

Feb. 13, 1945.

M. LANGA

2,369,470

METHOD FOR MAKING SPACED CROSS STITCHES

Filed March 14, 1944

2 Sheets-Sheet 1

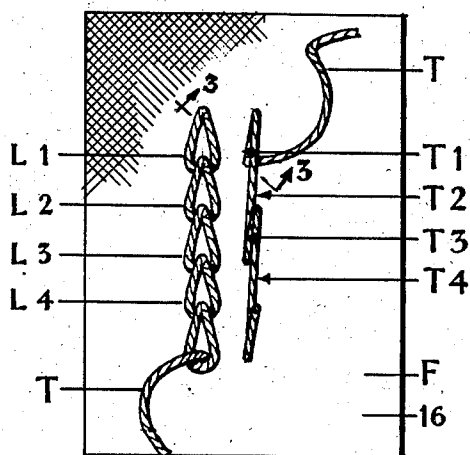


Fig. 1

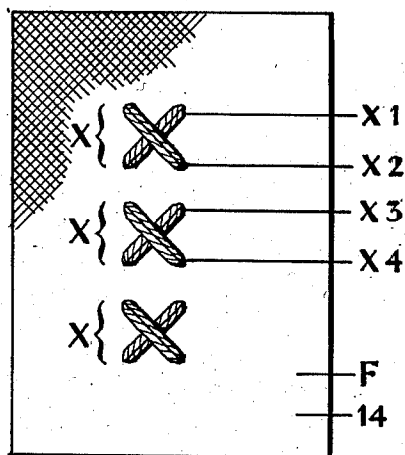


Fig. 2

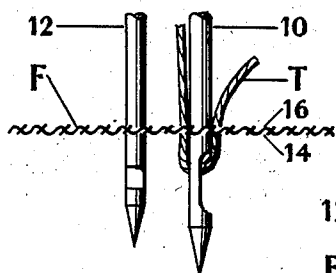


Fig. 3

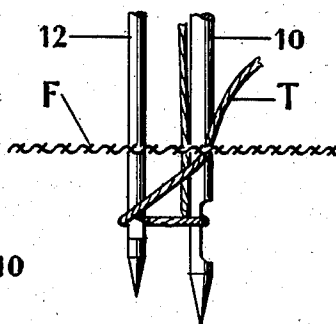


Fig. 4

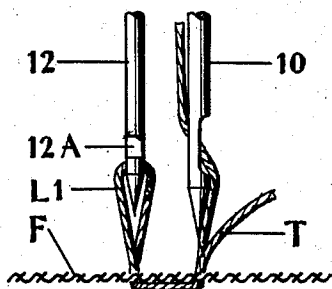


Fig. 5

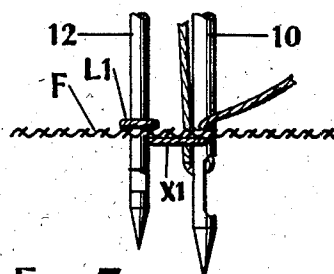


Fig. 6

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2 Sheets-Sheet 2

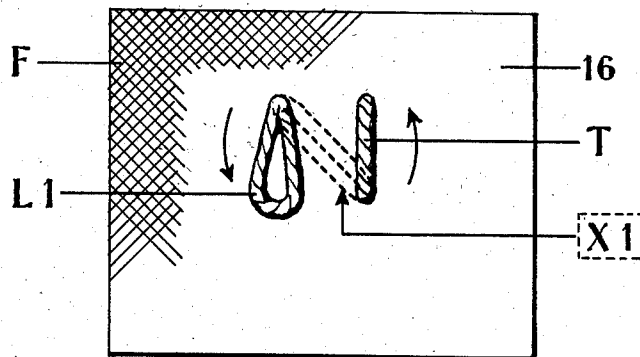


Fig. 8

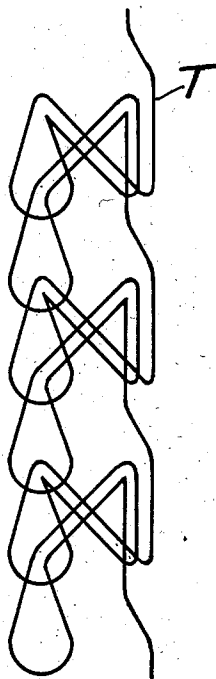


Fig. 10

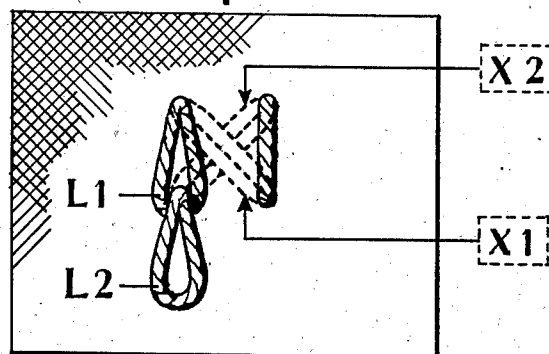


Fig. 9

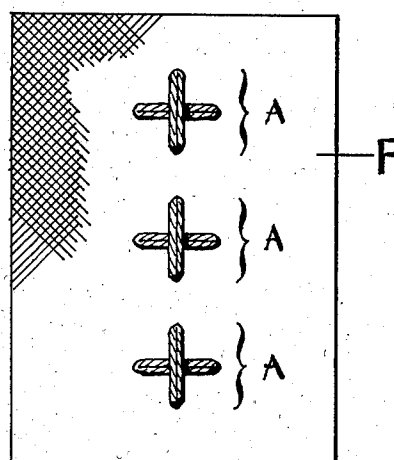


Fig. 11

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2,369,470

METHOD FOR MAKING SPACED CROSS-STITCHES

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Application March 14, 1944, Serial No. 526,387

2 Claims. (Cl. 112—266)

My invention relates to stitch sewing and relates particularly to making a spaced cross stitch by machine, simulating a hand made cross stitch.

It is, therefore, an object of my invention to provide a method for making spaced cross stitches on a quantity basis.

It is another object of my invention to provide a simple method for manufacturing spaced cross stitches by machines which are readily available.

Other objects of my invention are to provide an improved method of forming cross stitches which is economical in quantity production and which method is relatively simple.

With the above and related objects in view, my invention consists in the details of construction and combination of parts as will be hereinafter more fully described and which will be more readily understood when the description is read in conjunction with the accompanying drawings in which:

Fig. 1 is a plan view of the back of fabric showing the formation of the back of the cross stitching; a chain of loops on the left hand side and a series of threads on the right hand side. The formation of threads on the right hand side is slightly exaggerated and out of position so that the steps of the process will be more readily understood.

Fig. 2 shows the front face or the bottom of the fabric wherein a series of cross stitches have been completed.

Fig. 3 is a fragmentary view showing the threaded needle and hook needle, both needles have pierced the fabric and they are in the position indicated by the lines 3—3 of Fig. 1.

Fig. 4 is a fragmentary view showing the threaded needle, the thread, and the hook needle, with the looper moving into position to grasp the extended portion of the thread.

Fig. 5 is a view showing the next step in the series of operations wherein the looper has carried the extended portion of the thread and looped it around the hook needle.

Fig. 6 shows the relative position of the threaded needle and the hook needle after the threaded needle and hook needle have moved in unison in an upwardly direction, the hook needle drawing the loop through the fabric thereby forming one portion of the first cross stitch on the face of the fabric.

