(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 3 922 124 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
**15.12.2021 Bulletin 2021/50**

(21) Application number: **21188361.6**

(22) Date of filing: **09.01.2014**

(51) Int Cl.:
***A43C 1/04*** *(2006.01)* ***A43B 7/14*** *(2006.01)*
***A43B 3/26*** *(2006.01)* ***A43B 23/02*** *(2006.01)*

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR**

(30) Priority: **11.01.2013 US 201313739829**

(62) Document number(s) of the earlier application(s) in accordance with Art. 76 EPC:
**14702682.7 / 2 943 086**

(71) Applicant: **NIKE Innovate C.V.**
**Beaverton, OR 97005 (US)**

(72) Inventors:
- **KOHATSU, Shane S.**
**Beaverton 97005 (US)**
- **BAUDOUIN, Alexandre**
**Beaverton 97005 (US)**

(74) Representative: **Müller-Boré & Partner**
**Patentanwälte PartG mbB**
**Friedenheimer Brücke 21**
**80639 München (DE)**

Remarks:
This application was filed on 29-07-2021 as a divisional application to the application mentioned under INID code 62.

(54) **ARTICLE OF FOOTWEAR WITH LAYERED FIT SYSTEM**

(57) An article of footwear includes a sole structure and an upper. The sole structure has a peripheral area and a central area located inward from the peripheral area. The upper is for receiving a foot of a wearer and has an outer layer and an inner layer. The outer layer extends from a throat area of the upper to a lower area of the upper, and the outer layer is secured at the peripheral area of the sole structure. The inner layer is located inward of the outer layer and extends from the throat area to the lower area. The inner layer lays adjacent to the outer layer, and the inner layer is (a) secured at the central area of the sole structure and (b) unsecured between the throat area and the central area of the sole structure.

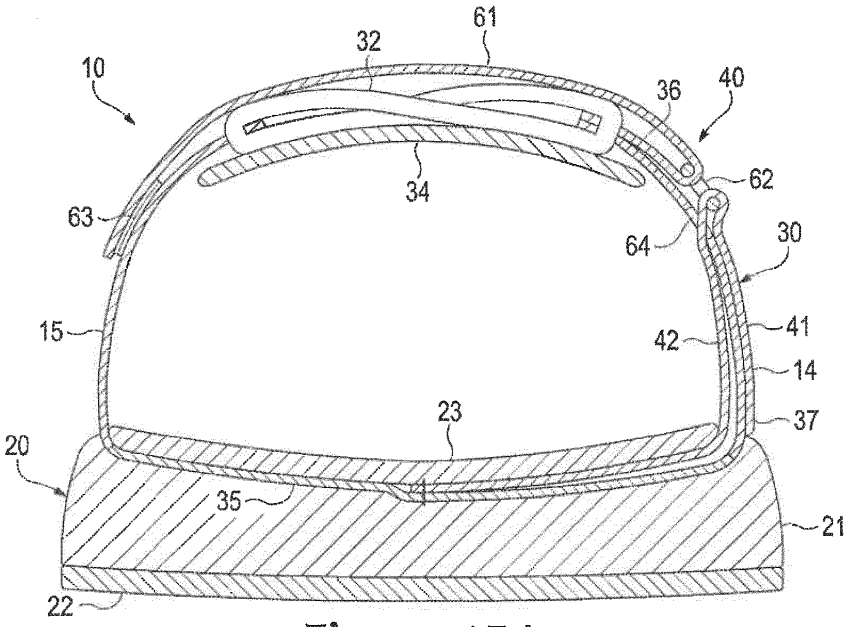


Figure 15A

EP 3 922 124 A1

## Description

### CROSS-REFERENCE TO RELATED APPLICATION

**[0001]** This application claims priority benefits based on U.S. patent application serial no. 13/739,829, filed January 11, 2013, entitled Footwear With Internal Harness, such prior U.S. Patent Application being entirely incorporated herein by reference.

### BACKGROUND

**[0002]** An article of footwear generally includes two primary elements: an upper and a sole structure. The upper is often formed from a plurality of material elements (e.g., textiles, polymer sheet layers, polymer foam layers, leather, synthetic leather) that are stitched or adhesively bonded together to form a void within the footwear for comfortably and securely receiving a foot. More particularly, the upper forms a structure that extends over instep and toe areas of the foot, along medial and lateral sides of the foot, and around a heel area of the foot. The upper may also incorporate a lacing system to adjust fit of the footwear, as well as permitting entry and removal of the foot from the void within the upper. In addition, the upper may include a tongue that extends under the lacing system to enhance adjustability and comfort of the footwear.

**[0003]** The sole structure is secured to a lower portion of the upper and positioned between the foot and the ground. In athletic footwear, for example, the sole structure often includes a midsole and an outsole. The midsole may be formed from a polymer foam material that attenuates ground reaction forces (i.e., provides cushioning) during walking, running, and other ambulatory activities. The midsole may also include fluid-filled chambers, plates, moderators, or other elements that further attenuate forces, enhance stability, or influence the motions of the foot, for example. In some configurations, the midsole may be primarily formed from a fluid-filled chamber. The outsole forms a ground-contacting element of the footwear and is usually fashioned from a durable and wear-resistant rubber material that includes texturing to impart traction. The sole structure may also include a sockliner positioned within the void of the upper and proximal a lower surface of the foot to enhance footwear comfort.

**[0004]** A conventional method of manufacturing an article of footwear involves the use of a lasting process. More particularly, a majority of the upper is formed and placed around a last, which has a general shape of a foot. Various processes are then utilized to conform the upper to the last, thereby imparting the general shape of the foot to the void within the upper. The sole structure is then secured to a lower area of the upper (e.g., through stitching or adhesive bonding) to substantially complete manufacturing.

### SUMMARY

**[0005]** Numerous aspects and variations of an article of footwear are disclosed below. The footwear includes a sole structure and an upper. The sole structure has a peripheral area and a central area located inward from the peripheral area. The upper is for receiving a foot of a wearer and has an outer layer and an inner layer. In some configurations, the outer layer extends from a throat area of the upper to a lower area of the upper, and the outer layer is secured at the peripheral area of the sole structure. In some configurations, the inner layer is located inward of the outer layer and extends from the throat area to the lower area. In some configurations, the inner layer lays adjacent to the outer layer, and the inner layer is (a) secured at the central area of the sole structure and (b) unsecured between the throat area and the central area of the sole structure. In some configurations, the combination of these features may provide a more proper and secure fit for feet with different proportions.

**[0006]** The advantages and features of novelty characterizing aspects of the invention are pointed out with particularity in the appended claims. To gain an improved understanding of the advantages and features of novelty, however, reference may be made to the following descriptive matter and accompanying figures that describe and illustrate various configurations and concepts related to the invention.

### FIGURE DESCRIPTIONS

**[0007]** The foregoing Summary and the following Detailed Description will be better understood when read in conjunction with the accompanying figures.

Figure 1 is a lateral side elevational view of an article of footwear.

Figure 2 is a medial side elevational view of the article of footwear.

Figures 3A and 3B are cross-sectional views of the article of footwear, as respectively defined by section lines 3A and 3B in Figures 1 and 2.

Figures 4A-4C are cross-sectional views corresponding with Figure 3B and depicting various sizes of a foot within the article of footwear.

Figures 5A-5E are cross-sectional views corresponding with Figure 3B and depicting further configurations of the article of footwear.

Figures 6A-6D are lateral side elevational views corresponding with Figure 1 and depicting further configurations of the article of footwear.

Figure 7 is a medial side elevational view corre-

sponding with Figure 2 and depicting a further configuration of the article of footwear.

Figure 8 is a lateral side elevational view corresponding with Figure 1 and depicting a further configuration of the article of footwear.

Figure 9 is a cross-sectional view of the article of footwear, as defined by section line 9 in Figure 8.

Figure 10 is a lateral side elevational view corresponding with Figure 1 and depicting a further configuration of the article of footwear.

Figures 11A and 11B are cross-sectional views of the article of footwear, as defined by section lines 11A and 11B in Figure 10.

Figures 12 and 14 are partial perspective views of a further configuration of the article of footwear.

Figure 13 is a cross-sectional view of the article of footwear, as defined by section line 13 in Figure 12.

Figures 15A and 15B are cross-sectional views corresponding with Figure 13 and depicting further configurations of the article of footwear.

Figures 16 and 17 are side elevational views respectively corresponding with Figures 1 and 2 and depicting a further configuration of the article of footwear.

Figure 18 is a partial top plan view of the configuration of the article of footwear depicted in Figures 16 and 17.

## DETAILED DESCRIPTION

**[0008]** The following discussion and accompanying figures disclose various configurations of an article of footwear that incorporates a layered fit system. The footwear is disclosed, for purposes of example, as having the configuration of a basketball shoe. Concepts associated with the footwear, including the layered fit system, may also be applied to a variety of other athletic footwear types, including baseball shoes, cross-training shoes, cycling shoes, football shoes, running shoes, sprinting shoes, tennis shoes, golf shoes, soccer shoes, walking shoes, hiking boots, ski and snowboard boots, and ice and roller skates, for example. The concepts may also be applied to footwear types that are generally considered to be non-athletic, including dress shoes, loafers, sandals, and work boots. A wide variety of footwear types may, therefore, incorporate the concepts disclosed herein.

### General Footwear Configuration

**[0009]** An article of footwear 10 is depicted in Figures 1 and 2 as including a sole structure 20 and an upper 30. Sole structure 20 is secured to a lower area of upper 30 and extends between upper 30 and the ground. Upper 30 provides a comfortable and secure covering for a foot of a wearer. As such, the foot may be located within upper 30, which effectively secures the foot within footwear 10, and sole structure 20 extends under the foot to attenuate forces, enhance stability, or influence the motions of the foot, for example. Additional details of footwear 10 are depicted in the cross-sectional views of Figures 3A and 3B.

**[0010]** For purposes of reference in the following discussion, footwear 10 may be divided into three general regions: a forefoot region 11, a midfoot region 12, and a heel region 13. Forefoot region 11 generally includes portions of footwear 10 corresponding with the toes and the joints connecting the metatarsals with the phalanges. Midfoot region 12 generally includes portions of footwear 10 corresponding with an arch area of the foot. Heel region 13 generally corresponds with rear portions of the foot, including the calcaneus bone. Footwear 10 also includes a lateral side 14 and a medial side 15, which extend through each of regions 11-13 and correspond with opposite sides of footwear 10. More particularly, lateral side 14 corresponds with an outside area of the foot (i.e. the surface that faces away from the other foot), and medial side 15 corresponds with an inside area of the foot (i.e., the surface that faces toward the other foot). Regions 11-13 and sides 14-15 are not intended to demarcate precise areas of footwear 10. Rather, regions 11-13 and sides 14-15 are intended to represent general areas of footwear 10 to aid in the following discussion. In addition to footwear 10, regions 11-13 and sides 14-15 may also be applied to sole structure 20, upper 30, and individual elements thereof.

**[0011]** Sole structure 20 includes a midsole 21, an outsole 22, and a sockliner 23. Midsole 21 is secured to a lower surface of upper 30 and may be formed from a compressible polymer foam element (e.g., a polyurethane or ethylvinylacetate foam) that attenuates ground reaction forces (i.e., provides cushioning) when compressed between the foot and the ground during walking, running, or other ambulatory activities. In further configurations, midsole 21 may incorporate fluid-filled chambers, plates, moderators, or other elements that further attenuate forces, enhance stability, or influence the motions of the foot, or midsole 21 may be primarily formed from a fluid-filled chamber. Outsole 22 forms a ground-contacting surface of sole structure 20 that is secured to a lower surface of midsole 21 and may be formed from a wear-resistant rubber material with texturing to impart traction. Sockliner 23 is located within upper 30, as depicted in Figures 3A and 3B, and is positioned to extend under a lower surface of the foot. Although this configuration for sole structure 20 provides an example of a sole

structure that may be used in connection with upper 30, a variety of other conventional or nonconventional configurations for sole structure 20 may also be utilized. Accordingly, the structure and features of sole structure 20 or any sole structure utilized with upper 30 may vary considerably.

**[0012]** Various portions of upper 30 may be formed from one or more of a plurality of material elements (e.g., textiles, polymer sheets, foam layers, leather, synthetic leather) that are stitched or bonded together to form a void within footwear 10 for receiving and securing a foot relative to sole structure 20. The void is shaped to accommodate the foot and extends along the lateral side of the foot, along the medial side of the foot, over the foot, around the heel, and under the foot. Access to the void is provided by an ankle opening 31 located in at least heel region 13. A lace 32 extends through various lace-receiving elements 33 and permits the wearer to modify dimensions of upper 30 to accommodate the proportions of the foot. More particularly, lace 32 permits the wearer to tighten upper 30 around the foot, and lace 32 permits the wearer to loosen upper 30 to facilitate entry and removal of the foot from the void (i.e., through ankle opening 31). Lace-receiving elements 33 are depicted as having two configurations: (a) apertures extending through upper 30 and (b) loops of material. In further configurations, lace-receiving elements 33 may also be eyelets, grommets, hooks, D-rings, or any other structure that receives lace 32. In addition, upper 30 includes a tongue 34 that extends between the interior void and lace 32 to enhance the comfort of footwear 10. In some configurations, upper 30 may incorporate a heel counter that limits heel movement in heel region 13 or a wear-resistant toe guard located in forefoot region 11.

**[0013]** A lasting process may be utilized in the manufacture of footwear 10. More particularly, a majority of upper 30 is formed and placed around a last, which has the general shape of a foot. In order to tighten upper 30 around the last, thereby imparting the general shape of the foot to the void within upper 30, a strobel material 35 may be secured to a lower perimeter of upper 30 and stretched across an area of the last corresponding with a lower surface of the foot. Sole structure 20 is then secured to the lower perimeter of upper 30 and strobel material 35 through one or a combination of adhesive bonding, thermal bonding, and stitching, for example.

**[0014]** For reference purposes, upper 30 may include a throat area 36 and a lower area 37, as generally shown in Figures 1 and 2. Throat area 36 includes a portion of upper 30 that generally corresponds with an upper surface of the foot. More particularly, throat area 36 encompasses an area of upper 30 that includes lace 32, lace-receiving elements 33, and tongue 34. Lower area 37 includes a portion of upper 30 that generally corresponds with a lower surface of the foot. More particularly, lower area 37 encompasses the area of upper 30 where the lower perimeter of upper 30 and strobel material 35 join with sole structure 20.

Fit System Configuration

**[0015]** Footwear 10 incorporates a layered fit system 40 that assists with securing a foot within the void in upper 30. More particularly, layered fit system 40 ensures that portions of upper 30 lay against the foot and properly secure the foot within upper 30. As discussed in detail below, layered fit system 40 adjusts to accommodate feet with various proportions. As a result, layered fit system 40 may provide a more proper and secure fit for different people, each of which have feet with different proportions.

**[0016]** Layered fit system 40 primarily includes an outer layer 41 and an inner layer 42. Outer layer 41 extends throughout upper 30 and forms a majority of an exterior surface of upper 30 and an interior surface of upper 30. As such, outer layer 41 may be formed from a plurality of material elements (e.g., textiles, polymer sheets, foam layers, leather, synthetic leather) that are stitched or bonded together to form a majority of upper 30. Inner layer 42 is positioned inward of outer layer 41 and primarily located within the void in upper 30. Inner layer 42 is also positioned in lateral side 14 and at a location corresponding with a forward area of midfoot region 12. As such, inner layer 42 is positioned to generally correspond with a ball of the foot, which includes the joints between the metatarsal bones and the proximal phalanges of the foot.

**[0017]** Layers 41 and 42 are secured to each other in throat area 36 and form a loop that provides the structure for one of lace-receiving elements 33. Although the manner of joining layers 41 and 42 in throat area 36 may vary, layers 41 and 42 are depicted as being secured (e.g., with stitching, bonding) to each other in an overlapping configuration. In lower area 37, layers 41 and 42 are secured to other elements of footwear 10 and in areas that are spaced from each other. More particularly, outer layer 41 is secured to one or both of (a) an edge of strobe! material 35 and (b) a peripheral area of an upper surface of sole structure 20. Inner layer 42 is secured to one or both of (a) a central area of strobel material 35 and (b) a central area of the upper surface of sole structure 20. Additionally, inner layer 42 is unsecured in the peripheral area of sole structure 20. The manner in which layers 41 and 42 are secured (e.g., with stitching, bonding) in lower area 37 and the specific element to which layers 41 and 42 are secured may vary. In general, however, outer layer 41 is secured at a position corresponding with or adjacent to the peripheral area of sole structure 20, and inner layer 42 is (a) secured at a position corresponding with or adjacent to the central area of sole structure 20 and (b) unsecured in the peripheral area.

