

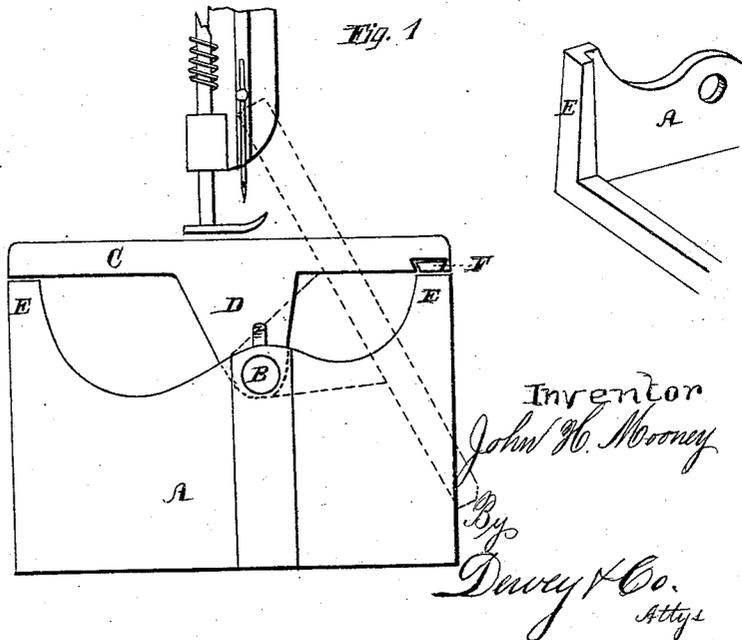
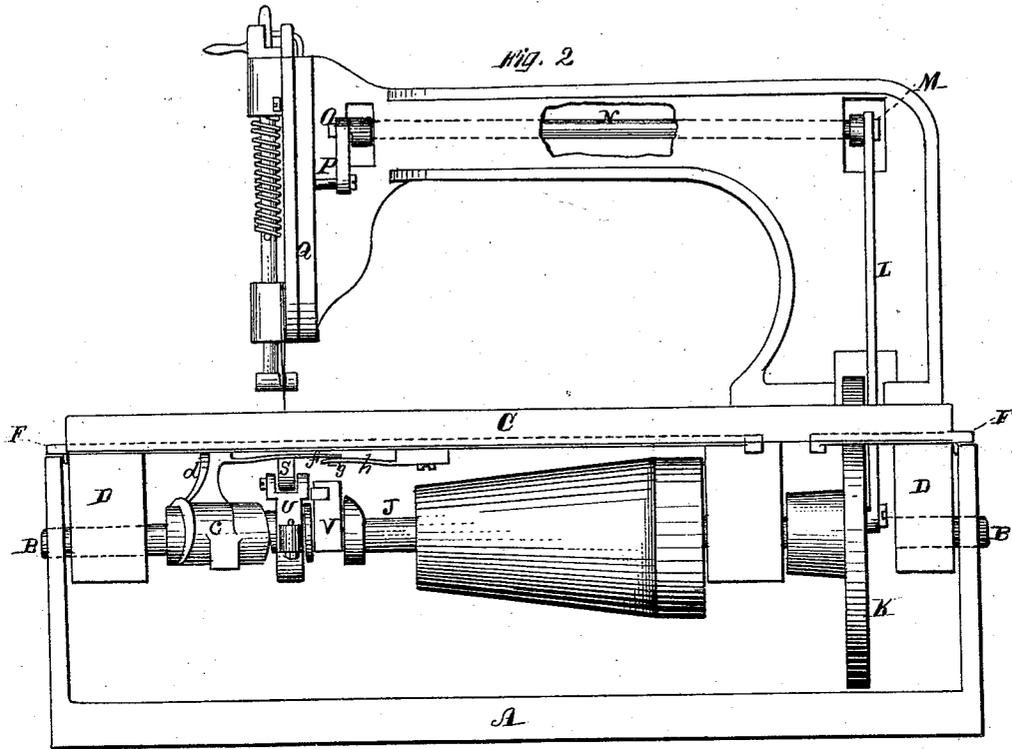
(Model.)

