the sidewalls 134 and the posterior wall 114 of the upper 106. In other examples, one or more of the legs 160 does not include the side wall 166 or the bottom wall 164.

[0026] Referring now solely to Figure 5, optionally, the end portions 162 of the legs 160 are free end portions such that the front end portion 156 of the base 146 is open. For example, in the exemplary implementation shown herein, the base 146 includes an open front end portion 156 and a closed rear end portion 154 that defines a U-shape (i.e., the base 146 includes a U-shape in the exemplary implementation). In addition or alternatively to the U-shape shown herein, the base 146 may include any other shape that enables the base 146 to function as described and/or illustrated herein, such as, but not limited to a shape that is closed

at the front end portion 156, a V-shape, a horseshoe shape, a circular shape, an oval shape, a rectangular shape, a shape having three or more sides, and/or the like.

[0027] In some implementations, the open-ended shape of the front end portion 156 enables the heel support 102 to be accommodated by (i.e., operatively connected to, used with, implemented within, etc.) a greater variety of different sizes and shapes of footwear. For example, the open-ended shape of the front end portion 156 of the base 146 enables the size and/or shape of the base 156 to be adjusted by moving the free end portions 162 of the legs 160 toward or away from each other. Accordingly, the open-ended shape of the front end portion 156 of the base 146 may reduce the number of different versions (e.g., sizes, shapes, etc.) of the heel support 102 required to serve a given number of different sizes and shapes of footwear, which may reduce manufacturing costs. Optionally, one or more of the bottom walls 164 and/or one or more of the side walls 166 of the legs 160 of the base 146 include one or more slots and/or other openings that enable further adjustment of the size and/or shape of the base 146. For example, the exemplary implementation of the base 146 shown in Figure 5 includes slots 168 that extend radially outward (relative to the longitudinal axis 152) into the bottom walls 164 of the legs 160 along an interior 170 of the U-shape of the base 146.

[0028] Referring now to Figures 3, 4, 6, and 7, the cradle arm 148 of the cradle 130 of the heel support 102 extends outward from the base 146 to the tip portion 150 of the cradle arm 148. As will be described below, when the heel support 102 is operatively connected to the heel region 112 of the upper 106, the cradle arm 148 extends upward toward the ankle opening 110 and toward the posterior wall 114 of the heel region 112. In the exemplary implementation, and as best seen in Figures 6 and 7, the cradle arm 148 extends a length along a continuous path between the legs 160 of the base 146. In other words, the length of the cradle arm 148 extends continuously from a leg 160a of the base 146 to a leg 160b of the base 146, with the tip portion 150 extending at approximately a central location along the length of the cradle arm 148. In other implementations, the length of the cradle arm 148 is not continuous between the legs 160a and 160b of the base 146, but rather is segmented into any number of segments that enables the cradle arm 148 to function as described and/or illustrated herein (e.g., two segments that extend outward from a corresponding leg 160 of the base 146 to free end portions that are spaced apart by a gap and that define the tip portion 150, etc.).

[0029] Referring now to Figures 3, 4, and 6, the tip portion 150 of the cradle arm 148 is moveable relative to the base 146 between an expanded position 172 and a collapsed position 174. The expanded position 172 of the tip portion 150 is the natural resting position of the cradle arm 148 shown in Figures 3, 4, and 6. In the collapsed position, the tip portion 150 has

been moved (e.g., deflected, etc.) relative to the base 146 from the natural resting position in the direction 144. An example of the collapsed position 174 of the tip portion 150 is shown in Figure 8. As will be described below, when the heel support 102 is operatively connected to the heel region 112 of the upper 106, the cradle arm 148 is positioned along the heel region 112 such that the tip portion 150 moves between the expanded position 172 and the collapsed position 174 along the vertical axis 140 of the footwear 100. As will also be described below, movement of the tip portion 150 from the expanded position 172 to the collapsed position 174 collapses the heel region 112 of the upper 106 along the vertical axis 140, for example to enhance the ease of foot entry and thereby allows hands-free foot entry into the article of footwear 100.

[0030] In the exemplary implementation shown herein, and as best seen in Figures 2-4, the tip portion 150 of the cradle arm 148 moves along an arc between the expanded position 172 and the collapsed position 174 of the tip portion 150. For example, the direction 144 extends along an arc as shown herein. As will be described below, when the heel support 102 is operatively connected to the heel region 112 of the upper 106, movement of the tip portion 150 of the cradle arm 148 from the expanded position 172 toward the collapsed position 174 along an arc causes the tip portion 150 to move along the longitudinal axis 104 of the footwear 100, for example which may stretch the ankle opening 110 of the upper 106 along the longitudinal axis 104 of the footwear 100. In other implementations, the tip portion 150 of the cradle arm 148 moves along a linear (i.e., straight) path between the expanded position 172 and the collapsed position 174 of the tip portion 150.

[0031] Optionally, the cradle 130 includes another cradle arm 176. The cradle arm 176 extends outward from the base 146 to a tip portion 178 of the cradle arm 176. The cradle arm 176 extends between cradle arm 148 and the base 146 along the height (e.g., along the vertical axis 140, etc.) of the heel region 112 of the upper 106. As will be described below, when the heel support 102 is operatively connected to the heel region 112 of the upper 106, the cradle arm 176 extends upward toward the ankle opening 110 and toward the posterior wall 114 of the heel region 112. The tip portion 178 of the cradle arm 176 is moveable relative to the base 146 between an expanded position 180 and a collapsed position 182 thereof in a similar manner to the tip portion 150 of the cradle arm 148. An example of the collapsed position 182 of the tip portion 178 of the cradle arm 176 is shown in Figure 8.

[0032] One or more collapsible windows are defined between the cradle arm 148 and the base 146. For example, a collapsible window 184 is defined between the cradle arm 148 and the cradle arm 176; and a collapsible window 186 is defined between the cradle arm 176

and the base 146. As will be described below, the collapsible windows 184 and 186 are configured to collapse along the vertical axis 140 of the footwear 100 as the cradle arms 148 and 176 move toward the collapsed positions 174 and 182, respectively, thereof. The heel support 102 may include any number of collapsible windows 184 and/or 186 (e.g.; a single collapsible window, for example in implementations that do not include the cradle arm 176; three collapsible windows, for example in implementations that include a third cradle arm; etc.).

[0033] In the exemplary implementation, the cradle arm 176 extends a length along a continuous path between the legs 160 of the base 146. In other implementations, the length of the cradle arm 148 is not continuous between the legs 160 of the base 146, but rather is segmented into any number of segments that enables the heel support 102 to function as described and/or illustrated herein (e.g., two segments that extend outward from a corresponding leg 160 of the base 146 to free end portions that are spaced apart by a gap and that define the tip portion 178, etc.). Although two are shown in the exemplary implementation, the cradle 130 may include any number of cradle arms. The cradle arm 148 may be referred to herein as a “first” cradle arm, while the cradle arm 176 may be referred to herein as a “second” cradle arm.

[0034] Referring again to Figure 2, the cradle 130 may be fabricated from any material(s) that enable the heel support 102 to function as described and/or illustrated herein. Examples of suitable materials used to fabricate the cradle 130 include, but are not limited to, silicone, plastics, thermoplastics (e.g., polypropylene, polyethylene, etc.), nylon, polyether block amide, fiberglass reinforced polyamides, elastomeric materials, wood, metals, metal alloys, metal composites, composite materials (e.g., carbon fiber, fiberglass, Kevlar®, metal matrix composites, etc.), and/or the like.

[0035] In the exemplary implementation, the base 146, the cradle arm 148, and the cradle arm 176 of the heel support 102 are integrally formed as a single, unitary structure, as is shown herein. The base 146, the cradle arm 148, and/or the cradle arm 176 may be integrally formed using any suitable method, means, process, and/or the like, such as, but not limited to, molding, casting, machining, three dimensional (3D) printing, and/or the like.

[0036] In other implementations, the base 146, the cradle arm 148, and/or the cradle arm 176 are not integrally formed as a single, unitary structure, but at least two of the base 146, the cradle arm 148, and/or the cradle arm 176 are discrete components that are connected together using any suitable method, means, connector, fastener, manner, and/or the like, such as, but not limited to, adhesive, cement, bonding, welding, melding, heat molding, brazing,

soldering, threaded fasteners, rivets, clips, pins, a snap-fit connection, an interference-fit connection, and/or the like.

[0037] Referring now to Figure 2, the spring 132 of the heel support 102 is operatively connected to the cradle arm 148 of the cradle 130 such that the spring 132 biases the tip portion 150 of the cradle arm 148 toward the expanded position 172 of the tip portion 150. In other words, the spring 132 is operatively connected to the cradle arm 148 such that the spring 132 provides a spring force that biases the tip portion 150 of the cradle arm 148 against movement away from the expanded position 172 in the direction 144. The spring force provided by the spring 132 configures the cradle arm 148 to be resiliently deflectable toward the collapsed position 174 (shown in Figure 8) of the tip portion 150 (away from the expanded position 172) against the bias of the spring 132 (i.e., resiliently deflectable in the direction 144).

[0038] In the exemplary implementations shown herein, the spring 132 is a cantilever spring. For example, the spring 132 a left end portion 190, a right end portion 192, and a spring arm 188 that extends a length from the left end portion 190 to the right end portion 192. The end portions 190 and 192 of the spring 132 include respective tabs 194 and 196, for example to facilitate operatively connecting the spring 132 to the cradle 130 and/or the upper 106 as will be described below. The spring arm 188 extends outward from the end portions 190 and 192 to a tip portion 198 of the spring arm 188. The spring arm 188 is cantilevered from the end portions 190 and 192 such that the tip portion 198 of the spring arm 188 is resiliently deflectable in the direction 144 against a bias of the tip portion 198 of the spring arm 188 to the natural resting position of the tip portion 198 shown in Figure 2. As will be described below, when the heel support 102 is operatively connected to the heel region 112 of the upper 106, the spring arm 188 extends upward from the end portions 190 and 192 toward the ankle opening 110 and toward the posterior wall 114 of the heel region 112.

[0039] In the exemplary implementation, the length of the spring arm 188 extends continuously from the end portion 190 to the end portion 192, with the tip portion 198 extending at approximately a central location along the length of the spring arm 188. In other implementations, the length of the spring arm 188 is not continuous between the end portions 190 and 192, but rather is segmented into any number of segments that enables the spring 132 to function as described and/or illustrated herein (e.g., two segments that extend outward from corresponding end portions 190 and 192 to free end portions that are spaced apart by a gap and that define the tip portion 198, etc.).

