

J. W. COREY.  
Revolving Hook Sewing-Machines.  
No. 198,970. Patented Jan. 8, 1878.

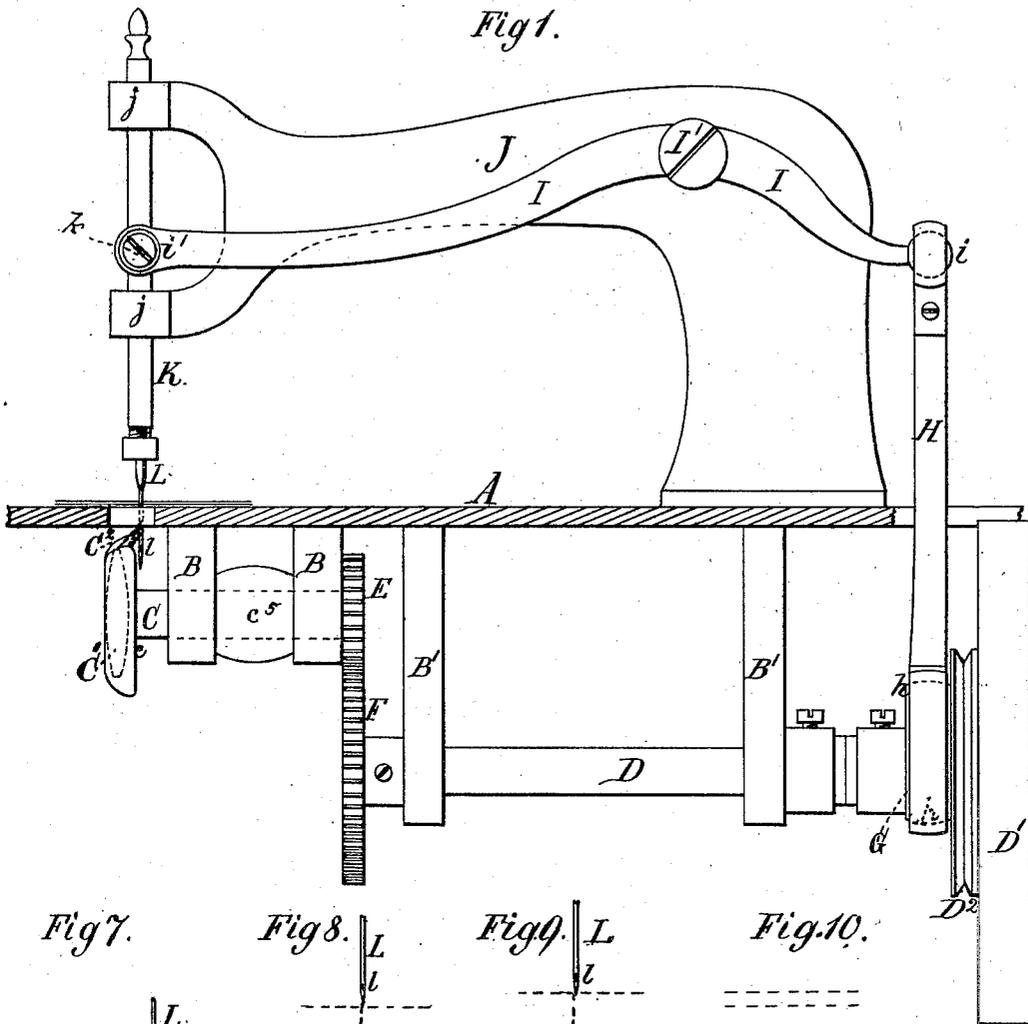
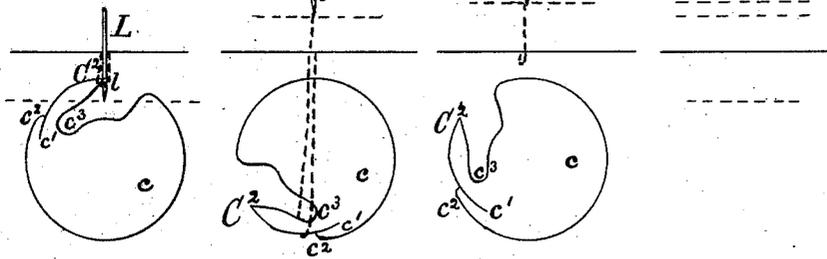


Fig. 7.

Fig. 8.

Fig. 9.

Fig. 10.



