

March 25, 1969

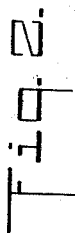
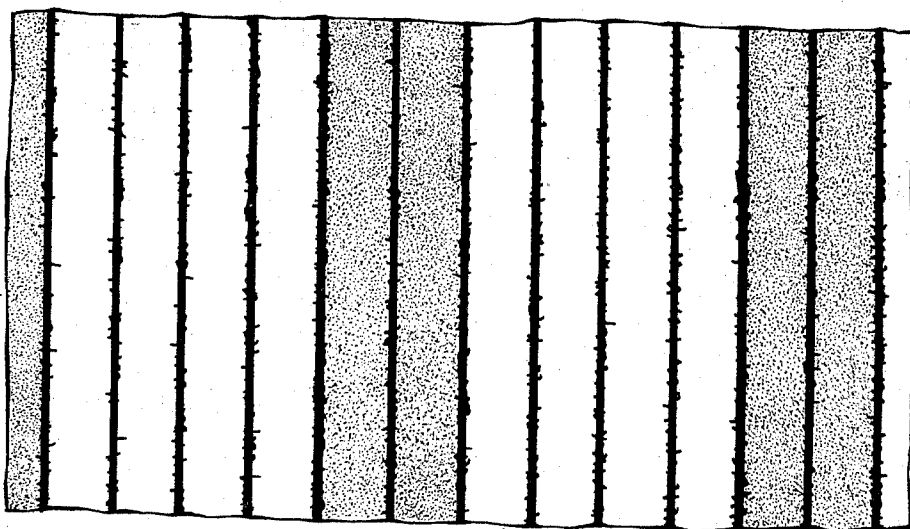
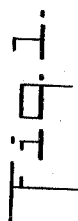
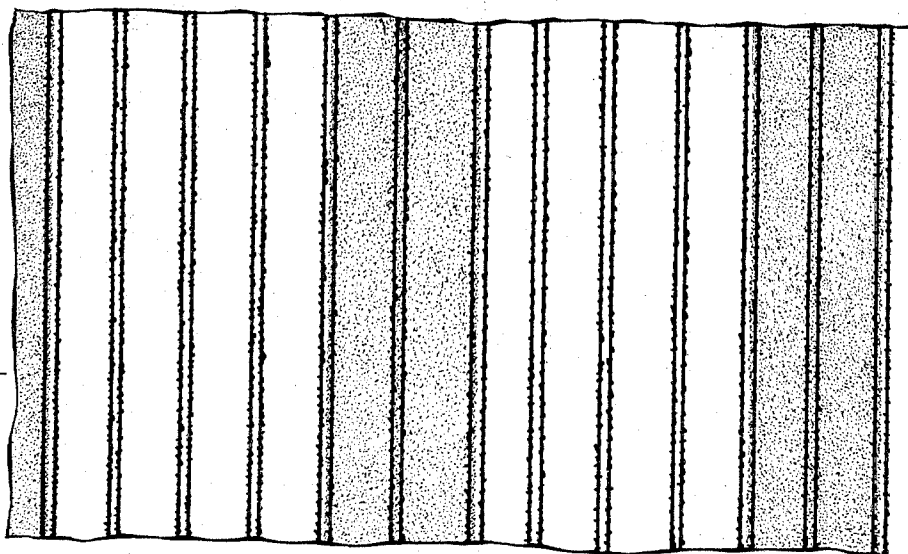
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3,434,306

WARP KNIT TERRY FABRICS

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Fig. 3.

