Dec. 25, 1962 C. W. ANDERSON ETAL 3,069,884

SHADOW-EFFECT STOCKING

Filed May 29, 1959 4 Sheets-Sheet 1

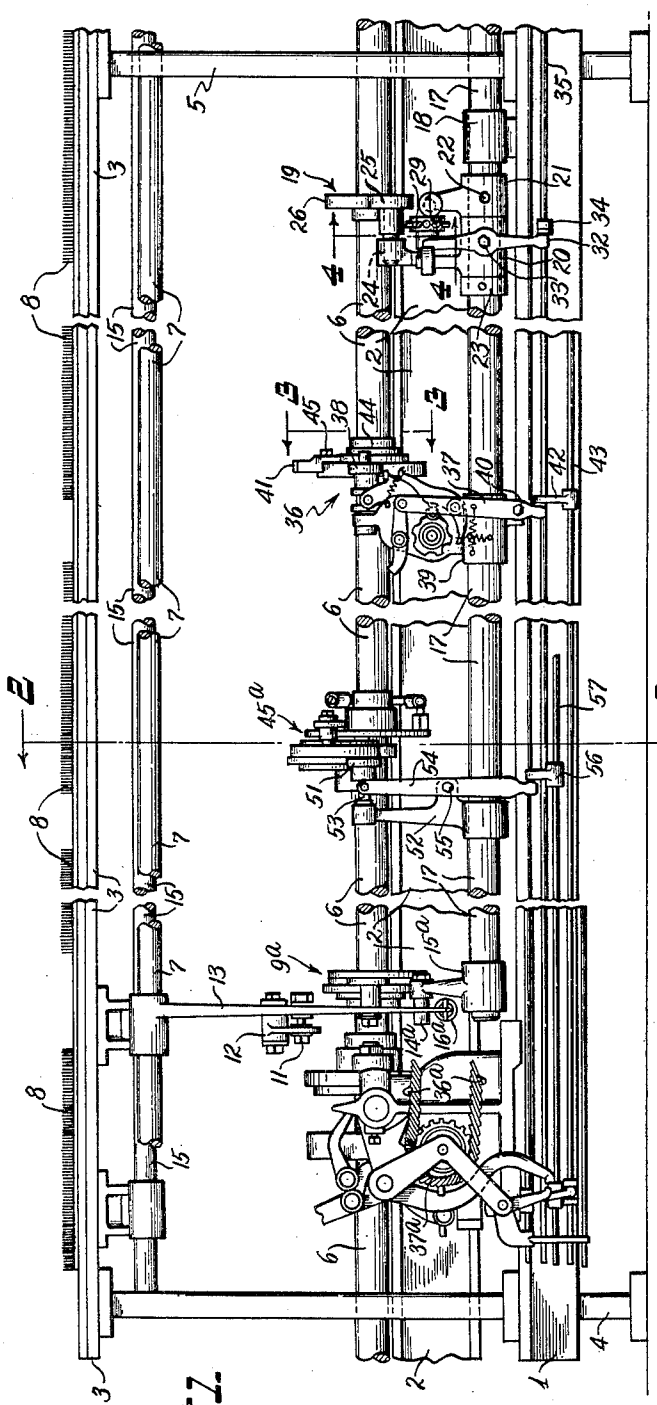


FIG. 1.

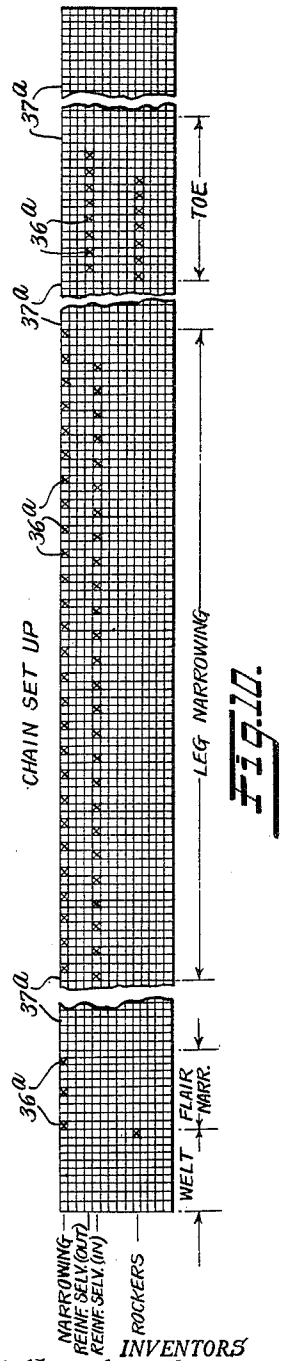



FIG. 10.

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Filed May 29, 1959 4 Sheets-Sheet 2

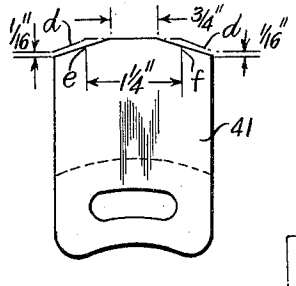



Fig. 5.

