May 16, 1950 S. C. MACK 2,507,530

FASHIONED FABRIC, HOSIERY, AND METHOD OF PRODUCTION

Filed Sept. 9, 1943 3 Sheets-Sheet 1

Fig. 1.

Fig. 2.

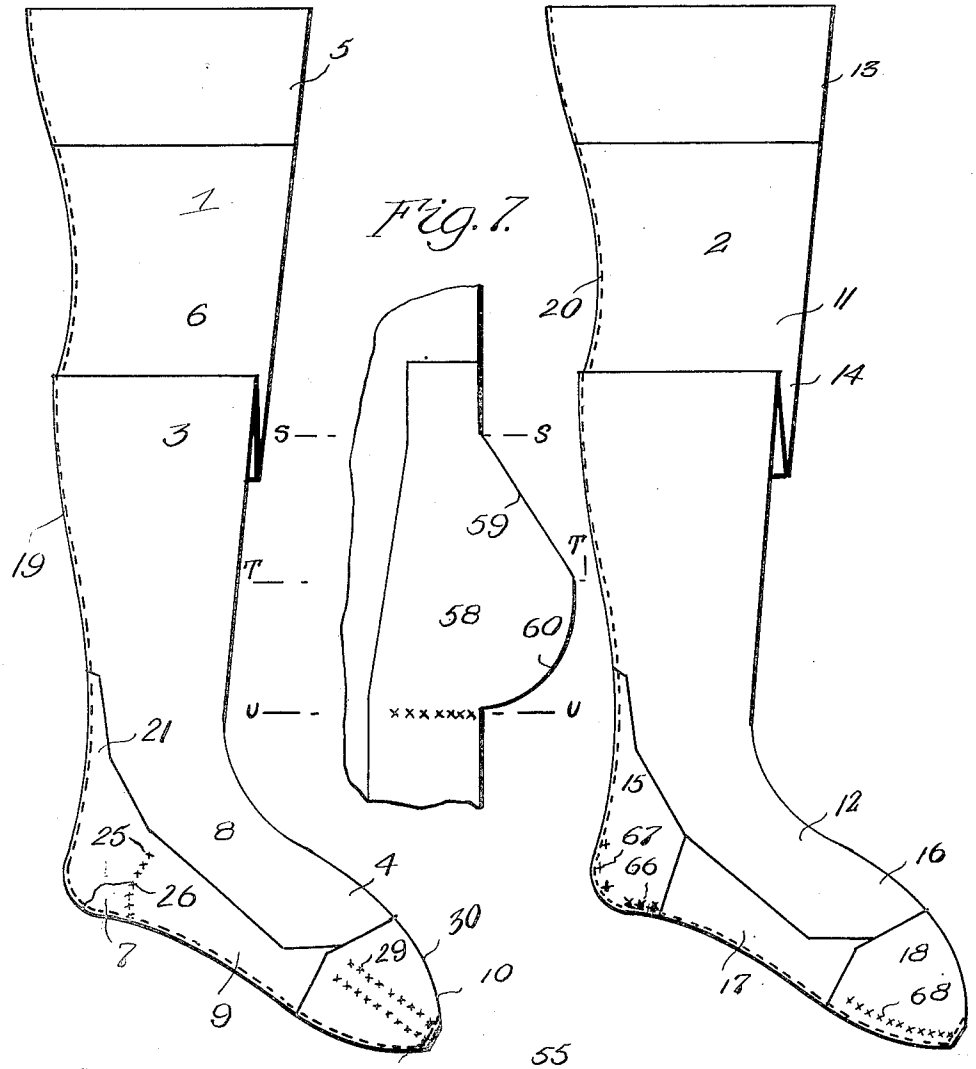


Fig. 7.

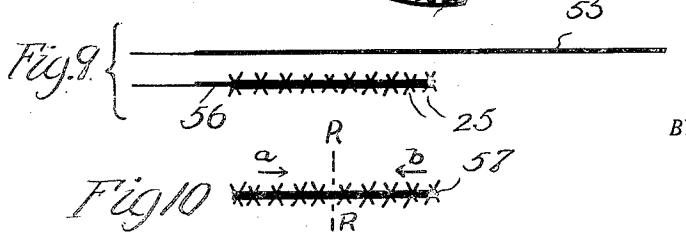


Fig. 9

Fig. 10

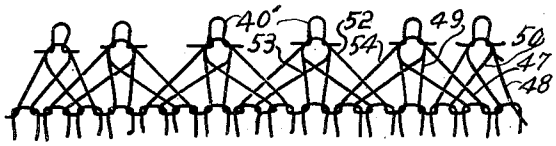
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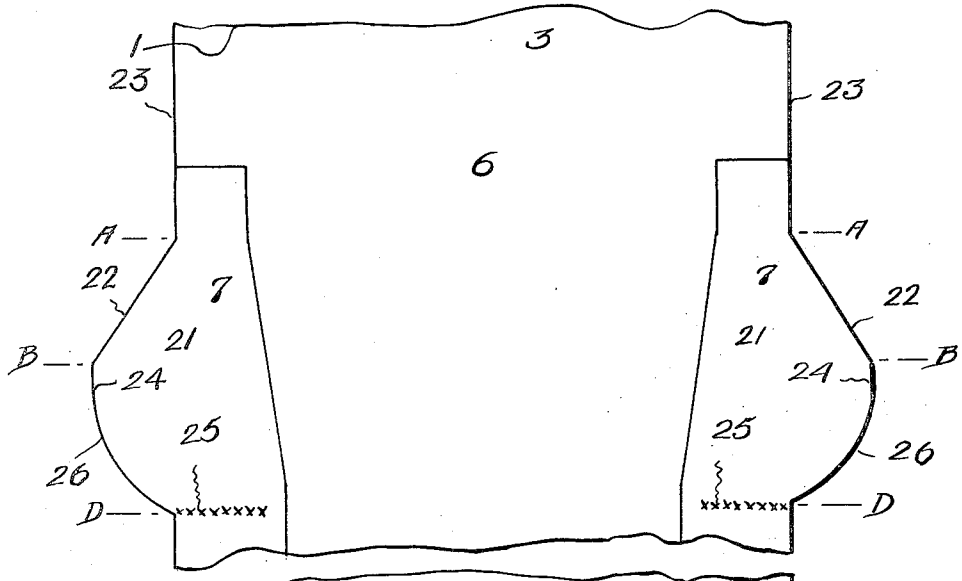
May 16, 1950 S. C. MACK 2,507,530

