Dec. 4, 1934. A. FRIEDMANN 1,982,800

METHOD OF KNITTING FABRIC

Filed March 29, 1932

Fig. 1.

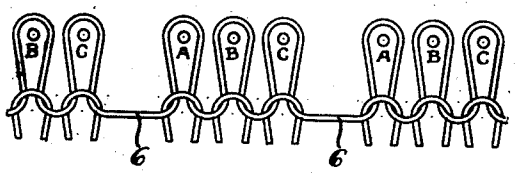
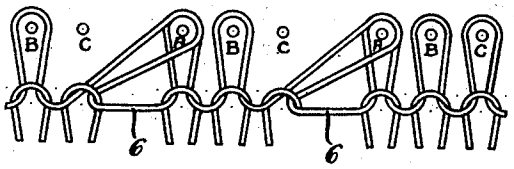


Fig. 2.



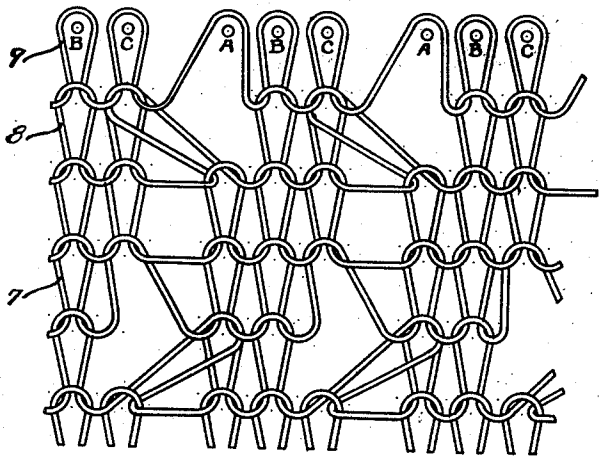


Fig. 3.

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METHOD OF KNITTING FABRIC

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2 Claims. (Cl. 66—96)

This invention relates to a new and useful improvement in knitted fabrics and in the method of knitting them.

My invention, although by no means limited thereto, is especially valuable in relation to the knitting of stockings and in particular so-called "bighole mesh" or "fish net" stockings.

One of the principal objects of my invention is to simplify the production of knitted mesh or lace fabrics of this character and in particular stockings knit on full fashioned knitting machines in which the mesh is produced by transferring loops from one needle to another so as to obtain the so-called "bighole mesh".

Another important object is the reduction in the time required for knitting such fabrics and, consequently, increasing the capacity of the knitting machine.

Another object is to eliminate in the knitting of such fabrics the usual extremely delicate and difficult machine alterations and adjustments required by the usual methods.

A still further object is to make possible the successful use of high twist yarns for the knitting of fabrics in which the use of such yarns has heretofore been impossible or very difficult.

A still further object is the production of a fabric of novel simplified loop construction which is equal or superior in appearance to the best bighole mesh fabrics now produced.

My method of knitting also eliminates the excessive wear and strain upon the machine and in particular upon the needles and lace points inseparable from the method usually employed.

Other advantages will also be made evident to those skilled in the art from the following specification and drawing, of which

Figs. 1 to 3 are progressive views illustrative of the nature of the loops of which my stocking is composed and the manner in which they are formed.

At the present time bighole mesh fabric is knit upon a knitting machine provided with a full complement of needles, loops being transferred to the right and left from adjacent needles at the points at which the holes are formed. To close these holes it is necessary under present practice to press certain of the needles much more severely than the remainder in order that they may be made to lie outside of the loops instead of inside in the normal manner. This places excessive and different strains upon the needles and never fails to throw them out of alignment and to otherwise damage them or impair their adjustment. Excessive wear is also unavoidable. Furthermore, the present process involves for the completion of a single two needle hole three narrowing cycles in every four courses. Furthermore, the cam motion of the machine controlling the press must be altered to provide for the extra pressing of certain of the needles as already described. This entails changes and adjustments in the standard knitting machines which require a great deal of skill and time to effect and during which the machine must remain idle. Furthermore during the formation of the holes the knitting of additional fabric is suspended so that the time consumed in forming the holes represents a clear loss in the capacity of the machine. Therefore, any reduction in the number of the hole forming steps represents a similar gain in productive capacity.

