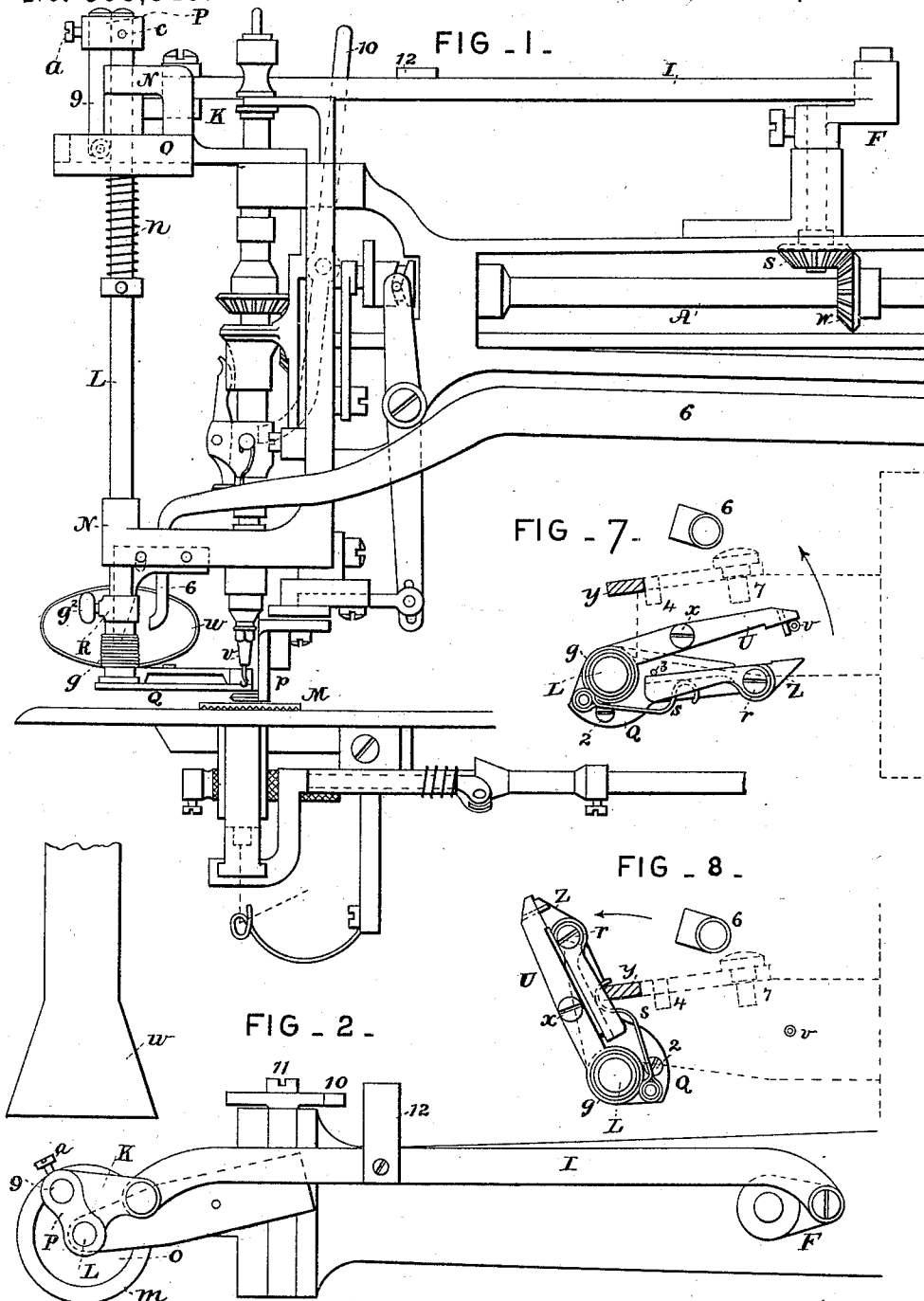


E. CORNELY.
EMBROIDERING MACHINE.

No. 395,549.

Patented Jan. 1, 1889.