**[0018]** Inner layer 42 is generally unsecured to other portions of footwear 100 between throat area 36 and the central area of sole structure 20. Inner layer 42 is, therefore, unsecured to the inward facing surface of outer layer 41, as well as areas of footwear 10 that form or are adjacent to the peripheral area of sole structure 20. Oppo-

site ends of inner layer 42 are, however, secured (a) at the position corresponding with or adjacent to the central area of sole structure 20 and (b) to outer layer 41 to form the loop that provides the structure for one of lace-receiving elements 33.

**[0019]** Layers 41 and 42 are separate from or unsecured to each other between throat area 36 and lower area 37. That is, portions of layers 41 and 42 may lay against each other between areas 36 and 37, but are generally unsecured and may move, deflect, or stretch independently between areas 36 and 37. An advantage of the independence between layers 41 and 42 relates to providing a more proper and secure fit for feet with different proportions.

**[0020]** An example of the manner in which layered fit system 40 operates to accommodate feet with different proportions is depicted in Figures 4A-4C, in which one of a foot 16, a foot 17, or a foot 18 is located within upper 30. Feet 16-18 have different proportions, with (a) foot 16 being larger than foot 17 and (b) foot 17 being larger than foot 18. Referring to Figure 4A, foot 16 effectively spans the entire width of sole structure 20 and substantially fills the void within upper 30. Note that layers 41 and 42 lay against each other in the region between throat area 36 and lower area 37, but a relatively small gap 19 is formed between layers 41 and 42 adjacent to the peripheral area of sole structure 20. At the location of gap 19, however, inner layer 42 ensures that sockliner 23 lays against foot 16 to assist with imparting a proper and secure fit. Referring to Figure 4B, foot 17 is located within the void in upper 30. Foot 17 has a lesser width than foot 16 and may span less of the width of sole structure 20 than foot 16. Note that layers 41 and 42 lay against each other in the region between throat area 36 and lower area 37, but a larger gap 19 (when compared to Figure 4A) is formed between layers 41 and 42 adjacent to the peripheral area of sole structure 20. At the location of this gap, however, inner layer 42 assist with ensuring that sockliner 23 lays against foot 17 to impart a proper and secure fit. Referring to Figure 4C, foot 18 is located within the void in upper 30. Foot 18 has a lesser width than foot 17 and may span less of the width of sole structure 20 than foot 17. Note that layers 41 and 42 lay against each other in the region between throat area 36 and lower area 37, but an even larger gap 19 (when compared to Figures 4A and 4B) is formed between layers 41 and 42 adjacent to the peripheral area of sole structure 20. At the location of this gap, however, inner layer 42 assist with ensuring that sockliner 23 lays against foot 18 to impart a proper and secure fit. Accordingly, layered fit system 40 adjusts to ensure that inner layer 42 lays against any of feet 16-18, thereby imparting a proper and secure fit.

**[0021]** Either of layers 41 and 42 may be formed from materials conventionally utilized in footwear uppers (e.g., textiles, polymer sheets, leather, synthetic leather), as well as other materials that exhibit suitable properties for layered fit system 40. Although many materials may be utilized, an advantage may be gained by selecting a material for inner layer 42 with relatively little stretch. Given that inner layer 42 lays against a foot and may provide some support for the foot, forming inner layer 42 from a material with relatively little stretch may ensure that inner layer 42 continues to impart support when placed in tension during walking, running, or cutting (i.e., side-to-side) movements. Other properties that may be beneficial for inner layer 42 include resistance to moisture (e.g., perspiration) and relatively high tensile strength.

Further Configurations

**[0022]** The various features discussed above provide an example of one configuration for footwear 10 and layered fit system 40. In further configurations, however, numerous features of footwear 10 and layered fit system 40 may vary to impart a variety of properties to footwear 10. For example, features or other aspects of layered fit system 40 may vary to tailor footwear 10 to particular athletic activities. Although various examples of further configurations are discussed below, a variety of other configurations may also fall within the scope of the present discussion. Moreover, although many of the configurations are discussed and depicted separately, features from some configurations may be utilized in combination with features from other configurations.

**[0023]** Whereas inner layer 42 is depicted in Figure 3B as being secured at a position corresponding with a center of sole structure 20, inner layer 42 may be secured in other locations in the central area of sole structure 20. For example, Figure 5A depicts a configuration in which inner layer 42 is secured at a location that is approximately one-third of a distance from lateral side 14 and medial side 15. As a similar example, Figure 5B depicts a configuration in which inner layer 42 is secured at a location that is approximately two-thirds of a distance from lateral side 14 and medial side 15. Although inner layer 42 is secured at a position corresponding with the central area of sole structure 20 in each of these examples, inner layer 42 is generally unsecured in the peripheral area.

**[0024]** Outer layer 41 may be a single layer or a plurality of layers. Each layer may impart various properties. Referring to Figure 5C, outer layer 41 is depicted as having a thickness that includes an outer stratum 51, an intermediate stratum 52, and an inner stratum 53, each of which may be formed from different materials (e.g., textiles, polymer sheet layers, polymer foam layers, leather, synthetic leather). For example, outer stratum 51 may be an element of synthetic leather that imparts durability (e.g., wear-resistance) and stretchresistance, intermediate stratum 52 may be an element of polymer foam that enhances the comfort of footwear 10, and inner stratum 53 may be a textile element that is comfortable against the foot and absorbs moisture (e.g., perspiration).

**[0025]** Layered fit system 40, particularly inner layer 42, is depicted as being primarily located on lateral side 14. Referring to Figure 5D, however, inner layer 42 is

depicted as being located on medial side 15. More particularly, inner layer 42 (a) is secured to a position corresponding with the central area of sole structure 20, (b) is unsecured in the peripheral area, and (c) extends through medial side 15. Another configuration is depicted in Figure 5E, wherein layered fit system 40 includes two inner layers 42 that (a) are secured to a position corresponding with the central area of sole structure 20, (b) are unsecured in the peripheral area, and (c) extend to each of lateral side 14 and medial side 15. As such, concepts associated with layered fit system 40 may be applied to either or both of sides 14 and 15 of footwear 10.

**[0026]** A further configuration of footwear 10 is depicted in Figure 6A,wherein inner layer 42 has greater width and extends through a larger portion of lateral side 14. Layers 41 and 42 form two lace-receiving loops 33. Referring to Figure 6B, a second inner layer 42 is associated with lateral side 14 and is positioned to extend through portions of regions 12 and 13. The second inner layer 42 is secured to the central area of sole structure 20 in heel region 13, extends upwardly at an angle towards midfoot region 12, and is secured to outer layer 41 and forms a lace-receiving element 33. An advantage of this configuration is that the two inner layers 42 cooperatively provide support for the ball of the foot and a rear area of the foot. Another configuration is depicted in Figure 7, wherein inner layer 42 is located on medial side 15 and extends through midfoot region 12. Accordingly, the locations and extent of inner layer 42 in layered fit system 40 may vary considerably.

**[0027]** The various figures discussed above depict a configuration of footwear 10 that is a basketball shoe. Concepts associated with layered fit system 40 may also be applied to other types of footwear. For example, Figure 6C depicts footwear 10 as having a configuration of a tennis shoe, and Figure 6D depicts footwear 10 as having a configuration of a sprinting shoe. As such, a wide variety of footwear types may incorporate the concepts disclosed herein.

**[0028]** In the configurations discussed above, outer layer 41 forms a part of or is integrated with the plurality of material elements that are stitched or bonded together to form a majority of upper 30. In other configurations, outer layer 41 may be separate from the material elements forming upper 30 and may be formed of unitary (i.e., one-piece) configuration with inner layer 42. As an example, Figures 8 and 9 depict a configuration wherein one portion of inner layer 42 is secured to an exterior of upper 30 and another portion of inner layer 42 is located within upper 120. As in the various configurations discussed above, inner layer 42 (a) is secured to a position corresponding with the central area of sole structure 20 and (b) is unsecured in the peripheral area. Moreover, layers 41 and 42 are formed from a common element of material, which negates the overlapping configuration that joined layers 41 and 42 in prior configurations.

**[0029]** Although layers 41 and 42 may be secured to each other in throat area 36, layers 41 and 42 may also be unsecured in some configurations. Referring to Figures 10, 11A, and 11B, for example, layers 41 and 42 lay adjacent to each other and define a plurality of alternating apertures that form the various lace-receiving elements 33, with lace 32 extending through the apertures. As with other configurations, outer layer 41 is secured at a position corresponding with a peripheral area of sole structure 20, and inner layer 42 is (a) secured at a position corresponding with a central area of sole structure 20 and (b) unsecured in the peripheral area. When lace 32 is tightened, each of layers 41 and 42 are independently tightened around the foot through tension at each of the apertures forming lace-receiving elements 33. Inner layer 42 also wraps around the foot to impart a proper and secure fit.

Strap Configurations

**[0030]** In each of the configurations discussed above, lace 32 is utilized to tension each of layers 41 and 42 and secure the foot within upper 30. As an alternative, Figures 12 and 13 depict a configuration wherein a strap 61 is used to adjust tension. The material of strap 61 forms a loop on lateral side 14 that receives a ring 62 (e.g., a D-ring or double D-ring). Strap 61 extends across upper 20 and to medial side 15, where strap 61 is joined to a fastener 63 (e.g., hook-and-loop fastener, magnetic fastener). Additionally, inner layer 42 extends through an opening 64 in upper 30 to form the loop with outer layer 41 that receives ring 62. Although ring 62 is utilized to couple strap 61 to layers 41 and 42, other joining structures may be utilized, or strap 61 may be directly secured to the anchor element formed by layers 41 and 42. It should be noted that layers 41 and 42 are depicted as being formed from a single element of material (i.e., unitary construction), and the combination of layers 41 and 42 may be termed an anchor layer, but layers 41 and 42 may also be joined elements.

**[0031]** Strap 61 is utilized to impart tension to at least inner layer 42, thereby helping to ensure that inner layer 42 wraps around and lays against the foot to impart a proper and secure fit. The wearer may separate strap 61 from fastener 63, as depicted in Figure 14, and pull upward on strap 61 to place at least inner layer 42 in tension. Once inner layer 42 contacts and wraps securely around the foot, the wearer may pull strap 61 to medial side 15 and secure strap 61 to fastener 63.

**[0032]** In another configuration, which is depicted in Figure 15A, the end of strap 61 extends through ring 62 and is joined to upper 30 in throat area 36. Additionally, the end of strap 61 defines one or more of the apertures that form lace-receiving elements 33. An advantage of this configuration is that the end of strap 61 may effectively reinforce the apertures in the area of strap 61.

**[0033]** Figure 15B depicts another configuration wherein inner layer 42 alone also forms a loop that receives ring 62. That is, the end of inner layer 42 extends through ring 62 and is joined to itself to form the loop that

receives ring 62.

**[0034]** In each of the configurations depicted in Figures 12-15B, tensioning strap 61 induces inner layer 42 to provide support for the foot, thereby imparting a proper and secure fit. Also, although ring 62 is utilized to couple strap 61 in the configurations of Figures 15A and 15B, other joining structures may be utilized, or strap 61 may be directly secured to the anchor element formed by one or both of layers 41 and 42.

Exemplary Configuration

**[0035]** The various configurations discussed above and depicted in the figures provide examples of the numerous features that may be incorporated into footwear 10. Although many of the configurations are discussed and depicted separately, features from some configurations may be utilized in combination with features from other configurations. Figures 16 and 17 depict footwear 10 as incorporating three structures with the features of layered fit system 40. More particularly, footwear 10 includes an inner layer 71 located on lateral side 14, an inner layer 72 also located on lateral side 14, and an inner layer 73 located on medial side 15. Each of these layers 71-73 correspond in function and structure to the various configurations of inner layer 42 discussed above. As such, layers 71-73 form anchor elements and assist with providing a proper and secure fit for feet with different proportions.

**[0036]** Inner layer 71 is positioned to generally correspond with a ball of the foot, which includes the joints between the metatarsal bones and the proximal phalanges of the foot. In comparison with configurations of inner layer 42 previously described, inner layer 71 exhibits greater width and covers, therefore, a greater area of the foot. Although the position of inner layer 71 may vary considerably, a center of inner layer 71 may be generally positioned at 60 to 80 percent of a distance from a rear surface of the void within upper 20 to a front surface of the void within upper 20. When dimensioned for a men's US size 9 shoe, for example, inner layer 71 may have a width of approximately 60 millimeters. In some configurations, inner layer 71 may be a single sheet of material that (a) is secured at a position corresponding with the central area of sole structure 20, (b) is unsecured in the peripheral area, and (c) extends upward along the interior surface of upper 20 to throat area 36. In other configurations, inner layer 71 may be two or more separate sheets of material that impart an articulated aspect.

**[0037]** Inner layer 72 is positioned to generally correspond with a rear area of the foot. Although the position of inner layer 72 may vary considerably, a center of a portion of inner layer 72 that is adjacent to sole structure 20 may be generally positioned at 25 to 30 percent of a distance from the rear surface of the void within upper 20 to the front surface of the void within upper 20. That is, the portion of inner layer 72 that is (a) is secured in heel region 13 to a position corresponding with the central area of sole structure 20 and (b) is unsecured in the peripheral area may positioned at 25 to 30 percent of a distance from the rear to front surface of the void within upper 20. Additionally, inner layer 72 extends forwardly and at an upward angle along the interior surface of upper 20 to throat area 36.

**[0038]** Inner layer 73 is positioned to generally correspond with an arch of the foot. Although the position of inner layer 73 may vary considerably, a center of inner layer 73 may be generally positioned at 45 to 50 percent of a distance from the rear surface of the void within upper 20 to the front surface of the void within upper 20. When dimensioned for a men's US size 9 shoe, for example, inner layer 73 may have a width of at least 50 millimeters. In general, inner layer 73 (a) is secured at a position corresponding with the central area of sole structure 20, (b) is unsecured in the peripheral area, and (c) extends upward along the interior surface of upper 20 to throat area 36. In other configurations, inner layer 71 may be two or more separate sheets of material that impart an articulated aspect.

**[0039]** An additional aspect relating to inner layer 73 is the presence of a strap 74. Although strap 74 may have various configurations, strap 74 may also exhibit any of the structures discussed above for strap 61. As such, strap 74 may interface with inner layer 73 in the same manner as strap 61 interfaced with layers 41 and 42 in Figures 12-15B. In operation, tensioning strap 74 induces inner layer 73 to provide support for the foot, thereby imparting a proper and secure fit.

**[0040]** Referring to Figure 18, another embodiment is illustrated wherein an angle 75 is formed between (a) a first line that extends at a right angle to a longitudinal axis 76 of footwear 10 and (b) a second line that extends through two apertures forming the lace-receiving elements 33 positioned closest to a front of footwear 10. These two apertures are located between both of inner layers 71 and 73. In effect, this this location for the two apertures aligns lace 32 with the tensioning force that is generated between inner layers 71 and 73 during cutting movements, which may impart greater stability to footwear 10.

**[0041]** The invention is disclosed above and in the accompanying figures with reference to a variety of configurations. The purpose served by the disclosure, however, is to provide an example of the various features and concepts related to the invention, not to limit the scope of the invention. One skilled in the relevant art will recognize that numerous variations and modifications may be made to the configurations described above without departing from the scope of the present invention, as defined by the appended claims.

**[0042]** Further features, aspects and embodiments are provided below in the following items:

Item 1. An article of footwear comprising:

a sole structure having a peripheral area and a

central area located inward from the peripheral area; and

an upper for receiving a foot of a wearer, the upper having:

an outer layer extending from a throat area of the upper to a lower area of the upper, and the outer layer being secured at the peripheral area of the sole structure, and

an inner layer located inward of the outer layer and extending from the throat area to the lower area, the inner layer laying adjacent to the outer layer, the inner layer being (a) secured at the central area of the sole structure and (b) unsecured between the throat area and the central area of the sole structure, and the inner layer being located on a medial side of the article of footwear and in a portion of the upper that receives a ball of the foot.

