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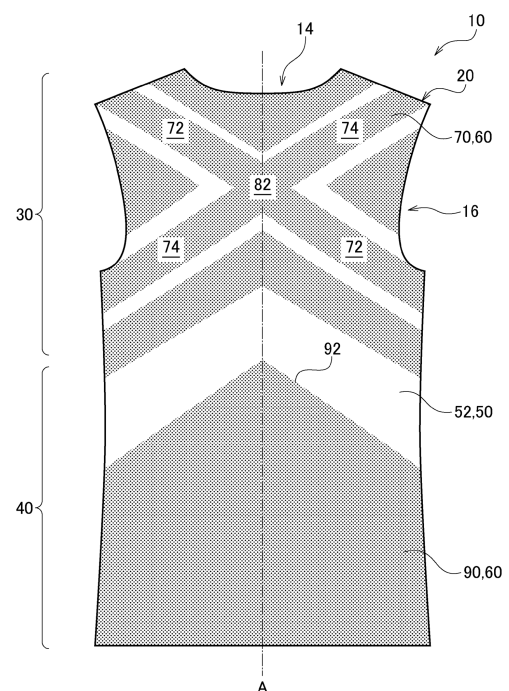
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(54) **UPPER BODY GARMENT**

(57) An upper body garment 10 includes: a high-stretch region 50 having predetermined stretchability; and a low-stretch region 60 having lower stretchability than the high-stretch region, wherein the upper body garment includes a body part 20 including an upper body part 30 corresponding to an upper trunk part including a chest of a wearer and a lower body part 40 corresponding to a lower trunk part including an abdomen of the wearer. The low-stretch region 60 includes an upper low-stretch region 70 arranged in the upper body part 30 and a lower low-stretch region 90 arranged in the lower body part 40. At least a part of the high-stretch region 50 is continuously arranged over an entire circumference in a waist circumference direction between the upper low-stretch region 70 and the lower low-stretch region 90.

FIG.2



**Description**

## Technical Field

**[0001]** The present disclosure relates to an upper body garment. 5

## Background Art

**[0002]** For the purpose of correcting the wearer's posture, supporting the wearer's movement, and the like, there has been known an upper body garment such as a functional inner shirt having regional variation in stretchability. Patent Literature 1 describes a functional inner shirt including a first region having a first ratio of expansion and contraction and a second region having a larger ratio of expansion and contraction than the first region. The first region includes a band-shaped first support line extending from both shoulders of the back body, through the inside of the shoulder blades, toward upper portions of the ilia, and reaching the vicinity of the hip joints along the psoas muscles of the front body. 10 15 20

## Citation List

## Patent Literature

**[0003]** Patent Literature 1: JP 2021-188194 A 25

## Summary of Invention

## Technical Problem

**[0004]** However, in the functional inner shirt described in Patent Literature 1, there is room for improvement from the viewpoint of appropriately supporting the wearer's body during exercise when the wearer performs an exercise action such as running. 30 35

**[0005]** The present disclosure has been made in view of such a circumstance, and an object of the present disclosure is to provide an upper body garment capable of appropriately supporting the wearer's body during exercise. 40

## Solution to Problem

**[0006]** An upper body garment of an aspect of the present disclosure includes: 45

a high-stretch region having predetermined stretchability; and  
a low-stretch region having lower stretchability than the high-stretch region,  
wherein the upper body garment includes a body part including an upper body part corresponding to an upper trunk part including a chest of a wearer and a lower body part corresponding to a lower trunk part including an abdomen of the wearer, 50

the low-stretch region includes an upper low-stretch region arranged in the upper body part and a lower low-stretch region arranged in the lower body part, and

at least a part of the high-stretch region is continuously arranged over an entire circumference in a waist circumference direction between the upper low-stretch region and the lower low-stretch region.

**[0007]** An upper body garment of another aspect of the present disclosure includes:

a high-stretch region having predetermined stretchability; and

a low-stretch region having lower stretchability than the high-stretch region, 15

wherein the upper body garment includes an upper body part corresponding to an upper trunk part including a chest of a wearer,

the low-stretch region includes an upper low-stretch region arranged on the upper body part,

when a portion corresponding to a front surface of a body of the wearer is a front body and a portion corresponding to a back surface of the body of the wearer is a back body in the upper body part, 20 25

the upper low-stretch region is continuously arranged across an entire region of one of the front body and the back body and at least a part of the other of the front body and the back body in a waist circumference direction,

the upper low-stretch region includes, on the one of the front body and the back body, a first region continuously arranged from a position corresponding to an upper portion of a left shoulder of the wearer to a position corresponding to a right armpit of the wearer, and a second region continuously arranged from a position corresponding to an upper portion of a right shoulder of the wearer to a position corresponding to a left armpit of the wearer, and the first region and the second region intersect each other. 30 35 40

**[0008]** Any combinations of the above-described components and mutual replacement of the components and expressions of the present invention between methods, apparatuses, and the like are also effective as aspects of the present invention. 45

## Advantageous Effects of Invention

**[0009]** One aspect of the present disclosure can provide an upper body garment capable of appropriately supporting the wearer's body during exercise. 50

## Brief Description of Drawings

**[0010]**

Fig. 1 is a front view schematically illustrating an upper body garment according to an embodiment.

Fig. 2 is a back view schematically illustrating the upper body garment illustrated in Fig. 1.

Fig. 3 is a schematic view illustrating a low-stretch region in an enlarged manner.

Fig. 4 is a schematic view illustrating a modification of the low-stretch region in an enlarged manner.

Fig. 5 is a schematic view illustrating a second modification of the low-stretch region in an enlarged manner.

Fig. 6 is a schematic view illustrating a third modification of the low-stretch region in an enlarged manner.

Fig. 7 is a front view schematically illustrating an upper body garment in a first modification.

Fig. 8 is a back view schematically illustrating the upper body garment illustrated in Fig. 7.

Fig. 9 is a front view schematically illustrating an upper body garment in a second modification.

Fig. 10 is a back view schematically illustrating the upper body garment illustrated in Fig. 9.

Fig. 11 is a front view schematically illustrating an upper body garment in a third modification.

Fig. 12 is a front view schematically illustrating an upper body garment in a fourth modification.

Fig. 13 is a front view schematically illustrating an upper body garment in a fifth modification.

Fig. 14 is a back view schematically illustrating the upper body garment illustrated in Fig. 13.

#### Description of Embodiments

**[0011]** Hereinafter, the present disclosure will be described based on a preferred embodiment with reference to the drawings. In the embodiment and modifications, the same or equivalent components are denoted by the same reference numerals, and redundant description is appropriately omitted. The dimensions of the members in each drawing are appropriately enlarged and downsized to facilitate understanding. In each drawing, some of the members that are not important for describing the embodiment are omitted.

**[0012]** Terms including ordinal numbers such as first and second are used to describe various components, but the terms are used only for the purpose of distinguishing one component from other components, and the components are not limited by the terms.

**[0013]** Fig. 1 is a front view schematically illustrating an upper body garment 10 according to an embodiment. Fig. 2 is a back view schematically illustrating the upper body garment 10. The upper body garment 10 illustrated in Figs. 1 and 2 is in a state of being spread out so that the garment does not become wrinkled. The upper body garment 10 is a functional inner shirt designed assuming that the upper body garment is worn to directly touch the skin when the wearer performs sports, in particular, running. In each drawing including Figs. 1 and 2, an upward-

downward direction in the paper surface corresponds to a body length direction of the upper body garment 10, and a rightward-leftward direction in the paper surface corresponds to a body width direction of the upper body garment 10. Hereinafter, in the body length direction, the side on which the head of the wearer is positioned is also referred to as "above", and the side on which the legs of the wearer are positioned is also referred to as "below".

**[0014]** The upper body garment 10 includes a body part 20. The body part 20 mainly corresponds to the torso of the upper body of the wearer. That is, the inner surface of the body part 20 faces the torso of the upper body of the wearer. In the example shown in the present embodiment, the upper body garment 10 is a sleeveless shirt, that is, a shirt without sleeves.

**[0015]** The body part 20 includes an upper body part 30 and a lower body part 40. The upper body part 30 corresponds to an upper trunk part including the chest of the wearer. The lower body part 40 corresponds to a lower trunk part including the abdomen of the wearer. The upper body part 30 is positioned above the lower body part 40. The upper body part 30 and the lower body part 40 are defined for convenience of description of a region included in the body part 20, and the body part 20 may be integrally formed.

**[0016]** In the body part 20, a portion corresponding to the front surface of the wearer's body is referred to as a front body, and a portion corresponding to the back surface of the wearer's body is referred to as a back body. That is, Fig. 1 illustrates the front body of the body part 20, and Fig. 2 illustrates the back body of the body part 20.

**[0017]** The upper body garment 10 has regional variation in stretchability between the regions constituting the upper body garment 10. Specifically, the upper body garment 10 includes a high-stretch region 50 having predetermined stretchability and a low-stretch region 60 having lower stretchability than the high-stretch region 50. The high-stretch region 50 does not necessarily have the same stretchability over the entire region. Similarly, the low-stretch region 60 does not necessarily have the same stretchability in the entire region. However, the region having the lowest stretchability in the high-stretch region 50 has higher stretchability than the region having the highest stretchability in the low-stretch region 60. The upper body garment 10 as a whole has stretchability to an extent that at least the wearer can put on and take off the garment. Specific configurations of the high-stretch region 50 and the low-stretch region 60 will be described later.

**[0018]** In the present specification, the stretchability of the upper body garment 10 indicates ease of stretching and contracting of the upper body garment 10. Specifically, the higher the stretchability, the easier it is to stretch and contract, and the lower the stretchability, the more difficult to stretch and contract. The stretchability of the upper body garment 10 mainly means the stretchability in a direction along the body surface of the wearer. The

stretchability of the upper body garment 10 can be expressed by an elongation rate (for example, the unit is [%]) when a load (for example, the unit is [N/cm]) for stretching the upper body garment 10 in a predetermined direction is applied. The stretchability of the upper body garment 10 may vary depending on the direction in which a load for stretching the upper body garment 10 is applied.

**[0019]** The low-stretch region 60 includes an upper low-stretch region 70 arranged in the upper body part 30 and a lower low-stretch region 90 arranged in the lower body part 40. The upper low-stretch region 70 is continuously arranged across the entire region of one of the front body and the back body and at least a part of the other in a waist circumference direction (direction of circling the upper body garment 10 along the body width direction). Specifically, as illustrated in Figs. 1 and 2, the upper low-stretch region 70 is continuously arranged across the entire region of the front body and the entire region of the back body in the waist circumference direction. That is, the upper low-stretch region 70 is continuously arranged over the entire circumference in the waist circumference direction. In the present specification, the fact that a certain region is "continuously arranged over the entire circumference in the waist circumference direction" means that a part of a region other than the region in the entire circumference in the waist circumference direction may be included. However, this means that the region occupies most of the entire circumference in the waist circumference direction, and for example, this means that the region occupies 80% or more of the entire circumference in the waist circumference direction.

**[0020]** The upper low-stretch region 70 includes a first region 72 continuously arranged from a position corresponding to the upper part of the wearer's left shoulder to a position corresponding to the right armpit (also referred to as "axilla") and a second region 74 continuously arranged from a position corresponding to the upper part of the wearer's right shoulder to a position corresponding to the left armpit in the back body illustrated in Fig. 2. The position corresponding to the upper part of the wearer's shoulder is the position of the upper end of the upper body garment 10 between a neckline 14 which is an opening through which the wearer's neck passes and an armhole 16 which is an opening through which the wearer's arm passes. The position corresponding to the wearer's armpit is the position of the side end of the upper body garment 10 immediately below the armhole 16. The upper end of the first region 72 is arranged at a position corresponding to the upper part of the wearer's left shoulder. The lower end of the first region 72 is arranged at a position corresponding to the wearer's right armpit. The upper end of the second region 74 is arranged at a position corresponding to the upper part of the wearer's right shoulder. The lower end of the second region 74 is arranged at a position corresponding to the wearer's left armpit.

