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(54) **BRAIDED UPPER WITH OVERLAYS FOR ARTICLE OF FOOTWEAR**

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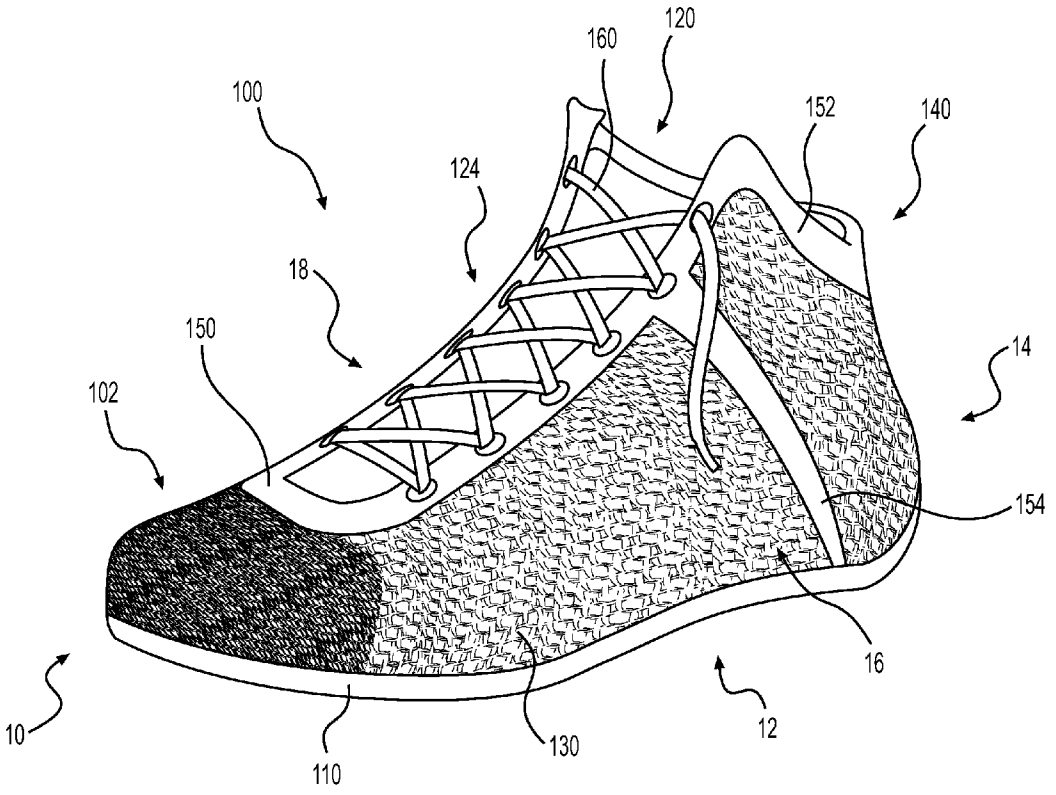
USPC ..... **36/87**; 36/83; 12/142 R

(57) **ABSTRACT**

An article of footwear includes a braided upper with overlay portions. The overlay portions may be applied to edges of the braided upper. The overlay portions can include eyelets to receive a lace. The overlay portions can extend around portions of the upper to reduce stretching and increase support. The overlay portions may facilitate attachment between the braided upper and a sole system.



