

May 15, 1945.

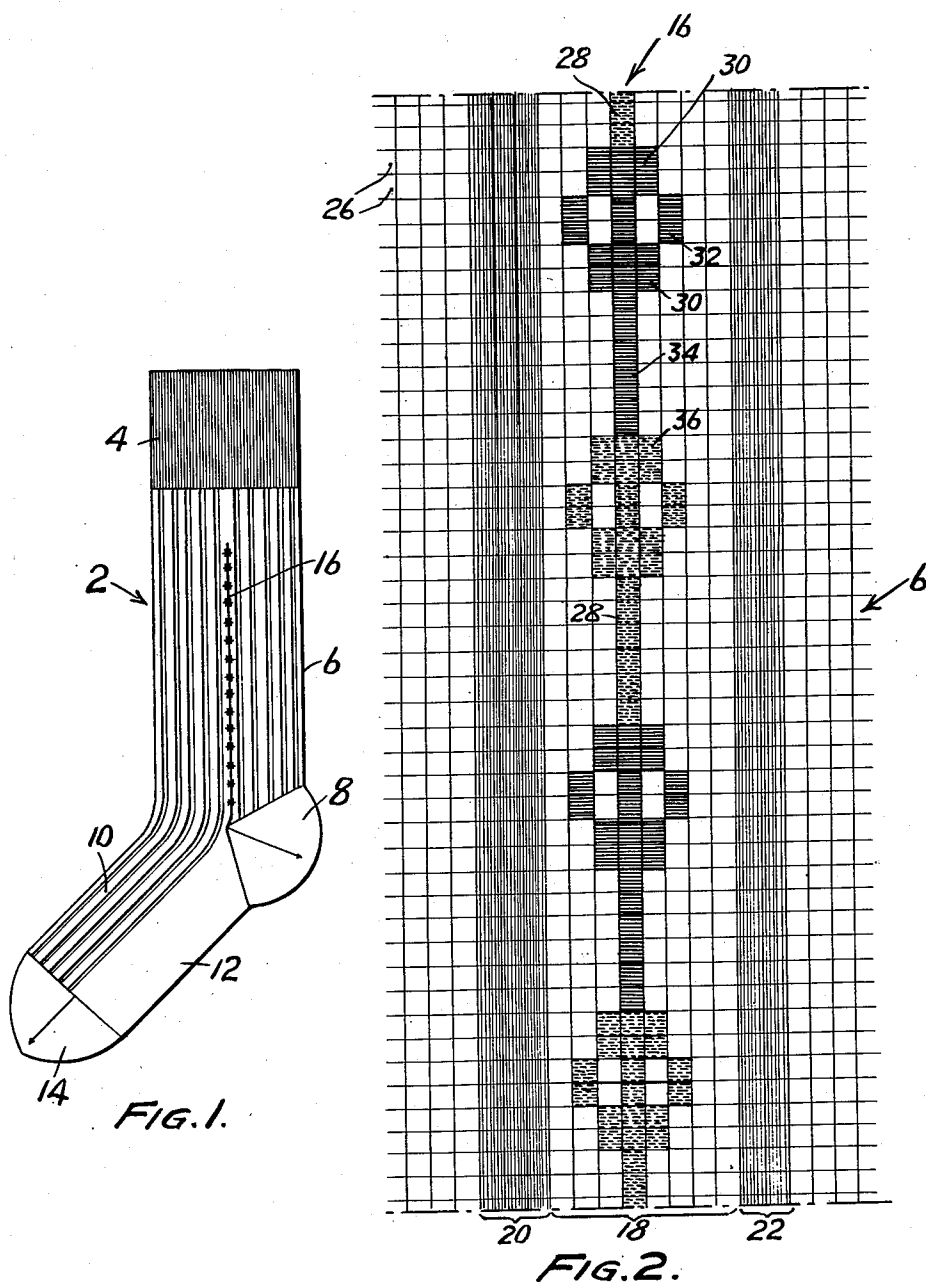
J. L. GETAZ

2,376,246

KNITTING METHOD AND PRODUCT THEREOF

Filed Jan. 10, 1941

2 Sheets-Sheet 1



WITNESS:

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2 Sheets-Sheet 2

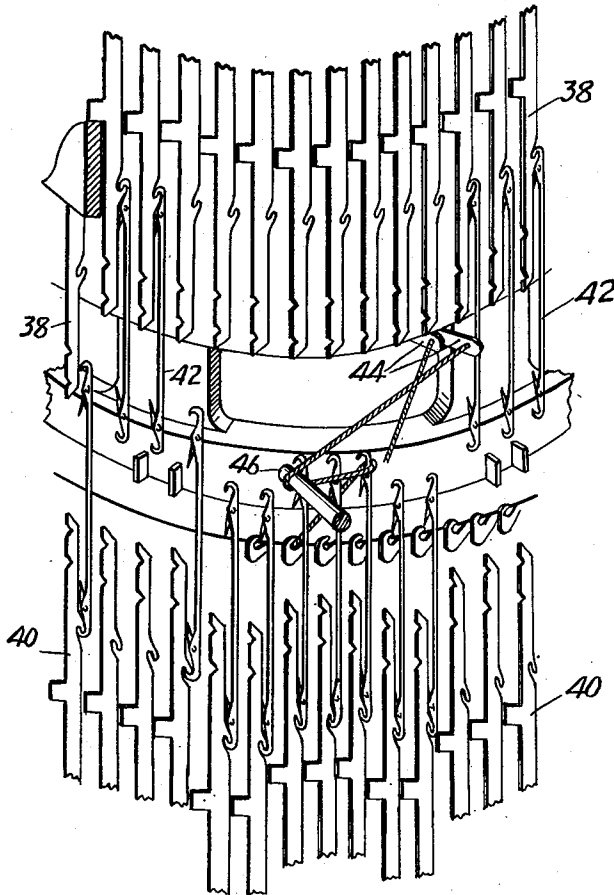


FIG. 3.

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UNITED STATES PATENT OFFICE

2,376,246

KNITTING METHOD AND PRODUCT
THEREOF

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Application January 10, 1941, Serial No. 373,878

17 Claims. (Cl. 66—201)

This invention relates to a knitting method and the product of such method, and particularly to a so-called broad rib fabric containing wrapping.

This application is in part a continuation of my application Serial No. 340,292, filed June 13, 1940, for Knitting method and machine.

The object of this invention is the provision of a knitted fabric forming, for example, a stocking or other article provided with broad ribs and decorated with a wrap design produced by one or more embroidery threads incorporated in a plurality of stitches in at least some courses.

A further object of the invention relates to the method of producing such fabric.

These and other objects of the invention, particularly relating to details, will become apparent from the following description, read in conjunction with the accompanying drawings, in which:

Figure 1 is a diagrammatic side elevation illustrating a stocking embodying the invention;

Figure 2 is an enlarged diagram illustrating the nature of the wrap design provided in accordance with this invention; and

Figure 3 is a perspective diagram illustrating the fashion in which wrap yarns are fed to needles of a knitting machine to produce the product.

There is illustrated at 2 a stocking comprising a ribbed top 4, a leg 6, heel 8, a foot comprising instep and sole portions, respectively, shown at 10 and 12, and a toe 14. As indicated in said figure, the leg and instep are provided with so-called broad ribs, which may, in general, be of the conventional 6 x 3 type, i. e., six wales comprise stitches concatenated in one direction, the next three stitches concatenated in the opposite direction, and so on. In this fashion, a fabric is produced having both projecting and depressed ribs, the fabric being produced on the type of machine illustrated in said application Serial No. 340,292, having superposed cylinders arranged to carry double ended needles in conventional fashion. While a 6 x 3 rib arrangement has been mentioned, it will be obvious that other arrangements of the differently concatenated wales may be provided and, in fact, as illustrated and described herein, while 6 x 3 rib structure may occupy the main portion of the leg, it is sometimes desirable to depart from this locally, as in the case illustrated, in which the side regions of the stocking may contain an outwardly facing rib having an eight-wale width adjoining an inwardly facing rib of two-wale width. As is

known to those skilled in the art, the widths of the wales are determined by the arrangements of the needles in the respective cylinders, this being quite arbitrary.