Item 2. The article of footwear recited in item 1, wherein the outer layer is secured to the inner layer in the throat area.

Item 3. The article of footwear recited in item 1, wherein the outer layer is secured to the inner layer, at least one of the outer layer and the inner layer form a loop in the throat area, and the upper has a lace that extends through the loop.

Item 4. The article of footwear recited in item 1, wherein a second inner layer is located in a lateral side of the article of footwear.

Item 5. The article of footwear of item 4, wherein the second inner layer is located inward of the outer layer and extends from the throat area to the lower area, the second inner layer laying adjacent to the outer layer, the second inner layer being secured at the central area of the sole structure and unsecured between the throat area and the central area of the sole structure, and the second inner layer is located in a portion of the upper that receives a ball of the foot.

Item 6. An article of footwear comprising:

a sole structure having a peripheral area and a central area located inward from the peripheral area; and

an upper for receiving a foot of a wearer, the upper having:

an anchor element that includes an outer layer portion and an inner layer portion, the outer layer portion extending from a throat area of the upper to a lower area of the upper, and the outer layer portion being secured at the peripheral area of the sole structure, the inner layer portion being located within the upper and (a) secured at the central area of the sole structure and (b) unsecured between the throat area and the central area of the sole structure, and the inner layer portion extending through an opening in the upper to form a loop with the outer layer portion; and

a strap coupled to the loop on a lateral side of the footwear and securable to a fastener on the exterior surface of the footwear on a medial side, wherein the strap extends from the lateral side to the medial side of the article of footwear.

Item 7. The article of footwear recited in item 6, wherein the strap extends across the throat area of the upper.

Item 8. The article of footwear of item 6, wherein the inner layer portion is located on the lateral side of the article of footwear.

Item 9. The article of footwear of item 9, wherein the inner layer portion is located in a portion of the upper that receives a ball of the foot.

Item 10. The article of footwear of item 6, wherein the inner layer portion is located in a portion of the upper that receives a ball of the foot.

Item 11. An article of footwear comprising:

a sole structure having a peripheral area and a central area located inward from the peripheral area; and

an upper defining a void for receiving a foot of a wearer, the upper having: an inner layer extending from a throat area of the upper to a lower area of the upper, the inner layer being located within the void on a lateral side and secured at the central area of the sole structure, the inner layer being unsecured between the throat area and the central area of the sole structure, and an end area of the inner layer extending through an opening in the upper on a lateral side; and

a strap that is coupled to the end area of the inner layer and is securable to a fastener on the exterior surface of the footwear, wherein the strap extends from the lateral side to a medial side of the article of footwear.

Item 12. The article of footwear recited in item 11, wherein the strap extends across the throat area of the upper.

## Claims

1. An article of footwear (10) comprising:

   a sole structure (20) having a peripheral area and a central area located inward from the peripheral area; and
   an upper (30) defining a void for receiving a foot of a wearer, the upper (30) having:

   an inner layer (42) extending from a throat area (36) of the upper (30) to a lower area of the upper (30), the inner layer (42) being located within the void on a lateral side (14) of the article of footwear (10), the inner layer (42) being secured at the central area of the sole structure (20), the inner layer (42) being unsecured between the throat area and the central area of the sole structure (20), and an end area of the inner layer (42) extending through an opening (64) in the upper (30) on a lateral side (14); and
   a strap (61) that is coupled to the end area of the inner layer (42) and is securable to a fastener (63) on the exterior surface of the article of footwear (10), wherein the strap (61) extends from the lateral side (14) to a medial side (15) of the article of footwear (10).

2. The article of footwear (10) recited in claim 1, wherein the inner layer (42) is located within the void only on a lateral side (14) of the article of footwear (10).

3. The article of footwear (10) recited in claim 1, wherein the strap (61) extends across the throat area (36) of the upper (30).

4. The article of footwear (10) recited in claim 1, wherein the inner layer (42) is located only in a portion of the upper (30) that receives a ball of the foot.

5. The article of footwear (10) recited in claim 1, wherein the inner layer (42) extends through a midfoot (12) and heel region (13) of the upper (30).

6. The article of footwear (10) recited in claim 1, wherein the inner layer (42) forms a loop in the throat area (36), and the upper has a lace that extends through the loop.

7. The article of footwear (10) recited in claim 1, further comprising an outer layer (41) extending from a throat area (36) of the upper (30) to a lower area of the upper (30), and the outer layer (41) being secured at the peripheral area of the sole structure (20).

8. The article of footwear (10) recited in claim 7, wherein at least one of the outer layer (41) and the inner layer (42) form a loop in the throat area (36), and the upper (30) has a lace (32) that extends through the loop.

9. The article of footwear (10) recited in claim 8, wherein the outer layer (41) is further secured to the inner layer (42) in the throat area (36).

10. The article of footwear (10) recited in claim 8, wherein the outer layer (41) and the inner layer (42) lay against each other in a region between the throat area (36) and the lower area.

11. The article of footwear (10) recited in claim 10, wherein the outer layer (41) and the inner layer (42) are unsecured in the region and may move, deflect, or stretch independently to provide a proper and secure fit for feet with different proportions.

12. The article of footwear (10) recited in claim 11, wherein a gap (19) is formed between the outer layer (41) and the inner layer (42) adjacent to the peripheral area of the sole structure (20).

13. The article of footwear (10) recited in claim 1, wherein the inner layer (42) is a first inner layer (42), and the strap (61) is a first strap (61); and the upper having:

    a second inner layer (42) extending from a throat area (36) of the upper (30) to a lower area of the upper (30), the second inner layer (42) being located within the void only on a lateral side (14) of the article of footwear (10) and extending through a midfoot and heel region of the upper (30), the second inner layer (42) being secured at the central area of the sole structure (20), the second inner layer (42) being unsecured between the throat area (36) and the central area of the sole structure (20), and an end area of the second inner layer (42) extending through an opening (64) in the upper (30) on a lateral side (14); and
    a second strap (61) that is coupled to the end area of the second inner layer (42) and is securable to a fastener (33) on the exterior surface of the article of footwear (10), wherein the second strap (61) extends from the lateral side (14) to a medial side (15) of the article of footwear (10)..

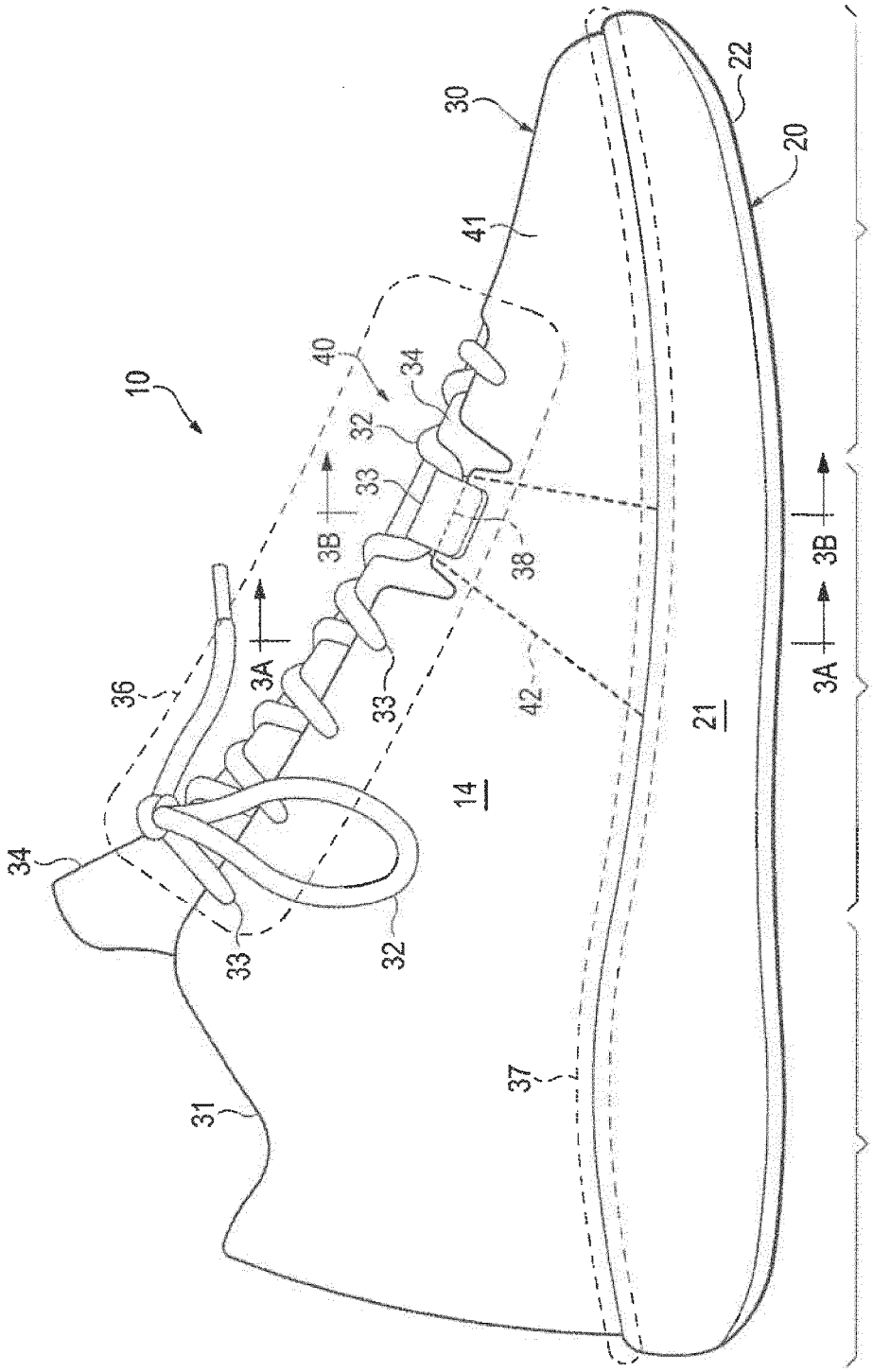
10
30
22
20
41
11
40
34
32
33
3B
38
3A
36
33
42
21
12
14
34
33
32
37
31
13

