

B. F. NORTON.  
Sewing Machine.

2 Sheets—Sheet 1.

No. 32.782.

Patented July 9, 1861.

Fig. 3

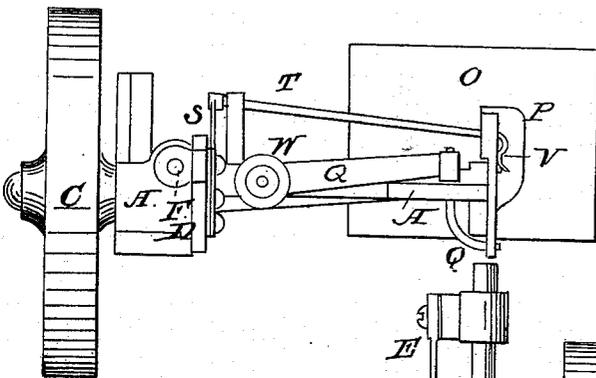


Fig. 2

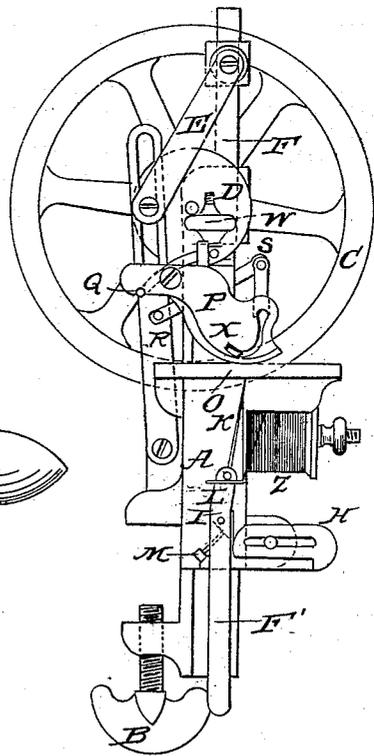
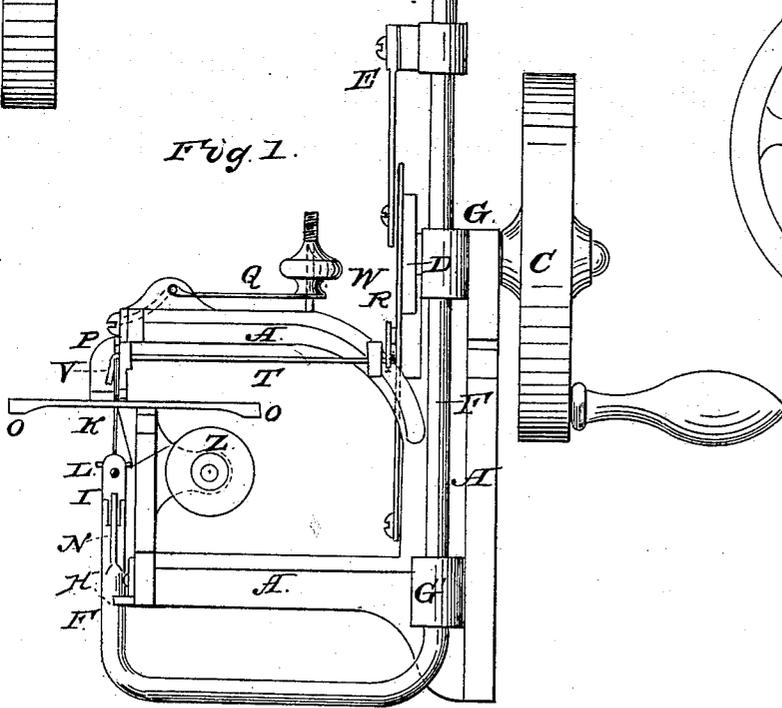


