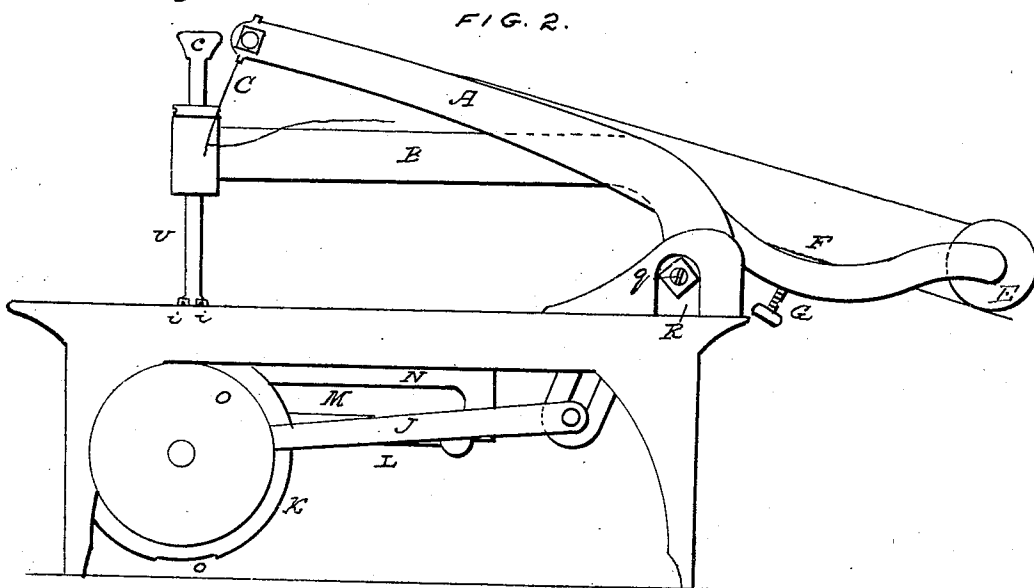
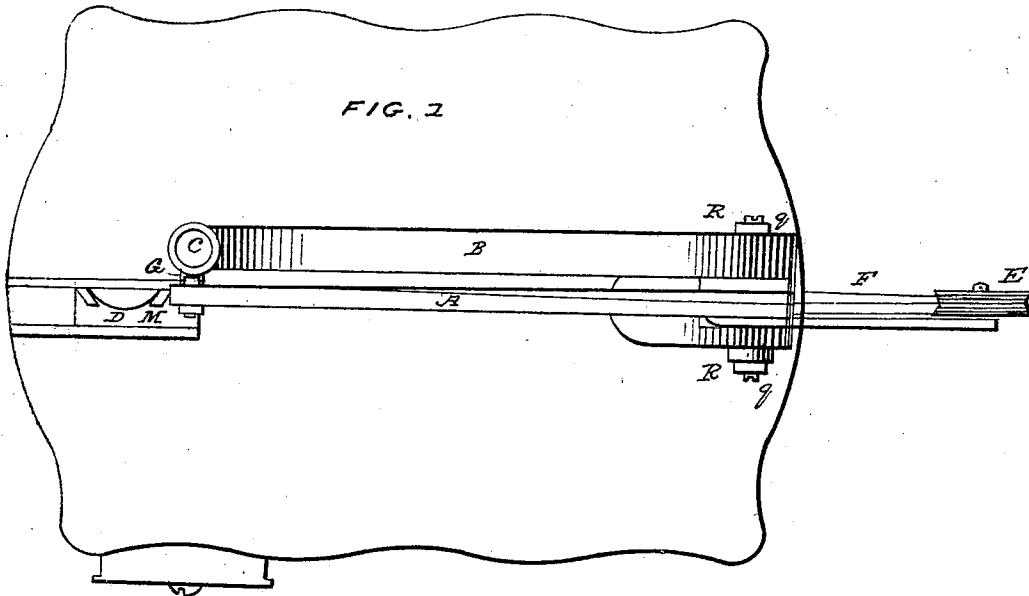


C. A. DURGIN.
Sewing Machine.

No. 12,902.

Patented May 22, 1855.



C. A. DURGIN.
Sewing Machine.

No. 12,902.

Patented May 22, 1855.

FIG. 3.