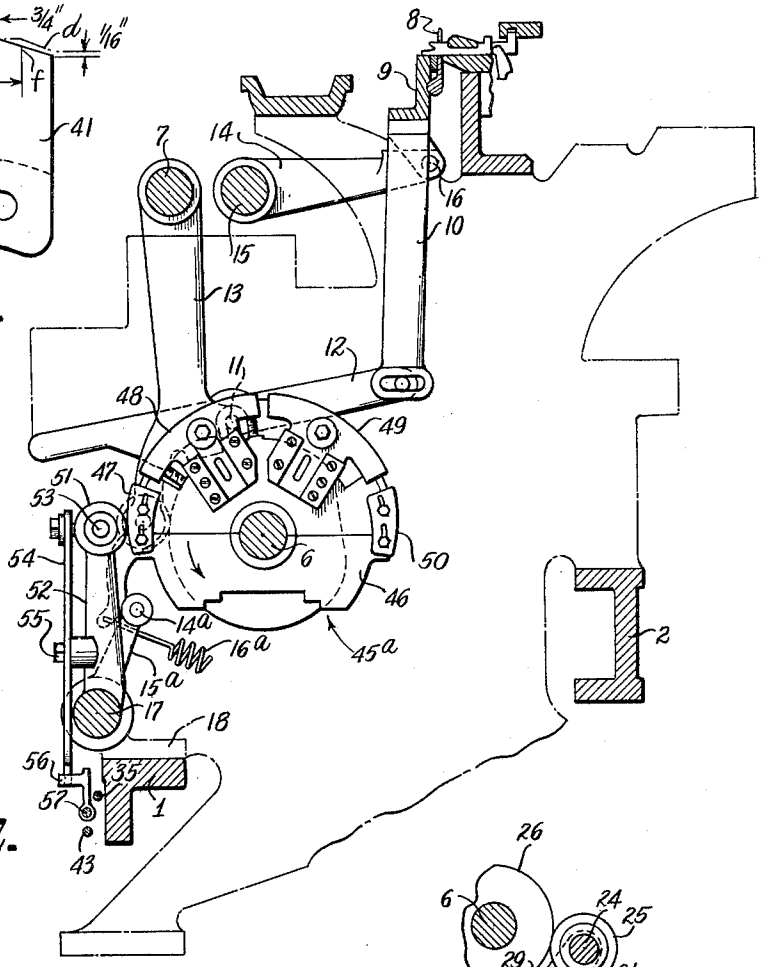



Fig. 2.

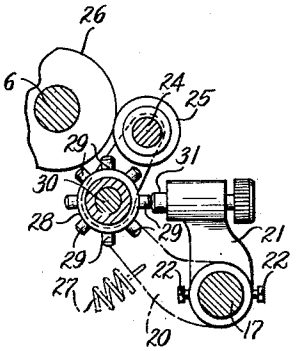



Fig. 4.

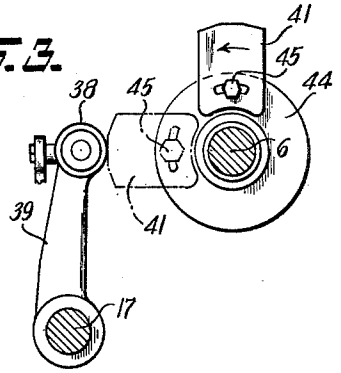



Fig. 3.

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Filed May 29, 1959 4 Sheets-Sheet 3

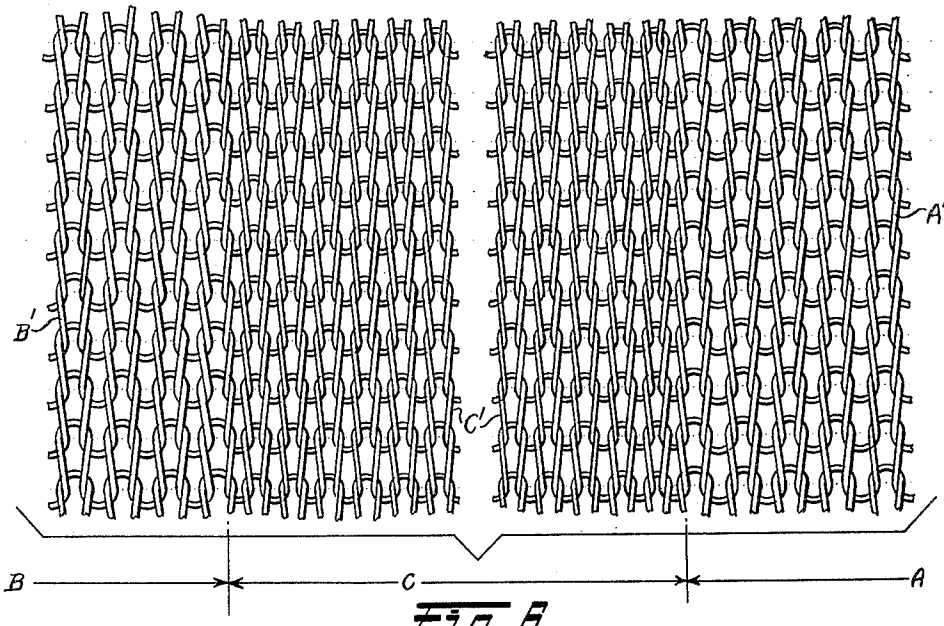



Fig. 6.

