

S. L. OTIS.
Crochet-Machine.

No. 164,586.

Patented June 15, 1875.

fig. 1

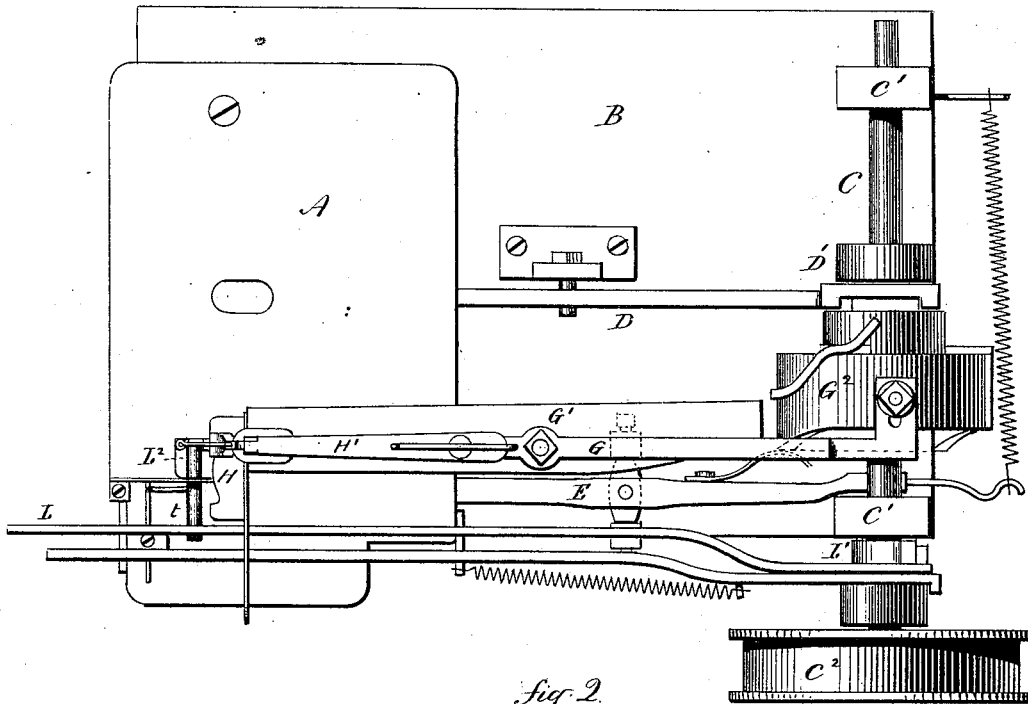
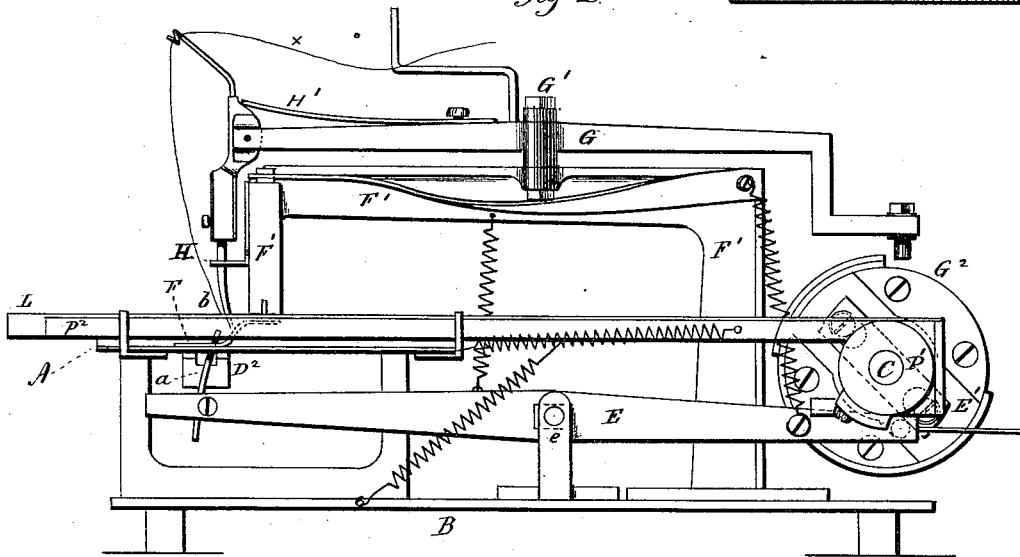


fig. 2



Witnesses.

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 Inventor
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Fig. 3.

