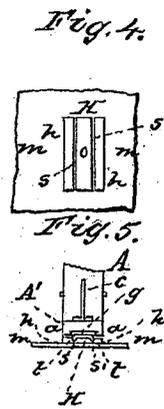
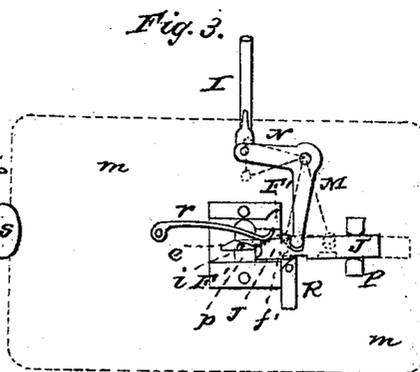
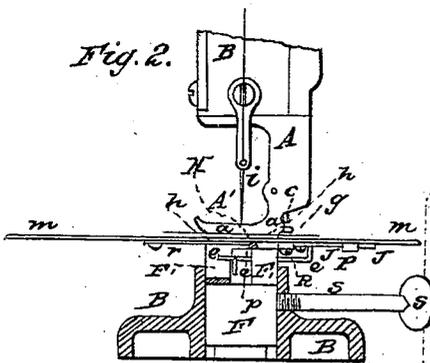
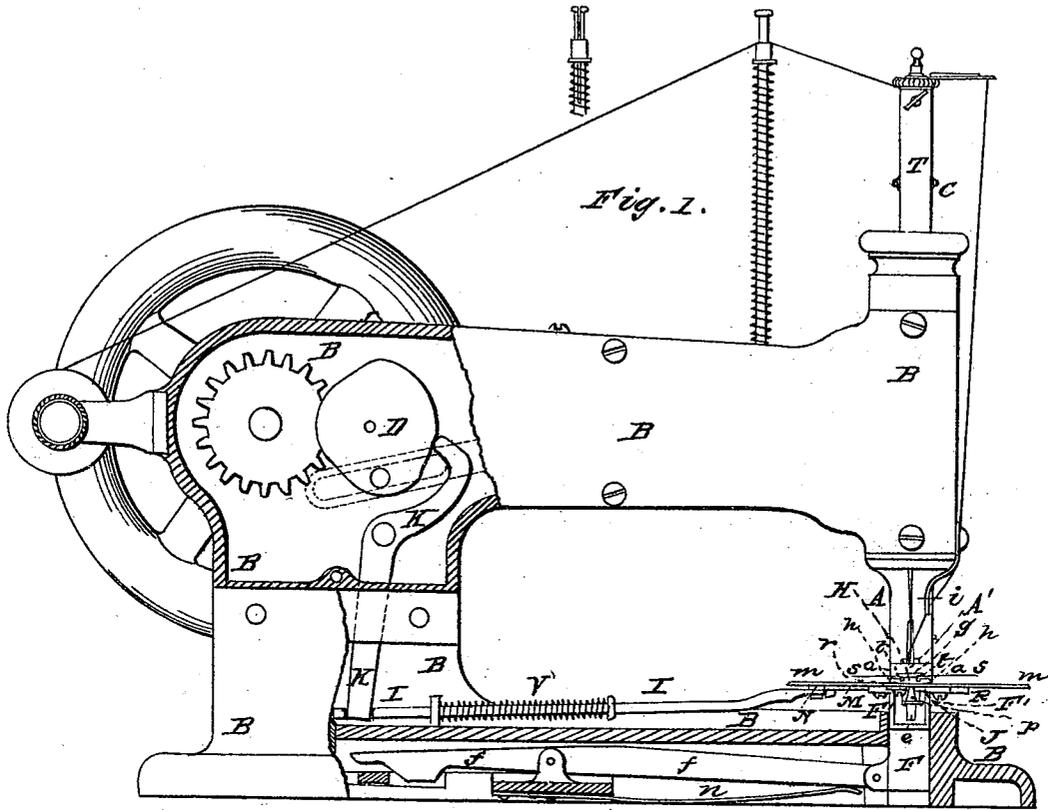


B. J. ANGELL.
Sewing Machine.

No. 19,285.

Patented Feb. 9, 1858.



Witnesses:
Isaac A. Bunnell.
H. C. Richard.

Inventor:
Benjamin J. Angell.

UNITED STATES PATENT OFFICE.

BENJAMIN J. ANGELL, OF ATTLEBOROUGH, MASSACHUSETTS.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 19,285, dated February 9, 1858.

