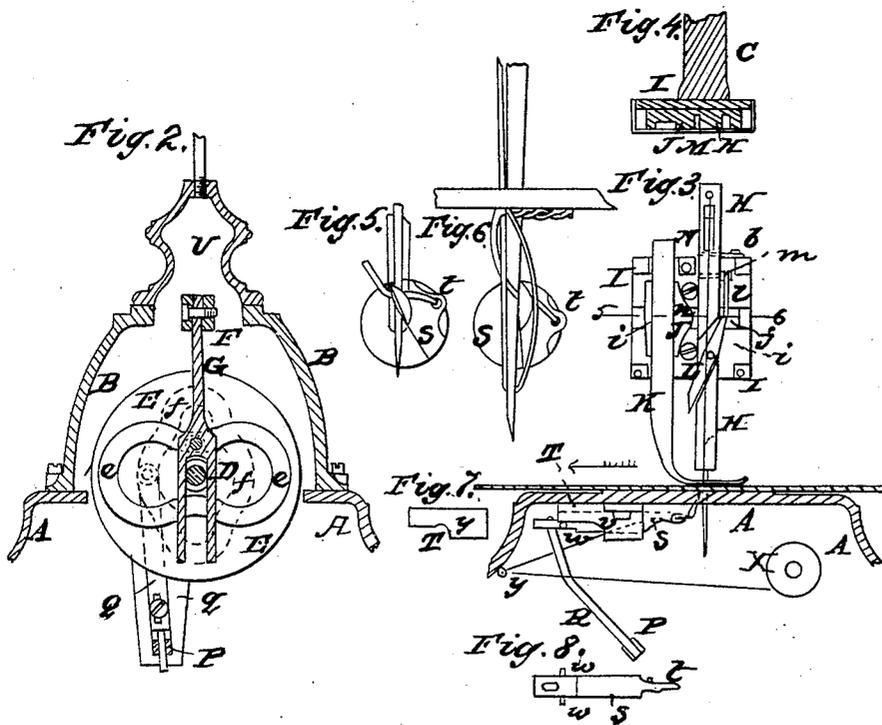
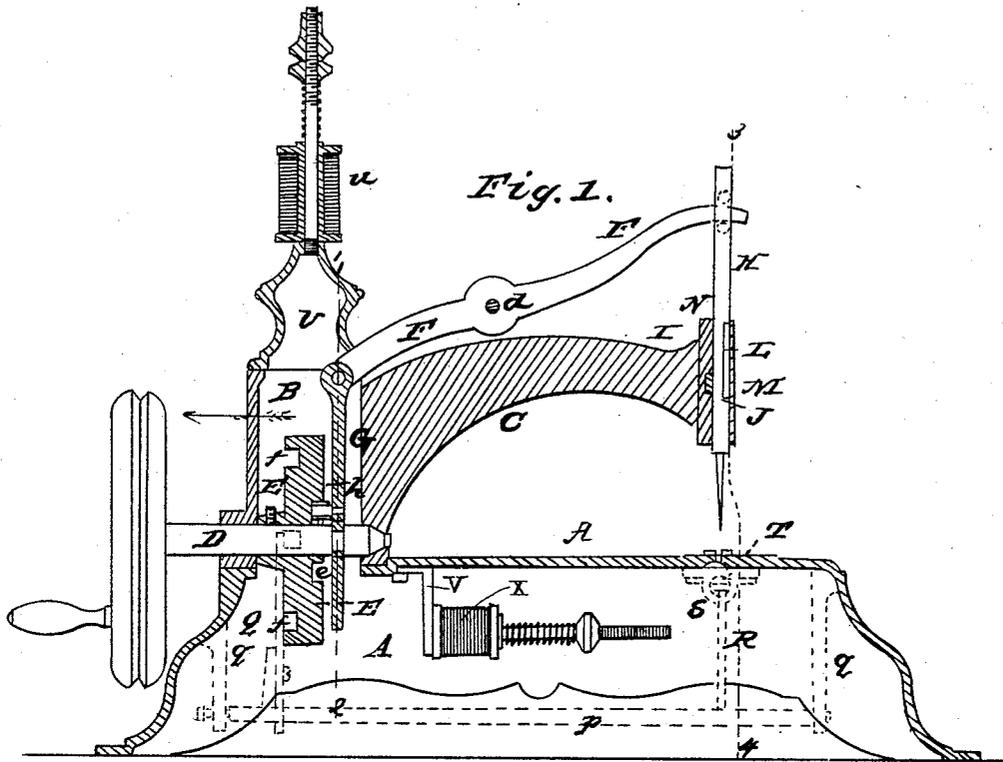


G. FETTER.
Sewing Machine.

No. 18,793.

