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METHOD OF FORMING A SELVAGE FOR HOSIERY

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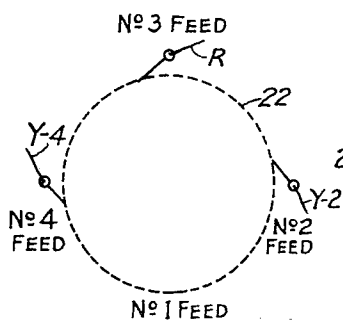


Fig. 4.

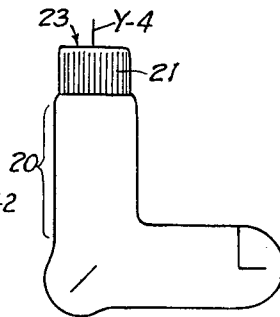


Fig. 1.

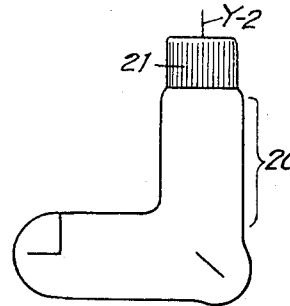


Fig. 2.

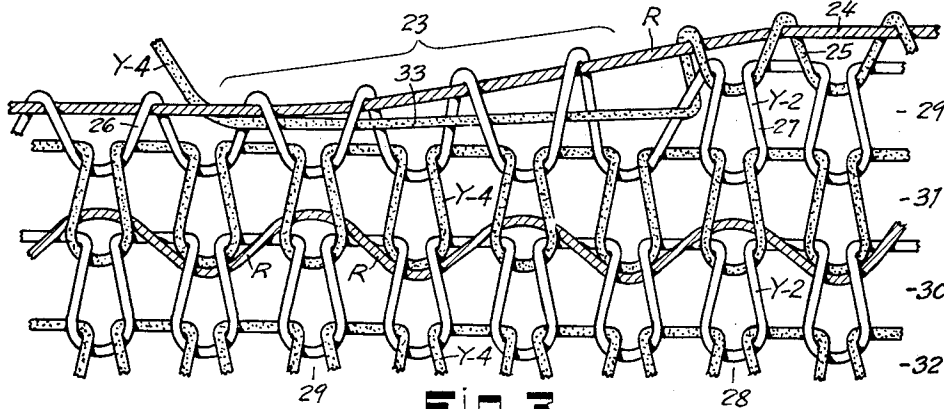


Fig. 3.

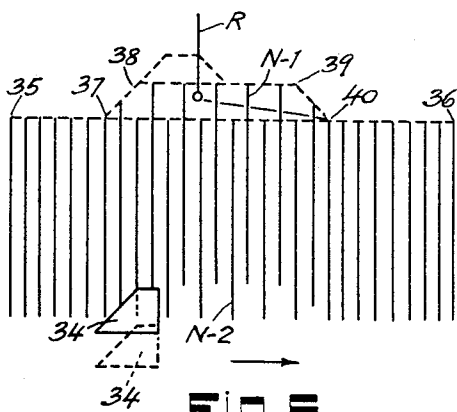


Fig. 5.

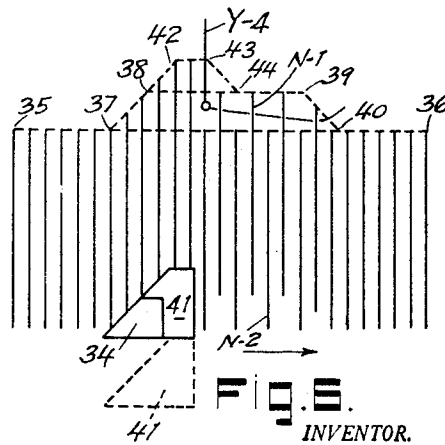


Fig. 6.

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1

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METHOD OF FORMING A SELVAGE FOR
HOSIERY

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Original application Apr. 4, 1958, Ser. No. 726,417, now
Patent No. 2,976,707, dated Mar. 28, 1961. Divided
and this application Jan. 25, 1961, Ser. No. 84,877
8 Claims. (Cl. 66-41)

The present invention relates generally to the art of knitting and more particularly to hosiery of the type having a simulated top portion and to the method of knitting the same.

The present application is a divisional application of application Serial Number 726,417, filed April 4, 1958, now Patent No. 2,976,707.