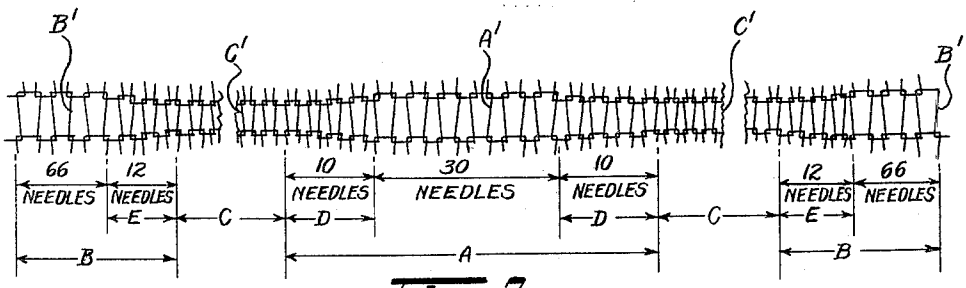



Fig. 7.

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Filed May 29, 1959 4 Sheets-Sheet 4

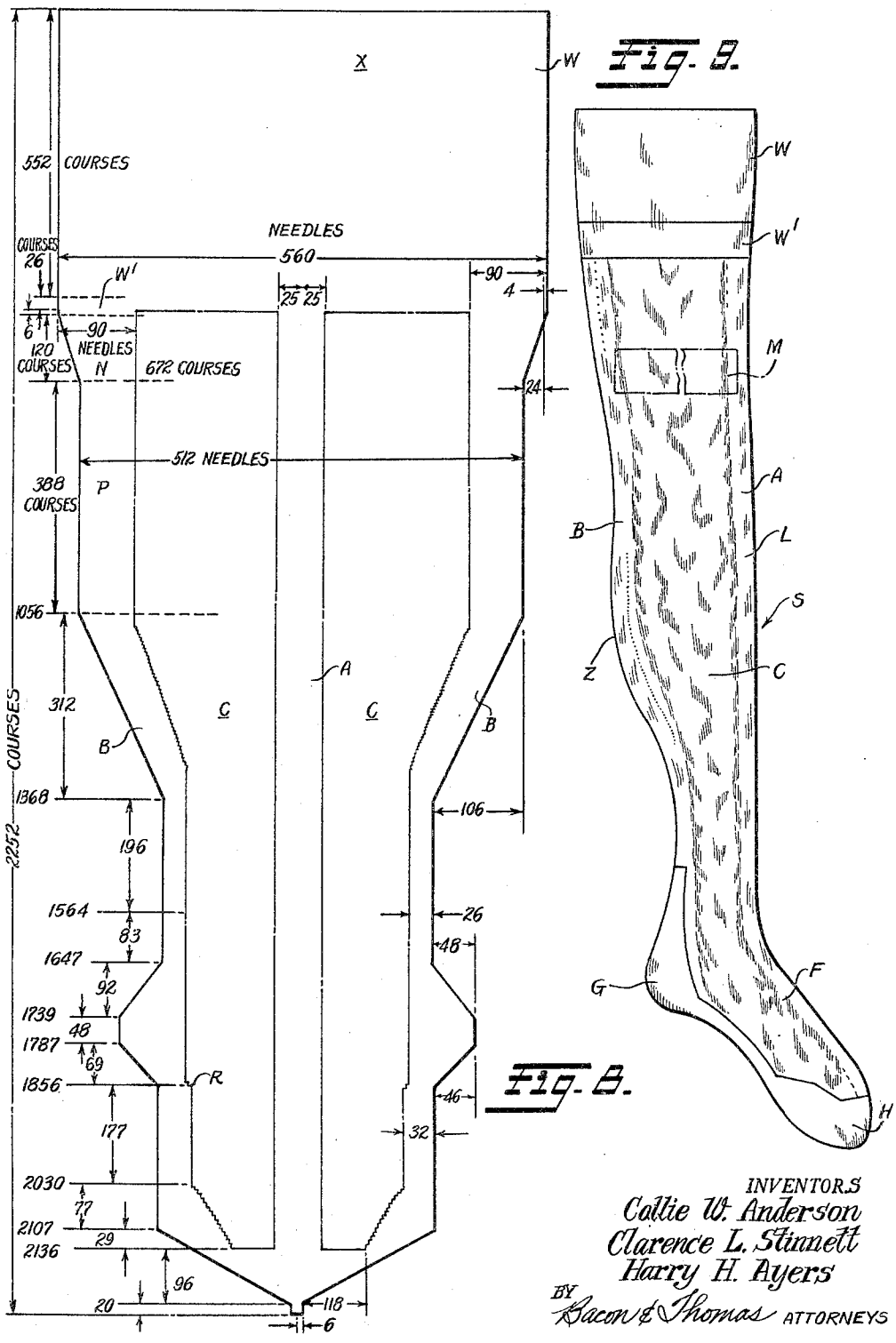



Fig. 9.

