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(72) Inventor: **Takai, Kenji**
c/o Kabushiki-kaisha Daiichi-orimono Ehime Imabari (JP)

(74) Representative: **Johnstone, Douglas Ian et al Baron & Warren,**
19 South End,
Kensington
London W8 5BU (GB)

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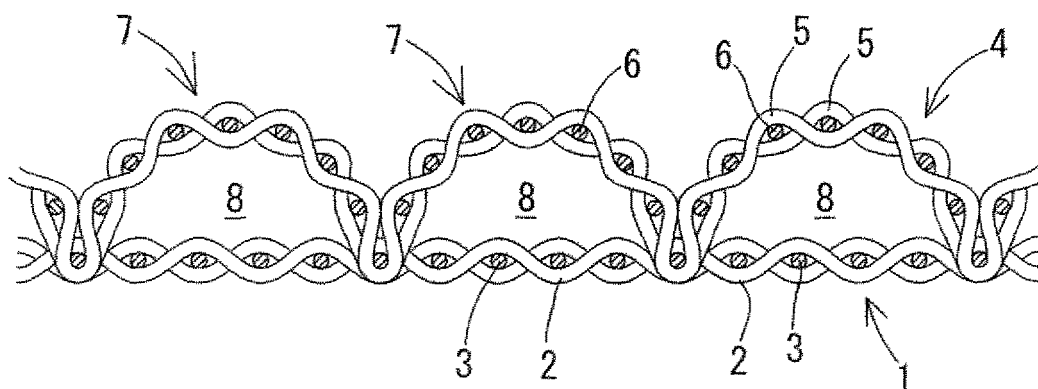
(71) Applicant: **Kabushiki Kaisha Daiichi-orimono Ehime Imabari (JP)**

(54) **Fabric**

(57) A fabric comprises a base layer (1) including base warp threads (2) and base weft threads (3) and a cover layer (4) including cover warp threads (5) running in the same direction as that of the base warp threads (2) and cover weft threads (6) interweaved with the cover warp threads (5). The cover warp threads (5) are captured at intervals by the base layer (1), each interval being

defined by a distance spanning a few base weft threads (3) to form loops (7) protruding between the adjacent points of capture on the base layer (1), and the cover layer (4) forms a plurality of tubular air pockets (8) on the base layer (1). The air pockets (8) enhance the property of keeping warm and softening the fabric. The thus obtained fabric is very luxurious and is enhanced in the degree of freedom in the manner of weaving thereof.

F I G. 2



Description

[0001] The present invention relates to a fabric including a plurality of textures or layers or cloths. More particularly the present invention relates to a fabric assuring the capture of sufficient amount of air layers or pockets between the textures or layers or cloths.

[0002] Various kinds of fabrics such as towel cloths including thickened and/or lengthened piles or fabrics including air pockets between layers have been provided to enhance the property of keeping warm and to soften the textile thereof (e.g. pages 1 to 6 and Figs. 1 to 13 of the Japanese Patent Laid-Open Public disclosure 2002-105797). These fabrics are often used for a blanket made of towel cloths or gauze cloths.

[0003] In the case of the towel cloth in which air pockets are adapted to be formed by many piles protruding therefrom, although the intended luxuriance and the enhancement of the warmth retaining property can be obtained by varying the density or thickness of the piles, no diversity can be obtained by varying the manner of weaving. In other words a towel is nothing but a towel.

[0004] Furthermore, in the case of the fabric of the prior art including a plurality of layers, although a desired space can be formed between layers by providing long piles therebetween in high density, the amount of threads or yarns required for the piles are large so that the cost for it will be increased. In addition, the structure or the arrangement of the weaving pattern on the obverse side of the fabric is limited since it is necessary to form piles in the space defined between the layers. In other words, the degree of freedom of the design to be provided with the pattern of weaving is relatively low.

[0005] The object of the present invention is to provide a fabric wherein air pockets are formed between a plurality of layers to enhance the property of keeping warm and to soften the textile thereof. The thus obtained fabric is very luxurious. The fabric of the present invention is enhanced in the degree of freedom in the manner of weaving thereof.