3 Sheets—Sheet 1.

J. H. MOONEY.  
SEWING MACHINE.

No. 244,470.

Patented July 19, 1881.



Witnesses  
*Geo. H. Strong.*  
*Frank A. J. Swartz*

Inventor  
*John H. Mooney*  
 By  
*Dewey & Co.*  
 Attys

(Model.)

3 Sheets—Sheet 2.

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Fig. 3.

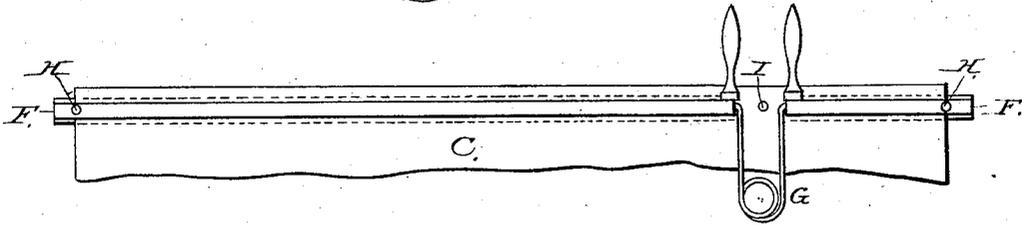


Fig. 4.

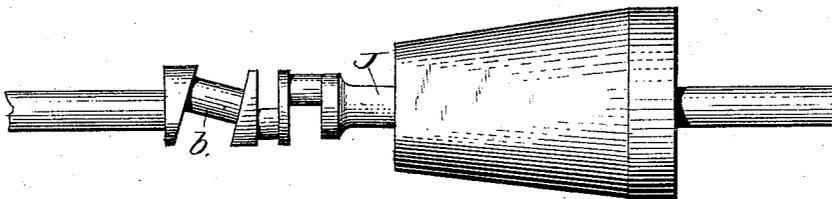


Fig. 5.

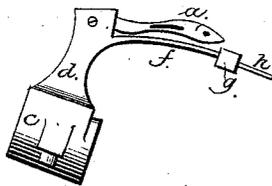


Fig. 6.

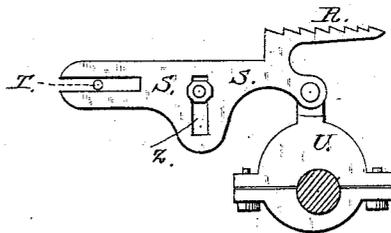


Fig. 7.

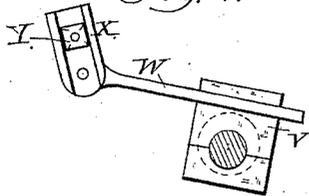


Fig. 8.

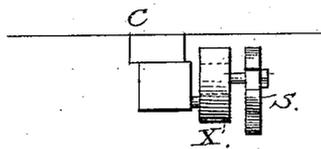
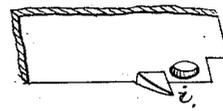


Fig. 9.



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*per*

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(Model.)