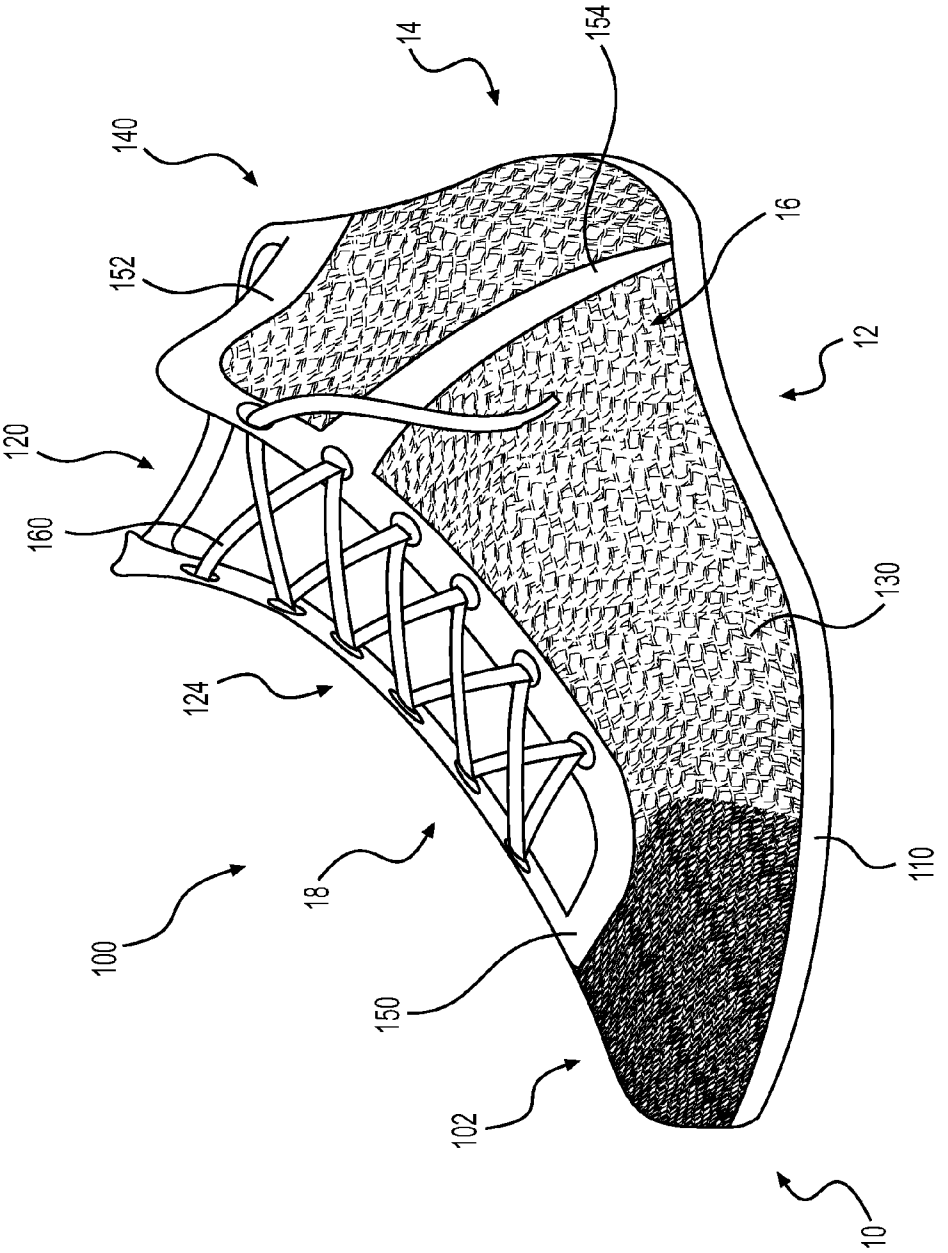


FIG. 1

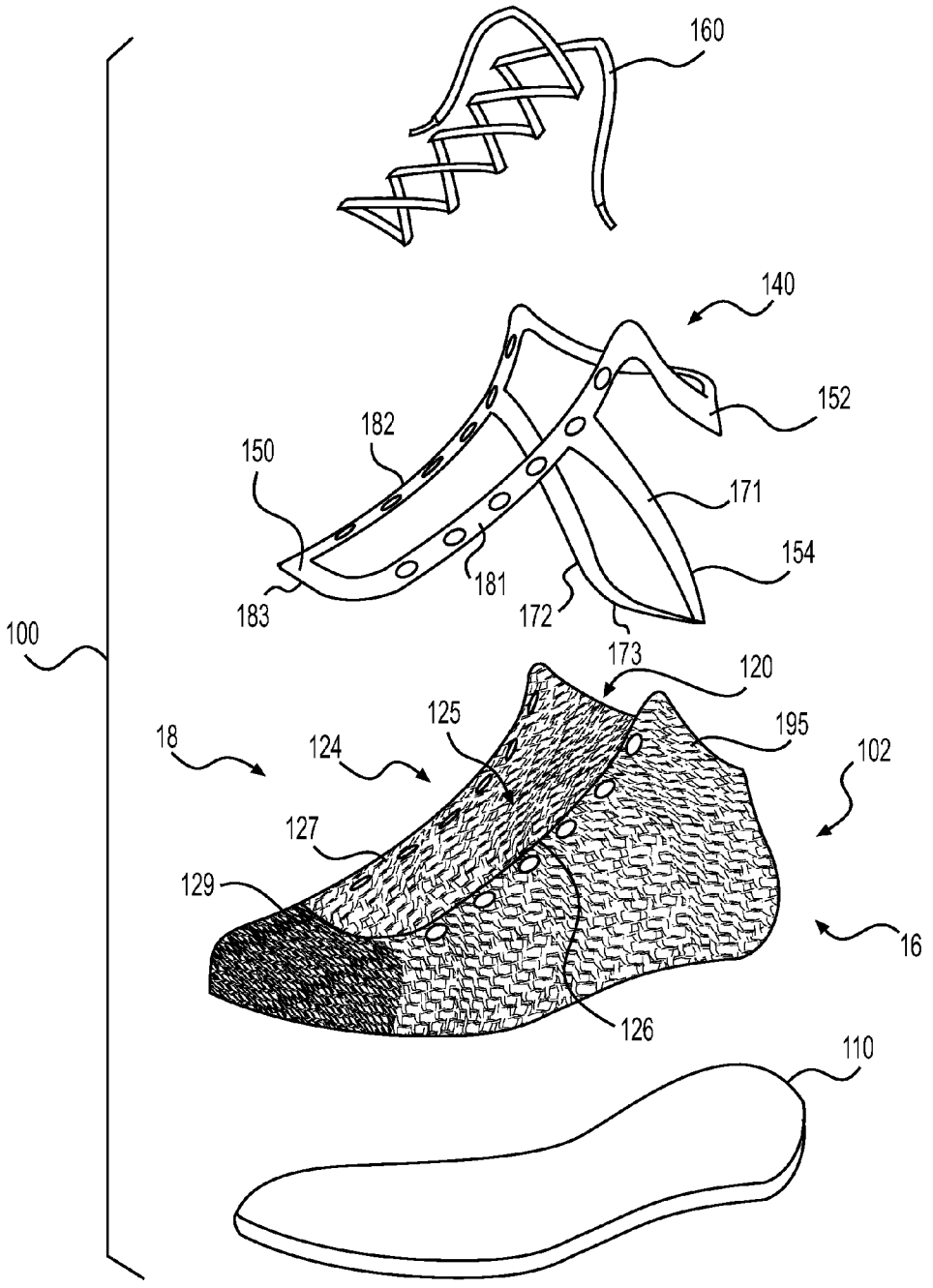

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FIG. 2

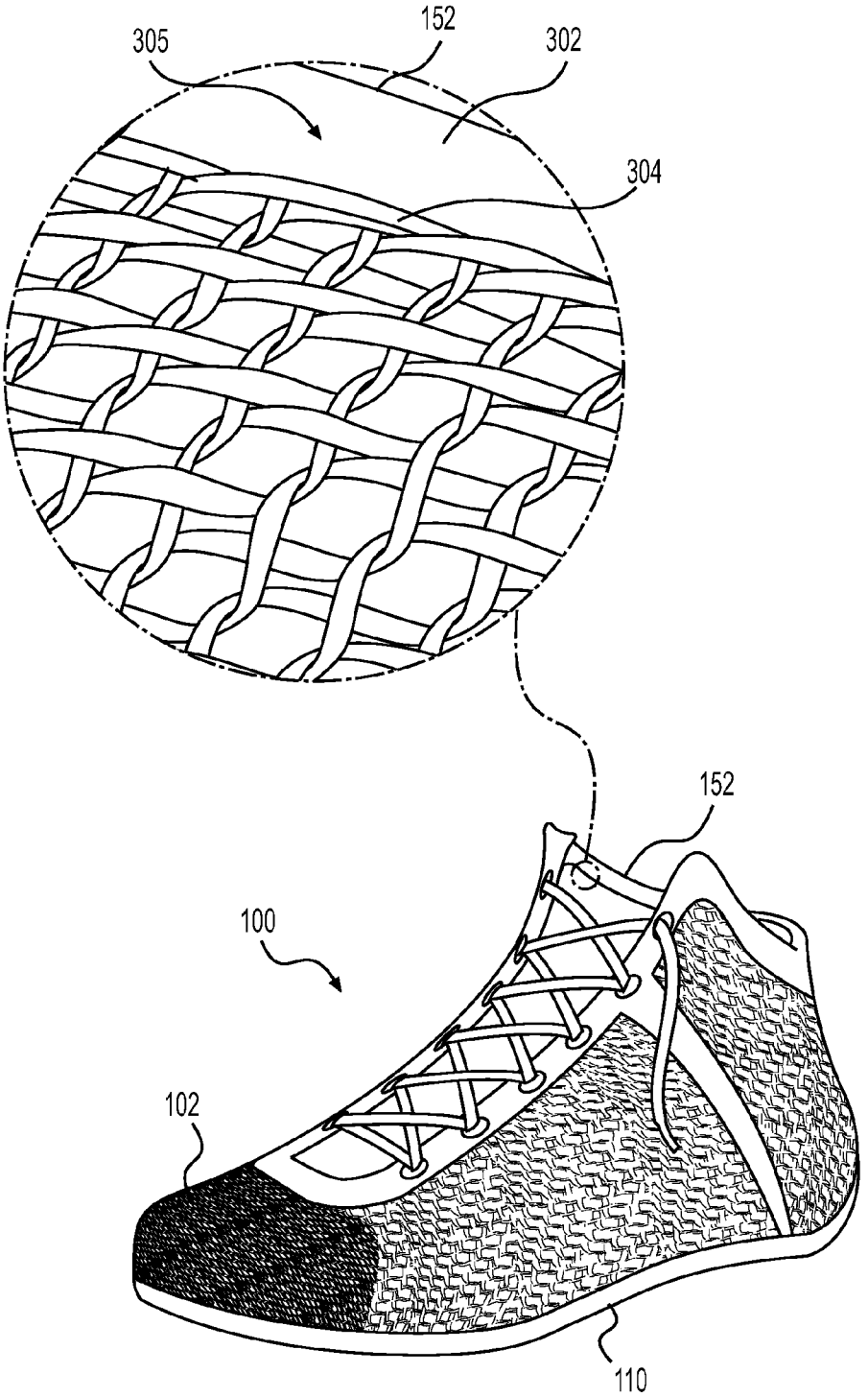

FIG. 3

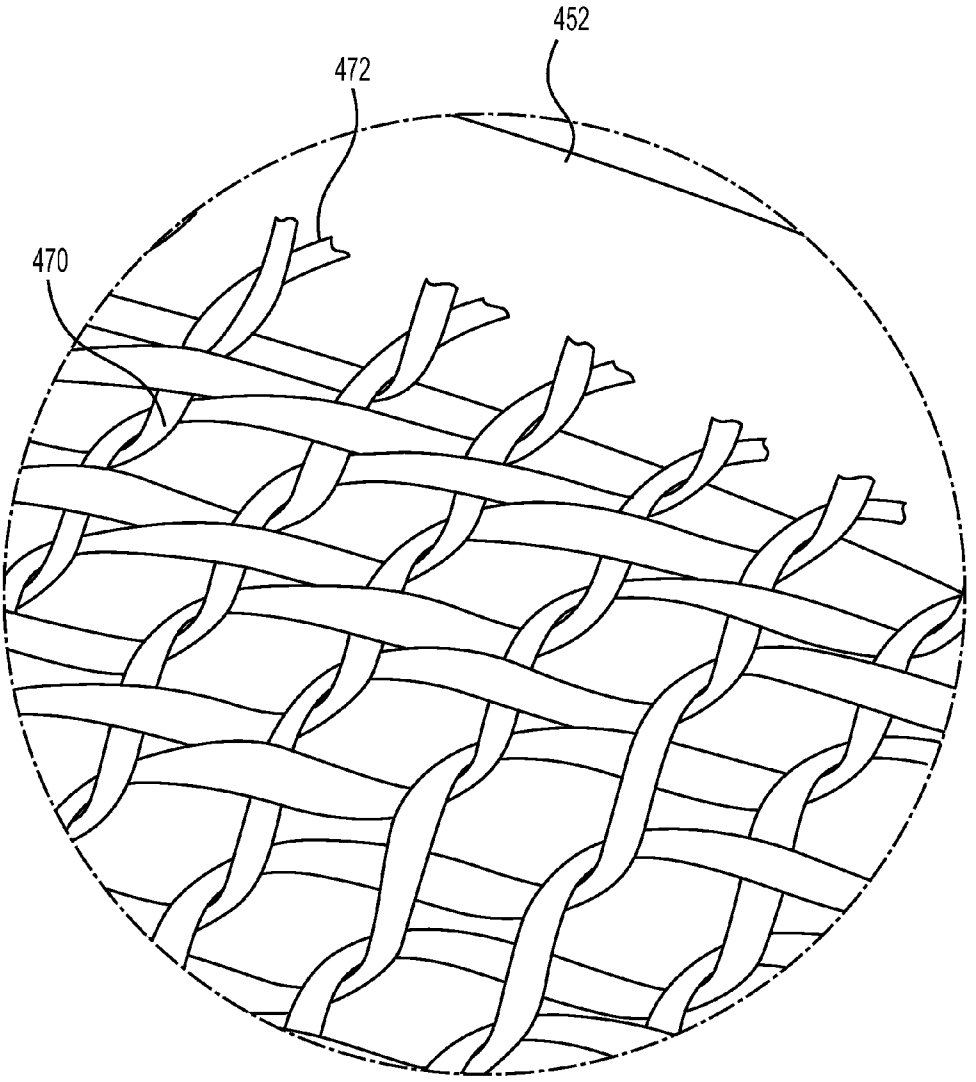

FIG. 4

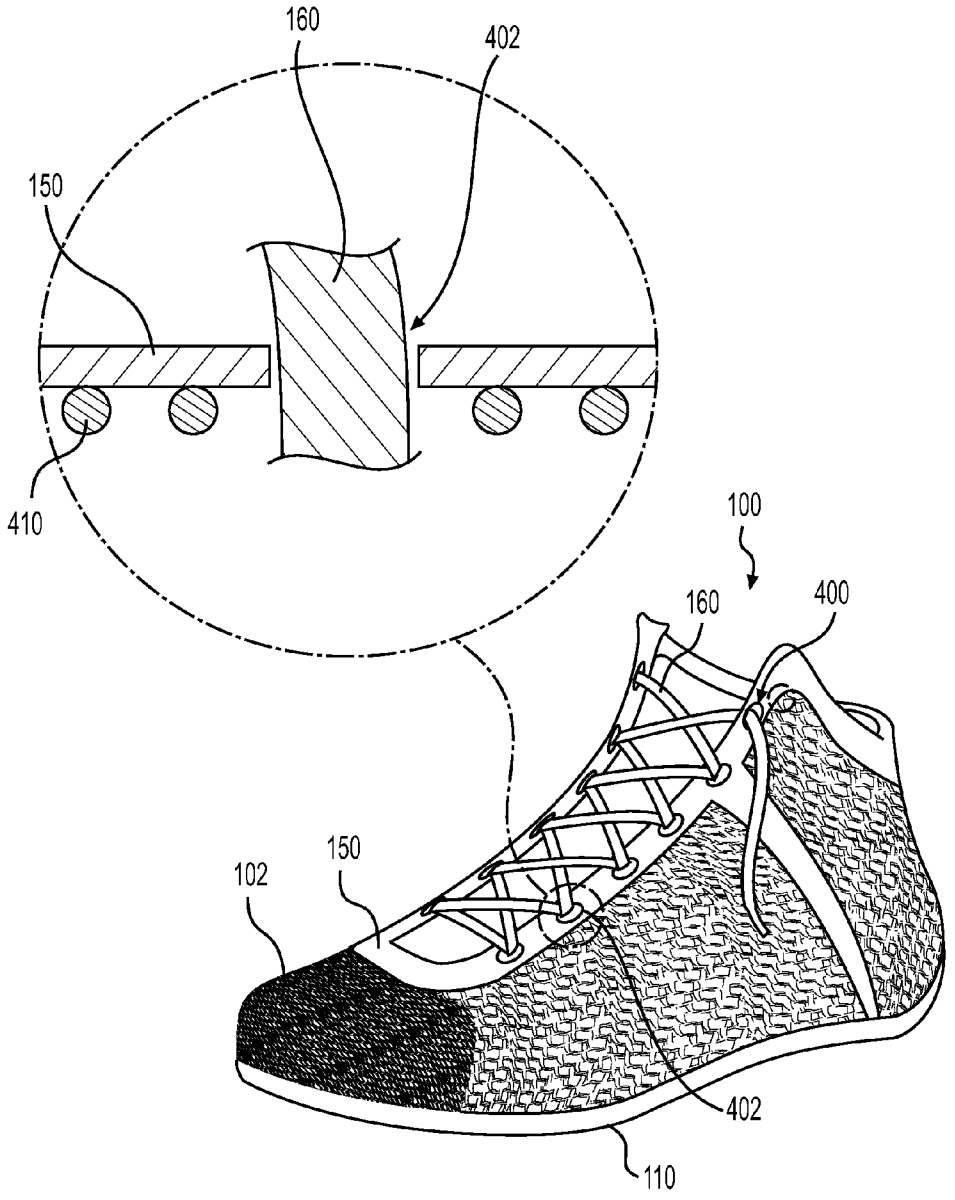