FASHIONED FABRIC, HOSIERY, AND METHOD OF PRODUCTION

Filed Sept. 9, 1943 3 Sheets-Sheet 2

Fig. 6A.





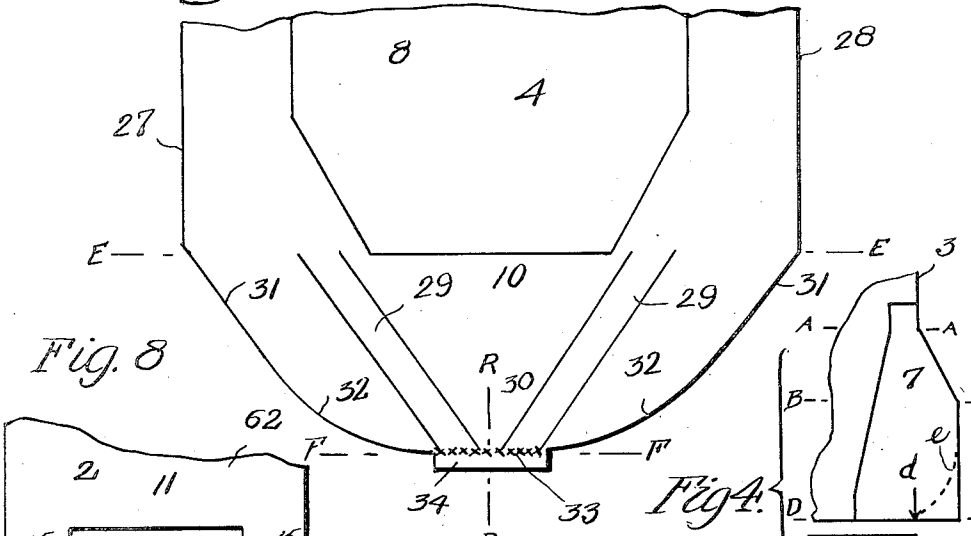


Fig. 8

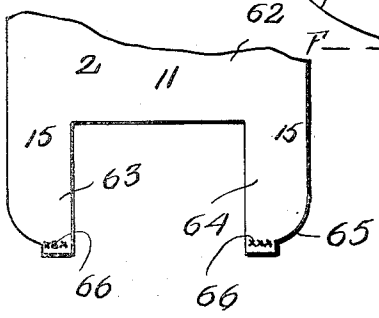


Fig. 3.

Fig. 4.

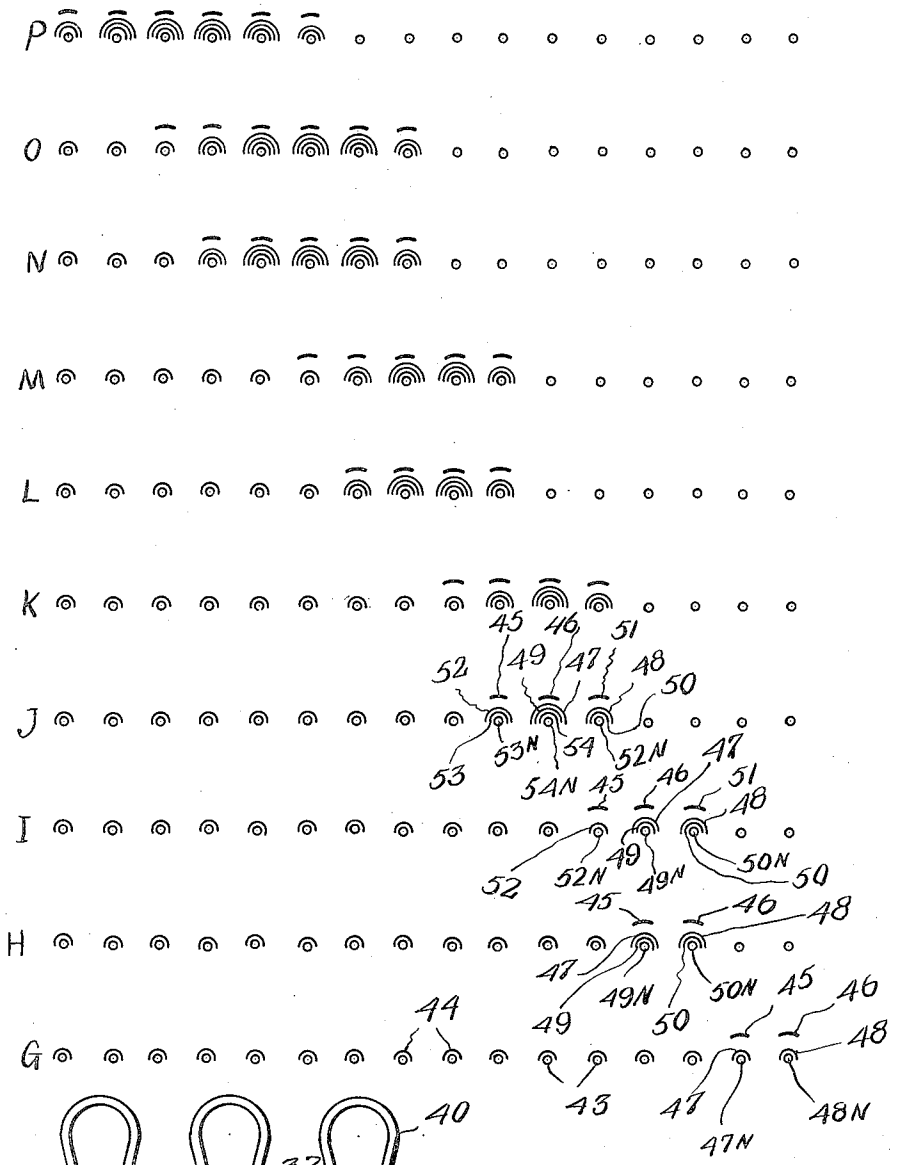
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FASHIONED FABRIC, HOSIERY, AND METHOD OF PRODUCTION

