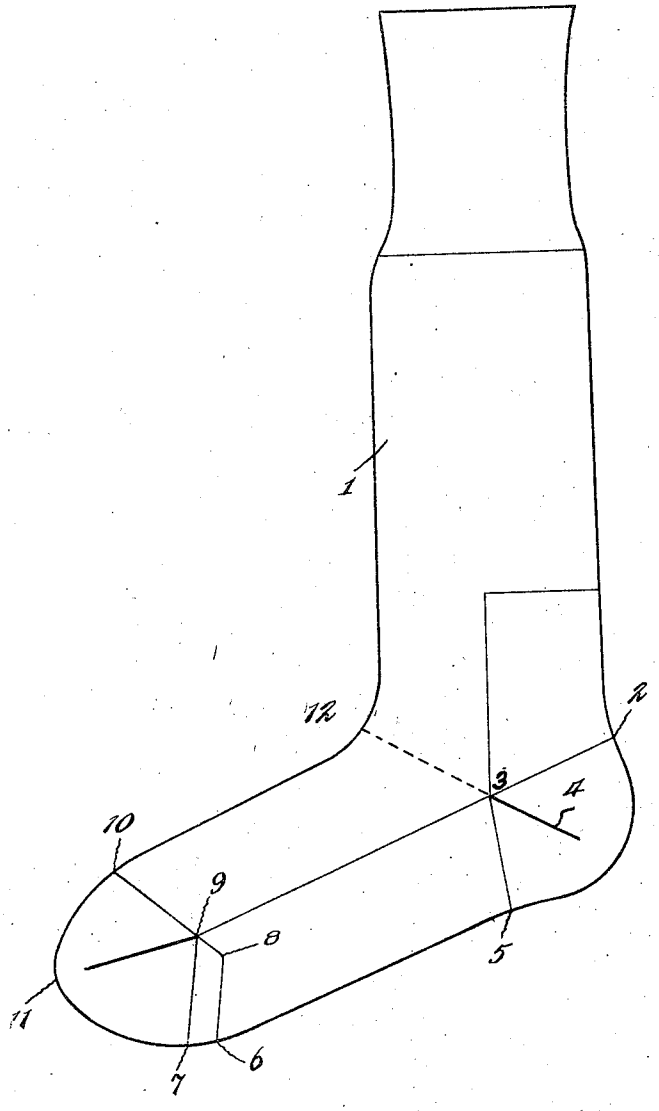
March 15, 1927. J. C. WILLIAMS 1,621,343

SEAMLESS HOSIERY AND METHOD OF MAKING SAME

Filed July 16, 1926



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Patented Mar. 15, 1927. 1,621,343

UNITED STATES PATENT OFFICE.

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SEAMLESS HOSIERY AND METHOD OF MAKING SAME.

Application filed July 16, 1926. Serial No. 122,918.

This invention relates to knitted stockings having so-called seamless toe pockets and to the process of their manufacture. The invention involves the formation of a segment of fabric on the sole of the stocking between the foot and the toe pocket.

One of the objects of my invention is to eliminate the pucker or surplus fabric at the inner end of the gores or diagonal sutures of a toe pocket such as is formed on seamless hosiery machines. This pucker or surplus fabric, commonly called a dog ear, is an imperfection in the shape of the foot of a seamless stocking, is unsightly, uncomfortable and structurally imperfect. According to the invention, these ears are entirely eliminated giving a better shape, better appearance and better balance to the fabric of the stocking. Another object of my invention is to produce a greater length in the sole of the stocking than in the instep without in any way interfering with the structure of the heel and the diameter of the stocking at the heel. The advantage of having relatively more fabric on the sole than on the top in this portion of the stocking is that the stocking then conforms more nearly to the shape of the human foot, eliminates wrinkles on the top side of the instep and avoids strain upon the sole. Other advantages of this invention will be apparent to those skilled in the art.

The figure in the drawing represents the outline of a stocking made according to the new invention.

In the specification the word "stocking" is meant to include hose, half hose, or any other footwear, the invention being applicable to any form of footwear having toe pockets with a diagonal suture, or gore. The invention will be described in connection with the manufacture of men's half hose on the well known Scott & Williams type of revolving needle cylinder seamless hosiery machines, but it should be noted that the invention is not limited to the production of half hose nor to carrying out of the process on this particular type of hosiery machine.

