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(54) **WOVEN FABRIC AND METHOD FOR MANUFACTURING SAME**

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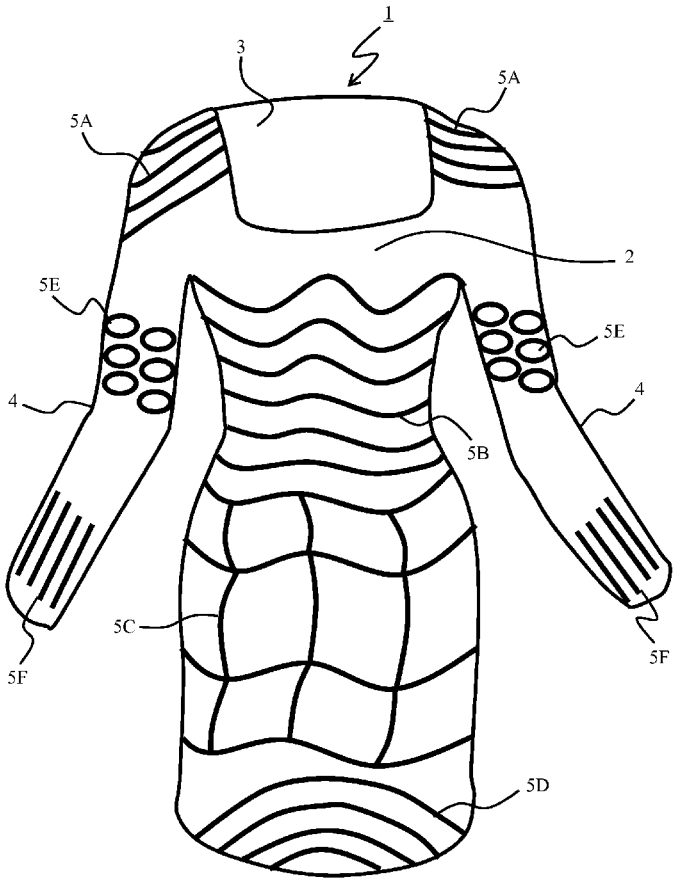
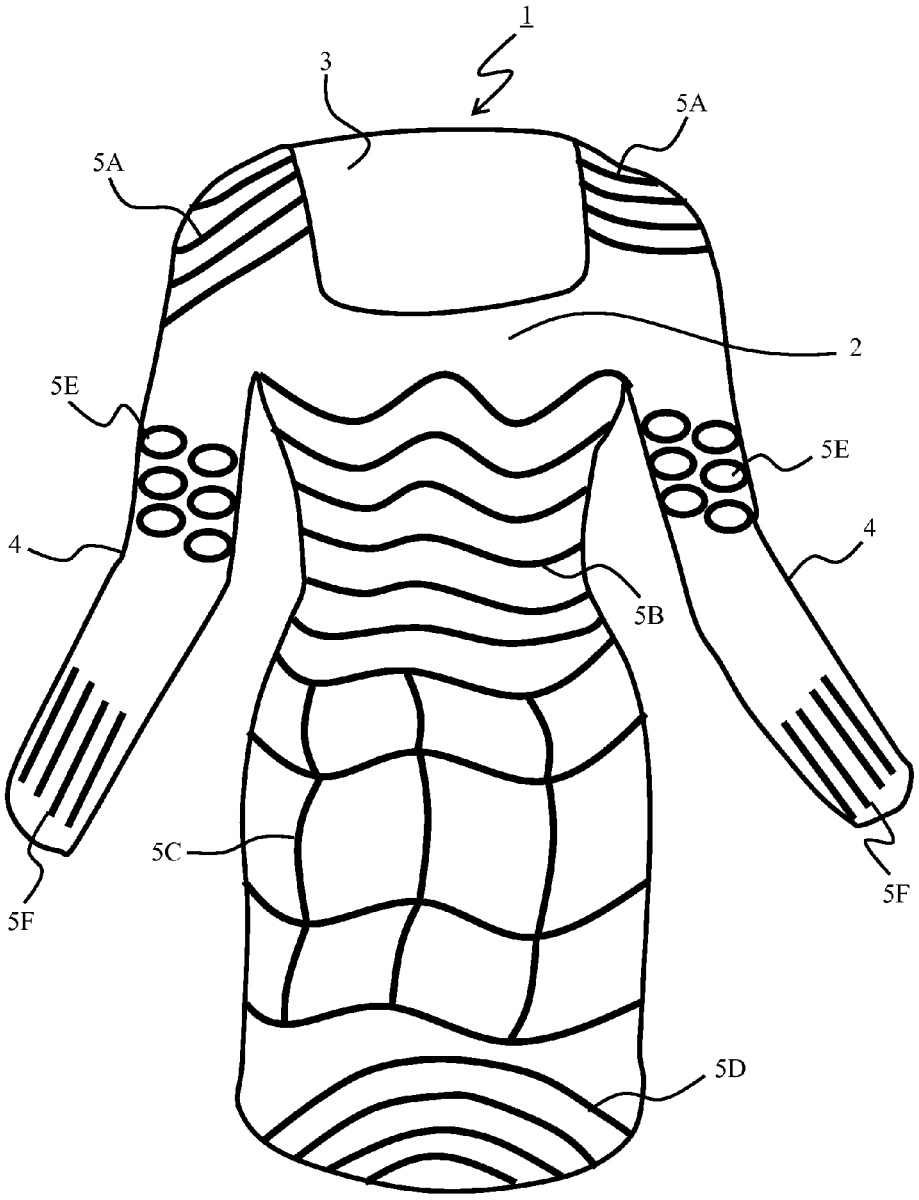
(57) **ABSTRACT**

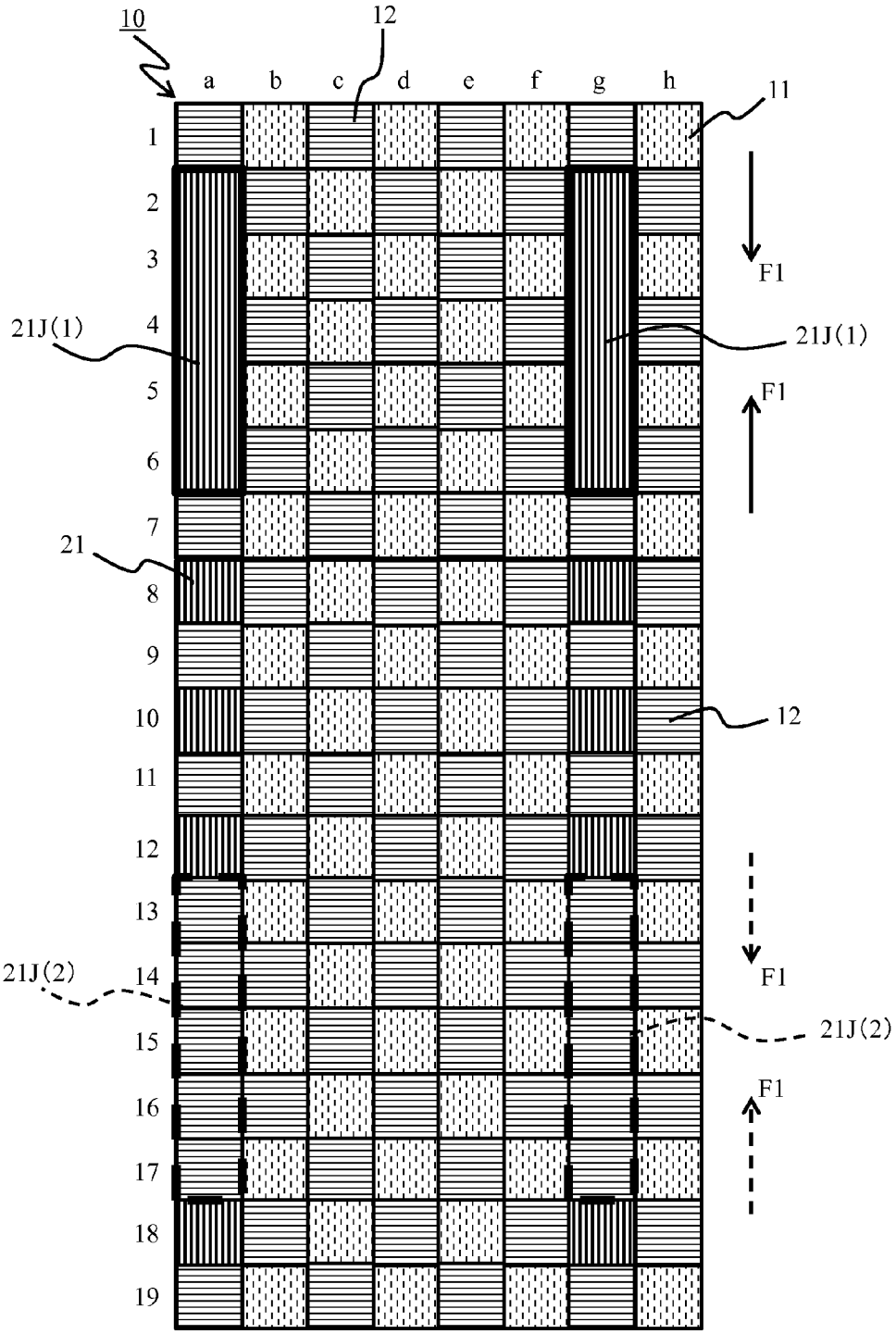
A woven fabric to facilitate formation of embellishments such as pleats has a plurality of warp and weft yarns interlaced with each other, wherein some of the plurality of warp yarns **10** are strands of shrinkable warp yarn **21** that shrink in a lengthwise direction thereof more than the other warp yarns when subjected to a specific process, the shrinkable warp yarns **21** have, at least in one section in the lengthwise direction, a first leap portion **21**J leaping over a first predetermined number of adjacent weft yarns **12**, and a plurality of the first leap portions **21**J are positioned in a first predetermined pattern. Shrinkable weft yarns **22** that shrink in a lengthwise direction thereof more than the other weft yarns when subjected to the specific process can be used in some of weft yarn **12**.



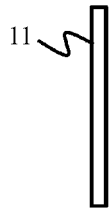
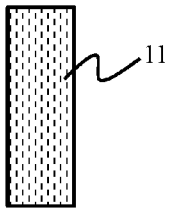
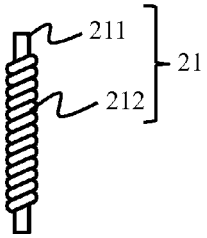
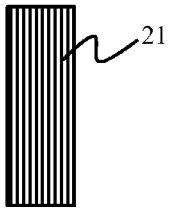
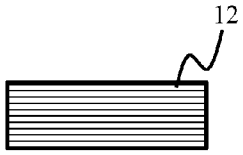
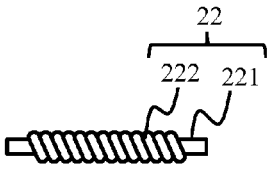
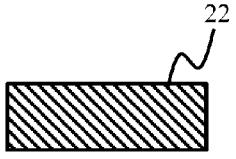
【Fig. 1】



