DAVID M. SMYTH.

Feeding Mechanisms for Sewing-Machines.

No. 126,844. Patented May 14, 1872.

Fig. 3.

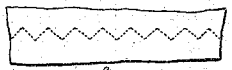


Fig. 2.

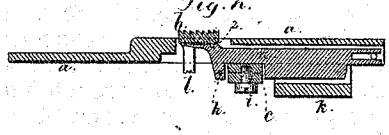
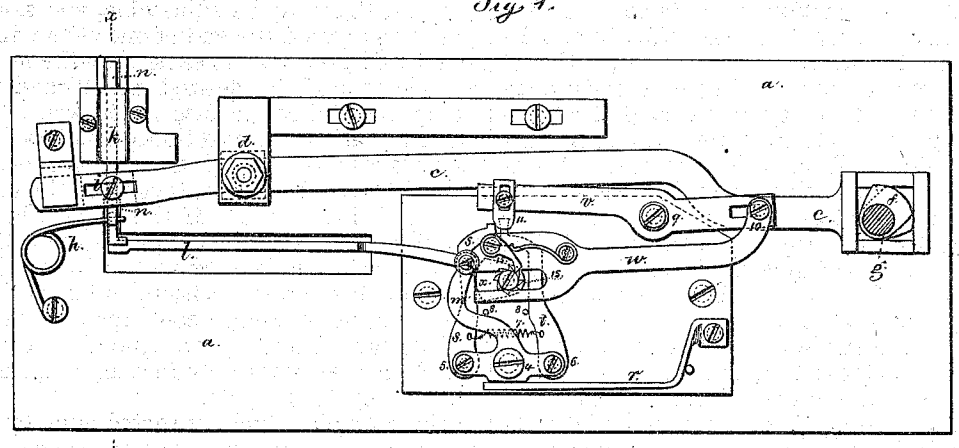


Fig. 1.



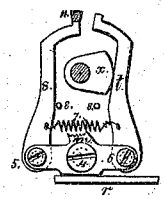


Fig. 4.

Witnesses,

Chas. H. Smith

Geo. B. Parker

Inventor

David M. Smyth.

Lemuel W. Serrell

atty.

UNITED STATES PATENT OFFICE.

DAVID M. SMYTH, OF ORANGE, NEW JERSEY, ASSIGNOR TO STICKLER, ELLIOTT & WILSON, OF NEW YORK, N. Y.

IMPROVEMENT IN FEEDING MECHANISMS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. 126,844, dated May 14, 1872.

To all whom it may concern:

Be it known that I, DAVID M. SMYTH, of Orange, in the county of Essex and State of New Jersey, have invented and made an Improvement in Feed Mechanism for Sewing-Machines; and the following is declared to be a correct description of the same.

This mechanism is for sewing in a zigzag line, and thereby ornamenting the surface of articles, such as boots, shoes, or garments. I employ a roughened surface feed, to which the ordinary reciprocating and rising and falling motions are communicated, but said feed is so constructed as to be capable of an independent lateral motion, while in contact with the fabric, to carry the same bodily in one direction or the other, and this lateral motion is derived from a double-acting lever and swinging fingers that are operated so that after a given number of stitches one finger is thrown out of action, and the other brought into action to act upon such lever and give a reverse lateral movement to the fabric.

In the drawing, Figure 1 is an inverted plan of the feeding mechanism. Fig. 2 is a section through the feed at the line *x x;* and Fig. 3 shows the zigzag stitching.

The bed *a* is made with the necessary opening for the reciprocating and laterally-moving feed-plate *b*, having teeth or a roughened surface. The reciprocating movement and the rising-and-falling motions are given to said feeding surface by any suitable or desired mechanism. I have represented the lever-bar *c* sliding through the fulcrum *d*, which fulcrum *d* may be moved nearer to or further from the actuating cams *f* and shaft *g*, to vary the length of stitch, or said stitch may be regulated in any other suitable manner. The rising-and-falling motion of the feeding plate are given by a wedge on the bar *c*, held by the screw *i*, and the parts are drawn into contact with each other by the spring *h* that acts upon the base *n* of the feed, and this base slides in the guide *k;* but as these parts are of usual construction they do not require further description. The feeding surface *b* is at the end of a spring arm, *l*, and it is guided in the base *n* of the feed by a transverse rib, 2, (see Fig. 2,) so that while the feed-surface is moved with the base *n* in a longitudinal direction to give the progressive feed, the plate *b* can be moved laterally to produce a diagonal movement in the fabric and make zigzag stitching, as in Fig. 3. The end of the arm *l* is jointed to the double-acting lever *m* on the fulcrum 4, and against one side of this lever *m* a spring, *r*, acts to bring the lever to a normal position after being moved in either direction. The swinging fingers *s* and *t* are jointed to the ends 5 and 6 of the lever *m*, and they are drawn toward each other by the spring 7, and arrested by the stop-pins 8. A lever, *v*, upon a fulcrum, 9, receives motion from the lever *c* and screw 10, or other convenient means, and said lever *v* has a detent, 11, that may be adjustable, and said detent acts against the end of one of the fingers *s* or *t*, and gives to the same and the lever *m* a movement of the desired extent, and in so doing the feed-bar surface *b* is moved laterally. The parts are so positioned and timed that this lateral motion is given while the feeding-plate is pressed into contact with the article that is being sewed. If the finger *t* is in a position to be acted upon by the detent 11 the movement of the lever *m* will be in one direction from the normal position, and if the finger *s* is in position to be acted upon the motion will be the other way, consequently the stitch will be made accordingly in a diagonal direction to the right or left.

These fingers *s* and *t* are acted upon by suitable means according to the character of the sewing to be performed, and the peculiar construction of the other parts of the sewing-machine with which they are employed. I have shown a revolving cam, *x*, shown detached in Fig. 4, which cam is moved progressively by a ratchet and pawl, 15, the latter receiving motion from the screw 10 and bar *c* acting upon the slide-link *w*. This cam may revolve once in a given number of stitches, and be shaped so that half the stitches are made diagonally in one direction and the other half in the other direction, or the proportionate number may vary, or the cam may be made in such a manner as to allow the ordinary feed only to act during a portion of its revolution, by holding the ends of both the fingers out of the path of the detent 11, and it will be evident that the lateral motion may be more or less, or when not required be thrown out of action by adjusting

this detent 11; and I remark that this detent 11 may receive motion from whatever part of the machine is most convenient, according to the character of the sewing-machine to which this improvement is applied, and in some instances only one of the fingers *s* or *t* may be used when the direction of the stitch requires such a movement. The cam *x* can be made removable so as to adapt one machine to a variety of patterns.

I claim as my invention—

1. The double-acting lever *m*, and finger or fingers *s t*, in combination with the feeding plate *b* and actuating detent 11, substantially as set forth.

2. The cam *x*, revolved progressively, in combination with the finger *s* or *t*, double-acting lever *m*, and feed-plate *b*, substantially as and for the purposes set forth.

Signed by me this 9th day of March, A. D. 1872.

D. M. SMYTH.

Witnesses:

WM. HOWLAND,

L. RODERICK FRAZIER.