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(54) **METHOD OF KNITTING TUBULAR KNITTED FABRIC**

VERFAHREN ZUR HERSTELLUNG EINER SCHLAUCHFÖRMIGEN STRICKWARE

PROCEDE DE TRICOTAGE D'UN TRICOT TUBULAIRE

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Description

TECHNICAL FIELD

[0001] The present invention relates to a method of knitting a tubular knitted fabric through double system knitting by feeding knitting yarns from two yarn feeders.

BACKGROUND ART

[0002] The knitting can be efficiently performed by knitting the knitted fabric through double system knitting in which knitting is carried out by traveling two yarn feeders in a longitudinal direction of a needle bed at shifted timing in the flat knitting machine having at least a pair of front and back needle beds (see patent document 1).

[0003] Patent document 1: Japanese Patent Publication No. 3121283

DISCLOSURE OF THE INVENTION

PROBLEMS TO BE SOLVED BY THE INVENTION

[0004] When knitting the knitted fabric to a tubular form through double system knitting, the two knitting yarns tend to cross at one end in the knitting width direction that becomes an inverting position in the traveling direction of the yarn feeders if knitting is performed to a tubular form with the preceding first yarn feeder 6 being arranged on the far side, and the following second yarn feeder 5 being arranged on the near side when seen from the front side of the knitting machine, as shown in Fig. 6. At the crossing portion of the knitting yarns, the knitting yarn is pulled by the surrounding stitches, and a hole g as shown in Fig. 7 forms at the boundary X of the front and back knitted fabric parts. In patent document 1, knitting is performed such that the hole at the crossing portion hardly stands out.

[0005] The applicant has found a knitting method capable of knitting a tubular knitted fabric so that a hole does not form at the boundary portion of front and back knitted fabric parts even if the knitting yarns cross by the double system knitting.

[0006] It is an object of the present invention to provide a method for knitting a knitted fabric in which a large hole does not form at the boundary portion of the front knitted fabric part and the back knitted fabric part even when knitting to a tubular form through the double system knitting.

MEANS FOR SOLVING THE PROBLEMS

[0007] A method of knitting a knitted fabric of the present invention relates to a method of knitting a tubular knitted fabric of performing continuous knitting to a tubular form through double system knitting by feeding knitting yarns from two yarn feeders by using a flat knitting machine having at least front and back needle beds, at least either of which is capable of being racked in a transverse direction so that stitches can be transferred between the front and back needle beds, wherein a hole is prevented from being formed at a boundary portion of the front knitted fabric part and the back knitted fabric part with the following knitting method.

[0008] According to the method of knitting the tubular knitted fabric of the present invention, in the double system knitting, a boundary wale is formed at a boundary of a front knitted fabric part and a back knitted fabric part; and the boundary wale is formed by continuously forming stitches by twisting the stitches, and winding a knitting yarn different from the knitting yarn forming the twisted stitch on the twisted stitch.

[0009] In the knitting method of forming the boundary wale of the present invention, following steps are performed when forming the boundary wale at an end of the knitted fabrics in a knitting width direction on a side where the two knitting yarns cross.

[0010] Step a1 of knitting one of the front and the back knitted fabric parts for one course from the side where the boundary wale is to be formed to the other end side with a knitting yarn from a preceding yarn feeder, the stitch serving as the boundary wale not being formed in the knitting;

step b1 of knitting one of the front and the back knitted fabric parts for one course from the side where the boundary wale is to be formed to the other end side with a knitting yarn from a following yarn feeder, the stitch serving as the boundary wale being formed in the knitting;

step c1 of transferring the stitch serving as the boundary wale knitted in step b1 to an empty needle on an opposing needle bed;

step d1 of knitting the other one of the front and the back knitted fabric parts for one course from the other end side to the side where the boundary wale is to be formed with the knitting yarn from the preceding yarn feeder, the stitch serving as the boundary wale on the stitch transferred in step c1 being formed in the knitting;

step e1 of knitting the other one of the front and the back knitted fabric parts for one course from the other end side to the side where the boundary wale is to be formed with the knitting yarn from the following yarn feeder, the stitch serving as the boundary wale not being formed in the knitting;

step f1 of transferring the stitch serving as the boundary wale knitted in step d1 to an empty needle on an opposing needle bed; and

step g1 of repeating from step a1 to step f1.

[0011] In the knitting method of forming the boundary wale of the present invention, following steps are performed when forming the boundary wale at an end in a knitting width direction on a side where the two knitting yarns do not cross.

[0012] Step a2 of knitting one of the front and the back knitted fabric parts for one course from the side where the knitting yarns cross to the side where the boundary wale is to be formed with a knitting yarn from a preceding

yarn feeder, the stitch serving as the boundary wale not being formed in the knitting;
step b2 of knitting one of the front and the back knitted fabric parts for one course from the side where the knitting yarns cross to the side where the boundary wale is to be formed with a knitting yarn from a following yarn feeder, the stitch serving as the boundary wale being formed in the knitting;
step c2 of transferring the stitch serving as the boundary wale knitted in step b2 to an empty needle on an opposing needle bed;
step d2 of knitting the other one of the front and the back knitted fabric parts for one course from the side where the boundary wale is to be formed to the side where the knitting yarns cross from the preceding yarn feeder, the stitch serving as the boundary wale on the stitch transferred in step c2 not being formed in the knitting;
step e2 of knitting the other one of the front and the back knitted fabric parts for one course from the side where the boundary wale is to be formed to the side where the knitting yarns cross from the following yarn feeder, the stitch serving as the boundary wale on the stitch transferred in step c2 being formed in the knitting;
step f2 of transferring the stitch serving as the boundary wale knitted in step e2 to an empty needle on an opposing needle bed; and
step g2 of repeating from step a2 to step f2.

[0013] In the tubular knitted fabric knitted through the double system knitting method, a boundary wale is formed at a boundary of a front knitted fabric part and a back knitted fabric part; and the boundary wale is formed by continuously forming stitches by twisting the stitches, and winding a knitting yarn different from the knitting yarn forming the twisted stitch on the twisted stitch.

EFFECT OF THE INVENTION

[0014] According to the method of knitting the tubular knitted fabric according to the present invention, the boundary wale, which is knitted by forming a twisted stitch and winding a knitting yarn different from the knitting yarn forming the twisted stitch on the twisted stitch, is formed at the boundary of the front knitted fabric part and the back knitted fabric part when knitting to a tubular form with the double system knitting. Thereby, a hole that has been conventionally formed is prevented from forming by the boundary wale and an outer appearance of the boundary portion becomes satisfactory. Furthermore, an outer appearance like the stitches formed by a sewing machine is obtained, and a knitted fabric excellent in design is created by the boundary wale, which is formed by the twisted stitch and the winding of the knitting yarn. Furthermore, since knitting is performed through the double system knitting, productivity of the knitted fabric can be enhanced.

[0015] According to the method of knitting the tubular knitted fabric of the present invention, the boundary wale may be formed only at the front and back boundary portion on the side where the knitting yarns cross, or the boundary wale may also be formed only at the front and back boundary portion on the side where the knitting yarns do not cross, in the conventional double system knitting. Furthermore, the boundary wale may also be formed at both front and back boundary portions.

