W. G. BECKWITH.

Sewing Machine.

No. 113,724. Patented April 18 1871.

Fig. 3

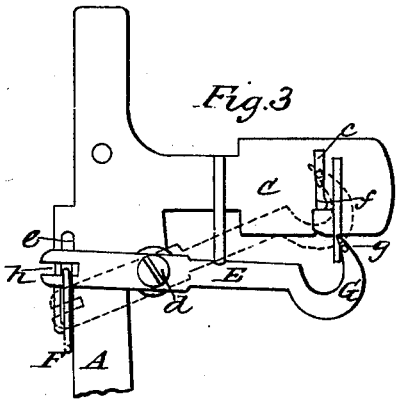


Fig. 1.

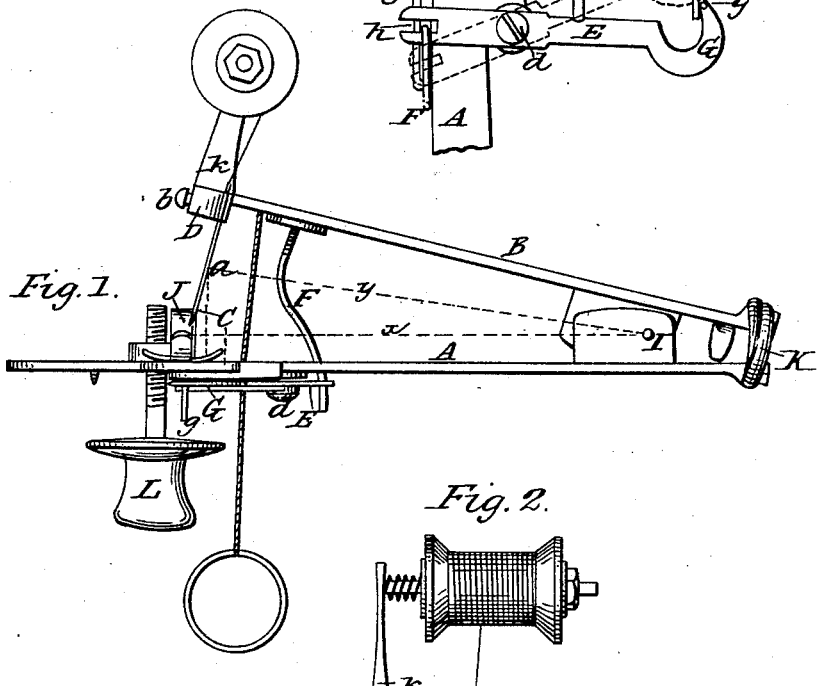
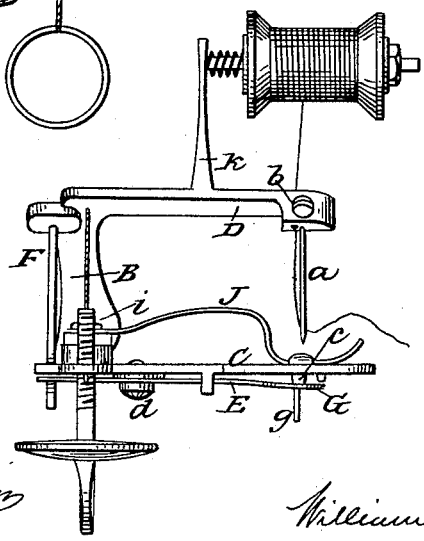


Fig. 2.



Witnesses:

Edward C. Ashton

Inventor:

William G. Beckwith.

UNITED STATES PATENT OFFICE.

WILLIAM G. BECKWITH, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 113,724, *dated April* 18, 1871.

To all whom it may concern:

Be it known that I, WILLIAM G. BECKWITH, of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification:

My invention consists in certain novel combinations and arrangements of parts, and has for its object to make a cheap and effective single-thread sewing-machine, as will be fully set forth hereafter.

Figure 1 is a side view of my improved machine. Fig. 2 is a front view from the left-hand side of Fig. 1. Fig. 3 is a view of the under side of the cloth-plate, showing the form and arrangement of the looper.

A B represent two levers hinged together at I, and formed with arms C D projecting from them at right angles, or nearly so, the lower arm C constituting the cloth-plate or support for the material, and the upper arm D the needle-carrier. E represents an arm which operates and forms part of the looper G. It is pivoted at *d*. F is a curved rod secured to the upper lever B, and working through a slot, *e*, in the side of the lower lever. It passes through the slot *h* in the arm E, and operates to give the proper motion to the looper G. When the levers A B are pressed together the looper will be forced back into the position represented by the full line in Fig. 3, and when they are extended, as in Fig. 1, the looper will occupy the position shown by the broken lines. H represents a rubber spring, which draws the ends of the levers apart when pressure upon them is removed.

The presser-foot for holding the cloth upon the plate C is formed of a spring, J, secured at one end to the lever A by the screws *i*, and provided at the other with the necessary slot or aperture for the needle.

A straight needle, *a*, is held in the end of the arm D by the set-screw *b*, in such position that it performs the operations of feeding the material and sewing it at the same time.

As the needle-arm D moves in the arc of a circle of which the pivot I is the center, the needle *a*, being straight, will be carried diagonally and at a tangent to this circle, so that as it is forced down into the cloth it will tend to draw it forward between the cloth-plate and the presser-foot a certain distance. This action of the needle causes a new portion of the cloth to be brought under it at each movement of the needle-arm, and thus forms a regular succession of stitches.

The length of stitch is governed by the penetration of the needle into the cloth, so that by shortening or lengthening the needle in the arm D the stitch will be changed in a corresponding manner; for instance, if the needle penetrates the cloth as far as the point *a*, the distance the cloth will be moved by it will be, theoretically, the difference between the radiuses of the arcs *x y*, in which the end of the needle and the point *a* respectively move; but the resistance of the cloth will make this distance, practically, somewhat less.

The looper G is provided with a pin, *g*, which forms a stop for the loop of the needle-thread to prevent it being thrown too far upon the point of the looper; and the cloth-plate is provided upon its under side with a wedge-shaped block, *c*, which forms a loop-check to hold and properly distend the loop for the purpose of insuring the descent of the needle within the loop and the consequent perfect formation of stitches. When the needle rises out of the cloth the loop formed by it beneath the cloth-plate is held by the point of the looper against the end of the block *c*, and kept distended and in position against any twisting or turning of the cloth, so that the needle in descending will carry the next loop through it.

The necessary vibratory movement may be given to the needle-arm D by grasping the two levers and working them in a similar manner to a pair of shears; or the lower lever A may be secured to a table by means of the thumb-screw L, and the upper lever operated by the cord and ring, as represented in Fig. 1. Suitable means may also be arranged for connecting the upper lever with a proper treadle-movement and operating it by foot-power.

I claim as my invention—

The arrangement and combination of the levers A B, provided with arms C D, reciprocating eye-pointed needle *a*, presser-spring J, looper G, rod F, and spring H, for opening the levers and reacting the needle from the cloth, the whole constructed and operating as described and specified.

WILLIAM G. BECKWITH.

Witnesses:

C. A. DURGIN,

EDWARD E. OSBORN.