United States Patent

Robinson et al.

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[45] **Aug. 22, 1972**

[54] **KNITTING PROCESS**

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[52] **U.S. Cl.** **66/64,** 66/177

[51] **Int. Cl.** **A04b 7/04**

[58] **Field of Search** 66/175, 179, 60, 74, 75, 76

[56] **References Cited**

UNITED STATES PATENTS

464,118	12/1891	Granz	66/177 UX
545,479	9/1895	Holmes	66/177
550,874	12/1895	Emerson	66/189
1,849,461	3/1932	Kramer	66/177
2,004,699	6/1935	Krautkopf	66/64
3,115,760	12/1963	Pierce	66/65
3,474,643	10/1969	Robinson et al.	66/176

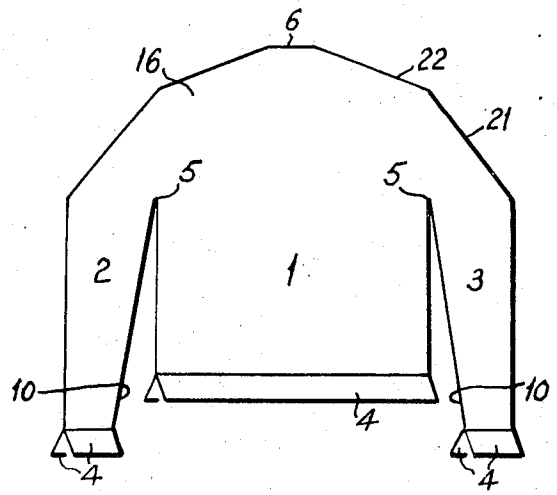
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[57] **ABSTRACT**

A method of knitting on a machine with needles in two beds a shaped article comprising a first part including at least three tubular portions, which portions at a particular course of stitches merge into a second part including a single tubular portion comprising the steps, in either order of knitting the tubular portions of the first part on groups of needles on both neds so as to leave at least one spare needle on each bed between the groups of needles, knitting the second part by tubular knitting on three groups of needles of both beds leaving at least one spare needle on each bed between the groups, and including the steps of continuing knitting until the course of knitting immediately prior to said particular course, moving the needle beds to bring the needles into staggered relationship, receiving on a spare needle between each pair of groups in each bed a loop from yarn previously and subsequently supplied to needles of the other bed in the same course, moving the needle beds back to their original relationship, and continuing the knitting to complete the part of the garment remaining unknitted. A knitting machine for carrying out the method is also claimed.

17 Claims, 8 Drawing Figures



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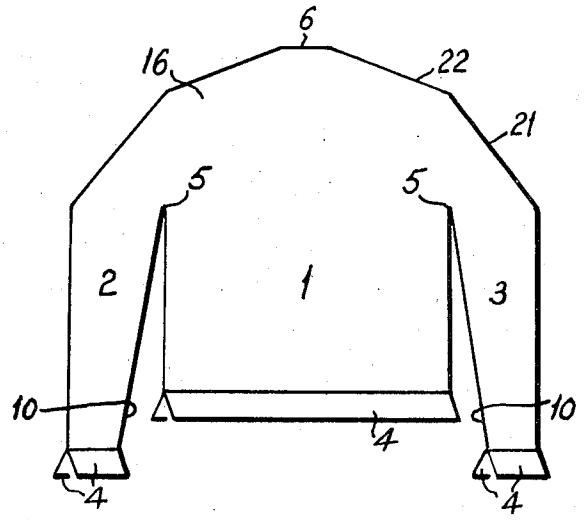


