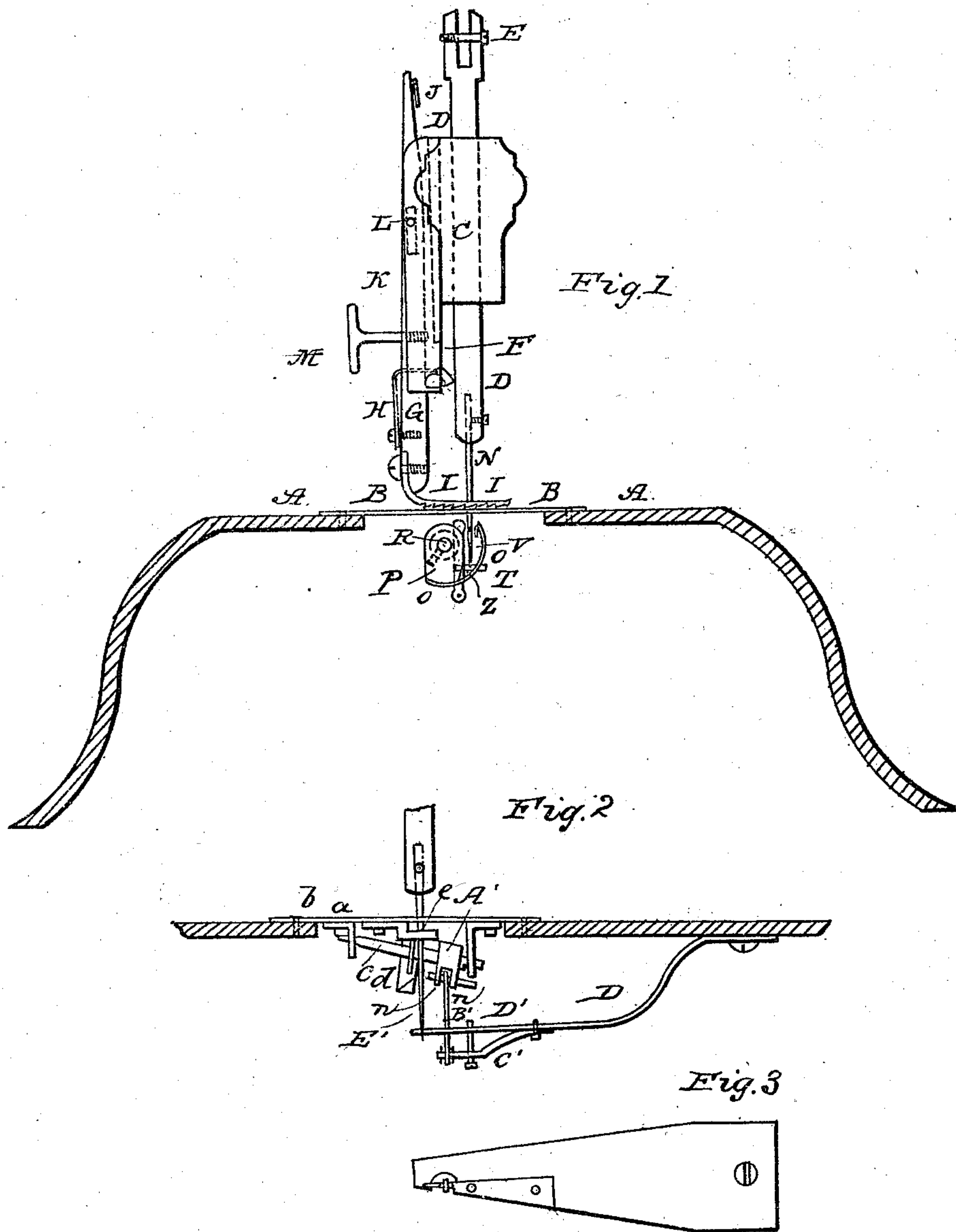


L. CARPENTER.
Sewing Machine.

No. 20,990.

Patented July 27, 1858.



WITNESSES
William Jones
Wm. Miller

INVENTOR
L. Carpenter

UNITED STATES PATENT OFFICE.

L. CARPENTER, OF OSWEGO, NEW YORK.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 20,990, dated July 27, 1858.

To all whom it may concern.

Be it known that I, LUMAN CARPENTER, in the city of Oswego, in the county of Oswego and State of New York, have invented new and useful Improvements in Sewing-Machines; and I do declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My improvement relates to the feeding mechanism; and it consists in the arrangement of a tilting dog or cam at the lower part of the pivoted feeding-bar, and operating in combination with a friction-spring and the needle-bar, whereby the feeding-pad is caused to retract at the commencement of the upward movement of the needle-bar, and thus avoid any tendency to deflect the needle by the friction of the pad upon the cloth, making a very simple and at the same time an effective feeding mechanism.

Figure 1 is a front elevation of the machine, showing the cloth-fastener in the position it would be after it has moved the cloth and the needle has performed a portion of its downward passage. Fig. 2 is a longitudinal or side view of the loop-forming device, showing it in the position it would be when the needle has performed its entire downward passage, at which time the point of the looper is in position to enter between the needle and thread as soon as the needle commences its upward movement. Fig. 3 is a flat view of the spring which actuates the looper when moved by the point of the needle in its downward movement.

A A in Fig. 1 is a plane surface on the top of the machine, on which the cloth or other material to be sewed is placed.

B B is a thin plate of metal attached to the top of the machine, to which is fastened the looping device, in order that the looper may discharge the loop as near the cloth as possible to insure its being drawn firmly up to the cloth during the descent of the needle.