[0016] The hole that has been conventionally formed obviously does not form and outer appearance similar to the stitches made by the sewing machine is obtained at the front and back boundary portion by forming the boundary wale of the present invention at the front and back boundary portion on the side where the knitting yarns cross. Furthermore, when actively forming the boundary wale of the present invention at the front and back boundary portion where the hole normally does not form on the side where the knitting yarns do not cross, an outer appearance similar to the stitches made by the sewing machine is obtained at the relevant portion.

[0017] In particular, in the knitting of the body, a line similar to the line of stitches made by the sewing machine can similarly form at both sides of the body when having the front and back boundary portion as the side parts of the body in forming the boundary wale at both front and back boundary portions, and thus the outer appearance of the body enhances in terms of design.

BEST MODE FOR CARRYING OUT THE INVENTION

[0018] Preferred embodiments of the present invention will now be described in detail below with reference to drawings. In the present embodiment, a knitted fabric is knitted with a four-bed flat knitting machine having a pair of front and back needle beds extending in a transverse direction and disposed opposite to each other in a cross section, the back needle bed is capable of being racked in the transverse direction so that stitches can be transferred between the front and back needle beds.

[0019] In the method of knitting the tubular knitted fabric of the present invention, in knitting the knitted fabric, a two-bed flat knitting machine having a front needle bed and a back needle bed may be used for knitting. When knitting the knitted fabric with the two-bed flat knitting machine, the knitted fabric is knitted with an empty needle provided alternately. Furthermore, when using the two-bed flat knitting machine, a transfer jack bed having transfer jacks arranged in line and located at an upper level of one or both of the front and back needle beds may be used to knit the knitted fabric.

[0020] The four-bed flat knitting machine includes an upper front needle bed and an upper back needle bed arranged in lines located at an upper level of the lower front and back needle beds. The upper front and back needle beds are provided with a great number of knitting needles at the same pitch as the lower needle beds. The lower front needle bed is hereinafter simply referred to as FD, the lower back needle bed as BD, the upper front needle bed as FU, and the upper back needle bed as BU.

[0021] In the present embodiment, the front body and

the front knitted fabric parts of the left and right sleeves are knitted with the FD of the four-bed flat knitting machine, and the back body and the back knitted fabric parts of the left and right sleeves are knitted with the BD.

[0022] Through the use of the FU and the BU, structure patterns of mixed front-and-back stitches, such as links, purls, and ribs can be knitted. Further, stitches can be rotated, and the stitches can be overlapped.

[0023] The flat knitting machine used in the present embodiment further includes a second yarn feeder 5 slidably arranged on a guide rail (not shown) positioned on the near side (front side) when seen from the front side of the knitting machine, and a first yarn feeder 6 slidably arranged on a guide rail positioned on the far side (back side).

[0024] In the flat knitting machine performing the double system knitting of the present embodiment, a carriage mounted with a cam system S2 and a cam system S3 which are used for knitting as well as a cam system S1 and a cam system S4 which are used for transferring is arranged. In the present embodiment, the cam system S1 is not used, and thus is omitted in the knitting process diagram of Fig. 1. The cam system S2, the cam system S3, and the cam system S4 are hereinafter simply referred to as S2, S3, and S4. In the knitting process, the cam system from the preceding side of the traveling direction of the carriage is always S2, S3, and S4.

[0025] While the carriage makes one forward movement or backward movement, the double system knitting is performed knitting with the knitting yarn fed from the preceding first yarn feeder 6, knitting with the knitting yarn fed from the following second yarn feeder 5 and transferring by such cam system.

[0026] As shown in Fig. 5, a sweater 1 knitted in the present embodiment is a round-necked, long-sleeved sweater 1 including a body 2, a right sleeve 3, and a left sleeve 4. Regarding such sweater 1, the body 2 is knitted to a tubular form with the front body and the back body continuing to each other, the right and left sleeves 3, 4 are also knitted to a tubular form, and thereafter, the body 2 and the sleeves 3, 4 are knitted and joined at the joining portions of the body 2 and the sleeves 3, 4 so as to form one continuing tubular form. For the sake of convenience of description, the knitting pattern of the body 2, and the sleeves 3, 4 in the sweater 1 is presented in the form of a plain knit structure with no pattern, and the knitting pattern of the hem part of the body 2 and the cuff portions of the sleeves 3, 4 are presented in the form of a rib knit structure. In the present embodiment, the terms representing left and right of the body and the sleeves, such as right and left of the right sleeve 3 and the left sleeve 4 are used based on the wearer wearing the sweater 1.

[0027] In the sweater 1 of the present embodiment, the back body of the body 2, and the back knitted fabric parts of the right sleeve 3 and the left sleeve 4 are knitted principally with the BD in an every needle without having an empty needle. The front body of the body 2 and the front knitted fabric parts of the right sleeve 3 and the left sleeve 4 are knitted principally with the FD in an every needle without having an empty needle.

[0028] In the present embodiment, a boundary wale serving as the front and back boundary is formed at the boundary portion of the front knitted fabric part and the back knitted fabric part of the tubular knitted fabric part when knitting the tubular knitted fabric with the double system knitting. The boundary wale is formed by continuously forming the stitches while twisting the stitches, and winding the knitting yarn different from the knitting yarn forming the twisted stitch on the twisted stitch.

[0029] An embodiment of the knitting method of forming the boundary wale in the tubular knitted fabric of the present invention will be described based on a knitting process diagram of Fig. 1 and the loop diagrams of Figs. 2 and 3. The knitting process diagram of Fig. 1 shows the process diagram for the knitting method of the end portion of the front and back knitted fabric parts in the knitting width direction when knitting the body 2 to a tubular form.

[0030] The loop diagram shown in Fig. 2 shows the knitted fabric loop diagram of the boundary portion of the front knitted fabric part FF and the back knitted fabric part BF of the body 2 at the side part on the left side. In the present embodiment, the side part on the left side of the body 2 is the side where the two knitting yarns cross in the double system knitting. The loop diagram shown in Fig. 3 shows the knitted loop diagram of the boundary portions of the front knitted fabric part FF and the back knitted fabric part BF of the body 2 at the side part on the right side.

[0031] For the sake of convenience of description, the number of stitches of the body 2 in the knitting process diagram of Fig. 1 is shown to be less than the number actually used in knitting. Alphabets A to R shown in Fig. 1 represent the needles of FD and BD arranged opposite to each other in the cross direction. In the knitting process diagram of Fig. 1, FU and BU are omitted. Furthermore, alphabets in capital letters in the knitted fabric loop diagram and the alphabets shown in the knitting process diagram are corresponded. In Fig. 1, the numbers on the left end indicate the knitting block number, and the arrow in the right end column indicates the knitting direction. The chain dashed line X of Fig. 2 and Fig. 3 indicates the boundary line of the front knitted fabric part FF and the back knitted fabric part BF.

[0032] Step S shown in Fig. 1 shows the state in which the stitches are held on the needles C to N of the FD and the BD, and the body 1 is knitted to a tubular form in the middle of knitting of the body 1. The stitches held on the FD are stitches of the front knitted fabric part FF of the body 1, and the stitches held on the BD are stitches of the back knitted fabric part BF of the body 1.

