

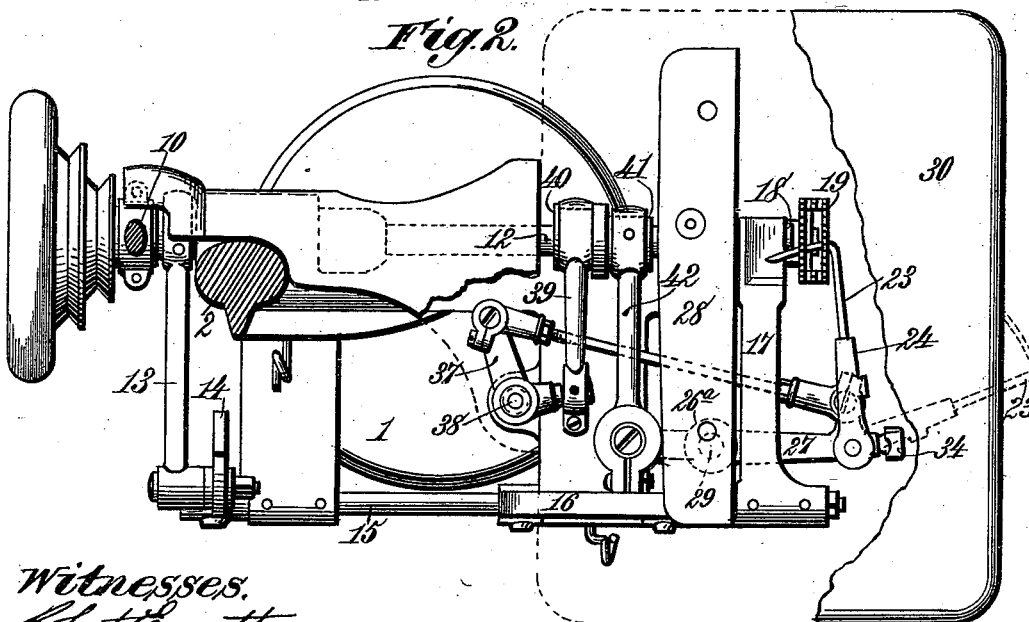
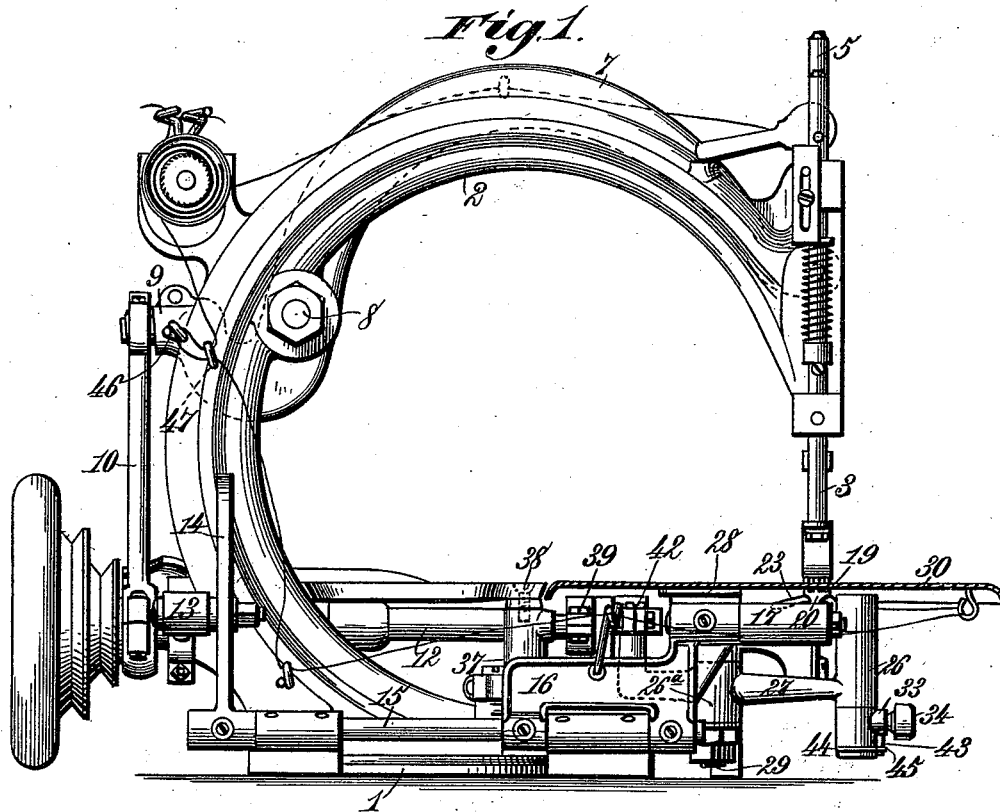
(No Model.)

