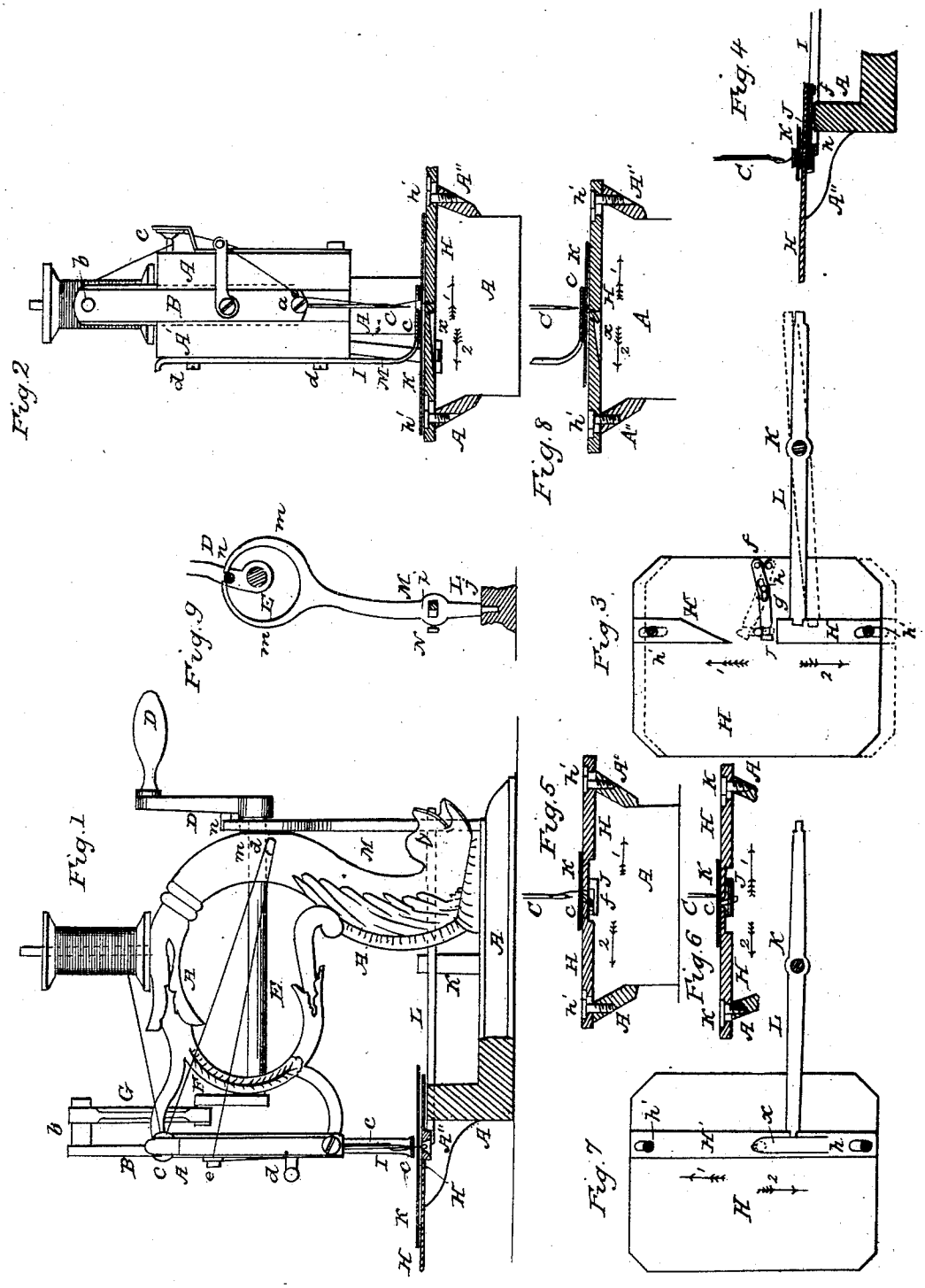
D. W. CLARK.

Sewing Machine.

No. 19,072. Patented Jan'y 12, 1858.



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UNITED STATES PATENT OFFICE.

D. W. CLARK, OF BRIDGEPORT, CONNECTICUT.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **19,072**, dated January 12, 1858.

To all whom it may concern:

Be it known that I, DAVID W. CLARK, of Bridgeport, Fairfield county, State of Connecticut, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of my machine. Fig. 2 is an end or front elevation of the same; Figs. 3, 4, 5, 6, 7, 8, 9, sectional elevations and plans of various parts shown separately and in different positions.

Similar letters of reference indicate the same parts in all the figures.

