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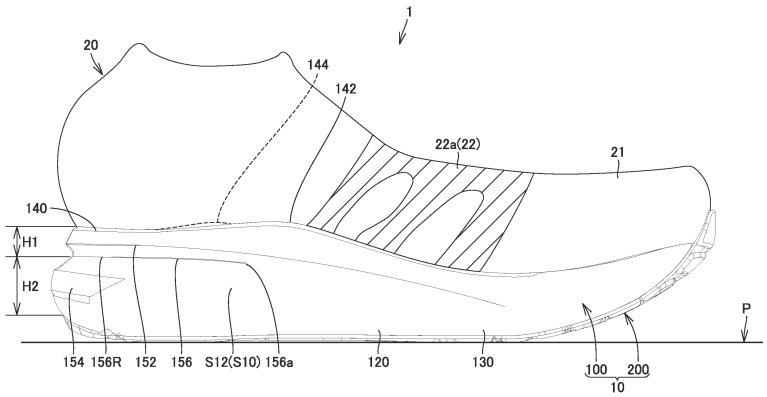
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(54) **SHOES**

(57) A shoe (1) includes a sole (10) and an upper (20). The sole (10) has a heel support portion, an upper bulging portion (152) formed at an outer peripheral surface (S10) of the sole, a lower bulging portion (154) formed at the outer peripheral surface (S10) of the sole, and an outer peripheral groove portion (156) formed at a portion between the upper bulging portion and the lower bulging portion, of the outer peripheral surface (S10) of the sole. The outer peripheral groove portion (156) has a medial foot-side front end portion (156a) located at a front end on a medial foot side, and a lateral foot-side front end portion located at a front end on a lateral foot side. The outer peripheral groove portion (156) includes a region (156R) in which a depth of the outer peripheral groove portion (156) gradually becomes shallower toward the medial foot-side front end portion (156a).

FIG.1



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Description

TECHNICAL FIELD

[0001] The present disclosure relates to a shoe.

BACKGROUND

[0002] For example, Japanese Patent Laying-Open No. 2020-81154 discloses a shoe to be worn for running and the like. In a sole of the shoe, a recess extending from a medial foot side to a lateral foot side through a rear end portion is formed.

CITATION LIST

PATENT LITERATURE

[0003] PTL 1: Japanese Patent Laying-Open No. 2020-81154

SUMMARY

TECHNICAL PROBLEM

[0004] For example, in a shoe to be worn for running, it is desirable to suppress occurrence of ankle joint pronation during running.

[0005] An object of the present disclosure is to provide a shoe capable of suppressing occurrence of pronation.

SOLUTION TO PROBLEM

[0006] A shoe according to one aspect of the present disclosure includes: a sole that supports a foot of a wearer; and an upper connected to the sole, and accommodating, together with the sole, the foot of the wearer, wherein the sole includes: a heel support portion that supports a heel of the wearer; an upper bulging portion formed at an outer peripheral surface of the sole, and bulging to protrude in a direction away from the heel support portion; a lower bulging portion formed below the upper bulging portion of the outer peripheral surface of the sole, and bulging to protrude in the direction away from the heel support portion; and an outer peripheral groove portion formed at a portion between the upper bulging portion and the lower bulging portion, of the outer peripheral surface of the sole, and having a shape protruding toward the heel support portion, the outer peripheral groove portion includes a medial foot-side front end portion located at a front end of the outer peripheral groove portion on a medial foot side, and a lateral foot-side front end portion located at a front end of the outer peripheral groove portion on a lateral foot side, and the outer peripheral groove portion includes a region in which a depth of the outer peripheral groove portion gradually becomes shallower toward the medial foot-side front end portion.

ADVANTAGEOUS EFFECTS OF INVENTION

[0007] According to the present disclosure, it is possible to provide a shoe capable of suppressing occurrence of pronation.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008]

Fig. 1 is a side view of a shoe in one embodiment of the present disclosure as viewed from a medial foot side.

Fig. 2 is a side view of the shoe as viewed from a lateral foot side.

Fig. 3 is a view of the shoe as viewed from the rear.

Fig. 4 is a perspective view of a sole.

Fig. 5 is a plan view of the sole.

Fig. 6 is a plan view showing the relation between a boundary portion between the sole and an upper and an outer edge of a lower bulging portion.

Fig. 7 is a cross sectional view taken along a line VII-VII in Fig. 5.

Fig. 8 is a view schematically showing a range indicated by a solid line VIII in Fig. 7.

Fig. 9 is a bottom view of the sole.

Fig. 10 is a cross sectional view schematically showing a modification of an outer peripheral groove portion.

Fig. 11 is a cross sectional view schematically showing a modification of the outer peripheral groove portion.

DETAILED DESCRIPTION

[0009] An embodiment of the present invention will be described with reference to the drawings. It should be noted that, in the drawings referred to below, identical or corresponding members will be designated by the same reference numerals. In the following description, terms such as a foot length direction, a foot width direction, front, and rear are used. These terms representing directions indicate directions as seen from a viewpoint of a wearer wearing a shoe 1 placed on a flat ground contact surface P (see Figs. 1 and 2) such as the ground. For example, front refers to a toe side, and rear refers to a heel side. Further, an inner side or a medial foot side refers to a side of the first toe (big toe) of a foot in the foot

width direction, and an outer side or a lateral foot side refers to a side of the fifth toe of the foot in the foot width direction.

[0010] Fig. 1 is a side view of a shoe in one embodiment of the present disclosure as viewed from the medial foot side. Fig. 2 is a side view of the shoe as viewed from the lateral foot side. Fig. 3 is a view of the shoe as viewed from the rear. It should be noted that, although Figs. 1 to 3 show the shoe 1 for a left foot, the shoe 1 is also applicable to a right foot. In this case, the shoe 1 for the right foot is formed in a shape that is bilaterally symmetrical to or substantially similar to the shoe 1 for the left foot.

[0011] The shoe 1 in the present embodiment is suitable for running, for example, but is also applicable as a shoe for other sports, and the application of the shoe 1 is not limited.

[0012] As shown in Figs. 1 to 3, the shoe 1 includes a sole 10 and an upper 20.

[0013] The sole 10 is configured to support the foot of the wearer. The sole 10 includes a midsole 100 and an outsole 200.

[0014] The midsole 100 is configured to support a forefoot portion, a midfoot portion, and a rearfoot portion of the wearer. The midsole 100 has a shock absorbing function at the time of foot landing, a resilience function at the time of kicking the ground, and the like. The midsole 100 is preferably formed using a resin, a rubber, or the like having an appropriate strength and excellent shock absorbing properties. The midsole 100 is made of a resin foam, for example. The midsole 100 includes a heel support portion 110, a narrow-width portion 120, a wide-width portion 130, a rising portion 140, an upper bulging portion 152, a lower bulging portion 154, and an outer peripheral groove portion 156.

[0015] The heel support portion 110 is configured to support a heel of the wearer. The heel support portion 110 may be formed using a material different from that for a portion of the midsole 100 other than the heel support portion 110.

[0016] The narrow-width portion 120 is formed in front of the heel support portion 110. As shown in Fig. 5, a length of the narrow-width portion 120 in the foot width direction is smaller than a length of a portion of the midsole 100 including the heel support portion 110 in the foot width direction.

[0017] The wide-width portion 130 is formed in front of the narrow-width portion 120. A length of the wide-width portion 130 in the foot width direction is larger than the length of the narrow-width portion 120 in the foot width direction.

[0018] As shown in Fig. 4, the rising portion 140 rises from a peripheral edge portion of a surface S1 of the sole 10. The rising portion 140 is continuous from the lateral foot side of the heel support portion 110 to the medial foot side of the heel support portion 110 through the rear of the heel support portion 110. As shown in Figs. 1, 2, and 4, the rising portion 140 includes a medial foot-side inflection portion 142 and a lateral foot-side inflection portion 144.

