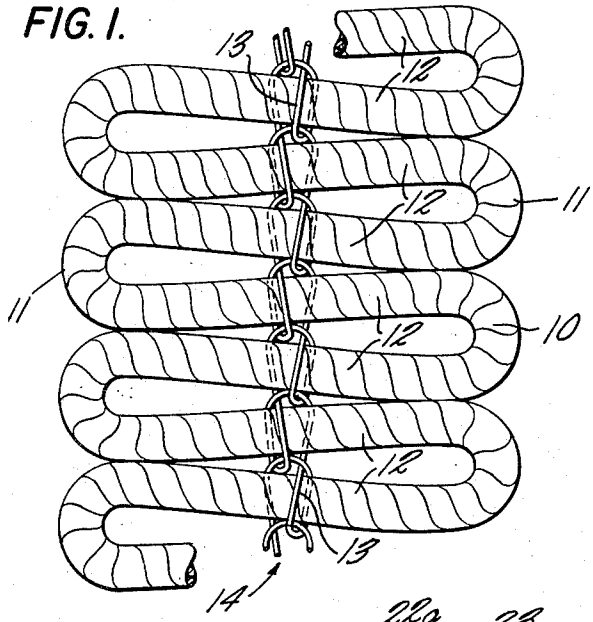
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CHENILLE FABRICS AND METHOD OF PRODUCING SAME

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FIG. 1.



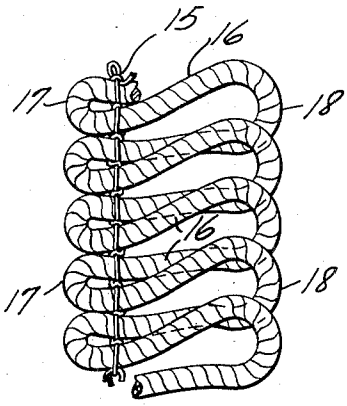


FIG. 2.

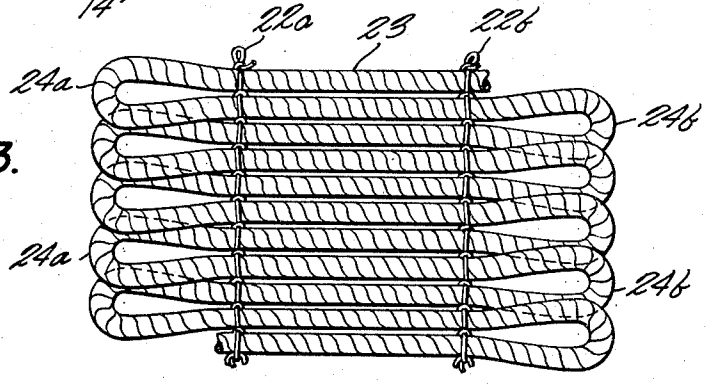


FIG. 3.

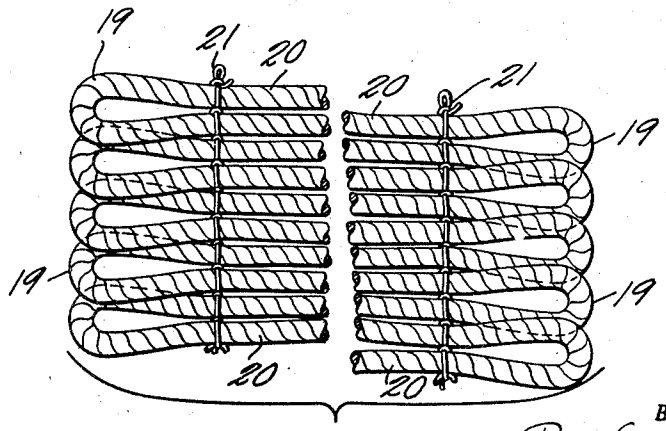


FIG. 4.