Figure 1

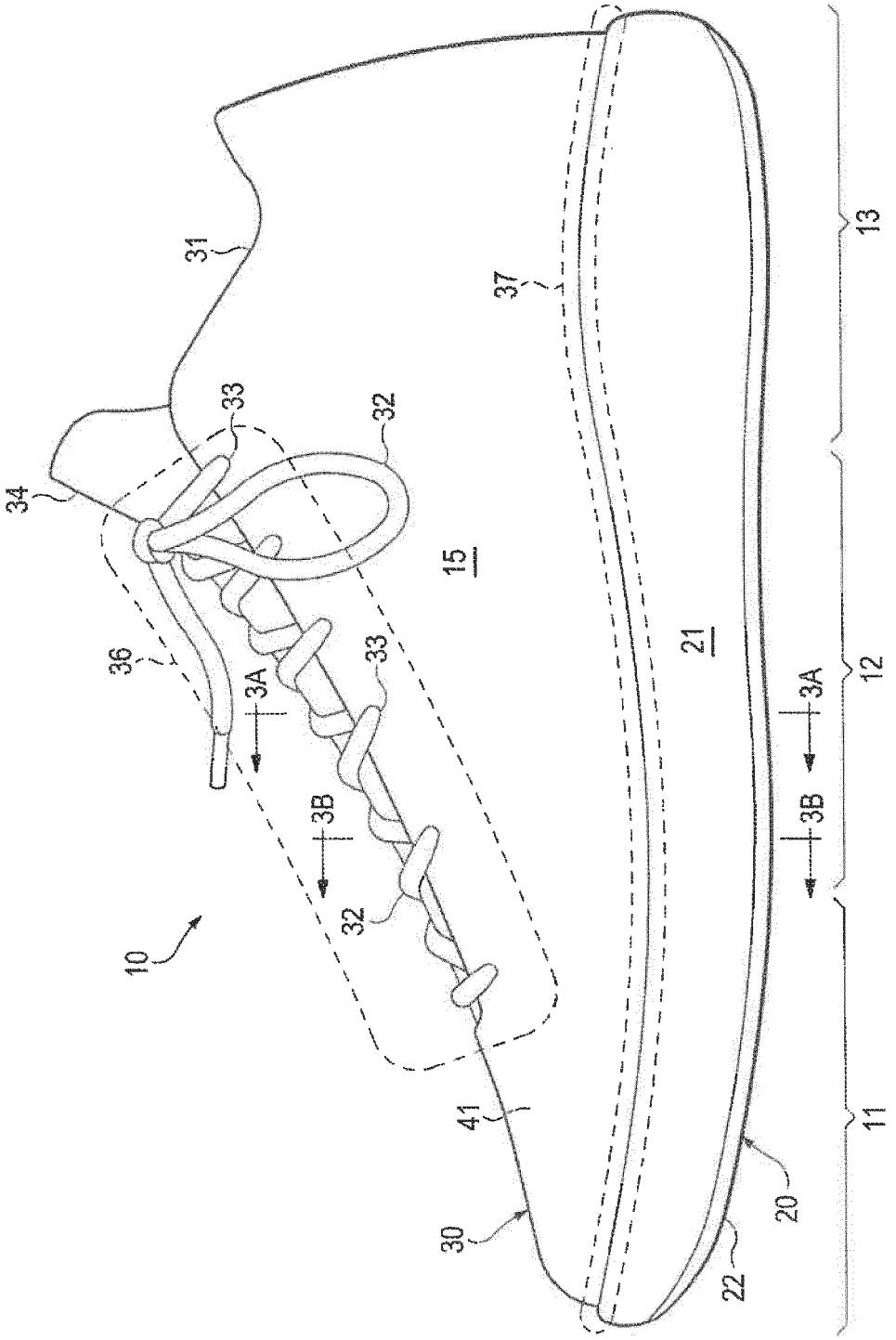


Figure 2

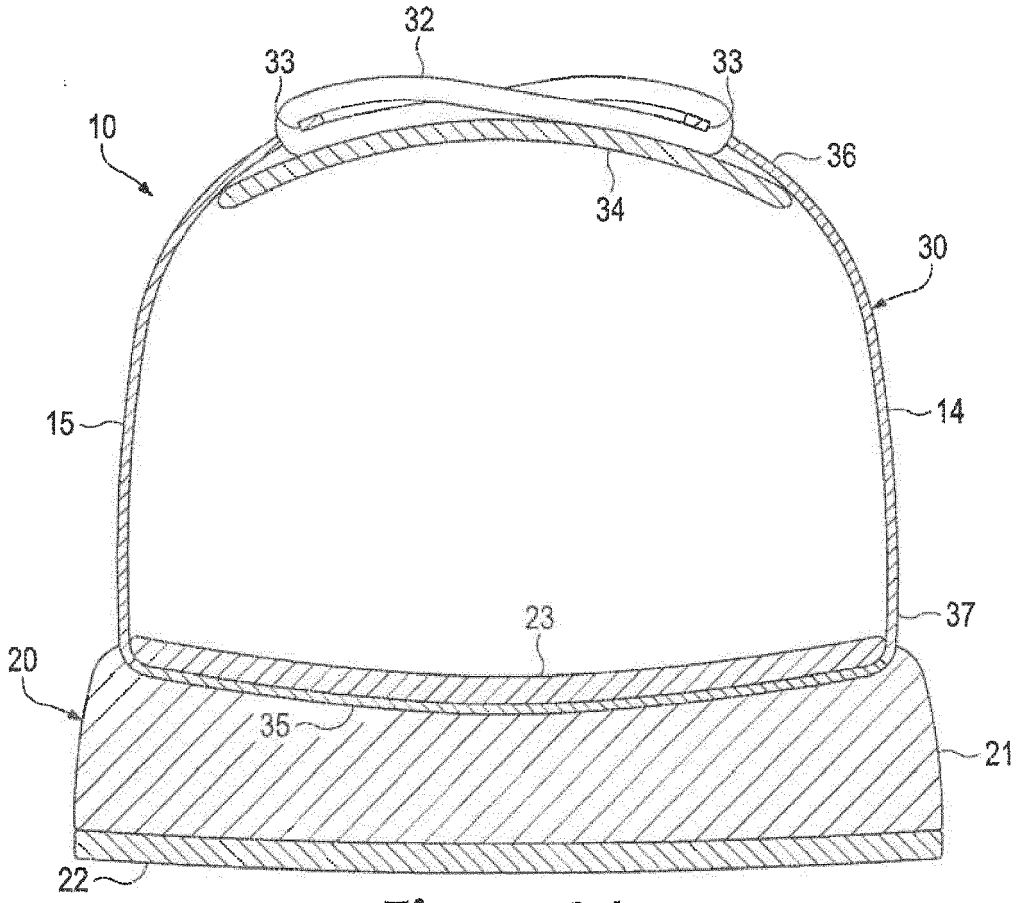


Figure 3A

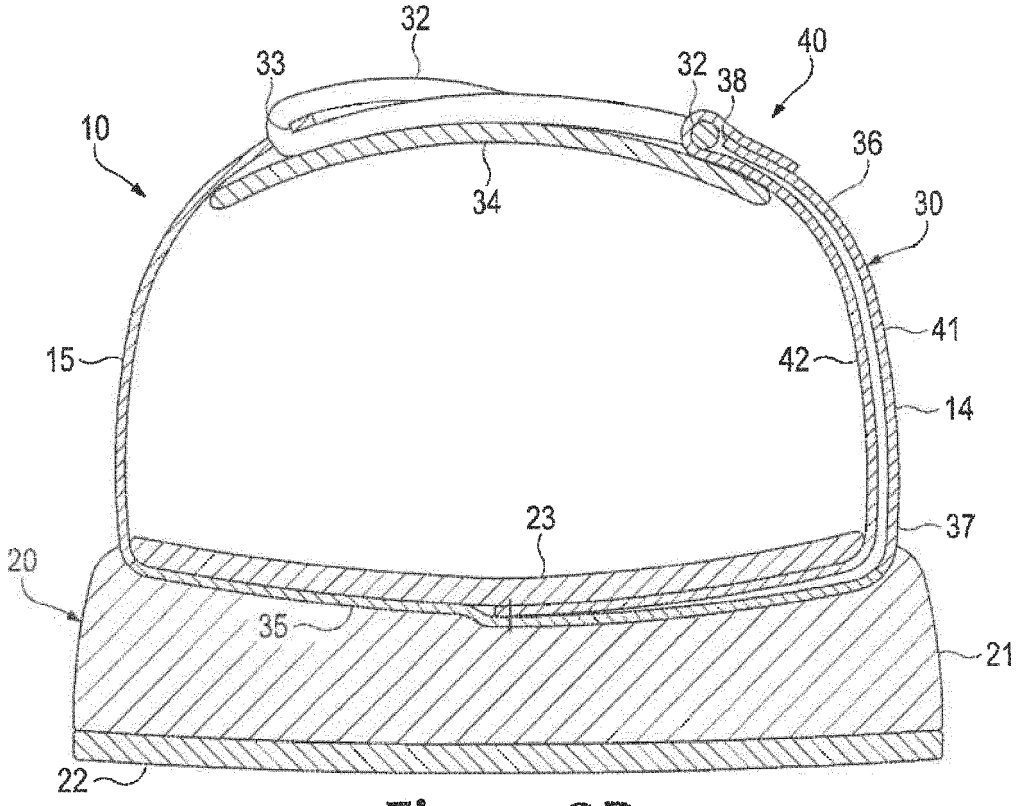


Figure 3B

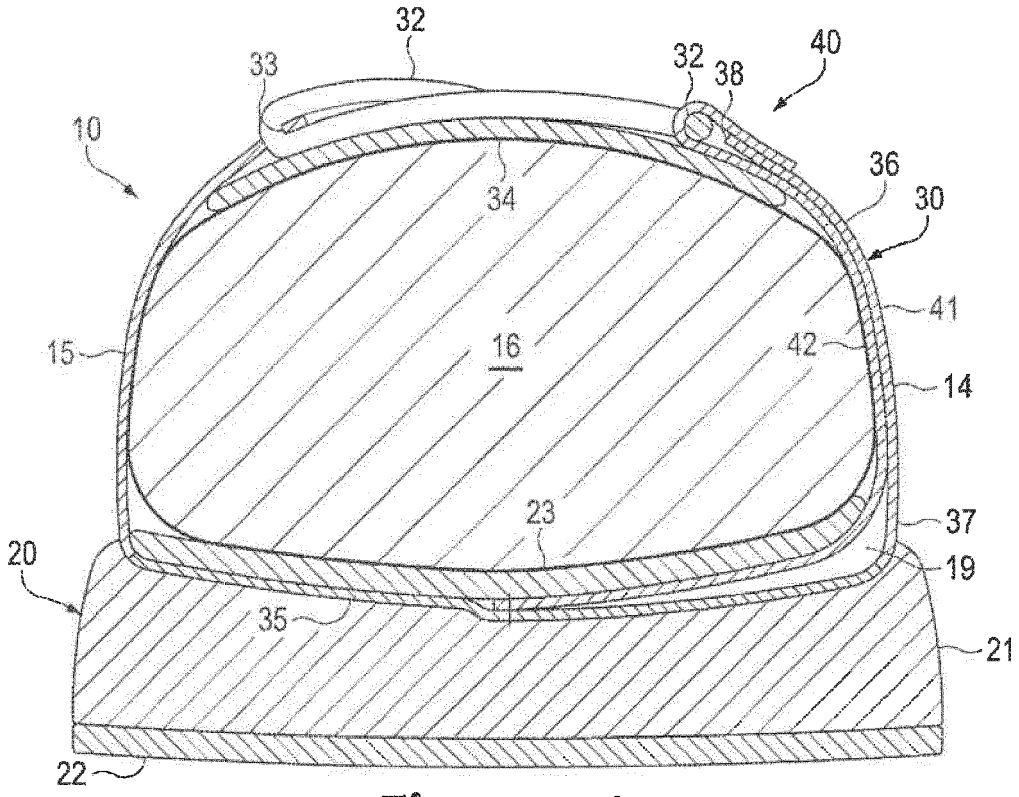


Figure 4A

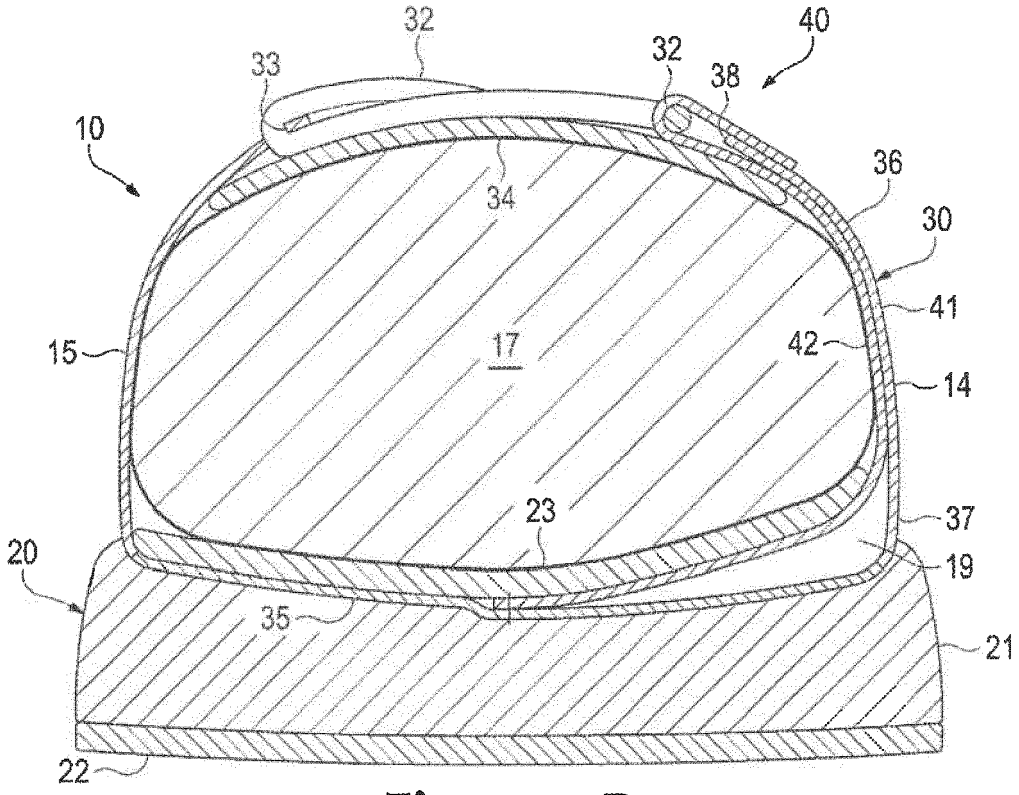


Figure 4B

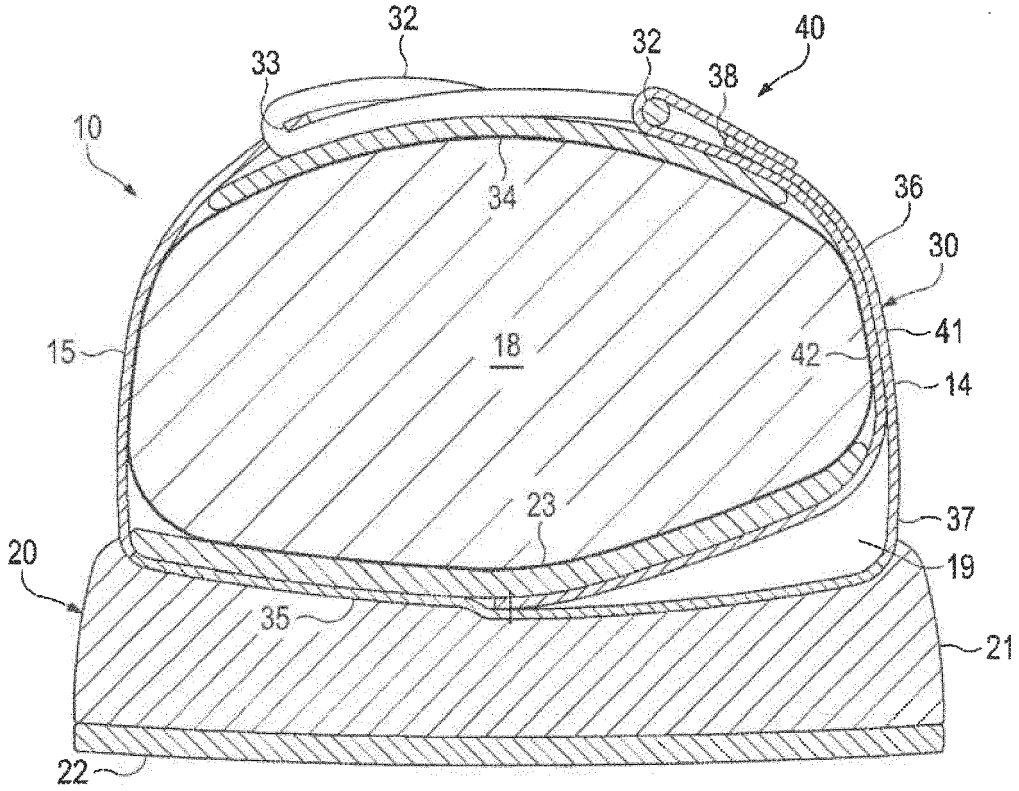


Figure 4C

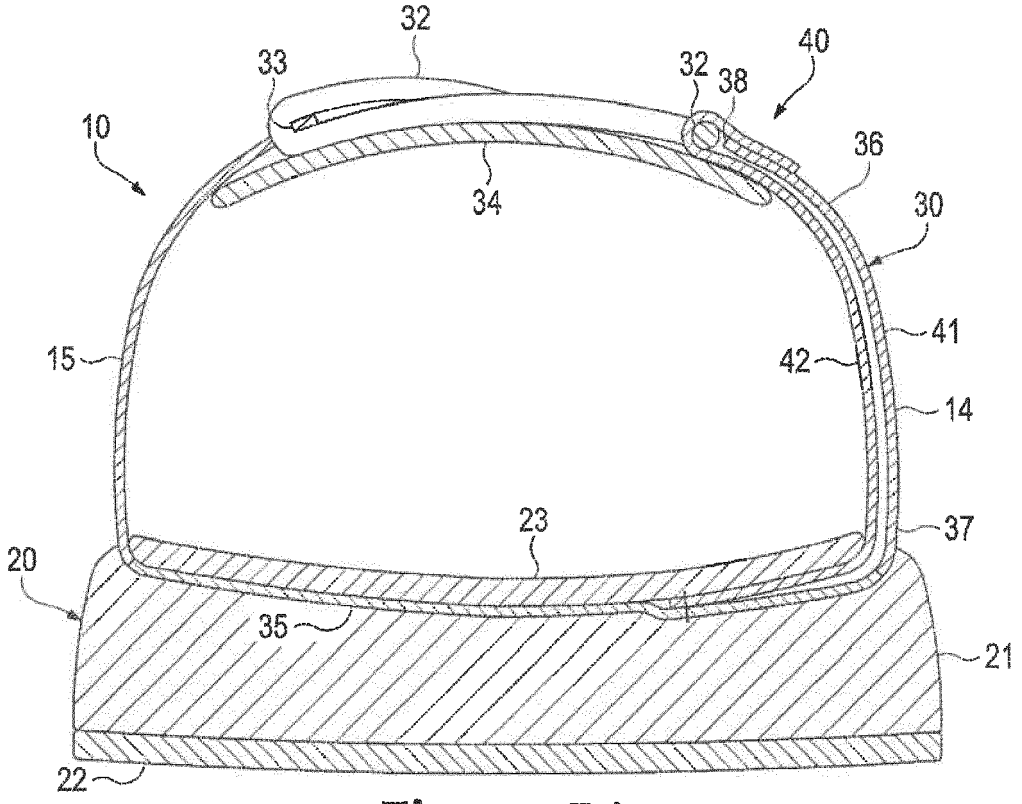


