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HOSIERY

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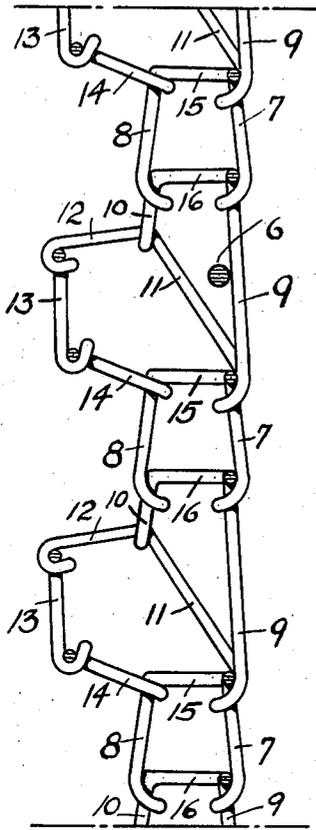


FIG. 2

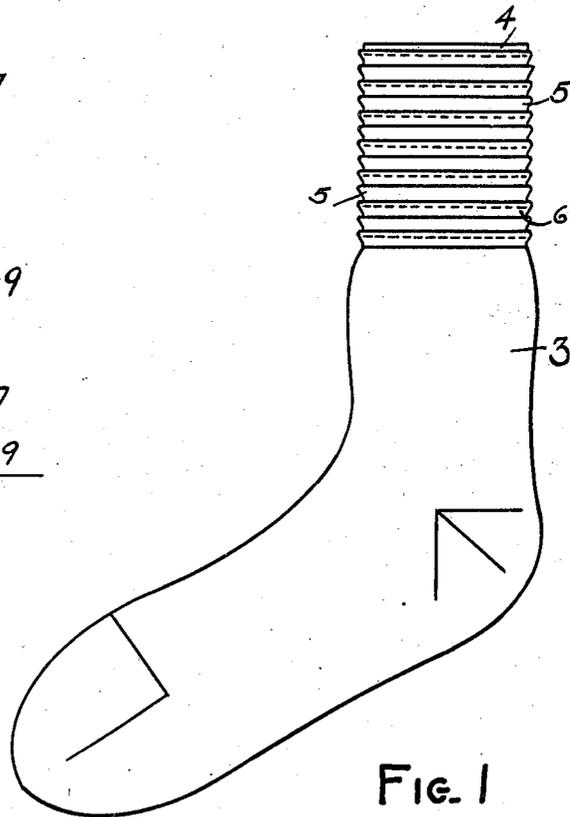


FIG. 1

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HOSIERY

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This invention relates to hosiery and more particularly to a fancy type of rib top ornamented by a more or less continuous series of raised welts, providing a pleasing design effect, a highly expansible fabric, and an integral garter.

The invention will be described in detail in connection with the accompanying drawing in which like characters refer to like parts.

In the drawing:

Fig. 1 shows the invention in side view and

Fig. 2 shows in detail the construction of the stitches.

As has been stated the rib top of this hosiery is ornamented by a series of welts. Normally the method of making welts on a circular knitting machine involves the following steps. The machine knitting rib fabric on both cylinder and dial needles, the dial needles are withdrawn out of action at the yarn feed or feeds while still retaining upon their hooks the last knitted loops, while the dial needles are held withdrawn knitting continues upon the cylinder needles for one or more courses at the one or more feeds, the number of courses depending upon the size of the welt desired. The dial needles are said to be withdrawn to a welt position. In practice it is customary to move the dial needles to the welt position in two stages or steps. First the dial needles are moved to the tuck position on the first round of the welting operation and to the fully withdrawn position upon the second round of the welting operation. The purpose of this is to secure perfect work as it has been found that moving the dial needles the full distance from knitting position to welt position in one round will result in imperfect work. During the tuck round on the dial needles they do not cast off the last loops on their shanks and they do take the yarn during that round in tuck position, there then being a loop and a length of yarn upon each dial needle. The next time that each dial needle knits, the new loop of the new yarn is drawn through the last loop and the said length of yarn. This is the usual stitch known as tuck.

The preceding paragraph describes the making of the welt by knitting upon the cylinder needles only for a number of courses. After this the dial needles are moved from the welt position to the knitting position in one round and thereafter rib knitting continues upon both sets of needles. This is the customary method of making a welt. It is known that a welt in rib fabric reduces the normally good elastic quality of the rib fabric. That is, rib fabric is known for its high degree of elasticity and for that rea-

son among others it is used as a top for hosiery. Welts reduce this elasticity due to the fact that the yarn is knit on the cylinder needles only and between the cylinder wales in the welts, the yarn extends in a straight line, instead of being knit upon the intervening dial needle as in rib fabric.