The nature of my invention consists, first, in feeding the cloth or fabric by a movement of the table upon which the fabric is supported; second, in placing the loop in position to receive the needle and thread by a movement of the table; third, in the employment of a wiper, arranged and operating substantially as hereinafter shown, to hold and place the loop in position to receive the needle and thread.

The frame of the machine (which may be made in any desired ornamental form) is indicated by A A′ A″.

B is the needle-holder, which is a flat bar with beveled edges sliding up and down between grooves in the front end, A′, of the frame. The needle C is attached to the lower end of holder B by a thumb-screw, *a*. Vertical movement is communicated to holder B by means of crank D, which connects with the horizontal shaft E. The latter extends from the crank D toward the front end of the machine, where it terminates in another crank, F. The latter connects by means of link G and pin *b* with the upper end of holder B, as shown in Fig. 1.

If preferable, the needle may be attached to the common vibrating arm and operated in the ordinary manner.

The thread is conducted from the spool, which is located in any convenient position, to the tension-button *c* on the side of frame A′, thence through guides *d′ e* to a hole in the lower extremity of holder B, and thence to the eye of the needle, entering upon the back thereof. The red lines indicate the course of the thread.

The feeding is done by the movement or vibration of the table H, upon which the fabric K rests in the usual manner. Table H is made in the ordinary manner; but instead of being rigidly fastened to the frame it is detached therefrom and left loose, so that it may vibrate. Table H is provided on its lower or under surface with a rib, H′, which forms a portion of the table. The lower front end of the frame A^2 is notched out to receive rib H′. The latter serves as a guide to run in the said notches and keep the table in place. Rib H′ rests upon the bottoms of the notches in A^2. The upper surface of the table H is provided with serrations or teeth *c*, and when the table moves in direction of arrow 1 the teeth *c* enter the cloth or fabric and carry or feed it along. When the table H moves in direction of arrow 2, the teeth *c* withdraw from the fabric, and the latter is prevented from being carried back with the table H by means of the foot or pad I, the bottom of which rests upon the cloth, and is provided with inclined serrations or teeth. These teeth prevent the cloth from going back with the table in direction of arrow 2. The foot or pad I is attached to frame A′ by means of adjusting-screws *d d*. To feed the cloth it is only necessary to move the table H, upon which the cloth rests. Arrow 1 shows the forward motion of the table when the cloth is fed or carried. Arrow 2 shows the backward or return motion of the table when it returns for a new stroke. This forward and backward movement of the table constitutes a very simple and effective method of feeding the fabric.

The stitch made by this machine is the well-known "tambour" or "chain" stitch. It is formed in the following manner: Upon the under surface of table H there is a small flat bar, which I call a "wiper," J. This wiper is pivoted to the table at *f*. Near the central part of the wiper is a slot, *g*. A pin, *h*, located on frame A, projects into slot *g*, so that when table H vibrates in direction of the arrows the wiper J receives a corresponding vibratory motion. It should be observed that the vibration of wiper J is always in a contrary direction to that of the table. Wiper J, it will also be observed, is slightly angular in its form, and its inner extremity is notched on both sides, leaving a **T**-shaped head or end upon the wiper. (See Figs. 3, 4, 5, and 6.) The office of wiper J is to place and hold the loop in position to receive the needle and thread, so that

when they descend they may pass through the loop and form a stitch. The operation of the wiper J is as follows: After the needle has descended and risen through the cloth and table, it leaves behind a loop which projects from the under surface of the cloth down through the aperture in the table through which the needle passes. The loop thus left protruding down is located right alongside of the extremity of wiper J. (See Fig. 3.) The table now vibrates in direction of arrow 2, which carries the wiper J in direction of arrow 1, and causes said wiper to press upon and flatten out the loop between the upper surface of wiper J and the under surface of the table. Wiper J, having flattened out the loop, passes over and beyond the loop, leaving it still protruding, Fig. 6. The table H now vibrates in direction of arrow 1, which carries the wiper J in direction of arrow 2, and causes its extremity to strike against the loop and bend it over into the cavity of the needle-aperture upon the under surface of the table, the wiper J continuing its movement far enough to pass beyond the needle-aperture, (in order that the needle may descend,) but not so far as wholly to cease to cover or hold the loop between the table and the upper surface of the wiper. The loop is thus held by wiper J in an open and flattened state within the cavity of the needle-aperture, and the loop is now ready to receive the needle and thread in their descent. (See Figs. 4, 5.) The needle now descends and passes through the loop, which, by the continued descent of the needle, is tightened and drawn up against the under surface of the fabric in the usual manner. The needle now rises again and leaves its loop behind, as before described, and a new stitch is taken, the parts repeating the same movements that have just been set forth. In this manner a line of stitching is formed upon the cloth. The blue lines in Fig. 3 show the position of the loop and wiper J after the first movement of the wiper in direction of arrow 1, and before it commences to move in direction of arrow 2. On its first movement in direction of arrow 1 it will be seen that the extremity of wiper J strikes upon one side of the loop and passes over and beyond it. On its return movement (in direction of arrow 2) wiper J strikes against the opposite side of the loop and knocks it over into the cavity of the needle-aperture.

