Feb. 18, 1941. A. S. HUNTER 2,232,532

KNIT FABRIC

Filed May 29, 1940

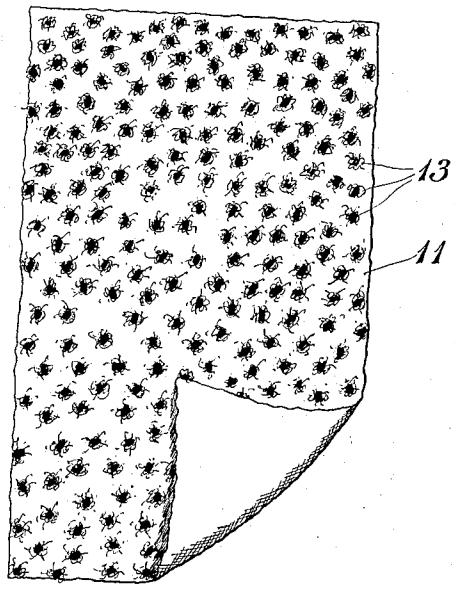


Fig. 1

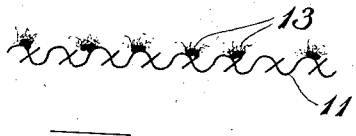


Fig. 2

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KNIT FABRIC

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2 Claims. (Cl. 66—202)

The present invention relates to a novel knit fabric, and more particularly, it relates to a knit fabric having a high stitch count which is knitted from yarn having filamentous nubs.

This is a continuation-in-part of my co-pending application, Seral No. 299,170, filed October 12, 1939.

Heretofore, it was considered quite impractical, if not impossible, to construct finely knit fabrics from yarn containing nubs or other distinct enlargements along the length thereof. Enlargements in knitting yarn, such as accidentally formed "slubs" or "fluff balls" generally cause holes to be formed in a fabric during the knitting thereof. Knots in knitting yarn must be tied with great skill, and even then the presence of very small knots often causes the formation of holes in a knit fabric, and, in extreme cases result in the breaking of knitting needles.

As a result of such experiences in the knitting arts, and particularly in the production of finely knit fabrics, that is fabrics having high stitch count, any pronounced enlargements in knitting yarn have been carefully avoided.

Although many of the known yarns containing slubs or nubs at intervals along their lengths are probably inoperative for use in knitting finely knit fabrics, it has been discovered, with a great deal of surprise, and utterly contrary to recognized knitting practice, that nubby yarn of the type and structure disclosed in my copending application, Serial No. 299,170, may be satisfactorily knitted to form finely knit fabrics. It has furthermore been found that such finely knit fabric, knitted from such yarn, has a unique appearance in that the multitude of nubs on the yarn appear solely on one side of the knit fabric.

It is therefore an object of the present invention to produce knit fabric having a high stitch count from nubby yarn of the type disclosed in my copending application, Serial No. 299,170. Other objects of the invention will appear hereinafter.

The present invention will be more easily understood by reference to the following written description when taken in connection with the accompanying illustrations in which:

Figure 1 is a diagrammatic perspective view of a knit fabric constructed in accordance with the present invention.

Figure 2 is an enlarged cross-sectional view of a knit fabric showing the nubs all on one side of the fabric.

Referring to the drawing, reference numeral 11 designates, generally, the knit fabric, and reference numeral 13 designates the yarn nubs on the fabric. It will be noted that the nubs are all positioned solely on one side of the fabric.

By the terms "finely knit goods" and "knit fabric having a high stitch count" is meant knit goods of 24 gauge and higher. As above set forth, the particularly nubby yarn which has been found to be suitable for the knitting of finely knit goods in accordance with the present invention is the yarn disclosed in my copending application above referred to. Such yarn is produced by severing a small fraction of the filaments from a multi-filament base yarn and brushing the filaments along the remaining unsevered filaments of the base yarn so as to form a yarn having filamentous nubs at intervals along its length

In the present specification and claims such yarn shall be specifically referred to as "abraded and brushed filament nubby yarn."

For best results in the production of finely knit goods from such nubby yarn the average diameter of the nubs should be between 2 and 7 times the diameter of the base yarn. In measuring the diameter of the nubs, the measurement should be taken across the portion of the nub which is substantially opaque. The measurement should not include the individual filaments which occasionally project from the opaque portion of the nub.

The following examples set forth in detail specific knit fabrics and methods for producing the same in accordance with the present invention. These examples are, of course, not to be taken as limitative of the invention.