Consequently if it is desired to have a number of welts of the normal type in a top, the normal rib elasticity must be sacrificed and in addition, the diameter of the top for a given size machine will be greatly increased due to the spreading out of the fabric. For these reasons it has been practically impossible to produce a satisfactory rib top containing a continuous series of welts for ornamentation.

In the drawing it will be seen that this invention overcomes the defects and provides a superior rib top. In Fig. 1 is shown a stocking of the usual shape having the plain leg 3 and a rib top embodying the invention. In this rib top there is a short selvage welt 4 and a continuous series of welts 5 extending over the entire rib top. Shown in every other welt 5 is a course of elastic yarn 6, which may be of the type known as Lastex or of any other type and it may be covered or uncovered as desired. The elastic yarn 6 is here shown inserted for a single course or one round of elastic in every other welt but obviously it could be inserted for more than the one course or more than one round of elastic and could be inserted in every welt if desired. In like manner the elastic 6 could be spaced apart by more than a single welt if desired. The particular spacing is immaterial so long as the contractile effect of the elastic used is sufficient for the purpose to be described.

In Fig. 2 is shown in detail a layout of the stitches taken as a section between a cylinder wale and a dial wale, looking in the direction of the courses. Regular rib knitting provides the cylinder stitch 8 and the dial stitch 7, the same yarn forming both stitches and passing from cylinder to dial at 15. After this course of regular rib knitting the welt is started and this is done by knitting as regular rib the next course containing the cylinder stitch 10 and the dial stitch 9, the same yarn forming both stitches and passing from cylinder to dial at 16. In the next course the dial needles are retracted partly to the tuck position in which they retain the last loops 9 and take the length of yarn 11 of the next course. In the same course in which the dial needles are tucked, the cylinder needles knit and form loops 12 drawn through the loops 10.

However before the first tuck course, that is

directly after the course of true rib making stitches 9 and 10, an elastic yarn 6 is inlaid between the cylinder and dial in the well known manner. The elastic is shown inserted for a single course and the ends may be anchored in any well known manner such as is shown in Longtin United States Patent No. 2,054,059. It will be seen in Fig. 2 that due to the tuck stitch on the dial that the elastic does not stay in the course in which it was inlaid but drops into the center of the tuck stitch 9, which is stretched after the manner of tuck stitches, behind the length of yarn 11. Thus it will be seen that the elastic instead of remaining in the course in which it was inlaid, drops to the next course because the next course on the dial is a tuck course. Due to this the elastic is completely hidden from view from the front or outside of the top because it lies directly behind the plain courses of the welt to be described.

After the tuck course the dial needles are completely withdrawn to the welt position so that on the course following the tuck course the dial needles do not take the yarn. The cylinder needles only take the yarn and knit the loops 13. Likewise in the next course only the cylinder needles knit the yarn into loops 14. The number of courses knit upon only the cylinder needles may be varied as desired depending upon the size of the welt desired. Meanwhile of course the dial needles retain the loops 9 and the lengths of yarn 11. Upon the next course the dial needles are pushed out into full action and a rib course is knit making the dial loops 7 and the cylinder loops 8 with the same yarn knitting both loops and passing therebetween at 15. This completes the making of a welt section with the inserted elastic thread 6. The welt sections are repeated throughout the top.

The number of rib courses between each welt section may vary as desired depending upon how close it is desired to have the welt sections. It is of course possible to insert the elastic thread in a rib course which is not followed by a tuck course on the dial, in which case the elastic will remain locked in that rib course. The effect of this is that the elastic will be more visible than when inlaid as shown in Fig. 2. Furthermore, though there will still be the contractile qualities of an elastic inlaid in other rib courses, by placing the elastic as shown in Fig. 2 directly behind the welt, the welt itself is emphasized in shape because of the pull of the elastic on the back of and at the center of the welt. The contractile effect of the elastic courses throughout the top reduces in diameter the welted top to a normal diameter. That is for a certain size rib machine, a certain size or diameter rib top will normally be made of true rib fabric. However when a welted top is made on that size machine, the diameter of the top is much larger than the diameter of a top made of true rib knitting. By means of the contractile effect of the elastic, the diameter of the welted top is reduced to that of the normal diameter of a true rib top for that size machine.

A decided advantage of this procedure is that the fabric, due to the welted construction, has a stretchable quality beyond its restricted diameter and this is of some aid in putting on the stocking especially over the heel of the wearer, where a larger diameter is encountered. The welt fabric is knit of a loose stitch in comparison to true rib knitting and this in part accounts for the larger base diameter of the welted fabric.

It will be obvious that the yarn used in the top

may be changed by means of the usual rib yarn changers so as to make the different welts of different colors or materials as desired. Also if wrap type of designs are desired the invention may be practiced upon a rib wrap machine to place wrap designs upon selected stitches in the outside cylinder wales in the true rib knitting as well as when knitting on the cylinder needles alone in the welts.

