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A. B. COLLINGBOURNE

ARTIFICIAL SILK FLOSS

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Fig. 1.

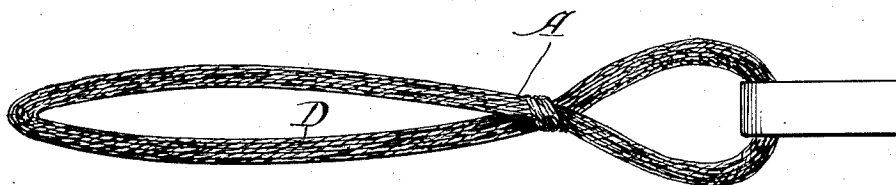


Fig. 2.



Fig. 3.

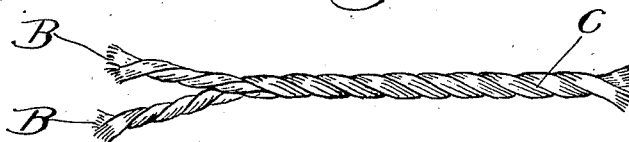
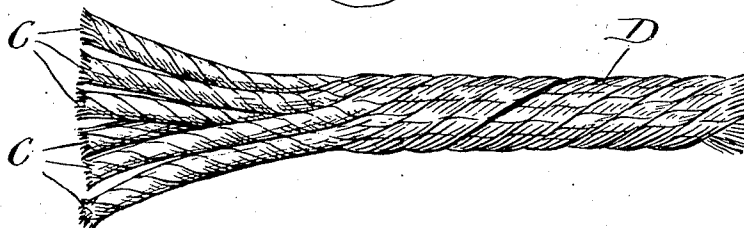


Fig. 4.



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UNITED STATES PATENT OFFICE.

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ARTIFICIAL SILK FLOSS.

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This invention relates to artificial silk embroidery floss and the method of making the same.

Heretofore a number of the artificial silk threads of commerce, each composed of a plurality of fibres loosely twisted together, have been combined by being given a relatively small number of turns to the inch in one direction, to form a two, three or four ply strand, as desired. A number of these strands have been combined by twisting in the opposite direction to form an embroidery floss of the desired number of strands.

The number of twists to the inch, given to the original artificial silk fibre to form the thread of commerce, and the number of twists, in the opposite direction, given to a plurality of such threads to form a strand, have heretofore been comparatively small,—it being thought necessary in order to render the embroidery floss strands separable from each other and smooth in appearance, to use a minimum number of twists per inch in each step of the production.

I have discovered that a superior product is produced by giving the artificial silk fibres a comparatively large number of turns to the inch in a given direction to form the thread of commerce, by also giving a plurality of such threads when combining them to make a single strand, a comparatively large number of turns in the opposite direction, and finally combining a number of these strands by a comparatively small number of turns. The result of this particular arrangement is to hold firmly in place the individual fibres composing the thread, and the individual threads composing the strands, and to permit the strands to be readily separated from each other without injury thereto.

In the drawings:

Figure 1 represents a skein of artificial silk embroidery floss.

Figure 2 represents, on an enlarged scale, a single thread of the artificial silk of commerce.

Figure 3 represents a two ply thread composed of two of the threads shown in Figure 2.

Figure 4 represents a six strand thread composed of six of the threads shown in Figure 3.

Figures 2, 3 and 4 are drawn on the same scale.

Referring to the drawing, A represents a complete skein of artificial silk embroidery floss as arranged for use. It is made in the usual manner by folding the floss thread D back and forth to form the skein A. The floss D is composed of six of the strands C and each strand C is composed of two of the artificial silk threads B. Each thread B is composed of a plurality of small fibres b.

Referring to Figure 2, the thread B is composed of a plurality of fibres b laid longitudinally and generally parallel to each other. This thread is given a comparatively large number of turns to the inch—that is, preferably ten turns to the inch. In the drawing these are shown as right turns. To make the two ply thread or strand C, I take two of the threads B and combine them by giving them a comparatively large number of turns to the inch in the opposite direction, that is, to the left. Preferably, I combine the threads B to make the strand C by giving them ten turns to the left. This operation of turning the threads B to make the strand C results in slightly untwisting the turns given to the separate threads B, so that the strand shown in Figure 3 will be composed of two threads B having a right twist of eight and one half to nine turns per inch, and the strand C will have a left twist of ten turns per inch.

As shown by Figure 4, a plurality of these strands C may then be combined by a comparatively small number of turns to the inch,—preferably two turns to the right, to the inch, to produce the floss D. It will be understood that the direction of the twist will be opposite to that used in combining the threads B to make the strand C.

By giving the original artificial silk thread about ten turns to the inch in one direction and combining two or more of such threads to make the strand C by twisting them about ten turns to the inch in the opposite direction, I secure a strand of embroidery floss which is sufficiently twisted to render it distinct and to keep the ends of the individual artificial silk fibres from separating out of the thread and producing a rough or frayed appearance. By combining these strands, preferably six, by a much smaller number of turns to the inch, preferably only

two, a multi-strand embroidery floss of artificial silk is produced, wherein the strands may be readily separated from one another for use, without disturbing the perfection of either the withdrawn or the remaining strands.

I claim as my invention:

1. The method of producing embroidery floss of smooth, unfrayed appearance, the individual strands of which are relatively tightly twisted and readily separable from each other, which consists in twisting the artificial silk threads a relatively large number of turns to the inch, in forming a two-ply strand from said threads, throwing the two threads the same number of turns to the inch but in a direction opposite that of the twist of the threads, and then forming the floss by combining a plurality of said two-ply strands, throwing the latter in the opposite direction of the twist of the strands and by a number of turns considerably less than the number of turns in the silk thread.
2. The method of making embroidery floss from artificial silk threads which have about ten turns to the inch, which consists in twisting two of such threads into a two-ply strand having the same number of turns in the opposite direction as the turns of the thread, and then combining a plurality of said two-ply strands into a floss having a twist of two turns to the inch in a direction opposite the direction of twist of the strands.

3. As a new article of manufacture, an arti-

ficial silk embroidery floss characterized by having the silk thread and the two-ply strands made therefrom, given the same number of twists to the inch but thrown in opposite directions, and by having the various two-ply strands grouped to form the floss and thrown as a whole in a direction opposite the direction of twist of the strands, but with a much smaller number of turns to the inch, and being characterized in appearance by the relatively tight twist of the strands and the relatively loose twist of the floss as a whole, and by the individuality and separability of the strands permitting the withdrawal of one or more strands without disturbing the remaining strands.

4. As a new article of manufacture, an artificial silk embroidery floss characterized by having the silk thread and the two-ply strands thereof each thrown about ten turns to the inch, but in opposite directions, and by having a number of strands combined together and thrown two turns in a direction opposite the direction of twists of the strands, being further characterized by the individuality and separability of the strands composing it, permitting the withdrawal of one or more strands without disturbing the remaining strands.

In testimony that I claim the foregoing as my invention I affix my signature this 7th day of January, 1927.

ALBERT B. COLLINGBOURNE.