

April 11, 1939.

H. FLEISHER

2,154,155

KNITTED NAPPED PILE FABRIC

Filed Aug. 27, 1938

2 Sheets-Sheet 1

Fig. 1.

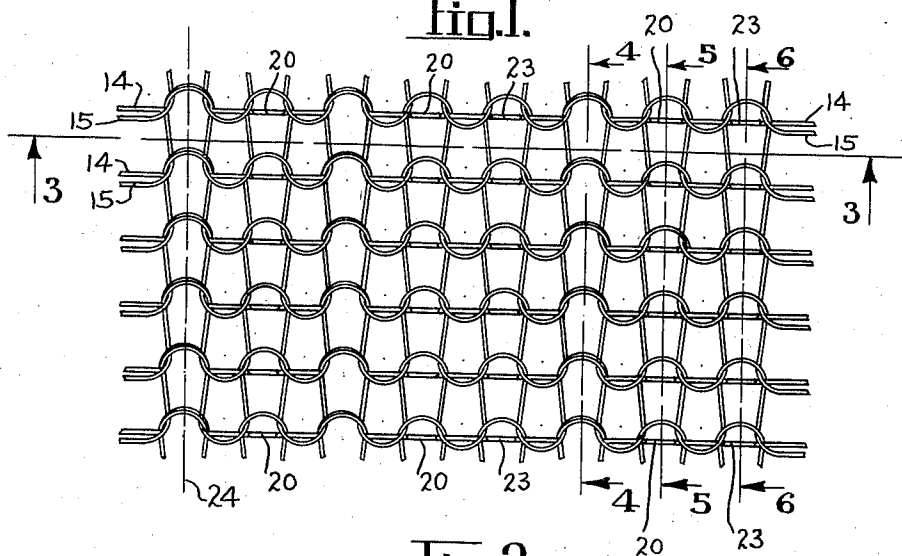


Fig. 2.

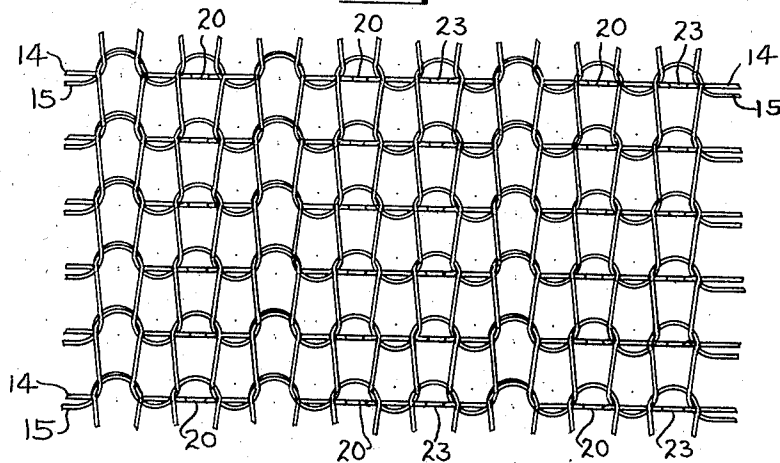
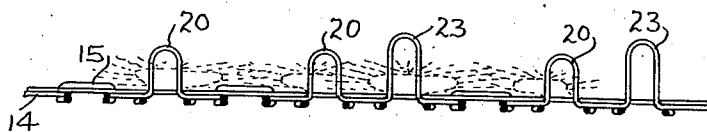


Fig. 3.



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Fig. 4.

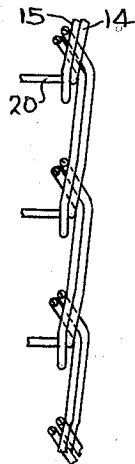


Fig. 5.

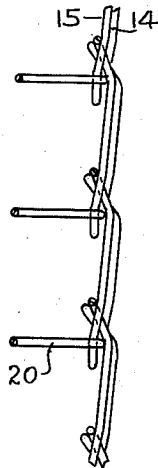


Fig. 6.