In order to make the continuous series of welts, a special control mechanism for the normal welt-ing mechanism had to be devised and this will form the subject matter of a separate application.

If it is desired to introduce another design feature into the welted tops, then upon certain cylinder needles, during the knitting of the welt upon the cylinder needles only, a tuck stitch will be formed for the several rounds in which there is the knitting on the cylinder needles only. In other words during those courses in which the cylinder needles only knit in the formation of a welt as heretofore described, the needles upon which it is desired to tuck will tuck and upon the completion of knitting upon the cylinder needles only, that is at the end of a welt, upon the resumption of knitting by the dial needles, the tuck needles also resume regular knitting. Another way of putting it is that when the dial needles tuck for the first round of the welt, then the selected cylinder needles also start to tuck, and they tuck until the dial needles are again in regular knitting at which time the tucked cylinder needles do likewise. It will be seen from this that the tucked needles will not knit into regular loops the yarn fed to the cylinder needles only for making the outer wall of the welt. The yarn thus fed to the cylinder needles only during the welt courses, will be received by the tucked cylinder needles upon their opened but not cleared latches. Then when regular knitting is resumed, these lengths of received yarn and the old loops will be cast off together and the new loop drawn through all of them. Thus the lengths of yarn will be cast off unknit. Again if the yarn is changed in color for a welt, then the new color will not be knitted at the tucked needles, but will be cast off unknit as explained, and the new color will be knit on the remaining cylinder needles only. Thus the new color will appear only at the places where it is knit, separated by places where the needles are tucked at which places will appear the old color yarn.

In one welt course spaced cylinder needles, say one or two, separated by a series of other needles, say three or four or more, will be tucked. In the next welt the same or other needles may be tucked. The tucked needles may be staggered in the successive welts so that they form diamond shaped outlines. It will be appreciated that between the tucked stitches in a welt, that the intervening portion of the welt will be raised from the base fabric whereas the tucked stitch portion will not be so raised, being flat with the base fabric, thus making what may be called small welt portions.

We claim:

1. A tubular knit stocking having a plain leg and rib top, said rib top being made up of a continuous series of raised welted knitted portions extending outwardly from the base fabric and an elastic thread inlaid in the course before the tuck course in said welted portions.

2. A tubular knit stocking having a plain leg and a rib top, said rib top comprising inside rib and outside plain wales and having a series of ornamental raised roll welts in each of which a

small roll of plain jersey fabric is knitted on the plain outside wales for several courses with the stitches of the inside rib wales for said several courses being held loops, and one or more elastic threads inlaid in one or more spaced courses throughout the rib top portion having said series of ornamental welts.

3. A tubular knit stocking having a plain leg and a rib top, said rib top comprising inside rib and outside plain wales and having a series of ornamental raised roll welts in each of which a small roll of plain jersey fabric is knitted on the plain outside wales for several courses with the stitches of the inside rib wales for said several courses being held loops, and one or more elastic threads inlaid in one or more spaced courses throughout the rib top portion having said series of welts, the ends of said elastic being interlocked with said rib top.

4. A tubular knit stocking having a plain leg and a rib top, said rib top comprising inside rib and outside plain wales and having a series of ornamental raised roll welts in each of which a small roll of plain jersey fabric is knitted on the plain outside wales for several courses with the stitches of the inside rib wales for said several courses being held loops, and one or more elastic threads inlaid in one or more of said roll welts.

5. A tubular knit stocking having a plain leg and a rib top, said rib top comprising inside rib and outside plain wales and having a series of ornamental raised roll welts in each of which a small roll of plain jersey fabric is knitted on the plain outside wales for several courses with the stitches of the inside rib wales for said several courses being held loops, and one or more elastic threads inlaid in alternate roll welts.

6. A tubular knit stocking having a plain leg and a rib top, said rib top comprising inside rib and outside plain wales and having a continuous series of ornamental raised roll welts substantially throughout said top in each of which a small roll of plain jersey fabric is knitted on the plain outside wales for several courses with the stitches of the inside rib wales for said several courses being held loops, and one or more elastic threads inlaid in one or more spaced courses throughout said top.

7. A tubular knit stocking having a plain leg and a rib top, said rib top comprising inside and outside rib wales and having a continuous series of ornamental raised roll welts substantially throughout said top in each of which a small roll of plain jersey fabric is knitted on the plain outside wales for several courses with the stitches of the inside rib wales for said several courses being held loops, and one or more elastic threads inlaid in spaced apart welts.

8. A tubular knit stocking having a plain leg and a rib top, said rib top comprising a set of inside wales and a set of outside wales and having a series of ornamental raised roll welts in each of which a small roll of plain jersey fabric is knitted on one of said sets of wales for one or more courses with the stitches of the other of said set of wales for said one or more courses being held loops, and one or more elastic threads inlaid in one or more spaced courses throughout the rib top portion having said series of ornamental welts.

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