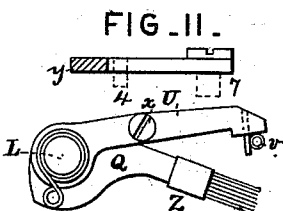
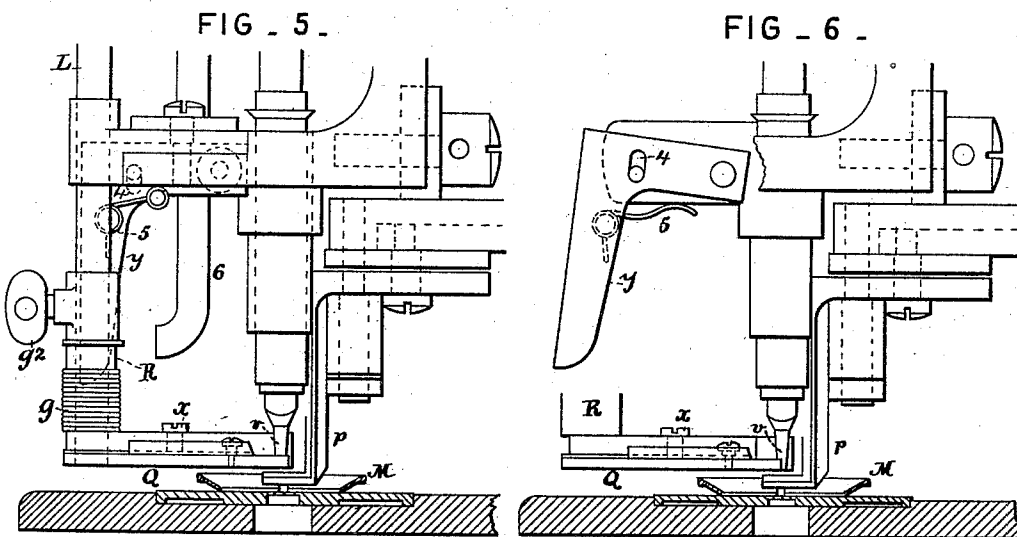
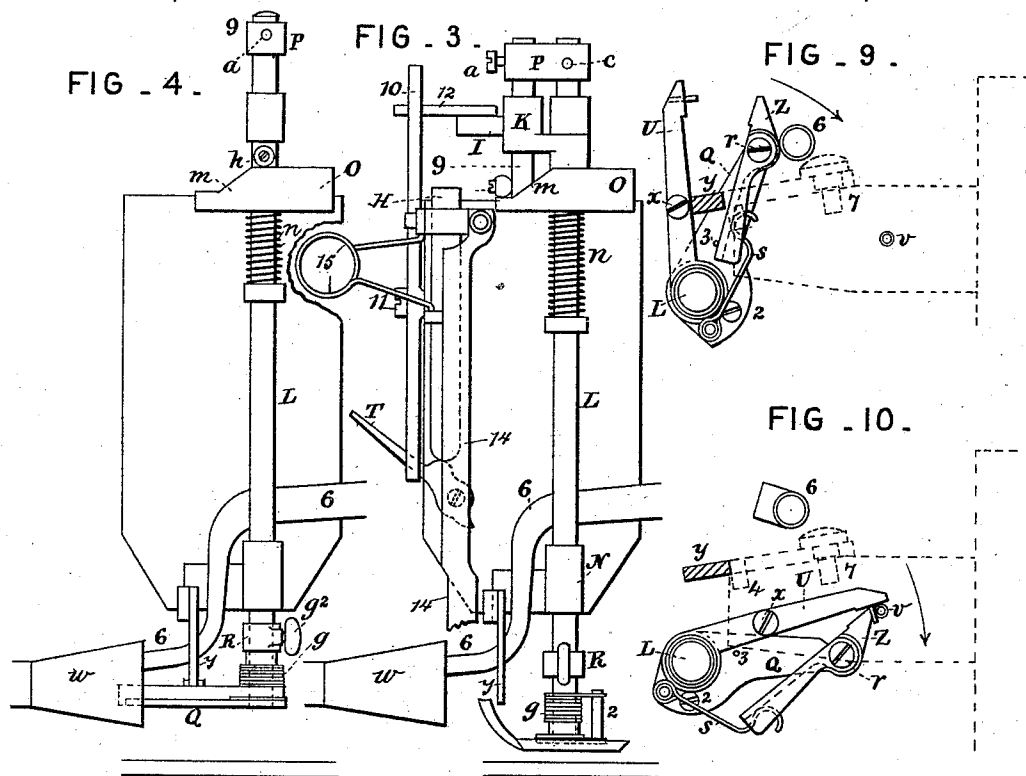
Attest:
Geo. T. Smallwood
Philip Mauro

Inventor:
Emil Cornely by
J. Pollor
his attorney.

