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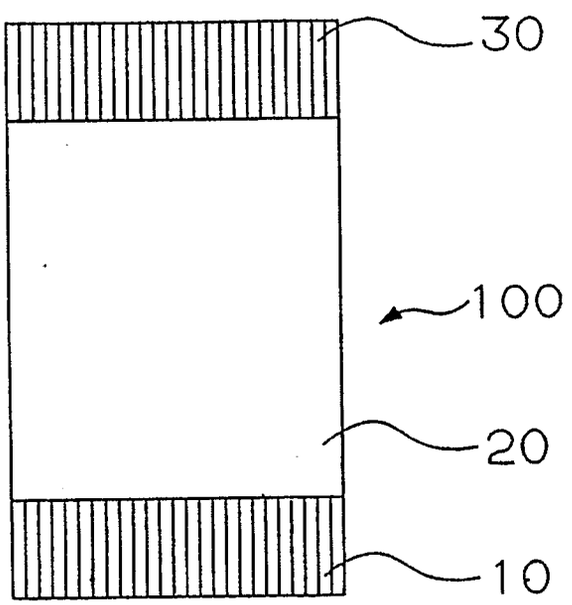
(54) Knit fabric and knitting method thereof.

(57) A knitting method employed at the end of knitting of a fabric knitted by using a flat knitting machine possessing at least first and second needle beds 1, 2 disposed in a pair of front and rear ones, and a knit fabric knitted by executing the same method.

Fig.1



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KNIT FABRIC AND KNITTING METHOD THEREOF

BACKGROUND OF THE INVENTION

The present invention relates to a knitting method employed at the end of knitting of a fabric knitted by using a flat knitting machine, and a knit fabric knitted by executing the same method.

A knit fabric knitted by using a flat knitting machine is unraveled unless the loop in the final course is fixed. Generally, various knit-back preventive measures are taken. For example, in manual procedure, hand looping known as winding stop or welting stop is employed, and mechanically, the loop of the final course is sewn to the loop of the immediatedly preceding course by overlock sewing, or the loops are sewn together by a looping machine.

Such procedures are, however, complicated and require experienced skill, and it takes much labor in the processing step after knitting. Accordingly, it was attempted to bond the loop of the final course of knit fabric by using an adhesive, fuse by using thermofusible thread, or contract the stitch by using a thermoelastic thread, but since the stitch appears in the final end portion of the knit product, the appearance of the knit product is spoiled.

OBJECT AND SUMMARY OF THE INVENTION

The invention is devised in the light of the above problems, in which the course terminating portion of the knit fabric in the knitting process already has an appearance as final product, so that the troublesome process of hand looping, overlock sewing, or sewing by locking machine after knitting may be omitted. It is hence an object of the invention to disclose a knit fabric beautiful in the finish of the course terminating portion, not required to prevent knitting-back by using such a thread as to cause to spoil the appearance of the knit fabric, by knitting the portion corresponding to the course terminating portion of knit product by ordinary cast-on-cloth knitting, and a knitting method for obtaining such knit fabric.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a front view of a knit product knitted by the knitting method of the invention, Fig. 2 is a drawing showing a part of the loop of the knit product, Fig. 3 is its knitting drawing, and Figs. 4-A, 4-B, and 4-C are explanatory drawings showing the knit fabric in the midst of knitting from the side of knitting machine.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, a preferred embodiment by the knit fabric and knitting method of the invention is described below.

This is an embodiment of knitting by using a flat knittig machine having a carriage (not shown) comprising a pair of front and rear needle beds and a single knitting system reciprocating on the needle beds, wherein needles A, B, ..., K, L are arranged in a row on the first needle bed 1, and needles a, b, ..., k, 1 corresponding to the above needles A, B, ..., K, L are disposed on the confronting second needle bed 2.

Fig. 1 shows a knit product 100 knitted by executing the method of the invention, in which there is a rib knit part knitted by ordinary knitting out in the knitting start portion in the lower part of the course in the garment, and a main part 20 is located in the middle of the course, while a knitting end portion 30 of rib knitting is found in the upper part of the course.

Fig. 2 shows a part of loop diagram of the knit product 100, in which the main part 20 is indicated by a thin line, the knitting end part 30 by a thick line, and the loop knitted after the joining of the main part 20 and knitting end part 30 mentioned below, being concealed at the lower side of the knit product by dotted line, respectively.