By my method, which I will now describe, I produce a two-needle hole mesh by a single narrowing or loop transferring step, and I completely eliminate the necessity for more than a normal degree of press. Thus, I materially increase the capacity of the machine and avoid all excessive strains upon any part of it. Also, since only the normal press is required, the redesigning and readjustment of the cam action of the machine, a very delicate and difficult task, is avoided. It is also perfectly feasible to use high twist yarn when my method is employed, since the yarn does not assume abnormal positions as in the present method and consequently there is no danger of floating threads lying through the hole—a defect frequently encountered when knitting with hard twisted yarns by the old method.

The two-needle hole mesh of my invention is diagrammatically illustrated by Figs. 1 to 3. The method of knitting is as follows:—Every fourth needle is removed from the needle bar. For example, as shown in Fig. 1, needles D are removed, the remaining needles forming sets of three separated by the space normally occupied by needles D. The yarn is then laid in the usual manner and several courses knit. In the resulting fabric every fourth wale will be enlarged as shown at 6 in Figs. 1 and 2, because of the omission of needle D.

After several courses of this nature are knit and the course at which the hole is to be begun has been reached, the lace bar, the points of which have been spaced to correspond with every fourth loop C, descends and transfers the loop on needle C to the right to needle A, as shown in Fig. 2. At this point in the knitting, therefore, needles C have been relieved of their loops and a two-needle

hole has been begun because of the absence of needles D adjacent needles A.

The hole is then closed by knitting a course of regular knitting, as shown at 7 in Fig. 3, followed by as many similar plain courses as desired. The next hole is then started by causing the lace points to again dip and transfer the loops on needles A to the left across the space normally occupied by needles D to needles C, as shown at 8 in Fig. 3. This step is exactly the same as that shown in Fig. 2, with the exception that the loop has been transferred to the left across the space D, instead of to the right. The hole thus begun is closed in the same manner as before by knitting a regular course 9 which may be followed by as many similar regular courses as desired.

By this method a two-needle hole mesh fabric is produced in which there is only one narrowing or loop transferring operation in every three courses, as compared with the three similar operations required in every four courses by the present method heretofore described. Since knitting is suspended during these loop transferring steps a saving of approximately 55% of the time ordinarily lost is effected and the capacity of the machine is correspondingly increased.

The desired staggered effect of the holes automatically results from the alternate transference of the loops to the right and then to the left, as above described. No unusual strain is placed upon the needles or lace points by my method, hence no excessive press is required and, consequently, no redesigning or readjustment of the cam action of the machine.

Furthermore, since my method involves only a simple loop transferring operation of normal character, high twist yarns may be employed without difficulty, there being no possibility of floating threads.

The description given has been limited to a two-needle hole mesh, but, of course, it will be understood that larger holes and an infinite variety of designs may be produced merely by varying the spacing of the needles and the action of lace points.

Anyone skilled in the art will readily appreciate the great merit and advantages of this method of knitting and that fabric of extreme uniformity can be produced by its use as compared with the fabric knitted by present methods.

I claim:

1. The method of knitting lace fabric which comprises removing from the needle bar certain needles at spaced intervals, knitting a course of loops on the remaining needles, transferring the loops on the needles adjacent one end of the gaps caused by the removed needles from said needles to the needles adjacent the other side of said gaps, and then closing the holes so formed by knitting a course of plain knitting.

2. The method of knitting lace fabric which comprises removing from the needle bar certain needles at spaced intervals, knitting a course of loops upon the remaining needles, transferring loops across the spaces left vacant by the removed needles, and then closing the holes so formed by the next course knit.

ALBERT FRIEDMANN.