FIG. 5

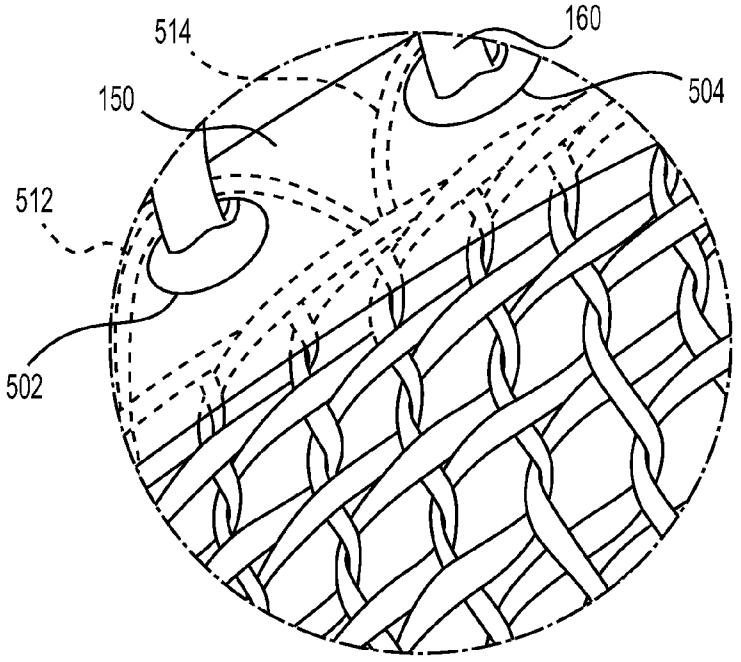

FIG. 6

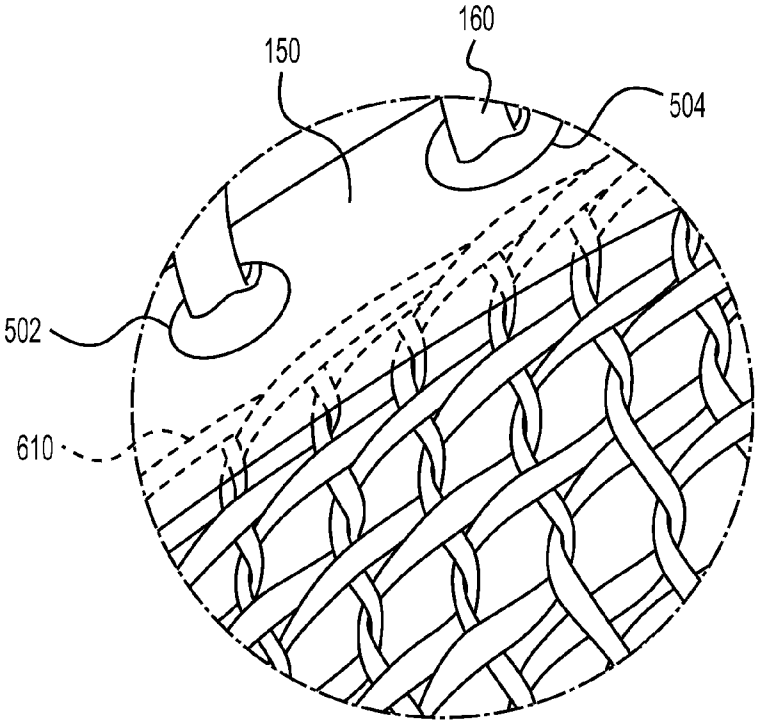

FIG. 7

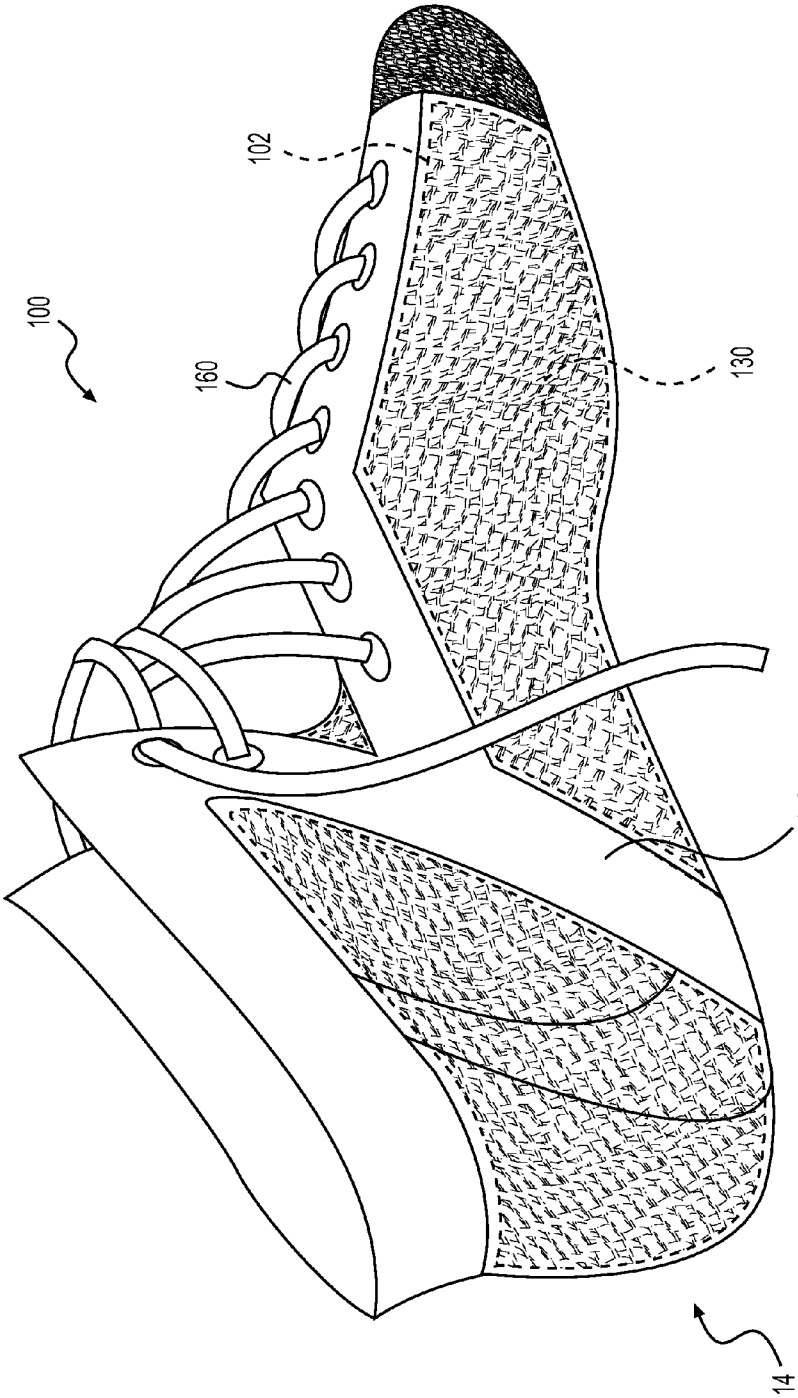

FIG. 8

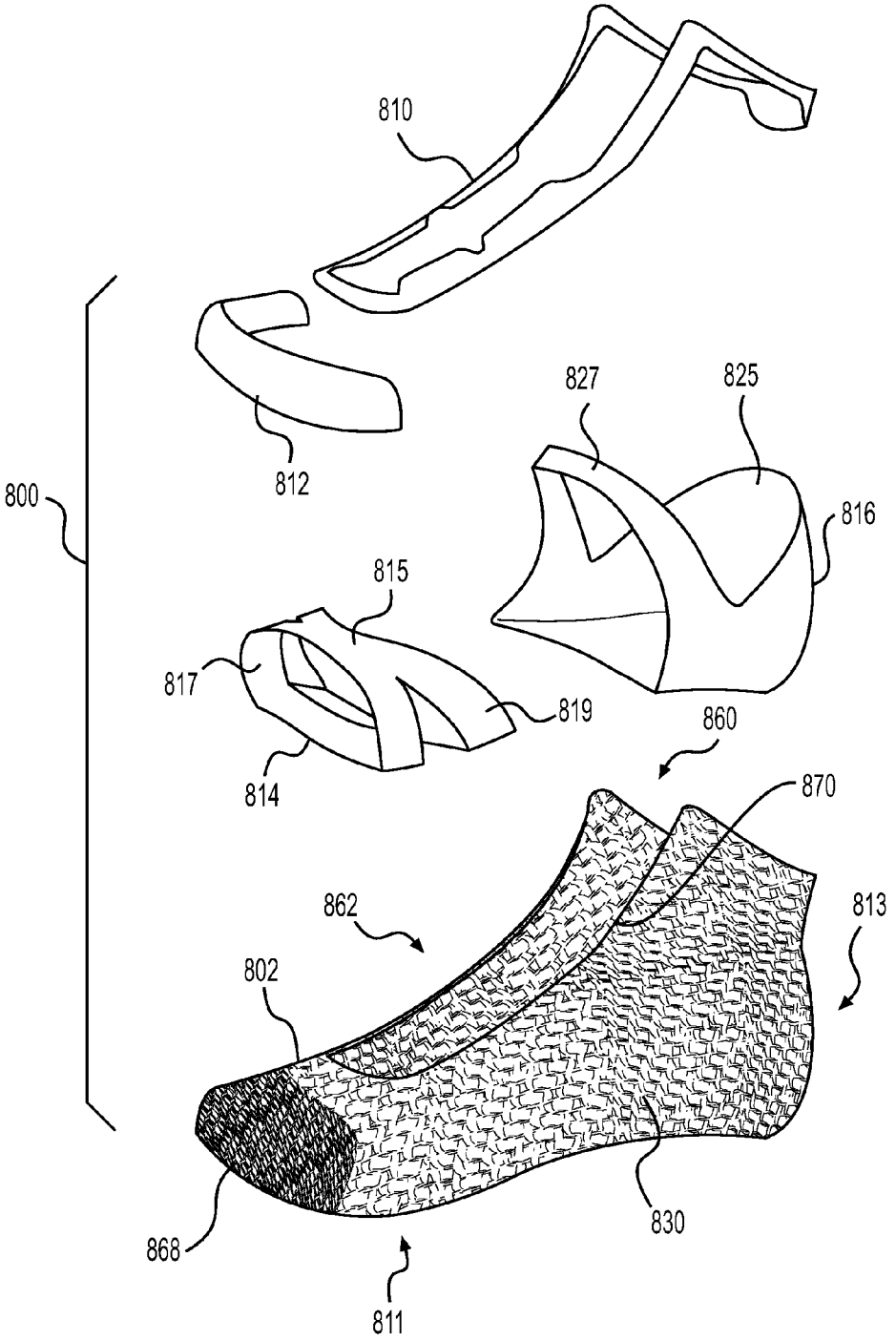
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FIG. 9

