

A. R. PAINE.  
Sewing Machine.

No. 27,412.

Patented March 6, 1860.

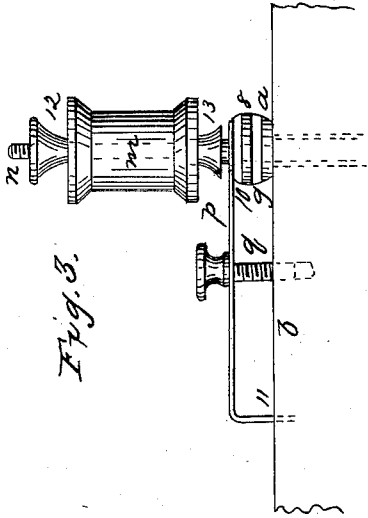


Fig. 3.

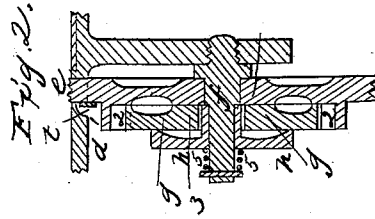


Fig. 2.

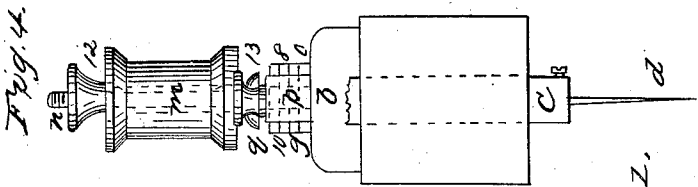


Fig. 4.

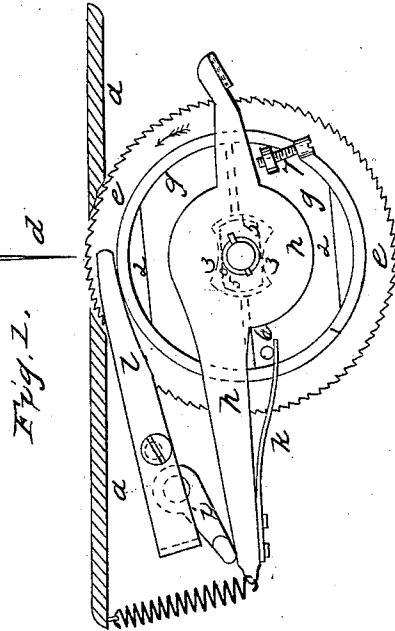


Fig. 1.

Witnesses:  
Samuel W. Sewell  
Geo. W. Howard

Inventor:  
A. R. Paine

# UNITED STATES PATENT OFFICE.

ALVIN R. PAINE, OF NEW YORK, N. Y., ASSIGNOR TO JOHN M. MYERS, OF SAME PLACE.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 27,412, dated March 6, 1860.

*To all whom it may concern:*

Be it known that I, ALVIN R. PAINE, of the city and State of New York, have invented and made certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is an elevation of the sewing-machine with the feeding device in place, the bed being in section. Fig. 2 is a section of the feeding-wheel, and Fig. 3 is a side elevation of the tension apparatus of the needle-thread.

Similar marks of reference denote the same parts.

In sewing-machines heretofore constructed feeding-wheels have been used in which various friction-clamps have been applied to cause the feed to progress regularly with an intermitted movement.

My said invention relates to this character of well-known feed; and it consists in two clamping-segments set within a rim or hub on the feed-wheel, and acted on by a cam movement at the center of the feed-wheel in such a manner that the said feed-wheel receives a motion due to the vibration of the lever carrying said cam, and the clamps and mechanism controlling their movement, as hereinafter detailed.

In the drawings, *a* represents the bed; *b*, the needle-arm; *c*, the needle-bar, and *d* the needle, of any usual size, shape, or character, and, operating in the usual manner, need no further description.

*e* is the feeding-wheel, set on the spindle *f* and projecting slightly through the bed *a*.