It is not always necessary that a wiper J should be employed in the formation of the stitch. For some kinds of goods the table itself will suffice by its movement or vibration, as before described, to place the loop in position to receive the needle and thread, and thus to form the stitch. When the wiper J is used, I employ a table in which the rib H′ does not extend across the entire length of the table; but the rib is cut away, as shown in Fig. 3, at its central part, to leave room for the movement of wiper J.

I should here remark that the table H is prevented from rising vertically, and thus getting out of place, by means of screws *h′ h′*, which pass through slotted apertures into frame A″. The heads of screws *h′ h′* are countersunk, so that they offer no impediment to the movement of the cloth over the surface of the table, while the apertures in the table through which the screws pass being slotted, the table is free to vibrate.

When the wiper J is not wanted for use, I unfasten screws *h′ h′* and remove the table and its attached wiper and substitute another table, which in nearly all respects is like that having the wiper attached, and is vibrated in the same manner. The only difference between the tables is that the one having no wiper has the rib H′ extending clear across its surface. (See Figs. 7 and 8.) This table also has a longitudinal cavity, *x*, in its central part, which is of sloping formation, as shown in Fig. 8, in respect to its roof. The sides of cavity *x* are beveling. The inner or deep end of the cavity *x* inclines inward. The slope of the roof of cavity *x* extends from the bottom of rib H′ to the under surface of the table H, and terminates at the needle-aperture.

The stitch is formed as follows: The needle rises and leaves its loop protruding down from the bottom of the cloth, through the table, and through the rib H′ within cavity *x*. The table H now vibrates in direction of arrow 2, and, owing to the fact that the loop is stationary while the table moves, the loop is by the movement of the table drawn partly up into cavity *x*, and there placed in an open state, ready to receive the needle and thread, the loop when thus drawn up being immediately below and surrounding the needle-aperture. (See Figs. 7 and 8.) The table now vibrates in direction of arrow 1, which brings the needle-aperture and the open loop immediately below the needle, Fig. 2. The latter now descends, with its thread, through the loop, and thus forms the stitch. The needle then rises and leaves behind a new loop, and the parts perform their movements as before described, the loop through which the needle first passed being drawn up against the under side of the cloth by the descent of the needle through it. The vibrations of the table are the same, whether the wiper J is or is not employed. The table H is vibrated by means of a pivoted arm or lever, L, which extends from a notch, *, in the rib H′ back to the rear part of the machine, where it enters a slot, *i*, in another vertical vibrating lever, M, Fig. 9. The lower end of the latter rests in a cavity, *j*, in the base of the machine. The upper end of lever M is provided with a circular fork or ring, *m*, and upon crank D there is a stud or pin, *n*, which, when the crank revolves, strikes against the inner surface of the fork and causes the lever M to sway or vibrate back and forth. This movement of lever M produces a similar vibration of the arm or lever L, which is pivoted to the standard *k*. The latter projects up from the base of the frame A. The length of vibration of the lever L, and consequently the

length of the vibration of the table and length of stitch, or distance to which the fabric is fed at each movement of the table, is regulated by the adjusting-screw N, which passes through the lever M into slot *i*, and bears against the extremity of lever L. When screw N is withdrawn, the dimensions of the slot *i* will be so large that the end of lever L will remain loose in the slot, without being moved by the vibrations of M. By screwing up the screw N the latter will bear against the end of L and cause it to vibrate more or less in unison with the vibrations of M, according to the distance to which N is screwed in.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. Feeding the cloth or fabric in sewing-machines by a movement of the table upon which the fabric is sustained, substantially as herein described.

2. Placing the loop in position to receive the needle and thread by a movement of the table, substantially as set forth.

3. The employment of a wiper, J, arranged and operating in combination with the reciprocating table, substantially as herein shown, for the purpose of placing and holding the loop in position to receive the needle and thread.

D. W. CLARK.

Witnesses:
H. CURTIS,
LOUISA C. CLARK.