

- [54] **GLOVE KNITTING METHOD**
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[73] Assignee: **Shima Idea Center Company Limited**, Japan
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[52] U.S. Cl. **66/65; 66/174**
[51] Int. Cl.² **D04B 7/34**
[58] Field of Search **66/65, 174**

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[57] **ABSTRACT**
A method for knitting a glove using a lateral glove knitting machine having opposed rows of knitting needles, some of which on one side are stitch transfer needles, comprising the steps of first knitting the finger portions and the back and palm portions of a glove down to the root of the thumb portion of the glove; second, knitting the thumb portion of the glove down to the root thereof; next, connecting the back of the thumb portion of the glove to the palm of the glove at the root of the thumb portion, and then continuing to knit the back portion of the glove and the palm portion of the glove with the palm portion continuing from the front side of the thumb portion of the glove.

8 Claims, 17 Drawing Figures

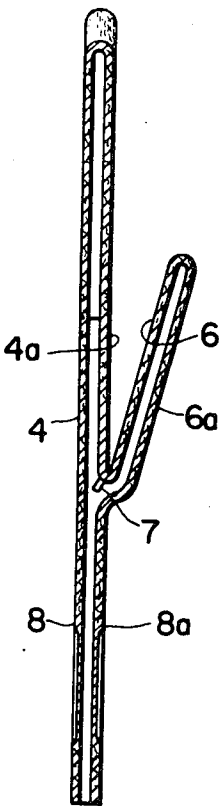


FIG. 1

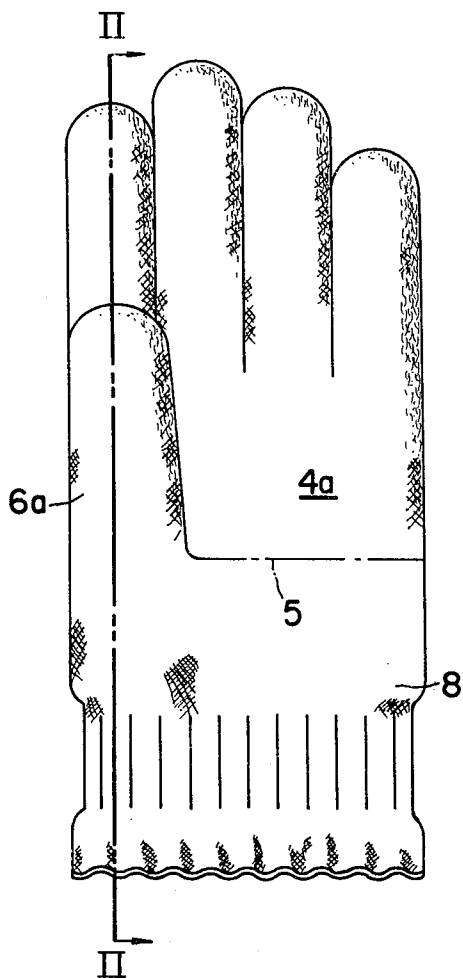


FIG. 2

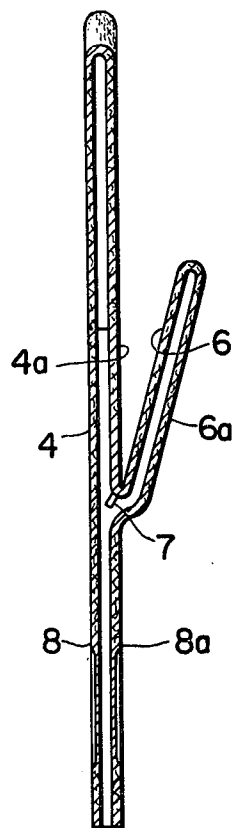


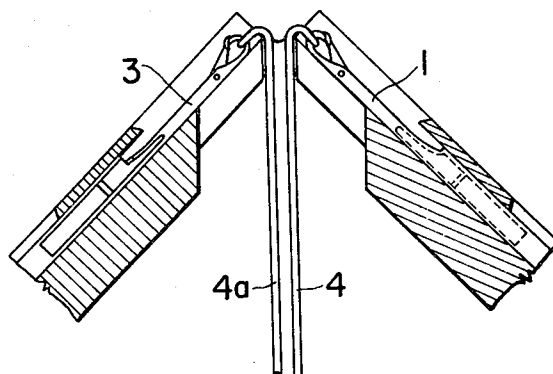
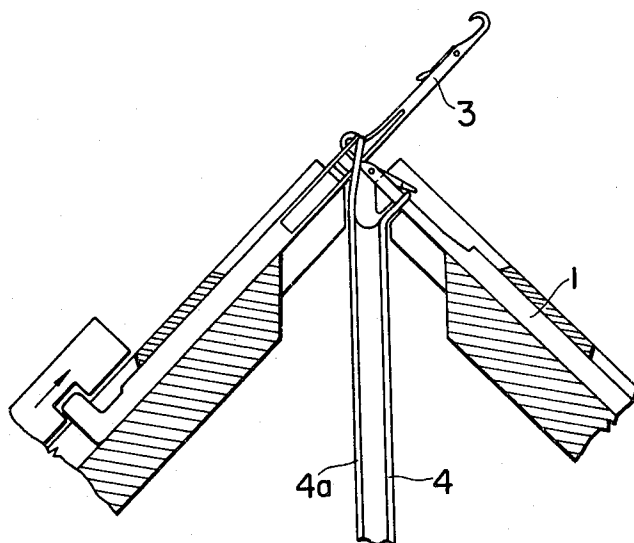
FIG. 3**FIG. 4**

FIG. 5

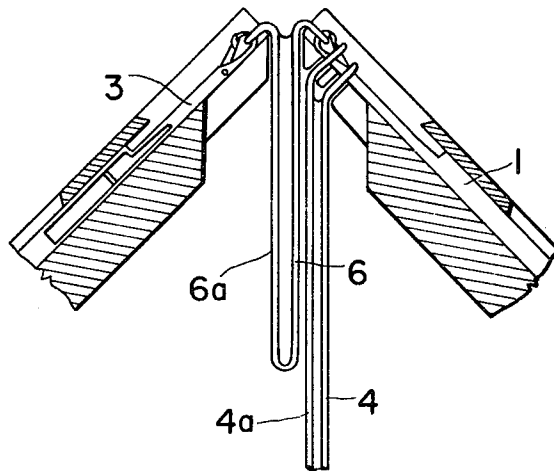


FIG. 6

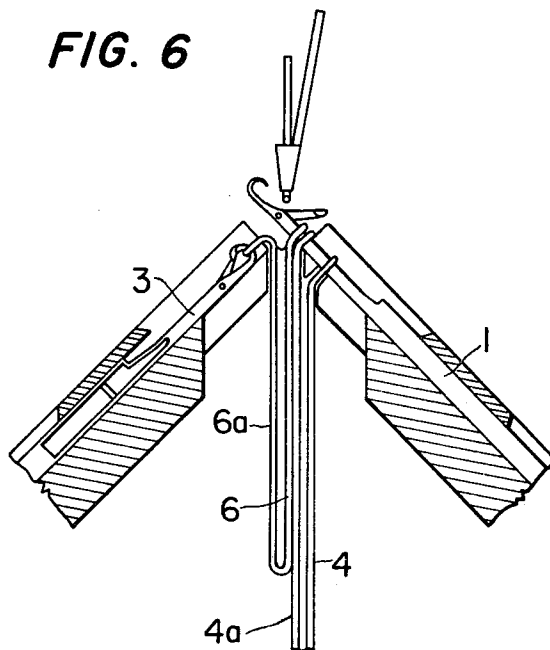


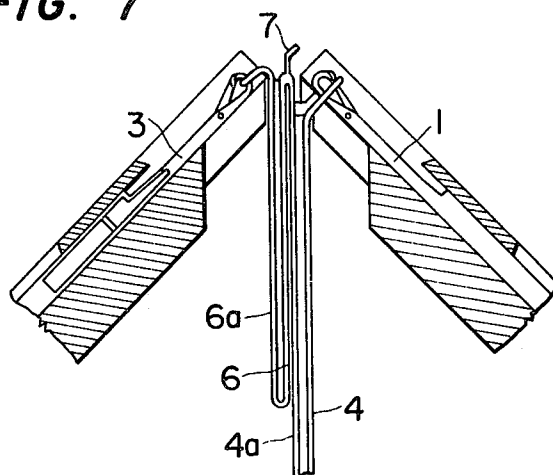
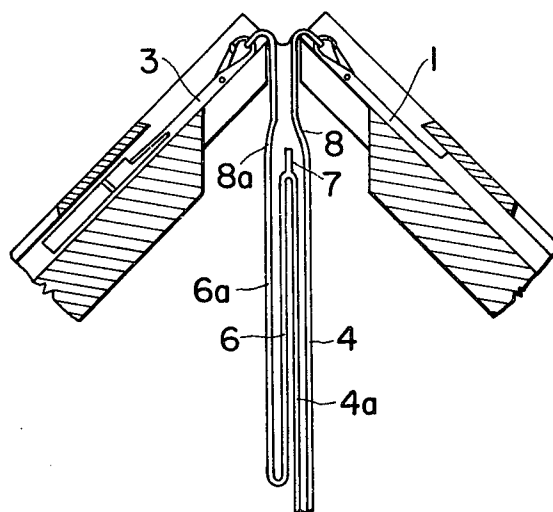
FIG. 7**FIG. 8**