[0033] In the knitting block 1 of Fig. 1, the carriage is moved in the left direction, and the knitting yarn is first fed from the first yarn feeder 6 to the FD, and the front knitted fabric part FF is knitted for one course by the preceding S2. Subsequently, the knitting yarn is then fed

from the second yarn feeder 5 to the FD, and the next course is knitted by the following S3 on the stitches knitted by S2. The number of stitches knitted by S3 is greater than the number of stitches knitted by S2 with the knitting yarn fed from the first yarn feeder 6 by one stitch at both ends in the knitting width direction. That is, a stitch is formed on the needle B and the needle O of the FD. Finally, the stitch held on the needle O of the FD out of the stitches knitted by S3 of the front knitted fabric part FF is transferred to the needle O of the opposing BD by S4, while the stitch held on the needle B of the FD is similarly transferred by S4 to the needle B of the opposing BD. Regarding the stitch at the left side end of Fig. 1, since the first yarn feeder 6 is arranged on the back side of the second yarn feeder 5, the knitting yarn fed from the second yarn feeder 5 crosses over the knitting yarn fed from the first yarn feeder 6 when the stitch held on the needle B of the FD is transferred to the needle B of the opposing BD.

[0034] In the next knitting block 2, the knitting yarn is first fed from the first yarn feeder 6 to the BD, and the back knitted fabric part is knitted for one course by the preceding S2. In this case, a stitch is not formed on the needle B of the BD holding the stitch transferred by S4 in the knitting block 1, and a stitch is formed on the needle O of the BD. Due to the knitting by S2, the stitch held on the needle B of the BD is wound with the knitting yarn fed from the first yarn feeder 6 (knitting yarn a shown in the loop diagram of Fig. 3).

[0035] In the knitting block 2, the knitting yarn is then fed from the second yarn feeder 5 to the BD, and the next course is knitted by the following S3 on the stitches knitted by S2. A stitch is formed on the needle B of the BD, and a stitch is not formed on the needle O of the BD. The stitch transferred and held on the needle B of the BD by S4 of the knitting block 1 becomes twisted in the knitting by S3 (stitch b shown in the loop diagram of Fig. 3). A stitch (stitch c shown in the loop diagram of Fig. 3) is formed on the needle B with the same knitting yarn (knitting yarn fed from the second yarn feeder 5) on the twisted stitch.

[0036] Lastly in the knitting block 2, the stitch of the needle B of the BD knitted with the knitting yarn fed from the second yarn feeder 5 by S3 is transferred to the needle B of the opposing FD by S4, and the stitch of the needle O of the BD knitted with the knitting yarn fed from the first yarn feeder 6 by S2 is similarly transferred to the needle O of the opposing FD by S4. The stitch held on the needle B of the FD becomes twisted (stitch c shown in the loop diagram of Fig. 3), and the stitch held on the needle O becomes twisted (stitch e shown in the loop diagram of Fig. 2), according to such transfer.

[0037] In the next knitting block 3, knitting same as in the knitting block 1 is performed. The state of the stitch formed at the end in the knitting width direction will be described from the relationship of the knitting block 2. The knitting yarn is first fed from the first yarn feeder 6 to the FD, and the front knitted fabric part FF is knitted for one course by the preceding S2, but a stitch is not formed on the needle O and the needle B of the FD. Thus, a stitch is formed on the needle N in continuation to the stitch held on the needle O formed by S2 of the knitting block 2. In this case, the stitch held on the needle O is wound with the knitting yarn fed from the second yarn feeder 5 (knitting yarn d shown in the loop diagram of Fig. 2).

[0038] In the knitting block 3, the stitch knitted with the needle O of the FD at the end in the knitting width direction out of the stitches knitted with the knitting yarn fed from the second yarn feeder 5 is formed by S3 on the stitch knitted with the knitting yarn fed from the first yarn feeder 6, and the stitch knitted with the needle B is formed by S3 on the stitch knitted with the knitting yarn fed from the same second yarn feeder 5.

[0039] In the knitting block 3, the stitches held on the needle B and the needle O of the FD are transferred by S4 to the needle B and the needle O of the opposing BD. The stitch held on the needle O of the BD is twisted in this case (stitch f shown in the loop diagram of Fig. 2).

[0040] The boundary wale is knitted in this manner, the boundary wale is continuously knitted while twisting the stitches, and furthermore, the knitting yarn different from the knitting yarn forming the twisted stitch is wound on the twisted stitch. As a result, a hole formed conventionally by the double system knitting no longer forms due to the boundary wale, an outer appearance similar to the stitches formed by a sewing machine is obtained by the twisted stitch and the winding of the knitting yarn, and a knitted fabric excellent in design is knitted. Furthermore, since the stitches of the boundary wale are twisted and are wound by another knitting yarn, the boundary portion of the knitted fabric is less likely to stretch.

[0041] The loop diagrams shown in Fig. 2 and Fig. 3 show the stitches of the boundary wale at the position corresponding to each needle for the sake of convenience of description, but when the stitches actually become stable, the stitches of the boundary wale are linearly extended in the wale direction as shown in the image of Fig. 4.

[0042] In the present embodiment, the knitting yarns cross only at the left side part of the body 1 when knitting with the conventional double system knitting. Therefore, the boundary wale may be formed only at the left side part so that a hole does not form thereat, but the boundary wale is formed on both side parts in the present embodiment because the outer appearance of the body enhances if the state of the left and right side parts are in the same state. On the other hand, when forming the boundary wale of the present invention at the sleeve, knitting is performed so that the knitting yarns cross on the inner side or the body side if knitted with the conventional double system knitting, so that the boundary wale is not formed on the outer side of the sleeve or the side where the knitting yarns do not cross, and is formed only on the inner side of the sleeve.

[0043] When performing the double system knitting,

the second yarn feeder 5 is arranged on the near side and the first yarn feeder 6 is arranged on the far side as the yarn feeders for feeding two knitting yarns in the present embodiment, and the first yarn feeder 6 is always preceding. However, the knitting method of the present invention can be applied to a case of preceding the second yarn feeder 5 on the near side in the backward path after preceding the first yarn feeder 6 on the far side in the forward path. Furthermore, the present invention may be applied to a case of arranging four yarn feeders on different guide rails and knitting with two knitting yarns while switching the yarn feeder, and may be applied to a case of knitting with two yarn feeders arranged on the same guide rail. If the yarn feeders are arranged in such manner, the manner of crossing the yarns differs from the present embodiment, there are some cases where the yarns may cross at the end on the opposite side from that of the present embodiment or the yarns may cross at both ends in the knitting width direction, but the method of forming the boundary wale according to the present invention can appropriately respond even if the crossing state of the yarns differs.

INDUSTRIAL APPLICABILITY

[0044] The method of knitting the tubular knitted fabric of the present invention is suited for a case of performing double system knitting using two yarn feeders.