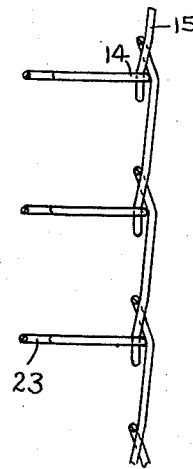


Fig. 7.

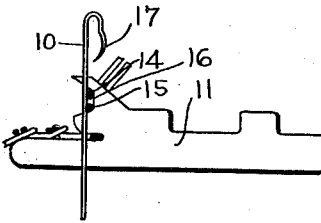


Fig. 8.

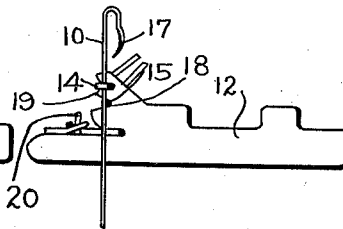


Fig. 9.

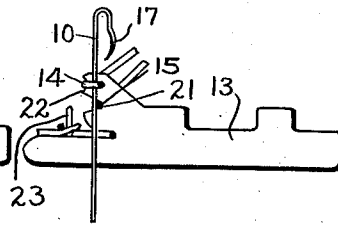


Fig. 11.

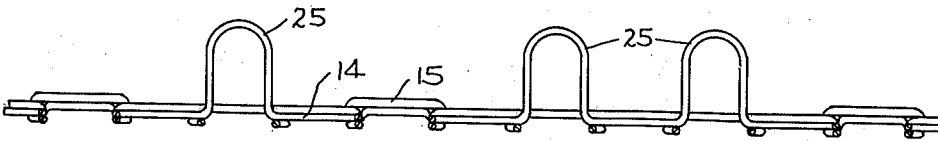


Fig. 10.

COURSE	YARN	WALES							
		1	2	3	4	5	6	7	8
1	14	S	20	S	20	23	S	20	23
1	15	S	S	S	S	S	S	S	S
2	14	S	20	S	20	23	S	20	23
2	15	S	S	S	S	S	S	S	S
SINKER		11	12	11	12	13	11	12	13

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UNITED STATES PATENT OFFICE

2,154,155

KNITTED NAPPED PILE FABRIC

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Application August 27, 1938, Serial No. 227,165

8 Claims. (Cl. 66—194)

This invention relates to knitted fabrics, and more particularly to a knitted pile fabric wherein the yarns constituting the same are so arranged that the fabric may be readily napped to give it a woolly shadow-striped appearance.

One object of the invention is to provide a fabric of the above nature wherein rows of pile loops of different lengths are formed.

Another object is to provide a knitted fabric of the above nature having a novel sequence of pile loops and plain stitches.

A further object is to provide an improved knitted pile fabric of the above nature which will be substantially simple and easy to manufacture, flexible and elastic, non-crushable, very durable in use, and of particularly pleasing appearance.

With these and other objects in view, there have been illustrated in the accompanying drawings two forms in which the invention may be conveniently embodied in practice.

In the drawings:

Fig. 1 is a greatly enlarged open view of the front surface of a fabric embodying the principles and features of this invention and in which rows of both short and long pile loops are provided.

Fig. 2 is a similar view of the reverse surface of the fabric shown in Fig. 1.

Fig. 3 is a sectional view, taken on the line 3—3 of Fig. 1, and showing the complete sequence of stitches of one course.

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1 through the plain stitches of one wale.

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 1 through the stitches of another wale having short pile loops.

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 1 through the stitches of the third wale having long pile loops.

Fig. 7 is a side view of a special sinker used for making plain stitches in the fabric.

Fig. 8 is a side view of another special sinker used for making short pile loops in the fabric.

Fig. 9 is a side view of a third special form of sinker used for making long pile loops in the fabric.

Fig. 10 is a chart showing the relative arrangement of the courses, yarns, wales, and sinkers.