The invention is herein illustrated as applied to the formation of a clock design extending upwardly on each side of the stocking. It will be obvious that the invention may be applied to any number of designs about the stocking decorating the front and back of the leg as well as the sides, but it will suffice to describe specifically what is illustrated, since variations therefrom will be quite obvious.

In the diagram of Figure 2, the stitches are represented by squares, the wales being represented by columns of these squares and the courses by rows such as indicated at 26. A face rib, i. e., comprising normally concatenated loops, is illustrated at 18, flanked by ribs of reversely concatenated loops at 20 and 22, indicated by the light vertical shading. Adjacent these are other face wales, alternating with rear wales, to form the body structure of the fabric.

The portion of the clock design illustrated comprises loops in three courses, illustrated at 28, wrapped with one yarn. Following the completion of these three courses, this yarn then floats to the course illustrated at 36, where it is again knit into stitches. At the region 30, a second yarn, which may be floating from a previous incorporation thereof, is panel wrapped about three adjacent loops, having been presented to the three needles which draw them. After two such courses, a change in selection of the yarn by the needles is effected, and wrapping then occurs on the first, third and fifth needles of a group of five within the face rib 18. Then the arrangement indicated at 30 is again repeated, followed by the wrapping of the loops in a single wale at 34. Following the completion of the courses incorporating this wale, the wrap yarn is again floated for the repetition of the design after the completion of a similar design by the first yarn.

The mechanism for accomplishing this result is fully disclosed in said parent application, and is only diagrammatically illustrated herein in Figure 3. This illustrates the upper and lower sliders 38 and 40, respectively, of a superposed cylinder type of machine, these sliders being arranged to effect movements of the needles 42 including their transfer at proper times to change the character of the knitting. Wrap yarns are fed to the needles by two or more fingers, illustrated at 44, which may be selectively projected

into active position as described in said parent application. The yarns presented outwardly by these wrap fingers engage an abutment 48, which retards the movement of the yarn with the rotating cylinders, so that it is presented to the hooks of selectively upwardly positioned needles designed to take it.

Figure 3 illustrates diagrammatically the positions of the parts in the formation of the wrapping indicated at 30 in Figure 2, i. e., the wrapping of one of the yarns about three adjacent needles constituting the third, fourth and fifth needles of a panel of eight lower cylinder needles. In the formation of the wrapping at 32, the second, fourth and sixth needles of the panel would be selectively projected upwardly to receive the yarn, while the first, third, fifth, seventh and eighth needles of the panel would be depressed in a position to avoid taking the yarn. When the other yarn is to be wrapped, its finger, rather than the one illustrated, is projected outwardly, so that it, rather than the first yarn, will engage the abutment 46 to be taken by those needles which are selectively in upper position during the formation of each particular course.

While the widened face rib in which the wrap design occurs is not essential, it is desirable, if the design is to be a wide one, to make the panel in which the design occurs somewhat wider than the design. For example, in the present case, the maximum width of the design is five wales. In such case, it is desirable to provide one wale preceding the wales carrying the designs and two wales following them. Thus extremely fine adjustments may be avoided with insurance, nevertheless, that the yarn fingers and the abutment will effect proper positioning of the yarns without interference by the needles carried in the upper cylinder producing the reversely concatenated loops.

What I claim and desire to protect by Letters Patent is:

1. Knitted ware comprising broad ribs of multiple wale width and at least one wrap yarn included in a plurality of stitches in the same course in a broad rib.

2. Knitted ware comprising broad ribs of multiple wale width and at least one wrap yarn included in a plurality of stitches in the same course in a broad rib, the stitches in which said wrap yarn is included being separated by at least one stitch in which it is not included.

3. Knitted ware comprising broad ribs of multiple wale width and a plurality of wrap yarns, each included in a plurality of stitches in a single course in a broad rib.

