March 15, 1966 J. R. MORRISON 3,240,176

METHOD FOR MAKING SIMULATED NEEDLEPOINT EMBROIDERY

Filed July 5, 1963 2 Sheets-Sheet 1

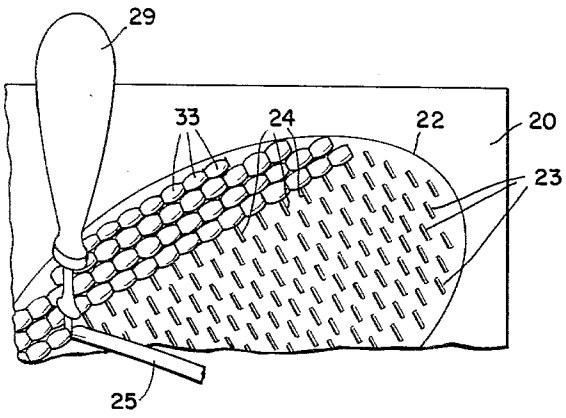

FIG. 1

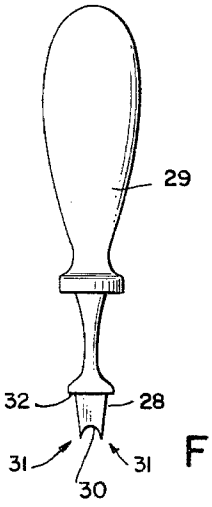

FIG. 5

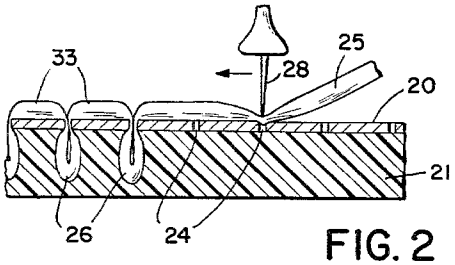

FIG. 2

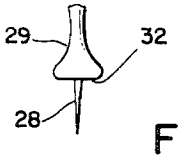

FIG. 6

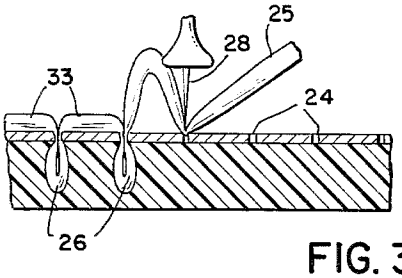

FIG. 3

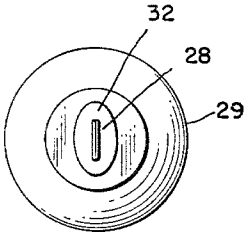

FIG. 7

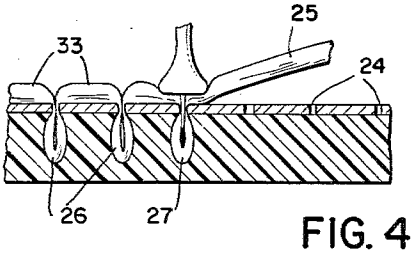

FIG. 4

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March 15, 1966 J. R. MORRISON 3,240,176