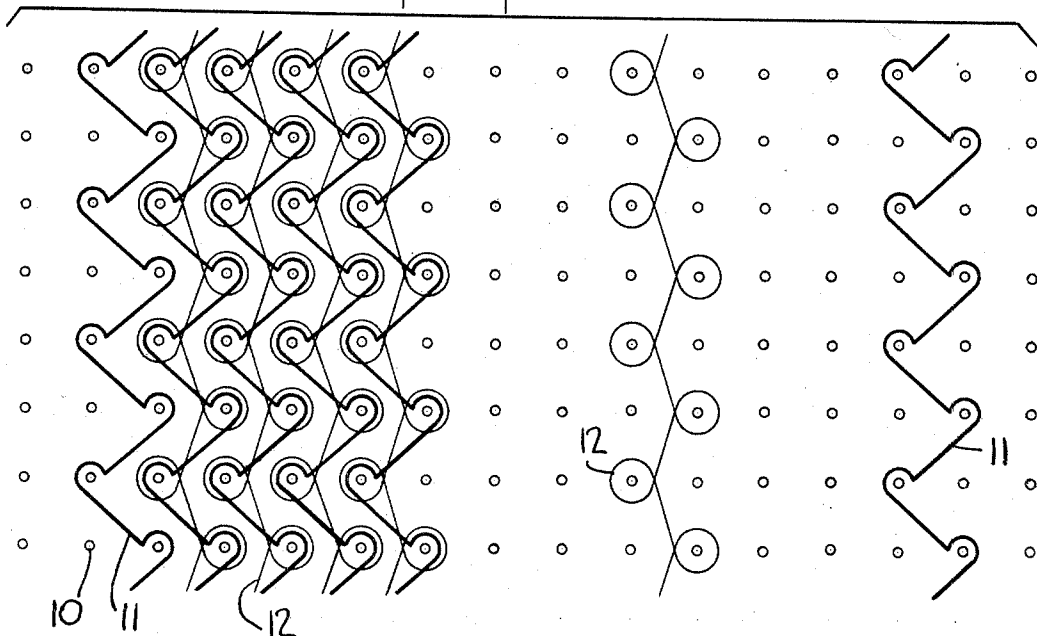
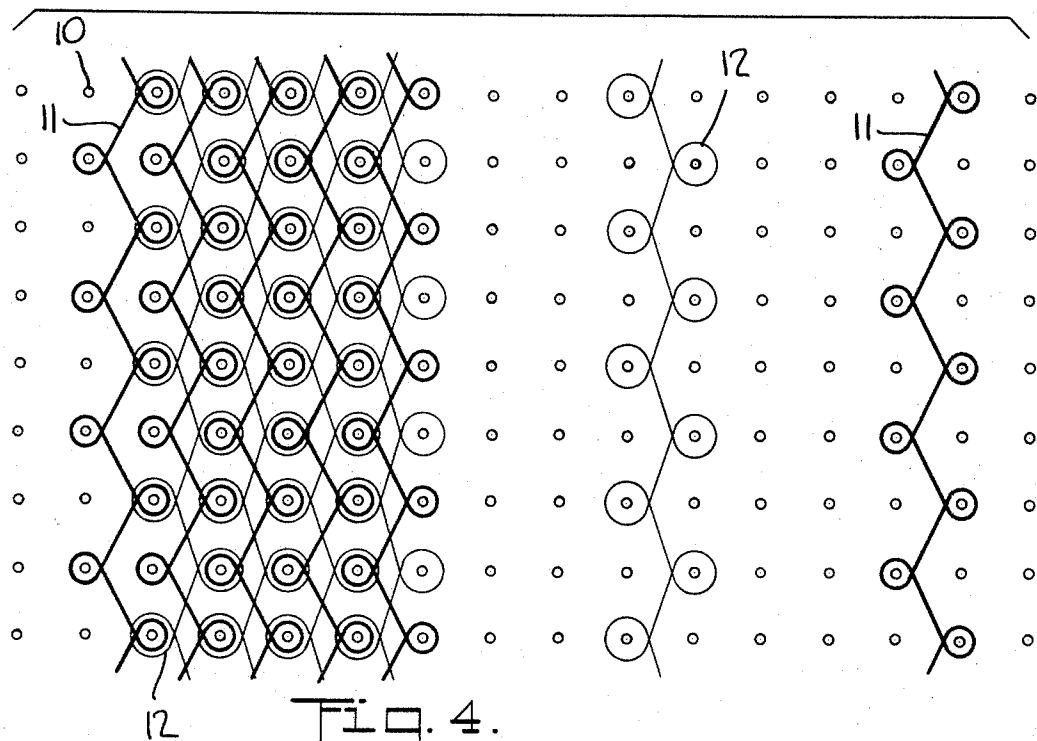


Fig. 4.

