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David M. Smyth.

Improvement in Sewing Machine Feeding Mechanism.

No. 119,246. Patented Sep. 26, 1871.

Fig. 2.

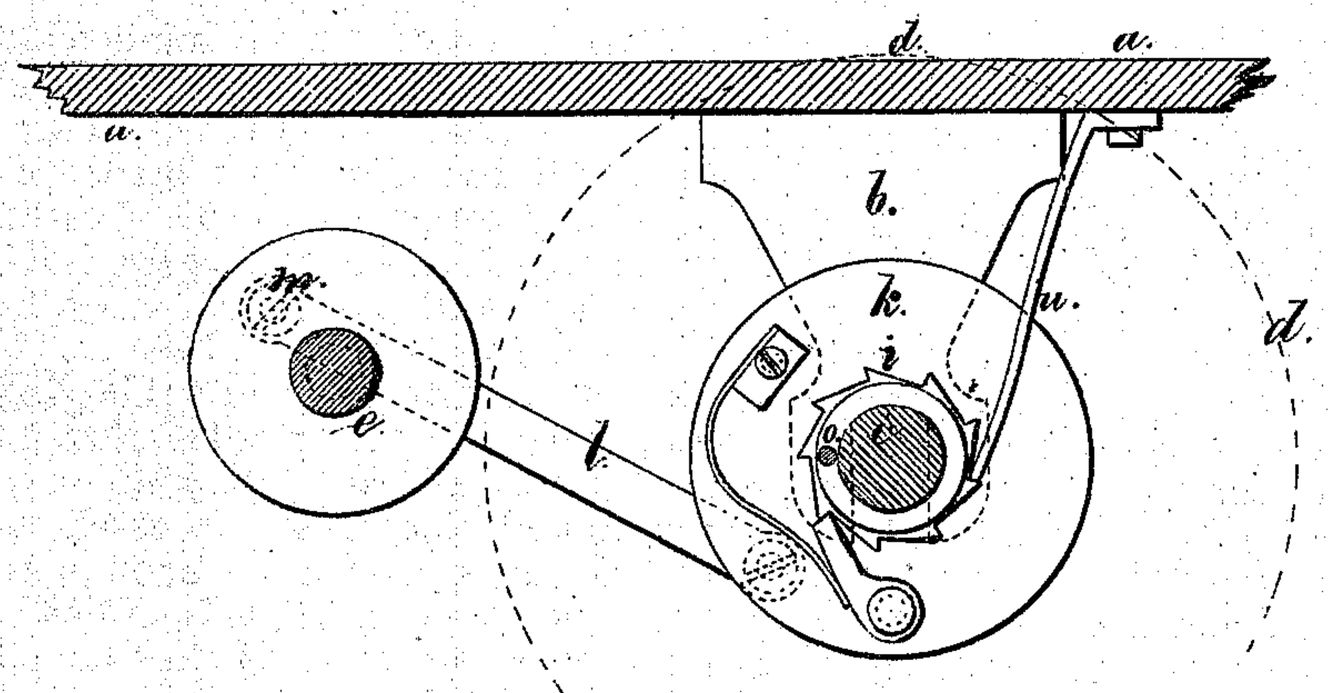

Fig. 1.