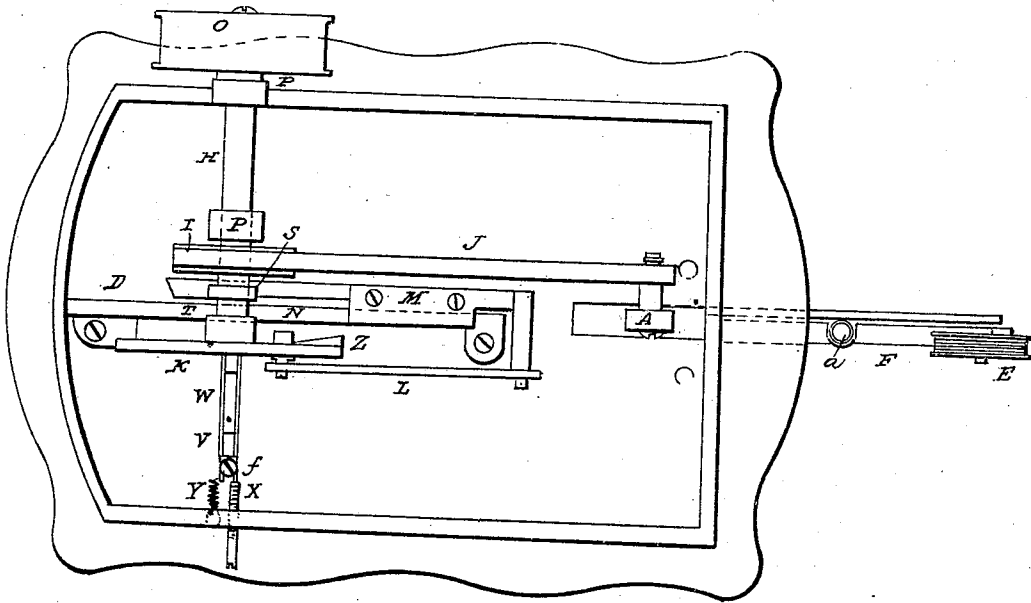


FIG. 4.

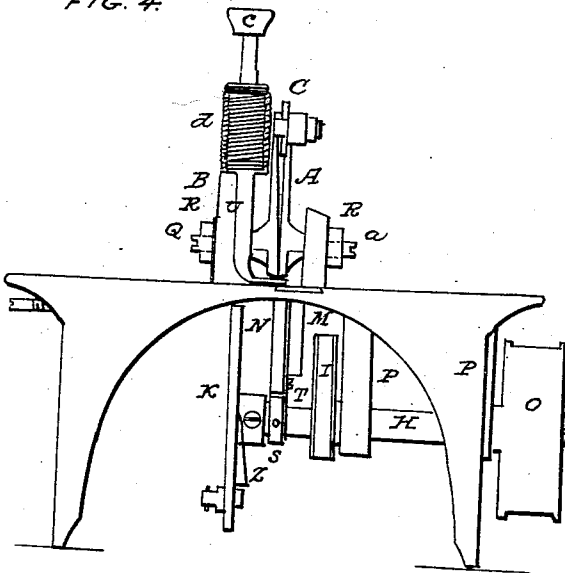


FIG. 5.

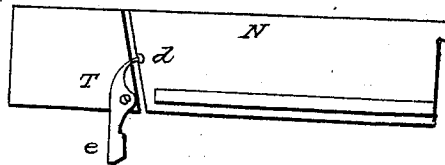


FIG. 7.



FIG. 8.



FIG. 6.

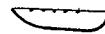
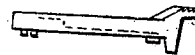


FIG. 9.



UNITED STATES PATENT OFFICE.

CHARLES A. DURGIN, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 12,902, dated May 22, 1855.

To all whom it may concern:

Be it known that I, CHARLES A. DURGIN, of New York city, in the county of New York and State of New York, have invented a new and useful Improvement in Sewing-Machines; and I do hereby declare that the same is fully represented and described in the following specification and the accompanying drawings, letters, figures, and references thereof.

Of the said drawings, Figure 1 denotes a top view of my improved sewing-machine. Fig. 2 is a side elevation of it. Fig. 3 is an under side view of it. Fig. 4 is a front elevation of it.

The machine is of the kind that performs the operation of sewing by means of two threads, a needle and shuttle working together, and each carrying a thread, such machines being in use.

In the said drawings, the table of the machine is readily seen in the different views.

