June 13, 1950 C. R. ANDERSON 2,511,685

COLLARETTE FABRIC

Filed Sept. 28, 1949 3 Sheets-Sheet 1

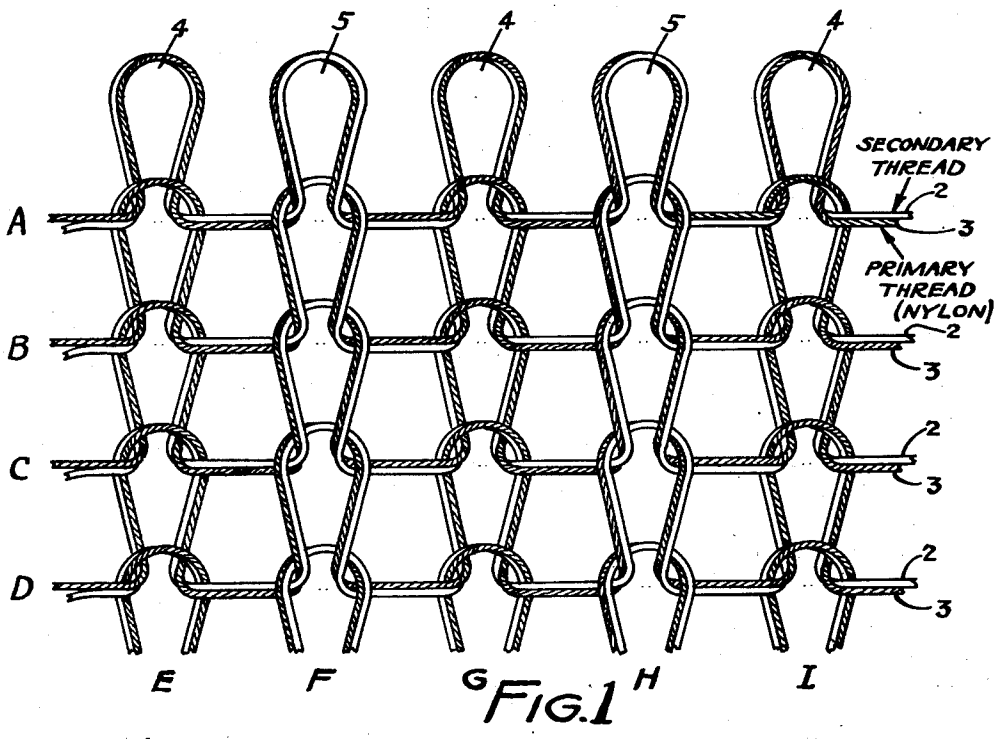


FIG. 1

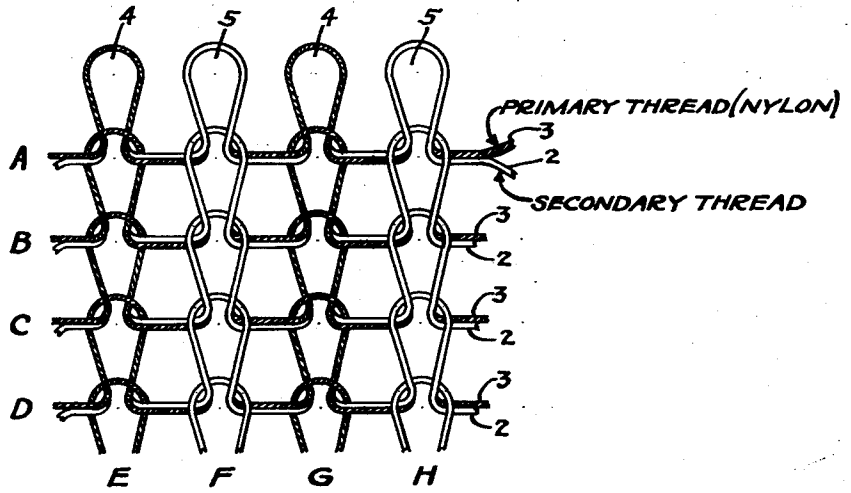


FIG. 2

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COLLARETTE FABRIC