[0040] As best seen in Figures 5 and 7, the spring 132 is operatively connected to the cradle 130 of the heel support 102 such that the tabs 194 and 196 of the respective end portions

190 and 192 of the spring 132 extend along the bottom walls 164 of the legs 160 of the base 146. The tabs 194 and/or 196 of the spring 132 are connected (e.g., secured, fastened, adhered, joined, etc.) to the bottom walls 164 (e.g., as described below) and/or the bottom wall 126 of the upper 106; and/or the tabs 194 and/or 196 of the spring 132 are merely captured (e.g., sandwiched, etc.) between the bottom walls 164 of the base 146 and the bottom wall 126 of the upper 106. Accordingly, the bottom walls 164 of the base 146 and the bottom wall 126 of the upper 106 supports (e.g., holds in place, etc.) the end portions 190 and 192 of the spring 132 to enable the tip portion 198 of the spring arm 188 to resiliently deflect in the direction 144 relative to the end portions 190 and 192.

[0041] As best seen in Figures 1-4, the spring 132 is operatively connected to the cradle 130 of the heel support 102 such that the spring arm 188 of the spring 132 extends along the cradle arm 148 of the cradle 130. The spring arm 188 is connected (e.g., secured, fastened, adhered, joined, etc.) to the cradle arm 148 (e.g., as described below) and/or an exterior layer (e.g., a backing 200, etc.) of the upper 106; and/or the spring arm 188 is merely captured (e.g., sandwiched, etc.) between the cradle arm 148 and the exterior layer of the upper 106. Accordingly, the spring arm 188 of the spring 132 provides a spring force that resists (i.e., biases against) movement of the cradle arm 148 away from the expanded position 172 in the direction 144 toward the collapsed position 174 (shown in Figure 8).

[0042] In addition or alternatively to a cantilever spring, the spring 132 may include any other type of spring that enables the spring 132 to function as described and/or illustrated herein (e.g., to provide a spring force that configures the cradle arm 148 to be resiliently deflectable in the direction 144, etc.), such as, but not limited to, coil springs, leaf springs, torsion springs, flat springs, and/or the like.

[0043] The spring 132 may be fabricated from any material(s) that enable the spring 132 to function as described and/or illustrated herein (e.g., to provide a spring force that configures the cradle arm 148 to be resiliently deflectable in the direction 144, etc.). Examples of suitable materials used to fabricate the spring 132 include, but are not limited to, metals, metal alloys, metal composites, composite materials (e.g., carbon fiber, fiberglass, Kevlar®, metal matrix composites, etc.), elastomeric materials, plastics, thermoplastics, nylon, polyether block amide, fiberglass reinforced polyamides, wood, and/or the like. The spring 132 is metallic, which as used herein is intended to mean the spring 132 includes at least the property of a metal of being resiliently deflectable.

[0044] As described above, the end portions 190 and 192 of the spring 132 are optionally connected to bottom walls 164 of the base 146 of the cradle 130; and the spring arm

188 of the spring 132 is optionally connected to the cradle arm 148 of the cradle 130. The spring 132 may be connected to the bottom walls 164 of the base 146 and/or the cradle arm 148 using any suitable method, means, connector, fastener, manner, and/or the like, such as, but not limited to, adhesive, cement, bonding, welding, melding, heat molding, brazing, soldering, threaded fasteners, rivets, clips, pins, a snap-fit connection, an interference-fit connection, and/or the like.

[0045] The geometry, material(s), and/or other variables of the various components of the heel support 102 (e.g., the cradle 130, the spring 132, etc.) may be selected to enable the heel support 102 to function as described and/or illustrated herein (e.g., to provide the spring 132 with a predetermined spring force, to enable an individual's foot to be received into the foot-receiving cavity 108 of the upper 106 the footwear 100 without the use of a hand and/or other tools, to provide heel counter functionality or assist the functionality of a heel counter (not shown) of the heel region 112 of the upper 106, to provide a predetermined amount of support to the posterior of an individual's heel, etc.). Examples of geometry, materials, and other variables that may be selected to enable (e.g., establish, tune, etc.) the heel support 102 to function as described and/or illustrated herein include, but are not limited to: the thickness, length, width, angle, shape, path, material composition, and/or the like of the base 146, the cradle arm 148, the cradle arm 176, and/or the spring 132; the method, process, means, manner, and/or the like of operatively connecting the spring 132 to the cradle 130; and/or the like.

[0046] Referring now to Figure 1, the heel support 102 is installed to the heel region 112 of the upper 106 such that the cradle 130 is operatively connected to the heel region 112 of the upper 106. In the exemplary implementation, the cradle 130 is mounted to an exterior layer of the upper 106 along the heel region 112 of the upper 106. For example, the cradle 130 is mounted to the backing 200, which in the exemplary implementation defines the exterior layer of the upper 106 along the heel region 112. The cradle 130 may be mounted to the backing 200 of the upper 106 using any suitable method, means, connector, fastener, manner, and/or the like, such as, but not limited to, adhesive, cement, bonding, welding, melding, heat molding, brazing, soldering, threaded fasteners, rivets, clips, pins, a snap-fit connection, an interference-fit connection, and/or the like.

[0047] Optionally, the backing 200 includes a flexible material such that the backing 200 is a flexible backing 200, for example to facilitate (e.g., assist, etc.) the functionality of the heel support 102 (e.g., enabling at least partial collapse of the heel region 112 of the upper 106, enabling stretching of the ankle opening 110 along the longitudinal axis 104, enabling entry of an individual's foot into the footwear 100 without the use of a hand and/or other tools, etc.).

Examples of the flexible material of the backing 200 include, but are not limited to, a compressible foam, a compressible foam textile, a flexible textile, leather, vegan leather, vinyl, nylon, a stretchable material, an elastic material, and/or the like.

[0048] In the exemplary implementation of the heel support 102, the cradle 130 is operatively connected to the heel region 112 of the upper 106 such that the base 146 extends along a bottom portion 202 of the heel region 112 of the upper 106. For example, the bottom walls 164 of the legs 160 of the base 146 extend between the bottom wall 126 of the upper 106 and the sole structure 124 of the footwear 100; and the side walls 166 of the legs 160 of the base 146 extend overlap the sidewalls 134 of the upper 106 along the portions of the sidewalls 134 defined by the backing 200.

[0049] As shown in Figure 1, when the cradle 130 is operatively connected to the heel region 112 of the upper 106, the cradle arm 148 of the cradle 130 extends upward toward the ankle opening 110 and toward the posterior wall 114 of the heel region 112. In the exemplary implementation, the cradle arm 148 extends over the posterior wall 114 of the heel region 112 when the cradle 130 is operatively connected to the heel region 112. Moreover, the exemplary implementation of the cradle arm 148 extends continuously from the left leg 160a of the base 146 on the left side 120 of the upper 106 to the right leg 160b of the base 146 on the right side 122 of the upper 106 when the cradle 130 is operatively connected to the heel region 112.

[0050] As is also shown in Figure 1, when the cradle 130 is operatively connected to the heel region 112 in the exemplary implementation: the cradle arm 176 of the cradle 130 extends upward toward the ankle opening 110 and toward the posterior wall 114 of the heel region 112; the cradle arm 176 extends over the posterior wall 114 of the heel region 112; and the cradle arm 176 extends continuously from the left leg 160a of the base 146 on the left side 120 of the upper 106 to the right leg 160b of the base 146 on the right side 122 of the upper 106.

[0051] When the cradle 130 is operatively connected to the heel region 112 of the upper 106 as shown in Figure 1, the tabs 194 and 196 of the end portions 190 and 192, respectively, of the spring 132 extend (e.g., are captured, etc.) between the bottom walls 164 of the base 146 and the bottom wall 126 of the upper 106. The end portions 190 and 192 of the spring 132 are thus connected to the base 146 of the cradle 130 such that the spring arm 188 extends upward from the end portions 190 and 192 toward the ankle opening 110 and toward the posterior wall 114 of the heel region 112. In the exemplary implementation, the spring arm 188 extends over the posterior wall 114 of the heel region 112 when the cradle 130 is operatively connected to the heel region 112. Moreover, the exemplary implementation of the spring arm 188 extends

continuously from the left end portion 190 that is operatively connected to the base 146 of the cradle 130 along the left side 120 of the upper 106 to the right end portion 192 that is operatively connected to the base 146 along the right side 122 of the upper 106.

[0052] As illustrated in Figures 1-7, the spring arm 188 extends (e.g., is captured, etc.) between the cradle arm 148 of the cradle 130 and the backing 200 of the upper 106 when the cradle 130 is operatively connected to the heel region 112 of the upper 106. As briefly mentioned above, the spring arm 188 is optionally connected to the backing 200. The spring arm 188 may be connected to the backing 200 using any suitable method, means, connector, fastener, manner, and/or the like, such as, but not limited to, adhesive, cement, bonding, welding, melding, heat molding, brazing, soldering, threaded fasteners, rivets, clips, pins, a snap-fit connection, an interference-fit connection, and/or the like.

[0053] In some implementations, the heel support 102 is configured to provide heel counter functionality or assist the functionality of a heel counter (not shown) of the heel region 112 of the upper 106. For example, in some implementations the heel support 102 facilitates holding the heel region 112 open (i.e., facilitates preventing the heel region 112 of the upper 106 from collapsing) at rest or while the footwear 100 is being worn by an individual. In some implementations, the heel support 102 is configured to support a posterior of the individual's heel.