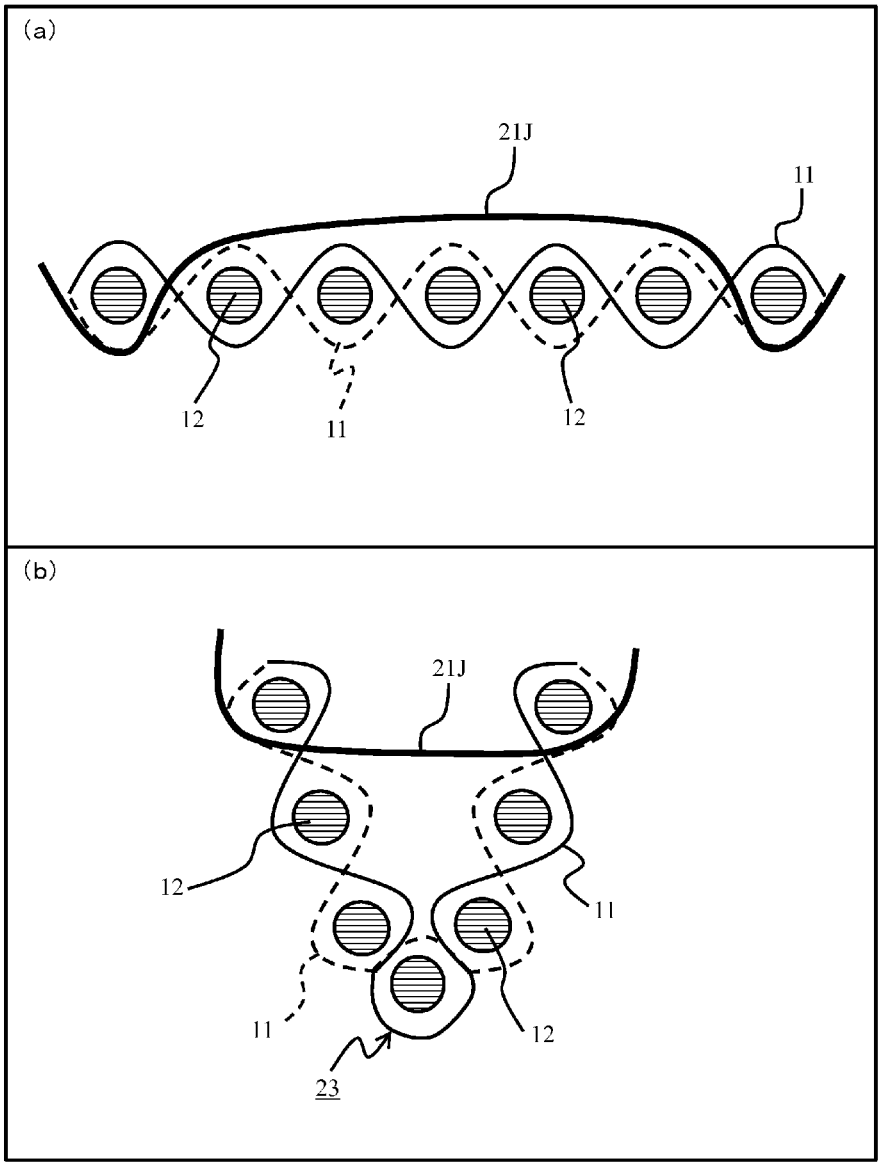
【Fig. 2】


10
12
a
b
c
d
e
f
g
h
11
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
F1
F1
F1
F1
21J(1)
21J(1)
21
12
21J(2)
21J(2)

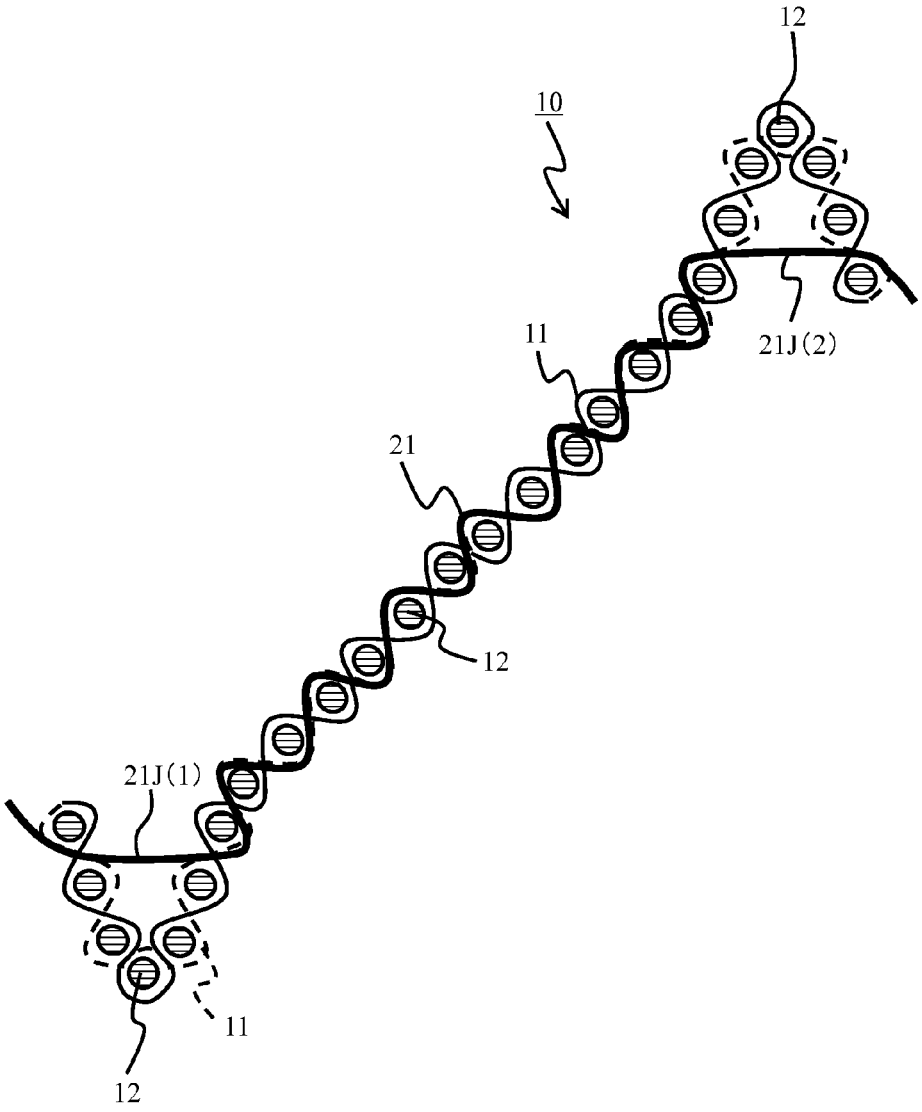
【Fig. 3】

	Schematic structure of yarn	Display in weave diagram
Warp yarn (normal)		
Warp yarn (shrinkable)		
Weft yarn (normal)		
Weft yarn (shrinkable)		