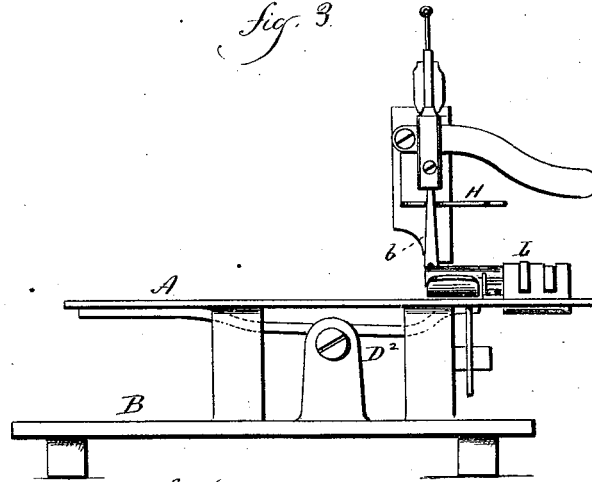


fig 6

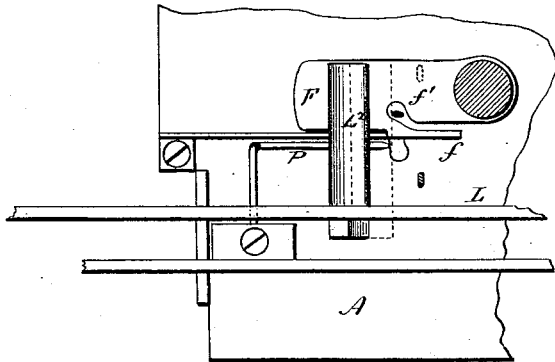
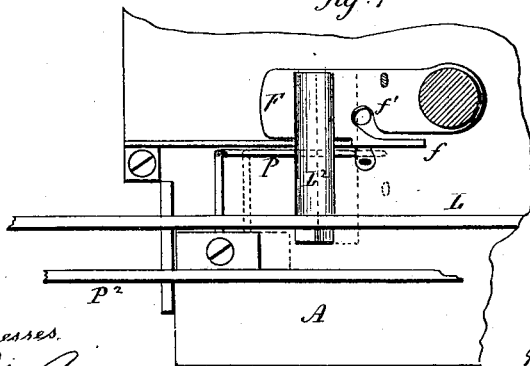


fig 7



Witnesses.

J. H. Shumway
Clara Doughton

Fig. 4

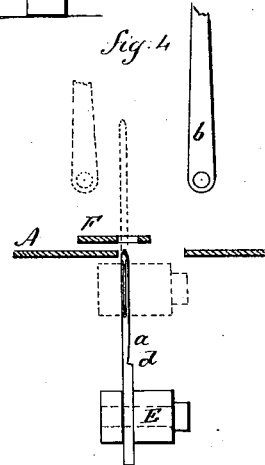
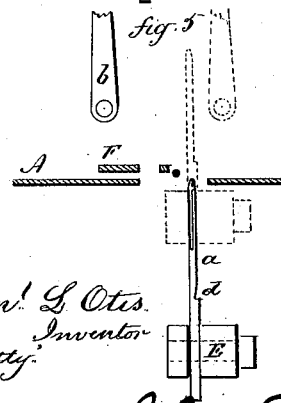


fig 5



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UNITED STATES PATENT OFFICE,

SAMUEL L. OTIS, OF BIRMINGHAM, CONNECTICUT.

IMPROVEMENT IN CROCHET-MACHINES.

Specification forming part of Letters Patent No. **164,586**, dated June 15, 1875; application filed April 12, 1875.

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 Crochet-Machine; 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, top or plan view; Fig. 2, side view; Fig. 3, front view; Figs. 4, 5, 6, and 7, detached views.

This invention relates to the construction of a machine for performing the work upon hosiery commonly called "crocheting the top"—that is to say, overstitching the top, a work which has heretofore been done by hand; and the invention consists in the combination of mechanism, as hereinafter fully described.

A is the work-plate, which, in form and arrangement, is substantially that of a common sewing-machine, and in like manner arranged above a bed-plate, B. C is the driving-shaft, arranged in rear of the bed-plate in bearings C¹, and power applied thereto through the pulley C², in substantially the usual manner for sewing-machines. D is the feed-lever, actuated by a cam, D¹, and through which the feed D² is operated, such feed being also substantially the well-known four-motion feed. E is the needle-lever, hung upon a pivot, e, and to which a vibratory movement is imparted by a grooved or side cam, E'. In the forward end of the lever E the needle a is arranged, so as to pass up through the work-plate. This needle is what is termed a barbed needle, passing up through the work to take the thread from above, substantially as in some classes of sewing-machines. The lever E has also an oscillating movement at each vibration, so that at one vibration it will pass up through the work-plate and presser-foot, as in Fig. 4, and the next up through the work-plate outside the presser-foot, as in Fig. 5, and as more fully hereinafter described. The presser-foot F is arranged on an arm, F', rising from the bed-plate, and extending forward to support the presser-foot, in substantially the usual manner for sewing-machines, and as seen in Fig.