Fig. 1



witnesses

*J. G. Surpud*  
*B. A. Bell*

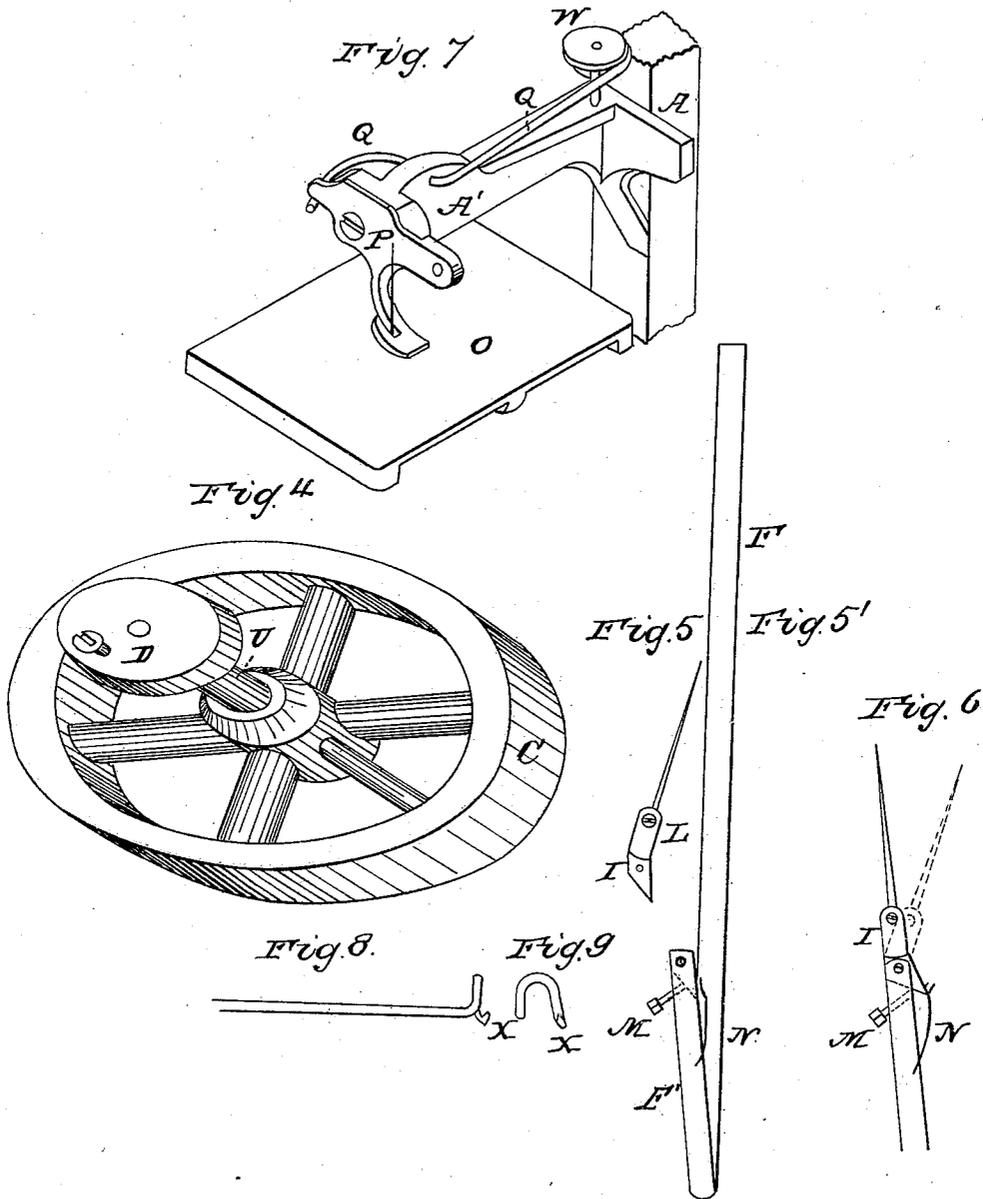
Inventor

*B. F. Norton*

B. F. NORTON.  
Sewing Machine.

No. 32,782.

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Witnesses  
J. M. Johnson  
S. A. Bell

Inventor  
B. F. Norton

# UNITED STATES PATENT OFFICE.

BENJAMIN F. NORTON, OF MANCHESTER, NEW HAMPSHIRE.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 32,782, dated July 9, 1861.

*To all whom it may concern:*

Be it known that I, BENJAMIN F. NORTON, of Manchester, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full and exact description of the construction and operation thereof, reference being had to the accompanying drawings, and to the letters marked thereon, making part of this specification.

Figure 1 is a longitudinal section parallel to the axis of motion of the driving-shaft. Fig. 2 is a longitudinal section at right angles to the axis of motion of the driving-shaft. Fig. 3 is a transverse section at right angles to the motion of the needle-bar and parallel with the axis of motion of the driving-shaft.

A is the frame of the machine. B is a set-screw whereby it is affixed to a table or other support.

C is the driving wheel or crank to which power is applied, and is placed on the end of the shaft U, having at its other end the crank D. These parts are more particularly shown in Fig. 4 of the drawings. U is a shaft, having at one end the driving-wheel C, and at its other end the crank-wheel D, which communicates motion to the needle-bar F and the other shaft, T, by means of the connecting-rods E and R, which are both attached to the crank-pin on D.

D is a crank or wheel, or its equivalent, attached to the needle-bar by a connecting-rod, E, or its equivalent.

E is a connecting-rod attached to crank D, and to the needle-bar F F' for the purpose of giving it a reciprocating or vibrating motion.

F F' is a needle-bar, bent in the manner indicated in the drawings, for the purpose of giving motion to the needle K, which needle-bar is attached to the connecting-rod E at its upper end and moves in slides G G'.

F' is the short arm of the needle-bar, bent at an angle to the direction of motion of the other arm, F, and slides in an adjustable guide, H, giving a feeding motion to the extremity of the needle-bar F' for the purpose of feeding the cloth by means of the needle-carrier L and needle K. Figs. 5 5' are details of the needle-bar F F', showing the angle which arm F' makes with the line of motion of the other arm, F.