[0019] The medial foot-side inflection portion 142 is formed on the medial foot side of the heel support portion 110. The medial foot-side inflection portion 142 has a shape protruding upward. A portion of the rising portion 140 located forward of the medial foot-side inflection portion 142 is inclined so as to gradually extend toward the surface S1 of the sole 10 as it extends forward from the medial foot-side inflection portion 142. A portion of the rising portion 140 located rearward of the medial foot-side inflection portion 142 may be inclined so as to gradually extend toward the surface S1 of the sole 10 as it extends rearward from the medial foot-side inflection portion 142, or may be formed to be substantially parallel to the ground contact surface P.

[0020] The lateral foot-side inflection portion 144 is formed on the lateral foot side of the heel support portion 110. The lateral foot-side inflection portion 144 has a shape protruding upward. A portion of the rising portion 140 located forward of the lateral foot-side inflection portion 144 is inclined so as to gradually extend toward the surface S1 of the sole 10 as it extends forward from the lateral foot-side inflection portion 144. A portion of the rising portion 140 located rearward of the lateral foot-side inflection portion 144 may be inclined so as to gradually extend toward the surface S1 of the sole 10 as it extends rearward from the lateral foot-side inflection portion 144, or may be formed to be substantially parallel to the ground contact surface P.

[0021] As shown in Figs. 1 and 2, the medial foot-side inflection portion 142 is located more forward than the lateral foot-side inflection portion 144 in the foot length direction. A height position of the medial foot-side inflection portion 142 from the ground contact surface P is set to be higher than a height position of the lateral foot-side inflection portion 144 from the ground contact surface P. However, the height position of the medial foot-side inflection portion 142 may be set to be the same as or lower than the height position of the lateral foot-side inflection portion 144.

[0022] The upper bulging portion 152 is formed at an outer peripheral surface S10 of the sole 10. In the present embodiment, the outer peripheral surface S10 of the sole 10 is constituted by an outer peripheral surface of the midsole 100. The upper bulging portion 152 bulges to protrude in a direction away from the heel support portion 110. The outer peripheral surface S10 includes a medial foot-side outer peripheral surface S12 formed on the medial foot side of the heel support portion 110, a lateral foot-side outer peripheral surface S14 formed on the lateral foot side of the heel support portion 110, and the outer peripheral surface S10 of the sole 10 includes a rear outer peripheral surface S16 formed at the rear of the heel support portion 110. The upper bulging portion 152 is continuous from the medial foot-side outer peripheral surface S12 to the lateral foot-side outer peripheral surface S14 through the rear outer peripheral surface S16.

[0023] The lower bulging portion 154 is formed below

the upper bulging portion 152 of the outer peripheral surface S10 of the sole. The lower bulging portion 154 bulges to protrude in the direction away from the heel support portion 110. The lower bulging portion 154 is continuous from the medial foot-side outer peripheral surface S12 to the lateral foot-side outer peripheral surface S14 through the rear outer peripheral surface S16.

[0024] The outer peripheral groove portion 156 is formed at a portion between the upper bulging portion 152 and the lower bulging portion 154, of the outer peripheral surface S10 of the sole 10. The outer peripheral groove portion 156 has a shape protruding toward the heel support portion 110. The outer peripheral groove portion 156 is continuous from the medial foot-side outer peripheral surface S12 to the lateral foot-side outer peripheral surface S14 through the rear outer peripheral surface S16.

[0025] Here, the outer peripheral groove portion 156 is defined as follows. First, as shown in Fig. 7, in a plane passing through a center 110P of the heel support portion 110, two points P1 and P2 at which a circle C1 having a radius of 5 mm centered at a deepest portion 156d of the outer peripheral groove portion 156 intersects with the midsole 100 are defined. Then, as shown in Fig. 8, a shape in which a circle C2 passing through three points including the deepest portion 156d and the two points P1 and P2 has a diameter D of 10 mm or less is defined as the outer peripheral groove portion 156. More specifically, the diameter D of the circle C2 is 4 mm or more and 10 mm or less.

[0026] It should be noted that the center 110P of the heel support portion 110 is a position located forward from an intersection 15a between a rear portion of a boundary portion 15 and a heel center HC, by a first length X, along the heel center HC. The first length X preferably has a value of 10% to 30%, for example, and more preferably has a value of 15% to 20%, of a length between portions of the boundary portion 15 that intersect with the heel center HC or a shoe center SC, and specifically may have a value of 10%, 15%, 20%, or 30% thereof. The heel center HC means a straight line connecting the center of a calcaneus to the vicinity of the fourth toe of a standard wearer of the shoe 1.

[0027] As shown in Figs. 1 and 2, the outer peripheral groove portion 156 has a medial foot-side front end portion 156a (see Fig. 1), and a lateral foot-side front end portion 156b (see Fig. 2). The medial foot-side front end portion 156a is located at a front end of the outer peripheral groove portion 156 on the medial foot side. The lateral foot-side front end portion 156b is located at a front end of the outer peripheral groove portion 156 on the lateral foot side. The outer peripheral groove portion 156 includes a region 156R in which a depth of the outer peripheral groove portion 156 gradually becomes shallower toward the medial foot-side front end portion 156a. The region 156R extends from the medial foot-side front end portion 156a toward the lateral foot-side front end portion 156b through a rear end portion of the outer peripheral groove portion 156. However, the region 156R does not reach the lateral foot-side front end portion 156b. That is, the depth of the outer peripheral groove portion 156 becomes shallower from an end on the lateral foot side in the region 156A toward the lateral foot-side front end portion 156b.

[0028] As shown in Fig. 3, the outer peripheral groove portion 156 has a shape extending gradually away from the flat ground contact surface P as the outer peripheral groove portion 156 extends from the lateral foot-side front end portion 156b toward the medial foot-side front end portion 156a in a state where the shoe 1 is placed on the ground contact surface P.

[0029] As shown in Fig. 1, a height H2 of the lower bulging portion 154 is larger than a height H1 of the upper bulging portion 152.

[0030] As shown in Figs. 3 and 6, the shoe 1 has the boundary portion 15 between the sole 10 and the upper 20. It should be noted that, in Fig. 6, the boundary portion 15 is indicated by a broken line. A bulging amount W2 (see Fig. 3) of the lower bulging portion 154 from the boundary portion 15 in a plan view is larger than a bulging amount W1 (see Fig. 3) of the upper bulging portion 152 from the boundary portion 15 in a plan view.

[0031] As shown in Fig. 6, a bulging amount L1 of the medial foot-side outer peripheral surface S12 (the lower bulging portion 154) from the boundary portion 15 in a plan view is larger than a bulging amount L2 of the lateral foot-side outer peripheral surface S14 (the lower bulging portion 154) from the boundary portion 15 in a plan view. For example, the bulging amount L1 and the bulging amount L2 are measured on a plane that is orthogonal to the heel center HC and passes through the center 110P of the heel support portion 110.

[0032] As shown in Fig. 6, a bulging amount L3 of the rear outer peripheral surface S16 from the boundary portion 15 in a plan view is larger than the bulging amount L2 of the lateral foot-side outer peripheral surface S14 from the boundary portion 15 in a plan view. For example, the bulging amount L3 is measured on a plane passing through the shoe center SC, or on a plane passing through the heel center HC. The shoe center SC is not limited to a center line of the shoe 1, and may be a line that overlaps a straight line passing through the center of the calcaneus and a portion between the first toe and the second toe of the standard wearer of the shoe 1, in a thickness direction of the sole 10.

[0033] As shown in Fig. 9, a lower surface inclined groove 162 and a lower surface lateral foot-side groove 164 are formed in a lower surface of the midsole 100.

[0034] The lower surface inclined groove 162 gradually extends toward the lateral foot side (the right side in Fig. 9) as it extends forward from a portion of the lower surface of the midsole 100 on the medial foot side with respect to a rear end portion in the foot length direction.

[0035] The lower surface lateral foot-side groove 164 extends forward from the lower surface inclined groove 162. The lower surface lateral foot-side groove 164 is

formed on the lateral foot side with respect to the shoe center SC.

[0036] The outsole 200 is connected to the lower surface of the midsole 100. The outsole 200 constitutes a ground contact portion to be placed on the ground contact surface P. The outsole 200 is made of a rubber, a resin, or the like.

