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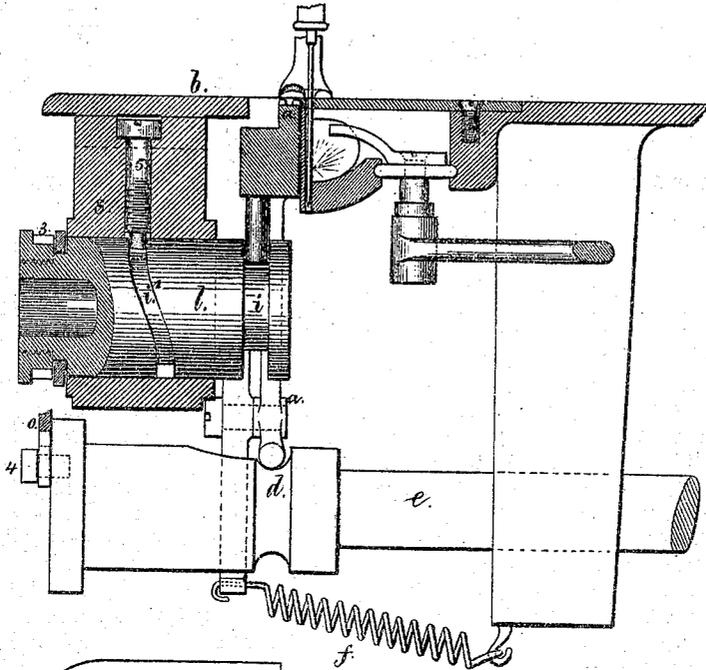
D. M. SMYTH.

Improvement in Sewing Machines.

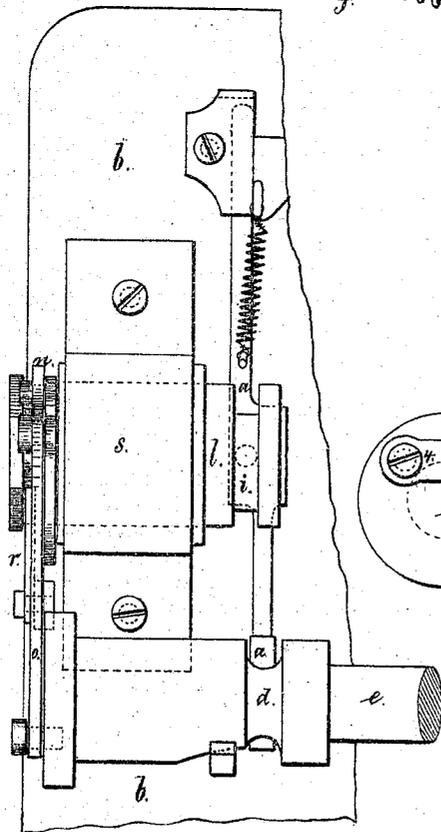
No. 122,673.

Patented Jan. 9, 1872.

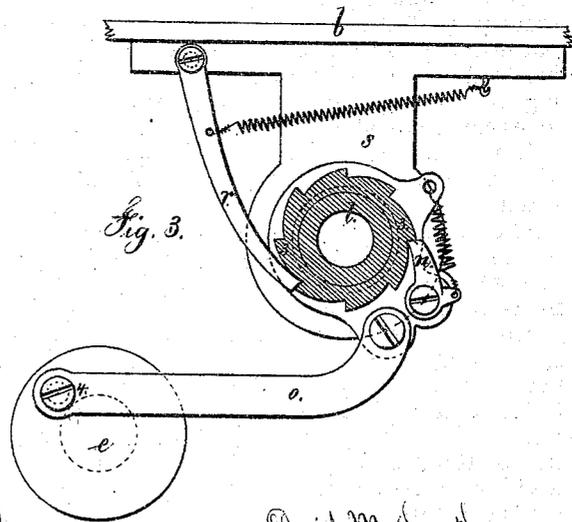
*Fig. 2.*



*Fig. 1.*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

DAVID M. SMYTH, OF ORANGE, NEW JERSEY, ASSIGNOR TO STICKLER, ELLIOTT, AND WILSON, OF NEW YORK CITY.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 122,673, dated January 9, 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 an Improved Sewing-Machine Feed; and the following is declared to be a correct description of the same.

