



(11)

EP 4 772 063 A1

(12)

EUROPEAN PATENT APPLICATION
published in accordance with Art. 153(4) EPC

(43) Date of publication:
08.07.2026 Bulletin 2026/28

(21) Application number: **24874391.6**

(22) Date of filing: **27.08.2024**

(51) International Patent Classification (IPC):
A43B 23/02 ^(2006.01) **A43B 7/1467** ^(2022.01)
A43B 7/1475 ^(2022.01)

(52) Cooperative Patent Classification (CPC):
A43B 7/1467; A43B 7/1475; A43B 23/02

(86) International application number:
PCT/JP2024/030453

(87) International publication number:
WO 2025/074777 (10.04.2025 Gazette 2025/15)

(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 ME MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA
Designated Validation States:
GE KH MA MD TN

(30) Priority: **06.10.2023 JP 2023174044**

(71) Applicant: **ASICS Corporation**
Kobe-shi, Hyogo 650-0021 (JP)

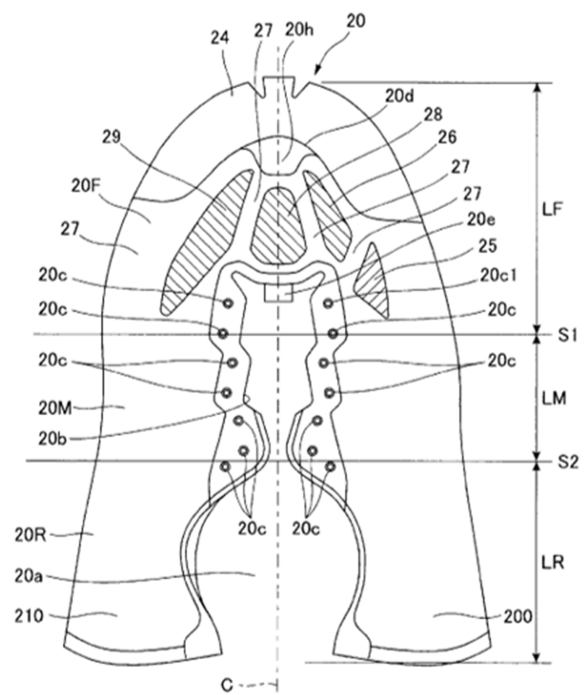
(72) Inventors:
• **NAKAMURA, Hiroki**
Kobe-shi, Hyogo 650-0021 (JP)
• **ISHIZASHI, Tomoki**
Kobe-shi, Hyogo 650-0021 (JP)
• **EGUCHI, Yoshihiro**
Kobe-shi, Hyogo 650-0021 (JP)
• **KITAMOTO, Keishi**
Kobe-shi, Hyogo 650-0021 (JP)

(74) Representative: **TBK**
Bavariaring 4-6
80336 München (DE)

(54) **SHOE**

(57) The present disclosure provides a shoe suitable for exercise (e.g., running) in which measures against hallux valgus are taken. A shoe 1 includes a sole and an upper 2 provided above the sole to accommodate a wearer's foot, wherein at least an upper forefoot region 20F of the upper 2 covering a forefoot part of the wearer is formed of a continuous single piece of knitted or woven fabric, and the upper forefoot region 20F includes a first region 25 corresponding to a medial side surface including a base of a big toe of the wearer, a second region 26 corresponding to a front end portion of the upper 2, and a third region 27 located at least between a toe side of the first region 25 and the second region 26, and wherein an elasticity of the first region 25 is higher than an elasticity of the second region 26, and an elasticity of the third region 27 is lower than the elasticity of the second region 26.

FIG. 2



Description

TECHNICAL FIELD

[0001] The present disclosure relates to a shoe.

BACKGROUND ART

[0002] Hallux valgus refers to a condition in which the base of the big toe (MP joint) protrudes and the tip of the toe is bent toward the little toe side, and is observed in approximately 30% of adults. When a person with hallux valgus wears shoes, the base of the big toe may be pressed by the upper of the shoe, causing pain.

[0003] Various shoes intended for people with hallux valgus have been proposed. For example, Patent Literature 1 proposes an orthopedic shoe intended to be worn by a person suffering from a medical condition such as hallux valgus. This shoe has a relief region formed in the upper for a deformed region of the foot. This relief region is made of a material that is more elastic and has a lower friction coefficient than other materials of the upper, and the relief region is configured to extend.

CITATION LIST

Patent Literature

[0004] Patent Literature 1: EP 1800555 A1

DISCLOSURE OF INVENTION

PROBLEMS TO BE SOLVED BY THE INVENTION

[0005] In the shoe disclosed in Patent Literature 1, the relief region extends in response to the protrusion of the base part of the big toe due to hallux valgus, thereby reducing stress on the base of the big toe.

[0006] In the shoe disclosed in Patent Literature 1, the relief region and other regions of the upper are made of different materials. However, in shoes suitable for exercise (e.g., running), the upper is usually made of the same material and breathability is required. In the shoe described above, since the upper is composed of different materials and breathability is not considered at all, the shoe cannot fulfill the functions required for a shoe suitable for exercise (e.g., running).

[0007] As described above, conventional shoes worn by people with hallux valgus are not suitable for exercise (e.g., running), and shoes that people with hallux valgus can comfortably wear and perform exercise in are desired.

[0008] The present disclosure has been made in view of the above problems, and an object thereof is to provide a shoe suitable for exercise (e.g., running) in which measures against hallux valgus are taken.

MEANS FOR SOLVING THE PROBLEMS

[0009] The present inventors have studied the stress on the protrusion of the base of the big toe due to hallux valgus while satisfying the requirements of exercise (e.g., running) itself. As a result of intensive studies, the present inventors have arrived at the following configuration.

[0010] A shoe according to an embodiment of the present disclosure includes a sole and an upper provided above the sole and configured to accommodate a wearer's foot, wherein at least a forefoot region of the upper covering a forefoot part of the wearer is formed of a continuous single piece of knitted or woven fabric, and the forefoot region includes a first region corresponding to a medial side surface including the base of the big toe of the wearer, a second region corresponding to a front end portion of the upper, and a third region located at least between a toe side of the first region and the second region, and wherein the elasticity of the first region is higher than the elasticity of the second region, and the elasticity of the third region is lower than the elasticity of the second region.

[0011] In the following description, numerous specific examples are set forth in order to provide a thorough understanding of the present disclosure. However, it will be apparent to those skilled in the art that the present invention may be practiced without these specific examples.

[0012] Accordingly, the following disclosure should be considered as illustrative of the present disclosure and is not intended to limit the present disclosure to the specific embodiments shown by the following drawings or description.