Fig. 3 illustrates the indivisual knitting diagrams, and the knitting start part 10 and the subsequent main part 20 of the rib knittig can be knitted properly by the conventional knitting method and are not shown here and are not mentioned particularly because they do not require particular explanation. That is, Fig. 3 shows from the latter half of the subsequent main part 20. In blocks 1, 2, the final two courses 11, 12 of the main part 20 are knitted by means of the needles of the first needle bed 1. Depending on the design, the knitting structure of the main body 20 may be changed. After the main part 20, in block 3, the loop stopped on every other needle 8, D, ..., J, K of the needles A, B, ..., K, L stopping the final loop of the main part 20 is moved to the needles b, d, ..., j, l of the second needle bed 2 at the opposite end. In the next block 4, the loop on every other needle A, C, ..., I, K not moved in block 3 is moved to the needles b, d, ..., j, l of the second needle bed 2 to overlay the loops. Since it is difficult to express the state of this portion in the loop diagram, symbols b, j, l in the overlapped loops are used. With the loop of the main part 20 stopped, the needles b, d, ... , j, l are dislocated from the knitting and are stopped.

At the end of block 4, no loop is stopped any longer on the needles of the first needle bed 1 which initially stopped the loop of the main part 20. In the second needle bed 2, the every other needles a, c, ..., i, k are blank needles not stopping the loop.

Blocks 5 to 12 are knitting diagrams showing knitting of the rib knitting end portion 30 using the blank needles, and in block 5, using the needles B, D, ..., J, L of the first needle bed 1 and needles a, c, ..., i, k of the second needle bed 2, the knitting end portion 30 is knitted out. In the subsequent blocks 6, 7, 8, using the same needles, the knitting is terminated. Then in blocks 9 to 12, the rib knitting portions knitted. Here, by properly repeating blocks 9, 10, it is designed to adjust the height at the knitting end portion 30.

By such knitting, a two-piece knit structure comprising a knit fabric composed of knitting start portion 10 and main part 20, and a knit fabric forming the knitting end portion 30 as approximately shown in Fig. 4-A droops from the peak of the needle bed. In block 13, the loop 14 of the final course of the knitting end portion 30 stopped on the needles B, D, ..., J, L of the first needle bed 1 is moved and overlaid on the needles b, d, ..., j, l of the second needle bed 2 kept in stopped state, while stopping the loop 12 of the final course of the main part 20.

In this state, in other words, as shown in Fig. 4-B, the main part 20 and the knitting end portion 30 are joined on the second needle bed 2, and linked to form one knit fabric, and as the measure for preventing knit-back, when knitting is stopped by using thermofusible thread or thermoelastic thread as mentioned above, the openings (eyelets) formed by movement of the stitches in blocks, 3, 4 appear at the main part 20 side in the joined portion, which may significantly spoil the appearance of product. Accordingly, after knitting by the needles of the second needle bed in blocks 14, 15, knit-back preventive measures are taken in blocks 16, 17.

As shown in Fig. 4-C, the loops 15, 16 formed in blocks 14, 15 positioned at the peak of an inverted Y-shaped stopped on the needles of the needle bed of the flat knitting machine are curled due to the intrinsic property of the loop when released from the knitting machine at the end of knitting, and are warped upward to the main part 20 side, thereby blocking the hole formed at the terminal part of the main part 20 of the joining part.

Or by heat-treating, after knitting, the knit loop as the knit-back preventive measures in blocks 16, 17, the knit product will be completed without unraveling the loop formed in blocks 14, 15.

The number of knittings in blocks 16, 17 is not limited, and should be done at least enough for blocking the hole.

The knit fabric and knitting method of the invention are not limited to the foregoing embodiment alone, and the knitting start portion and knitting end portion may be other than rib knitting, and the loop exchange direction or sequence between the needle beds may be changed, depending on whether the knit main part is used in the outer surface of the knit product or in the inner surface. The needle beds and needles used in knitting may be changed as required, as far as not departing from the true spirit of the invention.