To all whom it may concern:

Be it known that I, BENJAMIN J. ANGELL, of Attleborough, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which—

Figure 1 is a side elevation and section of the entire machine. Fig. 2 is a front elevation and section of the sewing apparatus. Fig. 3 is a plan of the stitch-hook and the mechanisms which operate the same. Fig. 4 is a plan of the presser. Fig. 5 is an end view of the presser and feed-bar.

The same letters refer to like parts in the different figures.

The machine herein described and represented belongs to that class which forms a chain-stitch with a single thread by means of the ordinary machine-needle, combined with a stitch-hook which catches and spreads the loop (as the needle ascends and is withdrawn from the cloth) and carries the same beneath the needle in such a manner that the loop formed by the successive descending stroke of the needle shall pass through the first loop when the stitch-hook is withdrawn preparatory to catching up the second loop, the first loop being drawn up against the under side of the cloth by the descent of the needle, thus forming a stitch.

The nature of my improvement consists, first, in the form and arrangement of the apparatus for holding and feeding the cloth; secondly, in the peculiar motion given to the stitch-hook and the method of operating the same.

B B, &c., is the frame of the machine, of cast-iron, the upper part of which is hollow, and contains the gears, pitman, lever, &c., which give motion to the needle-bar T.

A is a nose-piece (of brass) inclosing the needle-bar and the feed-rod C, which moves vertically therein, and through the rocker-arm C imparts a horizontal motion to the feed-bar *g* in suitable guides formed in the under surface of the foot A'. The surface of the feed-bar is furnished with barbs or hooks *t t*, &c.,

by means of which the motion of the feed-bar is communicated to the cloth. In feeding the surface *a a* projects below the surface of the feed-bar, upon each side of the same, thereby permitting the surface of the feed-bar to move independent of and free from contact with the cloth, which is acted upon by the points of the barbs only. The cloth is held between the surface *a a* of the foot A and the face of the presser H, as indicated by the red lines in the figures. This presser is of steel, smoothly polished, and forms a part of the tablet *m*. It is acted upon and pressed upward against the surface *a a* by the spring *n*, which bears against the lever *f*, beneath to which the tablet is attached through the block F and frame F', and is retained in its proper position by the thumb-screw *s*.

In the face of the presser are formed two grooves, *s s*, Fig. 4, which take in the barbs *t t*, &c., of the feed-bar, as shown in Figs. 1 and 5, by which arrangement the grooves serve to force the barbs into the cloth, while the action of the spring upon the presser nicely adjusts the same to the thickness of the cloth, and, being secured thereat by the thumb-screw *s*, gently grips the cloth between the two surfaces *a a* and *h h*, which, combined with the grooves and feed-bar, produce a regular and effective feeding motion, while the grooves serve as guides in straight seaming, and also as a protection from injury to the barbs.

Beneath the tablet is placed the stitch-hook *e*, of a proper form for readily catching and spreading the loop. It is made to slide horizontally in guides at P by motion imparted through the rocker-arms M N from the rod I, which receives its motion through the lever K from the revolving cam D, combined with the reaction of the spiral spring V. The stitch-hook is governed in its motions by the cam R and the notch *l* in the edge of the shank J, the latter being pressed against the point and inclined face of the former by the spring *r*. By this arrangement, combined with the vibrating motion imparted thereto from the cam D, the hook is made to move forward in a direct line, the edge, at *j'*, bearing against the point of the cam, Fig. 3, to catch and spread the loop until the notch *l* passes the point of the cam R, when the hook is suddenly thrown aside by

the spring *r*, which places the loop *p* thus caught and spread, Figs. 1, 2, and 3, in a position to receive the needle *i* with its successive loop as it descends. When the needle has passed through to the loop sufficiently to catch the same, the hook is suddenly withdrawn and thrown aside by the inclined edge of the notch in the shank, being guided by and riding upon the surface of the cam *R*, thus avoiding contact with the yet descending needle, which, while forming a second loop, is also drawing the first up against the cloth to form a stitch. The second loop is quickly caught up when formed and properly arranged to receive the third, and so on.

I am aware that a method of causing the cloth to progress regularly (in feeding) by the

joint action of the surfaces between which it is clamped has been previously patented by Allen B. Wilson. I would not, therefore, be understood as claiming such device for this purpose.

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

The combination of the grooves *ss* of the presser, with the barbs *ttt* of the feed-bar, and the surfaces *aa* and *hh*, with the thumb-screw *s*, arranged and operating substantially and for the purpose as herein set forth.

BENJAMIN J. ANGELL.

Witnesses:

ISAAC A. BROWNELL,
H. M. RICHARDS.