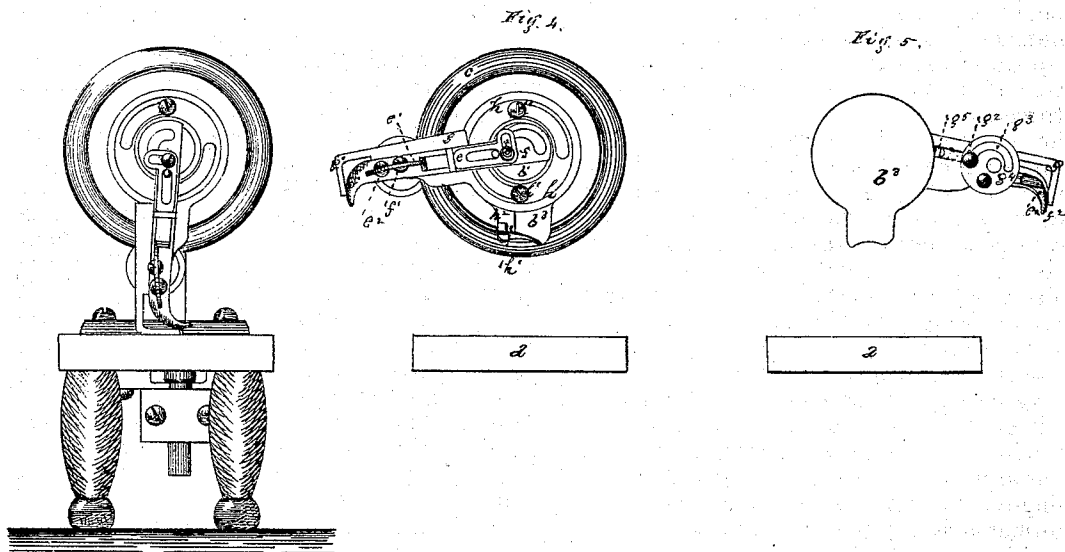
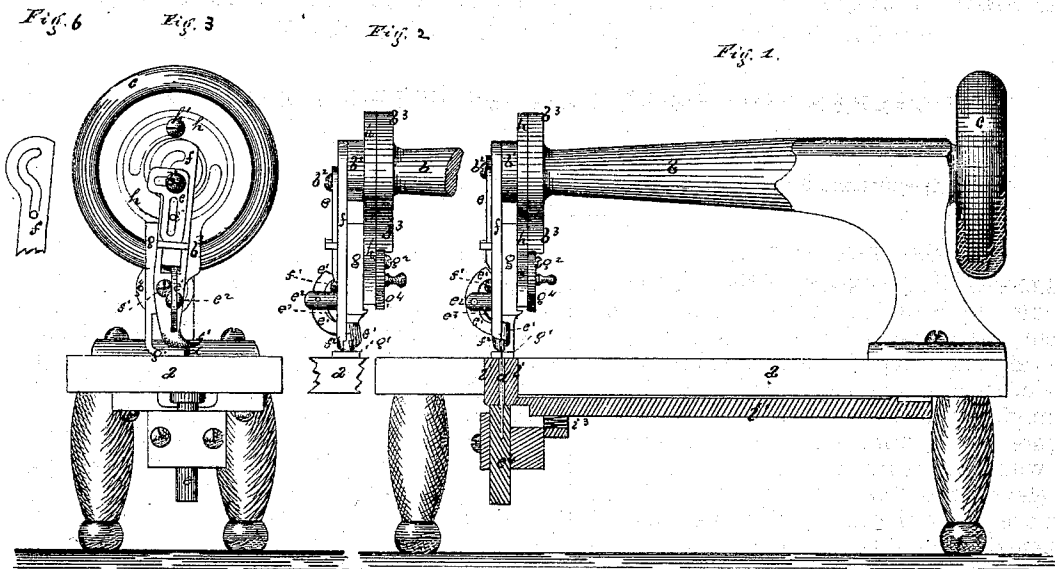


A. W. JOHNSON.
 Improvement in Sewing and Embroidering Machines.
 No. 125,301. Patented April 2, 1872.



Witnesses.

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UNITED STATES PATENT OFFICE.

ALBERT W. JOHNSON, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO
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IMPROVEMENT IN SEWING OR EMBROIDERING MACHINES.

Specification forming part of Letters Patent No. 125,301, dated April 2, 1872.

SPECIFICATION.

I, ALBERT W. JOHNSON, of New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Embroidering-Machine, of which the following is a specification, reference being had to the accompanying drawing, in which—

Figure 1 is a front elevation of the main parts with the "spreader" shut. Fig. 2 is a front elevation of the parts shown in Fig. 1, which are above the table, with the "spreader" opened. Fig. 3 is an end elevation of the parts shown in Fig. 1 with the "spreader" opened. Fig. 4 is an end elevation of the parts above the table with the looping-hook and its appendages swung out horizontally. Fig. 5 is a reverse view of the parts shown in Fig. 4 in the same position. Fig. 6 is a detached view of the looping-hook bar, showing the shape of the slot in its upper end.