Fig. 8.

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United States Patent Office 3,069,884 Patented Dec. 25, 1962



3,069,884

# SHADOW-EFFECT STOCKING

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Filed May 29, 1959, Ser. No. 816,998
6 Claims. (Cl. 66—180)

The present invention relates to the hosiery art and, more particularly, to a stocking knitted to produce a shadow-effect at the ankle, and along the sides of the leg from the ankle to the welt portion of the stocking.

The invention further relates to improvements in a full-fashioned knitting machine which enable the machine to knit stockings with loose and tight wales in the same courses in predetermined portions of said courses so that the stocking will produce a shadow-effect along the opposite sides of the leg and at the ankle of the wearer and provide highlights at the front and back to make the leg appear more shapely and slim.

The invention further relates to a method of knitting a stocking such as described above and/or knitting a stocking blank on a full-fashioned knitting machine from which such stocking may be made.

Attempts have been made heretofore to produce women's stockings to enhance the appearance of the leg and make the calf portion appear to be more shapely and the ankle trimmer. One of such expedients consists of dyeing the side portions of the stocking a darker shade than the remainder of the stocking in order to produce a so-called shadow-effect. This procedure involves problems in local dyeing or coloring the stocking, which are completely avoided by the present invention, which produces stitches providing the desired highlight and shadow-effects, during the knitting of the stocking itself and eliminates the necessity of special treatment and handling during dyeing.

More specifically, the shadow-effect is produced in the instant stocking by knitting certain loops or wales tighter than other loops or wales in the same course. The loose wales may correspond generally to looser than normal knitting procedure and provide the highlights in the present stocking. The tighter wales depart substantially from conventional knitting procedure also and provide the darker areas or shadow-effects by elongating and drawing the wales closer together to increase the density of the fabric.

By way of further explanation, the present method effects a distribution of fabric of different densities to the desired portions of the stocking where the highlight and shadow-effects, respectively, are desired. By way of example, the lighter fabric or looser wales are knitted so that they appear at the front of the stocking, and also at the back of the stocking, along the seam. The loose wales at the front of the stocking extend for a uniform width from the after-welt, to the toe portion of the stocking. The loose wales at the front of the stocking afford the further advantage of rendering the stocking more elastic across the knee, while providing sheer fabric extending along the shin and across the top of the foot to the toes. At the back of the stocking, the sheer or loose-knit sections extend along the large portion of the calf to the heel, then to the bottom of the foot and then forward to the toe. On the other hand, the tight wales occupy the portions of the courses between the loose-knit front and back sections and form the sides of the stocking. They extend from the after-welt to the toe portion of the stocking. In the largest calf portion of the leg of the stocking, for example, the loose-knit front section may be formed of about 50 wales, the loose-knit section (including the seam) at the back of the stocking may be formed of a total of about 144 wales and the tight-knit sections at each side of the stocking may be formed of about 165 wales each.



The present stocking is disclosed in connection with a full-fashioned knitting machine which knits a stocking blank that is seamed along the back, to form a full-fashioned stocking, as is well understood in the art. In such a blank, the loose wales may have 43 courses per inch and a wale count of 40 per inch; whereas, the tight wales may have 53 courses per inch and a wale count of 68 per inch, or about 70% more wales per inch. The side sections of the stocking having the greater number of wales per inch, of course, are denser and, therefore appear slightly darker in the finished stocking when worn, thereby producing a desirable shadow-effect. Another advantage of the tight-knit wales is that, in elongating, they cause the stocking to contract and hug the sides of the leg at the calf, the hollows of the ankle and ankle bone, thus throwing soft shadows at each side of the ankle and tending to camouflage the protruding ankle bone.

One of the important features of the invention is that the present stocking can be knitted on conventional full-fashioned knitting machines by modifying the rocker cams to control the loose and tight wales.

Accordingly, the principal object of the invention is to provide a stocking and a method and apparatus for knitting the same that will produce a stocking that will inherently provide a shadow-effect for enhancing the appearance of the leg and ankle of the wearer.

Another object is to provide a stocking having a shadow-effect, that can be knitted upon conventional full-fashioned knitting machines, with only minor changes in a few parts of the machine.

Another object is to provide a stocking having a shadow-effect, which can be finished, after knitting, by employing the same standard finishing steps employed in making conventional full-fashioned stockings.

Another object is to provide a stocking that has a front section of loose wales that will render the stocking elastic at the knee, and also has side sections of relatively tight wales that insure a snug fit at the calf and ankle.

