July 28, 1964 H. L. MERRITT 3,142,164

KNIT ORNAMENTED FABRIC

Filed Aug. 8, 1960

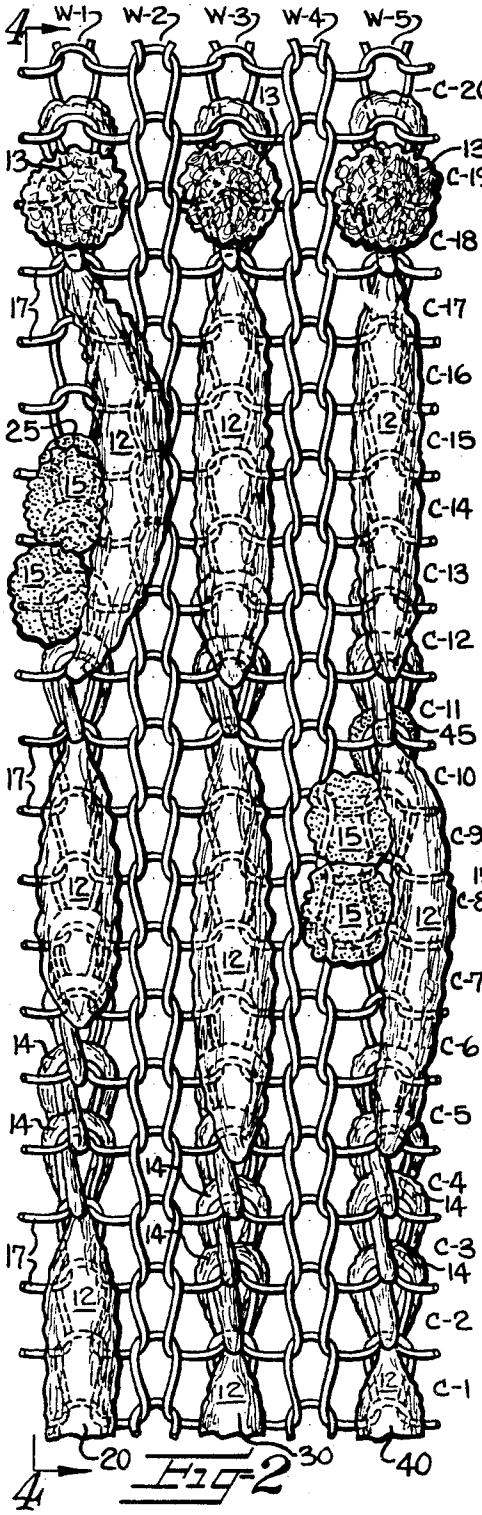


Fig-2

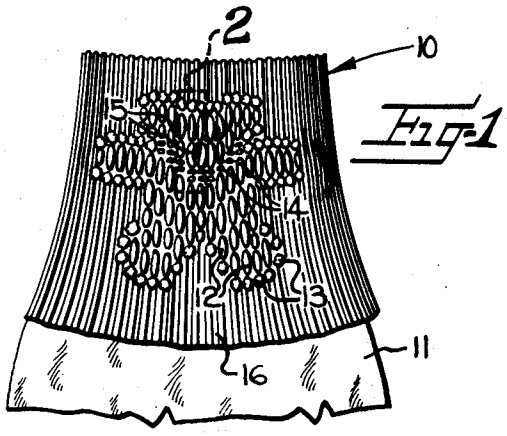


Fig-1

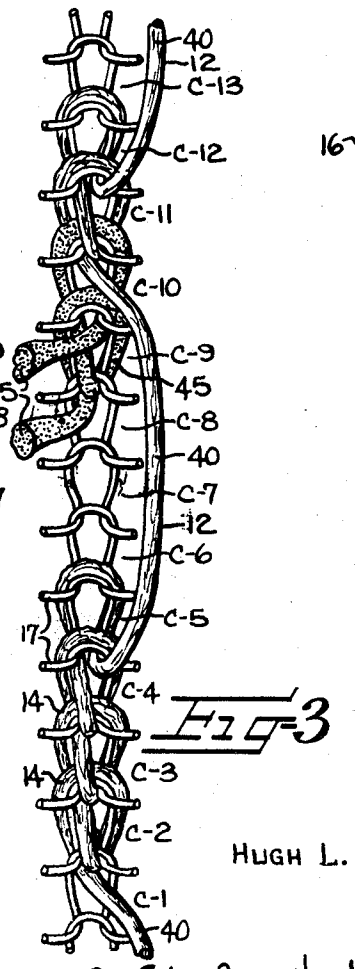


Fig-3

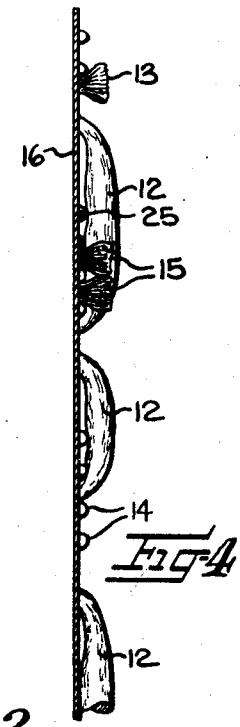


Fig-4

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United States Patent Office 3,142,164 Patented July 28, 1964

3,142,164

KNIT ORNAMENTED FABRIC

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Filed Aug. 8, 1960, Ser. No. 48,074
3 Claims. (Cl. 66—201)

This invention relates generally to a circular knit ornamented fabric more particularly to a knit fabric and in which the ornamentation is formed by floats and tufts of a wrap yarn which extend or project from the base fabric.

Generally, it is well known to utilize wrap yarns to ornament knit fabrics. In the most popular known method, the wrap yarn is knit in plated relationship with the body yarn of the base fabric in selected courses and floated inside of the other courses without interknitting. In this method, the plated wrap yarns form the ornamental design on the outside face of the fabric and the floated portions of the wrap yarns are hidden on the inside face of the fabric. An ornamental wrap yarn knit fabric of this general type is shown in the United States Patent No. 1,772,400, issued to Walter Larkin.

In the United States Patent No. 2,244,153, issued to Arthur O. Hanisch, another method of forming an ornamental knit fabric is disclosed. In this Hanisch patent, the floated portions of the wrap yarn are utilized to form the design, however, the floats of the wrap yarn are severed to form a design comprised solely of cut pile threads extending or projecting outwardly from the base fabric.

In the type of wrap yarn design disclosed in the Larkin patent, the range of pattern possibilities is limited to the number of different colors of wrap yarns which may be used and in the type of wrap yarn design disclosed in the Hanisch patent, the range of pattern possibilities is limited to those designs which may be produced solely by cut pile. Also, in both of the above-noted patents, only a single wrap yarn is used in any given wale of the fabric and this limits the pattern or design possibilities.

With the foregoing in mind, it is a primary object of the present invention to provide a novel ornamented knit fabric in which the main body of the design is formed of a plurality of parallel wrap yarn floats which extend in a walewise direction and the upper and lower outline of the design is formed of outwardly extending tufts which are formed by cutting the wrap yarns closely adjacent the base fabric.

