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A. B. COLLINGBOURNE

ARTIFICIAL SILK FLOSS

Filed April 23, 1923

Fig. 1.

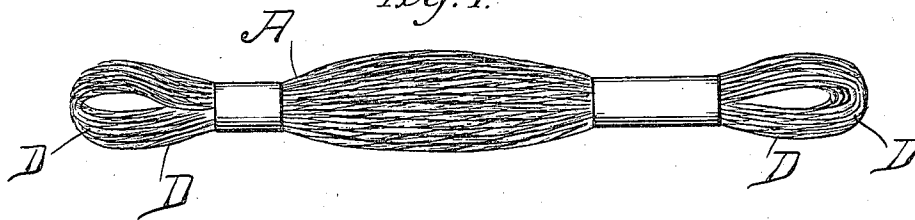


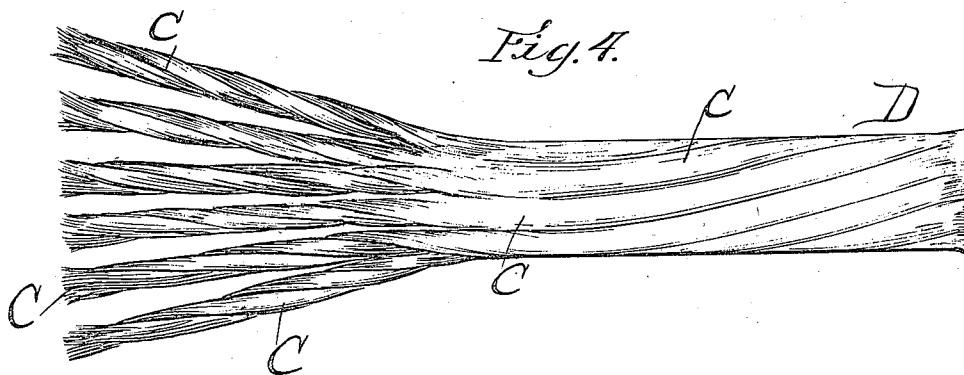
Fig. 2.



Fig. 3.



Fig. 4.



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by Wm. E. Brown Atty.

UNITED STATES PATENT OFFICE.

ALBERT B. COLLINGBOURNE, OF ELGIN, ILLINOIS, ASSIGNOR TO WESTERN THREAD COMPANY, OF ELGIN, ILLINOIS, A CORPORATION OF ILLINOIS.

ARTIFICIAL-SILK FLOSS.

Application filed April 23, 1923. Serial No. 633,905.

To all whom it may concern:

Be it known that I, ALBERT B. COLLINGBOURNE, a citizen of the United States, residing at Elgin, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Artificial-Silk Floss, of which the following is a specification, reference being had to the accompanying drawings, and to the reference characters marked thereon, which form a part of this specification.

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

Artificial silk, made from wood pulp, or other material, is at present time obtainable in the form of a thread composed of a plurality of longitudinally arranged fibres and given a right hand turn or twist of about two and two-tenths ($2\frac{2}{10}$) turns to the inch.

Heretofore a plurality of these threads, say five, have been brought together to form a larger thread, and two of such larger threads twisted together to form a (5×2) two ply embroidery silk. Likewise, a plurality, say three, have been combined to form a larger thread, and three of such larger threads twisted together to form a (3×3) three ply crochet thread. Various other combinations, such for example as a 10×2 or 12×2 , have been produced to form heavier two ply embroidery silk.

In the above and other combinations of artificial silk thread, and by giving the same the various turns or twists heretofore used to produce embroidery silk, it has been impossible to produce an artificial silk floss having a good silky lustre, a floss which is easy to manipulate in use, a floss which will not fray and have loose ends of fibres projecting therefrom, and a floss from which one or more strands may be withdrawn and such separated strands be free from kinks, twists or convolutions which render it impractical for use.

After a series of experiments, I have discovered a method of manipulating the commercial artificial silk fibrous thread in such manner as to produce, as a new article of manufacture, a skein of artificial silk embroidery floss which is easy to sew with, possesses a brilliant and desirable lustre, which has the appearance of being substantially untwisted, and from which one may

draw one or more strands in even form, free from kinks or convolutions, ready for use, without fraying or disturbing the substantially longitudinal arrangement of the fibres composing that part of the thread from which the strand or strands have been withdrawn.

Referring to the drawing, Fig. 1 represents my finished product, substantially full size.

Fig. 2 represents, on a considerably larger scale, a single thread of the artificial silk of commerce.

Fig. 3 represents a two ply thread composed of two of the single artificial silk threads of commerce.

Fig. 4 represents a six ply thread of the embroidery floss composed of six two-ply threads.