BRIEF DESCRIPTION OF THE DRAWINGS

[0045]

Fig. 1 is a knitting process diagram for forming a boundary wale of the present invention.
Fig. 2 is a loop diagram of a knitted fabric showing a state in which the boundary wale is formed at a boundary portion of the front and back knitted fabric parts when knitted to a tubular form in a double system knitting, the loop diagram being of the left side part of the body.
Fig. 3 is a loop diagram of a knitted fabric showing a state in which the boundary wale is formed at the boundary portion of the front and back knitted fabric parts when knitted to a tubular form in the double system knitting, the loop diagram being of the right side part of the body.
Fig. 4 is an image of the surface of the knitted fabric showing a state in which the boundary wale is formed at the boundary portion of the front and back knitted fabric parts when knitted to a tubular form in the double system knitting.
Fig. 5 is a part plane view seen from the front body side of a sweater knitted with the method of knitting the tubular knitted fabric of the present invention.
Fig. 6 is an explanatory view showing a state of two yarn feeders when knitting to a tubular form in the double system knitting.
Fig. 7 is a loop diagram showing a state of a hole formed at the boundary portion of the front and back knitted fabric parts when knitting to a tubular form in the double system knitting.

Description of Symbols

[0046]

1	sweater
2	body
3	right sleeve
4	left sleeve
6	first yarn feeder
5	second yarn feeder
FF	front knitted fabric part
BF	back knitted fabric part

Claims

1. A method of knitting a tubular knitted fabric (1) of performing continuous knitting to a tubular form through double system knitting by feeding knitting yarns from two yarn feeders (5, 6) by using a flat knitting machine having at least a pair of front and back needle beds (FD, BD) so that stitches can be transferred between the front and back needle beds(FD, BD),
characterized in that
the method of knitting the tubular knitted fabric (1) comprises:

a step of forming a boundary wale at a boundary of a front knitted fabric part (FF) and a back knitted fabric part (BF); wherein
the boundary wale is formed by continuously forming stitches by twisting the stitches, and winding a knitting yarn different from the knitting yarn forming the twisted stitch on the twisted stitch.

2. The method of knitting the tubular knitted fabric (1) according to claim 1, wherein the boundary wale is formed at an end of the knitted fabrics (1) in a knitting width direction on a side where the two knitting yarns cross; and the method includes,
step a1 of knitting one of the front and the back knitted fabric parts (FF, BF) for one course from the one side where the boundary wale is to be formed to the other side with a knitting yarn from a preceding yarn feeder (5, 6), the stitch serving as the boundary wale not being formed in the knitting;
step b1 of knitting one of the front and the back knitted fabric parts (FF, BF) for one course from the one side where the boundary wale is to be formed to the other side with a knitting yarn from a following yarn feeder (5, 6), the stitch serving as the boundary wale

being formed in the knitting;
step c1 of transferring the stitch serving as the boundary wale knitted in step b1 to an empty needle on an opposing needle bed (FD, BD);
step d1 of knitting the other one of the front and the back knitted fabric parts (FF, BF) for one course from the other side to the one side where the boundary wale is to be formed with the knitting yarn from the preceding yarn feeder (5, 6), the stitch serving as the boundary wale on the stitch transferred in step c1 being formed in the knitting;
step e1 of knitting the other one of the front and the back knitted fabric parts (FF, BF) for one course from the other side to the one side where the boundary wale is to be formed with the knitting yarn from the following yarn feeder (6, 5), the stitch serving as the boundary wale not being formed in the knitting;
step f1 of transferring the stitch serving as the boundary wale knitted in step d1 to an empty needle on an opposing needle bed (FB, BB); and
step g1 of repeating from step a1 to step f1.

3. The method of knitting the tubular knitted fabric (1) according to claim 1 or 2, wherein the boundary wale is formed at an end of the knitted fabrics (1) in a knitting width direction on a side where the two knitting yarns do not cross; and the method includes,
step a2 of knitting one of the front and the back knitted fabric parts (FF, BF) for one course from the side where the knitting yarns cross to the side where the boundary wale is to be formed with a knitting yarn from a preceding yarn feeder (5, 6), the stitch serving as the boundary wale not being formed in the knitting;
step b2 of knitting one of the front and the back knitted fabric parts (FF, BF) for one course from the side where the knitting yarns cross to the side where the boundary wale is to be formed with a knitting yarn from a following yarn feeder (5, 6), the stitch serving as the boundary wale being formed in the knitting;
step c2 of transferring the stitch serving as the boundary wale knitted in step b2 to an empty needle on an opposing needle bed (FB, BB);
step d2 of knitting the other one of the front and the back knitted fabric parts (FF, BF) for one course from the side where the boundary wale is to be formed to the side where the knitting yarns cross with the knitting yarn from the preceding yarn feeder (5, 6), the stitch serving as the boundary wale on the stitch transferred in step c2 not being formed in the knitting;
step e2 of knitting the other one of the front and the back knitted fabric parts (FF, BF) for one course from the side where the boundary wale is to be formed to the side where the knitting yarns cross with the knitting yarn from the following yarn feeder (5, 6), the stitch serving as the boundary wale on the stitch transferred in step c2 being formed in the knitting;
step f2 of transferring the stitch serving as the boundary wale knitted in step e2 to an empty needle on an opposing needle bed; and
step g2 of repeating from step a2 to step f2.

Patentansprüche

1. Strickverfahren zum Stricken einer schlauchförmigen Strickware (1) zum Durchführen eines fortsetzenden Strickens an einer Schlauchform durch Doppelsystemstricken mittels Zuführen von Strickfäden aus zwei Fadenführern (5, 6) unter Verwendung einer Flachstrickmaschine mit wenigstens einem Paar von vorderen und hinteren Nadelbetten (FD, BD), so dass Maschen zwischen dem vorderen und dem hinteren Nadelbett (FD, BD) umgehängt werden können,
dadurch gekennzeichnet, dass das Verfahren zum Stricken der schlauchförmigen Strickware (1) aufweist:

einen Schritt zum Bilden eines Grenzmaschenstäbchens an einer Grenze eines vorderen Strickwarenbereichs (FF) zu einem hinteren Strickwarenbereich (BF), wobei

das Grenzmaschenstäbchen gebildet wird durch fortsetzendes Bilden von Maschen durch Verdrehen der Maschen und Wickeln eines Strickfadens, der unterschiedlich ist zu dem Strickfaden, welcher die verdrehte Masche auf der verdrehten Masche bildet.

2. Verfahren zum Stricken der schlauchförmigen Strickware (1) nach Anspruch 1, wobei das Grenzmaschenstäbchen an einem Ende der Strickware (1) in einer Strickbreitenrichtung auf einer Seite gebildet wird, auf der sich die beiden Strickfäden überkreuzen; und wobei das Verfahren aufweist:

Schritt a1 Stricken von entweder dem vorderen oder dem hinteren Strickwarenbereich (FF, BF) für eine Maschenreihe von der einen Seite, an der das Grenzmaschenstäbchen gebildet werden soll, zu der anderen Seite, mit einem Strickfaden von einem vorangehenden Fadenführer (5, 6), wobei die Masche, die als Grenzmaschenstäbchen dient, beim Stricken nicht gebildet wird;
Schritt b1 Stricken von entweder dem vorderen oder dem hinteren Strickwarenbereich (FF, BF) für eine Maschenreihe von der einen Seite, an der das Grenzmaschenstäbchen gebildet werden soll, zu der anderen Seite mit einem Strickfaden von einem nachfolgenden Fadenführer (5, 6), wobei die Masche, die als Grenzmaschenstäbchen dient, beim Stricken gebildet wird;
Schritt c1 Umhängen der Masche, die als das in Schritt b1 gestrickte Grenzmaschenstäbchen

dient, auf eine leere Nadel eines gegenüberliegenden Nadelbetts (FB, BB);
Schritt d1 Stricken des anderen von entweder dem vorderen oder dem hinteren Strickwarenbereich (FF, BF) für eine Maschenreihe von der anderen Seite zu der einen Seite, an der das Grenzmaschenstäbchen gebildet werden soll, mit einem Strickfaden von dem vorangehen Fadenführer (5, 6), wobei die Masche, die als Grenzmaschenstäbchen auf der in Schritt c1 umgehängten Masche dient, beim Stricken gebildet wird;
Schritt e1 Stricken des anderen von entweder dem vorderen oder dem hinteren Strickwarenbereich (FF, BF) für eine Maschenreihe von der anderen Seite zu der einen Seite, an der das Grenzmaschenstäbchen gebildet werden soll mit dem Strickfaden von dem nachfolgenden Fadenführer (6, 5), wobei die Masche, die als Grenzmaschenstäbchen dient, beim Stricken nicht gebildet wird;
Schritt f1 Umhängen der Masche, die als das in Schritt d1 gestrickte Grenzmaschenstäbchen dient, auf eine leere Nadel an einem gegenüberliegenden Nadelbett (FB, BB); und
Schritt g1 Wiederholen der Schritte a1 bis f1.

3. Verfahren zum Stricken der schlauchförmigen Strickware (1) nach einem der Ansprüche 1 oder 2, wobei das Grenzmaschenstäbchen an einem Ende der Strickware (1) in einer Stickbreitenrichtung auf einer Seite gebildet wird, an der sich die beiden Strickfäden nicht überkreuzen; und wobei das Verfahren umfasst:

Schritt a2 Stricken von entweder dem vorderen oder dem hinteren Strickwarenbereich (FF, BF) für eine Maschenreihe von der Seite, auf der sich die Strickfäden überkreuzen, zu der Seite, auf der das Grenzmaschenstäbchen gebildet werden soll, mit einem Strickfaden von einem vorangehenden Fadenführer (5, 6), wobei die Masche, die als Grenzmaschenstäbchen dient, beim Stricken nicht gebildet wird;
Schritt b2 Stricken von entweder dem vorderen oder dem hinteren Strickwarenbereich (FF, BF) für eine Maschenreihe von der Seite, auf der sich die Strickfäden überkreuzen, zu der Seite, auf der das Grenzmaschenstäbchen gebildet werden soll, mit einem Strickfaden von einem nachfolgenden Fadenführer (5, 6), wobei die Masche, die als Grenzmaschenstäbchen dient, beim Stricken nicht gebildet wird;
Schritt c2 Umhängen der Masche, die als das in Schritt b2 gestrickte Grenzmaschenstäbchen dient, auf eine leere Nadel an einem gegenüberliegenden Nadelbett (FB, BB);
Schritt d2 Stricken des anderen von entweder dem vorderen oder dem hinteren Strickwarenbereich (FF, BF) für eine Maschenreihe von der Seite, an der das Grenzmaschenstäbchen gebildet werden soll, zu der Seite, an der sich die Strickfäden mit dem Strickfaden von dem vorhergehenden Fadenführer (5, 6) überkreuzen, wobei die Masche, die als Grenzmaschenstäbchen dient, auf der in Schritt c2 umgehängten Masche, beim Stricken nicht gebildet wird;
Schritt e2 Stricken des anderen von entweder dem vorderen oder dem hinteren Strickwarenbereich (FF, BF) für eine Maschenreihe von der Seite, an der das Grenzmaschenstäbchen gebildet werden soll, zu der Seite, an der sich die Strickfäden überkreuzen, mit dem Strickfaden von dem nachfolgenden Fadenführer (5, 6), wobei die Masche, die als Grenzmaschenstäbchen auf der in Schritt c2 umgehängten Masche dient, beim Stricken gebildet wird;
Schritt f2 Umhängen der Masche, die als das in Schritt e2 gestrickte Grenzmaschenstäbchen dient, auf eine leere Nadel an einem gegenüberliegenden Nadelbett; und
Schritt g2 Wiederholen der Schritte a2 bis f2.

Revendications

1. Procédé pour tricoter un tricot tubulaire (1) consistant à réaliser un tricotage en continu donnant une forme tubulaire grâce à tricotage à système double en fournissant des fils à tricoter à partir de deux distributeurs de fil (5, 6) en utilisant une machine à tricoter à plat comportant au moins deux fontures, une avant et une arrière, (FD, BD) de sorte que des mailles peuvent être transférées entre les deux fontures, avant et arrière, (FD, BD),
caractérisé en ce que
le procédé de tricotage d'un tricot tubulaire (1) comprend :

une étape consistant à former une colonne de mailles de frontière au niveau d'une frontière d'une partie de tricot de devant (FF) et d'une partie de tricot de derrière (BF) ; dans lequel
la colonne de mailles de frontière est formée en formant de façon continue des mailles en torsadant les mailles, et en enroulant un fil à tricoter différent du fil à tricoter formant la maille torsadée sur la maille torsadée.

2. Procédé pour tricoter un tissu tricoté tubulaire (1) selon la revendication 1, dans lequel la colonne de mailles de frontière est formée au niveau d'une extrémité du tricot (1) dans une direction de largeur de tricotage sur un côté où les deux fils à tricoter se croisent ; et le procédé comprend :

une étape a1 consistant à tricoter l'une des parties de tricot de devant et de derrière (FF, BF) pour une course à partir d'un premier côté où la colonne de mailles doit être formée jusqu'à l'autre côté avec un fil à tricoter provenant d'un distributeur de fil précédent (5, 6), la maille servant de colonne de mailles de frontière n'étant pas formée dans le tricotage ;

une étape b1 consistant à tricoter l'une des parties de tricot de devant et de derrière (FF, BF) pour une course à partir du premier côté où la colonne de mailles doit être formée jusqu'à l'autre côté avec un fil à tricoter provenant du distributeur de fil suivant (5, 6), la maille servant de colonne de mailles de frontière étant formée dans le tricotage ;

une étape c1 consistant à transférer la maille servant de colonne de mailles de frontière tricotée dans l'étape b1 vers une aiguille vide sur une fonture opposée (FD, BD) ;

une étape d1 consistant à tricoter l'autre des parties de tricot de devant et de derrière (FF, BF) pour une course à partir de l'autre côté jusqu'au premier côté où la colonne de mailles doit être formée avec le fil à tricoter provenant du distributeur de fil précédent (5, 6), 1 la maille servant de colonne de mailles de frontière sur la maille transférée dans l'étape c1 étant formée dans le tricotage ;

une étape e1 consistant à tricoter l'autre des parties de tricot de devant et de derrière (FF, BF) pour une course à partir de l'autre côté jusqu'au premier côté où la colonne de mailles de frontière doit être formée avec le fil à tricoter provenant du distributeur de fil suivant (6, 5), la maille servant de colonne de mailles de frontière n'étant pas formée dans le tricotage ;

une étape f1 consistant à transférer la maille servant de colonne de mailles tricotée dans l'étape d1 vers une aiguille vide sur une fonture opposée (FB, BB) ; et

une étape g1 consistant à répéter les étapes a1 à f1.