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Fig. 6.



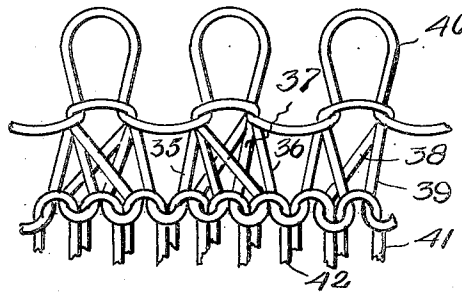


Fig. 5.

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Patented May 16, 1950 2,507,530

UNITED STATES PATENT OFFICE

2,507,530

FASHIONED FABRIC, HOSIERY, AND METHOD OF PRODUCTION

Sterling C. Mack, Bangor, Pa.; said Sterling C. Mack and Donald C. Mack, administrator of said Sterling C. Mack, deceased, assignors to Julius Kayser & Co., New York, N. Y., a corporation of New York

Application September 9, 1943, Serial No. 501,595

38 Claims. (Cl. 66—187)

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The present invention relates to fashioned knitted fabrics, such as hosiery, and has for its primary object a construction of fabric or hosiery that may be more economically manufactured.

An object of the invention resides in the production of a single unit stocking so designed that the manufacture thereof is simplified and the number of imperfect stockings is considerably reduced.

Another object of the invention resides in the production of a fabric, such as hosiery, that is provided with novel narrowed portions for the proper fashioning thereof.

Another object of the invention resides in the production of an improved type of rounded heel fabric and an improved type of toe fabric.

A feature of the invention resides in the production of a full-fashioned knitted stocking having a new type of rounded heel fabric and a new type of toe fabric, whereby all edge portions of the stocking may be secured by a continuous seam that extends from the welt edge to, and through, the toe tip of the stocking, thereby eliminating looping operations and thereby reducing the cost of seaming the stocking.

Another feature of the invention resides in providing the toe fabric and heel fabrics with "run" barriers that resist the passage of "runs" and also properly shape the fabrics.

The invention is distinguished in positioning the "run" barriers in the heel tabs and in the toe fabric so that the barriers may be arranged contiguous to the seam of the stocking, or may be completely enclosed within the seam of the stocking.

The invention is further distinguished in the elimination of the usual diamond point formation in the toe gores and the elimination of the machine operations necessary in the production of the usual diamond formations.

The invention is still further distinguished in the association of a "run" barrier with toe gores, the latter terminating at the "run" barrier.

Another feature of the invention resides in the provision of a "run" resist course that will resist the passage of "runs" and, in addition, will fully and properly fashion a knitted fabric, such as the heel fabrics and the toe fabric of a stocking.

A further feature of the invention resides in a novel method of narrowing parts of knitted fabrics, such as hosiery, wherein the heel, instep, and ankle fabrics may be properly and fully fashioned or narrowed to accurately conform to

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the ankle and heel of the wearer and further passage of "runs" in the fabrics is resisted.

Other important objects and advantages of the invention will be in part obvious and in part pointed out hereinafter.

In order that the invention and its mode of operation may be more readily understood by those skilled in the art, I have, in the accompanying drawings and in the detailed description based thereupon, set out several embodiments of the invention.

In these drawings:

Figure 1 is a side elevation of a single unit stocking knitted in accordance with the present invention;

Figure 2 is a side elevation of a two-unit stocking knitted in accordance with the present invention;

Figure 3 is a plan view of a portion of the leg blank of a single unit stocking;

Figure 4 is a diagrammatic view illustrating the knitting and interlooping of the heel and sole fabrics of a single unit hosiery blank;

Figure 5 is an enlarged detail view of a portion of one type of my improved knitted fabric;

Figure 6 is a view diagrammatically illustrating the steps involved in the production of the narrowed course in a modified type of my improved knitted fabric; Fig. 6a is a fragmentary diagrammatic expanded view of the narrowed course produced by the steps of Fig. 6 and of parts of the courses adjacent thereto;

Figure 7 is a fragmentary view of a stocking showing a slight modification of the heel fabric;

Figure 8 is a plan view of a portion of the leg blank of a two-unit stocking;

Figure 9 is a diagrammatic view illustrating the shortening of a course of loops by the progressive successive transfer of loops into interlooping engagement with associated loops;

Figure 10 is a diagrammatic view illustrating the narrowing and shortening of a terminal course of the toe fabric by the progressive successive transfer of loops into interlooping engagement with associated loops.