A is the needle-lever. B is the arm to which is attached the needle-lever. C is the needle. D is the shuttle. E is the spool which supplies the needle with thread. F is a spring, which serves to procure the tension upon the needle-thread. G is a small screw to regulate the amount of tension. H is the driving-shaft. I is the eccentric which works the needle-lever. J is the connecting-rod for connecting the eccentric with the needle-lever, thereby giving it a vertical reciprocating motion at each revolution of the shaft. K is the crank-wheel. L is the rod connecting the crank-wheel with the shuttle-driver, by which a reciprocating rectilinear motion is given at each revolution of the shaft. M is the shuttle-box, as seen in Figs. 1, 2, 3, and 4. N is the plate on which the shuttle box or race works, and which is seen in Fig. 5 detached from the machine. O is the driving-pulley. P P are the hangers which support the shaft. Q Q are the centers upon which the needle-lever vibrates. R R are check-nuts placed on the screws to secure them in their places when adjusted. S is a small ring or collar placed upon the shaft and made adjustable by a small screw. T is a vibrating hook, which is fastened upon the plate on which the shuttle works, as seen in Fig. 5. U is the pad or bar for holding the material to be sewed, which is done by a helical spring inserted within the arm B, as seen at *b'* in Fig. 4. On top of the pad-bar there is placed a

small nut or ball, which serves to raise it up readily. V is a slotted slide having a lateral motion. W is a small bar inside the slotted one, the upper part of which is a plate with an eye for the needle to pass through, and which has a vertical motion. X is a small screw, which serves to regulate the extent of backward motion of the slotted slide V. Y is a small helical spring to react the feed-slide after having been forced along by the cam-surface Z upon the crank-wheel K.

The thread is taken from the spool E, as seen in Figs. 1 and 2, and passed through a small hole near and directly back of the needle which serves as a guide, and thence through the eye of the needle. The spring F, which is acted upon by the screw G, serves to regulate the amount of tension required for the needle-thread by being pressed against the periphery of the spool. The needle passes through the cloth, and in its backward motion causes a loop of thread. As soon as the needle is drawn back far enough to form a bow of thread, the vibrating hook, which is seen in Fig. 5, and which is worked by a small cam-pin in the collar S, (seen in Figs. 3 and 4,) shuts in between the thread and the needle against a small yielding spring, *d'*, in Fig. 5, and holds the thread down until the shuttle has passed nearly through the loop, when the cam-pin releases its hold on the hook, which is forced back by a small spring, *e'*, (seen in Fig. 5,) while the forward motion of the shuttle, in connection with the final upward motion of the needle, causes the two threads to be drawn sufficiently tight to form the stitch.

The shuttle is of an almond shape, or nearly so, as seen in Figs. 6 and 7. In the shuttle there is placed a small spool filled with thread, as seen in Fig. 8, which rotates freely upon a pin seen in Fig. 7. In the shuttle there is placed a series of holes—five or more—for the purpose of acquiring tension or drag on the thread, as seen in Figs. 1 and 6. The thread is first put through the hole nearest the point of the shuttle, and then interlaced through a sufficient number of holes to obtain the required amount of tension, and is then passed out of the hole nearest the blunt end of the shuttle. Were the process of interlacing reversed, so as to have the thread led out of the shuttle last nearest the point, there would be loose thread, and consequently loose stitches,

The feed-slide is seen detached from the machine in Fig. 9, and is arranged with teeth to catch firmly hold of the cloth. These teeth have a lateral motion only, which is given them from the cam-surface on the crank-wheel seen at *Z* in Figs. 3 and 4, and are arranged upon both sides of the needle in order to have the cloth propelled in a straight line. The small helical spring serves to react the slide after the cam-surface has forced it along. Directly back of the feed-slide there is a screw, *X*, (seen in Figs. 3 and 4,) which serves to regulate the extent of backward motion, and consequently the length of stitch. The rear end of the slide rests upon a screw with a head sufficiently large to hold it in its place, while it allows it to work freely back and forth, which screw is seen at *f* in Fig. 3, and also in Fig. 9. The front end of the feed-slide rests upon the plate upon which the shuttle works. The plate through which the needle passes is seen partially in Fig. 3, and is fastened upon a pin seen at *z* in Fig. 3. This plate is seen more plainly in the dotted lines in Fig. 9.

During the revolution of the crank-wheel the plate seen at *h'* in Fig. 9 at a proper time drops into a notch or recess cut in the wheel, (seen at *a'* in Fig. 2,) which drops the cloth upon the teeth, while the cam-surface carries the cloth along the desired distance for the stitch. The cloth is then thrown off the teeth by the periphery of the wheel, raising the plate *h'*. In the foot there are cut grooves to prevent the points of the teeth from being dulled by usage, as seen in Fig. 2 at *i i*.

Having thus described my improved sewing-machine, what I claim as new therein, and desire to secure by Letters Patent, is—

The vibrating hook for holding down the thread during the partial passage of the shuttle through the loop, when arranged and operating substantially in the manner described.

In testimony whereof I have hereto set my signature this 5th day of April, A. D. 1855.

CHAS. A. DURGIN.

Witnesses:

F. S. CONTES,

HARRISON PARKER.