In hosiery having simulated rib tops, the latter are generally formed of an elastic yarn and of one or more relatively non-elastic body yarns by plain or jersey knitting upon a circular knitting machine. The elastic yarn is incorporated, usually, in spaced wales of spaced courses to provide the rib simulation in the plain fabric of the body yarns. The elastic yarn is used to form the selvage for the top, being fed, without knitting for one or more courses to spaced needles after which the body yarns are fed to and knit by all the needles for the selvage and thereafter both yarns continue to form the top. At the point of introduction of the body yarn or yarns, the first knitting course thereof on all the needles acts to cast off the elastic yarn, interlaced on bare needles, to form the selvage. At the first needle taking a body yarn, there is a tendency for a hole to develop in the top as the latter is stretched during subsequent handling of the same. In some cases it has even been advisable to draw the loose beginning end of the body yarn through the fabric of the top by hand to anchor the yarn and eliminate the hole.

It is an object of the present invention to provide an improved simulated rib top in which the selvage is free of holes at the point of introduction of the body yarn or yarns.

It is a further object of the invention to anchor the body yarn or yarns in the fabric for one or more wales preceding the wale in which these yarns commence knitting the top.

It is a still further object of the invention to tuck or to interlace the body yarn or yarns upon one or more spaced needles, which may be the same needles to which the elastic yarn has been fed, before commencing the knitting of the body yarns in the hose top.

These and other objects and advantages of the invention will become readily apparent from the following detailed description of a preferred form thereof shown in the accompanying drawings and from the appended claims.

In the drawings.

FIG. 1 is a side view of a circular knit hose having a simulated rib top.

FIG. 2 is a side view of the opposite side of the hose shown in FIG. 1.

FIG. 3 is an enlarged diagrammatic view showing the stitches in the top selvage for a few courses in the area of the introduction of one of the body yarns.

FIG. 4 is a diagrammatic representation of certain features of a four feed circular knitting machine, and

FIGS. 5 and 6 are diagrammatic views showing steps in the needle action in the method of forming the improved top.

One type of hose is shown in FIGS. 1 and 2, in the making of which the present method of knitting may be used. The hose, indicated generally at 20, has a simu-

2

lated rib or elastic top indicated at 21, and the usual other hose portions.

The improved top of the present invention may be made upon any type of circular hose machine provided with means to manipulate the needles in the manner hereinafter described, the present description indicating the use of a multiple feed machine, also the invention is applicable to tops made upon single feed machines. A four feed revolving cylinder machine, of the Reading CK type, is diagrammatically shown in FIG. 4. The elastic yarn R is fed to the needles at Feed No. 3, body yarn Y-4 is fed to Feed No. 4 and body yarn Y-2 is fed at Feed No. 2, while the needle circle is indicated at 22.

A portion of the top 21 is shown in enlarged stitch detail in FIG. 3 wherein the selvage 23 at the start of the top is formed of elastic yarn R and body yarns Y-2 and Y-4. The selvage course of elastic yarn is shown at 24 as a single course thereof, although it will be understood that multiple courses of the elastic may be incorporated in the selvage, if so desired. The elastic yarn R is tucked at one of the feeds in alternate ones of the bare needles at the start of the top, in the usual manner, for one or more revolutions of the needle cylinder, after which the needles pass through the usual knitting wave at other feeds while taking and knitting body yarn, say the yarn Y-4 at Feed No. 4 and the yarn Y-2 at Feed No. 2, the knitting action of the body yarns causing the tucked elastic yarn to be cast off over the first stitches 25 of yarn Y-4 and 26 of yarn Y-2, to form the selvage 23.

The stitches 25 of yarn Y-4 and the stitches 26 of yarn Y-2 together comprise a complete course within which the first course 24 of elastic yarn R is incorporated. After the formation of this course, the yarn Y-2 commences the formation of regular stitches as at 27 in wale 28 and thereafter forms alternate courses, such as courses 29 and 30, of the top 21. In a similar manner, not shown, at another point, the yarn Y-4 commences the formation of regular stitches to form the intervening courses, such as courses 31 and 32, of the top 21. Between the courses 30 and 31, and at similar places throughout the top, an inlaid course of elastic yarn R is incorporated in the usual manner, being cast off unknit during the formation of course 30. Preceding the wale 28, which is the first wale in which yarn Y-4 is knit to form the first of the stitches 25, the yarn Y-4 is incorporated as at 33, for a few wales starting with the wale 29, along with elastic yarn R in the stitches 26 of the yarn Y-2 within the selvage 23. A more detailed description of the incorporation of yarn Y-4 would be to describe it as being held in the sinker wales on each side of the needle wales, starting with the needle wales 29. If this were not done, there would be no anchor for the yarn Y-4 before commencing the knitting of the stitches 25 and a hole would develop in the selvage 23 at the wale 28. The incorporating of the body yarn Y-4 along with the elastic yarn R for one or more wales in the selvage prior to knitting the same provides an anchor for the yarn Y-4 and prevents the formation of holes in the fabric.