Referring specifically to the drawings, the invention consists of a single unit stocking 1, as shown in Figure 1, and a two-unit stocking 2, illustrated in Figure 2. The single unit stocking consists of a leg section 3 and a foot section 4, the former comprising a welt 5 and a leg 6, and the latter comprising a heel 7, an instep 8, a sole 9, and a toe 10. In relation to the two-unit stocking, illustrated in Figure 2, the leg 11 is

knitted on a "legger" machine and topped onto a "footer" machine to knit the foot 12.

In the knitting of the leg 11, the welt fabric 13, the leg fabric 14, and the heel fabric 15 are knitted as a unitary article in the customary manner, with the exception of the fashioning or narrowing of the heel fabric 15. The instep fabric 16, the sole fabric 17, and the toe fabric 18 of the foot section are also knitted in the customary manner, with the exception of the narrowing or fashioning of the toe fabric.

Due to the novel manner of fashioning the heel and toe fabrics, the single unit stocking illustrated in Figure 1 and the two-unit stocking illustrated in Figure 2 can be provided with continuous seams 19 and 20 which extend from the edge of the welt to the tip of the toe, thereby dispensing with the customary looping operations at the heel and toe of the stockings.

A distinguishing feature of the illustrated inventions resides in the novel manner of narrowing or fashioning the heel and toe fabrics by successively and progressively transferring loops coursewise of the fabric until one or more courses of the fabric have been shortened to the required extent to give the proper narrowing or fashioning to the fabrics. Narrowing the fabrics coursewise along a relatively few courses, preferably a single course, provides a rounded formation at the edge portion of the fabrics for assuring a snug fit.

A characteristic feature of the narrowed fabrics, particularly the heel fabrics and the toe fabric of a stocking, resides in shaping the edge portion of the toe fabric and heel fabrics so as to provide straight edges and curved edges to assure a more perfect fit between the fabrics and the foot of the wearer. The narrowed courses of the fabrics not only assure proper shaping of the fabrics, but they also provide "run" stops to resist the passage of "runs" in the knitted fabrics.

With my invention, a single unit stocking can be economically knitted and seamed, which is accomplished by knitting the upper part of the stocking in the customary manner, then widening out the upper portions of the heel fabrics, then narrowing the lower portions of the heel fabrics in a novel manner so as to give the proper fullness and curvature to the heel, then knitting the foot section as a continuation of the leg section and narrowing and fashioning the toe fabric in a novel manner, and then seaming the stocking from the toe to the edge of the welt by a continuous seaming operation.

In the knitting of the lower heel portions of a stocking blank, it is the usual practice to narrow successive courses inwardly by the transferring of loops in a number of succeeding courses. As a result, the selvedge edges of the lower portions extend along a straight line and at an angle to the straight edge of the hosiery blank.

In the usual knitting of the upper and lower heel portions of the heel fabrics of a single unit stocking blank, the heel fabrics are characterized by straight edges having an angular relationship, whereas my invention is characterized in the combination of straight edges and curved edges. This is accomplished by widening out the upper portion of the heel fabrics by widening out courses and fashioning the lower portion of the heel fabrics by coursewise progressive narrowing operations in counterdistinction to the usual practice of fashioning the heel fabrics by walewise progressive narrowing operations. In other words, the rows of narrowing marks usually extend walewise of the heel fabrics, whereas in the present invention the rows of narrowing marks extend coursewise of the heel fabrics. These rows of fashioning marks are arranged in relatively few courses of the heel fabrics, and preferably in a single course, and extend coursewise of the fabrics. The fashioning marks further shorten the course to the necessary extent to give a "round" or "cup" shape to the lower heel portion, for accomplishing an accurate fit with the heel of the wearer.

Referring specifically to Figures 1, 3, and 4 of the drawings illustrating a single unit full-fashioned stocking and a single unit blank, the leg section 1 is knitted and narrowed in the usual manner down to the line A—A and may be knitted from a single yarn or from a plurality of yarns according to what is known as the "Three-Carrier" method. Then the knitting machine is adjusted to knit widened out courses until the line B—B is reached. Thus the upper heel portions 21 of the heel fabrics are widened and provided with inclined straight edges 22 that extend outwardly and downwardly in relation to the selvedge edges 23 of the leg fabric.

In widening out the courses, any of the well known methods may be utilized, but I prefer to utilize the method disclosed in my Letters Patent of the United States Nos. 2,298,302 and 2,433,568.

In the knitting of the lower portions of each of the heel fabrics, a number of successive widened courses of uniform length are knitted until the line D—D is reached and, as a result, each heel fabric substantially has the shape illustrated in Figure 4. The last course of the leg section which includes that portion of the course forming the final course of each of the heel fabrics is subject to a number of successive progressive narrowing operations so as to produce the coursewise row of fashioning marks 25, which fashioning marks are formed by a number of transferred loops in the heel fabrics, produced in the manner hereinafter set forth. This transferring of loops and the forming of the fashioning marks shortens the final course of each of the heel fabrics to the point designated by the arrow *d*, thereby giving each heel fabric a curved, rounded or cup shaped formation, as diagrammatically illustrated by the dotted line *e*.

Due to the extent or narrowing of the final course of each of the heel fabrics and the number of courses knitted to form the lower portion of the heel fabric, each heel fabric may be additionally provided with a vertical straight edge 24 that extends at right angles to the straight edge 22 and extends in a direction substantially parallel with the straight edge 23 and thus the heel fabric is given an extra "fullness."