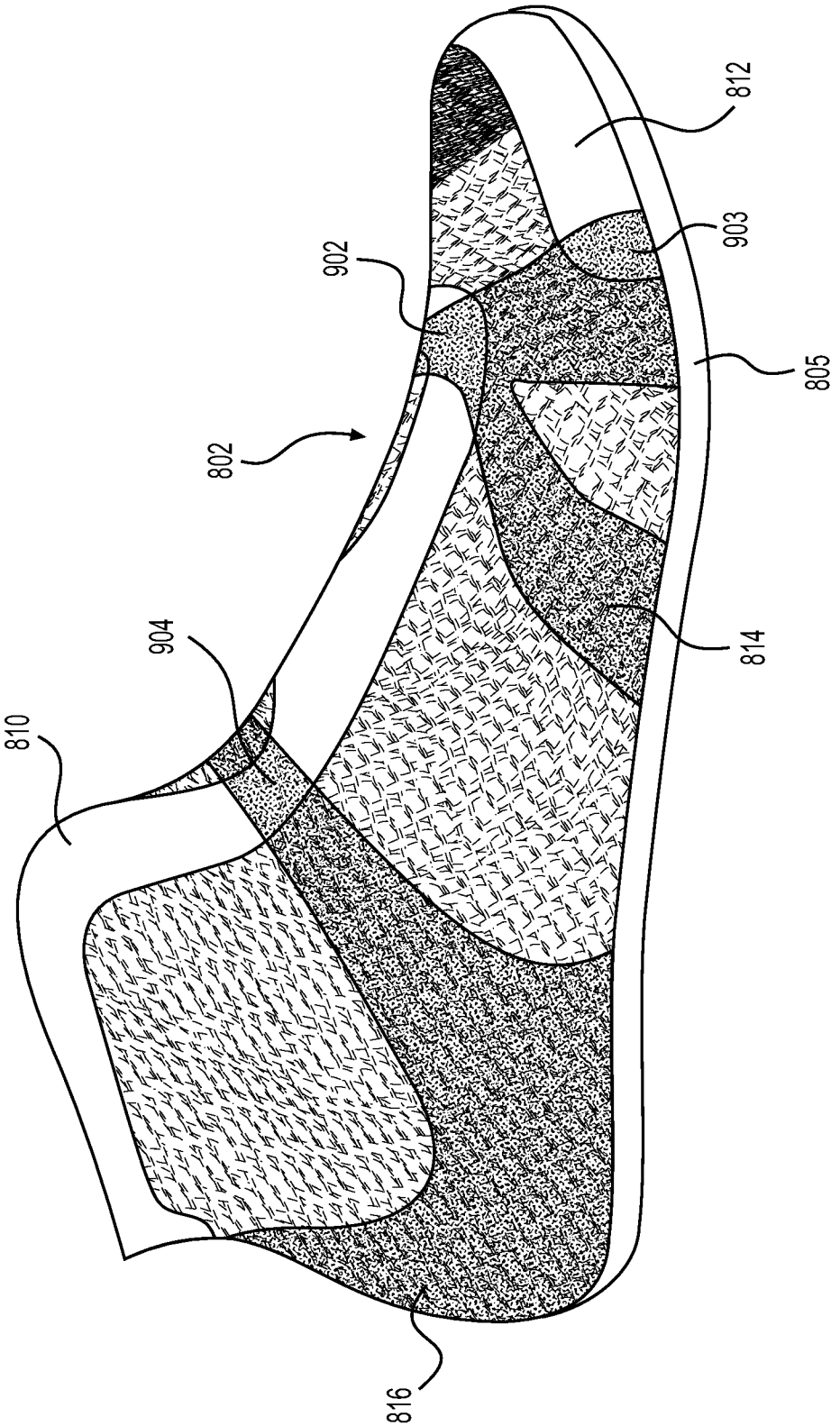

FIG. 10

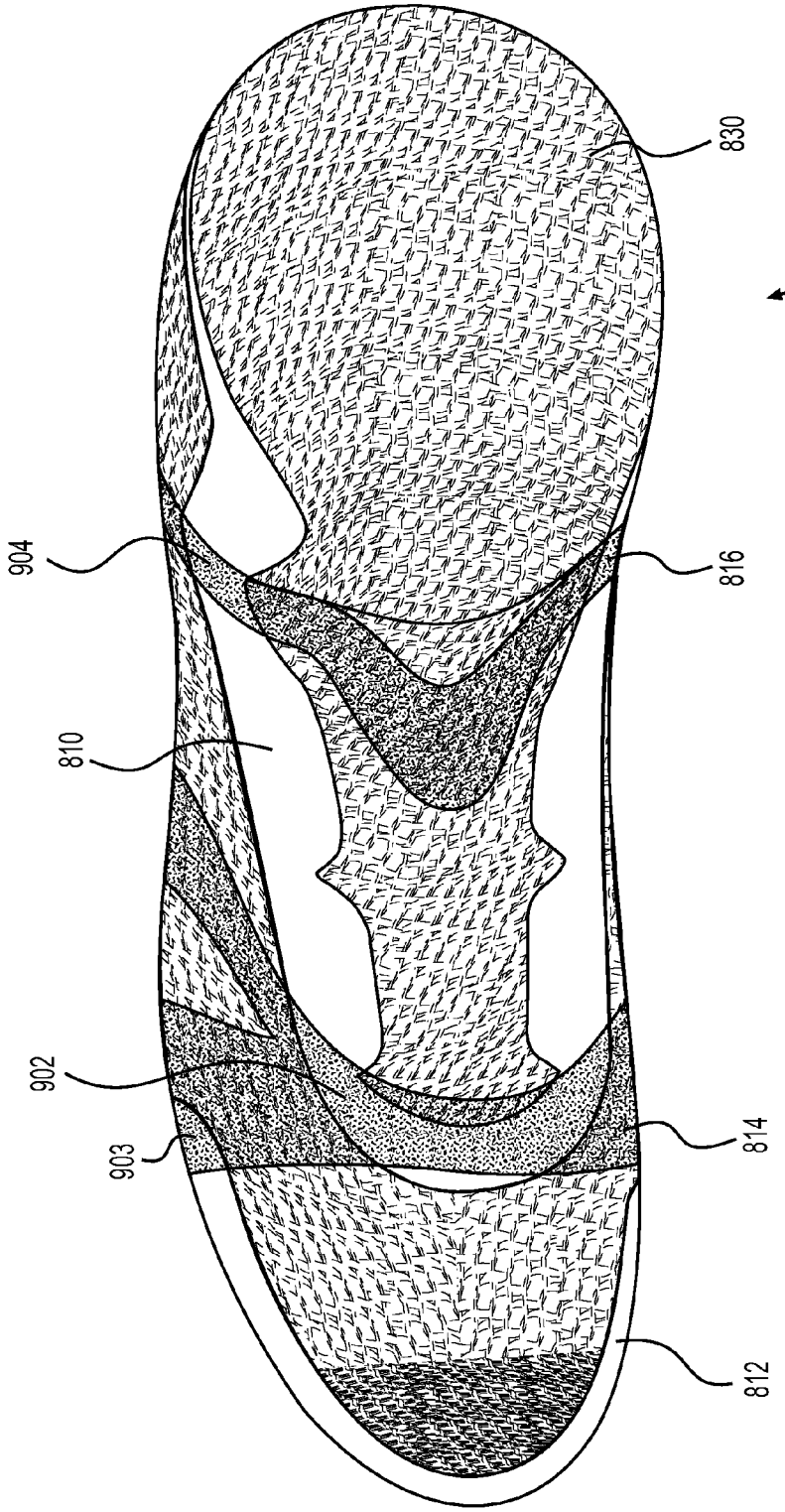

FIG. 11

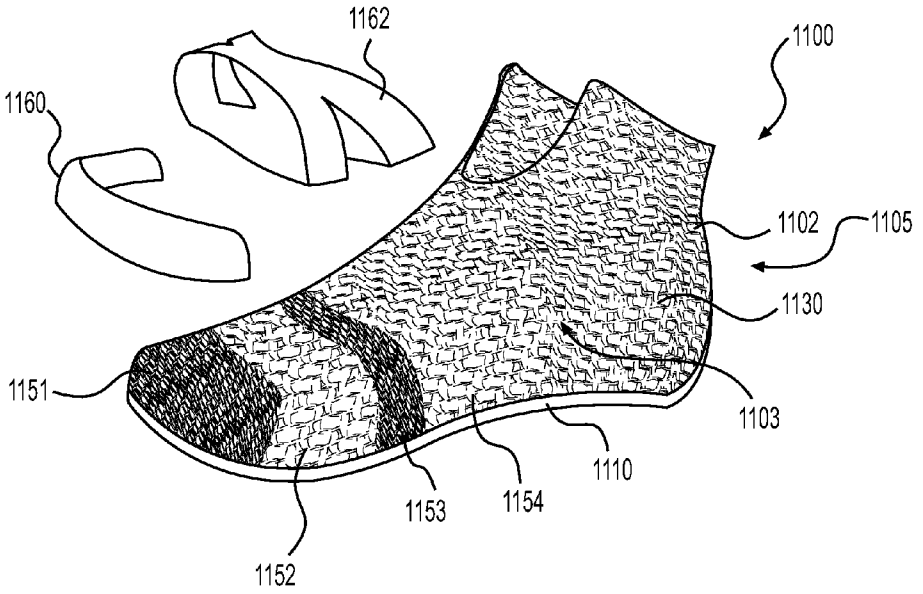
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FIG. 12

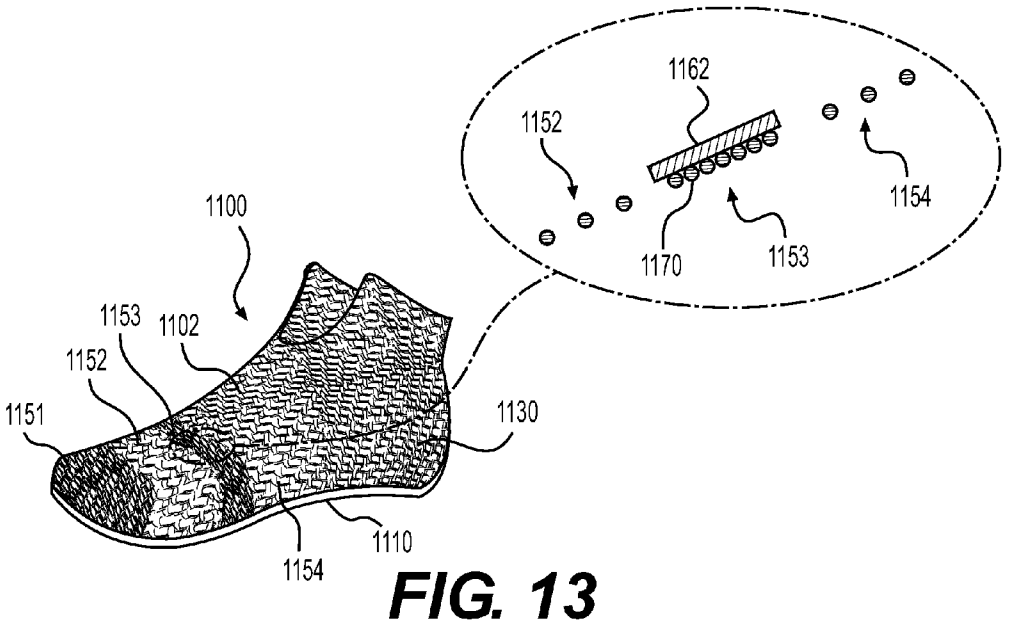
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FIG. 13

