April 18, 1939. A. ZENORINI 2,155,212

FABRIC AND PROCESS OF MAKING THE SAME

Original Filed Aug. 5, 1937

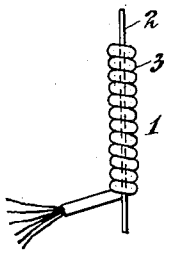


Fig. 1

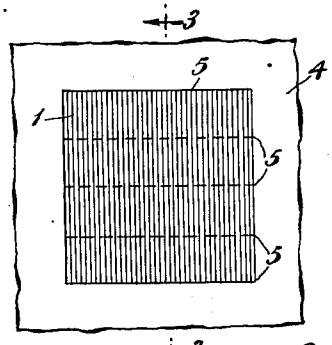


Fig. 2

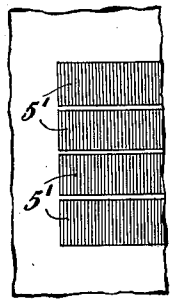


Fig. 2a

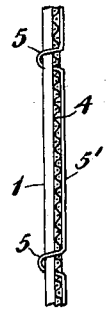
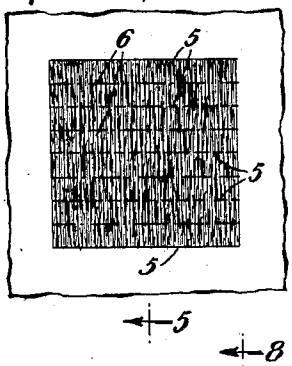


Fig. 3

Fig. 4



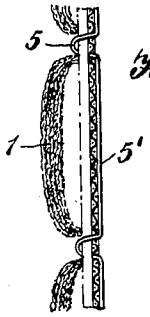


Fig. 5

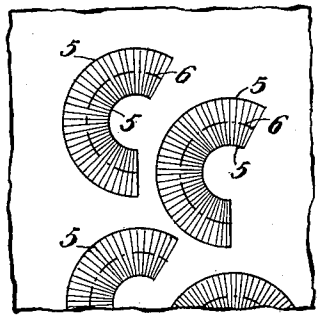


Fig. 6

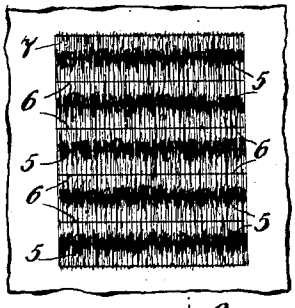
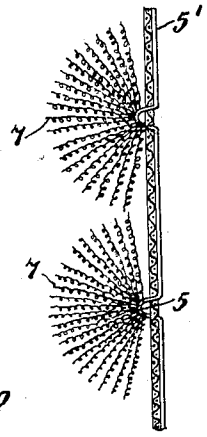


Fig. 7

Fig. 8



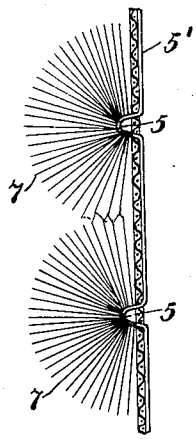


Fig. 8a

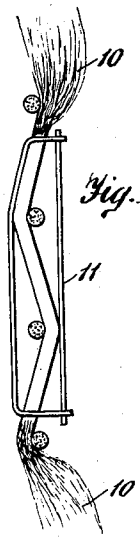


Fig. 10

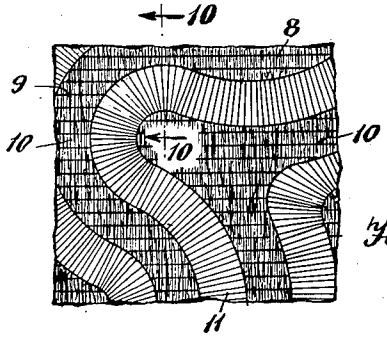


Fig. 9

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2,155,212

UNITED STATES PATENT OFFICE

2,155,212

FABRIC AND PROCESS OF MAKING THE SAME

Andrew Zenorini, Cliffside, N. J.

