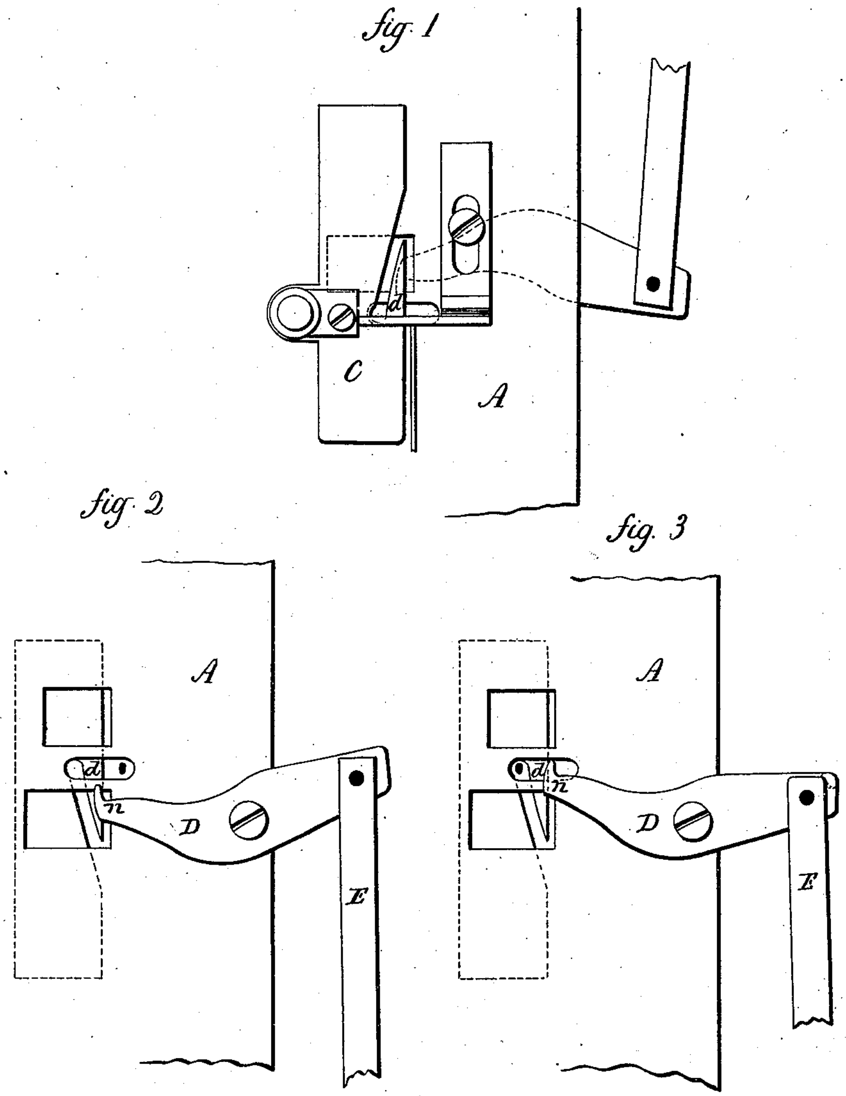
S. L. OTIS.
Crochet-Machine.

No. 207,770. **Patented Sept. 3, 1878.**



Witnesses:
J. H. Shumway
[illegible]

Saml. L. Otis
Inventor
By Atty.
Wm. E. Earle

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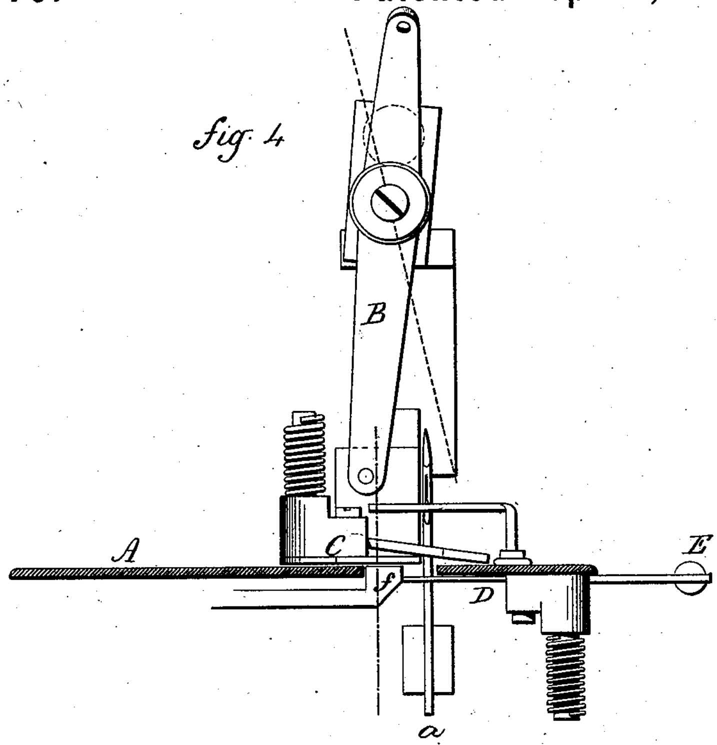
Fig. 4



Witnesses.

