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(54) **DOUBLE FLEECE KNIT FABRIC**

(57) Provided is a double fleece knit fabric that combines features of both Jacquard knitting of a mesh pattern with concavity and convexity on the face side and double fleece knitting on the back side, of a ground fabric composed of double-fleece-knitted tie-in loops and knit-in loops. In a double fleece knit fabric composed of three kinds of yarns consisting of inlay tie-in, and knit-in yarns, produced on a circular knitting machine, a tie-in yarn is

either knitted or welted, and a knit-in yarn is all knitted. It is preferable that an inlay yarn, a tie-in yarn, and a knit-in yarn that are successively arranged are taken as one block, the tie-in yarn in the same wale as the wale where the inlay yarn is welted is either knitted or welted, and the tie-in yarn in the same wale as the wale where the inlay yarn is tucked is knitted, and the knit-in loops are overlapped and intertwined thereon.

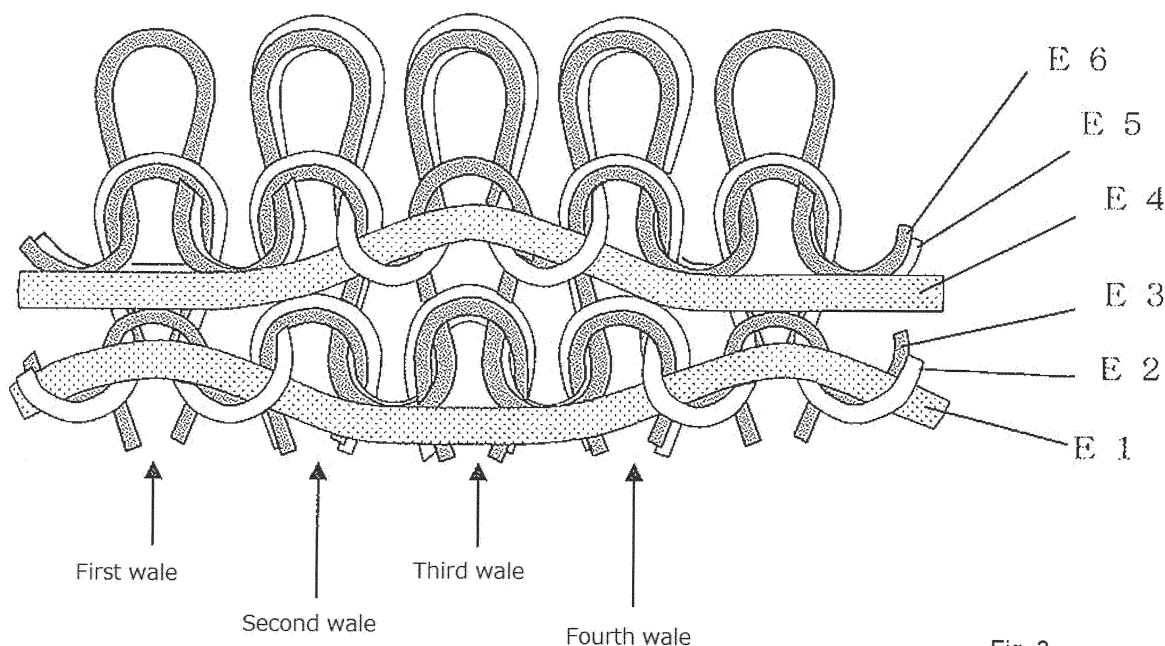


Fig. 3

Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a double fleece knit fabric produced on the knitting head of a circular knitting machine. In particular, the present invention relates to a knit fabric with an elaborate and decorative design having a Jacquard mesh pattern with concavity and convexity on the face side.

2. Description of Related Art

[0002] Generally, double fleece knit fabrics produced on the knitting head of a circular knitting machine are composed of inlay yarns that are held down by tie-in loops and further overlapped and intertwined by knit-in loops. Such fabrics are characterized in that tie-in loops composed of tie-in yarns appear on the face side of the knit fabrics but inlay yarns do not appear on the face side. Since such fabrics are knitted using three kinds of yarns consisting of inlay, tie-in, and knit-in yarns, they are called "3-end fleeces" or "3-thread fleeces".

[0003] Typical inlay patterns on the back side of such knit fabrics are 1×1 staggered, 2x1 twill, and 3x1 staggered, and some knitting machines are capable of making inlay yarns appear in a Jacquard style.

Conventional Technique 1

[0004] FIG. 1 shows a 3x1 staggered double fleece knit fabric, and Table 1 shows a knitting notation of the same fabric.

[0005] In the table, code ○ refers to a knit loop, ● refers to a tuck loop of an inlay yarn, - refers to a welt of an inlay yarn, and W refers to a welt of a knit-in yarn. Code B refers to a block. For convenience, three successive courses consisting of an inlay yarn course, a tie-in yarn course and a knit-in yarn course are taken as one block. Code C refers to a course composed of successive loops arranged in the horizontal direction of the knit fabric. Although not given a code, successive loops arranged in the vertical direction of the knit fabric are referred to as a wale.

Table 1

○ = Knit ● = Tuck (inlay) - = Welt (inlay) B: Block, C: Course										
Second B	6C	○	○	○	○	○	○	○	○	← Knit-in yarn
	5C	○	○	○	○	○	○	○	○	← Tie-in yarn
	4C	-	-	●	-	-	-	●	-	← Inlay yarn
First B	3C	○	○	○	○	○	○	○	○	← Knit-in yarn
	2C	○	○	○	○	○	○	○	○	← Tie-in yarn
	1C	●	-	-	-	●	-	-	-	← Inlay yarn
3x1 Staggered double fleece knitting notation										

[0006] FIG. 8 shows a schematic view of a knit fabric cross-section according to Conventional Technique 1. All tie-in loops composed of a tie-in yarn and all knit-in loops composed of a knit-in yarn are knitted, and, thus, concavity and convexity do not appear on the face side and the back side of the knit fabric.

Conventional Technique 2

[0007] Conventional Technique 2 described below is Example 1 (3×1 staggered double fleece (mesh) knit fabric) of JP 2010-24607A by the applicant of the present invention.

[0008] In FIG. 2 and Table 2, an inlay yarn (A1) of a first block is tucked in a first wale and welted in second to fourth wales, and repeats this sequence. A tie-in yarn (A2) of the first block is knitted in all wales, and repeats this sequence. A knit-in yarn (A3) of the first block is knitted in the first and second wales, welted in the third wale, and knitted in the

fourth wale, and repeats this sequence.

[0009] An inlay yarn (A4) of a second block is welted in the first and second wales, tucked in the third wale, and welted in the fourth wale, and repeats this sequence. A tie-in yarn (A5) of the second block is knitted in all wales, and repeats this sequence. A knit-in yarn (A6) of the second block is knitted in the first and second wales, welted in the third wale, and knitted in the fourth wale, and repeats this sequence.

[0010] An inlay yarn (A7) of a third block is tucked in the first wale and welted in the second to fourth wales, and repeats this sequence. A tie-in yarn (A8) of the third block is knitted in all wales, and repeats this sequence. A knit-in yarn (A9) of the third block is welted in the first wale and knitted in the second to fourth wales, and repeats this sequence.

[0011] An inlay yarn (A10) of a fourth block is welted in the first and second wales, tucked in the third wale, and welted in the fourth wale, and repeats this sequence. A tie-in yarn (A11) of the fourth block is knitted in all wales, and repeats this sequence. A knit-in yarn (A12) of the fourth block is welted in the first wale and knitted in the second to fourth wales, and repeats this sequence.

[0012] In this manner, twelve courses make up a repeat of patterns.