EFFECT OF THE INVENTION

[0013] According to an embodiment of the present disclosure, at least the forefoot region of the upper covering the forefoot part of the wearer is formed of a continuous single piece of knitted or woven fabric, and the first region corresponding to the medial side surface including the base of the big toe of the wearer is configured to have higher elasticity than other regions, so that the first region corresponding to the protruding part of the base of the big toe deforms outward. Thereby, compression of the base part of the big toe by the wearer is reduced, stress is alleviated, and discomfort such as pain for a person with hallux valgus can be reduced. Furthermore, since the forefoot region is formed of a continuous single piece of knitted fabric, a wearing feeling as a shoe for exercise (e.g., running) can be obtained.

BRIEF DESCRIPTION OF DRAWINGS

[0014]

FIG. 1 is a plan view schematically showing a state in which a skeletal model of a foot is superimposed on a

shoe according to Embodiment 1 of the present disclosure.

FIG. 2 is a developed view showing an upper body of the shoe according to Embodiment 1 of the present disclosure.

FIG. 3 is a top view of the shoe according to Embodiment 1 of the present disclosure.

FIG. 4 is a side view of a lateral side of the shoe according to Embodiment 1 of the present disclosure.

FIG. 5 is a side view of a medial side of the shoe according to Embodiment 1 of the present disclosure.

FIG. 6 is a plan view of an inner surface side of a front end of the shoe according to Embodiment 1 of the present disclosure.

FIG. 7 is a top view showing a state in which a wearer with hallux valgus wears the shoe according to Embodiment 1 of the present disclosure.

FIG. 8 is a plan view schematically showing a state in which a skeletal model of a foot with hallux valgus is superimposed on the shoe according to Embodiment 1 of the present disclosure.

FIG. 9 is a developed view showing an upper body of a shoe according to a modification of Embodiment 1 of the present disclosure.

DESCRIPTION OF EMBODIMENTS

[0015] Next, a specific description will be given based on shoes according to embodiments of the present disclosure. The shoes according to the present disclosure are not limited to those shown in the following embodiments, and can be implemented with appropriate changes within a scope that does not change the gist thereof. In the embodiments and modifications of the present disclosure, the same or equivalent components and members are denoted by the same reference numerals, and redundant descriptions will be omitted as appropriate. In addition, the dimensions of the members in each drawing are shown enlarged or reduced as appropriate for ease of understanding. Further, in each drawing, some members that are not important for describing the embodiments are omitted.

[0016] Terms including ordinal numbers such as first and second are used to describe various components, but these terms are used only for the purpose of distinguishing one component from another, and the components are not limited by these terms.

[Embodiment]

[0017] FIG. 1 is a plan view schematically showing a state in which a skeletal model of a foot is superimposed on a shoe 1 according to Embodiment 1 of the present disclosure, FIG. 2 is a developed view showing an upper body 20 of the shoe 1 according to Embodiment 1, FIG. 3 is a top view of the shoe 1, FIG. 4 is a side view of the

lateral side of the shoe 1, and FIG. 5 is a side view of the medial side of the shoe 1. In each drawing including FIG. 1, only the shoe 1 for the left foot is shown. Since the shoe 1 has a symmetrical structure for the left foot and the right foot, in this embodiment, the shoe 1 for the left foot will be described, and description of the shoe 1 for the right foot will be omitted. In the following description, a direction in which a shoe center axis C, which is a perpendicular line passing through the center of the shoe 1 in a plan view of the shoe 1, extends is referred to as a longitudinal direction, and a direction orthogonal to the longitudinal direction in a plan view of the shoe 1 is referred to as a foot width direction.

[0018] Of the longitudinal direction, a direction from the heel toward the toes in the shoe 1 is referred to as "front" or "forward," and a direction from the toes toward the heel in the shoe 1 is referred to as "rear" or "backward." Of the vertical direction, a direction toward the ground side in the shoe 1 placed on a flat surface such as the ground is referred to as "down" or "downward," and a direction opposite to the ground is referred to as "up" or "upward."

[0019] The midline side in the anatomical position of the foot is referred to as the medial side, and the side opposite to the midline side in the anatomical position of the foot is referred to as the lateral side. That is, the side closer to the midline in the anatomical position is referred to as the medial side, and the side farther from the midline in the anatomical position is referred to as the lateral side.

[0020] As shown in FIG. 1, the human foot is mainly composed of cuneiform bones Ba, cuboid bone Bb, navicular bone Bc, talus Bd, calcaneus Be, metatarsal bones Bf, proximal phalanges Bg, middle phalanges Bh, and distal phalanges Bi. The joints of the foot include the DIP joint Ja (distal interphalangeal joint), the PIP joint Jb (proximal interphalangeal joint), the MP joint Jc (metatarsophalangeal joint), the Lisfranc joint Jd, and the Chopart joint Je.

[0021] The human foot is divided into a forefoot part LF, a midfoot part LM, and a rearfoot part LR by the Lisfranc joint Jd and the Chopart joint Je. The forefoot part LF of the foot refers to a portion located forward of the Lisfranc joint Jd. The midfoot part LM of the foot refers to a portion from the Lisfranc joint Jd to the Chopart joint Je. The rearfoot part LR of the foot refers to a portion located backward of the Chopart joint Je.

[0022] As shown in FIGS. 1 and 2, the upper 2 includes an upper forefoot region 20F covering the forefoot part LF of a wearer of a standard body type, an upper midfoot region 20M covering the midfoot part LM of a wearer of a standard body type, and an upper rearfoot region 20R covering the rearfoot part LR of a wearer of a standard body type. The upper forefoot region 20F, the upper midfoot region 20M, and the upper rearfoot region 20R are continuous in this order in the longitudinal direction of the upper 2.

[0023] A line along the foot width direction passing through a position generally along the Lisfranc joint Jd of a wearer of a standard body type is defined as a first

boundary line S1, and a line along the foot width direction passing through a position generally along the Chopart joint Je of a wearer of a standard body type is defined as a second boundary line S2. The upper forefoot region 20F is a portion located forward of the first boundary line S1. The upper midfoot region 20M is a portion located between the first boundary line S1 and the second boundary line S2. The upper rearfoot region 20R is a portion located backward of the second boundary line S2.

[0024] The shoe 1 according to Embodiment 1 will be described with reference to FIGS. 3 to 5.

[0025] The shoe 1 is a shoe suitable for exercise such as running, and is used, for example, as a running shoe or other sports shoes. The shoe 1 includes a sole 3 and an upper 2 provided above the sole 3 and configured to accommodate a wearer's foot.

[0026] The upper 2 includes an upper body 20, a tongue 21, and a shoelace 22.

[0027] The upper body 20 covers the instep side of the foot. At the upper part of the upper body 20, a foot insertion opening 20a for inserting a wearer's foot and an opening 20b communicating with the foot insertion opening 20a are formed. The opening 20b is closed by the tongue 21. Eyelet portions 20c (20c1) spaced apart from each other in the longitudinal direction are provided at both side edges of the opening 20b in the foot width direction.