FIG. 1

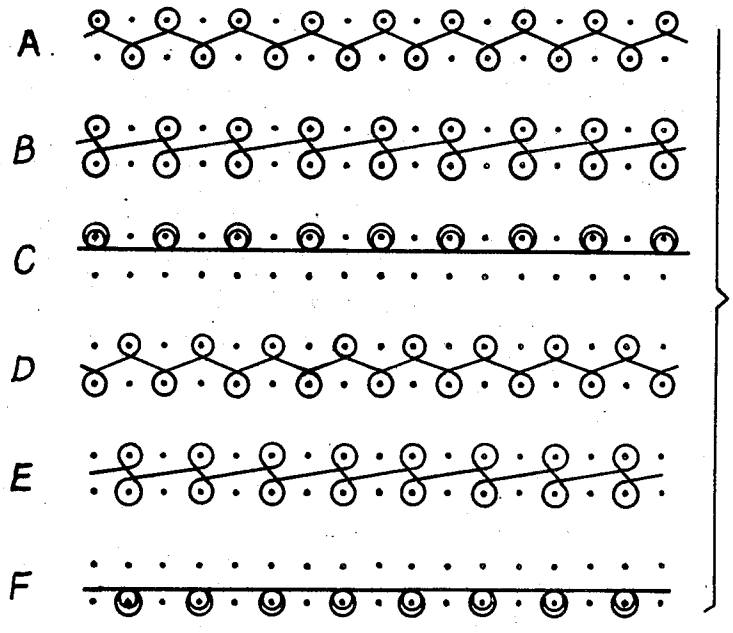


FIG. 2

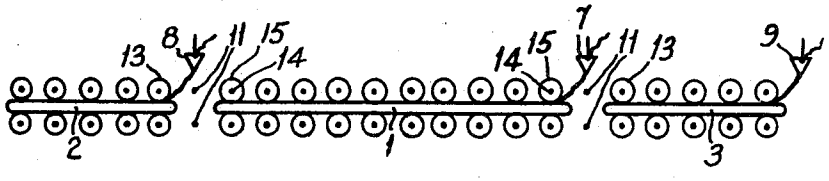


FIG. 3

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FIG. 4

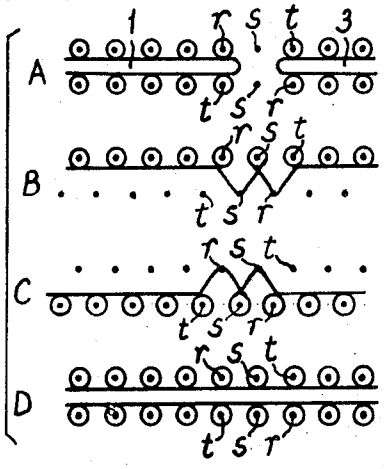


FIG. 5

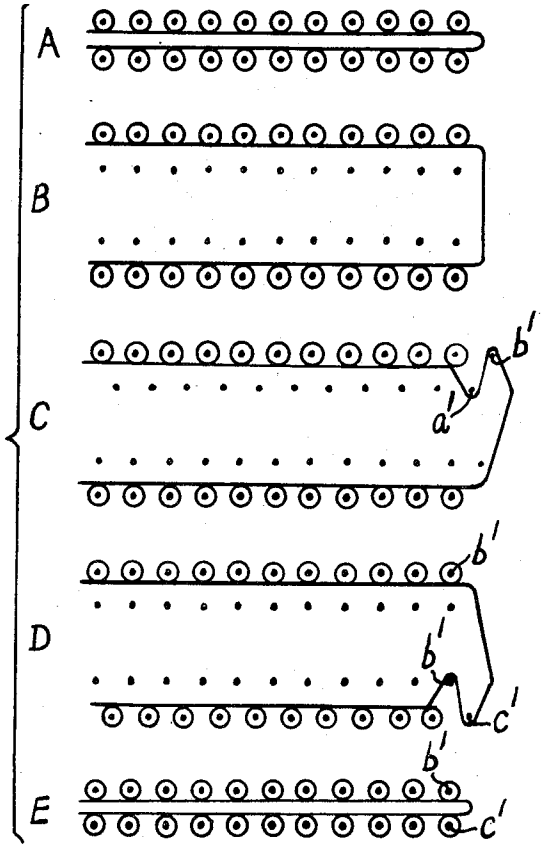
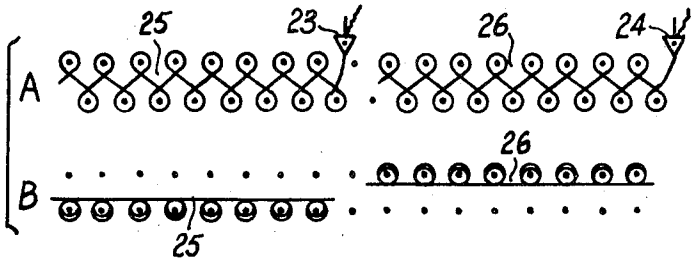


