

N. F. SAWYER.

Sewing-Machine Feeding Attachment.

No. 101,926.

Patented April 12, 1870.

Fig. 1.

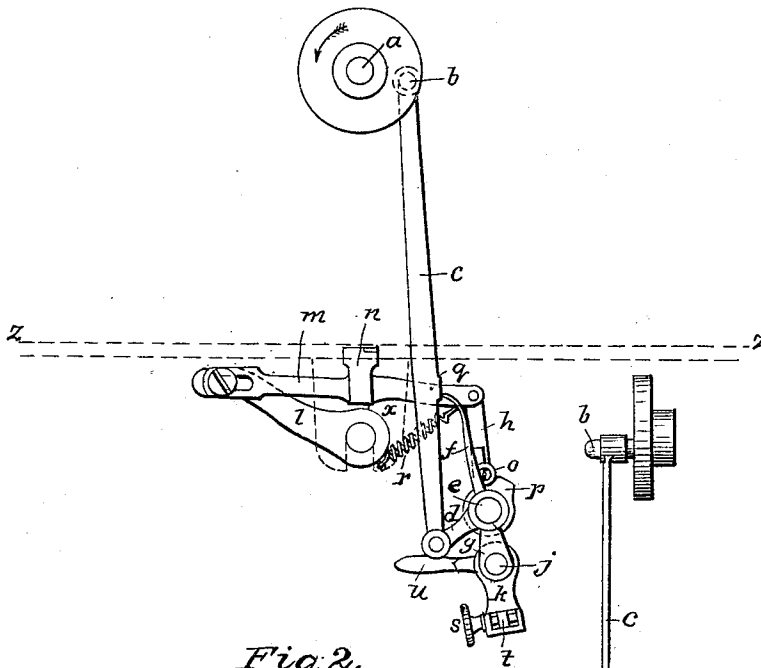
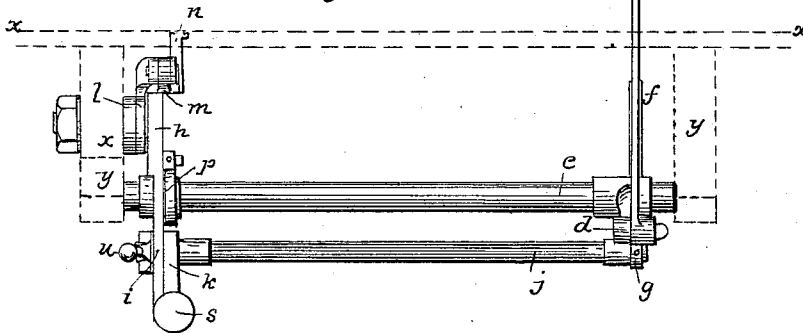


Fig. 2.



Witnesses:

*J. W. Crosby*  
*L. H. Latimer*

Inventor:

*Rowell H. Sawyer*

# United States Patent Office.

NOWELL F. SAWYER, OF HAVERHILL, MASSACHUSETTS.

Letters Patent No. 101,926, dated April 12, 1870.

## IMPROVEMENT IN FEED-OPERATING MECHANISM FOR SEWING-MACHINE.

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, NOWELL F. SAWYER, of Haverhill, in the county of Essex and State of Massachusetts, have invented an Improvement in Sewing-Machine Feeds; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

This invention relates to the detail of construction and arrangement of devices in sewing-machines, by which is produced what is known as the four-motioned feed, and by which the devices, which move a serrated or roughened feeding face upward and forward, and downward and back, are easily attached to machines originally constructed with a wheel-feed.

The drawings show only those parts of a sewing-machine which are necessary to the illustration of my invention,

Figure 1 exhibiting my improvement in end elevation, and

Figure 2, in side elevation, the dotted lines  $z z$  representing the top of a sewing-machine bed in both figures.

$a$  represents one part of the main shaft of the machine, the shaft being made in two parts, each having on their adjacent ends crank-disks, connected by a crank-pin,  $b$ , which crank-pin also works a connecting-link,  $c$ , the lower end of which takes hold of a rocker-arm,  $d$ , on the rocker-shaft  $e$ , to which partial rotations are imparted by rotation of the main shaft in the direction indicated by the arrow seen on the crank-disk in fig. 1.

On the rocker-shaft  $e$ , at the end most remote from the feed, is pivoted a piece having a long arm,  $f$ , and a short arm,  $g$ , and on the other end of the rocker-shaft  $e$  is pivoted a piece, the upper arm  $h$  of which is tubular, and the lower  $i$  of which, like the arm  $g$ , forms a bearing for the shaft  $j$ , and the arm  $i$  extends below shaft  $j$ , so that a projection from arm  $i$ , in which is made a nut, may enter a fork in the end of arm  $k$ , fixed on shaft  $j$ .

The parts are represented as attached to the machine known in the market as the "Empire machine," in which the hangers, represented in dotted lines in fig. 2, and marked  $y y$ , support the rocker-shaft  $e$ , which, in said machine, moves a pawl, which operates the feed-wheel, which is attached to the hanger, seen in fig. 1, in dotted lines, and marked  $x$ .

In the slot in hanger  $x$ , where was fixed the stud for

the feed-wheels, is an arm,  $l$ , the salient end of which bears a pin embraced by the slotted end of a bar,  $m$ , which bears the feeder  $n$ , which is moved in a suitable slot cut through the sewing-machine bed or table, or a throat-piece fixed thereunto.

The other end of bar  $m$  has pivoted to it a plunger, which can slide in the tube  $h$ , which is slotted, so that a pin or roll fixed to the plunger can project through the slot in tube  $h$ , so that the roll or pin  $o$  can be acted upon by the cam  $p$ , adjustably fixed on shaft  $e$ .

By the action of cam  $p$  on the roll  $o$ , the upward movement is given to the arm  $m$  by the plunger in tube  $h$ , by which the feeder is projected above the work support.

The connecting-rod  $c$  has upon one edge, as seen in fig. 1, an incline,  $q$ , which, in the upward movement of rod  $c$ , impinges against the end of arm  $f$ , and imparts to it a vibration, which, through shaft  $j$  and arms  $i$  and  $h$ , is communicated to the feeder  $m$ , and spring  $r$  operates when roll  $o$  and arm  $f$  are relieved from their motors to both draw down the feeder and to draw it back.

The screw  $s$ , which passes through the nut  $t$ , attached to arm  $i$ , serves as a means for adjusting the length of the forward and back reciprocations of the feeder  $n$ , which is accomplished by setting, by means of said screw, the end of arm  $f$  relatively to the incline  $q$ , the nearer the arm  $f$  is set to the said incline, the greater will be the amount of motion which said incline will impart to said arm, and *vice versa*.

The end of shaft  $j$ , which carries the arm  $k$  and projects through the arm  $i$ , is screw-threaded, and provided with a nut,  $u$ , by which arms  $k$  and  $i$  are clamped firmly together after the relation of said arms has been determined by adjustment of screw  $s$ .

In making new machines, instead of altering old ones, the pin on which the slotted end of the bar  $m$  is supported and slides, will be fixed in any suitable support designed for that purpose.

I claim the shaft  $j$ , with its arms  $f$ ,  $g$ , and  $h$ , arranged as described, so as to be operated by movement of an incline on the connecting-rod  $c$ , to impart the forward feeding motion to the feeder  $n$ , leaving the spring  $r$  free at the proper time to produce the reverse movement of the feeder.

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Witnesses:

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