[0028] The configuration of the eyelet portion 20c (20c1) is not particularly limited as long as the shoelace 22 can be passed through it, but in the first embodiment, it is a through hole penetrating the upper body 20 in the vertical direction.

[0029] The tongue 21 is a member for protecting the instep of the wearer's foot. The tongue 21 covers the opening 20b inside the upper body 20. The tongue 21 is fixed to the upper body 20 by stitching, welding, gluing, or a combination thereof.

[0030] As a material for the upper body 20 and the tongue 21, for example, a knitted fabric in which yarns are curled into a chain shape and the chain-shaped portions are hooked to each other to form a cloth, a woven fabric in which warp yarns and weft yarns are intersected at a certain angle to form a cloth, a braided fabric in which three or more braided yarns are crossed and run obliquely to form a cloth, or the like is used. In particular, in the shoe 1 where breathability and light weight are required, a knitted fabric into which polyester yarns are knitted is used for the material of the upper body 20 and the tongue 21. Note that the materials of the upper body 20 and the tongue 21 are not limited to the exemplified materials.

[0031] The shoelace 22 is a string-like member that is alternately passed through the eyelet portions 20c provided on the side edge of the medial side 200 of the opening 20b in the foot width direction and the eyelet portions 20c provided on the side edge of the lateral side 210 in the foot width direction. The shoelace 22 is detachably attached to the upper body 20.

[0032] In the first embodiment, the upper 2 including

the tongue 21 and the shoelace 22 is described as an example, but the upper 2 may have a mono-sock structure in which a portion corresponding to the tongue 21 is integrated with the ankle portion of the upper body 20. Further, a structure using a hook-and-loop fastener instead of the shoelace 22 to closely fit the upper body 20 to the foot may be used. When a hook-and-loop fastener is used to fit the upper body 20 to the foot, the eyelet portions 20c are not formed in the upper body 20.

[0033] The sole 3 is located below the upper 2. The sole 3 covers the sole of the foot. The sole 3 includes an outsole 30 and a midsole 31. The sole 3 is fixed to the upper body 20 by stitching, welding, gluing, or a combination thereof. The lower surface of the outsole 30 serves as a ground contact surface 30a that is placed on the ground. The midsole 31 is located on the upper surface of the outsole 30 and has cushioning properties. Note that the outsole 30 may be integrated with the midsole 31. The outsole 30 integrated with the midsole 31 is also referred to as a "unisole."

[0034] In the first embodiment, as shown in FIG. 5, the medial side 200 of the midsole 31 of the sole 3 includes a first support portion 31a and a second support portion 32a which is a region of the midsole 31 other than the first support portion 31a. The first support portion 31a supports at least the midfoot part LM of the medial side 200 of the wearer. The hardness of the first support portion 31a is configured to be higher than the hardness of the second support portion 32a. By setting the respective hardnesses in this way, the midfoot part LM of the medial side 200 of the wearer is suppressed from collapsing toward the medial side.

[0035] The configuration of the upper forefoot region 20F of the upper body 20 will be described in detail with reference to FIGS. 2 to 5. As shown in the developed view of FIG. 2, the upper body 20 of the first embodiment is composed of an upper forefoot region 20F, an upper midfoot region 20M, and an upper rearfoot region 20R, and the upper forefoot region 20F, the upper midfoot region 20M, and the upper rearfoot region 20R are continuous in this order in the longitudinal direction of the upper 2. The upper body 20 is formed of a continuous single piece of knitted or woven fabric. In the first embodiment, it is formed of a single piece of knitted fabric, for example, a mesh fabric, ensuring breathability and light-weight.

[0036] The upper forefoot region 20F covering the forefoot part LF of the wearer includes: a first region 25 corresponding to a side surface of the medial side 200 including the MP joint Jc which is the base of the big toe B1 (distal phalanx Bi, proximal phalanx Bg) (see FIG. 1); a second region 26 corresponding to a front end portion 20d of the upper body 20; and a third region 27 located at least between a toe side of the first region 25 and the second region 26.

[0037] In the first embodiment, the upper forefoot region 20F includes a fifth region 28 including the shoe center axis C of the upper forefoot region 20F and located

between the front end of the opening 20b and the toe guard 24 of the toe, and a sixth region 29 located on the lateral side 210 from the fifth region 28. A region having the same configuration as the third region 27 is located between the second region 26 and the fifth region 28, and between the fifth region 28 and the sixth region 29.

[0038] In the first embodiment, for ease of understanding, hatching is applied to the first region 25, the second region 26, the fifth region 28, and the sixth region 29.

[0039] As shown in FIGS. 2 and 5, the first region 25 is formed in a region covering the medial side 200 corresponding to a position from the front end to the upper part of the rear end of the ball of the big toe, centered on a portion corresponding to the MP joint which is the base of the big toe B1 (see FIG. 1). The first region 25 in the first embodiment is formed such that the sole 3 side is wide and narrows in the longitudinal direction from the sole 3 upward. That is, it is formed in a mountain shape upward from the sole 3 with the position corresponding to the MP joint as a peak.

[0040] In the first embodiment, the first region 25 is formed in a mountain shape, but it is not limited to this shape and may be an elliptical shape, a rectangular shape, or the like, as long as it is a shape covering a region including the MP joint which is the base of the big toe B1 (see FIG. 1).

[0041] In the first embodiment, the elasticities of the first region 25, the second region 26, and the third region 27 are set as follows. The elasticity of the first region 25 is higher than the elasticity of the second region 26, and the elasticity of the third region 27 is lower than the elasticity of the second region 26. That is, the elasticity of the first region 25 is the highest, then the elasticity of the second region 26 is set higher than the elasticity of the third region 27, and the elasticity of the third region 27 is the lowest.

[0042] Further, the elasticities of the fifth region 28 and the sixth region 29 are configured to be the same as those of the second region 26. The second region 26, the fifth region 28, and the sixth region 29 extend in the foot width direction and are configured to fit the wearer's foot. Furthermore, the second region 26, the fifth region 28, and the sixth region 29 are configured to have good breathability.

[0043] In the first embodiment, the upper midfoot region 20M and the upper rearfoot region 20R are configured with the same elasticity as the elasticity of the third region 27, but the elasticities of the upper midfoot region 20M and the upper rearfoot region 20R are not particularly limited.

[0044] In the first embodiment, the upper body 20 is composed of a knitted mesh fabric. Then, a mesh fabric is used in which the opening of the first region 25 is larger than the opening of the second region 26, and the opening of the third region 27 is smaller than the opening of the second region 26.