3 Sheets—Sheet 3.

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Fig. 10

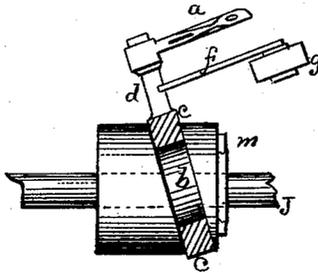


Fig. 11

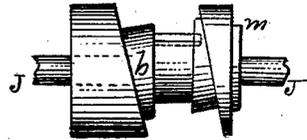


Fig. 12



Fig. 13

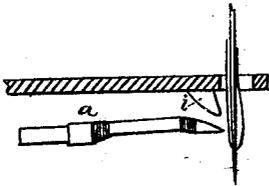


Fig. 14

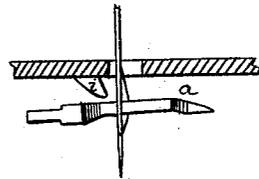


Fig. 15

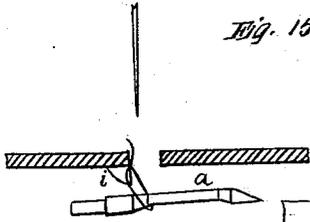


Fig. 16

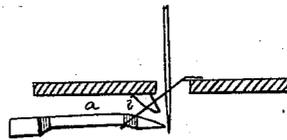


Fig. 17

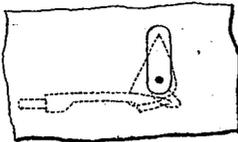


Fig. 18

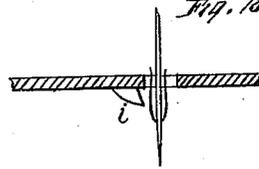
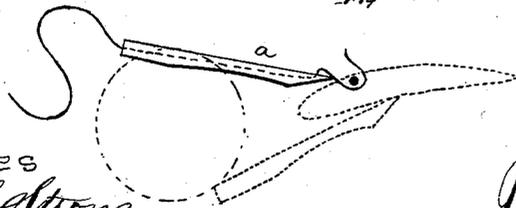


Fig. 19



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# UNITED STATES PATENT OFFICE.

JOHN H. MOONEY, OF SAN FRANCISCO, CALIFORNIA.

## SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 244,470, dated July 19, 1881.

Application filed November 29, 1880. (Model.)

*To all whom it may concern:*

Be it known that I, JOHN H. MOONEY, of the city and county of San Francisco, State of California, have invented an Improvement in Sewing-Machines; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to certain improvements in sewing-machines; and it consists in a novel construction of parts and a peculiar combination of cranks upon a single driving-shaft, whereby all the necessary movements to form the stitch, feed the work along, &c., are produced directly and without the use of any cams. This enables me to drive the machine at a higher rate of speed without wear.

Figure 1 is an end elevation, showing the manner of turning the bed to one side. Fig. 2 is a side elevation of my machine. Fig. 3 is a view of the latches and operating-levers. Fig. 4 is a view of the shaft with its cranks. Fig. 5 is a view of the looper, with its operating-arm and the guide. Fig. 6 is a view of the feed-plate, actuating-arm, and eccentric. Fig. 7 is a view of the rocker, with its projecting arm and eccentric. Fig. 8 is a rear view, showing the relative position of the rocker and the feed-plate arm. Fig. 9 shows a portion of the cloth-plate and the looping-point used in single-thread machines. Fig. 10 is an enlarged view of the looper, arm, guide, and gyrating crank. Fig. 11 shows the adjustment to take up the wear. Fig. 12 is a view of a looper. Figs. 13, 14, 15, 16, 17, and 18 show the progressive steps in the formation of a stitch with a single thread. Fig. 19 shows the movement of the point of the looper about the needle, and the formation of a stitch with a double thread.

When sewing-machines are run at a high rate of speed, either for manufacturing or other purposes, the cams which are usually employed to produce certain movements in forming the stitch and feeding the goods along will soon begin to wear, and the traveler will cut the cam so that it is rendered useless. My invention is designed to obviate this difficulty and enable the machines to be run at a much higher rate of speed by employing a system of cranks and connecting mechanism, whereby all use of cams is avoided.

A is a stand or base having at each end center pins or journals, B. The bed-plate proper, C, of the machine has hangers or boxes D projecting downward at each end, and the pins B pass through these hangers in an exact line with the main driving-shaft, which turns in boxes projecting beneath the bed-plate C, as shown. The base A has posts E projecting upward at each corner, the two rear ones being made thick enough to receive and sustain the corresponding corners of the bed-plate C when it stands level. The two front posts are made narrow, so that the bed-plate C may be tilted about its journals B and its front corners will pass down between the posts.