It is another object of the present invention to provide an ornamented fabric of the type above described in which the design is produced by alternately knitting, floating and forming tufts of a single wrap yarn in certain wales of the design area while additionally knitting and forming tufts of a second wrap yarn in some of the wales in which the first wrap yarn is used.

It is another object of the present invention to provide an ornamental fabric of the type above described in which the wrap yarns are interknit with the body yarn for a group of courses to form an area of wrap stitches between certain of the walewise floats, the area of wrap stitches being visible on the ornamental face of the fabric.

It is another object of the present invention to provide an ornamental fabric of the type above described in

which the wrap yarn is a multifilament synthetic yarn which has been texturized to provide bulkiness whereby the wrap yarn floats and tufts of the design have a soft and fluffy appearance.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which—

FIGURE 1 is a side elevation of the upper portion of a sock with the top turned down upon itself and illustrating a teddybear design which is typical of the many designs which may be formed by utilizing the wrap yarn in the manner disclosed in the present application;

FIGURE 2 is a greatly enlarged elevation of the central portion of the design shown in FIGURE 1, encompassing the area indicated by the dash-dot rectangle indicated at **2**;

FIGURE 3 is a diagrammatic view of the lower portion of the first wale in the right-hand portion of FIGURE 2 and illustrating the manner in which two different wrap yarns are incorporated in the same wale;

FIGURE 4 is a somewhat schematic view at a reduced scale and looking at the left-hand edge of FIGURE 2 to illustrate the manner in which the wrap yarn floats and tufts extend outwardly from the base fabric.

Referring to FIGURE 1, the knit ornamented sock top or cuff is indicated broadly at **10** and the inside lower edge of this top, not shown, is attached to the upper edge portion of the leg **11** of the sock and then turned down upon itself to expose the ornamental design formed by the floats and tufts of wrap yarns. The top **10** is usually knit on a rib knitting machine having cylinder and dial needles and means for feeding a wrap yarn to selected cylinder needles. The rib-knit top is then transferred to the needles of a plain knitting machine to knit plain stitches in forming the leg **11** and foot, not shown, of the sock. However, it is to be understood that the complete sock may be knit on a single machine having dial and cylinder needles and means for feeding a wrap yarn to selected needles.

