J. L. FOLLETT.
Sewing-Machine.

No. 203,904. Patented May 21, 1878.

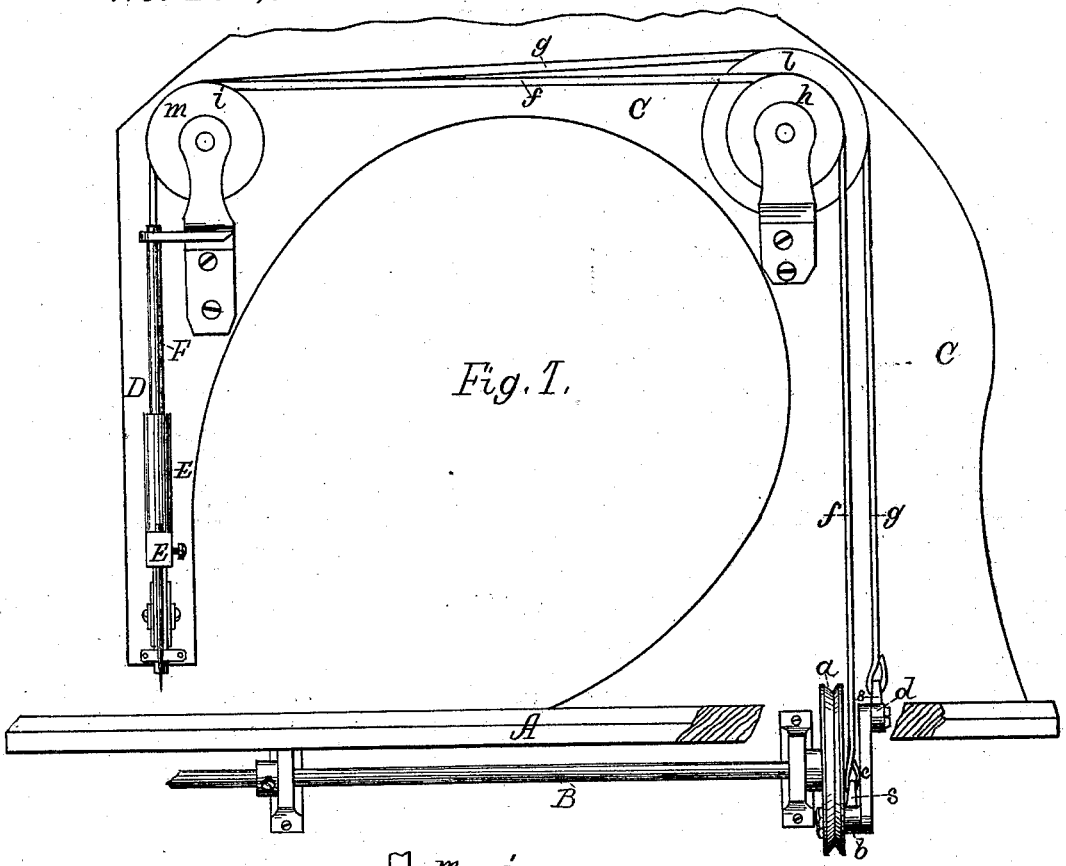

Fig. 1.

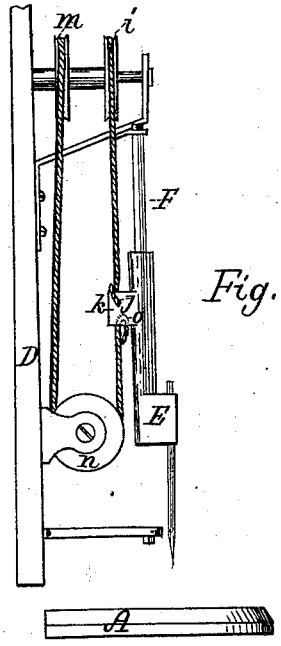

Fig. 2.

Witnesses:
H. Georgii
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by attorney M. Bailey

UNITED STATES PATENT OFFICE.

JOSEPH L. FOLLETT, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **203,904**, dated May 21, 1878; application filed February 19, 1878.

To all whom it may concern:

Be it known that I, JOSEPH L. FOLLETT, of the city, county, and State New York, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification:

My invention relates to means for imparting movement to the sewing-machine needle or to the bar that carries said needle. Heretofore the requisite movement of the needle has been effected by attaching the same to an oscillatory arm, or to a vibratory lever, or to a vertically-reciprocating bar, operated to move up and down by a cam or its equivalent on a rotating shaft in the goose-neck of the machine.

