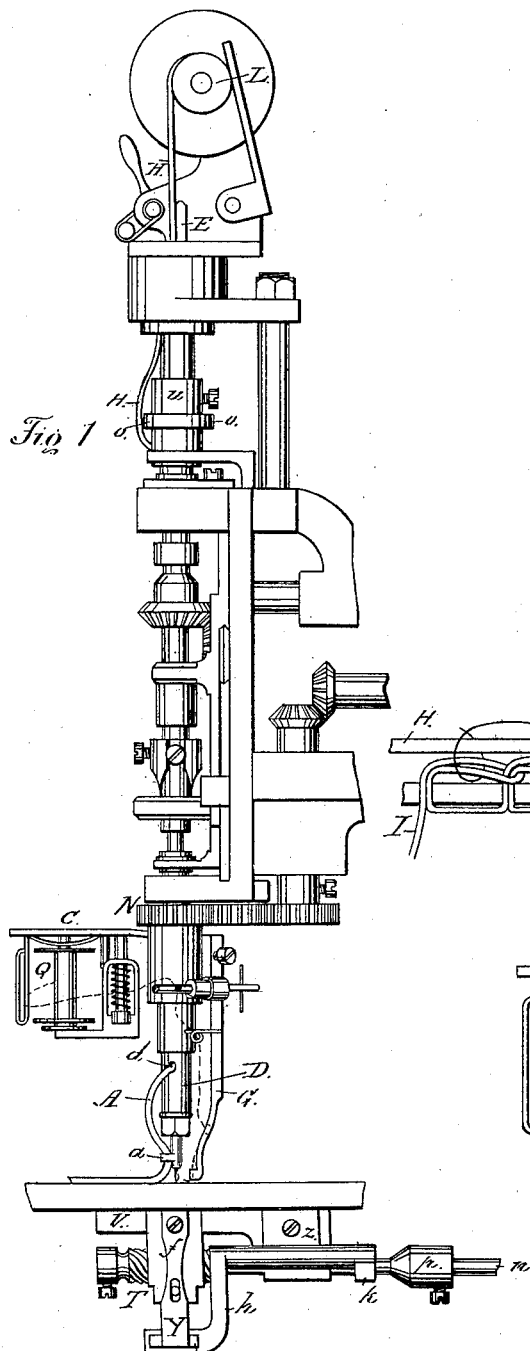


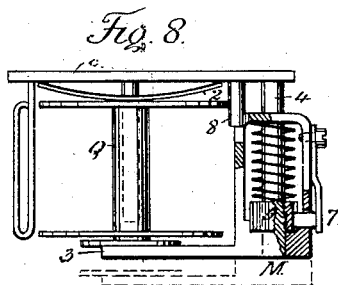
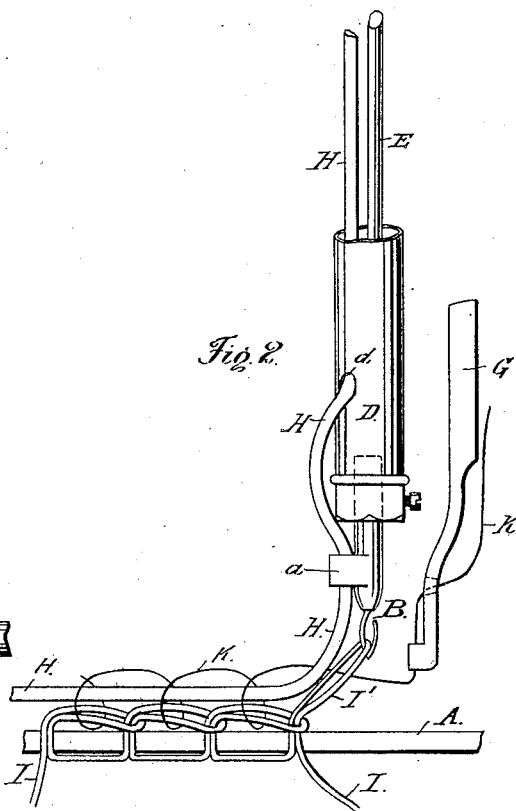
E. CORNELY.
EMBROIDERING MACHINE.