Table 2

○ = Knit ● = Tuck (inlay) - = Welt (inlay) W = Welt (knit-in) B: Block, C: Course										
Fourth B	12C	W	○	○	○	W	○	○	○	← Knit-in yarn (A12)
	11C	○	○	○	○	○	○	○	○	← Tie-in yarn (A11)
	10C	-	-	●	-	-	-	●	-	← Inlay yarn (A10)
Third B	9C	W	○	○	○	W	○	○	○	← Knit-in yarn (A9)
	8C	○	○	○	○	○	○	○	○	← Tie-in yarn (A8)
	7C	●	-	-	-	●	-	-	-	← Inlay yarn (A7)
Second B	6C	○	○	W	○	○	○	W	○	← Knit-in yarn (A6)
	5C	○	○	○	○	○	○	○	○	← Tie-in yarn (A5)
	4C	-	-	●	-	-	-	●	-	← Inlay yarn (A4)
First B	3C	○	○	W	○	○	○	W	○	← Knit-in yarn (A3)
	2C	○	○	○	○	○	○	○	○	← Tie-in yarn (A2)
	1C	●	-	-	-	●	-	-	-	← Inlay yarn (A1)
3x1 Staggered double fleece (mesh) knitting notation										

[0013] FIG. 9 shows a schematic view of a knit fabric cross-section according to Conventional Technique 2. All tie-in loops composed of a tie-in yarn are knitted, and, thus, the face side of the knit fabric is flat and concavity and convexity do not appear thereon. Knit-in loops composed of a knit-in yarn have concavity at welted portions thereof but these portions are covered by an inlay yarn, and, thus, concavity and convexity do not clearly appear.

[0014] Although not described in detail in this specification, JP 2010-24607A further described the following three kinds of knit fabrics.

2x1 Twill double fleece (mesh) knit fabric (Example 2 of this document)

1x1 Staggered double fleece (mesh) knit fabric (Example 3 of this document)

3×1 Twill double fleece (mesh) knit fabric (Example 4 of this document)

[0015] The above knit fabrics, however, do not include a double fleece knit fabric that combines features of both Jacquard knitting of a mesh pattern with concavity and convexity on the face side and double fleece knitting on the back side, of a ground fabric composed of double-fleece-knitted tie-in loops and knit-in loops.

[0016] Generally, there has been a stereotype idea in which, in a double fleece knit fabric composed of three kinds of yarns consisting of inlay, tie-in, and knit-in yarns, all portions of the tie-in yarn arranged directly after the inlay yarn have to be knitted in order to fix tucked portions of the inlay yarn, but the present invention realizes a knit fabric in which only portions of the tie-in yarn arranged directly after tucked portions of the inlay yarn are knitted and the other portions of the tie-in yarn are either knitted or welted, thereby overturning this stereotype idea.

SUMMARY OF THE INVENTION

[0017] In order to solve the above-described problem, the present invention is directed to a double fleece knit fabric composed of three kinds of yarns consisting of inlay, tie-in, and knit-in yarns, produced on a circular knitting machine, wherein a tie-in yarn is either knitted or welted, and a knit-in yarn is all knitted.

[0018] It is preferable that, among an inlay yarn, a tie-in yarn, and a knit-in yarn that are successively arranged, the tie-in yarn in the same wale as the wale where the inlay yarn is welted is either knitted or welted, and the tie-in yarn in the same wale as the wale where the inlay yarn is tucked is knitted.

[0019] As described above, according to the knit fabric of the present invention, in double fleece knitting, a Jacquard pattern with concavity and convexity appears on the face side of a ground fabric composed of tie-in loops and knit-in loops. Accordingly, a knit fabric with an elaborate and decorative design is obtained that features good breathability and has features of Jacquard knitting of a mesh pattern with concavity and convexity on the face side of double fleece knitting for general clothing.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020]

FIG. 1 shows a 3×1 staggered double fleece knit fabric of Conventional Technique 1 viewed from the back side.

FIG. 2 shows a 3×1 staggered double fleece (mesh) knit fabric of Conventional Technique 2 viewed from the back side.

FIG. 3 shows a 3×1 staggered-1 double fleece knit fabric of Example 1 of the present invention viewed from the back side.

FIG. 4 shows a 3×1 staggered-2 double fleece knit fabric of Example 2 of the present invention viewed from the back side.

FIG. 5 shows a 2×1 staggered-1 double fleece knit fabric of Example 3 of the present invention o viewed from the back side.

FIG. 6 shows a 2×1 staggered-2 double fleece knit fabric of Example 4 of the present invention viewed from the back side.

FIG. 7 shows a 2×1 staggered-3 double fleece knit fabric of Example 5 of the present invention viewed from the back side.

FIG. 8 shows a schematic view of a knit fabric cross-section according to Conventional Technique 1.

FIG. 9 shows a schematic view of a knit fabric cross-section according to Conventional Technique 2.

FIG. 10 shows a schematic view of a knit fabric cross-section according to Example 1 of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0021] Hereinafter, preferred embodiments of the present invention will be described with reference to the tables and drawings. Codes used in the tables are as described above.

[0022] The knit fabrics of the following examples can be produced using a known double fleece knitting machine and applying the settings of the present invention. Examples of such a double fleece knitting machine include MXC-RS3.2DF manufactured by Precision Fukuhara Works, Ltd. (Kobe, Japan). Cotton yarn 10/1 was used as the inlay yarns, cotton yarn 30/1 was used as the tie-in yarns, and polyester 56Dtex/24F was used as the knit-in yarns.

Example 1

[0023] Next, FIG. 3 and Table 3 corresponding to Example 1 of the present invention will be described.

[0024] In FIG. 3 and Table 3, an inlay yarn (E1) of a first block is tucked in a first wale and welted in second to fourth wales, and repeats this sequence. A tie-in yarn (E2) of the first block is knitted in the first and second wales, welted in the third wale, and knitted in the fourth wale, and repeats this sequence. A knit-in yarn (E3) of the first block is knitted in all wales, and repeats this sequence.

[0025] An inlay yarn (E4) of a second block is welted in the first and second wales, tucked in the third wale, and welted in the fourth wale, and repeats this sequence. A tie-in yarn (E5) of the second block is welted in the first wale and knitted in the second to fourth wales, and repeats this sequence. A knit-in yarn (E6) of the second block is knitted in all wales, and repeats this sequence.

[0026] In this manner, six courses make up a repeat of patterns.

Table 3

○ = Knit ● = Tuck (inlay) - = Welt (inlay) W = Welt (tie-in) B: Block, C: Course										
Second B	6C	○	○	○	○	○	○	○	○	← Knit-in yarn (E6)
	5C	W	○	○	○	W	○	○	○	← Tie-in yarn (E5)
	4C	-	-	●	-	-	-	●	-	← Inlay yarn (E4)
First B	3C	○	○	○	○	○	○	○	○	← Knit-in yarn (E3)
	2C	○	○	W	○	○	○	W	○	← Tie-in yarn (E2)
	1C	●	-	-	-	●	-	-	-	← Inlay yarn (E1)
3×1 Staggered--1 double fleeceknitting notation										

[0027] FIG. 10 shows a schematic view of a knit fabric cross-section according to Example 1 of the present invention. Tie-in loops composed of a tie-in yarn have concavity at welted portions thereof, and concavity and convexity clearly appear. Furthermore, if yarns having different colors are respectively used as the tie-in yarn and the knit-in yarn, Jacquard knitting is realized because the knit-in loops are seen through at the welted portions of the tie-in loops from the face side of the knit fabric. Furthermore, if a yarn that is thinner than the tie-in yarn is used as the knit-in yarn, a knit fabric with a mesh pattern can be produced. The same is applied to the following examples.

Example 2

[0028] Next, FIG. 4 and Table 4 corresponding to Example 2 of the present invention will be described.

[0029] In FIG. 4 and Table 4, an inlay yarn (F1) of a first block is tucked in a first wale and welted in second to fourth wales, and repeats this sequence. A tie-in yarn (F2) of the first block is knitted in the first wale and welted in the second wale, and repeats this sequence. A knit-in yarn (F3) of the first block is knitted in all wales, and repeats this sequence.

[0030] An inlay yarn (F4) of a second block is welted in the first and second wales, tucked in the third wale, and welted in the fourth wale, and repeats this sequence. A tie-in yarn (F5) of the second block is knitted in the first wale and welted in the second wale, and repeats this sequence. A knit-in yarn (F6) of the second block is knitted in all wales, and repeats this sequence.

[0031] In this manner, six courses make up a repeat of patterns.

Table 4

○ = Knit ● = Tuck (inlay) - = Welt (inlay) W = Welt (tie-in) B: Block, C: Course									
--	--	--	--	--	--	--	--	--	--

(continued)

Second B	6C	○	○	○	○	○	○	○	○	← Knit-in yarn (F6)
	5C	○	W	○	W	○	W	○	W	← Tie-in yarn (F5)
	4C	-	-	●	-	-	-	●	-	← Inlay yarn (F4)
First B	3C	○	○	○	○	○	○	○	○	← Knit-in yarn (F3)
	2C	○	W	○	W	○	W	○	W	← Tie-in yarn (F2)
	1C	●	-	-	-	●	-	-	-	← Inlay yarn (F1)
3×1 Staggered-2 double fleece knitting notation										

Example 3

[0032] Next, FIG. 5 and Table 5 corresponding to Example 3 of the present invention will be described.

