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PRODUCTION OF TUFTED FABRICS

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6 Claims. (Cl. 112-9)

This invention relates to the production of plush-like or Smyrna-like fabrics, particularly coverings such, for instance, as floor-coverings, cushion-covers, table-covers and the like.

According to the invention, yarn is wound on a former or bar in manner to form loops enchainé along one edge of said former, whereupon the chain is secured to a base or body fabric by machine stitching along said edge, and the former is then withdrawn from the loops which are cut to form a row of tufts. Close to said row of tufts there is then formed a second row and so on, whereby there is obtained a tufted or pile fabric the tufts of which are close together, giving the appearance of a knotted Smyrna fabric.

For the production of patterned fabrics winding may be commenced with yarn of one colour, there being formed as many loops as required for the production of tufts of this colour in the formation of the particular row. Winding is then continued with yarn of another colour, and so on. The selection of colours may be determined by the operator, or a chart of the pattern may be impressed on the base or body fabric.

The product obtained by the present invention presents close erect tufts, a maximum proportion of the yarn being incorporated in the pile.

The former employed is conveniently constituted by a flat bar of metal or other suitable material presenting straight parallel edges and of a width depending on the desired height of the tufts. At one end of the bar one edge thereof diverges from the other so as to present a knife adapted to cut the loops by the act of removing the bar from the row of loops.

One end of the bar may be formed as a handle, as by bending the bar.

In the accompanying drawing which illustrates the invention, Fig. 1 shows the winding of the yarn around a forming bar and the formation of the chain.

Fig. 2 shows a longer row of loops drawn to a smaller scale.

Fig. 3 represents a body fabric partly provided with tufts and the disposition on the bar of loops ready to be cut to form a double row of tufts.

Fig. 4 shows a patterned fabric in course of formation.

Fig. 5 shows to a larger scale the attachment of the tufts to a body fabric.

In practice, a woolen or other yarn, conveniently a loose twisted yarn such as is used for Smyrna knotted work, is wound around the bar *a*. In the interest of clearness the yarn is shown in the drawing as being smooth.

The winding of the yarn in loops around the bar may be effected manually.

As shown in Fig. 1, the yarn is led upwards over the front side of the bar *a*, down the back of the bar, and then from the back to the front across the beginning portion of the upward lead, in manner to form a half-hitch such as *d*, so that after pulling the yarn tight and pushing together the single series of loops thus formed, there will be presented a chain *e* of half-knots. In other words the yarn strand progresses spirally about the former but the end-portion of each convolution crosses the beginning portion thereof in the characteristic manner of a half-hitch.

The winding operation may be otherwise effected depending on the form of chain of knots or half-knots to be obtained.

After the desired number of loops have been formed on the bar as shown in Fig. 2, the bar is laid on edge on the body fabric *f*, the end provided with the cutting edge *c* being remote from the operator. The chain of half-knots is now stitched by means of a sewing machine to the body fabric. Conveniently the seam is started at the end of the bar remote from the handle *b* and continued toward the handle, whereupon, as required, a second or third tying seam may be formed, the chain being stitched to the body fabric by one or more lines of stitches as at *k*. On withdrawing the bar the row of loops is cut by the knife *c* so that there is formed a double row of tufts. If the length of the bar is insufficient for the area of the work, the bar is only partly withdrawn, and an additional supply of yarn is wound on the exposed part adjacent to the handle *b*. In this case the winding, stitching and cutting operations are effected in stages. A second row of double tufts is formed in similar manner, the re-wound bar being disposed in a plane inclined to the body fabric with its edge close to the first row so that the chain of half-knots is presented to the machine needle.

Fig. 4 shows the formation of a pattern *g*. The ends of the yarn of the pattern piece *g* are indicated at *i*. The ends of the ground yarns are indicated at *h*. The free ends of the yarns can be cut off either after completion of the stitching of each row of tufts, or may be cut to the length of a tuft.

Fig. 5 shows to a larger scale the fabric, the chain *e*, the stitching threads *k* and the tufts *m*.

It will be seen that by the invention there is produced a tufted fabric comprising a base presenting adjoining rows of tufts located wholly on one side of said base, each double row of tufts

comprising a series of U-shaped yarn sections, the return bend of each section being stitched to said base, and overlapping the return bend of an adjoining section on one side and overlapped by the return bend of the adjacent section on the other side.

What I claim is:—

1. In the production of tufted fabrics, looping a yarn strand around a flat former and enchain-
10 ing the loops of said strand progressively lengthwise and along one edge of said former, stitching the chain to a base along and outside of said edge, then withdrawing the former from the loops, and cutting the loops at a point remote
15 from said edge.

2. In the production of tufted fabrics, forming a series of half-hitches of yarn about a flat former enchain-
20 ed along one edge of said former, stitching the chain along said edge to a base fabric, then withdrawing the former from the half-hitches, and cutting the half-hitches at a point remote from said edge.

3. A tufted fabric comprising a base presenting adjoining rows of tufts located wholly on one
25 side of said base, each row of tufts comprising a series of U-shaped yarn sections, the return bend of each section overlapping the return bend of

an adjoining section on one side and overlapped by a return bend of the adjacent section on the other side, and a line of stitching securing the return bends of the yarn sections in overlapping relation with one another to said base.

4. In the production of tufted fabrics, looping a yarn strand about a flat former and enchain-
5 ing the loops of said strand in a single series progressively lengthwise of said former and along one edge of the former, stitching the chain to
10 a base along and outside of said edge, and then withdrawing the former from the loops.

5. In the production of tufted fabrics, forming a yarn strand into a succession of half-hitches
15 about a flat former enchain-
ed along one edge of said former, securing the chain to a base by stitching along said edge, and then withdrawing the former from the half-hitches.

6. In the production of tufted fabrics, winding a yarn strand spirally about a former with the
20 end-portion of each convolution crossing the beginning portion thereof along one edge of the former to form a chain of half-knots, securing the chain to a base by stitching along said edge, and then withdrawing the former.

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