It is my object to dispense with these and like solid and stiff metallic instrumentalities, and to use in lieu thereof a flexible connection, such as band or cord or chain, or equivalent means, attached or connected at one end to a driving-crank or eccentric or other motor, and at the other end to the needle bar or holder, under such an arrangement that when the motor is put in operation a positive reciprocating motion will be transmitted therefrom to the needle bar or holder through the intermediary and instrumentality of the flexible connecting device.

By this means I cheapen and simplify the machine, and do away with intermediate levers, shafts, connecting-rods, gearing, &c., which have heretofore been a source of irregularity of motion, as well as loss of power.

The nature of my invention, and the manner in which the same is or may be carried into effect, will be understood by reference to the accompanying drawing, in which—

Figure 1 is a side elevation of a mechanism embodying, in one form, my invention, only so much of the sewing-machine being represented as needed for the purpose of explanation. Fig. 2 is a front elevation of that part of the mechanism which is in the head of the sewing-machine.

The cloth-plate or bed of the machine is indicated at A. B is the under shaft, to which rotary movement is imparted in any ordinary or suitable manner. It operates, as usual, the hook, looper, or shuttle and feed, which latter instrumentalities are not here represented, inasmuch as they are not necessary to an understanding of my invention. C is the goose neck, and D the head, in which is arranged, in any suitable way, the vertically-reciprocating needle bar or holder E. In the present case the holder is represented as of tubular form, mounted and adapted to move up and down on a vertical guide-rod, F, secured in the head of the machine. The holder may, however, be of any ordinary or suitable form and construction.

On the driving-shaft B is a grooved wheel, *a*, which is connected by belting, in the usual way, with the treadle-shaft or other source of power. On the wheel *a* is a wrist or a crank-pin, *b*, at the outer end of which is the arm *c*, which extends diametrically across the face of the wheel, and at its free end carries a crank-pin, *d*; the two pins *b* and *d* being at equal distances from the center of the wheel. There is thus formed a double crank, to one arm of which is attached a cord or band, *f*, and to the other a cord or band, *g*. The cord *f* passes over loose pulleys *h i*, and, passing down from the latter, is attached to a lug, *k*, at *j*, on the needle holder or bar. The other cord, *g*, passes over loose pulleys *l m*, thence down under a pulley, *n*, in the lower part of the head D, and thence up to the lug *k* of the needle-holder, to which it is attached at *o*. The crank-pins *b d* are provided with sleeves *s*, to eyes on which the cords are attached. Under this arrangement it will be seen that when the shaft B is rotated a positive reciprocatory movement will be imparted from the crank through the intermediary of the flexible connection to the needle slide or holder.

The above is but one of the many ways in which the result aimed at may be accomplished. An eccentric, for instance, may be used instead of a crank. The part to which the cord is attached, and from which it derives its motion, may have reciprocatory or an oscillatory movement instead of one of continuous rotation in one direction. It is also manifest that the length of stroke of the needle is determined by the crank, or by the extent of back-and-forth movement imparted to the cord or other flexible connection. I may use any suitable instrumentality for the flexible connection, such, for instance, as wire, cord, leather, cat-gut, chain, steel band, &c.

By means of my invention I do away to a great extent with irregular motion; and, with a positive motion, I obtain the greatest speed with a great diminution of noise, friction, and wear. The adjustment is easy, the construc- of the machine is simplified, and the cost of manufacture is diminished.

Having described my invention, I will state, in conclusion, that I do not limit myself to the details herein described in illustration of my invention, for the same may be greatly varied without departure from its principle; but

What I claim, and desire to secure by Letters Patent, is—

1. In a sewing-machine, the combination, with the needle bar or holder, of cording, banding, or its equivalent, connected with and receiving a positive back-and-forth movement from some moving part of the machine on the one hand, and on the other hand connected with, and imparting a positive reciprocatory movement to, the needle bar or holder, as set forth.

2. The combination, substantially as herein set forth, of the lower rotary shaft, the double crank or its equivalent connected therewith, the reciprocatory needle holder or bar, and cording or banding or its equivalent, extending from the crank to the needle holder or bar over or around guide-pulleys, and operated by the crank, to impart a positive movement of reciprocation to the needle-holder.

In testimony whereof I have hereunto affixed my signature in presence of two witnesses.

J. L. FOLLETT.

Witnesses:
FRED. O. WILSON,
T. FRANCIS GIBBONS.