[0033] In FIG. 5 and Table 5, an inlay yarn (G1) of a first block is tucked in a first wale and welted in second and third wales, and repeats this sequence. A tie-in yarn (G2) of the first block is knitted in the first and second wales and welted in the third wale, and repeats this sequence. A knit-in yarn (G3) of the first block is knitted in all wales, and repeats this sequence.

[0034] An inlay yarn (G4) of a second block is welted in the first wale, tucked in the second wale, and welted in the third wale, and repeats this sequence. A tie-in yarn (G5) of the second block is knitted in the first and second wales and welted in the third wale, and repeats this sequence. A knit-in yarn (G6) of the second block is knitted in all wales, and repeats this sequence.

[0035] An inlay yarn (G7) of a third block is welted in the first and second wales and tucked in the third wale, and repeats this sequence. A tie-in yarn (G8) of the third block is knitted in the first wale, welted in the second wale, and knitted in the third wale, and repeats this sequence. A knit-in yarn (G9) of the third block is knitted in all wales, and repeats this sequence.

[0036] An inlay yarn (G10) of a fourth block is tucked in the first wale and welted in the second and third wales, and repeats this sequence. A tie-in yarn (G11) of the fourth block is knitted in the first wale, welted in the second wale, and knitted in the third wale, and repeats this sequence. A knit-in yarn (G12) of the fourth block is knitted in all wales, and repeats this sequence.

[0037] An inlay yarn (G13) of a fifth block is welted in the first wale, tucked in the second wale, and welted in the third wale, and repeats this sequence. A tie-in yarn (G14) of the fifth block is welted in the first wale and knitted in the second and third wales, and repeats this sequence. A knit-in yarn (G15) of the fifth block is knitted in all wales, and repeats this sequence.

[0038] An inlay yarn (G16) of a sixth block is welted in the first and second wales and tucked in the third wale, and repeats this sequence. A tie-in yarn (G17) of the sixth block is welted in the first wale and knitted in the second and third wales, and repeats this sequence. A knit-in yarn (G18) of the sixth block is knitted in all wales, and repeats this sequence.

[0039] In this manner, 18 courses make up a repeat of patterns.

Table 5

○ = Knit ● = Tuck (inlay) - = Welt (inlay) W = Welt (tie-in) B: Block, C: Course										
Sixth B	18C	○	○	○	○	○	○	○	○	← Knit-in yarn (G18)
	17C	W	○	○	W	○	○	○	○	← Tie-in yarn (G17)
	16C	-	-	●	-	-	-	●	-	← Inlay yarn (G16)
Fifth B	15C	○	○	○	○	○	○	○	○	← Knit-in yarn (G15)
	14C	W	○	○	W	○	○	○	○	← Tie-in yarn (G14)
	13C	-	●	-	-	-	●	-	-	← Inlay yarn (G13)

(continued)

Fourth B	12C	○	○	○	○	○	○	← Knit-in yarn (G 12)
	11C	○	W	○	○	W	○	← Tie-in yarn (G11)
	10C	●	-	-	●	-	-	← Inlay yarn (G10)
Third B	9C	○	○	○	○	○	○	← Knit-in yarn (G9)
	8C	○	W	○	○	W	○	← Tie-in yarn (G8)
	7C	-	-	●	-	-	●	← Inlay yarn (G7)
Second B	6C	○	○	○	○	○	○	← Knit-in yarn (G6)
	5C	○	○	W	○	○	W	← Tie-in yarn (G5)
	4C	-	●	-	-	●	-	← Inlay yarn (G4)
First B	3C	○	○	○	○	○	○	← Knit-in yarn (G3)
	2C	○	○	W	○	○	W	← Tie-in yarn (G2)
	1C	●	-	-	●	-	-	← Inlay yarn (G1)
2x1 Twill-1 double fleece knitting notation								

Example 4

[0040] Next, FIG. 6 and Table 6 corresponding to Example 4 of the present invention will be described.

[0041] In FIG. 6 and Table 6, an inlay yarn (H1) of a first block is tucked in a first wale and welted in second and third wales, and repeats this sequence. A tie-in yarn (H2) of the first block is knitted in the first and second wales and welted in the third wale, and repeats this sequence. A knit-in yarn (H3) of the first block is knitted in all wales, and repeats this sequence.

[0042] An inlay yarn (H4) of a second block is welted in the first wale, tucked in the second wale, and welted in the third wale, and repeats this sequence. A tie-in yarn (H5) of the second block is welted in the first wale and knitted in the second and third wales, and repeats this sequence. A knit-in yarn (H6) of the second block is knitted in all wales, and repeats this sequence.

[0043] An inlay yarn (H7) of a third block is welted in the first and second wales and tucked in the third wale, and repeats this sequence. A tie-in yarn (H8) of the third block is knitted in the first wale, welted in the second wale, and knitted in the third wale, and repeats this sequence. A knit-in yarn (H9) of the third block is knitted in all wales, and repeats this sequence.

[0044] In this manner, nine courses make up a repeat of patterns.

Table 6

○ = Knit ● = Tuck (inlay) - = Welt (inlay) W = Welt (tie-in) B: Block, C: Course								
Third B	9C	○	○	○	○	○	○	← Knit-in yarn (H9)
	8C	○	W	○	○	W	○	← Tie-in yarn (H8)
	7C	-	-	●	-	-	●	← Inlay yarn (H7)
Second B	6C	○	○	○	○	○	○	← Knit-in yarn (H6)
	5C	W	○	○	W	○	○	← Tie-in yarn (H5)
	4C	-	●	-	-	●	-	← Inlay yarn (H4)

(continued)

First B	3C	○	○	○	○	○	○	← Knit-in yarn (H3)
	2C	○	○	W	○	○	W	← Tie-in yarn (H2)
	1C	●	-	-	●	-	-	← Inlay yarn (H1)
2x1 Twill-2 double fleece knitting notation								

Example 5

[0045] Next, FIG. 7 and Table 7 corresponding to Example 5 of the present invention will be described.

[0046] In FIG. 7 and Table 7, an inlay yarn (I1) of a first block is tucked in a first wale and welted in second and third wales, and repeats this sequence. A tie-in yarn (I2) of the first block is knitted in the first and second wales and welted in the third wale, and repeats this sequence. A knit-in yarn (I3) of the first block is knitted in all wales, and repeats this sequence.

[0047] An inlay yarn (I4) of a second block is welted in the first wale, tucked in the second wale, and welted in the third wale, and repeats this sequence. A tie-in yarn (I5) of the second block is knitted in the first and second wales and welted in the third wale, and repeats this sequence. A knit-in yarn (I6) of the second block is knitted in all wales, and repeats this sequence.

[0048] An inlay yarn (I7) of a third block is welted in the first and second wales and tucked in the third wale, and repeats this sequence. A tie-in yarn (I8) of the third block is knitted in all wales, and repeats this sequence. A knit-in yarn (I9) of the third block is knitted in all wales, and repeats this sequence.

[0049] In this manner, nine courses make up a repeat of patterns.

Table 7

○ = Knit ● = Tuck (inlay) - = Welt (inlay) W = Welt (tie-in) B: Block, C: Course								
Third B	9C	○	○	○	○	○	○	← Knit-in yarn (I9)
	8C	○	○	○	○	○	○	← Tie-in yarn (I8)
	7C	-	-	●	-	-	●	← Inlay yarn (I7)
Second B	6C	○	○	○	○	○	○	← Knit-in yarn (I6)
	5C	○	○	W	○	○	W	← Tie-in yarn (I5)
	4C	-	●	-	-	●	-	← Inlay yarn (I4)
First B	3C	○	○	○	○	○	○	← Knit-in yarn (I3)
	2C	○	○	W	○	○	W	← Tie-in yarn (I2)
	1C	●	-	-	●	-	-	← Inlay yarn (I1)
2x1 Twill-3 double fleece knitting notation								

[0050] The present invention is not limited to the foregoing embodiments, and various modifications are possible within the scope of the claims. Also in these modifications other than the embodiments, a Jacquard pattern with concavity and convexity on the face side can be freely expressed in a double fleece knit fabric characterized in that, among an inlay yarn, a tie-in yarn, and a knit-in yarn that are successively arranged, the tie-in yarn in the same wale as the wale where the inlay yarn is welted is either knitted or welted, and the tie-in yarn in the same wale as the wale where the inlay yarn is tucked is knitted.