[0037] As shown in Fig. 9, the outsole 200 includes a medial foot-side covering portion 210. It should be noted that, in Fig. 9, the medial foot-side covering portion 210 is indicated by oblique lines. The medial foot-side covering portion 210 covers a part of a portion of the lower surface of the midsole 100 on the medial foot side. The medial foot-side covering portion 210 has a shape continuously extending from the lower surface inclined groove 162 to the wide-width portion 130.

[0038] The upper 20 is connected to the sole 10. The upper 20 forms, together with the sole 10, an accommodation space for the foot of the wearer. The upper 20 covers an upper surface of the foot of the wearer. The upper 20 includes a front covering portion 21 and a reinforcing portion 22.

[0039] The front covering portion 21 is configured to cover the forefoot portion of the wearer.

[0040] The reinforcing portion 22 has a tensile rigidity higher than a tensile rigidity of the front covering portion 21. The reinforcing portion 22 includes a medial foot-side reinforcing portion 22a and a lateral foot-side reinforcing portion 22b. The medial foot-side reinforcing portion 22a is disposed between the front covering portion 21 and the medial foot-side inflection portion 142. The lateral foot-side reinforcing portion 22b is disposed between the front covering portion 21 and the lateral foot-side inflection portion 144.

[0041] As described above, in the shoe 1 in the present embodiment, particularly around the periphery of the heel support portion 110 of the sole 10, a portion of the sole 10 on the lateral foot side has a relatively low compression rigidity, and a portion of the sole 10 on the medial foot side has a relatively high compression rigidity. Accordingly, for example, in a running motion, shock absorbing properties and stability at the time of contacting the ground from the lateral foot side are secured, and occurrence of pronation after contacting the ground is suppressed.

[0042] As shown in Fig. 10, the outer peripheral groove portion 156 may have a flat surface. In this case, the deepest portion 156d is set at a midpoint of the flat surface in a height direction.

[0043] As shown in Fig. 11, the outer peripheral groove portion 156 may include a plurality of recessed portions 156e. In this case, a recessed portion 156e at which the circle C2 having the smallest diameter D is defined, among the circles C2 defined at the respective recessed portions 156e, constitutes the deepest portion 156d.

[0044] It will be understood by a person skilled in the art that the exemplary embodiment described above provides specific examples of aspects described below.

[Aspect 1]

[0045] A shoe including:

a sole that supports a foot of a wearer; and
an upper connected to the sole, and accommodating, together with the sole, the foot of the wearer, wherein
the sole includes

a heel support portion that supports a heel of the wearer,
an upper bulging portion formed at an outer peripheral surface of the sole, and bulging to protrude in a direction away from the heel support portion,
a lower bulging portion formed below the upper bulging portion of the outer peripheral surface of the sole, and bulging to protrude in the direction away from the heel support portion, and
an outer peripheral groove portion formed at a portion between the upper bulging portion and the lower bulging portion, of the outer peripheral surface of the sole, and having a shape protruding toward the heel support portion,

the outer peripheral groove portion includes

a medial foot-side front end portion located at a front end of the outer peripheral groove portion on a medial foot side, and
a lateral foot-side front end portion located at a front end of the outer peripheral groove portion on a lateral foot side, and

the outer peripheral groove portion includes a region in which a depth of the outer peripheral groove portion gradually becomes shallower toward the medial foot-side front end portion.

[0046] In the shoe, particularly around the periphery of the heel support portion of the sole, a portion of the sole on the lateral foot side has a relatively low compression rigidity, and a portion of the sole on the medial foot side has a relatively high compression rigidity. Accordingly, for example, in a running motion, shock absorbing properties and stability at the time of contacting the ground from the lateral foot side are secured, and occurrence of pronation after contacting the ground is suppressed.

[Aspect 2]

[0047] The shoe according to Aspect 1, wherein the outer peripheral groove portion has a shape extending gradually away from a flat ground contact surface as the outer peripheral groove portion extends from the lateral foot-side front end portion toward the medial foot-side front end portion in a state where the shoe is placed on the

ground contact surface.

[0048] In this aspect, since the volume of the lower bulging portion increases from the lateral foot side toward the medial foot side, the compression rigidity of the lower bulging portion increases from the lateral foot side toward the medial foot side. Therefore, for example, in an initial stage of ground contact during the running motion, shock absorbing properties and stability on the lateral foot side are further secured, and occurrence of pronation is further suppressed.

[Aspect 3]

[0049] The shoe according to Aspect 1 or 2, wherein a bulging amount of the lower bulging portion from a boundary portion between the sole and the upper in a plan view is larger than a bulging amount of the upper bulging portion from the boundary portion in a plan view.

[0050] In this aspect, since the volume of the lower bulging portion, that is, the volume of a portion far from the heel support portion, increases, a moment around a rotation axis in a foot portion of the wearer increases. Therefore, occurrence of pronation is further suppressed.

[Aspect 4]

[0051] The shoe according to any one of Aspects 1 to 3, wherein

the outer peripheral surface of the sole includes

a medial foot-side outer peripheral surface formed on the medial foot side of the heel support portion, and
a lateral foot-side outer peripheral surface formed on the lateral foot side of the heel support portion, and

a bulging amount of the medial foot-side outer peripheral surface from a boundary portion between the sole and the upper in a plan view is larger than a bulging amount of the lateral foot-side outer peripheral surface from the boundary portion in a plan view.

[0052] In this aspect, with respect to the moment around the rotation axis in the foot portion of the wearer, a moment when the foot portion tilts inward increases. Therefore, occurrence of pronation is further suppressed.

[Aspect 5]

[0053] The shoe according to Aspect 4, wherein

the outer peripheral surface of the sole further includes a rear outer peripheral surface formed at a rear of the heel support portion, and

a bulging amount of the rear outer peripheral surface from the boundary portion in a plan view is larger than the bulging amount of the lateral foot-side outer peripheral surface from the boundary portion in a plan view.

[Aspect 6]

[0054] The shoe according to any one of Aspects 1 to 5, wherein

the sole includes a rising portion rising from a peripheral edge portion of a surface of the sole,
the rising portion is continuous from the lateral foot side of the heel support portion to the medial foot side of the heel support portion through a rear of the heel support portion,
the rising portion includes

a medial foot-side inflection portion formed on the medial foot side of the heel support portion, and having a shape protruding upward, and
a lateral foot-side inflection portion formed on the lateral foot side of the heel support portion, and having a shape protruding upward, and

a most protruding portion of the medial foot-side inflection portion is located more forward than a most protruding portion of the lateral foot-side inflection portion in a foot length direction.

In this aspect, since the foot portion of the wearer is effectively supported by a portion of the rising portion in the vicinity of the medial foot-side inflection portion, occurrence of pronation is suppressed.

[Aspect 7]

[0055] The shoe according to Aspect 6, wherein

the upper includes

a front covering portion that covers a forefoot portion of the wearer, and
a reinforcing portion having a tensile rigidity higher than a tensile rigidity of the front covering portion, and

the reinforcing portion includes a medial foot-side reinforcing portion disposed between the front covering portion and the medial foot-side inflection portion.

In this aspect, since a portion between the front covering portion and the medial foot-side inflection portion, of the upper, has a relatively high tensile rigidity, pronation is further suppressed.

[Aspect 8]

[0056] The shoe according to Aspect 7, wherein the reinforcing portion includes a lateral foot-side reinforcing portion disposed between the front covering portion and the lateral foot-side inflection portion.

[Aspect 9]

[0057] The sole according to any one of Aspects 1 to 8, wherein

the sole has

a midsole, and
an outsole connected to a lower surface of the midsole,

the midsole includes

the heel support portion,
the upper bulging portion,
the lower bulging portion,
the outer peripheral groove portion,
a narrow-width portion formed in front of the heel support portion, and having a length in a foot width direction smaller than a length of a portion of the midsole including the heel support portion in the foot width direction, and
a wide-width portion formed in front of the narrow-width portion, and having a length in the foot width direction larger than the length of the narrow-width portion in the foot width direction,

a lower surface inclined groove is formed in the lower surface of the midsole, the lower surface inclined groove gradually extending toward the lateral foot side as the lower surface inclined groove extends forward from a portion on the medial foot side with respect to a rear end portion in a foot length direction, the outsole includes a medial foot-side covering portion that covers a part of a portion of the lower surface of the midsole on the medial foot side, and the medial foot-side covering portion has a shape continuously extending from the lower surface inclined groove to the wide-width portion.

