

Aug. 19, 1952

L. SILVERMAN
DECORATIVE YARN

2,607,185

Filed Aug. 1, 1950

2 SHEETS—SHEET 1

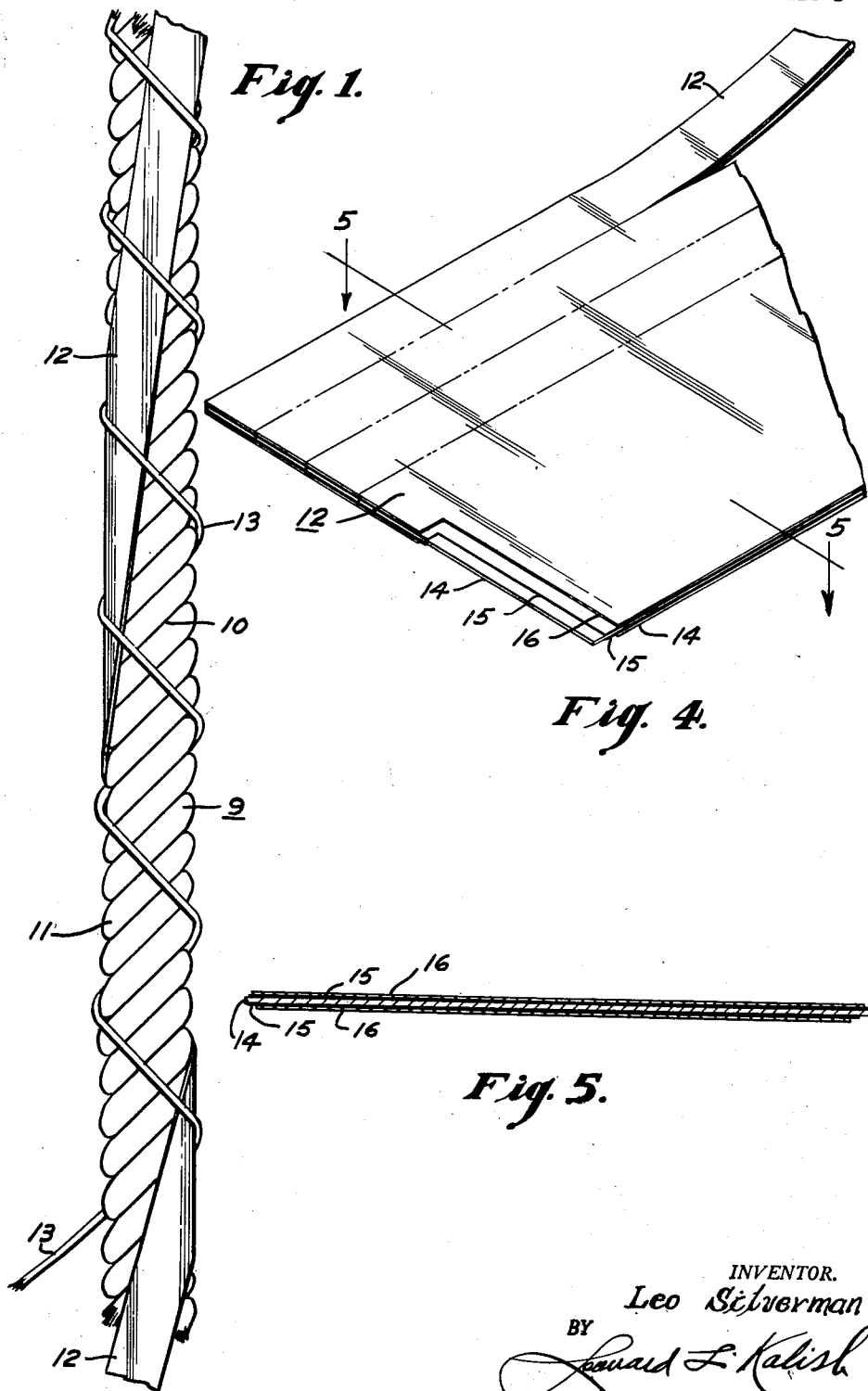


Fig. 5.