Patented Dec. 1, 1857.



UNITED STATES PATENT OFFICE.

GEORGE FETTER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
HIMSELF AND EDWARD JONES, OF SAME PLACE.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **18,793**, dated December 1, 1857.

To all whom it may concern:

Be it known that I, GEORGE FETTER, of the city of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Sewing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to that class of sewing-machines which produce the double lock-stitch; and my improvement consists in a peculiar and simple mode of imparting a feed movement to the pressure-bar from the reciprocating movement of the needle-bar, as fully set forth hereinafter.

In reference to the drawings, which form a part of this specification, Figure 1 is a sectional elevation of a sewing-machine showing my improvements; Fig. 2, a transverse sectional elevation on the line 1 2, Fig. 1, and looking in the direction of the arrow; Fig. 3, also a transverse sectional elevation on the line 3 4, Fig. 1; Fig. 4, a sectional plan on the line 5 6, Fig. 3; Figs. 5 and 6, enlarged views of the looper, looking toward the point of the same; Fig. 7, a view of the guide for the looper, being the reverse of that seen in Fig. 3; Fig. 8, a plan view of the looper.

Similar letters refer to similar parts throughout the several views.

A is the base of the machine, upon which is secured a box, B, the arm C forming a part of and projecting from the same.

D is the driving-shaft turning in the bottom of the box B, in the interior of which, and to the shaft, is secured the cam-wheel E. In one face of the latter is a recess, *e*, forming a double scroll-cam, and on the opposite face another recess, *f*, also forming a double scroll-cam, but of different shape to the first.

F is the needle-lever, arranged to vibrate on a pin, *d*, attached to projections from the arm C. To the short arm of this lever is jointed the rod G, the lower end of which is forked, as seen in Fig. 2, the forked end passing over the driving-shaft D at the point where a recess, *a*, (adapted to receive the fork,) is turned. Above the shaft, and from the side of the rod G, projects a pin furnished with a small roll-

er, *h*, which fits loosely into the recess *e* of the wheel E. The end of the long arm of the lever F passes through an opening in the needle-bar H, hereinafter referred to, the opening above and below being furnished with suitable anti-friction rollers.

On the end of the arm C is secured a plate, I, across which is cut a groove, *i*, adapted to receive the sliding piece J. In a recess formed in the latter the pressure-bar K fits freely but snugly. The needle-bar H fits with its back against the slide J, above and below which it fits into recesses in the plate I in such a manner that it can have a vertical reciprocating movement only. In the needle-bar is a recess containing a pin, to which is hung the angular lever L, the upper end of which terminates in a fork fitting between the collars of the regulating-screw *m*. The upper end of the lever is arranged (during the movements of the needle-bar) to strike against the projection *j* on the slide J, and the lower end of the lever to strike against the rounded projection *n* on the same slide. A cap, M, fits over and confines the whole of the above-described parts, and is screwed to lugs projecting from the face of the plate I. A small pin projects from the back of the pressure-bar K, and upon this pin bears the spring N, which is so connected to a pin, *p*, as to turn laterally on the same when required. The bottom of the pressure-bar is furnished with the ordinary feeding-teeth.