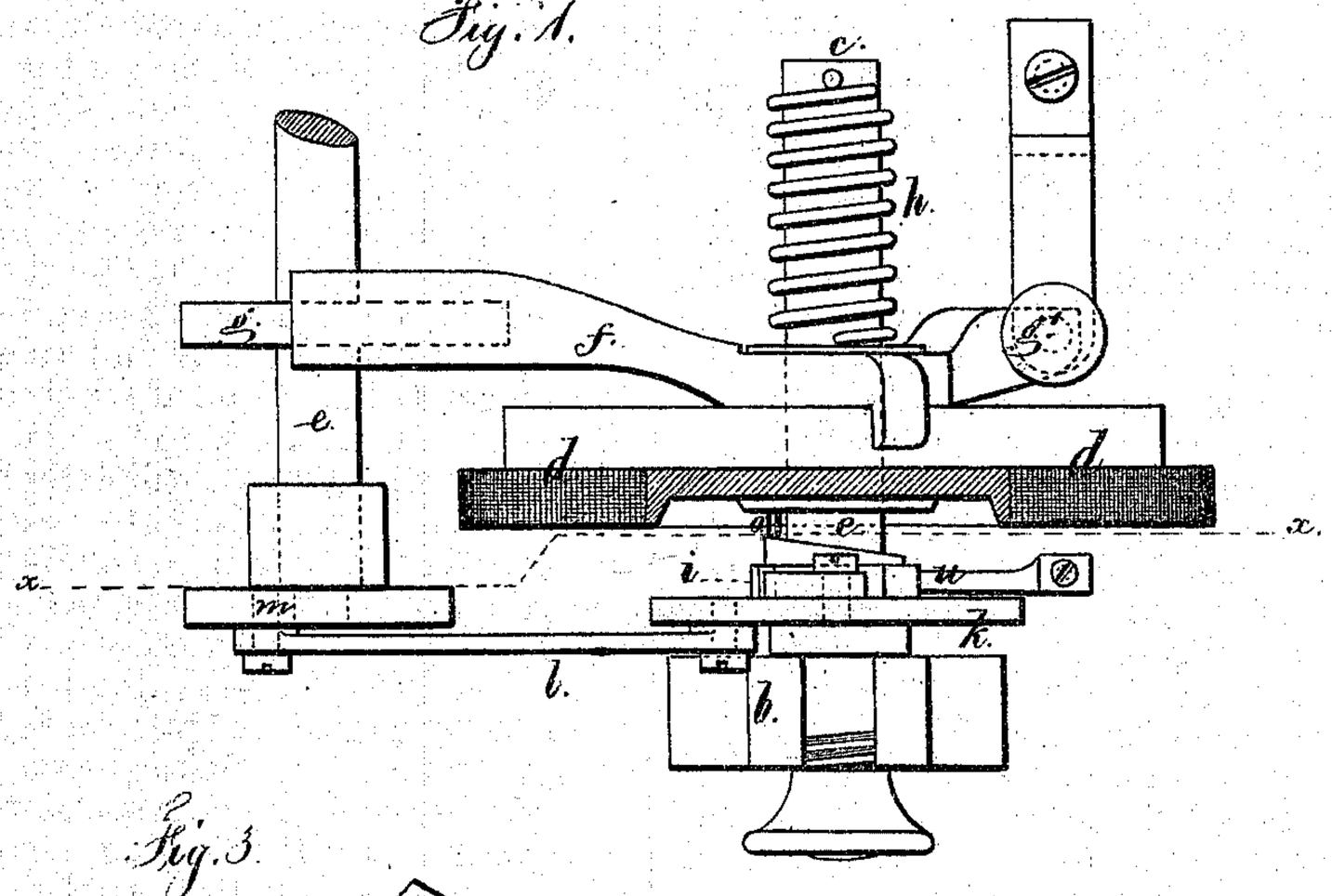

Fig. 3.

Witnesses,

Chas. A. Smith

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UNITED STATES PATENT OFFICE.

DAVID M. SMYTH, OF ORANGE, NEW JERSEY, ASSIGNOR TO JOSEPH W. STICKLER AND THEODORE C. ELLIOTT, OF SAME PLACE.

IMPROVEMENT IN FEEDING MECHANISMS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. 119,246, dated September 26, 1871.

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 Sewing-Machine Feeding Mechanism; and the following is declared to be a correct description thereof.

This invention is for giving to the feed a lateral as well as a progressive movement, in order that the sewing may be performed in an undulating or zigzag line, for ornamenting as well as uniting the parts of boots, shoes, and other articles. In performing undulating or zigzag stitching by machinery it is usual to move the work, after making a given number of stitches, so as to change the direction in which the stitching is made. This requires great care and a skillful operator, and is very slowly performed. By the use of my improvement the operation is so nearly automatic that an ordinary operator can attend the machine and the sewing can be performed almost as fast as the ordinary straight stitching. Sewing-machines have been made with a foot that can be turned in different directions, and a lateral movement has been given as well as a progressive feed, so as to sew in a zigzag line. I employ a feed-wheel to which the ordinary progressive movement is given for each stitch, and I combine with the same a cam, actuated by a ratchet-wheel and pawl or step-by-step movement, to give to the feed-wheel a lateral movement endwise of its axis, thereby producing a zigzag or undulating line of stitching, and the lateral movement being independent of the feed-movement of the wheel but operative each stitch. The undulating or zigzag sewing is varied by the length of the stitch, the number of stitches in each undulation remaining the same regardless of the length of feed-movement.

In the drawing, Figure 1 is an inverted plan of this improvement as applied to a wheel-feed, the wheel itself being in section, and Fig. 2 is a sectional view at the line *x x*. Fig. 3 shows the cloth or material with the zigzag lines of stitching.

The bed *a* of the sewing-machine is provided with a standard, *b*, upon which the arbor *c* of the feed-wheel *d* is mounted. *e* is the actuating-shaft, and *f* is the clamp and lever for giving a progressive rotary motion to the feed-wheel. *g* is the cam upon the shaft *e* for moving said lever *f*, and *g'* is the regulating-screw for determining the length of stitch. These parts being all well known, do not require further description. The feed-wheel *d* is mounted so that it may be moved lengthwise of the axis or arbor *c*, and a spring, *h*, around this arbor *c* presses the wheel *d* toward the standard *b*. Around the arbor *c* is a ratchet-wheel, *i*, driven by a pawl upon the disk *k*, that is oscillated by the connecting-rod *l* and crank-pin *m*. A spring-click, *n*, prevents the ratchet-wheel *i* turning backward, and at the side of the wheel *i* is a cylindrical cam, against which a pin, *o*, upon the hub of the wheel *d*, bears. It will now be evident that as the ratchet-wheel *i* turns around progressively its cam, acting against the pin *o*, gives to the feed-wheel a lateral as well as a progressive movement, and hence the material being fed receives a compound movement, the same being progressive, as usual, and lateral first one way and then the other, so as to form a zigzag line of stitching. The shape of the cam upon the wheel *i*, and the number of teeth in such ratchet *i*, will determine the extent of lateral movement and the number of stitches in each zigzag, and this wheel *i* may be varied according to the work to be performed.

I claim as my invention—

A wheel-feed for a sewing-machine, mounted so as to be moved laterally or lengthwise of its axis, in combination with a cam, ratchet-wheel, and pawl to communicate such lateral movement independently of the feeding movement given to the wheel, substantially as set forth.

Signed by me this 6th day of May, 1871.

DAVID M. SMYTH.

Witnesses:

CHAS. H. SMYTH,

GEO. T. PINCKNEY.

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