

N. JONES.
Sewing Machine.

No. 37,580.

Patented Feb. 3, 1863

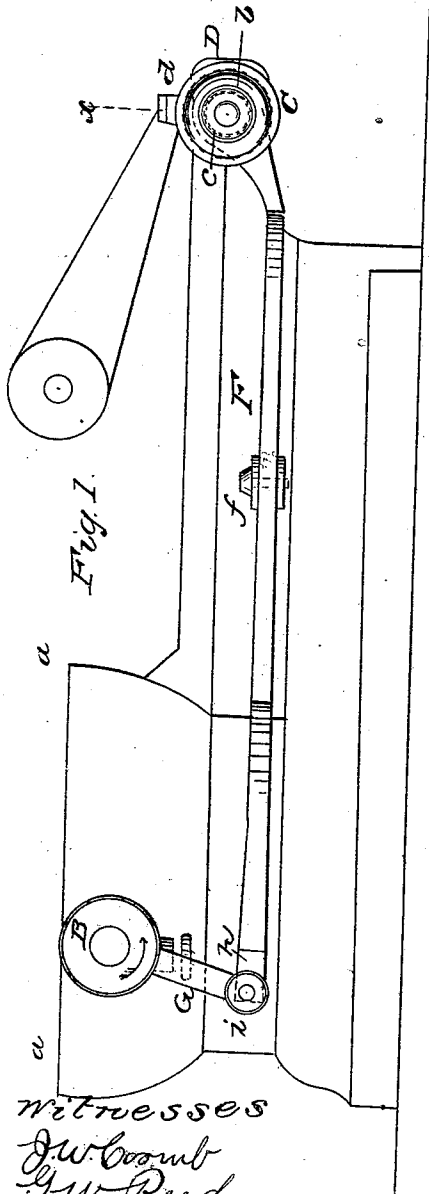


Fig. 1.

witnesses
D. W. Coomb
G. W. Reed

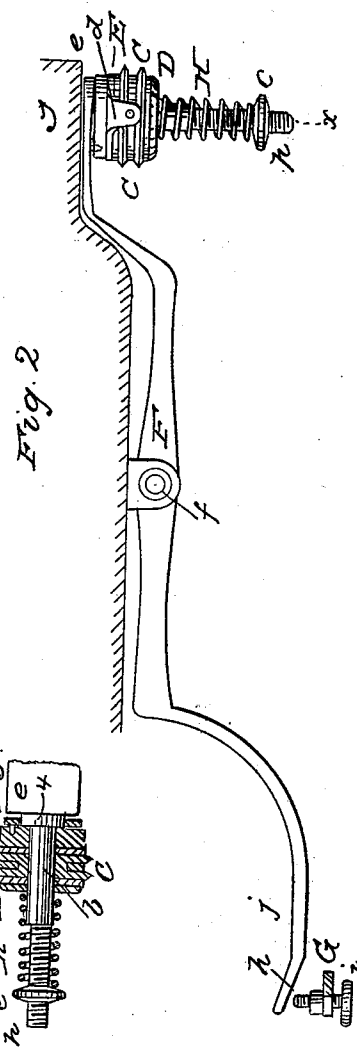


Fig. 2.

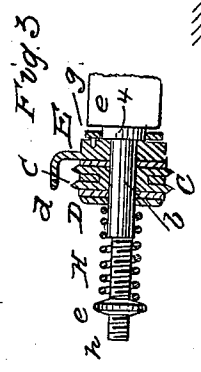


Fig. 3.

Inventor
N. Jones
per Munn & Co
attorney

UNITED STATES PATENT OFFICE.

N. JONES, OF LA PORTE, INDIANA.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 37,580, dated February 2, 1863.

To all whom it may concern:

Be it known that I, N. JONES, of La Porte, in the county of La Porte and State of Indiana, have invented a new and useful Improvement in the Reversible-Feed Mechanism of Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of my invention. Fig. 2 is a top view of the same. Fig. 3 is a vertical section in the line *x x* of Figs. 1 and 2.

Similar letters of reference indicate corresponding parts in the several figures.

