

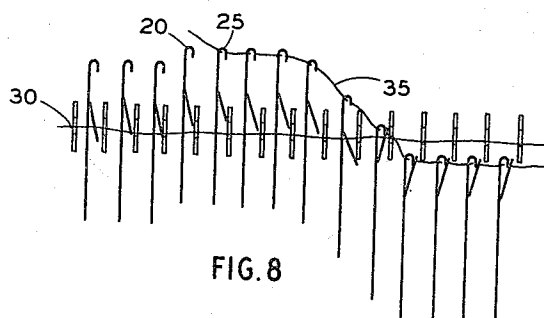
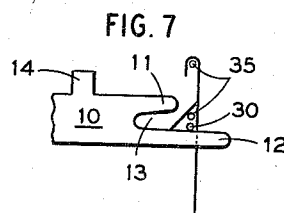
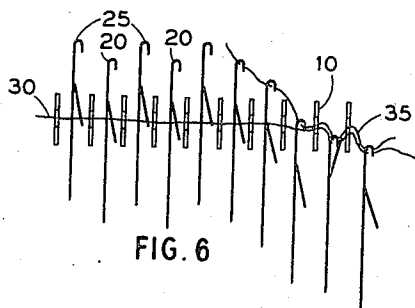
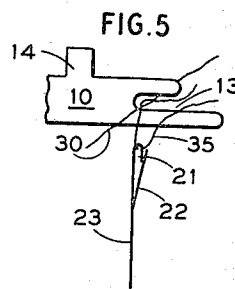
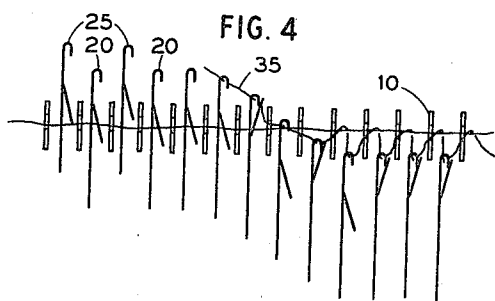
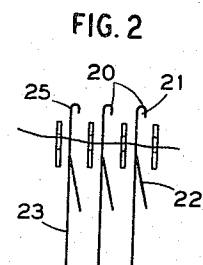
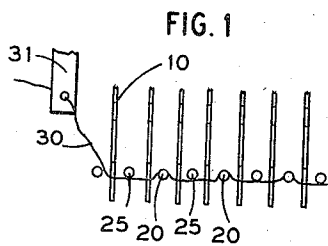
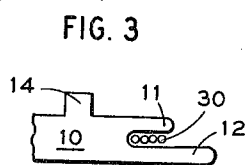
Oct. 9, 1956

