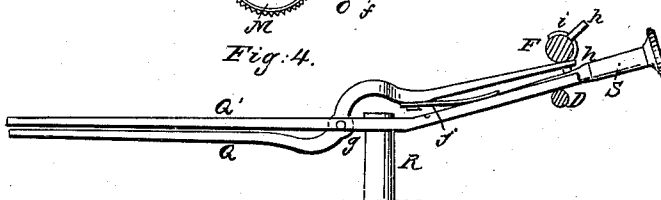
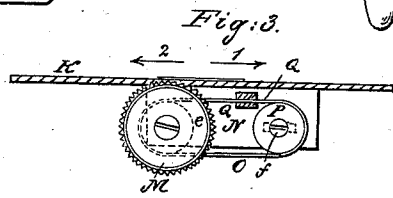
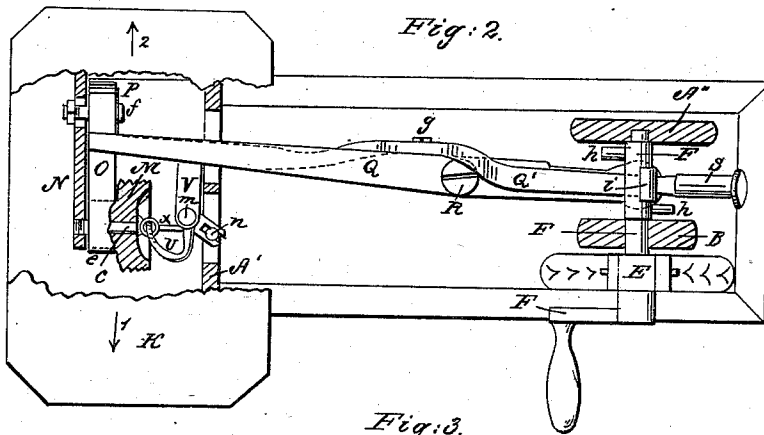
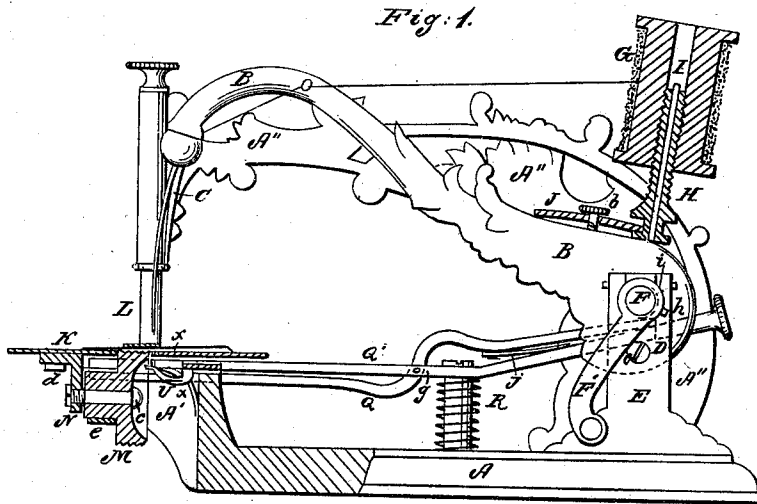


D. W. CLARK.
Sewing Machine.

No. 21,322.

Patented Aug. 31, 1858.



UNITED STATES PATENT OFFICE.

D. W. CLARK, OF BRIDGEPORT, CONNECTICUT.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 21,322, dated August 31, 1858.

To all whom it may concern:

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

Figure 1 is a side elevation; Fig. 2, a plan of the same; Figs. 3 and 4, detached views of separate parts.

Similar letters refer to the same parts in all the figures.

A A' A'' indicate the frame; B, the needle-arm; C, the needle. The arm B is pivoted upon a horizontal shaft, D, which extends from a vertical standard, E, to the lower part of frame A''. Shaft D is hung between the points of two screws, *a a*, one of which passes through frame A'' and the other through standard E. Arm B is made to vibrate by means of shaft F, whose bearings are in frame A'' and standard E, as shown. Shaft F passes through arm B, and shaft F, at that part which enters the arm, is made of cam or eccentric formation, so that when shaft F is revolved by means of crank F' the arm B will vibrate and carry the needle and thread up and down through the cloth.

