June 21, 1938. R. R. CONE 2,121,285

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Filed Sept. 1, 1937

Fig. 1.

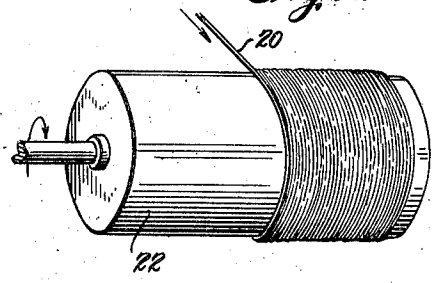


Fig. 3.

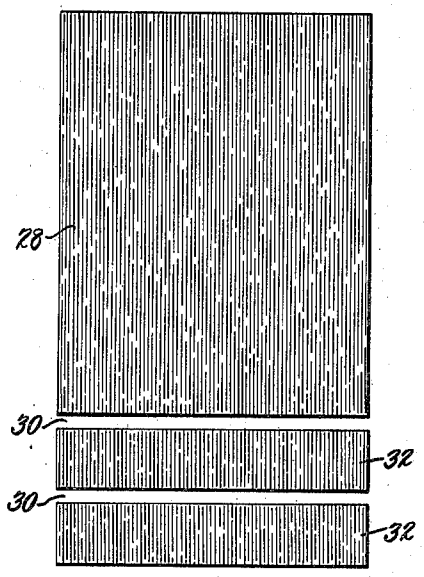


Fig. 2.

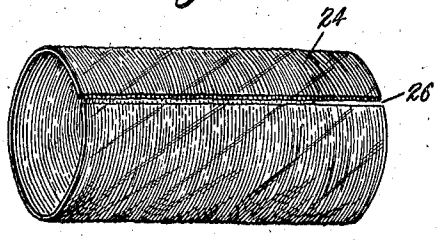


Fig. 5.

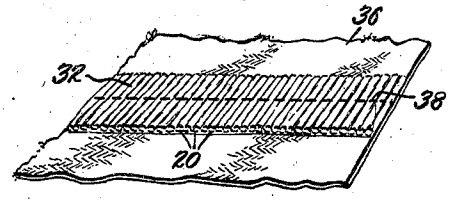


Fig. 4.

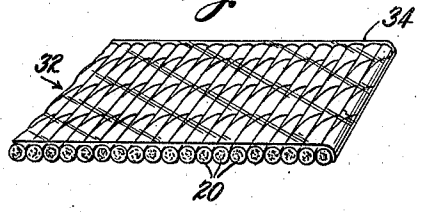


Fig. 6.

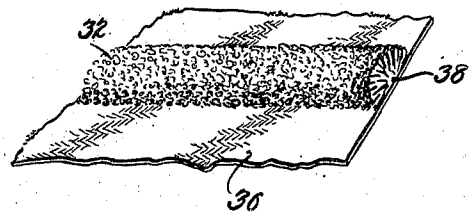
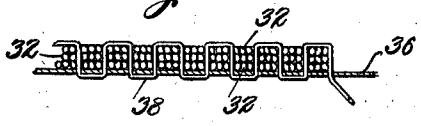


Fig. 7.



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2,121,285

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Application September 1, 1937, Serial No. 161,890

10 Claims. (Cl. 112—1)

The present invention relates to filamentous bodies and their production, the methods of utilizing the same in the ornamenting arts and the resulting ornamental articles.

The popularity of pile fabrics has been an enduring one and their manufacture is still pursued rather extensively on a commercial scale as well as by the individual. Perhaps the most common products of this art as domestically practised today are candle-wick spreads and scarfs, chenille and tufted articles such as bath-room rugs and hooked rugs. Although the textile art generally has been highly developed, existing methods for producing tufted articles of the type under consideration are relatively expensive from the standpoint of both time consumption and cost of raw materials.

Numerous devices have been proposed previously for reducing the costs and simplifying the methods of attaching pile to backings, typical among which have been the provision of textile thread wrapped upon a semi-rigid support such as disclosed in the patent of Ludlow, 336,524, patented February 16, 1886 and the use of temporary wrapping frames as disclosed in the Patent 1,946,853 granted to Hollister on February 13, 1934. In both cases, after the thread or yarn has been attached to the backing, it is necessary to remove the supporting structure and sever the loops, both of which constitute steps that are not only troublesome to practice, but in addition, tend to diminish uniformity of the finished product.

In accordance with the present invention, an article of manufacture is produced which is not subject to the inherent shortcomings and disadvantages of the prior art, it is relatively simple to manufacture and therefore comparatively inexpensive to the purchaser, is convenient to handle and dispense commercially, and is exceedingly readily manipulated in the production of ornamental goods. Following the present invention, a fabric is produced which is composed essentially of unwoven filaments assembled by a readily removable adhesive. When produced in the form of a tape-like body, the filaments will run transversely of the body, the adhesive being readily removable as by immersion in water or other commonly available solvent which will not deleteriously affect the filaments themselves or the particular backing to which they are intended to be applied.