Figure 5A

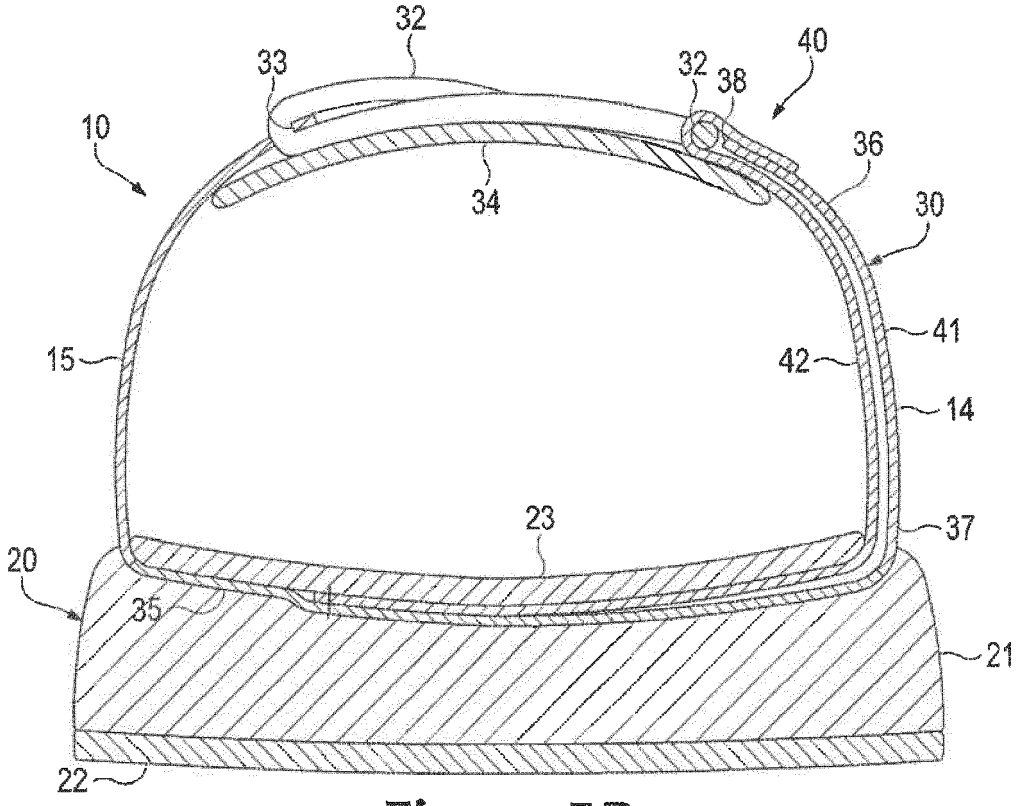


Figure 5B

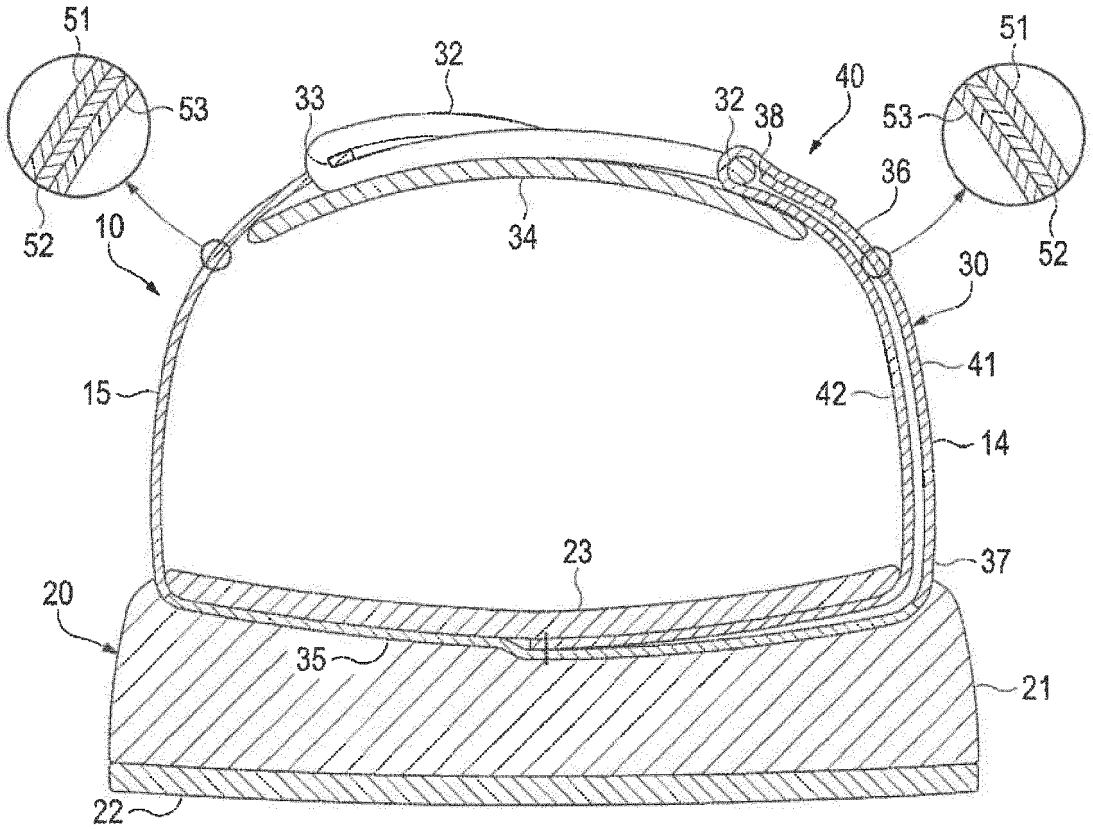
51
53
52
10
32
33
34
32
38
40
36
51
53
52
30
41
42
14
15
23
37
20
35
21
22

Figure 5C

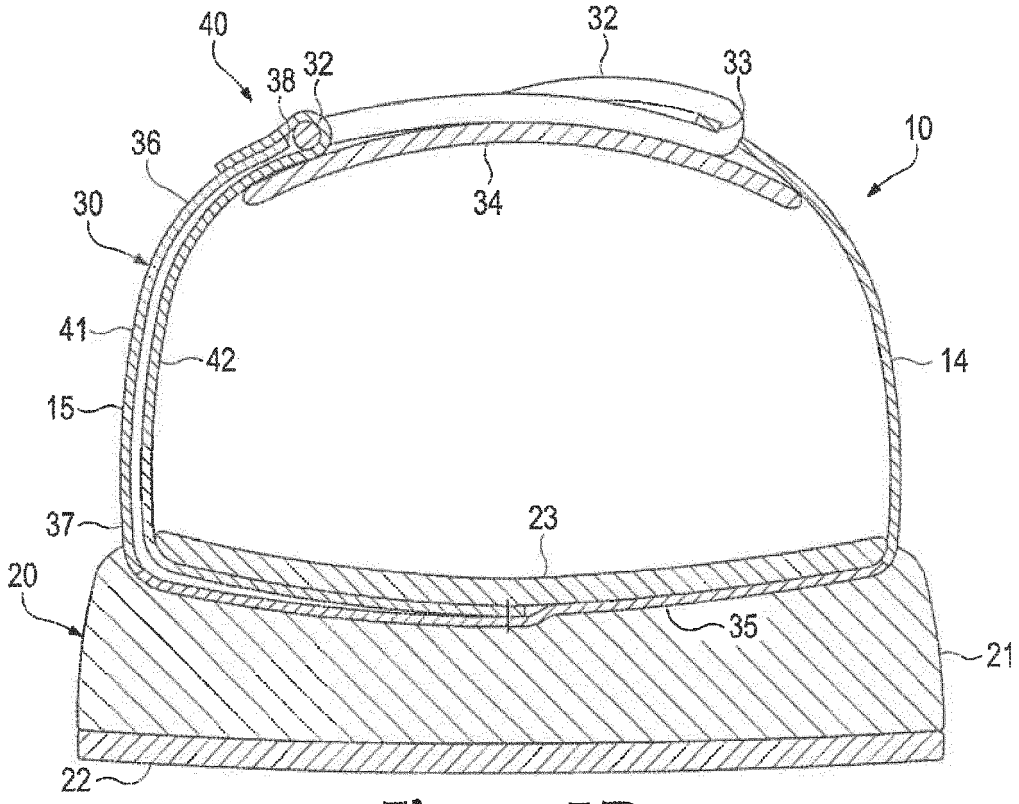


Figure 5D

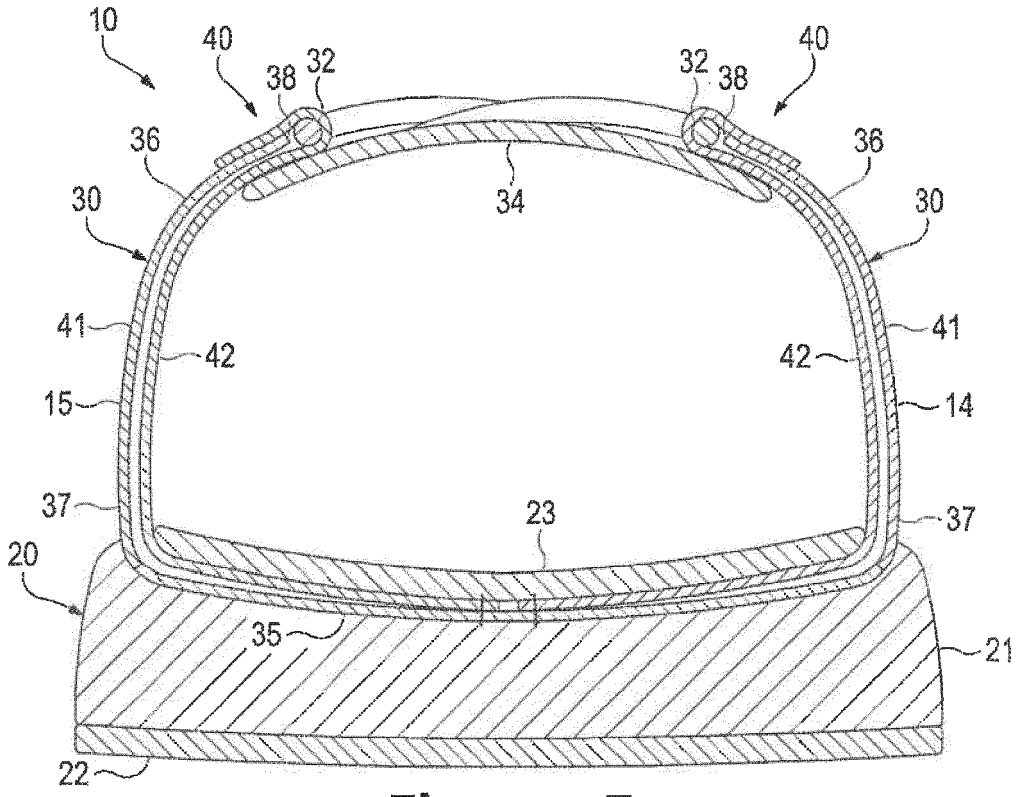
10
40
38
32
32
38
40
36
36
34
30
30
41
42
42
41
15
14
37
23
37
20
35
21
22