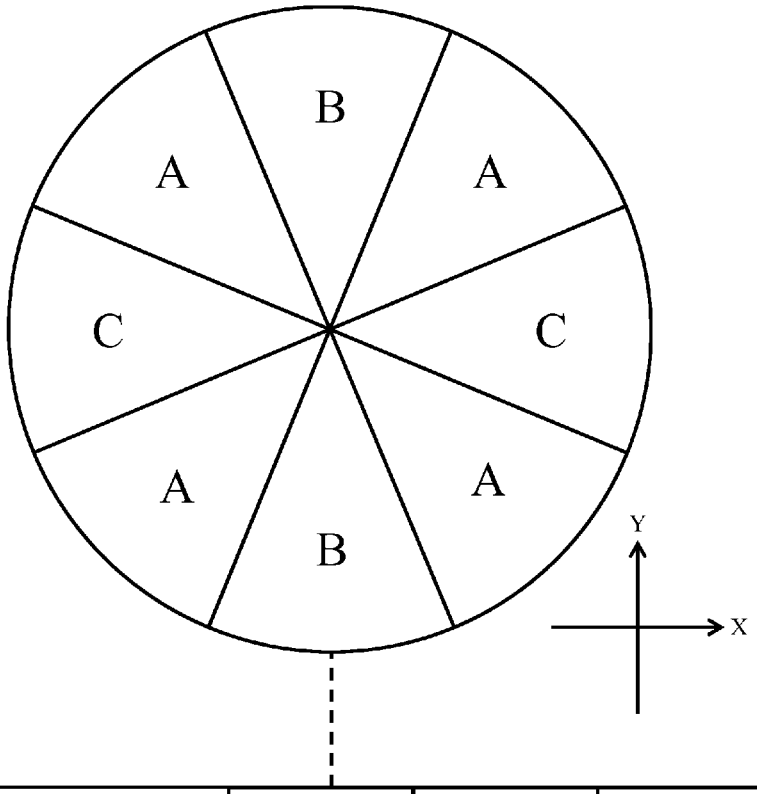
【Fig. 4】



【Fig. 5】

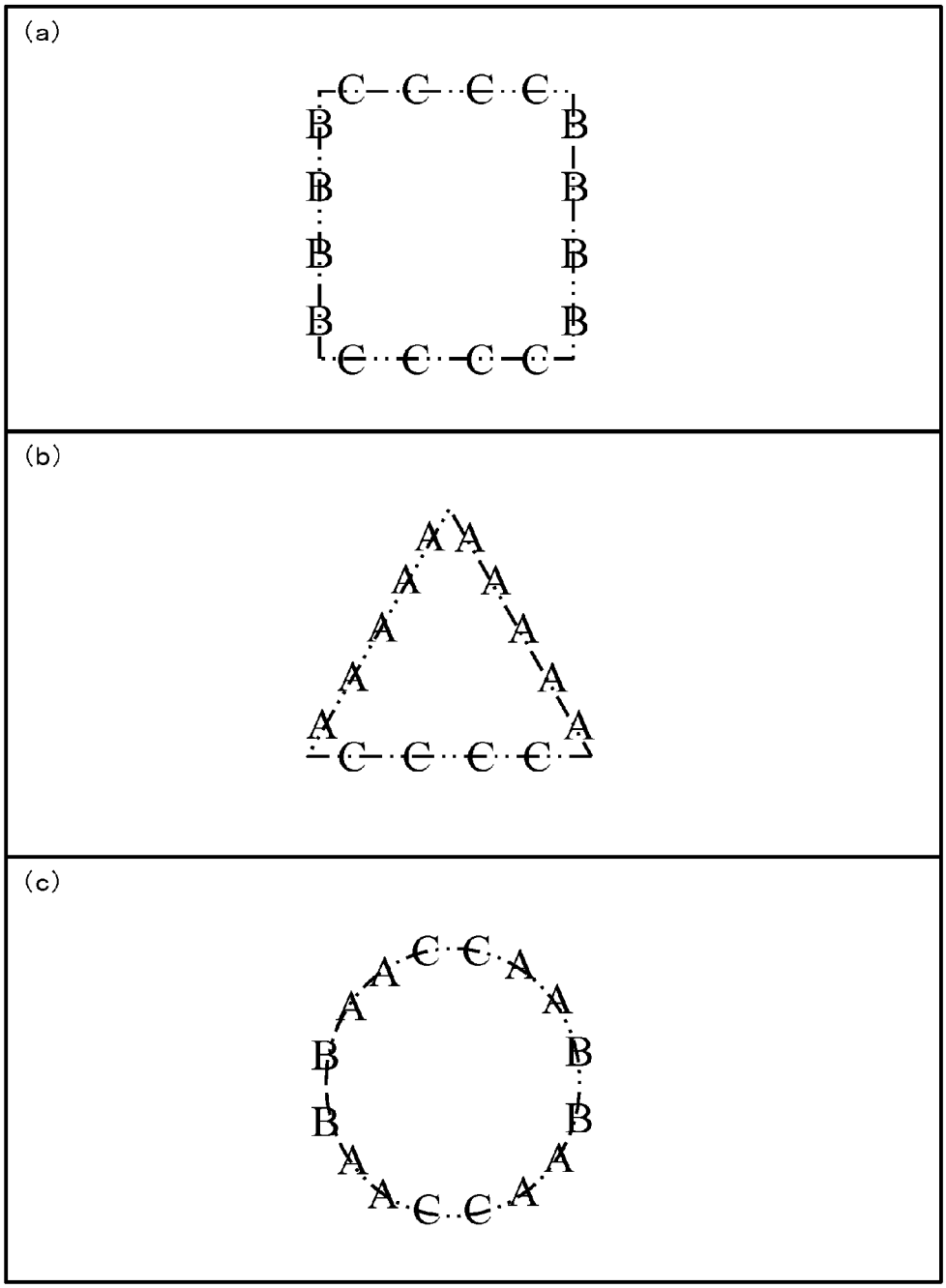


【Fig. 6】

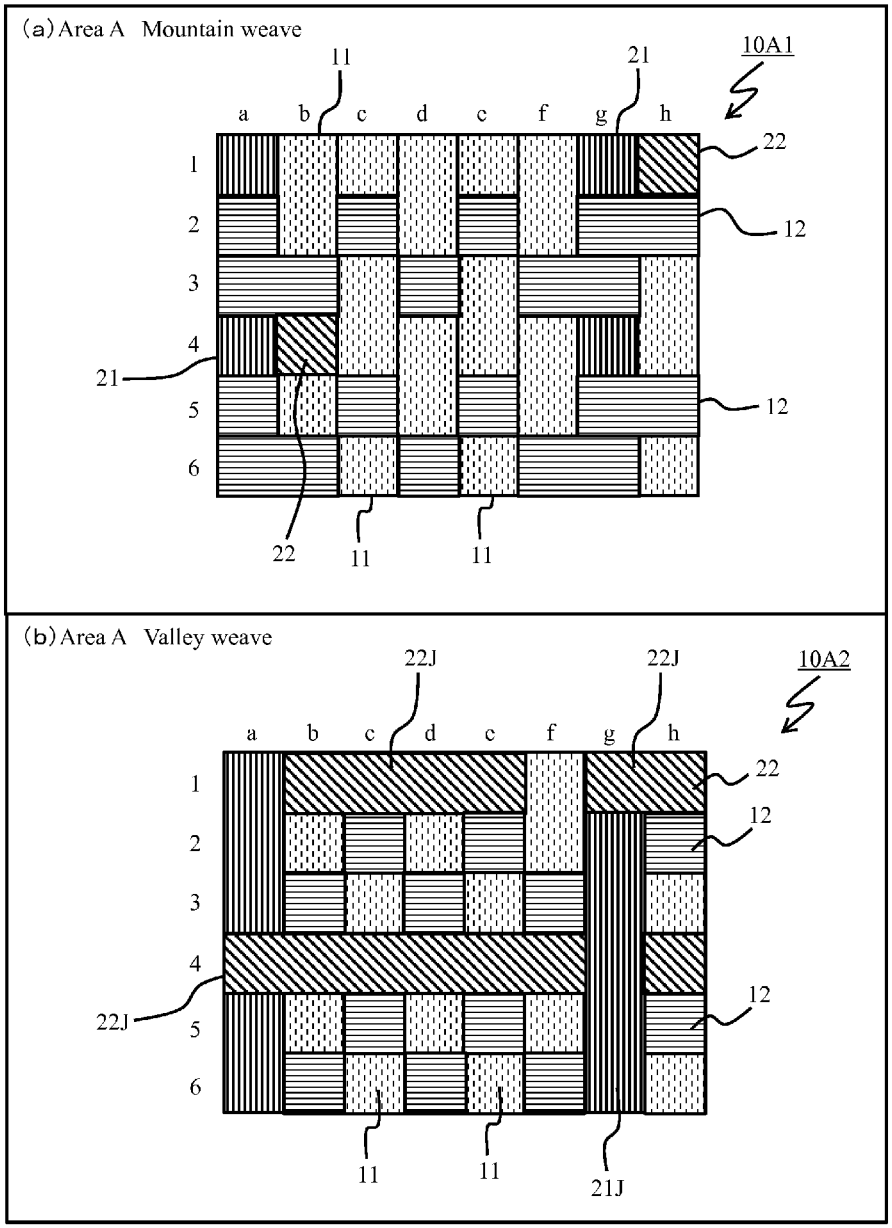


Area / Location of leap portion	A	B	C
Warp	○	–	○
Weft	○	○	–
Shape of embellishment			

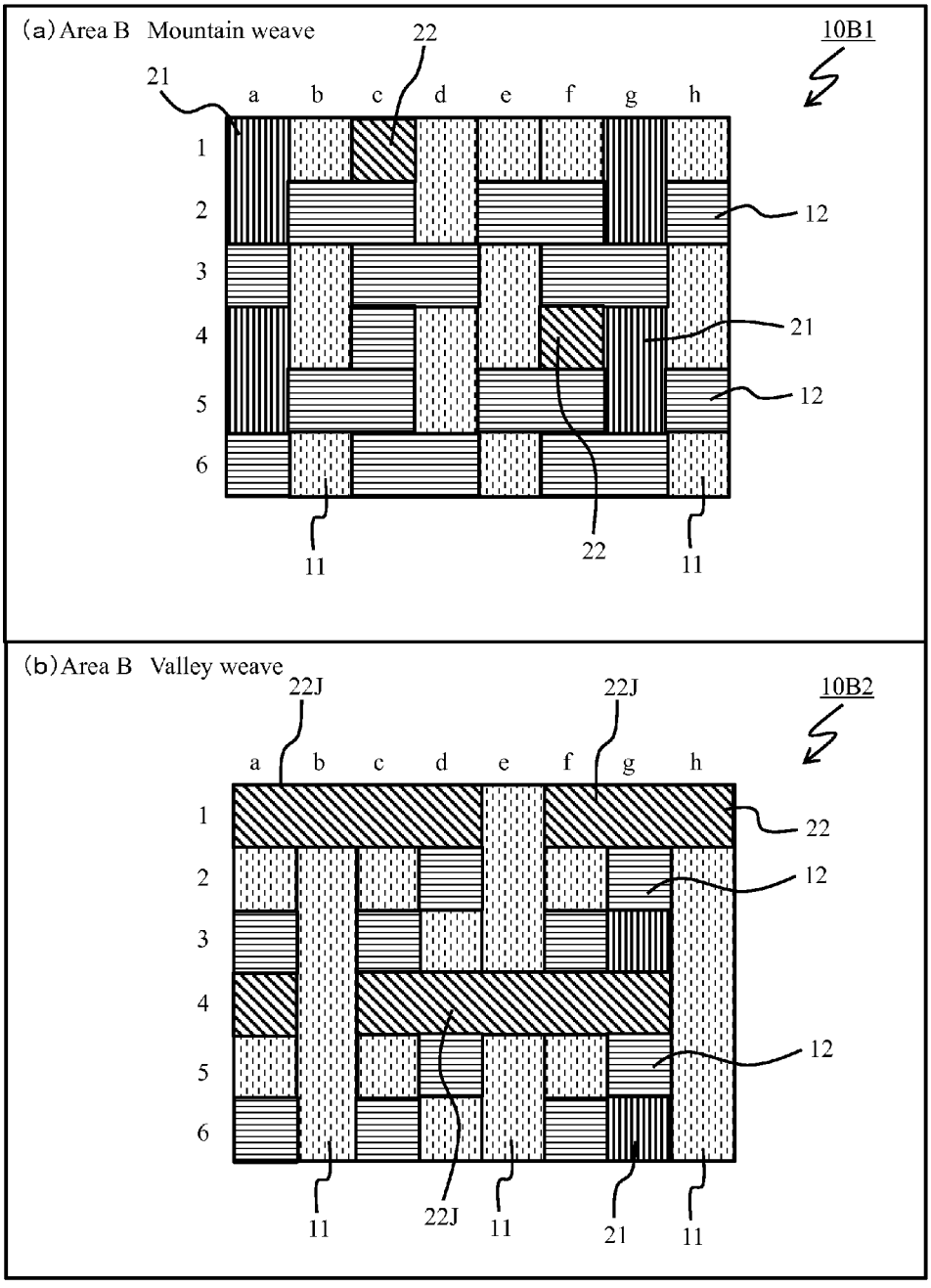
【Fig. 7】



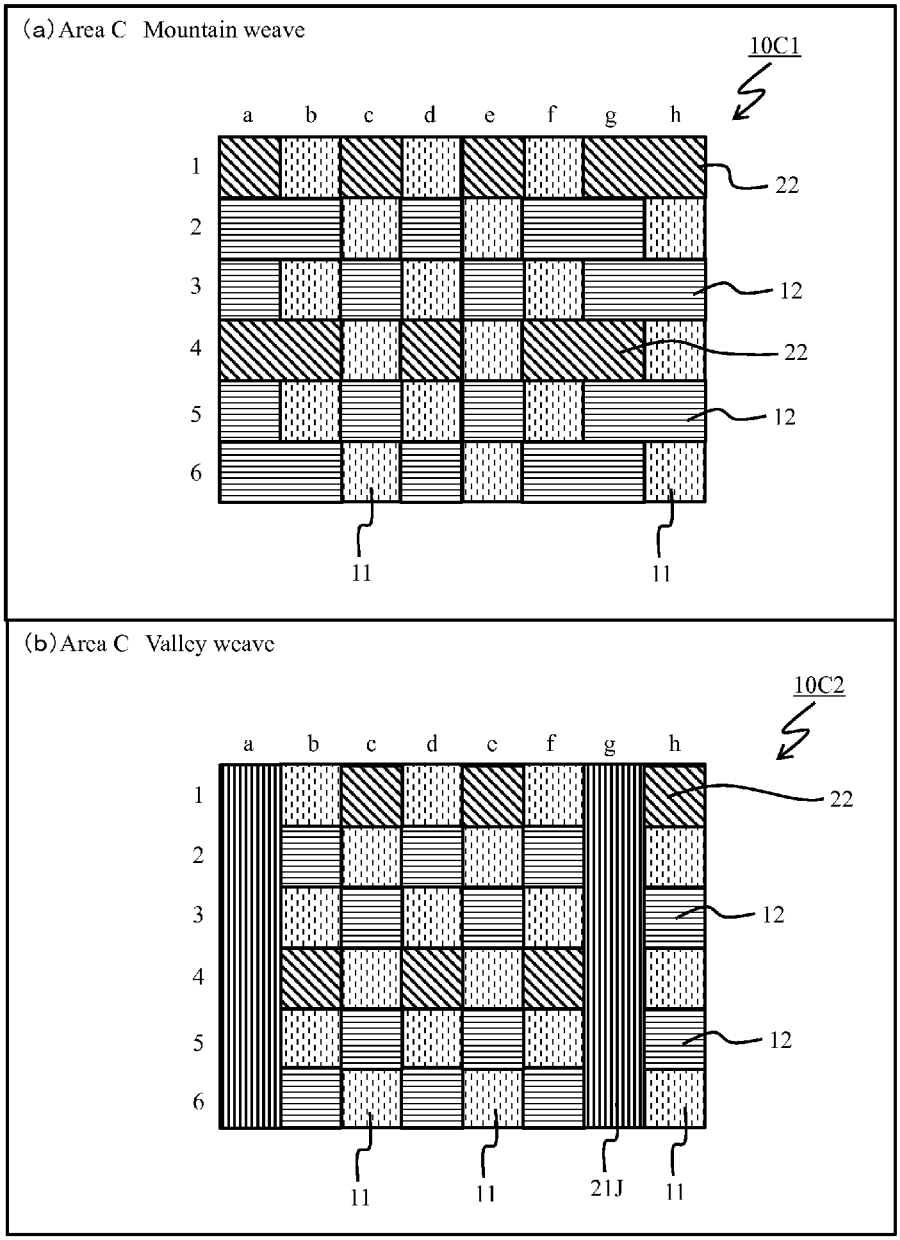
【Fig. 8】


(a) Area A Mountain weave
10A1
11
21
a b c d c f g h
1
2
3
4
5
6
22
12
21
12
22
11
11
(b) Area A Valley weave
10A2
22J
22J
a b c d c f g h
22
12
12
22J
11
11
21J

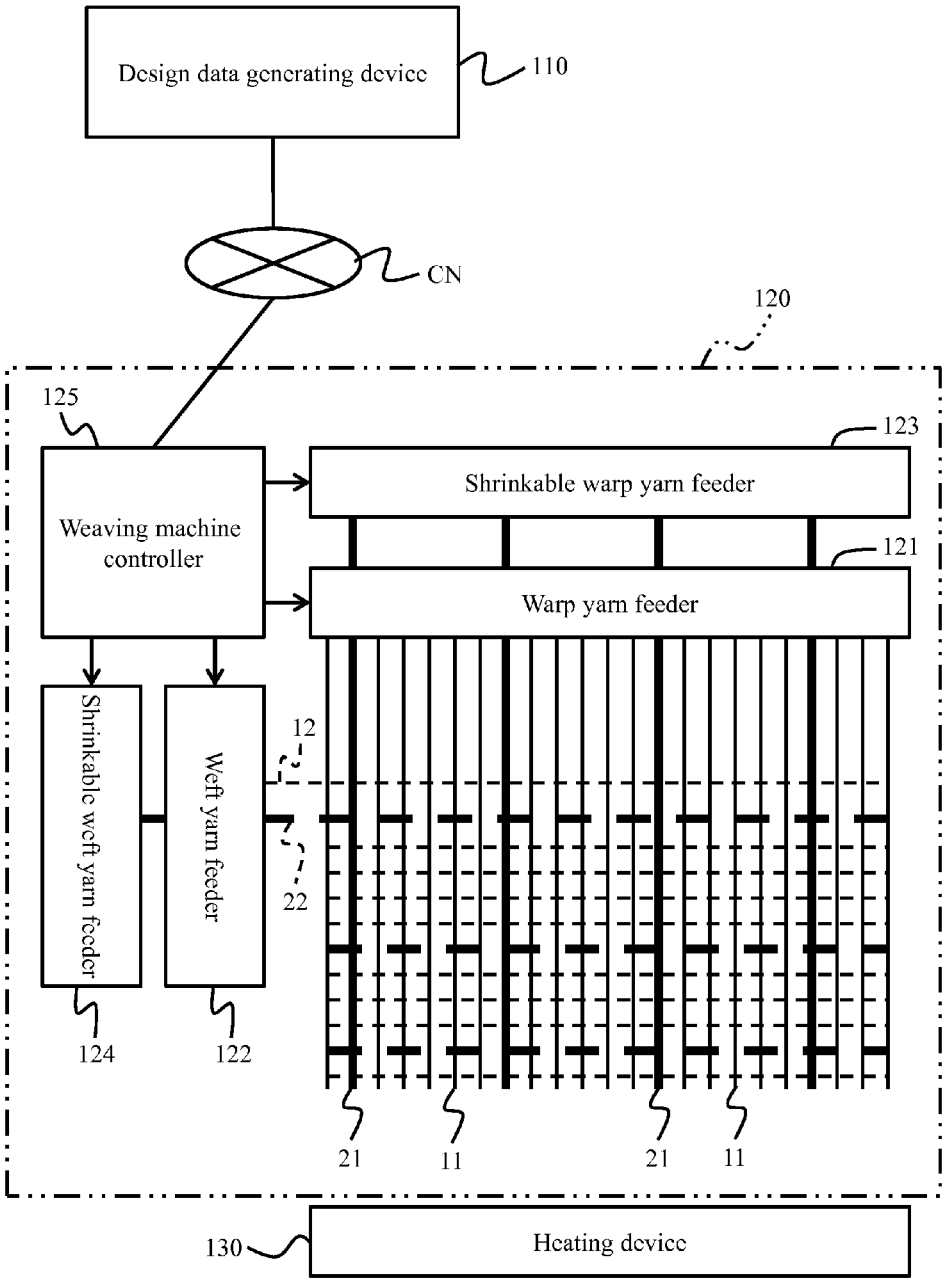
【Fig. 9】


(a) Area B Mountain weave
10B1
21
22
a b c d e f g h
1
2
3
4
5
6
12
21
12
11
22
11
(b) Area B Valley weave
10B2
22J
22J
a b c d e f g h
1
2
3
4
5
6
22
12
12
11
22J
11
21
11