No. 345,886.

Patented July 20, 1886.



Witnesses.
Wm. H. H. H. H.
Philip H. H.

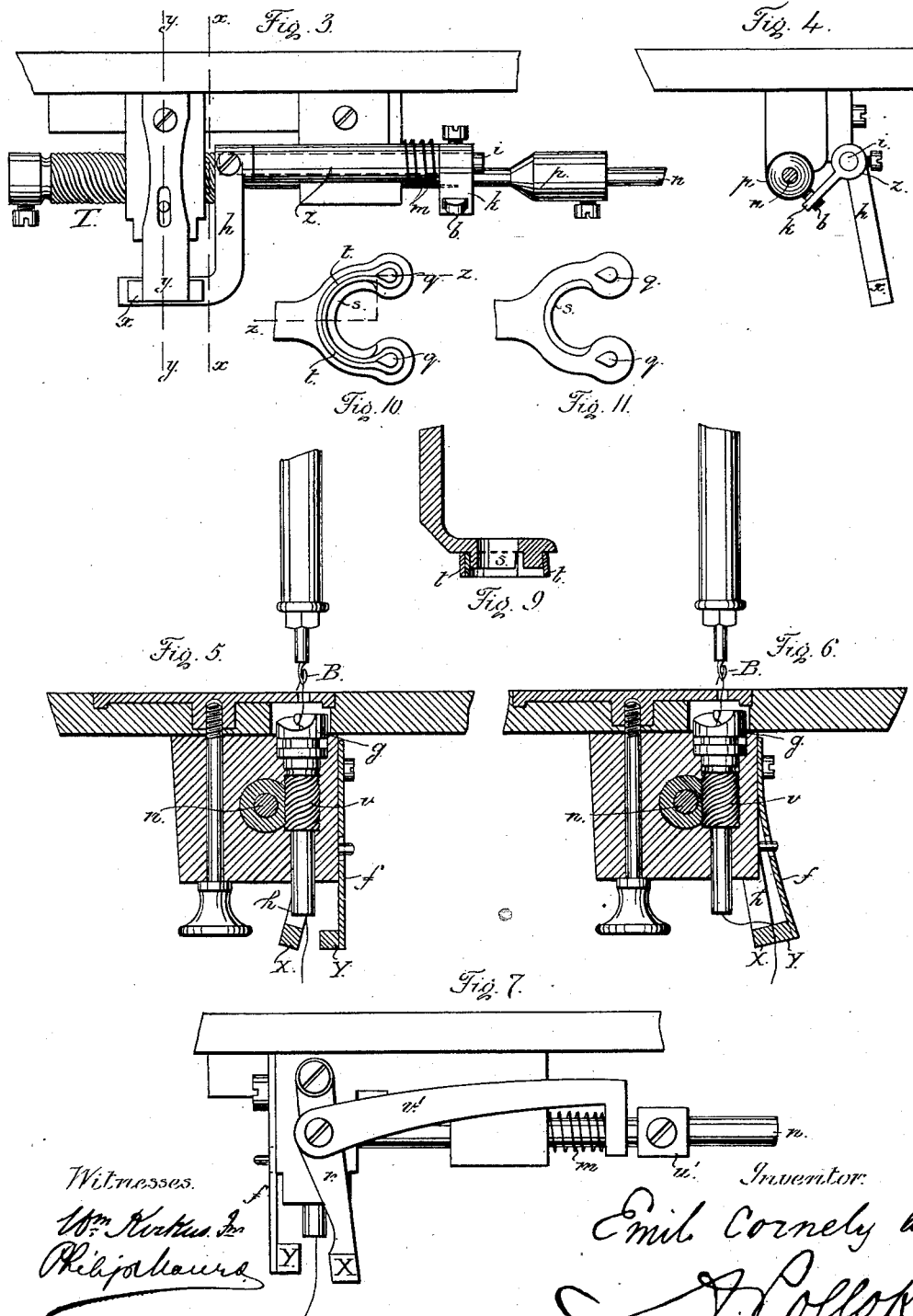


Inventor.
E. Cornely by
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Wm. Kirtland Jr.
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UNITED STATES PATENT OFFICE.

EMIL CORNELY, OF PARIS, FRANCE.

EMBROIDERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 345,886, dated July 20, 1886.

Application filed February 20, 1885. Serial No. 156,527. (No model.)

To all whom it may concern:

Be it known that I, EMIL CORNELY, a resident of Paris, in the Republic of France, have invented a new and useful Improvement in Embroidering-Machines, which are fully set forth in the following specification.

The subject-matter of the present invention relates to an embroidering-machine by means of which cords or braids can be fixed to textile fabrics after the method described and claimed in my application for Letters Patent filed December 19, 1883, No. 115,086—viz., by winding a thread around the cord and around each stitch made by the machine. For this purpose I employ the machines shown and described in Letters Patent No. 228,445, of June 8, 1880, and No. 262,742, of August 15, 1882, with certain modifications and improvements described hereinafter.

Figure 1 represents a side view of the head of an embroidering-machine provided with the mechanisms for producing the cording-work. Fig. 2 represents an enlarged view of the seam, together with the mechanism for producing it. The other figures represent detached views hereinafter to be referred to.

The spool L of the cord H is arranged above the central tube of the machine, and the cord H is passed down the central tube alongside the needle-bar E, and through the nipple-tube D, then through the opening d of said nipple-tube, and thence into the cording-guide a and to the cloth.

To do the work well it is necessary that the rotating thread-carrier G (which winds its thread K, Fig. 2, around the cord H and around the chain stitch loop I') shall pass its thread K at each stitch below the point of the needle B, to wind it around the loop I' and around the cord H; besides, the thread-carrier G must be set sufficiently high to pass freely over the cord H when it is fixed on the material. To fulfill both these conditions the needle-hook B must be set considerably high.

