(No Model.) 2 Sheets—Sheet 1.

J. THOMAS.

SEWING MACHINE FOR QUILTING.

No. 257,786. Patented May 9, 1882.

Fig. 1.

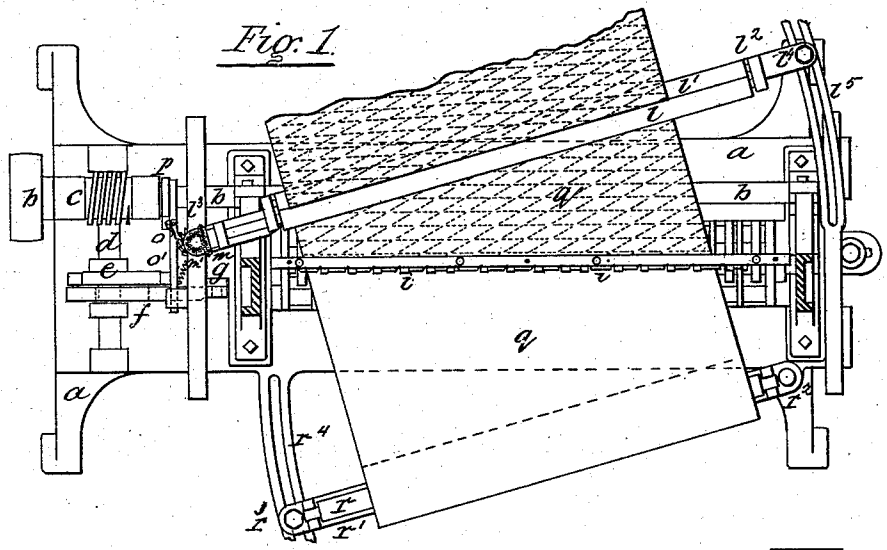
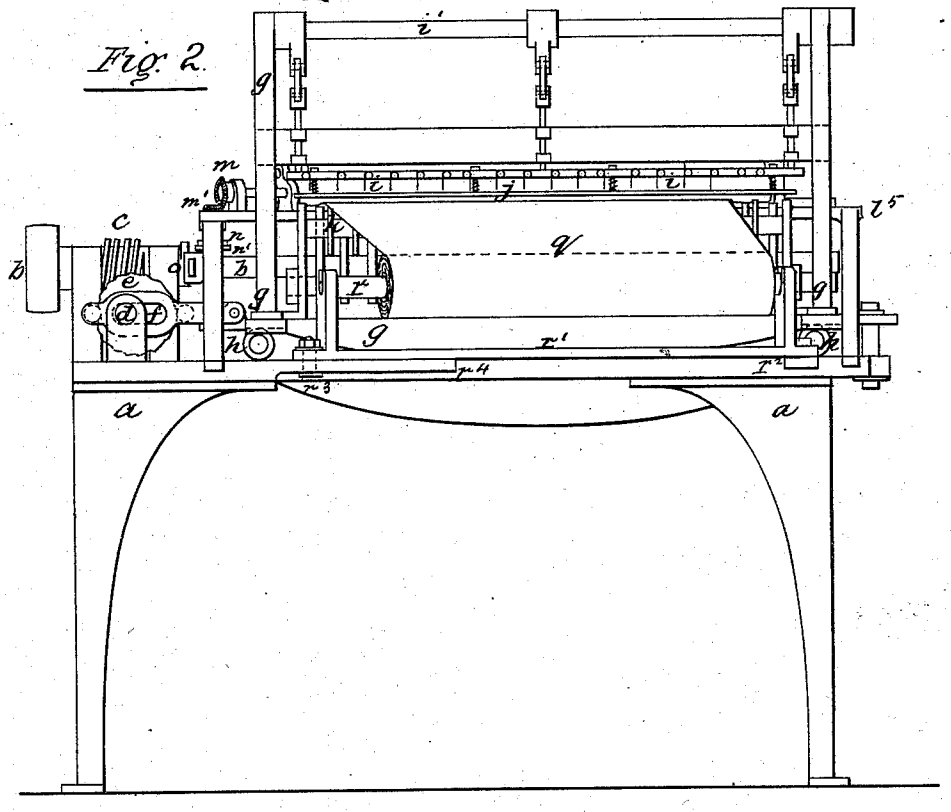


Fig. 2.



Witnesses.
H. D. Williams
C. G. Baker.

Joseph Thomas
Inventor.
per Alfred Sherlock.
Atty.

