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METHOD OF KNITTING

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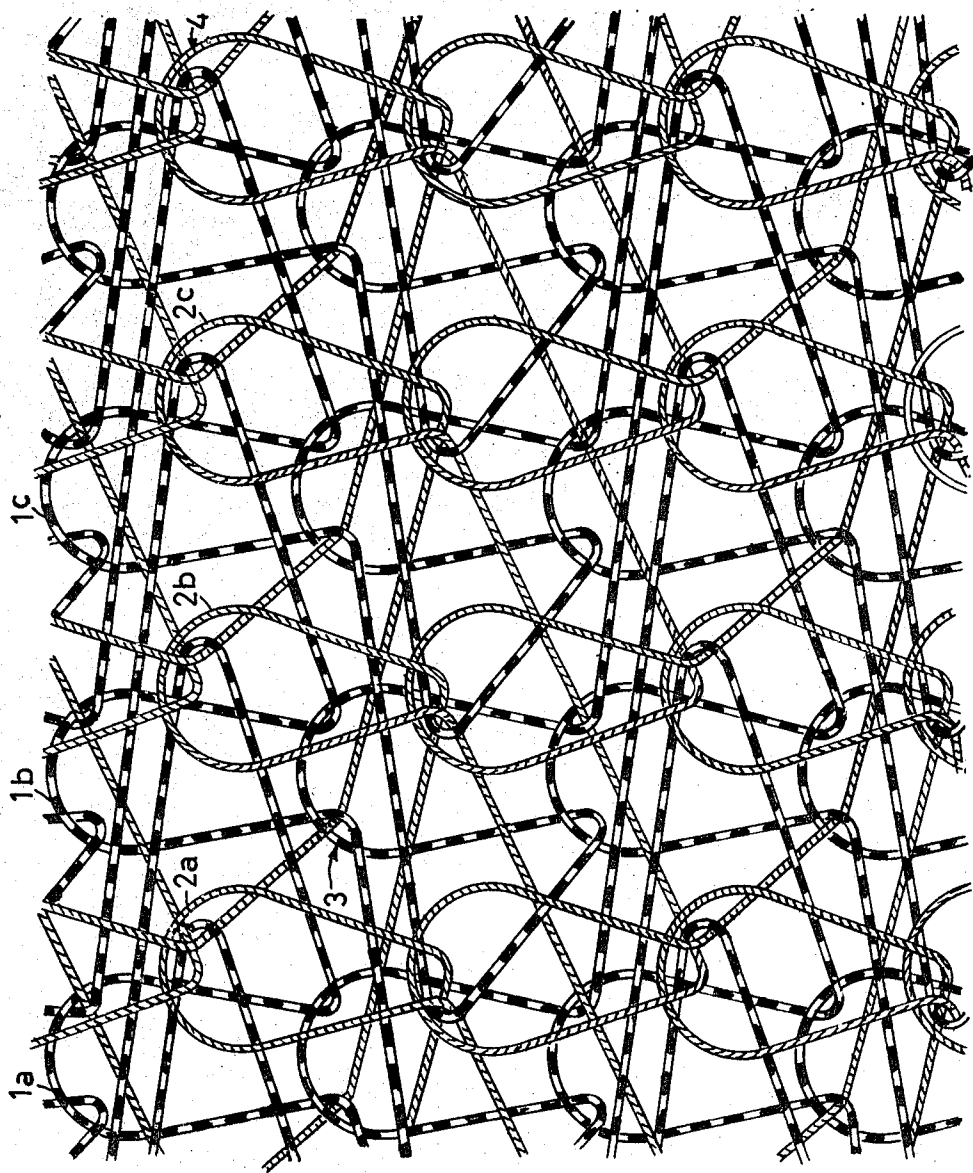


Fig. 1.

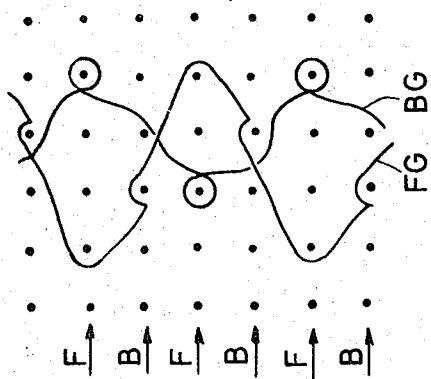


Fig. 2.

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METHOD OF KNITTING

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2 Claims

ABSTRACT OF THE DISCLOSURE

A cloth consisting of a closed-lap plain warp fabric and of a superposed open-lap tricot fabric is made on a two-needle bed Raschel knitting machine having two guide bars which are fully threaded. Each guide bar makes overlaps on the opposite needle bed while the other guide bar makes underlaps and laying-in motions on the same, fully set needle bed, whereby the wales of the two fabrics are interlocked, the underlaps of each fabric being bound to the stitches of the other.

BACKGROUND OF THE INVENTION

This invention relates to warp knitting and warp knitted cloth, and particularly to the operation of knitting machines equipped with two needle beds and two guide bars, the needles and guide bars being moved cyclically relative to each other in timed sequence.

It is known to produce an atlas type pattern on such machines by fully threading only one guide bar. In such a fabric, each stitch is formed by one thread only, but the appearance of the stitches is different on the two faces of the fabric, the stitches forming straight wales on one face of the fabric and zig-zag wales on the other face.