[0045] By configuring the upper forefoot region 20F of the upper body 20 (upper 2) with a continuous single piece of mesh fabric, the breathability of the upper fore-

foot region 20F can be ensured. Then, by controlling the opening of the mesh fabric, the first region 25 corresponding to the medial side 200 side surface including the base (MP joint) of the big toe B1 of the wearer can have higher elasticity than other regions.

[0046] As described above, the upper forefoot region 20F covering at least the forefoot part LF of the wearer of the upper body 20 (upper 2) is formed of a continuous single piece of knitted fabric, and the first region 25 corresponding to the medial side surface including the base (MP joint) of the big toe B1 of the wearer is configured to have higher elasticity than other regions. As shown in FIG. 8, hallux valgus is a state in which the base (MP joint) portion of the big toe B1 protrudes and the tip thereof is bent toward the little toe side. As shown in FIG. 7, when a person with hallux valgus wears the shoe 1, the base (MP joint) of the big toe B1 comes into contact with the first region 25 of the upper body 20 of the shoe 1. In the shoe 1 of the first embodiment, the first region 25 corresponding to the protruding portion of the base of the big toe B1 deforms outward. Thereby, stress on the base part of the big toe B1 is alleviated, and discomfort such as pain for a person with hallux valgus can be reduced. Furthermore, since the upper forefoot region 20F is formed of a continuous single piece of knitted fabric, a wearing feeling as a shoe for exercise (e.g., running) can be obtained.

[0047] In the first embodiment, a first medial side eyelet portion 20c1 located at the foremost position in the foot length direction of the medial side edge portion among the eyelet portions 20c is configured to be located backward in the foot length direction from a portion corresponding to the base (MP joint) of the big toe B1 of the first region 25.

[0048] By locating the first medial side eyelet portion 20c1 at the foremost position backward in the foot length direction from the base of the big toe of the first region 25, it is possible to suppress a load from being applied to the big toe even when the shoelace 22 is tightened.

[0049] In the first embodiment, as shown in FIG. 2, a front end lace-loop portion 20e is further provided at the center of the front end portion of the opening 20b, and the position of the front end lace-loop portion 20e is provided so as to be located forward in the foot length direction from the position of the first medial side eyelet portion 20c1. With such a configuration, a force that pulls a portion of the upper 2 corresponding to the big toe B1 inward in the foot width direction when the shoelace 22 is tightened is dispersed by the first medial side eyelet portion 20c1 and the front end lace-loop portion 20e, so that the load on the big toe can be suppressed.

[0050] Further, as shown in FIG. 6, the upper 2 has an inner surface 20j facing the wearer's foot side and an outer surface 20h exposed to the outside. Then, a reinforcing member 20k is provided on the inner front end portion 20n of the forefoot region 20F of the inner surface 20j, extending to the medial side and the lateral side across the center in the foot width direction.

[0051] By providing the reinforcing member 20k, it is possible to suppress damage to the upper 2 due to the upward pushing of the tip of the big toe.

[0052] Furthermore, the reinforcing member 20k is provided with a protruding portion 20m protruding backward in the foot length direction from the center in the foot width direction.

[0053] By receiving the tip of the big toe of a person with hallux valgus, which is inclined toward the center in the foot width direction, with the protruding portion 20m, damage to the upper 2 can be further suppressed.

[Modification]

[0054] FIG. 9 shows a modification of the present disclosure. This modification provides a fourth region 40 having lower elasticity than the third region 27 on a side of the third region 27 adjacent to the first region 25. For ease of understanding, in FIG. 7, the fourth region 40 is colored black.

[0055] By providing the fourth region 40 having lower elasticity than the third region 27 on the side of the third region 27 adjacent to the first region 25, the holdability of the wearer's foot can be improved.

[0056] Similarly, a fourth region 40 having lower elasticity than the third region 27 is also provided between the third region 27 and the fifth region 28, between the fifth region 28 and the sixth region 29, and between the third region 27, the fifth region 28, the sixth region 29 and the toe.

[Modification 2]

[0057] In the above-described embodiment, mesh fabric is used for the upper body 20, but the present disclosure is not limited to mesh fabric. For the upper body 20 (upper 2), a fabric having an inner surface facing the wearer's foot and an outer surface exposed to the outside can be used. At least the first region 25 and the second region 26 are provided with a plurality of recesses recessed from the outer surface 20h toward the inner surface 20j. Then, the total area of the plurality of recesses provided in the first region 25 may be configured to be larger than the total area of the plurality of recesses provided in the second region 26.

[0058] In this way, by configuring the total area of the plurality of recesses provided in the first region 25 to be larger than the total area of the plurality of recesses provided in the second region 26, the first region 25 corresponding to the medial side 200 side surface including the base (MP joint) of the big toe B1 of the wearer can have higher elasticity than other regions.

[Modification 3]

[0059] In the above-described embodiment, the upper forefoot region 20F is a portion located forward of the Lisfranc joint Jd, but the upper forefoot region 20F is not

limited to this, and may be located forward of the foot width direction along the upper part of the rear end of the ball of the big toe. That is, the upper forefoot region 20F may at least include a region corresponding to the medial side surface including the base of the big toe B1 of the wearer.

[0060] Each of the modifications described above achieves the same functions and effects as the embodiment described above.

[0061] Any combination of the embodiments and modifications described above is also useful as an embodiment of the present invention. A new embodiment resulting from the combination has the effects of each of the combined embodiments and modifications.

INDUSTRIAL APPLICABILITY

[0062] The present disclosure can be utilized for shoes for exercise such as running shoes.

[0063] The matters disclosed in the present specification include the following.

(1) A shoe comprising a sole and an upper provided above the sole and configured to accommodate a foot, wherein at least a forefoot region of the upper covering a forefoot part of a wearer is formed of a continuous single piece of knitted or woven fabric, the forefoot region includes a first region corresponding to a medial side surface including a base of a big toe of the wearer, a second region corresponding to a front end portion of the upper, and a third region located at least between a toe side of the first region and the second region, and an elasticity of the first region is higher than an elasticity of the second region, and an elasticity of the third region is lower than the elasticity of the second region.

(2) The shoe according to (1) above, wherein the knitted fabric is a mesh fabric, an opening of the first region is larger than an opening of the second region, and an opening of the third region is smaller than the opening of the second region.

(3) The shoe according to (1) or (2) above, wherein a fourth region having lower elasticity than the third region is provided on a side of the third region adjacent to the first region.

(4) The shoe according to any one of (1) to (3) above, wherein the upper further includes a foot insertion opening into which the wearer's foot is inserted, an opening connected to a front of the foot insertion opening and opened and closed by a tongue, and a plurality of eyelet portions located at a medial side edge and a lateral side edge of the opening and spaced apart in a foot length direction, wherein a first medial side eyelet portion located at a foremost position in the foot length direction of the medial side edge among the eyelet portions is located backward in the foot length direction from a portion corresponding to the base of the big toe of the first region.