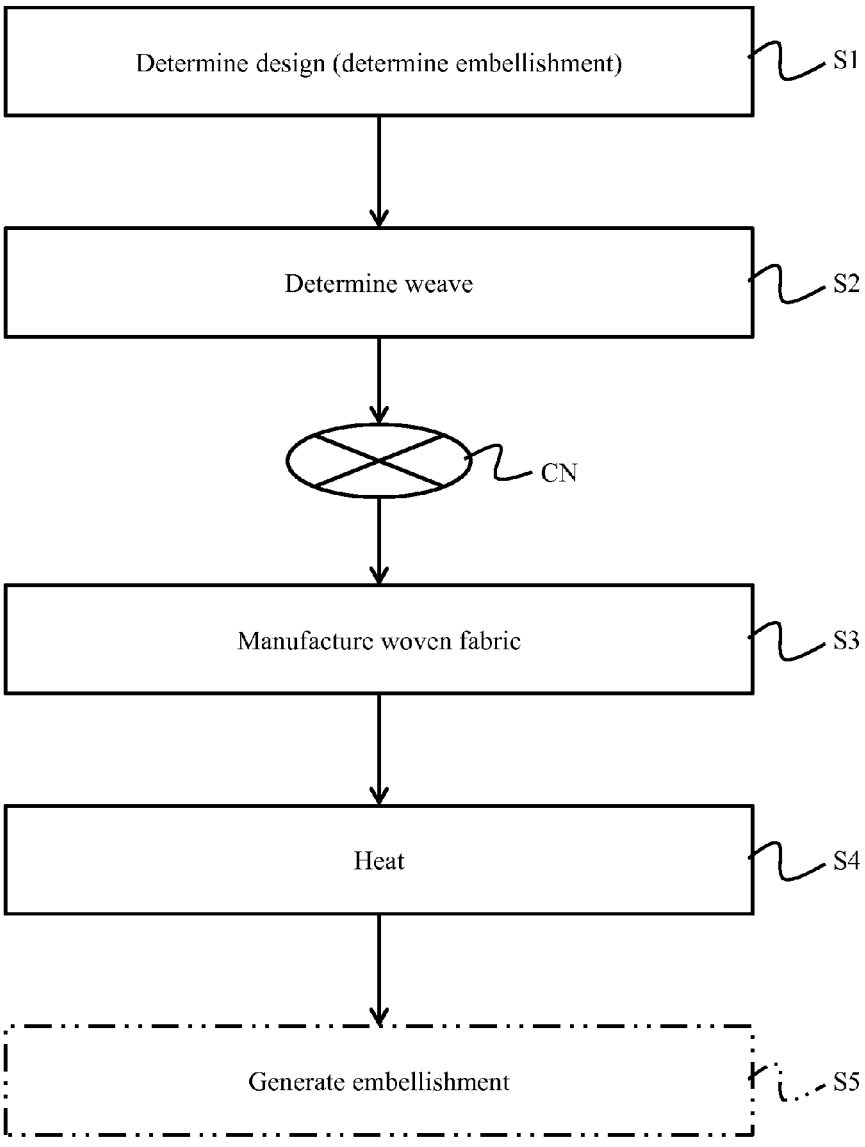
【Fig. 10】


(a) Area C Mountain weave
10C1
a b c d e f g h
1
2
3
4
5
6
22
12
22
12
11
11
(b) Area C Valley weave
10C2
a b c d c f g h
1
2
3
4
5
6
22
12
12
11
11
21J
11

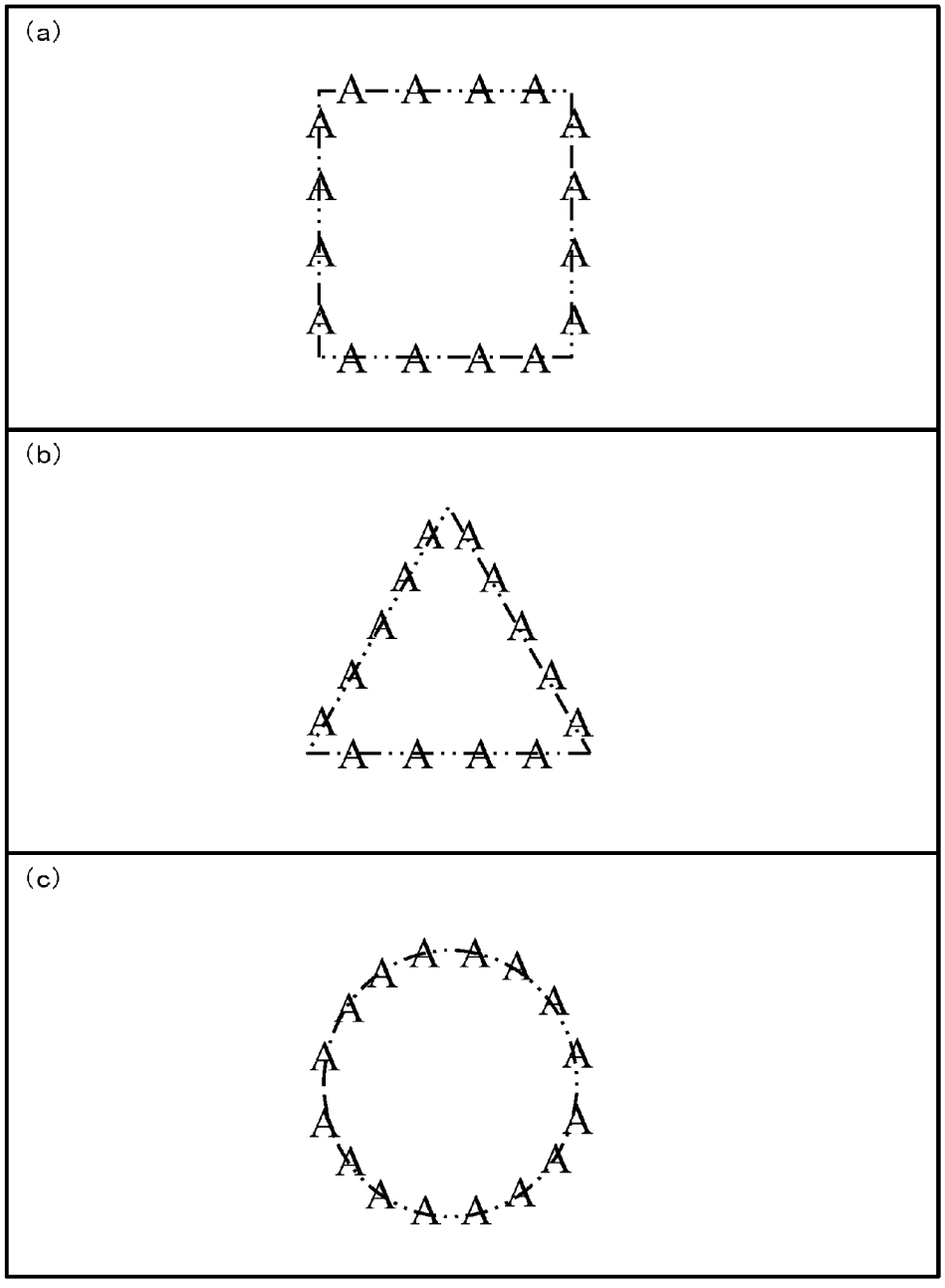
【Fig. 11】


Design data generating device
110
CN
120
125
123
Shrinkable warp yarn feeder
Weaving machine controller
121
Warp yarn feeder
Shrinkable weft yarn feeder
Weft yarn feeder
12
22
124
122
21
11
21
11
130
Heating device

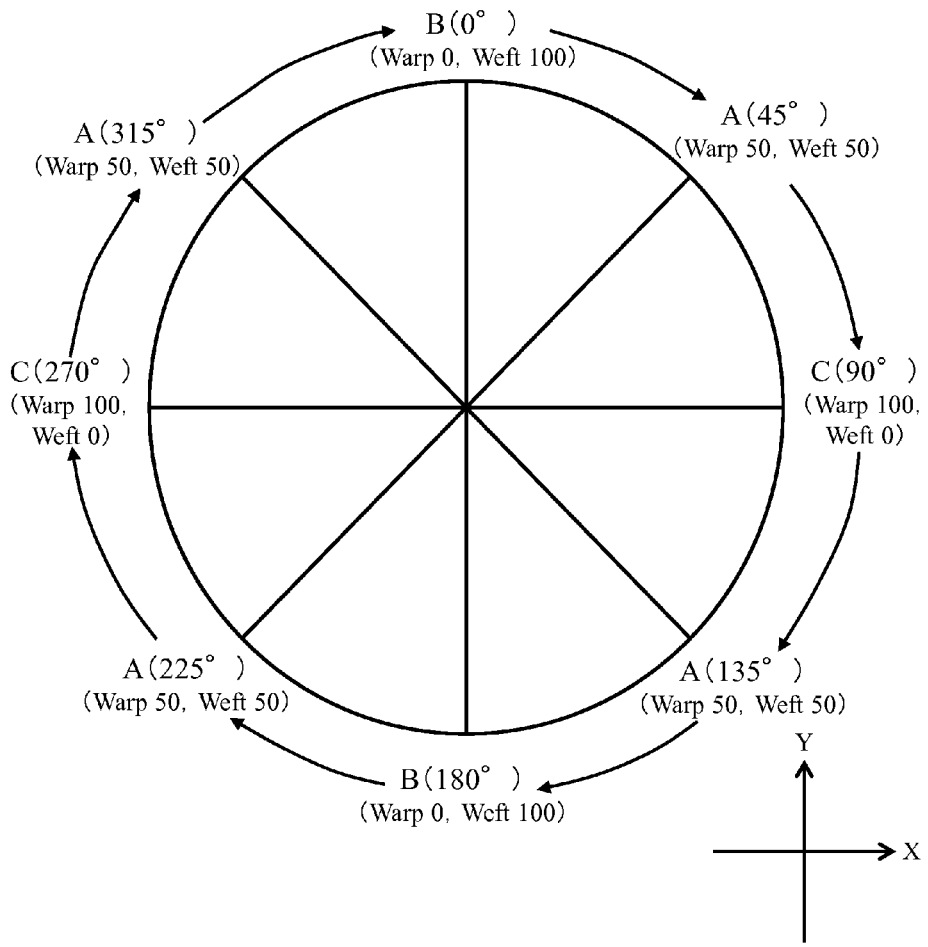
【Fig. 12】


Determine design (determine embellishment)
S1
Determine weave
S2
CN
Manufacture woven fabric
S3
Heat
S4
Generate embellishment
S5

【Fig. 13】



【Fig. 14】


B(0°)
(Warp 0, Weft 100)
A(45°)
(Warp 50, Weft 50)
C(90°)
(Warp 100,
Weft 0)
A(135°)
(Warp 50, Weft 50)
B(180°)
(Warp 0, Weft 100)
A(225°)
(Warp 50, Weft 50)
C(270°)
(Warp 100,
Weft 0)
A(315°)
(Warp 50, Weft 50)
Y
X

WOVEN FABRIC AND METHOD FOR MANUFACTURING SAME

TECHNICAL FIELD

[0001] This invention relates to a woven fabric and a method for manufacturing the same.

BACKGROUND ART

[0002] Some garments such as skirts, dresses, gowns, jackets, and pants have pleats and other types of embellishments. There is known a method for interweaving a yarn suitable for easy formation of a pleat and a yarn not suitable for easy formation of a pleat into a fabric and then creating a pleat using this woven fabric (PTL 1, PTL 2).