**[0021]** The first region 72 is a band-shaped region

extending substantially linearly from a position corresponding to the upper part of the wearer's left shoulder to a position corresponding to the right armpit. Similarly, the second region 74 is a band-shaped region extending substantially linearly from a position corresponding to the upper part of the wearer's right shoulder to a position corresponding to the left armpit.

**[0022]** The first region 72 and the second region 74 intersect each other. That is, the first region 72 and the second region 74 share a partial region with each other. An overlapping region 82 between the first region 72 and the second region 74 is arranged at a position including a center line A in the body width direction of the upper body garment 10. The center line A in the body width direction corresponds to the wearer's midline. The first region 72 and the second region 74 form a region having a shape of an alphabet X as a whole.

**[0023]** In this manner, the upper low-stretch region 70 is continuously arranged in the entire region in the waist circumference direction of the back body corresponding to the back surface of the wearer's body. Thus, when the wearer performs an arm swing motion accompanying running or the like, the region of the back body on the same side as the side where the arm is swung out forward is particularly stretched. Thus, the upper body garment 10 applies a force in a direction of pulling backward the arm swung out with the force of contraction of the upper low-stretch region 70 on the back body side. Therefore, the upper body garment 10 can more appropriately support the wearer's body during the arm swing motion accompanying running or the like.

**[0024]** The upper low-stretch region 70 includes a third region 76 continuously arranged from a position corresponding to the upper part of the wearer's left shoulder to a position corresponding to the left armpit and a fourth region 78 continuously arranged from a position corresponding to the upper part of the wearer's right shoulder to a position corresponding to the right armpit in the front body illustrated in Fig. 1. The upper end of the third region 76 is arranged at a position corresponding to the upper part of the wearer's left shoulder. The lower end of the third region 76 is arranged at a position corresponding to the wearer's left armpit. The upper end of the fourth region 78 is arranged at a position corresponding to the upper part of the wearer's right shoulder. The lower end of the fourth region 78 is arranged at a position corresponding to the wearer's right armpit.

**[0025]** As illustrated in Fig. 1, the third region 76 may include a region extending toward the direction in which the center line A in the body width direction is positioned between the upper end and the lower end. Similarly, the fourth region 78 may include a region extending toward the direction in which the center line A in the body width direction is positioned between the upper end and the lower end. As illustrated in Fig. 1, the third region 76 and the fourth region 78 are continuously arranged at positions including the center line A in the width direction. With this configuration, when the wearer's arm is pulled

backward, the upper body garment 10 can easily apply a force in a direction of swinging the arm forward as well with the force of contraction of the upper low-stretch region 70 on the front body side. In a modification, the third region 76 and the fourth region 78 may be separated from each other. With this configuration, the upper body garment 10 can also suppress the force in the direction of swinging the wearer's arm forward.

**[0026]** As illustrated in Figs. 1 and 2, the first region 72 and the third region 76 are arranged such that upper ends thereof are continuous with each other. The first region 72 and the fourth region 78 are arranged such that lower ends thereof are continuous with each other. The second region 74 and the fourth region 78 are arranged such that upper ends thereof are continuous with each other. The second region 74 and the third region 76 are arranged such that lower ends thereof are continuous with each other. With this configuration, a force of contracting when the upper low-stretch region 70 is stretched can be smoothly applied to the wearer without interruption between the front body and the back body.

**[0027]** In a modification, the mode of arrangement of the upper low-stretch region 70 may be reversed in the front and the back from the above-described example. That is, the first region 72 and the second region 74 may be arranged on the front body, and the third region 76 and the fourth region 78 may be arranged on the back body. With this configuration, for example, the application of the force in the direction of swinging the wearer's arm forward can be made larger than the application of the force in the direction of pulling the wearer's arm backward.

**[0028]** The upper low-stretch region 70 may include a region other than the first region 72, the second region 74, the third region 76, or the fourth region 78 described above. In the example illustrated in Fig. 1, a part of the upper low-stretch region 70 is arranged in each of two regions surrounded by the armhole 16, the third region 76, and the fourth region 78 in the front body of the upper body part 30. In the example illustrated in Fig. 2, a part of the upper low-stretch region 70 is arranged in each of the four regions around the first region 72 and the second region 74 in the back body of the upper body part 30. The four regions around the first region 72 and the second region 74 are formed by one region surrounded by the neckline 14, the first region 72, and the second region 74, two regions surrounded by the armhole 16, the first region 72, and the second region 74, and one region positioned below the first region 72 and the second region 74. The upper low-stretch region 70 includes a region other than the first region 72, the second region 74, the third region 76, or the fourth region 78 in this manner, and thus, an appropriate pressure can be applied to a predetermined region in the wearer's upper trunk part.

**[0029]** The upper low-stretch region 70 other than the first region 72, the second region 74, the third region 76, or the fourth region 78 is arranged between the first region 72, the second region 74, the third region 76, and the fourth region 78 via the high-stretch region 50.

The high-stretch region 50 is more likely to secure air permeability than the low-stretch region 60, and thus, such an arrangement makes it easy to secure air permeability while appropriately supporting the wearer's body.

**[0030]** To obtain the effect of appropriately supporting the wearer's body, the upper low-stretch region 70 is preferably arranged in 75% or more of the region in the waist circumference direction of the upper body part 30, and more preferably arranged in 80% or more of the region.

**[0031]** As illustrated in Figs. 1 and 2, the lower low-stretch region 90 is continuously arranged over the entire circumference of the lower body part 40 in the waist circumference direction. The lower low-stretch region 90 is arranged over the entire region of the lower body part 40 also in the body length direction. In a modification, the lower low-stretch region 90 may be arranged only in a part in the body length direction. Because the lower low-stretch region 90 is continuously arranged over the entire circumference of the lower body part 40 in the waist circumference direction, the lower low-stretch region 90 more reliably supports the wearer's lower trunk part, and thus, the vibration of the soft tissue present in the wearer's abdomen or the like can be further suppressed. This effect is particularly effective when the wearer performs sports such as running.

**[0032]** In the front body and the back body, an upper end 92 of the lower low-stretch region 90 is inclined downward from a position corresponding to the wearer's midline, that is, a position overlapping the center line A in the body width direction toward a position corresponding to the wearer's body side (side surface of the body). In a modification, the upper end 92 of the lower low-stretch region 90 may have this shape for only one of the front body and the back body. Because the upper end 92 of the lower low-stretch region 90 has such a shape, the lower low-stretch region is easily arranged so as to avoid the position of the wearer's rib cage, and thus, it is possible to make it more difficult to interrupt the wearer's breathing motion and trunk turning motion.

**[0033]** As illustrated in Figs. 1 and 2, at least a part of the high-stretch region 50 includes an annular high-stretch region 52 continuously arranged over the entire circumference in the waist circumference direction between the upper low-stretch region 70 and the lower low-stretch region 90. This secures stretchability in the region between the wearer's chest and abdomen, and thus, the wearer's breathing motion and trunk turning motion are hardly interrupted.

**[0034]** Here, an example of a material constituting the upper body garment 10 will be described. The upper body garment 10 includes a highly-stretchable material and a low-stretchable material having lower stretchability than the highly-stretchable material. The highly-stretchable material is, for example, a fabric such as a mesh fabric that is configured to contain chemical fibers such as polyester and nylon and constitutes the entire shape of the upper body garment 10. The highly-stretchable ma-

terial preferably has high stretchability in both the body length direction and the body width direction of the upper body garment 10. The low-stretchable material is made of, for example, a synthetic resin, and is arranged by printing or the like on at least one of the inner surface of the highly-stretchable material facing the wearer's body and the outer surface opposite to the inner surface. The low-stretchable material may be arranged on the inner surface of the highly-stretchable material, but it is preferable that the low-stretchable material is arranged on the outer surface of the highly-stretchable material from the viewpoint of comfort at the time of wearing.

**[0035]** The low-stretch region 60 is a region in which the low-stretchable material is at least partially arranged on the highly-stretchable material. The high-stretch region 50 is a region in which the low-stretchable material is not arranged on the highly-stretchable material. In the high-stretch region 50, the low-stretchable material may be partially arranged, and for example, the low-stretchable material may be arranged at a proportion of 25% or less. The high-stretch region 50 may include a region in which no fabric including the highly-stretchable material is arranged, for example, a region with a hole.

**[0036]** In this manner, the low-stretch region 60 is formed by arranging the low-stretchable material on the surface of the highly-stretchable material constituting the entire shape of the upper body garment 10, and thus, it is possible to make the wearer feel less uncomfortable as compared with, for example, a case where fabrics different in stretchability are connected by sewing or the like for each region.

**[0037]** Fig. 3 is a schematic view illustrating the low-stretch region 60 in an enlarged manner. As illustrated in Fig. 3, the low-stretch region 60 is a region in which the low-stretchable material 120 is arranged in a predetermined repeated pattern on the surface of the fabric of the highly-stretchable material 110. An element 122 of the low-stretchable material 120 constituting the repeated pattern has a shape spreading in a predetermined direction (vertical direction in Fig. 3) and a direction orthogonal to the vertical direction (horizontal direction in Fig. 3). The stretchability of the element 122 in the vertical direction and the stretchability of the element 122 in the horizontal direction are different from each other. In this manner, the stretchability of the element 122 of the low-stretchable material 120 constituting the repeated pattern in the low-stretch region 60 has anisotropy, and thus, directionality can be imparted to the stretchability of the low-stretch region 60 because of the arrangement of the element 122. The vertical direction and the horizontal direction in Fig. 3 may or may not coincide with the body length direction and the body width direction in Figs. 1 and 2.

**[0038]** When the stretchability of the low-stretch region 60 has directionality, the direction with lower stretchability of the low-stretch region 60 may be arranged so as to be aligned with the body width direction or the waist circumference direction of the body part 20. When the wearer performs sports such as running, the body part 20 is likely

to be stretched along the body width direction or the waist circumference direction rather than the body length direction. Thus, with such an arrangement, the wearer's body can be more appropriately supported. Alternatively, in the upper low-stretch region 70, the longitudinal direction of at least one of the first region 72 and the second region 74 may be arranged so that the direction with lower stretchability of the low-stretch region 60 is aligned. With such an arrangement, the function of supporting the wearer's body with at least one of the first region 72 and the second region 74 can be more effectively exhibited.

**[0039]** The shape of the element 122 has a longitudinal direction and a lateral direction. Specifically, the element 122 has a rhombic shape and is arranged in such a direction that diagonals are respectively along the vertical direction and the horizontal direction in Fig. 3. In the element 122, the vertical direction is the lateral direction, and the horizontal direction is the longitudinal direction. In this case, the element 122 is lower in stretchability in the direction along the longitudinal direction than in the direction along the lateral direction. Thus, it is easy to design the low-stretch region 60 so that the stretchability in the direction along the longitudinal direction is lower than the stretchability in the direction along the lateral direction. By adjusting the longitudinal direction and the lateral direction of the element 122 of the low-stretchable material 120 constituting the repeated pattern in this manner, directionality can be imparted to the stretchability of the low-stretch region 60.

**[0040]** The repeated pattern of the arrangement of the elements 122 may be a repeated pattern in which the interval between the elements 122 is different for each position in the low-stretchable material 120. The element 122 may have a different size, shape, orientation, and the like for each position where the element is arranged. This can change the stretchability for each position in the low-stretchable material 120.

**[0041]** Figs. 4 to 6 are schematic views illustrating first to third modifications of the low-stretch region 60 in an enlarged manner. A low-stretch region 60A illustrated in Fig. 4 has an element 122A of a low-stretchable material 120 constituting a repeated pattern. The element 122A has a circular shape. A low-stretch region 60B illustrated in Fig. 5 has an element 122B of a low-stretchable material 120 constituting a repeated pattern. The element 122B has a square shape. A low-stretch region 60C illustrated in Fig. 6 has an element 122C of a low-stretchable material 120 constituting a repeated pattern. The element 122C has an equilateral triangular shape. Each of the elements 122A to 122C does not have to have a longitudinal direction and a lateral direction. That is, in the elements 122A to 122C, the length in the vertical direction and the length in the horizontal direction in each drawing may be substantially the same.

