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WARP KNITTED PILE FABRIC

Filed April 7, 1959

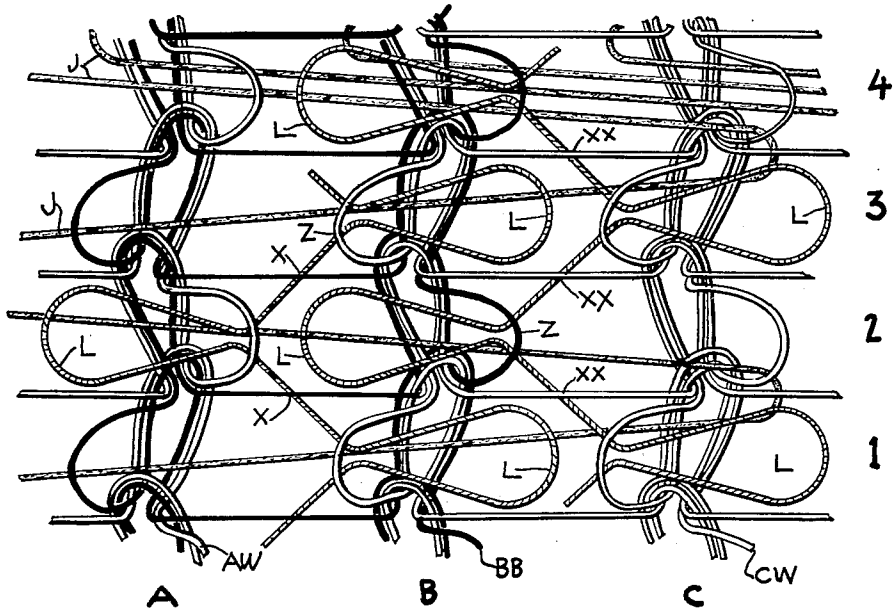


Fig 1

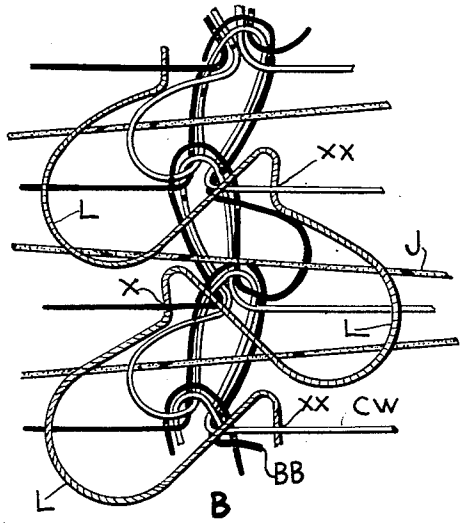


Fig. 2

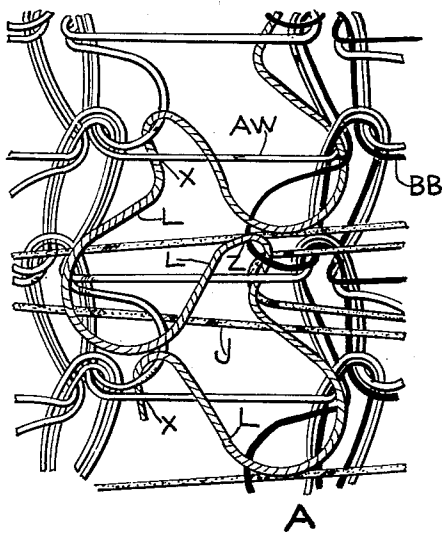


Fig. 3

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WARP KNITTED PILE FABRIC

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The present invention relates to warp knitted pile fabric which is adapted to be made on raschel and other types of warp knitting machines, and, more particularly, to a knitted stitch for fastening loops of pile yarn in the fabric.

Heretofore, many warp knitted pile fabrics have been proposed which generally comprised adjacent warpwise extending rows of chain stitches and loops of pile yarn in various patterns bound by the chain stitches.

One of the difficulties encountered in so binding the loops is that the knitting elements which form the chain stitches are subjected to a considerable load as the stitches are knit about the heavier pile yarn. This requires that the knitting machine be sturdy in construction which in turn places a limit on the highest speed at which the machine can be operated safely without breakage of knitting elements.

Accordingly, an object of the present invention is to provide a warp knitted pile fabric which is not subject to the foregoing difficulties and disadvantages.

Another object is to provide a stitch which enables the knitting machine to be safely operated at a higher speed without change in the construction thereof.

Another object is to accomplish the foregoing in a simple and practical manner.