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WARP KNIT TERRY FABRICS

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4 Claims

ABSTRACT OF THE DISCLOSURE

The process of knitting a two bar warp knit terry fabric with a set of pile yarns fed from the front bar, and a set of base yarns fed from the back bar by overfeeding the pile yarns relative to the base yarns by about 1.5 to 2.5 times.

This invention relates to warp knit terry type fabrics.

It is an object of this invention to provide a method of warp knitting terry fabrics having a high, pronounced pile on one side and no pile or a shorter pile on the other side.

Other objects of this invention will be apparent from the description and claims which follow.

In general, the objects of this invention are accomplished by employing a spring beard warp knitting machine having at least two guide bars and one needle bed. The back bar, where a two bar machine is used, forms the base of the fabric in the configuration of open or closed loops and the front bar forms the pile of the fabric in the configuration of open or closed loops by moving in the same manner as the back bar or opposite to the back bar movement. Terry loops are achieved by overfeed of the front bar yarn to the back bar yarn of about 1.5:1 to 2.5:1.

In accordance with the present invention, there is provided a method of warp knitting yarn, on a spring beard warp knitting machine comprising a front bar and a back bar and having one needle bed, into a terry fabric comprising a base having two surfaces and a pile on one of said surfaces, said method comprising fully threading said back bar with one set of yarns, at least partly threading said front bar with a second set of yarns, simultaneously forming each of the yarns into the configuration of a series of loops while feeding the front bar set of yarns at about 1.5 to 2.5 times the feed rate of the back bar set of yarns, whereby the back bar set of yarns is formed into the base of said fabric and the front bar set of yarns is formed into the pile of said fabric.

In the drawings, FIG. 1 and FIG. 2 are the back and the face, respectively, of a tri-colored fabric according to the present invention and FIGS. 3 and 4 are schematic illustrations of alternative stitch patterns for said fabric in relation to the needles of the knitting machine; either of these stitch patterns will give essentially the same visual and tactile effect.

The face may preferably have a pile height of from about 0.01 inch to 0.3 inch and most desirably has a pile height of 0.02 to 0.2 inch. The back may have no pile or a pile height up to about 0.02 inch.

The yarns used on back and front bars may have a denier of from about 30 to 150 and preferably have a denier of from about 40 to 100; the denier of the yarns need not be the same on all bars. Filament yarns are preferred for their processing characteristics on spring beard needle warp knitting machinery.

Complementary to the terry construction, many effects may be achieved according to the present invention. Thus, for example, by alternate threading of colored yarn on the front bar, a large variety of striped terry patterns may be produced. Each colored yarn threaded on the

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front bar will appear in the two legs of the terry loop on the back of the fabric (i.e., the terry side) of the fabric and the one leg on the face of the fabric.

The fabrics of the present invention have a broad range of uses. For example, these fabrics make very attractive men's sport shirts. These fabrics are also useful in garments which are worn against the skin. Terry fabrics are visually esthetically pleasing; the limitation in this respect, however, is that terry fabrics with a high pile sometimes tend to feel too rough on the skin. The fabrics of the present invention can be made into garments, such as swimwear, with the relatively high pile on the face, which is the outer side of the garment, for visual appeal, and the smooth or relatively low pile on the back, which is the inner side of the garment, for tactile appeal.