Since the top **10** is turned down, the portions of the fabric shown in FIGURES 1 and 2 would normally be positioned inside of the tubular fabric as it is knit on the rib machine and it is this normally inwardly facing surface of the fabric on which the ornamental design of the present invention is formed. The design shown in FIGURE 1 forms the outline of a teddybear and includes a plurality of walewise floats **12**, a plurality of tufts **13** which define the outline of the design, plated stitches **14** and pattern tufts **15** formed in medial portions of the design.

The enlarged view of the fabric shown in FIGURE 2 includes enough of the pattern area of the teddybear design shown in FIGURE 1 to illustrate the manner in which the wrap yarn is interknit with the base fabric to produce the floats, tufts and plated stitches in the design. Of course, designs other than that shown may be formed by the selective use of the wrap yarn to change the arrangement of floats, tufts and plated stitches.

Normally the cuff **10** is knit from the lower selvage edge upwardly (FIGURE 1) and therefore, the enlarged view of the fabric shown in FIGURE 2 is knit from the bottom to the top in the successive formation of the courses indicated at C–**1** through C–**20**. Alternate wales

of the fabric W–1, W–3 and W–5 around the periphery of the tubular fabric are knit on cylinder needles while interverning wales W–2 and W–4 are knit on the dial needles. The base fabric, indicated at **16**, is formed of any suitable textured or untextured body yarn **17** to form plain stitch loops in each course and each wale. It will be noted that the stitch loops in wales W–1, W–3 and W–5 face rearwardly while the stitch loops in wales W–2 and W–4 face forwardly in FIGURE 2 to form a rib-knit base fabric in the conventional manner.

Generally, to knit the ornamental design, wrap yarns are introduced to certain of the cylinder needles in such a manner that the wrap yarn is wrapped about the selected needles and subsequently knit in plated relationship with the body yarn for a predetermined number of courses, usually two courses. The wrap yarn is then withdrawn from active or feeding position to form a walewise extending float inside of the tubular fabric and then the wrap yarn is again introduced to and wrapped about cylinder needles to again form plated stitches with the body yarn **17**.

In order to produce the desired result, it is preferred that the wrap yarn be formed of one of the sythetic textured yarns, such as Helanca which is desirable because of its high bulk and its soft fluffy appearance. The use of a textured wrap yarn causes the floats and tufts formed by the wrap yarn to appear fleecy or fluffy and make the design stand out in contrast to the rather smooth finish of the base fabric.

Knitting of the cuff **10** progresses from the lower selvages upwardly and the design is formed by alternately introducing the wrap yarns to certain of the cylinder needles in different courses and then removing the wrap yarns from action to form the tufts **13** at the beginning of each wale in the design area and to also form the floats **12** of the design area, as shown in FIGURE 1.

Referring to FIGURE 2, during the knitting of course C–1, the body yarn **17** is fed to all the neeedles while the wrap yarns, indicated at **20** in wale W–1, **30** in wale W–3 and **40** in wale W–5 are in non-feeding position and float in a walewise direction. Prior to the formation of courses C–2, C–3, C–4 and C–5, the wrap yarns **30** and **40** are wrapped about the cylinder needles in the corresponding wales W–3 and W–5 so that they are subsequently knit in plated relation with the body yarn **17** during the formation of the courses C–2, C–3, C–4 and C–5. The wrap yarn **20** remains in floating position during the formation of the courses C–2 and C–3 and is knit in plated relation with the body yard **17** during the formation of courses C–4, C–5, C–6 and C–7. The wrap yarns alternate between inoperative or non-feeding position and operative or feeding position in the manner indicated in wales W–1, W–3 and W–5 until they are each removed from feeding position following the knitting of course C–19.

Prior to the knitting of courses C–9 and C–10, while the wrap yarn **40** is being floated, another wrap yarn **45**, preferably of a different color than the wrap yarn **40**, is fed to the cylinder needle in wale W–5 to form stitches with both the body yarn **17** and the wrap yarn **45** in courses C–9 and C–10 (FIGURE 3) with the ends of the wrap yarn **45** extending outwardly from the base fabric **16**. When the ends of the wrap yarn **45** are clipped closely adjacent the base fabric, the ends of the wrap yarn **45** form tufts **15** which appear to be in the same wale W–5 as the float of the wrap yarn **40** (FIGURES 2 and 3).