The machine makes what is commonly known as a spread-chain stitch on the upper side of a fabric, and is made to use a large embroidering-thread.

The letter *a* indicates the table, like to a sewing-machine table, supported on suitable standards. Rotary motion is given to the shaft, which runs through the arm *b*, as is common in sewing-machines. The wheel *c* is upon the end of this shaft. The needle *d*, set in the needle-bar *e*¹, operates from beneath the table, its motion being given by common devices in use for that purpose. What its motion is will be described hereafter. On the end of the shaft, running through the arm *b*—which, for sake of convenience, is called the "main shaft"—is the disk *b*¹, into which screws the wrist-pin *b*², passing through slots in the spreader-bar *e* and the looping-hook bar *f*. The shape of the slot in the former is readily seen in Figs. 3 and 4. The shape of the slot in the latter is best seen in Fig. 6. The looping-hook bar is pivoted by the screw-pin *f*¹ to the presser-foot bar *g*, dovetailed at its back into a corresponding slot in the pivot-plate *h*, which can be revolved a quarter of a circle on the main shaft, this motion being defined by the screws *h*¹ running through quarter-circle slots in the pivot-plate into the stationary plate *b*³, which is on the arm *b*. This partial revolution is allowed for the purpose of throwing the parts back into the position shown in Fig. 4, so as to be out of the way

when arranging cloth to be embroidered. The presser-foot bar has the presser-foot *g*¹ projecting downward from it, and the bar and foot are made to rise and fall, as desirable and necessary, by means of the pin *g*² extending through a straight slot in the pivot-plate, and also through the slot *g*³ in the cam *g*⁴ pivoted to the back side of the pivot-plate. The pivot-plate and its appendages can only be swung back to the position shown in Figs. 4 and 5 when the presser-foot is drawn up to the highest elevation allowed it; this being the only time when all the parts are in proper position to allow such swinging back, and this is prevented at all other times by the pin *g*⁵ also extending through the straight slot in the pivot-plate and into the slot *h*¹ made in the back side of the pivot-plate. This slot is open to the rear at the top *h*², and thus allows the pin to move to the rear when it is at its highest point of travel.

As the main shaft revolves from the observer, Fig. 1, it causes the looping-hook *f*² to vibrate back and forth with a variable motion, which will be described. The spreader *e*¹ is pivoted to the looping-hook bar at *e*², from whence it runs down through a slot in the looping-hook bar, and then, turning to the front, runs nearly to the point of the looping-hook. In fact, when the spreader is shut, it practically forms a part of the looping-hook. The spring *e*³ tends to keep it always shut, but during each revolution of the main shaft, at the proper time, the spreader-bar *e* is driven down, and its wedge-shaped lower end pushes under the upper end of the spreader, and opens its lower end from the looping-hook. The embroidering-thread comes up from a properly-placed spool under the table on the left side of the needle, Fig. 1, and passes through an eye in the needle near its point. When the needle is at the top of its play, and just as it is about to descend, the looping-hook, its spreader shut, moves to the front and catches under the thread, between it and the needle, and holds it while the needle descends, thus forming a loop. As soon as the point of the needle descends so as to clear the looping-hook, the spreader opens and spreads the loop, the hook meanwhile remaining stationary, and while thus stationary the needle again comes up and passes through the spread loop. Now the hook retreats, throw-

ing off the loop onto the needle, and the spreader shuts, but, while the needle is still up, again, with spreader shut, comes to the front and catches into the thread, as at first, above the loop just thrown off, and the retreating needle leaves the loop on the cloth, and so on indefinitely, thus forming a chain-stitch. The cloth feeds from the front, Fig. 1, while the needle is down.

The feeder is of the ordinary construction and operation, and it is not deemed necessary to show it in the drawing. It surrounds the needle, and is slotted for the entrance of the needle through it, and is set in the elastic circular bed *i*, which surrounds the needle, which is appropriately slotted for that purpose. This elastic bed *i* is a round block, resting upon the arm *i*¹, pivoted at *i*² to the bottom of the table, and supported by the spring *i*³. Experiment has shown this elastic bed to be an important feature.

I claim as my invention—

1. The combination of the looping-hook bar, the presser-foot bar, and the pivot-plate, constructed and operated substantially as described.

2. The combination, with the looping hook-bar *f*, presser-foot bar *g*, pivoted plate *h*, and fixed plate *b*³, of the cam *g*⁴ and pin *g*², all operating as and for the purpose described.

3. In combination with the pivoted looping-hook and bar, the spreader, constructed substantially as described, pivoted to said bar, and operated by the spreader-bar, substantially as described.

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Witnesses:

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