[0054] In operation, and referring now to Figures 8 and 9, the heel support 102 enables an individual's foot to be received into the foot-receiving cavity 108 of the upper 106 of the footwear 100 without the use of a hand and/or other tools (e.g., only the individual's foot is used for successful insertion into the foot-receiving cavity, etc.). For example, using the individual's heel 204, a force F (not shown in Figure 9) is applied to an upper end portion 206 of the posterior wall 114 of the upper 106. Against the bias provided by the spring 132, the force F resiliently deflects the tip portion 150 of the cradle arm 148 of the heel support 102 from the expanded position 172 (shown in Figures 1 and 9) in the direction 144 toward the collapsed position 174 (shown in Figure 8). Movement of the tip portion 150 in the direction 144 from the expanded position 172 toward the collapsed position 174 collapses the heel region 112 of the upper 106 along the vertical axis 140 of the footwear 100, for example as is shown in Figure 8. For example, movement of the tip portion 150 in the direction 144 toward the collapsed position causes the collapsible windows 184 and 186 of the cradle 130 to collapse along the vertical axis 140, thereby collapsing the posterior wall 114 of the heel region 112 along the vertical axis 140. With the posterior wall 114 of the heel region 112 collapsed (e.g. as shown in Figure 8, etc.), the individual's foot is free to slide forward and downward into the

foot-receiving cavity 108 of the upper 106 as is shown in Figure 9. Accordingly, the heel support 102 enables the individual's foot to be received into the foot-receiving cavity 108 of the upper 106 without the use of a hand and/or other tools. Rather, only the individual's foot is used to gain entry into the foot-receiving cavity 108 of the upper 106. The heel support 102 thus eases foot entry into the footwear 100 by enabling hands-free foot entry. As described above, movement of the tip portion 150 of the cradle arm 148 in the direction 144 along an arc may stretch (e.g., enlarge, etc.) the ankle opening 110 of the upper 106 along the longitudinal axis 104 of the footwear 100, which may further facilitate reception of the individual's foot into the foot-receiving cavity 108 of the upper 106 without the use of a hand and/or other tools.

[0055] As the individual's foot is fully received into the foot-receiving cavity 108, the stored elastic energy due to the bias of the spring 132 automatically moves the cradle arm 148 back from the collapsed position 174 in the direction of the arrow 208 toward the expanded position 172, as is illustrated in Figure 9.

[0056] Figure 10 illustrates a method 300 for assembling an article of footwear (e.g., the footwear 100 shown in Figures 1, 2, 8, and 9, etc.) that includes an upper and a heel support (e.g., the heel support 102 shown in Figures 1-9, etc.) that includes a cradle. The method 300 includes operatively connecting, at 302, a metallic spring to a cradle arm of the cradle having a tip portion that is moveable between an expanded position and a collapsed position such that the spring biases the tip portion toward the expanded position. At 304, the method 300 includes mounting the cradle to a heel region of the upper of the article of footwear such that the tip portion of the cradle arm is resiliently deflectable from the expanded position toward the collapsed position.

[0057] In some implementations, operatively connecting at 302 the spring to the cradle arm includes connecting, at 302a, the spring to the cradle using at least one of adhesive, cement, bonding, welding, melding, heat molding, brazing, soldering, threaded fasteners, rivets, clips, pins, a snap-fit connection, or an interference-fit connection.

[0058] Optionally, mounting at 304 the cradle to the heel region includes capturing, at 304a, the spring between the cradle arm and an exterior layer of the upper of the article of footwear. In some implementations, mounting at 304 the cradle to the heel region includes mounting, at 304b, the cradle to an exterior layer of the upper along the heel region. Mounting at 304 the cradle to the heel region optionally includes mounting, at 304c, the cradle to the heel region such that at least one of the cradle arm or the spring extends over a posterior wall of the heel region.

[0059] Optionally, mounting at 304 the cradle to the heel region includes mounting, at 304d, the cradle to the heel region such that a spring arm of the spring extends continuously from a left end portion of the spring that is operatively connected to a base of the cradle along a left side of the upper to a right end portion of the spring that is operatively connected to the base of the cradle along a right side of the upper. In some implementations, mounting at 304 the cradle to the heel region includes mounting, at 304e, the cradle to the heel region such that an end portion of the spring is captured between a base of the cradle and a bottom wall of the upper.

[0060] The various implementations of heel inserts and methods disclosed herein enhance the ease of foot entry, allowing hands-free foot entry into an article of footwear.

[0061] The following clauses describe further aspects:

Clause Set A:

A1. A heel support for an article of footwear that includes an upper defining a foot-receiving cavity having an ankle opening, the heel support comprising:

a cradle configured to be operatively connected to a heel region of the upper, the cradle comprising a base and a cradle arm extending outward from the base to a tip portion of the cradle arm such that the cradle arm extends upward toward the ankle opening and toward a posterior wall of the heel region when the cradle is operatively connected to the heel region, the tip portion of the cradle arm being moveable relative to the base between an expanded position and a collapsed position; and

a metallic spring operatively connected to the cradle such that the spring biases the tip portion of the cradle arm toward the expanded position of the tip portion, the tip portion of the cradle arm being resiliently deflectable toward the collapsed position against the bias of the spring.

A2. The heel support of any preceding clause, wherein movement of the tip portion of the cradle arm from the expanded position toward the collapsed position when the cradle is operatively connected to the heel region is configured to collapse the heel region of the upper of the article of footwear.

A3. The heel support of any preceding clause, wherein movement of the tip portion of the cradle arm from the expanded position toward the collapsed position when the cradle is

operatively connected to the heel region is configured to stretch the ankle opening of the upper of the article of footwear along a longitudinal axis of the article of footwear.

A4. The heel support of any preceding clause, wherein the tip portion of the cradle arm moves along an arc between the expanded position and the collapsed position of the tip portion.

A5. The heel support of any preceding clause, wherein the spring comprises a spring arm and an end portion operatively connected to the base of the cradle such that the spring arm extends upward from the end portion toward the ankle opening and toward the posterior wall of the heel region when the cradle is operatively connected to the heel region.

A6. The heel support of any preceding clause, wherein the spring is captured between the cradle arm and an exterior layer of the upper when the cradle is operatively connected to the heel region of the upper.

A7. The heel support of any preceding clause, wherein the cradle is mounted to an exterior layer of the upper along the heel region of the upper when the cradle is operatively connected to the heel region.

A8. The heel support of any preceding clause, wherein the cradle arm is a first cradle arm, the cradle comprising a second cradle arm extending outward from the base such that the second cradle arm extends upward toward the ankle opening and toward the posterior wall of the heel region between the first cradle arm and the base when the cradle is operatively connected to the heel region.

A9. The heel support of any preceding clause, wherein at least one of the cradle arm or the spring extends over the posterior wall of the heel region when the cradle is operatively connected to the heel region.

A10. The heel support of any preceding clause, wherein the spring comprises a spring arm that extends continuously from a left end portion of the spring that is operatively connected to the base of the cradle along a left side of the upper to a right end portion of the spring that is operatively connected to the base of the cradle along a right side of the upper.

A11. The heel support of any preceding clause, wherein the cradle arm of the cradle extends continuously from a leg of the base on a left side of the upper to another leg of the base

on a right side of the upper when the cradle is operatively connected to the heel region of the upper.

A12. The heel support of any preceding clause, wherein the spring comprises an end portion captured between the base and a bottom wall of the upper when the cradle is operatively connected to the heel region of the upper.

A13. The heel support of any preceding clause, wherein the spring is connected to at least one of the upper or the cradle using at least one of adhesive, cement, bonding, welding, melding, heat molding, brazing, soldering, threaded fasteners, rivets, clips, pins, a snap-fit connection, or an interference-fit connection.

A14. The heel support of any preceding clause, wherein the spring comprises a cantilever spring.

A15. The heel support of any preceding clause, wherein the spring comprises a metal.

A16. The heel support of any preceding clause, wherein the cradle comprises at least one of a thermoplastic or silicone.

A17. The heel support of any preceding clause, wherein the base of the cradle comprises a U-shape.

A18. The heel support of any preceding clause, wherein the base of the cradle comprises a U-shape, the base comprising slots extending radially outward into the base along an interior of the U-shape.

A19. The heel support of any preceding clause, wherein the base extends along a bottom portion of the heel region of the upper when the cradle is operatively connected to the heel region.

A20. The heel support of any preceding clause, wherein the base and the cradle arm of the cradle are integrally formed as a single, unitary structure.

A21. The heel support of any preceding clause, wherein the cradle comprises a collapsible window defined between the cradle arm and the base.

A22. The heel support of any preceding clause, wherein the cradle is mounted to a flexible backing of the upper, the spring comprising a spring arm extending between the cradle arm and the flexible backing.

Clause set B:

B1. An article of footwear comprising:

an upper defining a foot-receiving cavity having an ankle opening, the upper comprising a heel region having a posterior wall; and

a heel support comprising:

a cradle operatively connected to the heel region of the upper, the cradle comprising a base and a cradle arm extending outward from the base to a tip portion of the cradle arm such that the cradle arm extends upward toward the ankle opening and toward the posterior wall of the heel region, the tip portion of the cradle arm being moveable relative to the base between an expanded position and a collapsed position; and

a metallic spring operatively connected to the cradle such that the spring biases the tip portion of the cradle arm toward the expanded position of the tip portion, the tip portion of the cradle arm being resiliently deflectable toward the collapsed position against the bias of the spring.

B2. The article of footwear of any preceding clause, wherein movement of the tip portion of the cradle arm from the expanded position toward the collapsed position is configured to collapse the heel region of the upper of the article of footwear.

B3. The article of footwear of any preceding clause, wherein movement of the tip portion of the cradle arm from the expanded position toward the collapsed position is configured to stretch the ankle opening of the upper of the article of footwear along a longitudinal axis of the article of footwear.

B4. The article of footwear of any preceding clause, wherein the tip portion of the cradle arm moves along an arc between the expanded position and the collapsed position of the tip portion.

B5. The article of footwear of any preceding clause, wherein the spring comprises a spring arm and an end portion operatively connected to the base of the cradle such that the spring arm extends upward from the end portion toward the ankle opening and toward the posterior wall of the heel region.

B6. The article of footwear of any preceding clause, wherein the spring is captured between the cradle arm and an exterior layer of the upper.

B7. The article of footwear of any preceding clause, wherein the cradle is mounted to an exterior layer of the upper along the heel region of the upper.

B8. The article of footwear of any preceding clause, wherein the cradle arm is a first cradle arm, the cradle comprising a second cradle arm extending outward from the base such that the second cradle arm extends upward toward the ankle opening and toward the posterior wall of the heel region between the first cradle arm and the base.

B9. The article of footwear of any preceding clause, wherein the spring comprises a spring arm that extends continuously from a left end portion of the spring that is operatively connected to the base of the cradle along a left side of the upper to a right end portion of the spring that is operatively connected to the base of the cradle along a right side of the upper.

B10. The article of footwear of any preceding clause, wherein the cradle arm of the cradle extends continuously from a leg of the base on a left side of the upper to another leg of the base on a right side of the upper.

