

July 9, 1946.

L. N. FEINSTEIN

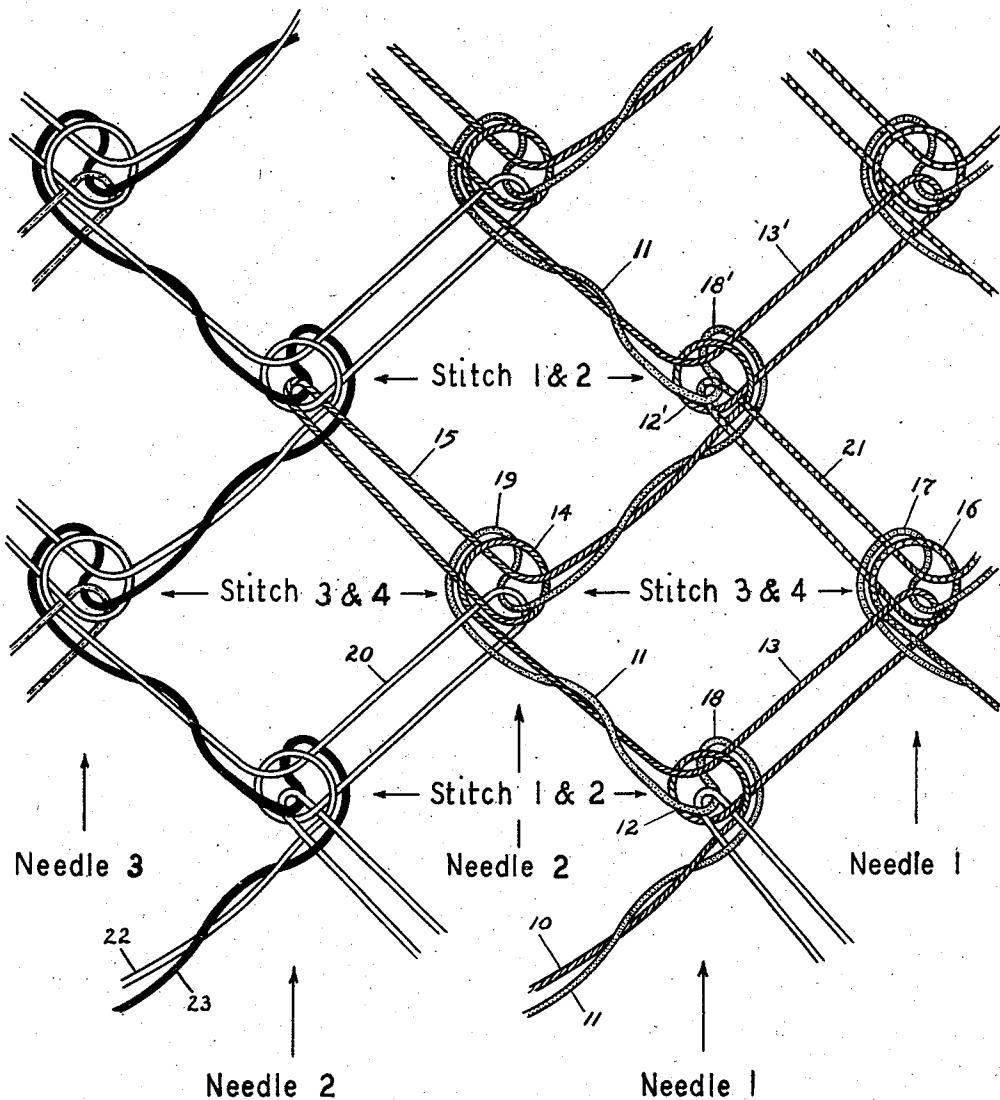
2,403,793

KNITTED FABRIC

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2 Sheets-Sheet 1

FIG. 1



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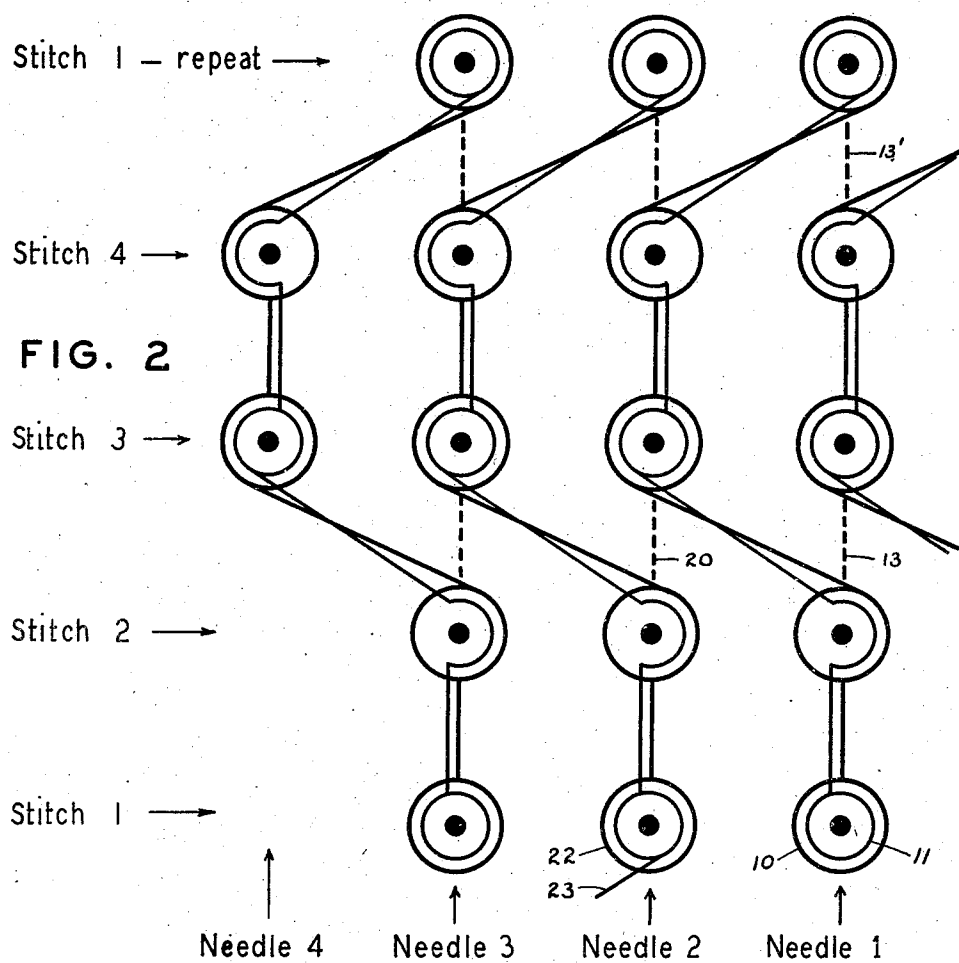
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KNITTED FABRIC

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Application October 27, 1944, Serial No. 560,528

5 Claims. (Cl. 66—195)

1

This invention relates to knitted fabrics, and particularly to fabrics known in the trade as netting, veiling, hair nets, scarfs, dress materials, girdle cloth, bridal veils, and other like materials employing the type of loops as will hereinafter be described.

Broadly, it is an object of my invention to produce a knitted material very economically by automatic means.

More particularly, it is an object of my invention to provide a knitted fabric that can be produced very rapidly upon existing knitting machines.

There is a great deal of netting produced on lace machines both abroad and in this country, such netting being made of various types of yarns or threads. However, the cost of manufacturing such materials on lace machines is very great compared to the cost of manufacturing my knitted fabric on existing automatically operated machines well known in the trade.

It is, therefore, an object of my invention to imitate the production of knitted fabric made on lace machines. However, the structure I produce is entirely different than that made on such lace machines. However, the structure made by me and the arrangement of the threads in the knitted fabric when finished is such that it is difficult to tell whether the finished cloth has been made on a knitting machine or upon a lace machine except by an expert under an enlarging glass.

