March 14, 1961 T. WESTMORELAND 2,974,508

KNIT FABRIC

Filed May 9, 1958

Fig. 1.

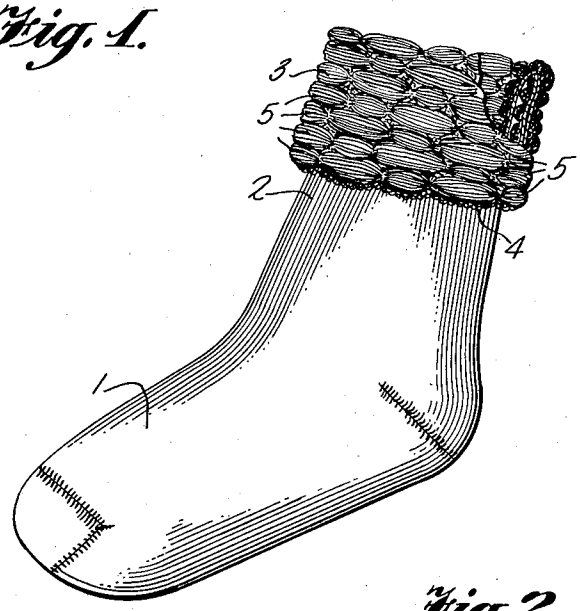
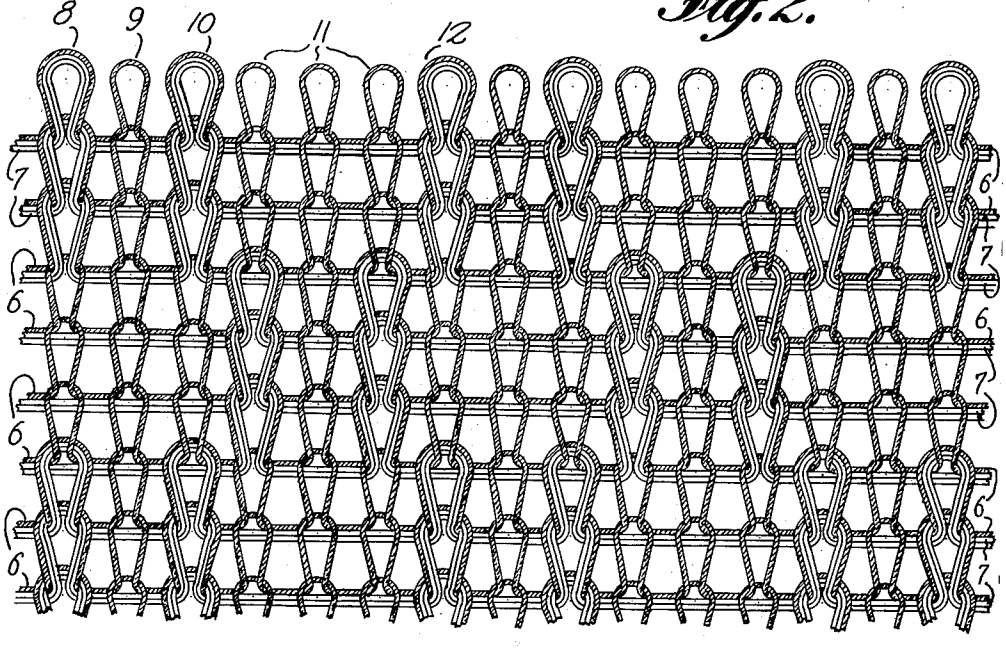


Fig. 2.



INVENTOR

Twain Westmoreland

BY *Mason, Fenwick & Lawrence*

ATTORNEYS

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KNIT FABRIC

Twain Westmoreland, Mount Airy, N.C., assignor of one-half to Fred Folger, Jr., Mount Airy, N.C.

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This invention relates to knit fabrics and articles and to methods of knitting them, and particularly to knitting methods for producing fabrics having unique ornamental design and to such fabrics and articles.

The general object of the present invention is the production of a knit fabric having a soft fluffy appearance quite different from conventional knit fabrics capable of production in many design patterns.

Another object of the invention is the provision of a fabric of this nature which will have bulk and thickness without great weight.

A further object is to provide a fabric of this kind which can be manufactured on a conventional circular knitting machine.

A still further object is the production of such a fabric having some stretch characteristics.

It is also an object to produce a fabric particularly adapted to use in children's socks having long leg portions for rolling or folding to produce a cuffed anklet, with the cuff being quite enlarged in thickness over the foot portion of the sock.

Another object is to provide a method of producing a knit fabric having the above-described characteristics.

Other objects of the invention will become apparent from the following description of one practical embodiment thereof, when taken in conjunction with the drawings which accompany, and form part of, this specification.

In the drawings:

Figure 1 is a side elevation of a child's sock incorporating fabric embodying the principles of the present invention; and

Figure 2 is a diagram illustrating one stitch pattern that the fabric may take, and the method by which the fabric is formed.

In general, the invention consists of a knit base fabric having bundles of floated filler yarns over the back thereof secured to the base fabric at spaced points, with the selection of the points of securing the floated yarns determining the design of the finished fabric, and the method of knitting whereby such fabric may be produced.

