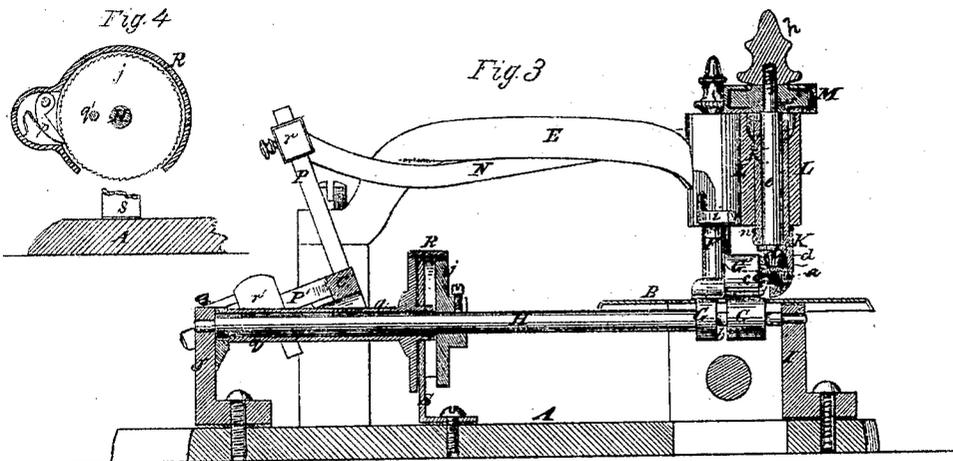
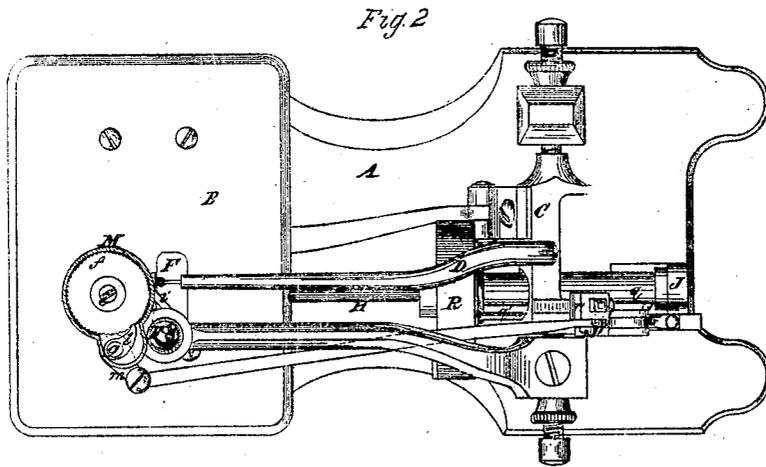
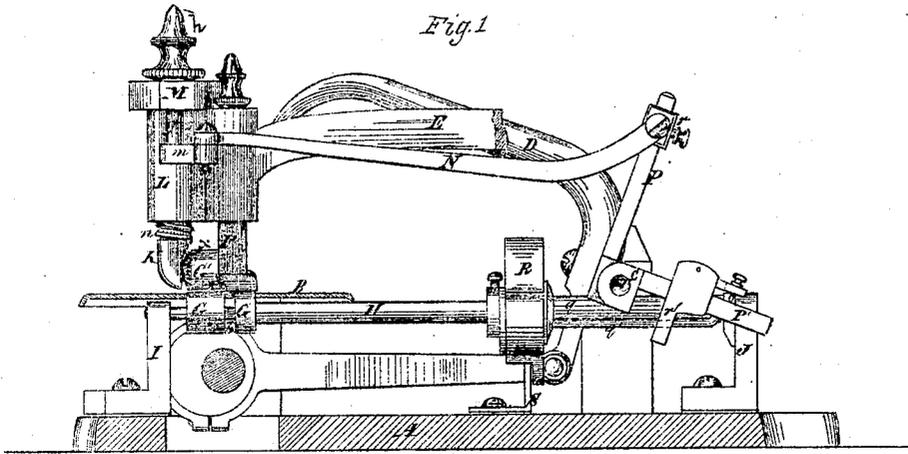


M. P. CARPENTER.
SEWING MACHINE FEEDING MECHANISM.

No. 112,016.

Patented Feb. 21, 1871.



Witnesses
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MARY P. CARPENTER, OF SAN FRANCISCO, CALIFORNIA.

Letters Patent No. 112,016, dated February 21, 1871.

IMPROVEMENT IN SEWING-MACHINE FEEDING MECHANISMS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, MARY P. CARPENTER, of the city and county of San Francisco and State of California, have invented a new and useful Improvement in the Feed-motion of Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification.

This invention relates to the employment, for feeding the material to be sewed, of two feed-rollers, either with smooth or rough surfaces, one operating below and the other above the material, and each independent of the other, having imparted to it a positive motion; but a part of the invention, consisting of the mechanism for driving the feed-roller operating above the table or cloth-plate, on the upper surface of the material, is applicable, whether such roller be used in combination with a roller operating below or be used alone, and whether such roller be used in connection with the ordinary presser-foot, or whether so associated in its operation with the needle as to dispense with and perform the duty of the presser-foot.

The accompanying drawing illustrates the application of the invention to a machine of the general form of the " Wheeler and Wilson," that form of machine serving as well as any other for illustration; but the invention is applicable to other forms of machine. All parts of the machine not necessary to the explanation of the invention are omitted.

Figure 1 is a right-hand side view of the machine, having the framing in section to expose the working parts to view.

Figure 2 is a plan of the same.