The yarn Y-2 is similarly anchored within the selvage at a spaced circumferential point of the top 21, the yarns Y-2 and Y-4 being normally introduced at spaced needles during a single course of knitting. This anchoring or unknit incorporation of the body yarns in the selvage may be for as few or as many wales as desired.

The Feeds Nos. 2, 3 and 4 are provided with means to selectively raise alternate needles, preferably having long butts, to tuck level, while Feeds Nos. 2 and 4 also have means to raise all the needles to the regular full latch clearing level. In FIGS. 5 and 6 the long butt alternate needles are indicated at N-1 while the short butt intervening needles are indicated at N-2. In FIG. 5, which represents Feed No. 3, a thin cam 34 may be

3

raised into the full line position shown to raise alternate bare needs N-1 from the low idle level, indicated along the line path 35, 36, to travel along the tuck level line path 37, 38, 39, 40 to take elastic yarn R for one or more revolutions of the machine, this yarn remaining in the needle hooks of needles N-1 and being at the back of intervening needles N-2.

When it is desired to start a body yarn, such as Y-4 at Feed No. 4, FIG. 6, a similar thin cam 34 causes the alternate needles N-2 to follow the tuck level path, as described in connection with FIG. 5. This feed (and Feed No. 2) is also provided with a cam 41 which may be raised from its lower idle dotted line position to its upper full line active position wherein it will raise all the needles from the low idle level path 35, 36 to traverse the regular knitting path 37, 38, 42, 43, 44, 39 and 40 and then move to the low idle level. The regular stitch drawing or needle lowering cams of the machine for moving the needles to their low idle level path have not been shown. With cam 34 in active position raising alternate needles N-1 to tuck level, the yarn Y-4 is placed into feeding position so that a few, here shown as four, needles N-1 take the same at tuck level, thereafter cam 41 is placed in full line position to raise all the needles to follow the regular knitting path to take the yarn Y-4 and knit the same. The result is that the four tuck needles take yarn Y-4 without knitting the same and that the following needles take and regularly knit the yarn Y-4. Now these four tuck needles also have the inlaid elastic yarn R tucked within their hooks in addition to the yarn Y-4 and when these four needles are next knitted in the regular manner, at Feed No. 2, the tucked portion of the yarn Y-4 and the elastic yarn R are cast off unknit thereat as the yarn Y-2 is knitted to form the stitches 26. Thus the yarn Y-4 is anchored in the selvage at 33. Knitting upon all the needles at Feed No. 4 of the yarn Y-4 will first form the stitches 25 and thereafter the courses 31 and 32. The knitting action (not shown) is similar at Feed No. 2 where the yarn Y-2 is incorporated unknit in a few tuck needles which also have the elastic yarn R tucked therein, these needles casting off the elastic yarn R and the yarn Y-R at Feed No. 4 to similarly anchor the yarn Y-2 in the selvage.

In this description, the yarns Y-2 and Y-4 are both anchored in the selvage 23; however, by knitting at least one complete course of one of the body yarns before introducing the other of the body yarns, the one body yarn will be anchored in the selvage while the other body yarn will be anchored in the course in which it is first introduced.

It will be understood that means other than that shown may be used to selectively position the needles to take the yarns in the manner indicated to produce the same results in the fabric. Furthermore the elastic and the body yarns may be introduced at other feeds than those indicated.

In the above description the alternate needles N-1 taking the body yarns in tuck position are some of the same alternate needles N-1 which received the elastic yarn R in tuck position, however, with appropriate needle selection at the Feeds Nos. 2 and 4, the needles which take the body yarns in tuck position may be the intervening needles N-2. With this modification, the body yarns will also be anchored in the selvage as regular knitting commences, however, they will be so anchored in the corresponding other wales of the fabric.