3. Procédé pour tricoter un tricot tubulaire (1) selon la revendication 1 ou 2, dans lequel la colonne de mailles de frontière est formée au niveau d'une extrémité du tricot (1) dans une direction de largeur de tricotage sur un côté où les deux fils à tricoter ne se croisent pas ; et le procédé comprend :

une étape a2 consistant à tricoter l'une des parties de tricot de devant et de derrière (FF, BF) pour une course à partir du côté où les fils à tricoter se croisent jusqu'au côté où la colonne de mailles de frontière doit être formée avec un fil à tricoter provenant d'un distributeur de fil précédent (5, 6), la maille servant de colonne de mailles de frontière n'étant pas formée dans le tricotage ;

une étape b2 consistant à tricoter l'une des parties de tricot de devant et de derrière (FF, BF) pour une course à partir du côté où les fils à tricoter se croisent jusqu'au côté où la colonne de mailles de frontière doit être formée avec un fil à tricoter provenant d'un distributeur de fil suivant (5, 6), la maille servant de colonne de mailles de frontière étant formée dans le tricotage ;

une étape c2 consistant à transférer la maille servant de colonne de mailles de frontière tricotée dans l'étape b2 vers une aiguille vide sur une fonture opposée (FB, BB) ;

une étape d2 consistant à tricoter l'autre des parties de tricot de devant et de derrière (FF, BF) pour une course à partir du côté où la colonne de mailles de frontière doit être formée jusqu'au côté où les fils à tricoter croisent le fil à tricoter provenant du distributeur de fil précédent (5, 6), la maille servant de colonne de mailles de frontière sur la maille transférée dans l'étape c2 n'étant pas formée dans le tricotage ;

une étape e2 consistant à tricoter l'autre des parties de tricot de devant et de derrière (FR, BF) pour une course à partir du côté où la colonne de mailles de frontière doit être formée jusqu'au côté où les fils à tricoter croisent le fil à tricoter provenant du distributeur de fil suivant (5, 6), la maille servant de colonne de mailles de frontière sur la maille transférée dans l'étape c2 étant formée dans le tricotage ;

une étape f2 consistant à transférer la maille servant de colonne de mailles de frontière tricotée dans l'étape e2 vers une aiguille vide sur une fonture opposée ; et

une étape g2 consistant à répéter les étapes a2 à f2.