METHOD FOR MAKING SIMULATED NEEDLEPOINT EMBROIDERY

Filed July 5, 1963 2 Sheets-Sheet 2

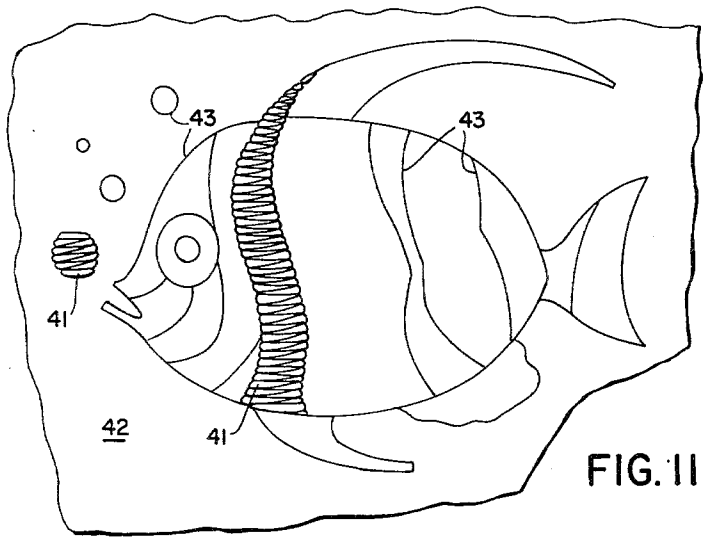

FIG. 11

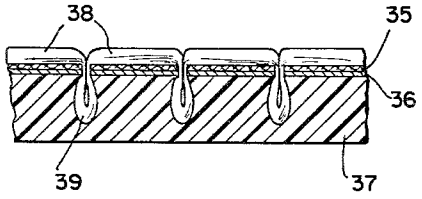

FIG. 8

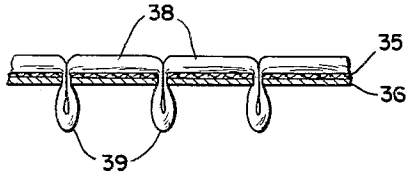

FIG. 9

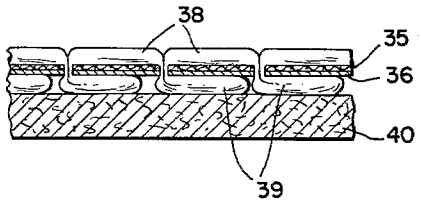

FIG. 10

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METHOD FOR MAKING SIMULATED NEEDLEPOINT EMBROIDERY

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7 Claims. (Cl. 112—266)

This invention relates generally to ornamentation, and has particular reference to a method of simulating needlepoint embroidery. Coordinately the invention relates to a novel combination of elements to be employed for the purpose, including a special tool; and to the ornamental articles resulting from the procedure.

A general object of the invention is to provide a useful method and means for producing articles bearing handmade embroidery composed of strands of yarn such as wool.

A more particular object is to provide embroidery-making means of simplified nature, intended for use by anyone, and not requiring special skill in the needlework art.

Since the invention lends itself readily to commercial manufacture and distribution in the form of kits, it is a further object to provide such kits, incorporating novel combinations of elements, useful in producing ornamental articles of various kinds. Among the elements involved are a base of unusual character, presenting a special surface to which the embroidery is to be applied, and a unique type of tool by means of which selected strands of embroidery yarn can be applied to the surface in the contemplated manner.

A characterizing feature of the invention resides in the fact that the yarn is not "stitched" to an underlay in any ordinary sense of the word, but is held in association with the ornamented surface by an effective snaring or pinching action resulting from the special nature of the surface itself and of the method and means by which the yarn is applied. The resultant articles are nonetheless difficult to distinguish from conventionally produced tapestries and embroideries, and the invention thus makes it possible for relatively unskilled persons rapidly and inexpensively, and pleasurably, to produce simulated needlepoint embroideries having a wide range of usefulness.

Several embodiments of the invention, illustrating the manner in which the objectives and advantages of the invention are attained, are shown by way of example in the accompanying drawings, in which:

FIG. 1 is a diagrammatic plan view of an illustrative area of a base element in the process of receiving embroidery yarn in accordance with the new procedure;

FIGS. 2, 3 and 4 are enlarged fragmentary cross-sectional views showing successive steps of the procedure;

FIG. 5 is a front view of one form of tool to be used;

FIG. 6 is a side view of FIG. 5 with the handle broken away for the sake of compactness of illustration;

FIG. 7 is an end view of the tool;

FIG. 8 is a fragmentary cross-sectional view similar to FIG. 3, illustrating a modified type of base element;

FIG. 9 is a similar view of the strand-carrying layer of FIG. 8, after separation from the nether layer;

FIG. 10 is a similar view showing the finished product; and

FIG. 11 is a plan view of another illustrative base element with the embroidery partially completed.

In the embodiment of the invention illustrated in FIGS. 1–4, the base is composed of a relatively thin upper layer **20** adhesively bonded to a thicker rigidifying nether layer **21**.

The top layer **20** is made of an elastic material such as paper, defining a pierceable surface on the base element. The term "pierceable" is intended to refer to that quality which permits an attenuated tool to rupture and penetrate through an intact area of the material under mildly applied pressure. The "elasticity" of the material alludes to an inherent stiffness and to the tendency of the walls of a hole or aperture to resist enlargement of the hole and thus exert a pinching effect upon a compressible strand extending through the hole and having a normal cross-sectional area greater than that of the hole. Paper has been mentioned as a material having the desired characteristics. Thin foils of various metals, such as aluminum, or of certain plastics, are also useful for the contemplated purpose. A material such as felt, on the other hand, would not be suitable.

The other layer **21** is made of a cellular material which is relatively stiff and rigid, yet yieldable and readily penetrable. Expanded polystyrene exhibits these qualities. It fulfills a rigidifying purpose with respect to the thin overlying layer **20**, yet it receives and accommodates loops of embroidery material as presently to be described. The term "cellular" is intended to signify the presence of a multiplicity of air- or gas-filled spaces which are readily collapsible under mildly applied relatively concentrated pressures.