Claims

1. A knit product knitted by using a flat knitting machine possessing at least first and second needle beds disposed in a pair of front and rear ones, wherein the knit fabric is composed of knitting start part, main part and knitting end part, and knitting start and knitting end part to be knitted separately are knitted out by proper method, possessing edge portions without loop knit-back from the knitting start part and knitting end part, and the loop of the final course of the main part overlapped one by one in the wale direction, and the loop of the final course of the knitting end part are joined, and at least one course of knitting is done sequentially, and the hole formed in the joining part is clogged by using the curling property of the loop formed by such knitting.

2. A knitting method of knit fabric knitted by a flat knitting machine possessing at least first and second needle beds in a pair of front and rear ones, wherein the knit fabric is composed of knitting start part, main part and knitting end part, and after knitting the knitting start part and subsequent main part by proper method, the loop of the final course of the main part is moved to be overlaid on the every other needle in the wale direction of the second needle bed (or first needle bed), and the needles stopping the overlapped loop are dislocated from knitting to be set in stopped state, and the knitting end part is knitted by using every other needle not stopping the loop and/or the needles of the opposite needle bed, and the loop of the main part in stopped state and the loop of the final course of the knitting end part are joined, and the knitting is finished by executing the known knitting-back preventive measures after knitting at least one course by using the needles of the needle bed at the curling and warping side of the loop sequentially knitted into the main part side.