2. G is a lever, hung upon a vertical pivot, G¹, on the arm F', and which receives an intermittent horizontal vibration from a cam, G². In the forward end of this arm the thread-carrier b is hung, the vibration of the lever moving the thread-carrier back and forth across the path of the needle, as indicated in Figs. 4 and 5. A guard, H, is arranged to arrest the thread-carrier at its two extreme movements, with an inclined recess at the said two extremes, into which the said carrier is pressed by a spring, H'. The thread is led to the carrier b by suitable guides, as indicated by the line x, Fig. 2. The edge of the stocking is placed beneath the presser-foot on the work-plate in substantially the manner of introducing work to sewing-machines, the extreme edge being in substantially the outside line of the presser-foot, so that the needle in its first movement will pass up through the stocking near the edge, and in its next movement will pass up outside the edge. As the needle is first passed up through the stocking and presser-foot, as seen in Fig. 4, the thread-carrier b passes across the front of the needle to the position denoted in broken lines, laying the thread on the needle below the barb, so that as the needle falls it will take the said thread down through the stocking, doubling or forming a loop in the thread, and when below the work-plate, as in Fig. 5, the needle will be moved outward, and pass up outside the stocking and presser-foot, as indicated in Fig. 5, and within the loop of the thread; then the thread-carrier b is returned or moved back to lay the thread below the bar, so that as the needle falls it will take this second loop down through the first loop, the first loop passing off the needle, as the needle descends below the plate. Then the needle is again moved to pass up through the stocking, as before, and so continues, forming a succession of chain-stitches, laying the chain upon the extreme edge of the stocking, the stitch being formed in substantially the usual manner of forming chain-stitches in sewing-machines which employ a barbed needle.

In order to close the barb or latch, so that it will return through the stocking without catching, a lever, L, is arranged, to which a reciprocating movement is imparted

by a cam, L^1 . From this lever an arm, L^2 , projects inward, front of the needle, and as the needle descends, this arm L^2 is drawn back, as denoted in broken lines, Figs. 6 and 7, against the needle, so that as the needle descends, the latch or barb will strike this arm, and be closed upon the needle, so as to pass freely down through the stocking.

In order to insure the laying of the chain upon the edge of the stocking, a shoulder, d , is formed on the needle, (see Figs. 4 and 5,) which rises above the work, as denoted by broken lines, Fig. 5. This carries the loop above the work-plate, and while the loop is thus held up the finger P is moved forward beneath the loop, as indicated in Fig. 7. This finger is thus moved by a cam, P^1 , actuating a rod, P^2 , to which the said finger is attached. This finger supports the loop, while the needle, with its next loop, returns down through it, and until the loop is drawn sufficiently taut upon the edge of the stocking. Then the finger returns to await the ascent of the next loop.

Owing to the soft nature of the material of the stocking, it is necessary, in order to make even work, that the stitches be drawn over something more solid and substantial than that afforded by the stocking itself. For this purpose the presser-foot is formed with a finger, f , on its side, extending rearward from the aperture f , through which the needle works, as seen in Figs. 6 and 7. The stitches will, therefore, be laid over this finger, and pass off as the work is fed back, and thus insure regular and even stitching.

This invention has been described as applied to the stitching or finishing the edge of

stockings; but it will be understood by those skilled in the use of such machines that it is applicable to similarly finishing edges of other articles and materials. It is not, therefore, to be understood that this invention is confined to the special use which the foregoing description would indicate.

I claim—

1. The needle a , having an intermittent vertical and transverse movement, and the thread-carrier b , having a corresponding transverse movement, combined with a work-plate, feed, and presser-foot, substantially as set forth.

2. In combination with a work-plate, feed, and presser-foot, substantially such as described, the needle a , having an intermittent vertical and transverse movement, the thread-carrier b , having a corresponding transverse movement, the guard H , and the spring H' , substantially as described.

3. In combination with a work-plate, feed, and presser-foot, substantially such as described, the needle a , having an intermittent vertical and transverse movement, the thread-carrier b , having a corresponding transverse movement, the shoulder d on the needle, and the finger P , substantially as described.

4. In combination with a work-plate, feed, and presser-foot, substantially such as described, the needle a , having an intermittent vertical and transverse movement, the thread-carrier b , having a corresponding transverse movement, and the finger f .

SAMUEL L. OTIS.

Witnesses:

JOHN E. EARLE,

CLARA BROUGHTON.