FIG. 7



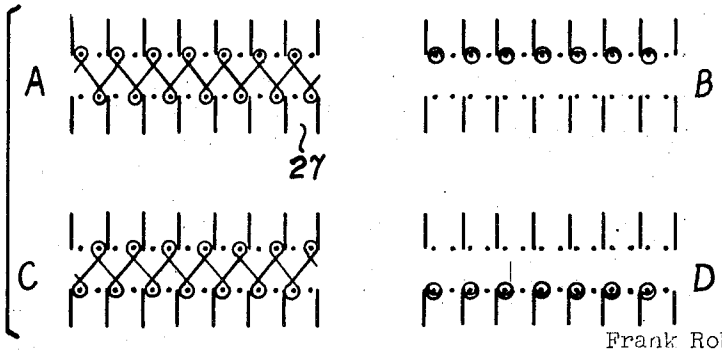


FIG. 8

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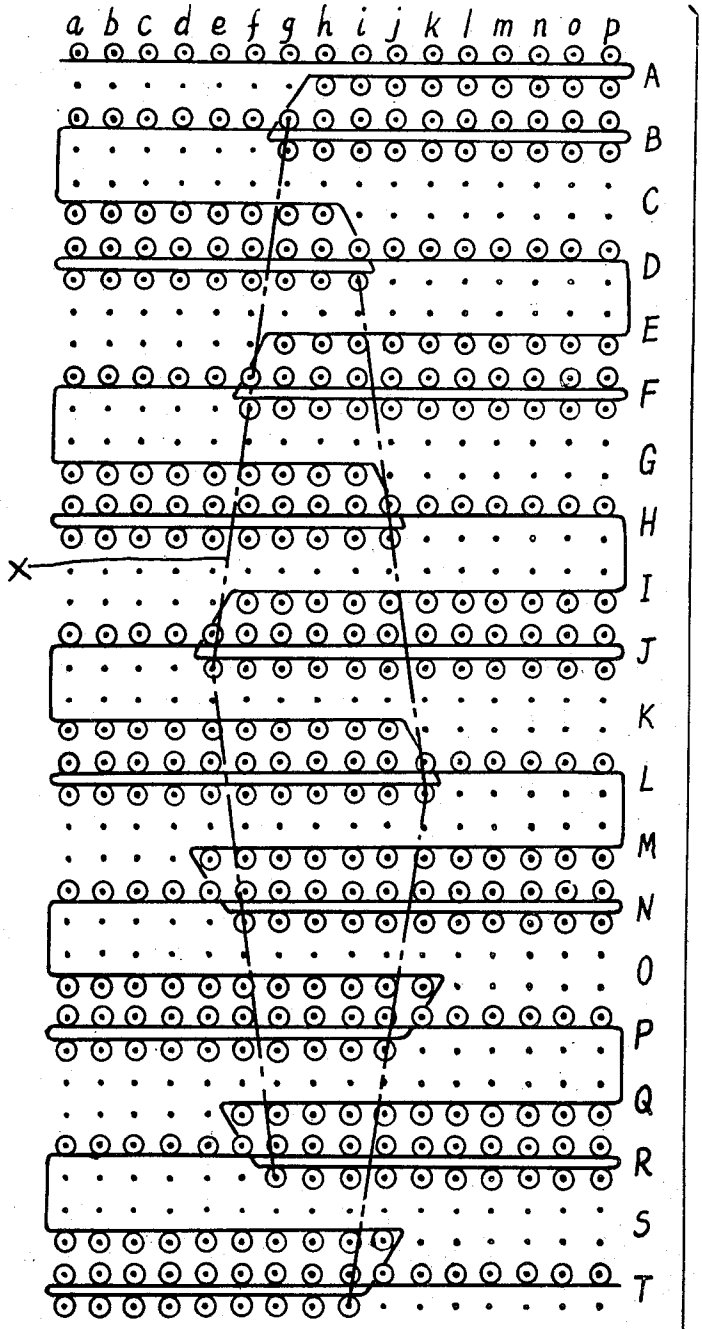


FIG. 6

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KNITTING PROCESS

This invention relates to a knitting method, and is concerned with the knitting of garments and other shaped articles on a knitting machine. Flat bar V-bed machines are mainly concerned, but as is well known, various configurations of knitting machine can be used to perform some similar operations, and the performance of the invention on other types of machine is envisaged.

There are two known methods of producing shaped articles in knitted fabric. In one of these methods flat or tubular knitted fabric is simply cut into suitable shape or shapes for one or more pieces to be secured together to form the article, usually by stitching together the edges of the piece or pieces. In the other method the component piece or pieces is/are knitted to the shape required by suitable increase or decrease of the numbers of stitches in the various courses—the process known as "fashioning"—and then again the edges of the piece or pieces are secured together, usually by stitching.

In both these methods considerable labor is involved in "making up," or securing together the edges of the shaped piece or pieces, and the seams produced are sometimes unsightly. Also in the first mentioned process a considerable quantity of fabric is usually cut to waste, sometimes as much as 40 percent of the total fabric used.