[0006] These and other objects are achieved by a fabric comprising a base layer including base warp threads and base weft threads, and a cover layer including cover warp threads running in the same direction as that of the base warp threads and cover weft threads interweaved with the cover warp threads, wherein the cover warp threads are captured at intervals by the base layer, each interval being defined by a distance spanning a few base weft threads, to form loops protruding between the adjacent points of capture on the base layer, and wherein the cover layer forms a plurality of tubular air pockets on the base layer.

[0007] The cover layer may be formed on one of the surfaces of the base layer. Alternatively, the cover layer may be formed on both surfaces of the base layer.

[0008] The cover warp threads may extend between adjacent base weft threads at the points of capture so as to form loops on the obverse and reverse sides of the

base layer alternately, and wherein the cover layer on the base layer forms three-dimensional wave-shaped structures including the plurality of tubular air pockets.

[0009] Two sets of cover warp threads may be provided and when the one set of the warp threads extends through the base layer to the obverse side, the other set of warp threads extends through the base layer to the reverse side vice versa to form air pockets on both surfaces of the base layer.

[0010] The base warp thread may comprise stretchable material.

[0011] In accordance with the present invention, a fabric including a wave shaped three dimensional cover layer, a base layer, and air pockets entrapped therebetween can be obtained. The air pockets retained within thus obtained fabric will enhance the property of keeping warm, and provide a fabric of luxurious and softened textile.

[0012] Furthermore, the wave shaped three-dimensional configuration of the cover layer will bring a unique stripe shaped appearance in the plan view. The cover layer has no limitation on the density of weaving and the thickness and/or the kind of the threads to be used. The only limitation on the cover layer is that the layer is to comprise weft and warp threads. Thus the fabric of the present invention is enhanced in the degree of freedom of the design so that the fabric of high economic value can thereby be provided.

[0013] Further feature of the present invention will become apparent to those skilled in the art to which the present invention relates from reading the following specification with reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of a fabric in accordance with one embodiment of the present invention;

Fig. 2 is a longitudinal cross-sectional view of the fabric along the running direction of warp threads;

Fig. 3 is a longitudinal cross-sectional view of the fabric in accordance with another embodiment of the present invention;

Fig. 4 is a longitudinal cross-sectional view of the fabric in accordance with yet another embodiment of the present invention;

Fig. 5 is a longitudinal cross-sectional view of the fabric in accordance with a further embodiment of the present invention.

[0014] A plurality of embodiments of a fabric in accordance with the present invention will now be described in detail with reference to the concrete examples illustrated in the attached drawings. A base texture or layer 1 is composed of base warp or base warp threads 2 and base weft or base weft threads 3. In this layer 1, adjacent weft threads 3 are adapted to be interweaved with the base warp threads 2 in different directions.

[0015] A cover texture or layer 4 is also composed of cover warp or cover warp threads 5 and cover weft or

cover weft threads 6. In this cover layer 4, adjacent weft threads 6 are adapted to be interweaved with the cover warp threads 5 in different directions.

[0016] The cover warp threads 5 are also captured by the base layer 1. To say more precisely, the cover warp threads 5 are captured at intervals by the base layer 1, each interval being defined by a distance spanning a few base weft threads 3. The intervals may be defined by a distance spanning from four to ten base weft threads 3 and is illustrated as a distance spanning six base weft threads 3. The portions of the cover layer 4 interposed between the adjacent points of capture on the base layer 1 will rise from the surface of the base layer 1 to form loop portions 7.

[0017] Thus the cover layer 4 may be connected with the base layer 1 to form a plurality of three-dimensional wave-shaped structures including tubular layers or pockets of air 8 therein.

[0018] Although the fabric of the structure as mentioned above includes a cover layer 4 on one of the surfaces (the obverse or the upper surface) of the base layer 1, the cover layer 4 may be provided on both surfaces of the base layer 1.

