Nov. 2, 1943. H. M. GREY 2,333,373

STOCKING FOOTLET AND METHOD OF MAKING SAME

Filed Dec. 18, 1942

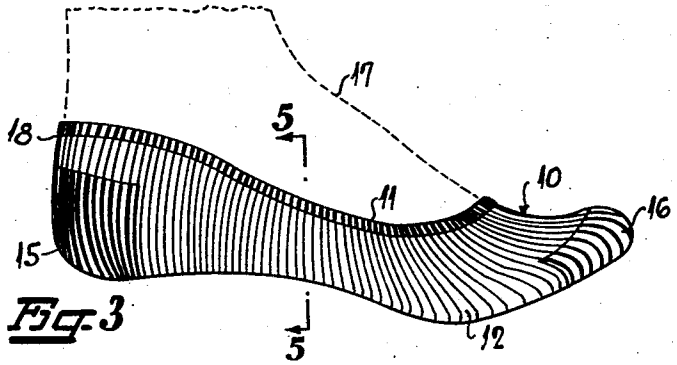


Fig. 3

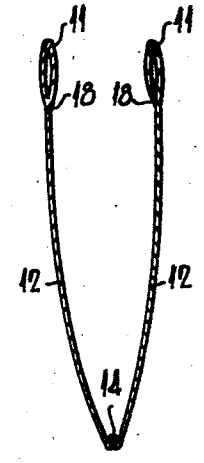


Fig. 2

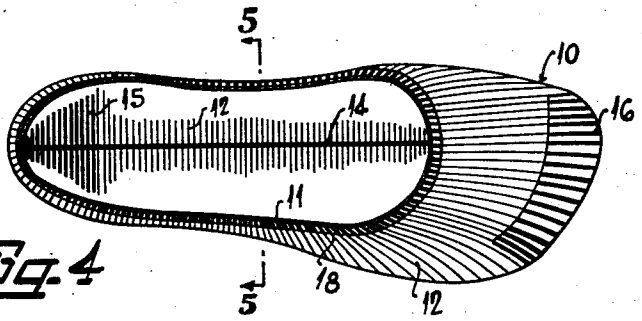


Fig. 4

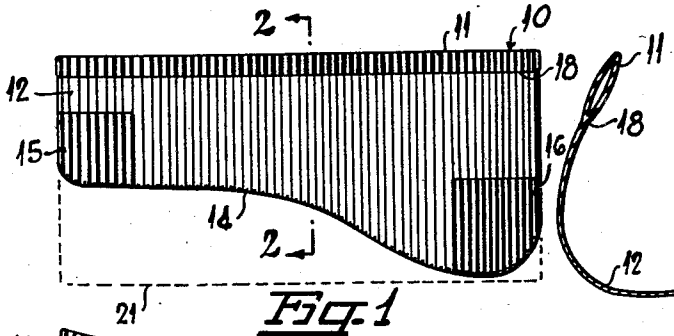


Fig. 1

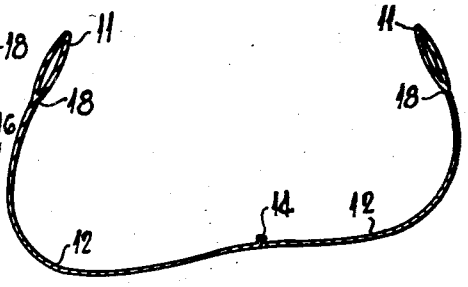


Fig. 5

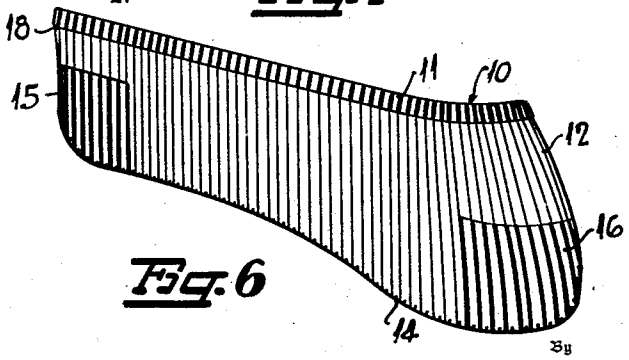


Fig. 6

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STOCKING FOOTLET AND METHOD OF MAKING SAME

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Application December 18, 1942, Serial No. 469,433

12 Claims. (Cl. 66—171)

This invention relates to knitted fabrics and more particularly to a method and means for producing a footlet or stocking foot portion.

It is an object of this invention to provide a knitted article such as a stocking foot, said article having the same number of wales in the foot portion as in the welt portion.

It is another object of this invention to provide a seamless stocking foot formed by successively knitting a plurality of courses to form a tubular member with each course having the same number of loops therein, then closing one end of the tubular member, after which the tubular member is stretched and set in shape to conform to the foot of the wearer.