FIG. 9

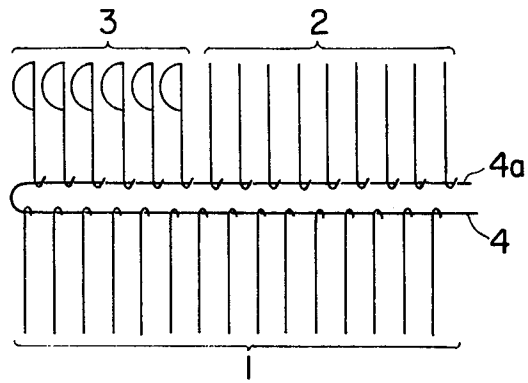


FIG. 10

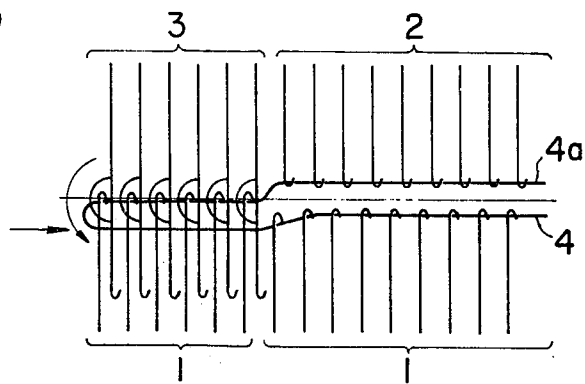


FIG. 11

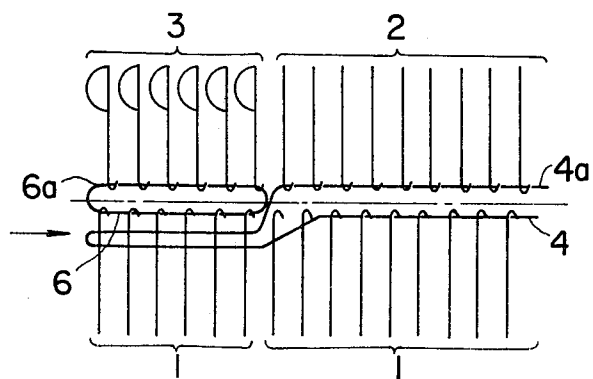


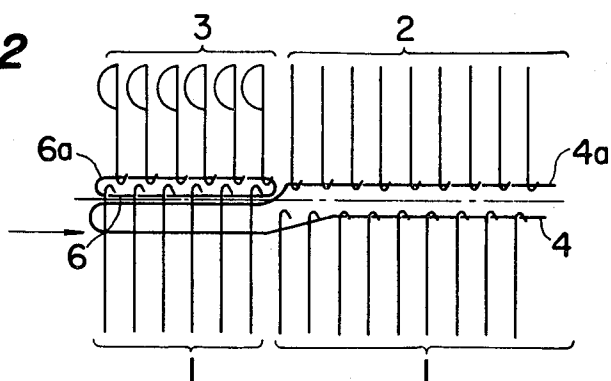
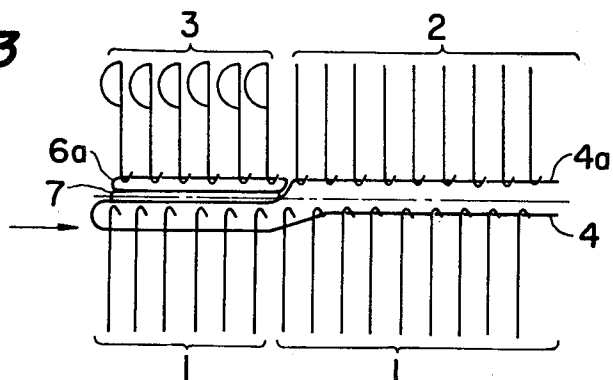
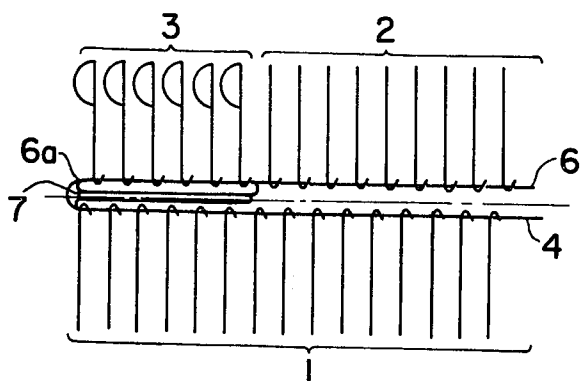
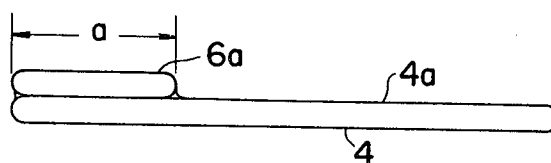
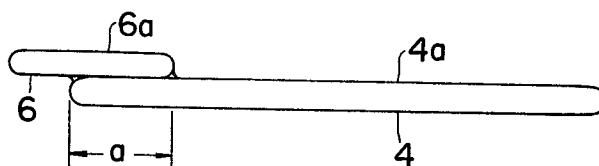
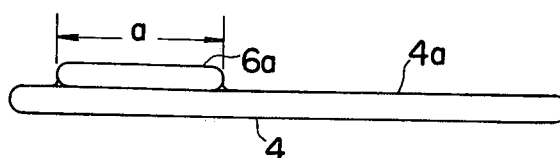
FIG. 12**FIG. 13****FIG. 14**