INVENTOR.
Leo Silverman
BY
Leonard L. Kalish
ATTORNEY

Aug. 19, 1952

L. SILVERMAN
DECORATIVE YARN

2,607,185

Filed Aug. 1, 1950

2 SHEETS—SHEET 2

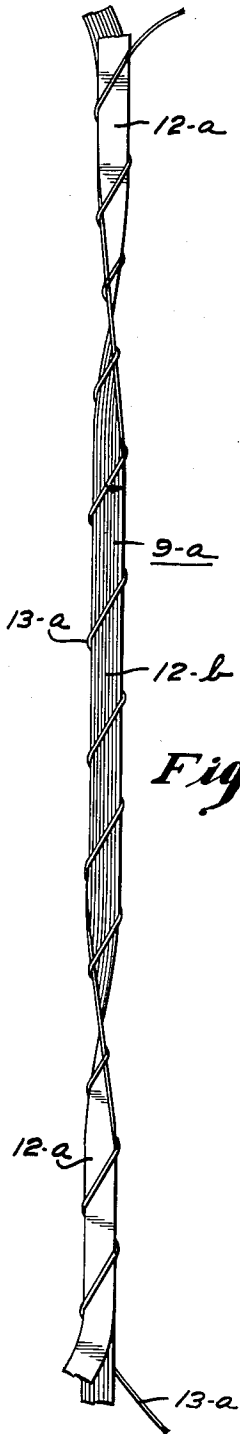


Fig. 6.

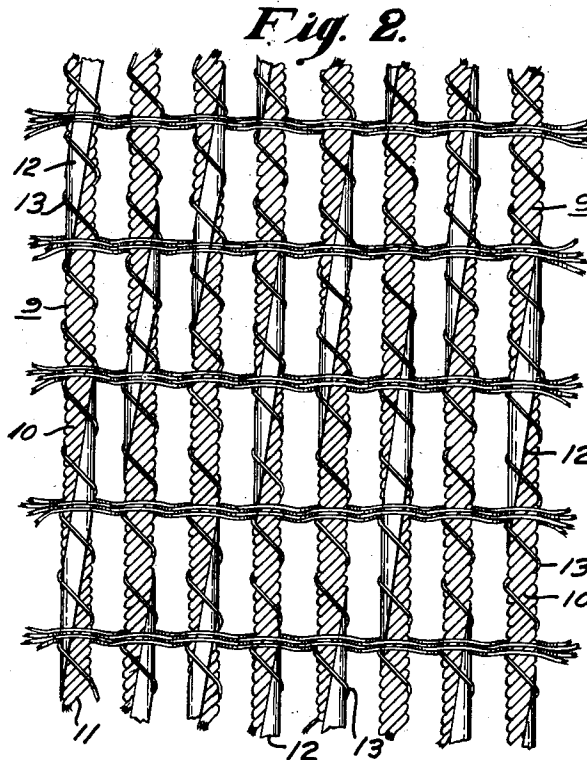


Fig. 2.

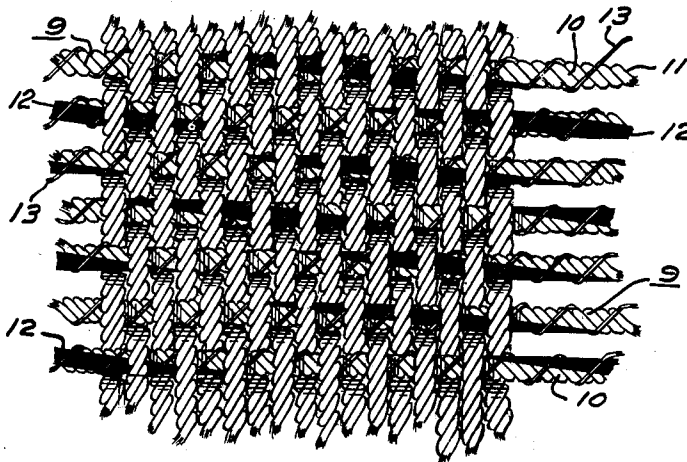


Fig. 3.

INVENTOR.
Leo Silverman
BY *Leonard L. Kalish*
ATTORNEY.