B11. The article of footwear of any preceding clause, wherein the spring comprises an end portion captured between the base and a bottom wall of the upper.

B12. The article of footwear of any preceding clause, wherein the spring is connected to at least one of the upper or the cradle using at least one of adhesive, cement, bonding, welding, melding, heat molding, brazing, soldering, threaded fasteners, rivets, clips, pins, a snap-fit connection, or an interference-fit connection.

B13. The article of footwear of any preceding clause, wherein the spring comprises a cantilever spring.

B14. The article of footwear of any preceding clause, wherein the spring comprises a metal.

B15. The article of footwear of any preceding clause, wherein the base of the cradle comprises a U-shape, the base comprising slots extending radially outward into the base along an interior of the U-shape.

B16. The article of footwear of preceding clause, wherein the cradle comprises a collapsible window defined between the cradle arm and the base.

B17. The article of footwear of preceding clause, wherein the heel region of the upper comprises a flexible backing, the cradle being mounted to the flexible backing such that a spring arm of the spring extends between the cradle arm and the flexible backing.

Clause set C:

C1. A method for assembling an article of footwear that includes an upper and a heel support that includes a cradle, the method comprising:

operatively connecting a metallic spring to a cradle arm of the cradle having a tip portion that is moveable between an expanded position and a collapsed position such that the spring biases the tip portion toward the expanded position; and

mounting the cradle to a heel region of the upper of the article of footwear such that the tip portion of the cradle arm is resiliently deflectable from the expanded position toward the collapsed position.

C2. The method of any preceding clause, wherein mounting the cradle to the heel region comprises capturing the spring between the cradle arm and an exterior layer of the upper of the article of footwear.

C3. The method of any preceding clause, wherein mounting the cradle to the heel region comprises mounting the cradle to an exterior layer of the upper along the heel region.

C4. The method of any preceding clause, wherein mounting the cradle to the heel region comprises mounting the cradle to the heel region such that at least one of the cradle arm or the spring extends over a posterior wall of the heel region.

C5. The method of claim 36, wherein mounting the cradle to the heel region comprises mounting the cradle to the heel region such that a spring arm of the spring extends continuously from a left end portion of the spring that is operatively connected to a base of the cradle along a left side of the upper to a right end portion of the spring that is operatively connected to the base of the cradle along a right side of the upper.

C6. The method of any preceding clause, wherein mounting the cradle to the heel region comprises mounting the cradle to the heel region such that an end portion of the spring is captured between a base of the cradle and a bottom wall of the upper.

C7. The method of any preceding clause, wherein operatively connecting the spring to the cradle arm comprises connecting the spring to the cradle using at least one of adhesive, cement, bonding, welding, melding, heat molding, brazing, soldering, threaded fasteners, rivets, clips, pins, a snap-fit connection, or an interference-fit connection.

[0062] As used herein, a structure, limitation, or element that is “configured to” perform a task or operation is particularly structurally formed, constructed, or adapted in a manner corresponding to the task or operation. For purposes of clarity and the avoidance of doubt, an object that is merely capable of being modified to perform the task or operation is not “configured to” perform the task or operation as used herein.

[0063] Any range or value given herein can be extended or altered without losing the effect sought, as will be apparent to the skilled person.

[0064] Although the subject matter has been described in language specific to structural features and/or methodological acts, it is to be understood that the subject matter defined in the appended claims is not necessarily limited to the specific features or acts described above. Rather, the specific features and acts described above are disclosed as example forms of implementing the claims.

[0065] It will be understood that the benefits and advantages described above can relate to one implementation or can relate to several implementations. The implementations are not limited to those that solve any or all of the stated problems or those that have any or all of the stated benefits and advantages. It will further be understood that reference to 'an' item refers to one or more of those items.

[0066] The order of execution or performance of the operations in examples of the present application illustrated and described herein is not essential, unless otherwise specified. That is, the operations can be performed in any order, unless otherwise specified, and examples

of the application can include additional or fewer operations than those disclosed herein. For example, it is contemplated that executing or performing a particular operation before, contemporaneously with, or after another operation (e.g., different steps, etc.) is within the scope of aspects and implementations of the application.

[0067] The term “comprising” is used in this specification to mean including the feature(s) or act(s) followed thereafter, without excluding the presence of one or more additional features or acts. The terms "comprising," "including," and "having" are intended to be inclusive and mean that there can be additional elements other than the listed elements. In other words, the use of "including," "comprising," "having," "containing," "involving," and variations thereof, is meant to encompass the items listed thereafter and additional items. Further, references to "one implementation" are not intended to be interpreted as excluding the existence of additional implementations or implementations that also incorporate the recited features. The term “exemplary” is intended to mean “an example of”.

[0068] When introducing elements of aspects of the application or the examples thereof, the articles "a," "an," "the," and "said" are intended to mean that there are one or more of the elements. In other words, the indefinite articles "a", “an”, “the”, and “said” as used in the specification and in the claims, unless clearly indicated to the contrary, should be understood to mean "at least one."

[0069] The phrase “one or more of the following: A, B, and C” means “at least one of A and/or at least one of B and/or at least one of C.” The phrase "and/or", as used in the specification and in the claims, should be understood to mean "either or both" of the elements so conjoined, i.e., elements that are conjunctively present in some cases and disjunctively present in other cases. Multiple elements listed with "and/or" should be construed in the same fashion, i.e., "one or more" of the elements so conjoined. Other elements may optionally be present other than the elements specifically identified by the "and/or" clause, whether related or unrelated to those elements specifically identified. Thus, as a non-limiting example, a reference to "A and/or B", when used in conjunction with open-ended language such as "comprising" can refer, in one implementation, to A only (optionally including elements other than B); in another implementation, to B only (optionally including elements other than A); in yet another implementation, to both A and B (optionally including other elements); etc.

[0070] As used in the specification and in the claims, "or" should be understood to have the same meaning as "and/or" as defined above. For example, when separating items in a list, "or" or "and/or" shall be interpreted as being inclusive, i.e., the inclusion of at least one, but also including more than one, of a number or list of elements, and, optionally, additional

unlisted items. Only terms clearly indicated to the contrary, such as "only one of" or "exactly one of," or, when used in the claims, "consisting of," will refer to the inclusion of exactly one element of a number or list of elements. In general, the term "or" as used shall only be interpreted as indicating exclusive alternatives (i.e. "one or the other but not both") when preceded by terms of exclusivity, such as "either," "one of" "only one of" or "exactly one of." "Consisting essentially of," when used in the claims, shall have its ordinary meaning as used in the field of patent law.

[0071] As used in the specification and in the claims, the phrase "at least one," in reference to a list of one or more elements, should be understood to mean at least one element selected from any one or more of the elements in the list of elements, but not necessarily including at least one of each and every element specifically listed within the list of elements and not excluding any combinations of elements in the list of elements. This definition also allows that elements may optionally be present other than the elements specifically identified within the list of elements to which the phrase "at least one" refers, whether related or unrelated to those elements specifically identified. Thus, as a non-limiting example, "at least one of A and B" (or, equivalently, "at least one of A or B," or, equivalently "at least one of A and/or B") can refer, in one implementation, to at least one, optionally including more than one, A, with no B present (and optionally including elements other than B); in another implementation, to at least one, optionally including more than one, B, with no A present (and optionally including elements other than A); in yet another implementation, to at least one, optionally including more than one, A, and at least one, optionally including more than one, B (and optionally including other elements); etc.

[0072] Use of ordinal terms such as "first," "second," "third," etc., in the claims to modify a claim element does not by itself connote any priority, precedence, or order of one claim element over another or the temporal order in which acts of a method are performed. Ordinal terms are used merely as labels to distinguish one claim element having a certain name from another element having a same name (but for use of the ordinal term), to distinguish the claim elements.

[0073] Having described aspects of the application in detail, it will be apparent that modifications and variations are possible without departing from the scope of aspects of the application as defined in the appended claims. As various changes could be made in the above constructions, products, and methods without departing from the scope of aspects of the application, it is intended that all matter contained in the above description and shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

[0074] It is to be understood that the above description is intended to be illustrative, and not restrictive. For example, the above-described implementations (and/or aspects thereof) can be used in combination with each other. In addition, many modifications can be made to adapt a particular situation or material to the teachings of the various implementations of the application without departing from their scope. While the dimensions and types of materials described herein are intended to define the parameters of the various implementations of the application, the implementations are by no means limiting and are example implementations. Many other implementations will be apparent to those of ordinary skill in the art upon reviewing the above description. The scope of the various implementations of the application should, therefore, be determined with reference to the appended claims, along with the full scope of equivalents to which such claims are entitled. In the appended claims, the terms "including" and "in which" are used as the plain-English equivalents of the respective terms "comprising" and "wherein." Moreover, the terms "first," "second," and "third," etc. are used merely as labels, and are not intended to impose numerical requirements on their objects. Further, the limitations of the following claims are not written in means-plus-function format and are not intended to be interpreted based on 35 U.S.C. § 112(f), unless and until such claim limitations expressly use the phrase "means for" followed by a statement of function void of further structure.

[0075] This written description uses examples to disclose the various implementations of the application, including the best mode, and also to enable any person of ordinary skill in the art to practice the various implementations of the application, including making and using any devices or systems and performing any incorporated methods. The patentable scope of the various implementations of the application is defined by the claims, and can include other examples that occur to those persons of ordinary skill in the art. Such other examples are intended to be within the scope of the claims if the examples have structural elements that do not differ from the literal language of the claims, or if the examples include equivalent structural elements with insubstantial differences from the literal language of the claims.

WHAT IS CLAIMED IS:

1. A heel support for an article of footwear that includes an upper defining a foot-receiving cavity having an ankle opening, the heel support comprising:

a cradle configured to be operatively connected to a heel region of the upper, the cradle comprising a base and a cradle arm extending outward from the base to a tip portion of the cradle arm such that the cradle arm extends upward toward the ankle opening and toward a posterior wall of the heel region when the cradle is operatively connected to the heel region, the tip portion of the cradle arm being moveable relative to the base between an expanded position and a collapsed position; and

a metallic spring operatively connected to the cradle such that the spring biases the tip portion of the cradle arm toward the expanded position of the tip portion, the tip portion of the cradle arm being resiliently deflectable toward the collapsed position against the bias of the spring.

2. The heel support of claim 1, wherein movement of the tip portion of the cradle arm from the expanded position toward the collapsed position when the cradle is operatively connected to the heel region is configured to collapse the heel region of the upper of the article of footwear.