FIG. 15**FIG. 16****FIG. 17**

GLOVE KNITTING METHOD

BACKGROUND OF THE INVENTION

According to the known glove knitting method, when knitting of the upper portions of the palm and back is completed, the knitted fabric on the back side is transferred to the stems of the needles and while keeping the knitted fabric on the palm side in the state taken out of the needles, a thumb is knitted. After formation of the thumb, the lower portions of the palm and back are knitted and as knitted are connected with the terminal ends of the back side fabric previously transferred to the stems of the needles and to the palm side of the thumb portion. In a glove formed by this known knitting method, however, a non-knitted opening is left between the back side of the thumb root and the palm side, and this opening has been knitted and closed by manual cross-stitching in a subsequent step. The efficiency of the glove knitting method, which has been automated with much effort heretofore made, is drastically lowered by this manual cross-stitching step.

SUMMARY OF THE INVENTION

The present invention relates to a glove knitting method in which in linking a thumb portion with a palm portion of the glove, the root of the thumb portion is knitted continuously with the palm portion and therefore a manual stitching operation need not be effected in performing a knitting process.

According to this invention, a special knitting thread is used for forming the root portion of the thumb, or a heat-sealing step is conducted in combination with use of a special thread or an overlock stitching step is performed, whereby the root portion of the thumb can be effectively fixed and hence, the above-mentioned reduction of the operation efficiency can be prevented effectively.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view illustrating the front or the palm side of a glove knitted according to the method of this invention.

FIG. 2 is a view illustrating the longitudinal section taken along the line II—II of FIG. 1.

FIGS. 3 to 8 are longitudinal sectional views of a knitting machine and a knitted fabric, which show the steps of the knitting method of this invention.

FIGS. 9 to 14 are ground plans corresponding to FIGS. 3 to 8, respectively, which illustrate the relation between the needles and the knitted fabric.

FIGS. 15 to 17 illustrate sections of the thumb root portions of gloves formed according to three embodiments, respectively.

DESCRIPTION OF PREFERRED EMBODIMENTS

An ordinary lateral glove knitting machine is used in practising the method of the present invention. In this knitting machine, of the needles for knitting the thumb portion, those disposed on one side are provided with a stitch transfer device and are thereafter referred to as "stitch transfer needles", the needles of the glove knitting machine are arranged as shown in FIGS. 9 to 14.

In the drawings, needles 1 are those for knitting a glove back portion, needles 2 and 3 are those for knit-

ting the glove palm portion and some of needles 1 and 3 are also used for knitting the thumb portion.

