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ELASTIC FABRIC

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Fig. 1.

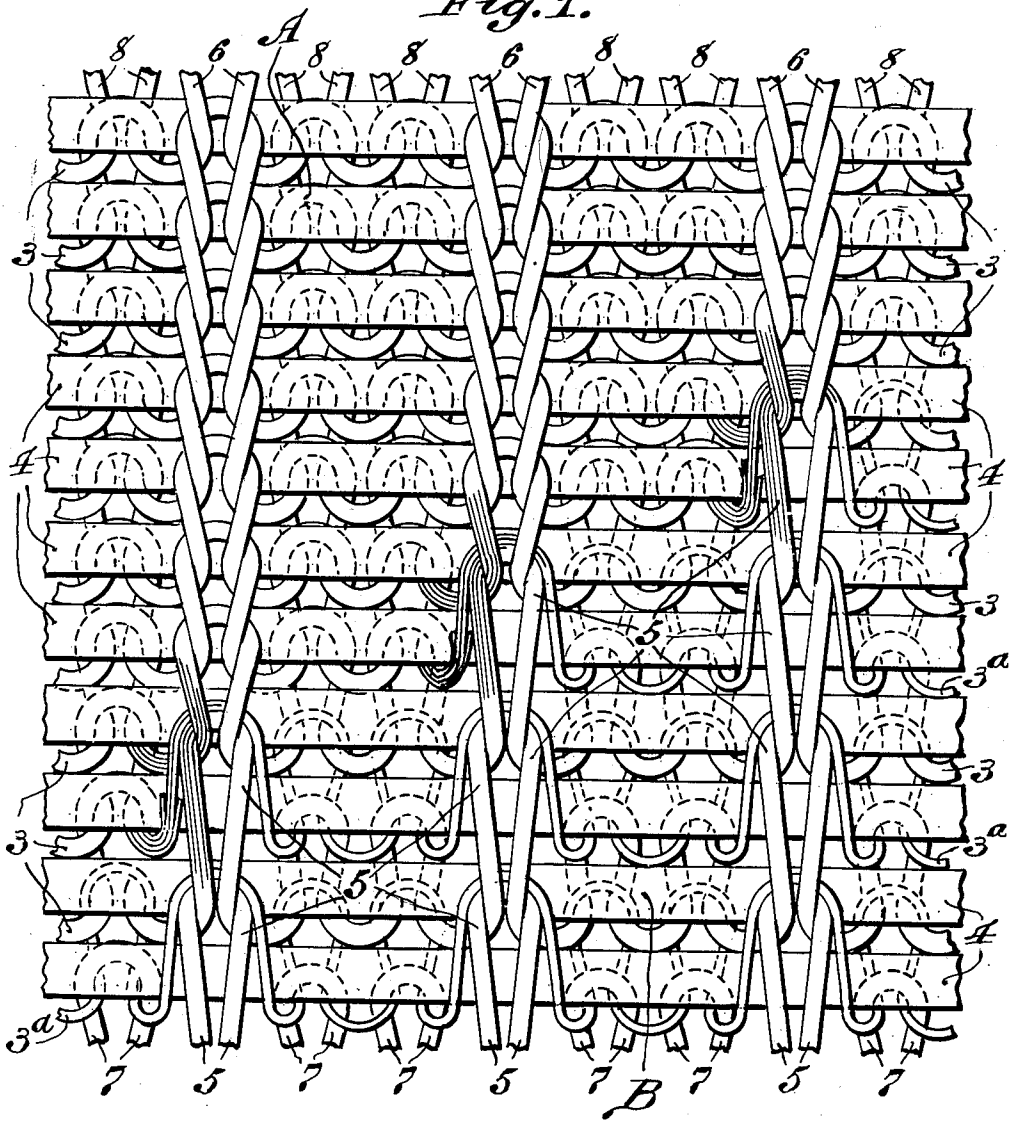


Fig. 2.



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ELASTIC FABRIC

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9 Claims. (Cl. 66—190)

1

This invention relates to improvements in elastic fabrics of the character used in the manufacture of corsets, brassieres, abdominal belts, stockings, leggings, anklets, knee caps, arm and leg bands, and other articles for surgical uses and the like.

Such fabrics comprise successive courses of elastic strands and complemental courses of stitches of knitted yarn which confine the elastic strands within the fabric, and they are produced in flat form on straight knitting machines, and also in round or tubular form on circular knitting machines.

More specifically considered, the present invention relates to certain improvements in the fabric shown and described in Letters Patent No. 1,887,927, dated November 15, 1932, although the invention is applicable to other fabrics of that general type.