3. The heel support of claim 1, wherein the tip portion of the cradle arm moves along an arc between the expanded position and the collapsed position of the tip portion.

4. The heel support of claim 1, wherein the spring comprises a spring arm and an end portion operatively connected to the base of the cradle such that the spring arm extends upward from the end portion toward the ankle opening and toward the posterior wall of the heel region when the cradle is operatively connected to the heel region.

5. The heel support of claim 1, wherein the spring is captured between the cradle arm and an exterior layer of the upper when the cradle is operatively connected to the heel region of the upper.

6. The heel support of claim 1, wherein the cradle is mounted to an exterior layer of the upper along the heel region of the upper when the cradle is operatively connected to the heel region.

7. The heel support of claim 1, wherein the cradle arm is a first cradle arm, the cradle comprising a second cradle arm extending outward from the base such that the second cradle arm extends upward toward the ankle opening and toward the posterior wall of the heel region between the first cradle arm and the base when the cradle is operatively connected to the heel region.

8. The heel support of claim 1, wherein the spring comprises a spring arm that extends continuously from a left end portion of the spring that is operatively connected to the base of the cradle along a left side of the upper to a right end portion of the spring that is operatively connected to the base of the cradle along a right side of the upper.

9. The heel support of claim 1, wherein the spring comprises a cantilever spring.

10. The heel support of claim 1, wherein the spring comprises a metal.

11. The heel support of claim 1, wherein the base of the cradle comprises a U-shape, the base comprising slots extending radially outward into the base along an interior of the U-shape.

12. The heel support of claim 1, wherein the cradle comprises a collapsible window defined between the cradle arm and the base.

13. The heel support of claim 1, wherein the cradle is mounted to a flexible backing of the upper, the spring comprising a spring arm extending between the cradle arm and the flexible backing.

14. An article of footwear comprising:

an upper defining a foot-receiving cavity having an ankle opening, the upper comprising a heel region having a posterior wall; and

a heel support comprising:

a cradle operatively connected to the heel region of the upper, the cradle comprising a base and a cradle arm extending outward from the base to a tip portion of the cradle arm such that the cradle arm extends upward toward the ankle opening and toward the posterior wall of the heel region, the tip portion of the cradle arm being

moveable relative to the base between an expanded position and a collapsed position;
and

a metallic spring operatively connected to the cradle such that the spring biases the tip portion of the cradle arm toward the expanded position of the tip portion, the tip portion of the cradle arm being resiliently deflectable toward the collapsed position against the bias of the spring.

15. The article of footwear of claim 14, wherein movement of the tip portion of the cradle arm from the expanded position toward the collapsed position is configured to collapse the heel region of the upper of the article of footwear.

16. The article of footwear of claim 14, wherein the tip portion of the cradle arm moves along an arc between the expanded position and the collapsed position of the tip portion.

17. The article of footwear of claim 14, wherein the spring is captured between the cradle arm and an exterior layer of the upper.

18. The article of footwear of claim 14, wherein the cradle is mounted to an exterior layer of the upper along the heel region of the upper.

19. The article of footwear of claim 14, wherein the spring comprises a metal.

20. A method for assembling an article of footwear that includes an upper and a heel support that includes a cradle, the method comprising:

operatively connecting a metallic spring to a cradle arm of the cradle having a tip portion that is moveable between an expanded position and a collapsed position such that the spring biases the tip portion toward the expanded position; and

mounting the cradle to a heel region of the upper of the article of footwear such that the tip portion of the cradle arm is resiliently deflectable from the expanded position toward the collapsed position.