By way of example, the layer **21** may have a thickness of about ¼ inch whereas the thinner layer **20** may be no more than 0.002 inch thick.

In the base element shown, the elliptical marking **22** indicates an illustrative area to be covered with embroidery of the present character. This area is provided with a multiple number of preformed slits **23**, the slits or openings being arranged in parallel adjacent rows and the slits of each row (such as those designated **24**) lying crosswise with respect to the row. The slits are formed only in the upper thin layer **20**, and they are preferably uniformly spaced apart. Also, the slits in each row are preferably staggered with respect to those in each adjacent row.

To embellish the exposed surface of the base, strands of compressible embroidery yarn, such as wool, are pushed into the base in predetermined fashion. One such strand is illustratively shown at **25**. In FIG. 2, several spaced regions **26** of the strand have already been shaped into loops penetrating through the elastic surface **20** into the interior of the layer **21**. The next succeeding loop **27** (FIG. 4) is made by first applying the pushing tool **28** to the strand **25** at a distance from the last-formed loop, as shown in FIG. 2, then shifting the tool and the engaged strand to a position directly over the next-vacant slit (FIG. 3), then pushing the strand into the base to form the loop **27** (FIG. 4). Withdrawal of the tool is followed by a repetition of this procedure.

The tool **28** (FIGS. 5–7) has a handle **29** that may be of any suitable shape. The tool itself is preferably of metal and has a flat spatulate operative end having a front edge **30** preferably concave. The concavity terminates in attenuated piercing points **31** (FIG. 5). The edge **30** is narrow but not a knife edge. It must be sufficiently dull to prevent severance of the strand **25** during the procedure illustrated in FIGS. 2–4. The tool **28** is provided with a forwardly facing shoulder **32** at a predetermined distance behind the front edge **30**. The shoulder can be defined by the front end surface of an enlargement formed as an integral part of the tool **28**. This shoulder serves as a stop during the pushing action of the tool to limit the extent to which the loop is pushed into the body of the base (see FIG. 4).

During the penetration of each loop into the base, as described, the strand is compressed as it passes through the slit or opening in the outer layer **20**, because the strand is purposely selected to have a cross-sectional

area greater than the slit. This compression leaves the neck of the loop in snared or pinched condition after the tool is withdrawn, thus retaining the strand by friction in engagement with the elastic outer layer **20**. The body of the loop is accommodated within the interior of the layer **21** as a result of collapse of adjacent cells. This permits many loops of yarn to remain encased within the layer **21** without causing any warping or distortion.

In the finished embroidery, the strand regions **33** between the snared loops lie in uncompressed untensioned exposed condition on the ornamented surface, and if the strands are worked as indicated, especially with the loops of each row in staggered relation to those of adjacent rows (as shown in FIG 1), a striking resemblance to conventional tapestry embroidery is achieved.

Employment of strands in different colors, and variations in the shapes and extents of the embroidered areas, make it possible to produce an unlimited number of different ornamental effects.

It is not in all cases essential to preform any slits or other openings in the surface layer. They facilitate the proper placement of successively pushed loops, and they serve as convenient guides for packing up a proper amount of slack (FIGS. 2, 3) prior to penetration, and to this extent they are desirable and simplify the procedure, but satisfactory results can be achieved with an unbroken intact surface layer **20**. It is preferable, of course, that this surface bear indicia in the form of a pattern or design, to guide the user in performing the successive steps of the embroidering procedure. In a case in which no preformed openings are provided, slightly increased pressure is required to rupture the surface layer. The piercing points **31** on the tool **28** facilitate this action and insure the puncturing of a hole which is adequately under-sized to establish the desired pinching action after the strand loop has been pushed through.

In some cases it may not be necessary for the base element to be provided with a separate relatively thin outer layer such as that shown at **20**. An equivalent "skin" may be inherently present as an integral part of a slab or sheet of expanded polystyrene or equivalent cellular material. A separate skin layer is desirable, however, because it makes it commercially simpler and more economical to print desired designs, pictures, and other indicia, upon it prior to its lamination to the underlying rigidifying layer.