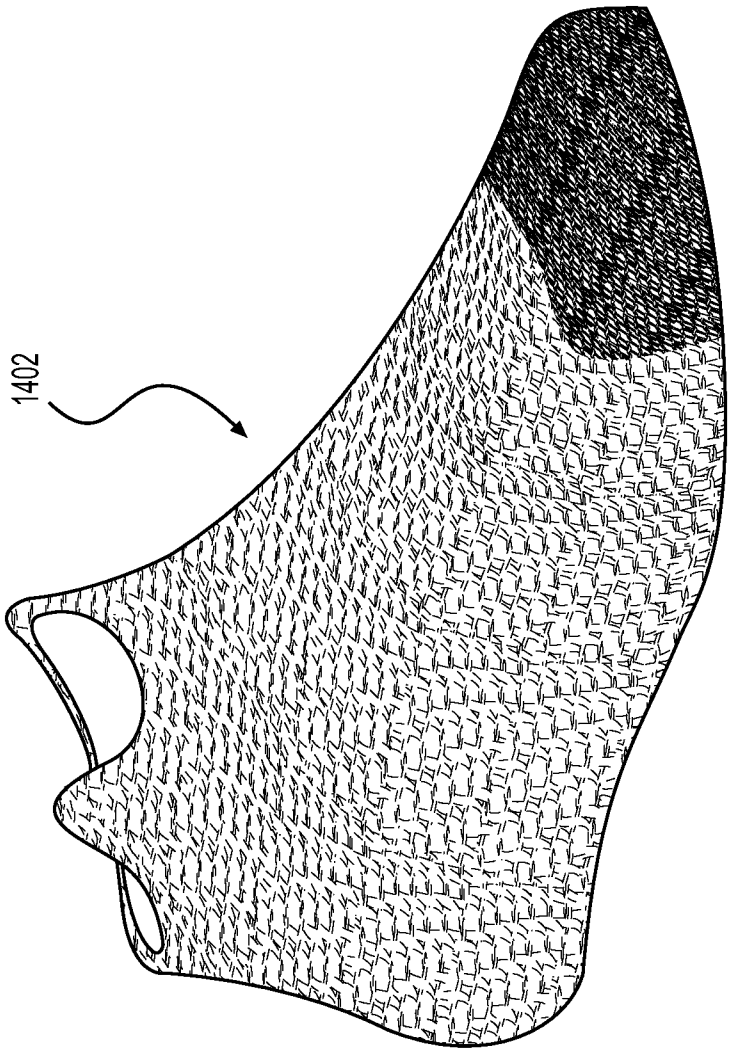

FIG. 14

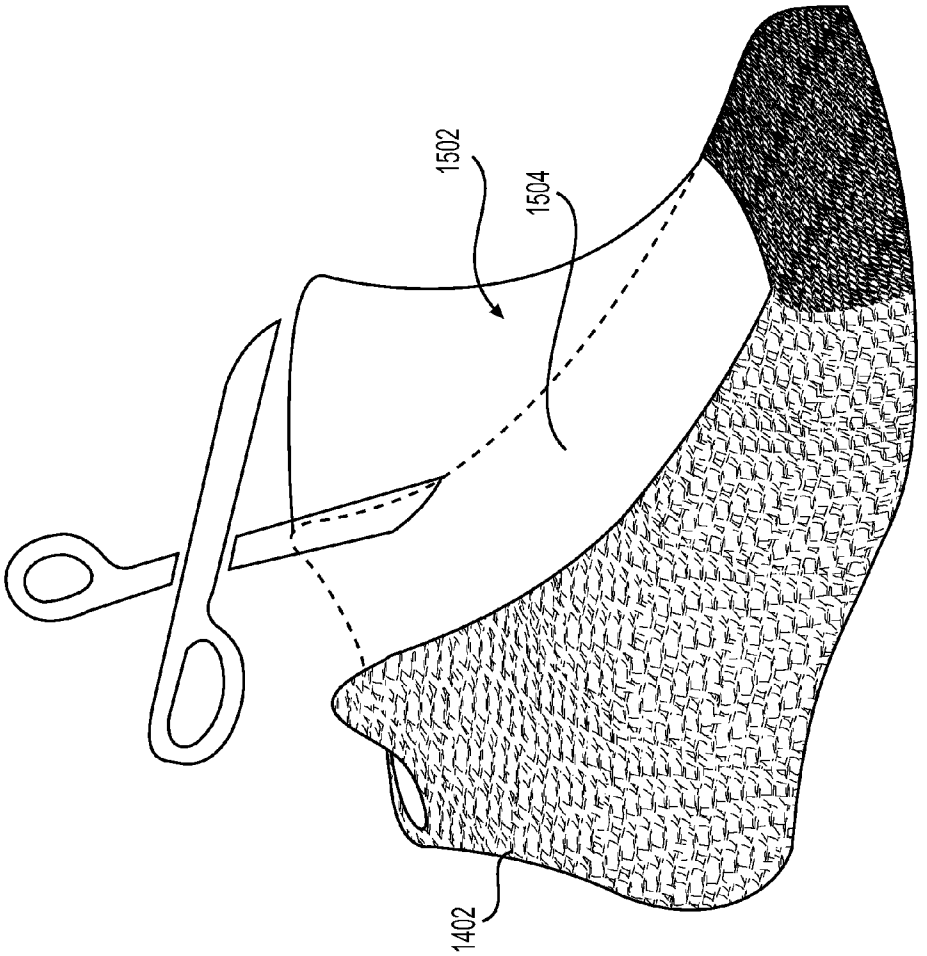

FIG. 15

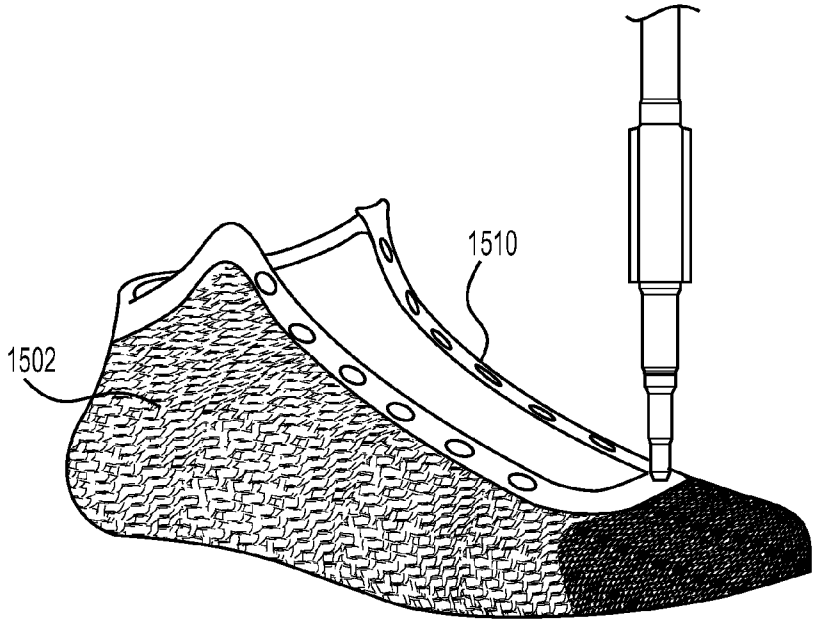

FIG. 16

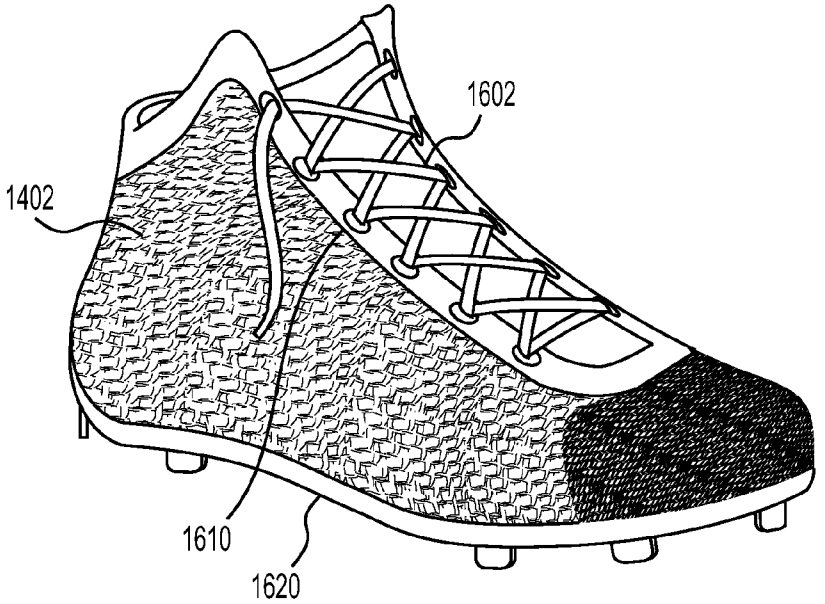

FIG. 17

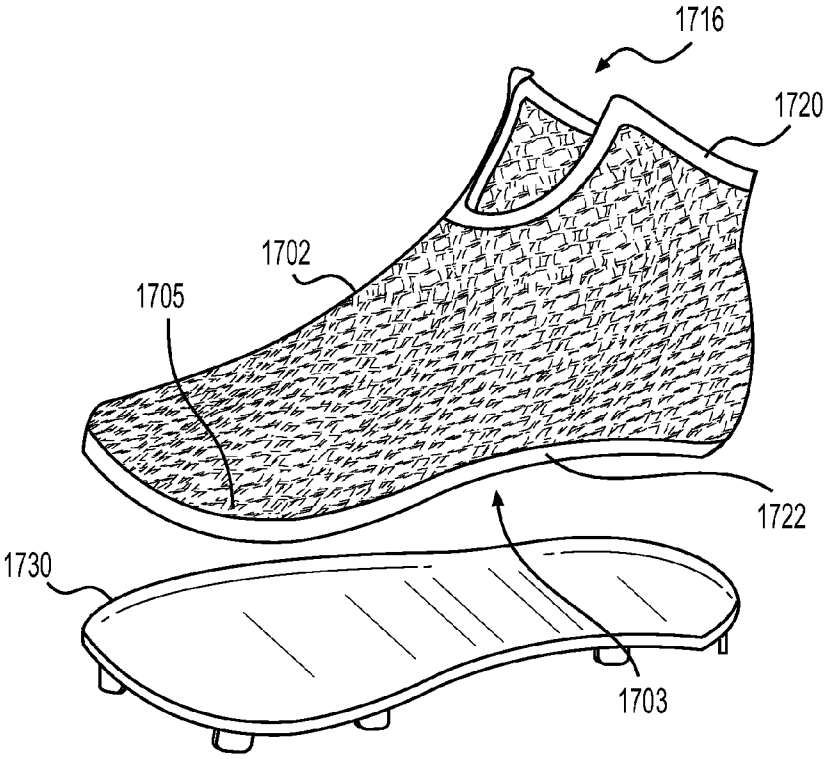
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FIG. 18

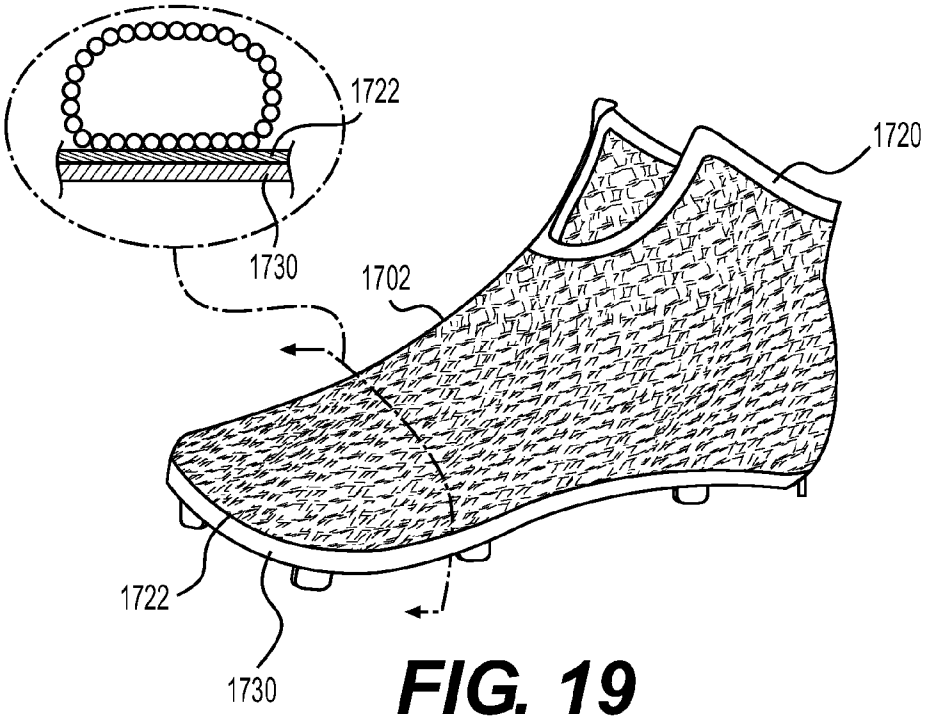
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FIG. 19

BRAIDED UPPER WITH OVERLAYS FOR ARTICLE OF FOOTWEAR

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to U.S. Provisional Patent Application 61/839,097, filed Jun. 25, 2013, and titled "Article of Footwear with Braided Upper" (Attorney Docket No. 51-3210) the entirety of which is herein incorporated by reference and referred to throughout the detailed description as the "Braided Upper" application. This application is also related to co-pending U.S. patent application Publication Number _____, now U.S. patent application Number _____, filed Jan. 24, 2014, and also titled "Article of Footwear with Braided Upper" (Attorney Docket No. 51-3642) the entirety of which is herein incorporated by reference.