Figure 5E

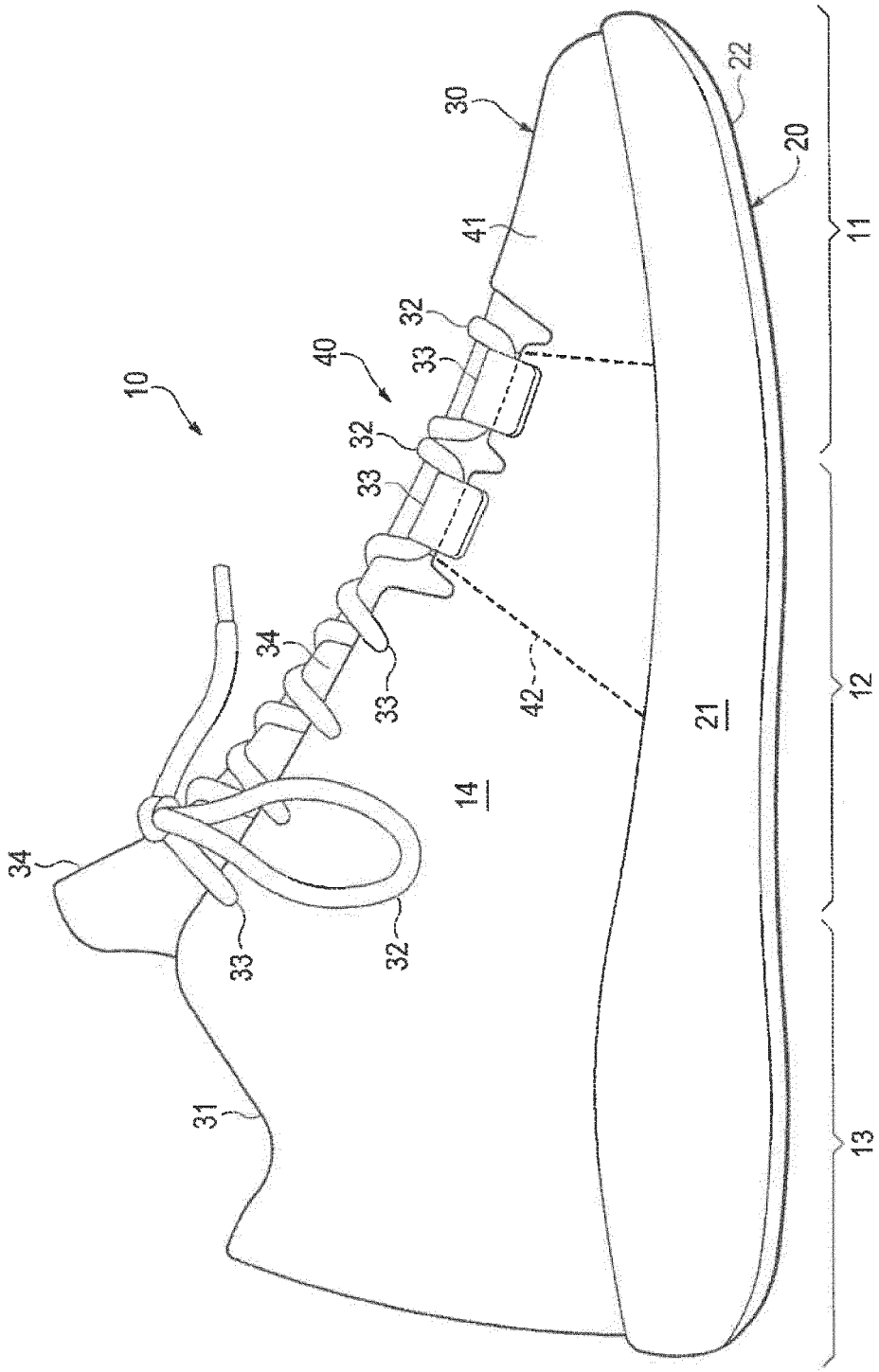


Figure 6A

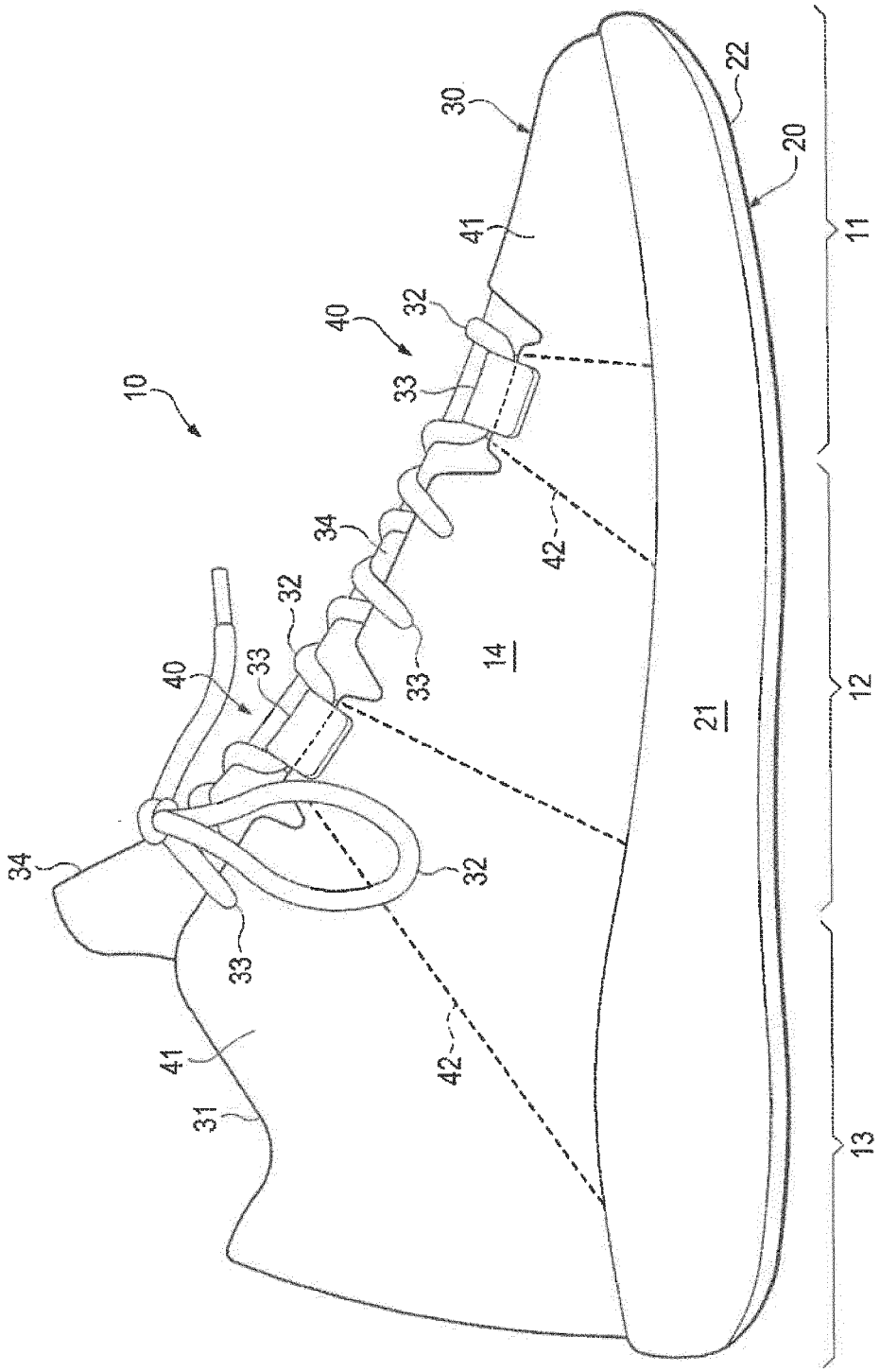


Figure 6B

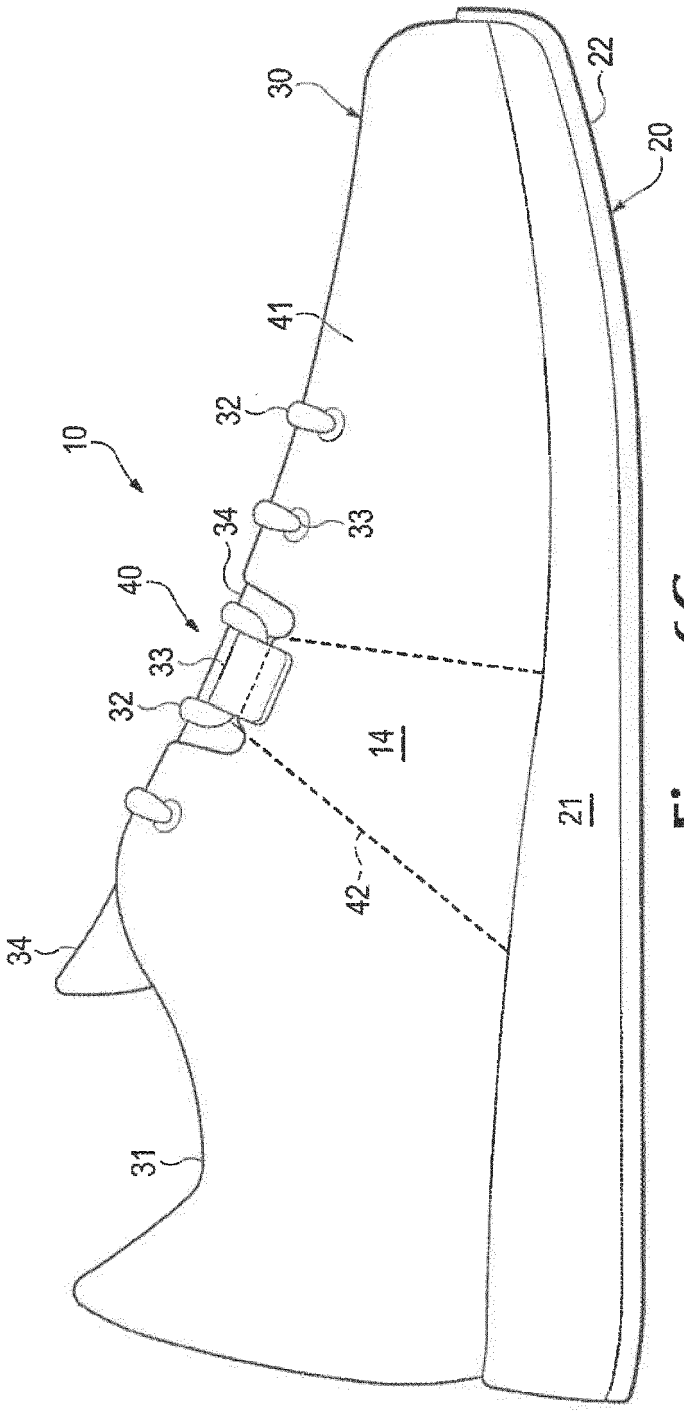


Figure 6C

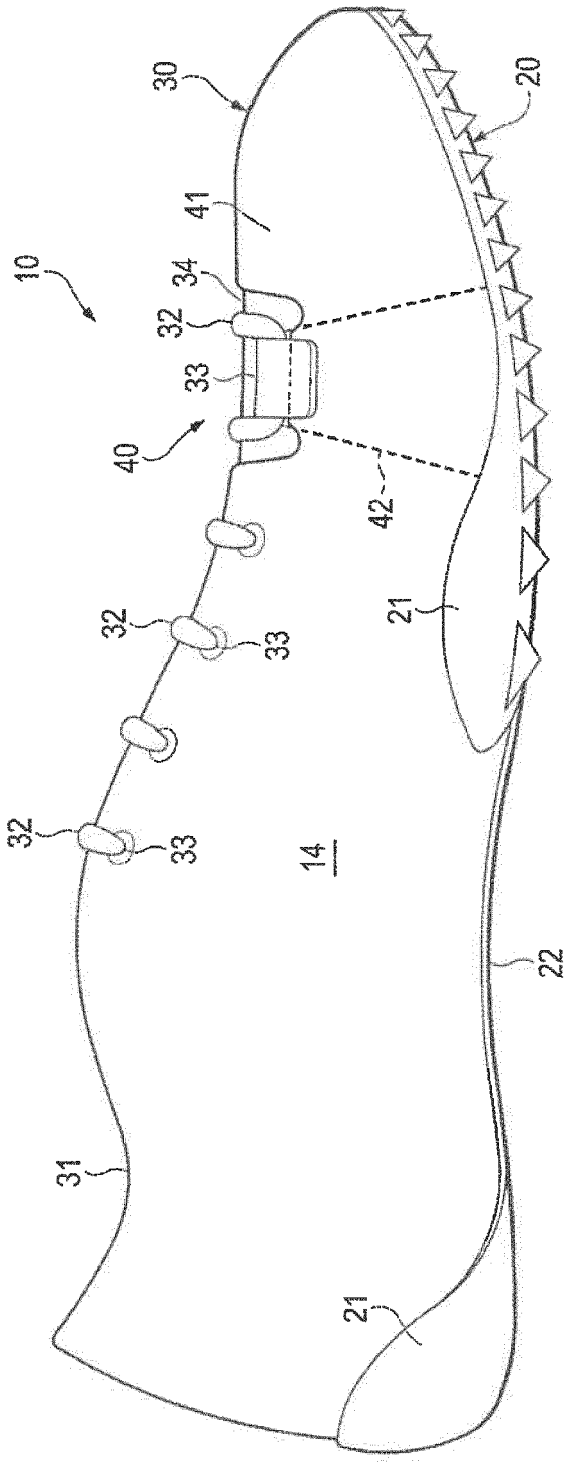


Figure 6D

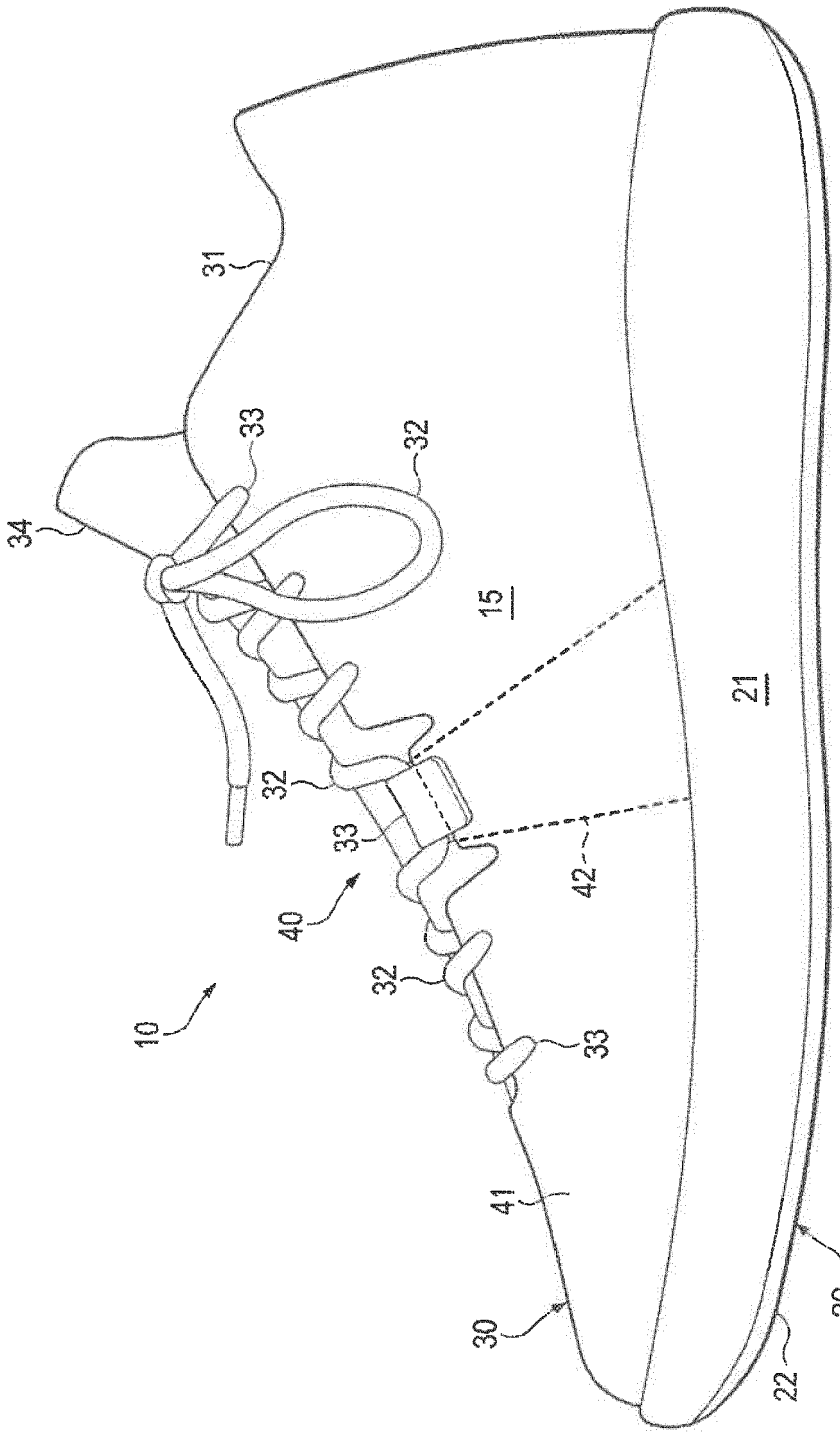


Figure 7

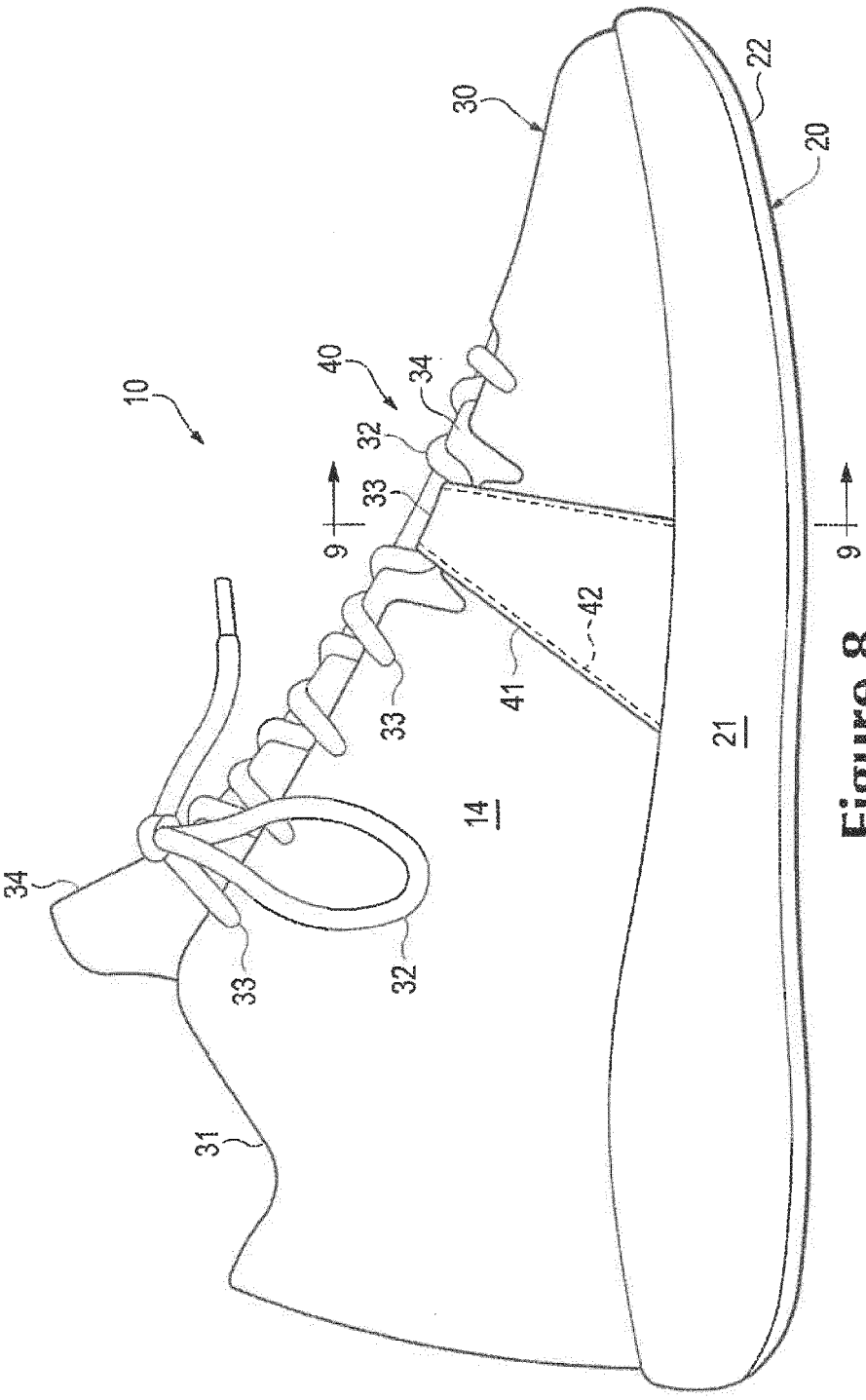


Figure 8

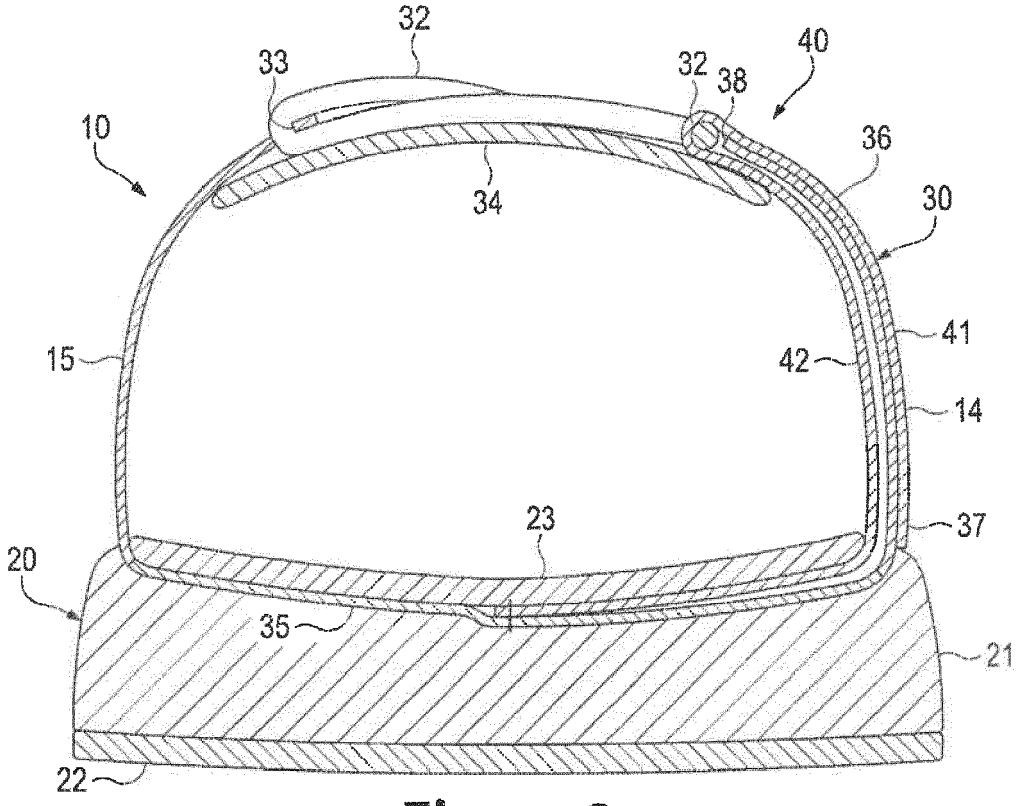


Figure 9

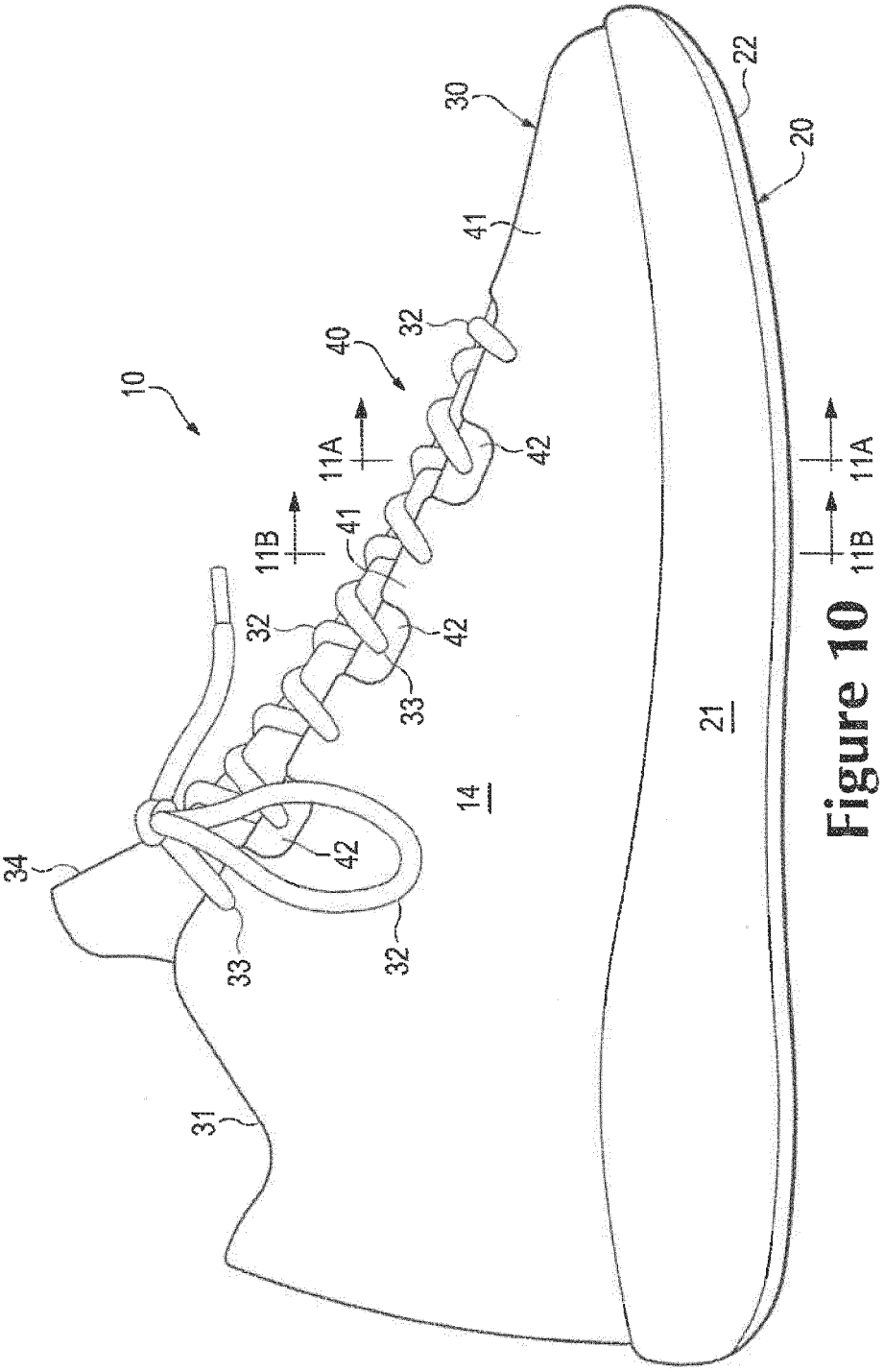


Figure 10

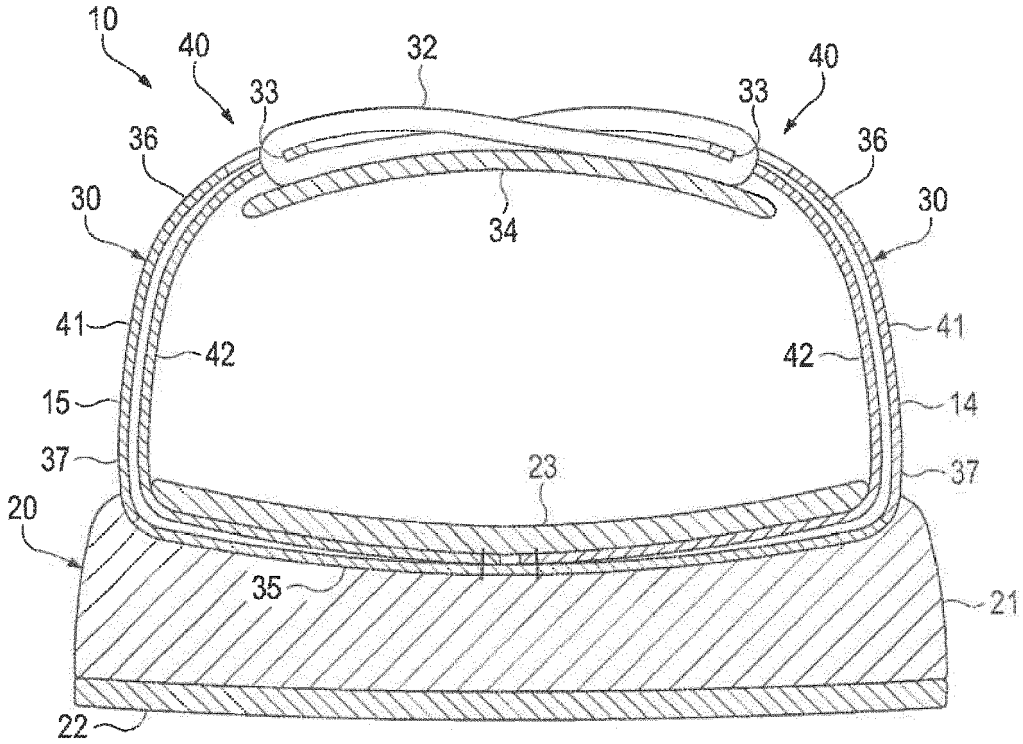


Figure 11A

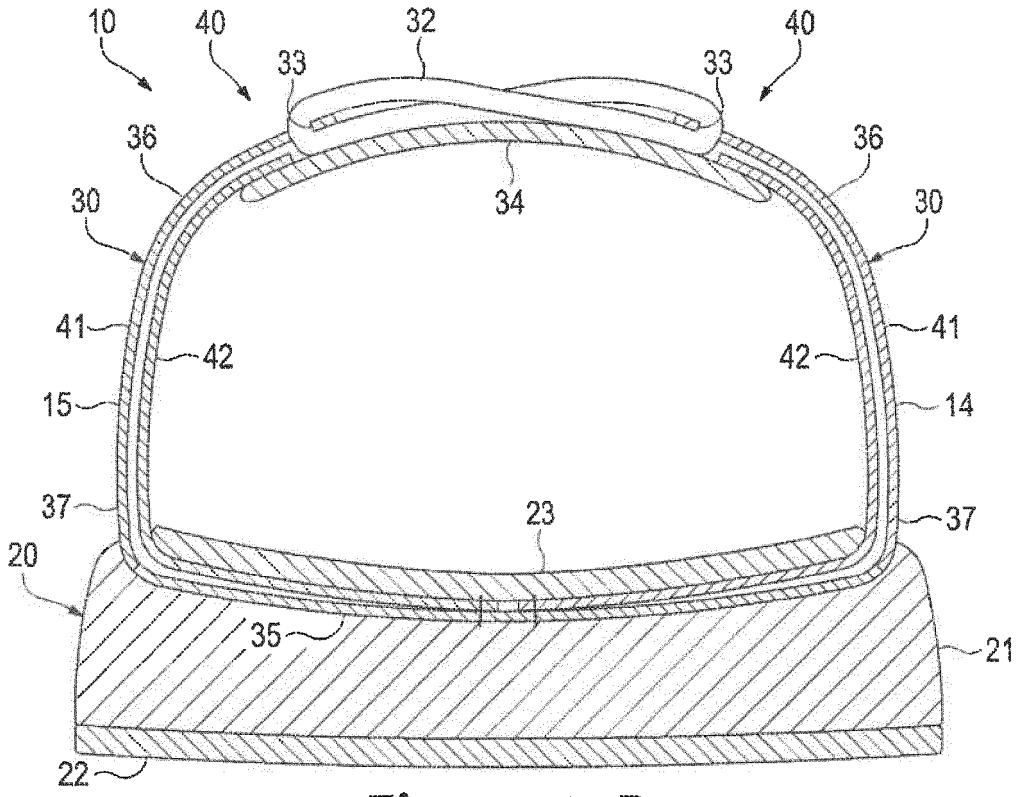


Figure 11B

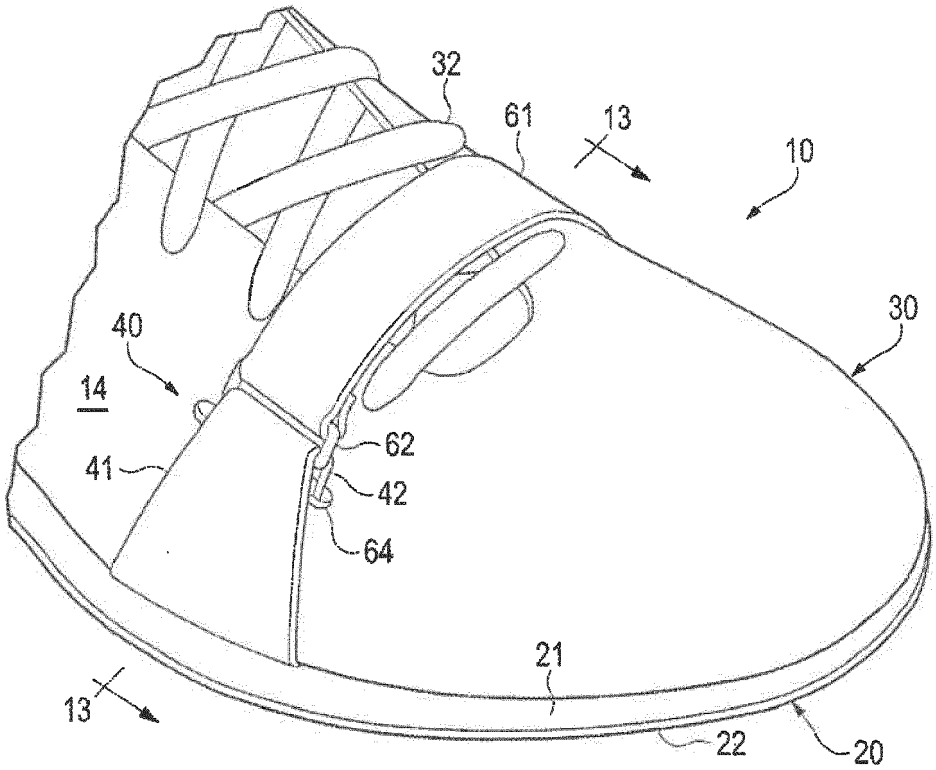


Figure 12

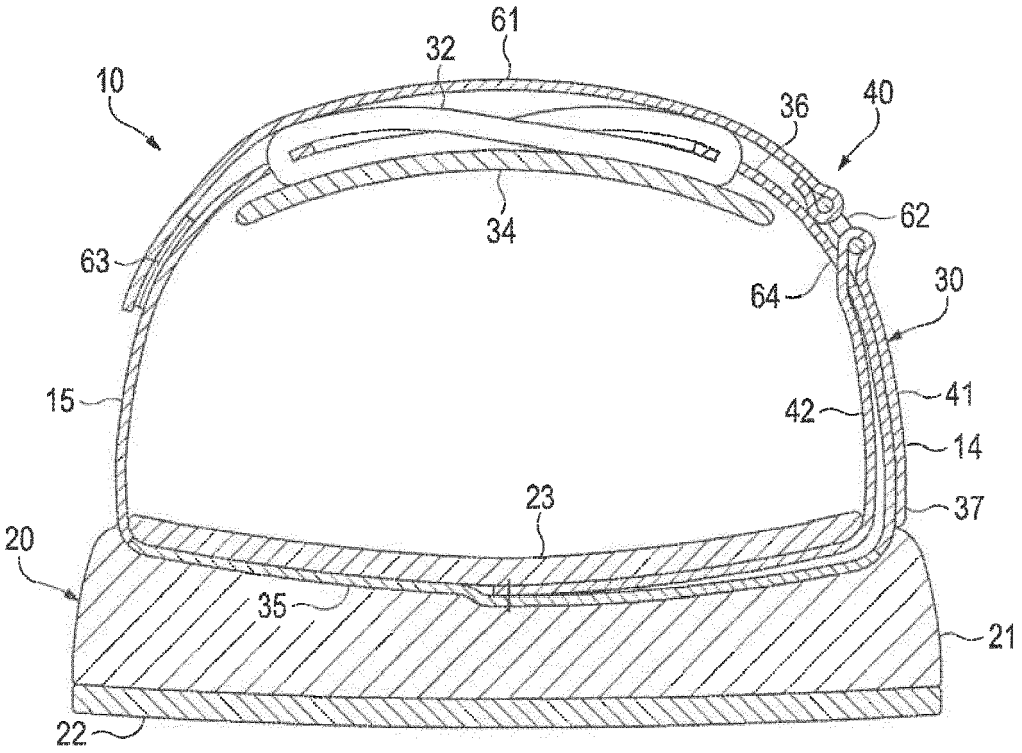


Figure 13

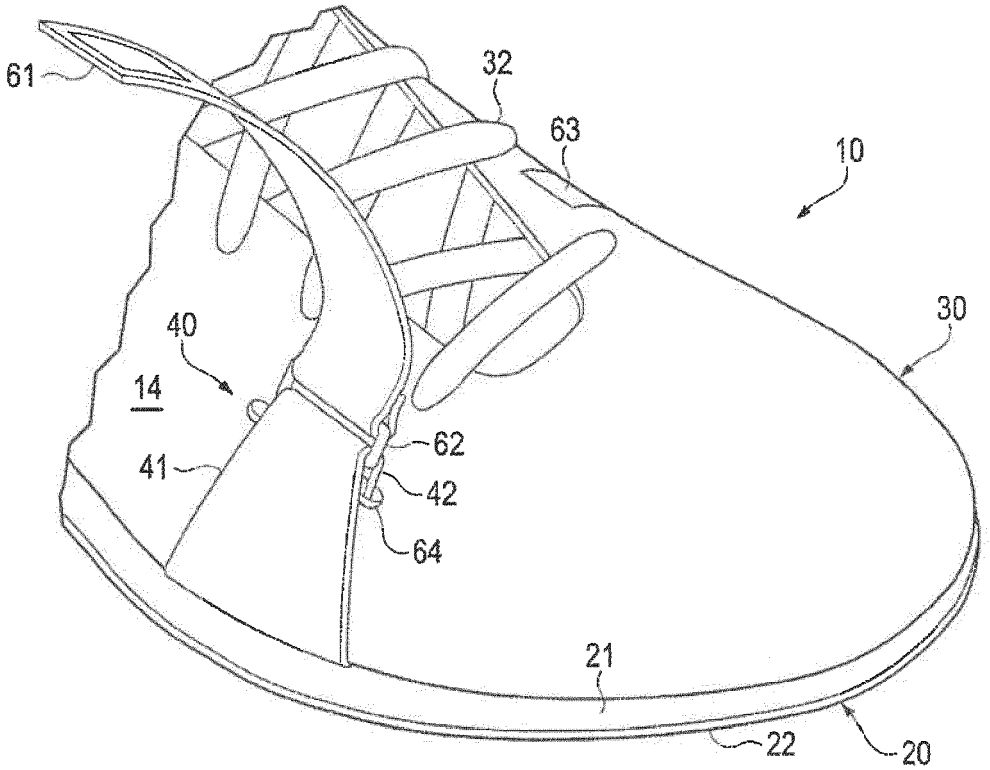


Figure 14

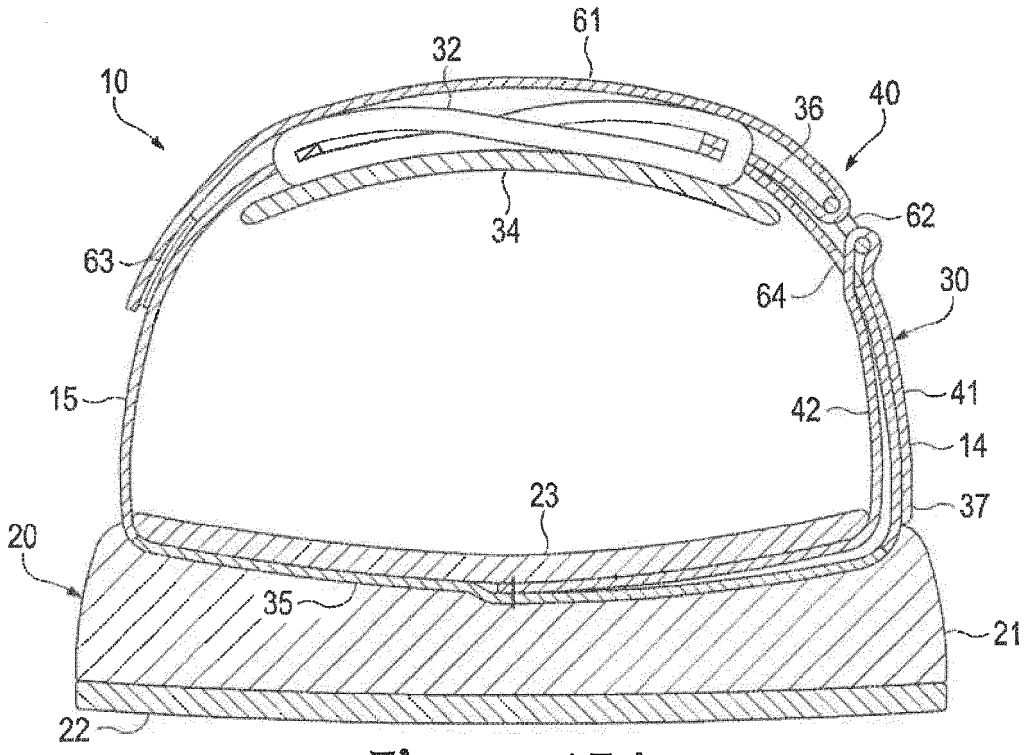


Figure 15A

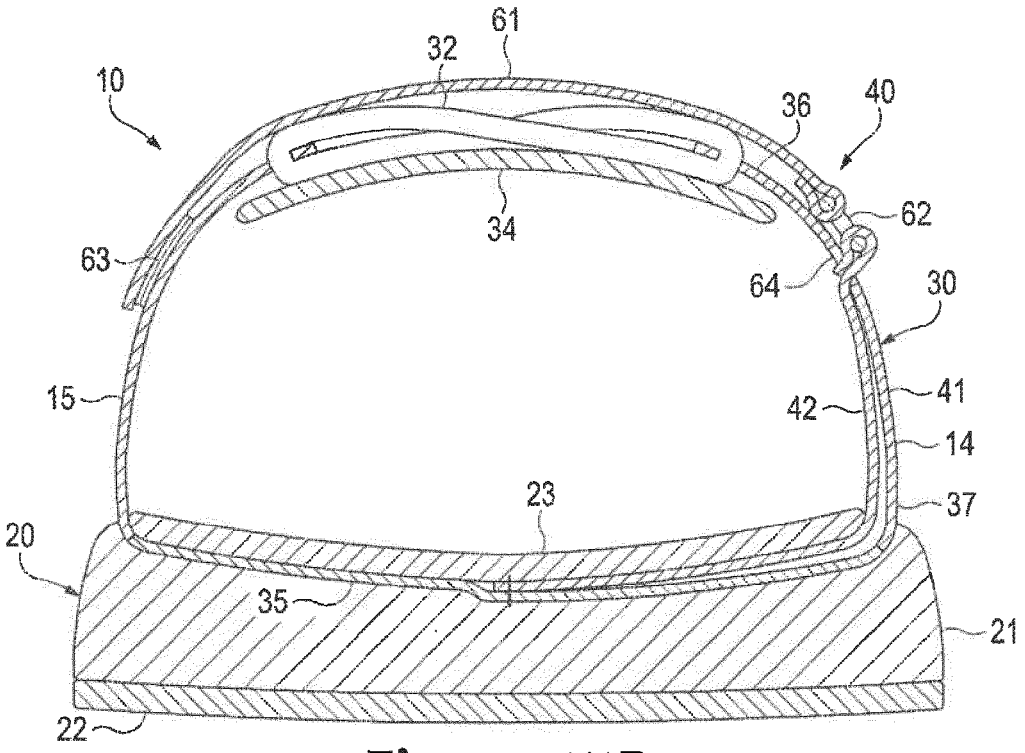


Figure 15B

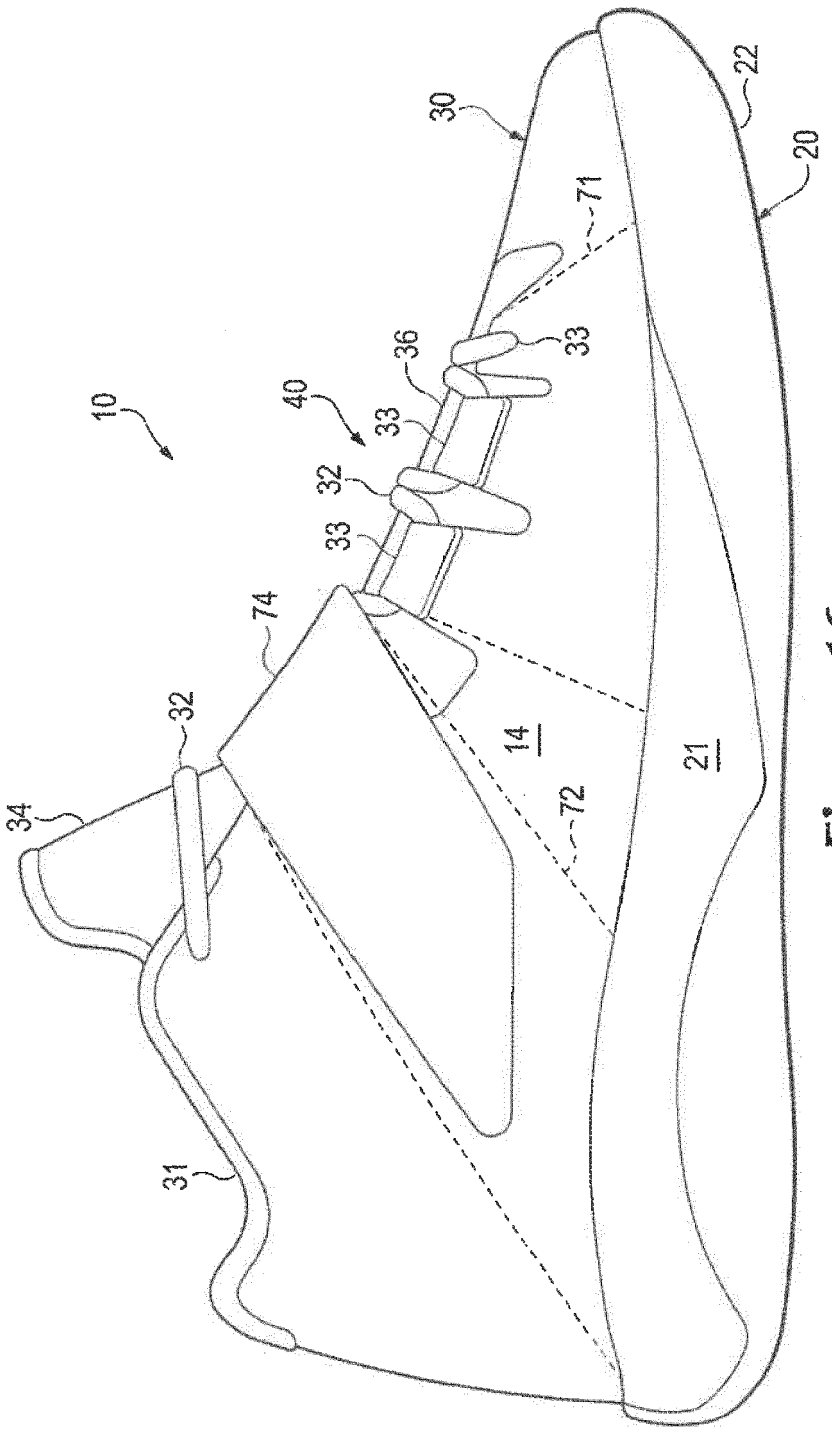


Figure 16