Fig.1

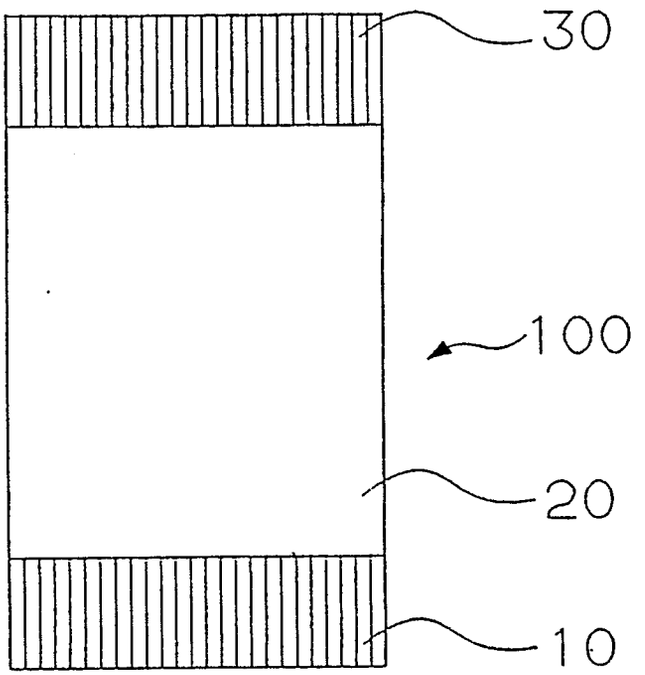


Fig. 2

