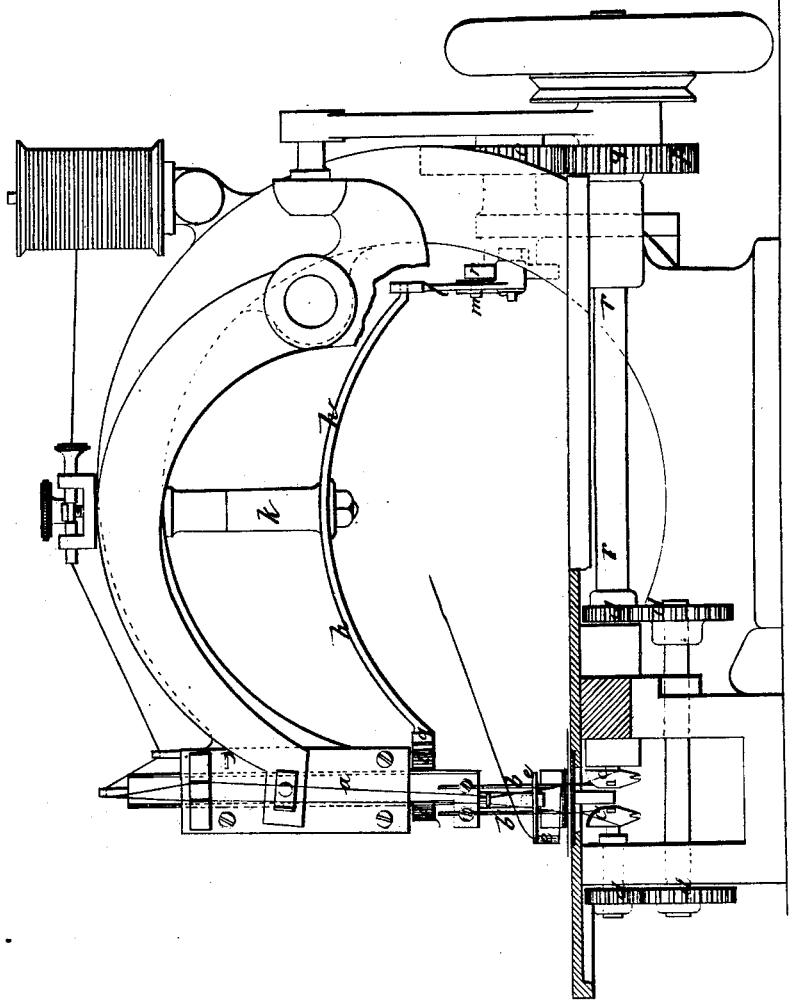
3 Sheets—Sheet 1.

J. WOOD.

SEWING-MACHINES FOR EMBROIDERING.

No. 185,811. Patented Dec. 26, 1876.

FIG. 1.



Witnesses

O. S. Davies

Jno. Hughes

Inventor.

John Wood

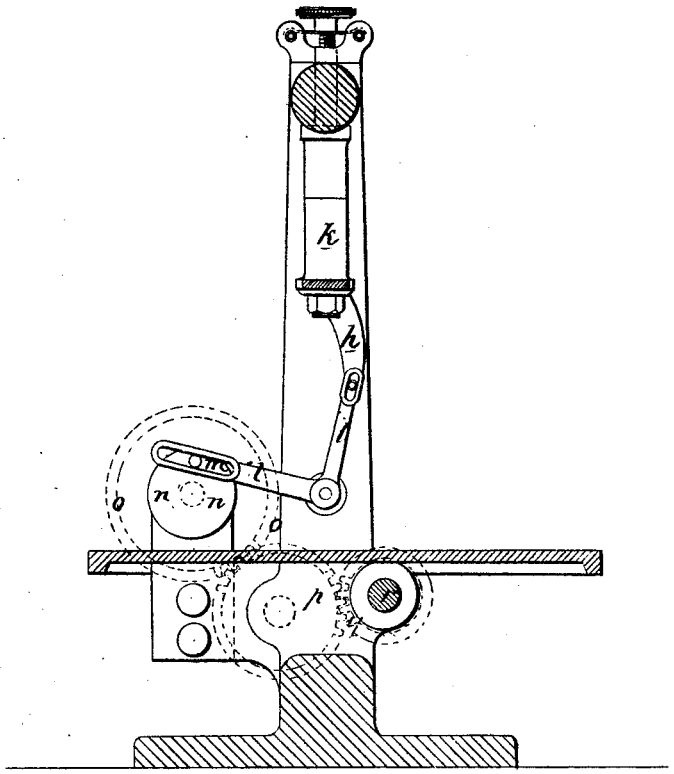
3 Sheets—Sheet 2.