Referring to Figures 3 and 4, the first course of each of the sole fabrics 9 is knitted to the final course of the associated heel fabric, which final course has been narrowed to a length substantially equal to the length of the first course of the sole fabric. When this has been accomplished, the lower portions of the heel fabrics are given a curved edge 26 that merges into the straight edges 22 and 24 and curves from the straight edges 27 and 28 of the foot fabric.

The toe fabric, as shown in Figure 3, is knitted in the usual manner down to the line E—E. Then, in the customary manner, the narrowing mechanism is set into operation for knitting the toe gores 29 for partially fashioning or narrowing the toe fabric 30 and provide the straight edges 31.

It is the usual practice to provide the toe gores with diamond points to complete the fashioning of the toe fabric, but this is not necessary with the present invention in that the final fashioning of the toe fabric is accomplished by providing a single row of fashioning marks 33 extending coursewise of the end of the toe along the line F—F, which are formed by transferring loops in the manner hereinafter set forth and thereby the foot fabric is provided with curved edges 32 merging into the straight edges 31 to give the final fashioning to the toe fabric.

It will be noted that the gores terminate at the fashioning marks 33 which are formed in the terminal course of the toe fabric, and to this terminal course is knitted a few additional courses to provide a tab 34 to facilitate the seaming operation. In view of the fact that the diamond point formation of the gores is dispensed with, the usual machine operation necessary to produce the diamond points is eliminated, thereby reducing the cost of manufacture of the stocking.

Fig. 5 illustrates diagrammatically a fabric section in which rows of narrowing marks extend coursewise and are produced by transferring a varied number of loops into interlooping engagement with associated loops in a single course. Of course, in practice, there may be several courses associated in which loops are transferred into interlooping engagement with associated loops, but I have found in practice that it is more practical to transfer loops only in a single course.

Due to the fact that a varied number of loops are transferred coursewise into interlooping engagement with other loops, the narrowed courses not only narrow the fabric, but also provide "run" barriers to resist the passage of "runs," thereby enabling a single continuous seam operation to be utilized in the seaming of the stocking from the toe to the edge of the welt. Further, the transferring of a large number of loops throughout the length of a course to fashion the toe fabric materially shortens the length of the course which facilitates the seaming operation and eliminates the usual looping operations.

In Figure 5 I have illustrated a narrowed course as consisting of pairs of loops 35 and 36 transferred and interlooped with associated loops 37 and also a single loop 38 transferred and interlooped with an associated loop 39, but I wish it to be understood that this number may be increased or decreased in practice.

These loops are successively and progressively transferred until the course of loops has been shortened to the extent necessary to properly narrow or shape the fabric and to properly provide "run" barriers. After this has been accomplished, a shortened course 40 is knitted into interlooping engagement with transferred loops and this shortened course, preferably, is the first course of the sole fabric. Due to this arrangement, the row of loops 41 of the course 42 preceding the narrowed course and interlooped therewith are pressed towards each other, thereby giving a "round" or "cup" shaped formation to the fashioned fabric.

The transferring operation may be performed in various ways but, for the purpose of illustration, I have diagrammatically shown in Figure 6 a few of the novel steps of my novel method of progressively and successively transferring loops for the production of the type of narrowed course shown in Figure 6*a*.

In Figure 6, the letter G designates the first step of the novel method involved. The numeral 43 designates a row of needles supporting a row of loops 44. In step G, two points 45 and 46 of a narrowing comb are illustrated, and these two points are engaged with the first two loops 47 and 48 on the needles 47N and 48N. The narrowing mechanism is then operated to advance the points 45 and 46 a two-needle distance so as to deposit the loops 47 and 48 upon the loops 49 and 50 on needles 49N and 50N, as indicated in step H. After this has been accomplished, the narrowing comb is advanced one-needle distance, as indicated in step I, so as to bring into action an additional point 51 and associate the point 45 with a new loop 52 on needle 52N. The points 45, 46, and 51 are then engaged with loops 47, 48, 49, 50, and 52 and removed from the needles, after which the points are advanced a two-needle distance, as per step J, to deposit the loop 52 on the needle 53N which supports an additional new loop 53, and deposit loops 47 and 49 on needle 54N on which is an additional loop 54, and deposit loops 48 and 50 on needle 52N from which loop 52 has been removed. These transferring steps G, H, I, and J deposit two loops on each of the needles 52N and 53N, and deposit three loops on needle 54N.

The foregoing cycle of steps is repeated, as indicated by the letters K, L, M, N, O, and P for the piling up or grouping of a varying number of loops upon the needles to accomplish the required shortening of the narrowed course by overlapping the first and third loops, the second, fourth and sixth loops, the fifth, seventh and ninth loops, the eighth, tenth and twelfth loops, the eleventh, thirteenth and fifteenth loops, and so on. It will be noted that when step P is reached, the two end needles have pairs of loops arranged thereon and all the intervening needles have three loops deposited thereon but, as hereinbefore stated, the number of loops transferred may be varied without departing from the spirit of the invention. When the course is sufficiently narrowed, a shortened course 40′ is knitted in interlooping engagement with the loops of the narrowed course, as diagrammatically indicated in Fig. 6*a*, so as to retain in position the groups of overlapped loops of the narrowed course.

It is, of course, to be understood that the number of points moved during each step, the number of loops transferred during each step, and the distance of travel of the points may be varied, as the main purpose of this narrowing operation is the shortening of the course to the required extent to assure the proper narrowing or fashioning of the fabric.

Referring to the diagrammatic view in Figure 9, the line 55 indicates the length of the course before narrowing, and the line 56 indicates the length of the course after the narrowing thereof by the fashioning marks 25.