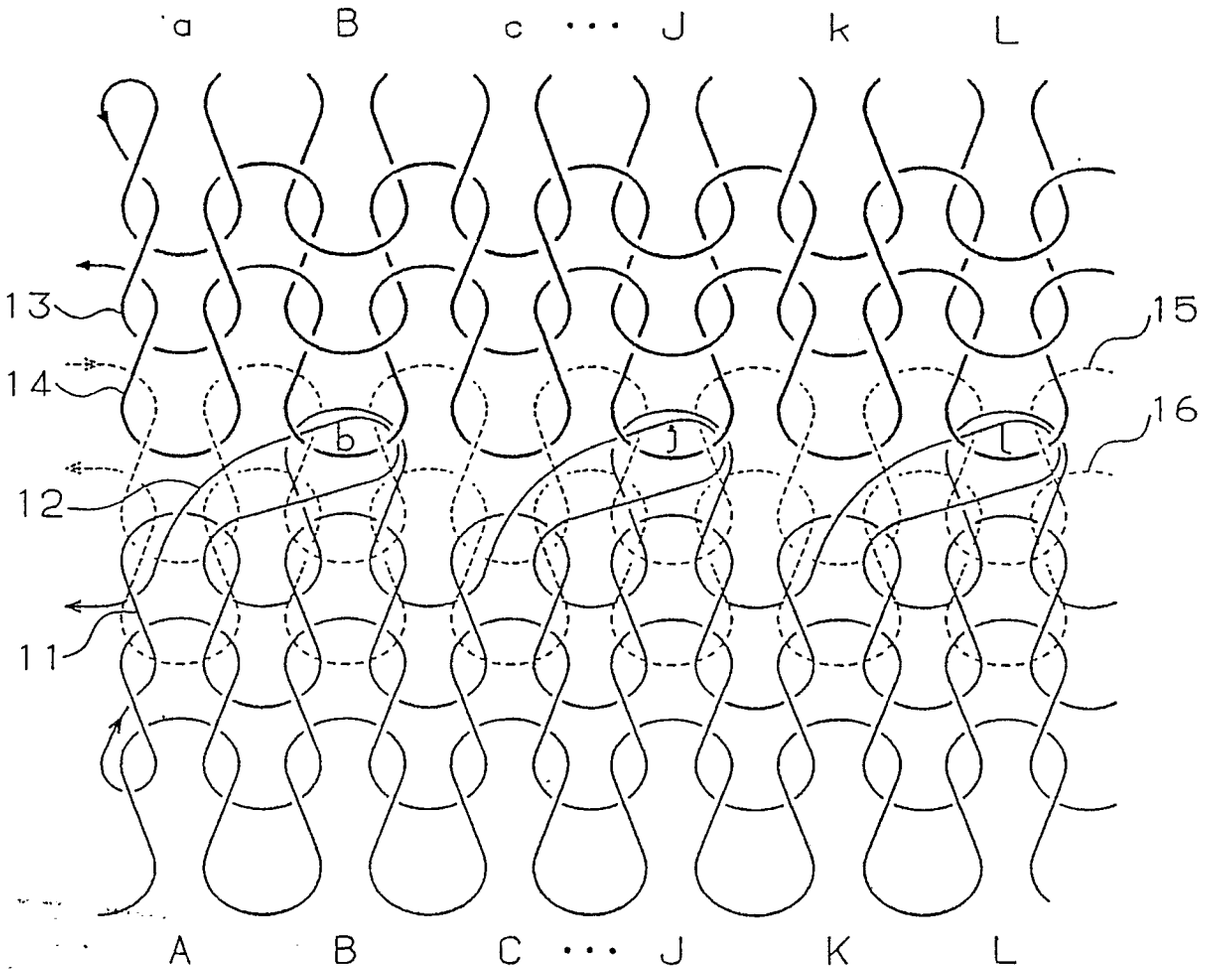
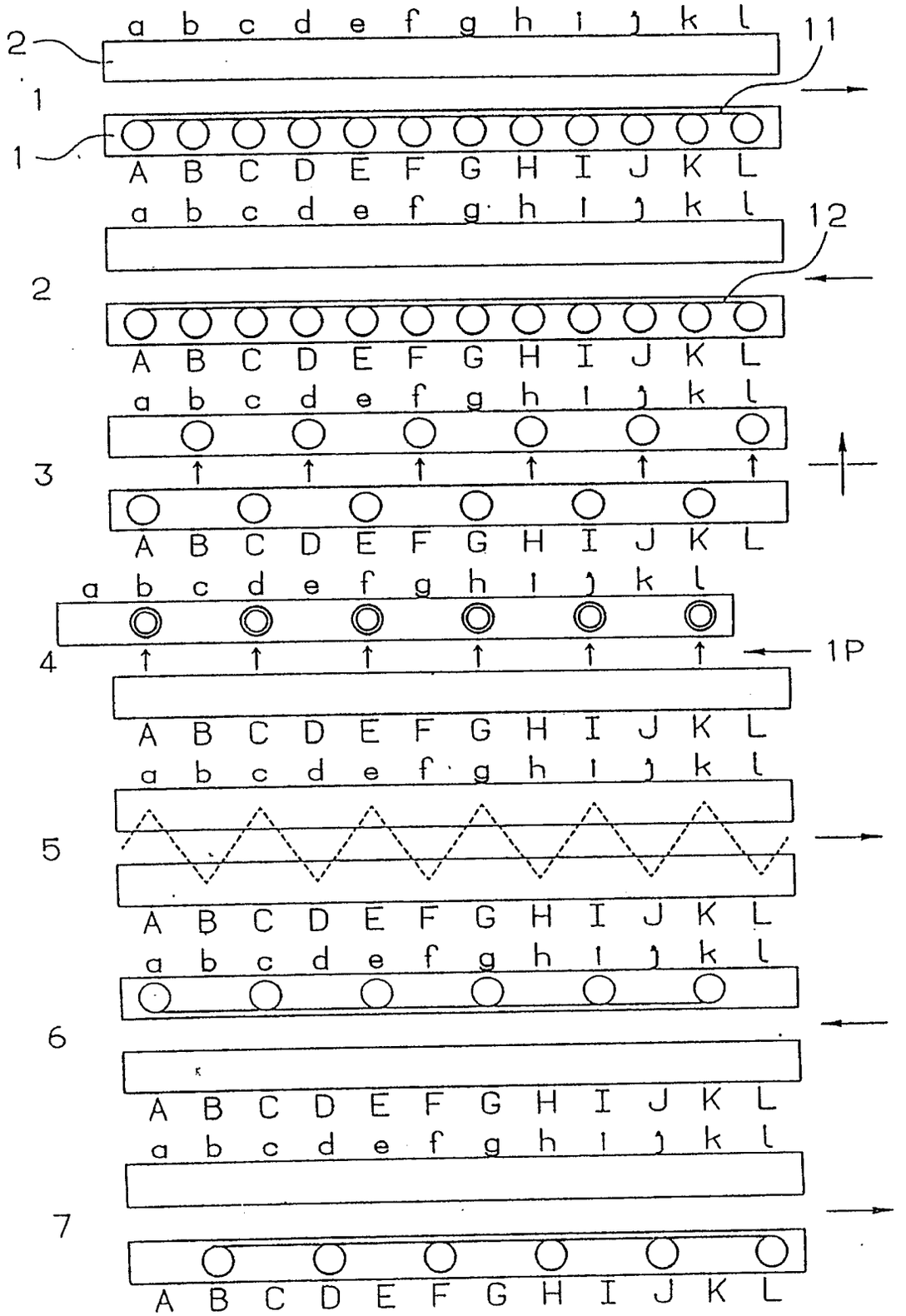