J. WOOD.

SEWING-MACHINES FOR EMBROIDERING.

No. 185,811. Patented Dec. 26, 1876.

FIG. 2



Witnesses

F. D. Lowe's

Jno. Hughes

Inventor

John Wood

3 Sheets—Sheet 3.

J. WOOD.

SEWING-MACHINES FOR EMBROIDERING.

No. 185,811. Patented Dec. 26, 1876.

FIG. 3.

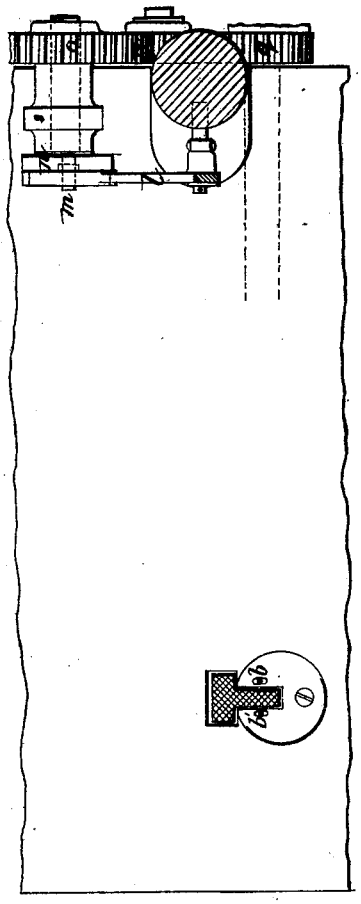


FIG. 6.

FIG. 5.

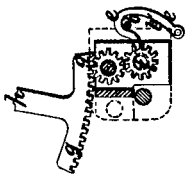
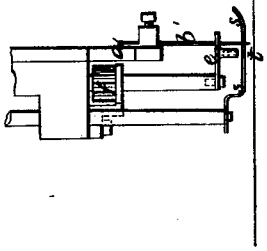


FIG. 4.



Witnesses

T. E. Davies

Jno. Hughes

Inventor:

John Wood

UNITED STATES PATENT OFFICE.

JOHN WOOD, OF MANCHESTER, GREAT BRITAIN.

IMPROVEMENT IN SEWING-MACHINES FOR EMBROIDERING.

Specification forming part of Letters Patent No. **185,811**, dated December 26, 1876; application filed March 25, 1876.

To all whom it may concern:

Be it known that I, JOHN WOOD, of Manchester, in the county of Lancaster, Great Britain, have invented certain Improvements in Apparatus for Embroidering, of which the following is a specification:

This invention is designed for the purpose of forming a line of embroidery or satin-stitch (either straight, waved, or otherwise) at some distance from the edge of the fabric; and consists, principally, in the employment of two eye-pointed needles, placed at a distance apart corresponding with the width of the desired stripe, each having a separate thread and forming an ordinary stitch, in combination with a thread carrier or guide which carries the embroidery-thread from side to side by an alternate circular movement, and lays it alternately behind the point of each needle just before the descent of the latter, and then carries it round the front to the back of the other needle, and so on alternately. By these means the embroidery-thread is carried backward and forward on the face of the fabric, and is firmly secured or stitched to the fabric by the binding-threads at each side.

The binding-thread may be caused to form a chain or other single-thread stitch on the back of the fabric, or a lock-stitch by the use of a shuttle and another thread, the kind of stitch made, or the mechanism by which it is produced, forming no part of this invention, excepting that the sewing mechanism must be double.