[0058] In this aspect, the lower surface inclined groove suppresses a load acting on the lateral foot side in a rear portion of the midsole from the heel of the wearer at the time of contacting the ground from transferring to the medial foot side, and the rigidity of a portion from the lower surface inclined groove to the wide-width portion, of a portion of the midsole on the medial foot side, is increased by a reinforcing effect of the medial foot-side covering portion of the outsole. Accordingly, occurrence of pronation is suppressed.

[0059] It should be understood that the embodiment disclosed herein is illustrative and non-restrictive in every respect. The scope of the present invention is defined by the scope of the claims, rather than the description of the embodiment described above, and includes all modifications within the scope and meaning equivalent to the scope of the claims.

REFERENCE SIGNS LIST

[0060] 1 shoe, 10 sole, 15 boundary portion, 20 upper, 21 front covering portion, 22 reinforcing portion, 22a medial foot-side reinforcing portion, 22b lateral foot-side reinforcing portion, 100 midsole, 110 heel support portion, 110P center, 120 narrow-width portion, 130 wide-width portion, 140 rising portion, 142 medial foot-side inflection portion, 144 lateral foot-side inflection portion, 152 upper bulging portion, 154 lower bulging portion, 156 outer peripheral groove portion, 156a medial foot-side front end portion, 156b lateral foot-side front end portion, 156d deepest portion, 156R region, 162 lower surface inclined groove, 164 lower surface lateral foot-side groove, 200 outsole, HC heel center, S1 surface, S10 outer peripheral surface, S12 medial foot-side outer peripheral surface, S14 lateral foot-side outer peripheral surface, S16 rear outer peripheral surface, SC shoe center.

Claims

1. A shoe comprising:

a sole that supports a foot of a wearer; and
an upper connected to the sole, and accommodating, together with the sole, the foot of the wearer, wherein
the sole includes

a heel support portion that supports a heel of the wearer,
an upper bulging portion formed at an outer peripheral surface of the sole, and bulging to protrude in a direction away from the heel support portion,
a lower bulging portion formed below the upper bulging portion of the outer peripheral surface of the sole, and bulging to protrude in the direction away from the heel support portion, and
an outer peripheral groove portion formed at a portion between the upper bulging portion and the lower bulging portion, of the outer peripheral surface of the sole, and having a shape protruding toward the heel support portion,

the outer peripheral groove portion includes

a medial foot-side front end portion located at a front end of the outer peripheral groove portion on a medial foot side, and
a lateral foot-side front end portion located at a front end of the outer peripheral groove portion on a lateral foot side, and

the outer peripheral groove portion includes a region in which a depth of the outer peripheral groove portion gradually becomes shallower toward the medial foot-side front end portion.

2. The shoe according to claim 1, wherein the outer peripheral groove portion has a shape extending gradually away from a flat ground contact surface as the outer peripheral groove portion extends from the lateral foot-side front end portion toward the medial foot-side front end portion in a state where the shoe is placed on the ground contact surface.

3. The shoe according to claim 1, wherein a bulging amount of the lower bulging portion from a boundary portion between the sole and the upper in a plan view is larger than a bulging amount of the upper bulging portion from the boundary portion in a plan view.

4. The shoe according to claim 1, wherein

the outer peripheral surface of the sole includes

a medial foot-side outer peripheral surface formed on the medial foot side of the heel support portion, and
a lateral foot-side outer peripheral surface formed on the lateral foot side of the heel support portion, and

a bulging amount of the medial foot-side outer peripheral surface from a boundary portion between the sole and the upper in a plan view is larger than a bulging amount of the lateral foot-side outer peripheral surface from the boundary portion in a plan view.

5. The shoe according to claim 4, wherein

the outer peripheral surface of the sole further includes a rear outer peripheral surface formed at a rear of the heel support portion, and
a bulging amount of the rear outer peripheral surface from the boundary portion in a plan view is larger than the bulging amount of the lateral foot-side outer peripheral surface from the boundary portion in a plan view.

6. The shoe according to claim 1, wherein

the sole includes a rising portion rising from a peripheral edge portion of a surface of the sole, the rising portion is continuous from the lateral foot side of the heel support portion to the medial foot side of the heel support portion through a rear of the heel support portion,
the rising portion includes

a medial foot-side inflection portion formed on the medial foot side of the heel support portion, and having a shape protruding upward, and
a lateral foot-side inflection portion formed on the lateral foot side of the heel support portion, and having a shape protruding upward, and

a most protruding portion of the medial foot-side inflection portion is located more forward than a most protruding portion of the lateral foot-side inflection portion in a foot length direction.

7. The shoe according to claim 6, wherein

the upper includes

a front covering portion that covers a forefoot portion of the wearer, and
a reinforcing portion having a tensile rigidity higher than a tensile rigidity of the front covering portion, and

the reinforcing portion includes a medial foot-side reinforcing portion disposed between the front covering portion and the medial foot-side inflection portion.

8. The shoe according to claim 7, wherein the reinforcing portion includes a lateral foot-side reinforcing portion disposed between the front covering portion and the lateral foot-side inflection portion.

9. The shoe according to claim 1, wherein

the sole has

a midsole, and
an outsole connected to a lower surface of the midsole,

the midsole includes

the heel support portion,
the upper bulging portion,
the lower bulging portion,
the outer peripheral groove portion,
a narrow-width portion formed in front of the heel support portion, and having a length in a foot width direction smaller than a length

of a portion of the midsole including the heel support portion in the foot width direction, and

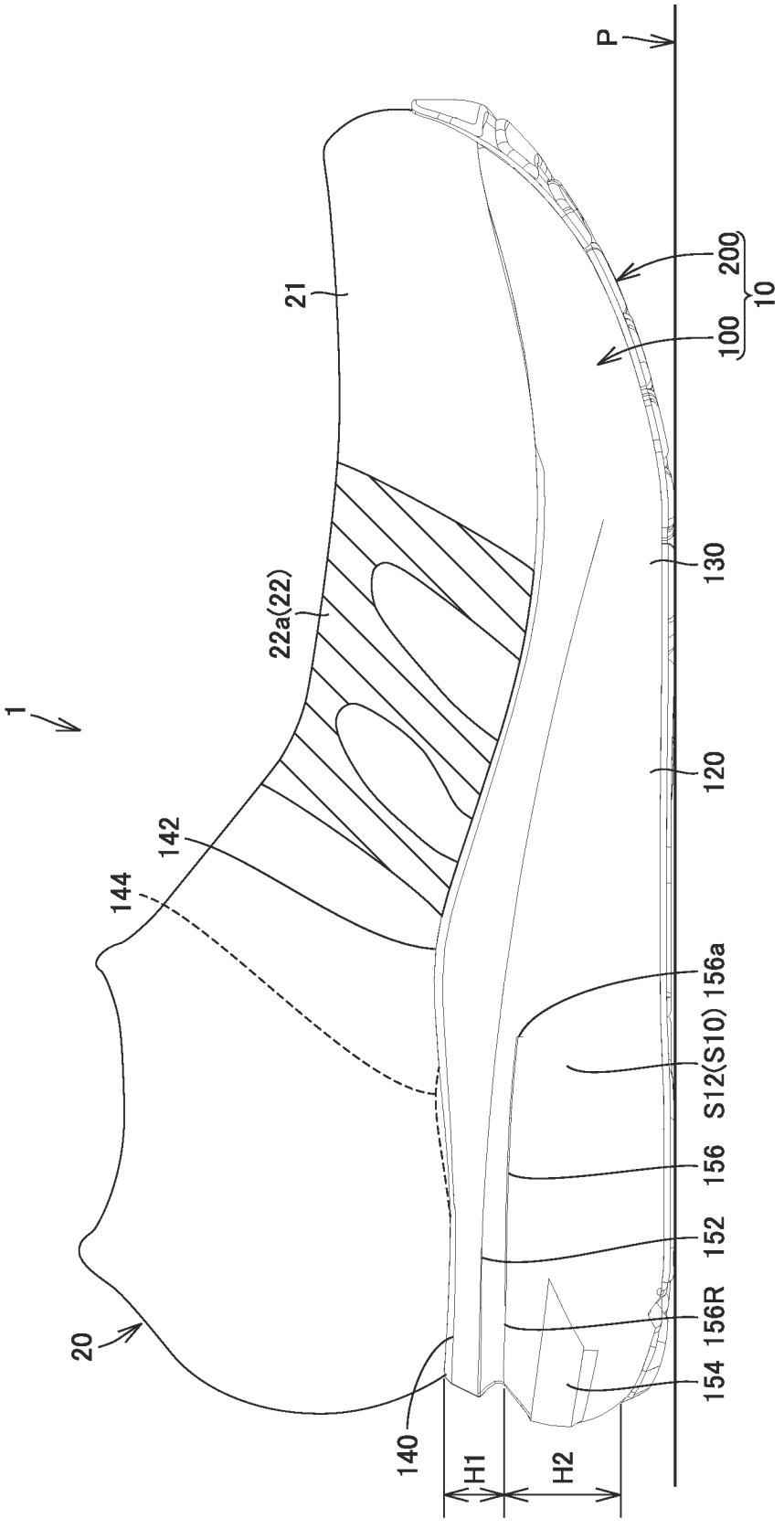
a wide-width portion formed in front of the narrow-width portion, and having a length in the foot width direction larger than the length of the narrow-width portion in the foot width direction,