Fig.3-1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2
11
1
1
A B C D E F G H I J K L
a b c d e f g h i j k l
12
2
A B C D E F G H I J K L
a b c d e f g h i j k l
3
A B C D E F G H I J K L
a b c d e f g h i j k l
4
1P
A B C D E F G H I J K L
a b c d e f g h i j k l
5
A B C D E F G H I J K L
a b c d e f g h i j k l
6
A B C D E F G H I J K L
a b c d e f g h i j k l
7
A B C D E F G H I J K L

Fig. 3-2

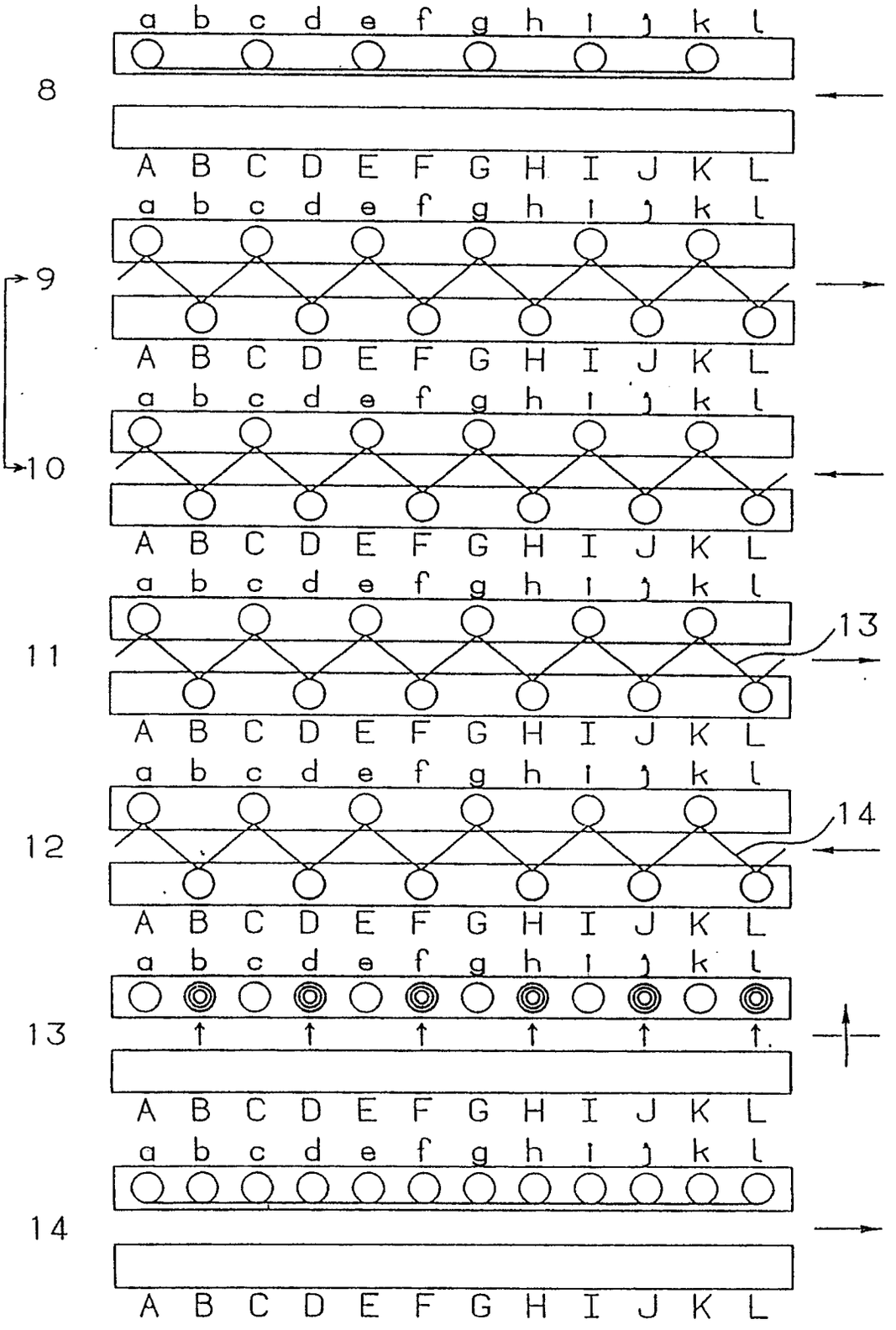
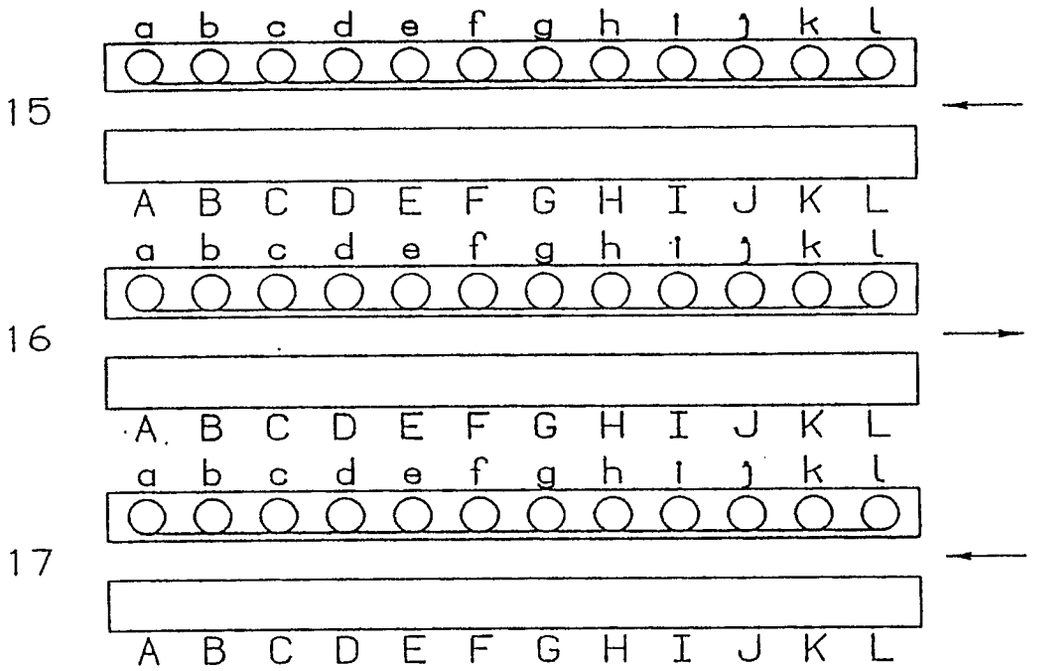