Other objects and features of the invention will be apparent from the following description taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a fragmentary front elevational view of a conventional full-fashioned knitting machine embodying the improved mechanism of the present invention, certain parts of the machine having been omitted in the interest of clarity;

FIG. 2 is a fragmentary vertical sectional view taken on line 2—2 of FIG. 1, illustrating some of the elements of the present novel mechanism;

FIG. 3 is a fragmentary vertical sectional view taken on line 3—3 of FIG. 1, illustrating additional mechanism of the present invention;

FIG. 4 is a fragmentary sectional view taken on line 4—4 of FIG. 1, illustrating the drum that carries the regulating buttons;

FIG. 5 is a front elevational view of the cam that provides the highlights, showing the conventional roller surface in dot-and-dash lines, and the altered surfaces for providing the desired action in knitting a stocking, in full lines;

FIG. 6 is an enlarged fragmentary view of the wales and courses of the stocking included within the area designated by the Block M in FIG. 9;

FIG. 7 is a schematic view illustrating the loose and tight wales in one course of the stocking;

FIG. 8 is a diagrammatic view of the stocking blank, together with legends and numerals indicating the number of needles in operation in certain courses throughout the knitting of the stocking blank;

FIG. 9 is a diagrammatic view of the finished stocking, with the shaded areas indicating the sections of the stocking in which the tight wales are knitted; and

FIG. 10 is a diagrammatic view of the chain setup for controlling the machine to knit the stocking blank of FIG. 8.

The machine illustrated in the accompanying drawings is of the well-known "Reading" full-fashioned type in which certain elements have been modified in order to adapt the machine to make a stocking of the character herein described. In the interest of simplicity, only those parts of the various mechanisms necessary for an understanding of the present invention have been shown. The various other parts and mechanisms of the machine and their manner of operation are well-known to persons skilled in the art and are shown and described in detail in a pamphlet entitled "Full-Fashioned Knitting Machines," copyright 1920, and in the "Reading" Full-Fashioned Knitting Machine Catalogs, copyright 1929 and 1935, and published by the Textile Machine Works, Reading, Pennsylvania.

Referring to FIG. 1 of the drawings, portions of the "Reading" full-fashioned knitting machine are shown, including a front beam 1, a back beam 2, and a center bed 3, rigidly supported by spaced supports 4 and 5. A cam shaft 6 is mounted in its customary relation to the frame, as is a needle bar rocking or presser shaft 7. The usual narrowing mechanism at the left end of the machine has been omitted from the drawings. Knitting needles 8, FIG. 2, are mounted on a needle bar 9 and actuated in the usual manner by the needle bar operating mechanism generally identified by the numeral 9*a*. One end of a needle bar fork 10 is rigidly attached to the needle bar 9, and the other end is pivotally connected by a pin with an arm 12. A presser lever 13 is fixedly mounted on the presser shaft 7 and pivotally supports the arm 12 at 11. The presser lever 13 is engaged by a stud 14*a* carried by a bracket 15*a* mounted adjacent one end of a regulating shaft 17. This mechanism functions to impart a horizontal reciprocating movement to the needle bar 9 when the shaft 17 is rocked, as is well understood.

A needle bar lifting arm 14, FIG. 2, is rigidly attached at one end to a needle bar shaft 15 and is pivotally attached at its other end by a pin 16 to the needle bar 9. The arm 14 is adapted to impart vertical reciprocation to the needles 8 simultaneously with the horizontal reciprocating action imparted to them by the arm 12 of the needle rocker bar assembly, as is also well understood in the art.

The regulating shaft 17 is supported by bearings 18 mounted on the front beam 1. The angular positioning of the regulating shaft 17, and consequently of the needles 8 relative to the presser edge during the couliering operation to regulate the length of the loops or wales and the number of courses per inch is normally controlled by mechanism generally indicated by the numeral 19 in FIG. 1, which is commonly referred to as the regulating motion.

The regulating mechanism 19 includes the regulating shaft 17 upon which a regulating arm 20 is mounted for free pivotal movement. An adjusting arm 21 is disposed at one side of the regulating arm 20. The adjusting arm 21 is rigidly secured to the regulating shaft by set screws 22. A collar 23 is fixed to the regulating shaft 17 at the other side of the regulating arm 20. A shaft 24 is mounted on the arm 20 and carries a follower 25, that rides on a cam 26 mounted on the shaft 6. The follower 25 is maintained in contact with the cam 26 by a spring 27, one end of which is attached to the regulating arm 20 and the other to the back beam 2, as will be readily understood.

The regulating arm 20 also carries a regulating drum 28 provided with a plurality of regulating buttons 29. The regulating drum 28 is slidably mounted upon a stub shaft 30 carried by the regulating arm 20. The adjusting arm 21 carries an adjustable stud 31 that is adapted to have its inner end spaced a predetermined radial distance from a regulator button 29 in registration therewith. A lever 32 is pivotally mounted at 33 on the regulating arm 20, and is engageable by a lug 34 on an operating rod 35 controlled by button means 36*a* on the main chain 37*a*, in a manner well understood. The lever 32 is arranged to index the regulator drum 28 around the stub shaft 30 to bring any desired regulator button to registration with the adjusting arm stud 31. Hence, while the cam shaft 6 rotates the cam 26 continuously, the adjusting arm 21 is actuated only at such time as the regulating drum 28 has one of its regulating buttons indexed with the stud 31 of the adjusting arm 21.