1 is a ring-flange projecting from the side of the wheel *e*, within and to which ring the apparatus for imparting movement to said wheel has heretofore been applied, my invention relating to the special mechanism applied at this point, the same consisting of two clamping-segments, *g g*, formed as nearly semicircular blocks, with a portion of the edge of each removed, as at 2 2, the object of this being to make a more uniform wear against the inside of the ring 1, because if these clamping-pieces were complete semicircles, then the wear on

the entire edge being nearly equal, the semicircle would become too small for the inside of the ring 1, and when said semicircular clamps were pressed apart toward the feeding-ring the edges only of such clamps that are at right angles to their line of separation would take a bearing and a rocking motion to the extent of the difference in diameter of the ring-flange 1, and the clamps would be the inevitable consequence; hence I remove these segments at these points 2 2, so that the bearings will be at the ends of each clamp, and the wear will be uniform and the surfaces will always coincide with each other. At the center part of these clamps *g g*, I provide the cam-shaped openings 3 3, (shown by dotted lines in Fig. 1,) and into these the cam-block 5 on the lever *h* sits. This lever *h* is acted on by a cam, *i*, or by a connecting-rod and crank, or any suitable mechanism that will communicate the desired extent of vibrating motion. This lever works on the center pin or spindle, *f*, and as the block 5 comes in contact with the cam-surfaces 3 3 the segments *g g* are forced asunder against the inside of the ring 1, and any further movement of the lever turns the feed-wheel and gives motion to the cloth in the sewing-machine. As the lever *h* is moved in the other direction the parts 3 and 5 are first relieved and the segments may be drawn back with the lever, ready to take the next hold on the wheel *e* by the spring *k* acting on the pin 6. I, however, prefer that a positive extent of reciprocation be given to the lever *h*, and that the adjustment for the length of stitch be effected by the screw 7, attached to one of clamping-segments *g*.

It will be apparent that where a given amount of motion is communicated each time to the lever *h*, and the screw 7 is so adjusted that the lever moves some distance before taking the screw, the clamping-segments *g* will be moved but little and the feed be very small; but when the screw and lever are in contact, or nearly so, the back movement given to the segments *g* is greater and the feed increased. The screw 7 might be on the lever *h* and take a block on the segment *g*.

*l* is a friction-spring against the feed-wheel to prevent slight friction turning it back.

The spool *m* for the needle-thread is mounted on a spindle, *n*, revolving in a socket, *o*. Said

spindle has a disk, 8, formed on or attached thereto, having washers 9 and 10, of cloth or similar material, on the sides thereof. *p* is a spring resting at 11 on the arm *b*, and having an eye around the spindle *n*, said spring resting on the washer 10. *q* is a tightening-screw. The spool *m* is firmly attached to this spindle by the conical nut 12 and cone 13, so that the spindle *n* and spool *m* must revolve together.

It will now be evident that as the screw *q* is tightened the disk 8 is confined with greater friction and the tension increased, or if slackened the tension is lessened. By this device the friction is very much more regular and can be more easily adjusted than in any device I am acquainted with, and the spools can be changed without varying the friction.

I do not claim a feeding-wheel, nor a ring-flange or such feeding-wheel, to which friction is applied; neither do I claim herein a lever in

itself by which a clamping movement is given to segments acting on said ring; but

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

1. The clamping-segments *g g*, within the ring 1 of the feeding-wheel, when said segments are formed with the flat side or removed portion at 2 2, for the purposes and as specified.

2. The combination of the vibrating lever *h* and segments *g g*, when the segments are formed with the cam-shaped openings 3 3 at their centers, acted on by the block 5 of the lever, in the manner and for the purposes specified.

In witness whereof I have hereunto set my signature this 16th day of November, 1859.

A. R. PAINE.

Witnesses:

LEMUEL W. SERRELL,  
THOS. GEO. HAROLD.