(5) The shoe according to (4) above, further comprising a front end lace-loop portion at a center of a front end portion of the opening, wherein a position of the front end lace-loop portion is located forward in the foot length direction from a position of the first medial side eyelet portion.

(6) The shoe according to any one of (1) to (5) above, wherein the upper has an inner surface facing the wearer's foot and an outer surface exposed to an outside, a plurality of recesses recessed from the outer surface toward the inner surface are provided in at least the first region and the second region, and a total area of the plurality of recesses provided in the first region is larger than a total area of the plurality of recesses provided in the second region.

(7) The shoe according to any one of (1) to (6) above, wherein the upper has an inner surface facing the wearer's foot and an outer surface exposed to an outside, and includes a reinforcing member extending to a medial side and a lateral side including a center in a foot width direction of a front end portion of the forefoot region on the inner surface of the upper.

(8) The shoe according to (7) above, wherein the reinforcing member has a protruding portion protruding backward in the foot length direction from the center in the foot width direction.

(9) The shoe according to any one of (1) to (8) above, wherein the sole comprises a first support portion supporting at least a medial side midfoot part of the wearer, and a second support portion which is a region of the sole other than the first support portion, wherein a hardness of the first support portion is higher than a hardness of the second support portion.

DESCRIPTION OF REFERENCE NUMERALS

[0064]

1 shoe
 2 upper
 3 sole
 20 upper body
 20F upper forefoot region (forefoot region)
 20M upper midfoot region (midfoot region)
 20R upper rearfoot region (rearfoot region)
 20a foot insertion opening
 20b opening
 20c eyelet portion
 20c1 first medial side eyelet portion
 20d front end portion
 20e front end lace-loop portion
 21 tongue
 22 shoelace
 25 first region
 26 second region
 27 third region
 28 fifth region

29 sixth region
 30 outsole
 30a ground contact surface
 31 midsole
 40 fourth region
 200 medial side
 210 lateral side
 B1 big toe
 Jc MP joint
 10 LF forefoot part
 LM midfoot part
 LR rearfoot part

15 Claims

1. A shoe comprising a sole and an upper provided above the sole to accommodate a wearer's foot,

20 wherein at least a forefoot region of the upper covering a forefoot part of the wearer is formed of a continuous single piece of knitted or woven fabric;

25 the forefoot region includes a first region corresponding to a medial side surface including a base of a big toe of the wearer, a second region corresponding to a front end portion of the upper, and a third region located at least between a toe side of the first region and the second region;

30 and an elasticity of the first region is higher than an elasticity of the second region, and an elasticity of the third region is lower than the elasticity of the second region.

2. The shoe according to claim 1, wherein the knitted fabric is a mesh fabric, an opening of the first region is larger than an opening of the second region, and an opening of the third region is smaller than the opening of the second region.

3. The shoe according to claim 1, wherein a fourth region having lower elasticity than the third region is provided on a side of the third region adjacent to the first region.

4. The shoe according to claim 1, wherein the upper further includes: a foot insertion opening into which the wearer's foot is inserted; an opening connected to a front of the foot insertion opening and opened, and closed by a tongue; and a plurality of eyelet portions located at a medial side edge and a lateral side edge of the opening and spaced apart in a foot length direction, wherein a first medial side eyelet portion located at a foremost position in the foot length direction of the medial side edge among the eyelet portions is located backward in the foot length direction from a portion corresponding to the base of

the big toe of the first region.

5. The shoe according to claim 4, further comprising a front end lace-loop portion at a center of a front end portion of the opening, wherein a position of the front end lace-loop portion is located forward in the foot length direction from a position of the first medial side eyelet portion. 5
6. The shoe according to claim 1, wherein the upper has an inner surface facing the wearer's foot and an outer surface exposed to an outside, a plurality of recesses recessed from the outer surface toward the inner surface are provided in at least the first region and the second region, and a total area of the plurality of recesses provided in the first region is larger than a total area of the plurality of recesses provided in the second region. 10 15