4. Knitted ware comprising broad ribs of multiple wale width and a plurality of wrap yarns, each included in a plurality of stitches in a single course in a broad rib, and one of said wrap yarns floating past at least one course in which the other is knit and being itself knit into courses preceding and succeeding said course in which the other is knit.

5. The method of knitting comprising reversely concatenating loops in a course, with a plurality of adjacent loops concatenated in one direction lying between loops concatenated in the opposite direction, and knitting a wrap yarn with at least two of said adjacent loops.

6. The method of knitting comprising reversely concatenating loops in a course, with a plurality of adjacent loops concatenated in one direction lying between loops concatenated in the opposite direction, and knitting a wrap yarn with at least

two of said adjacent loops separated by at least one loop with which the wrap yarn is not knit.

7. The method of knitting comprising concatenating adjacent loops of a course in one direction between loops of said course which are concatenated in the other direction, and knitting a wrap yarn with at least two of said adjacent loops.

8. Knitted ware comprising broad ribs of multiple wale width and a plurality of wrap yarns, each included in a plurality of stitches in the same wale in a broad rib, and at least one of said wrap yarns being included in a plurality of stitches in the same course.

9. Knitted ware comprising broad ribs of multiple wale width and a plurality of wrap yarns, each included in a plurality of stitches in the same wale in a broad rib, one of said wrap yarns floating past at least one course in which the other is knit and being itself knit into courses preceding and succeeding said course in which the other is knit, and at least one of said wrap yarns being included in a plurality of stitches in the same course.

10. The method of knitting comprising concatenating loops of a plurality of adjacent wales in one direction between wales the loops of which are concatenated in the other direction, and knitting with the loops of one of said adjacent wales a plurality of wrap yarns, with at least one of said wrap yarns knit with a plurality of loops in the same course.

11. The method of knitting comprising concatenating loops of a plurality of adjacent wales in one direction between wales the loops of which are concatenated in the other direction, and knitting with the loops of one of said adjacent wales a plurality of wrap yarns, with at least one of said wrap yarns knit with a plurality of loops in the same course, one of said wrap yarns being floated past at least one course in which the other is knit and being itself knit into courses preceding and succeeding said course in which the other is knit.

12. Knitted ware having in round and round knit portions thereof in the same course, groups of adjacent loops of which the loops of different groups are concatenated in opposite directions, and having at least one wrap yarn included in a plurality of loops of a group of the type stated.

13. Knitted ware having in round and round knit portions thereof in the same course, groups of adjacent loops of which the loops of different groups are concatenated in opposite directions, and having at least one wrap yarn included in a plurality of loops of a group of the type stated, the loops in which said wrap yarn is included in such group being separated by at least one loop in which it is not included.

14. Knitted ware having in round and round knit portions thereof in each of a plurality of courses thereof, groups of adjacent loops of which the loops of different groups are concatenated in opposite directions, and having a plurality of wrap yarns each included in a plurality of loops of a group of the type stated.

15. Knitted ware having in round and round knit portions thereof in each of a plurality of courses thereof, groups of adjacent loops of which the loops of different groups are concatenated in opposite directions, and having a plurality of wrap yarns each included in a plurality of loops of a group of the type stated, one of said wrap yarns floating past at least one course in which the other is knit and being itself knit into courses

preceding and succeeding said course in which the other is knit.

16. Knitted ware having in round and round knit portions thereof in the same course, groups of adjacent loops of which the loops of different groups are concatenated in opposite directions, and having a plurality of wrap yarns each included in a plurality of loops in the same wale, at least one of said wrap yarns being included in a plurality of loops of a group of the type stated. 10

17. Knitted ware having in round and round knit portions thereof in the same course, groups

of adjacent loops of which the loops of different groups are concatenated in opposite directions, and having a plurality of wrap yarns, each included in a plurality of loops in the same wale, one of said wrap yarns floating past at least one course in which the other is knit and being itself knit into courses preceding and succeeding said course in which the other is knit, and at least one of said wrap yarns being included in a plurality of loops of a group of the type stated.

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