R. G. MARQUIS
ELASTIC TOP STOCKING

2,765,643

Filed Aug. 16, 1955

2 Sheets-Sheet 1



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FIG. 9

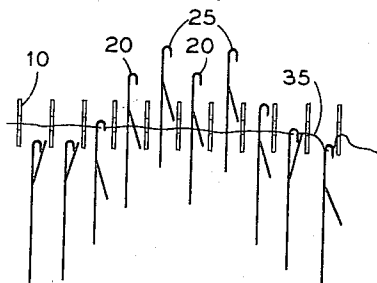


FIG. 10

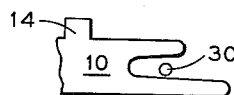


FIG. 11

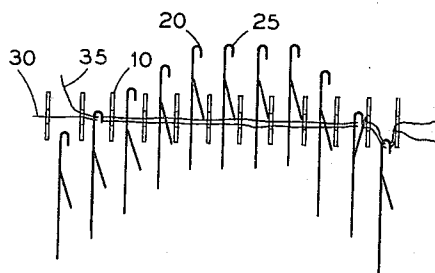


FIG. 12

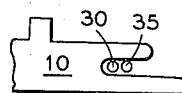


FIG. 13

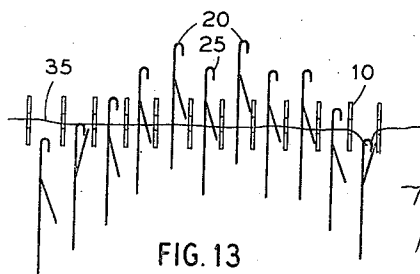
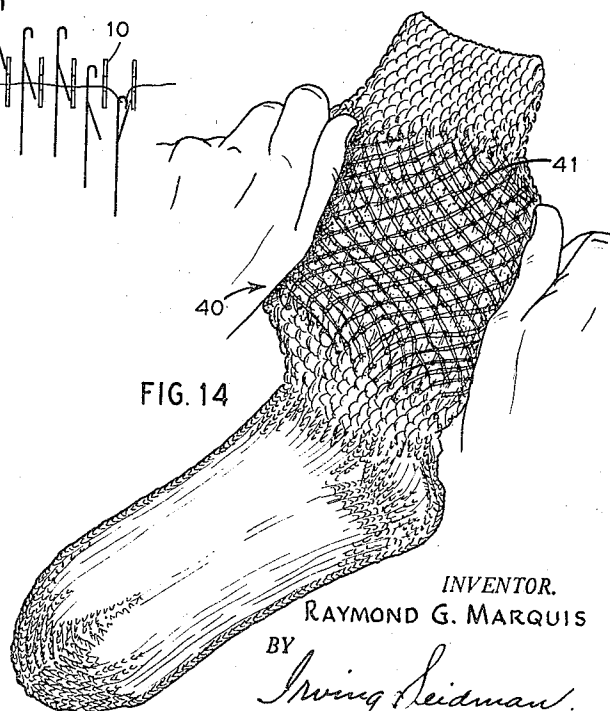


FIG. 14



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2,765,643

ELASTIC TOP STOCKING

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Application August 16, 1955, Serial No. 528,645

2 Claims. (Cl. 66—172)

This invention relates to a method of knitting an elastic top stocking having covered elastic yarn laid in circumferentially thereof in predetermined courses, preferably at regular intervals, and involving alternating or stepped tuck stitch sequences providing a novel raised pattern on the stocking top or leg, and to the stocking produced by such method.

In accordance with the invention, the knitting sequence involves a pre-set number of courses in which alternate needles form and cast off regular stitches of non-elastic yarn and the intermediate needles form tuck stitches of such yarn. This course sequence is followed by a clearing course in which all needles knit and cast off, with the elastic yarn being laid in in front of the alternate needles and behind the intermediate needles. Following this clearing course is the same pre-set number of courses of non-elastic yarn but, in this second sequence, the alternate needles tuck and the intermediate needles knit. This is followed by a clearing course in which all needles knit and cast off, with the elastic yarn being laid in in front of the alternate needles and behind the intermediate needles. The first sequence is then repeated, followed by the clearing and elastic yarn laying-in course and the second sequence.

In starting the stocking, it is preferred to first lay in several courses of the covered elastic yarn in front of the alternate needles and behind the intermediate needles. The alternate needles are then raised to the knit position and the intermediate needles to the tuck position, and the non-elastic yarn is fed to the raised needles which are then retracted to draw loops of the non-elastic yarn around the courses of the elastic yarn. Several courses are then formed with both the non-elastic and the covered elastic yarns being fed to the raised needles, but with alternate needles being raised only to the tuck position and intermediate needles being raised to the knit position. These courses are followed by a clearing course in which all needles are raised to the knit position, are fed both yarns, and then cast off. The first described course sequence is then respectively followed to complete the stocking top.

Due to the alternation of the tuck stitch sequences between the alternate and intermediate needles, a novel and attractive raised pattern is produced on the stocking top. The elastic yarn laid in at each clearing course, circumferentially of the stocking provides adequate stretchability and a firm grip of the stocking on the leg.

The method is preferably performed on a sinker top circular knitting machine having a cylindrical bank of latch needles moved to the tuck, stitch, and latch clearing positions by pattern wheels associated with pattern cams. The sinkers are movable radially of the usual sinker ring to lay the covered elastic yarn between the alternate and intermediate needles in the starting and latch clearing courses. The machine may, for example, have a 60-70 needle cylinder.

The elastic yarn is laid in under the nib or nose of

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the sinkers, whereas the non-elastic, or "regular," or "main" yarn, is drawn over the sinkers.