20

25

30

35

40

45

50

55

FIG. 1

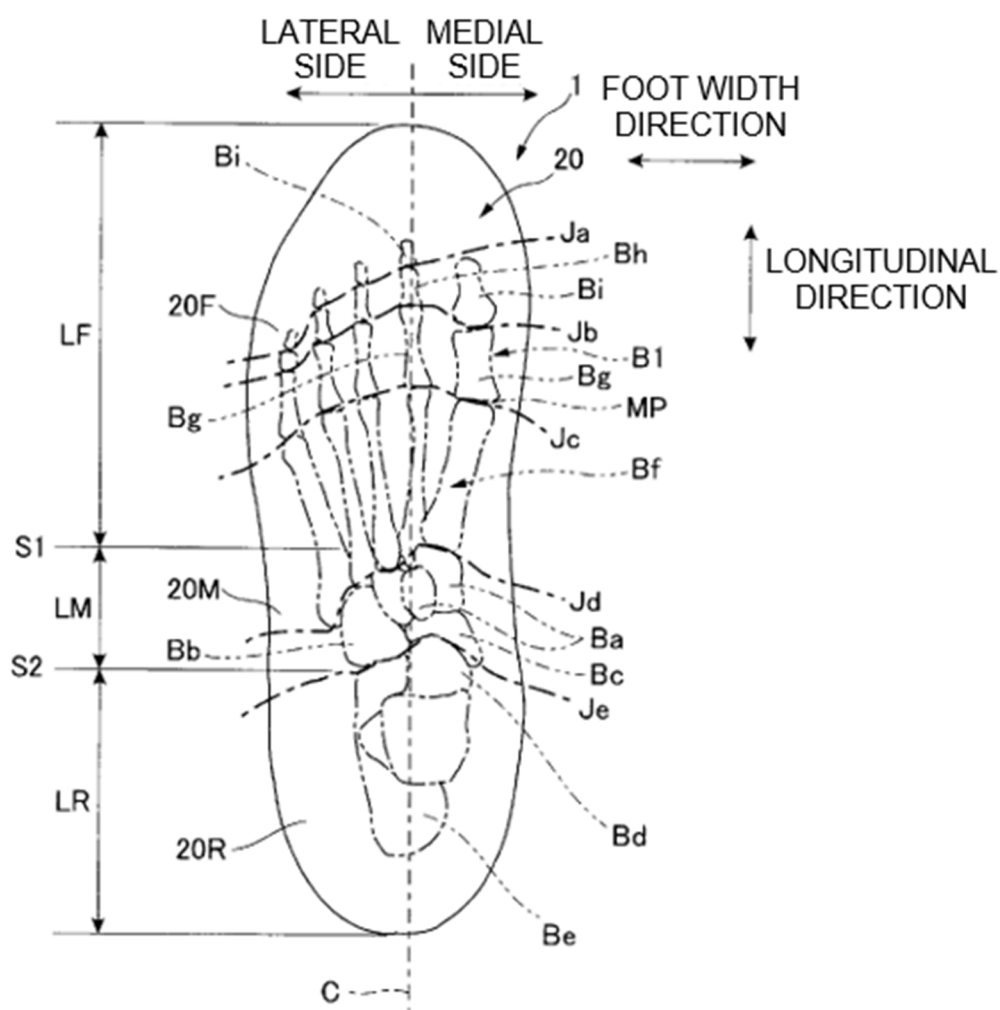


FIG. 2

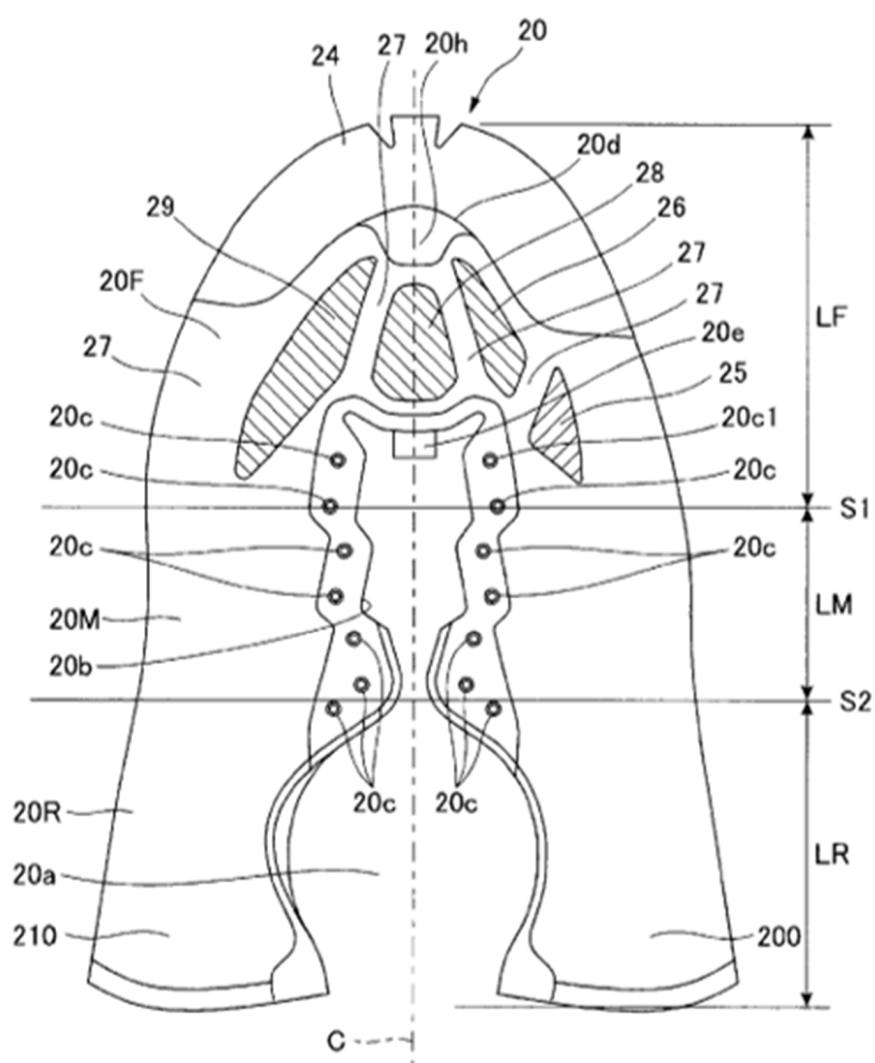


FIG. 3

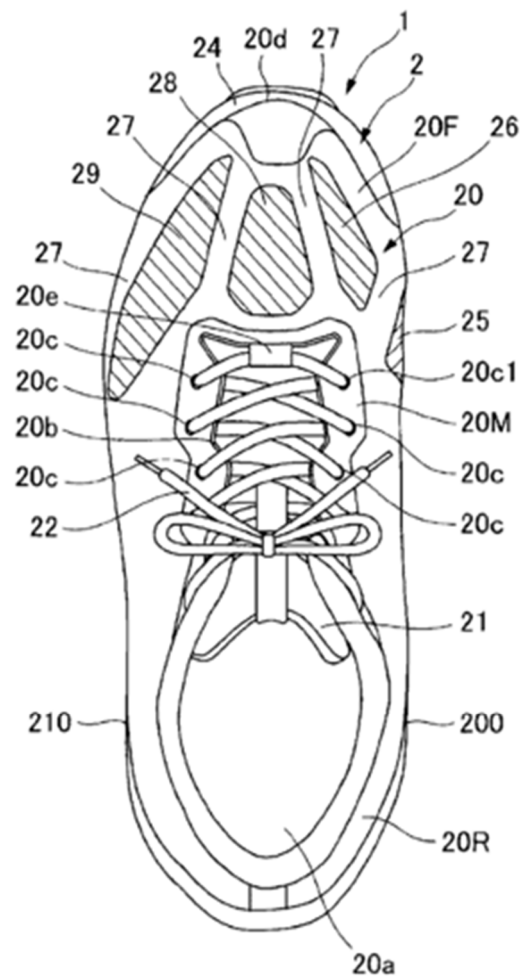


FIG. 4

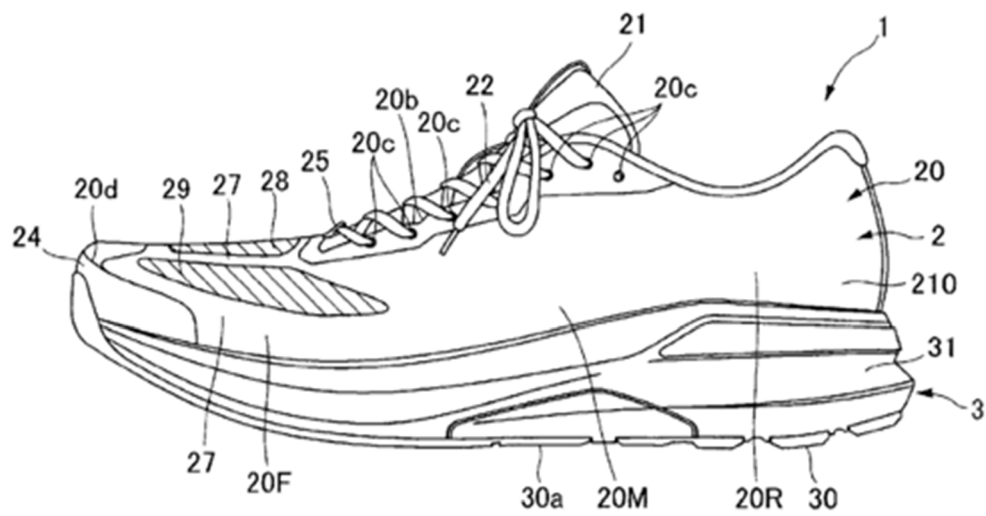


FIG. 5

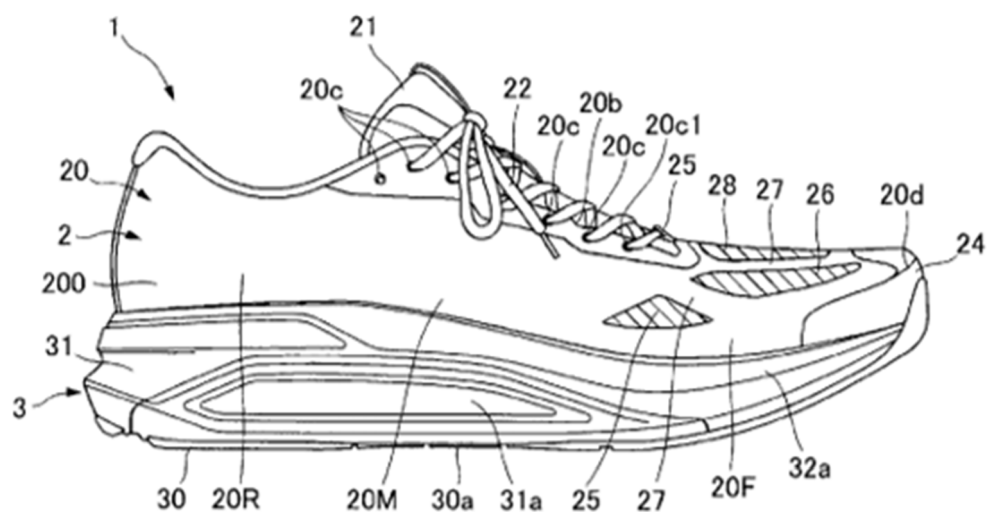


FIG. 6

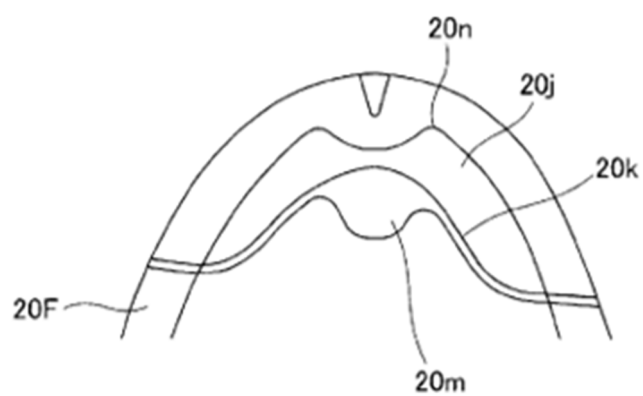


FIG. 7

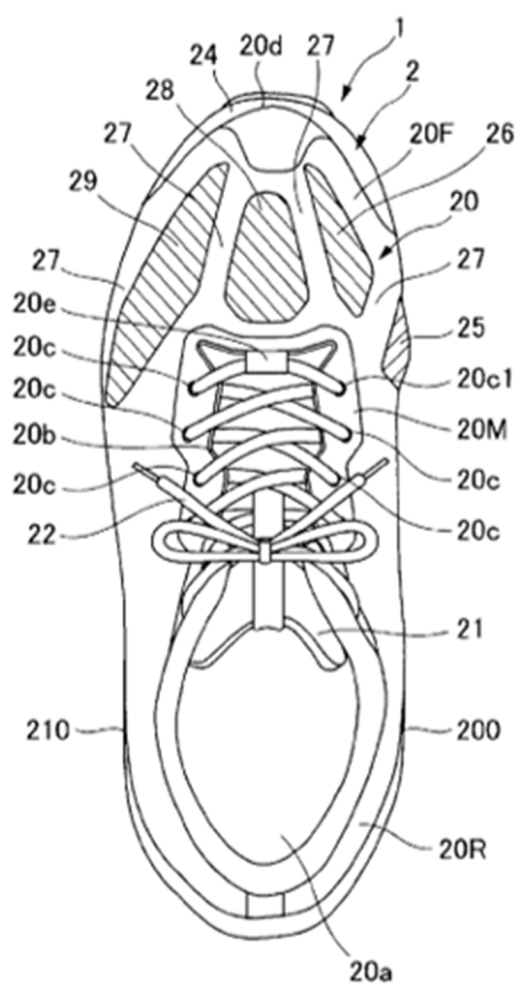


FIG. 8

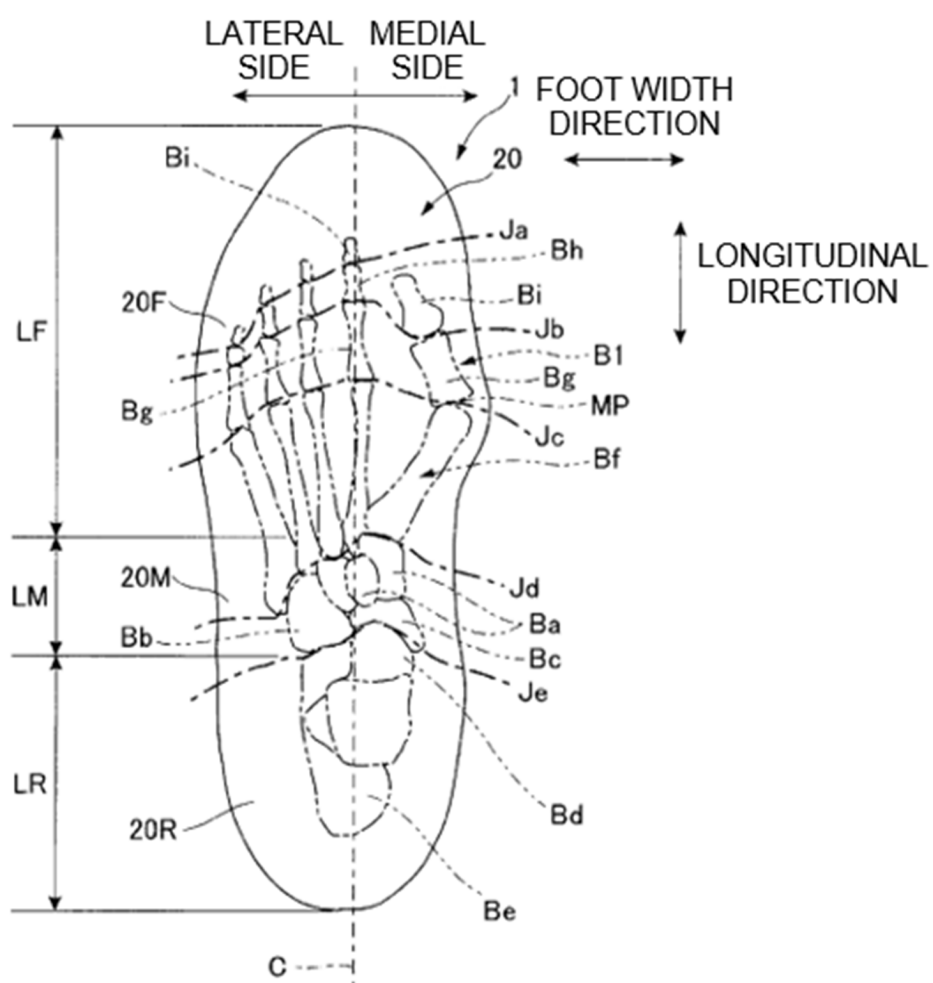
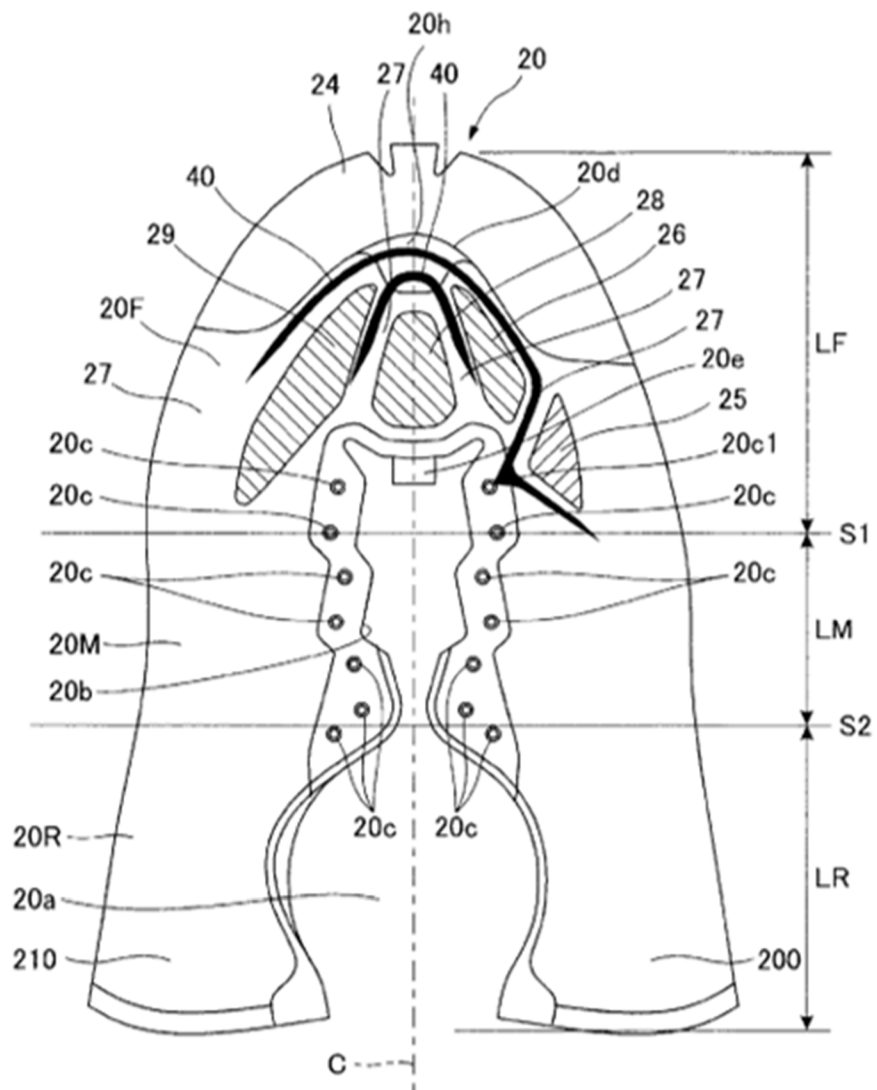


FIG. 9



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2024/030453

A. CLASSIFICATION OF SUBJECT MATTER

A43B 23/02(2006.01)i; **A43B 7/1467**(2022.01)i; **A43B 7/1475**(2022.01)i
 FI: A43B23/02 101A; A43B7/1467; A43B7/1475

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A43B23/02; A43B7/1467; A43B7/1475

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Published examined utility model applications of Japan 1922-1996
 Published unexamined utility model applications of Japan 1971-2024
 Registered utility model specifications of Japan 1996-2024