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Emil Cornely by
A. Pollok
his attorney.

UNITED STATES PATENT OFFICE.

EMIL CORNELY, OF PARIS, FRANCE.

EMBROIDERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 395,549, dated January 1, 1889.

Application filed November 19, 1887. Serial No. 255,631. (No model.)

To all whom it may concern:

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

In Letters Patent No. 297,057, of April 15, 1884, a cutting apparatus is described and claimed, in connection with a sewing or embroidering machine, for cutting each loop or thread after it has been drawn above the cloth by the hook or the needle of the machine, whereby a velvet-like embroidery is obtained. There has been a great difficulty in removing the cut ends or their fibers from the scissors of the said cutting apparatus, so as to prevent them from coming in contact with the material, as the latter could not be cleared of them entirely, particularly on work with silk thread.

The present invention has for its object to remove the said fibers from the needle and the cutters in such a manner that they cannot come in contact with the material; and it consists in mechanism for accomplishing that object, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 represents a partial elevation of the machine; Fig. 2, a horizontal view of the head of the machine and of the levers which operate the oscillating pliers. Figs. 3 and 4 are front views of the machine. The other figures are detail views hereinafter to be referred to.

A bevel-pinion, W, Fig. 1, is secured to the main shaft A of the machine and gears into the cogged wheel S, which is secured to a vertical shaft, and which operates the crank F, the pitman I, and the lever K, Figs. 1, 2, and 3. The lever K turns loosely on the shaft L, which can turn in its bearings N. A short shaft, 9, is adjusted within a proper bearing of the lever K, and can slide therein vertically. The shaft 9 is supported by a friction-roller, h, which turns on a stud at the lower part of the shaft 9, and the roller h rolls on the circumference of a circular cam, O, when the lever K is operated by the crank F. This latter being shorter than lever K, the said lever describes a part of a circle in an oscillating motion. The upper end of the shaft 9 is secured to the double sleeve P by means of

a screw, a, and the upper end of the shaft L is also secured to said sleeve by means of the pin c. Thus the lever K, by its oscillating motion, imparts the same motion to the shaft L, and the roller h, rising during said motion on the incline m of cam O, Figs. 3 and 4, imparts to shaft L at a certain moment a rising motion and again permits it to be drawn down by the action of the spring n. The pliers for removing the cut threads from the needle are secured to a shaft, L, or, for convenience of the operator, to a sleeve, R, which is secured to shaft L by means of the screw g².

The pliers Q, the stitch-forming mechanism, and parts adjacent thereto are represented in full size in Figs. 5, 6, 7, 8, 9, and 10, in which p represents the scissors for cutting the threads, described and shown in Letters Patent No. 297,057, v the nipple in which the needle-hook plays, and M the feed-surface of the machine. The pliers consist of a plate, Q, which is rigidly secured to the sleeve R or to shaft L. To this plate is attached a jaw, Z, which can turn on the stud r of the plate Q, and whose shank is pressed by the spring s against the stud 3 of plate Q. The plate Q and the jaw Z constitute, therefore, one of the jaws of the pliers. The other jaw, U, can turn loosely on the sleeve R, but is pressed against the jaw Z by the action of spring g, which is wound on the sleeve R, and whose end is secured in the jaw U. Figs. 7, 8, 9, and 10 represent the pliers in their different positions.

As represented in Fig. 7, the pliers have moved to the position to begin the operation of seizing a cut thread. In reaching this position the jaw Z has passed the nipple v, (which is now depressed,) the inclined rear edge of the said jaw Z striking the nipple and turning the jaw on its pivot r against the pressure of spring s until it passes the nipple. The jaw U, however, cannot pass the nipple, but is stopped by it, as represented in Fig. 7, while the jaw Z is carried on by the continued movement of shaft L. Thus the jaws are separated or opened and in position to seize the loop drawn up by the needle. At this moment the scissors p begin to close on the thread and the jaw Z begins to move toward the jaw U, this movement being caused by the oscillation of the shaft L, as already described, the shaft beginning at this moment