BACKGROUND

[0002] The present embodiments relate to articles of footwear and in particular to uppers for articles of footwear.

[0003] Athletic shoes often have two major components, an upper that provides the enclosure for receiving the foot, and a sole secured to the upper. The upper may be adjustable using laces, hook-and-loop fasteners or other devices to secure the shoe properly to the foot. The sole has the primary contact with the playing surface. The sole may be designed to absorb the shock as the shoe contacts the ground or other surfaces. The upper may be designed to provide the appropriate type of protection to the foot and to maximize the wearer's comfort.

SUMMARY

[0004] In one aspect, an article of footwear includes an upper and a sole system, where the upper made of a braided structure and an overlay portion. The overlay portion is bonded to the braided structure the overlay portion is less resistant to stretching than the braided structure.

[0005] In another aspect, an article of footwear includes an upper and a sole system, the upper being further associated with a lacing member. The upper is made of a braided structure and an overlay portion and the overlay portion includes a plurality of eyelets for receiving the lacing member.

[0006] In another aspect, a method of making an article of footwear includes forming a braided structure with an interior cavity, cutting an opening into the braided structure, thereby creating an opening in the braided structure and an edge associated with the opening and bonding an overlay portion to the edge, where the overlay portion includes a plurality of eyelets. The method also includes inserting a lace through the eyelets and associating a sole system with the braided structure to form the article of footwear.

[0007] Other systems, methods, features and advantages of the embodiments will be, or will become, apparent to one of ordinary skill in the art upon examination of the following figures and detailed description. It is intended that all such additional systems, methods, features and advantages be included within this description and this summary, be within the scope of the embodiments, and be protected by the following claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The embodiments can be better understood with reference to the following drawings and description. The components in the figures are not necessarily to scale, emphasis instead being placed upon illustrating the principles of the embodiments. Moreover, in the figures, like reference numerals designate corresponding parts throughout the different views.

[0009] FIG. **1** is a schematic isometric view of an embodiment of an article of footwear including a braided upper with overlays;

[0010] FIG. **2** is an exploded isometric view of the article of footwear of FIG. **1**;

[0011] FIG. **3** is a schematic isometric view of the article of footwear of FIG. **1**, including an enlarged view of strands disposed against the overlay;

[0012] FIG. **4** is a schematic isometric view of another embodiment of an arrangement of strands bonded to an overlay;

[0013] FIG. **5** is a schematic isometric view of the article of footwear of FIG. **1**, including an enlarged cross-sectional view of an eyelet of the overlay;

[0014] FIG. **6** is a schematic enlarged view of an embodiment of an overlay including eyelets, in which each eyelet is partially encircled by a strand of a braided upper;

[0015] FIG. **7** is a schematic enlarged view of another embodiment of an overlay including eyelets, in which strands of a braided upper do not encircle each eyelet;

[0016] FIG. **8** is a schematic rear isometric view of an embodiment of an article of footwear including a braided upper with overlays;

[0017] FIG. **9** is a schematic exploded isometric view of an embodiment of an article of footwear including a braided upper with multiple distinct overlays;

[0018] FIG. **10** is a schematic side view of the article of footwear of FIG. **9**;

[0019] FIG. **11** is a schematic top view of the article of footwear of FIG. **9**;

[0020] FIG. **12** is a schematic isometric view of an embodiment of an article of footwear with two different braided regions and overlays covering the braided regions;

[0021] FIG. **13** is a schematic isometric view of the article of footwear of FIG. **12**, in which a portion of the braided upper and an overlay are seen in cross-section;

[0022] FIG. **14** is a side schematic view of an embodiment of a pre-cut braided structure shaped as an upper for an article of footwear;

[0023] FIG. **15** is a schematic view of a step of cutting the braided structure of FIG. **14** in order to form an opening in the upper, according to an exemplary process;

[0024] FIG. **16** is an isometric view of a step of joining an overlay to the upper of FIG. **15**, according to an exemplary process;

[0025] FIG. **17** is an isometric view of an embodiment of a finished article of footwear constructed using the exemplary process of FIGS. **14-16**;

[0026] FIG. **18** is an isometric view of an embodiment of a braided upper with an overlay on a lower surface being associated with a sole member; and

[0027] FIG. **19** is an isometric view of the braided upper of FIG. **18** joined with the sole member.

DETAILED DESCRIPTION

[0028] FIG. **1** is an isometric view of an embodiment of an article of footwear **100**, also referred to simply as article **100**. Article **100** may be configured for use with various kinds of footwear including, but not limited to: hiking boots, soccer shoes, football shoes, sneakers, running shoes, cross-training

shoes, rugby shoes, basketball shoes, baseball shoes as well as other kinds of shoes. Moreover, in some embodiments article **100** may be configured for use with various kinds of non-sports related footwear, including, but not limited to: slippers, sandals, high heeled footwear, loafers as well as any other kinds of footwear, apparel and/or sporting equipment (e.g., gloves, helmets, etc.).

[0029] In some embodiments, article of footwear **100** may include upper **102** and sole system **110**. Sole system **110** is secured to upper **102** and extends between the foot and the ground when article **100** is worn. In different embodiments, sole system **110** may include different components. For example, sole system **110** may include an outsole, a midsole, and/or an insole. In some cases, one or more of these components may be optional.

[0030] Sole system **110** may provide one or more functions for article **100**. For example, in some embodiments, sole system **110** may be configured to provide traction for article **100**. In addition to providing traction, sole system **110** may attenuate ground reaction forces when compressed between the foot and the ground during walking, running or other ambulatory activities. The configuration of sole system **110** may vary significantly in different embodiments to include a variety of conventional or non-conventional structures. In some cases, the configuration of sole system **110** can be selected according to one or more types of ground surfaces on which sole system **110** may be used. Examples of ground surfaces include, but are not limited to: natural turf, synthetic turf, dirt, as well as other surfaces.

[0031] Generally, upper **102** may be any type of upper. In particular, upper **102** may have any design, shape, size and/or color. For example, in embodiments where article **100** is a basketball shoe, upper **102** could be a high top upper that is shaped to provide high support on an ankle. In embodiments where article **100** is a running shoe, upper **102** could be a low top upper.

[0032] Referring to FIG. **1**, for purposes of reference, components of article **100**, such as upper **102**, may be divided into forefoot portion **10**, midfoot portion **12** and heel portion **14**. Forefoot portion **10** may be generally associated with the toes and joints connecting the metatarsals with the phalanges. Midfoot portion **12** may be generally associated with the arch of a foot. Likewise, heel portion **14** may be generally associated with the heel of a foot, including the calcaneus bone. In addition, upper **102** may include lateral side **16** and medial side **18**. In particular, lateral side **16** and medial side **18** may be opposing sides of article **100**. Furthermore, both lateral side **16** and medial side **18** may extend through forefoot portion **10**, midfoot portion **12** and heel portion **14**.

[0033] It will be understood that forefoot portion **10**, midfoot portion **12** and heel portion **14** are only intended for purposes of description and are not intended to demarcate precise regions of upper **102**. Likewise, lateral side **16** and medial side **18** are intended to represent generally two sides of upper **102**, rather than precisely demarcating upper **102** into two halves.

[0034] For consistency and convenience, directional adjectives are employed throughout this detailed description corresponding to the illustrated embodiments. The term "longitudinal" as used throughout this detailed description and in the claims refers to a direction extending a length of a component. For example, the longitudinal direction of upper **102** may extend from forefoot portion **10** to heel portion **14** of upper **102**. Also, the term "lateral" as used throughout this detailed description and in the claims refers to a direction extending along a width of a component. For example, the lateral direction of upper **102** may extend between medial side **18** and lateral side **16** of upper **102**. Additionally, the term "vertical" as used throughout this detailed description and in the claims refers to a direction that is perpendicular to both the longitudinal and lateral directions.

[0035] In addition, the term "proximal" refers to a portion of a footwear component that is closer to a portion of a foot when an article of footwear is worn. Likewise, the term proximal direction refers to a direction oriented towards a foot when an article is word. The term "distal" refers to a portion of a footwear component that is further from a portion of a foot when an article of footwear is worn. The distal direction refers to a direction oriented away from a foot when an article is worn.

[0036] In some embodiments, upper **102** may be comprised of a braided structure, such as a braided fabric or other braided structure. Braided structures can be formed by intertwining three or more strands of yarn, filaments or other fibers to form the structure. As an example, upper **102** as seen in FIG. **1** is formed from a plurality of strands **130** that are braided together to form a shape that is globally similar to the shape of a foot.

[0037] Braiding can be used to form three-dimensional structures, by braiding strands of yarn over a form or a last. Strands of the braided structure, such as plurality of strands **130** of the exemplary embodiment, can be fabricated from fibers such as nylon, carbon, polyurethane, polyester, cotton, aramid (e.g., Kevlar®), polyethylene or polypropylene. These strands can be braided to form three-dimensional structures for a wide variety of applications.

[0038] Braided structures may be fabricated manually, or may be manufactured using automated braiding machinery, such as the machinery disclosed in U.S. Pat. Nos. 7,252,028; 8,261,648; 5,361,674; 5,398,586; and 4,275,638, all of which are incorporated by reference in their entirety herein. Such three-dimensional braided structures may also be manufactured to a specific design by, for example, TEF Braids, Warrensburg, N.Y. or A&P Technology, Cincinnati, Ohio.

[0039] By using braiding, uppers for articles of footwear may be engineered with specific features tailored to a particular athletic or recreational activity. Braided uppers can be very light while conforming closely and comfortably to the wearer's feet. In some embodiments, the fit of the upper may be adjusted to provide the specific degree of tension or tightness the wearer may prefer. Braided uppers are characterized by close containment over the wearer's foot. In some embodiments, the braided fabric may wrap all the way around the footwear, as shown in the figures. Such a structure has tensional integrity or "tensegrity," since the wearer's foot is in compression, while the braided strands are in tension around the wearer's foot.

[0040] Some embodiments may include braided uppers that extend beneath the foot, thereby providing 360 degree coverage at some regions of the foot. However, other embodiments need not include uppers that extend beneath the foot. In other embodiments, for example, a braided upper could have a lower periphery joined with a sole structure and/or sock liner.

[0041] FIG. **2** illustrates an exploded isometric view of an embodiment of article **100**, including upper **102** which is comprised of a braided structure. Referring to FIGS. **1-2**, upper **102** is seen to have an opening **120** that may receive a

foot. Additionally, upper **102** has a fastening region **124**. Fastening region **124** may further include a fastening gap **125** that separates a lateral fastening edge **126** from a medial fastening edge **127** (see FIG. **2**).

[0042] Fastening region **124** may be further associated with that a fastening member **160**. In the exemplary embodiment, fastening member **160** may be a lace. In other embodiments, however, fastening member **160** could be any other kind of fastener including but not limited to, straps, snaps, buttons, zippers, hook and loop fasteners (e.g., Velcro), as well as other kinds of fasteners.