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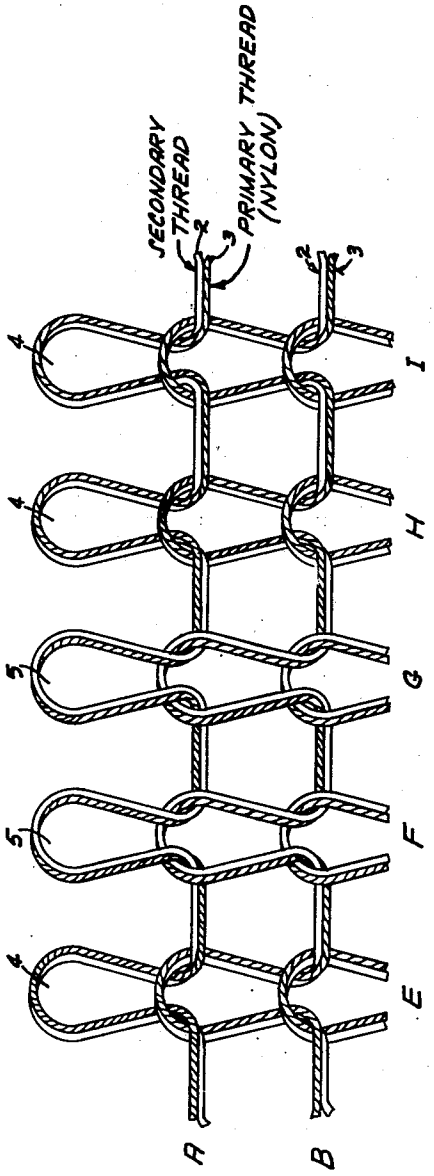


FIG. 3

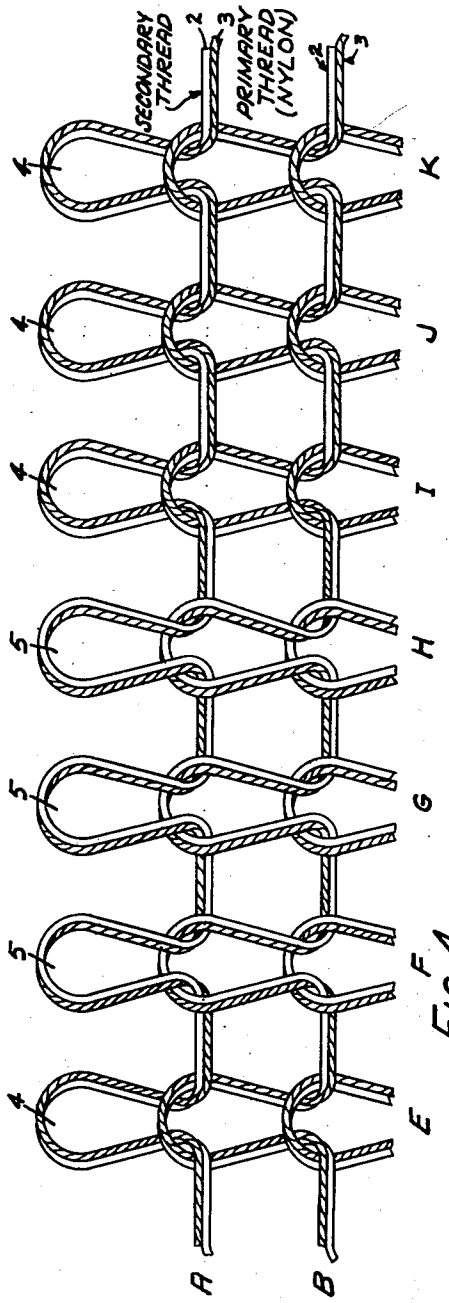


FIG. 4

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COLLARETTE FABRIC

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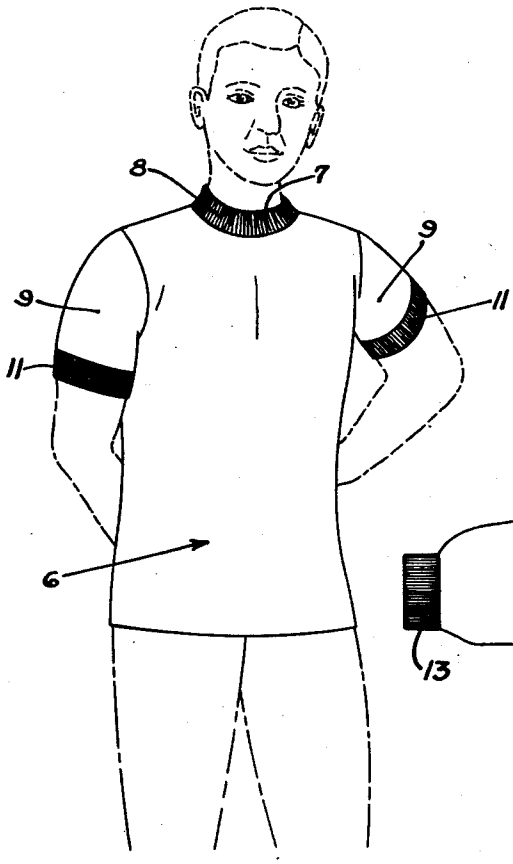