By producing my knitted fabric upon a knitting machine the labor is comparatively small since such machines are veritabily fully automatic, and great production can be obtained as compared to lace machine production.

For a fuller understanding of the nature and features of my invention reference is had to the following detailed description in connection with the accompanying drawings in which:

Fig. 1 is a greatly enlarged diagrammatic illustration of the arrangements and interlocking of the two threads forming my knitted fabric.

Fig. 2 is a diagrammatic view illustrating the relative position of the threads with relation to the needles of the knitting machine.

In producing my knitted fabric I use the type of knitting machines which have guide bars and needles which move alternately to one another; that is, the guide bars move between and around the needles. Such machines are of various makes and are constructed with the guide bars and needles as hereinbefore described.

These machines are characterized by guide

2

bars which carry the threads on to the needle bar. The needle bar is moved by cams and the guide bars are moved by chains or pattern wheels consisting of links of different heights which through associated mechanism control the movements of the guide bars and cause the needles to create loops which form the knitted fabric.

The chains or the pattern wheel are designated by numbers in respect to their relative height, and to form the knitted fabric it is necessary to set up the chains with links or pattern wheels according to a certain formula. When the hereinafter described formula is used, the knitting machine automatically creates the knitted fabric which is entirely different than any knitted fabric heretofore made on such knitting machines.

The formula for the production of my knitted fabric is referred to in Fig. 2, as follows:

Chain 1—0, 2, 0, 2, 4, 2, 4, 2.

Chain 2—0, 2, 0, 0, 4, 2, 4, 4.

My knitted cloth is knitted with two threads. The first thread is indicated by chain 1 in the above formula, while the second thread is indicated by chain 2 of the above formula. With this formula any one who is skilled in the knitted art can easily set up the machine to produce the desired fabric.

The knitted fabric may be constructed of cotton, silk, rayon, acetates, wool, or mixtures of such yarns, and any other yarns suitable for knitting and any desirable denier or ply may be used. The knitted fabric may be made with a heavier and lighter yarn, or a rayon and a cotton, or different combinations of yarn. My knitted fabrics can also be made on any type gauge knitting machine.

Of course, chain 2 may be placed in the position of chain 1, as aforesaid, and chain 1 may be placed in the position of chain 2 as afore described. The knitted fabric which is the subject of the instant invention is characterized by a series of threads formed into a series of knitted loops by the action of the knitting machine, with each series of loops having loops extending alternately at opposite sides and interlaced with the threads of parallel series of loops on both sides and with the second thread being knitted and unknitted and interlaced with the loops of each series of knitted loops.

Referring to Fig. 1 of the drawings, numeral 10 indicates the front thread forming one of the series of knitted loops and 11 indicates a back thread forming a parallel series alternating

3

knitted loops. The second thread is dotted to distinguish it from thread 10 for convenience of illustration. It will be understood that while two threads are illustrated, a multiplicity of such threads are used and corresponding series of loops are formed simultaneously to form the knitted fabric. Thread 10 is formed into a stitch 12 and a loop stitch 13 which is reversed to form stitch 14 and loop stitch 15. Stitch 12 and loop stitch 13 are duplicated in thread 10 by stitch 12' and loop stitch 13'.

As indicated in the drawings, the stitch 12 interlocks with the thread 11 forming one point of the diamond. The thread 10 then forms the loop stitch 13 interlocking the threads 16 and 17, and the stitch 12 which is formed by thread 10. The thread 10 then forms the succeeding stitch 14 and interlocks thread 11 in the same manner as described for stitch 12. However, the loop stitch 15 is the reverse of the loop stitch 13 and passes through the stitch 14 formed by threads 10 and 11 and then forms a stitch 12' similar to stitch 12 as afore described, thus causing a continuous repetition of pattern. It should be noted that whereas the loop stitch 13 extends to the right to interlock with threads 16 and 17, the loop stitch 15 extends to the left to interlock with a parallel series of loops forming the other side of the diamond.