Other and further objects of the invention will be obvious upon an understanding of the illustrative embodiment about to be described, or will be indicated in the appended claims, and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

In accordance with the present invention, the foregoing objects are accomplished by providing a warp knitted pile fabric which generally comprises a plurality of adjacent warpwise extending rows of chain stitches each formed of a pair of strands with one strand of each row having portions crossing over back and forth between a stitch in an adjacent row at one side and the other strand of each row having portions crossing over back and forth between a stitch in an adjacent row at the other side, and loops of pile yarn fastened in the fabric by the crossing over strand portions or partially fastened by these portions and partially fastened by the stitches.

In the drawing:

Fig. 1 is a fragmentary, diagrammatic, expanded plan view of fabric in accordance with the present invention showing the loops of pile yarn in one form of arrangement.

Fig. 2 is a view similar to Fig. 1 showing the loops in another form of arrangement.

Fig. 3 is a view similar to Fig. 1 showing the loops in still another form of arrangement.

Referring to Fig. 1 of the drawing in detail, a small portion of warp knitted pile fabric is illustrated which comprises three parallel adjacent warpwise extending chains or rows of chain stitches A, B and C of which about four courses 1, 2, 3 and 4 are shown, loops L of pile yarn such as wool, and weft threads J such as

jute extending across a plurality of rows in the same course and bound therein by stitches.

Each row of chain stitches is formed of a pair of strands one of which is shown as white and the other as black in the drawing to enable the path which they take to be more clearly followed. The white and black strands are alternately arranged with a white strand AW at the needle which knits the chain A, a black strand BB at the needle which knits the chain B and a white strand CW at the needle which knits the chain C, etc. A white and a black strand are knitted on each needle to form the chain stitches. This is accomplished by passing each strand under the hooks of two adjacent needles, for example to moving the guide bar through a pattern cycle designated as **0440—0440—0440**, etc.

In knitting the chain A, the strands AW and BB are knitted together, and, in knitting the chain B, the strands BB and CW are knitted together. In this manner with reference to chain B, the strand BB has portions X crossing over back and forth between stitches in the adjacent chains A and B (at one side or to the left of the chain B) and the strand CW has portions XX crossing over back and forth between stitches in the adjacent chains B and C (at the other side or to the right of the chain B).

These crossing over strand portions are utilized to fasten the pile yarn loops L together with the stitches, or to fasten the loops partially. The manner in which the loops can be formed may vary widely, and the present invention is not intended to be limited to any particular loop arrangement.

As shown in Fig. 1, the loops L in successive courses extend between adjacent chains and face in opposite directions with a portion of the knitted chain stitches crossing over the loops at Z near the base thereof and the portions of the pile yarn between successive loops being fastened between chains by the crossing over portions X or XX of the strands. This is accomplished by moving the pile yarn guide bar through a pattern cycle designated as **2042—2042—2042**, etc.

As shown in Fig. 2, the loops L of each chain in successive courses face in opposite directions and are fastened on one chain near the base by the crossing over portions X and XX of the strands. This is accomplished by moving the pile yarn guide bar through a pattern cycle designated as **0220—0220—0220**, etc.

As shown in Fig. 3, the loops L zig-zag between successive courses in adjacent chains and are partially fastened by a portion of the knitted chain stitches at Z and are partially fastened by crossing over portions X (or XX) of the strands. This is accomplished by moving the pile yarn guide bar through a pattern cycle designated as **2002—2002—2002**, etc.

From the foregoing description it will be seen that the present invention provides a simple and practical manner of fastening loops of pile yarn in knitted fabric.

As various changes may be made in the form, construction and arrangement of the parts herein, without departing from the spirit and scope of the invention and without sacrificing any of its advantages, it is to be understood that all matter herein is to be interpreted as illustrative and not in any limiting sense.

I claim:

1. A warp knitted pile fabric comprising a plurality of adjacent substantially warpwise extending rows of chain stitches each formed of a first and second strand, the first strand of each row being knitted in a weftwise aligned chain stitch with the second strand in an adjacent row at one side and the second strand of each row being knitted in a weftwise aligned chain stitch with the first strand in an adjacent row at the opposite side to provide weftwise first strand portions crossing over back and

forth at one side of a given row and to provide weftwise second strand portions crossing over back and forth at the other side of the given row with said crossing over portions extending solely between a pair of adjacent rows, and loops of pile yarn located solely between a pair of adjacent rows and fastened in the fabric by said crossing over strand portions extending solely between a pair of adjacent rows.

2. A fabric according to claim 1, wherein said loops

of pile yarn are partially fastened in the fabric by said crossing over strand portions and are partially fastened in the fabric by said stitches.

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