its motion in the direction of the arrow, Fig. 7. When jaws U and Z come together, the cut thread being clamped between them, the continued movement of the shaft L carries the pliers to the position shown in Fig. 8, during which time the shaft L, and consequently the pliers also, make the rising motion described above and the screw X of jaw U strikes against the curved edge of latch y, which is hinged at 7 to the machine-frame and has a movement limited by a pin fixed to said frame and entering the slot 4 in said latch. (See Fig. 6.) The screw X, striking latch y, throws it into the position shown in Fig. 6 against the pressure of spring 5. The jaws then pass under the latch, which, under the action of spring 5, immediately resumes its normal position, Figs. 1 and 5. At the position indicated in Fig. 8 the shaft has reached the limit of its oscillation in one direction, as well as its greatest altitude, and begins to return. In this return movement the jaw U again strikes the latch y and is arrested. The jaws are thus separated, and the cut thread is dropped into the flaring mouth of a tube or receptacle, W, Figs. 1, 2, 3, and 4, and is blown away by a current of air delivered through the tube 6. By the operation of this mechanism each thread as soon as it is cut off is carried away and not permitted to fall upon the fabric.

The pliers remain open until the shaft L, by its descending motion by the action of spring n, has lowered the stud x below the latch y, when the jaw U will again close upon the jaw Z, and they both continue their return motion in the direction of the arrows, Figs. 9 and 10, until the jaw Z strikes against the nipple v. At that moment the jaw Z is turned inward on its stud r to pass around the nipple v, Fig. 10, and the shaft L, continuing its motion, finally brings the pliers to the position represented in Fig. 7 for the next operation.

In Fig. 11 I have represented the plate Q of the pliers provided with a brush, instead of the jaw Z, by which the above apparatus is simplified. The brush in this case is not intended to remove the fibers from the needle by means of a brushing action, but must be considered as an elastic jaw, which presses the cut thread against the jaw U, and which on its return motion can easily pass around the nipple v, Fig. 10, by reason of its elasticity, and I have represented it to show that the construction of the pliers may be modified in various ways.

In threading the machine or in removing the work it becomes necessary to raise the feed M of the machine, which is done by means of the lever T, Fig. 3. This lever has a cam-face, which acts on the lower end of a slide, H, which is jointed at 16 to the upper end of the feed-bar 14, carrying the feed M. When cam-lever T is raised to the position shown in Fig. 3, the slide H, and with it feed-bar 14 and feed M, are raised against the pressure of the feed-spring 15, which is there-

by compressed; but in raising the feed M the pliers Q, which are close to it, will also be raised, together with their shaft L. Should the operator by inadvertence set the machine in motion while the feed M and the pliers are raised, the latter will be bent or broken and the machine will get out of order. To prevent any such accident, the feed M must descend automatically when the machine is set in motion. This is done by means of a lever, 10, which is pivoted at 11, Figs. 1, 2, and 3, to the side of the frame of the machine. Its lower end is curved and is in contact with the lever T when the latter is raised, Fig. 3.

When the machine is set in motion, the projection 12 of pitman I, Figs. 1 and 2, strikes against the lever 10 and pushes it from the right to left, and by said movement the lower curved part of said lever acts on the lever T, and the feed M is brought down by its feed-spring 15 and the shaft L and its pliers by the action of the spring n.

I claim—

1. The combination, with the stitch-forming mechanism, cutters, and means for operating said cutters to sever the thread at each ascent of the needle, of pliers composed of two jaws adapted to open and close, a vertical shaft carrying said pliers, connections for giving said shaft one complete oscillation for each reciprocation of the needle, devices for opening and closing said jaws at the proper times, a receptacle for receiving the cut threads at one end of the path of movement of said pliers, and a blast-pipe, substantially as described.

2. The combination, with the stitch-forming mechanism, including the reciprocating needle and nipple, and cutters arranged to sever the needle-thread at the completion of each stitch, of an oscillating shaft, a pair of pliers composed of two jaws carried by said shaft, one of said jaws being elastic or yielding, so that it can pass the nipple when the pliers are swung back into position to seize the thread, a projection—such as a pivoted latch—in the path of said pliers for opening said jaws to release the thread, and connections, as specified, for oscillating said shaft and the pliers carried thereby, substantially as described.

3. The combination, with the feed, feed-bar, and lever for raising the same, of the lever 10, having one end in proximity to said feed-lever, and a projection on one of the moving parts adapted to strike said lever 10, and through it to release the feed-bar from said feed-lever as soon as the machine is put in operation, substantially as described.

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

EMIL CORNELY.

Witnesses:

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