Figure 10 diagrammatically illustrates the shortened and narrowed course of the toe fabric, as indicated by line F—F in Figure 3. This course diagramatically represented by the heavy line 57 is narrowed throughout its entire length and in opposite directions towards a central line designated by the letters R—R, which is accomplished by moving the narrowing points progressively and successively towards each other, as indicated by the arrows *a* and *b*.

Figure 3 illustrates two straight edges 22 and 24 merging into a curved edge 26 to give extra fullness to the heel, but it may be advantageous in practice to dispense with the straight edges 24 and, therefore, in Figure 7, I have illustrated

a heel fabric 58 provided with a widened out straight edge 59 directly merging into a curved or fashioned edge 60. In the production of this type of heel fabric, the stocking is knitted down to line S—S and the widening out operation is resorted to to produce the inclined straight edge 59. When the knitting has proceeded to the line T—T, uniform lengthwidened courses are knitted until line U—U is reached. The narrowing mechanism is then put into operation to successively and progressively narrow the final course to the extent necessary to curve the entire edge of that portion of the heel fabric formed by all the widening out courses of uniform length, thereby producing the curved edge 60 directly merging into the straight edge 59.

In the production of the so-called two-unit stocking, as illustrated in Figures 2 and 8, the leg is knitted in the usual manner to have the usual heel tabs 63 and 64. One of the terminal courses of each heel tab is shortened to the required extent to provide a round, curved, or cup-shaped edge portion 65 by progressively and successively transferring loops in a single course in accordance with the steps of the diagram, Figure 6. This narrowed course, as indicated by the row of narrowing marks 66, may be narrowed to the required extent to give the full curvature or roundness to the heel but, if found advantageous in practice, a few of the usual fashioning marks 67 produced in the well known manner may be utilized.

As shown in Figure 2, the toe fabric is further provided with the usual single row of fashioning marks 68 and the raw edge thereof is provided with a coursewise row of fashioning marks similar to the row of fashioning marks 33 shown in Figure 3, accomplished by the successive progressive transferring of groups of loops toward each other so that the toe may be fully fashioned and seamed by a continuous seaming operation from the tip of the toe to the edge of the welt.

Attention is directed to the fact that the row of fashioning marks 66 in Figure 2 is arranged very close to the seam but, in practice, the row may be taken up completely in a continuous seam. Further, the row of fashioning marks 33 may be arranged very close to the seam or may be taken up in the continuous seam, thereby effectively securing the raw edge of the fabric against the passage of "runs" and thereby eliminating the usual looping operations.

The heel fabrics, sole fabric, and toe fabric are reinforced in the usual manner by the additional knitting of reinforcing yarns with the body yarn. It is of course to be understood that in the boarding of the hosiery, the final shape is given to the heel fabrics and the toe fabric.

It is also to be understood that my invention is capable of many modifications and, therefore, any modifications coming within the scope of the subjoined claims are to be considered within the spirit of the invention.

What I claim is:

1. A knit fabric having loops forming wales and courses forming plain knit portions having between them a narrowed course containing at least three adjacent groups of overlapped loops adjacent to each of opposite selvages of the fabric, each group comprising loops from different wales, the loops of such narrowed course having center to center spacings similar to the center spacings of loops forming a course of a plain portion aforesaid, one of said plain portions aforesaid having a course interlooped with the narrowed course and comprising loops holding together the loops of the several groups so as to substantially narrow the fabric.

2. A knit fabric having loops forming wales and courses forming plain knit portions having between them a narrowed course containing at least three consecutive groups of gathered loops adjacent to each of opposite selvages of the fabric, some of such groups each including loops from three different wales, the loops of such narrowed course having center to center spacings similar to the center to center spacings of loops forming a course of a plain portion aforesaid, one of said plain portions aforesaid having a yarn holding together the loops of the several groups so as to substantially narrow the fabric.

3. A full-fashioned hosiery blank having loops forming wales and courses and including a course containing a multiplicity (and at least several) adjacent groups of overlapped loops, some of said groups each including loops from at least three wales, and means for holding together the loops of several groups so as to substantially narrow the fabric.

4. A full-fashioned hosiery blank having loops forming wales and courses and including a course containing a multiplicity of juxtaposed groups of overlapped loops, each group comprising loops from different wales and certain of said groups including more loops than another group, and a yarn holding together the loops of the several groups so as to substantially narrow the fabric.

5. A fabric as set forth in claim 1 having a reinforced portion and a non-reinforced portion and including a narrowed course containing at least three groups of gathered loops adjacent to each of opposite selvages of the fabric, said groups of gathered loops extending across at least a major portion of said reinforced portion transversely to the selvages thereof.

6. A stocking blank composed of weft knit fabric having loops forming wales and courses and including a narrowed course containing at least three groups of gathered loops adjacent to each end of such course, each group comprising loops from different wales, said fabric having a reinforced section forming a foot portion having heel and sole sections, and said course containing the groups of gathered loops being adjacent to the juncture of the heel and sole sections of the foot portion said loops having center to center spacings similar to the original center to center spacings of the gathered loops prior to the gathering thereof into groups.

7. A stocking blank composed of weft knit fabric having loops forming wales and courses and including a narrowed course containing at least three adjacent groups of gathered loops adjacent to each end of the narrowed course, each group comprising loops from different wales, said fabric having a reinforced section forming a foot portion having a toe section, and the course containing groups of gathered loops being adjacent to the extremity of the toe portion and said groups extending substantially across such extremity, said toe section having a course following said narrowed course and having consecutive loops interlooped through the loops of the narrowed course so that the loops of the narrowed course and succeeding course have similar center to center spacings.