In order to support the plate in a horizontal position when desired, I employ two sliding bars or latches, F, which move in a groove just beneath the plate and parallel with its front edge. These latches are forced outward by a suitable spring, G, and pins or other stops, H, prevent them from going too far. The ends of these latches press against the inside of the posts while the bed is tilted to one side, and the spring forces them out so that they extend above the tops of the posts when the bed is in a horizontal position, thus preventing it from moving until the latches are withdrawn. Each latch has a short projecting arm at the end where they approach each other, by which they are drawn back by simply pressing them toward each other by the thumb and fingers of one hand. A short pin or stop, I, is fixed in the channel or groove midway between the ends of the sliding latches, so that each will be stopped by it when fully withdrawn, and will, if necessary, serve as a fulcrum by which to withdraw the other, if the spring upon one side should be stiffer than the other.

The main driving-shaft J is supported in boxes below the bed-plate in line with the journals or pins by which the bed-plate is hinged to the stand A, as before described. This shaft is driven by a belt from the source of power, and in the present case I have shown a tapering or cone belt-pulley upon the shaft to receive the driving-belt. By this the speed of the machine may be regulated within certain limits independent of that of the power-shaft. At the end of the shaft opposite the needle-

bar and feed mechanism is a crank wheel or disk, K. A connecting-rod, L, unites the crank-pin upon this disk with the arm M upon the rock-shaft N, and another arm, O, at the opposite end of this shaft is connected by a link and pin at P with the vertically-moving needle-bar Q, thus giving it motion, as shown.

The feed mechanism is constructed as follows: The toothed or roughened feed-plate R is secured to or formed upon the upper end of a projection which extends up through the bed-plate from the arm S. The rear end of this arm is slotted, so that it may slide upon a pin, T, at the rear of and below the plate, as shown. The front end of the arm S is pivoted to the top of a strap, which surrounds an eccentric, U, formed in or secured to the shaft J. This eccentric gives the feed-plate a simple up-and-down movement. In order to produce the forward-and-back movement at the same time I form another eccentric or crank, V, upon the shaft J, close by the side of the one before mentioned, and this eccentric has also a strap surrounding and driven by it. For convenience this strap is made square, and the upper part has a transverse slot formed in it to receive the arm W, which projects from the lower part of the rocker-arm X and extends through the slot, so that when the shaft and eccentric are turned the eccentric causes the arm X to rock or oscillate upon its journal-pin, the arm W sliding in the strap as the latter moves. This rocker-arm is journaled by means of a pin extending from its lower end into a lug or box beneath the plate C, so that it stands close to the arm S. The side of the arm X which faces the arm S has a vertical guideway formed in it to receive a sliding block, Y. The arm S has a vertical slot, Z, made transversely across it, and a pin from the block Y passes through this slot, and may be secured at any point in the slot Z by a nut upon the outside, so as to move the block Y up or down in its slot, either nearer to or farther from the center of oscillation of the rocker-arm, for a purpose to be hereinafter described. The two eccentrics have their throw nearly opposite each other, and their action upon the feed-plate will be as follows: The eccentric U raises the end of the arm S and with it the feed-plate R. The eccentric V then begins to raise the sliding arm W, and this movement acts upon the rocker-arm X to move it backward about its axis, carrying with it the block Y. The pin projecting from the block Y and secured to the arm S causes this arm to be carried back at the same time, and with it the feed-plate. The eccentric U then sinks with the further rotation of the shaft, and draws the feed-plate down below the surface of the cloth-plate, after which the downward movement of the eccentric V, acting upon the arm W, throws the rocker-arm X forward, and the pin from the plate Y acts to carry the arm S and the feed-plate forward again before the eccentric U raises it above the cloth-plate for another forward movement. The peculiar action of the eccentric V

is to give the feed a quick forward movement, because the strap approaches the rocker-arm before it rises, and, sliding upon the arm W, it is brought close to the center about which the arm X rocks, so that when it moves upward in the rotation of the eccentric it will throw the rocker-arm backward quickly. When it goes down on the other side in its rotation it will have moved to the end of the arm W, and the return movement of the rocker-arm and feed-plate will be slower. The slots in the rocker-arm and in the arm S enable the operator to lengthen or shorten the movement of the feed-plate by loosening the nut or screw and moving the block Y farther from or nearer to the center of oscillation of the rocker-arm.

