2 Sheets--Sheet 1.

W. G. BECKWITH.

Sewing-Machines.

No. 133,351. Patented Nov. 26, 1872.

Fig. 1.

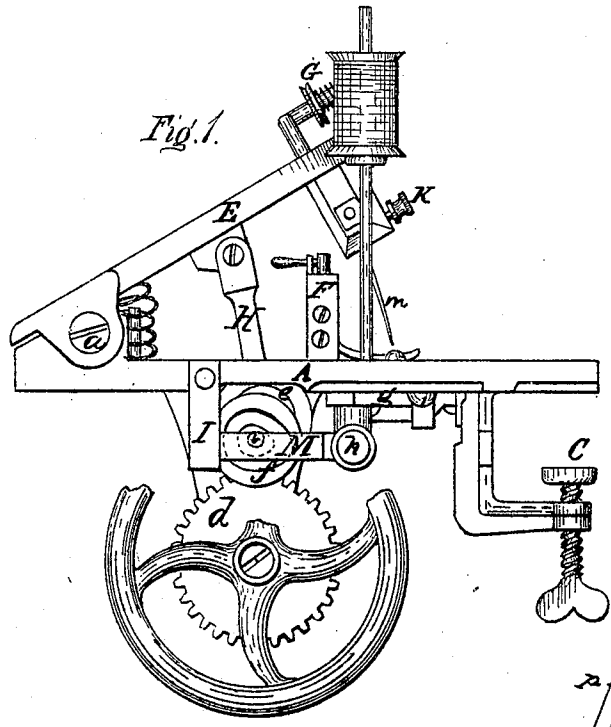


Fig 3.

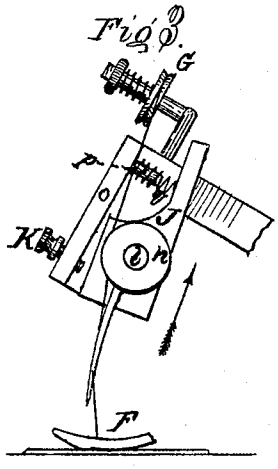


Fig 4.

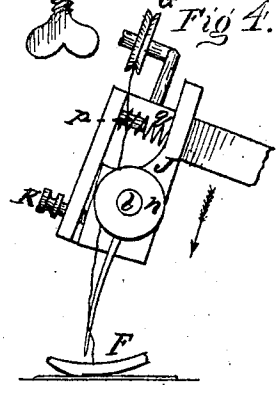
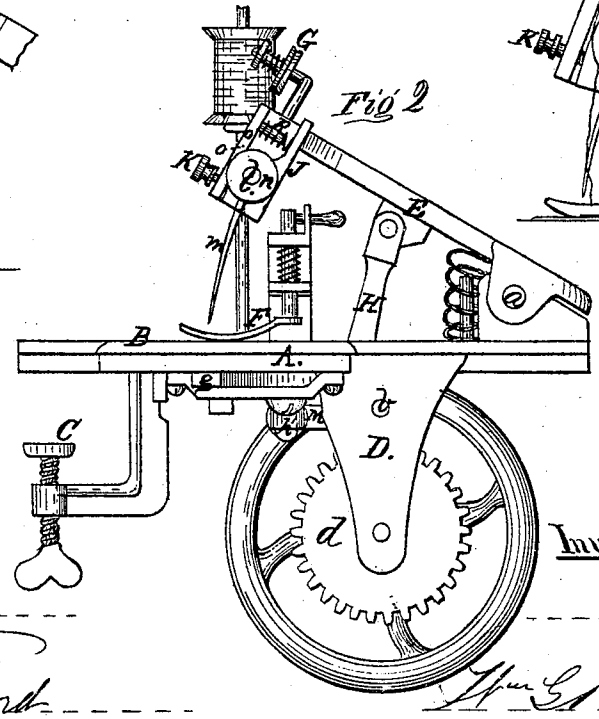


Fig 2



Witnesses.

E. H. Johnson

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Inventor.

Wm. G. Beckwith

2 Sheets--Sheet 2.

W. G. BECKWITH.

Sewing-Machines.

No. 133,351. Patented Nov. 26, 1872.

Fig. 5.

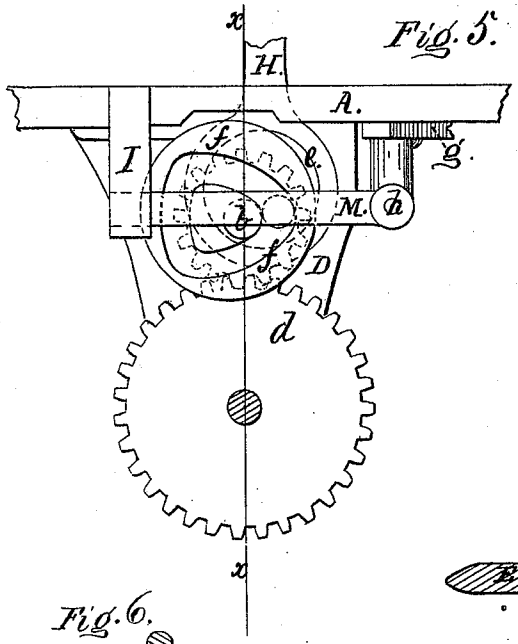


Fig. 7.

