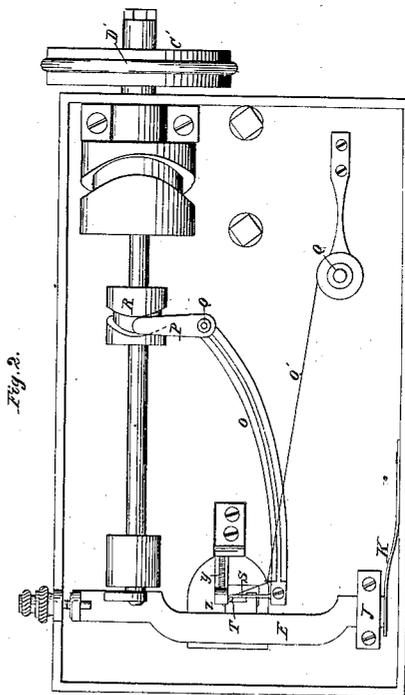
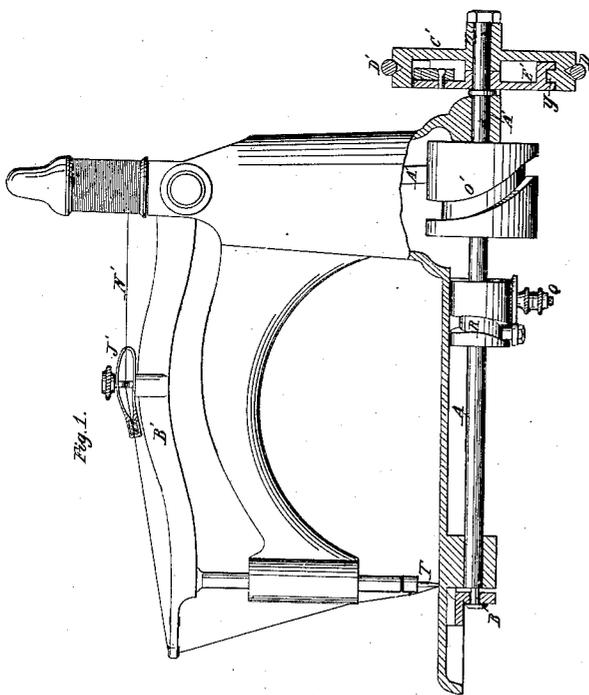
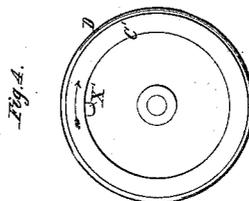
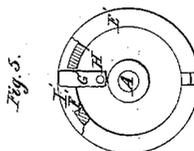
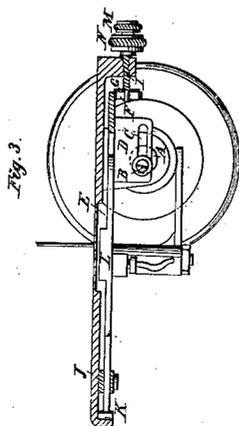
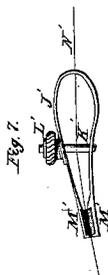


J. W. HOWLETT.  
SEWING MACHINE.

No. 31,601.

Patented Mar. 5, 1861.



Witnesses:

*Jas. H. Ludlow*  
*W. S. Sanders*

Inventor:

*Munn & Co. Attorneys*  
*J. W. Howlett*

# UNITED STATES PATENT OFFICE.

J. W. HOWLETT, OF GREENSBOROUGH, NORTH CAROLINA.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 31,601, dated March 5, 1861.

*To all whom it may concern:*

Be it known that I, J. W. HOWLETT, of Greensborough, in the county of Guilford and State of North Carolina, have invented a new and useful Improvement in 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 a part of this specification, in which—

Figure 1 represents a side view and partial central section, Fig. 2 a plan, and Figs. 3, 4, 5, 6, and 7 various details, of the machine.

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

The nature of my invention consists, first, in producing the necessary tension of the upper-needle thread by passing it between the glass plates held in dovetailed slots at the ends of a bent spring, when this spring is combined with an adjustable clamp-screw, in the manner and for the purpose hereinafter described.

It consists, second, in making the tension-plates of glass, for the purpose hereinafter described.

It consists, third, in the arrangement of a rod with a tapering face and spiral spring, in combination with a vertical and horizontal reciprocating needle, as hereinafter described.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the driving and cam shaft of this machine, a cam, O', upon said shaft working the end A' of the upper-needle arm B', in the usual manner. Another cam, R, upon said shaft operates the end P of the lever or arm O, carrying the lower and horizontal needle, S. Q is the fulcrum of the lever O P. The upper needle, T, works vertically and the lower needle, S, horizontally. A forked projection, Z, extends from the under face of the platform of the machine, and a small rod, W, works horizontally through a hole in the back Z' of said projection. A spiral spring, Y, presses said rod forward, so as to cause a stop-pin, X, inserted through the rod, to bear against the rear face of the back Z' of said projection. The end of the rod extending forward between the forked ends of the projection Z is provided with a smooth face, U, tapering at the end nearest the horizontal

needle S, as seen at V. This device is so arranged in relation to needle S that the latter as it advances meets the tapering end V and presses the face U slightly back against the tendency of spring Y. By this means the loop of needle S is thrown forward, so that the vertical needle T, as it descends, is made to pass through said loop without any possibility of failing to pass through the loop and thereby causing a drop-stitch.