a lower surface inclined groove is formed in the lower surface of the midsole, the lower surface inclined groove gradually extending toward the lateral foot side as the lower surface inclined groove extends forward from a portion on the medial foot side with respect to a rear end portion in a foot length direction,

the outsole includes a medial foot-side covering portion that covers a part of a portion of the lower surface of the midsole on the medial foot side, and

the medial foot-side covering portion has a shape continuously extending from the lower surface inclined groove to the wide-width portion.

FIG.1


P
200
10
100
21
130
22a(22)
1
120
142
144
156a
S12(S10)
156
152
156R
154
20
140
H1
H2

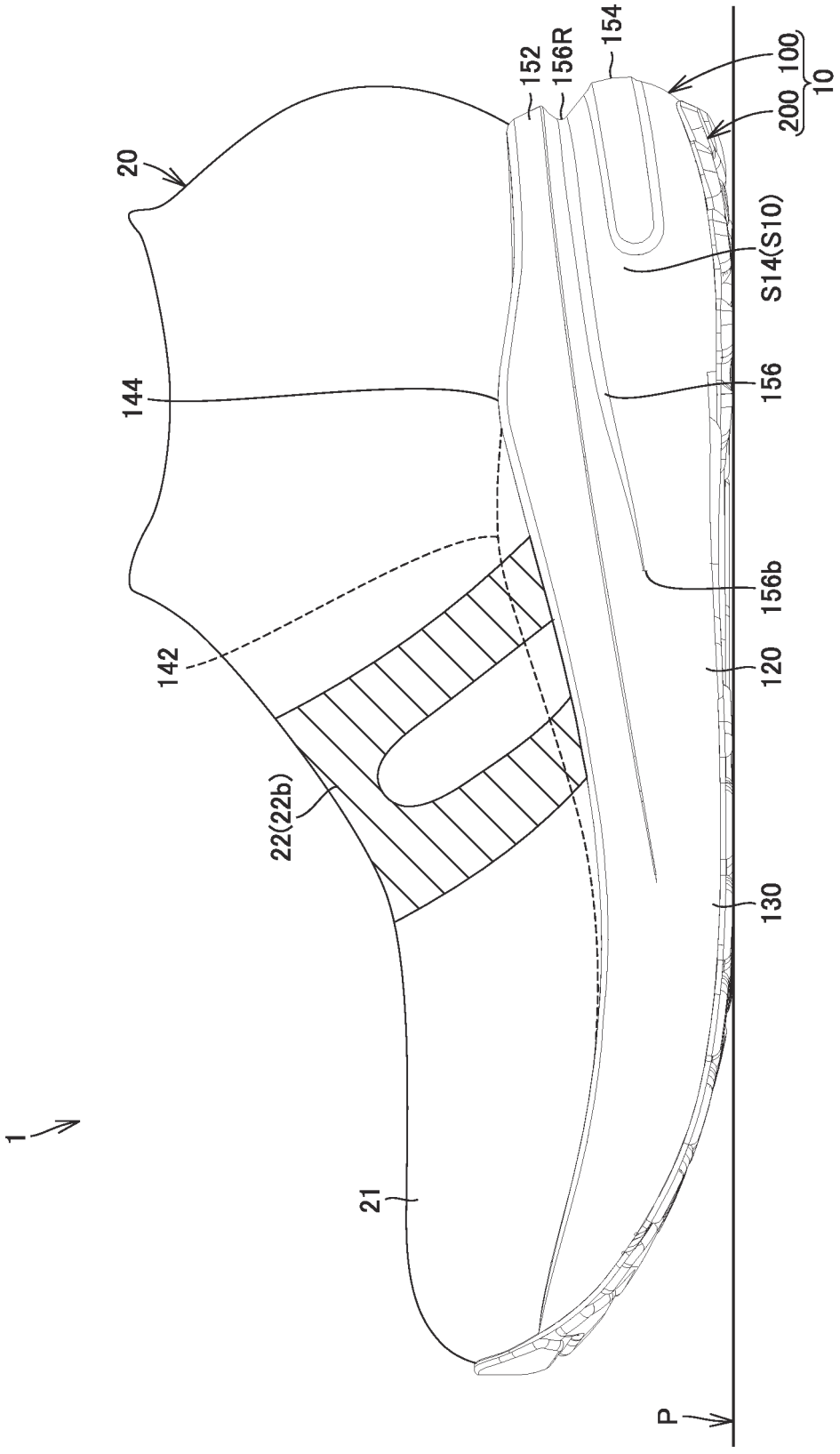
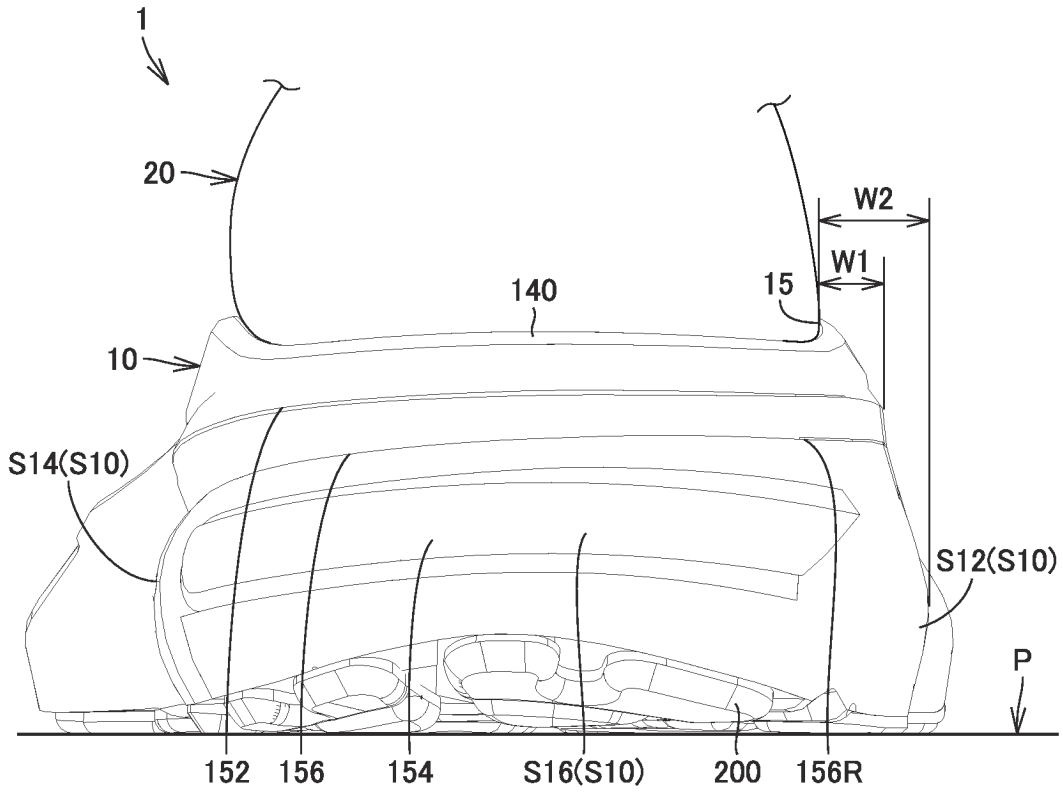