The spool G rests upon a tube, H, and the latter slips over a pin, I, which rises from the rear of arm B. The tension is obtained by means of a spring, J, one end of which is fastened to the arm B, and the other end bears upon the lower part of tube H. The degree of pressure of the spring J is increased or diminished by turning the screw *b*, which passes through the spring into the arm B. This tension is at once simple and convenient. The spool may be removed or applied to the tube H without removing the tube or disturbing the adjustment of the screw *b*. In all other tensions it is necessary to remove the tube wholly from its place or disarrange the tension-screw in order to change the spool.

K is the table upon which the fabric rests, and L the foot-pad, of the usual construction.

The cloth is fed by means of a serrated wheel, M, which turns on a pivot, *c*, screwing into and supported by a plate, N. The latter is attached by screws *d d* to the under side of table K. Motion is given to wheel M by

means of a belt, O, which passes from the shoulder-pulley *e* of M around another pulley, P, which is attached by its pivot *f* to plate N. The requisite intermittent motion of the belt is imparted by means of a pair of pinchers or levers, Q Q', which are pivoted together at *g*. The forward ends of these pinchers grasp the belt O and alternately release their grasp. At the moment of grasping, the pinchers vibrate upon the standard or pivot R, (which rises from frame A,) and by this vibration the belt is moved, the wheel M also turned, and the cloth consequently fed or carried in direction of arrow 1.

The alternate grasping and vibration of the pinchers is obtained as follows: The rear ends of the pinchers Q Q' extend back far enough to come beneath the shaft F and between two pins, *h h*, which project from said shaft. When shaft F revolves, pins *h h* alternately strike the sides of pinchers Q Q' and cause them to vibrate alternately back and forth upon their pivot R. The extent of this vibration, and consequently the extent of the feed or length of stitch, is regulated by turning the screw S, which is conical and extends into the rear end of pincher Q'. The end of Q' is split, so that it is contracted or expanded by simply turning screw S, and the vibration of the pinchers will be greater or less, according as the rear end of Q' is narrowed or widened by screw S. This method of governing the vibration of the pinchers is the same as that shown by me in a former patent for governing the feeding of the cloth. No further description is therefore necessary.

The alternate grasp and release of the belt by the pinchers is obtained by having a cam, *i*, upon the shaft F, which, when the pinchers vibrate in direction of arrow 2, presses upon pinchers Q' and releases the grasp of its front end from belt O. As soon as cam *i* has passed beyond pincher Q', so that it does not press thereupon, the spring *j* between pinchers Q Q' acts to close the pinchers and cause their front ends to grasp the belt, and at this moment the pinchers vibrate in direction of arrow 1 and carry the belt, with wheel M, to feed the cloth.

The wheel M, it should be observed, projects up through the table, and the pad L presses the cloth into contact with the teeth of the wheel in the usual manner.

The pivot of pulley P is adjustable laterally, so that the belt may be conveniently tightened if it becomes loose.

This machine takes the well-known chain-stitch in the following manner: A hook, U, is pivoted at *m* to an arm, V, which extends from pincher Q'. The rear part of hook U is split or forked, and grasps a pin, *n*, which is affixed to frame A'. When the lever or pincher Q' vibrates, the hook U is made to vibrate back and forth upon its pivot *m* in consequence of its rear end grasping the stationary pin *n*. The hook U is thus thrown into and out of the loop alternately. When the hook U is thrown into the loop, it remains there long enough to hold the same while the needle rises, and withdraws from the same just in time to avoid the descending needle. As the hook U withdraws it leaves the loop in an open state, for the needle to enter and finish the stitch in the usual manner.

x x are two eyed guards, one placed directly below the table and the other farther down. Both are in line with the course of the needle, and the latter passes through the eyes of both as the needle descends. These guards prevent

the loop from falling away on either side, so that the loop is always held in the proper position to be entered by the hook U. Many devices have been attempted whereby to hold the loop in position for the looper to enter; but in all machines where a curved needle is employed no effective method of preventing the falling over of the loop has hitherto been discovered, so far as I am aware. My present improvement, however, effects the desired result, and permits the formation of the chain-stitch with the curved needle with the same certainty as the usual straight-moving needles. The course of the thread is indicated by the red lines.

What I claim, and desire to secure by Letters Patent, is—

Imparting the necessary intermittent motion to the feed-wheel M by means of an endless belt, O, and vibrating pinchers Q Q', arranged and operating in the manner substantially as described.

D. W. CLARK.

Witnesses:

L. C. CLARK,
HIRAM B. TAYLOR.