An embodiment of this invention shown in FIG. 15 will now be described. At first, portions of a forefinger, a middle finger, a ring finger and a little finger of the glove are knitted by needles 1, 2 and 3, and then the upper half portions 4, 4a of the back and palm are knitted toward a line 5 of the root of the thumb portion by all of the needles 1 to 3. At the root of the thumb, the stitch transfer needles 3 are elevated to the position shown in FIG. 4, and loops on the palm side are transferred to needles 1 confronting the stitch transfer needles 3. Then, needles 1, except those confronting the needles 3, and needles 2 are kept in the resting state, and the thumb portions 6, 6a are knitted (see FIG. 5) according to an optional method while keeping the back and palm portions 4, 4a in the state hooked on stems of the needles 1 (see FIG. 11). After completion of the formation of the thumb portion, the loops of the back side 6 of the thumb and the palm portion 4a are transferred to operating position of the needles 1 and a small number of linking courses 7 are knitted (see FIG. 6). These courses 7 are formed by employing thermo-plastic yarns and connecting the heat sealing after knitting, or by employing bulky yarns to prevent occurrence of fraying or forming overlock stitches and coating an adhesive thereon to prevent occurrence of fraying. When formation of the courses 7 is completed, the courses 7 are taken out of the needles 1 (see FIG. 7), and then, the lower portions 8, 8a of the back and palm are knitted by all of the needles 1 to 3 (see FIG. 8). Thus the entire glove knitting process is completed.

The foregoing description has been made on the glove, the section taken along the root of the thumb of which is shown in FIG. 15. The method of this invention, however, can be similarly applied to knitting of gloves having a section such as shown in FIG. 16 or 17. In each case, the intended object of this invention can be attained by employing stitch transfer needles as the needles on the palm side at the position indicated by a in the drawings.

Another embodiment of the present invention is shown in FIG. 16. At first a portion of four fingers other than the thumb are knitted by needles 3 and needles 2 of the palm portion of the glove and needles 1 confronting these needles 2, 3 and then the upper half portions 4, 4a of the back and palm are knitted toward the line of the root of the thumb portion by the needles 1, 2 and 3. At the root of the thumb the stitch transfer needles 3 are elevated to the position shown in FIG. 4 and loops on the palm side are transferred to the needles 1 confronting the stitch transfer needles 3. Then, the stitch transfer needles 3, needles 2, on the outside of which the needles 3 are disposed, and needles 1 confronting these needles 2, 3 are kept in operating position and the other needles than those are kept in the resting state, and the thumb portions 6, 6a are knitted (see FIG. 5) keeping the back and palm portions 4, 4a hooked on stems of the needles 1. After completion of the formation of the thumb portion, loops being at a in the palm portion 4a are transferred to operating position of the needles 1 and a few linking courses 7 are knitted (see FIG. 6). When formation of the courses 7 is completed, the courses 7 are taken out of the needles 1 (see FIG. 7). Then, the lower portions 8, 8a of the back and palm are knitted by all of the needles 1 to 3 (see FIG. 8).

Still another embodiment of the present invention is shown in FIG. 17. In this embodiment knitting steps are almost same as that shown in FIG. 15. It is different from the first embodiment only in the arrangement of the needles 2 for knitting the palm portion which are disposed at both side of the stitch transfer needles 3.

What is claimed is:

1. A method for knitting a glove using a lateral knitting machine having opposed rows of needles, at least some of the needles in one of the opposed rows being stitch transfer needles, comprising the steps of first knitting the fingers, back and palm portions of the glove down to the root of the thumb portion of the glove, knitting the thumb portion of the glove to have a back side and front side, connecting the back side of the thumb portion of the glove at the root of the thumb portion to the palm portion of the glove, and continuing to knit the back and palm portions of the glove to complete the glove, with the continuation of the palm portion of the glove at the thumb portion being from the front side of the thumb portion at the root thereof.

2. The method as set forth in claim 1, and further including the step of transferring yarn loops at the end of the palm portion of the glove at the root of the thumb portion by the transfer needles to the opposed row of needles prior to knitting of the thumb portion of the

glove.

3. The method as set forth in claim 1, wherein the back side of the thumb portion of the glove is connected to the palm portion of the glove by a separate knitting thread.

4. The method as set forth in claim 1, wherein the back side of the thumb portion of the glove is connected to the palm portion of the glove by an overlock stitching step.

5. The method as set forth in claim 1, wherein the glove is knit of a heat sealable yarn and the step of connecting the back side of the thumb portion to the palm portion of the glove is a heat sealing step.

6. The method as set forth in claim 1, wherein the thumb portion of the glove is knit to terminate at one side at the adjacent side of the back and palm portions of the glove.

7. The method as set forth in claim 1, wherein the thumb portion of the glove is knit to terminate at one side outwardly of the glove beyond the adjacent side of the back and palm portions of the glove.

8. The method as set forth in claim 1, wherein the thumb portion of the glove is knit to terminate at one side inwardly of the glove from the adjacent edge of the back and palm portions of the glove.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,916,647 Dated November 4, 1975

Inventor(s) _____

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

On the cover sheet insert:

[30] FOREIGN APPLICATION PRIORITY DATA

June 11, 1973 Japan Sho 48-65664

Signed and Sealed this

twenty-seventh Day of April 1976

[SEAL]

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