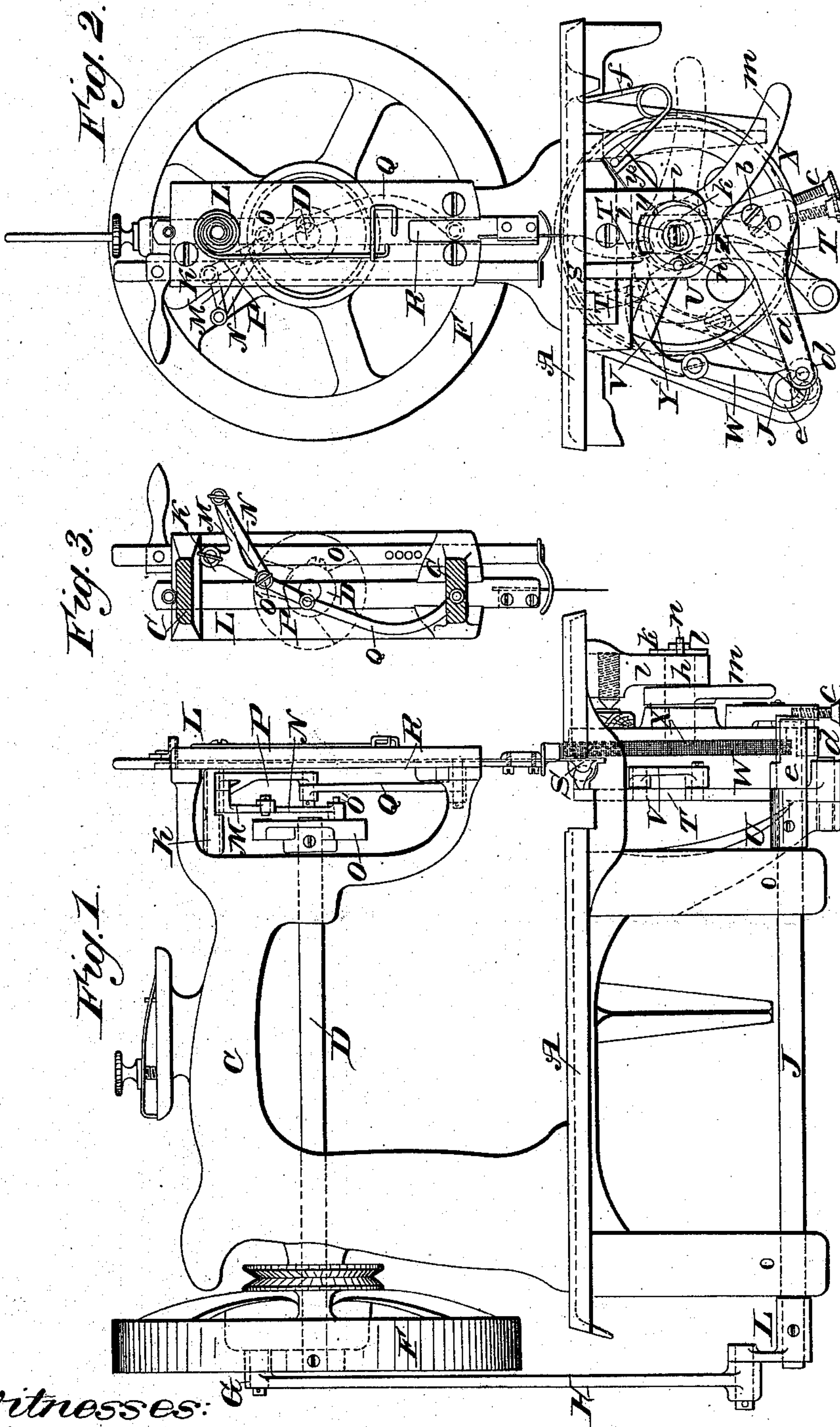


L. GRISWOLD.  
Sewing Machine.

No. 89,987.

Patented May 11, 1869.



Witnesses:  
Arthur B. Williams

Inventor:  
L. Griswold



# UNITED STATES PATENT OFFICE.

LEV. GRISWOLD, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN SEWING-MACHINE.

Specification forming part of Letters Patent No. **89,987**, dated May 11, 1869.

*To all whom it may concern:*

Be it known that I, LEV. GRISWOLD, of Brooklyn, Kings county, and State of New York, have invented a new and useful Improvement in Sewing-Machines; and do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, of which—

Figure 1 is a side elevation; Fig. 2, a front end elevation, and Fig. 3 a vertical section of same.

In the drawings, A denotes the table or bed of the machine; C, the goose-neck; D, the driving-shaft; F, the fly-wheel; G, the outer crank on the driving-shaft; and H, a link connecting the crank on driving-shaft with the crank I on the lower rocker-shaft, J. K is the needle-bar rocker, sustained by the face-plate L and goose-neck C. Said rocker has two arms, one of which, M, is connected by a joint-link, N, with the inner crank, O, on the driving-shaft, while the other arm, P, is connected by a joint-link, Q, with the needle-bar R.