To reduce the amount of seaming it has been proposed to extend the second-mentioned process to produce all the component pieces for a garment in a single length of fabric, the pieces being joined by courses of waste knitting which are cut away when the length is made up into a garment. The present invention provides a method of machine knitting a sleeved garment comprising the steps, in either order, of knitting a single tubular portion constituting a first part of the garment extending from the neck to the underarm position, and knitting a plurality of tubular portions constituting a second part, to form one piece with the first part, the second part of the garment comprising the body and sleeves up to the underarm position.

According to one aspect of the invention a method of knitting on a machine with needles in two beds a shaped article comprising a first part including at least three tubular portions, which portions at a particular course of stitches merge into a second part including a single tubular portion comprises the steps of knitting the tubular portions of the first part on groups of needles on both beds so as to leave at least one spare needle on each bed between the groups of needles, continuing knitting until the course of knitting immediately prior to said particular course, moving the needle beds to bring the needles into staggered relationship, receiving on a spare needle between each pair of groups in each bed a loop from yarn previously and subsequently supplied to needles of the other bed in the same course, moving the needle beds back to their original relationship, and knitting the second part with tubular knitting on the needles which previously constituted said groups of needles and said spare needles.

According to another aspect of the invention a method of knitting on a machine with needles in two beds a shaped article comprising a first part including at least three tubular portions, which portions at a particular course of stitches merge into a second part including a single tubular portion comprises the steps of knitting the second part by tubular knitting using needles of both beds until the course of knitting immediately prior to said particular course, dividing the stitches of the second part on to three groups of needles leaving at least one spare needle between adjacent groups, moving the needle beds to bring the needles into staggered relationship, receiving on at least one of said spare needles between adjacent groups in each bed a loop from yarn previously and subsequently supplied to the needles of the other bed in the same course, moving the needle beds back to their original relationship, and knitting the tubular portions of the first part as separate tubes on said three groups of needles.

By the invention a complete shaped article, such as a garment, can be integrally knitted virtually to its final shape so that little or no seaming is required. The wastage of cutting out shaped pieces and the labor of making up are thus substantially avoided.

The invention can conveniently be carried out on a flat bar V-bed latch needle machine with a needle selecting mechanism, which can be arranged to produce tubular fabric by knitting on one bed in one direction of movement of the cam carriage and on the other bed in the other direction of movement of the cam carriage. Such a machine can be provided with two or more yarn carriers so that two or more tubular pieces may be knitted simultaneously. Machines useful for carrying out the invention are readily available from established machine manufacturers. Most flat bar V-bed machines, for example, are provided with mechanisms whereby the needle beds can be shogged or racked, i.e., moved laterally. Stitch transfer can be accomplished by hand, using a narrowing handle, or by any of the several devices provided on many flat bar V-bed knitting machines for this purpose. See for example, British Pat. No. 934,883, which describes a Stoll machine having "intermediate receiver elements" in auxiliary beds capable of lateral movement with respect to the main beds. By use of the invention, for example, a jersey could be knitted in one piece by knitting three tubular portions with at least one spare needle between each pair of adjacent tubes to give clearance for the yarn carriers. The outer two tubular portions are of suitable diameter for sleeves and the middle portion of suitable diameter for the body and after a sufficient length of each tubular portion has been knitted to reach the underarm position two of the yarn carriers can be removed, and additional stitches can be introduced on the spare needles. Further knitting with the single remaining yarn carrier then continues, to produce the shoulder region of the garment as a further single tubular portion.

Shaping of the tubular portion of the second part of the article can take place by transferring outer loops of the portion inwardly or by needle introduction at the outside edge of the portion.

The invention will now be described with reference to the accompanying drawings, which illustrate examples of the use of the method for producing garments. In the drawings:

FIG. 1 is a diagrammatic elevation of a jersey showing the method of construction by use of the present invention,

FIG. 2 is a diagrammatic representation of the needles and stitch form on a machine for producing ribs at the ends of the body and sleeve portions of the jersey shown in FIG. 1,

FIG. 3 is a diagrammatic representation of the needles and stitch form on the machine during knitting of the body and sleeve portions of the jersey,

FIG. 4 is a diagrammatic representation of the needles and stitch form on a machine during the sequence of joining a sleeve portion and the body portion of the jersey shown in FIG. 1,

FIG. 5 is a diagrammatic representation of the needles and stitch form on a machine during the sequence of widening an article or part thereof,

FIG. 6 is a diagrammatic representation of the needles and stitch form on a machine during a three-dimensional shaping operation,

FIG. 7 shows an alternative method of producing ribs for the ends of the tubular portions of garments or other articles, and

FIG. 8 shows another method of producing ribs.