CITATION LIST

Patent Literature

[PTL 1]

Japanese Patent Application Publication No. 2008-7879

[PTL 2]

Japanese Patent Application Publication No. 2004-339671

SUMMARY OF INVENTION

Technical Problem

[0003] According to the conventional technique described in PTL 1, the entire garment includes the pleated area with a high percentage of thermoplastic fiber and the non-pleated area with a low percentage of thermoplastic fiber. PTL 1, therefore, can make the seam between the pleated area and the non-pleated area less noticeable.

[0004] According to the conventional technique described PTL 2, either warp yarn or weft yarn is taken as appropriate for forming a pleat while the other is taken as inappropriate for forming a pleat, and a woven fabric is produced using these yarn. This woven fabric is folded along a predetermined fold line into a pleat, which is then selected. This process can accentuate the borderline between the pleated area and the non-pleated area.

[0005] Both of these conventional techniques mix the yarn suitable for easy formation of a pleat and the yarn not suitable for easy formation of a pleat. In either technique, a predetermined section of the woven fabric is thermally or mechanically treated in order to forcibly create a fold line at a second stage. Therefore, the created pleats are likely to wear out or disappear after repeated wear or after getting wet in the rain or washed. This is because the conventional woven fabrics are merely manufactured in a way that embellishments such as pleats can easily be formed afterwards, and do not have the structure for forming embellishments themselves.

[0006] The present invention was contrived in view of the foregoing problems, and an object thereof is to provide a woven fabric and a method for manufacturing the same, which are configured to be able to form embellishments such as pleats.

Solution to Problem

[0007] A woven fabric according to one aspect of the present invention has: a plurality of strands of warp yarn; and a plurality of strands of weft yarn interlaced with the plurality of strands of warp yarn, wherein some of the plurality of strands of warp yarn are strands of shrinkable warp yarn that shrink in a lengthwise direction thereof more than the other strands of warp yarn when subjected to a specific process, the strands of shrinkable warp yarn have, at least in one section in the lengthwise direction, a first leap portion where a first predetermined number of adjacent strands of weft yarn are leaped over, and a plurality of the first leap portions are positioned in a first predetermined pattern.

[0008] In a preferred embodiment, some of the plurality of strands of weft yarn are strands of shrinkable weft yarn that shrink in a lengthwise direction thereof more than the other strands of weft yarn when subjected to the specific process, the strands of shrinkable weft yarn have, at least in one section in the lengthwise direction, a second leap portion where a second predetermined number of adjacent strands of warp yarn are leaped over, and a plurality of the second leap portions are positioned in a second predetermined pattern.

[0009] The woven fabric according to a preferred embodiment further has a base weave that is obtained by interlacing the other strands of warp yarn and the other strands of weft yarn, wherein the first predetermined number is set to be greater than the number of the other strands of weft yarn leaped over by the other strands of warp yarn in the base weave.

[0010] In a preferred embodiment, the second predetermined number is set to be greater than the number of the other strands of warp yarn leaped over by the other strands of weft yarn in the base weave.

[0011] In a preferred embodiment, the first leap portion is either a front-side first leap portion passing across the front side of the woven fabric or a rear-side first leap portion passing across the rear side of the woven fabric, the second leap portion is either a front-side second leap portion passing across the front side of the woven fabric or a rear-side second leap portion passing across the rear side of the woven fabric, the front-side first leap portion is positioned in a predetermined front-side first pattern included in the first predetermined pattern, the rear-side first leap portion is positioned in a predetermined rear-side first pattern included in the first predetermined pattern, the front-side second leap portion is positioned in a predetermined front-side second pattern included in the second predetermined pattern, and the rear-side second leap portion is positioned in a predetermined rear-side second pattern included in the second predetermined pattern.

[0012] In a preferred embodiment, the predetermined front-side first pattern and the predetermined rear-side first pattern are set in such a manner that the front-side first leap portion and the rear-side first leap portion are close to each other, and the predetermined front-side second pattern and the predetermined rear-side second pattern are set in such a manner that the front-side second leap portion and the rear-side second leap portion are close to each other.

[0013] In a preferred embodiment, the strands of shrinkable warp yarn are positioned between a plurality of the other strands of warp yarn in a third predetermined pattern,

and the strands of shrinkable weft yarn are positioned between a plurality of the other strands of weft yarn in a fourth predetermined pattern.

[0014] In a preferred embodiment, the strands of shrinkable warp yarn form a constant first shrunk portion by shrinking in the lengthwise direction thereof more than the other strands of warp yarn when subjected to the specific process, and the strands of shrinkable weft yarn form a constant second shrunk portion by shrinking in the lengthwise direction thereof more than the other strands of weft yarn when subjected to the specific process.

[0015] In a preferred embodiment, a first fold line portion is formed along a weft direction by arranging a plurality of the first shrunk portions in a continuous manner, a second fold line portion is formed along a warp direction by arranging a plurality of the second shrunk portions in a continuous manner, and a third fold line portion is formed along an oblique direction between the weft direction and the warp direction by arranging the plurality of first shrunk portions and the plurality of second shrunk portions in a predetermined direction.

[0016] In a preferred embodiment, the first shrunk portions and the second shrunk portions are stretchable in response to external force.

[0017] A method for manufacturing a weave fabric according to another aspect of the present invention has the steps of: positioning, between a plurality of strands of warp yarn and in a first predetermined pattern, shrinkable warp yarn that shrinks more than the other strands of warp yarn when subjected to a specific process, in such a manner as to form at least one first leap portion where a first predetermined number of adjacent strands of weft yarn are leaped over; and positioning, between a plurality of strands of weft yarn and in a second predetermined pattern, shrinkable weft yarn that shrinks more than the other strands of weft yarn when subjected to the specific process, in such a manner as to form at least one second leap portion where a second predetermined number of adjacent strands of warp yarn are leaped over.

[0018] A woven fabric according to yet another aspect of the present invention has: a first structure woven with a plurality of strands of warp yarn and a plurality of strands of weft yarn interlaced with the plurality of strands of warp yarn; and a second structure formed of a plurality of strands of shrinkable warp yarn and a plurality of strands of shrinkable weft yarn and stacked by being weaved into the first structure, wherein the strands of shrinkable warp yarn have a first leap portion where a first predetermined number of adjacent strands of the weft yarn are leaped over, the first leap portion being positioned in a first pattern, the strands of shrinkable weft yarn have a second leap portion where a second predetermined number of adjacent strands of the warp yarn are leaped over, the second leap portion being positioned in a second pattern, the strands of shrinkable warp yarn form a first shrunk portion against resilience of the first structure by shrinking in a lengthwise direction thereof more than the warp yarn when subjected to a specific process, and the strands of shrinkable weft yarn form a second shrunk portion against the resilience of the first structure by shrinking in a lengthwise direction thereof more than the weft yarn when subjected to the specific process.

[0019] In a preferred embodiment, the strands of shrinkable warp yarn are positioned between the plurality of strands of warp yarn in a third predetermined pattern, and the strands of shrinkable weft yarn are positioned between the plurality of strands of weft yarn in a fourth predetermined pattern.

[0020] In a preferred embodiment, the first leap portion and the second leap portion are formed so as to be located on the front side and/or the rear side of the first structure.

Advantageous Effects of Invention

[0021] According to the present invention, when a specific process is performed on the woven fabric, the shrinkable warp yarn shrinks significantly, in which the side with the first leap portion forms a valley, while the other side of the first leap portion protrudes to form a mountain. As a result, an embellishment is formed in the woven fabric. In addition, by positioning the shrinkable weft yarn that has the second leap portion in at least one section thereof, more embellishments can be formed in the woven fabric. Because embellishments are incorporated in the woven fabric, embellishments that are resistant to wearing and washing can be formed.

BRIEF DESCRIPTION OF DRAWINGS

[0022] FIG. **1** is a front view of a garment with embellishments such as pleats and linear patterns.

[0023] FIG. **2** shows an example of a weave diagram of a woven fabric.

[0024] FIG. **3** is an explanatory diagram showing schematic structures and the like of normal warp yarn, normal weft yarn, shrinkable warp yarn, and shrinkable weft yarn.

[0025] FIG. **4** is a cross-sectional diagram showing how shrinkage of the shrinkable yarn forms a mountain and a valley as physical embellishments in the woven fabric.

[0026] FIG. **5** is a cross-sectional diagram showing how the mountains and valleys are formed on the front and rear sides of the woven fabric.

[0027] FIG. **6** is an explanatory diagram showing the relationship among formation patterns A to C of the embellishments to be formed in the woven fabric, information on which one of the warp yarn or the weft yarn to use to form the leap portions, and the shapes of the embellishments obtained with the leap portions.

[0028] FIG. **7** is an explanatory diagram showing the relationship between the shapes of the embellishments and a method for positioning the shrinkable yarn for realizing the shapes.

[0029] FIG. **8** is a weave diagram of an area A where an oblique embellishment is formed.

[0030] FIG. **9** is a weave diagram of an area B where a vertical embellishment is formed.

[0031] FIG. **10** is a weave diagram of an area C where a horizontal embellishment is formed.

[0032] FIG. **11** is an explanatory diagram showing a schematic configuration of a weaving machine.

[0033] FIG. **12** is a flowchart showing the method for manufacturing the woven fabric.

[0034] FIG. **13** is an explanatory diagram showing the relationship between the shapes of embellishments and the formation patterns for realizing the shapes, according to a second example.

[0035] FIG. **14** is an explanatory diagram showing an example of making the embellishment formation patterns finer, according to a third example.

DESCRIPTION OF EMBODIMENTS

[0036] Embodiments of the present invention are described hereinafter with reference to the accompanying drawings. However, these embodiments are merely exemplary of the present invention, and it should be noted that these embodiments are not intended to limit the technical scope of the present invention.

[0037] As will be described hereinafter in detail, these embodiments use shrinkable warp yarn that shrinks in a lengthwise direction more significantly than the other warp yarn when subjected to a specific process, and shrinkable weft yarn that shrinks in the lengthwise direction more significantly than the other weft yarn when subjected to a specific process. The shrinkable warp yarn and shrinkable weft yarn each leap over a predetermined number strands of yarn in a different direction, at one or more sections in the lengthwise direction. These leap portions may be provided on the front side or the rear side of the woven fabric. A plurality of the leap portions can be provided on the front side and the rear side. Subjecting the woven fabric to heat or other specific processes results in shrinkage of the shrinkable warp yarn, the shrinkable weft yarn and hence the leap portions, forming shrunk portions. Making the shrunk portions continuous can create linear embellishments such as straight lines and curved lines. The shrunk portions keep the shapes thereof constant. By "constant," it means that the shrunk portions do not disappear by normal wear or washing and therefore can always be recognized by a user. Although the shrunk portions can keep the shape thereof constant against the resilience of a base weave, the shrunk portions can shrink when applied with a certain level of external force.

Example 1

[0038] A first example is now described with reference to FIGS. **1** to **12**. FIG. **1** is a front view of a garment **1** made of a woven fabric according to the present embodiment. The garment **1** is one application example of a woven fabric **10** (see FIG. **2** and the like) according to the present embodiment, such as a dress, a skirt, a jacket, a pair of pants, a shirt, an apron, a glove, a sock, and the like. The woven fabric **10** according to the present embodiment can be applied to materials other than the garment **1**, such as bags, wrapping cloths, tablecloths, handkerchiefs, various covers, ties, ribbons, wallets, card holders, cushions, and umbrellas.

[0039] The garment **1** is produced by joining, for example, a front piece **2**, a back piece **3**, and sleeves **4**. The front piece **2**, the back piece **3**, and the sleeves **4** may be formed separately and then stitched together. Alternatively, as is known as a seamless manufacturing process, the front piece **2**, the back piece **3**, and the sleeves **4** may be woven at the same time while having these pieces connected to one another, and at the end the parts that let the human body parts pass through out of the connected parts may be cut out.

[0040] The garment **1** has a plurality of embellishment elements **5**A to **5**F. Similarly to embroidered patterns or paint, these embellishment elements **5**A to **5**F are not provided to the garment **1** afterwards, but these are physical embellishments that are provided in the woven fabric **10** from the beginning, the material for the garment **1**. In the present embodiment, examples of such physical embellishments that are prepared in the woven fabric **10** from the beginning include linear patterns and pleats. The embellishment elements **5**A to **5**F are generically referred to as "embellishment elements **5**," hereinafter, if they are not to be discriminated from one another. The embellishment elements **5** are linear patterns, pleats and the like. The linear patterns here do not mean planar patterns such as base patterns, but are three-dimensional linear patterns that are obtained by changing the shape of a part of a weave into a three-dimensional concave or convex shape. The shapes and locations of the embellishment elements **5** displayed in the garment **1** are merely exemplary; thus, the scope of the present invention is not limited to the configuration shown in FIG. **1**.