It is a well-known fact that the higher the needle-hook of an embroidering-machine is set the longer the loop I', Fig. 2, will be, which it draws above the cloth A, and the looser the chain-stitch will be, which it lays on the material; but as the cording-work cannot be well executed when the chain-stitch is loose, as the latter has to hold the cord which is attached

to it, it is necessary to provide means for drawing the chain-stitch tight, although the needle-hook is set in a high position. This is effected by means of a take-up apparatus, which is represented at Figs. 3, 4, 5, 6, and 7, and in which Fig. 3 represents a side view of the same. Fig. 4 represents a cross-section through line x. Figs. 5 and 6 represent cross-sections through line y.

n represents the driving-rod, to which the horizontal screw-gear T is secured, and which, by its horizontal reciprocating motion, operates the vertical screw-gear v of the thread-looper g, Figs. 5 and 6, of an ordinary embroidering-machine, which by its oscillations winds its thread around the needle-hook B, to produce the ordinary embroidering chain-stitch. A spring, f, is secured to the casting V, and is provided with a pad, Y. A jaw, X, is secured to a lever, h, Fig. 3, which is secured to a shaft, i, which latter is sustained by a bracket, Z. A cone, p, is secured to the driving-rod n, and by its reciprocating motion it strikes against the friction-roller b of lever h, which is also secured to shaft i, and, turning said shaft, moves the jaw X from the position shown in Fig. 5 toward the jaw Y. The first effect is to clamp the needle-thread, which lies between the jaws, against the jaw Y, and then the further movement of the jaw X pushes aside the jaw Y, as shown in Fig. 6, drawing upon the thread, (which passes through the hollow looper g and its hollow gear v,) pulling it downward at the moment when the needle-hook B commences its downward motion and slackens the loop I', Fig. 2, which will thus be drawn tight at each stitch, and it will thus become possible to produce a tight chain-stitch seam, although the needle-hook may be set at a high position. When the driving-rod n returns, the jaws X Y are opened by the action of spring m, Fig. 3, on shaft i.