Referring first to FIG. 1, the jersey comprises a central tubular portion 1 forming the body and two outer tubular portions 2, 3 forming the sleeves. The ends of the tubular portions are formed with short lengths of rib knitting 4 as will be described. The tubular portions 1, 2, 3 are knitted simultaneously on a twin flat bar machine, parallel to each other up to the under-arm region 5, and the shoulder region 16 is knitted as a single tubular portion having a neck opening 6 at the upper end of the garment.

Since both needle beds of the machine are required to produce 1 × 1 rib fabric, the short lengths of rib knitting 4 cannot be produced in tubular form but are knitted separately as two flat strips for each of the tubular portions, one flat strip being knitted first and then retained on alternate needles of one bed whilst the other flat strip is knitted and retained on the alternate needles of the other bed. This process is illustrated by FIG. 2 in which line A shows stitches laid on odd needles of the rear bed (shown uppermost in each line of the Figure) and even needles of the front bed (shown lowermost). The needle selection is set for knitting and a few courses are knitted for the purpose of fabric take down. A french welt is then produced, a draw thread being inserted if desired, and an appropriate number of courses of 1 × 1 is knitted. The front needle bed is then displaced to bring its even needles opposite the odd needles of the rear bed as shown in line B and all the stitches are transferred to the needles of the rear bed as shown in line C. The whole process is then repeated as shown in lines D, E and F, laying stitches originally on the even needles of the rear bed and the odd needles of the front bed, and finally transferring all the stitches to the odd needles of the front bed. The operation illustrated in FIG. 2 is carried out for each of the three tubular portions 1, 2, 3, using separate carrier for each.

At this stage there are six strips of rib knitting 4 carried in pairs opposite to each other on the front and rear beds. The cam systems are set for tubular knitting to knit on the front bed needles in one direction of traverse and on the rear bed needles in the other direction. Knitting is then commenced as shown in FIG. 3, each pair of rib strips being knitted on as a tube, producing the three tubular portions 1, 2 and 3 from the respective yarn carriers 7, 8 and 9, knitting on the rear bed needles on the left to right traverse and on the front bed needles on the right to left traverse.

A suitable number of courses is knitted simultaneously in each of the tubes for the desired length of the body portion 1 and the sleeve portions 2 and 3 up to the underarm region 5 (see FIG. 1). Different lengths may be knitted for the body and sleeves if desired by stopping either the carrier 7 or the carriers 8 and 9 and putting the respective needles out of action while the other carrier or carriers continue knitting. In FIG. 1 for example the carrier 7 has been stopped and the needles carrying the body portion 1 have been put out of action when the body portion has attained the desired length of the underarm region 5 whilst the carriers 8 and 9 have knitted additional courses to make the sleeves longer than the body. The body portion 1 and/or sleeve portions 2 and 3 may be widened or narrowed during knitting as will be described. FIG. 1 shows sleeves which have been progressively widened along their inner edges 10 throughout their length, and to provide for this it will be understood that at the original casting on of the rib portions a number of spare needles would be left between those for the sleeve portions 2 and 3 and those for the body portion 1, so that when widening has been completed and the underarm region 5 has been reached there is still at least one spare needle between the body portion 1 and each sleeve portion 2 and 3. This is necessary to provide for the reversal of the carriers at the edge of each portion without fouling the needles carrying the next portion.

To provide the necessary narrowing of the shoulder region, as shown in FIG. 1, the outer loops at each side of the garment are progressively transferred, in successive courses, inwardly to the next needle to reduce the width, the transfer being of one or more loops in each course or every few courses.

FIG. 4 illustrates a method of joining the tubular portions 1, 2 and 3 of the garment. In this method the body and sleeve portions 1, 2, 3 are knitted parallel to each other up to the underarm region 5 in the manner described in relation to FIG. 1, and at this point there is one spare needle between the body portion 1 and each sleeve portion. FIG. 4 shows in line A the needle and stitch form of a part of the body portion 1 and a part of one sleeve portion 3 at this course, the spare needles being indicated by letter *s*. The two tubes could be joined by transferring the loops of the sleeve portion laterally inwardly by one needle pitch, so that the needles *s* carried the innermost loops of the sleeve portion 3, and then changing to tubular knitting, but this would leave a hole at the underarm junction. To avoid this, before commencing the first course of tubular knitting with one carrier, the needle beds are moved to bring the needles into staggered relation. In the course along each bed, the needles *s* are introduced to receive loops, and tuck stitches are formed on the two adjacent needles *r* and *s* of the opposite bed. This is shown in lines B and C of FIG. 4, the former showing the traverse from left to right, and the latter showing the traverse from right to left. The beds are then moved back to bring the needles opposite to each other, and the next course is knitted fully in tubular knitting, there being loops on all the needles throughout the traverse, the tuck stitches being knitted in with the body and sleeve loops, as in-

dicated in line D of FIG. 4. In successive courses the outer loops at each side of the garment are progressively transferred inwardly to the next needle to reduce the width as previously described.