 Published registered utility model applications of Japan 1994-2024

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2018-50792 A (TB KAWASHIMA CO., LTD.) 05 April 2018 (2018-04-05) paragraphs [0056], [0066]-[0101], fig. 1-5, 7	1-3, 6
Y		4-5
Y	JP 2005-329270 A (ASICS CORP.) 02 December 2005 (2005-12-02) fig. 5-6	4-5
Y	JP 2016-518174 A (BOA TECHNOLOGY INC.) 23 June 2016 (2016-06-23) fig. 1	4-5
A	JP 2014-210179 A (ADIDAS AG) 13 November 2014 (2014-11-13) entire text, all drawings	1-6
A	JP 2022-44628 A (NIKE INNOVATE C.V.) 17 March 2022 (2022-03-17) entire text, all drawings	1-6

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

“A” document defining the general state of the art which is not considered to be of particular relevance

“D” document cited by the applicant in the international application

“E” earlier application or patent but published on or after the international filing date

“L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

“O” document referring to an oral disclosure, use, exhibition or other means

“P” document published prior to the international filing date but later than the priority date claimed

“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

“&” document member of the same patent family

Date of the actual completion of the international search

03 October 2024

Date of mailing of the international search report

15 October 2024

Name and mailing address of the ISA/JP

**Japan Patent Office (ISA/JP)
 3-4-3 Kasumigaseki, Chiyoda-ku, Tokyo 100-8915
 Japan**

Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/JP2024/030453

5

10

15

20

25

30

35

40

45

50

55

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)		Publication date (day/month/year)
JP	2018-50792	A	05 April 2018	(Family: none)		
JP	2005-329270	A	02 December 2005	US	2006/0162190	A1
				fig. 5-6		
				WO	2004/093587	A1
				CN	1777372	A
JP	2016-518174	A	23 June 2016	US	2014/0290016	A1
				fig. 1		
				WO	2014/165541	A2
JP	2014-210179	A	13 November 2014	US	2014/0310984	A1
				EP	2792264	A2
JP	2022-44628	A	17 March 2022	US	2013/0212907	A1
				WO	2013/126313	A2

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

- EP 1800555 A1 [0004]