**[0042]** Fig. 7 is a front view schematically illustrating an upper body garment 10A in a first modification. Fig. 8 is a back view schematically illustrating the upper body gar-

ment 10A in the first modification. The upper body garment 10A includes the body part 20 and a sleeve part 12. The upper body garment 10A is a short sleeve shirt. The body part 20 of the upper body garment 10A is the same as the body part 20 of the upper body garment 10, and thus description thereof is omitted. At least a part of the low-stretch region 60 is arranged in the sleeve part 12. As illustrated in Figs. 7 and 8, the low-stretch region 60 does not have to be arranged in a predetermined range including the tip of the sleeve part 12, or may be arranged in the entire region of the sleeve part 12. Because of at least a part of the low-stretch region 60 arranged in the sleeve part 12, a force can be directly applied to the wearer's arm, and thus, the wearer's arm can be appropriately supported.

**[0043]** Fig. 9 is a front view schematically illustrating an upper body garment 10B in a second modification. Fig. 10 is a back view schematically illustrating the upper body garment 10B in the second modification. The upper body garment 10B includes a body part 20B and a sleeve part 12. The upper body garment 10B is a short sleeve shirt. The sleeve part 12 of the upper body garment 10B is the same as the sleeve part 12 of the upper body garment 10A, and thus description thereof is omitted. The body part 20B is different from the body part 20 in that the low-stretch region 60 is not arranged in the lower body part 40. With such a configuration as well, among the effects obtained by the upper body garment 10A, effects other than the effect obtained by the lower low-stretch region 90 can be obtained. In addition, the upper body garment 10B can be a more suitable aspect for a wearer who does not need support for the abdomen.

**[0044]** Fig. 11 is a front view schematically illustrating an upper body garment 10C in a third modification. The back view of the upper body garment 10C is the same as that of Fig. 8, and thus illustration thereof is omitted. The upper body garment 10C includes a body part 20C and a sleeve part 12. The upper body garment 10C is a short sleeve shirt. The sleeve part 12 of the upper body garment 10C is the same as the sleeve part 12 of the upper body garment 10A, and thus description thereof is omitted. The body part 20C is different from the body part 20A in including an opening-closing part 22 that is openable and closable. The opening-closing part 22 is formed of, for example, a fastener, and is arranged in a partial range along the center line A (see Fig. 1 and the like) in the body width direction of the front body from the neckline 14. With this configuration, the opening-closing part 22 is opened when the wearer puts on and takes off the upper body garment 10C, and the opening-closing part 22 is closed when the wearer is wearing the upper body garment 10C. Thus, the above-described effects at the time of wearing the garment can be obtained while making it easy for the wearer to put on and take off the garment. In particular, the upper body garment 10 is likely to be difficult for the wearer to put on and take off because of the arrangement of the low-stretch region 60, and thus, it is effective to include the opening-closing part 22.

**[0045]** Fig. 12 is a front view schematically illustrating an upper body garment 10D in a fourth modification. The back view of the upper body garment 10D is the same as that of Fig. 8, and thus illustration thereof is omitted. The upper body garment 10D includes a body part 20D and a sleeve part 12. The upper body garment 10D is a short sleeve shirt. The sleeve part 12 of the upper body garment 10D is the same as the sleeve part 12 of the upper body garment 10A, and thus description thereof is omitted. The body part 20D includes an opening-closing part 24. The opening-closing part 24 is different from the opening-closing part 22 in that it reaches the lower end of the body part 20D. The body part 20D is the same as the body part 20C in other points. With this configuration, by opening the opening-closing part 24, the front body is separated into left and right, and thus, the wearer can more easily put on and take off the upper body garment 10D.

**[0046]** Fig. 13 is a front view schematically illustrating an upper body garment 10E in a fifth modification. Fig. 14 is a back view schematically illustrating an upper body garment 10E in the fifth modification. The upper body garment 10E includes a first portion 130 and a second portion 140 separated from each other. The first portion 130 includes the upper body part 30 and the sleeve part 12. The second portion 140 includes the lower body part 40. With this configuration, when the wearer wears the first portion 130 and the second portion 140, the effect of support by the low-stretch region 60 arranged in the upper body part 30 and the sleeve part 12 and the effect of support by the low-stretch region 60 arranged in the lower body part 40 are obtained, and the stretchability in the region between the first portion 130 and the second portion 140 is secured. Thus, the wearer's breathing motion and trunk turning motion are hardly interrupted. The wearer may wear only the first portion 130 or only the second portion 140 depending on the required support.

**[0047]** The present disclosure has been described above based on the embodiment. It is to be understood by those skilled in the art that the embodiment is an example, various modifications can be made to combinations of the components and the processing processes, and such modifications are also within the scope of the present disclosure. In addition, the following aspects can be obtained by generalizing the above-described embodiment.

[Aspect 1]

**[0048]** An upper body garment including:

- a high-stretch region having predetermined stretchability; and
- a low-stretch region having lower stretchability than the high-stretch region, wherein
- the upper body garment includes a body part including an upper body part corresponding to an upper trunk part including a chest of a wearer and a lower

body part corresponding to a lower trunk part including an abdomen of the wearer,  
the low-stretch region includes an upper low-stretch region arranged in the upper body part and a lower low-stretch region arranged in the lower body part, and  
at least a part of the high-stretch region is continuously arranged over an entire circumference in a waist circumference direction between the upper low-stretch region and the lower low-stretch region.

**[0049]** According to aspect 1, the upper low-stretch region supports the wearer's upper trunk part, and thus, the wearer's posture can be assisted. In addition, the lower low-stretch region supports the wearer's lower trunk part, and thus, it is possible to suppress the vibration of the soft tissue present in the wearer's abdomen or the like. Further, the high-stretch region arranged between the upper low-stretch region and the lower low-stretch region is continuously arranged over the entire circumference in the waist circumference direction, and thus, the wearer's breathing motion and trunk turning motion are hardly interrupted. In this manner, in aspect 1, the wearer's posture is assisted, the vibration of the soft tissue is suppressed, and the wearer's breathing motion and trunk turning motion are hardly interrupted. Thus, the wearer's body during exercise can be appropriately supported.

[Aspect 2]

**[0050]** The upper body garment according to aspect 1, wherein

when a portion of the body part corresponding to a front surface of a body of the wearer is a front body and a portion corresponding to a back surface of the body of the wearer is a back body,  
the upper low-stretch region may be continuously arranged across an entire region of one of the front body and the back body and at least a part of the other of the front body and the back body in the waist circumference direction.

**[0051]** According to aspect 2, the upper low-stretch region is continuously arranged at a position corresponding to the entire region of one of the front surface and the back surface of the wearer's body and at least a part of the other in the waist circumference direction. With this configuration, in aspect 2, a force is applied in a direction in which the wearer pulls the arm backward or in a direction in which the wearer swings the arm forward. Thus, the wearer's body during the arm swing motion accompanying running or the like can be more appropriately supported.

[Aspect 3]

**[0052]** The upper body garment according to aspect 2, wherein

the upper low-stretch region may include, on the one of the front body and the back body, a first region continuously arranged from a position corresponding to an upper portion of a left shoulder of the wearer to a position corresponding to a right armpit of the wearer, and a second region continuously arranged from a position corresponding to an upper portion of a right shoulder of the wearer to a position corresponding to a left armpit of the wearer, and  
the first region and the second region may intersect each other.

**[0053]** According to aspect 3, the first region corresponds to the wearer's left shoulder, the second region corresponds to the wearer's right shoulder, and a force can be applied to pull the wearer's arm toward the one of the front body and the back body where the first region and the second region are arranged. Thus, the wearer's body during exercise can be more appropriately supported.

[Aspect 4]

**[0054]** The upper body garment according to aspect 2 or 3, wherein

the upper low-stretch region may include, on the other of the front body and the back body, a third region continuously arranged from a position corresponding to an upper portion of a left shoulder of the wearer to a position corresponding to a left armpit of the wearer, and a fourth region continuously arranged from a position corresponding to an upper portion of a right shoulder of the wearer to a position corresponding to a right armpit of the wearer.

**[0055]** According to aspect 4, in the other of the front body and the back body, the upper low-stretch region is arranged so as to be continuous to the one of the front body and the back body on each of the upper and lower sides of the wearer's left shoulder and the upper and lower sides of the wearer's right shoulder. Thus, it is possible to more reliably apply a force toward the one of the front body and the back body.

[Aspect 5]

**[0056]** The upper body garment according to any one of aspects 1 to 4, wherein the lower low-stretch region may be continuously arranged over the entire circumference in the waist circumference direction.

**[0057]** According to aspect 5, the lower low-stretch region more reliably supports the wearer's lower trunk part. Thus, the vibration of the soft tissue present in the wearer's abdomen or the like can be further suppressed.

[Aspect 6]

**[0058]** The upper body garment according to aspect 5, wherein

when a portion of the body part corresponding to a front surface of a body of the wearer is a front body and a portion corresponding to a back surface of the body of the wearer is a back body, an upper end of the lower low-stretch region may be inclined downward from a position corresponding to a midline of the wearer toward a position corresponding to a body side in at least one of the front body and the back body.

**[0059]** According to aspect 6, the lower low-stretch region is likely to be arranged so as to avoid the position of the wearer's rib cage. Thus, it is less disruptive to the wearer's breathing motion and trunk turning motion.

[Aspect 7]

**[0060]** The upper body garment according to any one of aspects 1 to 6, wherein

the upper body garment may include:

a highly-stretchable material constituting at least an entire shape of the body part; and  
a low-stretchable material having lower stretchability than the highly-stretchable material,

the low-stretchable material may be arranged on at least one of an inner surface of the highly-stretchable material facing a body of the wearer and an outer surface opposite to the inner surface, the low-stretch region may be a region in which the low-stretchable material is at least partially arranged in the highly-stretchable material, and the high-stretch region may be a region in which the low-stretchable material is not arranged in the highly-stretchable material.

**[0061]** According to aspect 7, the low-stretchable material can be arranged on at least a part of the highly-stretchable material constituting the entire shape of the body part. Thus, for example, it is easy to provide a comfortable wearing feeling as compared with a case where a highly-stretchable material constituting a part of the body part and a low-stretchable material constituting the other part of the body part are joined by sewing or the like. In addition, the entire shape of the body part is made of a highly stretchable material, and thus, it the wearer's movement is hardly interrupted.

[Aspect 8]

**[0062]** The upper body garment according to aspect 7,

wherein

the low-stretch region may be a region in which the low-stretchable material is arranged in a predetermined repeated pattern.

**[0063]** According to aspect 8, the highly-stretchable material is arranged in at least a part of the low-stretch region. Thus, even when the air permeability of the low-stretchable material is lower than that of the highly-stretchable material, the air permeability of the low-stretch region can be secured. In addition, without changing the low-stretchable material itself, the degree of stretchability and the direction thereof in the low-stretch region can be easily controlled by changing the shape and size of the repeated pattern.

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[Aspect 9]

**[0064]** The upper body garment according to aspect 8, wherein

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an element of the low-stretchable material constituting the repeated pattern may have a shape spreading in a predetermined direction and a direction orthogonal to the predetermined direction, and stretchability of the element in the predetermined direction and stretchability of the element in the direction orthogonal to the predetermined direction may be different from each other.

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**[0065]** According to aspect 9, the stretchability of the element of the low-stretchable material constituting the repeated pattern has anisotropy. Thus, the stretchability of the low-stretch region can have directionality because of the arrangement of the element.

