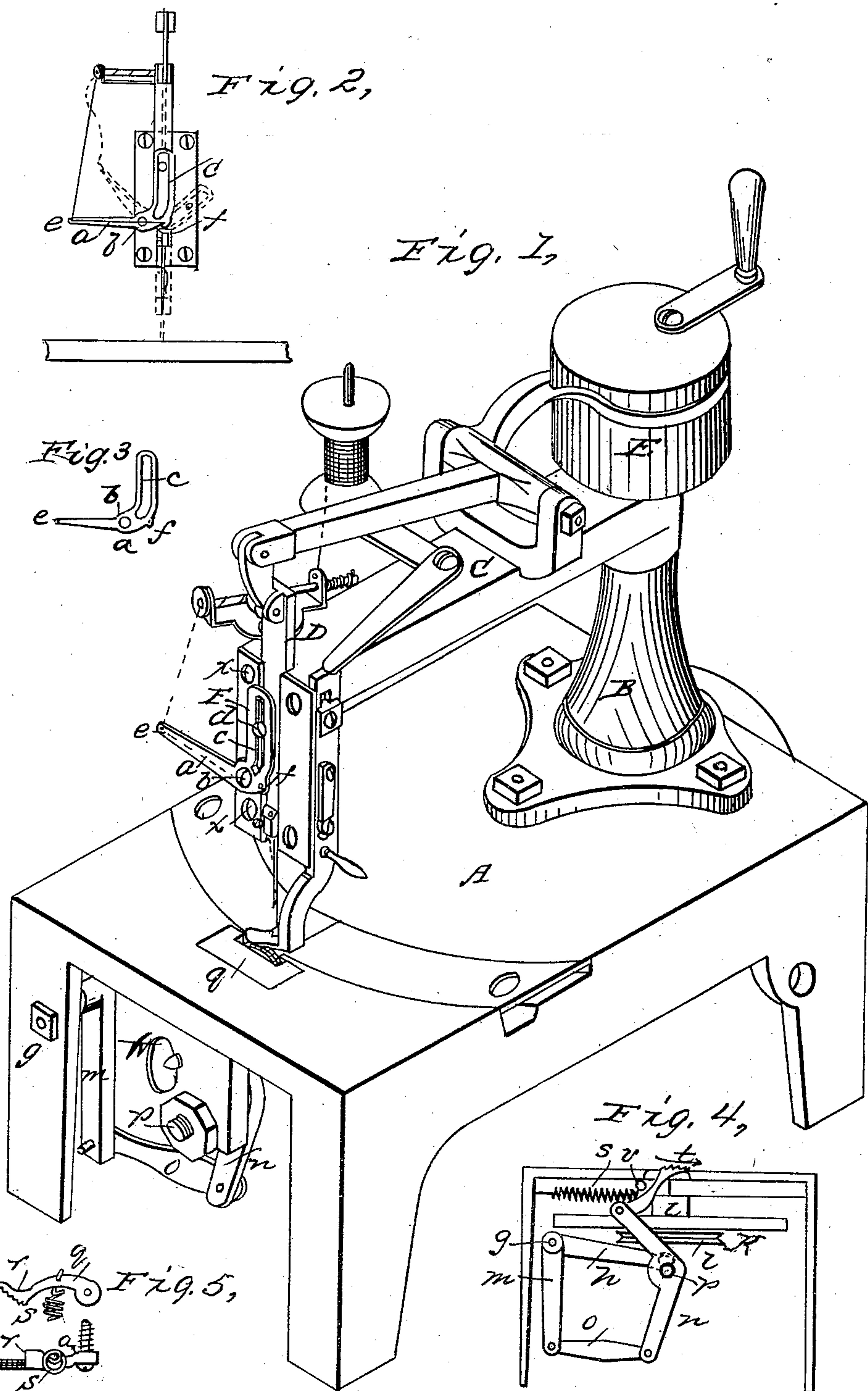


D. HARRIS.  
Sewing Machine.

No. 11,934.

Patented Nov. 11, 1854.



Witnesses:  
Sam Cooper  
John T. Blair



# UNITED STATES PATENT OFFICE.

DANIEL HARRIS, OF BOSTON, MASS., ASSIGNOR TO JOHN P. BOWKER, JR.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **11,934**, dated November 14, 1854.