[0041] The embellishment element **5**A extending horizontally is formed in each shoulder portion of the garment **1**. The wavelike embellishment element **5**B is formed in the section from the chest to the waistline of the garment **1**. The grid-like embellishment element **5**C is formed in the section from the waist down of the garment **1**. The arc-shaped embellishment element **5**D is formed in the hem of the garment **1**. The circular embellishment element **5**E and the linear embellishment element **5**F are formed in each sleeve of the garment **1**.

[0042] FIG. **2** shows an example of the weaves of the woven fabric **10**, the material for the garment **1**. FIG. **2** shows an example of incorporating a stretchy texture only in the vertical direction of the woven fabric **10**. An example of incorporating the stretchy texture in the horizontal direction of the woven fabric **10** is described hereinafter with reference to FIGS. **8** and **9**.

[0043] First of all, yarns used in the woven fabric **10** are described with reference to FIG. **3**. A base weave, an example of the "first structure," is formed by interlacing normal warp yarn **11** and normal weft yarn **12** by a predetermined rule. Examples of the base weave include a variety of weaves such as a plain weave and a twill weave. The normal warp yarn **11** and the normal weft yarn **12** are made of, for example, polyester. The normal warp yarn **11** is an example of the "other strands of warp yarn" or "strands of warp yarn," and the normal weft yarn is an example of the "other strands of weft yarn" or "strands of weft yarn." Note that the material for the normal yarns is not limited to polyester. Yarns made of other materials may be used as well.

[0044] The stretchy texture, an example of the "second structure," is stacked on the base weave. The stretchy texture is a weave that is formed from a yarn that shrinks when subjected to a specific process. Therefore, the stretchy texture is formed from a shrinkable warp yarn **21** and/or a shrinkable weft yarn **22**. The direction in which the stretchy texture shrinks and the method for forming the stretchy texture are described hereinafter with reference to FIG. **6**.

[0045] The shrinkable warp yarn **21** is configured with, for example, a core **211** and a covering yarn **212** wrapped around the outer circumference of the core **211**. Similarly, the shrinkable weft yarn **22** is configured with, for example, a core **221** and a covering yarn **222** wrapped around the outer circumference of the core **221**. A material that shrinks significantly in the lengthwise direction when heated at a predetermined temperature, such as polyurethane, is used for the cores **211**, **221**. A material similar to that of the normal yarns, such as polyester, is used for the covering yarns **212**, **222**. The same material can be used for the covering yarns

212, **222** and for the yarns **11**, **12** used in the base weave, to eliminate the sense of disharmony, resulting in a natural base pattern.

[0046] In the present embodiment, however, the material for the normal yarns **11**, **12** and the material for the shrinkable yarns **21**, **22** do not have to be the same and may be different from each other. In addition, the material for the normal warp yarn **11** and normal weft yarn **12** may be changed, and the material for the core **211** of the shrinkable warp yarn **21** and the core **221** of the shrinkable weft yarn **22** may be changed. The material for the covering yarn **212** of the shrinkable warp yarn **21** and the covering yarn **222** of the shrinkable weft yarn may be changed as well. Moreover, the thicknesses and colors of the yarns **11**, **12**, **21**, **22** can be changed.

[0047] The shrinkable yarns **21**, **22** may be made of a plurality of different materials or a single material, as described above. The shrinkable yarns **21**, **22** may have the property of shrinking more significantly than a yarn configuring the base weave, when subjected to the "specific process," such as a heat treatment. Conversely, the shrinkable yarns **21**, **22** do not shrink before subjected to the specific process. Such property enables stable and accurate weaving of the woven fabric **10** using both the normal yarns **11**, **12** and the shrinkable yarns **21**, **22**. Note that the materials, the thicknesses, the configuration of the base weave, and the like can be determined accordingly.

[0048] Returning to FIG. **2**, the base weave of the woven fabric **10** shown in FIG. **2** is a plain weave in which the normal warp yarn and the normal weft yarn **12** are aligned. Some of a plurality of strands of warp yarn configuring the plain weave are strands of the shrinkable warp yarn **21**. In the example shown in FIG. **2**, the shrinkable warp yarn **21** is used in place of the normal warp yarn **11** at six-strand intervals. Thus, the stretchy texture formed from the shrinkable warp yarn **21** is stacked by being woven into the base texture.

[0049] The shrinkable warp yarn **21** leaps over a predetermined number of strands of weft yarn **12** at predetermined positions in accordance with a first pattern defined based on the design of the garment **1**. Leaping over the other intersecting yarn is also called "to slide a yarn." In FIG. **2**, the parts where the shrinkable warp yarn **21** leaps over the weft yarns **12** are leap portions **21**J described as "first leap portions."

[0050] The number of strands of the weft yarn **12** that are leaped over by the shrinkable warp yarn **21** (the first predetermined number) is set to be greater than the number of strands of the weft yarns **12** that are continuously leaped over by the warp yarn **11** in the base weave. The number of these strands of yarn can be set in accordance with the sizes or strengths of the embellishments. When the number of the strands of the weft yarn **12** that are continuously leaped over by the warp yarn **11** in the base weave is referred to as a first reference number, the first predetermined number can be set to be several times greater than the first reference number.

[0051] The leap portions **21**J include a front-side leap portion **21**J(**1**) passing across the front side of the woven fabric **10** and a rear-side leap portion **21**J(**2**) passing across the rear side of the woven fabric **10**. A single strand of the shrinkable warp yarn **21** has at least one leap portion **21**J. Usually, one strand of shrinkable warp yarn **21** has at least one front-side leap portion **21**J(**1**) and at least one rear-side leap portion **21**J(**2**) (a plurality of each of the leap portions, in actuality).

[0052] When heated, the shrinkable warp yarn **21** shrinks significantly in the lengthwise direction, as shown by the arrows F**1**. When the front-side leap portion **21**J(**1**) shrinks, the rear side of the front-side leap portion **21**J(**1**) protrudes. Such shrinkage of a plurality of adjacent front-side leap portions **21**J(**1**) results in the formation of a fold line resembling a horizontal groove.

[0053] Similarly, when the rear-side leap portion **21**J(**2**) shrinks as a result of being heated, the front side of the rear-side leap portion **21**J(**2**) protrudes. Such shrinkage of a plurality of adjacent rear-side leap portions **21**J(**2**) results in the formation of a fold line resembling a horizontal ridgeline. When the fold lines resembling horizontal ridgelines and the fold lines resembling horizontal grooves are formed adjacent to each other in the woven fabric **10**, the woven fabric **10** deforms three-dimensionally, bringing about a three-dimensional appearance.

[0054] For the purpose of providing specific explanation, numbers for identifying the yarns of the weave are provided. Alphabets are used for the columns and Arabic numerals for the lines. The shrinkable warp yarn **21** is used in columns a and g. Cells a**2** to a**6** and cells g**2** to g**6** represent the front-side leap portions **21**J(**1**). Shrinkage of the plurality of adjacent front-side leap portions **21**J(**1**) results in the formation of a fold line (a line connecting a**4**, b**4**, c**4**, d**4**, e**4**, f**4**, g**4**, and h**4**), with, for example, the weft yarn **12** in the 4th line configuring the bottom of the valley.

[0055] Cells a**13** to a**17** and cells g**12** to g**17** represent the rear-side leap portions **21**J(**2**). Shrinkage of the plurality of adjacent rear-side leap portions **21**J(**2**) results in the formation of a fold line (a line connecting a**15**, b**15**, c**15**, d**15**, e**15**, f**15**, g**15**, and h**15**), with, for example, the weft yarn **12** in the 15th line configuring the peak.

[0056] FIG. **4** schematically shows changes that occur when the shrinkable yarns shrink. FIG. **4**(*a*) is a cross-sectional diagram of an enlargement of the leap portion **21**J of the shrinkable yarn **21**, showing a state prior to a heat treatment. For convenience, the direction of the warp yarn is the horizontal direction of FIG. **4**. In FIG. **4**, the front-side leap portion and the rear-side leap portion are not discriminated from each other.

[0057] FIG. **4**(*b*) shows a state that results after the heat treatment. In the figure, shrinkage of the leap portion **21**J results in downward protrusion of the weft yarn **12** in the vicinity of the center of the leap portion **21**J, forming a shrunk portion **23**.

[0058] FIG. **5** shows how the front-side leap portion **21**J(**1**) and the rear-side leap portion **21**J(**2**) shrink. Because the leap portion **21**J(**1**) forming a valley and the leap portion **21**J(**2**) forming a mountain are located relatively close to each other, as shown in this FIG. **5** the areas where the leap portions **21**J(**1**), **21**J(**2**) are located change significantly in a three-dimensional manner. As a result, a three-dimensional appearance beyond a simple pattern can be achieved.

[0059] A method for forming the embellishment elements **5** in different directions in the woven fabric **10** is now described with reference to FIG. **6**. The upper part of FIG. **6** shows formation patterns A, B, C for the embellishment elements **5**. The formation pattern A is for forming an oblique embellishment element **5**, the formation pattern B

for a vertical (Y-direction) embellishment element **5**, and the formation pattern C for a horizontal (X-direction) embellishment element **5**.

[0060] The lower part of FIG. **6** shows a table of the relationship between the locations of the leap portions and the shapes of the embellishment elements **5** obtained by shrinkage of the leap portions, with respect to the formation patterns A to C of different directions. In regard to the oblique formation patterns A, the locations where the leap portions are formed vary depending on the angles of the formation patterns A. However, due to its rotational symmetry, the formation patterns A are illustrated as a single formation pattern A.

[0061] In order to form an oblique embellishment element **5**, a plurality of leap portions are positioned vertically (the direction of the warp yarn) and horizontally (the direction of the weft yarn), as shown by the formation pattern A. The angle of the embellishment element **5** (e.g., the angle with respect to the warp yarn **11** or the weft yarn **12**) can be changed by adjusting the number of vertical leap portions and the number of horizontal leap portions.

[0062] In order to form a vertical embellishment element **5**, a plurality of leap portions **22**J extending along the weft yarn are positioned, as shown by the formation pattern B. The embellishment element **5** extending vertically can be obtained by vertically arranging the leap portions **22**J that slide horizontally.

[0063] In order to form a horizontal embellishment element **5**, a plurality of leap portions **21**J extending along the direction of the warp yarn are positioned, as shown by the formation pattern C. The embellishment element **5** extending in the horizontal can be obtained by horizontally arranging the leap portions **22**J that slide vertically. In FIG. **6**, the formation patterns are associated with eight areas that are divided every 45 degrees, but the angles of the areas do not have to be equal. As will be described in the other examples hereinafter, various oblique embellishments can be created only with the formation pattern A used for forming an oblique embellishment, or various embellishments can be created with a more detailed formation pattern.

[0064] FIG. **7** shows a method for forming embellishments in various shapes by combining a plurality of embellishment elements **5** of different formation patterns. In order to generate a rectangular embellishment as shown in FIG. **7**(*a*), a plurality of embellishment elements **5** are formed in the upper and lower sides extending horizontally based on the horizontal formation pattern C. As a result, embellishment elements configuring the upper and lower sides can be obtained. Furthermore, a plurality of embellishment elements **5** are formed in the right and left sides extending vertically based on the vertical formation pattern B. As a result, embellishment elements configuring the right and left sides can be obtained.

[0065] In order to generate a triangular embellishment as shown in FIG. **7**(*b*), a plurality of embellishment elements **5** are formed in the base extending horizontally based on the horizontal formation pattern C. A plurality of embellishment elements **5** are formed in the right and left sides extending obliquely toward the apex are formed based on the oblique formation pattern A. Because the angles of the right side and the left side are different, the locations where the leap portions are formed vary; however, the explanation thereof is omitted.

[0066] In order to generate a circular embellishment as shown in FIG. **7**(*c*), a circular shape can be simulated by properly arranging the formation patterns A to C. For instance, an embellishment element in substantially a circular shape can be obtained by positioning embellishment elements of the horizontal formation pattern C on the top and bottom of the circle, embellishment elements of the vertical formation pattern B on the left and right sides of the circle, and embellishment elements of the oblique formation pattern A in diagonal positions.

[0067] FIG. **8** shows a weave of the oblique formation pattern A. FIG. **8**(*a*) shows a mountain weave **10**A**1**, and FIG. **8**(*b*) a valley weave **10**A**2**. Note that that FIG. **8**(*a*) and FIG. **8**(*b*) correspond to each other to some extent but not completely. The same applies to FIGS. **9** and **10**.