It is another object of this invention to provide a footlet of the class described having a welt portion and a foot portion in which the tension of the knitted loops gradually diminishes as the knitting progresses from the welt into the foot portion. By gradually diminishing the tension, the loops will be larger and consequently, the stretching and enlarging of the lower portion of the footlet to conform to the foot of the wearer, can be more easily accomplished.

It is still another object of this invention to provide an improved method of forming a stocking footlet in which a tubular member is first knitted, after which the tubular member is cut on a bias transversely of the wales so that the wales extending into the toe portion will be longer than the wales extending into the heel portion, and then the biased cut edges are united to form a stocking footlet.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds when taken in connection with the accompanying drawing in which—

Figure 1 is a side elevation of my improved stocking footlet, after it has been knitted and seamed, but prior to the same being stretched and set to conform to the shape of a wearer's foot;

Figure 2 is a transverse sectional view taken along the line 2—2 in Figure 1, showing the upper portion of the stocking footlet in a slightly opened position;

Figure 3 is a side elevation of the stocking footlet as it appears when disposed upon the foot of the wearer, said view showing a portion of the wearer's foot in dotted lines;

Figure 4 is a top plan view of Figure 3;

Figure 5 is a transverse sectional view taken along the lines 5—5 in Figures 3 and 4;

Figure 6 is a view of the stocking footlet as it appears after the same has been stretched and set, and then folded into a collapsed position for packing, and shipping.

Referring more particularly to the drawing, the numeral 10 broadly denotes an improved stocking footlet, said footlet comprising a welt portion 11 and a foot portion 12. The bottom of the foot portion is closed by seam line 14 to thereby provide a knitted article for encasing the foot of the wearer. It will be noted that the heel of the foot portion 12 may be reinforced as at 15, and that the toe may be reinforced as at 16. A wearer's foot or a suitable form 17 is illustrated in dotted lines in Figure 3 in association with a completed footlet.

In the production of a stocking of this type, a circular knitting machine may be employed, however, other types of knitting machines may also be used with good results. The disclosed footlet, however, is particularly adapted to be manufactured on a circular knitting machine, because it is preferably of a seamless construction. When producing a stocking of this type upon a circular knitting machine, the first course of the welt is begun as at 18. This course is then held on half of the needles and a plurality of courses are knitted on the other needles in a conventional manner. When the welt has been finished, the initial welt course is interknitted with the loops on the needles thereby forming a tubular welt construction such as shown in Figure 2. This is a conventional way of knitting a welt. The knitting of the foot portion 12 is then carried out with all of the needles.

As a rule, the welt 11 is of a tight, close knit which is produced by applying a relatively high tension to the strands of yarn of each course during knitting. When the foot portion is begun, the tension on the strand or strands of yarn gradually diminishes with each course, so that additional slack will be present in the lower foot portion of the stocking footlet. If desired, an additional strand or strands can be placed in what is to become the heel and toe portions 15 and 16 respectively so as to reinforce these areas.

When the foot portion has been knitted to a dotted line position 21 such as shown in Figure 1, the knitted welt and foot portions are removed from the knitting machine. At this time, the welt and foot portions are of a tubular construction having open top and bottom ends. In order to form a stocking footlet from this tubular fabric, it has been found advantageous to sever the foot portion of the tubular fabric along a sinuous line biased to the wales. In other words,

after the foot portion has been severed, the collapsed tubular member will appear substantially as shown in bold lines in Figure 1. It is evident that the wales at the heel of the severed footlet are somewhat shorter than the wales at the toe. Actually, the wale lengths of the tubular fabric, after having been cut as shown in Figure 1, gradually increase in length from the heel portion 15 to the toe portion 16. The severed tubular member is next seamed along the line 14, previously described, to thereby close one end and form a footlet therefrom.

As previously stated, the slack in the loops of the foot portion 12 gradually increases from the welt to the seam line 14, and therefore a greater amount of elasticity and stretch can be obtained in the bottom of the footlet than at the top. When this increased elasticity is coupled with the increased length of wales at the toe of the foot portion, a greater amount of space will be available at the toe portion when the footlet is placed upon the foot of the wearer.

The welt and foot portions of the tubular fabric are formed from a plurality of successively knitted courses, with each course having the same number of loops therein. Therefore, the same number of wales will be present throughout the fabric. Attention is called to the fact that each of the wales in the foot portion of the stocking is a continuation of a wale in the welt portion. By gradually decreasing the tension in the yarn as the knitting progresses and by subsequently cutting the foot portion along a line biased to the wales, it is possible to obtain the desired space to accommodate a wearer's foot and at the same time maintain the same number of wales throughout the footlet. Thus, it is seen that a simplified construction is employed which greatly facilitates the manufacture of an article of this type.

After the footlet has been severed and seamed as shown in Figure 1, it is usually stretched over a suitable heated form which has substantially the same shape as that of the wearer's foot. Then by subjecting the footlet to a steam and heat treatment, the loops of the stretched article are set so that the footlet will more resemble its shape when in use. Figure 6 shows the shape of the footlet after the same has been stretched over a form and subjected to heat treatment to set the loops. In Figure 6, of course, the footlet is in a collapsed position, that is, the opposed sides thereof are disposed one against the other and in a position normally occupied when the footlet is ready for packing and shipping.