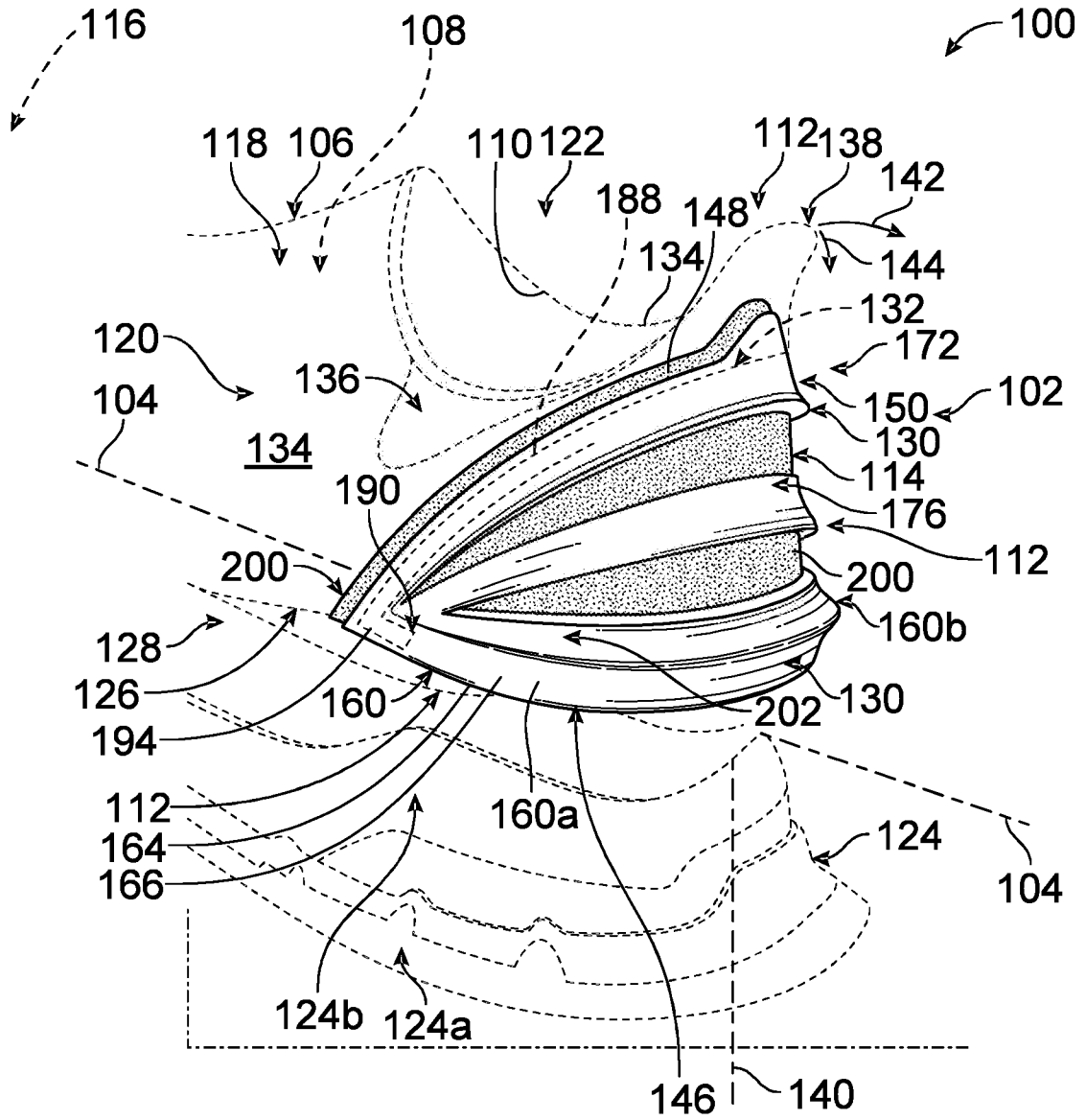


FIG. 1

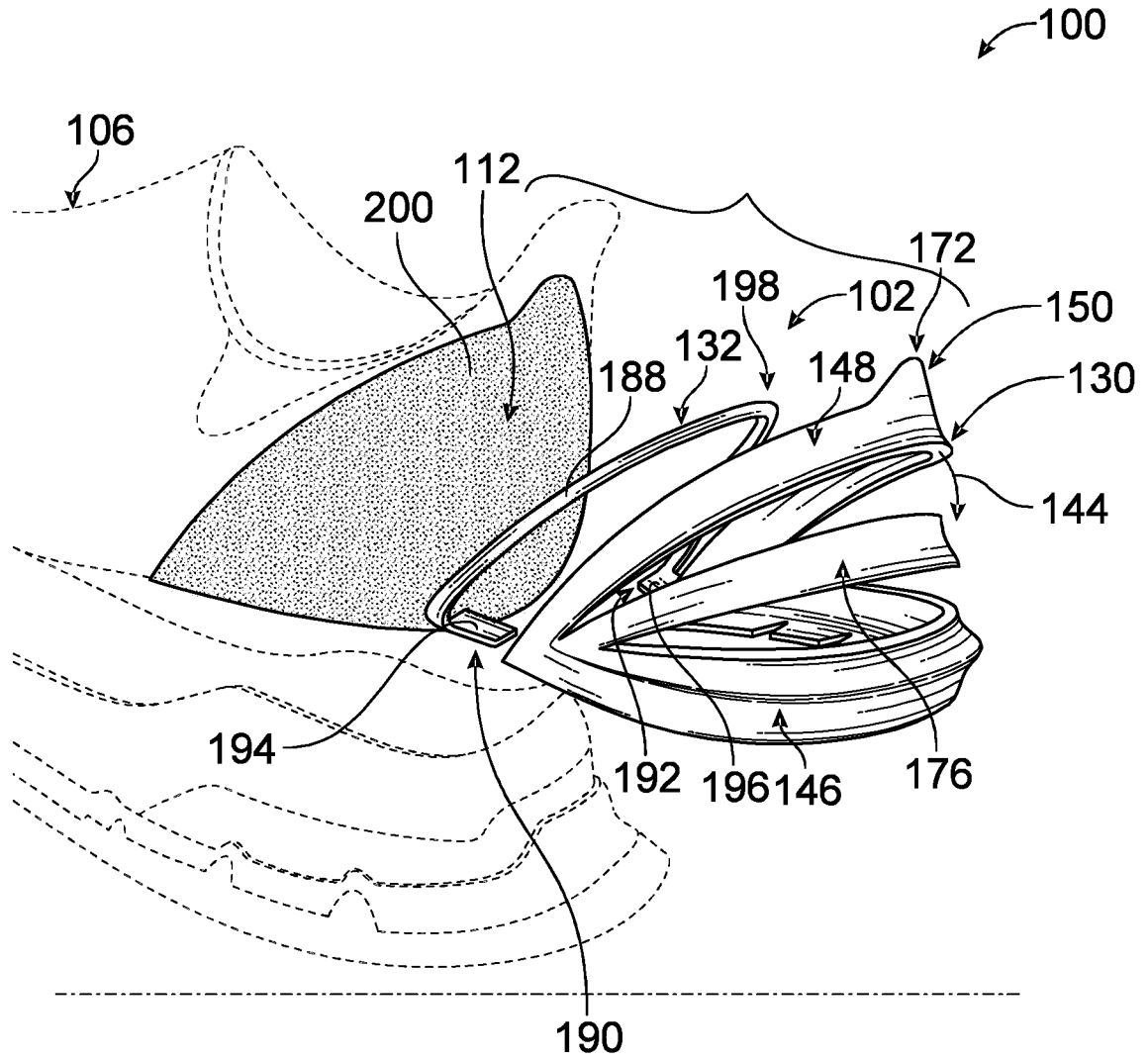


FIG. 2

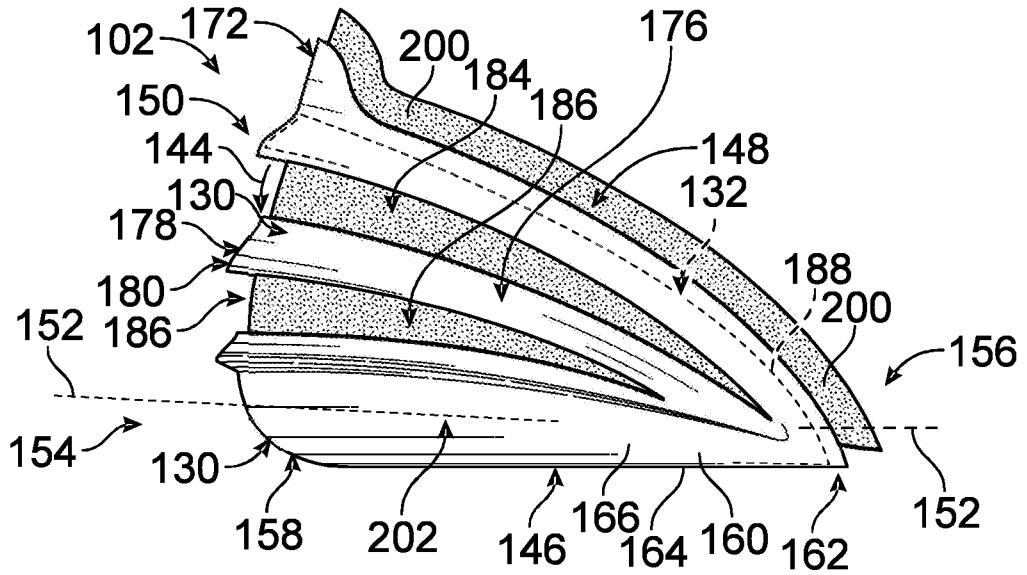


FIG. 3

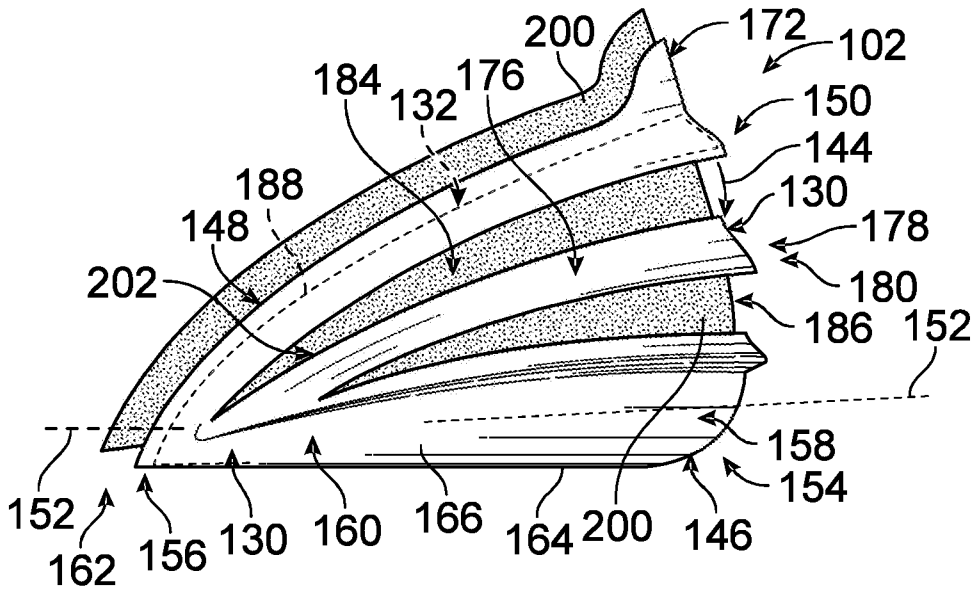