[0068] The "mountain" here means the shape of a part protruding from the surrounding areas of the weave. In case of FIG. **8**(*a*), the "mountain" means a convex shape in which the weave **10**A**1** protrudes toward the observer. The "valley" here means the shape of a part depressing from the surrounding areas of the weave. In case of FIG. **8**(*b*), the "valley" means a concave shape in which the weave **10**A**2** depresses toward the page space (the side opposite to the observer).

[0069] Because the formation pattern A is used to form an oblique embellishment element, the vertical leap portion **21**J and the horizontal leap portion **22**J are positioned in the weave **10**A**2**, depending on the angle (orientation) of the embellishment element. An oblique embellishment element is obtained in accordance with the combination of the vertical leap portion **21**J and the horizontal leap portion **22**J.

[0070] As shown in FIG. **8**(*a*), although the shrinkable yarns **21**, **22** are partially exposed in parts of the mountain weave **10**A**1**, these exposed parts are not the leap portions **21**J, **22**J. The leap portions **21**J, **22**J are designed to shrink when heated and are the areas in which a predetermined number of strands of yarn in a different direction are leaped over.

[0071] The partially exposed shrinkable yarns **21**, **22** (a**1**, a**4**, g**1**, g**4**, h**1**) do not leap over a predetermined number of strands of yarn of a different direction, but are pressed down by the normal yarns **11**, **12**. Taking the shrinkable warp yarn **21** passing across the column a as an example, the yarn **21** is interlaced with the normal weft yarn **12** (a**2**, a**3**, a**5**, a**6**) and therefore is prevented from deforming when heated. Therefore, the shrinkable warp yarn **21** passing across the column a does not have the leap portion **21**J, as far as FIG. **8**(*a*) shows.

[0072] FIG. **9** shows a weave of the vertical formation pattern B. FIG. **9**(*a*) shows a mountain weave **10**B**1**, and FIG. **9**(*b*) shows a valley weave **10**B**2**. FIG. **9**(*a*), showing the mountain weave **10**B**1**, does not have any leap portion **22**J, as described with reference to FIG. **8**(*a*). The leap portions are formed in the valley weave. Partially exposed shrinkable yarns **21**, **22** are interlaced with the normal yarns **11**, **12** and therefore are prevented from deforming when heated. For instance, in the column a, the shrinkable warp yarn **21** equivalent to a pair of strands of the weft yarn is exposed in a continuous manner at a**1** and a**2**, as well as at a**4** and a**5**, but is interlaced with the weft yarn **12** passing across the third line and the weft yarn **12** passing across the sixth line, and therefore is prevented from deforming when heated.

[0073] As shown in FIG. **9**(*b*), a plurality of horizontal leap portions **22**J are positioned vertically in the valley weave **10**B**2**. In other words, FIG. **9**(*b*) shows a leap portion **22**J containing a**1**, b**1**, c**1**, a leap portion **22**J containing e**1**, f**1**, g**1**, h**1**, and a leap portion **22**J containing b**4**, c**4**, d**4**, e**4**, f**4**. Each of these leap portions **22**J leaps over five strands of the warp yarn. The plurality of leap portions **22**J shown in the first line are shown only partially for the convenience of illustration.

[0074] FIG. **10** shows a weave of the horizontal formation pattern C. FIG. **10**(*a*) shows a mountain weave **10**C**1**, and FIG. **10**(*b*) shows a valley weave **10**C**2**. As shown in FIG. **10**(*b*), a leap portion **21**J that leaps over at least six strands of the weft yarn **12** and at least six strands of the shrinkable weft yarn **22** is formed in the column f.

[0075] The oblique, vertical, and horizontal embellishment elements can be obtained by configuring the weaves in which the leap portions are positioned in a predetermined pattern, as described with reference to FIGS. **8** to **10**. Then, various shapes such as rectangular shapes, triangular shapes, and circular shapes can be expressed by using a plurality of combination elements of the embellishments formed in the different directions.

[0076] Moreover, as described with reference to FIG. **5**, the woven fabric **10** can be deformed significantly by positioning the front-side leap portions and the rear-side leap portions close to each other. Accordingly, embellishments such as pleats can be realized.

[0077] A method for manufacturing the woven fabric **10** is schematically explained with reference to FIGS. **11** and **12**. A woven fabric generation system for generating the woven fabric can be configured with, for example, a design data generating device **110**, an automatic weaving machine **120** connected to the design data generating device **110** by a communication network CN, and a heating device **130**.

[0078] The design data generating device **110** is a computer that determines the configurations (weaves) of the woven fabric **10** based on the design of the garment **1** and outputs the configurations in the form of design data. The design data generating device **110** may be connected to the automatic weaving machine **120** without having the communication network CN therebetween. The automatic weaving machine **120** may be provided with, for example, a function for generating the design data.

[0079] The automatic weaving machine **120** is configured with, for example, a warp yarn feeder **121**, a weft yarn feeder **122**, a shrinkable warp yarn feeder **123**, a shrinkable weft yarn feeder **124**, and a weaving machine controller **125**. The warp yarn feeder **121** feeds the warp yarn **11**. The weft yarn feeder **122** feeds the weft yarn **12**. The shrinkable warp yarn feeder **123** feeds the shrinkable warp yarn **21**. The shrinkable weft yarn feeder **124** feeds the shrinkable weft yarn **22**.

[0080] The weaving machine controller **125** controls the feeders **121** to **124**. The weaving machine controller **125** controls the feeders **121** to **124** based on the data received through the communication network CN. Note that the data generated by the design data generating device **110** can be input to the weaving machine controller **125** without using the communication network CN. For instance, the data can be stored in a storage medium such as a flash memory device, and then the data can be input to the weaving machine controller **125** by connecting the storage medium to the weaving machine controller **125**.

[0081] The heating device **130** is a device for performing a heat treatment, an example of the "specific process," on the woven fabric **10**. The heating device **130** may be installed in the vicinity of the automatic weaving machine **120** or away from the automatic weaving machine **120**. The embellishment elements **5** emerge as a result of heating the woven fabric that physically incorporates the embellishment structures with the heating device **130**. In a case where the woven fabric in which the embellishment elements **5** have not yet emerged (the woven fabric prior to a heat treatment) can be distributed as it is, the heating device **130** can be considered as not being included in the woven fabric generation system.

[0082] Note that the specific process is not limited to a heat treatment. For example, a cooling treatment, a pressure treatment, a decompression treatment, a process for irradiating light or an electric wave of a specific wavelength, a process for applying an ultrasonic wave, a process for applying vibrations, a process for exposing the woven fabric to gas or liquid having a specific component, or any other processes that can cause the shrinkable yarns **21**, **22** to shrink more than the normal yarns may be performed. When using a heat treatment as the specific process, any method can be used to heat the woven fabric. The woven fabric may be heated with, for example, high-temperature steam, an infrared ray, warm air, and the like.

[0083] Schematic operations of the woven fabric generation system are now described with reference to the flow diagram shown in FIG. **12**. A designer determines the design of the garment **1** (S**1**). In so doing, the designer can also determine embellishments such as pleats and linear patterns.

[0084] Once the embellishments are determined, as explained with reference to FIG. **7** the locations for the formation patterns A to C are calculated in order to realize the determined embellishments, and weaves are determined in view of the locations of the formation patterns and the other considerations such as a base pattern (S**2**). The configurations of the weaves can automatically be determined using the design data generating device **110**. The data representing the determined configurations of the weaves are transmitted from the design data generating device **110** to the weaving machine controller **125** of the weaving machine **120** through the communication network CN.

[0085] The weaving machine controller **125** generates the woven fabric **10** by controlling the feeders **121** to **124** based on the received data (S**3**). The woven fabric **10** is manufactured by weaving the normal warp yarn **11** and weft yarn **12**, a plurality of strands of the shrinkable warp yarn **21** that configure the first leap portions **21**J in the first predetermined pattern and are positioned between strands of the normal warp yarn **11** in the third predetermined pattern, and a plurality of strands of shrinkable weft yarn **22** that configure the second leap portion **22**J in the second predetermined pattern and are positioned between strands of the normal weft yarn **12** in the fourth predetermined pattern.

[0086] The first predetermined pattern defines the number of strands of weft yarn to be leaped over by the vertical leap portion **21**J and a location where the leap portion **21**J emerges. The second predetermined pattern defines the number of strands of warp yarn to be leaped over by the horizontal leap portion **22**J and a location where the leap portion **22**J emerges. The third predetermined pattern defines a location where the shrinkable warp yarn **21** passes across. The fourth predetermined pattern defines a location

where the shrinkable weft yarn **22** passes across. These patterns can automatically be generated based on the design data.

[0087] The woven fabric **10** is heated by the heating device **130** (S**4**). As a result, the leap portions **21**J, **22**J shrink, generating the embellishment elements **5** such as pleats (S**5**). Note that step S**5** demonstrates a woven state of the finished woven fabric but is not exactly a manufacturing step. For this reason, step S**5** is shown by a two-dot chain line. The three-dimensional appearance of the woven fabric **10** is produced by generating the embellishment elements **5** with a heat treatment and by connecting the embellishment elements **5** such as pleats.

[0088] According to the present example configured as described above, the embellishment elements that emerge by being heated are provided in the woven fabric **10**. Therefore, unlike the conventional techniques of using highly shrinkable yarns and mechanically and thermally forming pleats by means of an iron or the like, stable embellishments resistant to wearing and washing can be obtained.

[0089] In the present example, the mountain weave and the valley weave can be positioned close to each other as shown in FIG. **5**, bringing about a greater deformation in the woven fabric **10**. The effects of the desired three-dimensional embellishments can be achieved by adjusting the configurations of the mountain and valley.

Example 2

[0090] A second example is now described with reference to FIG. **13**. The following examples, including the present example, correspond to modifications of the first example. Therefore, the differences with the first example are mainly described. In the present example, various shapes of embellishment elements are formed using only the formation pattern A which is used for forming an oblique embellishment element as described with reference to FIGS. **6** and **8**.

[0091] In FIG. **13**(*a*), weaves for forming the embellishment elements of the formation pattern A are arranged into a rectangular shape to obtain a rectangular embellishment. In the formation pattern A, the shrinkable yarns **21**, **22** are positioned vertically and horizontally, as shown in FIG. **8**. Therefore, basically the embellishment elements are formed obliquely in accordance with a resultant force of the force of shrinkage of the shrinkable warp yarn **21** and the force of shrinkage of the shrinkable weft yarn **22**. However, continuously positioning weaves corresponding to the formation pattern A in the base weave as shown in FIG. **13** results in the formation of embellishment elements along the direction in which the weaves are positioned. A certain weave corresponding to the formation pattern A shrinks to form an embellishment element that extends along the direction of another adjacent weave (a weave corresponding to the formation pattern A). For convenience, the weaves corresponding to the formation pattern A are referred to as "weaves(A)" hereinafter.

[0092] In a case where the weaves(A) are arranged vertically, the weaves(A) shrink both vertically and horizontally. In this case, the vertical shrinkable warp yarn **21** extends in a continuous manner, has a way out so to speak, and therefore does not shrink much. On the other hand, the horizontal shrinkable weft yarn **22** is not related directly to the shrinkable weft yarn **22** of another adjacent vertical weave(A), and therefore shrink significantly almost as expected. Therefore, even by simply arranging vertically the weaves(A) for forming the oblique embellishment elements, the weaves(A) can be shrunk horizontally, resulting in a vertical embellishment.

[0093] The same applies to when arranging the weaves(A) horizontally. In each of the horizontally arranged weaves (A), the shrinkable weft yarn **22** has a way out and therefore does not shrink much. The shrinkable warp yarn **21**, on the other hand, shrinks significantly almost as expected. Therefore, even by simply arranging the weaves(A) horizontally, the weaves(A) can be shrunk vertically, resulting in a horizontal embellishment.

[0094] Even by simply arranging the weaves(A) corresponding to the oblique embellishment elements into a rectangular shape, a rectangular embellishment can be generated. However, because the vertical sides slightly shrink horizontally while the horizontal sides slightly shrink vertically, the embellishment might lack clarity. In spite of its lack of clarity, the rectangular embellishment can also be said to exert a new design effect by itself.

[0095] In FIG. **13**(*b*), the weaves(A) are arranged into a triangular shape. Therefore, each of the weaves(A) shrinks in such a manner as to generate an embellishment element along the direction of the other adjacent weave(A). In FIG. **13**(*c*), the weaves(A) are arranged into a circular shape. Therefore, each of the weaves(A) shrinks in such a manner as to generate an embellishment element along the direction of the other adjacent weave(A).

[0096] The present example configured as described above also provides the same operational effects as the first example. The present example can also obtain any shapes of embellishments only by using the formation pattern A used for forming an oblique embellishment element.