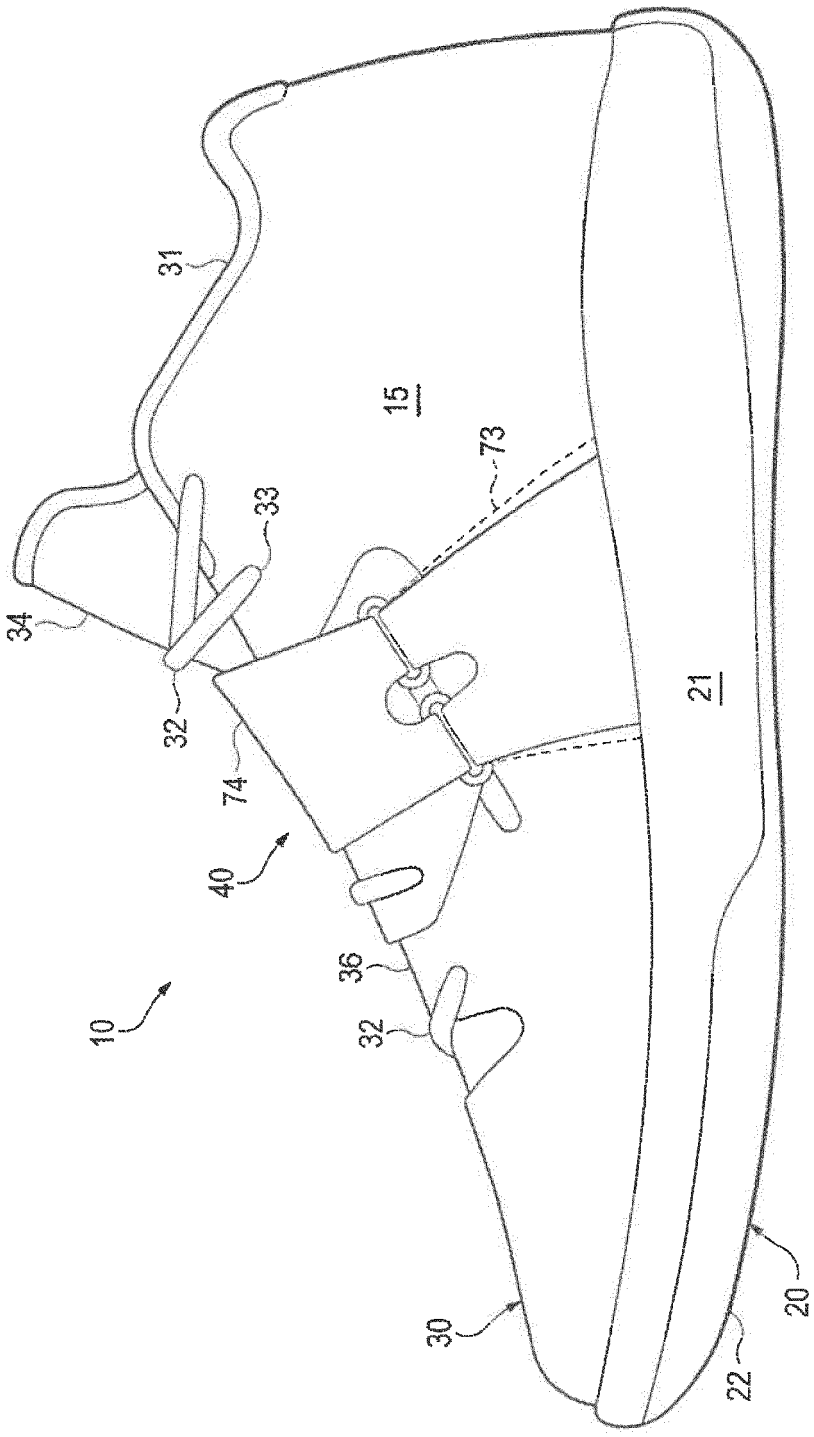


Figure 17

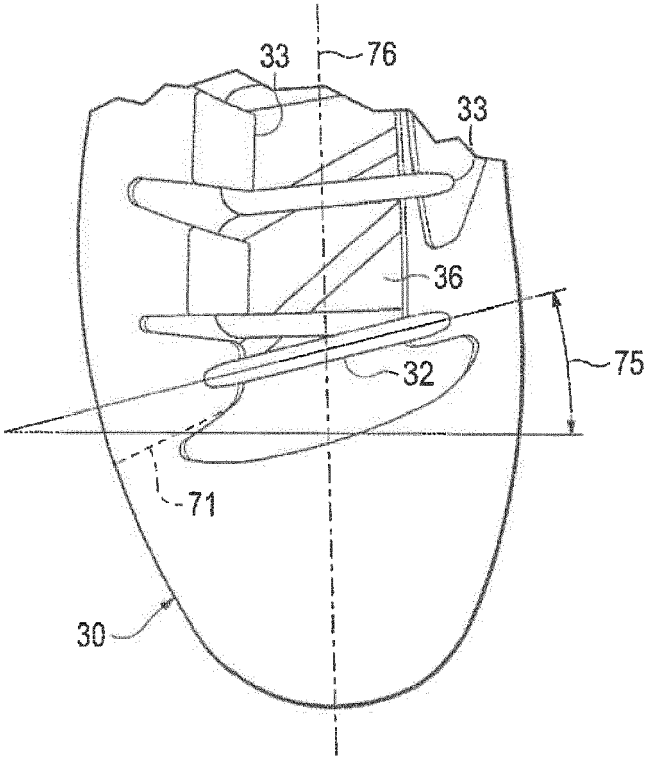


Figure 18

Europäisches Patentamt
European Patent Office
Office européen des brevets

# EUROPEAN SEARCH REPORT

Application Number
EP 21 18 8361

## DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (IPC) |
|---|---|---|---|
| X | US 2006/117606 A1 (CHEN EDDIE [TW] ET AL) 8 June 2006 (2006-06-08) * paragraph [0027] - paragraph [0040]; figures 1-16 * | 1,3-13 | INV. A43C1/04 A43B7/14 A43B3/26 A43B23/02 |
| X | US 2012/079741 A1 (KOHATSU SHANE S [US]) 5 April 2012 (2012-04-05) * paragraph [0021] - paragraph [0070]; figures 1A-9 * * figures 2, 6, 7 * | 1-13 | |
| X | JP S63 57902 U (.) 18 April 1988 (1988-04-18) * figures 1-5 * | 1,3,5-12 | |

TECHNICAL FIELDS SEARCHED (IPC)

A43C
A43B

The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| Munich | 4 November 2021 | Oelschläger, Holger |

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

## ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 21 18 8361

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

04-11-2021

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---|---|---|
| US 2006117606 A1 | 08-06-2006 | NONE | |
| US 2012079741 A1 | 05-04-2012 | CN 103167811 A | 19-06-2013 |
| | | EP 2621300 A1 | 07-08-2013 |
| | | US 2012079741 A1 | 05-04-2012 |
| | | US 2014360050 A1 | 11-12-2014 |
| | | WO 2012047405 A1 | 12-04-2012 |
| JP S6357902 U | 18-04-1988 | JP H023291 Y2 | 25-01-1990 |
| | | JP S6357902 U | 18-04-1988 |

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

## REFERENCES CITED IN THE DESCRIPTION

*This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.*

### Patent documents cited in the description


- US 73982913 **[0001]**