J. H. Shumway

Saml. L. Otis.
Inventor
By atty.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

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Fig. 5.

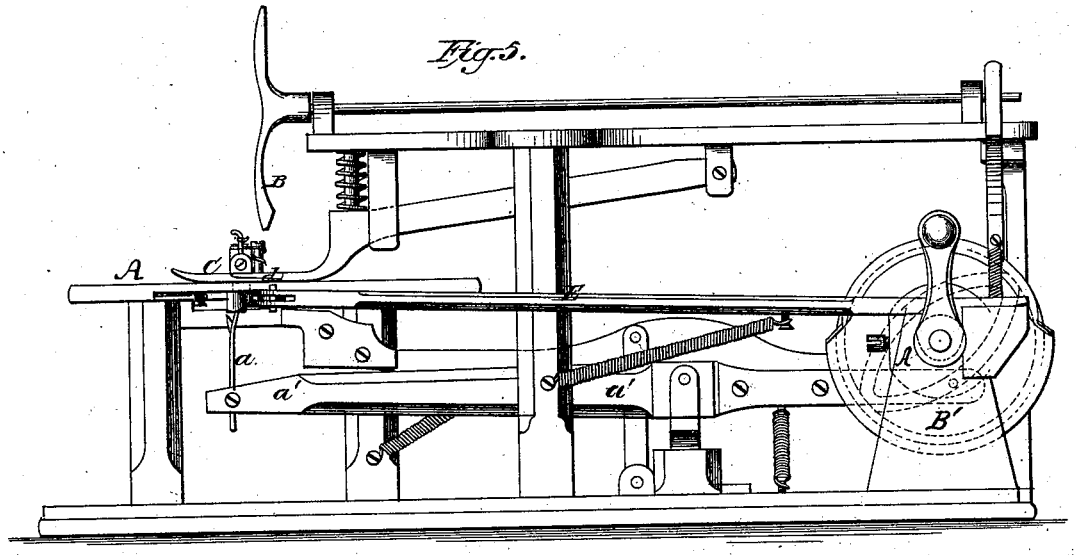
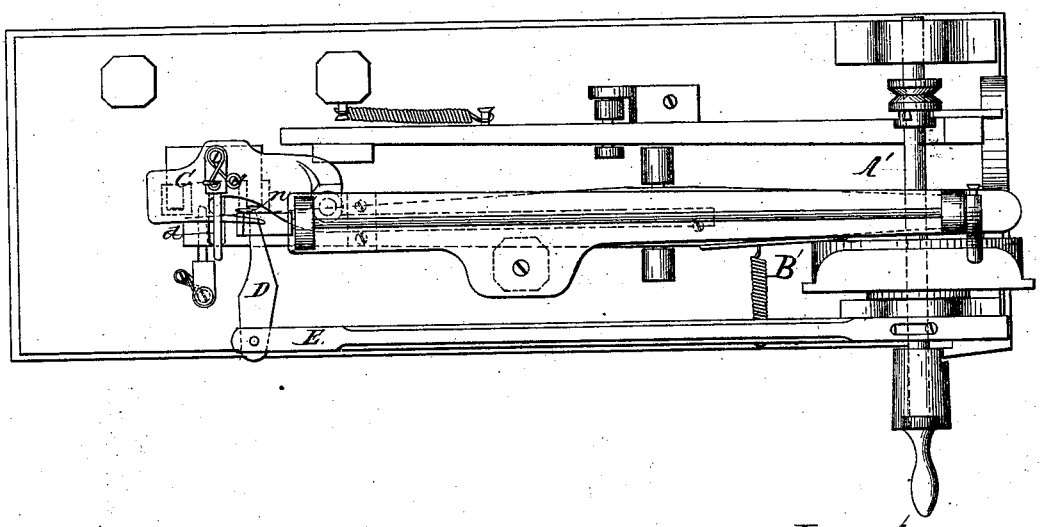


Fig. 6.



Witnesses:

J. H. Shumway.
Hamilton.

Inventor:

Saml L. Otis
By Atty
Wm E Earle

UNITED STATES PATENT OFFICE.