1
20
144
142
22(22b)
21
152
156R
154
200
100
10
S14(S10)
156
156b
120
130
P

FIG.2

FIG.3



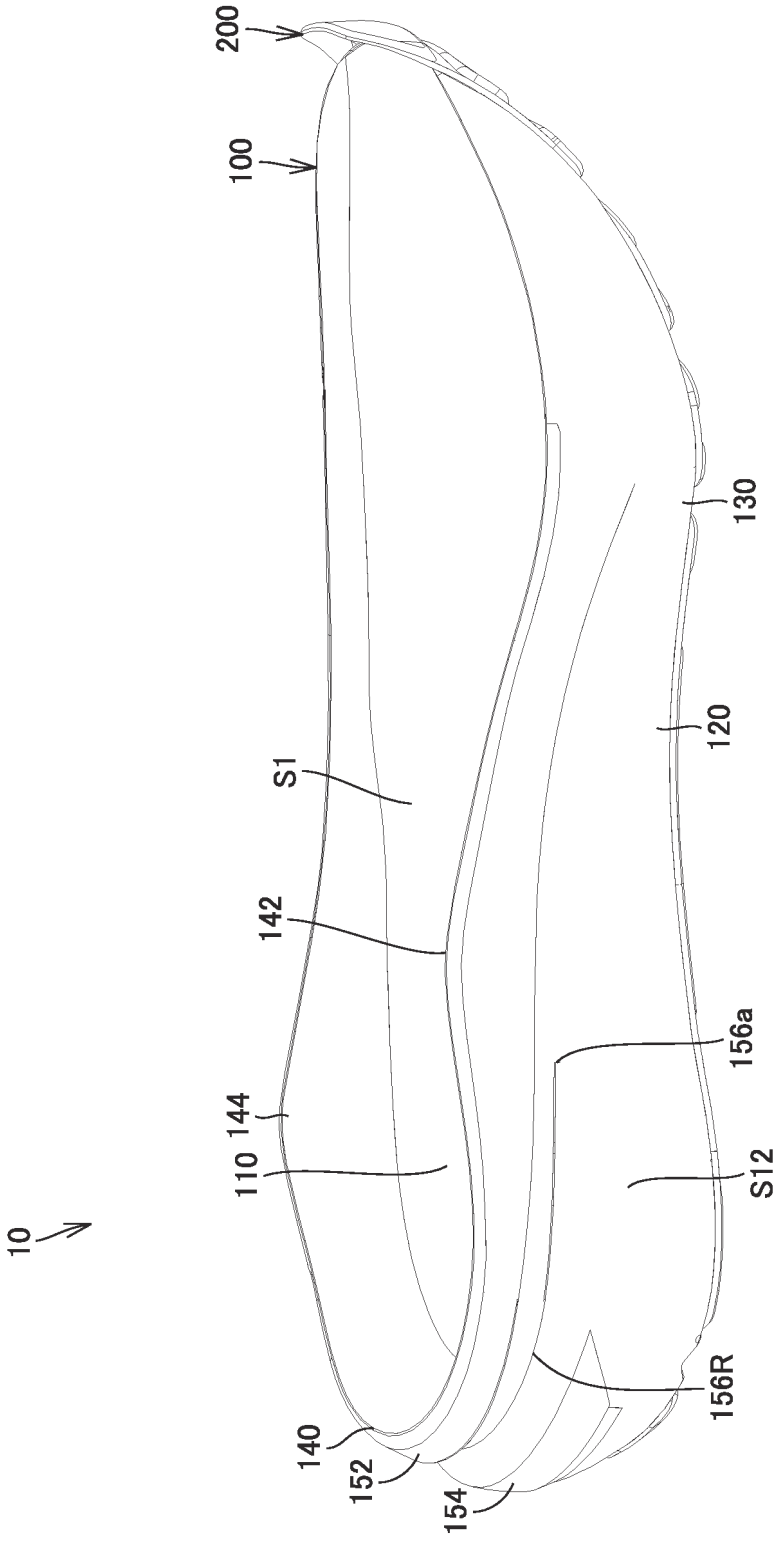


FIG.4

FIG.5

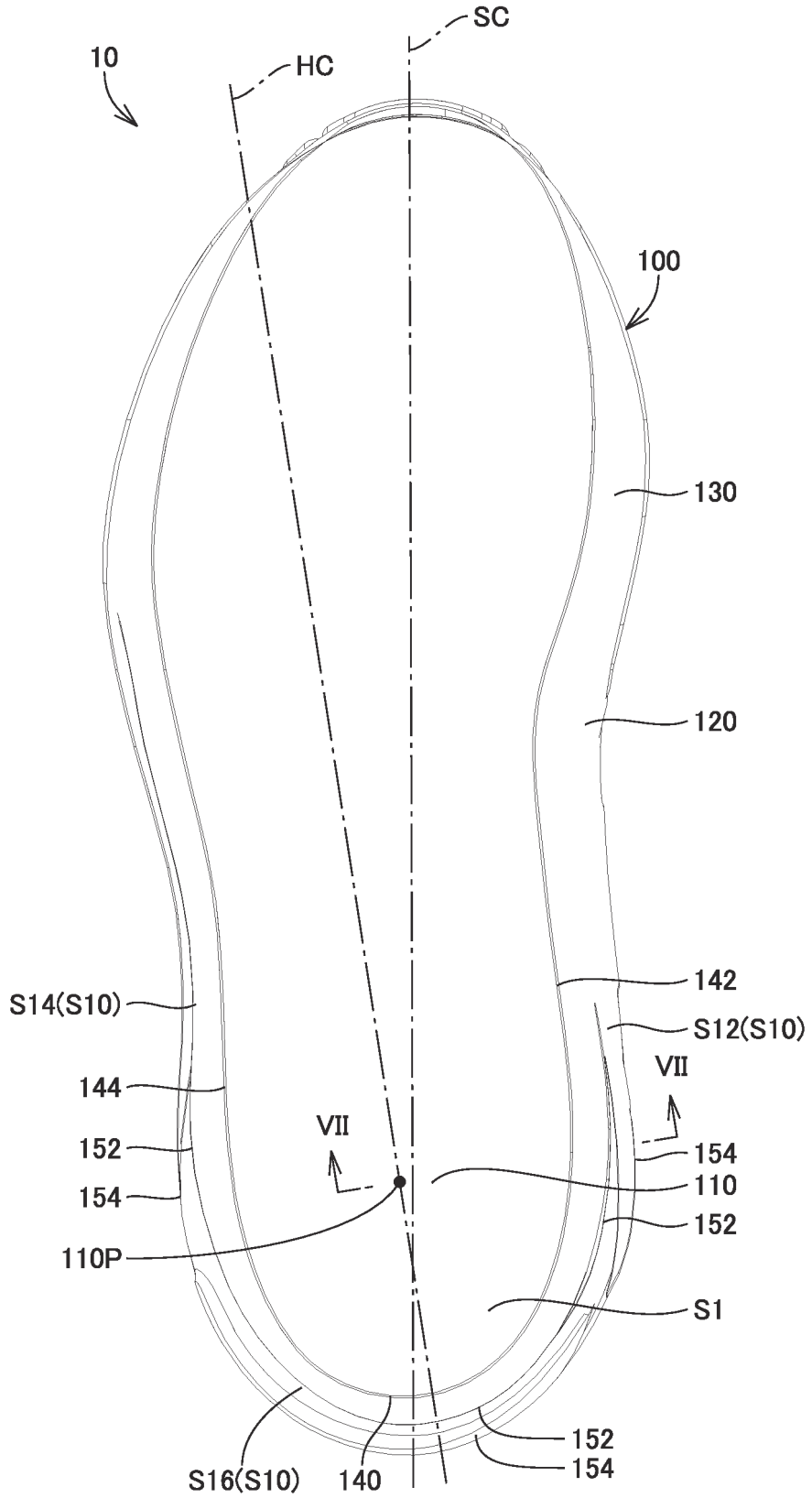

SC
10
HC
100
130
120
142
S14(S10)
S12(S10)
VII
144
VII
152
154
154
110
152
110P
S1
152
154
S16(S10)
140

FIG.6

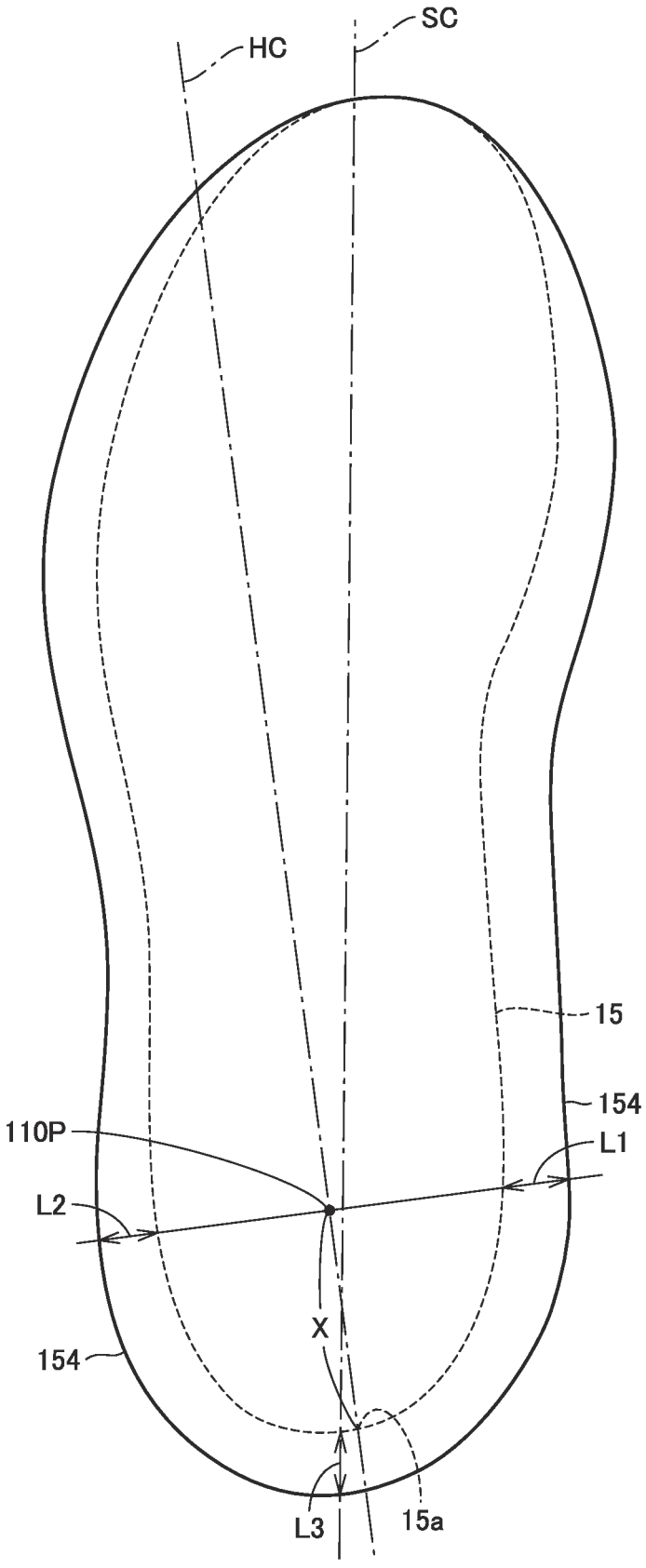


FIG.7

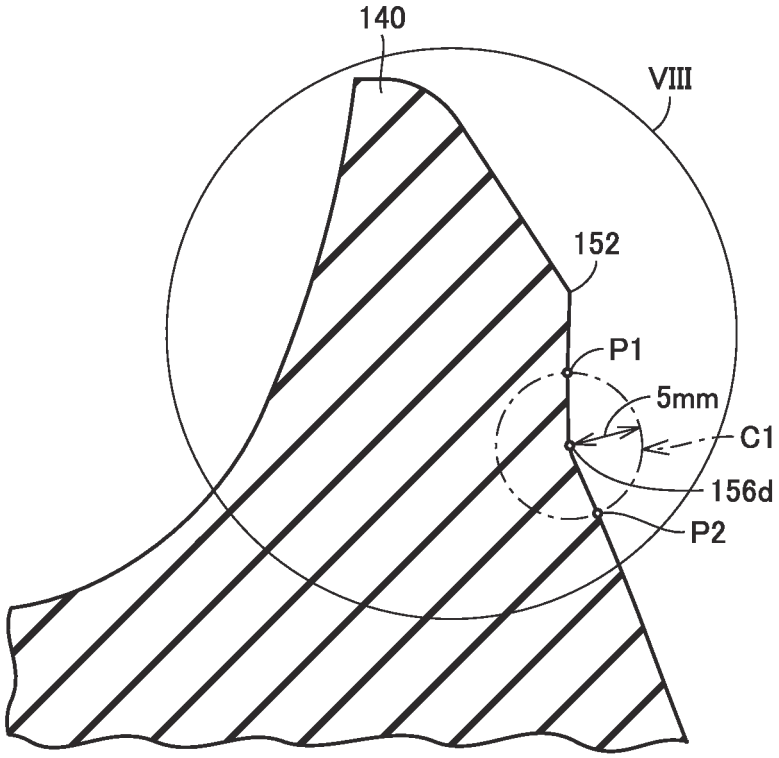


FIG.8

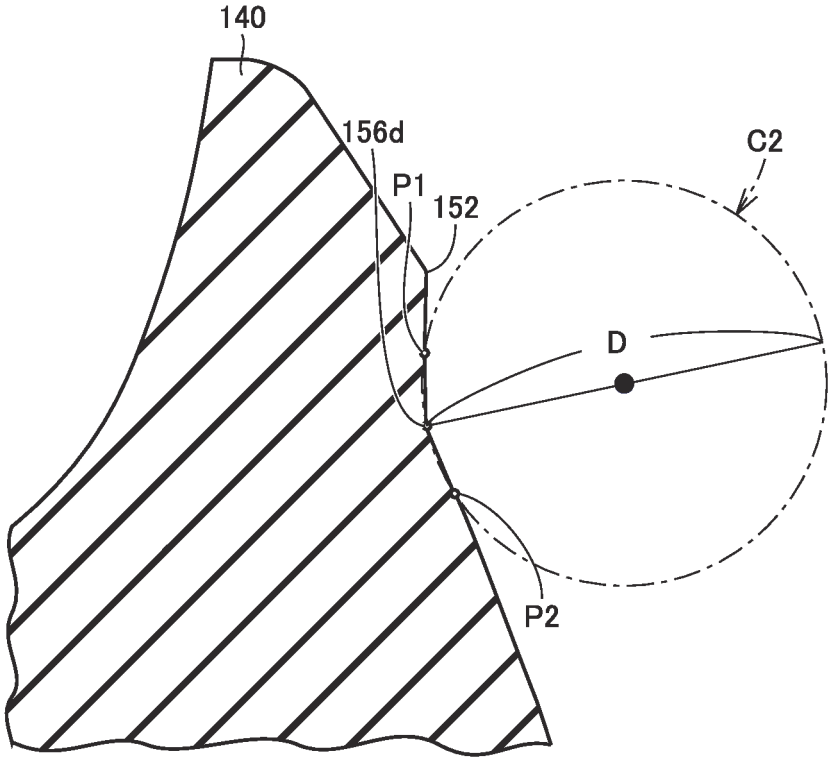


FIG.9

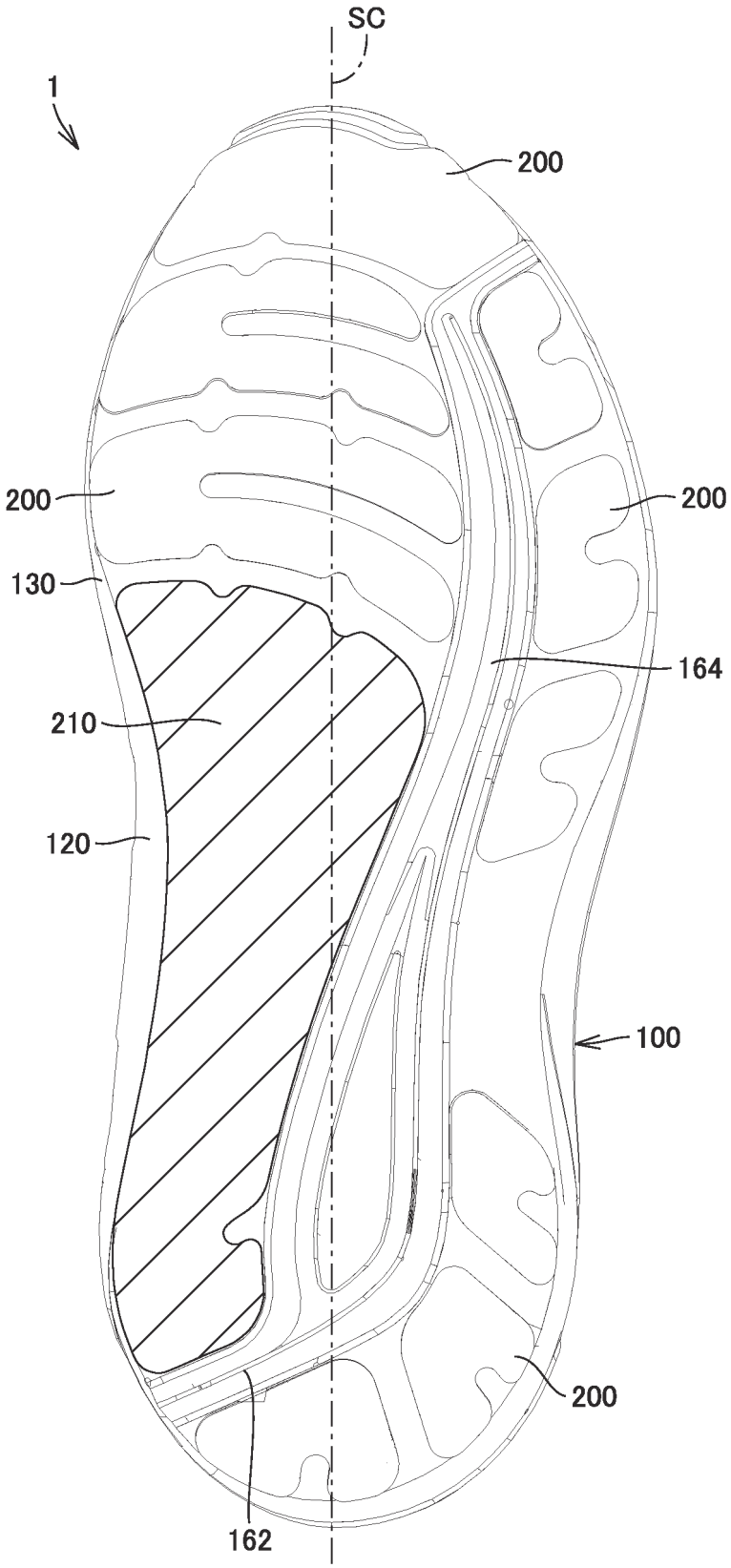


FIG.10

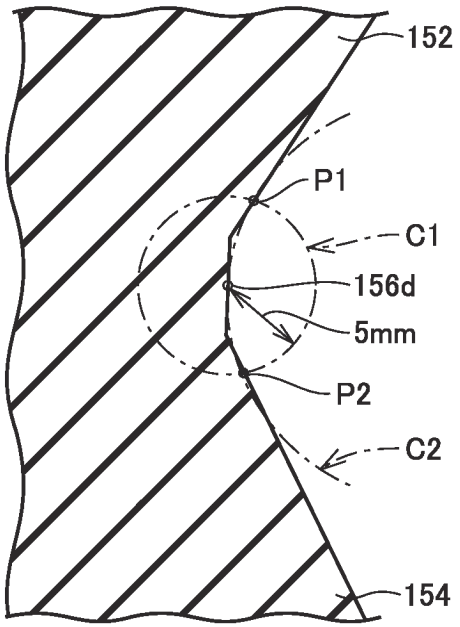
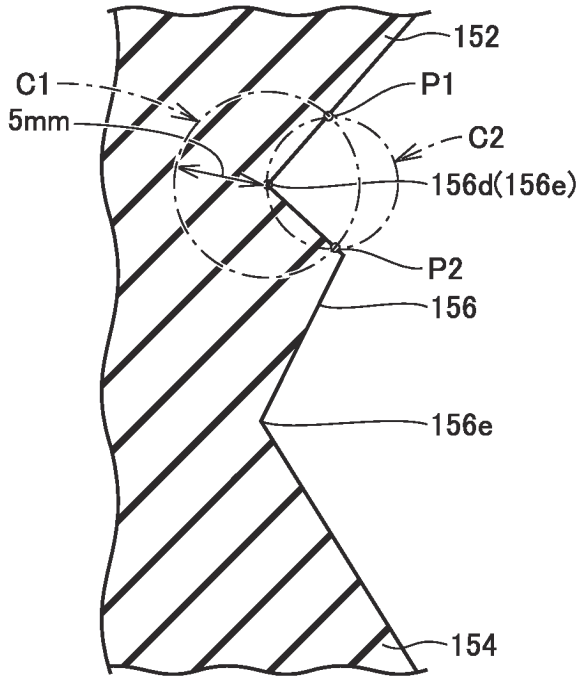

152
P1
C1
156d
5mm
P2
C2
154

FIG.11


152
C1
P1
5mm
C2
156d(156e)
P2
156
156e
154

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2024/033881

A. CLASSIFICATION OF SUBJECT MATTER

A43B 13/14(2006.01)i; ***A43B 5/06***(2022.01)i; ***A43B 7/144***(2022.01)i
FI: A43B13/14 D; A43B5/06; A43B7/144

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)