A preferred method of producing the fabric is by winding one or more filaments helically upon a mandrel in one or more layers so that the adjacent strands or turns of a layer are relatively close together, retaining the filaments in this condition by the use of a suitable soluble adhesive which may be applied as a coating or otherwise and which may or may not partially penetrate the filaments. After the adhesive has become set sufficiently, the hollow body or structure thus formed is removed from the mandrel as by cutting the filaments at an angle to the direction in which they were wound. The fabric may be then spread out and if desired, subdivided into tape-like bodies of desired widths by shearing or similar operations. The resultant products will be then in the form of tape-like bodies whose edges are defined by the ends of the helically wound or substantially parallel filaments which are retained in extended condition and substantially coplanar if desired, by the presence of the soluble adhesive which may be suitably softened or plasticized.

These fabrics or tape-like bodies may be produced in any desirable color or combination of colors by suitably dyeing and/or splicing the filament or filaments employed. The filament itself may be unitary or fibrous, twisted or untwisted, of textile or other nature, natural or artificial.

Fabrics of this type will find utility in the ornamenting arts by applying and attaching the same upon a suitable backing, by arranging the tape-like bodies in rows or other designs, or by fastening a wider sheet at spaced points and subsequently subdividing the material. These fabrics may be employed as single layers or in multiple layers, superimposed or in overlapping relationship. These fabrics are preferably attached to the backing by sewing, after which, the adhesive material is removed as by subjecting the same to a solvent, whereupon the released filaments will assume their final positions and produce the desired ornamental appearance.

A more detailed description of the present invention may be had upon reference to the accompanying drawing wherein:

Fig. 1 is a perspective representing the manner of winding a filament on a mandrel;

Fig. 2 is a perspective of the hollow structure after removal from the mandrel;

Fig. 3 is a plan of the fabric after it has been spread out and partially divided into strips;

Fig. 4 is an enlarged perspective of the adhesively bound fabric as it is intended for the market;

Fig. 5 is a fragmentary view in perspective of one of the tape-like bodies attached to a backing;

Fig. 6 is a fragmentary view in perspective of a tape-like body attached to a backing after the adhesive has been removed; and

Fig. 7 is an elevation depicting superimposed layers of the fabric sewed upon a backing.

In accordance with the preferred method of producing the fabric bodies of the present invention, one or more filaments 20 are wound upon a rotatable mandrel 22 so that the adjacent turns or strands are positioned contiguously, whereupon a readily removable adhesive composition is applied to the filaments thus wound to unite them in the form of a hollow cylinder open at its ends. After the adhesive has set sufficiently, the hollow structure or body 24 thus formed is removed from the mandrel as by cutting the filaments along a line 26 transverse to the winding direction, the adhesive material serving to maintain the filaments in their assembled relationship. The hollow body may then be unrolled or flattened to assume the form of a sheet 28, which may be utilized as such or subdivided along one or more lines 30 spaced at suitable intervals to form strips or tape-like bodies 32 of desired width and contour. It should be noted that any convenient number of filaments may be fed simultaneously upon the mandrel, and/or the filament or filaments may be wound upon the mandrel in multiple layers if desired.

The adhesive employed in uniting the filaments should be soluble to provide for its ready removability for reasons to be discussed more completely, and it should at the same time possess sufficient flexibility that the fabric bodies can be handled and folded to an extent sufficient to withstand the normal strains encountered in display, sale and use.

A water soluble adhesive found to be suitable for the purposes of the present invention, is gelatin admixed with suitable proportions of a softening agent such as glycerin. Many other water soluble adhesives suggest themselves, among which are glues, starches, agar, pectin, gums, etc., with which suitable plasticizers, flexibilizers, softening agents, etc., may be incorporated. Since there are conceivable cases in which the use of water would not be desirable, it is also contemplated to employ adhesives other than those which are soluble in water. By way of example only, vinyl resins such as polystyrene or polyvinyl acetate may be employed, accompanied as desired by suitable plasticizers. In such cases, a suitable solvent such as benzene may be employed advantageously. Adhesives and corresponding solvents other than those specified may be used however, many of which will be suggested upon referring to such well known sources as "The Chemistry of Synthetic Resins" by Carleton Ellis, published 1935 by the Reinhold Publishing Corporation, New York city, and the adhesive art generally. Adhesives which are soluble in the commoner dry cleaners for example, might be especially well adapted for use in conjunction with the present invention.

The filament or filaments used in making the fabrics or tape-like bodies are preferably but not necessarily of textile origin and may well assume various colors, forms and types. The filaments may be unitary or fibrous, mixed or pure, twisted or untwisted, natural or synthetic. Threads composed of wool, cotton, silk, rayon, linen, mineral fibres, etc., or any mixtures may be used. Such materials may be bleached or unbleached, plain or dyed, solid or multi-colored. It will be understood that the filaments may be spliced at intervals to provide the necessary length or to achieve various color combinations or designs. Moreover, the ultimate fabrics or tape-like bodies themselves may be spliced or jointed in longitudinal or superimposed relationship to obtain desired lengths, thicknesses, thread densities, designs, etc.