Since the garment illustrated is shaped, i.e. fashioned, by reducing the wales progressively along the outside edge of the shoulder region, the wales in the sleeves and body portions continue parallel to each other in the shoulder region of the garment.

An alternative method of shaping the shoulder region of the garment is to decrease the loop length of the stitches in the single tubular portion of the garment between the underarm position and the neck. This may be done progressively by gradually decreasing the loop length after the completion of each course of knitting as knitting proceeds towards the neck. Alternatively, decreases in loop length may be made after the completion of arbitrary numbers of courses as the knitting proceeds towards the neck. This method of shaping the shoulder region may be used in conjunction with shaping by transfer of stitches described above.

When widening is required for shaping a garment knitted by the method, this is done by needle introduction in a manner similar to that just described in relation to the needle introduction for joining the tubular portions. FIG. 5 illustrates such widening, which is usually required for shaping the sleeve or body portions of a garment, needles being introduced on one bed only in each traverse.

In FIG. 5, line A shows the loops and needles of a portion of a garment which is to be widened at the end of the yarn carrier traverse. Line B is the same diagram expanded to duplicate the two needle beds, for convenience. Line C shows the first stage of widening during the left to right traverse of the yarn carrier, knitting on the rear bed. As the last needle in this bed carrying a loop is passed the two beds are moved to staggered relation as shown, and a tuck stitch is made on the adjacent needle *a'* on the front bed followed by a loop on the next needle *b'* on the rear bed. The beds are then moved back to their original position and the course is completed as shown in the lower part of line C. On the next course the operation is repeated on the front bed, making a loop on needle *c'* and a tuck stitch on the adjacent needle *b'* on the rear bed, as shown in line D, and a further course of knitting covers both the introduced needles *b'* and *c'*, as shown in line E.

The movement of the beds temporarily for producing the tuck stitches during needle introduction can be executed automatically by a control device (not shown) which also controls the length of traverse of the yarn carriers and the needle selection and cams of the machine. Such control means may for example be operated by a programming device such as a punched or magnetized tape or other well-known device.

Three-dimensional shaping to produce figure fitting garments can be effected by increasing the number of courses knitted in one part of the garment compared with the number knitted in the remainder of the garment. FIG. 6 illustrates the production of a roughly lozenge-shaped area in a tubular portion of a garment with up to 100 percent increase in the number of courses in the area over the number in the adjacent part of the garment. This causes the area to stand out from the plane of the remainder of the knitted fabric, and is applicable for example to a bust form on a jersey or like garment. In the drawing the needle tricks are indicated by the letters *a* to *p*, and 20 courses or part courses of knitting are shown, indicated by the letters A to T. The shaping is to be produced on the front of the garment, on the needles *e* to *k*. In the first course, shown in line A the yarn carrier traverse is complete along the rear bed needles but on the return traverse along the front bed, needles *a* to *g* are selected not to knit, and the traverse is stopped when the loop on needle *h* has been knitted, leaving the loops of the previous course retained on the front needles *a* to *g*. The selection is then set so that needles *a* to *f* will not knit, and the carrier is reversed so that needles *g* to *p* are knitted on the front bed, and a complete traverse is again executed along the rear ned, as shown in line B. On the next traverse along the front bed, shown in line C, needles *a* to *h* are selected to knit and the remaining needles *i* to *p* not to knit, and the carrier is reversed after knitting the loop on needle *h*, and needles *a* to *i* are selected to knit, as shown in line D. This process is repeated, taking in one further needle on each successive part traverse of the front bed needles before reversing until the maximum desired width of the lozenge-shaped area has been attained, in lines J to M. In subsequent courses the reversal takes place successively one needle earlier in each direction of traverse until in line S the reversal is made after knitting the loop on needle *j*, and in the reverse traverse knitting is on needles *a* to *i* as shown in line T. The lozenge-shaped area is indicated by the chain dotted line X and it will be seen that within this area there are 20 courses knitted on the front bed needle *h*, which is in the center of the lozenge-shaped area, whilst only ten courses are knitted on the front needles *a* to *d* and *l* to *p* in the adjacent part of the garment.