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[Aspect 10]

**[0066]** The upper body garment according to aspect 9, wherein

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the element may have a shape having a longitudinal direction and a lateral direction, and in the low-stretch region, stretchability in a direction along the longitudinal direction may be lower than stretchability in a direction along the lateral direction.

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**[0067]** According to aspect 10, it is possible to impart directionality to the stretchability of the low-stretch region by adjusting the longitudinal direction and the lateral direction of the element of the low-stretchable material constituting the repeated pattern.

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[Aspect 11]

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**[0068]** The upper body garment according to any one of aspects 1 to 10, wherein

the upper body garment may further include a sleeve

part, and  
at least a part of the low-stretch region may be arranged in the sleeve part.

**[0069]** According to aspect 11, the low-stretch region can also be arranged in the sleeve part. Thus, the wearer's arm can be appropriately supported.

[Aspect 12]

**[0070]** An upper body garment including:

a high-stretch region having predetermined stretchability; and  
a low-stretch region having lower stretchability than the high-stretch region, wherein  
the upper body garment includes an upper body part corresponding to an upper trunk part including a chest of a wearer,  
the low-stretch region includes an upper low-stretch region arranged on the upper body part,  
when a portion corresponding to a front surface of a body of the wearer is a front body and a portion corresponding to a back surface of the body of the wearer is a back body in the upper body part,  
the upper low-stretch region is continuously arranged across an entire region of one of the front body and the back body and at least a part of the other of the front body and the back body in a waist circumference direction,  
the upper low-stretch region includes, on the one of the front body and the back body, a first region continuously arranged from a position corresponding to an upper portion of a left shoulder of the wearer to a position corresponding to a right armpit of the wearer, and a second region continuously arranged from a position corresponding to an upper portion of a right shoulder of the wearer to a position corresponding to a left armpit of the wearer, and  
the first region and the second region intersect each other.

**[0071]** According to aspect 12, the upper low-stretch region supports the wearer's upper trunk part, and in one of the front body and the back body, the first region corresponds to the wearer's left shoulder, and the second region corresponds to the wearer's right shoulder, so as to apply a force to pull the wearer's shoulder toward the one of the front body and the back body in which the first region and the second region are arranged. Thus, aspect 12 can appropriately support the wearer's body during exercise.

Industrial Applicability

**[0072]** The present disclosure relates to an upper body garment.

## Reference Signs List

### [0073]

|    |     |                             |
|----|-----|-----------------------------|
| 5  | 10  | Upper body garment          |
|    | 12  | Sleeve part                 |
|    | 20  | Body part                   |
|    | 30  | Upper body part             |
|    | 40  | Lower body part             |
| 10 | 50  | High-stretch region         |
|    | 60  | Low-stretch region          |
|    | 70  | Upper low-stretch region    |
|    | 72  | First region                |
|    | 74  | Second region               |
| 15 | 76  | Third region                |
|    | 78  | Fourth region               |
|    | 90  | Lower low-stretch region    |
|    | 92  | Upper end                   |
|    | 110 | Highly-stretchable material |
| 20 | 120 | Low-stretchable material    |
|    | 122 | Element                     |

## Claims

- 25 1. An upper body garment comprising:
  - a high-stretch region having predetermined stretchability; and
  - a low-stretch region having lower stretchability than the high-stretch region, wherein
  - 30 the upper body garment includes a body part including an upper body part corresponding to an upper trunk part including a chest of a wearer and a lower body part corresponding to a lower trunk part including an abdomen of the wearer, the low-stretch region includes an upper low-stretch region arranged in the upper body part and a lower low-stretch region arranged in the lower body part, and
  - 35 at least a part of the high-stretch region is continuously arranged over an entire circumference in a waist circumference direction between the upper low-stretch region and the lower low-stretch region.
- 45 2. The upper body garment according to claim 1, wherein
  - 50 when a portion of the body part corresponding to a front surface of a body of the wearer is a front body and a portion corresponding to a back surface of the body of the wearer is a back body, the upper low-stretch region is continuously arranged across an entire region of one of the front body and the back body and at least a part of the other of the front body and the back body in the waist circumference direction.

3. The upper body garment according to claim 2, wherein

the upper low-stretch region includes, on the one of the front body and the back body, a first region continuously arranged from a position corresponding to an upper portion of a left shoulder of the wearer to a position corresponding to a right armpit of the wearer, and a second region continuously arranged from a position corresponding to an upper portion of a right shoulder of the wearer to a position corresponding to a left armpit of the wearer, and the first region and the second region intersect each other.

4. The upper body garment according to claim 2 or 3, wherein

the upper low-stretch region includes, on the other of the front body and the back body, a third region continuously arranged from a position corresponding to an upper portion of a left shoulder of the wearer to a position corresponding to a left armpit of the wearer, and a fourth region continuously arranged from a position corresponding to an upper portion of a right shoulder of the wearer to a position corresponding to a right armpit of the wearer.

5. The upper body garment according to any one of claims 1 to 4, wherein the lower low-stretch region is continuously arranged over the entire circumference in the waist circumference direction.

6. The upper body garment according to claim 5, wherein

when a portion of the body part corresponding to a front surface of a body of the wearer is a front body and a portion corresponding to a back surface of the body of the wearer is a back body, an upper end of the lower low-stretch region is inclined downward from a position corresponding to a midline of the wearer toward a position corresponding to a body side in at least one of the front body and the back body.

7. The upper body garment according to any one of claims 1 to 6, wherein

the upper body garment includes:

a highly-stretchable material constituting at least an entire shape of the body part; and a low-stretchable material having lower stretchability than the highly-stretchable material,

the low-stretchable material is arranged on at

least one of an inner surface of the highly-stretchable material facing a body of the wearer and an outer surface opposite to the inner surface,

the low-stretch region is a region in which the low-stretchable material is at least partially arranged in the highly-stretchable material, and the high-stretch region is a region in which the low-stretchable material is not arranged in the highly-stretchable material.

8. The upper body garment according to claim 7, wherein

the low-stretch region is a region in which the low-stretchable material is arranged in a predetermined repeated pattern.

9. The upper body garment according to claim 8, wherein

an element of the low-stretchable material constituting the repeated pattern has a shape spreading in a predetermined direction and a direction orthogonal to the predetermined direction, and stretchability of the element in the predetermined direction and stretchability of the element in the direction orthogonal to the predetermined direction are different from each other.

10. The upper body garment according to claim 9, wherein

the element has a shape having a longitudinal direction and a lateral direction, and in the low-stretch region, stretchability in a direction along the longitudinal direction is lower than stretchability in a direction along the lateral direction.

11. The upper body garment according to any one of claims 1 to 10, wherein

the upper body garment further includes a sleeve part, and at least a part of the low-stretch region is arranged in the sleeve part.

12. An upper body garment comprising:

a high-stretch region having predetermined stretchability; and a low-stretch region having lower stretchability than the high-stretch region, wherein the upper body garment includes an upper body part corresponding to an upper trunk part including a chest of a wearer, the low-stretch region includes an upper low-

stretch region arranged on the upper body part,  
when a portion corresponding to a front surface  
of a body of the wearer is a front body and a  
portion corresponding to a back surface of the  
body of the wearer is a back body in the upper  
body part, 5  
the upper low-stretch region is continuously ar-  
ranged across an entire region of one of the front  
body and the back body and at least a part of the  
other of the front body and the back body in a 10  
waist circumference direction,  
the upper low-stretch region includes, on the  
one of the front body and the back body, a first  
region continuously arranged from a position  
corresponding to an upper portion of a left 15  
shoulder of the wearer to a position correspond-  
ing to a right armpit of the wearer, and a second  
region continuously arranged from a position  
corresponding to an upper portion of a right 20  
shoulder of the wearer to a position correspond-  
ing to a left armpit of the wearer, and  
the first region and the second region intersect  
each other.