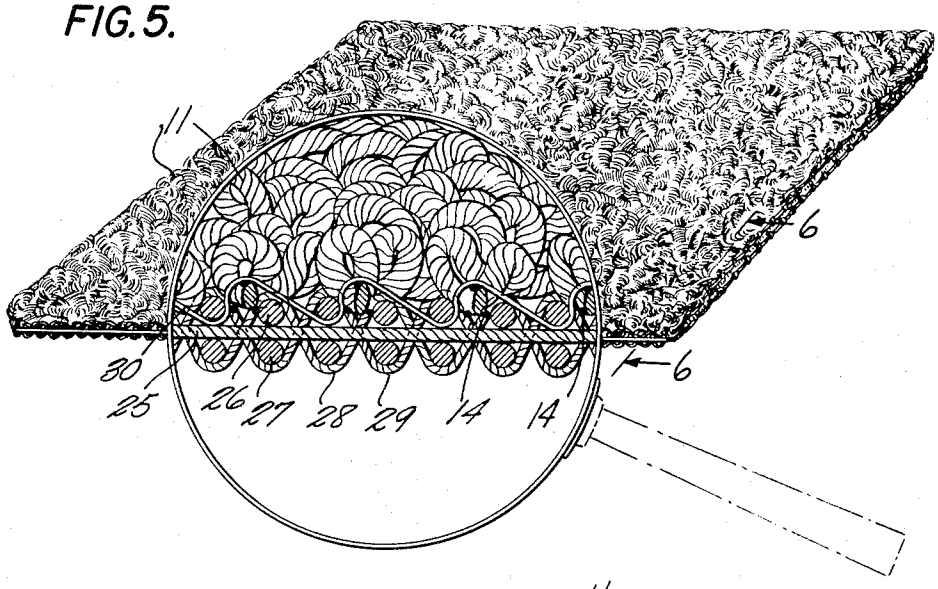
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CHENILLE FABRICS AND METHOD OF PRODUCING SAME

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FIG. 5.



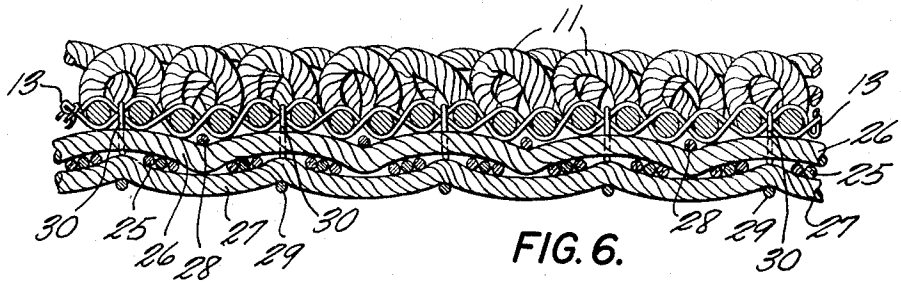


FIG. 6.

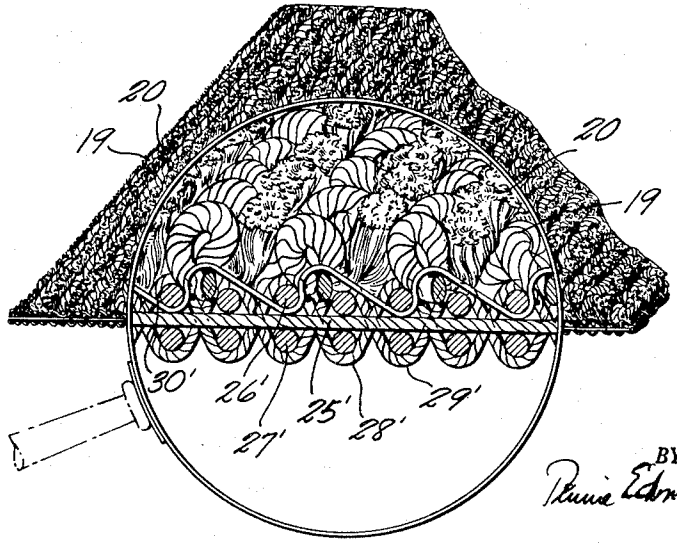


FIG. 7.