A43B13/14; A43B5/06; A43B7/144

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 2002-262907 A (DYNAGAIT KK) 17 September 2002 (2002-09-17) paragraphs [0001]-[0029], fig. 1-7	1
Y		1, 3-9
A		2
Y	WO 2020/121407 A1 (ASICS CORP.) 18 June 2020 (2020-06-18) paragraphs [0001]-[0054], fig. 1-12	1, 3-9
Y	WO 2022/123620 A1 (ASICS CORP.) 16 June 2022 (2022-06-16) paragraphs [0175], [0176]	7-8
Y	WO 2019/220621 A1 (ASICS CORP.) 21 November 2019 (2019-11-21) fig. 1	9
A	WO 2023/021469 A1 (PUMA SE) 23 February 2023 (2023-02-23) entire text, all drawings	1-9

☑ Further documents are listed in the continuation of Box C. ☑ See patent family annex.

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"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
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
30 October 2024	**12 November 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.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2024/033881

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2010/038267 A1 (ASICS CORP.) 08 April 2010 (2010-04-08) entire text, all drawings	1-9

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/JP2024/033881

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
JP 2002-262907 A	17 September 2002	(Family: none)	
WO 2020/121407 A1	18 June 2020	US 2021/0361028 A1 paragraphs [0001]-[0067], fig. 1-12 EP 3797632 A1 CN 112292054 A	
WO 2022/123620 A1	16 June 2022	US 2024/0023676 A1 paragraphs [0207], [0219]	
WO 2019/220621 A1	21 November 2019	US 2021/0227927 A1 fig. 1 EP 3777593 A1 CN 112074204 A	
WO 2023/021469 A1	23 February 2023	US 2023/0058209 A1 entire text, all drawings CN 118201521 A	
WO 2010/038267 A1	08 April 2010	US 2011/0185592 A1 entire text, all drawings EP 2332433 A1	

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 2020081154 A **[0002] [0003]**