[0019] In the latter case, provided that the cover layers 9 and 10 include their own warp and weft threads, two embodiments as illustrated in Figs. 3 and 4 can be derived. In the embodiment illustrated in Fig. 3, the loops 11 on the obverse side and the loops 12 on the reverse side are positioned symmetrically with respect to the base layer 1, whereas in the embodiment illustrated in Fig. 4, the loops 11 on the obverse side and the loops 12 on the reverse side are positioned to be offset with respect to the base layer 1. Furthermore, the interval or the pitch between the adjacent points of capture on the base layer can also be varied.

[0020] In the case illustrated in Fig. 5, the cover layer 13 on the obverse side and the cover layer 14 on the reverse side include two sets of warp threads 15. As can be seen from Fig. 5, one set of warp threads 15 alternates between extending through the base layer 1 to the reverse side and then extending again through the base layer 1 to the obverse side, and the other set of warp threads 15 alternates between extending through the base layer 1 to the obverse side and then extending again through the base layer 1 to the reverse side. In other words, when one set of warp threads 15 is present on one side of the base layer 1, the other set of warp threads 15 is present on the other side of the base layer 1.

[0021] In any case, the thickness and the kind of threads or yarns can be selected in dependence upon the application of the fabric to be produced.

[0022] Provided that the base warp threads 2 of the base layer 1 are formed of threads or yarns more stretchable than other threads or yarns, not only the fabric stretchable in the warp direction can be obtained but also the twists or the wring of the cover layer can be reduced to some extent.

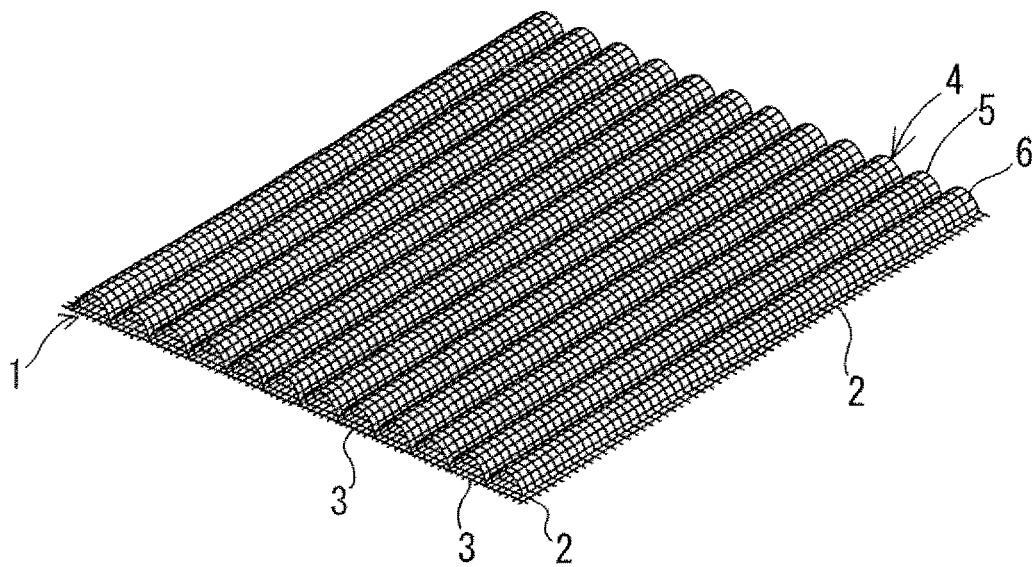
[0023] While particular embodiments of the present in-

vention have been illustrated and described, it should be obvious to those skilled in the art that various changes and modifications can be made without departing from the scope of the claimed invention.