*To all whom it may concern:*

Be it known that I, DANIEL HARRIS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Needle and Shuttle Sewing-Machines, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is an isometric view of a sewing-machine with my improvements attached; Figs. 2, 3, 4, and 5, detached views, which will be hereinafter referred to.

The nature of my invention consists in a simple and effective method of drawing up the slack of the needle-thread as the stitch is tightened up, and holding it until the eye of the needle enters the cloth, when it is left free and loose until the shuttle has passed through and the needle-bar again rises to tighten up another stitch.

To enable others skilled in the art to make and use my invention, I will proceed to describe the manner in which I have carried it out, referring generally to those parts of the machine not immediately connected with my improvement.

A is the frame-work or table of the machine; B, the standard, which supports the arm C, which carries the needle-bar D; E, the cam, by which motion is communicated to the needle-bar. *a* is the tightener or device by which the stitch is tightened and the slack thread held up. It is of the form represented in the drawings, and is pivoted to the plate F at the point *b*. *c* is a slot in the vertical portion of this arm, in which moves a pin, *d*, projecting from the needle-bar D. This slot is so formed, as seen in Fig. 3, that the arm *a* is held by the pin *d* in the position seen in Fig. 1 during the upward motion of the needle, and until the latter, on descending, has entered the cloth. The pin then strikes upon the inclined portion of the slot, and the arm is thrown into the position represented in blue in Fig. 2.

*e* and *f* are small holes in the arm *a*, and through which the needle-thread is passed on its way from the spool to the needle.

The operation of this part of the machine is as follows: At the last instant of the descent of the needle-bar the pin *d* strikes upon the inclined side of the slot *c* at its bottom end, and throws the arm *a* into the position indi-

cated by the blue lines in Fig. 2. The thread is thus left loose and free to be drawn through the cloth by the shuttle. On the rising of the needle-bar the pin *d*, entering the straight portion of the slot in the arm *a*, throws the latter into the position represented in Fig. 1, by which means the stitch is tightened up and the requisite amount of thread is drawn from the spool for the next stitch.

*g* is a shaft running longitudinally through the machine, and carrying an arm, *h*, which rests against the under surface of a revolving wheel, *k*, upon the bottom of the main driving-shaft *l*. *i* is a cam upon the wheel *k*, by which the arm *h* is depressed, as seen in Fig. 4. *m* is an arm, also attached to the shaft *g*. *n* is a lever, pivoted at *p*, and connected with the arm *m* by the link *o*. Pivoted to the upper extremity of the lever *n* is the feeding-dog *q*, which is retracted by the spring S and fed forward by the vibration of the lever *n*, produced by the cam *i* in the manner explained. The spring S also serves to keep the arm *h* up against the cam *i*. The dog *q* is prevented from passing too far through the table by the shoulder *r*, Fig. 5. The motion of this feeding-dog is peculiar. As the cam *i* revolves, the arm *h* is depressed, and through the connections already explained the dog is driven forward in the direction of the arrow *t*, the teeth upon its upper surface being so cut as to carry the cloth with it. On the return of the lever *n* the dog is retracted by the spring S until it comes in contact with the pin *v*, when it descends below the surface of the table, and on the return of the lever *n* it is again carried up until the shoulder *r* strikes the under surface of the table, when it is carried forward, as before, feeding the cloth with it. The position of the pin *v* is varied to alter the length of the stitch by the adjusting-screw W, Fig. 1.

The plate F, to which the tightener *a* is attached, is secured to the machine by the screw *x*, which works through slots in the plate, by which means the latter may be raised or lowered and the position of the tightener be adjusted to the thickness of the material to be operated upon.

Having thus fully described the nature of my invention, I would state that I am aware an arm for slacking and raising up the slack of the needle-thread has been used, and this I do not claim; but

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

The so arranging the bent arm *d* that by its movement it shall perform the triple operation of slacking up the thread as the needle is about penetrating the cloth and admit of the necessary pause while the shuttle passes through the loop, and then tighten up the

stitch in advance of the upward motion of the needle-bar and draw from the spool the requisite amount of thread for the next stitch, as set forth.

DANL. HARRIS.

Witnesses:

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