When two fully threaded guide bars are employed, and the pattern used consists of warp stitches on one face and a tricot pattern on the other face, or of a tricot pattern on both faces, or of a plain warp fabric pattern on one face and tricot on the other face, there are obtained straight wales on both faces, but each stitch consists of two threads.

If only every other yarn guide on each guide bar is threaded, a fabric having stitches consisting of one thread only is obtained, but the reverse face of the fabric shows a pattern similar to that of waffle cloth.

Ultimately, it has been proposed to use fully threaded guide bars, the front guide bar making loops on the needles of the rear needle bar, and the rear guide bar making loops on the needles of the front guide bar. The guide bars perform such shogging movements that each guide bar produces a ground fabric connected with the other ground fabric by the sinker loops. If the ground fabric consists of wales of warp stitches, the wales are straight as long as the sinker loops do not exert excessive tension. The fabric, however, is prone to form runs. If the ground fabric has a tricot pattern or the like, the tendency to laddering is somewhat reduced, but the stitches on both faces of the cloth are obliquely inclined.

The object of the invention is the provision of a one-and-one ribbed cloth whose two faces do not show an undesired pattern nor obliquely inclined stitches, which does not tend to form runs or ladders, and in which only one thread is required for each stitch.

SUMMARY OF THE INVENTION

The invention, in one of its aspects resides mainly in a knitting method performed on a warp knitting machine having two needle bars and two guide bars, the front guide bar knitting on the rear needle bar, and vice versa, each guide making overlaps while the other guide bar

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makes an underlap under one or more needles of the same needle bed, the underlaps of each guide bar being bound to the stitches formed by the other guide bar by the threads of the latter.

Because the needles receive only one warp thread in each course, heavier and therefore less costly yarn may be used for producing a cloth of a given weight per unit area than could be used in four-thread cloth. Moreover, all stitches on both faces of the cloth are upright and straight so that the faces of the cloth have a uniform appearance, and the cloth is suitable in many applications not heretofore open to similar warp knit fabrics. The cloth of the invention does not tend to form ladders, and is thus wear resistant.

The resiliency and stretch of the cloth can be modified in a simple manner by changes in the pattern, whereby the field of application for cloths of the invention is further extended.

According to a further feature of the invention, at least one guide bar may perform laying-in motions beyond the underlaps by one or more needle spaces, and the change in pattern resulting from such laying-in motions is specifically contemplated as one of the measures for modifying the properties of the cloth referred to above. The laying-in motions may be performed in both directions, and these motions may be symmetrical or asymmetrical. Moreover, the overlaps, underlaps and laying-in motion of both guide bars may be performed in the same direction or in opposite directions.

In another aspect, the invention also resides in the one-and-one ribbed cloth produced by the method outlined above. The cloth essentially consists of two superposed fabrics whose exposed faces are formed by stitches and by underlaps, the underlaps of each fabric being bound to or interlocked with the stitches of the other fabric.

Other features, additional objects and many of the attendant advantages of this invention will readily be appreciated from the following detailed description of a preferred embodiment when considered in connection with the attached drawing.

BRIEF DESCRIPTION OF THE DRAWING

In the drawing:

FIG. 1 is a loop diagram of a cloth of the invention; and

FIG. 2 is a point paper diagram of lapping movements associated with the fabric of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring initially to FIG. 1, there are seen the threads 1a, 1b, 1c, etc. of a fully threaded front guide bar of a two-needle-bar Raschel knitting machine, and the threads 2a, 2b, 2c, etc. of the fully threaded back guide bar. The threads 1a etc. make overlaps on the needles of the fully set back needle bed, and the threads 2a etc. of the back guide bar make overlaps on the needles of the fully set front bed. While each guide bar makes overlaps, the other guide bar makes underlaps.

Since the threads of each guide bar extend to the opposite needle bed during stitch formation, the underlaps of each guide are bound by the stitches of the other guide bar, as is shown at 3 with reference to the threads of the back guide bar, and at 4 with reference to the threads of the front bar.

In the illustrated example, the back guide bar BG forms a closed-lap plain warp fabric pattern, whereas the front guide bar FG forms an open-lap tricot pattern as is best seen in FIG. 2. It will be appreciated that the patterns on both faces of the fabric may be identical, and that a wide variety of patterns may be combined.

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The pattern illustrated in FIG. 2 corresponds to the formula

Back guide bar: 2-2/2-0/4-4/4-6/

Front guide bar: 4-6/8-8/4-2/0-0/

What is claimed is:

1. In a method of knitting on a warp knitting machine having a front needle bed, a back needle bed, needles in said needle beds, a threaded front guide bar, and a threaded back guide bar, said needles and said guide bars being cyclically moved relative to each other in timed sequence while the front guide bar knits on the needles of the back needle bed only and the back guide bar knits on the needles of the front needle bed only, the improvement which comprises, in each cycle of the relative movement:

(a) moving said front guide bar corresponding to the lapping formula 4-6, 8-8, 4-2, 0-0, to make overlaps on the needles of said back needle bed so as to form stitches while moving said back guide bar to make

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underlaps over at least one needle of said back needle bed; and

(b) thereafter moving said back guide bar corresponding to the lapping formula 2-2, 2-0, 4-4, 4-6 to make overlaps on the needles of said front needle bed so as to form stitches while moving said front guide bar to make underlaps over at least one needle of said front needle bed, whereby the threads of said guide bars are crossed and interlocked in the fabric produced.

2. In a method as set forth in claim 1, said needle beds being fully set and said guide bars being fully threaded.

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U.S. Cl. X.R.

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