P is a longitudinal shaft turning in brackets *q q*, cast to the under side of the base A. One end of this shaft is furnished with an adjustable arm, Q, from the end of which projects a pin having a roller which fits into the double scroll-cam recess *f* of the wheel E. The opposite end of the shaft Q has an arm, R, fitting into the end of the looper S, which slides in the cylindrical guide T, the latter being secured to the under side of the base A. The opposite end of the looper is furnished with a curved point having an eye for the passage of the thread, as seen in Fig. 3. It is also furnished with a guide, *t*, for the thread at the back, as seen in Figs. 5, 6, and 8. Near one end of the looper, and on each side of the same, project pins *w w*, one of which (as the looper advances) comes in contact with an in-

clined plane, *v*, on the guide T, the opposite pin at the same time dropping into the hollow *y'* on the opposite side of the guide. (See Fig. 7.)

U is a stand above the box B for supporting the bobbin *u* of needle-thread, and V is a bracket underneath the base of the bobbin of looping-thread. The method of arranging these bobbins is too well known to need description.

Operation: As the shaft D is caused to turn it will be evident that, through the action of the double scroll-recess *e* of the cam-wheel E on the roller *h*, a reciprocating movement must be imparted to the rod G, a vibrating movement to the needle-lever F, and consequently a reciprocating movement to the needle-bar H. The peculiar construction of forked rod G, which embraces the shaft D at the recess *a*, serves to maintain the roller *h*, as well as the rod, in its proper position, and also serves (in conjunction with the scroll-recess) as a simple and effectual means of imparting to the needle-lever the desired vibrating movement. Simultaneously with the above-described movements the roller at the end of the adjustable arm Q is so acted upon by the double scroll-cam recess *f* of the wheel E as to impart a vibrating motion to the shaft P, and through the arm R a horizontal movement to the looper S. The needle-thread passes from the bobbin *u* through holes at the top of the needle-lever F, and thence through the eye of the needle to the fabric. The looping or under thread passes from the bobbin X through an eye, *y*, thence through a thread-guide, *t*, at the back of the looper to the fabric. The required feed-motion is imparted to the fabric as follows: As the needle-bar H rises the lower end of the lever L strikes the rounded projection *n* on the slide J, moving the latter, and with it the pressure-bar K, and, on account of the teeth below the shoe, moving the fabric in the direction of the arrow, Fig. 3. When the needle-bar descends, the upper end of the lever L strikes the projection *j* on the slide J, so as to move the latter back to its former position, the inclination of the teeth on the bottom of the pressure-bar being such that this receding of the bar cannot carry back the fabric if the needle is not sufficient to retain the same. Should it be desirable to increase the movement of the slide, and consequently to increase the length of the stitch, the lever L may be so

adjusted by the screw *m* as to project outward the striking ends of said lever, which, as will be easily seen, must impart a more extended movement to the pressure-bar as well as to the fabric. When the needle is at its lowest position and the looper S has receded to its farthest position from the needle, the threads will be arranged in the manner seen in Fig. 3—that is, the looping-thread passing from the eye of the looper to the back of the needle and round the same to the fabric—the loop on the needle-thread, which had previously been retained by the looper, and through which the looping-thread passes, having slid off. As the needle rises the loop of the needle-thread is caused to open and the point of the looper (which advances simultaneously with the rise of the needle) to enter the loop, as seen in the enlarged view, Fig. 6, thereby carrying the looping-thread through the loop of the needle-thread. Previous to the needle arriving at its full height, and previous to the termination of the forward movement of the looper, one of the pins *w* must strike the inclined plane *v* on the guide-barrel T, the other pin *w* at the same time falling into the hollow *y'* on the opposite side of the guide, which of necessity turns the body of the looper partially round. Now, it will be observed that the thread-hole at the point of the looper is not in a line with the center of the body or center of its rotation; consequently by the partial turning of the body this eye must be tilted over or turned beyond the line of the needle, as seen in Fig. 5, thereby insuring the needle taking the thread from the looper preparatory to the descent of the needle and retreat of the looper to their original position.

I do not claim exclusively imparting to the pressure-bar a lateral motion from the reciprocating motion of the needle-bar; but

I claim—

The needle-bar H, with its adjustable lever L, in combination with the slide J and its projections *n* and *j*, the whole being arranged for joint operation substantially in the manner and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

GEORGE FETTER.

Witnesses:

HENRY HOWSON,
CHARLES D. FREEMAN.