Referring to the drawings in detail, there is shown in Figure 1 a child's sock incorporating the new fabric in the leg portion. The sock includes a foot **1** of regular knit fabric and an elongated leg portion **2** of the new fabric. The leg portion may be of any desired length, and is shown as folded, or rolled, several times to form a cuff **3** with the design side of the fabric exposed to provide a sock having different fabric in the foot and cuff.

In making the fabric, a conventional circular knitting machine is used. This can be either the small diameter cylinder used for socks, or the larger cylinder sweater machines. Yarn of any type may be used. Nylon stretch yarns have been used with excellent results, both as to fluffiness of final appearance and because of the resiliency of the finished fabric. This may be stretch yarns of the general type formed by twisting, setting and untwisting

the filaments such, for example, as disclosed in United States Patent No. 2,463,620.

In setting up the machine to knit a sock, a plurality of yarn ends, say eight, are put on every other needle, and a single end is put on every needle of the bank. A few courses are knit with the one end knitting on all needles and forming a base fabric. During these few make up courses, the eight ends are knit on every other needle and floated behind the intervening needles. Due to the fact that the plurality of ends are knit on alternate needles, the floaters are short and have little chance to separate. They appear as short lengths of soft thread overlying the base fabric. Thus, a band, or top, **4** is formed. This is merely one way in which the multi-end fabric may be begun.

After the make up courses, the machine can be set up to produce the fabric of the present invention. The basic arrangement will always be such that the single end will be knit on all needles in all courses, and the plurality of ends, which will be handled and knit in a bundle as a single end, will be alternately knit and floated behind the intervening needle, or needles, as the case may be simultaneously with the knitting of the base fabric. By selection of the needles on which the plurality of ends will be knit in certain courses different design effects can be produced. In all cases the yarns will be knit with light tension or without tension, and the floated yarns will produce loose, raised areas consisting of bundles of free yarn lengths, such as shown at **5** in Figure 1. The size and location of these areas can be changed to produce different designs.

The arrangement of the stitches to produce the fabric is shown in Figure 2. It will be understood that relatively few yarn ends have been shown to preserve clarity in the drawings. At the same time, the lengths of the floaters have been shown relatively short so that a large scale showing could be had.

The fabric shown in Figure 2 consists of a single yarn end **6** which has been knit on all needles in all courses, and a plurality of yarn ends **7**, which are used to create the design and give bulk to the fabric, and which are alternately knit and floated in accordance with the requirements of the design to be produced. For clarity, only two ends **7** are shown. As illustrated, yarns **7** are knit in a two by four pattern, in which the yarns are knit in wale **8**, floated behind wale **9**, knit in wale **10**, floated behind wales **11** and knit in wale **12**. This pattern is continued throughout a number of courses, three as shown. The pattern then shifts to position the short floaters centrally of the longer floaters for a selected number of courses. The pattern can then be shifted back to its original form. This will produce the design shown in Figure 1 which has the visual appearance of a basket weave.

The floaters will be sufficiently long so that the yarns of the several ends can separate to expand the bulk of the combined ends. Where they are knit, of course, they will be drawn tightly together. When they are released, as when floating, they tend to fluff out due to the crowded condition caused by the use of so many ends and appear as a loose bundle of yarns on the face of the basic fabric.

Fabric knit in the above-described manner from stretch nylon yarns has the soft, fluffy appearance of small balls of yarn. This arises from the relaxed lengths of floated yarns which entirely cover the base fabric. The fabric has the light constrictive effect of stretch yarn, and when made into socks will hold its position on the leg without binding. When used in sweaters, etc. it will be shape-retaining and conform to the body of the wearer.

It will be obvious that many different designs are possible while retaining the basic stitch formation necessary to produce a fabric having free-floating yarns overlying

a base fabric and attached to it at preselected points. The same principle can be present with different design effect by tucking and floating the design-forming yarns. Of course, the fabric can be made on a rib machine by eliminating the dial needles.

While in the above one practical embodiment of the invention has been disclosed, it will be understood that the precise structural details shown and described are merely for purposes of illustration and the invention may take other forms within the scope of the appended claims.

What is claimed is:

1. A knitted ornamental fabric comprising, a knit base fabric having a plurality of tuft-like yarn clusters arranged thereon in accordance with a predetermined design, said tuft-like yarn clusters each consisting of a plurality of bundles of yarn knit at their ends into the base fabric in similar selected spaced wales of successive courses so that the bundles are attached to the base fabric and the yarns of the bundles are constricted at the points of attachment, with the bundles of yarn floated over the intervening wales of the base fabric free of constriction between the points of attachment, and the yarn of the base fabric and the tuft-like clusters is nylon stretch yarn.

2. A knitted ornamental fabric comprising, a knit base fabric having a plurality of tuft-like yarn clusters arranged

thereon in accordance with a predetermined design, said tuft-like yarn clusters each consisting of a plurality of bundles of yarn knit at their ends into the base fabric in similar selected spaced wales of successive courses so that the bundles are attached to the base fabric and the yarns of the bundles are constricted at the points of attachment, with the bundles of yarn floated over the intervening wales of the base fabric free of constriction between the points of attachment, and the points of attachment of the plurality of courses of yarn bundles of one tuft-like yarn cluster are in different wales of the base fabric from the points of attachment of yarn bundles making up the tuft-like yarn clusters on the next succeeding plurality of courses of the base fabric to provide a design of staggered clusters.

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