Example 3

[0097] A third example is now described with reference to FIG. **14**. The first example has described obtaining any shapes of embellishments by using the three types of formation patterns A to C. The second example has described obtaining any shapes of embellishments by using the formation pattern A alone. The third example (the present example) obtains any shapes of embellishments by using more formation patterns.

[0098] In the present example, as shown in FIG. **14**, in order to form a vertical (Y-direction) embellishment, weaves corresponding to the formation pattern B are arranged vertically. The weaves corresponding to the formation pattern B are referred to as "weaves(B)." As explained with reference to FIG. **9**, the weaves(B) each have only the second leap portion **22**J in which the shrinkable weft yarns **22** slide across a predetermined number of strands of warp yarns **11**, **21**. The weaves(B) that only have the leap portions **21**J of the shrinkable warp yarn **21** but do not have the leap portions **22**J of the shrinkable weft yarn **22** are each expressed as "warp **0**, weft **100**." Such expression represents the composition of a leap portion of a weave with a stretchy texture. The numerical values are expressed in percent. A vertical embellishment can be obtained by arranging a plurality of weaves(B) vertically in a continuous manner.

[0099] In order to form a horizontal (X-direction) embellishment, weaves corresponding to the formation pattern C are arranged horizontally. The weaves corresponding to the formation pattern C are referred to as "weaves(C)." The weaves(C) each have the first leap portion **21**J in which the shrinkable warp yarn **21** leaps over a predetermined number

of strands of the weft yarns **12**, **22**, as described with reference to FIG. **10**. The weaves(C) that only have the leap portions **22**J of the shrinkable weft yarn **22** but do not have the leap portions **21**J of the shrinkable warp yarn **21** are each expressed as "warp **100**, weft **0**." A horizontal embellishment can be obtained by arranging a plurality of weaves(C) horizontally in a continuous manner.

[0100] In an intermediate area between the vertical direction and the horizontal direction, the weaves(A) are used in which the vertical leap portions **21**J and the horizontal leap portions **22**J are positioned in a dispersed manner in accordance with the direction in which an embellishment is formed. For the purpose of illustration, in FIG. **14**, the angle of the direction heading straight up represents a reference angle of degrees, the angle of the right lateral direction is 90 degrees, the angle of the direction heading straight down is 180 degrees, and the angle of the left lateral direction is 270 degrees.

[0101] When the range is between an angle greater than 0 degrees (>0) and an angle less than 90 degrees (<90), the weaves(A) having both the vertical leap portions **21**J and the horizontal leap portions **22**J are used. In a case where the angle of the direction in which an embellishment is formed is 45 degrees, the compositions of the leap portions of the weaves(A) are (warp **50**, weft **50**). In the present example, the compositions of the leap portions of the weaves(A) gradually change between (warp **0**, weft **100**) and (warp **100**, weft **0**) in accordance with the angle of the direction in which an embellishment is formed.

[0102] The compositions of the leap portions of the weaves(A) may be changed at every predetermined angle of, for example, 1 degree, degrees, 10 degrees, or the like. Alternatively, the compositions of the leap portions of the weaves(A) may be changed with respect to each basic pattern of the base weaves **11**, **12**. For example, the compositions of the leap portions of the weaves(A) can be changed in the following manner: (warp **1**, weft **99**), (warp **2**, weft **98**), (warp **3**, weft **97**), (warp **4**, weft **96**) . . . (warp **97**, weft **3**), (warp **98**, weft **2**), (warp **99**, weft **1**). The compositions may be changed more roughly, such as (warp **10**, weft **90**), (warp **20**, weft **80**), (warp **30**, weft **70**).

[0103] When the range is between an angle greater than 90 degrees (>90) and an angle less than 180 degrees (<180), between an angle greater than 180 degrees (>180) and an angle less than 270 degrees (<270), and between an angle greater than 270 degrees (>270) and an angle less than 0 degrees (<0=360), the compositions of the leap portions of the weaves(A) are gradually changed in the same manner as described above.

[0104] The present example configured as described above provides the same operational effects as the first example. Moreover, in the present example, finer embellishments can be generated because the compositions of the leap portions of the weaves with a stretchy function are changed gradually in a stepwise manner in accordance with the direction in which an embellishment is formed. As described in the first example, the woven fabric **10** incorporates, as a component thereof, embellishments that emerge when subjected to the specific process. Therefore, even when the compositions of the leap portions are controlled in detail in accordance with the direction in which an embellishment is formed as in the present embodiment, a constant embellishment can be generated promptly, in comparison to forming an embellishment afterwards by mechanically compressing or ironing the woven fabric.

[0105] Note that the present invention is not limited to the foregoing examples. Those skilled in the art can make various additions, modifications, and the like within the scope of the present invention. For instance, the types of the shrinkable yarns, the method for shrinking the shrinkable yarns, the method for forming the leap portions, and the like can be changed accordingly. Although the present embodiment has described mixing the shrinkable yarns in a base weave, a stretchy texture composed of the shrinkable yarns may be provided in the base weave in a stacked manner. In addition, the various characteristics described in the scope of claims can be combined, if necessary, in a manner other than as described above.

REFERENCE SIGNS LIST

[0106] **1** Garment
[0107] **5** Embellishment element
[0108] **10** Woven fabric
[0109] **10**A, **10**B, **10**C Weave
[0110] **11** Warp yarn
[0111] **12** Weft yarn
[0112] **21** Shrinkable warp yarn
[0113] **21**J Leap portion
[0114] **22** Shrinkable weft yarn
[0115] **22**J Leap portion
[0116] **23** Shrunk portion
[0117] **110** Design data generating device
[0118] **120** Automatic weaving machine

1. A woven garment, comprising:
a plurality of strands of warp yarn; and
a plurality of strands of weft yarn interlaced with the plurality of strands of warp yarn, wherein
some of the plurality of strands of warp yarn are strands of shrinkable warp yarn that shrink in a lengthwise direction thereof more than the other strands of warp yarn when subjected to a specific process,
the strands of shrinkable warp yarn have, at least in one section in the lengthwise direction, a first leap portion where a first predetermined number of adjacent strands of weft yarn are leaped over, and
a plurality of the first leap portions are positioned in a first predetermined pattern.

2. The woven fabric according to claim **1**, wherein
some of the plurality of strands of weft yarn are strands of shrinkable weft yarn that shrink in a lengthwise direction thereof more than the other strands of weft yarn when subjected to the specific process,
the strands of shrinkable weft yarn have, at least in one section in the lengthwise direction, a second leap portion where a second predetermined number of adjacent strands of warp yarn are leaped over, and
a plurality of the second leap portions are positioned in a second predetermined pattern.

3. The woven fabric according to claim **2**, further comprising a base weave that is obtained by interlacing the other strands of warp yarn and the other strands of weft yarn, wherein
the first predetermined number is set to be greater than the number of the other strands of weft yarn leaped over by the other strands of warp yarn in the base weave.

4. The woven fabric according to claim 3, wherein
the second predetermined number is set to be greater than the number of the other strands of warp yarn leaped over by the other strands of weft yarn in the base weave.

5. The woven fabric according to claim 4, wherein
the first leap portion is either a front-side first leap portion passing across the front side of the woven fabric or a rear-side first leap portion passing across the rear side of the woven fabric,
the second leap portion is either a front-side second leap portion passing across the front side of the woven fabric or a rear-side second leap portion passing across the rear side of the woven fabric,
the front-side first leap portion is positioned in a predetermined front-side first pattern included in the first predetermined pattern,
the rear-side first leap portion is positioned in a predetermined rear-side first pattern included in the first predetermined pattern,
the front-side second leap portion is positioned in a predetermined front-side second pattern included in the second predetermined pattern, and
the rear-side second leap portion is positioned in a predetermined rear-side second pattern included in the second predetermined pattern.

6. The woven fabric according to claim 5, wherein
the predetermined front-side first pattern and the predetermined rear-side first pattern are set in such a manner that the front-side first leap portion and the rear-side first leap portion are close to each other, and
the predetermined front-side second pattern and the predetermined rear-side second pattern are set in such a manner that the front-side second leap portion and the rear-side second leap portion are close to each other.

7. The woven fabric according to claim 1, wherein
the strands of shrinkable warp yarn are positioned between a plurality of the other strands of warp yarn in a third predetermined pattern, and
the strands of shrinkable weft yarn are positioned between a plurality of the other strands of weft yarn in a fourth predetermined pattern.

8. The woven fabric according to claim 2, wherein
the strands of shrinkable warp yarn form a constant first shrunk portion by shrinking in the lengthwise direction thereof more than the other strands of warp yarn when subjected to the specific process, and
the strands of shrinkable weft yarn form a constant second shrunk portion by shrinking in the lengthwise direction thereof more than the other strands of weft yarn when subjected to the specific process.

9. The woven fabric according to claim 8, wherein
a first fold line portion is formed along a weft direction by arranging a plurality of the first shrunk portions in a continuous manner,
a second fold line portion is formed along a warp direction by arranging a plurality of the second shrunk portions in a continuous manner, and
a third fold line portion is formed along an oblique direction between the weft direction and the warp direction by arranging the plurality of first shrunk portions and the plurality of second shrunk portions in a predetermined direction.

10. The woven fabric according to claim 9, wherein
the first shrunk portions and the second shrunk portions are stretchable in response to external force.

11. A method for manufacturing a woven fabric, comprising:
positioning, between a plurality of strands of warp yarn and in a first predetermined pattern, shrinkable warp yarn that shrinks more than the other strands of warp yarn when subjected to a specific process, in such a manner as to form at least one first leap portion where a first predetermined number of adjacent strands of weft yarn are leaped over; and
positioning, between a plurality of strands of weft yarn and in a second predetermined pattern, shrinkable weft yarn that shrinks more than the other strands of weft yarn when subjected to the specific process, in such a manner as to form at least one second leap portion where a second predetermined number of adjacent strands of warp yarn are leaped over.

12. A woven fabric, comprising:
a first structure woven with a plurality of strands of warp yarn and a plurality of strands of weft yarn interlaced with the plurality of strands of warp yarn; and
a second structure formed of a plurality of strands of shrinkable warp yarn and a plurality of strands of shrinkable weft yarn and stacked by being weaved into the first structure, wherein
the strands of shrinkable warp yarn have a first leap portion leaping over a first predetermined number of adjacent strands of the weft yarn, with the first leap portion being positioned in a first pattern,
the strands of shrinkable weft yarn have a second leap portion leaping over a second predetermined number of adjacent strands of the warp yarn, with the second leap portion being positioned in a second pattern,
the strands of shrinkable warp yarn form a first shrunk portion against resilience of the first structure by shrinking in a lengthwise direction thereof more than the warp yarn when subjected to a specific process, and
the strands of shrinkable weft yarn form a second shrunk portion against the resilience of the first structure by shrinking in a lengthwise direction thereof more than the weft yarn when subjected to the specific process.

13. The woven fabric according to claim 12, wherein
the strands of shrinkable warp yarn are positioned between the plurality of strands of warp yarn in a third predetermined pattern, and
the strands of shrinkable weft yarn are positioned between the plurality of strands of weft yarn in a fourth predetermined pattern.

14. The woven fabric according to claim 13, wherein
the first leap portion and the second leap portion are formed so as to be located on the front side and/or the rear side of the first structure.

15. A woven garment, comprising:
a plurality of strands of warp yarn; and
a plurality of strands of weft yarn interlaced with the plurality of strands of warp yarn, wherein some of the plurality of strands of warp yarn are strands of shrinkable warp yarn that shrink in a lengthwise direction thereof more than the other strands of warp yarn when subjected to a specific process,

the strands of shrinkable warp yarn have, at least in one section in the lengthwise direction, a first leap portion leaping over a first predetermined number of adjacent strands of weft yarn,

a plurality of the first leap portions are positioned in a first predetermined pattern,

some of the plurality of strands of weft yarn are strands of shrinkable weft yarn that shrink in a lengthwise direction thereof more than the other strands of weft yarn when subjected to the specific process,

the strands of shrinkable weft yarn have, at least in one section in the lengthwise direction, a second leap portion leaping over a second predetermined number of adjacent strands of warp yarn, and

a plurality of the second leap portions are positioned in a second predetermined pattern,

the strands of shrinkable warp yarn form a constant first shrunk portion by shrinking in the lengthwise direction thereof more than the other strands of warp yarn when subjected to the specific process,

the strands of shrinkable weft yarn form a constant second shrunk portion by shrinking in the lengthwise direction thereof more than the other strands of weft yarn when subjected to the specific process, and

in order to form an embellishment element into arbitrary shape, a predetermined weave in which a plurality of the first shrunk portions and a plurality of the second shrunk portions are positioned in a predetermined direction is positioned in a continuous manner along the arbitrary shape, with the plurality of first and second shrunk portions being positioned to form a fold line portion along an oblique direction between a weft direction and a warp direction.

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