One of the principal purposes of the invention shown and described in Letters Patent No. 1,887,927, was to provide an elastic fabric, certain portions of which could be contracted to a considerable extent without wrinkling the same so that where the fabric was used, for example, in a knee, or ankle, or similar covering, the same would always present a relatively smooth and unwrinkled surface, and automatically accommodate itself to the bend of the knee, or ankle, or other part which it covered.

The principal object of the present invention is to provide an elastic fabric, of the character aforesaid, in which the non-wrinkling characteristics thereof will be further enhanced, and which is constructed and made to afford a greater degree of comfort to the wearer whenever the knee, or ankle, or other part which it covers, is bent.

A further object of the invention is to provide an elastic fabric, of the character aforesaid, which may be readily produced on ordinary knitting machines, of either straight or circular type, without substantial change in the machines and requiring only attachments of a type which are well known and in common use in the knitting industry.

A further object of the invention is to provide an elastic fabric, of the character aforesaid, which may be readily produced without involving additional expense in the making thereof.

The nature and characteristic features of the present invention will be more readily understood from the following description, taken in connection with the accompanying drawing forming part hereof, in which:

2

Figure 1 is a face view of a piece of fabric comprising one form or embodiment of the present invention; and

Fig. 2 is an enlarged view of a portion of the yarn used in knitting the fabric shown in Fig. 1, illustrating more particularly how the yarn varies with respect to the number of strands thereof at various places in the fabric in accordance with the present invention.

It should, of course, be understood that the description and drawing herein are illustrative merely, and that various modifications and changes may be made in the structure of the fabric without departing from the spirit of the invention.

It has not been deemed necessary to illustrate the various articles which may be made in the utilization of the fabric of the present invention, as they may be substantially the same as those shown, for example, in Figs. 4, 5, 6 and 7 of Patent No. 1,887,927, hereinbefore referred to.

Referring to the drawing, the fabric there shown comprises knitted yarn 3, which forms the body of the fabric, and elastic strands 4 held in place within the fabric by the interknitting of the yarn 3.

The elastic strands 4 extend parallel to the courses of the fabric, from end to end thereof, when the fabric is produced in flat form on a straight knitting machine, and the elastic strands 4 extend circumferentially of the fabric when it is produced in seamless tubular form on a circular knitting machine.

The main body A of the fabric may be made of the well known ribbed formations with spaced wales facing on one side of the fabric, and with corresponding spaced sets of wales facing on the other side of the fabric, the elastic strands 4 being laid in and confined within the fabric where the knitting yarn passes from the wales which face on one side to those which face on the other side of the fabric.

In the main body A of the fabric as shown, there are provided between each spaced pair of wales, facing on one side of the fabric, sets of two wales facing on the other side of the fabric.

The foregoing is the same as shown in Patent No. 1,887,927 and, in like manner, the area B of the fabric, which is usually employed in such portions of the article where the same is contracted from time to time by bending, such as on the inner face of the knee cap, on the outer portion of an anklet sleeve, or in the corresponding portions of a full length elastic stocking, is made

with a peculiar type of knit formation to minimize wrinkling in such areas.

In the area B the stitches may be formed and arranged similar to that shown in Patent No. 1,887,927, or in any other preferred manner, whereby the elastic strands may be permitted to roll over each other whenever the bending action takes place and thus avoid the formation of wrinkles. For this purpose, as shown in said patent, the knitting yarn 3 may be formed into a series of tuck stitches 5 on the one face of the fabric, in alinement with the wales of plain stitches 6 on that face of the portion A of the fabric. In the area B the knitting yarn 3 may be carried through from the tuck stitches 5 on the one face to plain stitches 7 on the other face thereof which are in alinement with the corresponding wales of plain stitches 8 in the area A.

However, in carrying out the present invention, in each alternate course of the knitting yarn 3, the number of strands in said yarn is reduced across the area B, so that the yarn 3^a where such reduction occurs is of a considerably finer character than in the other alternate course. For example, a yarn such as is shown in Fig. 2 of the drawing, may be employed, the main portion 3 of which, for knitting the area A of the article, would be of a four-strand type with two of the strands terminating, in each alternate course, where said yarn enters the area B, leaving the yarn 3^a for that portion of the course, which extends across area B, of but two strands, and when the yarn passes again into the area A, the four strand formation of the yarn 3 will be resumed.

The change of the strands from the four strand yarn 3, to the two strand yarn 3^a, may be accomplished by an attachment similar to that commonly used for striping on flat and circular knitting machines as the case may be.