Witnesses:

J. P. Theodore & Lang,  
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Fig. 2.

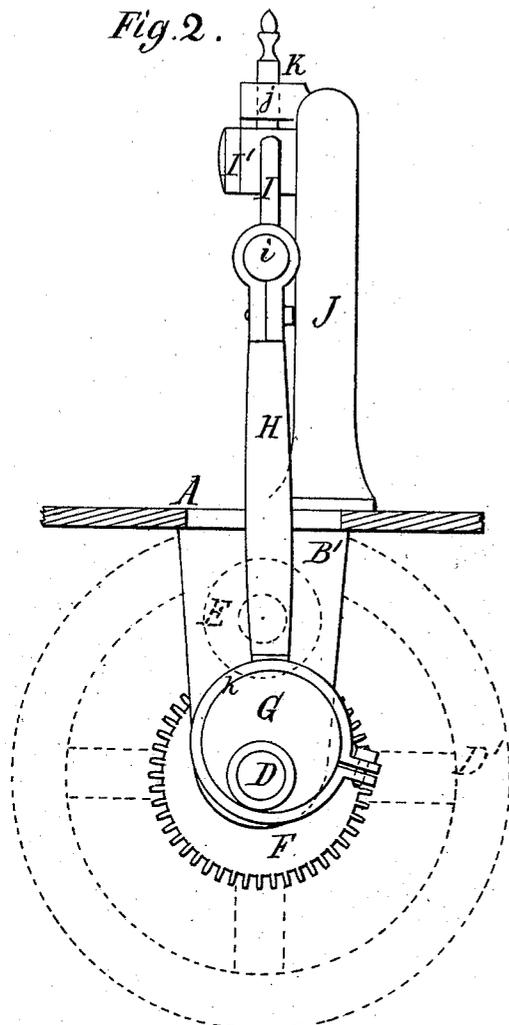


Fig. 3.

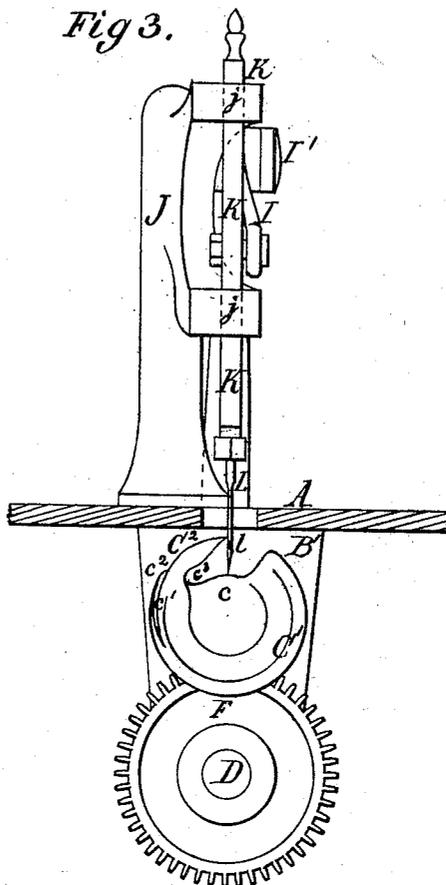


Fig. 5.

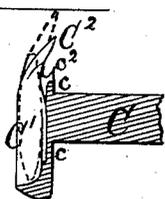


Fig. 4.

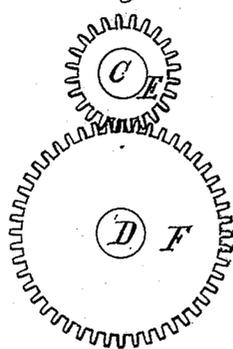
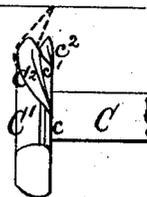


Fig. 6.



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# UNITED STATES PATENT OFFICE.

JASPER W. COREY, OF SALT LAKE CITY, UTAH TERRITORY.

## IMPROVEMENT IN REVOLVING-HOOK SEWING-MACHINES.

Specification forming part of Letters Patent No. 198,970, dated January 8, 1878; application filed July 7, 1876.

*To all whom it may concern:*

Be it known that I, JASPER W. COREY, of the city and county of Salt Lake, and Territory of Utah, have invented a new and useful Improvement in Sewing-Machines, which improvement is fully set forth in the following specification and accompanying drawings, in which latter—

Figure 1 is a partial section and side elevation of my improved sewing-machine. Fig. 2 is a partial section and rear-end elevation of the same. Fig. 3 is a partial section and front elevation of my improved sewing-machine, showing the hook and the driving-gear wheel of the main shaft. Fig. 4 is a detail view, showing the connection between the main shaft and revolving-hook shaft. Fig. 5 is a longitudinal section through the bobbin-chamber and part of the shaft of the revolving hook, the section being taken in front of the point of the hook. Fig. 6 is an elevation of the revolving hook and the shaft carrying the same. Figs. 7, 8, 9 are diagrams illustrating different positions of the hook and the needle at certain stages of the operation of my machine.

The nature of my invention consists in certain constructions, combinations, and arrangements of parts, hereinafter fully described and specifically claimed, whereby a lock-stitch sewing-machine is produced of novel and very simple construction and operation, and wherein especially the motions of the needle-bar and the loop-forming revolving hook permit the adoption of a simpler and more effective take-up than could heretofore be used in machines having a pitman motion of the needle-bar, and producing a lock-stitch.

In the drawings, A represents the table of a sewing-machine, provided with pendent brackets B B, for the support of the shank C of a revolving hook, which is peculiarly constructed and located, as will be presently described.