N. PETERS. Photo-Lithographer. Washington. D. C.

(No Model.) 2 Sheets—Sheet 2.

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SEWING MACHINE FOR QUILTING.

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Fig. 3.

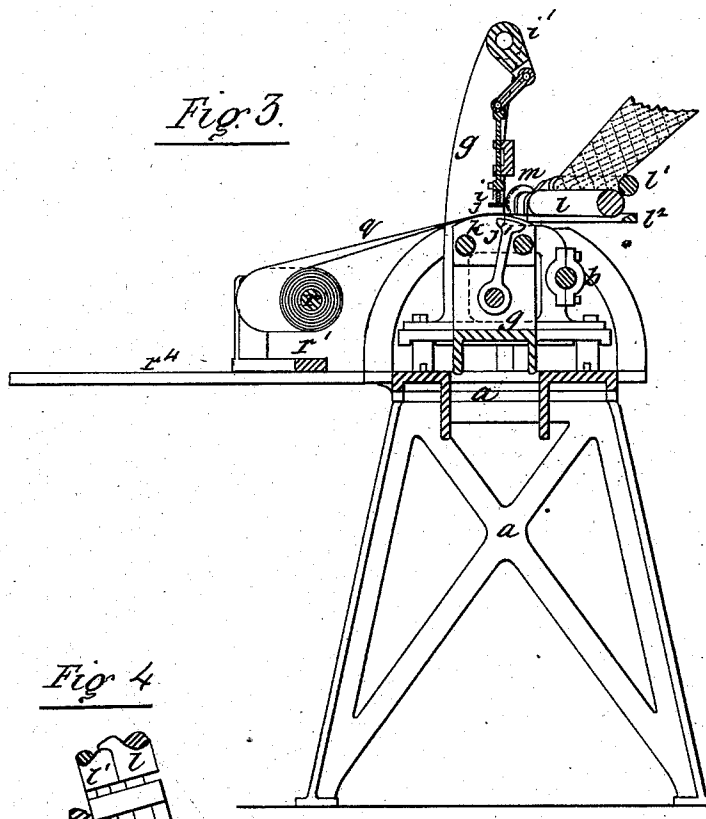


Fig. 7

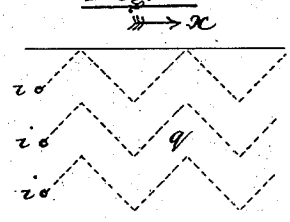


Fig. 10

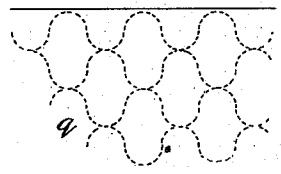


Fig. 4

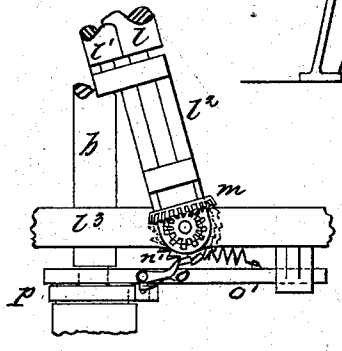


Fig. 6.

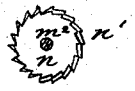


Fig. 8.

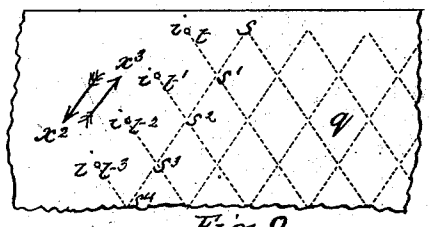


Fig. 5.

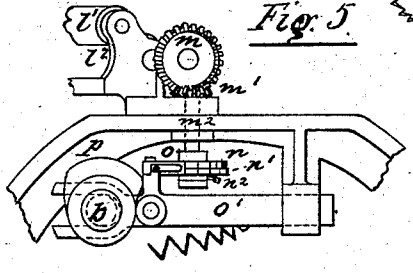
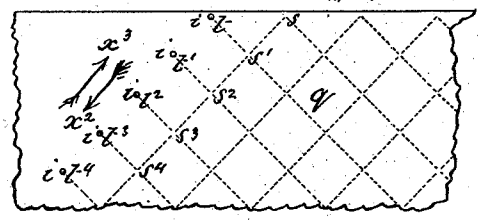


Fig. 9.



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N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH THOMAS, OF HOBOKEN, NEW JERSEY.

SEWING-MACHINE FOR QUILTING.

SPECIFICATION forming part of Letters Patent No. 257,786, dated May 9, 1882.