List of Reference Numerals

[0051]

	A1, A4, A7, A10	Inlay yarn of Conventional Technique 2
	A2, A5, A8, A11	Tie-in yarn of Conventional Technique 2
	A3, A6, A9, A12	Knit-in yarn of Conventional Technique 2
	E1, E4	Inlay yarn of Example 1 of the invention
5	E2, E5	Tie-in yarn of Example 1 of the invention
	E3, E6	Knit-in yarn of Example 1 of the invention
	F1, F4	Inlay yarn of Example 2 of the invention
	F2, F5	Tie-in yarn of Example 2 of the invention
	F3, F6	Knit-in yarn of Example 2 of the invention
10	G1, G4, G7, G10, G13, G16	Inlay yarn of Example 3 of the invention
	G2, G5, G8, G11, G14, G17	Tie-in yarn of Example 3 of the invention
	G3, G6, G9, G12, G15, G18	Knit-in yarn of Example 3 of the invention
	H1, H4, H7	Inlay yarn of Example 4 of the invention
	H2, H5, H8	Tie-in yarn of Example 4 of the invention
15	H3, H6, H9	Knit-in yarn of Example 4 of the invention
	I1, I4, I7	Inlay yarn of Example 5 of the invention
	I2, I5, I8	Tie-in yarn of Example 5 of the invention
	I3, I6, I9	Knit-in yarn of Example 5 of the invention

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Claims

1. A double fleece knit fabric composed of three kinds of yarns consisting of inlay, tie-in, and knit-in yarns, produced on a circular knitting machine, wherein a tie-in yarn is either knitted or welted, and a knit-in yarn is all knitted.
2. The double fleece knit fabric according to claim 1, wherein, among an inlay yarn, a tie-in yarn, and a knit-in yarn that are successively arranged, the tie-in yarn in the same wale as the wale where the inlay yarn is welted is either knitted or welted, and the tie-in yarn in the same wale as the wale where the inlay yarn is tucked is knitted.
3. The double fleece knit fabric according to claim 2, wherein the pattern of the inlays is 2x1 (welt/tuck).
4. The double fleece knit fabric according to claim 2, wherein the pattern of the inlays is 3x1 (welt/tuck).
5. A double fleece knit fabric in which six courses make up a repeat of patterns, wherein an inlay yarn (E1) of a first block is tucked in a first wale and welted in second to fourth wales, and repeats this sequence, a tie-in yarn (E2) of the first block is knitted in the first and second wales, welted in the third wale, and knitted in the fourth wale, and repeats this sequence, and a knit-in yarn (E3) of the first block is knitted in all wales, and repeats this sequence, after which an inlay yarn (E4) of a second block is welted in the first and second wales, tucked in the third wale, and welted in the fourth wale, and repeats this sequence, a tie-in yarn (E5) of the second block is welted in the first wale and knitted in the second to fourth wales, and repeats this sequence, and a knit-in yarn (E6) of the second block is knitted in all wales, and repeats this sequence.
6. A double fleece knit fabric in which six courses make up a repeat of patterns, wherein an inlay yarn (F1) of a first block is tucked in a first wale and welted in second to fourth wales, and repeats this sequence, a tie-in yarn (F2) of the first block is knitted in the first wale and welted in the second wale, and repeats this sequence, and a knit-in yarn (F3) of the first block is knitted in all wales, and repeats this sequence, after which an inlay yarn (F4) of a second block is welted in the first and second wales, tucked in the third wale, and welted in the fourth wale, and repeats this sequence, a tie-in yarn (F5) of the second block is knitted in the first wale and welted in the second wale, and repeats this sequence, and a knit-in yarn (F6) of the second block is knitted in all wales, and repeats this sequence.
7. A double fleece knit fabric in which 18 courses make up a repeat of patterns, wherein an inlay yarn (G1) of a first block is tucked in a first wale and welted in second and third wales, and repeats this sequence, a tie-in yarn (G2) of the first block is knitted in the first and second wales and welted in the third wale, and repeats this sequence, and a knit-in yarn (G3) of the first block is knitted in all wales, and repeats this sequence, after which an inlay yarn (G4) of a second block is welted in the first wale, tucked in the second wale, welted in the third wale, and repeats this sequence, a tie-in yarn (G5) of the second block is knitted in the first and second wales

and welted in the third wale, and repeats this sequence, and a knit-in yarn (G6) of the second block is knitted in all wales, and repeats this sequence,
 after which an inlay yarn (G7) of a third block is welted in the first and second wales and tucked in the third wale, and repeats this sequence, a tie-in yarn (G8) of the third block is knitted in the first wale, welted in the second wale,
 5 and knitted in the third wale, and repeats this sequence, and a knit-in yarn (G9) of the third block is knitted in all wales, and repeats this sequence,
 after which an inlay yarn (G10) of a fourth block is tucked in the first wale and welted in the second and third wales, and repeats this sequence, a tie-in yarn (G11) of the fourth block is knitted in the first wale, welted in the second wale, and knitted in the third wale, and repeats this sequence, and a knit-in yarn (G12) of the fourth block is knitted
 10 in all wales, and repeats this sequence,
 after which an inlay yarn (G13) of a fifth block is welted in the first wale, tucked in the second wale, and welted in the third wale, and repeats this sequence, a tie-in yarn (G14) of the fifth block is welted in the first wale and knitted in the second and third wales, and repeats this sequence, and a knit-in yarn (G15) of the fifth block is knitted in all wales, and repeats this sequence,
 15 after which an inlay yarn (G16) of a sixth block is welted in the first and second wales and tucked in the third wale, and repeats this sequence, a tie-in yarn (G17) of the sixth block is welted in the first wale and knitted in the second and third wales, and repeats this sequence, and a knit-in yarn (G18) of the sixth block is knitted in all wales, and repeats this sequence.

20 **8.** A double fleece knit fabric in which nine courses make up a repeat of patterns,
 wherein an inlay yarn (H1) of a first block is tucked in a first wale and welted in second and third wales, and repeats this sequence, a tie-in yarn (H2) of the first block is knitted in the first and second wales and welted in the third wale, and repeats this sequence, and a knit-in yarn (H3) of the first block is knitted in all wales, and repeats this sequence,
 after which an inlay yarn (H4) of a second block is welted in the first wale, tucked in the second wale, and welted in the third wale, and repeats this sequence, a tie-in yarn (H5) of the second block is welted in the first wale and
 25 knitted in the second and third wales, and repeats this sequence, and a knit-in yarn (H6) of the second block is knitted in all wales, and repeats this sequence,
 after which an inlay yarn (H7) of a third block is welted in the first and second wales and tucked in the third wale, and repeats this sequence, a tie-in yarn (H8) of the third block is knitted in the first wale, welted in the second wale, and knitted in the third wale, and repeats this sequence, and a knit-in yarn (H9) of the third block is knitted in all wales, and repeats this sequence.

30 **9.** A double fleece knit fabric in which nine courses make up a repeat of patterns,
 wherein an inlay yarn (I1) of a first block is tucked in a first wale and welted in second and third wales, and repeats this sequence, a tie-in yarn (I2) of the first block is knitted in the first and second wales and welted in the third wale, and repeats this sequence, and a knit-in yarn (I3) of the first block is knitted in all wales, and repeats this sequence,
 35 after which an inlay yarn (I4) of a second block is welted in the first wale, tucked in the second wale, and welted in the third wale, and repeats this sequence, a tie-in yarn (I5) of the second block is knitted in the first and second wales and welted in the third wale, and repeats this sequence, and a knit-in yarn (I6) of the second block is knitted in all wales, and repeats this sequence,
 40 after which an inlay yarn (I7) of a third block is welted in the first and second wales and tucked in the third wale, and repeats this sequence, a tie-in yarn (I8) of the third block is knitted in all wales, and repeats this sequence, and a knit-in yarn (I9) of the third block is knitted in all wales, and repeats this sequence.