UNITED STATES PATENT OFFICE

2,607,185

DECORATIVE YARN

Leo Silverman, Elkins Park, Pa.

Application August 1, 1950, Serial No. 177,005

6 Claims. (Cl. 57—151)

1

The present invention relates to a new and useful construction in decorative yarns for fabric, braids, tapes, trimmings and the like, whereby a random distribution of metal or color can be achieved in a textile fabric, braid, tape, lace, knit material or the like, in which the scattered or distributed color-spots or metal-spots throughout the fabric will have a more or less random and yet pattern-like effect, and in which such metal or color spots will be durable and permanent, without shedding when the fabric or other textile structure is in use, and will be immune or relatively immune to wear or light or tarnishing or fading.

The present invention further contemplates a yarn construction of this character in which the decorative elements of the composite yarn readily will withstand weaving, knitting, braiding or lace-making operations, the same as any sturdy yarn, without the loss of the metal or decorative components of the yarn or without shifting or slipping of such components in relation to the core of the yarn.

With the above and other objects in view, which will appear more fully from the following description, the present invention contemplates a composite yarn structure or construction comprising a background strand or strands and a contrasting decorative strand or strands extending generally parallel thereto, without being appreciably inter-twisted therewith, and a much thinner or finer binding strand spirally wrapped around the background and the decorative element at a pitch sufficiently great or open that the space between successive convolutions of the binder strand will be substantially greater than the thickness of the binding strand, thereby to expose substantially all of the decorative strand; the relatively thinner binder filament also serving to secure into position the decorative component 12 whether the decorative component 12 be along one side of the core 10, or spiralled, or reversibly spiralled, or otherwise positioned contiguous to the core 10.

The present invention further contemplates a laminated decorative component, having two outer laminations of a plastic such as a very thin acetate sheet or coating and an inner layer of a very thin metallic sheet, as, for instance, aluminum. A suitable dye may be employed either in the acetate or between the plastic and the metal, to give the decorative component both color and a metallic sheen. The laminated structure permits reinforcing the metallic component so that it will withstand the stresses and strains incident to the manufacture of the composite decorative

2

yarn into fabric, braid, lace, rug or the like, and without any shifting or slipping of the decorative component in relation to the background strand or the balance of the yarn.

The present invention also contemplates the formation and use of a multi-ply strip composed of a plurality of laminated decorative components, as described in the preceding paragraph. Thus, the multi-ply strip may be composed of a first, colored, acetate-covered metallic strip, and a second differently-colored, acetate-covered metallic strip; said plies placed side-by-side and bound together with a relatively thin binding strand which is spirally wrapped about the plies, at an extended pitch, to produce a multi-ply strip of durable colorful metallic-like material having a plurality of colors.

The present invention further contemplates a woven, knitted, braided, lace-made or a pile fabric or the like, in which metal-like particles extend through the whole fabric in a random pattern; which pattern changes, in the view of the observer, as the angle of incidence of the line-of-sight changes.

For the purpose of illustrating the invention, there are shown in the accompanying drawings forms thereof which are at present preferred, although it is to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized and that the invention is not limited to the precise arrangements and organizations of the instrumentalities as herein shown and described.

In the accompanying drawings in which like reference characters indicate like parts:

Figure 1 represents an enlarged, fragmentary view of a strand of the decorative yarn of one embodiment of the present invention.

Figure 2 represents a fragmentary plan view of a fabric made with the embodiment of the decorative yarn of the present invention shown in Figure 1.

Figure 3 represents a fragmentary plan view of another type of fabric made with the embodiment of the decorative yarn of the present invention shown in Figure 1.

Figure 4 represents a fragmentary perspective view of a colored and acetate-coated metallic sheet from which the decorative components of the yarn of the present invention are made.

Figure 5 represents a cross-sectional view taken generally along line 5—5 of Figure 4.

Figure 6 represents an enlarged, fragmentary perspective view of another embodiment of the decorative yarn of the present invention.

In one embodiment of the present invention,

illustrated in Figures 1, 2 and 3, a strand of yarn 9 having a background core 10 of cotton, mercerized cotton, rayon, nylon or any other suitable material, is provided. The core 10 may be composed of a plurality of individual spirally-wound fibers 11 or may be a single generally longitudinal filament or core (not shown). The core 10 may be of any diameter and color desirable.