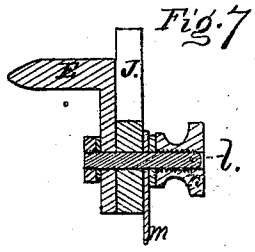
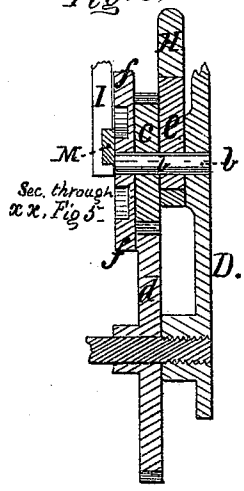


Fig. 6.



Witnesses.

E. M. Johnson

L. P. Crawford

Inventor.

Wm. G. Beckwith

UNITED STATES PATENT OFFICE.

WILLIAM G. BECKWITH, OF NEWARK, NEW JERSEY, ASSIGNOR TO BECKWITH SEWING-MACHINE COMPANY, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **133,351**, dated November 26, 1872.

To all whom it may concern:

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

Nature and Objects of the Invention.

My invention relates to single-thread sewing-machines in which an eye-pointed needle and hook co-operate together to interlace the stitches, and the invention is an improvement upon the patents granted me April 18, 1871, and May 21, 1872; and it consists in a novel mechanism for operating the hook, as will be fully set forth hereafter.

Description of the Drawing.

Figure 1 is a side elevation of the machine, showing the mechanism for imparting a reciprocating motion to the needle and looper. Fig. 2 is a side elevation, showing the feeding device. Fig. 3 is an enlarged view of the feed device, showing the position of the needle as it ascends. Fig. 4 is a view of the same, showing the needle's position when descending. Fig. 5 is a front view of the driving mechanism which operates the needle and looper. Fig. 6 shows a vertical transverse section of the same, and Fig. 7 shows an edge view of the feeding-mechanism.

General Description.

A is the bed of the machine; B, the cloth-plate; C, the clamp for fastening the machine; D, a hanger, affording bearings for the driving-gear. E is the needle-arm, pivoted at *a*. F is the presser-foot; and G, the tension. On the shaft *b* (see Figs. 5 and 6) runs a pinion, *c*, which is driven by the gear-wheel *d*, and which carries, on one side, an eccentric, *e*, and on the other, a grooved cam, *f*. To the needle-arm E is attached the connecting-rod or pitman H. This connecting-rod, at its lower end, terminates in a ring which fits and works on the eccentric *e*, and thus as the pinion *c* is rotated an easy reciprocating motion is given to the needle-arm E. *g* represents the looper, which receives a reciprocating motion from the grooved cam *f* through the bar M, pivoted to it at *h*. This bar works through a slot cut in the standard I, and has attached to it a stud, *j*, which runs in the groove in the cam *f* and imparts motion to the bar; and thus it will be seen that the cam *f*, pinion *c*, and eccentric *e* are all connected and revolve on the shaft *b*.

The feeding device is constructed as follows: To the upper end of the needle-arm is pivoted a short bar, J. This bar is immovable on the screw, and can only be oscillated with it. Through the screw *l* and to the outside of the bar J the shank of the needle *m* passes, and is clamped by the thumb-screw *n*. Thus it will be seen that the bar J and needle *m* must oscillate together with the screw *l*. Perpendicularly from the rib *o* of the needle-arm a pin, *p*, projects, the object of which is to keep the spring *q*, which presses against the upper end of the bar J, in position. To the lower end of the rib *o*, on the needle-arm, is a thumb-screw, K, and against this screw the spring *q* has a tendency to keep the bar J. The cloth is held on the plate B by a presser-foot, F, which is slightly roughened on its under surface, the reason for which will be hereinafter explained.

The feeding device thus constructed will operate as follows: The thread, having been passed from the spool over the tension, is carried down to and through the needle. This needle, as in my former patent, is tangent to the arc described by the needle-arm, and thus in passing through the cloth carries it forward the length of the difference of the radius of the point of the needle, and that of the point at which the needle stops, or would cease to be tangent to the arc described by the needle-arm, and as the needle necessarily performs the same part of a revolution in ascending as in descending, it would return the cloth from where it withdrew it; but this is obviated in my previous patent by slightly nitching the presser-foot to prevent the return of the cloth, and the needle in ascending caused the cloth to pucker in front of it, and, as it depended on the elasticity of the cloth to remove this puckering, the stitches had a tendency to be uneven and irregular; and the present invention is intended to obviate the difficulty, for as the needle commences to ascend the thread tightens, and its pull on the needle slightly turns it (the needle) along with the bar J, the

spring *q* readily yielding to the pull of the thread. Thus the needle is withdrawn from the cloth without puckering it, or having any tendency to push it backward. The needle and bar J, as they are held in this position, are seen in Fig. 3. As the needle commences to return the thread slackens, and the spring forces the bar out and moves the point of the needle some distance over the surface of the cloth, preparatory to its descending for another stitch, as seen in Fig. 4.

The thumb-screw K by being screwed in will throw the point of the needle in, and it will thus shorten the stitch; and by unscrewing it the point of the needle will be thrown out by the spring *q* and the stitch lengthened, thus rendering the regulation of the stitch easy and accurate, and also removing all difficulty in setting the needle, as there is but one hole in which to insert it, and its position over the needle-hole in the cloth-plate can be easily adjusted by the screw K.

Claim.

The combination and arrangement of the reciprocating needle-arm E, pitman H, eccentric *e*, pinion *c*, cam *f*, bar M, and looper *g*, constructed and operated substantially as described and specified.

WM. G. BECKWITH.

Witnesses:
E. H. JOHNSON,
J. P. CRAWFORD.