Fig. 1

Conventional Technique 1

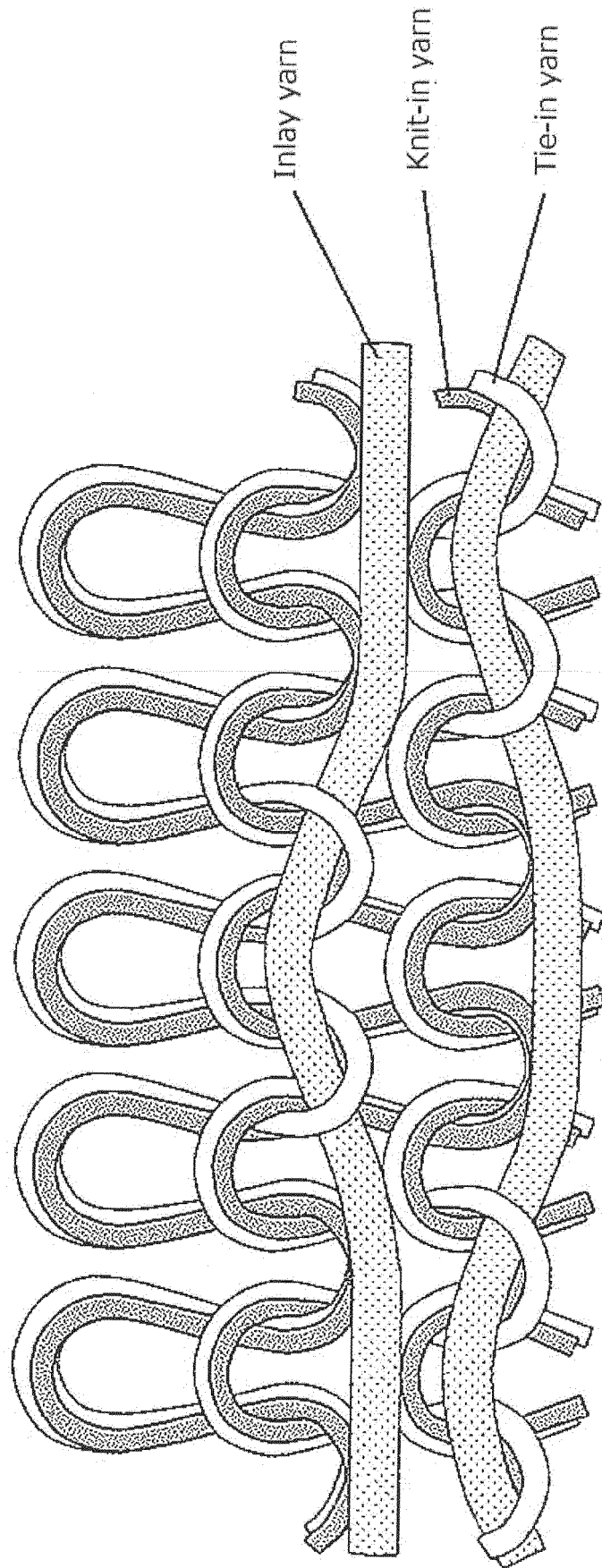
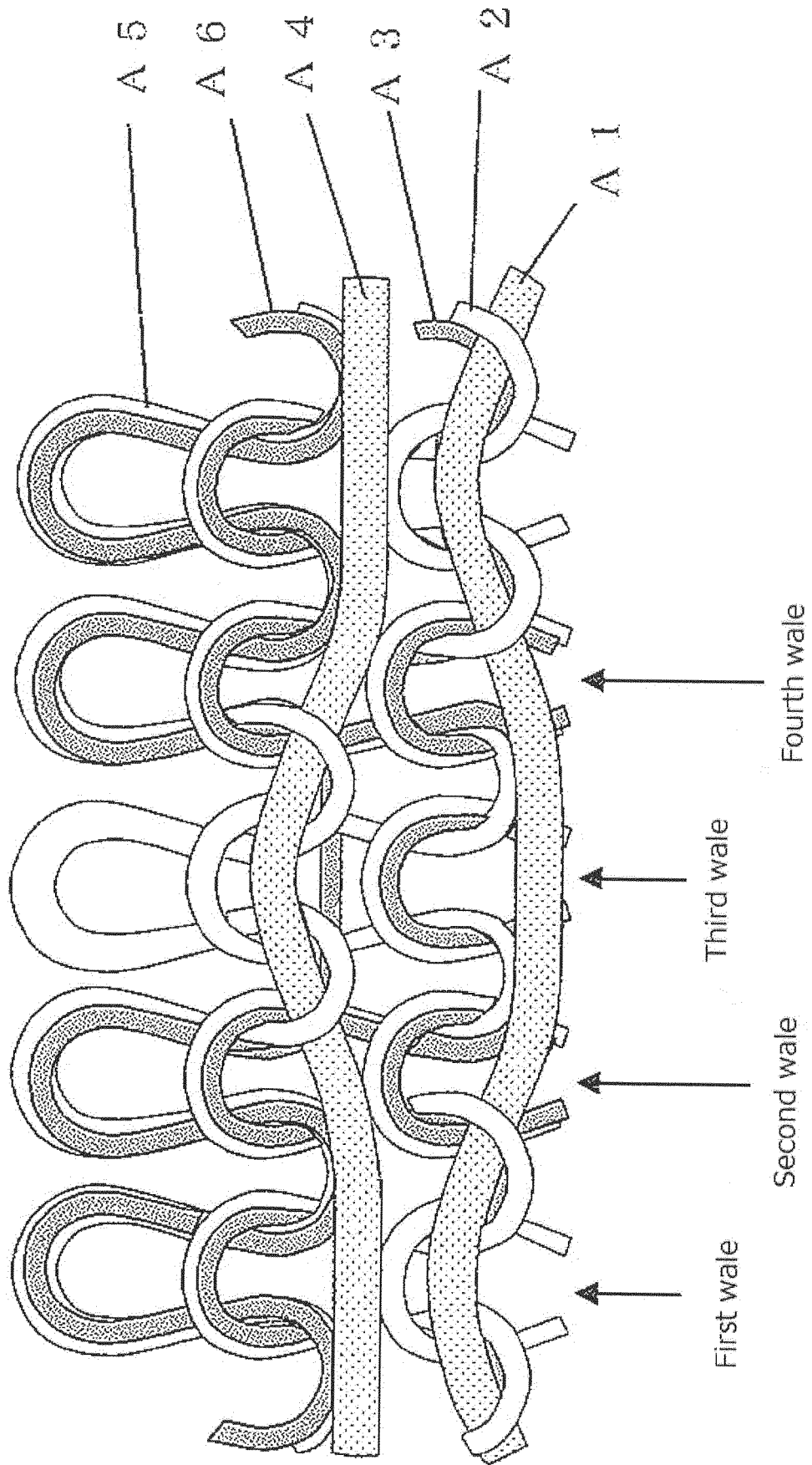