In the drawing and specification, there has been set forth a preferred embodiment of the invention, and although specific terms are employed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being defined in the claims.

I claim:

1. That method of producing a circular knit stocking footlet having a top welt portion and an adjacent foot portion, which comprises knitting the courses of the top welt portion with a yarn under relatively high tension, subsequently knitting the courses of the adjacent lower foot portion with a yarn under a gradually decreasing tension and then uniting the lower edges of said foot portion.

2. That method of producing a circular knit stocking footlet having a welt top portion and an adjacent foot portion which comprises forming the courses of the knitted welt top portion with a yarn under relatively high tension, subsequently forming the courses of the adjacent lower foot portion with a yarn under gradually decreasing tension and then uniting the lower edges of said foot portion.

3. That method of producing a circular knit stocking footlet having a top welt portion and an adjacent foot portion, which comprises knitting the courses of the top welt portion with a yarn under relatively high tension, subsequently knitting the courses of the adjacent lower foot portion with a yarn under a gradually decreasing tension, then uniting the lower edges of said foot portion, stretching the welt and foot portions to a shape substantially conforming to the foot of a wearer, and then setting the welt and foot portions while in this stretched position.

4. That method of producing a circular knit stocking footlet having a welt top portion and an adjacent foot portion which comprises forming the courses of the knitted welt top portion with a yarn under relatively high tension, subsequently forming the courses of the adjacent lower foot portion with a yarn under gradually decreasing tension, then uniting the lower edges of said foot portion, stretching the welt and foot portion to a shape substantially conforming to the foot of a wearer, and then setting the welt and foot portions while in this stretched position.

5. That method of producing a circular knit stocking footlet having a top welt portion and an adjacent foot portion, which comprises knitting the courses of the top welt portion with a yarn under relatively high tension, subsequently knitting the courses of the adjacent lower foot portion with a yarn under a gradually decreasing tension, severing the foot portion along a line disposed at an angle to the courses whereby a greater number of course lengths will be present at one end of the foot portion than at the other, and then uniting the lower edges of said foot portion.

6. That method of producing a circular knit stocking footlet having a welt top portion and an adjacent foot portion which comprises forming the courses of the knitted welt top portion with a yarn under relatively high tension, subsequently forming the courses of the adjacent lower foot portion with a yarn under gradually decreasing tension, severing the foot portion along a line disposed at an angle to the courses whereby a greater number of course lengths will be present at one end of the foot portion than at the other, and then uniting the lower edges of said foot portion.

7. That method of producing a circular knit stocking footlet having a top welt portion and an adjacent foot portion, which comprises knitting the courses of the top welt portion with a yarn under relatively high tension, subsequently knitting the courses of the adjacent lower foot portion with a yarn under a gradually decreasing tension, severing the foot portion along a line disposed at an angle to the courses whereby a greater number of course lengths will be present at one end of the foot portion than at the other, then uniting the lower edges of said foot portion, stretching the welt and foot portions to a shape substantially conforming to the foot of a wearer, and then setting the welt and foot portions while in this stretched position.

8. That method of producing a circular knit stocking footlet having a welt top portion and

an adjacent foot portion which comprises forming the courses of the knitted welt top portion with a yarn under relatively high tension, subsequently forming the courses of the adjacent lower foot portion with a yarn under gradually decreasing tension, severing the foot portion along a line disposed at an angle to the courses whereby a greater number of course lengths will be present at one end of the foot portion than at the other, then uniting the lower edges of said foot portion, stretching the welt and foot portion to a shape substantially conforming to the foot of a wearer, and then setting the welt and foot portions while in this stretched position.

9. A stocking footlet comprising a seamless knitted welt portion and an adjacent seamless knitted foot portion exclusively formed from the continuation of the wales of the welt portion, the lower edges of the foot portion being united along a line biased to the wales to thereby close said tubular foot portion and to provide wales of a greater length at the toe portion than at the heel portion of the footlet.

10. A stocking footlet comprising a knitted welt portion, and an adjacent enlarged knitted foot portion exclusively formed from the continuation of the wales of the welt portion, the wales of said footlet gradually increasing in length from the heel to the toe.

11. A stocking footlet comprising a knitted welt portion, and an adjacent enlarged knitted foot portion exclusively formed from the continuation of the wales of the welt portion, the tension of the loops in said wales gradually decreasing in the direction of the lower edge of the foot portion.

12. A stocking footlet comprising a seamless knitted welt portion and an adjacent seamless knitted foot portion exclusively formed from the continuation of the wales of the welt portion, the lower edges of the foot portion being united along a line biased to the wales to thereby close said tubular foot portion and to provide wales of a greater length at the toe portion than at the heel portion of the footlet, the tension of the loops in said wales gradually decreasing in the direction of the lower edge of the foot portion.

HUGH M. GREY.