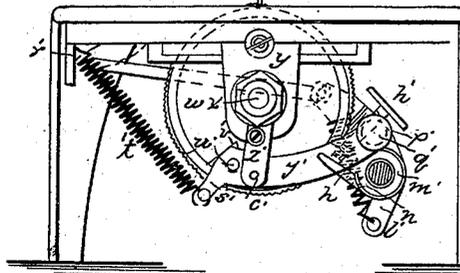
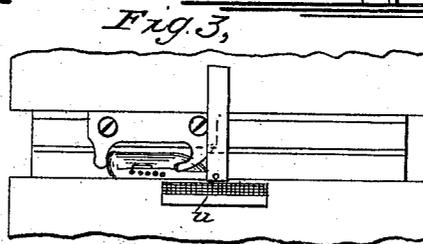
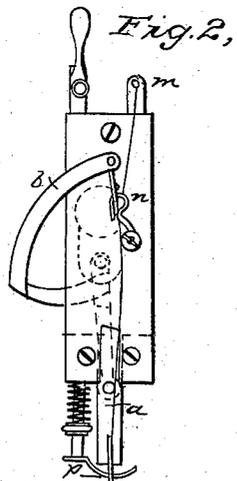
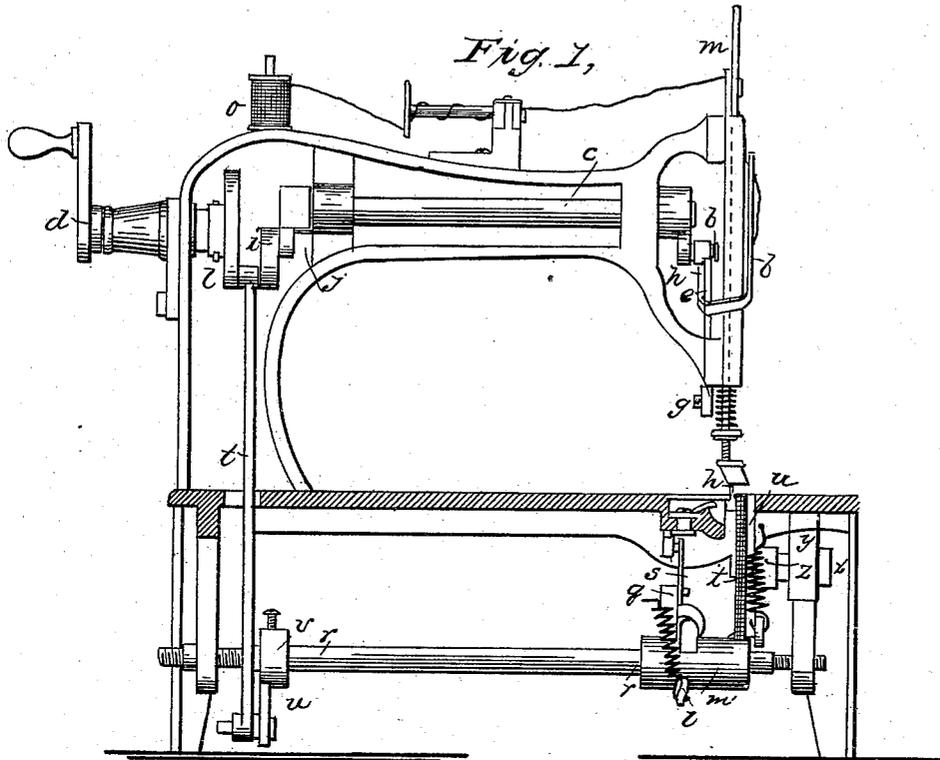


G. JUENGST.  
Sewing Machine.

No. 31,691.

Patented March 12, 1861.



WITNESSES  
J. Prain  
A. Curran

INVENTOR:  
George Juengst  
by Atty. Thos. J. Everett

# UNITED STATES PATENT OFFICE.

GEORGE JUENGST, OF NEW YORK, N. Y., ASSIGNOR TO J. McCROSSAN AND T. J. McARTHUR, OF SAME PLACE.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 31,691, dated March 12, 1861.

*To all whom it may concern:*

Be it known that I, GEORGE JUENGST, of the city of New York, in the county and State of New York, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the marks and letters thereon.

My improvements relate to that class of sewing-machines where the straight needle is used with the shuttle and the feed-wheel, and they have reference to the means for giving motion to the needle, specially regarding the formation and condition of the loop of the needle's thread, to means for taking up the thread and tightening the stitch, and to means for making and regulating the feed.

The drawings forming part of this specification represent a sewing-machine of the class abovenamed with my improvements connected therewith, Figure 1 of these drawings being a side view of the machine, with the side plates of the table and shaft's frame removed so as the better to exhibit the interior; Fig. 2, a front view of the same; Fig. 3, a top view of the feed-wheel and shuttle, with the plates covering the shuttle's chamber removed; and Fig. 4, a view by transverse section of the cam on the feeding-shaft and the roller against which it acts on the feeding lever.

In each of these figures, where like parts are shown, like marks and letters are used to indicate them.

Inasmuch as several parts of this machine do not differ materially from other machines, this description will be limited to such parts as constitute my invention, with such other parts as it may be necessary to name in order properly to set out the construction and operation of the invented parts.