Fig. 11 is a sectional view, similar to Fig. 3, of a modified form of fabric having shadow stripes formed of short pile loops only.

In the present invention, two yarns are fed into a circular knitting machine at each feeding station to produce each course, and it will be understood that at least one of these yarns is knitted at each wale. The sequence of stitches and pile

loops repeats every eight wales, and is the same for every course.

Referring now to the drawings, wherein like reference numerals denote corresponding parts throughout the several views, the numeral 10 designates a common form of spring-bearded needle (see Figs. 7, 8 and 9) which is caused to rise and fall under the control of a suitable cam (not shown). Provision is made of three different forms of sinkers 11, 12 and 13, which are adapted to control the position of a pair of yarns 14 and 15 fed to each course with respect to the adjacent needles 10, and said sinkers are adapted to be actuated by a cylindrical cam (not shown).

The three sinkers 11, 12 and 13 may be designated as "no loop", "short loop" and "long loop", respectively. The "no loop" sinker 11 is provided with a wide notch 16 which is adapted to receive both yarns 14 and 15 and position them in front of the needle 10 so that on the downward stroke of the needle the spring beard 17 will cast off a plain knitting stitch in the manner illustrated in Fig. 4.

The "short loop" sinker 12 is provided with a lower yarn seat or notch 18 adapted to receive the yarn 15, and an upper notch 19 to receive the other yarn 14 so that the latter will be knitted into the fabric in the form of a short pile loop 20, as illustrated in Figs. 3, 5 and 8, and the yarn 15 will be plain stitched into the fabric.

The "long loop" sinker 13, shown in Fig. 9, is provided with a lower yarn seat or notch 21 adapted to receive the yarn 15 to produce a plain stitch in the fabric. The sinker 13 is also provided with an upper notch 22 to receive the yarn 14, which is knitted into the fabric as a long pile loop 23, as indicated in Figs. 6 and 9. The spacing between the yarn seats 21 and 22 of the long loop sinker 13 is preferably made about twice as much as the spacing between the yarn seats 18 and 19 of the short loop sinker 12, the difference being clearly illustrated in Figs. 3, 5, 6, 8 and 9. The wide notches 16 of the sinkers 11 and the lower notches 18 and 21 of the sinkers 12 and 13, respectively, are formed to be in alignment about the machine, and are adapted to dispose all of the yarns 15 in the same position in respect to the needles 10.

Referring to the chart shown in Fig. 10, the arrangement of the sinkers 11, 12 and 13 is such that in all courses at the first wale, both yarns 14 and 15 are plain knitted (S) into the fabric, due to the use of the "no loop" sinker 11. At the second wale, the yarn 15 is plain knitted into the fabric and the yarn 14 is formed into a short pile

loop 20, due to the use of the "short loop" sinker 12. At the third wale, the yarns 14 and 15 are acted upon as at the first wale, both being plain knitted. At the fourth wale the yarns 14 and 15 are acted upon as at the second wale. At the fifth wale the yarn 15 is plain knitted into the fabric and the yarn 14 is formed into a long pile loop 23, due to the use of the "long loop" sinker 13. At the sixth, seventh and eighth wales, the yarns 14 and 15 are acted upon as at the third, fourth and fifth wales, respectively. This sequence is then repeated after each eight wales and is the same in each course. Shadow stripes 24 are formed at the first, third and sixth wales after the fabric has been napped.

In the modified form of fabric illustrated in Fig. 11, the "long loop" sinkers 13 shown in Fig. 9 are omitted, being replaced by "short loop" sinkers 12 of the form shown in Fig. 8. This will produce a fabric having short pile loops 25 in the yarns 14 at the second, fourth, fifth, seventh and eighth wales, and plain stitches at the first, third and sixth wales. Due to the omission of the long pile loops, the modified form of fabric will be somewhat thinner or flatter than the first described form shown in Figs. 1 to 6.