C is a front or end view of the car which supports the cloth-feeding device, and through which the needle bar or carrier moves, in order to hold it firmly in position while coming in contact with the tumbler connected with the perpendicular bar, to which is attached the step or pad, which is pressed against the cloth while being moved.

D D is the needle-carrier, which is attached to a lever by means of the screw E, movement being imparted to it by a cam on the under part of the machine, through which a shaft passes, connecting with a wheel and crank by which the machine is driven.

F is a dog or tumbler, made of steel or other hard material, which is attached to the perpendicular bar G by means of a hinge or joint, so that it may turn as the needle commences passing out of the cloth, thereby allowing the strip or pad to drop back into its original position while the needle is still in the cloth, in order that the dog or cam may be ready to receive the needle-bar at its next descent, thus placing the loop formed by the previous action of the needle in a proper position to receive the needle as it passes through the cloth.

H is a spring secured to the perpendicular bar G by means of a screw at the end, and is bent at right angles, so as to pass through a hole or slot, in order that its ends may press against a notch in the tumbler F at a sufficient distance from its axis to insure its being thrown back into its natural position after having been turned by the action of the needle-bar to allow the feed-bar to drop back in proper position to be actuated at the next downward movement of the needle. When the needle-bar has nearly completed its upward passage, it has passed entirely above the tumbler F, and thus released it, allowing the spring H to act upon it in such a manner as to place it in its natural rigid position. Thus it will be seen that both the feed-bar G and tumbler F by the action of the springs H and J have been thrown back into their original positions in order to be acted upon by the needle-bar at its next descent.

I I is a step or pad, made of brass or other material, firmly attached to the perpendicular feed-bar G, the under surface of which is notched or corrugated in order to adhere more firmly to the cloth. A longitudinal slot is made through it to receive the needle N and to allow it to move in the direction parallel to the plane A A to a sufficient distance required to form the longest stitch desired.

K is a stationary piece of metal, with a square groove of sufficient capacity to receive the feed-bar G, in which is a longitudinal slot (designated by the dotted lines) in connection with the pin L, which passes through it, thus allowing the feed-bar G and step or pad I I to

be lifted up to a sufficient distance to place the cloth or other material to be sewed in the necessary position. A spring is fastened to the arm which supports the cloth-moving device, and comes in contact with that part of the feed-bar designated by the letter J. The length of the stitches is governed by the thumb-screw M, which also serves as a handle by which to raise the feed-bar and step. The inside dotted line in stationary piece K indicates the depth of the groove in which the feed-bar G moves, also the surface against which the end of the screw M rests to determine the length of the stitches.

Having thus described the operation of the cloth-moving device, I will now proceed to give a description of the manner in which the loop is formed and held in proper position until released by the needle.

An end view is shown in Fig. 1 in the position it would be after the loop has been taken from the needle by the point of the circular brass plate, (marked *o o*), which is attached to the revolving or rotating shaft R by means of the flat plate P. When the needle is at this position, the loop is distended over the point of the circular plate *o o* and across the stationary brass plate, the end of which is designated by letter V. The needle has performed its upward passage and has passed down a sufficient distance to have passed through the loop formed by its previous movement, and which has been placed in proper position to receive it by the movement of the cloth, which has been effected just previous to the entering of its point into the cloth. The point of the needle has reached the end of spring T, to which is attached the looper *o o* by means of arm or connecting-rod Z, and as it continues to move downward the spring is carried with it, and by means of the connections the point of the looper is moved, thus releasing the loop and depositing it upon the needle.

The operation of the looping device will be more readily seen by a longitudinal or side view, as shown in Fig. 2. A section of the needle bar or carrier is shown, together with the needle marked E'. *a a* are two plates of brass or other metal fastened to the thin plate of metal *b b* at right angles, in order to support the shaft *c*, the end of which is shown in Fig. 1 by letter R. This rotating shaft is placed at such an angle in relation to the top plate, *b b*, as to bring the point of the loop-

ing-plate *d*, which moves in the arc of a circle, a sufficient distance past the line of the needle when the looping-point has passed up to the stationary plate *e*, in order to confine the loop, to distend and hold it immediately in the path of the needle, thus placing it in proper position to receive the needle at its next descent.

A' is a collar fastened to the rotating shaft *c* by means of a set-screw in such a manner as to make it adjustable, and thus allow it to be placed upon the shaft in the position desired. The two arms *n n* on the collar A' form a joint, through which a pin is placed to receive the arm or connecting-rod B', by means of which the spring, which is operated by the needle, is connected with the collar A', in order to move the looper *d*.

The small spring C', which is fastened to the large spring D' D', is so arranged as to spring, in order to compensate for the variation in the lengths of the needles used, the movement causing the looper to enter the loop or slack thread at the same distance from the eye of the needle.

e is a stationary piece of metal, fastened to the top plate, *b b*, in such a position as to come in contact with the point of the looper *d* after the loop has been deposited upon it to prevent the loop being drawn off the point of the looper and to retain the loop a sufficient distance upon the looper to open it to receive the needle.

Fig. 3 is a flat view of the spring D' D', with intermediate spring, C', in Fig. 2, showing the manner in which the arm B' in Fig. 1 is attached to spring C'.

I am aware that the feed in sewing-machines has been produced by a projection or fixed cam on the end of the needle-bar or feed-bar, or both; also, that the feeding-bar has been pivoted to a tilting lever and operated over an adjustable screw as its fulcrum. Neither of these arrangements do I propose to claim; but

What I claim is—

The combination of the tilting dog or cam F with its friction-spring H and pivoted vibrating bar G, when operated by the needle-bar for feeding the cloth, in the manner substantially as described.

LUMAN CARPENTER.

Witnesses:

WILLIAM JONES,
WM. L. WILLIS.