As clearly shown in Fig. 4, the fabric body 32 is made up of a plurality of filaments 20 running transversely thereof, sufficiently treated with a soluble adhesive 34 to unite the filaments and retain them in such extended condition as to produce a structure having the desired characteristics. The adhesive material is preferably sufficiently plastic or flexible to permit a reasonable amount of folding and handling of the fabric so that it will resist the ordinary wear and tear encountered in commerce and use. In some cases it may be desired to provide the fabric with assembling or reinforcing means to supplement the adhesive. For example, one or more rows of stitching may be used. Whereas such supplemental means are not regarded as primarily required by this invention, their use should properly fall within the scope of the appended claims.

The adhesive material may be applied to the filament or filaments after winding upon the mandrel, by immersion, spraying, or in any other well known manner. It is also contemplated however, to initially coat the mandrel with the adhesive composition and then wind the filament thereupon. As a matter of fact, if desired, the filaments may be coated on both exposed surfaces or any portions thereof, and the filaments and/or their fibers may be or need not be impregnated.

Application of the tape-like bodies or fabrics to a backing to be ornamented may be accomplished in the manner shown in Fig. 5 of the drawing. The fabric is preferably sewed upon a backing 36, such as cloth, by means of one or more rows of stitching 38. Where the fabric is in the form of a tape, the stitching is shown as extending substantially medially thereof. Where the fabric is wider, spaced rows of stitching may be used and the fabric subsequently subdivided between such rows. Various other modes of clamping the fabric or tape-like bodies to their backings will also suggest themselves to those skilled in the art.

After the tape-like or fabric body or bodies have been fixed upon the backing material, the adhesive is removed from the filaments preferably by subjecting them to a suitable solvent. Where a water-soluble adhesive such as gelatin is present, water would be the most logical solvent, but in some cases, if a water-insoluble composition has been employed, a corresponding solvent will be necessary.

After the assembly has been washed free of the adhesive, the threads or filaments will assume their final form such as that depicted in Fig. 6 of the drawing. It will be understood of course that if the fabric or tape-like bodies are applied to the backing in several layers, after the adhesive has been removed, a much denser pile will result than that achieved with the use of a single layer,

As depicted in Fig. 7, multiple layers of the fabric or tape-like bodies have been applied to a backing 36, by means of a row of stitching 38. It will be evident that the several layers may be of a single color or material, or they may vary in these respects depending upon the particular design, pile density, etc., desired on the finished product.

It is conceivable that the adhesively united fabrics and ornamental bodies in accordance with the present invention may be produced by methods other than those specifically disclosed herein. It would be possible, for example, to stretch a plurality of filaments so that they lie substantially parallel to one another and in close contact, and while thus maintaining them, apply an adhesive composition thereto, resulting in a product similar to that shown in Fig. 3 of the attached drawing. Accordingly, unless otherwise restricted, the claims of the present application should be construed to cover articles of manufacture of the present type however they may be produced. In the case of the method claims, applicant has elected the method disclosed and claimed as being preferred.

It will be understood that the present invention is applicable to the production of tufted articles of all sorts.

I claim:

1. An unwoven tape-like body adapted for use in the production of pile fabrics comprising a plurality of contacting, substantially parallel textile threads arranged transversely of the body and a water soluble adhesive uniting said threads.

2. An unwoven textile product adapted for use in the production of pile fabrics comprising substantially coplanar parallel textile threads in close contact and a water soluble adhesive uniting said threads and rendering the product self supporting.

3. A method of ornamenting comprising securing to a backing a body composed of textile filaments having their ends assembled only by and an adhesive removing the adhesive by a solvent therefor.

4. A method of ornamenting comprising securing to a backing a fabric made up of substantially parallel textile filaments having their ends secured together only by an adhesive and subjecting the body to a treatment for removing the adhesive.

5. A method of ornamenting comprising sewing to a backing a tape-like body made up of textile threads running transversely of the body and having their ends secured together only by a water soluble adhesive and washing the sewed assembly to remove the adhesive.

6. A method of ornamenting comprising sewing to a backing a plurality of tape-like bodies each of which is made up of transverse textile threads having their ends secured together only by an adhesive and removing the adhesive by a solvent therefor.

7. A method of ornamenting comprising securing to a backing a tape-like body made up of transverse textile threads secured together intermediate of their lengths and having their ends stiffened by a soluble adhesive and removing the adhesive with a solvent therefor.

8. A textile article comprising a tape-like body said tape-like body being composed of a plurality of transverse substantially parallel textile threads united by a soluble adhesive, and a row of stitching extending substantially medially of said tape-like body.

9. The method of making a tufted article comprising securing to a backing a plurality of superposed layers of textile threads bound together solely by an adhesive and subsequently dissolving the adhesive.

10. A textile article comprising a backing, a tape-like body superimposed upon said backing, said tape-like body being composed of a plurality of transverse substantially parallel textile threads united by a soluble adhesive, and a row of stitching extending substantially medially of said tape-like body and securing said body to said backing.

RALPH R. CONE.