It will be seen that by this arrangement of parts the rocker K is brought in close proximity to the driving-shaft D, and the speed of the needle made slower at the point of entering and receding from the cloth, as will be hereinafter more fully explained.

S is the shuttle, connected with the shuttle-driver T in the ordinary manner, said driver being jointed to an arm, U, projecting downward from the bed of the machine, and connected by a joint-link, V, with a crank-arm, W, on the lower rocker-shaft, J, which operates said driver, by means of which the shuttle is in a state of rest at the end of its stroke, for a purpose to be hereinafter explained. X is the feed-wheel, containing within its periphery a tri-armed friction-frame, Y. To the lower arm, Z, of this frame is attached a lever, *a*, by means of a screw, *b*, which passes through a slot in the end of said lever. The lever has an adjusting-screw, *c*, which abuts against the screw *b*, and thereby confines the lever, by having the roller *d* in such relation with the friction-frame and the cam *e* on the rocking shaft J as the desired length of stitch necessitates. *f* is a spring connected with

the bed-plate of the machine and the arm Y<sup>2</sup> of the friction-frame for the purpose of bringing the friction-frame back to its original position after each forward movement of the friction-wheel, caused by the action of the cam *e* (placed on the end of the lower rocker-shaft) on the lever *a*, through the roller *d* on the end of said lever. *h* is the feed-wheel shaft, sustained in a lug, *i*, projecting downward from the bed of the machine by a bracing-plate, *k*, and clamping-screw *l*, which passes through the end of the shaft and bracing-plate. *m* is a hand-lever placed on said shaft, and *n* is a fulcrum-pin, against which the bracing-plate bears, and which holds the feed-wheel at the desired height when placed in position by the lever *m*.

Having described the nature and construction of my invention, I will now describe its operation.

The machine being set in motion, at each revolution of the crank O on the driving-shaft the rocker-arm M, being connected with the crank-pin *o'*, will cause the arm P of said rocker, which is connected with the needle-bar, to travel in a segment of a circle the extreme points of travel corresponding to the ascent and descent of the needle, and the crank-pin *o'* passing its vertical line of centers at the same time, tending thereby to cause the needle, while entering and receding from the cloth, to move more slowly, thereby making the draft on the thread less, and this while the machine is in rapid motion and the shuttle well back, so as to obviate catching the thread coming from the shuttle on the point of the needle, which advantages are obtained by this arrangement, which places the rocker in close proximity to the driving-shaft.

During the movements of the needle the crank-arm W on the lower rocker-shaft, which is connected with the shuttle-driver T by a joint-link, V, will, at each backward movement of the crank, cause the shuttle, after being carried to its extreme distance, to dwell for a time, or until the point of connection between the crank-arm and the joint-link falls below a right line and again assumes its original position, by means of which the shuttle is caused to wait for the ascent of the needle, so as to draw up the stitch taut before



the thread slackens that comes from the shuttle.

Now, the length of stitch to be made in the cloth being previously arranged—viz., by bringing the roller *d* on the end of the lever *a* over full on the circular face of the cam *e* on the lower rocker-shaft, *J*, for a long stitch, and vice versa for a short one, which is done by means of the adjusting-screw *c*, which brings the arm *Z* of the friction-frame *Y* nearer or further from the cam *e*—the forked arms *Y*<sup>1</sup> *Y*<sup>2</sup> will press against the inner periphery of the feed-wheel *X* for each forward movement of said wheel as the round face of the cam comes in contact with the roller on the end of the lever, and as the flat side of said cam is presented to said roller the friction-frame will recede from the wheel until the frame is again forced against the wheel and pushed forward.

Preparatory to the foregoing operations the feed may be raised or lowered, as desired, by slacking the clamping-screw *l* and laying hold of the hand-lever *m*, the shaft *h* of the feed-wheel bearing on the fulcrum-pin *n* at the same time, and when the height of feed is adjusted, bracing the plate against the lug by means of the clamping-screw *l*, by means of

which the height of the feed is regulated and held firmly in position.

I do not claim a crank for driving the needle-bar, combined with a vibrating arm for driving the shuttle; but

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

1. The shaft *D*, arranged longitudinally in the goose-neck crank *O*, rocker *K*, arms *M P*, and connecting-links *N Q*, for operating the needle-bar, in combination with the crank-arm *W*, link *V*, and driver *T*, for driving the shuttle, when all are arranged and operated in the manner and for the purpose herein specified.

2. Also, the tri-armed friction-frame *Y Y*<sup>1</sup> *Y*<sup>2</sup> *Z* and lever *a*, with its roller *d*, in combination with the cam *e* and feed-wheel *X*, for the purposes substantially as set forth and described.

In testimony whereof I have hereunto set my signature this 12th day of November, A. D. 1868.

LEV. GRISWOLD.

Witnesses:

A. NEILL,  
ARTHUR B. WILLIAMS.