At Fig. 7 I have represented a modification of the above-described construction. The jaws X Y are actuated by means of a block, u', acting upon a pitman, v', and a lever, r, to which the jaw X is secured. When the rod moves forward, (to the left in Fig. 7,) the block u' makes contact with the end of pitman v', and pushes it and the lever r in the same direction, thereby closing the jaw X upon the jaw Y, and then pushing upon them both, in order

to draw upon the thread and tighten the stitch. When the rod *n* retires, the jaws are returned to the position shown by the action of the springs *f* and *m*. It is also necessary that the cord, *H*, supplied to the work should not exert any strain upon it. For this purpose a projection or a ring, *o*, of metal, india-rubber, or any other substance, is applied to the upper part of the central tube, *u*, and the cord *H* is passed over it before passing it down the hollow tube. The latter by its downward motion pulls, by means of its projection *o*, at each stitch, a sufficient length of cord from the spool *L* to supply it freely to the work, and to avoid any strain thereupon.

Fig. 8 represents a side view of my improved spool-holder, which supplies the thread to the revolving thread-carrier *G*, and which revolves with the same around the needle. It differs from the one claimed in the Patent No. 279,919, of June 26, 1883, in two essential points. The spool is set into it from below instead of from above, and it is provided with a device for holding rigidly the tension-screw, which was not the case formerly. The plate *c* is rigidly secured to the pinion *N*, and the central spool-pin is secured to the plate *c*. The spring 2 and the spool *Q* are set on the central spool-pin, and the spool is sustained by means of arm 3 of the frame *M*, which is set upon the stud 4. By turning the screw-nut 5 the frame *M* and the arm 3 are raised or lowered to exert a greater or lesser pressure against the spool *Q*, for the purpose of regulating the tension of its thread. The circumference of the screw-nut 5 is toothed, and a spring-pawl, 7, secured to the frame *M* catches in between the teeth of said screw-nut and prevents it from turning. Thus the tension of the thread cannot change during the work of the machine.

The plate *c*, and consequently the spool-pin, are connected with the frame *M* by means of the stud 8, which enters into a recess of said frame and prevents its turning on the stud 4. By depressing said frame into the position shown in dotted lines, Fig. 8, it is disengaged from the stud 8, and can be turned aside, in order to permit the spool being placed on or removed from the spool-pin.

By setting in the spool from below the construction of the spool-holder renders it possible to set the spool nearer to the central tube of the machine than could be done before, which has the advantage that the centrifugal force of the spool is much reduced in its rotations around the needle.

In working on very thin material—such as tulle or lace—a circular presser-foot has been used heretofore, which is provided with an india-rubber washer as a feed-surface. In following very small designs on transparent material the said circular presser-foot covers so much of the design that the work becomes very difficult. It was therefore necessary to make an open presser-foot, which will not cover the design, and to which the india-rub-

ber surface can easily be applied. This is obtained by means of the foot represented in Figs. 9, 10, and 11. The shape of the foot is represented in horizontal views at Figs. 10 and 11. It resembles that of a horseshoe. Its sole is provided with a semicircular rim or flange, *s*, and with two dowels, *q*, and an india-rubber ring or washer, *t*, Fig. 10, is laid around the rim *s* and over the dowels *q*, and is held thereon by means of its elasticity. It affords an excellent feed-surface to work on very delicate material, and can easily be replaced when worn down.