8. A stocking blank comprising a weft knit fabric having loops forming wales and courses and including courses each containing at least three adjacent groups of gathered loops, each group

comprising loops from different wales, said fabric having a reinforced section forming a foot portion having heel, sole and toe sections, some of said groups of gathered loops being adjacent to the juncture of the heel and sole sections on each side of the blank and one of the groups of the gathered loops being adjacent to the extremity of the toe on each side of the blank.

9. A stocking blank comprising weft knit fabric having loops forming wales and courses and including a course containing a pair of sets of groups of gathered loops, said sets of groups being adjacent to the extremity of the toe of the blank and forming terminii for a pair of toe gores extending heelward from such groups of gathered loops.

10. A single unit hosiery blank composed of weft knit fabric having loops forming wales and courses and including a course containing a pair of sets of groups of gathered loops, each set containing a multiplicity and at least several groups, and each group comprising loops from different wales, said fabric having a reinforced section forming a foot portion having widened out sections, and said sets of groups being in approximate alignment on opposite sides of the foot portion.

11. A stocking blank having a heel pocket fashioned by groups of gathered loops on each side thereof, said heel pocket having curved selvaged edges and curved wales, the curvatures of wales adjacent to said selvage edges being sharper than the curvature of the wales adjacent to the inner ends of said groups of gathered loops.

12. A hosiery fabric comprising a group of courses of loops, the number of loops in succeeding courses of such group gradually increasing and forming an upper heel portion, a second group of courses of loops, the number of loops in each course of the second group being substantially equal to the maximum number of loops in the widest course of the first group, one of the courses of the second group having a substantial proportion of the loops thereof overlapped upon one another to materially narrow the width of such course and to bend other courses of the second group to form a heel pocket, and a third group of courses each containing substantially fewer loops than the maximum number of loops in the widest course of the first group.

13. A stocking composed of a blank of weft knitted fabric having a leg section, a widened heel section, a sole section, and a toe section having a run barrier course adjacent to the extremity thereof, said fabric having continuous locked selvages from said leg section to the run barrier course of said toe section, and the selvages of said fabric being united by a continuous sewn seam across and from the toe and past the heel.

14. A stocking having a rounded heel provided with a single course only of transferred loops.

15. A stocking having a rounded heel provided with a few narrowed courses each containing at least three groups of gathered loops at each end of each narrowed course, the number of groups of gathered loops substantially exceeding the number of courses containing such groups, the center to center spacings of the groups of narrowed courses being similar to the center to center spacings of the loops which are not gathered.

16. A stocking having a heel fashioned by

groups of gathered loops forming a substantially continuous row of narrowing marks extending inward approximately normal to the edge of the stocking between the heel and sole thereof.

17. A hosiery blank comprising knit fabric having loops forming courses and wales and fashioned by more than two juxtaposed groups of overlapping loops from different even numbered wales in the same course, said groups having center to center spacings equal to the center to center spacings of juxtaposed unlapped loops, and said groups being held in close juxtaposition to one another by loops of a subsequent course to substantially narrow the fabric.

18. A hosiery blank comprising knit fabric having loops forming courses and wales and fashioned by more than two juxtaposed groups of overlapping loops of odd numbered wales in the same course, said groups having center to center spacings equal to the center to center spacings of juxtaposed unlapped loops, and said groups being held in close juxtaposition to one another by loops of a subsequent course to substantially narrow the fabric.

19. A hosiery blank comprising knit fabric having loops forming courses and wales and fashioned by a plurality of groups of overlapping loops of even numbered wales and a plurality of groups of overlapping loops of odd numbered wales, the groups second named alternating with the groups first named coursewise of the fabric and each of said first named groups having one of said second named groups juxtaposed thereto.

20. In the production of weft knit fabric, the step which comprises repetitively shifting loops of a course coursewise at least several times in the same direction, the number of loops shifted being increased at each shift after the first, and drawing a course of loops through said shifted loops to substantially narrow the fabric.

21. In the production of weft knit fabric, the steps which comprise repetitively shifting a group of adjacent loops of a course coursewise and adding to the number of loops in the group shifted at each coursewise shift thereof after the first, each loop added to the group being shifted to a wale beyond the unshifted wale adjoining the added loop, and drawing a course of loops through said shifted loops to position the same relatively in close juxtaposed relation.

22. In the production of weft knit fabric, the steps of forming along a fabric a course of loops upon a bank of needles, repetitively shifting coursewise in the same direction along such bank of needles groups of loops of such course, such shifting including at least several shifts and each shift moving the previously shifted groups inwardly, and each shift after the first including at least one loop in addition to the loops last previously shifted, and drawing a further course of loops through the loops of the first named course.

23. In the production of weft knit fabric, the steps of forming along a fabric a course of loops upon a bank of needles, repetitively shifting coursewise in the same direction along such bank of needles groups of loops of such course, such shifting including at least several shifts and each shift moving the shifted group inwardly a plurality of needles, and each shift after the first including at least one loop in addition to the loops last previously shifted, and drawing a further course of loops through the loops of the first named course.

24. In the production of weft knit fabric, the

steps of forming along a fabric a course of loops upon a bank of needles, shifting loops of said course coursewise until each of at least three consecutive needles holds overlapped loops from different wales and the fabric is narrowed an amount substantially equal to the width occupied by the needles from which all loops have been shifted, and drawing a yarn through said overlapped loops and forming therefrom consecutive loops on the needles which previously held overlapped loops.

25. In the production of weft knit fabric, the steps which comprise knitting a web and forming a course of loops thereof on a bank of needles, transferring inward loops closely adjacent to an edge of the web and depositing them on inner loops of the same course, then transferring further inward the deposited loops, the loops on which they were deposited and a further loop, each of the transferred loops being moved inward a distance of at least two needles, repeating such transfers until the fabric is substantially narrowed, and then interlooping a yarn with the narrowed course.