The position of the adjusting arm 21 relative to the regulating arm 20 is determined by the particular adjustment of the stud 31 with respect to a cooperating regulator button 29.

It will be apparent that with roller 25 engaged with the cam 26, the regulating arm 20 may be moved clockwise, as viewed in FIG. 4, a distance equal to the width of the gap between the stud 31 and regulating button 29, before any movement is imparted to the adjusting arm 21 for actuating the regulating shaft 17. Consequently, the length of the loops or wales being produced will be influenced by the adjustment of the stud 31.

The regulator drum 28 is adapted to be racked from one position to another to place different height regulator buttons in operating position to vary the length of the wales by well-known mechanism that need not be illustrated here. The roller 51, FIG. 2, may be adjusted to provide a rocker adjustment of .020" to .040", and preferably .031", to effect knitting of the loose courses B', FIG. 7, at the side edges of the stocking blank, as will be described more fully hereinafter. On the other hand, the knitting of the loose courses A' at the front of the stocking, as will be described more fully hereinafter, is controlled by a rocker lever mechanism generally identified by the numeral 36, FIG. 1. This mechanism includes the usual lever 37 that is pivotally mounted at 40, FIG. 2, on an arm 39 fixed to the regulating shaft 17. The mechanism 36 includes a follower 38 that is adapted to be moved into the same plane as a rocker cam 41 upon actuation of the lever 37 by a lug 42 secured to an operated rod 43. The rod 43 is actuated by the main chain 37*a*, as is well understood.

Referring now to FIGS. 3 and 5, the rocker cam 41 is made from a conventional rocker cam by grinding away portions thereof. More specifically, the outline of the outer edge of a conventional rocker cam is indicated by the dot-and-dash lines *d*, *d* in FIG. 5; whereas the full lines at the outer edge of the cam illustrate the change in shape required to adapt the cam to control the loose wales A', FIG. 7, at the center of the stocking blank, i.e., the front of the finished stocking.

As is shown in FIG. 5, the outer face of the rocker cam 41 is ground away so that the central flat portion is reduced to a width of about ¾", and the height of the cam at the side edges thereof is reduced by about 1/16". The rocker cam 41, modified as illustrated in FIG. 5, is shown adjustably mounted upon a cam hub 44 by a bolt 45. The hub 44 is fixed to the shaft 6. The cam 41 engages with the follower 38 to rock the regulator shaft 17 when said cam is in the position shown in dot-and-dash lines, FIG. 3. The design of the operating face of the rocker cam 41 is such that it first engages the follower 38 at the point indicated at "*e*" in FIG. 5, and moves out of contact with the follower 38 at the point indicated at "*f*," so that a total of about 1¼" of the working face of the cam 41 engages the follower 38 for each revolution of the cam shaft 6. This assures that the arm 37 will not be abruptly rocked the full distance immediately upon engagement of the cam 41 with the follower 38, so that there is a gradual rather than an abrupt change in the length of the loose wales A' and the tight wales C', as will be described more fully hereinafter.

The central flat portion of the face of cam 41 may be adjusted relative to the follower 38 with a clearance of .012" to .020" and preferably .016". This adjustment may be less physically than the adjustment between the

stud 31 and regulator button 29 and still produce loose wales of the same length, since the cam 41 engages the follower with a knocking action that compensates for the difference in clearances.

Referring now to FIG. 2, a rocker cam unit is generally indicated at 45*a* and comprises a disk 46 upon which are mounted four cam elements 47, 48, 49, 50. All of these cams are adjustably secured on the disk 46 by screws, as shown. The cams 48 and 49 correspond to the leading bit and trailing bit, respectively. In setting up the machine to knit the present stocking, the loose wales are knitted as loosely as practicable and the tight wales are knitted as tightly as practicable. The cams 47, 48, 49, 50 control the loose wales B', FIG. 7, that are knitted adjacent the side edges of the stocking blank. The rollers are first adjusted at the cams 48 and 49, and then at the cams 47 and 50 for purposes of timing and then adjusted in order to obtain a clearance of about .020" to .040", with a preferable clearance of about .031".

The cams 47, 48, 49, 50 are adapted to engage with a roller 51 mounted upon an arm 52 secured to the regulator shaft 17. The roller 51 is actually slidably mounted upon a stub shaft 53, and is movable between its active and inactive positions by a lever 54 pivotally mounted at 55 on the arm 52. The lever 54 is actuated at the appropriate time by a lug 56 mounted upon an operating rod 57 actuated by the main chain 37, as is well understood.

The present mechanism provides for variable control of the shadows and highlights that may be desired in the finished stocking. Thus, if it is desired to increase or decrease the shadow-effects, the stud 31 carried by the adjusting arm 21 of the regulator unit, is suitably adjusted. If it is desired to increase or decrease the extent of the highlights or loose wales knitted into the stocking, the rocker cam 41 is suitably adjusted on the cam flange 44 by manipulating the bolt 45 for the center section, and the corresponding bolt at rocker motion 45*a* for the loose wales adjacent side edges.