Fig. 1

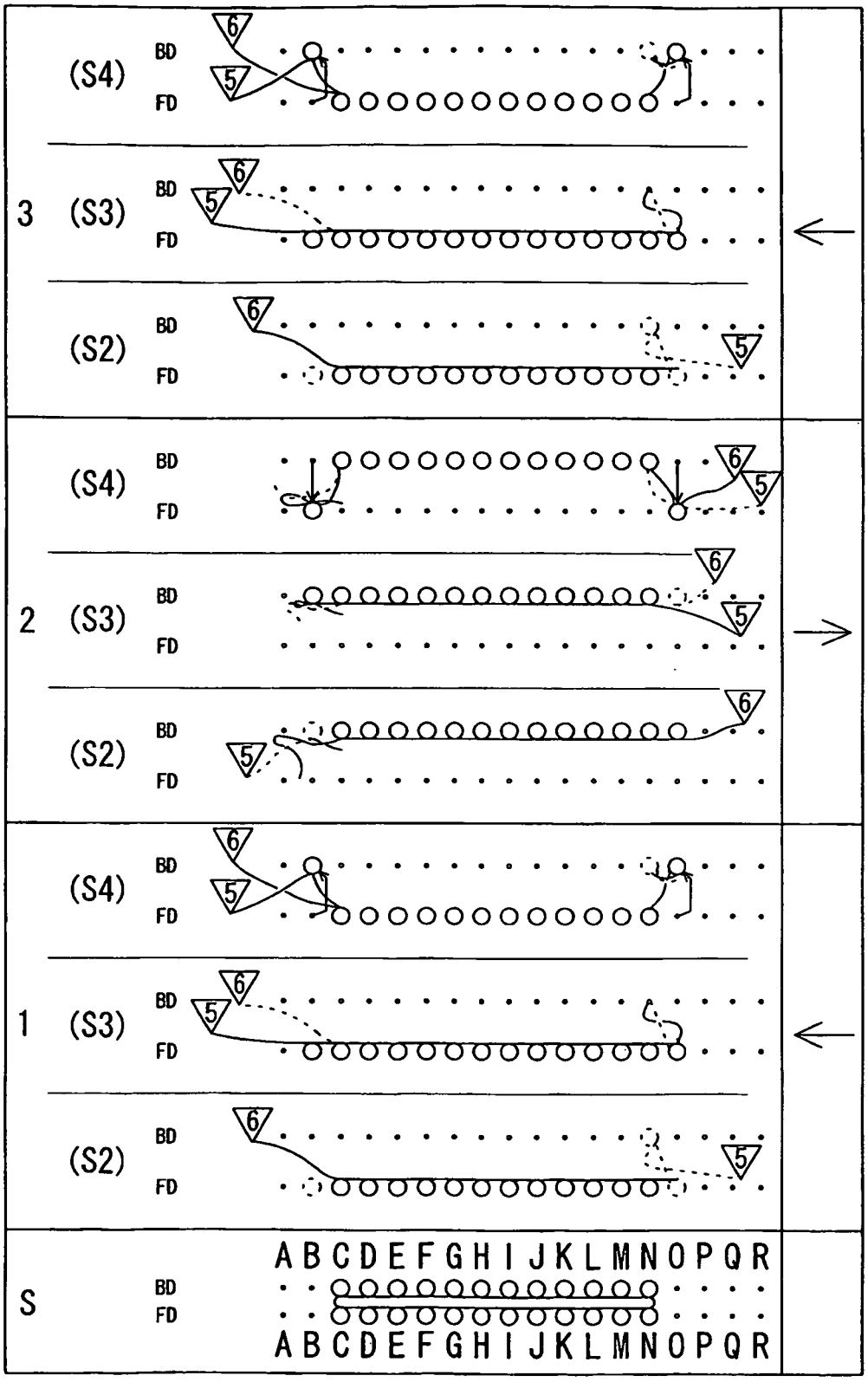


Fig. 2

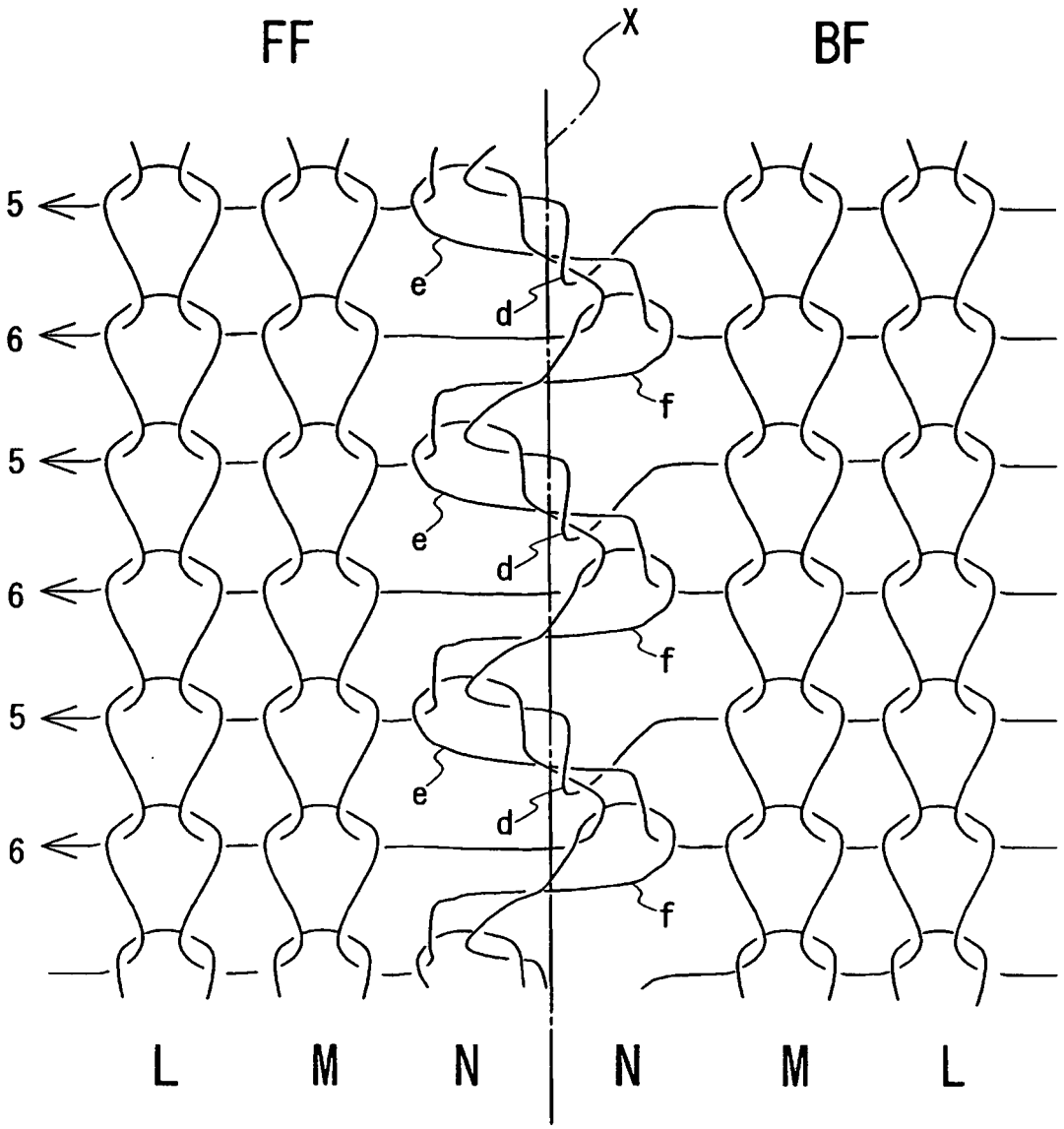


Fig. 3

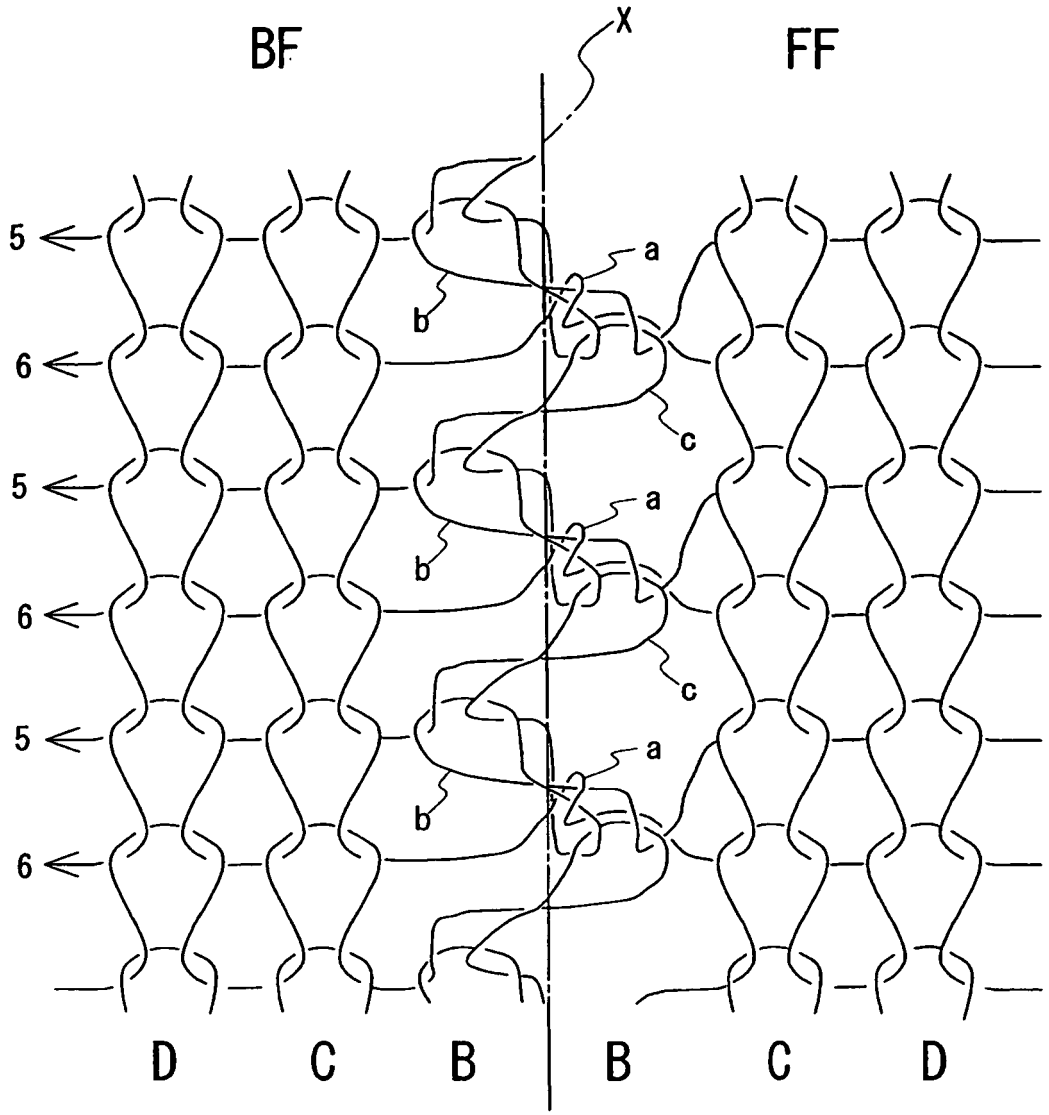


Fig. 4

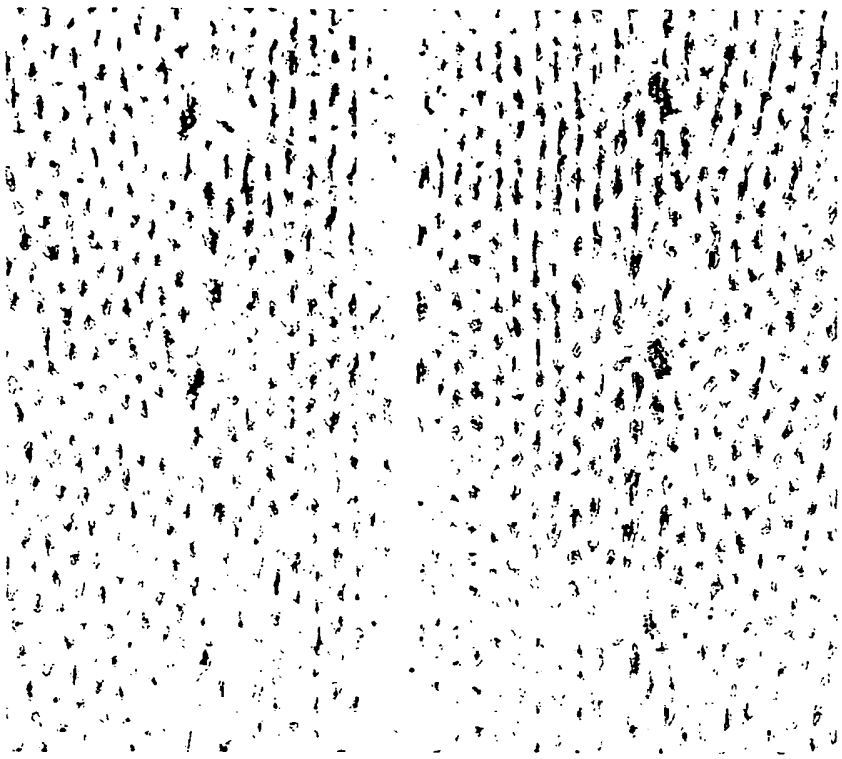


Fig. 5