Original application August 5, 1937, Serial No. 157,479. Divided and this application May 23, 1938, Serial No. 209,502

7 Claims. (Cl. 2—278)

This invention relates to improvements in fabrics, and process of making the same, and comprises a division of my prior patent application, Serial No. 157,479, filed August 5th, 1937.

One of the objects of this invention is to produce woven, knitted or embroidered fabrics in which expansible covering thread or strands of successive predetermined lengths or sections of an expansile yarn composed of a destroyable core-strand and an expansible or fluffable covering thread spirally wound thereon are disposed between holding threads, and the fluffable covering thread is released by destroying the core-strands, said sections of expansile yarn being grouped to provide a raised, fluffed or pile surface which may be positioned in relation to a fabric to produce designs of any suitable type and composed either of rectilinear or curved lines.

Still another object of my invention is to provide, with such expansile yarn, a stitched fabric in which the expansile yarn will be sewn at predetermined spaced rows of holding stitching and the expansile yarn threads will be severed between the holding threads to cause the ends to be fluffed out and to provide piling for chenille or candlewick.

Still another object of my invention is to produce an embroidered fabric in which expansile yarn will be embroidered on a base fabric and held by continuous holding threads extending along the opposite face of the fabric and passing through said base fabric to fasten said expansile ornamental yarn and said yarn will be severed to produce an embroidered chenille or candlewick which will be of a character superior to the conventional chenille or candlewick product produced on conventional sewing machines or by hand because the holding threads on the opposite face of the embroidered fabric will provide for a more secure fastening of the chenille or candlewick piling to the fabric.

With these and other objects in view, the invention comprises the combination of members and arrangement of parts so combined as to coact and co-operate with each other in the performance of the functions and the accomplishment of the results herein contemplated, and comprises in one of its adaptations the species or preferred form illustrated in the accompanying drawing, in which:—

Fig. 1 is a view in elevation of a piece of expansile yarn wound about a destroyable core which is used in making my fabric;

Fig. 2 is a view in plan of a fragmentary piece of fabric showing my improved yarn embroidered into a design before being subjected to the core-destroying process;

Fig. 2a shows the stitching on the reverse side of the fabric;

Fig. 3 is a section on the line 3—3 of Fig. 2, showing opposite sides of the embroidered fabric illustrated in Fig. 2;

Fig. 4 is a fragmental piece of fabric similar to Fig. 2, after the embroidered yarn has been subjected to a core-destroying process;

Fig. 5 is a section on the line 5—5 of Fig. 4, looking in the direction of the arrows;

Fig. 6 is a view in plan of a fragment of fabric showing my improved yarn formed into a circular design;

Fig. 7 is a view in plan of a piece of fabric similar to Figs. 2 and 4 in which the expansile embroidered yarn section has been severed intermediate the holding stitches (on the straight lines shown in Fig. 4) to provide piling;

Figs. 8 and 8a are enlarged sections on the line 8—8 of Fig. 7, showing the pile formed by embroidering of expansile yarn and severing of such yarn as illustrated in Fig. 7;

Fig. 9 is a view in plan of a fragment of fabric in which the warp threads are composed of my improved expansile yarn and which fabric is embroidered with a non-expansile embroidery yarn; and

Fig. 10 is a section on the line 10—10 of Fig. 9, looking in the direction of the arrows.