In wale W–5, the wrap yarn **40** is knit in plated relationship with the body yarn **17** in courses C–2 through C–5, courses C–11 and C–12, and courses C–18 and C–19 while it is floated across the courses C–6 through C–10 and courses C–13 through C-17. The wrap yarn **40** is removed from knitting action following the knitting of course C-19 and subsequently cut closely adjacent

the base fabric to form the tuft **13** at the top of the wale W–5 in FIGURE 2.

In wale W-3, the wrap yarn **30** is knit in plated relationship with the body yarn **17** in courses C–2 through C–5, courses C–11 and C–12, and courses C–18 and C–19 while it is floated across courses C–6 through C–10 and courses C–13 through C-17. The wrap yarn **30** is removed from knitting action following the knitting of course C–19 and subsequently cut closely adjacent the base fabric to form the tuft **13** at the upper end of the wale W–3.

In wale W–1, the wrap yarn **20** is knit in plated relationship with the body yarn in courses C–4 through C–7, courses C–11 and C–12, and C–18 and C–19 while it is floated across the courses C–1 through C–3, courses C–8 through C–10 and courses C–13 through C–17. The wrap yarn **20** is then removed from action following the knitting of the courses C–19 and subsequently cut closely adjacent the base fabric to form the tuft **13** at the upper end of the wale W–1. While the wrap yarn **20** is floating across the courses C–13 through C-17, another wrap yarn **25**, preferably of a different color than the wrap yarn **20**, is knit in plated relationship with the body yarn **17** in courses C–13 and C–14. The ends of the wrap yarn **25** are subsequently cut closely adjacent the base fabric to form tufts **15** which appear in the same wale W–1 as the float of the wrap yarn **20**.

It will be noted that the tufts **15** in wale W–1 form one eye of the teddybear design shown in FIGURE 1 while the tufts **15** in wale W–5 form the nose of the teddybear design. Also, the plated stitches **14** in courses C–4 and C–5 of wale W–1 and courses C–2 and C–3 of wales W–3 and W–5 form the outline of the chin of the teddybear design.

FIGURE 3 illustrates the stitch structure of courses C–1 through C–13 of wale W–5 with the wrap yarns **40** and **45** being shown as conventional non-texturized yarns in order to clearly illustrate their relationship with the body yarn **17**. Also, floated portion of the wrap yarn **40** is moved to one side to help clearly illustrate the stitch formation therebeneath. In FIGURE 4, the base fabric **16** is schematically illustrated by the cross-sectioned area and this view shows the manner in which the floats **12** and tufts **13** and **15** extend outwardly from the base fabric.

In the fabric illustrated, the wrap yarn is utilized in certain wales to form floats, plated stitches and tufts with only a single wrap yarn being utilized in these certain wales while in other wales, a pair of wrap yarns are utilized. In the wales in which two wrap yarns appear, one of the wrap yarns is floated while the other wrap yarn is incorporated in the fabric. By providing floats, plated stitches and tufts of a bulky textured wrap yarn, various ornamental designs may be produced and the designs may be easily changed by merely changing the manner the wrap yarn is fed to the needles of the knitting machine to thereby change the arrangement of floats and tufts.

In the drawings and specification there has been set forth a preferred embodiment of the invention and, although specific terms are employed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being defined in the claims.

I claim:

1. A knit ornamental fabric comprising a base fabric including wales and courses knit of a body yarn and a design area formed on one face thereof, said design composed entirely of wrap yarns, said wrap yarns extending walewise of the base fabric and being interknit with said body yarn at predetermined spaced apart courses separated from each other by a plurality of courses to form walewise extending floats overlying the walewise stitches in the courses between said predetermined courses, the yarn forming the floats having a diameter at least as great

as the width of the walewise stitches positioned therebeneath to thereby hide the stitches from view, and tufts defining the outer extremities of said wrap yarns and design area formed thereby.

2. In a knit fabric according to claim 1 wherein the diameter of the yarn forming the floats is greater than the width of the walewise stitches positioned therebeneath.

3. In a knit fabric according to claim 1 wherein the wrap yarn is a texturized synthetic thermoplastic yarn.

References Cited in the file of this patent

UNITED STATES PATENTS

1,907,185	Levin	May 2, 1933
1,936,024	Levin	Nov. 21, 1933
2,244,153	Hanisch	June 3, 1941
2,515,720	Levin	July 18, 1950
2,573,118	Thurston	Oct. 30, 1951
2,693,687	Levin	Nov. 9, 1954
3,013,379	Breen	Dec. 19, 1961