The needle-bar *a* and the take-up *b* derive their motions from a shaft, *c*, which lies out of line both horizontally and vertically with the power or main shaft *d*. The needle-bar is connected to the shaft *c* by a bar or rod, *e*, affixed at its upper end to the crank pin *f* and at its lower end to the needle-bar pin *g*. The take-up is rigidly attached to the bar *e*, as shown at *h*, so that the bar *e* is the means for connecting both the needle-bar and take-up to the

shaft *c* at one point. Shafts *d* and *c* are connected to each other through the intervention of a link, *i*, fitting at one end onto the crank-pin *j* of shaft *c* and at the other end on the crank-pin *l* of shaft *d*; and it will readily be perceived that when thus connected to each other the rotation of the two shafts will not be in unison, and that while shaft *d* has continuous regular rotation shaft *c* has intermissions in its motions, which are very nearly periods of rest, that occur at certain points of revolution, and are due to the relative position of the two shafts and crank-pins. As shown by the drawings, the link pulls the shaft *c*. By altering the position of the crank-pins the link can be operated so as to push that shaft, and such alteration can easily be brought about by loosening the collars of the cranks and changing their positions on the shafts. The main shaft may run entirely through the neck and have a crank and link connected with another crank revolving on a stationary stud attached to the face-plate or other stationary part of the machine, the stud being out of line of the main shaft, and the same motion be produced as by the shafts above named. In this arrangement the link may pull as well as push.

By the means here recited and the arrangement of them such motions will be given to the needle and the take-up as will form the loop of the needle's thread of the proper dimensions and form for the safe passage of the shuttle, holding the loop while the shuttle is passing through it, and taking up and tightening the stitch with great regularity and exactness, and the adjustability of the crank-pins will allow of the perfect adjustability of the needle's and the take-up's motions. These parts, as arranged on the machine, (shown by the drawings,) give to the needle a rapid downward motion, a period nearly of entire rest while the shuttle is passing through the loop, and a rapid upward motion, and to the take-up motions in unison with the movements of the needle, taking up the thread and tightening the stitch on the upward motion of the needle, the action of the take-up being performed in part by the stationary guides *m* and *n*, the track of the thread from the spool *o* to the needle *p* fully indicating the changes which

will occur during the motions of the needle and take-up.

The shuttle derives its motion from an arm, *q*, of shaft *r*, which arm actuates lever *s*, the upper end of which is connected to the frame of the shuttle. Shaft *r* is operated by a connecting-rod, *t*, attached at its upper end to crank-pin *l* of the main shaft *d* and at its lower end to an arm, *u*, of a collar, *v*, upon its shaft. Shaft *r* also actuates the feeding-wheel *w*, the shaft *x* of which is supported in a bearing-plate, *y*, affixed to the table of the machine, and the feed-wheel *w* is moved by the following means: Around shaft *x*, next to the wheel *w*, is a loose collar, *z*, which has an arm, *z'*, extending downward. A vibrating curved lever, *y'*, is pivoted at *x'* to this arm *z'*, and to the end of lever *y'* is pivoted, at *w'*, a block, *v'*, the bottom face of which rests upon the face *w'* of the wheel's recess. The block *v'* is nearly of triangular form, the faces of its edge being slightly curved to fit the face of the recess of the wheel on which it operates. Being of this form and pivoted on the lever, as one face becomes worn it can be moved around on its pivot and another face be substituted for that too much worn. A spring, *t'*, is attached at one end to an arm, *s'*, of the lever *y'*, and at the other end to a plate, *r'*, of the frame of the machine. The tendency of this spring is to draw the end *s'* of the lever and the block *v'* forward and upward, carrying the face of the block *v'* along the face of the wheel's recess. The other end of the lever *y'* has a pin, *q'*, upon which is a friction-roller, *p'*. By the connection of lever *y'* to the arm *z'*, and by the spring *t'*, the roller *p'* is kept in contact with a cam, *o'*, and the straight face *w'* of a collar, *m'*, movable on shaft *r* as the shaft is vibrated, bringing the cam or the straight face against the roller. From an arm, *l'*, of the movable collar *m'* to the arm *q* of the shaft *r* passes a spring, *j'*, the tendency of which is to keep a stud, *v'*, of the collar *m'* against the end of an adjusting-screw, *h'*, which passes through an arm of shaft *r*. Now, as shaft *r* is vibrated it

carries with it the collar *m'* and brings the cam *o'* and the face *w'* in contact sooner or later with the roller *p'* of lever *y'*, as the screw *h'* may have its inner end farther in or out, the screwing of it in moving the collar earlier and the turning of it out moving the collar later, and thus operating lever *y'* to a greater or less distance. As the roller end of lever *y'* is moved by the upper part of the face *w'* the feed takes place, the block *v'* on the other end of the lever gripping the face of the wheel's recess, the feed ceasing while the roller is on the cam's face, and the block *v'* being carried forward by the spring *t'* as the roller on the return movement of the shaft slides down the face *w'*.

It will thus be seen that the stud *v'* and the end of the screw *h'* are at all times in contact, and that the distance screw *h'* is in the arm of the shaft *r* determines the feed and stitch, the feed being the least when the screw is farthest in the arm and the greatest when the least in the arm.

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

1. The arrangement of the shafts, cranks, and link, as herein set forth, for operating the take-up and needle, so as to leave the loop of the needle's thread in proper position and condition for allowing the shuttle to pass freely and safely through.

2. The take-up attached to the connecting-rod of the needle-bar, and so arranged in relation to the two stationary guides as to control the thread through all its movements and tighten the stitch, as described.

3. Regulating the feed by the screw and stud, the two being in contact at all times and operating as described.

This specification signed this 18th day of August, 1860.

GEORGE JUENGST.

Witnesses:

T. T. EVERETT,  
JOSIAH M. SMITH.