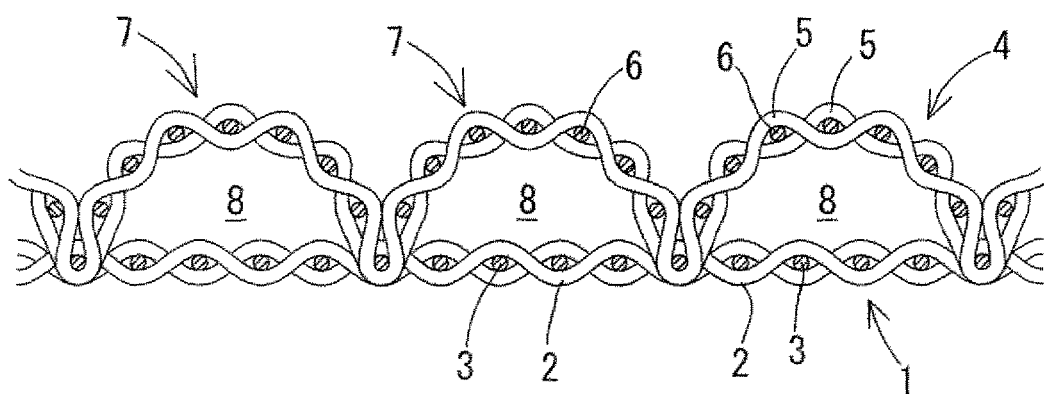
Claims

1. A fabric comprising a base layer (1) including base warp threads (2) and base weft threads (3), and a cover layer (4) including cover warp threads (5) running in the same direction as that of the base warp threads (2) and cover weft threads (6) interweaved with the cover warp threads (5), wherein the cover warp threads (5) are captured at intervals by the base layer (1), each interval being defined by a distance spanning a few base weft threads (3), to form loops (7) protruding between the adjacent points of capture on the base layer (1), and wherein the cover layer (4) forms a plurality of tubular air pockets (8) on the base layer (1).
2. The fabric according to claim 1, wherein the cover layer (4) is formed on one of the surfaces of the base layer (1).
3. The fabric according to claim 1, wherein the cover layer (9,10) is formed on both surfaces of the base layer (1).
4. The fabric according to claim 1, 2 or 3, wherein the cover warp threads (5) are captured by being looped around the base weft threads (3).
5. The fabric according to claim 1, wherein the cover warp threads (5) extend between adjacent base weft threads (3) at the points of capture so as to form loops (7) on the obverse and reverse sides of the base layer (1) alternately, and wherein the cover layer (4) on the base layer (1) forms three-dimensional wave-shaped structures including the plurality of tubular air pockets (8).
6. The fabric according to claim 5, wherein two sets of cover warp threads (15) are provided and when one set of the warp threads (15) extends through the base layer (1) to the obverse side, the other set of warp threads (15) extends through the base layer (1) to the reverse side vice versa to form air pockets (8) on both surfaces of the base layer (1).
7. The fabric according to any preceding claim, wherein the base warp threads (2) comprise stretchable material.