Figs. 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 put up 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, each strand C being a two ply strand composed of two of the artificial silk threads B, B. Each thread B is composed of a plurality of small fibres b, b .

Referring to Fig. 2, the thread B of artificial silk, as it is produced by the manufacturer, is composed of a plurality of artificial silk fibres b, b , laid longitudinally, and more or less parallel. This thread is given approximately two and two-tenths 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 artificial silk threads B, B, and combine them by giving them turns in the opposite direction,—that is, to the left. To produce the results I desire, I have found by experimentation, that to combine the two threads B to make a strand C, four turns to the inch, to the left, should be used.

I am now ready to make the embroidery floss D which as before stated, is a six ply floss. By taking six of the two ply strands C, C, and combining them into a single thread D, I use substantially one and four-tenths ($1\frac{4}{10}$) turns to the inch, to the right; or, in other words, in the direction opposite to that used in combining the two ply threads to make the strand C.

After each of the operations referred to,

the silk is given just enough steaming treatment to set the twists or turns given to the threads.

If the artificial silk B as it comes from the manufacturer has been given left turns instead of right, then in making the two ply strand C, I use four right turns, and in making the six strand thread D, I make approximately one and four-tenths left turns.

I find that by this particular manipulation of the artificial silk thread of commerce, I obtain an embroidery floss D that is entirely satisfactory in use, which because of its smoothness and generally untwisted condition does not produce friction in use, and which, notwithstanding this loose twist, does not become frayed.

By my particular method, I have also been able to produce an artificial silk embroidery floss having a plurality of individual strands, one or more of which may be withdrawn from the floss thread and used separately for embroidery or other purposes, such withdrawal being accomplished without disturbing the smoothness of either the withdrawn strands or the floss skein thread.

It is generally known that in embroidery floss of other materials, and produced by other methods, when one or more strands are withdrawn from the floss as a whole, such strand or strands are practically unfit for use because of the curls or convolutions set in the individual strands, due to the particular twisting and steaming methods used. With artificial silk, greater difficulties have been experienced in the endeavor to produce such an article, due to the nature of the fibres composing the silk threads.

My method of combining the artificial silk of commerce into a two-ply strand is such that the strand is given just enough twist and steam treatment to give it individuality and properly hold the fibres composing it in place, and my method of combining a plurality of these two-ply strands to make an embroidery floss is such that the strands are given just enough twist and steam treatment to hold the fibres composing them in smooth, substantially longitudinally arranged positions, and yet permitting of the easy withdrawal of one or more strands without disarranging the other strands.

I claim as my invention:

1. The method of producing embroidery floss of smooth, untwisted appearance, the individual strands of which are separable from the other strands, which consists in first forming a two ply strand from artificial silk threads, throwing the two threads in a direction opposite that of the original twist of the individual threads, and then forming the floss by combining a plurality of the two ply

strands, throwing the latter in the opposite direction to the twist of the strands, the number of turns to the inch in forming the two ply strands being greater than the number of turns to the inch given to the silk thread or to the multi-strand floss.

2. The method of producing embroidery floss of smooth, untwisted appearance, the individual strands of which are separable from the other strands, which consists in twisting two threads of artificial silk to form a strand, and then twisting six strands to form the floss, the twisting of the silk to form the strand being in a direction opposite the direction of twist of the other two, and the number of turns to the inch used in forming the strand being slightly greater than the number of turns to the inch of the artificial thread and the six strand floss combined.

3. The method of producing embroidery floss from artificial silk threads having about two and two-tenths turns to the inch, which consists in twisting two of such threads into a two-ply strand having four turns to the inch in a direction opposite that of the individual threads, and then combining a plurality of said strands into a floss having a twist in the same direction as that of the silk threads of about one and four-tenths turns to the inch.

4. As a new article of manufacture, an artificial silk embroidery floss characterized by having the silk thread, the two ply strand and the floss twisted alternately in opposite directions, the number of turns to the inch of the middle twist being slightly greater in number than the combined numbers of turns to the inch of the silk thread and the floss, and further characterized by the individuality and separability of the strands composing it, permitting of the withdrawal of one or more strands from the floss, and by the smooth, undivided, untwisted appearance of the floss as a whole.

5. As a new article of manufacture, an artificial silk embroidery floss composed of a plurality of strands of silk threads, each strand being twisted to render it individual and separable from the other strands while maintaining a substantially untwisted appearance, and said plurality of strands being twisted together to form a floss of smooth, untwisted appearance.

In testimony that I claim the foregoing as my invention I affix my signature, in the presence of two witnesses, this 18th day of April, 1923.

ALBERT B. COLLINGBOURNE.

Witnesses:

E. J. HATTON,
Geo. W. ZON.