[0043] Embodiments utilizing braided uppers can include provisions to help provide additional structure to the upper. In some embodiments, for example, an article may include one or more additional material portions that are bonded or otherwise attached to specific portions of the braided upper in order to enhance various characteristics of the upper. For example, these material portions may be used to increase strength and durability, provide stretch resistance at certain locations of the upper and facilitate the joining of other components with the braided structure.

[0044] Throughout the detailed description and in the claims, the term "overlay portion", or simply overlay, refers to any portion of material that is attached to a surface of a braided structure, such as a braided upper. In some embodiments, an overlay portion is comprised of a distinct material from the strands of the braided structure. Moreover, in some embodiments, an overlay portion may have substantially different material characteristics from the strands of the braided structure. In an exemplary embodiment, an overlay portion may resist stretching in comparison to a corresponding portion of a braided structure.

[0045] Generally, an overlay portion may be formed of any material. Exemplary materials include, but are not limited to: fabrics (including woven and non-woven fabrics), leathers (including natural and synthetic leathers), polymer materials, as well as other kinds of materials. In one embodiment, one or more overlay portions may be made of thermoplastic polyurethane (TPU).

[0046] In an exemplary embodiment, article **100** may be associated with overlay component **140**. Overlay component **140** may be further comprised of several different overlay portions, including a first overlay portion **150**, a second overlay portion **152** and a third overlay portion **154**. Each overlay portion may be provided at a specific location on upper. For example, first overlay portion **150** may be associated with fastening region **124** of upper **102**. Likewise, second overlay portion **152** may be associated with opening **120**. Finally, third overlay portion **154** may be associated with heel portion **14** as well as portions of both lateral side **16** and medial side **18** of upper **102**.

[0047] Referring now to FIG. **2**, in some embodiments, first overlay portion **150** extends along the edges of fastening region **124**. In particular, first overlay portion **150** includes a first section **181** that is associated with lateral fastening edge **126** of fastening region **124**. Also, first overlay portion **150** includes a second section **182** that is associated with medial fastening edge **127** of fastening region **124**. In some embodiments, an intermediate section **183** runs along a forward most edge **129** of fastening region **124** and joins first section **181** and second section **182** of first overlay portion **150**.

[0048] With this configuration, first overlay portion **150** may form, or form part of, the lateral and medial eyestays for upper **102**. In particular, first overlay portion **150** may facilitate the attachment of upper **102** with fastening member **160**. As discussed in further detail below, the use of overlay portions along the edges of fastening region **124** may help to more evenly distribute the tensioning forces applied by fastening member **160** to upper **102**.

[0049] In at least some embodiments, first overlay portion **150** may help finish the braided structure of upper **102** along lateral fastening edge **126**, medial fastening edge **127** and forward most edge **129** of fastening region **124**. Specifically, in embodiments where the strands of the braided structure may be open at any of lateral fastening edge **126**, medial fastening edge **127** or forward most edge **129**, first overlay portion **150** may help to bond, fuse or otherwise hold the ends of the strands in place in order to prevent unraveling of the strands along these edges.

[0050] In some embodiments, second overlay portion **152** extends along the edges of opening **120**. In particular, second overlay portion **152** is associated with opening edge **195**. In some embodiments, moreover, second overlay portion **152** is substantially continuous with first overlay portion **150**, such that all of the edges of upper **102** associated with opening **120** and/or the opening at fastening region **124** are covered by first overlay portion **150** or second overlay portion **152**.

[0051] This arrangement helps to finish opening edge **195** by bonding any open strands to second overlay portion **152**. In addition, second overlay portion **152** may help reinforce opening **120**, so that the braided structure in the vicinity of opening **120** may not be overly stretched. Such reinforcement may be especially useful at opening **120**, since opening **120** may undergo a great deal of pulling and other stress as a user inserts and/or removes his or her foot.

[0052] In some embodiments, third overlay portion **154** may include a first section **171** that extends along lateral side **16** and a second section **172** that extends along medial side **18** of upper **102**. Additionally, a third section **173** of third overlay portion **154** may extend beneath (e.g., on a lower side of) upper **102** at heel portion **14**. In some embodiments, third section **173** joins first section **171** and second section **172** so that third overlay portion **154** wraps continuously around the sides and bottom of upper **102**.

[0053] In some embodiments, first section **171** of third overlay portion **154** extends from, and is continuously formed with, first section **181** of first overlay portion **150**. Additionally, in some embodiments, second section **172** of third overlay portion **154** extends from, and is continuously formed with, second section **182** of first overlay portion **150**. Because third overlay portion **154** may act to reduce stretching along its length, this configuration may help increase support under the heel by resisting stretching of the upper between first overlay portion **150** (at the top of the foot) and the lower side **199** (see FIG. **8**) of heel portion **14**.

[0054] FIG. **3** illustrates an enlarged view of a portion of article **100** where some strands may be bonded to a second overlay portion **152**. Referring to FIG. **3**, some strands **304** may be disposed against inner surface **302** second overlay portion **152**. In this exemplary embodiment, strands **304** may form part of a closed woven edge **305** of upper **102** that lacks any loose or free ends of strands. In this case, strands **304** may be bonded to second overlay portion **152** to reinforce the continuously woven section of the braided structure.

[0055] In an alternative embodiment, shown in FIG. **4**, some strands **470** may be configured with loose or free ends **472**. In this configuration, open ends **472** may be secured to overlay portion **452** in order to keep strands **470** in place and

help prevent strands **470** from loosening or unraveling. Thus it can be seen that in some embodiments, an overlay portion may be used to retain the loose or free ends associated with the edge of a braided structure. Such an arrangement may provide a means of finishing cut edges of the braided structure, or any edges that include loose or free ends that might unravel.

[0056] The arrangement described here provides an overlay portion that may act to reinforce the edge of the braided structure at opening **120**. This may help reduce stretching of upper **102** at opening **120**, in order to preserve the structural integrity of upper **102**. In addition, second overlay portion **152** may help secure any loose or open ends of the braided structure to prevent fraying of the ends and/or unraveling of the braided structure.

[0057] Various processes for bonding an overlay portion to a braided structure, such as a braided upper, are discussed in further detail below. Exemplary materials used for bonding can include any known adhesives, melts, resins or other bonding agents.

[0058] FIG. **5** illustrates an isometric view of article **100**, including an enlarged schematic cross-sectional view of a portion of first overlay portion **150** and fastening member **160**. Referring to FIG. **5**, first overlay portion **150** includes a plurality of eyelets **400**. Specifically, plurality of eyelets **400**, including eyelet **402** shown in the enlarged cross-section, are openings in first overlay portion **150** that are configured to receive portions of fastening member **160**.

[0059] In contrast to an alternative embodiment where strands of upper **102** may directly secure portions of a fastening member, the exemplary embodiment is configured so that strands of upper **102** are indirectly secured to fastening member **160** via eyelets in first overlay portion **400**. Specifically, strands **410** are seen to be secured directly to first overlay portion **150**, while fastening member **160** is secured through plurality of eyelets **400** in first overlay portion **150**. This configuration may distribute forces imparted by fastening member **160** more evenly across the braided structure of upper **102**. This may prevent fastening member **160** from tugging too much on a particular strand, for example, thereby facilitating better comfort and fit of article **100** on a foot.

[0060] FIGS. **6** and **7** illustrate two possible configurations for strands in the vicinity of eyelets on an overlay portion. Referring first to FIG. **6**, in some embodiments, one or more strands may extend around an eyelet, thereby acting to reinforce the eyelet. For example, in FIG. **6**, first strand **512** and second strand **514** wrap around first eyelet **502** and second eyelet **504**, respectively. This may have the effect of reinforcing first eyelet **502** and second eyelet **504**, as well as providing a more direct transfer of tension between fastening member **160** and the braided strands of upper **102**.

[0061] Referring to an alternative embodiment shown in FIG. **7**, first eyelet **502** and second eyelet **504** are not surrounded by any strands of the upper. In particular, it may be seen that strands **610** are bonded to first overlay portion **150** without encircling first eyelet **502** and second eyelet **504**. Of course, in still other embodiments, some eyelets may be surrounded or reinforced by strands while other eyelets may not be surrounded or reinforced.

[0062] FIG. **8** illustrates a rear isometric view of upper **102**, in which strands **130** of upper **102** are shown in phantom. Referring to FIG. **7**, third overlay component **156** is seen to wrap underneath a bottom side **199** of upper **102** at heel portion **14**. In some cases, this configuration allows third overlay portion **156** to cradle the heel of the foot. Thus, this arrangement may provide further support for the heel of the foot when article **100** is worn by reducing stretching through heel portion **14**.

[0063] In some embodiments, multiple distinct overlay components may be used. In some embodiments, distinct overlay components may be configured to intersect or overlap at predetermined portions of an upper. Such configurations of overlapping overlay components may provide a means for enhancing strength and stretch resistance over large portions of an upper, including, possibly, the entirety of the upper.

[0064] FIGS. **9-11** illustrate an embodiment of an article of footwear **800**, comprising an upper **802** and a sole structure **805** (shown in FIG. **10** only). Referring first to FIG. **9**, upper **802** is comprised of a braided structure that is braided from a plurality of strands **830**. In addition, multiple overlay components are associated with upper **802**, including a first overlay component **810**, a second overlay component **812**, a third overlay component **814** and a fourth overlay component **816**.

[0065] In the exemplary embodiment, each overlay component is associated with a particular portion of upper **802**. For example, first overlay component **810** is associated with the edges **870** of opening **860** and fastening region **862**. Thus, in some cases, first overlay component **810** may be used to finish plurality of strands **830** along edges **870**. Additionally, first overlay component **810** may provide stretch resistance in the vicinity of opening **860**.

[0066] Second overlay component **812** is associated with forward toe portion **868** of upper **802**. In some embodiments, second overlay component **812** may help improve stretch resistance at forward toe portion **868**. Additionally, in some embodiments, second overlay component **812** may provide a covering for forward toe portion **868**. In particular, the presence of second overlay component **812** may help prevent debris from entering upper **802** through forward toe portion **868**.

[0067] Third overlay component **814** may be associated with a forefoot portion **811** of upper **802**. In some embodiments, third overlay component **814** may be positioned forwards of fastening region **862**. Furthermore, as clearly seen in FIG. **9**, third overlay component **814** may completely encircle upper **802** (and a foot within upper **802**). In an exemplary embodiment, third overlay component **814** is comprised of a first band **817** and a second band **819**, which are integrally joined at top intersection region **815**. This arrangement may therefore provide targeted stretch resistance at forefoot portion **811** that enhances support of the foot during activities where forefoot portion **811** may be firmly planted on the ground.

[0068] Fourth overlay component **816** may be associated with heel portion **813** of upper **802**. In some embodiments, fourth overlay component **816** may provide a heel-counter like overlay portion **825**, as well as a strap-like overlay portion **827**. In combination, overlay portion **825** and overlay portion **827** may help limit stretching at heel portion **813** and may therefore enhance support of the heel within upper **802**.

[0069] As seen in FIGS. **10-11**, when assembled with upper **802**, some of the overlay components may overlap with one another. For example, third overlay component **814** is clearly seen to overlap with portions of first overlay component **810** at an overlap region **902**. In addition, third overlay component **814** is seen to overlap with portions of second overlay component **812** at an overlap region **903**. Likewise, fourth overlay component **816** is clearly seen to overlap with portions of first

overlay component **810** at an overlap region **904**. This overlapping arrangement may help enhance the structural integrity of upper **802**, since portions of one overlay component may reinforce the support of an overlapping overlay component. Moreover, by overlapping and joining portions of different overlay components together, the overlay components may function as a unitary frame for supporting the braided structure of upper **802**.