Fig. 2

Conventional Technique 2



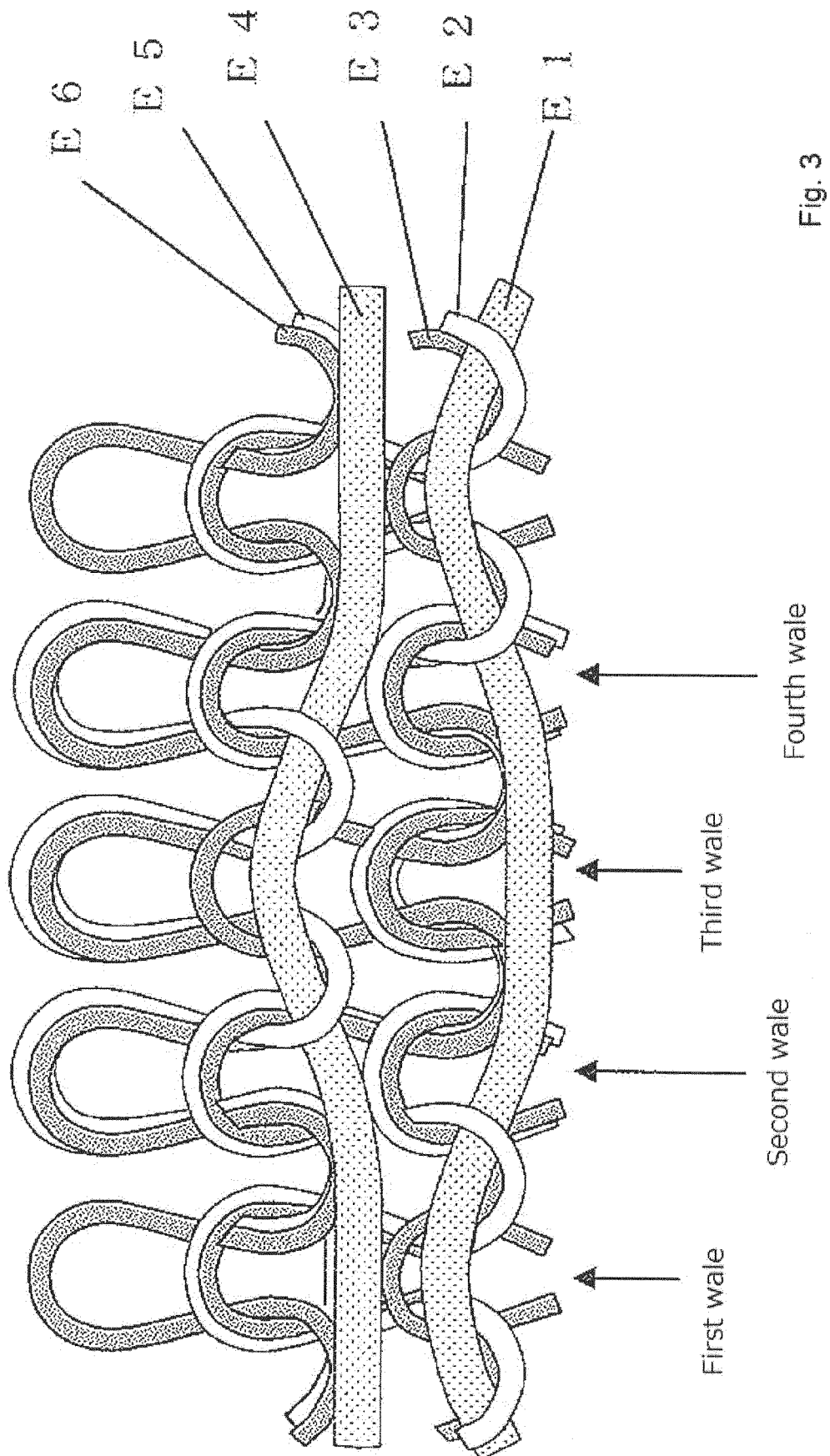


Fig. 3

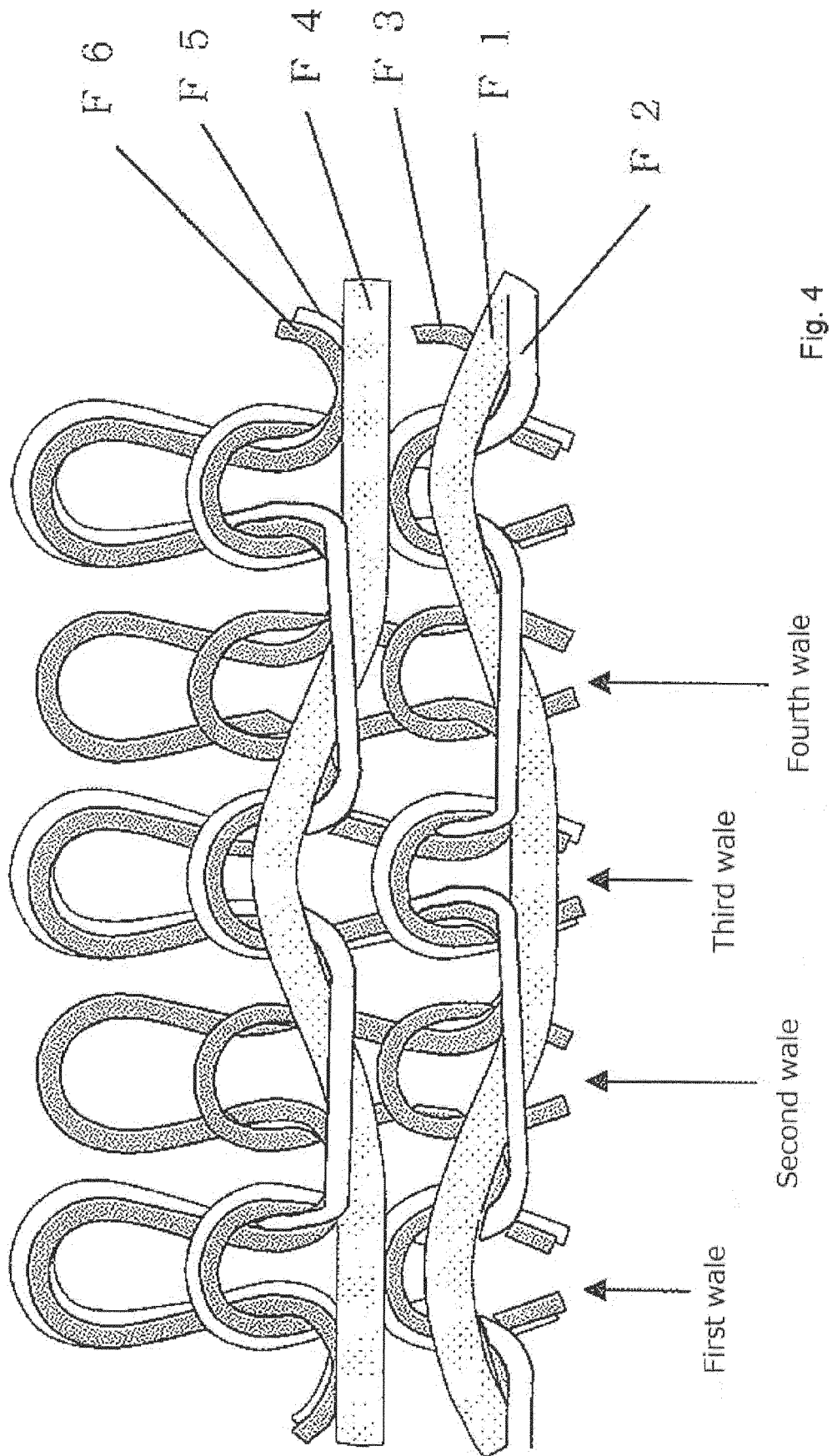
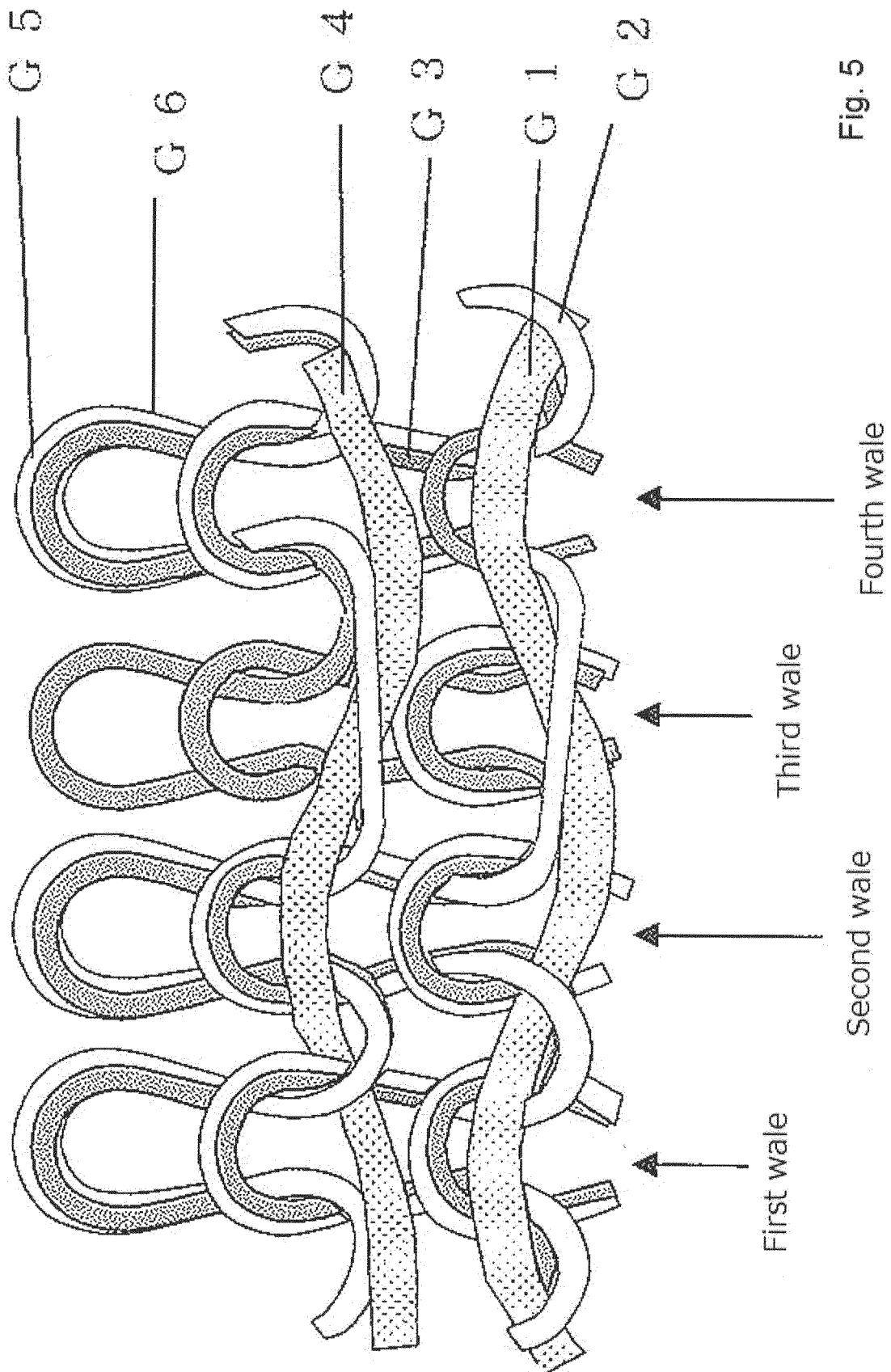