In order to form the stitch either with a double or single thread machine, I employ a looper, *a*, beneath the plate, in such a position and having such a movement that it forms the loop necessary for the stitch at each descent of the needle. The movement of this looper is produced by a peculiar angular or gyrating eccentric or crank, *b*, which is formed in the shaft or secured to it. A strap, *c*, surrounds this crank, and an arm, *d*, projects upward from it and has the looper *a* fixed to it by a set-screw or other convenient device.

Just below the looper an arm, *f*, projects at right angles from the arm *d* and parallel with the looper, and connects with a slide, *g*, which moves in guides *h*, as shown, so that the peculiar movement of the crank is transmitted to the looper in the proper manner. The guiding-slide *g* is beyond the point of the looper, and it will be seen from this construction that the point of the looper moves about an imaginary center, which is outside of it, and the point thus moves in unison with the movement of the arm *d* and the body of the looper, instead of moving in an ellipse and in an opposite direction from the crank, as would be the case if the slide and center about which it moved were within its own length, this action being shown in Fig. 19. The looper is formed with an enlargement near the point, as shown in Figs. 5 and 12 to 19, and when a single thread is used a projection, *i*, extends downward from the cloth-plate, around which the thread is carried by the looper, and a loop is formed and held open by it until the needle descends through the loop and forms the stitch, as shown in Figs. 13 to 18. When two threads are employed the lower thread is passed through the looper from the rear to the point, as shown in Fig. 19.

The operation will be then as follows: The peculiar action of the angular gyrating crank or eccentric brings the looper back and downward in a curve about an imaginary center below it, and as it commences to move forward again the needle rises, so that the point of the looper passes through the loop formed in the needle-thread, passing around from one side of the needle to the other, so that the needle, when it again descends, passes through the

loop of the lower thread upon that side, and thus completes the stitch.

In the construction of my looper crank or eccentric I prefer to make it independent of the shaft and secure it to the shaft by a set-screw or key. One side of the groove in which the eccentric-strap runs is made to slide upon a feather upon the fixed portion, and a nut, *m*, serves to tighten it up, when necessary, to take up any wear and prevent looseness or lost motion. By this construction I am enabled to produce all the movements necessary for sewing without any use of cams, and by making all these movements continuous by the use of the cranks and eccentrics, as described, I am enabled to run the machine at a much higher rate of speed without causing the parts to wear loose.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The arm *S*, sliding upon a guide at *T*, and carrying the feed-plate *R*, in combination with the eccentric *U* for producing a vertical movement, and the eccentric *V*, having an arm connected with the sliding arm *S* to produce the horizontal movement, substantially as herein described.

2. The rocking-arm *X*, having the arm *W* extending through a slot in the strap of the eccentric *V* and the sliding block *Y*, which may be moved to or from the center of oscillation of the arm, in combination with the arm *S*, with its vertical slot *Z*, through which the block *Y* may be adjusted, and the feed-plate *R* and eccentric *U*, substantially as herein described.

3. The gyrating crank *b*, with its strap *c* and arm *d*, in combination with the looper *a*, having arm *f*, and the slide *g*, to guide and give movement and direction to the looper *a*, substantially as herein described.

4. The gyrating crank set at an angle with its driving-shaft, with its strap or sleeve and projecting arm *d*, carrying the thread-looper *a*, and having the guiding-slide *g* beyond the point of the looper, whereby the looper is caused to move alternately in front of and behind the vertically-moving needle, substantially as herein described.

5. The improved device for actuating the feed mechanism and the looper or stitch-former, consisting of the three cranks or eccentrics *U*, *V*, and *b*, formed in a single shaft, and connected as shown, whereby the movements are produced without the aid of cams, substantially as herein described.

6. The looper *a*, with enlarged point, secured to the arm *d* of the gyrating crank, and having the sliding guide *g*, whereby the point of the looper is caused to move alternately to each side of the vertical needle, in combination with the stationary point *i*, around which the thread is looped to form a stitch, substantially as herein described.

In witness whereof I have hereunto set my hand.

JOHN H. MOONEY.

Witnesses:

S. H. NOURSE,  
FRANK A. BROOKS.