For an understanding of the invention principles, reference is made to the following description of a typical embodiment thereof as illustrated in the accompanying drawing. In the drawing:

Fig. 1 is a somewhat schematic plan view of the sinkers and needles of a circular knitting machine showing the laying in of the covered elastic yarn to form the starting courses;

Fig. 2 is a somewhat schematic elevation view corresponding to Fig. 1;

Fig. 3 is a partial elevation view of a sinker showing the elastic yarn of the starting courses laid in under the sinker nose or nib;

Fig. 4 is a diagrammatic elevation view illustrating the pulling of the regular yarn loops over the elastic yarn starting courses;

Fig. 5 is a view similar to Fig. 3 but corresponding to Fig. 4;

Fig. 6 is a view similar to Fig. 4 illustrating the knit and tuck courses following the step illustrated in Figs. 4 and 5;

Fig. 7 is a view similar to Figs. 3 and 5 but corresponding to Fig. 6;

Fig. 8 is a view similar to Figs. 4 and 6 illustrating the initial clearing course sequence;

Fig. 9 is a view similar to Figs. 4, 6 and 8 illustrating the first course sequence of the regular yarn knit and tuck operation;

Fig. 10 is a view similar to Figs. 3, 5 and 7 but corresponding to Fig. 9;

Fig. 11 is a view similar to Figs. 4, 6, 8 and 9 illustrating the clearing and elastic yarn laying-in course between the alternating sequences of the regular yarn knit and tuck operation;

Fig. 12 is a view similar to Fig. 10 but corresponding to Fig. 11;

Fig. 13 is a view similar to Fig. 9 but illustrating the alternate course sequence of the regular yarn knit and tuck operation; and

Fig. 14 is a partial elevation view of a stocking having an elastic top knit by the invention method.

Referring to Figs. 1-13, the invention knitting method is illustrated as effected on a sinker top circular knitting machine, such as a "Crawford" machine, having radially movable sinkers 10 formed with nibs 11 spaced from projecting fingers 12 to form throats 13. The sinkers have cam projections 14 engaging a cam ring controlling radial positioning of the sinkers. The sinkers shown in the drawings are illustrative only and sinkers differing in detail may be used with equal effectiveness.

Sinkers 10 cooperate with a cylindrical bank of latch needles movable in longitudinal slots in the usual needle cylinder and arranged to be projected and retracted between the sinkers 10. Of these needles, all of which are identical, alternate needles are designated 20 and the intermediate needles 25. This is for more ready reference in describing the course sequences.

Each needle 20 or 25 includes a hook 21 on its upper end and a latch 22 pivoted on shank 23 and arranged to be selectively closed and opened relative to hook 21. Shanks 23, in the usual manner, have butts engageable with the usual stitch cams and with pattern wheels associated with the stitch cams, as is customary in circular knitting machines. These cams and wheels raise the needles, in the present case, to either the tuck or the knit positions, and the cams retract the needles to form, respectively, tuck or knit stitches. The yarn is pulled over the sinkers 10 during such retraction to form the loops of the knitted fabric.

In starting the top of the stocking, and as illustrated

particularly in Figs. 1, 2 and 3, a covered elastic yarn 30 is fed, through a feeding device 31, to the throats 13 of sinkers 10, being thus held beneath nibs 11. The sinkers 10 are radially positioned in such a manner, relative to needle 20 and 25, that yarn 30 is laid behind needles 20 and in front of needles 25. In a specific example, this laying in of elastic yarn 30 is continued for four courses without needles 20, 25 forming stitches, although a greater or less number of such courses may be used.

Referring again to this specific example, after four courses of elastic yarn 30 have been laid beneath nibs 11 and around needles 20 and 25, alternate needles 20 are raised to the tuck stitch position and intermediate needles 25 are raised to the full knit position, with regular, non-elastic, or main yarn 35 being fed to all the needles, as shown in Figs. 4 and 5. The stitch cam subsequently retracts the needles pulling loops of the regular yarn 35 over the laid in courses of elastic yarn 30. As the alternate needles have been raised only to the tuck position, their latches are not closed during retraction of the needles by the stitch cam and thus remain open.

For the next three courses, for example, the alternate needles 20 are raised to the tuck position and the intermediate needles 25 to the knit position, as shown in Figs. 6 and 7. Both elastic yarn 30 and regular yarn 35 are fed to the needles during these courses, the elastic yarn thus being laid into each course. Needles 25 form full stitches, which are cast off, and needles 20 form and hold the tuck stitches or loops which are not cast off yet.

The next course is a clearing course in which all the needles are raised to the knit position, fed both elastic yarn 30 and regular yarn 35, and then retracted by the stitch cam to cast off all the previously formed stitches. This course, shown in Fig. 8, completes the starting of the stocking top. It should be noted that the specific number of courses in each top starting sequence may be varied without departing from the scope of the invention, and that an entirely different top starting procedure may be used.