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CHENILLE FABRICS AND METHOD OF PRODUCING SAME

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Application November 30, 1954, Serial No. 472,133

10 Claims. (Cl. 139—394)

This invention relates to pile fabrics suitable especially for floor covering purposes and is concerned more particularly with a novel pile fabric of chenille construction and to a method of producing such fabric. The new fabric differs from prior chenille fabrics, in that its pile is rough and irregular and the elements of the pile include loops and may include both loops and tufts. The unusual surface effects in the pile of the new fabric are obtained by forming the pile of chenille fur of a new type, which is produced by a knitting operation and can be made more rapidly and at less expense than the chenille fur heretofore used in pile fabric floor coverings.

For a better understanding of the invention, reference may be made to the accompanying drawings, in which

Fig. 1 is a plan view on an enlarged scale of one form of the chenille fur of the invention;

Fig. 2 is a view similar to Fig. 1 but on a less enlarged scale of a modified form of the fur;

Fig. 3 is a plan view of a knitted material, which is an intermediate product in the manufacture of another modified form of the fur;

Fig. 4 is a plan view of two lengths of fur produced from the product of Fig. 3;

Fig. 5 is a view in perspective with one section enlarged of a chenille fabric, in which the fur of Fig. 1 is employed;

Fig. 6 is a transverse sectional view on the line 6—6 of Fig. 5; and

Fig. 7 is a view similar to Fig. 5 but showing a fabric, in which the fur of Fig. 4 is employed.

The form of the new chenille fur illustrated in Fig. 1 comprises a relatively heavy yarn **10** of the type commonly employed as the pile yarn in pile fabrics for floor covering purposes. The yarn is ordinarily plied of a number of singles components and the fibers employed are those customarily used and include wool, cotton, rayon, acetate, nylon, etc., employed alone or in blends. The heavy yarn has the form of a plurality of connected loops **11** with substantially parallel sides **12** and the loops open successively in opposite directions, so that adjacent loops have one side in common. The sides of adjacent loops are secured together by a succession of chain stitches **13** of a relatively light yarn **14**, which may be spun from cotton, and each chain stitch encircles a single strand of the heavy yarn. In the form of the fabric shown in Fig. 1, the row of chain stitches lies about midway between the curved ends of the loops and the fur may thus be considered to be made up of a row of chain stitches and loops of pile yarn of equal length extending to opposite sides of the row of stitches.

The modified form of the fur shown in Fig. 2 is the same as that shown in Fig. 1, except that the row of chain stitches **15** lies at one side of the midpoints of the sides **16** of the loops **17**, **18**. The row of chain stitches thus lies relatively close to the curved ends of loops **17** and remote from the curved ends of loops **18**. The fur, accordingly, includes short loops at one side of the row of chain stitches and long loops at the other.

The forms of the fur shown in Figs. 1 and 2 may be readily produced on a warp knitting machine, in which the guides for the pile yarn **10** are shogged back and forth to lay the yarn in the loops illustrated. The ordinary knitting machine suitable for the production of the chenille fur has a large number of needles, so that the machine can produce many strips of the fur simultaneously. As such machines operate to produce a large number of stitches per minute and the fur is finished and ready for use as it leaves the machine, the cost of production of the new fur is not greatly in excess of the materials used in making it.