H is an adjustable guide through which the short arm of the needle-bar F' moves.

L is a needle-carrier holding the needle K, and affixed to the needle-bar by means of the joint I, which can be adjusted at any angle desired, in order to give the requisite length of stitch, by means of the set-screw M.

N is a spring attached to the needle-bar F', pressing the tongue of the needle-carrier L, which forms part of the joint I, for the purpose of relieving the backward strain on the material sewed when the needle is withdrawn. Figs. 5 5' show more particularly the detail of the joint I and the application of the spring N and set-screw M. Fig. 6 shows the operation of the joint I, spring N, and set-screw M in the different positions in which they are placed.

O is a table on which the material is placed to be sewed and through which the needle passes.

P is a pressure-pad operated by the spring Q for the purpose of retaining the material sewed in its proper place while being sewed, and through a slot in this pressure-pad the needle passes, the amount of pressure being regulated by the spring Q and set-screw W at pleasure, the details of which are more particularly shown in Fig. 7. The spring Q is a spring-lever turning in a part of the frame A' as a fulcrum, the end of which passes under the arm of the pressure-pad P, which also turns on the screw by which it is attached to A', as on a pivot and operated as a lever, so that the pressure applied to the spring Q at the end where thumb-screw W is placed raises the end of the pad P, to which the spring lever Q is applied, and thereby causes the pad P to bear more or less heavily on the material placed between P and Q, according to the amount of pressure applied to the thumb-screw W.

R is a slotted connecting rod or lever attached to the crank D, and to which is attached the lever S.

T is a shaft connected by levers S and R to the crank D and receiving a vibrating motion therefrom. One end of the shaft T is journaled in the pressure-pad P.

V is a looper-hook attached to the vibrating shaft T, having on one side a barb, X, for the purpose of taking hold of the loop formed by the passage of the needle through the cloth

and holding it in proper position for the needle to pass through while forming the next stitch. Figs. 8 and 9 represent the part of the looper-hook V with barb X in detail.

Z is a spool-holder.

The different parts above named being made of any suitable material operated by the devices set forth or their equivalents, substantially as described.

The operation of the machine is as follows: The power is applied to the wheel or crank C, which operates the crank D, or its equivalent, and therefrom by means of connecting-rod E, or its equivalent, the needle-bar F F' receives a vertical reciprocating motion and the arm F' of the needle-bar slides through the adjustable guide H, or its equivalent, at an angle to the direction of motion of the other arm, F, and carries the needle-carrier L upward at an angle to the upward motion of F and F', forcing the needle through the material placed on the table O, and by such upward motion feeds the cloth sufficiently far that, the needle being withdrawn by the downward motion of F and F', the cloth is in a position for the needle to make the next stitch. The length of the stitch is regulated by the set-screw M, or its equivalent, which limits the amount of motion of the needle carrier L in the joint I, by which it is connected to the needle-bar. To the needle-bar F' is attached a spring or its equivalent operating upon the tongue of the needle-carrier L in the joint I, which yields to permit the descent of the needle through the cloth without backward pressure, and afterward restores the needle to the proper position for the next stitch. The thread taken from the spool is passed through a spring-guide to equalize the strain and through a guide on the needle-carrier, so as to feed the thread to the needle in a convenient manner, the needle passing through the table O on which the cloth rests. An arm of the frame A' projects over the table and

holds at its extremity the pressure-pad P, which is attached by a screw to the arm A', and is capable of motion on said screw or its equivalent as a pivot. The pressure-pad P is made to bear upon the cloth by means of the spring Q, and the extent of its pressure is regulated by means of the clamp-screw W. The same arm, A', supports the shaft T of the looper-hook V, or its equivalent, which is operated by the lever S, attached to a crank on the shaft T, and to which a reciprocating or vibrating motion is communicated by the slotted lever R, or its equivalent, moved by the crank D.

On the shaft T, which passes through the pressure-pad P is formed a hook, V, which, by its vibrating motion above stated, passes between the thread and needle, and as the needle is withdrawn a loop is formed on the looper-hook, and by the backward motion of the hook the thread slips over the point of the hook, forming a half-twist, and is retained by the barb X on the hook in an open position for the passage of the needle through it in forming the next stitch; and at the forward motion of the looper-hook the loop retained by the barb is delivered up as it passes the needle and is drawn tight by the action of the needle, thus forming a chain-stitch.

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

The needle-bar F F', bent laterally, as shown in Fig. 5', jointed needle-carrier L, adjustable guide H, set-screw M, and spring N, operating in combination beneath the table O, the whole constructed and arranged substantially as and for the purposes set forth.

Signed May 13, 1859.

B. F. NORTON.

In presence of—

J. Q. A. SARGENT,  
S. N. BELL.