Figure 1 in the annexed drawing, which forms part of this specification, is a side elevation, Fig. 2 a vertical section, and Fig. 3 a horizontal section, of an embroidering-machine made according to my invention.

The sewing-machine to which my improvements are shown as applied is one of the Wilcox & Gibbs type, but on a larger scale, and all the ordinary sewing parts of the machine, such as the arm, needle-bar, presser foot and bar, tension, friction-feed, feeder, and looper, are all the same as usual, excepting that the needle-bar *a a* is arranged to hold and work two needles, *b b'*, at any given distance apart, according to the width of the stripe of satin-stitch required, and a second or left-handed looper, *c'*, is provided for acting with the additional needle *b'*, being driven at the same speed as the ordinary right-handed looper *c* by means of the spur-gearing *d d*; and as there are two sewing-threads, there are, of course, also a separate bobbin and friction-pad for each thread.

So far the machine is an ordinary sewing-machine, but adapted so as to make two parallel rows of stitching at, say, three-eighths of an inch apart, and all that is required to produce the stripe of embroidery or satin-stitch is to cause a thread-guide to lay the embroidery-thread behind the needles, alternately backward and forward, so that as they descend they stitch the said thread down onto the fabric, the distance apart of the two sewing-needles determining the width of stripe of embroidery or satin-stitch they produced. *e e* is the embroidery-thread guide, which is attached to the boss or to the axis of the spur-pinion *f f*, which is carried by the fixed frame at the back of the needle bar or slide *a a*, (see also detached views, Figs. 4 and 5,) and has an alternate circular motion given to it by means of a toothed rack, *g g*, at one end of a lever, *h h*, gearing with the carrier-pinion *i i*. The lever *h h* has its fulcrum at *k k*, and its other end is connected to the vertical arm of the bell-crank lever *l l*, the other arm of which is provided with a slot, in which works a bowl, *m*, carried by a revolving crank pin or plate. This plate *n* is fixed on a stud, on the other end of which is keyed a spur-wheel, *o o*, which receives its motion through a carrier-pinion, *p p*, from a pinion, *q q*, keyed on the shaft *r r*. The wheel *o o* has twice as many teeth as the pinion *q q*, and hence, as it revolves only once for twice of the shaft *r r*, it will be evident that the thread-carrier will move to the right during one revolution of the machine—*i. e.*, one simultaneous stitch of both needles—and to the left during the next revolution, and so on alternately, each movement laying the embroidery-thread behind both needles, first to the right and then to the left, so as to form a stripe of embroidery or satin-stitch of the width required.

The embroidery-thread must be so arranged as to run freely off a bobbin or spool, so that,

as the thread-guide *e e* lays it backward and forward, it will not pull upon the stitches of the sewing-thread.

Owing to the thread-carrier being pivoted to the outer end of the sewing-machine arm, this construction does not interfere with the proper manipulation of the fabric or the handling of the machine.

The presser-foot *s s* is formed with a tongue, *s'*, (see detached view, Fig. 6,) and as the thread-guide *e e* works to and fro above it, while the needles *b b'* pass through it, the stripe of embroidery is formed over this tongue, and as the cloth or fabric is fed forward it slips off the tongue down through the curved slot *t t*, and passes with the cloth or fabric under the heel of the foot *s s*.

I am aware that a patent has been granted to I. M. Singer, No. 13,662, October 9, 1855, in which a vibrating thread-carrier is described as laying a thread in the path of two sewing-needles. This I do not desire to claim, broadly; but

I claim as my invention—

1. The combination of the needle or needles of a sewing-machine with the thread-carrier *e*, pivoted in the fixed arm of the machine, and with a lever, *h*, operating the said carrier, substantially as described.

2. The combination of the pair of needles and the vibrating thread-carrier with the presser-foot *s*, having a tongue, *s'*, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN WOOD.

Witnesses:
T. E. DAVIES,
JNO. HUGHES.