The particular number of strands in the yarn in each area of the fabric of the present invention may be according to the desire of the particular manufacturer and may vary by reason of differences in the denier of the strands used for making up the complete yarn, and in like manner instead of reducing the number of strands in each alternate course in area B of the fabric, the same may be reduced only in every third or every fourth course which, however, would not produce so desirable a fabric.

I claim:

1. In an elastic fabric comprising courses of substantially inelastic yarn knitted in ribbed formation with elastic strands inlaid and bound in the fabric in successive courses thereof, said fabric having an area in which portions of the knitting yarn in selected courses are reduced in size from that of the yarn in said courses outside of said area.

2. In an elastic fabric comprising courses of substantially inelastic multi-strand yarn knitted in ribbed formation with elastic strands inlaid and bound in the fabric in successive courses thereof, said fabric having an area in which portons of the knitting yarn are reduced in size within said area only by the elimination, in selected courses, of at least one strand thereof.

3. In an elastic fabric comprising courses of substantially inelastic multi-strand yarn knitted in ribbed formation with elastic strands inlaid and bound in the fabric in successive courses thereof, said fabric having an area in which portions of the knitting yarn are reduced in size within said area only by the elimination, in alternate courses, of at least one strand thereof.

4. In an elastic fabric comprising courses of substantially inelastic multi-strand yarn knitted in ribbed formation with elastic strands inlaid and bound in the fabric in successive courses thereof, said fabric having two areas, in one of which areas the elastic strands are secured by special stitches whereby adjacent elastic strands will be permitted to roll upon each other without wrinkling, and portions of the knitting yarn in said area being reduced in size within said area only by the elimination, in selected courses, of at least one strand thereof.

5. In an elastic fabric comprising courses of substantially inelastic multi-strand yarn knitted in ribbed formation with elastic strands inlaid and bound in the fabric in successive courses thereof, said fabric having two areas, in one of which areas the elastic strands are secured by tuck stitches on one face whereby adjacent elastic strands will be permitted to roll upon each other without wrinkling, and portions of the knitting yarn in said last mentioned area being reduced in size within said area only by the elimination, in alternate courses, of at least one strand thereof.

6. In an elastic fabric comprising courses of substantially inelastic multi-strand yarn knitted in ribbed formation with elastic strands inlaid and bound in the fabric in successive courses thereof, said fabric having two areas, in one of which areas of the fabric the elastic strands are secured in the fabric by the passing of the yarn back and forth from wales on one face to complementary wales on the other face, and in the other of which areas the elastic strands are secured by special stitches whereby adjacent elastic strands will be permitted to roll upon each other without wrinkling, portions of the knitting yarn in said last mentioned area being reduced in size within said area only by the elimination in the selected courses, of at least one strand thereof.

7. In an elastic fabric comprising courses of substantially inelastic multi-strand yarn knitted in ribbed formation with elastic strands inlaid and bound in the fabric in successive courses thereof, said fabric having two areas, in one of which areas the fabric is ribbed and the elastic strands are secured in the fabric by the passing of the yarn back and forth from wales on one face to complementary wales on the other face, and in the other of which areas the elastic strands are secured by special stitches whereby adjacent elastic strands will be permitted to roll upon each other without wrinkling, and portions of the knitting yarn in said last mentioned area being reduced in size within said area only by the elimination, in selected courses, of at least one strand thereof.

8. In an elastic fabric comprising courses of substantially inelastic multi-strand yarn knitted in ribbed formation with elastic strands inlaid and bound in the fabric in successive courses thereof, said fabric having two areas, in one of which areas the fabric is ribbed and the elastic strands are secured in the fabric by the passing of the yarn back and forth from wales on one face to complementary wales on the other face, and in the other of which areas the elastic strands are secured by tuck stitches on one face whereby adjacent elastic strands will be permitted to roll upon each other without wrinkling, and portions of the knitting yarn in said last mentioned area being reduced in size within said area only by

the elimination, in selected courses, of at least one strand thereof.

9. In an elastic fabric comprising courses of substantially inelastic multi-strand yarn knitted in ribbed formation with elastic strands inlaid and bound in the fabric in successive courses thereof, said fabric having two areas, in one of which areas the fabric is ribbed and the elastic strands are secured in the fabric by the passing of the yarn back and forth from wales on one face to complementary wales on the other face, and in the other of which areas the elastic strands are secured by tuck stitches on one face whereby adjacent elastic strands will be permitted to roll upon each other without wrinkling, and portions of the knitting yarn in said last mentioned area being reduced in size within said area only by the elimination, in alternate courses, of at least one strand thereof.

GEORGE H. FOX.

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