Application filed January 13, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH THOMAS, of Hoboken, county of Hudson, State of New Jersey, have invented certain new and useful Improvements in Sewing-Machines for Quilting, of which the following is a specification.

The object of this invention is to enable various styles or patterns of quilting to be performed by that class of sewing-machines having a row of needles adapted to be moved laterally over the goods, and feed-rollers adapted to draw the goods longitudinally under the needles; and it consists of certain improvements in the construction of the feed-rollers, frame, and their operating mechanism, by which they may be set and properly actuated at different angles to the row of needles, thereby producing diamond patterns of various angles corresponding to the angular position of the feed-rollers, or any pattern composed of curved lines of stitches may be produced by properly setting the feed-rollers and adjusting their actuating mechanism in relation to the needle-carrying-frame-actuating device. Similar results may be obtained by adjusting the row of needles to fixed feed-rollers; but I prefer to adjust the feed-rollers.

In the accompanying drawings, forming part of this specification, Figure 1, Sheet 1, is a plan view of a sewing-machine with needle-carrying frame partly in section, and showing my improvements thereon. Fig. 2, Sheet 1, is a rear elevation of the same. Fig. 3, Sheet 2, is a central section. Fig. 4, Sheet 2, is an enlarged plan view of the feed-operating device. Fig. 5, Sheet 2, is an elevation of the same. Fig. 6, Sheet 2, is a detached view of the feed ratchet-wheels. Figs. 7, 8, 9, and 10, Sheet 2, represent a few styles of quilting.

The general construction of the machine is old, and may be here described in brief.

a represents the main frame; *b*, the driving-shaft, carrying the worm *c*, which meshes into a worm-wheel on the short shaft *d*, on which is secured the cam *e*, adapted, through the medium of the link *f*, to move the frame *g*, supported on the rollers *h*, a distance equal to one stitch for every revolution of the driving-shaft. In this frame *g* are embraced the stitch-forming parts of the machine, which consist of the needle-bar, holding the row of needles *i i* and actuated by the shaft *i'*, the presser-bar *j*, the shuttle-carrier *j'*, and guide-plate *k*. The needle-bar and shuttle-carrier are actuated by means of eccentrics, &c., from the main shaft *b* in the ordinary manner, such devices being omitted in the drawings to save confusion, and I do not claim anything relating thereto other than the combination, with the laterally-moving row of needles, of adjustable feed-rollers, which I will now describe.

The feed-rollers *l* and *l'* rotate in bearings on the light frame l^2, (see Figs. 1 and 3,) which is pivoted at one end to the standard l^3, and secured at the other end by means of a bolt, l^4, to the curved slotted brackets l^5. This bracket is shown at Fig. 1 as broken away; but its end would be extended so that the feed-rollers may be placed at an angle of forty-five degrees to the row of needles *i i*, if desired.

Secured to the end of the shaft of the feed-roller *l* is the bevel-wheel *m*, which meshes into the bevel-wheel *m'* on the top of the short vertical shaft m^2, which passes through and forms the end pivot of the light frame l^2. To this shaft m^2 is secured the ratchet-wheel *n*, at the under side of which is placed the ratchet-wheel *n'*, fitted to freely turn on the shaft, but adapted to be secured thereto by the set-screw n^2 when desired. Both of these ratchet-wheels *n* and *n'* have the same number of teeth; but the wheel *n'*, as will be observed, is larger than the wheel *n*, and some of its teeth are cut down to the bottom of the teeth in ratchet *n*, and some much shallower, as shown at Fig. 6, so that the pawl *o*, which is wide enough to take the teeth of both ratchets, actuates the ratchet *n'* only when working in the shallow teeth, and actuates both ratchets *n* and *n'*, and so moves the feed-rollers *l l'* equal to one stitch, when in the deep teeth of the ratchet *n'*. This pawl *o* is carried by the slide *o'*, which is operated by means of the cam *p*, secured to the driving-shaft *b*.

The goods *q* to be quilted are placed in the roll on the shaft *r*, supported in the frame *r'*, which is pivoted at one end to the main frame *a* at r^2 and secured thereto at the other end by means of a bolt, r^3, to a curved slotted bracket, r^4, which is shown broken away at Fig. 1. This roll of goods *q* is adjusted parallel to the feed-rollers *l l'*, and the goods pass over the

guide-plate *k*, under the presser-bar *j* and row of needles *i i*, and between the rollers *l l'*, and from here to a winding-up roller. (Not shown.) The cam *e* is so shaped as to impart to the row of needles *i i* an intermittent lateral reciprocating movement, the range of which equals the distance between the needles. The feed-rollers *l l'* may be caused to move the goods forward at each stitch made by the needles by locking the ratchet-wheel *n'* to the shaft m^2 by means of the set-screw n^2, or by other suitable locking device. When the feed is so set and the feed-rollers *l l'* arranged parallel to the row of needles *i i*, then the sewing is represented by the dotted lines in Fig. 7, the small circles *i i* representing some of the needles, and the arrow *x* indicates the direction in which the goods move.