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FIG.1

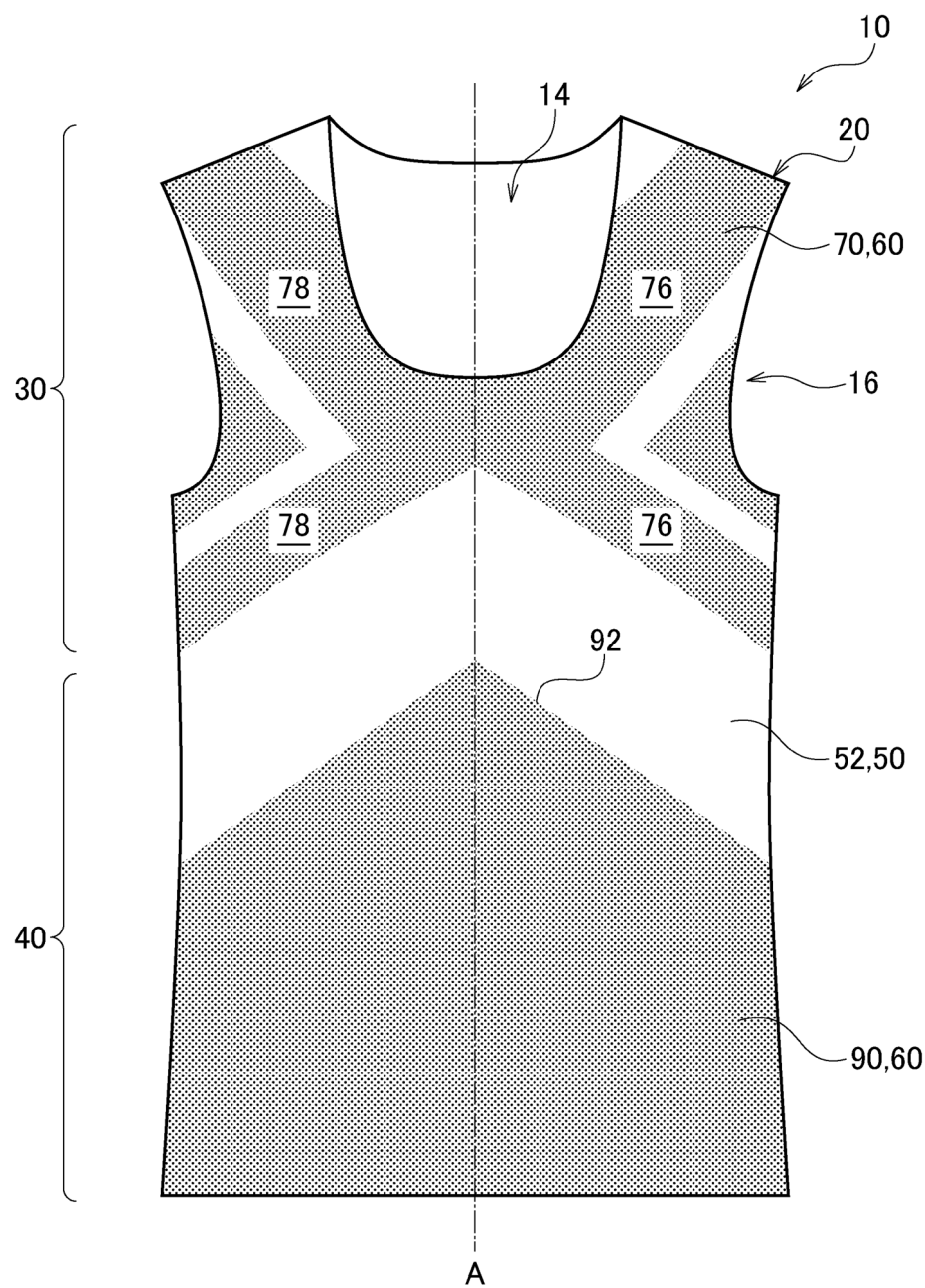


FIG.2

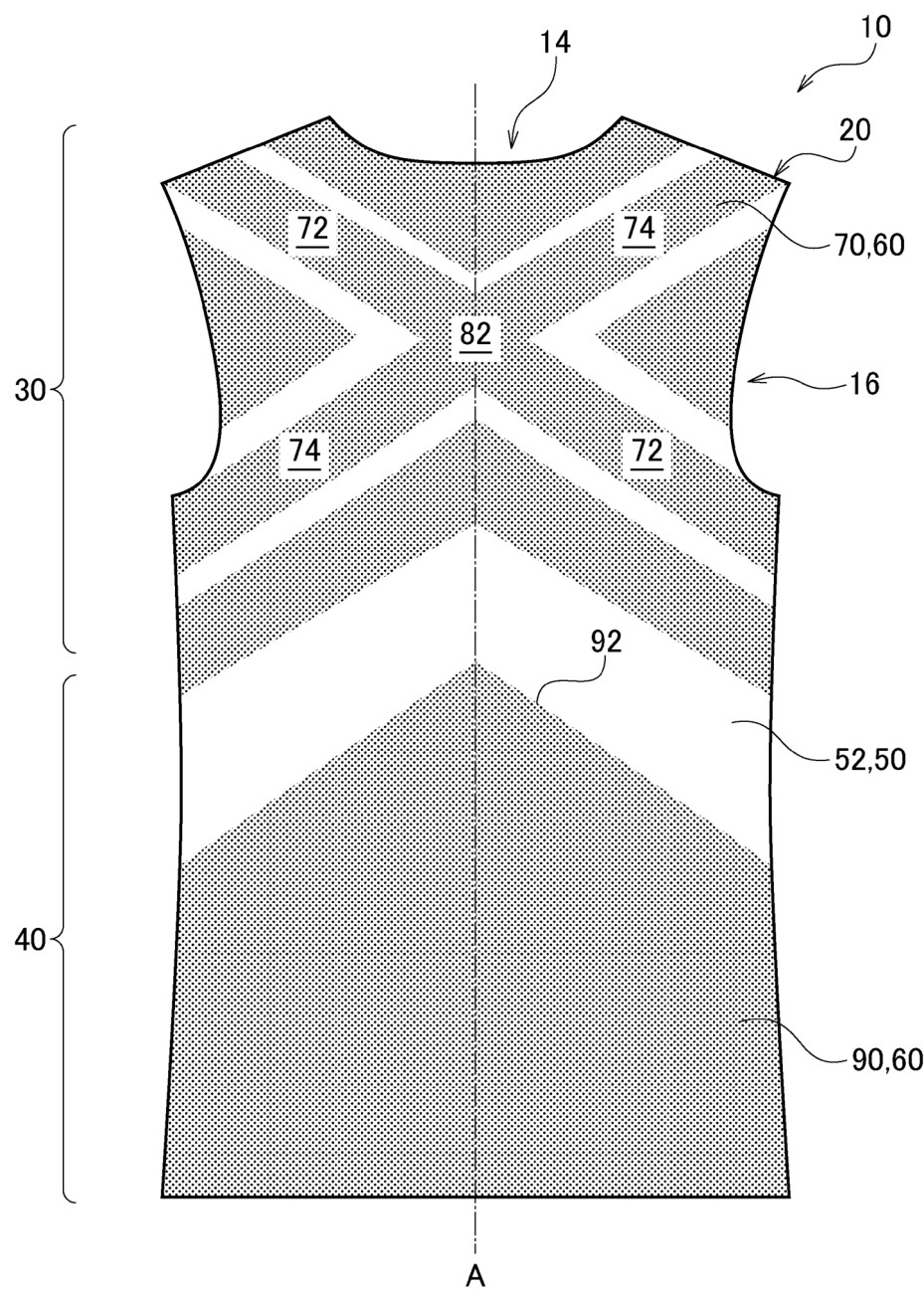


FIG.3

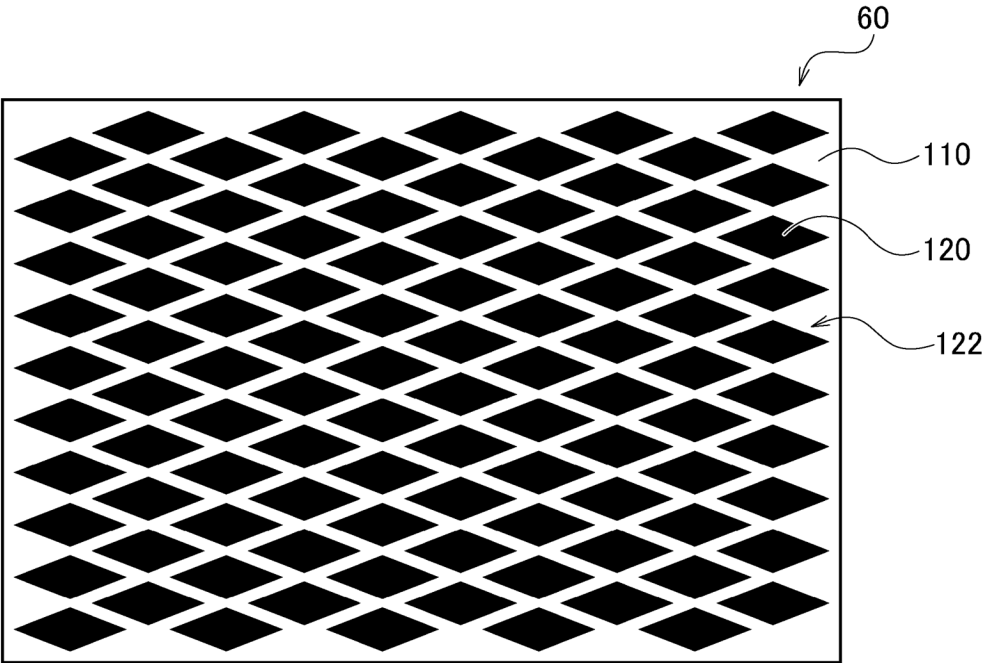


FIG.4

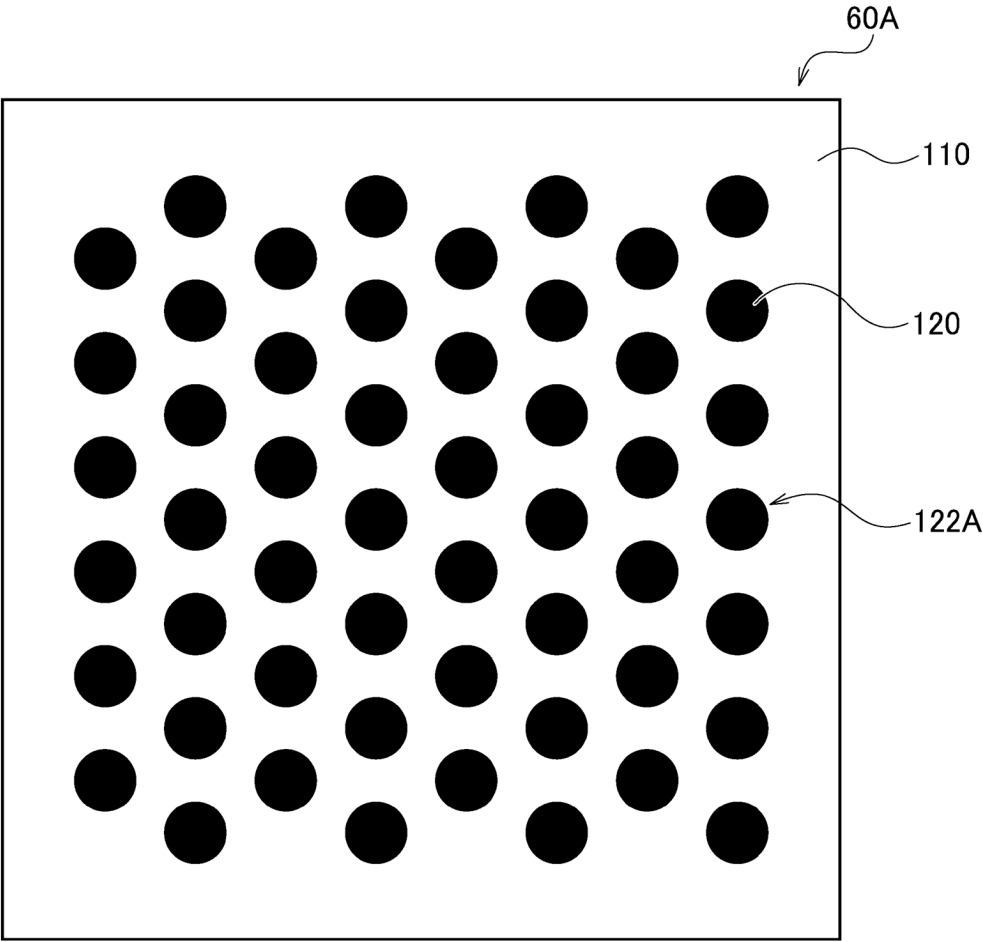


FIG.5

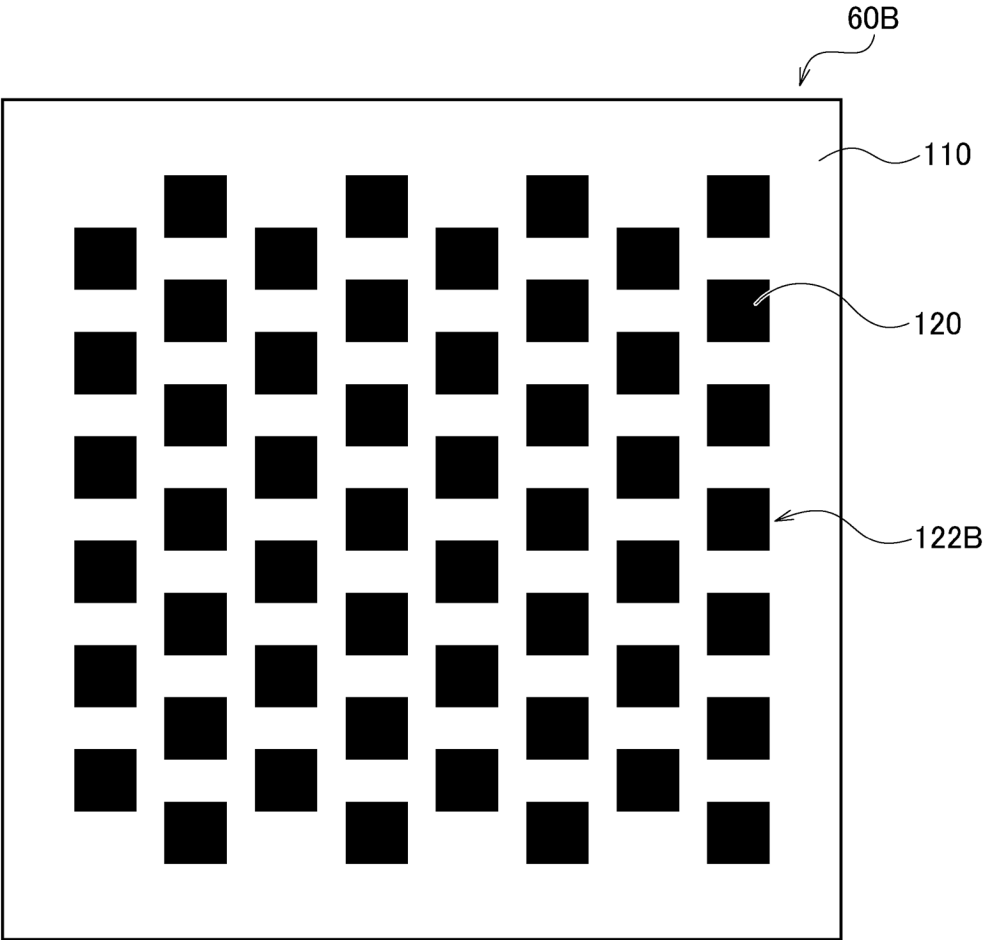


FIG.6

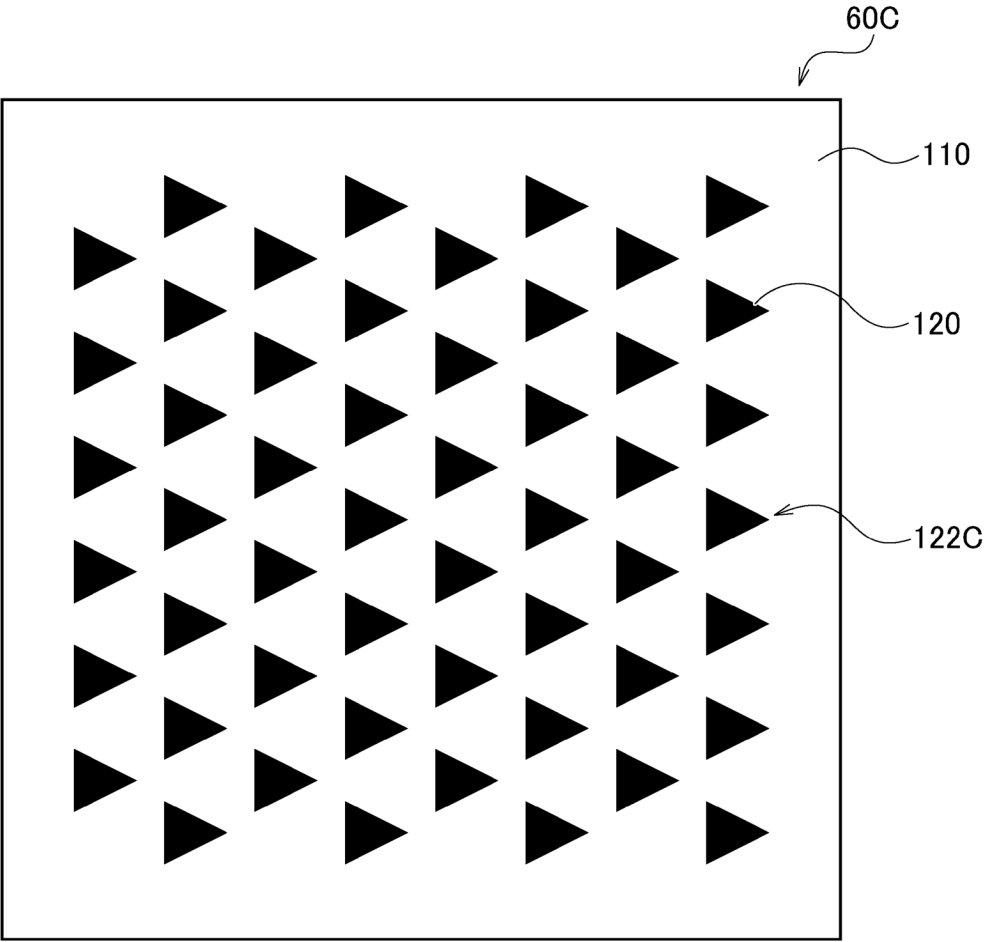


FIG.7

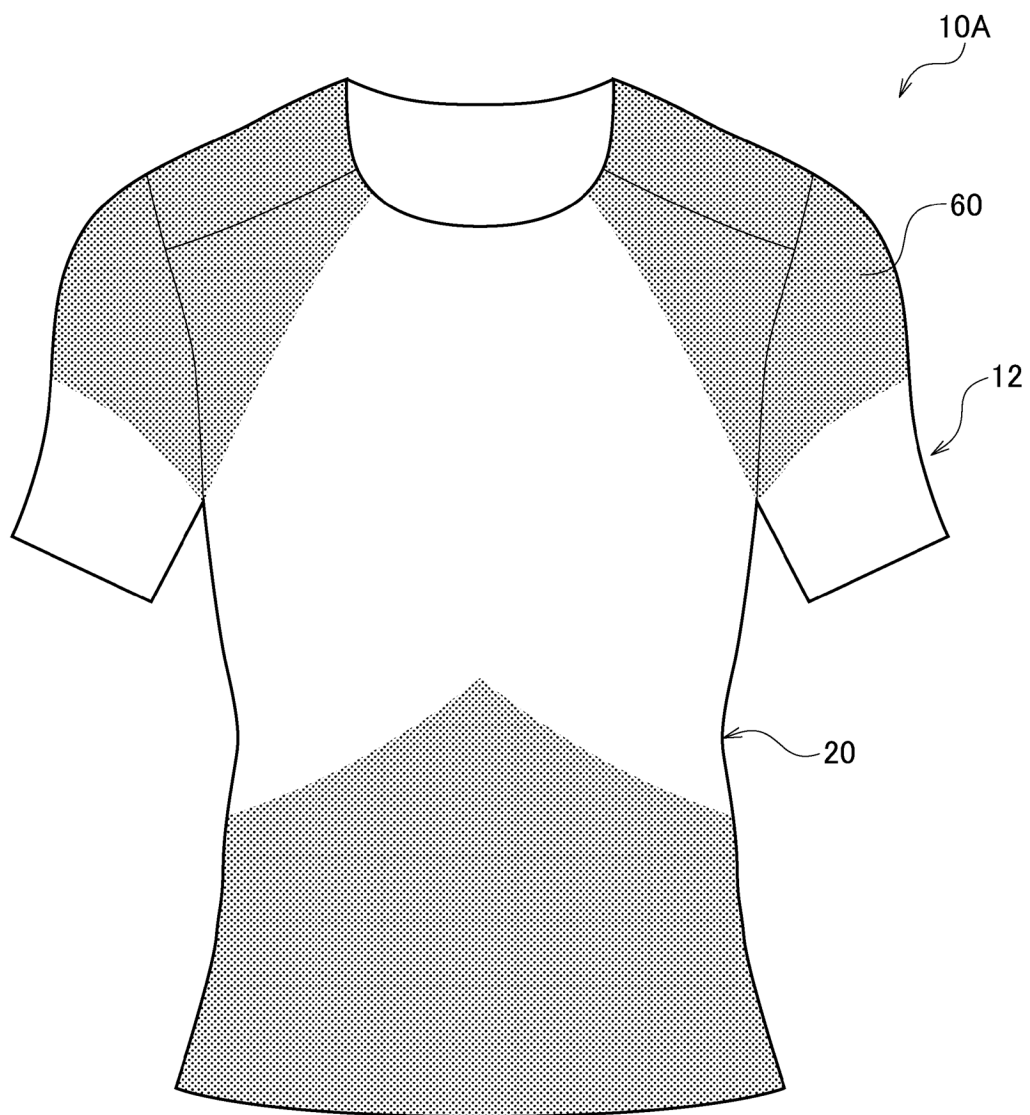


FIG.8

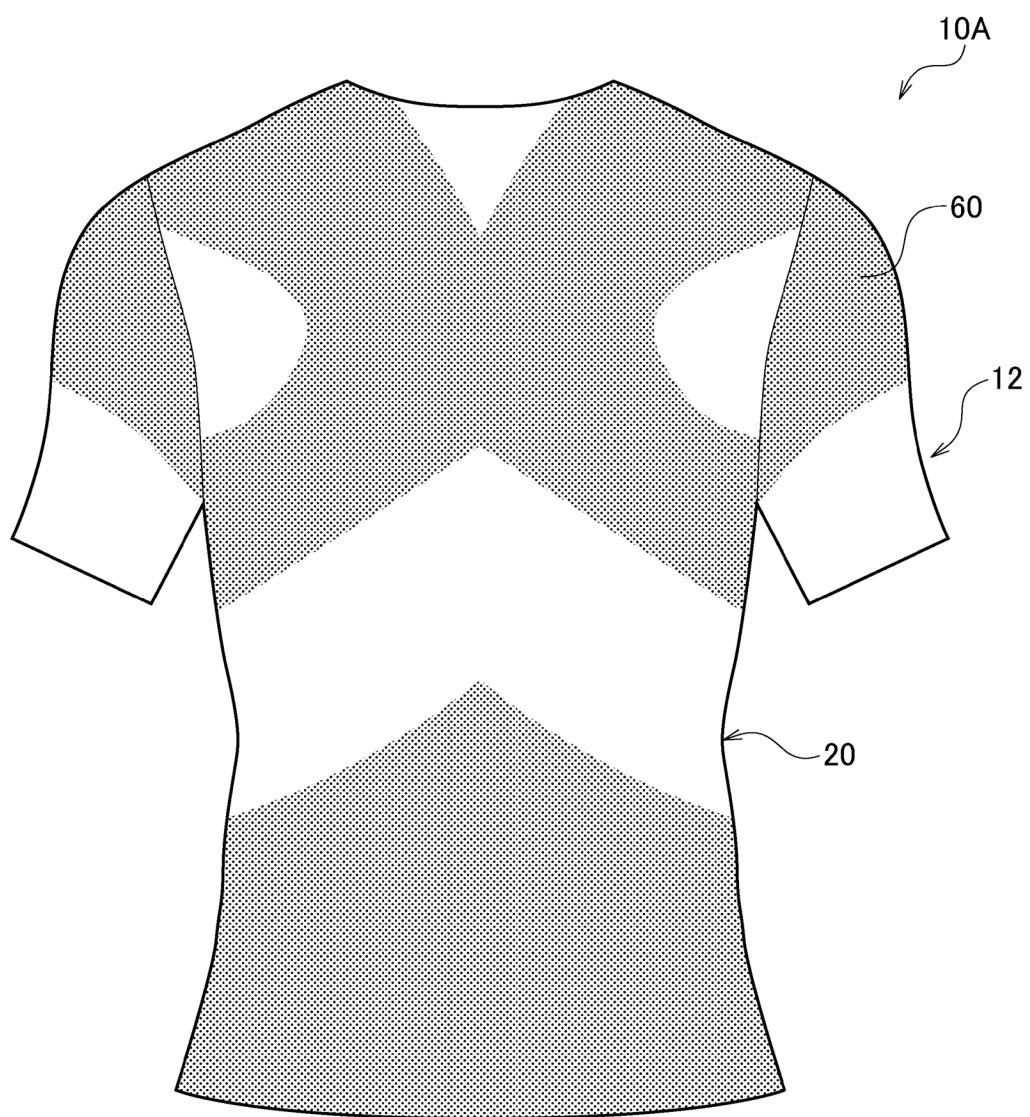


FIG.9

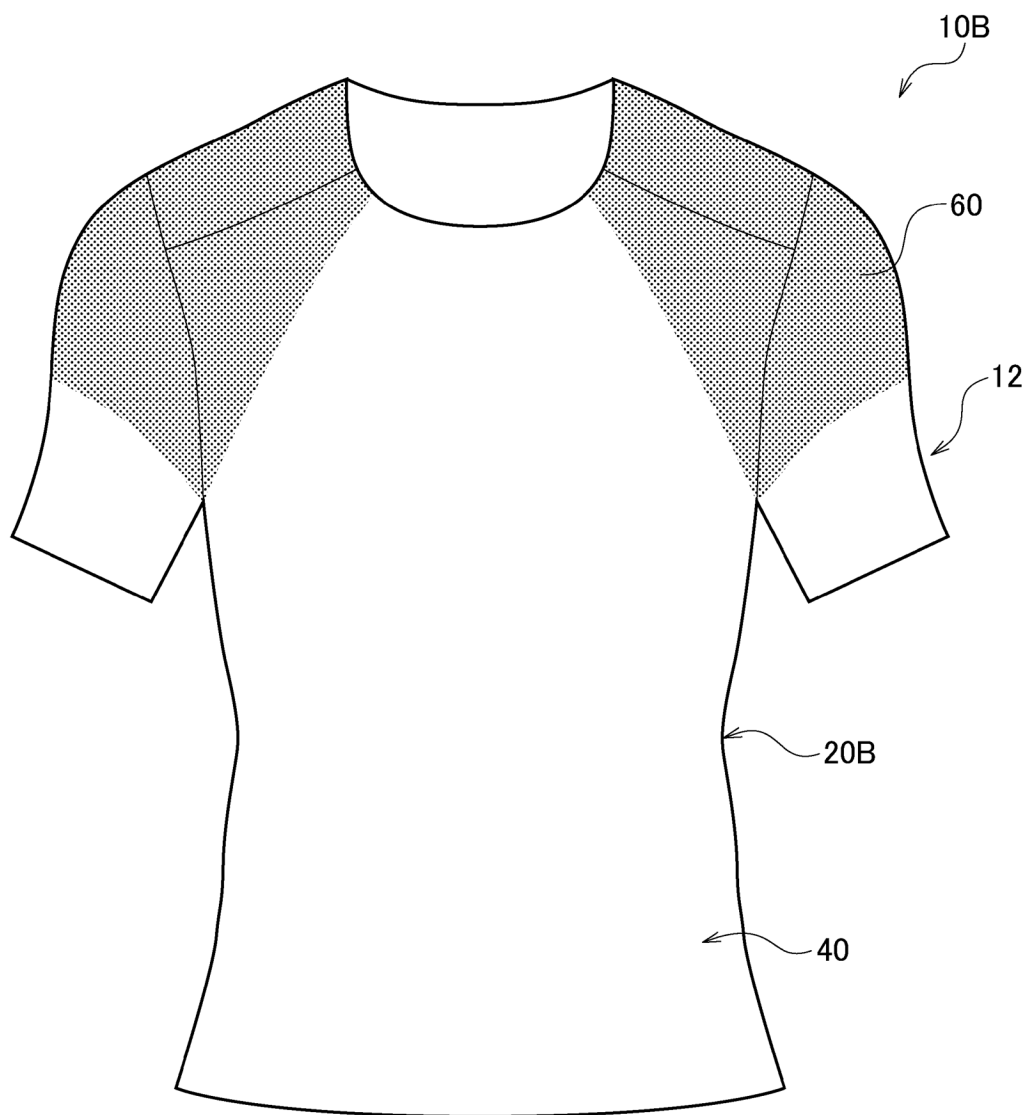


FIG.10

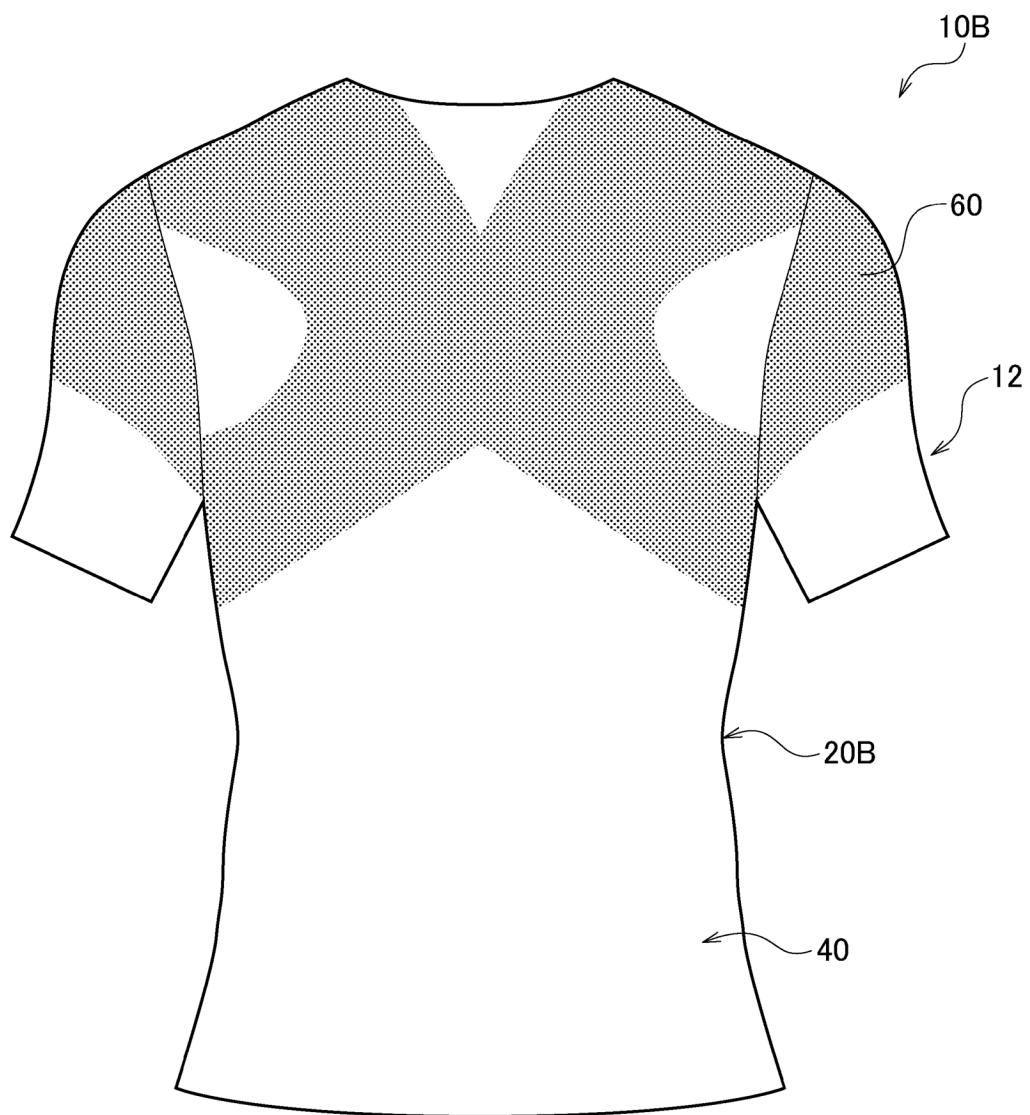


FIG.11

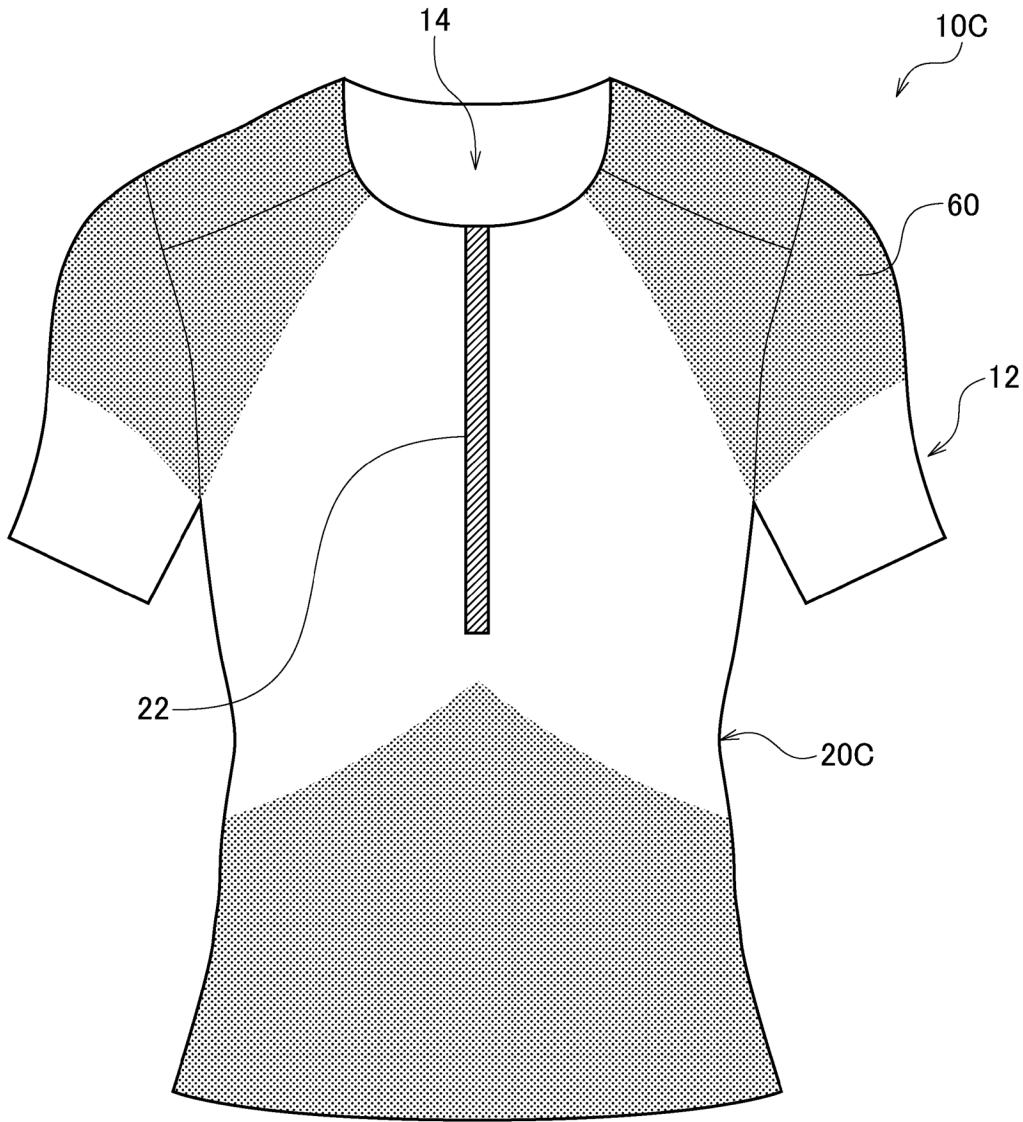


FIG.12

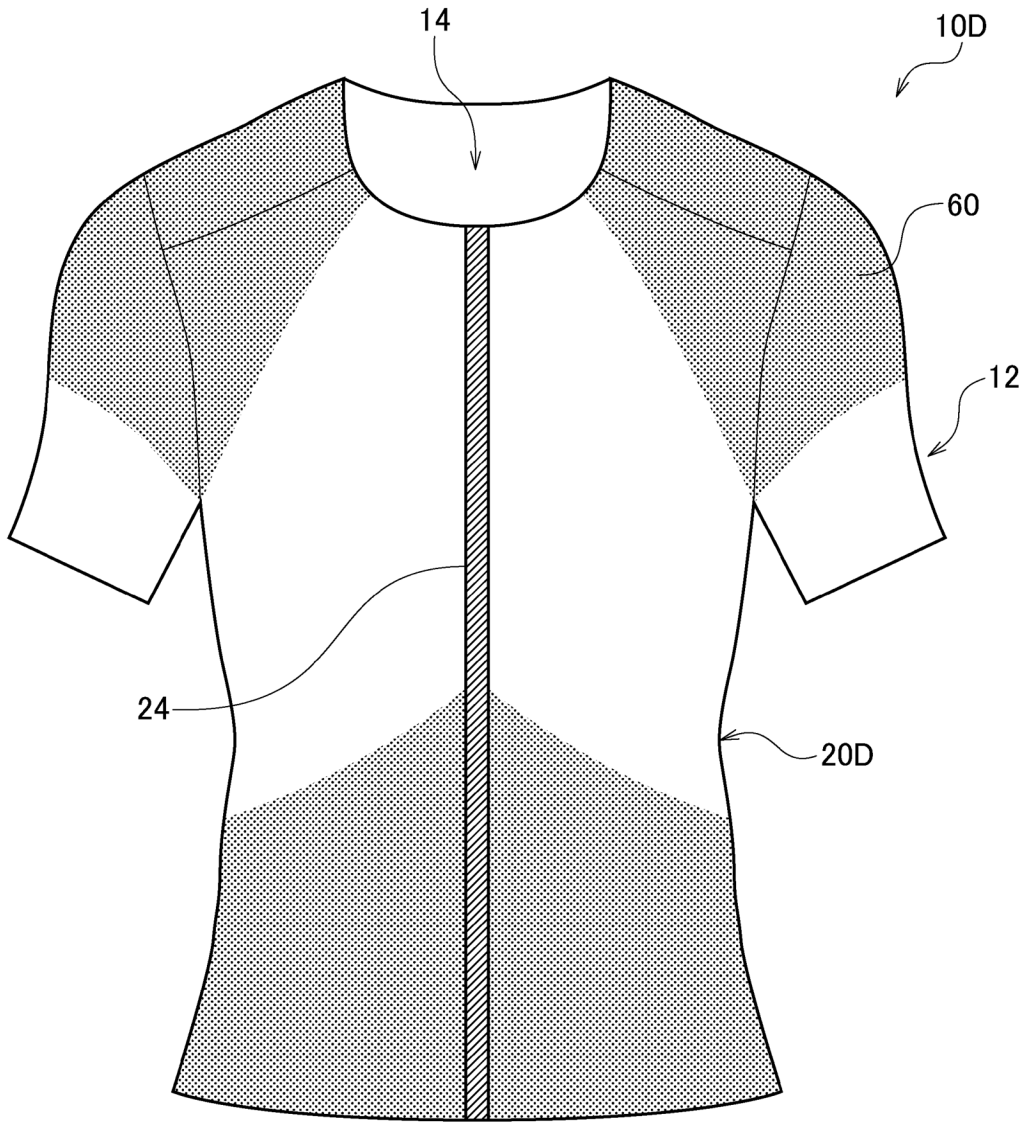


FIG.13

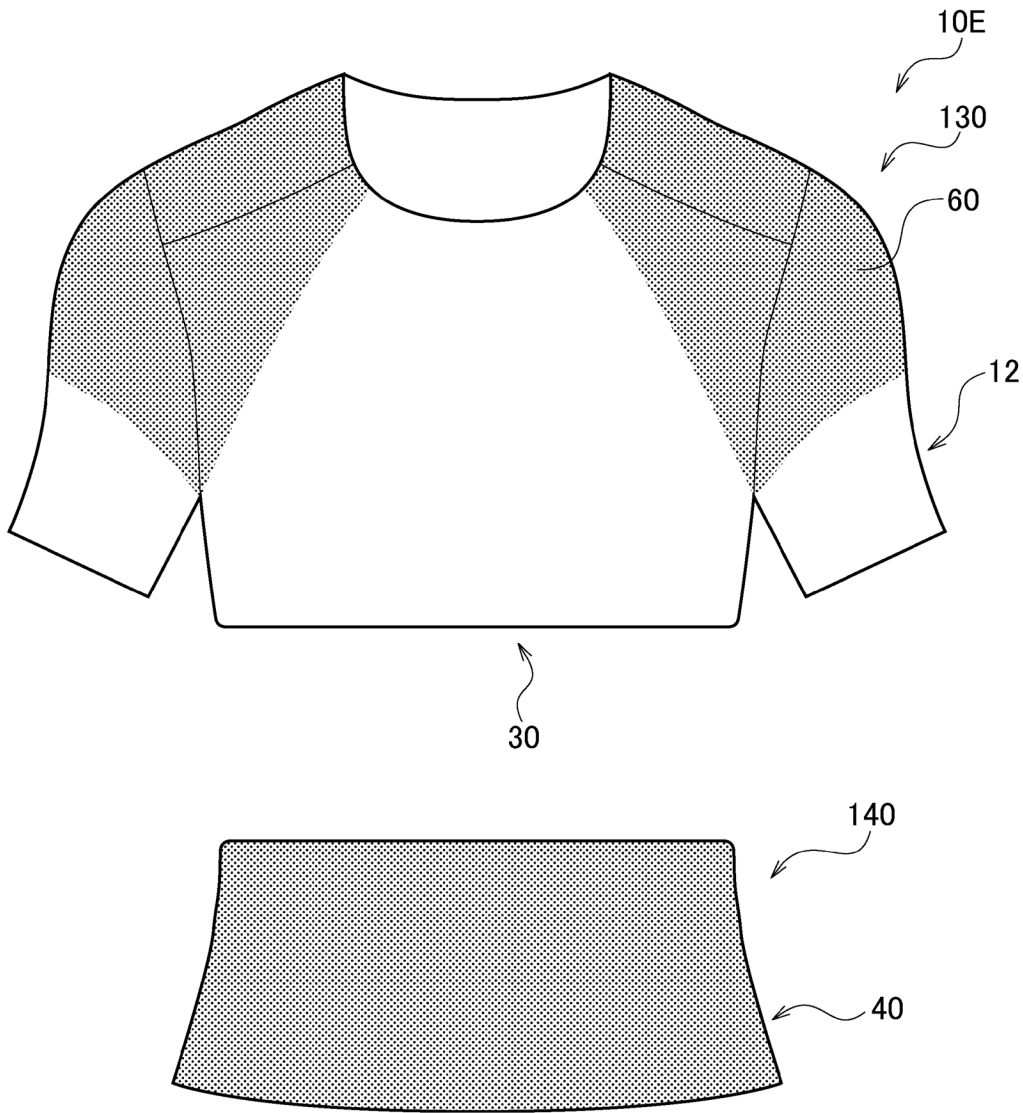
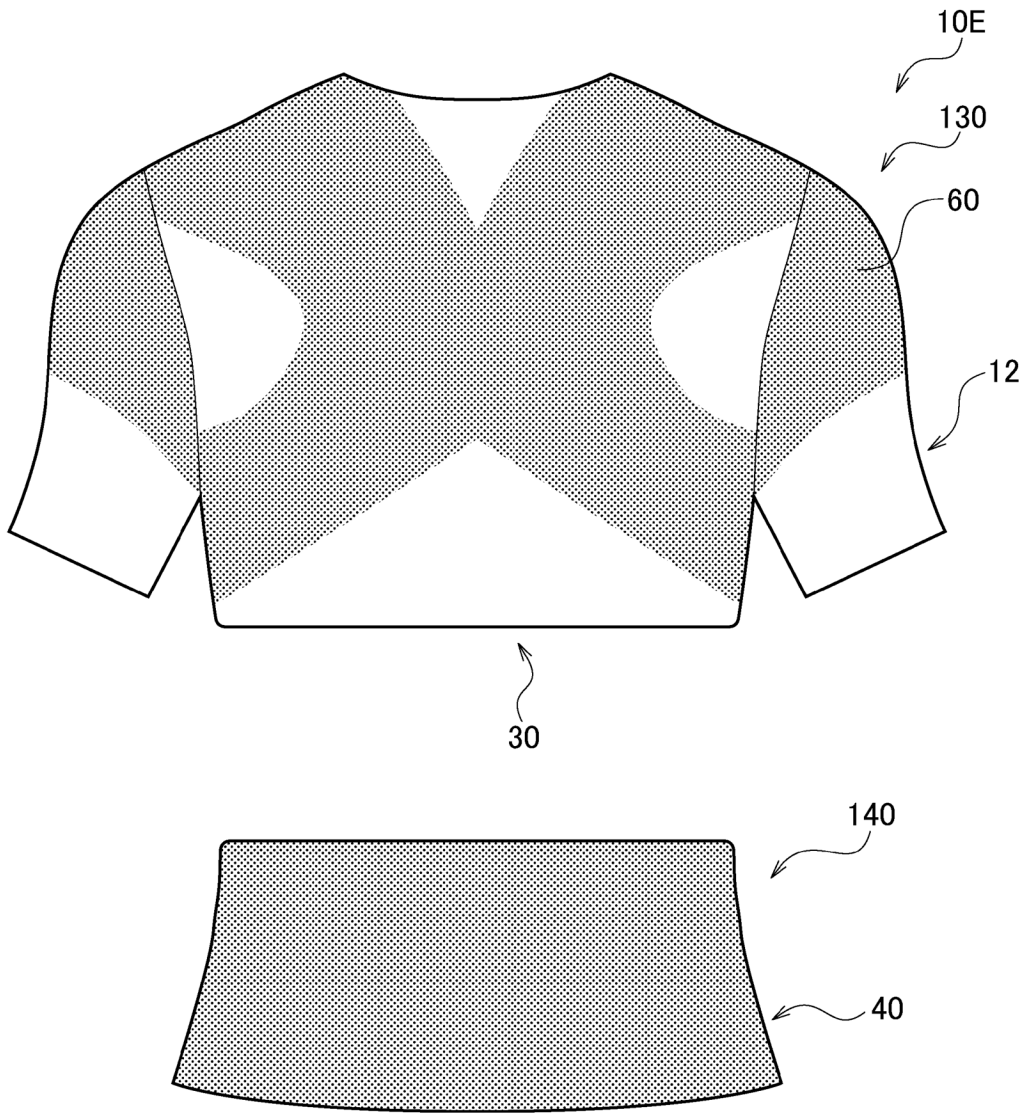


FIG.14



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2024/043952

**A. CLASSIFICATION OF SUBJECT MATTER**

**A41D 13/00**(2006.01)i; **A41B 9/12**(2006.01)i; **A41D 1/00**(2018.01)i; **A41D 1/04**(2006.01)i  
FI: A41D13/00 115; A41B9/12 Z; A41D1/00 C; A41D1/04 K

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)

A41D13/00; A41B9/12; A41D1/00; A41D1/04

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 1971-2025  
Registered utility model specifications of Japan 1996-2025  