FIG. 5

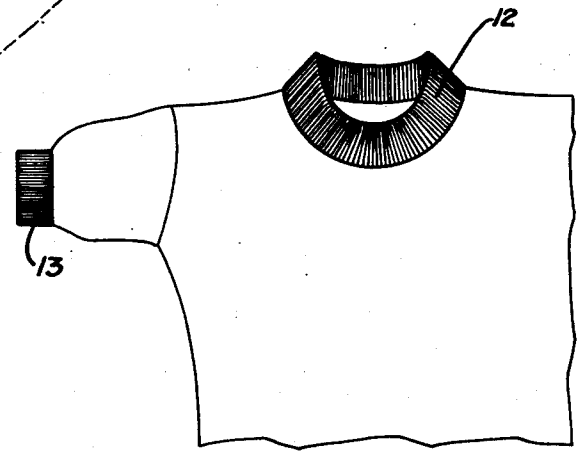


FIG. 6

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UNITED STATES PATENT OFFICE

2,511,685

COLLARETTE FABRIC

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Application September 28, 1949, Serial No. 118,258

2 Claims. (Cl. 66—172)

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This invention relates to new and useful improvements in knitted fabrics, and more particularly to an elastic fabric which lends itself for use in the construction of the collar and cuff portions of certain garments such as sweaters, and various other garments wherein the collar and cuff portions and sometimes the ankle portions, must be more or less stretchable to facilitate slipping the garment on or off the body.

This application is a continuation-in-part of my application Serial No. 714,816, filed December 7, 1946, now abandoned.

There are numerous garments on the market in which the neck and cuff portions are composed of an elastic or readily stretchable fabric which will permit the neck and cuff portions of the garment to stretch readily over portions of the body when putting the garment on or removing it from the body. A garment of this general type is the well known "crew-neck" sweater. Such garments are close fitting around the neck, and the neck portions thereof are usually made from a continuous piece or strip of fabric which must be elastic to permit the head to pass therethrough when slipping the garment on or off. The wrist portions of such garments are also usually provided with an elastic fabric which, like the neck portion, is usually continuous around the wrist, whereby the cuffs of the garment may readily be stretched to permit the hands to be passed therethrough and with the assurance that the garment will always be close fitting about the ankles.

Heretofore, the fabric used in the neck and cuff portions of such garments, and many others falling in this class have usually been knitted from one or more threads with or without rubber, or of body fabric threads, which threads initially impart the desired elasticity to the fabric. There is one serious objection to the use of elastic fabrics so constructed, and that is its elasticity is usually short-lived, when the garment is frequently laundered.

After considerable research and experimental work, I have discovered that an elastic fabric may be constructed without actually utilizing rubber threads or yarns in its construction, and that such fabric will permanently retain its original elasticity, even though the garment may be frequently distorted and subject to frequent launderings.

The novel fabric herein disclosed is composed of two or more threads, one of which will hereinafter be referred to as the "primary thread," or yarn, and the other, the "secondary thread" or yarn. I have discovered that nylon thread or yarn, which is now well known in the art, possesses

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certain characteristics not found in other materials and which are essential to bring about desired qualities of the fabric herein disclosed.

A rib knit fabric is employed in this invention which is composed of at least one primary or nylon yarn or thread, and one or more secondary threads which may be of cotton, rayon, or wool, of which cotton thread is preferred. The primary and secondary threads or yarns may be interknitted on a conventional knitting machine to provide the desired rib-knit fabric. I have also discovered one peculiarity in the use of nylon for primary thread, which, up to the present, I have been unable to find in any other material, and that is the stitches of the nylon thread have the inherent characteristic of taking a so-called "set," when embodied in a fabric by the knitting process. It is meant by the term "set," that the primary nylon thread or yarn acquires the shape of the stitches of the fabric as initially formed by the knitting process. The primary nylon thread or yarn seeks to retain this undistorted form and provides a fabric which is of such a nature as to permit opening or elongation of the stitches, when the fabric is subjected to stretching strains, but which will prevent permanent distortion of the stitches, whereby the fabric will retain its initial elasticity indefinitely, even though the fabric may be frequently momentarily stretched, as when slipping the garment on or off the body.

