2 Sheets—Sheet 1

H. J. WATKINS.

Wax Thread Sewing Machine.

No. 202,314. Patented April 9, 1878.

Fig. 1.

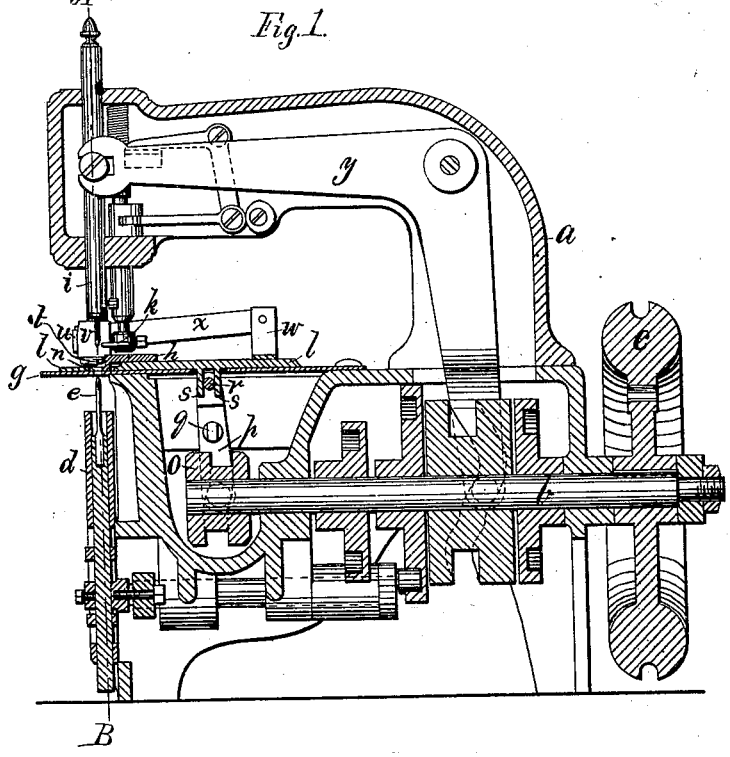
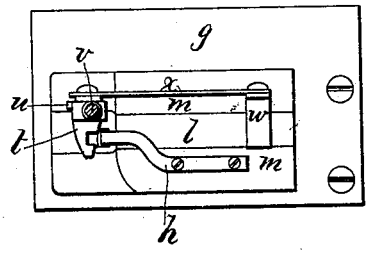


Fig. 2.



WITNESSES:

Henry Chadbourn

F. Allen.

INVENTOR:

Henry J. Watkins

by Albert G. Davis,

his atty

2 Sheets—Sheet 2.

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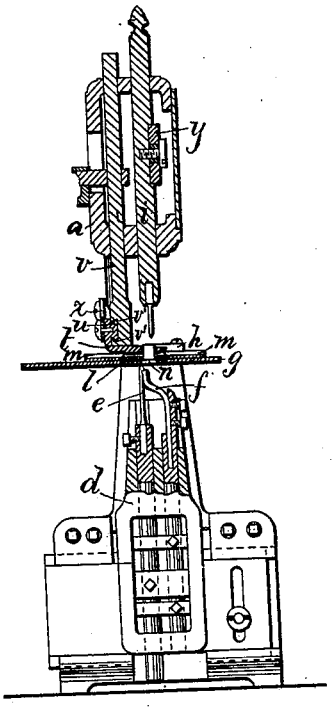
Fig. 3.



WITNESSES:

Henry Chadbourn.
F. Allen.

INVENTOR:

Henry J. Watkins
by Edwin Andrew
his att'y.

UNITED STATES PATENT OFFICE.

HENRY J. WATKINS, OF HUDSON, MASSACHUSETTS, ASSIGNOR OF TWO-THIRDS HIS RIGHT TO WILLIAM F. TROWBRIDGE AND WILBUR F. BRIGHAM, OF SAME PLACE.

IMPROVEMENT IN WAX-THREAD SEWING-MACHINES.

Specification forming part of Letters Patent No. **202,314**, dated April 9, 1878; application filed August 11, 1877.

To all whom it may concern:

Be it known that I, HENRY J. WATKINS, of Hudson, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Wax-Thread Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification:

My invention relates to improvements in wax-thread sewing-machines; and consists in the combination of a vertically-reciprocating awl, a vertically and horizontally reciprocating open-eyed needle, a laterally-reciprocating needle-plate, and a laterally and vertically reciprocating presser-foot, for the purpose of sewing two or more materials together in such a manner that the needle and awl shall pass alternately through the work and outside of the same, so as to form a continuous chain or loop stitch on the outside of the edges of the materials that are to be united.

In this machine the open-eyed needle is reciprocated vertically to draw down the loop, and horizontally for the purpose of feeding the material forward in the usual manner. The awl-bar and thread-guide are also operated in the usual manner.

An adjustable gage is also used in the ordinary way, to regulate the distance of the stitch from the edge of the work.