SAMUEL L. OTIS, OF BIRMINGHAM, CONNECTICUT, ASSIGNOR TO A. H. AND C. B. ALLING, OF SAME PLACE.

IMPROVEMENT IN CROCHET-MACHINES.

Specification forming part of Letters Patent No. **207,770**, dated September 3, 1878; application filed January 14, 1878.

To all whom it may concern:

Be it known that I, SAMUEL L. OTIS, of Birmingham, in the county of New Haven and State of Connecticut, have invented a new Improvement in Crochet-Machines; and I do hereby declare the following, when taken in connection with the accompanying drawings, and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a top view; Figs. 2 and 3, underside views in different positions; Fig. 4, a sectional end view; Fig. 5, a side view of the machine; Fig. 6, a plan of the same with the work-plate removed.

This invention relates to an improvement in machines for making what is commonly termed "crochet-stitch," and is an improvement on the machine for which Letters Patent were granted to this applicant, dated June 15, 1875, No. 164,586.

The object of the machine, as in the previous patent, is to finish or ornament the edge of hosiery and other knitted fabrics, but may be applied to like embroidery on other articles or fabrics.

In the original machine a single chain or crochet stitch was made over the edge of the fabric, and because of such single stitch the chain necessarily comes on one surface and close to the edge, so that the edge itself is not covered by the embroidery.

The object of this invention is to lay the chain directly on the edge of the fabric—that is, to so arrange the chain that it will come entirely upon the edge instead of close to one side, as in the former patent; and the invention consists in the combination of mechanism, as hereinafter more fully described.

A is the work-plate, substantially of the usual form. *a* is the needle, which in this case is of the latch character, and is arranged in a needle-arm, *a'*, operated from the cam B' on the driving-shaft A', to work up and down through the plate, and at the same time to have an intermittent transverse movement from a side cam on the cam B', so that one stitch will be made at one point and the next at the other—that is, the needle will pass up outside the fabric in one stitch, and then be moved toward the fabric, so that the next stitch will be made through the fabric, as in the previous patent.

B is the vibrating thread-carrier, which turns to the right and left by the action of a cam-surface on the cam B', according to the movement of the needle, as indicated in broken lines, Fig. 4, so as to properly present the thread to the needle at each stitch; C, the presser-foot, constructed with a finger, *d*, as seen in Fig. 1, and relatively to the needle, so that one stitch will be made outside, or to the right of the said finger, and the other upon the inner or opposite side, thus laying the stitch over, the edge of the fabric lying beneath the said finger, substantially the same as in the said patent. The usual devices are applied to open and close the latch of the needle, or it may be a simple barb-needle, as in the previous patent.

As thus far constructed the machine, as before stated, is substantially that of the original patent, and in operation the needle will cast off every stitch, and the drawing up of the successive stitches will draw the chain to the lower surface at the edge of the fabric.

In order to change the position of this stitch, a finger, *n*, is arranged beneath the work-plate, and so as to be turned relatively to the path of the needle from the position in Fig. 2 to that in Fig. 3. For this purpose the finger is attached to or made a part of the lever D, pivoted to the plate, with a rod, E, extending to a suitable cam to give the requisite movement.

The operation of the machine is as follows: Supposing the fabric to have been introduced beneath the presser-foot, so that the edge will lie under the finger *d*, and the sewing commenced, the needle passes up outside the finger, as in Fig. 2, and, there taking the thread, draws the loop down outside of the finger *d*. Then the finger *n* is turned to the position seen in Fig. 3, and so that the loop will also come outside of the said finger *n*, and there stands. The needle with its loop is then moved inward to the position seen in Fig. 3, because the loop cannot escape from the needle, being held by the finger *n*. The needle then rises through the loop up through the fabric, and again takes

the thread, forming a second loop, which it draws down through the fabric, and then the finger *n* is thrown back out of the way of the loops. The needle rises through the second loop again outside the fabric, and takes a new loop, draws it down, as before, and at the same time casts off the two preceding loops, the first of which is drawn close to the edge, substantially as would be a single stitch, while the other is left above and along the edge of the material, and so continuing each successive two stitches forming a continuous line of embroidery, and so as to cover the edge of the fabric.

It will be understood that the usual feed is applied for moving the fabric, and which in this case is represented at *f*.

I claim—

The combination of the latched needle *a* and mechanism, as described, whereby the same is given an intermittent vertical and transverse movement, the thread-carrier having a corresponding transverse motion, work-plate, feed, and presser-foot, with the lever D, provided with the finger *n'*, and mechanism, substantially as described, to actuate the same to locate a chain of stitches upon the edge of the work, for the purposes set forth.

SAMUEL L. OTIS.

Witnesses:
SAML. M. GARDNER,
WM. SIDNEY DOWNS.