The device for feeding the cloth in such manner as to determine any desirable length of stitches is as follows: A horizontal bar, E, slides at one end through a slot in a projection, J, extending from the under face of the platform, the end of the bar bearing against a spring, K. The slot J allows this end of the bar a very slight vertical play, as this slot serves as a fulcrum for the motion in a vertical plane of the other end of the bar. This motion is produced by an eccentric pin, B, at the forward end of shaft A, playing through a horizontal slot, C, in a wing, D, extending from the under surface of the bar E. A set-screw, I, works through a female screw in the rim of the platform. The smooth end of this set-screw extends through a washer, G, into a vertical slot, F, in the bent-down end of arm E. The end of the screw-threaded portion of I bears against the washer G. By screwing the screw I in as far as it will go, as seen in Fig. 3, the end of the screw-thread of I, bearing against washer G, presses the bar E back against spring K far enough to clear the inner end of slot C of the pin B. In this case the eccentric pin B, playing in the slot C, will merely move the wing D and this end of arm E vertically up and down, thereby producing no feed motion at all. By screwing the screw I out the inner end of slot C is brought more or less within reach of the pin B and the wing D, and this end of arm E will thereby receive a combined horizontal and vertical motion. If the screw I is screwed out far enough to bring the inner end of slot C within reach of the whole extent of the circular motion of pin B, the wing D and this end of arm E will be caused to describe the same circular motion the pin B describes, and this will correspond to the greatest extent of feed motion the machine is capable of producing. It will be understood that as one end of the bar (the wing end) has a circular or part of a circular mo-

tion, and the other end slides horizontally through slot J, any point between must describe an elliptical line of more or less eccentricity, according to the above-described adjustment of the set-screw I. A clamp, N, serves to secure the set-screw in any desirable position. The feed-pad, working through a suitable slot in the platform in conjunction with a pressure-pad of the usual construction, is attached to the bar E at L. It will be understood that the eccentricity of the elliptical motion of the feed-pad determines the extent of feed or length of stitches. One of the advantages of this feed device, besides its simplicity of construction, is that it works entirely without noise.

The driving-pulley *c'*, provided around its rim with an india-rubber face, *D'*, turns loose on the outer end of the driving-shaft A. A disk provided with an arm, *E'*, fits the cavity inside of the rim of pulley *C'*. The disk is keyed to shaft A. An india-rubber dog, *G'*, is pivoted inside of the disk, at *H*, and extends through a slot, *F*, in the rim of the disk. When the pulley *C'* is revolved in the proper direction for operating the machine (see arrow in Fig. 4) the knob *X'*, projecting from the inside of the rim of pulley *C'* into a circular groove, *Y'*, in the face of rim *E'*, comes to bear against dog *G'*, the latter being in the position shown in Fig. 5, and thus causes the disk and shaft A to revolve together with the pulley *C*; but if revolved in the other direction the knob strikes the rear face of dog *G'* and turns the dog out of the way, as indicated by the dotted arc *I'* in Fig. 5, so that the disk and shaft A will stand still while the pulley revolves. The advantage of this device is that it works without noise and sudden jars, and without danger of breaking anything on suddenly setting the machine in motion.

A bent spring, *J'*, is arranged on a pivot, *K'*, on top of the upper-needle arm *B'*, and can be pressed together more or less by operating a clamp-nut, *L'*, at the upper and screw-threaded end of the pivot *K'*. The outer ends of the spring are made with dovetail slots, into which two plates of glass, *M' M'*, are inserted. The thread of the upper needle passes from the spool between these glass plates, which are pressed together by means of the clamp-nut *L*, so as to impart the proper tension to the needle-thread. The great smoothness and hardness of glass makes it far superior to any other material for the purpose. The thread will not be injured while passing through these glass plates, and the plates will never wear out, as is the case with other materials employed for the purpose.

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

1. Producing the necessary tension of the upper-needle thread *N'* by passing it between two glass plates, *M' M'*, held in dovetail slots at the end of a bent spring, *J*, when this spring is combined with an adjustable clamp-screw, *L'*, substantially as and for the purposes set forth.

2. Making the tension-plates of glass, substantially as and for the purposes set forth.

3. The arrangement of a rod, *W*, with a tapering face, *U V*, and spiral spring *Y*, in combination with a vertical and horizontal reciprocating needle, substantially as and for the purposes set forth.

J. W. HOWLETT.

Witnesses:

W. C. DONNELL,  
JOHN F. HOWLETT.