Fig. 7 is a fragmentary view showing the previously formed loop encircling the hook needle, and both the threaded needle and the hook needle piercing the fabric.

Fig. 8 is a view of the back of the fabric, both the threaded needle and hook needle being omitted, showing the position of the loop which has been drawn through the fabric and which loop by the oscillation of the needles from the position indicated as in plane 3—3, has been moved forward, also thread T has been moved backward.

Fig. 9 shows the back of the completed cross stitch. The steps of the process have been repeated so that the threaded needle and the hook needle in unison have pierced the fabric; the looper has come into operation drawing the extended thread and looping it around the hook needle; the newly formed loop has been drawn through the previously formed loop thereby completing the cross stitch.

Fig. 10 is a schematic view showing the continuity of the thread.

Fig. 11 is a modification of the type of cross stitch that may be made with my invention.

Referring now in detail to my invention and the steps of the method involved in making my series of cross stitches, each cross stitch being generally designated as X, wherein each cross stitch is spaced from one another on the fabric, and the cross stitches resemble hand made cross stitches although made by a machine.

My invention is carried out with the use of a sewing machine (not shown) having a threaded needle 10 and a hook needle 12 which are spaced apart in one needle bar (not shown), and the needles being rigidly held to move together in a vertical reciprocating direction, and both threaded needle 10 and hook needle 12 also may oscillate together in a horizontal plane.

Throughout this specification both the threaded needle 10 and the hook needle 12 simultaneously move as a unit vertically, and oscillate horizontally since they are rigidly held in the same needle bar. Hence, reference to a vertical movement of one needle means that the other needle moves likewise in the same direction, and reference to the oscillation of one needle in a horizontal plane in one direction means that the other needle oscillates in the opposite direction in the same plane.

The movements of the threaded needle 10 and the hook needle 12 are predetermined and move in a cycle of events which are repeated for each successive cross stitch. Hence, a suitable cam action may be embodied in the sewing machine (not shown), to repeat the series of steps embodied in my process.

A piece of fabric, generally designated as F, is placed so its face 14 is down on the bed of the sewing machine, and the back of the fabric is

up. The fabric F is held face downwardly and it is advanced by a suitable work advancing feed (not shown). The threaded needle 10 carries a thread, generally designated as T, which thread forms the cross stitch on the fabric F. The thread T supplied from a cone or spool (not shown) is fed down from between the needles and is threaded through needle 10 from the same direction.