FIG. 4

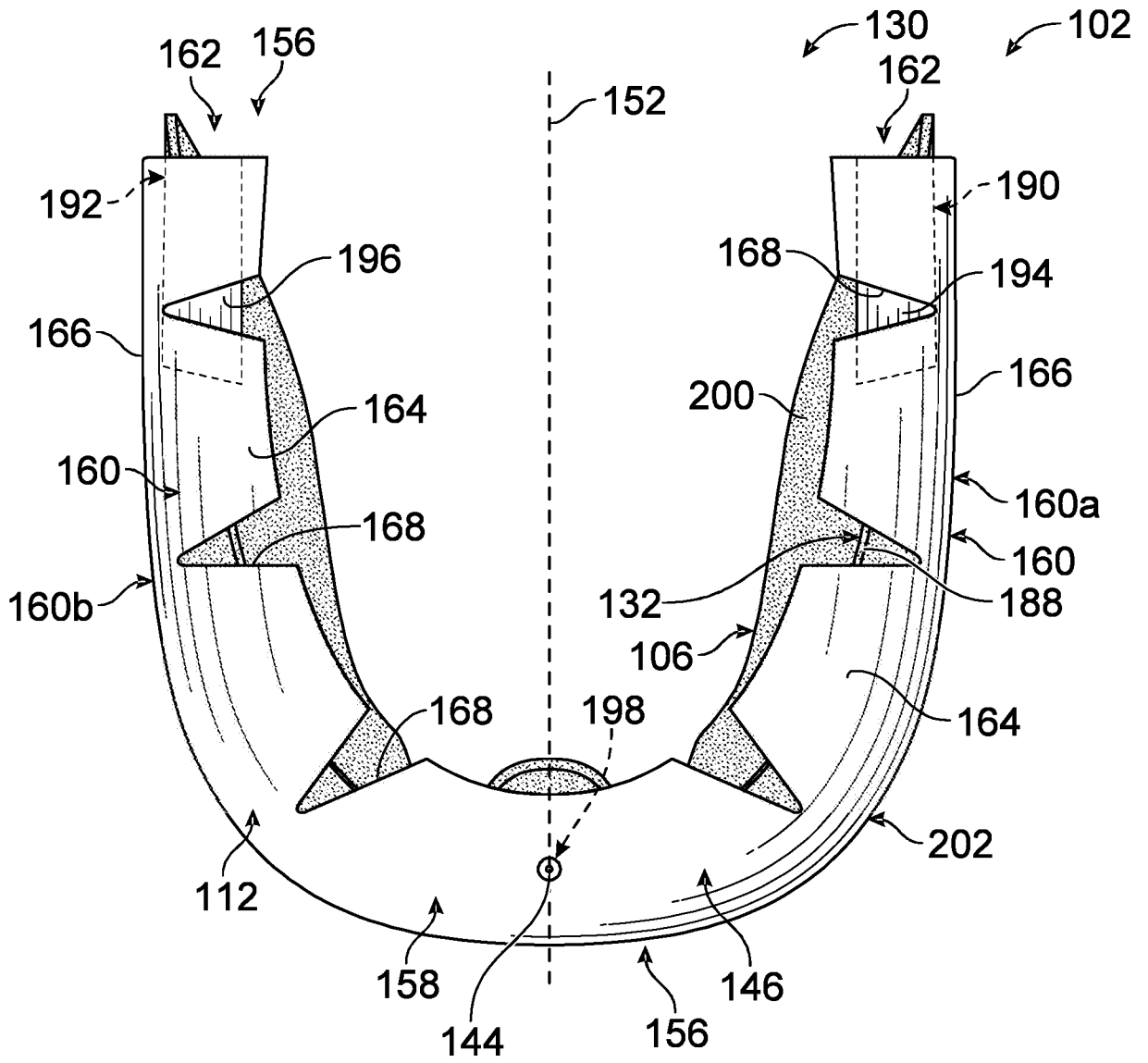


FIG. 5

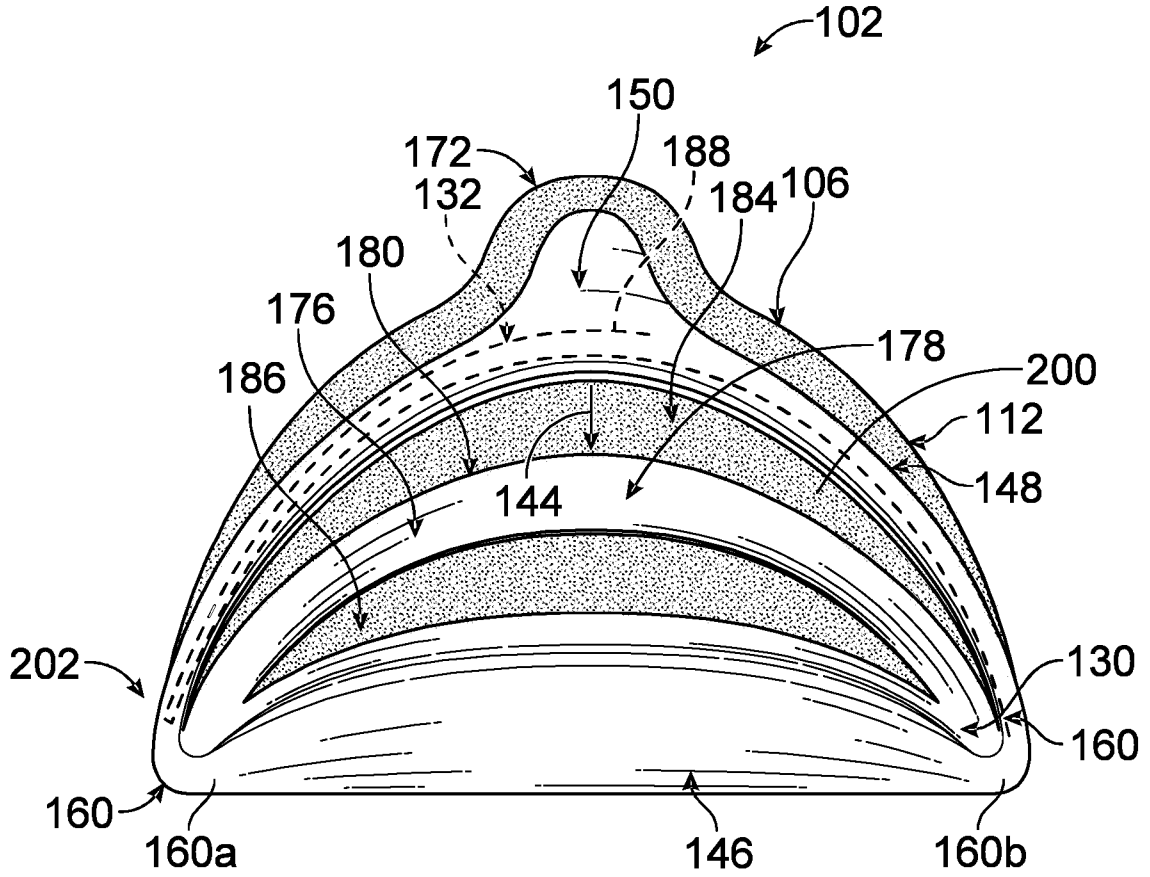


FIG. 6

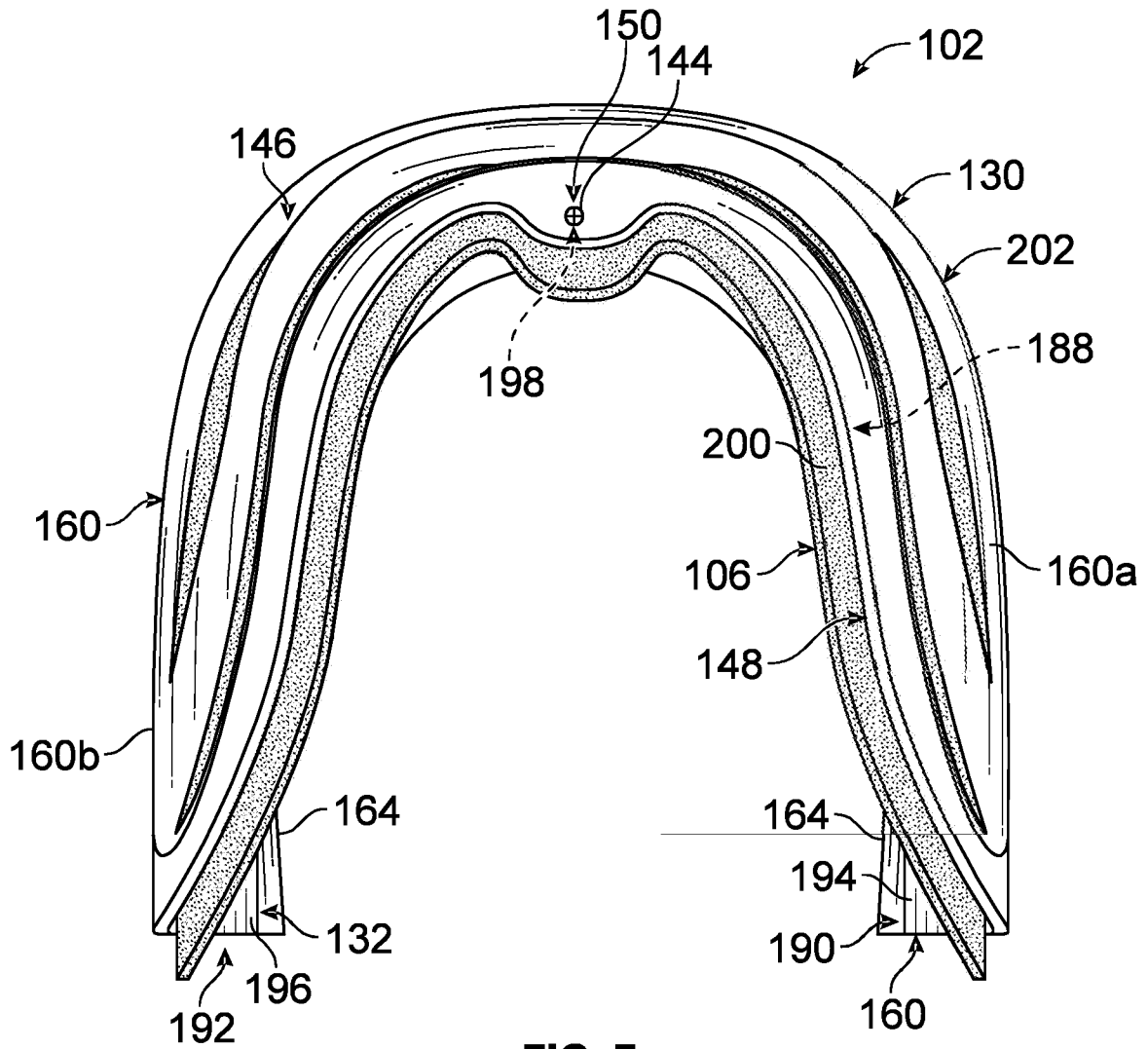


FIG. 7