FIG. 10 diagrammatically illustrates an operative chain setup for controlling the machine to effect the knitting of the loose and tight wales in the stocking to provide the desired shadow and highlight effects. It will be understood that the chain setup may be varied, as desired, in correlation with other functions of the machine to provide shadow-effect stockings of various lengths and sizes. It will be further understood that the steps of narrowing and widening various portions of the blank, and of knitting the welt, heel and toe are effected by conventional elements of the machine that need not be shown for present purposes.

A full-fashioned stocking blank X made in accordance with the method and apparatus of the present invention is diagrammatically illustrated in FIG. 8, and a stocking S made from such blank is diagrammatically shown in FIG. 9.

With particular reference to FIG. 9, stocking S comprises the usual welt W, and after-welt W', the boot or leg L and a foot F, including a heel G and a toe H.

The welt W and the after-welt W' may be knitted of 40 denier nylon yarn; whereas the leg L and foot portions F may be knitted of 15 denier yarn so that these portions are relatively sheer. However, yarn of any suitable denier may be used, as desired.

Section A at the front of the stocking is formed by loose wales A', FIG. 7, to provide a highlight effect along the shin of the wearer. Similar loose wales are knitted in sections B at the back of the stocking disposed on opposite sides of the seam Z. The sections of the stocking at the opposite sides of the leg, which are disposed between the front section A and the back sections B are identified by the letter C and consist of relatively tight wales C'.

It will be noted that the loose wales A' in the front section A extend throughout the length of the stocking S from the after-welt W' to the toe H, and that the loose wales C' at the back of the stocking extend from the after-welt through the heel G to the toe H. It will be further noted that the side sections C (shaded in FIG. 9), consisting of the tighter wales C', also extend from the after-welt W' to the toe H.

FIG. 7 schematically illustrates the relative relationship of the loose and tight wales through a typical, single course of the stocking S. In the knitting of the stocking, it is undesirable, of course, to have an abrupt change in the length of adjacent wales. Accordingly, the rocker action is controlled by the rocker cams 41, 48, 49, 50 so that the length of the wales gradually decreases from the loose wales A' to the tight wales C'. Assuming that the front section A is knit on 50 needles, it is preferable that only the central 30 needles knit full length loose wales A' and that the length of the wales gradually decrease over the next 10 needles, or in the zones, respectively, identified by the letter D, although a lesser number of wales has been indicated in the drawings for convenience of illustration. Similarly, a portion of the back sections B, indicated by the letters E, include wales that gradually increase in length from the wales C' to the wales B'. The full length wales B' may be formed on 66 needles and the wales in the portions E, E on 12 needles although a fewer number has been shown, in the interest of clarity.

FIG. 7 schematically illustrates the theoretical arrangement of the loose and tight wales to emphasize the difference in the height of the loose wales B' and the tight wales C'. By way of an actual example of knitting, the lose wales A' and B' may have a count of 40 wales per inch, with the machine set to knit these wales of a length corresponding to 43 courses per inch. The tight wales C' may have a count of 68 wales per inch, with the machine set to knit wales of a length to provide 53 courses per inch. The result of knitting the tight wales C' between the loose wales A' and B' is that the tight wales C' elongate, as diagrammatically shown in FIG. 6, and draw the wales C' closer together to provide a relatively denser fabric in the region of the tight wales. It is the increased density in the knitted fabric at the side sections C of the stocking that produces the shadow-effect, because of the slightly darker appearance that is given to these portions of the stocking by the drawing of the wales C' together in these regions.

With particular reference to FIG. 8, there is diagrammatically indicated the number of needles upon which various portions of the stocking blank are knitted, and also the number of courses comprising the various portions of the blank. However, it is to be understood that while a specific number of needles is indicated on the drawing and will be referred to hereinafter, the same is disclosed solely by way of illustrating an operative embodiment of the invention and not by way of limitation. Similarly, it is to be understood that the number of courses indicated on the drawing and referred to hereinafter are illustrative only and that the same may be varied, as desired, in order to make stockings of various lengths and sizes and to correspondingly alter the various portions of the stocking blank.

At the start of the knitting of the boot or leg, the rocker cam 41 comes into action upon certain of the needles which knit the loose wales A' at the central section C of the blank, FIG. 8. The rocker cams 47, 48, 49 and 50 similarly provide for knitting the loose wales B' at the edges of the blank, while the machine is otherwise adjusted to knit the tight wales C' in the sections C. The central 50 needles knit the section A of uniform width throughout the leg, foot and toe portion of the stocking. Similarly, the 90 needles at the outer ends of the needle bar start to knit fabric in the loose manner so that the marginal edge of the blank and the central portion of the blank are formed by wales much looser generally than those of conventional, full-fashioned stockings. It will be noted that the marginal edge sections B follow the general contour of the edges of the blank, so that when

the blank is seamed to form a stocking, a section of substantially uniform width extends down the back of the leg along the seam.