This invention is a modification of or improvement upon the sewing-machine feed patented September 26, 1871, No. 119,246, whereby the zigzag sewing is effected in connection with the roughened-surface reciprocating feed.

I make use of a cam movement acting progressively each movement of the needle, to give a lateral motion to the feeding-bar while in contact with the cloth and carry the goods in a more or less diagonal direction either way, and thus produce ornamental sewing in a waving or zigzag line, and the number of stitches in each complete pattern is always the same, regardless of the length of stitch; hence the pattern may be condensed or extended according to the length of the stitch; and by varying the pattern-cam, the same actuating devices can be employed with different patterns.

In the drawing, Figure 1 is an inverted plan of the feeding portion of a sewing-machine fitted with my improvement. Fig. 2 is a vertical section of the pattern-cam and parts connected with the sewing-machine. Fig. 3 is an elevation of said parts, with the ratchet-wheel in section.

The feed-bar *a* has a roughened surface, and is mounted and actuated in any desired manner, but the opening in the bed *b* is wide enough to allow of the lateral movement, hereafter mentioned, to be given to this roughened portion of the feed-bar, and the space where the feed-bar slides is made with reference to allowing of this lateral motion. I have shown the feed-bar *a* as actuated by a cam, *d*, on the main shaft *e* of the sewing-machine, which cam *d* is made so as to give, in connection with the spring *f*, the ordinary four motions—viz.: down, back, up, and forward—to feed; but if the improvement is applied to a reciprocating feeding-bar or foot acting in the manner heretofore usual, my improvement, hereafter described, can be applied to the same when mounted so as to allow of lateral motion as well

as the progressive feeding movement. Upon the feeding-bar *a* is a pin entering a groove, *i*, in the hub of the cylindrical pattern-cam *l*. This groove, being in the direction of the ordinary feed movement of the bar, does not obstruct the feed, whether the stitch is long or short. It becomes necessary, therefore, only to rotate the pattern-cylinder *l* progressively and employ a cam and fixed pin, to give to the cylinder an endwise movement at the proper time to carry both the feed-bar and the fabric laterally while said feed-bar is in contact with the cloth. The progressive movement is communicated to the pattern-cylinder *l* by a ratchet-wheel, *3*, and pawl *n*, such pawl *n* being moved by the link *o* and crank-pin *4* on the shaft *e*, or otherwise. *r* is a holding-pawl. The bearing-block *s*, in which is the pattern-cylinder *l*, is made so as to support the said cylinder *l* and allow it to be rotated or to move endwise, and the periphery of this cylinder is made with a cam-rib or groove, *i'*, preferably a groove-shaped, to produce the desired end movement as the cylinder is turned; and for this purpose the screw *5* is inserted with the point in the groove.

It will be evident that the pin entering the pattern-groove might be mounted on a lever so as to be easily withdrawn and allow the feeding devices to act in performing straight sewing; or the link *o* might be disconnected, with the same object in view. The cam-cylinder might be mounted upon a fixed gudgeon, and have the pattern-cam at one end instead of in the periphery.

I claim as my invention—

The combination of a reciprocating feeding device with a pattern-cam constructed substantially as described, and actuated by a pawl-and-ratchet movement independently of the regular feed-actuating mechanism, so as to move such feeding device progressively in lateral directions to form a pattern.

Signed by me this 17th day of October, A. D. 1871.

DAVID M. SMYTH.

Witnesses:

GEO. T. PINCKNEY.  
CHAS. H. SMITH.

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