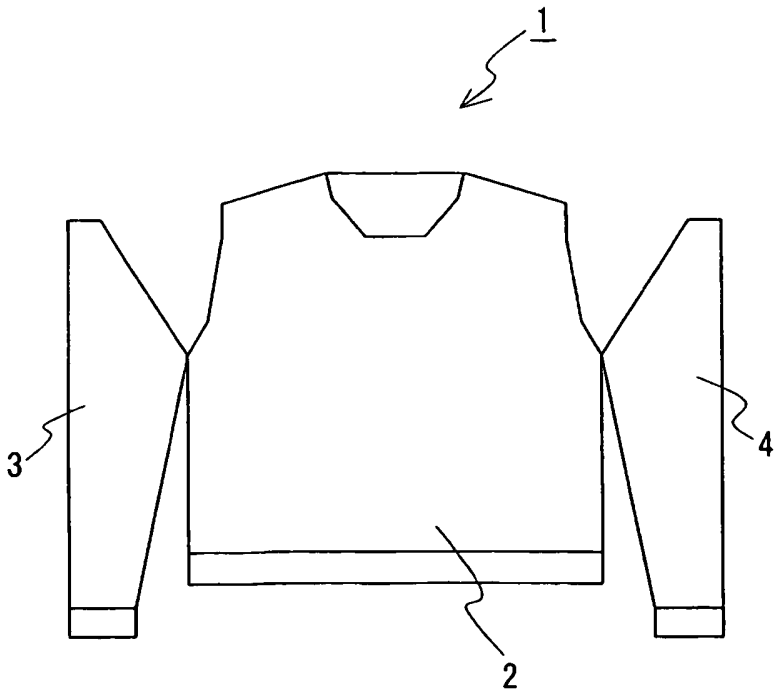


Fig. 6

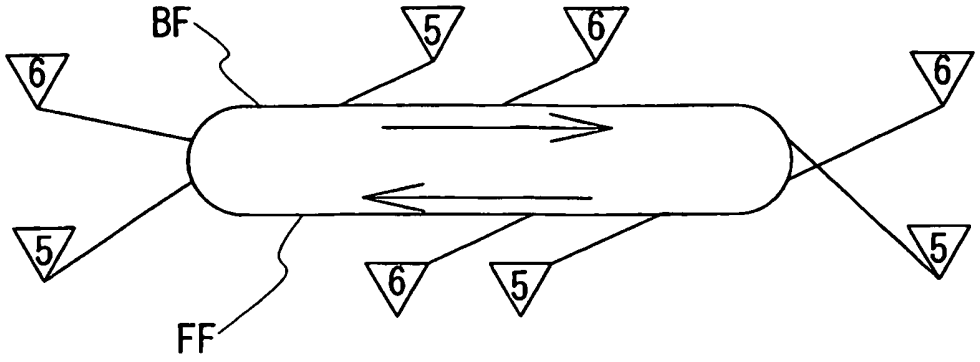
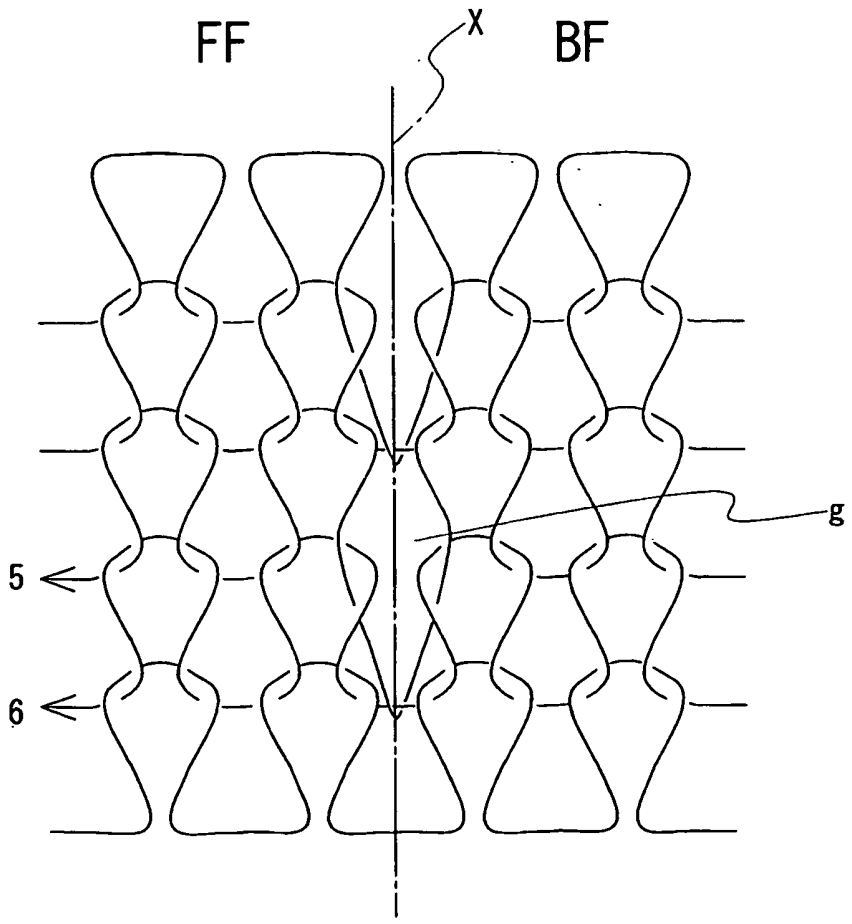


Fig. 7



REFERENCES CITED IN THE DESCRIPTION

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