When the new fur in the form shown in Figs. 1 and 2 is employed in a fabric to produce the pile, the elements of the pile are loops. In a fabric made by the use of the fur of Fig. 1, the pile loops are all of the same length, whereas, in a fabric in which the fur of Fig. 2 is employed, the pile loops include high loops produced by the loops **18** of the fur and low loops made by the loops **17** of the fur. If desired, the new fur can be made in a form, which provides both pile loops and pile tufts and such a fur is illustrated in Fig. 4. The fur shown in Fig. 4 comprises separate loops **19** of heavy pile yarn all opening in the same direction and having straight sides **20**, which lie parallel and are secured together by adjacent stitches in a row **21** of chain stitches of a relatively light yarn. The loops **19** provide pile loops lying at one side of the row of chain stitches and the portions of the sides **20** of the loops, which lie at the other side of the row of chain stitches, then provide tuft legs.

The chenille fur of Fig. 4 can be rapidly produced on a knitting machine by setting up the machine, so that it produces spaced rows *22a*, *22b* of chain stitches with a strand **23** of pile yarn extending alternately in opposite directions through successive aligned stitches in the two rows. The yarn thus forms loops *24a* at one side of row *22a* of stitches and loops *24b* at the opposite side of row *22b* of chain stitches. Upon completion of the product shown in Fig. 3, it is converted into two strips of chenille fur by severing the heavy yarns **23** about midway between the rows *22a*, *22b* of chain stitches.

The Fig. 4 form of the fur has loops **19** and tuft legs **20** of about equal length but, if desired, the fur can be formed in such manner that the loops are short and the tuft legs are of greatly increased length. For this purpose, the knitting machine producing the material shown in Fig. 3 is set up, so that the loops *24a*, *24b* lie close to the rows *22a*, *22b* of chain stitches. The length of the tuft legs of the fur is then determined by the spacing between the rows *22a*, *22b* of chain stitches and this spacing may be increased or decreased as desired.

In the use of the new chenille fur in the production of a pile fabric for floor covering purposes, the fabric may be woven with a backing of any of the conventional constructions. The fabric shown in Fig. 5 comprises stuffer warp yarns **25** lying substantially in a plane between filling yarns **26**, **27** in upper and lower levels, respectively. The filling yarns are held in place against the stuffer warp yarns by binder warp yarns **28**, **29** in two sets, which pass alternately over filling yarns in the upper and lower levels and bind these yarns against the stuffer warps.

The fabric shown in Fig. 5 is provided with a pile made by the use of the chenille fur shown in Fig. 1. Strips of the fur extend transversely of the backing and are held in place between a pair of adjacent filling yarns in the upper level by catcher warp yarns **30**. Each such catcher warp yarn passes beneath a filling yarn in the upper level, over a strip of the fur and the next upper filling yarn, and beneath the third upper filling yarn. The catcher warp

yarn is then raised out of the backing again to bind the next strip of fur in place. Each strip thus lies between filling yarns **1** and **2**, **3** and **4**, **5** and **6**, etc.

In the production of the fabric shown in Fig. 5, a strip of the fur is inserted, at the proper time in each weaving cycle, in a shed beneath the catcher warp and above the other warp yarns, but no attempt is made to cause the loops **11** of the fur to stand erect. Then, while the loops of the strip remain substantially in the position assumed upon insertion of the strip, the catcher warp yarns are lowered to bind the strip in place. The loops thus extend in random directions in the pile and the surface of the pile is rough and irregular. When the fabric is made with the fur shown in Fig. 2, the roughness and irregularities of the pile surface are more pronounced, since the pile is formed partly by low loops **17** and partly by high loops **18**.

The fabric shown in Fig. 7 has the same kind of backing as the Fig. 5 fabric and made up of stuffer warps **25'**, filling yarns **26'** and **27'** in upper and lower levels, respectively, and binder warp yarns **28'** and **29'** in two sets alternately binding the upper and lower filling yarns against the stuffer warps. The fabric has a pile formed of the fur shown in Fig. 4 and the strips of fur are held in place by catcher warp yarns **30'**, which are bound into the backing and bind the strips of fur in the same manner as the catcher warp yarns **30** in the fabric of Fig. 5. The Fig. 7 fabric has a pile, the elements of which are the loops **19** and tufts **20** and, in the weaving of the fabric, no attempt is made to make the loops and tufts stand erect, so that the loops and tufts extend in random directions and thus give the surface of the pile an irregular appearance.