In FIGS. 8–10 a modified procedure is illustrated, in which the two layers of the base element are separable and not permanently bonded together. This procedure is useful in the application of embroidery designs to fabrics. Fabrics are not by themselves adequate to serve as a base material for the present technique, because they are not elastic enough. However, by laminating a fabric **35** to a thin sheet **36** having the elasticity and penetrability hereinbefore discussed, a composite strand-engaging layer is produced by means of which the present procedure can be carried out. The composite thin layer (**35, 36**) is first laid upon a rigidifying thicker layer **37** (e.g. expanded polystyrene) and the strands **38** of compressible yarn are introduced as previously described. The loops **39** are accommodated within the layer **37** by collapse of adjacent cells; the neck of each loop is pinched and held by the opening in the layer **36** through which the strand was pushed; and the strand regions between the loops lie in unstressed exposed condition on the exterior of the fabric **35**. Designs or embellishment of any desired nature can be produced in this way. Subsequently, the layers are separated (by gently pulling them apart) and the cellular underlay can be discarded. This leaves an assembly as shown in FIG. 9, the loops being exposed on the under side. This unit is then applicable by adhesive means to any desired supporting layer **40** (FIG. 10) so that the loops are disposed in concealed sandwiched condition between the layers. The underlay **40** may be a rigid material or it may be a flexible fabric or sheet of plastic or felt or the like. The product is useful for upholstery purposes, for covering pillows, for display items, for doilies, place mats, handbags, and for many other utilitarian or purely esthetic purposes.

In FIG. 11 a modified type of embroidery is shown, wherein the loops of embroidery yarn **41** are not inserted into the base **42** at uniform intervals, but at spacings which vary in accordance with the embroidery effect desired. In the illustrated design a fish is depicted by outlines **43** (printed in advance, for example, on the outer elastic surface of the base element **42**) and the yarn is laid in zig-zag fashion across the various areas of the design to produce an ornamental effect. (In FIG. 11 most of the areas have not yet been embroidered.)

In carrying out the procedure to produce embroidery as shown in FIG. 11, each strand is first laid transversely across the area to be covered, the tool then engages the strand beyond the point where penetration is to take place. As the tool carries the yarn back to the penetration point or line a slack is produced (as in FIG. 3) so that when the tool is pierced into the base a loop will enter the base without imposing tension upon the exposed lap of yarn. The yarn is then laid across the area again, in the opposite direction, and in close proximity to the lap just formed, and the process is repeated.

The type of embroidery shown in FIG 11 can obviously be produced upon a base whose cellular and skin layers are permanently bonded together (or integral with each other), or upon a base whose layers are separable as described in connection with FIGS. 8 and 9.

It is not essential that the yarn used is wool. Any type of strand that is readily compressible, so that it can be snared as described, can be used. In general it will be understood that many of the details herein described and illustrated may be modified by those skilled in the art without necessarily departing from the spirit and scope of the invention as expressed in the appended claims.

What is claimed is:

1. A method of making a simulated needlepoint embroidery, which comprises providing a base having a pierceable elastic surface and a penetrable yieldable cellular interior, pushing successive spaced loops of a strand of compressible embroidery yarn into said base through constricted openings in said elastic surface, and continuing to push each of said loops only partially through said interior so that each loop is entirely accommodated within said interior by collapse of cells therein, the neck of each loop being frictionally snared in a pinched condition by the walls of the opening through which it was pushed, the regions of the strand between said snared loops lying in uncompressed untensioned exposed condition on said surface.

2. A method as defined in claim **1**, wherein the base is provided in the form of overlying layers one of which is relatively thin and defines said elastic surface and the nether one of which is a relatively thick rigidifying layer.

3. A method as defined in claim **2**, wherein said thin layer is paper.

4. A method as defined in claim **2**, wherein said rigidifying layer is expanded polystyrene.

5. A method as defined in claim **1**, wherein said constricted openings are formed in said surface prior to the passage therethrough of said loops.

6. A method as defined in claim **1**, wherein the base is provided in the form of separable overlying layers one of which provides said elastic surface and the nether one said yieldable interior, and wherein the strand-carrying layer is subsequently separated from the nether one so that it can be applied to a different support for display purposes.

7. A method of making a simulated needlepoint embroidery comprising the steps of laying a continuous strand of yarn on a base having a pierceable surface and an interior beneath said surface, pushing spaced apart portions of the strand through a series of equidistantly spaced penetration points in the surface of the base, and continuing to push said portions only partially through said interior in order to produce a series of loops of yarn beneath the surface of the base and a series of straight portions of the yarn on top of the surface of the base, each loop and straight portion being formed by engaging the strand at a point spaced from the penetration point, through which the last-to-be-formed loop was pushed, a distance equal to twice the distance between each two successive penetration points, moving the engaged point of the strand to bring it a distance from said last-filled penetration point equal to the distance between each two successive penetration points so that the strand section between the last-filled penetration point and the point of engagement becomes gathered, and pushing the engaged point of the strand through the surface of the base and only partially through the interior of the base

until said gathered strand section straightens out and forms said straight portion, whereby said straight portion is left in untensioned condition.

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