Extending generally parallel with the axis of the core 10 is a long, thin and relatively narrow strip or decorative component 12 formed from a colored, acetate-coated metallic sheet, as is shown particularly in Figure 1. The decorative component 12 is held in place against the core 10 by a strand 13 of relatively small-diametered cotton or nylon or rayon or other threads, filaments or the like which is wrapped around the core 10 at an extended pitch; i. e. the pitch of the spiral strand 13 being much greater than its diameter, so that the intervening space between successive loops is much greater than the diameter of the strand whereby to expose a large surface-area of the core 10 therebetween. Moreover, because the diameter of the strand 13 is relatively small, very little surface-area of the decorative component 12 is covered where the strand passes thereover.

Although the decorative component 12 extends generally parallel to the axis of the core 10, the spiralling of the strand 13 about the core 10, secures the decorative component 12 closely thereto, whether the decorative component 12 is parallel thereto, spiralled about, reversibly spiralled about, or otherwise positioned relative to the core 10. A non-uniform spiralling of the decorative component 12 is especially advantageous. Thus, the metallic sheen or surface which is given to the yarn 9 appears at random places and is distributed over the surface at various places around the periphery of the core 10.

When a fabric is manufactured from the embodiment of the yarn of the present invention shown in Figure 1, as is illustrated in Figures 2 and 3, the metallic spots or colored portions of the yarn (imparted thereto by the decorative component 12) appear at random on the fabric-surface. Moreover, the position of the metallic spots appears to change as the angle of incidence of line-of-sight of the person looking at the fabric shifts, because of the slow spiral twist of the decorative component 12 about the core 10. Thus, if the fabric is viewed generally at a right angle to the surface thereof, the metallic spots appear at certain places on the surface of the fabric, but if the fabric is viewed with the line-of-sight striking the surface thereof at an acute angle, the spots will appear at different places on the fabric because the light will be reflected from different portions of the decorative component as it spirals or twists about the core 10 from which the fabric is made.

This random and variegated disposition and appearance of the decorative metallic and colorful spots imparts a novel and desirable appearance to fabric made of the yarn of the present invention.

The decorative component 12 of the present invention reduces or eliminates tarnishing or fading or shedding of the color or decorative effect as the yarn is manufactured or used in knitting machines or weaving machines or the like.

The decorative component 12 may be formed of a thin sheet 14 of aluminum foil (which, for example, may be approximately .00094 inch thick). Each side of the sheet of foil 14 may be

coated with a colorful dye 15 and then covered with an acetate film 16 (on each side) to provide a generally laminated sheet having the metallic core which is colored or dyed and then covered with an abrasion-resistant coating. Instead of applying the dye directly to the metallic foil, the acetate may be colored and this colored acetate may be applied directly to the metallic foil so that the acetate imparts both color and abrasion-resistant qualities to the metallic foil. Moreover, the application of the acetate to the metallic foil increases the tensile strength as well as the abrasion-resistant qualities of the foil. Thereafter, the foil may be cut into long strips, of suitable length, to be applied as a decorative component 12, in strip form, as shown in Figure 1, to the core 10. Each of the acetate coatings may, for example, be approximately .00038 inch thick so that the total thickness of the decorative component may be, for example, approximately .0027 inch. These narrow strands 12 of the decorative component may be formed into long strips so as to be applied generally continuously to the core 10 and secured thereto by the strand 13 to provide long lengths of the yarn 9 suitable for use in knitting, weaving, braiding, lace-making or the like.

It is to be understood that the decorative component may be manufactured in a continuous process by coating a generally continuous thin, narrow strip of metallic foil with dye and acetate and/or dye-containing acetate, rather than manufacturing the decorative component in sheets from which, subsequently, the strips of decorative components may be produced.