Published registered utility model applications of Japan 1994-2025

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 2019-173246 A (WACOAL CORP.) 10 October 2019 (2019-10-10)<br>paragraphs [0009]-[0050], fig. 3                   | 1, 7                  |
| Y         |                                                                                                                    | 8-10                  |
| X         | JP 2010-53472 A (WACOAL CORP.) 11 March 2010 (2010-03-11)<br>paragraphs [0006]-[0052], fig. 1-4                    | 1, 7                  |
| Y         |                                                                                                                    | 6-11                  |
| X         | JP 2009-293145 A (KABUSHIKI KAISHA DEIIIGAMU) 17 December 2009 (2009-12-17)<br>paragraphs [0009]-[0118], fig. 1-11 | 12                    |
| Y         |                                                                                                                    | 1-11                  |
| X         | JP 2021-188195 A (FOOT MARK KK) 13 December 2021 (2021-12-13)<br>paragraphs [0004]-[0064], fig. 1-8                | 12                    |
| Y         |                                                                                                                    | 1-3, 7-11             |

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

☒ See patent family annex.

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“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

**18 February 2025**

Date of mailing of the international search report

**25 February 2025**

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

International application No.

PCT/JP2024/043952

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                          | Relevant to claim No. |
|-----------|-------------------------------------------------------------------------------------------------------------|-----------------------|
| X         | JP 9-250008 A (WACOAL CORP.) 22 September 1997 (1997-09-22)<br>paragraphs [0001]-[0101], fig. 1-26          | 12                    |
| Y         |                                                                                                             | 1-3, 5-11             |
| Y         | JP 2011-140744 A (NIKE, INC.) 21 July 2011 (2011-07-21)<br>paragraphs [0008]-[0030], fig. 1-10              | 7-11                  |
| Y         | WO 2010/050540 A1 (TORAY INDUSTRIES, INC.) 06 May 2010 (2010-05-06)<br>paragraphs [0046]-[0048], fig. 3     | 7-11                  |
| Y         | WO 2013/098938 A1 (ASICS CORP.) 04 July 2013 (2013-07-04)<br>paragraphs [0019]-[0051], fig. 1-8             | 1-11                  |
| A         | WO 2010/100721 A1 (ASICS CORP.) 10 September 2010 (2010-09-10)<br>paragraphs [0005]-[0078], fig. 1-13       | 1-12                  |
| A         | WO 2020/234985 A1 (TORATANI CO., LTD.) 26 November 2020 (2020-11-26)<br>paragraphs [0007]-[0037], fig. 1-11 | 1-12                  |
| A         | WO 2020/170293 A1 (TORATANI CO., LTD.) 27 August 2020 (2020-08-27)<br>paragraphs [0007]-[0037], fig. 1-10   | 1-12                  |

**INTERNATIONAL SEARCH REPORT**  
**Information on patent family members**

International application No.

**PCT/JP2024/043952**

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| Patent document<br>cited in search report | Publication date<br>(day/month/year) | Patent family member(s)                                                                                                      | Publication date<br>(day/month/year) |
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