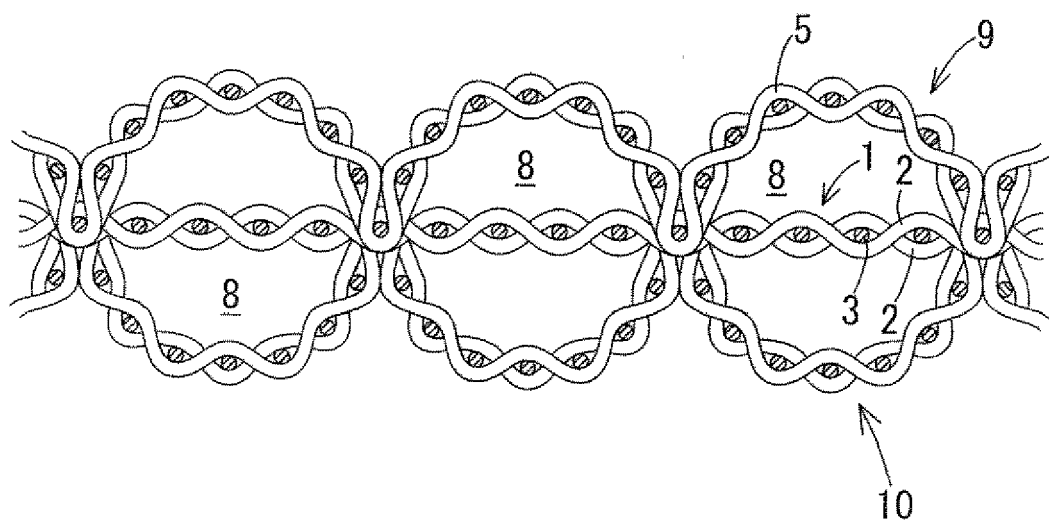
F I G. 1



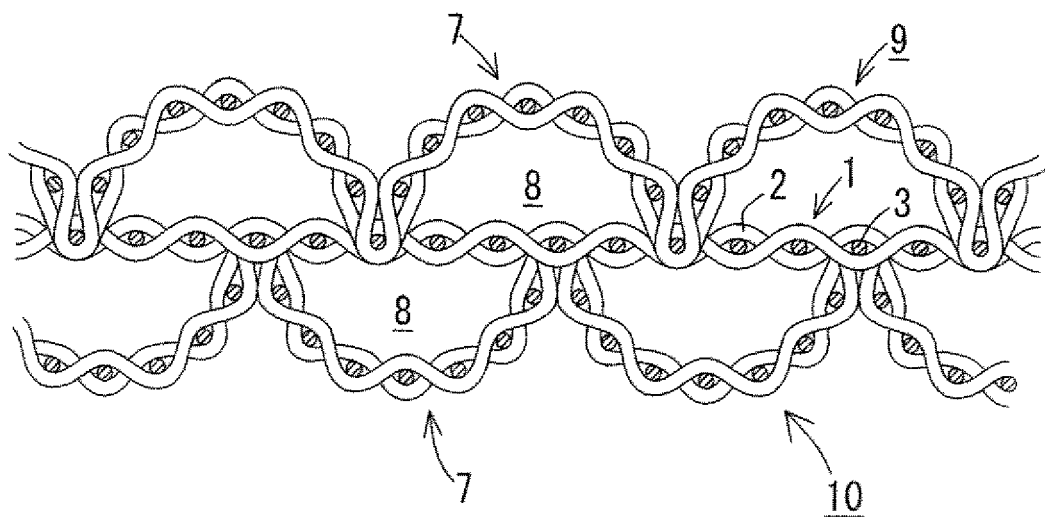
F I G. 2



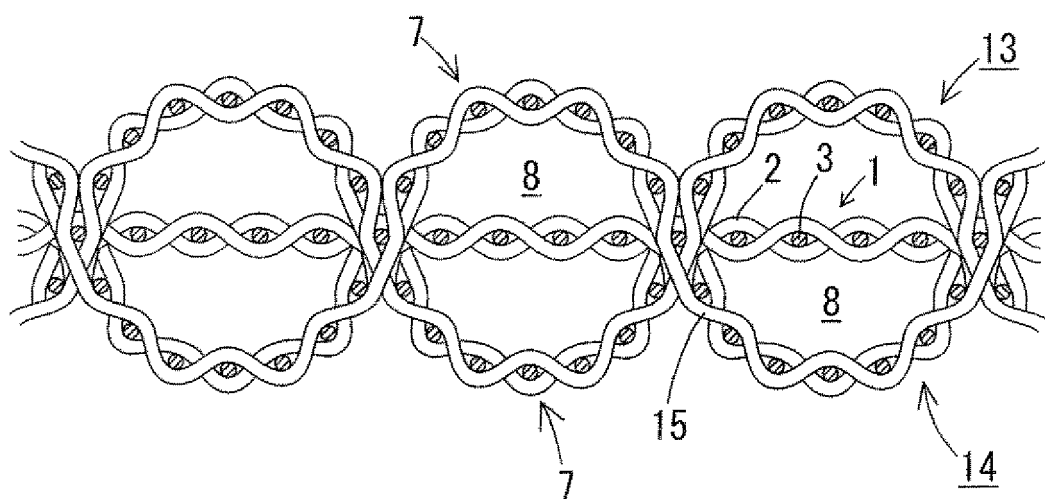
F I G. 3



F I G. 4



F I G. 5



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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