Two similar brackets, B' B', serve as supports for the main shaft D, which has at one end a fly-wheel, D<sup>1</sup>, and a driving-pulley, D<sup>2</sup>, and an eccentric, G, of ordinary construction, and at the other end a toothed wheel, F.

The shaft C is provided with a collar, C<sup>1</sup>, which is fitted between the brackets B, and

made fast to the shaft C, and thereby keeps the shaft from longitudinal movement. The rear end of the shank C is provided with a spur-wheel, E, which gears with the spur-wheel F, the wheel F having twice as many teeth as the wheel E. By this construction the shaft C and its attachments make two revolutions while the main shaft D makes one.

The eccentric G upon the main shaft D has a ball-joint fit, as at *h*, in the strap of a pitman, H, and serves to give motion to the needle-lever I, to which the pitman H is attached by a ball-joint, *i*.

The main shaft D, with the eccentric G and the needle-lever I, are arranged and operated in the same vertical plane, so that the ascending and descending motions of the needle are precisely alike.

The fulcrum I' of the needle-lever is on the arm J of the machine. The arm J is suitably fastened to the machine-table A, and has two guide-bearings, *j*, at its overhanging forked end, in which the needle-bar K reciprocates vertically. The operating end *i'* of the needle-lever I is connected with the needle-bar K by means of a pin, *k*.

The needle L of the bar K operates behind the revolving hook, and its point C<sup>2</sup> is therefore bent rearward, so that it projects beyond the back *c* of its bobbin-chamber, as seen in Figs. 1, 5, and 6.

The bobbin-chamber C<sup>1</sup> has a spiral guide-groove, *c'*, where the point of the hook C<sup>2</sup> joins it. The said groove *c'* serves to prevent the thread from slipping around and back of the hook, and to guide it between the back *c* of the bobbin-chamber C<sup>1</sup> and the bobbin while the other part of the thread is gliding over the other side of the bobbin.

At the beginning of the groove *c'* the revolving hook is provided with a half-round edge, *c''*, sharpened off toward the rear or toward the needle, which edge *c''* serves to guide the thread into the groove as soon as the throat *c''* of the hook arrives at the needle.

I have shown a bobbin in Figs. 1 and 5 in dotted outlines, and the thread in heavily-dashed lines, and in Figs. 6, 8, and 9 the thread is shown in different positions to illustrate the operation of the point C<sup>2</sup> of the hook.

The operation of my invention herein de-

scribed is as follows: First, referring to diagram Fig. 7, the needle has slightly ascended from the lowest point of its downstroke, and thereby has slackened the thread between the sewing-machine platform A and the needle-eye *l*, and the point C<sup>2</sup> of the hook is ready to enter between the said thread and the needle. Second, referring to diagram Fig. 8, the hook has rapidly taken the thread downward and half around the bobbin by means of the throat *c*<sup>3</sup>; which now has arrived at the lowest point of its circuit, the needle having finished in the mean time only a part of its upstroke. Third, the operation of the take-up now begins, and the same is completed with the full upstroke of the needle.

Diagram Fig. 9 shows the relative position of the needle and the hook when the take-up is completed. After this the needle descends, and while it is descending the hook makes an idle revolution without taking part in the operation of sewing.

Diagram Fig. 10 represents the travel of the needle's point from a medium high altitude to the highest; and in order to produce this travel the eccentric G has to make a part of its revolution, and in doing so occupies such a length of time as will not interfere with the perfect operation of the take-up, and thus I am enabled to finish the loop by means of one distinct motion of the take-up, while in some other improved lock-stitch sewing-machines the finishing of the loop occupies the time of a part of the up-and-down stroke of the needle, and consequently requires two distinct motions of the take-up; and in some other constructions the motions of the needle above the platform of the sewing-machine are retarded by auxiliary devices, and the motion of the revolving hook is accelerated after it has passed the needle, in order to gain

as much time as possible for the take-up before the descending needle again reaches the fabric upon the sewing-machine platform. But all these constructions are objectionable, as they cannot be adopted without considerable complication and extra expense, nor without injury to the operating parts, as the strain upon the needle below the fabric or platform is the greatest, and its motions, therefore, ought not to be accelerated, but rather retarded.

By placing the needle behind the back *c* of the revolving hook, I avoid the friction which is caused when the needle descends between the bobbin and the back *c*, and I also avoid the cutting away of too much metal from the hook to make room for the needle.

What I claim as new is—

1. The revolving hook herein described, having the point of its hook and the chamber for the bobbin on its front side, and having said point extend from said front and project beyond the rear side of the body of the hook, whereby the loop of the needle-thread is taken from the rear side of the hook and carried around the bobbin on the front side of the hook, substantially as set forth.

2. The revolving hook constructed substantially as described, and the reciprocating needle, in combination with mechanism substantially as set forth, whereby two complete revolutions are imparted to the hook during one complete reciprocation of the needle, for the purpose set forth.

Witness my hand in the matter of my application for a patent for an improvement in sewing-machines this 30th day of June, 1876.

JASPER W. COREY.

Witnesses:

J. L. HEYWOOD, Jr.,  
GEO. FIELD.