Fig.3-3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15
A B C D E F G H I J K L
a b c d e f g h i j k l
16
A B C D E F G H I J K L
a b c d e f g h i j k l
17
A B C D E F G H I J K L

Fig.4-A

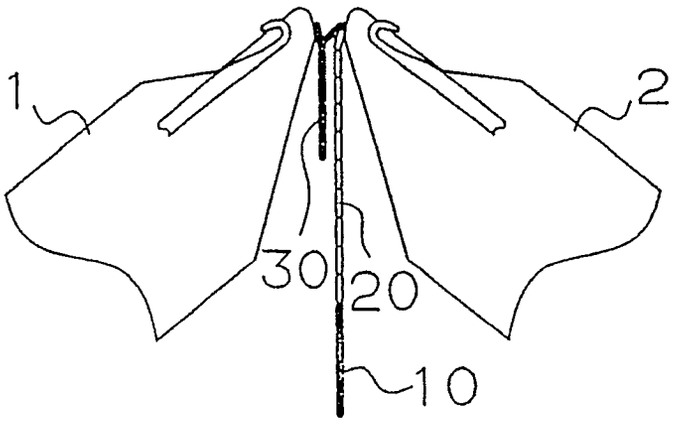


Fig.4-B

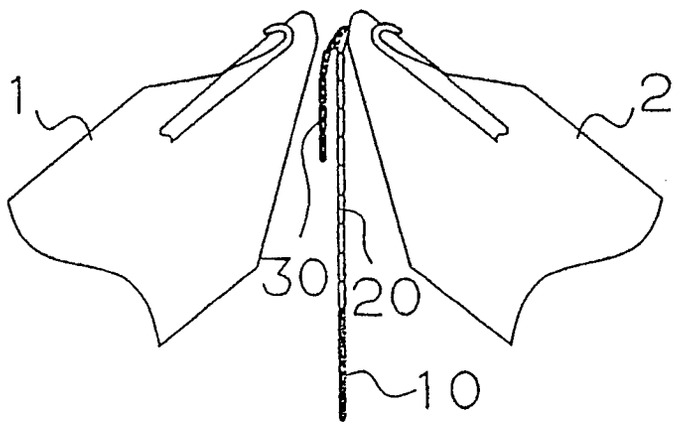
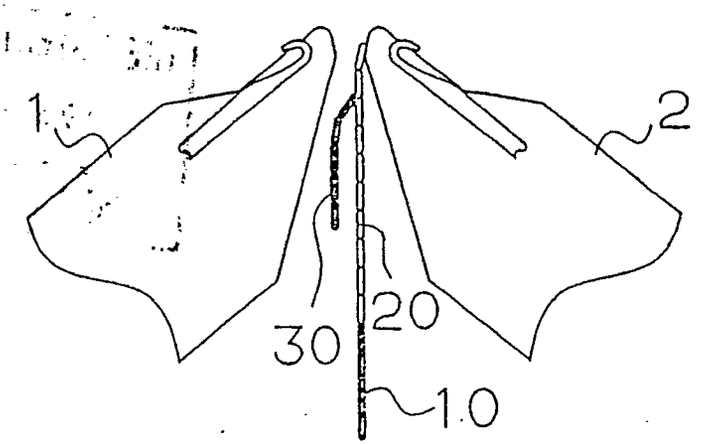


Fig.4-C



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EUROPEAN SEARCH REPORT

Application Number

EP 90 31 0234

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	DE-A-2 708 722 (FABRIQUE NATIONALE HERSTAL S.A.)		D 04 B 1/22
A	DE-A-2 449 083 (WILLIAM COTTON LTD)		
A	FR-A-2 352 909 (VSESOJUZNY NAUCHNO)		

TECHNICAL FIELDS SEARCHED (Int. Cl.5)
D 04 B

The present search report has been drawn up for all claims

Place of search	Date of completion of search	Examiner
The Hague	07 January 91	VAN GELDER P.A.

CATEGORY OF CITED DOCUMENTS

X: particularly relevant if taken alone
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