In both forms of the invention herein illustrated the pile loops 20, 23 and 25 of the yarn 14 are firmly interlocked and held in place in the fabric between the successive plain knitted stitches of the yarn 15. After napping the pile loops 20, 23 and 25, the fabric will have a woolly appearance, as shown in dotted lines in Fig. 3, and will produce so-called "shadow stripes", spaced apart along its entire length, and as mentioned above, will be disposed at the first, third and sixth wales.

In view of the substitution of the short pile loops 25 in the modified form of fabric for the long pile loops 23 of the first described form, the shadow stripes 24 in the modified fabric will be more distinct and more pronounced than in the first form of fabric. By means of the present invention, a ridged appearance is obtained in the fabric without materially increasing its thickness and weight.

One important advantage obtained by the novel arrangement of the yarns in the present invention is that the knitted fabric may be made on a standard type of plain circular knitting machine using spring bearded needles without employing complicated mechanisms or special attachments, it merely being necessary to employ special forms of sinkers to produce the desired lengths of pile loops. One such machine is shown and described in the U. S. Patent No. 2,124,361 issued to Harry Fleisher July 19, 1938.

While there have been disclosed in this specification two forms in which the invention may be embodied, it is to be understood that these forms are shown for the purpose of illustration only, and that the invention is not to be limited to the specific disclosures, but may be modified and embodied in various other forms without departing from its spirit. In short, the invention includes all the modifications and embodiments coming within the scope of the following claims.

Having thus fully described the invention,

what is claimed as new and for which it is desired to secure Letters Patent, is:

1. A knitted pile fabric consisting of a plurality of identical courses of two yarns, each having a repeating series of eight wales including pile loops in one yarn at the second, fourth, fifth, seventh and eighth wales and plain stitches in both yarns at the first, third and sixth wales.

2. A knitted pile fabric consisting of a plurality of identical courses of two yarns, each course having a series of wales repeating every eighth wale, one of said yarns being plain knitted at every wale, and the other yarn including a plurality of plain stitches spaced apart by a single pile loop, and a plurality of plain stitches spaced apart by a pair of pile loops.

3. A knitted pile fabric consisting of a plurality of identical courses of two yarns, pile loops being formed in one yarn at the second, fourth, fifth, seventh and eighth wales, and plain stitches at the first and sixth wales, the pile loops at the fifth and eighth wales being longer than those at the second, fourth and seventh wales, the other yarn being plain knitted at every wale.

4. A knitted pile fabric consisting of a plurality of identical double yarn courses, each course having a repeating series of eight wales, including one yarn formed of a plurality of plain stitches in all wales and another yarn comprising a plurality of plain stitches spaced apart by a pair of pile loops, one of the pile loops of each pair being longer than the other loop of the pair.

5. A knitted pile fabric consisting of a plurality of identical double yarn courses, each course having two yarns fed thereto, one yarn being plain stitched at every wale and the other yarn being plain stitched at the first, third and sixth wale and forming a pile loop at the second, fourth, fifth, seventh and eighth wales, this sequence repeating every eight wales.

6. A knitted pile fabric consisting of a plurality of identical double yarn courses, each course having two yarns fed thereto, one yarn being plain stitched at every wale, and the other yarn being plain stitched at a plurality of wales spaced apart by a pile loop, and plain stitched at another plurality of wales spaced apart by a pair of pile loops, this sequence repeating every eight wales.

7. A knitted pile fabric consisting of a plurality of identical courses, each having two yarns fed thereto, one yarn of each course being plain stitched at every wale, and the other yarn being plain stitched at the first, third and sixth wales, and forming pile loops at the second, fourth, fifth, seventh and eighth wale, the pile loops at the fifth and eighth wales being longer than the others, this sequence repeating every eight wales.

8. A knitted pile fabric consisting of a plurality of identical double yarn courses, one yarn of each course including a plurality of plain stitches spaced apart by a pile loop, and a plurality of other plain stitches spaced apart by a pair of pile loops, said pile loops being napped to loosen the fibres thereof and lay them over the adjacent plain stitches to form a shadow stripe, this sequence repeating every eight wales.

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