Figure 3 is a vertical section, showing the feed mechanism in section as it would be seen from the left-hand side of the machine.

Figure 4 is a portion of the details, which will be hereinafter explained.

Similar letters of reference indicate corresponding parts in the several figures.

A is the bed-plate;
B, the cloth-plate;
C, the needle rock-shaft, carrying the needle-arm D; and

E is the presser-arm, holding the presser F.

G is the feed-roller operating on the under side of the material, secured on a shaft H, which is arranged below the cloth-plate in bearings in two posts, I J. The upper part of this roller works through an opening in the cloth-plate close to the presser-foot.

G' is the feed-roller operating above the material, and carried by a stud, a, which is secured in the lower end of an upright tubular stock, K, which is fitted to slide up and down within, but prevented from turning

in a socket, L, provided on the end of the presser-arm E.

The roller G is long enough in an axial direction to extend all the way under the roller G' and under the presser-foot, and has a deep groove, b, provided in it for the needle to work in.

The roller G' has firmly secured to or formed in the same piece with it a bevel-gear, c, which gears with a bevel-gear, d, (see fig. 3,) on the lower part of an upright spindle, e, which is fitted to turn freely in the stock K, and on the upper part of which, above the socket L, is firmly secured a ratchet-wheel, f, which is incased in a pawl-box, M. This pawl-box is fitted to turn loosely on the spindle e, and carries the pivot g, to which is secured firmly the pawl l, (see fig. 2,) which engages with the teeth of the ratchet-wheel f.

To the lower part of the said pivot, below the pawl-box, there is secured a short lever-arm, m, which is connected by a rod, N, by means of an adjustable sliding connection, r, with an arm, P, which is secured to the needle rock-shaft O.

The vibratory motion imparted to the arm P in the operation of the needle rock-shaft produces, through the action of the rod N on the lever-arm m, such an oscillatory movement of the pawl-box and pawl as to give an intermittent rotary motion to the spindle e and its bevel-gear d, and this motion is transmitted by this bevel-gear to the bevel-gear d, on the roller G', and hence to the roller itself, such motion taking place every time the needle is withdrawn from the material in sewing.

The roller G' is pressed down upon the material in sewing by a spring, n, which is coiled around the stock K, between the bottom of the socket L and a shoulder on the stock, and thus made to clamp the material with sufficient force to the roller G to insure the material being carried forward by the movements of the two rollers when the said rollers have smooth surfaces. If the roller G had a roughened surface it would carry the material forward upon the table without the aid of a roller below.

The nut h, which secures the ratchet-wheel f on the spindle e, serves as a knob by which to lift the said spindle and the socket K and roller G', to permit the material to be sewed to be introduced under the roller.

The socket K may be so connected with the presser by an arm, i, on the stem of the latter, as to enable the roller G to be lifted by the act of lifting the presser.

The shaft H of the lower feed-roller has firmly secured to it a ratchet-wheel, j, which is partly incased within a pawl-box, R, which carries a loose pawl, p, shown in fig. 4, which represents a transverse section of the shaft and pawl-box and a side view of the ratchet-wheel. This pawl-box is fast on a sleeve,

g, which surrounds the shaft *H*, but has separate bearings, one in the post *J* and the other in a post, *S*.

The pawl box and sleeve have rigidly attached to them a rod, *q*, which is parallel with the sleeve and with the shaft *H*, said rod serving to connect the sleeve and pawl-box by an adjustable sliding connection, *r*, with an arm, *P*, rigidly attached to the needle rock-shaft *C*. The vibratory motion of this arm *P* with the needle rock-shaft produces, through the connection *r* and rod *q*, an oscillating motion of the sleeve *q*, pawl-box *R*, and pawl *p*, and the pawl is thereby caused to produce an intermittent rotary motion of the shaft *H* and roller *G* synchronous with that of the roller *G*.

The variation in the length of the feed is produced by shifting the adjustable sliding connections *r* and *r*' on their respective arms *P* and *P*'.

It is obvious that to secure a uniform movement of the peripheral surfaces of the two feed-rollers the connections *r* and *r*' must be adjusted in unison with each other. To facilitate this each of the arms *P* *P*' should have inscribed upon it a graduated scale by which their respective connections are adjusted upon them.

The adjustment of the sliding connections is secured when made by means of set-screws or pins, entering notches in their respective arms. The scales in the arms will serve as a means of providing for an absolutely positive adjustment of the feed.

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

1. A feed-motion for sewing-machines, consisting of two feed-rollers arranged opposite each other on opposite sides of the cloth, and each operated independently of the other by means substantially as herein described.

2. The combination, for supporting and operating the feed-roller which is arranged above the material, of the socket *K*, fitted to the presser-arm, the spindle *e*, passing through said socket, the bevel-gears *c* *d*, on the said roller and spindle, the ratchet-wheel *f*, on the said spindle, and the pawl *l*, carried by a pawl-box or carrier working upon said spindle, operated by some vibrating portion of the machine, all constructed substantially as herein described.

3. The combination, for supporting and operating the feed-roller which is arranged below the material, of the shaft *H*, the ratchet-wheel *j*, on said shaft, the pawl *p*, carried by a pawl-box or carrier oscillating around said shaft, and the rod *q*, attached to the said pawl-box or carrier and connected with an arm of the needle rock-shaft, all substantially as herein described.

4. The combination, with the arms *P* or *P*', attached to the rock-shaft *C*, of the adjustable sliding connections *r* or *r*' of the rods *N* or *q* and their respective connections with the feed-rollers *G* or *G*', substantially as and for the purpose set forth.

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Witnesses:

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