Fig. 4



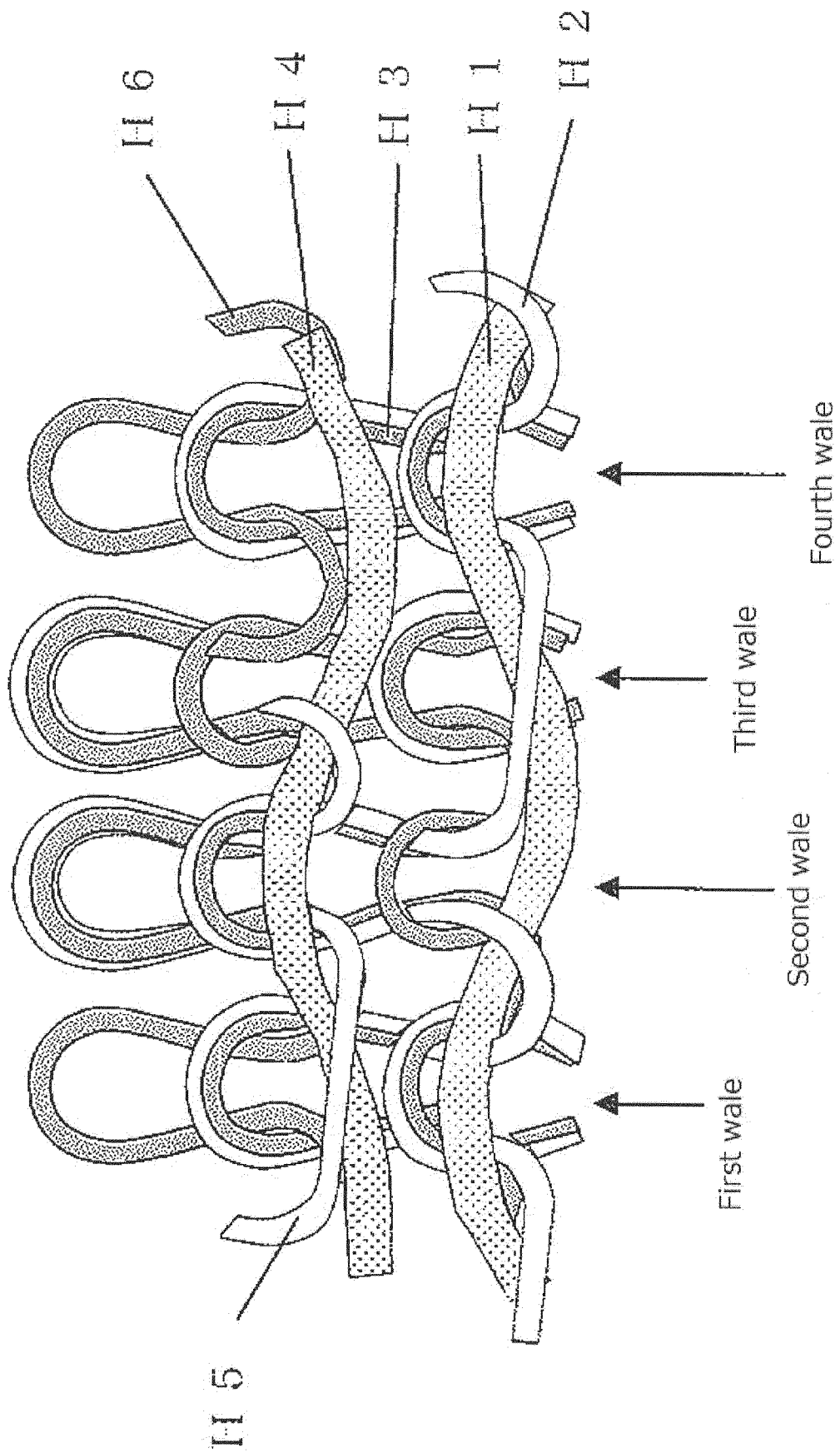


Fig. 6

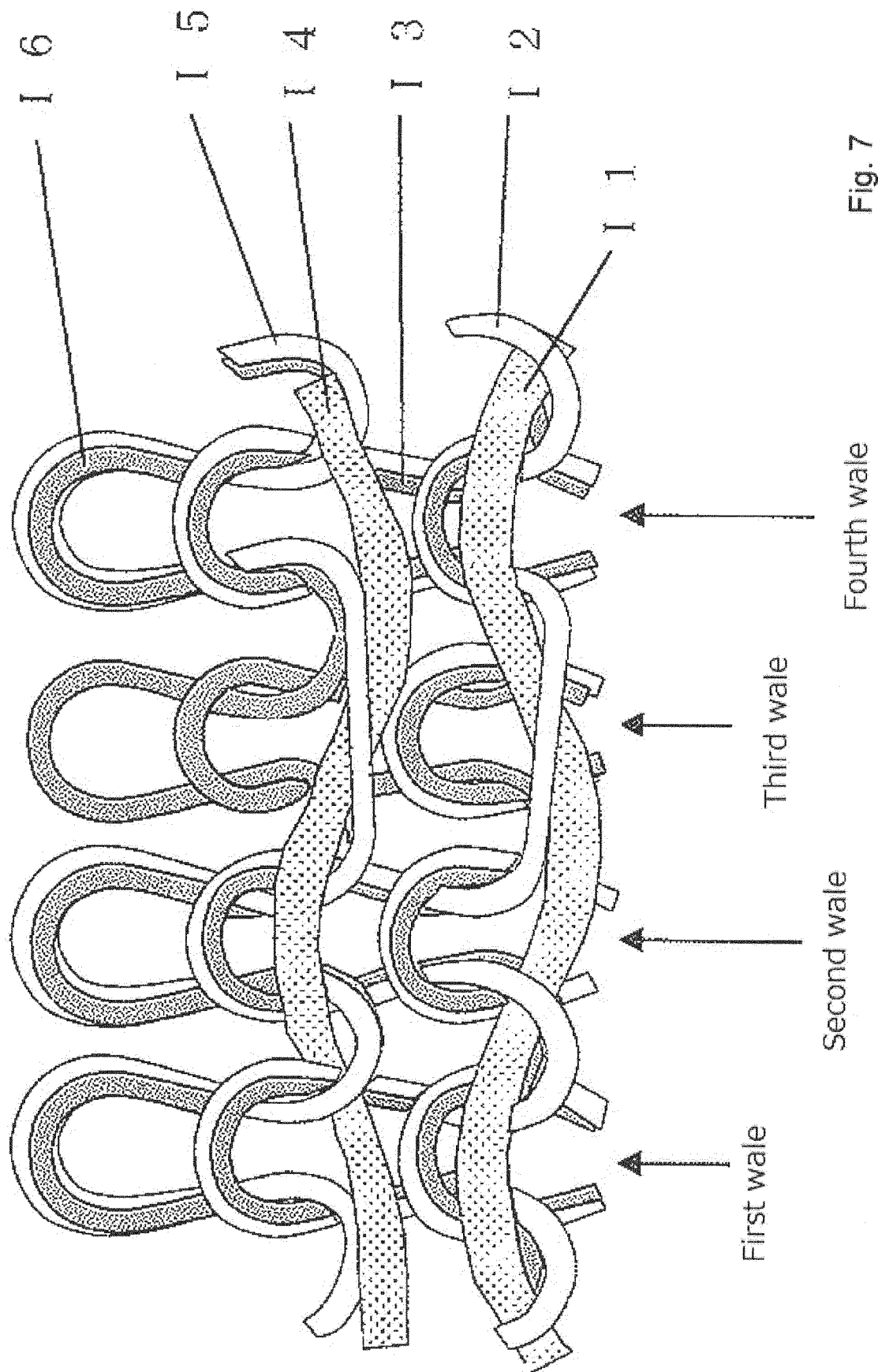


Fig. 8

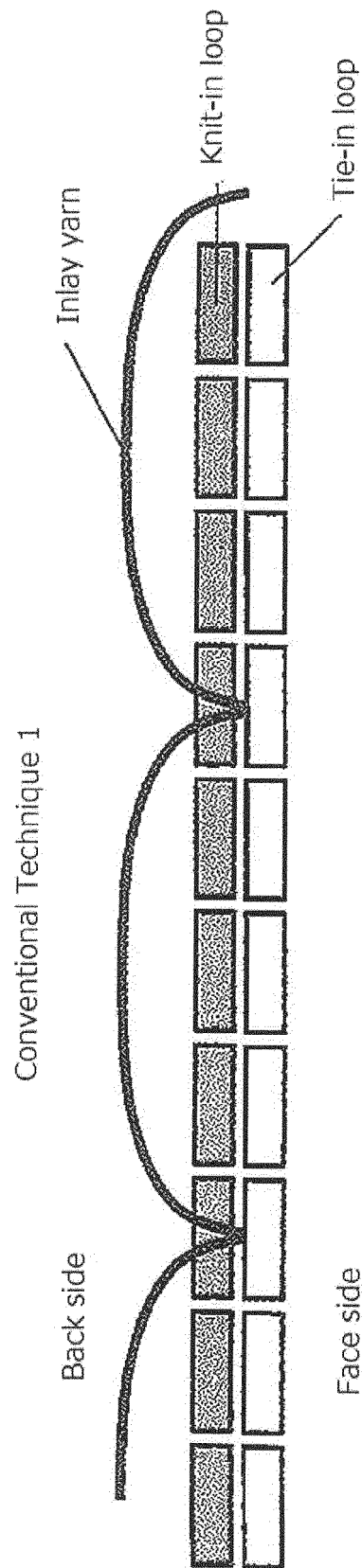


Fig. 9

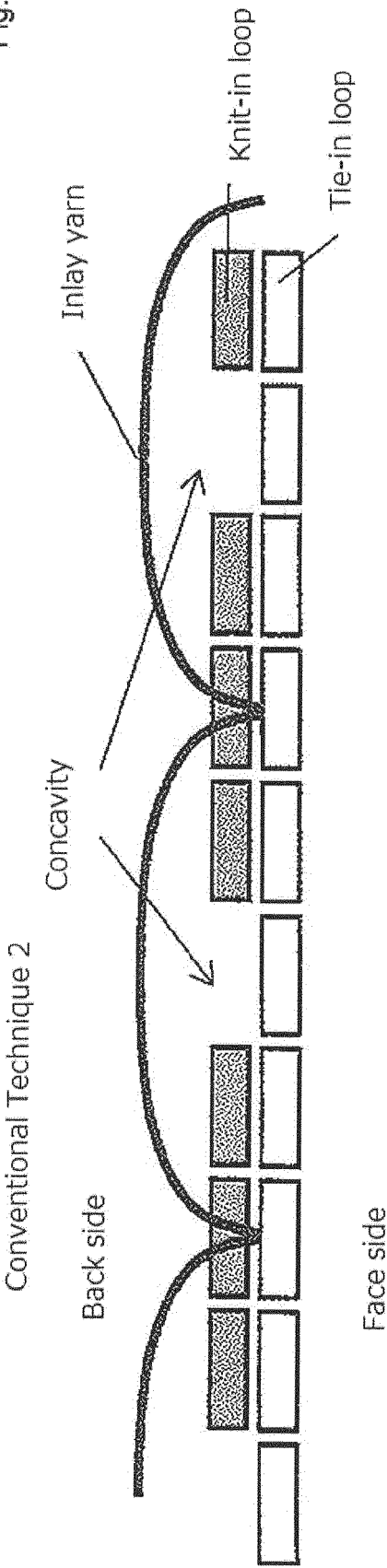
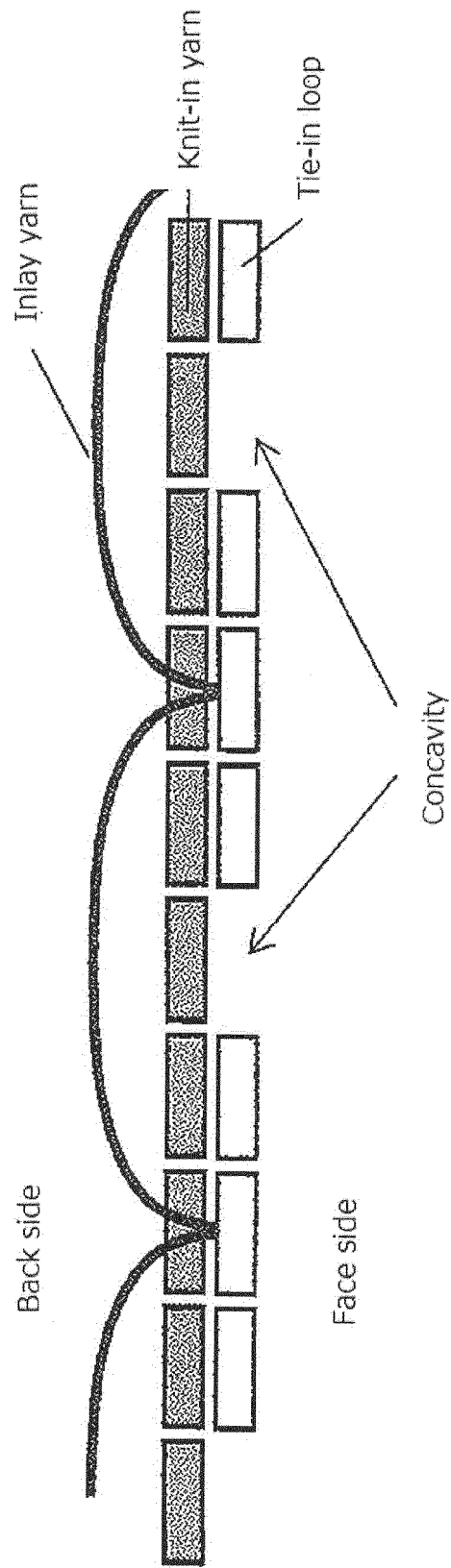


Fig. 10





EUROPEAN SEARCH REPORT

Application Number
EP 15 19 9742

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A	* column 2, line 52 - column 4, line 20; claims 1, 2; figures 1-3 *	5-9	
X	WO 2009/136063 A1 (TOURNIER BOTTU INTERNAT [FR]; BECKERS THOMAS [FR]; VALOIS CHRISTOPHE []) 12 November 2009 (2009-11-12)	1,2	
A	* page 2, line 30 - page 4, line 9; claims 1, 7; figure 2 *	5-9	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			D04B
Place of search		Date of completion of the search	Examiner
Munich		25 May 2016	Sterle, Dieter
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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		WO 2009136063 A1	12-11-2009

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