After completion of the starting of the stocking top as just described, a repetitive sequence is used to complete the starting top. Following the described clearing course, three courses are knit with the regular yarn 35 only. In each of these courses, alternate needles 20 are raised to the tuck position and intermediate needles 25 to the knit position, as shown in Figs. 9 and 10. Needles 20 thus gather three tuck stitches and needles 25 form and cast off three full stitches.

Next, and as shown in Figs. 11 and 12, all the needles are raised to the stitch position to clear their latches while being fed regular yarn 35. At the same time, elastic yarn 30 is laid in front and back of alternating needles and under nibs 11, the elastic yarn thus being laid between stitches of the fabric.

Following the clearing course, alternate needles 20 are raised to the knit position, and intermediate needles only to the tuck position. All needles are fed regular yarn 35 only, as shown in Fig. 13. This continues for three courses.

In the next, or fourth, course, all needles are raised to the knit position to clear their latches, and are fed both regular yarn 35 and elastic yarn 30, this being a clearing course in which elastic yarn is laid in between stitches of the fabric. The sequence is then repeated.

Summarized succinctly, the knitting repetitive sequence for completing the stocking top involves the following steps:

1. A pre-set number of courses of regular yarn only, with alternate needles forming tuck stitches and intermediate needles forming full stitches;
2. A needle clearing course with elastic yarn laid in between stitches of the fabric;

3. The same pre-set number of courses of regular yarn only, with alternate needles forming full stitches and intermediate needles forming tuck stitches;
4. A needle clearing courses as in step 2.

As a result of this procedure, the elastic yarn 30 laid in on the clearing courses has a tendency to gather the fabric and made the tucking courses between knitted loops pucker up. These puckers 41 in stocking 40 (Fig. 14) are alternated in successive rows, making an evenly puckered raised pattern on the stocking top.

As an alternative procedure in starting the top, the clearing course terminating the starting sequence, in which both regular and elastic yarn are knitted, may be repeated several times before starting the top completing sequence.

While the invention has been described as involving knit stitches formed by every other or alternate needle and the tuck stitches formed by the in-between or intermediate needles, this is exemplary only. For example, the sequence may comprise forming two knit stitches, then two tuck stitches, then two knit stitches, etc. In other words, where the term "alternate" needle is used herein, it is intended to cover either one needle or a fixed number of consecutive "alternate" needles and, where the term "intermediate" needle is used, it is intended to cover either one intermediate needle or a number of consecutive "intermediate" needles equal to the number of consecutive "alternate" needles.

While a specific embodiment of the invention has been shown and described in detail to illustrate the application of the invention principles, it will be understood that the invention may be embodied otherwise without departing from such principles.

What is claimed is:

1. A knit elastic stocking top comprising repeated course sequences each including a first full knit course of non-elastic yarn with elastic yarn laid in the stitches and completely around the stocking, a preselected number of courses of the non-elastic yarn and having alternate knit stitches and intermediate tuck stitches, a second full knit course of non-elastic yarn with elastic yarn laid in the stitches and completely around the stocking, and said preselected number of courses of the non-elastic yarn and having intermediate knit stitches and alternate tuck stitches.

2. A knit elastic stocking top comprising a plurality of courses of elastic yarn extending completely around the top of the stocking top; a course of loops of non-elastic yarn tying-in said courses of elastic yarn; a pre-set number of courses of the non-elastic yarn and having alternate knit stitches and intermediate tuck stitches with elastic yarn laid in the stitches and completely around the stocking in each course; and repeated course sequences each including a first full knit course of non-elastic yarn with elastic yarn laid in the stitches and completely around the stocking; a preselected number of courses of the non-elastic yarn and having alternate knit stitches and intermediate tuck stitches, a second full knit course of non-elastic yarn with elastic yarn laid in the stitches and completely around the stocking, and said preselected number of courses of the non-elastic yarn and having intermediate knit stitches and alternate tuck stitches.

References Cited in the file of this patent

UNITED STATES PATENTS

202,567	McDevitt	Apr. 16, 1878
2,054,217	Getaz	Sept. 15, 1936
2,127,780	Marshall	Aug. 23, 1938
2,230,402	Getaz	Feb. 4, 1941
2,315,138	Smith	Mar. 30, 1943
2,592,966	Smith	Apr. 15, 1952