Thread 11 forms stitch 18 which interlocks with stitch 12 and then forms a reverse stitch 19 which interlocks with stitch 14 and loop stitch 20 (which is similar in formation to loop stitch 13 and 13'). Thread 11 then forms stitch 18' which interlocks with stitch 12' and the reverse loop stitch 21 and then repeats, forming another point of the diamond.

The threads 10 and 11 are duplicated by similar threads both to the right and left of the afore described stitches and loops and continually repeat themselves thus forming the knitted fabric.

As shown in Fig. 1, the threads, stitches and loops of the series form openings of diamond formation when the fabric is completed.

It should be understood that in the knitting operation the stitches 12, 18, 14, 19, 12', 18', etc., are tightly drawn while the loop stitches 13, 15, 13', etc., are loose to form "legs," forming the sides of the diamond shape, and the stitches as aforesaid forming the points of such diamond shape, giving the appearance of knots at such points. The finished product appears in the form of uniform diamonds. It is understood that the actual size of the diamonds may be smaller than the size indicated in Fig. 1, and the diamond shapes may be made of any desired size for different uses by adjusting the "take up" upon the machine, or by other means well known in the art.

In Fig. 2 each complete circle represents a stitch, each half circle represents an inlay, and the dotted line represents a loop. The dots within the circles represent needles. Of course, it is understood that guide bars (not shown) control the movement of the yarn around the needles.

The knitted fabric afore described can be made by reversing the direction of the threads, that is, the threads that loop around the needles from right to left can be looped around the needles from left to right, thus in the final appearance the knitted fabrics made by this method will look virtually the same.

4

Referring to Fig. 2, in making my knitted fabric, thread 10 makes two successive stitches on the needle 1 and then passes to needle 2 making two successive stitches on needle 2, and then returns to needle 1 repeating the same operation. The thread 11 follows thread 10 making one stitch on needle 1, and while thread 10 makes stitch two on needle 1, thread 11 lays-in through the stitch made on needle 1 by thread 10, then passes to needle 2 making a stitch on needle 2, and while thread 10 makes the second stitch on needle 2, thread 11 lays-in through the stitch made on needle 2 by thread 10.

In Fig. 1, the threads to the left of threads 10 and 11 are front threads 22 and back threads 23, indicated by white and black threads which interlock in the same manner as threads 10 and 11.

It is obvious that various changes may be made in the knitting of my new type of knitted fabric without departing from the general spirit of the invention.

I claim:

1. A knitted fabric comprising front and back threads characterized by a uniform pattern of diamond shaped openings, consisting of said front and back threads, each front thread formed into a series of loops extending alternately at opposite sides and interlocked with a series of knitted loops on the opposite sides thereof, each back thread being alternately knitted and laid-in and interlocking a series of loops.

2. A knitted fabric comprising front and back threads characterized by a uniform pattern of diamond shaped openings, consisting of said front and back threads, each front thread formed into a series of stitches and loop stitches extending alternately at opposite sides and interlocked with a series of knitted loops on the opposite sides thereof, each back thread being alternately knitted and laid-in on opposite sides and interlocked with the series of stitches and alternately interlocked with the series of loop stitches.

3. A knitted fabric comprising front and back threads characterized by a uniform pattern of diamond shaped openings, consisting of said front and back threads, each front thread forming a series of stitches and loop stitches extending alternately at opposite sides, said loop stitches forming two sides of each diamond shaped opening, each back thread being alternately knitted and interlocking with the series of stitches and loop stitches, the back and front threads forming the other two sides of each diamond shaped opening.

4. A knitted fabric comprising front and back threads characterized by a uniform pattern of diamond shaped openings, two sides of each diamond being formed of front threads only and the other two sides being formed of front and back threads.

5. A knitted fabric comprising front and back threads characterized by a uniform pattern of diamond shaped openings, two sides of each diamond being formed of front threads only and the other two sides being formed of front and back threads, the points of each diamond being formed by said front and back threads.

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