I claim—

1. The combination, in a universal feed sewing-machine, with the reciprocating needle-hook supported and operated above the cloth-plate, the looper supported and operated below the cloth-plate and supplied with thread from below, and the mechanism for operating said looper, and for controlling its position in accordance with the direction of the feed-movement, of a take-up arranged to act upon the thread on its way to said looper, and mechanism whereby the said take-up is operated uniformly, irrespective of the position given to said looper, in accordance with the direction of the feed, substantially as described.

2. The combination, with the reciprocating needle-hook supported and operated above the cloth-plate, and the looper supported and operated below the cloth-plate and supplied with thread from below, of a take-up arranged to act upon the thread on its way to said looper, and mechanism whereby said take-up is operated to draw upon the thread during the first part of the needle's descent, while said needle is above the cloth-plate, substantially as described.

3. The combination, with the looper having a hollow shaft, through which the thread passes, the shaft having longitudinal and rotatory motions for operating said looper and controlling its position, the mechanism for longitudinally reciprocating said shaft, and the mechanism for turning the same, of a take-up arranged to act upon the thread as it enters said hollow shaft, and comprising a spring-held jaw, and a second jaw movable toward the said spring-held jaw, for clamping and drawing upon the thread, and operating mechanism comprising a device fixed on the said shaft for operating the looper, and mechanical connections for conveying the reciprocating motions of said shaft to said second jaw, substantially as described.

4. The combination, with the reciprocating needle-carrier, the cord-guide, and the thread-carrier, all supported and operated above the cloth-plate, and the thread-looper supported and operated below the cloth-plate and supplied with thread from below, of a needle-hook set high in said needle-carrier, so as to allow the free passage under it of the thread from said thread-carrier, a take-up arranged to act upon the thread on its way to said looper, and mechanism for operating said take-

up to draw down the excess of thread caused by the high setting of the needle, substantially as described.

5 The combination, with the reciprocatory needle-carrier, the cord guide, and the thread-carrier, all supported and operated above the cloth-plate, and the thread-looper supported and operated below the cloth-plate and supplied with thread from below, of a needle-
10 hook set high in said needle-carrier, so as to allow the free passage under it of the thread from said thread-carrier, a take-up arranged to act upon the thread on its way to said looper, and mechanism whereby said take-up is oper-
15 ated to draw upon the thread during the first part of the needle's descent, while said needle is above the cloth-plate, substantially as described.

6. The combination, with the stitch-forming
20 mechanism and the jaws X and Y, of the levers *h* and *k*, shaft *i*, and cone *p*, substantially as described.

7. The combination, with the stitch forming mechanism and cord-guide of an embroider-
25 ing-machine, of a projection, *o*, to the central tube, *u*, of the machine, for supplying the work with a corresponding length of cord, substantially as described.

8. The spool-holder provided with an in-
30 verted spool-pin fixed at its upper end to and depending from the frame of the spool-holder, so that the spool can be slipped over the said

pin from below, and a movable spool-supporting arm attached to said frame at the side of the said pin, so that it can be moved out to
35 allow the introduction and removal of the spool, substantially as described.

9. The combination, with the rotatory thread-carrier, of the spool-holder revolving with the same, and comprising an inverted spool-pin
40 fixed at its upper end to and depending from the frame of said spool-holder, and a movable spool-supporting arm at the lower end of said pin, said arm being attached to said frame at the side of said pin, substantially as described. 45

10. The combination, with the spool-pin, the tension-spring, the arm for bearing upon the lower end of the spool, and the tension-nut, of the pawl engaging said nut and preventing when engaged the rotation of the
50 same, substantially as described.

11. The presser-foot feeding device of a universal-feed sewing-machine, having a foot open at one side, like a horseshoe, and provided with an elastic or rubber feeding-surface
55 in the form of a ring or washer applied to said foot, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

E. CORNELLY.

Witnesses:

ROBT. M. HOOPER,
DAVID T. S. FULLER.