An important object of the present invention, therefore, is to provide an elastic rib-knit fabric composed of a nylon primary thread or yarn and one or more other secondary threads, the primary thread having the inherent characteristic of tending to retain the original shape of the stitch in the knitting process thus preventing permanent distortion of the stitches of the fabric when the latter is subjected to stretching strains.

A further object is to provide a highly serviceable elastic rib-knit fabric having a high degree of elasticity, and which will retain its original elasticity indefinitely, even when frequently laundered.

Another object of this invention is to provide an elastic rib-knit fabric wherein the primary nylon thread or yarn is plated over with an absorbent secondary yarn which is comfortable when in contact with the body of the wearer and which is also capable of being readily dyed.

Other objects of the invention reside in the construction of an elastic rib-knit fabric composed of a plurality of threads one of said threads being nylon and thus having the inherent charac-

teristic of rendering the composite fabric highly elastic and resistant to distortion; in the provision of such a fabric which is extremely simple and inexpensive to produce, and which may readily be knitted on conventional knitting machines without requiring any alterations in the construction thereof; and in the provision of such a fabric which is soft, pliable, and has absorbent inner and outer surfaces and which may be readily processed as any conventional fabric, when it is to be used in the construction of certain types of garments which may require the fabric to be bleached, dyed, or otherwise treated in the process of manufacturing the garments.

Other objects of the invention will appear from the following description and the accompanying drawings and will be pointed out in the annexed claims.

In the accompanying drawings there has been disclosed a structure designed to carry out the various objects of the invention, but it is to be understood that the invention is not confined to the exact features shown, as various changes may be made within the scope of the claims which follow.

In the drawings:

Figure 1 is a view of a section of fabric greatly enlarged to illustrate more clearly the inter-knitting of the primary thread in a one and one rib-knit fabric;

Figure 2 is a view quite similar to Figure 1 on a smaller scale more clearly illustrating the plating of the secondary thread over the primary thread;

Figure 3 is a view similar to Figure 2 of a section of fabric clearly illustrating the plating of the secondary thread over the primary thread in a two and two rib-knit fabric;

Figure 4 is a view similar to Figure 2 of a section of fabric clearly illustrating the plating of the secondary thread over the primary thread in a three and three rib-knit fabric;

Figure 5 is a view showing a garment having the improved fabric embodied in the collar and cuff portions thereof; and

Figure 6 is a view showing a portion of a sweater embodying the invention.

In the selected embodiment of the invention herein disclosed, there is illustrated in Figures 1 and 2, on a greatly enlarged scale, a section of a one and one rib-knitted fabric in which each course is shown composed of a plurality of threads 2 and 3, the thread 2 being of conventional material such as cotton, rayon, or wool, which will hereinafter be referred to as the "secondary thread," and a nylon thread or yarn which will hereinafter be referred to as the "primary thread."

In a one and one rib-knit fabric such as herein disclosed, the threads 2 and 3 are inter-knitted to form alternately successive loops 4 and 5 in each course, the courses being designated by the reference characters A, B, C, and D. The interlocked stitches of adjacent courses cooperate to provide the usual wales of the fabric designated by the reference characters E, F, G, H, and I.

In the novel fabric herein disclosed, the primary yarn or thread 3 supplies the necessary strength and elasticity to the fabric and renders the fabric permanently distortion-proof. In other words, the primary thread or yarn 3 permits the fabric to be readily stretched within reasonable limits and with the assurance that the fabric will always return to its normal condition without danger of any of its stitches becoming permanently distorted as a result of periodical stretching. These advantages result not only from the inherent elasticity of the nylon primary thread or yarn but also from the property of this yarn of becoming "set" or acquiring and tending to retain the shape of the stitch formed in the knitting operation.

The secondary thread 2 provides the necessary means whereby the composite fabric may be readily dyed, colored, or otherwise treated as is common with fabrics to be embodied in garments of the class herein referred to. The secondary thread 2 also makes it possible to provide a highly elastic fabric which is also absorbent in that it is possible to form a fabric wherein an absorbent secondary thread appears on both the inner and outer surfaces of the fabric.

In Figures 1 and 2, the secondary thread is shown plated over the primary thread, which is common practice in the art, when one side of the fabric is to be given any desired color by subjecting it to conventional dyeing processes, as the secondary thread will take the dye, as is well known in the art, whereas the nylon primary thread may not take the dye sufficiently to provide the desired intensity or permanency of color. More importantly, the elastic fabric thus formed is provided with absorbent inner and outer surfaces which are more comfortable to the wearer of a garment formed of this fabric when the fabric comes into contact with the body of the person.