The stocking blank shown in FIG. 8 correspond to a conventional needle bar having 560 needles, as indicated. The needle bar is 14 inches long, so that it would have 40 needles per inch of length. The upper portion of the blank, identified by the letter W represents the welt of the stocking and is knitted by using all 560 needles and extends through about 552 courses as indicated. The number of courses may be more or less, as desired. The after-welt area indicated by the letter W' is knit on the same number of needles and extends over a total of about 26 courses, the last two courses of which overlap with leg yarn at the juncture between the after-welt and leg portion. Knitting of portion N then continues for 120 courses, which include 12 narrowing steps, with one narrowing step at every tenth course, to a point where a total of 672 courses has been knit since the start of knitting of the stocking. The 12 narrowing steps result in 24 additional needles being taken out of action so that only about 512 needles are in action at the time knitting of the leg part P starts.

Knitting of the blank beyond the portion P continues until the first narrowing point is reached. This occurs after a total of about 1056 courses have been knitted. The narrowing then proceeds through 312 courses, or until 1368 courses have been knitted; there being a total of 53 narrowings, with one narrowing occurring at the end of every 6 courses. During the above narrowing operation, 106 additional needles are taken out of action at the ends of the needle bar. The needles knitting the sections C of the blank are so controlled that the stepping of the tight wales follows the general contour of the edge of the blank at the narrowed portion so that the edge sections B continue along the blank at a substantially uniform width. However, the narrowing of the tightly knit portions C is preferably interrupted before about the 1368th course is reached, so that no narrowing of the tightly knit wales occurs during that last 10 steps of narrowing. In other words, upon reaching about the 1308th course, the portions C are knitted of a uniform width and such knitting continues until about the 1564th course is reached. At this point, knitting of the heel stem begins and uniform knitting of the fabric continues from about course 1564 to course 1647. At this step, the edge section B of the blank is being formed by 26 needles. Beginning with about course 1647, widening of the blank is effected to knit the heel and, accordingly, additional needles are placed into action through about the next 92 courses, or until about course 1739 has been reached. During the knitting of these courses, 24 back racking actions occur with a widening taking place, or additional needles coming into action on every 4th course, so that a total of 48 needles are placed back into operation. A corresponding widening of the section C does not occur but knitting continues so that the portion thereof from the beginning of the heel stem to the beginning of the toe pocket is of substantially uniform width. Knitting then continues for about 48 courses without narrowing, or until about the 1787th course. Narrowing then begins and continues over about 69 courses, or until about course 1856, but without any corresponding narrowing in the tight wales C'. This completes the knitting of the heel pocket, and knitting of the foot portion continues without narrowing for about 177 courses, or until about course 2030 is reached, at which time narrowing begins with the needles knitting the tight courses, the narrowing continuing through a total of about 106 courses or until about course 2136. Knitting of the portion B continues uniformly from about course 2030 to about course 2107, at which time narrowing begins and continues until about course 2232, at the end of which time only a total of 12 needles are in action at the end of the toe. Upon knitting of about course 2136, the needles that previously knitted the tight wales C' are adjusted so that they knit loose wales. Twenty press-off courses are then knitted to complete the toe.

It will be understood that various changes may be made in the method of knitting the stocking described hereinabove, in the number of courses employed in knitting various portions of the stocking, and in the details of the mechanism employed, without departing from the principles of the invention or the scope of the annexed claims.

We claim:

1. A stocking, comprising: a welt, a leg portion, and a foot portion, said leg portion having a longitudinally extending section at the front thereof consisting of loosely knitted wales and being of uniform width and extending throughout the stocking from the welt to the toe of the foot portion, said leg portion also having a section of loosely knit wales at the back thereof and extending longitudinally of the stocking from the welt to said toe portion, said leg portion further being provided with relatively tightly knitted wales on opposite sides throughout the area between said longitudinally extending front and back sections.

2. A stocking as defined in claim 1, in which the longitudinal section of loose wales at the back of the stocking is wider at the upper portion of the leg than at the lower portion thereof.

3. A stocking as defined in claim 1, in which the loose wale count is about 40 wales per inch, and the tight wale count is about 68 wales per inch.

4. A stocking as defined in claim 3, in which the loose wales occupy about 43 courses per inch and the tight wales occupy about 53 courses per inch.

5. A full-fashioned stocking blank, comprising: a welt portion, and leg and foot portions contoured to conform to the general shape of a leg, ankle and foot when seamed, the leg portion of said blank including a central section extending from the welt to the toe portion formed of loosely knitted wales, a section of the leg portion adjacent to each of the contoured edges of said blank being formed by similar wales and extending from said welt to said toe portion, and the remainder of the leg portion between said central section and said edge sections being knitted of relatively tighter wales than said loosely knitted wales.

6. A full-fashioned stocking blank as defined in claim 5, in which the central section is of substantially uniform width throughout its length, and the edge sections are of substantially uniform width and follow the contour of the edges of the blank from at least the welt to the heel of the foot portion.

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