By referring to Fig. 6 it will be seen that one-half of the teeth of the ratchet-wheel *n'* are shallow and the other half deep, so that when this wheel is free to turn on the shaft m^2 the feed-rollers *l l'* remain stationary during the time the pawl *o* works in the shallow teeth, and are moved so as to feed the goods under the needles during the time the pawl works in the deep teeth, so as to engage the teeth of the ratchet *n*. This is the operation of the feed to produce diamond patterns, as shown by the dotted lines on the goods *q* in Figs. 1, 8, and 9, each one representing the feed-rollers *l l'* set at different angles to the row of needles *i i*.

In Figs. 8 and 9 the reference-letters are the same; so a description of the manner in which the work is done in one will answer for both.

The goods move in the direction as indicated by the arrow *x'*, and the row of needles *i i* move back and forth, as indicated by the arrows x^2 x^3. Now, assume that the needles are respectively at *s* s' s^2 s^3 s^4, the first needle being at *s*, the second one at s', and so on. The feed is inoperative while the needles are moved by their carrying-frame in direction of arrow x^2 from *s* to s', s' to s^2, &c. The feed now moves the goods forward at the same time the needles are moved back in direction of arrow x^3, and so sew on the lines respectively from s' to *t*, s^2 to t', s^3 to t^2, &c., each needle, by repetition of its movement as described, thus making the dividing-line between two adjacent rows of diamonds. By setting the goods at an angle to the row of needles and adjusting the feed-roller-actuating device to work in unison with the needle-feed, patterns having curved lines, as represented at Fig. 10, may be produced. This design is produced by causing the needles to move laterally at the same time the feed-rollers draw the goods at an angle thereunder, each needle thereby forming curved rows of stitches between the upper and lower parts of the lines of stitches formed by them, instead of straight lines, as shown in Figs. 8 and 9, the lower parts of such curved lines of the stitches of each needle meeting the upper parts of the curved lines of its adjacent needle, said curved lines being diagonal to the goods, as are the straight lines in Figs. 8 and 9, by reason of the angular movement of the goods under the needles. In fact, any continuous pattern may be sewed by each needle, as the combined action of the lateral feed of the needles and the longitudinal feed at any angle thereto of the feed-rollers imparts to the machine the principle of the pantograph.

It is obvious that the ratchet-wheel *n'*, which may be properly termed a "pattern" wheel, may have any arrangement of deep and shallow teeth desired. So I do not wish to confine myself to the particular arrangement of teeth shown, nor to the particular form shown of the needle-frame-operating cam *e* in combination therewith; but

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

1. In combination, the feed-rollers *l l'*, carried by the adjustable frame l^2, the bevel-wheels *m m'*, ratchet-wheels *n* and *n'*, and operating-pawl *o*, substantially as and for the purpose set forth.

2. As a variable device for feed-rollers of sewing-machines, the plain ratchet *n*, secured rigidly to its shaft, the ratchet-wheel *n'*, turning freely on the shaft adjacent thereto, and having teeth of varying depth, and operating-pawl *o*, in combination, substantially as set forth.

3. The combination of the row of needles *i i* with the feed-rollers *l l'*, carried by the frame l^2, which is pivoted at one end in close proximity to one end of the row of needles and secured at its other end to a curved slotted bracket, whereby the said feed-rollers may be set at different angles to the row of needles, substantially as set forth.

4. In combination, the row of needles *i i*, the adjustable frames l^2 and r', pivoted at one of their ends at the opposite sides and ends of the row of needles and secured at their other ends to curved slotted brackets, whereby they may be set at different angles to the row of needles and parallel to one another, said frame l^2 being adapted to carry the feed-rollers *l l'*, and the said frame r' being adapted to carry the roll of goods *q*, substantially as and for the purpose set forth.

In witness whereof I have hereunto set my hand, at New York, county and State of New York, this 11th day of January, A. D. 1882.

JOSEPH THOMAS.

Witnesses:
H. D. WILLIAMS,
FREDK. BALZ.