The presser-foot is reciprocated up and down as usual, but in addition thereto a lateral horizontal movement is imparted to it simultaneously with the needle-plate, that is moved laterally in a horizontal direction parallel with the horizontal motion of the presser-foot, and at a right angle to the line of feed, for the purpose of automatically moving the work so as to allow the needle and awl to pass alternately through and outside of it, for the purpose hereinbefore described.

I wish it to be understood that I do not confine myself to the exact application of my invention as hereinbefore described, as it is obvious my devices may be operated by suitable connection with the shaft in the goose-neck of a sewing-machine using such shaft, or from a rock-shaft under the bed-plate of a machine.

The operation of my invention is as follows: When the materials that are to be united are placed in position between the needle-plate and presser-foot, with the edges resting against the adjustable gage, and the machine set in motion, the awl first descends and punctures the work, and rises; after which the open-eyed needle ascends through the hole made by the awl. The presser-foot now rises, to allow the needle to feed the work forward, and the thread is laid by the thread-guide in the open-eyed needle that now descends with a loop through the work, and as soon as the needle is below the work the latter is moved laterally from the gage by the presser-foot and movable needle-plate so far as to allow the needle in its next upward motion to pass entirely outside of the edges of the work, by which the chain-stitch is formed over the edge of the same instead of through it, as is ordinarily the case. The materials are then again confined between the presser-foot and needle-plate, and automatically moved in a horizontal direction against the gage, after which the awl descends to puncture them, and the needle comes up from below through the puncture so made, takes a loop from the thread-guide, and descends, the needle acting at the same time to feed the material along, and so on; and in this manner the awl and needle pass alternately through the work and outside or beyond the edge of the same, thus forming a chain or loop stitch thereon. The movable needle-plate is provided with a slotted perforation, so as to allow the awl and needle to pass through it in its various positions.

This invention is very useful for the purpose of sewing side and heel seams, &c., for boots and shoes, for harness, and a great variety of leather work, as well as for sewing carpets, &c., as when the materials, so united, are afterward laid or rubbed out flat a close seam is formed without any folded edges or overlapping, by which a great deal of stock is saved.

On the accompanying drawings Figure 1 represents a sectional side elevation of my improvement. Fig. 2 represents a plan view of the work and needle-plate; and Fig. 3 represents a vertical section on the line A B shown in Fig. 1.

Similar letters refer to similar parts wherever they occur on the drawings.

a represents the frame of an ordinary wax-thread sewing-machine, of which *b* is the driving-shaft; *c*, the balance-wheel; *d*, the needle-frame, with its open-eyed needle *e* and cast-off *f*. *g* is the work-plate, with its adjustable gage *h*. *i* represents the vertically-reciprocating awl-bar, and *k* is the swinging thread-guide, all these parts being the same as usual.

l represents the laterally-reciprocating needle-plate, movable in guides *m m* on the work-plate *g*, and provided with a slotted perforation, *n*, as shown in the drawings. *o* represents a cam secured to the driving-shaft *b*, that operates a rocking-lever, *p*, pivoted at *q*, and provided in its upper end with a pin, *r*, that engages with a forked projection, *s s*, on the under side of the needle-plate *l*, the latter being thus given a lateral motion from the driving-shaft *b*. A slotted opening is made through the work-plate *g*, to allow for the lateral motion of the forked projections *s s* on the needle-plate *l*.

t represents the vertically and horizontally reciprocating presser-foot that is provided with a head, *u*, that is movable in a lateral direction in the guides *v' v'*, formed in the lower part of the vertically-reciprocating presser-foot bar *v*.

w represents a projection on the upper side of the needle-plate, and *x* is a link connecting the projection *w* with the presser-foot *t*, and thus it will be seen that a lateral motion is imparted from the needle-plate to the presser-foot, the vertical motion of the latter being obtained in the usual manner.

The machine shown in the drawing is of that kind in which a knee-lever, *y*, is used to convey motion from the driving-shaft to the awl, presser-foot, and thread-guide, but my invention is equally well adapted to machines of other constructions.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent, and claim—

1. The combination, in a sewing-machine, of a needle moving vertically to make its stitch, and vibrating to feed the fabric, and a slotted feed-plate and presser-foot, both adapted to reciprocate horizontally at right angles to the line of the feed, for the purpose of moving the fabric alternately away from and across the needle-path, as set forth.

2. In a sewing-machine adapted for overseaming leather, the combination of a perforating-awl, a vertically-moving needle adapted to vibrate to feed the fabric, a horizontally-reciprocating needle-plate, and a presser-foot adapted to move coincidently therewith, substantially as and for the purpose set forth.

3. The combination of a reciprocating needle-plate, *l*, arm *x*, pivoted upon said plate, a vertically and horizontally reciprocating presser-foot, *t*, and a vibrating sewing and feeding needle, substantially as and for the purpose set forth.

4. The combination of cam-grooved cylinder *o*, lever *p*, having a pin projecting into the groove of said cylinder, the horizontally-reciprocating needle-plate *l*, pivoted arm *x*, and presser-foot *t*, substantially as described.

In testimony that I claim the foregoing as my own invention I have affixed my signature in presence of two witnesses.

HENRY J. WATKINS.

Witnesses:
ALDEN B. GLEASON,
MARSHALL WOOD.