In addition, two or more of the decorative components 12, such as 12-a and 12-b, shown in Figure 6, and each formed of a metallic foil differently colored (or having differently colored acetate coatings) may be secured generally parallel and adjacent to each other by a spirally-wound strand 13-a, in a manner similar to the formation of the yarn 9. Thus, the decorative components 12-a and 12-b may be secured together, without the core 10 interposed therebetween, to provide a multi-colored strand of yarn or the like. The decorative components 12-a and 12-b which form the multi-colored strand 9-a have sufficient tensile strength imparted thereto by their respective acetate coatings so that the embodiment shown in Figure 6 may be used in weaving, knitting, braiding, lace-making or the like without the necessity of having a cotton core (or core of similar material) associated therewith.

It is to be understood that more than one of the decorative components 12 may be used in conjunction with the core 10 to provide a strand of yarn having a greater number of colorful metallic spots, or having spots of more than one color distributed about the surface thereof.

It is also to be understood that the yarn 9 may include a core 10 and a decorative component 12 having any desirable combination of colors in the core and decorative component.

It is also to be understood that the spiral strand 13 may be of a contrasting color, but, preferably, I choose a strand which blends with the color of the background yarn or core 10 and is small enough so as to obscure relatively little of the surface-area of the decorative component 12 as it passes thereacross; whereby, to the observer, the yarn consists of a generally central core of one color having colorful metallic spots or areas

5

of a contrasting color distributed at random about the surface thereof.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and it is therefore desired that the present embodiments be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than the foregoing description to indicate the scope of the invention.

Having described my invention, what I claim as new and desire to protect by Letters Patent is the following:

1. In a composite yarn, a core, a thin narrow decorative strip of contrasting color secured to the surface of said core by a spirally-wound strand, the diameter of said strand being much smaller than the diameter of said core, the pitch of said spirally-wound strand being greatly in excess of the diameter of said strand.

2. In a composite yarn, a core, a thin narrow decorative metallic strip of contrasting color secured to the surface of said core by a spirally-wound strand, the diameter of said strand being much smaller than the diameter of said core, the pitch of said spirally-wound strand being greatly in excess of the diameter of said strand.

3. In a composite yarn, a core, a thin narrow decorative strip of contrasting color secured to the surface of said core generally parallel therewith by a spirally-wound strand the diameter of said strand being much smaller than the diameter of said core, the pitch of said spirally-wound strand being greatly in excess of the diameter of said strand.

4. In a composite yarn, a core, a thin narrow decorative strip of contrasting color secured to the surface of said core by a spirally-wound strand, the diameter of said strand being much smaller than the diameter of said core, the pitch of said spirally-wound strand being greatly in excess of the diameter of said strand, said decorative strip comprising a colored and acetate-covered thin metallic foil.

5. A multi-ply strand comprising a plurality of

6

thin narrow strips of metallic foil each colored and covered with an acetate coating and secured to each other by a small-diametered filament spirally-wound around said strips, the pitch of said spirally-wound filament being greatly in excess of the diameter of said filament.

6. In a composite yarn, a core, a thin narrow decorative strip of contrasting color secured to the surface of said core by a spirally-wound strand, the diameter of said strand being much smaller than the diameter of said core, the pitch of said spirally-wound strand being greatly in excess of the diameter of said strand, said spirally-wound strand securing said decorative strip spirally around said core.

LEO SILVERMAN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
437,632	Splitdorf	Sept. 30, 1890
1,529,056	Ellis	Mar. 10, 1925
1,803,021	Koella	Apr. 28, 1931
1,990,840	Protz	Feb. 12, 1935
2,041,418	Katz	May 19, 1936
2,046,886	Strain	July 7, 1936
2,058,783	Franke	Oct. 27, 1936
2,118,847	Katz	May 31, 1938
2,132,620	Hill et al.	Oct. 11, 1938
2,150,058	Frazier	Mar. 7, 1939
2,161,819	Katz	June 13, 1939
2,174,912	Thielking	Oct. 3, 1939
2,250,473	DeLong	July 29, 1941
2,268,673	Reynolds	Jan. 6, 1942
2,326,955	Mack et al.	Aug. 17, 1943
2,528,523	Kent	Nov. 7, 1950

FOREIGN PATENTS

Number	Country	Date
219,902	Switzerland	June 1, 1942
407,457	Great Britain	Mar. 22, 1934