Referring now to these drawings which illustrate a preferred embodiment of my invention, 1 indicates a piece of expansile yarn comprising a central core-strand or thread 2 surrounded spirally and embraced or wrapped by an expansible covering thread or strand 3. The covering thread 3 is preferably composed of a series of strands and is preferably thus much thicker and composed of many more strands or fibers than the core member or strand. It will be seen, therefore, that in the covering of a rectilinear section of the core-strand, I utilize a spiral member which will contain covering strands which are many times the length of the core-strand. In other words, I am enabled, in a half inch of the yarn, to wind on the rectilinear core-strand a very considerable yardage of each strand of covering material and when the length of each strand is multiplied by the number of fibers contained in the covering thread, it will be seen that I have formed in the expansile yarn a covering thread spiral 3 which, when released, will provide a fluffed surface or a pile or piling, and in the preferred embodiment of my invention, I

utilize for the core member or rectilinear strand, a material, such as pure silk, wool or other fibre which may be destroyed after the yarn is woven, embroidered or knitted into a fabric which will be adapted to have the fluffed or pile surface in any suitable design. Destroyable material has heretofore been used in lace making and the like and such destroyable material has been destroyed by the use of caustic soda when it was desired to destroy pure silk, wool or other animal fibre, and heat has been used with or without other chemicals for the purpose of destroying prepared cotton or other vegetable fibres, but to the best of my knowledge fibres of material so destroyable have never heretofore been used as the core of an expansile yarn nor has such expansile yarn been used for making the fabrics herein specified.

In accordance with the preferred form of my invention, I utilize a core member 2 composed of a pure silk fibre, wind on said core member 2 an expansible, non-destroyable covering thread 3, embroider on a base fabric 4 a suitable design with said expansile yarn as the ornamental embroidering yarn, said fabric being provided with design-edging stitches 5 which necessarily traverse an expansile yarn section of suitable length so as to hold the same to the fabric and form edgings or terminals which will hold or lock the covering threads at suitable predetermined positions and will, when the core thread is destroyed, permit the expansible covering thread 3 whether composed of one or a plurality of fibers, to expand or to be fluffed up and thus to provide a top surface on the fabric which will be raised and fluffed.

In the preferred form of my invention, the opposite side of the fabric 4 will be provided with the usual embroidery holding threads 5' so that one product produced by my invention will comprise a fabric having continuous embroidery holding threads 5' at one side with fluffable embroidery expansile yarn 1 of my invention on the opposite side, and this fluffing of the expansile yarn will occur between holding stitches 5 at suitable positions along the embroidered expansile yarn so soon as the core threads are destroyed. It will be apparent, therefore, that my yarn may be used in embroidery machines and that when the embroidered yarn with the destroyable core thread is subjected to a destroying process, the spiral covering thread intermediate the terminal holding stitches 5 will fluff up and when a series of these expansile yarn threads are disposed along side of each other, many suitable designs may be made therewith.

Another product comprising what may be termed "embroidered chenille" may likewise be produced by cutting or severing the expansile yarn sections intermediate the holding stitches 5 as shown at 6 in Figs. 4, 6 and 7, thus providing yarn ends on opposite sides of the holding stitches 5 which will fluff up toward each other to produce a chenille pile as shown at 7 in Figs. 7, 8 and 8a. Fig. 8 shows, at 7, the covering threads 3 released and still in spiral condition while Fig. 8a shows the same after being brushed straight. This type of chenille is more securely held to the fabric than the chenille which is made by a sewing machine on which loops are formed and cut. This is true because in embroidery, the opposite side of the fabric is provided with continuous holding threads 5' between the rows of stitches 5, which holding threads remain completely intact, extend continuously across the severed portion and always hold tightly the stitches 5' and lock the embroidered yarn securely in place so that the embroidered and cut yarn or pile can not easily be pulled out of the fabric, whereas, in machine-made chenille each loop can readily be pulled through the cloth unless specially sewed therein subsequent to the sewing or forming of the same by the sewing machine.

Obviously, designs may be formed which will be substantially identical with the conventional candlewick, except that the pile will be held more securely in the fabric.