The chemical composition and identity of the yarns may be selected for any desired end use of the terry fabric. Attractive fabrics are obtained, for example, with conventional secondary cellulose acetate on both bars, or on one bar with a nylon such as nylon-6,6 or nylon-6 or a linear polyester such as polyethylene terephthalate on the other, and similarly with cellulose triacetate alone or with another yarn. In order to obtain the terry structure of the present invention, the back bar must be fully threaded. The front bar may be fully or partly threaded. By omitting ends from the front bar with a pre-selected periodicity, interesting pattern effects may be obtained wherein stripes of relative transparency appear in the fabric wherever an end was omitted.

The invention will now be further illustrated by the following example:

Example

On a 28 gauge tricot knitting machine the back bar is fully threaded with 70 total denier, 34 filament, 0.5 turn per inch of Z-twist nylon-6,6 yarn (white in color) and the front bar is fully threaded with 150 total denier, 40 filament, 2 turns per inch of Z-twist secondary cellulose acetate yarn. The yarns on the front bar are of three different colors, white, black and green. The front bar is threaded in the following repeating color pattern: 3 white followed by 1 black, repeated eight times; 3 green followed by 1 black, repeated four times. The back bar stitch pattern is 1-0, 1-2, and the front bar stitch pattern is 0-1, 2-1. The yarns are knitted at an overfeed of the front bar yarn to the back bar yarn of 1.7:1. The resultant fabric has about 45 wales per inch and about 35 courses per inch; its back has a pile depth of about 0.01 inch and its face a pile depth of about 0.04 inch.

In the drawings, which will now be described in detail, FIGS. 1-3 show the fabric made according to the example and FIG. 4 shows an alternative stitch pattern.

In FIG. 1, there is illustrated, by means of a color key, the appearance of the front face of the fabric;

In FIG. 2, there is illustrated, by means of the same color key, the appearance of the back face of the fabric;

In FIGS. 3 and 4, there are illustrated stitch patterns of the fabric in relation to the needles of the knitting machine: 10 represents the needles of the knitting machine; 11 are the yarns of the back bar; 12 are the yarns of the front bar. FIG. 3 shows a front bar stitch pattern of 1-0, 1-2 and a back bar stitch pattern of 0-1, 2-1. FIG. 4 shows a front bar stitch pattern of 1-0, 1-2 and a back bar stitch pattern of 1-2, 1-0.

The 1-0, 1-2 stitch pattern may be used on the back bar instead of the front and the 0-1, 2-1 or 1-2, 1-0 stitch pattern may be used on the front bar instead of the back. Furthermore, a more balanced fabric may be obtained not only by using a 1-0, 1-2 stitch pattern on the front bar and a 1-2, 1-0 stitch pattern on the back bar as shown in FIG. 4, but also by using a 0-1, 2-1

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stitch pattern on the front bar and a 2-1, 0-1 stitch pattern on the back bar.

It is to be understood that the above description is given merely by way of illustration of the present invention and that modifications and variations within the spirit and scope of the invention may be obvious to those of ordinary skill in the knitting art.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method of warp knitting yarn, on a spring beard warp knitting machine comprising a front bar and a back bar and having one needle bed, into a terry fabric comprising a base having two surfaces and a pile on one of said surfaces, said method comprising fully threading said back bar with one set of yarns, at least partly threading said front bar with a second set of yarns, simultaneously forming each of the yarns into the configuration of a series of loops while feeding the front bar set of yarns at about 1.5 to 2.5 times the feed rate of the back bar set of yarns, whereby the back bar set of yarns is formed into the base of said fabric and the front bar set of yarns is formed into the pile of said fabric.

2. The process of claim 1 wherein the front bar is fully threaded.

3. The process of claim 1 wherein ends are omitted from the front bar with a pre-selected periodicity.

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4. The process of claim 1 wherein the yarns are knitted at an overfeed of the front bar yarn to the back bar yarn of 1.7 to 1.

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U.S. Cl. X.R.

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