26. In the production of a stocking blank, the steps which comprise knitting a leg portion, then knitting a heel portion having widened reenforced sections on opposite sides thereof, then successively and repeatedly transferring groups of substantially aligned loops inwardly from the sides of the reinforced sections until a multiplicity of the loops in a course of each reinforced section have been transferred inwardly and the reinforced sections have been substantially narrowed, then knitting a sole portion, then knitting a reinforced toe portion, and then successively and repeatedly transferring groups of substantially aligned loops of the reinforced toe portion inwardly from each side thereof until a multiplicity of the loops in a course of the reinforced toe portion have been transferred and the reinforced toe portion has been substantially narrowed.

27. A method of shaping the foot of a stocking which comprises progressively and successively transferring at least several loops coursewise in the same course at each side of the heel fabric, and successively and progressively transferring at least several loops in the same course on each side of the toe fabric, the inward movement of loops in said heel fabric course being substantially greater than the inward movement of loops in said toe fabric course.

28. A method of fabricating the foot fabric of a stocking which comprises knitting such fabric and transferring a varying number of loops in repetitive steps in a single course on each side of the heel fabric adjacent to its juncture with the sole fabric, and transferring groups of loops in repetitive steps toward one another in a terminal course substantially at the extremity of the toe fabric, a greater number of loops being transferred in each later step than in the previous step after the first, and seaming with a continuous seam the edges of the heel, sole and toe fabrics.

29. A method of fashioning the heel fabric of a stocking which comprises progressively overlapping a sufficient number of loops in a single course only to shorten the same to the extent necessary to fashion the heel fabric.

30. In the knitting and fashioning of a stocking foot, the steps which include knitting a blank having a reinforced portion and including loops forming courses and wales, and transferring inward and overlapping loops of more than two wales upon the loops of more than two other wales to form at least three juxtaposed groups having center to center spacings substantially equal to the center to center spacings of juxtaposed loops before transfer, and drawing loops through said groups to secure them in close juxtaposed relation to substantially narrow the fabric and thereby abruptly and substantially narrowing the reinforced portion.

31. In the weft knitting of fabric having courses and wales, the steps which include knitting a course of loops and overlapping loops of even numbered wales upon loops of other even numbered wales and overlapping loops of odd numbered wales upon loops of other odd numbered wales to form more than two juxtaposed groups of loops spaced center to center equal to the center to center spacing of juxtaposed unlapped loops of an even numbered wale and an adjacent odd numbered wale.

32. A method of changing the width of weft knitted fabric having loops forming wales and courses which comprises moving a group of points coursewise of the fabric and step by step consecutively in the same direction and lifting and shifting coursewise loops aforesaid in a multiplicity of alternate steps aforesaid and thereby overlapping loops of different wales to form sequentially groups of loops, and shifting laterally groups aforesaid until the fabric has been substantially narrowed, said points being free of loops during their movements in each of the intermediate steps.

33. A method of changing the width of weft knitted fabric having loops forming wales and courses which comprises moving a group of points coursewise of the fabric and step by step consecutively in the same direction and lifting and shifting coursewise loops aforesaid in a multiplicity of alternate steps aforesaid and thereby overlapping loops of different wales to form sequentially groups of loops and shifting laterally groups aforesaid until the fabric has been substantially narrowed, said points being free of loops during their movements in each of the intermediate steps, the extent of each movement of the points when shifting loops differing from the extent of the movement of the points when free from loops.

34. A hosiery blank comprising weft knit fabric having loops forming courses and wales and including normal courses and a course adjacent to the juncture of the heel and sole sections containing a multiplicity (and at least three) adjacent groups of overlapped loops extending inward from the selvage, each such group comprising loops from different wales, said groups having center to center spacings approximating the center to center spacings of loops in normal courses of said fabric, and said groups being held in juxtaposition to one another by loops of a subsequent course to substantially narrow the fabric.

35. A knitted stocking including a leg, a foot, and a rounded heel with a suture formed in the bottom of said heel, said heel comprising wales and courses of loops, the loops of wales in a predetermined course adjacent and substantially parallel to the suture being overlapped upon one another to form groups of loops, such groups having center to center spacings approximating the center to center spacings of loops in previous courses of the heel, and a subsequent course of loops holding said groups of loops with the

aforesaid center to center spacings to substantially narrow and curve the fabric of the heel.

36. In a knitting machine having a series of needles for carrying yarn loops and width-changing combs for transferring loops laterally from needle to needle, the method of changing the width of the knitted fabric between successive knitting courses, which comprises moving said combs laterally in cycles and repeating such cycles a plurality of times, each cycle comprising two movements of each comb in one direction, and causing said combs when moving in one only of the two times in each cycle to transfer loops from needle to needle.

37. In a knitting machine having a series of needles for carrying yarn loops and width-changing combs for transferring loops laterally from needle to needle, the method of changing the width of the knitted fabric between successive knitting courses, which comprises moving said combs laterally in the same width changing direction step by step while causing said combs to transfer loops from needle to needle in alternate steps only and a plurality of times after the first such transfer, the steps intermediate to such transferring steps being idle.

38. A method of narrowing the heel tabs of a stocking leg blank having a course of loops on consecutive needles, which comprises progressively and successively transferring coursewise a major portion of the loops of a course of each heel tab adjacent to the extremity thereof to form in each tab at least three coursewise juxtaposed groups of loops on consecutive needles, and drawing a yarn through said groups and forming therefrom consecutive loops on said consecutive needles.

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