Example I

A 150 denier, 90 filament, abraded and brushed filament nubby viscose yarn was knitted on a 28 gauge single end Wildman tubing machine. The diameter of the nubs of the nubby yarn was 3.5 times the diameter of the base yarn. The resulting knit fabric contained all of the nubs of the yarn on one side of the fabric only. No needle breaking or hole formation was encountered.

Example II

Four regular 100 denier, 40 filament, cellulose acetate yarns, and four 100 denier, 40 filament abraded and brushed filament nubby viscose yarns were knitted on a 28 gauge, 8 end Wildman tubing machine. The diameter of the nubs of the yarn was three times the diameter of the base

yarn. The yarn nubs were all positioned solely on one side of the resulting knit fabric. The fabric was readily knitted without the breaking of needles, or without the formation of holes in the fabric.

By the use of an 8-end knitting machine a wide variation of effects may be obtained in the resulting fabric. The effects which may be obtained from an 8-end knitting machine may be considerably enhanced by the use of nubby yarn in accordance with the present invention.

Example III

A 250 denier, 112 filament, high tenacity abraded and brushed filament nubby viscose yarn was knit on a Banner type stocking knitting machine, using a latch needle. The diameter of the nubs of the yarn used was 4.5 times the diameter of the base yarn. A knit fabric having all of the nubs on one side thereof was obtained by this knitting operation. The knitting of the fabric proceeded smoothly without breaking of needles or formation of holes in the fabric.

Finely knit fabrics (24 gauge and up) of all kinds may be produced in accordance with the present invention. The knit fabric may be circular knit or flat knit, it may be a Jersey knit fabric or a ribbed knit fabric. Special knit goods such as tricot fabrics and the like may also be produced with this invention. The nubby yarn for use in accordance with the present invention may be produced from continuous filament yarn of all types, for example, yarns made from viscose, cuprammonium cellulose, cellulose esters, for example cellulose acetate, cellulose propionate, cellulose butyrate; mixed esters, for example, cellulose aceto-propionate or cellulose aceto-butyrate; cellulose ethers, for example, methyl cellulose, ethyl cellulose, benzyl cellulose or glycol cellulose; cellulose ether-esters; or continuous filament yarn produced from casein or other proteins or from synthetic polymers or resins, for example, polyvinyl acetals, ethyl methacrylate, styrene, polyvinyl formal; thermoplastic filaments such as vinyl acetate, vinyl chloride, or polymers of vinyl acetate and vinyl chloride, polythene; synthetic linear polymers such as Nylon, and the like, and natural silk. The yarn used may be of any size which is suitable for knitting; for instance, viscose rayon yarn of the following sizes and filament count: 70 denier—40 filament; 100 denier—100 filament; 100 denier—60 filament; 150 denier—60 filament; and 250 denier—150 filament, lend themselves admirably to the process of this invention. It is also within the scope of this invention to use nubby yarns of even or uneven denier, which are composed of a mixture of various types of yarn; for example, yarns produced from regenerated cellulose, cellulose acetate, Nylon, etc. A mixture of nubby yarn with standard continuous filament yarn may also be used.

The novelty knit fabric of this invention presents a pleasing appearance, especially in contrast to a conventional knit fabric. The nubby surface of the fabric gives a depth and warmth to the fabric very similar to that obtained by the use of wool. The pleasing, refined appearance and a desired sheerness which has heretofore been impossible in knitted fabrics, is obtained without sacrificing the novelty effect.

The novelty knitted fabric is applicable for varied uses and it should provide an increased demand for knitted fabrics. The use of this fabric in dress goods, sweaters, bed spreads, sportswear, etc., is illustrative of the many applications for this novelty fabric.

Another advantage to the use of a knitted fabric having the novelty characteristics according to this invention is that the nubs of the yarn are securely held in place in the fabric so that there is no fraying or shedding.

Since it is obvious that many changes and modifications can be made in the details above described, it is to be understood that the invention is not to be limited to those details except as set forth in the appended claims.

I claim:

1. A knit fabric having a gauge of at least 24, constructed of abraded and brushed filament nubby yarn, the nubs on said yarn positioned solely on one side of the knit fabric.

2. A knit fabric having a gauge of at least 24, constructed of abraded and brushed filament nubby yarn in which the diameter of the nubs is between two and six times the diameter of the base yarn, the nubs on said yarn positioned solely on one side of the knit fabric.

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