In accordance with another form of my invention, my improved expansile yarn may be woven directly into a fabric 8, as shown in Figs. 9 and 10, the expansile yarn being used for the warp threads 10 with woof threads 9 of non-expansible material. Such a fabric, when the core threads 2 are destroyed, will provide a roughened fluffed surface such as shown at 10 in Fig. 10. An embroidered design 11 may be imposed upon such fabric and thereafter a fabric so embroidered may be subjected to a process for destroying the core threads in my expansile yarn whereupon the embroidered material will remain unfluffed but the threads of fabric per se by reason of destroying the destroyable core threads will fluff up and produce intermediate the embroidered design a fluffed, raised portion 10. If desired, the entire woof threads may also be destroyable to produce a fluffed lace effect.

It will be apparent that many different types of fabric may be produced by the use of my invention and I have heretofore not only produced the above-mentioned fabrics but have produced imitation astrakan and, in fact, I am able to produce by the use of my improved expansile yarn and method, any fabric which has a raised or fluffed or pile surface, and I have been able to form designs which are fair imitations of astrakan, candlewick, chenille, caracul, chinchilla, and the like.

Having described my invention, I claim:—

1. A fabric, comprising a base fabric having secured thereto an expansile yarn, composed of a core-strand of destroyable material and an expansible covering thread mounted thereon and a non-destroyable holding thread crossing the expansile thread at suitable sections to permit expansion of intermediate portions of said expansile thread upon destruction of the destroyable core-strand thereof.

2. A fabric, comprising a base fabric having secured thereto an expansile yarn, composed of a core-strand of destroyable material and an expansible covering thread spirally wound thereon and a non-destroyable holding thread crossing the expansile thread at suitable sections to permit expansion of intermediate portions of said expansile thread upon destruction of the destroyable core-strand thereof, said fabric also having holding threads passing therethrough.

3. An embroidered fabric comprising a conventional base fabric, an expansile ornamental yarn embroidered into a design on one side of said fabric, said yarn comprising a core-strand of destroyable material and an expansible covering thread spirally wound thereon, said ornamental yarn being sewed to the base fabric along predetermined spaced stitching lines by conventional continuous embroidery-holding threads extending along the opposite surface and having stitches passing through the said fabric into contact with said ornamental expansile yarn.

4. An embroidered fabric comprising a conventional base fabric, an expansile ornamental yarn embroidered into a design on one side of said

fabric, said yarn comprising a core-strand of destroyable material and an expansible covering thread spirally wound thereon, said ornamental yarn being sewed to the base fabric along predetermined lines by conventional continuous embroidery-holding threads extending along the opposite surface and having stitches passing through the said fabric into contact with said ornamental expansile yarn, said ornamental expansile yarn being severed intermediate said spaced lines of holding threads to produce piles on opposite sides of the severed portion, whereby pile surfaces, chenille or candlewick designs may be produced with said ornamental expansile embroidered yarn.

5. The process of producing a fabric having an expansible, fluffed surface comprising the winding of an expansible covering thread over a destroyable core-strand to produce an expansile yarn, making a base fabric and securing thereto said expansile yarn with holding threads at suitable predetermined lengths thereof, then destroying the destroyable core-strands of said expansile yarn to cause the covering threads between such holding threads to be raised above the normal surface and to produce a fluffed fabric.

6. The process of producing an embroidered fabric having an expansible, fluffed embroidered surface comprising the winding of an expansible covering thread over a destroyable core-strand to produce an expansile yarn, taking a base fabric and stitching, with said expansile yarn and conventional holding threads, an embroidered design on said base fabric, then destroying the destroyable core-strands of said expansile yarn to cause the covering threads between such holding threads to be raised above the normal surface and to produce a fluffed fabric.

7. The process of producing an embroidered fabric having an expansible, fluffed embroidered surface comprising the winding of an expansible covering thread over a destroyable core-strand to produce an expansile yarn, taking a base fabric and stitching, with said expansile yarn and conventional holding threads, an embroidered design on said base fabric, severing the expansile ornamental yarn intermediate the holding threads, and then destroying the destroyable core-strands of said expansile yarn to cause the covering threads between such holding threads to be raised above the normal surface and to produce a fluffed fabric.

ANDREW ZENORINI.