The chenille fabric made by the use of the new chenille fur differs from chenille fabrics as made heretofore, in that the pile may consist of loops only, of both loops and tufts, or of tufts only, whereas conventional chenille fabrics have a pile made of tufts only. In the production of the fabric, the fur is laid in place at the usual intervals, but it is not combed to erect position with the loom stopped, as is customary in the weaving of prior chenille fabrics. Accordingly, the elements of the pile of the new fabric lack a regular arrangement and the pile has a rough texture and appearance, which is commercially desirable. The omission of the combing operation in the production of the new fabric greatly reduces its cost in that the idle time of the loom during the weaving operation is reduced to a minimum.

We claim:

1. Chenille fabric, which comprises a backing formed of stuffer warp yarns lying substantially in a plane, filling yarns lying in levels above and below the stuffer warp yarns, and binder warp yarns in two sets holding the filling yarns against the stuffer warp yarns, strips of chenille fur extending transversely of the stuffer warp yarns between adjacent filling yarns in the upper level, and catcher warp yarns extending under filling yarns on opposite sides of each chenille fur strip and over the strip to bind the strip in place, each fur strip being formed of loops of relatively heavy yarn extending to at least one side of a succession of chain stitches of relatively light yarn, each stitch encircling a single strand of the heavy yarn.

2. Chenille fabric as defined in claim 1, in which the loops of relatively heavy yarn extend in random directions from the chain stitches.

3. Chenille fabric as defined in claim 1, in which loops of the relatively heavy yarn extend to both sides of the succession of chain stitches.

4. Chenille fabric as defined in claim 1, in which the relatively heavy yarns extend to one side of the chain stitches in the form of loops and to the other side of the chain stitches in the form of parallel legs, the loops and legs forming a pile.

5. Chenille fabric which comprises warp and filling yarns interlaced to form a backing having filling yarns in an upper level, strips of chenille fur extending transversely of the warp yarns, and catcher warp yarns extending over each chenille fur strip and under filling yarns on opposite sides of the strip to bind the strip in place, each strip being formed of a series of chain stitches and relatively heavy yarn passing through and bound by stitches of the series and forming loops at at least one side of the series, the heavy yarn loops forming the pile of the fabric and extending in random directions and being bound by the catcher warp yarns at different points to give the pile an uneven surface.

6. Chenille fabric as defined in claim 5, in which the heavy yarns in at least some of the chenille fur strips form loops extending from opposite sides of a series of chain stitches.

7. Chenille fabric as defined in claim 6, in which the loops of heavy yarn projecting from opposite sides of a series of chain stitches are of equal length.

8. Chenille fabric as defined in claim 6, in which the loops of heavy yarn projecting from opposite sides of a series of chain stitches are of unequal length.

9. Chenile fabric as defined in claim 5, in which the heavy yarns in at least some of the chenille fur strips form loops at one side of a series of chain stitches and parallel tuft-forming legs at the other side of the series.

10. A method of weaving a chenille fabric, which comprises providing a chenille fur strip formed of a series of chain stitches and relatively heavy yarn passing through and bound by stitches of the series and forming loops at at least one side of the series, interlacing binder, stuffer, and catcher warp yarns with filling yarns in cycles of operation to form a backing having the filling yarns in upper and lower series lying above and below the stuffer warps, respectively, and bound in place by the binder warp yarns with the catcher warps bound beneath filling yarns in the upper series, inserting a length of the chenille fur strip once per cycle in a shed beneath the catcher warp yarns and above the other warp yarns, and, while the loops of the strip remain substantially in the positions assumed upon insertion of the strip, lowering the catcher warp yarns to bind the strip in place, and carrying on the other operations in the cycle.

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