

J. SPEIRS.  
Sewing-Machines.

No. 152,813.

Patented July 7, 1874.

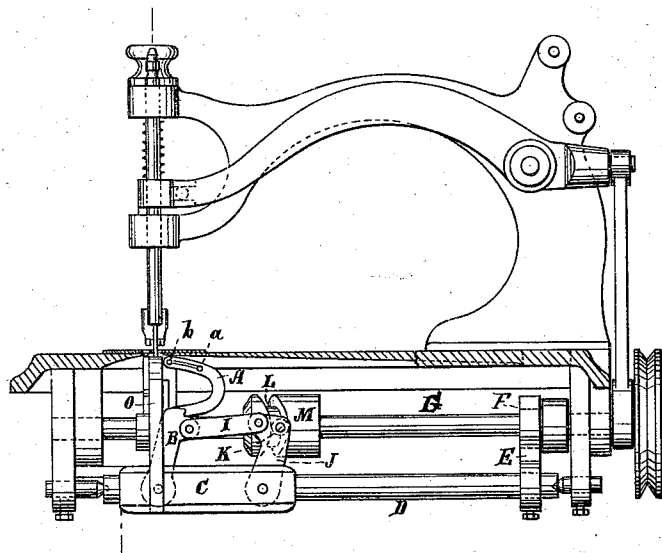


Fig. 1.

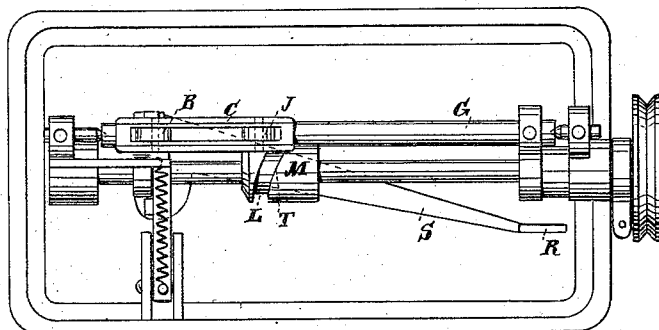


Fig. 2.

Fig. 3.

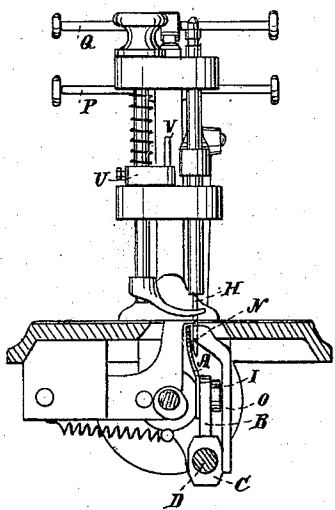
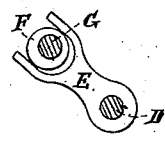


Fig. 4.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JOHN SPEIRS, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND HENRY F. COX, OF SAME PLACE.

## IMPROVEMENT IN SEWING-MACHINES.

Application forming part of Letters Patent No. 152,813, dated July 7, 1874; application filed March 23, 1874.

*To all whom it may concern:*

Be it known that I, JOHN SPEIRS, of New York city, in the county and State of New York, have invented a new and useful Improvement in Sewing-Machines, of which the following is a specification:

The invention consists in novel and effective means for operating the looping-hook of that class of sewing-machines in which an under looping-thread is used, as will be hereinafter more fully described, and subsequently pointed out in the claim.

Figure 1 is a sectional elevation of my improved sewing-machine. Fig. 2 is a plan, inverted. Fig. 3 is a transverse section taken on the line *x x* of Fig. 1, and Fig. 4 is a detail section of the cam-shaft and a rock-shaft for carrying the looper and the loop-bulging plate.

Similar letters of reference indicate corresponding parts.

A represents the looping-hook, which is pivoted at the lower end of its shank B in a socket in the enlarged portion C of a rock-shaft, D, which has an arm, E, with a yoke at its free end, embracing the eccentric F on the cam-shaft G, which imparts a slight rocking motion to the hook to carry it from side to side of the needle H. The hook-shank is coupled, by a link, I, with a rock-arm, J, which is also pivoted to part C of the rock-shaft, and has a stud-pin, K, which projects into the groove L of the cam M on shaft F for working the looper. The rock-shaft also carries the loop-bulging plate N on a rigid arm, O, rising up from the part C of said shaft, to swing forward against the needle just before it draws up, to cause the loop of the needle-thread to bulge out on the side past which the looper swings, so that it will pass through the loop. The face of this plate which comes to the needle has a groove to confine the thread on the side of the needle next to it against escaping laterally and bulging out that way, so as to prevent the forming of the loop on the side where the looper comes. As soon as the hook has swung forward and entered the loop, and the needle has raised high enough, the loop-controlling plate and the hook swing forward, or to the right, Fig. 2, to advance the

hook to that side for the needle to come down behind the under thread to make a loop with it. The under thread is supplied to the hook from a spool on the spindle P or Q, through the slot R in the plate, along the groove S in the under side of the plate, and through the holes *a* and *b* in the hook.

This method of operating the hook has the advantage over other methods of enabling the hook to be speeded in its forward movement through the loop to any required extent, so that the needle is not required to dwell or rest for affording time for the looper to act, and may, therefore, be driven by a continuous steady rotary motion, which is very important for making the machine run still and easy. The speed is obtained by the sharp pitch in the cam at T. By having the loop-controlling plate N swing away from the needle as the hook swings forward across the needle-path, the use of such a plate with this kind of a hook is rendered practicable. I also propose to utilize the collar U for producing the tension of the presser-spring; also, for guiding the presser-bar or keeping the foot in line by extending it a little at one side, and fitting a hole in it on a guide-stud, V, fixed in the head of the stationary arm; and thus I construct the guiding device cheaper than when it is made by a slot in the head and a stud in the presser-bar. The stud being of suitable length, the shifting of the collar up and down to vary the tension of the spring will not interfere at all with the use of it for a guide.

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

The mechanism for imparting a rocking lateral movement to the looping-hook A, consisting of the rock-shaft D, yoke E, eccentric F, and main shaft G, in combination with the grooved cam M, rock-arm J, and link I, for moving the hook to and from the needle in a longitudinal direction, as herein shown and described.

JOHN SPEIRS.

Witnesses:

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T. B. MOSHER.