The rib knit type of stitch has been found highly desirable in a fabric of this type and it has also been discovered that the best results are obtained with a closely knit rib knit fabric or in other words a fabric having a high stitch count.

In Figures 3 and 4 the features of this invention are shown embodied in a two and two rib knit fabric and a three and three rib knit fabric respectively. The secondary thread 2 and the primary thread 3 are inter-knitted to form successive pairs or triplets of loops 4 and 5 in the two and two rib knit fabric of Figure 3 and the three and three rib knit fabric of Figure 4, respectively, in each of the courses designated A and B. The wales E, F, G, H, and I are shown in Figure 3 and the wales E, F, G, H, I, J, and K are shown in Figure 4. The advantages of rib knit fabrics described in connection with the one and one rib construction shown in Figures 1 and 2 may thus be obtained in the same manner in two and two and three and three knit fabrics as shown in Figures 3 and 4. Likewise the advantages and features of this invention may be embodied in two and three knit fabrics or one and three rib knit fabrics and other combinations.

It is also desirable to prepare fabrics embodying the features of this invention wherein a nylon primary thread and a secondary cotton thread are employed in one course and a plain cotton thread employed in an adjacent course. These courses may be alternated throughout the fabric for the purpose of controlling the degree of elasticity of the finished fabric. Fabrics of this type are especially useful in forming the leg band portions on underwear and pants where the recovery resiliency and recovery characteristics need not be as pronounced as they are in neckband portions.

In Figure 5, there is shown a garment comprising the usual body 6 having a neck opening 7 formed by an elastic neck portion or band 8 constructed of an elastic rib knit fabric such as herein disclosed. The sleeve portions 9 are shown provided with bands or sections 11 of a similar

elastic rib knit fabric. By reference to Figure 5, it will be noted that the elastic neck band 8 and sleeve bands 11 closely fit the body, whereby the garment provides a comfortable fit at the neck and sleeves and also presents a very neat appearance.

In Figure 6 there is shown a portion of a garment comprising an elastic neck band 12 and sleeve bands 13 constructed of the novel elastic rib knit fabric herein disclosed. In this figure, it will be noted the neck band 12 and the sleeve band 13 are contracted to their normal conditions, whereas in Figure 5, the sleeve bands in particular, are shown expanded somewhat to fit the wearer's arm.

In garments, such as turtleneck sweaters, sweat shirts, T shirts, knit pajamas, and the like, it is of utmost importance that the neck portions in particular, of the garments snugly fit the neck of the wearer. This, as hereinbefore stated, has been practically impossible with garments of this type as now commonly constructed, primarily because the fabric constituting the neck and wrist portions of such garments are usually constructed of body fabric yarns which have an exceedingly short elastic life, or one or more rubber threads are used which detract from the appearance of the garment and which may lose their original elasticity, after which the garment may poorly fit around the neck and wrists of the wearer.

The novel fabric herein disclosed, positively eliminates the above objectionable feature in that it will permanently retain its elasticity so that the garment will always properly fit the neck and such other portions of the wearer's body where it may be used to obtain a snug fit.

While I have herein referred to the invention as being embodied in a rib knit fabric, I do not wish to be so limited as the invention may find use in other types of fabric without departing from the scope of the invention.

It will be apparent to those skilled in the art that I have accomplished at least the principal

objects of my invention, and that it will also be apparent to those skilled in the art that the embodiments herein described may be variously changed and modified without departing from the spirit of the invention, and that the invention is capable of uses and has advantages not herein specifically described; hence, it will be appreciated that the herein disclosed embodiments are illustrative only, and that my invention is not limited thereto.

I claim:

1. In a knitted garment having a body portion, in combination therewith a knitted neck band and knitted cuff portions which are more elastic than said body portion, one at least of said knitted neck band and cuff portions comprising a rib knit wherein each stitch comprises nylon thread and cotton thread, said cotton thread being plated over said nylon thread whereby said cotton thread appears on the inner and outer surfaces of the fabric.

2. A knitted garment as set forth in claim 1 wherein one at least of said knitted neck band and cuff portions comprises a rib knit wherein each stitch of alternate courses of stitches comprises nylon thread and cotton thread, said cotton thread being plated over said nylon thread, whereby said cotton thread appears on the inner and outer surfaces of the fabric, and each stitch of the courses of stitches intermediate said alternate courses of stitches is plain cotton thread.

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