Instead of producing strips of rib fabric separately by half gauging, as described with reference to FIG. 2, two strips of fabric of any conventional stitch form can be produced simultaneously side by side on a machine and then transferred one to each bed. The beds can then be racked to bring the strips opposite to each other, and knitting can be continued in tubular form as previously described. FIG. 7 shows in line A two strips of 1 × 1 ribbing produced side by side on a machine with two yarn carriers **23, 24**, and each using all the needles in the appropriate part of both beds. When a sufficient length has been knitted the beds are racked to bring the front and rear needles in alignment with each other and all the rear bed loops of one strip (in this case the left hand strip **25**) are transferred to the front bed needles and all the front loops of the other strip **26** are transferred to the rear bed needles, as shown in line B. The beds are then racked to bring the two strips **25, 26** opposite to each other, or alternatively all the loops of one strip are transferred laterally to place it opposite the other strip, and knitting is then carried on in tubular form. All the rib strips required for a garment could be produced simultaneously in side by side relation by this method and then be transferred either by racking the beds or by loop transfer to bring the respective strips opposite to each other.

FIG. 8 shows yet another method of producing rib strips, using a machine with two needles in each trick **27**. Line A shows one rib of 1 × 1 knitting produced on the odd needles in the tricks of the rear bed and the

even needles on the front bed. After a suitable length has been knitted all the loops are transferred to the odd needles of the rear bed as shown in line B. A further 1 × 1 rib is knitted as shown in line C on the even needles of the rear bed and the odd needles of the front bed, and this is subsequently transferred to the odd needles of the front bed as shown in line D. Tubular knitting then proceeds as before.

The scope of the invention for producing shaped garments is very wide indeed. A complete body enveloping garment, such as a "cat suit" can be knitted in one piece, for example, by starting with four parallel tubular portions knitted simultaneously, the inner two to form the legs of the garment and the outer two to form the sleeves. Knitting would be stopped on the sleeve portion, and their needles taken out of action when a suitable length had been knitted, and when the leg portions had been knitted to a sufficient length they would be merged by rearranging the stitches to form the crotch of the garment and continued as a single tube for the torso portion, after which the process would be similar to that described above for the production of a jersey. Sock-like ends can be produced on the leg portions, glove-like ends on the sleeve portions, and an integral hood could be knitted on at the neck of the garment.

Openings, such as neckline shaping, or fastening openings to enable the garment to be donned by a wearer, can be provided by reversing the yarn carrier and carriage at an intermediate part of their traverse, where the opening is required, in both directions of travel on one bed, and the opening can be shaped as desired by lateral transfer of stitches or by needle introduction in the manner already described for other purposes.

It will also be understood that a single tubular portion may be divided, to continue knitting as body and sleeve portions, or the stitches of three tubular portions may be rearranged, by transferring some of the loops laterally to provide at least one spare needle, and introducing further yarn carriers to knit the transferred loops on as two tubular portions, while those loops on their original needles are knitted on as a separate tubular portion.

Thus, a jersey or similar sleeved garment could be started at the neck opening. The tubular knitting would be widened to form the shoulder region and the stitches be rearranged on the needles of the machine to provide a central group for the body and two side groups for the sleeves. Two further carriers would then be introduced and these groups be knitted on to form body and sleeve tubes. The widening of the garment in the shoulder region may be performed by needle introduction or by increasing the loop length of the stitches as knitting proceeds from the neck opening towards the underarm position or by a combination of these methods.

When the garment is finished the only making-up operation necessary is to stitch together the edges of the rib strips such as **4** in FIG. **1** or the fabric strips such as previously described, and to add any fastenings or neckline finishing strips or the like. A machine may be controlled automatically to repeat the sequence of operations for a garment, inserting a draw thread or knitting a strip of waste fabric between the end of one garment and the commencement of the next. Several machines may be controlled from the same control means to operate in synchronism, producing similar garments.

Machines operating in accordance with the method may be arranged to provide patterning and fancy effects by the use of tuck and float stitches and other known methods that are associated with single jersey knitting.

What is claimed is:

1. A method of knitting on a machine with needles in two beds a shaped article comprising a first part including at least three tubular portions, which portions at a particular course of stitches merge into a second part including a single tubular portion comprising the steps of

knitting the tubular portions of the first part on groups of needles on both beds so as to leave at least one spare needle on each bed between the groups of needles,

continuing knitting until the course of knitting immediately prior to said particular course,

moving the needle beds to bring the needles into staggered relationship,

receiving on a spare needle between each pair of groups in each bed a loop from yarn previously and subsequently supplied to needles of the other bed in the same course,

moving the needle beds back to their original relationship, and

knitting the second part with tubular knitting on the needles which previously constituted said groups of needles and said spare needles.