2 Sheets—Sheet 1.

E. MURPHY.  
SEWING MACHINE.

No. 525,227.

Patented Aug. 28, 1894.



Witnesses.  
*Robert Bennett*  
*Thomas Elliott*

Inventor.  
*Edward Murphy*  
By *James L. Norris*  
*Atty.*

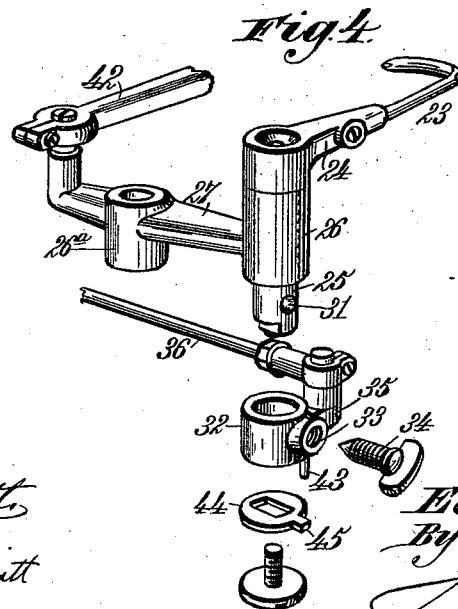
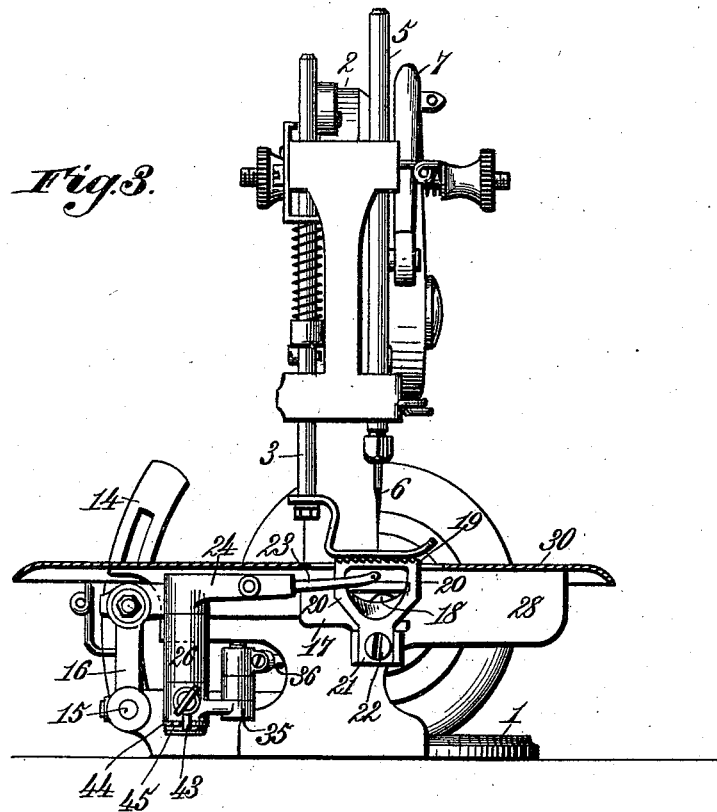
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2 Sheets—Sheet 2.

E. MURPHY.  
SEWING MACHINE.

No. 525,227.

Patented Aug. 28, 1894.



*Witnesses:*  
*Robert Emmett*  
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# UNITED STATES PATENT OFFICE.

EDWARD MURPHY, OF NEW YORK, N. Y.

## SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 525,227, dated August 28, 1894.

Application filed April 25, 1894. Serial No. 508,993. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD MURPHY, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented new and useful Improvements in Sewing-Machines, of which the following is a specification.

This invention relates to that type of sewing-machines having a vertically reciprocating needle, and a four-motion looper, which as the needle rises moves inward into the loop of the needle-thread, and laterally to one side of the path which the needle traverses, and as the needle descends moves outward and laterally to the opposite side of the needle path for producing a double loop or chain stitch.

The chief object of the present invention is to provide new and improved means, whereby the looper can be swung in a horizontal plane to place its eye or point beyond or outside one edge of the work plate, for the purpose of enabling the looper to be easily and conveniently threaded, and to avoid providing the cloth-plate with an opening and a slide-plate for access to the looper.

The invention also has for its objects to provide a novel step for setting the looper into the correct working position after threading; to provide a novel and simple take-up for the looper-thread; and to strengthen and render more durable and efficient the feed-dog of the feed mechanism.