[0070] Embodiments utilizing braided regions having different properties may include provisions for further reinforcing some regions but not others. In some embodiments, an article may include an overlay portion that is configured to cover a predetermined region of the article.

[0071] FIGS. **12** and **13** illustrate isometric views of an article **1100** that is configured with overlay portions that cover two specific regions of an upper **1102**. Specifically, FIG. **12** illustrates an isometric exploded view of article **1100**, while FIG. **13** illustrates an isometric view including an enlarged cross-sectional view. Referring to FIGS. **12** and **13**, article **1100** includes upper **1102** and sole system **1110**. Upper **1102** is further configured with at least four distinct regions, including a first region **1151**, a second region **1152**, a third region **1153** and a fourth region **1154**. In the exemplary embodiment, first region **1151** is a toe region of upper **1102**. Second region **1152** is disposed directly adjacent to, and rearwards of, first region **1151**. Third region **1153** is disposed adjacent to, and rearwards of, second region **1152**. Finally, fourth region **1154** extends rearwards of third region **1153**. Moreover, fourth region **1154** is a substantially larger region than the remaining regions, and includes the entirety of midfoot portion **1103** and heel portion **1105** of upper **1102**. Thus, first region **1151**, second region **1152** and third region **1153** may be characterized as bands of upper **1102** that extend laterally across upper **1102**.

[0072] Each region of upper **1102** may be associated with a particular material characteristic, such as a braiding density. In the exemplary embodiment, first region **1151** and third region **1153** are both associated with a first braiding density, while second region **1152** and fourth region **1154** are associated with a second braiding density. In some embodiments, the first braiding density may be greater than the second braiding density. Thus, first region **1151** and third region **1153** are more tightly braided and may provide regions of increased strength and may also resist stretching in some embodiments.

[0073] Article **1100** may be further associated with first overlay portion **1160** and second overlay portion **1162**. First overlay portion **1160** may be shaped to cover first region **1151** of upper **1102**. Second overlay portion **1162** may be shaped to cover third region **1153** of upper **1102**. For example, as shown in the enlarged cross-sectional view of FIG. **13**, second overlay portion **1162** may be disposed over strands **1170** of third region **1153**. With this arrangement, first overlay portion **1160** and second overlay portion **1162** may further reinforce first region **1151** and second region **1153**, thereby enhancing support and stretch resistance in these regions.

[0074] The exemplary embodiments are only intended to illustrate some possible configurations for overlay portions on an upper. It should be understood that some other embodiments may include overlay portions configured in a variety of different shapes, sizes and locations. Moreover, any number of distinct overlay components can be used in alternative embodiments. The number, shape, size and location of overlay components or overlay portions can be selected to achieve desired properties including stretch resistance, enhanced strength, support, comfort or any other desired properties at any locations on an article of footwear.

[0075] As discussed in the Braided Upper application, braided uppers can be configured with a variety of different features and functionality. It should be understood that the overlay portions described in this detailed description may be utilized with a variety of different embodiments of braided uppers, which may or may not include some of the features discussed in the Braided Upper application. As an example, in some embodiments, strands with different material properties could be braided together, or otherwise associated with one another, to provide specific properties at one or more regions of an upper. For example, an upper may be fabricated from fibers that stretch to a certain degree, as the wearer's foot moves through each stride he or she takes, thus increasing the wearer's comfort. In that case, high tensile strength, non-stretch fibers may be threaded through those specific regions of the footwear that require additional structural support. As another example, an upper may be fabricated with a more open braid in some areas, for example to improve breathability or comfort. In that case, additional fibers may be laced through the braid to provide additional support in certain parts of those areas, or to provide increased durability for high-impact regions of the footwear. An upper having any of these configurations may be further associated with one or more overlay portions in order to further control the characteristics and functionality of the upper, including support and/or stretch resistance in various areas of the upper.

[0076] The upper may also have floating cables, i.e., cables that are not braided into the fabric of the upper may be used to relieve the stress on certain sections of the upper. The floating cables may be made of a different material that is separate from and not attached to the braided structure. The cables may also be used as laces to secure the footwear to the foot, or to tighten up certain parts of the footwear, as described below. For example, the cables may be anchored at a first end at the sole of the footwear, and at a second end at an eyelet, for example. Such floating cables may also be used to add to the support and stability of certain parts of the footwear, such as around the ankle opening. In some embodiments, overlay portions may be used with braided uppers incorporating floating cables, and in some cases the overlay portions may be used to reinforce portions with cables or portions without cables. In some embodiments, overlay portions could be used to help anchor ends of the floating cables to the upper.

[0077] The combination of these features, including any of the features described in the Braided Upper application, in conjunction with the overlay portions described above and shown in the figures may facilitate the creation of uppers tailored to a particular athletic or recreational activity. Braided uppers with combinations of these features can be very light while conforming closely and comfortably to the wearer's feet. In some embodiments, the fit of the upper may be adjusted to provide the specific degree of tension or tightness the wearer may prefer.

[0078] FIGS. **14-17** illustrate several steps in an exemplary process of forming an article comprised of a braided upper and overlay portions. Initially, as shown in FIG. **14**, a braided upper **1402** may be formed using any kind of braiding process. An exemplary process for forming braided articles is disclosed in the Braided Upper application, which has been previously discussed and incorporated by reference. Next, as shown in FIG. **15**, in some embodiments, an opening **1502** may be cut into upper **1402**. This may create a new edge **1504**

that bounds opening **1502**. Opening **1502** may be used for insertion of a foot, and may provide a region for a fastener, such as a lace.

[0079] In an exemplary embodiment, an overlay portion **1510** may then be bonded along edge **1504** (see FIG. **15**) of upper **1402**, as shown in FIG. **17**. In some embodiments, the bonding may be achieved using a welding process, such as an ultrasonic welding process. The strands exposed along edge **1504** may thereby be fused to overlay portion **1510** to finish the ends as well as to reinforce and support edge **1504** when the article is fastened. Finally, as shown in FIG. **17**, a lace **1602** may be inserted through eyelets **1610**. Additionally, in some embodiments, a sole system **1620** may be added to the bottom of upper **1402**.

[0080] Some embodiments can include provisions to facilitate the joining of an upper and a sole system. In some embodiments, an overlay portion may be provided between an upper and a sole system, thereby facilitating the joining of the upper and the sole system.

[0081] FIGS. **18** and **19** illustrate isometric views of an embodiment in which an overlay portion may be used to help attach a sole system to an upper. Referring to FIGS. **18** and **19**, an upper **1702** may be associated with an overlay component **1720** and an overlay component **1722**. In some embodiments, overlay component **1720** may be associated with an opening **1716** of upper **1702**. Overlay component **1722** may be associated with a lower side **1703** of upper **1702**. In some embodiments, overlay component **1722** may extend over the entirety lower side **1703**, though in other embodiments, overlay component **1722** may only extend over some portions of lower side **1703**. Moreover, in some cases, overlay component **1722** may partially extend up around a lower periphery **1705** of upper **1702**.

[0082] In some embodiments, a sole system **1730** may be associated with upper **1702**. In some embodiments, moreover, overlay component **1722** may facilitate the bonding or joining of sole system **1730** to upper **1702**. For example, as clearly seen in the enlarged cross-sectional view in FIG. **19**, overlay component **1722** may be disposed between sole system **1730** and lower side **1703** of upper **1702** to facilitate the joining sole system **1730** with upper **1702**.

[0083] In some embodiments, the material properties of overlay component **1722** and sole system **1730** can be selected so that overlay component **1722** and sole system **1730** may be easily bonded using an adhesive or other process. For example, it is contemplated that in some embodiments, overlay component **1722** may be made of a thermoplastic urethane (TPU) material, and sole system **1730** may be made of a similar material or a material that easily bonds with TPU. In still other embodiments, however, overlay component **1722** and sole system **1730** can be made of any other materials that can be joined with or without a separate adhesive.

[0084] While various embodiments have been described, the description is intended to be exemplary, rather than limiting and it will be apparent to those of ordinary skill in the art that many more embodiments and implementations are possible that are within the scope of the embodiments. Accordingly, the embodiments are not to be restricted except in light of the attached claims and their equivalents. Also, various modifications and changes may be made within the scope of the attached claims.

1. An article of footwear, comprising:
an upper and a sole system;
wherein the upper is further comprised of a braided structure and an overlay portion;
wherein the overlay portion is bonded to the braided structure; and
wherein the overlay portion is more resistant to stretching than the braided structure.

2. The article of footwear according to claim **1**, wherein the overlay portion is disposed on an edge of the upper associated with an opening of the upper that receives a foot.

3. The article of footwear according to claim **1**, wherein the overlay portion includes eyelets for receiving a fastener.

4. The article of footwear according to claim **1**, wherein the overlay portion is disposed on a toe portion of the upper.

5. The article of footwear according to claim **1**, wherein the overlay portion includes a section disposed on a lower side of the upper.

6. The article of footwear according to claim **1**, wherein the overlay portion is made of a polymer material.

7. An article of footwear, comprising:
an upper and a sole system, the upper being further associated with a lacing member;
the upper being comprised of a braided structure and an overlay portion; and
wherein the overlay portion includes a plurality of eyelets for receiving the lacing member.

8. The article of footwear according to claim **7**, wherein the overlay portion forms an eyestay for the upper.

9. The article of footwear according to claim **7**, wherein the overlay portion is disposed on a lateral edge of a fastening region of the upper, and wherein the overlay portion is disposed on a medial edge of the fastening region.

10. The article of footwear according to claim **7**, wherein the overlay portion extends on a lateral side of the upper, a medial side of the upper and a lower side of the upper.

11. The article of footwear according to claim **7**, wherein the overlay portion is a first overlay portion and wherein the article of footwear includes a second overlay portion that is different than the first overlay portion.

12. The article of footwear according to claim **11**, wherein the first overlay portion overlaps with the second overlay portion at an overlap region.

13. The article of footwear according to claim **11**, wherein the second overlay portion covers a lower side of the upper.

14. The article of footwear according to claim **11**, wherein the second overlay portion can be joined to the sole system to secure the sole system in place on the article of footwear.

15. A method of making an article of footwear, comprising:
forming a braided structure with an interior cavity;
cutting an opening into the braided structure, thereby creating an opening in the braided structure and an edge associated with the opening;
bonding an overlay portion to the edge, wherein the overlay portion includes a plurality of eyelets;
inserting a lace through the eyelets; and
associating a sole system with the braided structure to form the article of footwear.

16. The method according to claim **15**, wherein forming the braided structure includes creating the braided structure with a central cavity.

17. The method according to claim **15**, wherein forming the braided structure includes overbraiding the braided structure on a last.

18. The method according to claim **15**, wherein bonding the overlay portion includes welding the overlay portion to the edge.

19. The method according to claim **15**, wherein bonding the overlay portion includes fixing at least one open end of a strand of the braided structure to the overlay portion.

20. The method according to claim **15**, wherein the overlay portion is a first overlay portion and wherein a second overlay portion is bonded to a bottom side of the braided structure and wherein the sole system is attached to the second overlay portion.

21. The method according to claim **15**, wherein the overlay portion is bonded to the edge such that at least one strand of the braided structure extends around at least one eyelet of the overlay portion.

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