2. The method of claim **1** wherein the tubular portion of said second part is narrowed by transferring loops from the outer needles of the tubular portion inwardly to the adjacent needles.

3. The method of claim **2** wherein the loop length of the stitches is arranged to decrease as the knitting of said second part proceeds.

4. A method of knitting on a machine with needles in two beds a shaped article comprising a first part including at least three tubular portions, which portions at a particular course of stitches merge into a second part including a single tubular portion comprising the steps of

knitting the second part by tubular knitting using needles of both beds until the course of knitting immediately prior to said particular course,

dividing the stitches of the second part on to three groups of needles leaving at least one spare needle between adjacent groups,

moving the needle beds to bring the needles into staggered relationship,

receiving on at least one of said spare needles between adjacent groups in each bed a loop from yarn previously and subsequently supplied to the needles of the other bed in the same course,

moving the needle beds back to their original relationship, and

knitting the tubular portions of the first part as separate tubes on said three groups of needles.

5. The method of claim **4** wherein at least one of the tubular portions of said first part is narrowed by transferring loops from the outer needles of the tubular portion inwardly to the adjacent needle.

6. The method of claim 4 wherein the tubular portion of said second part is widened by introducing needles into both beds and forming new stitches thereon.

7. The method of claim 4 wherein the loop length of the stitches is arranged to increase as the knitting of said second part proceeds.

8. A method of knitting on a machine with needles in two beds a shaped article comprising a first part including at least three tubular portions, which portions at a particular course of stitches merge into a second part including a single tubular portion comprising the steps of

simultaneously knitting the tubular portions of the first part on groups of needles on both beds, there being at least one spare needle on each bed between the groups of needles,

continuing knitting until the course of knitting immediately prior to said particular course,

moving the needle beds to bring the needles into staggered relationship,

introducing the spare needles between the groups of needles used in knitting said first part,

receiving loops on said spare needles and forming tuck stitches with the needles of said groups of needles adjacent said spare needles,

moving the needle beds back to their original relationship, and

commencing knitting of said second part with tubular knitting on the needles which previously constituted said groups of needles and said spare needles.

9. The method of claim 8 wherein the tubular portion of said first part is narrowed by transferring loops from the outer needles of the tubular portion inwardly to the adjacent needle.

10. In a method of machine knitting a garment having an upper portion extending from a neckline through a shoulder region to an underarm line and a lower portion comprising two sleeve sections and a body section, on a flat bar V-bed knitting machine, the improvement which comprises knitting the upper portion as one piece of tubular fabric, and the lower portion as three pieces of tubular fabric, said upper and lower portions being knitted as extensions one of the other, with wales running continuously from one portion through the other, thereby integrally joining said portions.

11. The method claimed in claim 10 and comprising varying the number of wales along the outer edge of the shoulder region to shape the upper portion of the garment.

12. In a method of machine knitting a garment having an upper portion extending from a neckline through a shoulder region to an underarm line and a lower portion comprising two sleeve sections and a body section, on a flat bar V-bed knitting machine, the improvement which comprises knitting said upper portion as one piece of tubular fabric, laterally transferring the stitches in said upper portion on the needles of said machine so that said stitches are divided into three separate groups on adjacent needles and knitting on the stitches of said groups to produce said three sections of said lower portion, with wales running continuously from said upper portion through said lower portion, thereby integrally joining said portions.

13. The method claimed in claim 12 wherein the stitches are rearranged by transferring groups of them to other needles of the machine.

14. The method claimed in claim 12 wherein the stitches are rearranged by introducing needles between groups of needles carrying stitches and forming new stitches thereon.

15. In a method of machine knitting a garment having an upper portion extending from a neckline through a shoulder region to an underarm line and a lower portion comprising two sleeve sections and a body section, on a flat bar V-bed knitting machine, the improvement which comprises knitting said sleeve sections and body section as three pieces of tubular fabric having stitches on adjacent needles located at spaced apart locations on the beds of said machine, rearranging the pattern of stitches to form a single group of stitches located on adjacent needles of said machine and knitting the upper portion of said garment on said single group of stitches with wales running continuously from the sections of said lower portion through said upper portion to integrally join said portions.

16. The method claimed in claim 5 wherein the stitches are rearranged by transferring groups of them to other needles of the machine.

17. The method claimed in claim 5 wherein the stitches are rearranged by introducing needles between groups of needles carrying stitches and forming new stitches thereon.

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