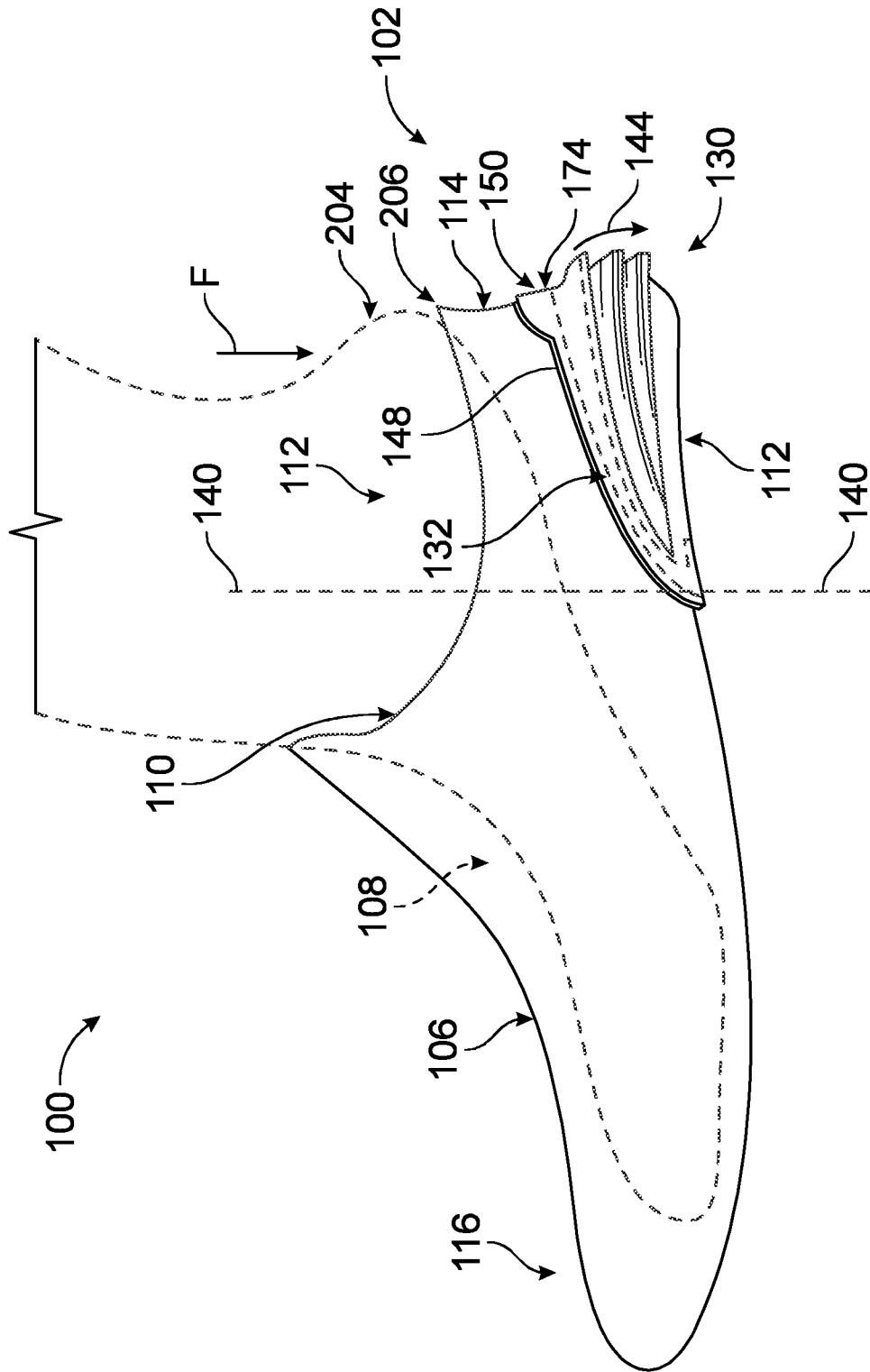


FIG. 8

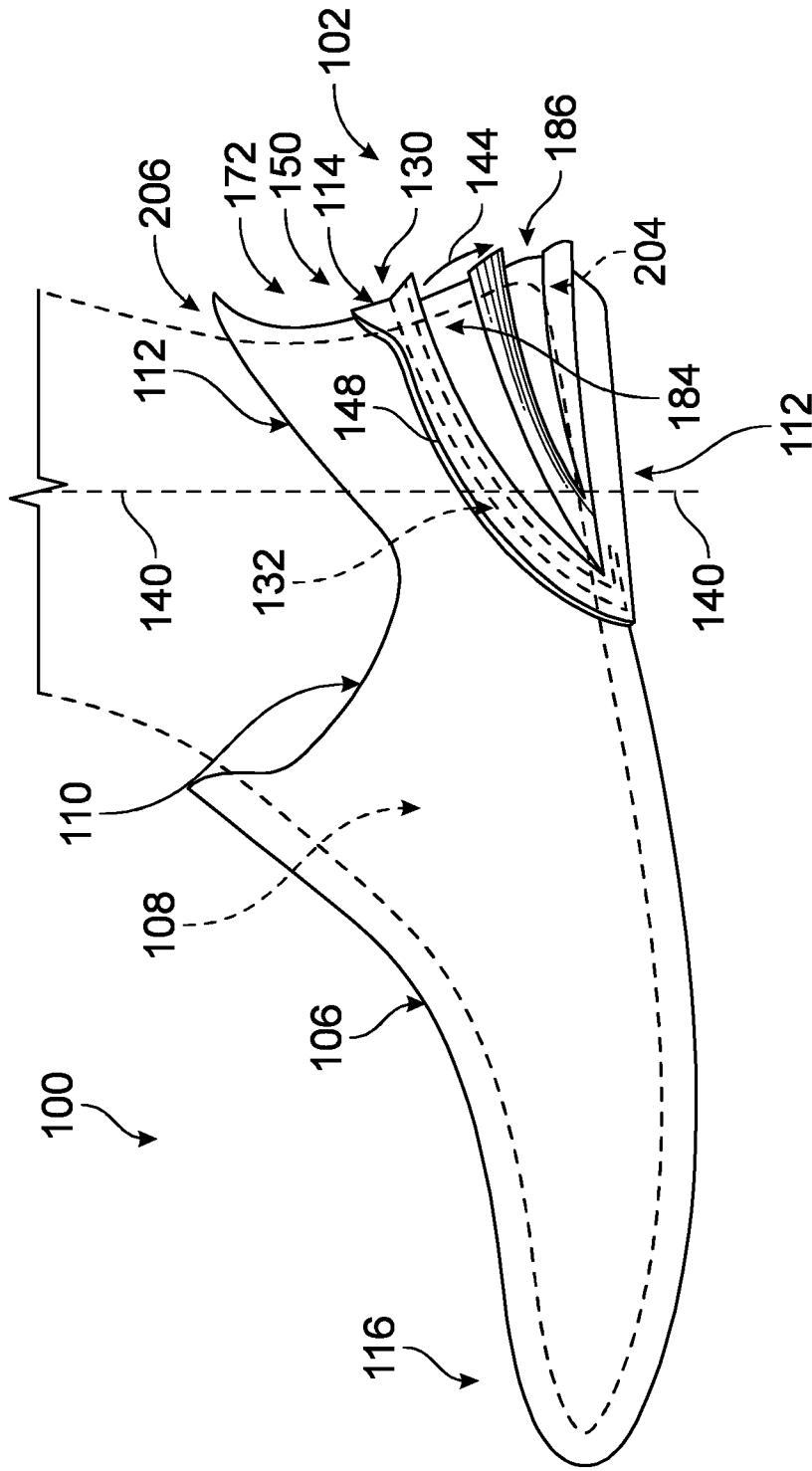


FIG. 9

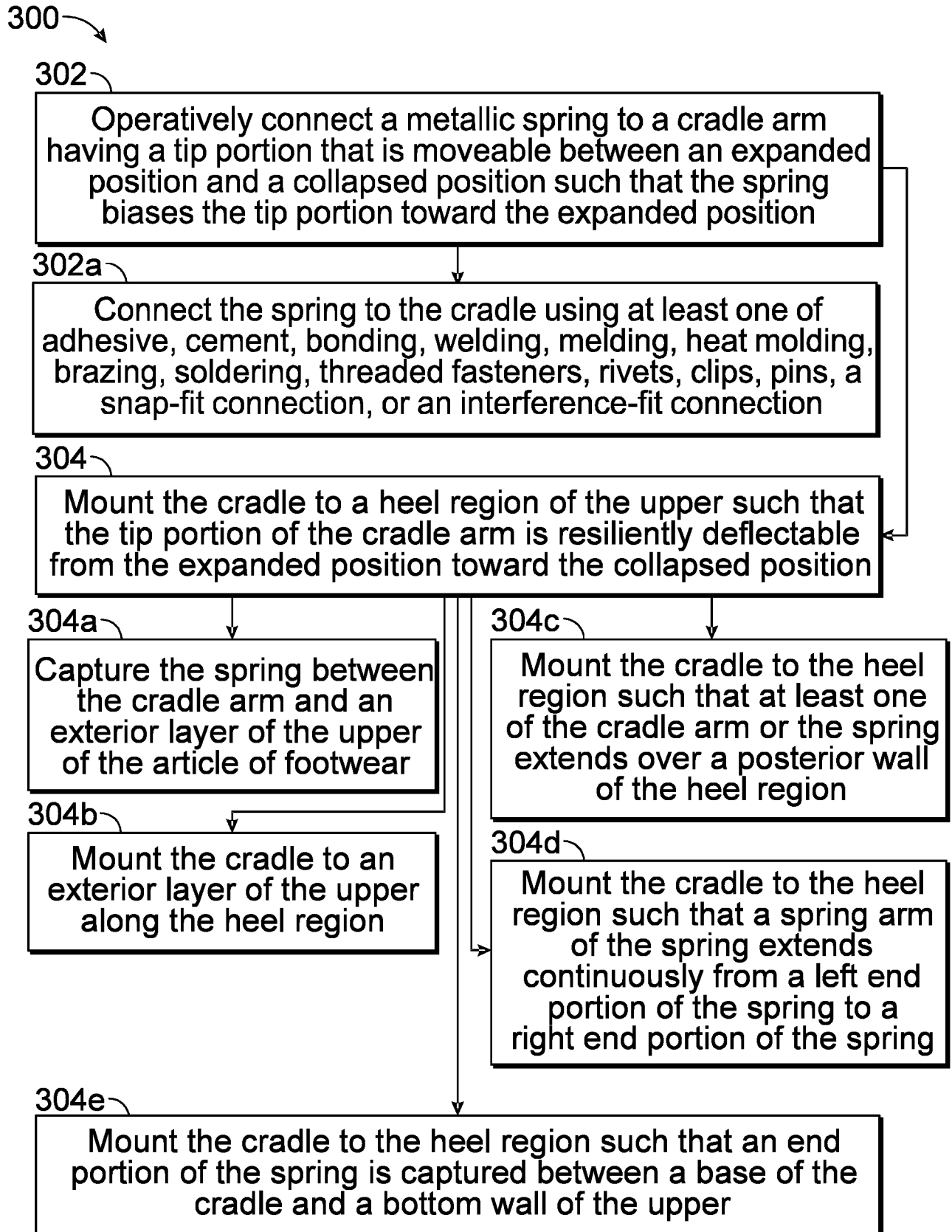


FIG. 10

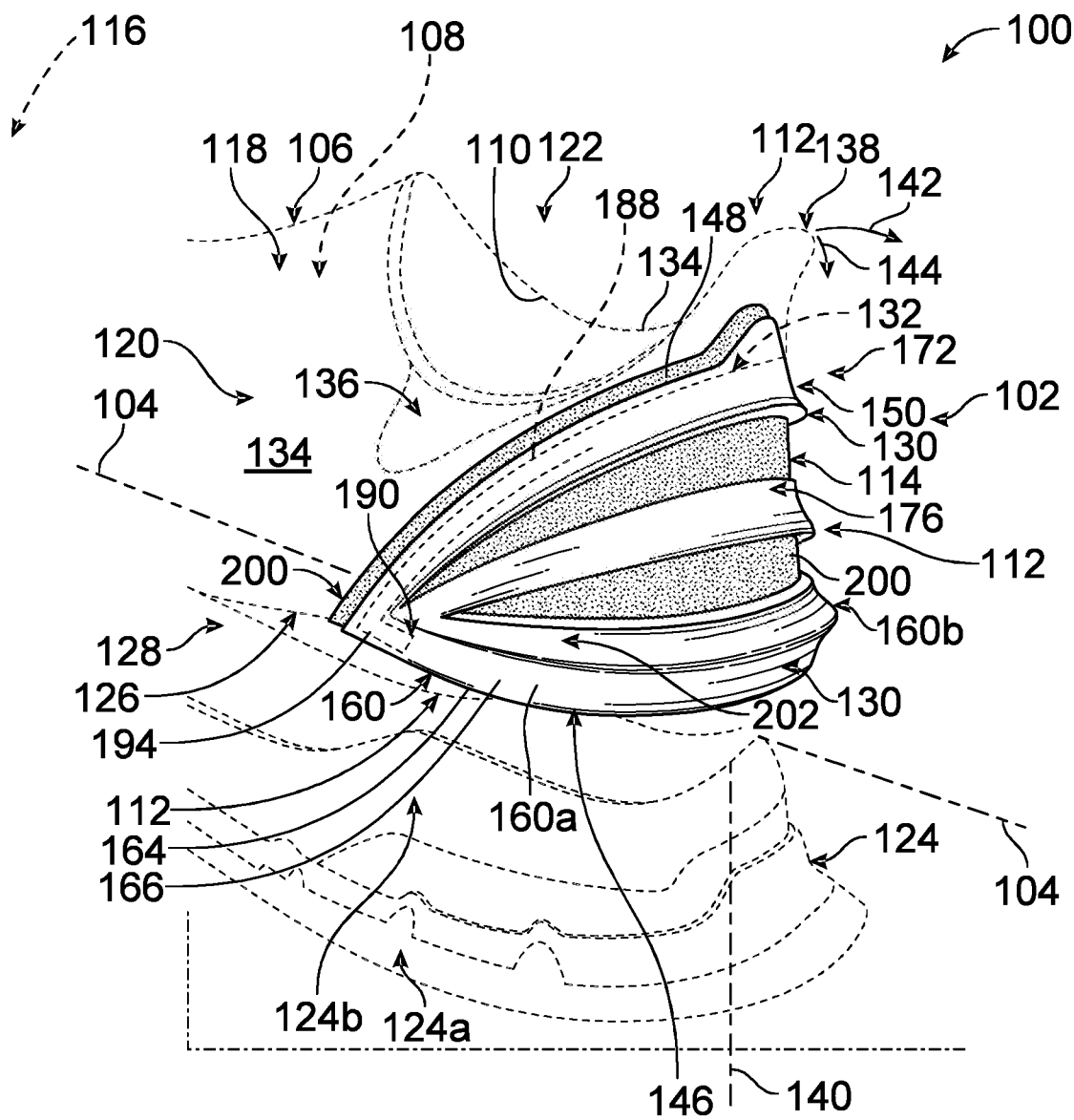


FIG. 1