To accomplish all these objects, the invention consists in the features of construction and the combination or arrangement of parts hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation of a sewing-machine embodying my invention, the work plate being in section. Fig. 2 is a broken plan view, showing the looper in working position, and also swung horizontally to place its eye or point beyond or outside the edge of the work-plate. Fig. 3 is a front end elevation, the work-plate being in section; and Fig. 4 is a detail perspective view of the looper and parts hereinafter explained.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates the base-plate of a sewing-machine particularly designed for factories where high speed is required, but adapted to be used as a family machine.

The base-plate supports the usual overhanging arm or goose-neck 2, on the extremity of which the presser-bar 3 reciprocates vertically.

The needle-bar 5, which carries the needle 6, is reciprocated vertically by an arm 7 pivoted to the overhanging arm or goose-neck by the pivot 8, and having a rearward extension or tail-piece 9, connected by a link 10 with an eccentric on the horizontal driving-shaft 12. The driving-shaft also has an eccentric engaging one end of a link 13, which, at its other end, is adjustably connected with an upright arm 14 secured to a horizontal rock-shaft 15 having an attached yoke 16 connected with and reciprocating a feed-dog-carrying-bar 17, which is raised and lowered as it reciprocates through the medium of an eccentric connection with the driving-shaft, as at 18, as usual in this type of machines, whereby the ordinary four motions are imparted to the feed-dog.

The feed-dog is provided with a toothed or serrated bar 19 having its opposite ends strengthened and supported by vertical arms 20, Fig. 3, joined to a single shank 21, and separated a proper distance apart to permit the passage of the looper hereinafter explained. The shank 21 is secured to the feed-dog carrying-bar 17 by a screw 22. The two arms 20, supporting the toothed or serrated bar 19, render the feed-dog very strong and durable, so that it is well adapted for sewing-machines designed for factories; while at the same time it is susceptible of being used in connection with a vibratory looper 23, the eye portion of which moves through the feed-dog, or between the arms 20 in the formation of stitches.

The looper is secured to or comprises an arm 24 secured to the upper end of a pivot-pin 25, adapted to rock in a sleeve-bearing 26, Fig. 4, on one end of a vibratory lever 27. This lever is pivoted between its extremities by a sleeve 26<sup>a</sup> forming a part of the lever, and mounted on a pendent-stud or bolt 29, secured to a rigid bar 28, which constitutes a part of the base-plate 1, and serves to sup-

port the work-plate 30. The pivot-pin 25 projects from the lower end of the sleeve-bearing 26, and is provided with a conical recess 31. A collar or ring 32 is arranged upon the lower end of the pivot-pin 25 and is provided with a screw-threaded socket 33 to receive a set-screw 34, the point or extremity of which is adapted to enter the conical recess 31, so that when the set-screw is engaged with said recess, the pivot-pin 25 is compelled to turn or oscillate with the collar or ring 32. The collar or ring 32 is constructed with a lateral projection 35, pivotally connected with one end of a pitman 36, the other end of which is pivotally connected with one arm of a bell-crank-lever 37, mounted on a pivot 38, and having its other end connected by a link 39 with an eccentric 40 on the driving-shaft 12. The driving-shaft is also provided with an eccentric 41, arranged in juxtaposition to the eccentric 40, and connected by a link 42 with the rear or inner end of the vibratory lever 27, all in such manner that when the driving-shaft 12 is rotated, the eccentrics 40 and 41 serve to vibrate the lever 27 and turn or oscillate the collar or ring 32, thereby rocking the pivot-pin 25 and oscillating the looper 23 in a horizontal plane.

By the mechanism described, as the needle 6 rises, the looper 23 moves inward into the loop of the needle-thread, and also moves laterally to one side of the path in which the needle traverses, and as the needle descends the looper moves outward and laterally to the opposite side of the needle path, thus passing in a curvilinear path around the point of the needle, and in connection therewith forming double loops or chain stitches.

The pivot-pin 25, by which the looper 23 is oscillated in a horizontal plane is designed to be released from the collar or ring 32 for the purpose of swinging the looper in a horizontal plane to place its point or eye beyond or outside the front edge of the work-plate 30, whereby the threading of the looper is rendered easy and convenient.