I claim:

1. The method of forming a selvage for a simulated rib hosiery top of an elastic and of a body yarn upon a circle of independent latch needles of a circular knitting machine including the step of causing spaced needles of said needle circle to tuck said elastic yarn for at least one revolution of said machine, the step of causing at least one needle to tuck said body yarn, and the step of causing said circle of needles commencing with the needles thereof following said one needle to be raised to latch clearing level

4

and to take and to knit said body yarn, said one needle being spaced from the first of said following needles.

2. The method of forming a selvage for a simulated rib portion of a tubular fabric of an elastic and of a body yarn upon a circle of independent latch needles of a circular knitting machine including the step of causing spaced needles of said needle circle to tuck said elastic yarn for at least one revolution of said machine, the step of causing a plurality of needles to tuck said body yarn, and the step of causing said circle of needles commencing with the needles thereof following said plurality of needles to be raised to latch clearing level and to take and to knit said body yarn.

3. The method of forming a selvage for a simulated rib portion of a tubular fabric of an elastic and of a body yarn upon a circle of independent latch needles of a circular knitting machine including the step of causing spaced needles of said needle circle to tuck said elastic yarn for at least one revolution of said machine, the step of causing a plurality of spaced needles to tuck said body yarn, and the step of causing said circle of needles commencing with the needles following said plurality of needles to be raised to latch clearing level and to take and to knit a first course of said body yarn during which said tucked elastic and body yarns are caused to be cast off from the needles tucking the same to be incorporated unknit in said first course to form said selvage wherein said cast off body yarn is so incorporated in at least one of its wales.

4. A method of forming a selvage as set forth in claim 2 wherein said machine has a pair of feeds, wherein said spaced needles tuck said elastic yarn at one of said feeds, wherein said plurality of needles tuck said body yarn at the other of said feeds, and wherein said circle of needles knit said body yarn at said other of said feeds.

5. The method of forming a selvage for a simulated rib portion of a tubular fabric of an elastic and of a pair of body yarns upon a circle of independent latch needles of a circular knitting machine including the step of causing spaced needles of said circle of needles to tuck said elastic yarn for at least one revolution of said machine, the step of causing a group of needles to tuck one of said body yarn, the step of causing a group of needles to tuck the other of said body yarns, and the step of causing said circle of needles commencing with the needles thereof following those needles which have tucked said body yarns to be raised to latch clearing level and to take and to knit said body yarns.

6. The method of forming a selvage for a simulated rib portion of a tubular fabric of an elastic and of a pair of body yarns upon a circular series of independent latch needles of a circular knitting machine including the step of causing spaced needles of said circle of needles to tuck said elastic yarn for at least one revolution of said machine, the step of causing a first group of spaced needles to tuck one of said body yarns, the step of causing a second group of spaced needles to tuck the other of said body yarns, and the step of causing said circle of needles commencing with the needles thereof following those needles which have tucked said body yarns to be raised to latch clearing level and to take and to knit a first course of each of said body yarns during which said tucked body and elastic yarns are caused to be cast off from the needles tucking the same to be incorporated unknit in said first course to form said selvage wherein one of said cast off body yarns is so incorporated in a plurality of wales of the first course of the other of said body yarns and wherein the other of said cast off yarns is so incorporated in a plurality of wales of the first course of said one of said body yarns.

7. The method of forming a selvage as set forth in claim 6 wherein said machine has three feeds, wherein said spaced needles tuck said elastic yarn at one of said feeds, wherein said first group of needles tuck said one

5

of said body yarns at a second of said feeds, wherein said second group of needles tuck said other of said body yarns at a third of said feeds, and wherein said circle of needles knit said pair of body yarns at said second and at said third of said feeds.

8. The method of forming a selvage for a simulated rib hosiery top of an elastic and of a pair of body yarns upon a circle of independent latch needles at three feeds of a circular knitting machine including the step of causing alternate needles of said needle circle to tuck said 10 elastic yarn at one of said feeds during at least one revolution of said machine, the step of causing alternate needles to tuck one of said body yarns at a second of said feeds, the step of causing alternate needles to tuck the other of

6

said body yarns at the third of said feeds, and the step of causing said circle of needles commencing with the needles thereof following those needles which have tucked said body yarns to be raised to latch clearing level and to take and to knit said body yarns at said second and at said third of said feeds.

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