In the application of a reversible-feed mechanism to a shuttle or other lock-stitch sewing-machine the two threads are simply interlaced when the feeding movement is in one direction, but are crossed and form a kind of half-knot when the said movement is in the reverse direction, and the consequence is that the degree of tension of the upper thread that is requisite to bring it tight on the upper surface of the cloth and make it draw the under thread tight up into the cloth when the feeding movement is in the first-mentioned direction is not sufficient to produce the same effect when it is reversed, but leaves the upper thread loose on the upper surface of the cloth and the under thread straight on the under surface, the reason being that in the latter case the friction of the threads is so much greater; or, if the tension should be sufficient to draw the upper thread tight and the under one far enough into the cloth when the feed movement is in the last-mentioned direction it would draw the under thread through the cloth when the movement was in the first-mentioned direction. Hence, in order to make good work in sewing back and forth the tension of the needle-thread requires to be varied every time the direction of the feed movement is changed.

My invention consists in so combining the device which produces the tension with the device by means of which the feed movement is reversed that by the act of changing the direction of feed movement the tension is varied in such manner as is rendered necessary by such change of direction.

To enable others skilled in the art to make and apply my invention, I will proceed to describe it with reference to the drawings.

A is the bed-plate of a sewing-machine,

upon the upper surface, *a*, of which the cloth is laid and the work performed.

B is a knob arranged in front of the said plate, and by the turning of which to the extent of a small portion of a revolution the reversal of the feed movement is effected either through the agency of a set-screw, a cam, or other convenient means.

C is a tension-pulley, around which the needle-thread passes for the purpose of having the necessary tension produced upon it by means of the friction upon the sides of the said pulley of two padded plates, D E, arranged on opposite sides of it upon the same fixed spindle, *b*, which is secured in the bed-plate A, the pressure of the said plates to produce the necessary friction upon the pulley being obtained by a spiral spring, H, which is placed upon the said spindle and adjusted by a nut, *c*, fitted to a screw-thread provided upon the said spindle for its reception. The plate D is so fitted to the spindle as to prevent it from turning with the pulley, and the plate E may be similarly fitted to the spindle; but the latter plate is represented as being prevented from turning by means of a stop-pin, *e*, on a lever, F, which forms a part of the means represented for carrying out my invention. The said plate E carries an eye, *d*, for the purpose of guiding the thread from the tension-pulley C. The lever F is arranged in front of the machine upon a fixed fulcrum, *f*, upon which it is capable of moving horizontally. It has at one end an eye or fork, *g*, through which the fixed spindle *b* passes without touching it, and at the other end it is made with a beveled or oblique outer surface, as shown at *h*, Fig. 2. To the knob B there is attached a short lever-arm, G, which is fitted with a set-screw, *i*. The fork or eye *g* of the lever is situated behind the plates D E and tension-pulley C. When the feed movement is in a forward direction—that is to say, in a direction in which the upper and lower threads are simply interlaced without the formation of eyes or half-knots in them—the knob B is in such a position that it keeps the set-screw *i* clear of the lever F, as shown in Fig. 2, and the spring H holds back the plates D E and pulley C and keeps the plate E against a fixed shoulder, *4*, provided upon the spindle *b*; but by the act of turning the knob B in the direction of the arrow marked upon it in Fig. 1 the arm G is moved to the right and the set-screw *i* caused to act

upon the beveled surface *h* of the lever *F* and force back the left-hand end of the said lever and so throw forward its front end against the plate *E*, thereby forcing forward the said plate away from the shoulder *4* on the spindle *b*, and forcing forward with it the tension-pulley *C* and plate *D*, and thereby compressing the spring *H*, and so increasing the friction upon the tension-pulley and the tension which it produces on the thread. In the above-described movement of the knob *B* to vary the direction of the feed movement the set-screw passes from the beveled portion *h* of the lever to the straight portion *j*, where it rests and holds the lever in a position to make it maintain the additional pressure which it has given to the spring *H*, and so continue the additional tension on the needle-thread until the knob is turned in the opposite direction to that indicated by the arrow, when the arm *G* and set-screw *i* return to the first-mentioned position and allow the spring *H* to expand and force back the plates *D E* and pulley *C* upon the spindle *b* as far as permitted by the shoulder *4*, thereby reducing the friction upon the tension of the thread. The set-screw *i* serves as a means of regulat-

ing the additional friction given to the tension-pulley. By screwing the said screw farther in it is caused to press farther back the left-hand end of the lever, and so increase the compression of the spring *H*, and by screwing it farther out an opposite effect is produced.

I do not confine myself to the use of any particular device for producing the tension of the thread, nor of any particular device for changing the direction of the feed movement; but

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

So combining the device which produces the tension with the device by means of which the direction of the feed movement is changed that by the act of changing the direction of the feed movement the tension is varied in such manner as is rendered necessary by such change of direction, substantially as herein specified.

NATHL. JONES.

Witnesses:

JAS. LEWIS,
JULIUS BARNES.