As Fig. 1 is viewed both the threaded needle 10 and the hook needle 12 simultaneously pierce the fabric F along the plane 3—3, which view is represented in Fig. 3, both needles reach their lowest position, and start upwardly, and a looper, generally designated as L, see Fig. 4, suitably timed, carries the extended portion of the thread T to loop it around the hook needle 12, see Fig. 5. Hook 12A of the hook needle 12 holds and draws the loop upwardly simultaneously with threaded needle 10 carrying a new portion of thread T supplied from a cone or spool (not shown). The threaded needle 10 and hook needle 12 are elevated as shown in Fig. 6 thereby forming one face portion XI of the cross stitch X. Both the threaded needle 10 and hook needle 12 are oscillated horizontally counterclockwise to the desired angle of crossing which generally would approximate 90°, so that loop L1, held in hook 12A of hook needle 12, is carried forward; simultaneously thread T is carried backward and is shown as short thread T1, see Fig. 1. Loop L1 is shown as the first link in the chain of stitches appearing in Fig. 1. In the new position aforementioned the point and hook of the hook needle 12 as well as the threaded needle 10, pierce the fabric as before and the looper L moving in position to grasp the newly extended portion of thread T, loops it around the hook needle 12 as before, which needle is encircled on the back of the fabric by the aforementioned loop L1, see Fig. 7. The newly formed loop L2 is pulled through the fabric and the previously formed loop L1 to form a stitch—the second portion X2 of the cross stitch X is formed, thus completing cross stitch X on the face 14 of the fabric.

The movement of the fabric F by the work advancing feed (not shown) a suitable distance carries the fabric backwardly, thus bringing a new section of the fabric in position for a new cross stitch.

Simultaneously with the movement of the fabric F by the work advancing feed (not shown), both the threaded needle 10 and the hook needle 12 are oscillated horizontally clockwise; the movement of the fabric F carries the loop L2 forward although the hook needle oscillates backward; simultaneously thread T is carried forward and is shown as long thread T2, seen Fig. 1. The loop L2 above the fabric F becomes the feed space loop connecting the completed cross stitch X with the cross stitch that is to follow. Another loop L3, formed in the same manner as loop L1, is pulled through feed-space loop L2, which encircles the shank of the hook needle 12, thereby forming part X3 of the second cross stitch X. Feed space loop L2 now is seen as the second link in the chain of stitches, see Fig. 1.

Both the needles 10 and 12 again are oscillated horizontally counterclockwise to the desired angle or degree of crossing which approximates

90°, so that loop L3, above the back of the fabric, is carried forward by the oscillation; simultaneously thread T is carried backward and is designated as thread T3, see Fig. 1, and then the needles move downwardly to pierce the fabric F.

Another loop L4 is formed in the same manner as loop L2 thereby forming portion X4 of the second cross stitch X. Simultaneous feed and oscillatory movement brings feed space loop L4 forward and thread T4 forward, see Fig. 1.

It should be noted that although the back 16 of the fabric F has a chain of loops in one line and substantially a straight line of threads on the other side, the drawing Fig. 1 shows the right hand line of thread T somewhat zig-zag but this is exaggerated, for cross stitches shown in Fig. 2, as the line is nearly straight on the fabric, the stitches being almost superimposed one on the other. However, on the face of the fabric a series of equally spaced attractive cross stitches, simulating hand embroidered cross stitches is formed.

The cross stitch may form an X-like cross stitch, as cross stitch X in Fig. 2, or a + type cross stitch, as cross stitch A in Fig. 11, or a cross stitch in any position from X to +, wherein the cross stitches are spaced from one another.

The plus stitch A of Fig. 11 is made by the same action as the X stitch of Fig. 2 except that the needles are shifted to an angle of approximately 45° when the stitch is started.

My invention may be employed to hold two separated pieces of fabric together or it may be used for ornamental purposes.

Although my invention has been described in considerable detail, such description is intended as illustrative rather than limiting, since the invention may be variously embodied, and the scope of the invention is to be determined as claimed.

I claim as my invention:

1. A method for making a cross stitch by machine simulating a hand made cross stitch comprising the steps of moving a threaded needle and a hook needle in unison through a fabric, looping a portion of thread from the threaded needle around the hook needle, withdrawing both of said needles, whereby the hook needle draws said loop upwardly through the fabric, oscillating said needles in unison, said loop remaining on said hook needle, and dropping both of said needles through said fabric, forming a new loop on said hook, beneath said fabric, and withdrawing said new loop through said first mentioned loop to complete said cross stitch.

2. A method for making a cross stitch by machine simulating a hand made cross stitch comprising the steps of moving a threaded needle and a hook needle in unison through a fabric, looping a portion of thread from the threaded needle around the hook needle, withdrawing both of said needles through said fabric, oscillating said needles in unison, moving both of said needles in unison through said fabric, forming a new loop on said hook needle, withdrawing said new loop through said fabric and said first mentioned loop to complete said cross stitch, moving said fabric to a new position and simultaneously oscillating said needles in unison, and forming a new cross stitch as hereinbefore set forth.

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