The new process of manufacture is identical with that heretofore practiced in the knitting of seamless hosiery from top to toe as far as concerns the leg 1, the heel pocket 2—3—5 with its gore 4 and the foot 5—3—12—10—9—8—6. The course of stitches on the needles at the completion of the foot is indicated in the drawings by the line 6—8—9—10.

Instead of now proceeding with the manufacture of the toe pocket by throwing the instep half of the circle of needles out of action and carrying out the usual narrowing and widening operation, a novel segment of fabric is first inserted in advance of the toe pocket by means of reciprocating knitting on less than the whole circle of needles. The needles not to be used at the beginning of the reciprocating knitting are thrown out of action. While in the drawing this segment of fabric has been shown in the preferred form of a gusset, tapered segment or widened web, it should be understood that the segment is not necessarily tapered. The gusset is preferably started by a reciprocation on a lesser number of needles than are used at the beginning of the narrowing and widening operation which forms the toe pocket, and gradually widening the gusset by picking more needles into action until the number of needles in action equals those used at the beginning of the toe pocket. It will be observed that the needles picked into action carry a series of stitches which create a taper touching the inner end 9 of the toe gore. The course of stitches now on the needles is represented by the line 7—9—10, the gusset thus being indicated by the lines 6—8—9—7. The usual toe pocket 7—9—10—11 is now formed, the gores or diagonal sutures running toward the point 11 of the toe from the inner end 9 of the sutures. When the course represented by the line 9—10 is reached the machine resumes circular knitting and makes the looper's rounds which are later looped together in the usual manner. It will be obvious that the process is equally applicable to a machine adapted to make a split foot stocking or a machine which knits the foot by circular knitting.

In seamless stockings heretofore made, in order to join up the looper's rounds of the toe opening, it has been necessary to pull the fabric of the toe pocket around by turning the fabric on the inner end of the gore as the pivot point more than the normal shape of the toe pocket warrants. The result is formation of the above mentioned pucker or dog ear with fabric sticking outwardly and producing a bad, unsightly fit at the toe. The purpose of the novel segment of

fabric shown in the drawing between the foot and the toe pocket is to have a greater number of stitches radiating from the inner end 9 of the toe gore in order that the toe may be closed without pulling in to the pivot point a surplus amount of fabric. The gusset shown in the drawings with a short tapered portion running into the inner end of the suture provides the added fabric in an especially effective manner, and at the same time increases the length of the stocking between the point of the heel and point 11 of the toe in proportion to the distance between the point 11 of the toe and the instep 12. Another advantage of placing the segment of fabric at the point described is that the heel is left undisturbed.

It will be obvious that stockings having varying characteristics can be made without departing from the scope of my invention. Thus a stocking can be reinforced in any desired manner without departing from the scope of the invention.

What I claim is:

1. In a process for manufacturing seamless hosiery having the usual seamless toe pocket commenced on substantially half the needles, the step of inserting a segment of fabric between the toe and heel by reciprocating knitting on a number of needles varied by picking, said half the needles being in action when knitting the course which meets the inner ends of the toe gores, and fewer of said needles in action in the other courses of the segment.

2. In a process for manufacturing seamless hosiery, after knitting the foot, the step of inserting a segment of fabric on the sole by reciprocating knitting, less than the whole circle of the needles being in action when knitting the longest course and fewer of said needles in action in the other courses of the segment, then commencing the toe pocket on the maximum number of needles used in said segment of fabric.

3. In a process for manufacturing seamless hosiery, after knitting the foot, the step of inserting a segment of fabric on the sole by reciprocatory knitting, commencing on less than half the needles and using progressively more needles on succeeding courses up to half the needles, then commencing the usual seamless toe pocket on half the needles.

4. A knitted stocking having a toe pocket with a diagonal suture on each side in combination with a tapered gusset on the sole in advance of the toe pocket, the points of said gusset coinciding with the inner ends of the sutures.

5. A knitted stocking having a toe pocket with a diagonal gore on each side, in combination with a segment of fabric between the foot and the toe pocket, the course of said segment next to the toe pocket being the longest and the other courses containing progressively fewer stitches.

6. A circular knit stocking having a narrowed and widened web toe pocket in combination with a tapered gusset between the foot and toe pocket, the points of said gusset being located at the intersections of the toe gores with the foot.

7. A seamless knitted stocking having a toe pocket with a gore on each side, in combination with a segment of fabric in advance of the toe pocket, said segment of fabric having tapered ends whose points only meet the toe gores.

In testimony whereof I have signed my name to this specification.

JAMES CLAUDIUS WILLIAMS.