To release the pivot-pin 25 from operative connection with the collar or ring 32 the set-screw 34 is turned in the proper direction to disengage its inner extremity or point from the conical recess 31, so that the pivot-pin 25 can then turn in the sleeve 26 and in the collar or ring 32. After the looper has been threaded it is swung horizontally back to its normal position, and in order to stop it at the proper point for perfect action, in connection with the reciprocating needle 6, I provide a stop device, which, as here shown, is composed of a pendent projection or pin 43, forming a part of the collar or ring 32, and a washer or disk 44 engaged with the lower end of the pivot-pin 25, and having a projection 45. The washer or disk 44 turns with the pivot-pin 25, and when the looper is swung horizontally to place its point or eye beyond or outside the edge of the work-plate, the projection 45 recedes from the pin or projection

43, and conversely, when the looper is swung inward to its working position, the projection 45 strikes the pin or projection 43, and by this means the looper is set to the proper working position, and the set-screw 34 can then be tightened up for the purpose of locking the pivot-pin 25 to the collar or ring 32.

To provide a very simple, efficient, and economical take-up for the looper-thread, I secure to the rearward extension or tail-piece 9 of the needle-bar-operating-arm 2 a projecting take-up 46, which may be in the form of a wire eye. The looper-thread passes from the spool through a thread-guide 47 secured to the overhanging arm or goose-neck 2, and thence passes through the take-up 46 and back to the thread-guide 47, from whence it passes to the looper through suitable thread-guides 48 and 49 mounted on the frame of the machine, as clearly shown in Fig. 1. When the needle-bar descends, the rearward extension or tail-piece 9 ascends, and thus takes up the looper-thread.

My invention provides a sewing-machine which is very desirable and useful for factory work, in that the operating devices for the looper render it possible to attain a very high speed and yet secure perfect work.

By my invention the looper can be swung in a horizontal plane to place its point or eye beyond or outside the front edge of the work-plate to facilitate threading the same, and therefore I am enabled to entirely dispense with the usual opening and sliding-plate with which the cloth-plate is ordinarily provided for access to the looper.

Having thus described my invention, what I claim is—

1. The combination with a needle, and a vibratory looper-carrying-lever, of an oscillatory looper having a vertically arranged pivot connection with the lever and adapted to swing horizontally to place the point of the looper outside one edge of the work-plate, a device for rocking the pivot of the looper, means for engaging and disengaging the said device and the said pivot, and operating mechanism, substantially as described.

2. The combination with a needle, and a vibratory lever, of an oscillatory looper-carrier pivotally mounted on and vibrating with the lever, a vertically arranged pivot engaged with said carrier, a looper connected with said carrier and adapted to swing horizontally to place the looper-point outside the edge of the work-plate, a device for rocking the pivot to oscillate the looper, a fastening for locking the pivot to the said device, and operating mechanism, substantially as described.

3. The combination with the needle of a sewing-machine, and a vibratory lever beneath the work-plate, of a vertically arranged pivot carried by the lever, a looper mounted on the pivot and adapted to swing horizontally to place the looper point or eye outside one edge of the work-plate, a collar or ring arranged on the pivot, means for engaging

and disengaging the collar or ring and the pivot, and mechanism for vibrating the lever and turning the collar or ring, substantially as described.

5 4. The combination with the needle of a sewing-machine, and a vibratory lever beneath the work-plate, of a vertically arranged pivot carried by the lever, a looper mounted on the pivot, a collar or ring having a device  
10 for locking it to or releasing it from the pivot, and mechanism for vibrating the lever and turning the collar or ring, substantially as described.

15 5. The combination with the needle of a sewing-machine, and a vibratory lever beneath the work-plate, of a vertically arranged pivot carried by the lever, a looper secured to the pivot, a collar or ring arranged on the pivot and having a set-screw for locking the  
20 ring or collar to and releasing it from engagement with the said pivot, and mechanism for vibrating the lever and turning the collar or ring, substantially as described.

25 6. The combination with the needle of a sewing machine, and a vibratory lever beneath the work-plate, of a vertically arranged

pivot carried by the lever and having a recess, a looper mounted on the pivot, a collar or ring arranged on the pivot and provided with a set-screw adapted to engage and dis- 30  
engage said recess, and mechanism for vibrating the lever and turning the collar or ring, substantially as described.

7. The combination with the needle of a sewing-machine, and a vibratory lever be- 35  
neath the work-plate, of a vertically arranged pivot carried by the lever, a looper mounted on the pivot and adapted to swing horizontally to place the looper-point or eye outside one edge of the work-plate, a pivot-rocking 40  
device having means for locking it to and releasing it from said pivot, a driving-shaft having cams and connections between said cams and the vibrating lever and the pivot-rocking device, substantially as described. 45

In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

EDWARD MURPHY. [L. S.]

Witnesses:

JAMES TRIPP,

EDWARD J. MALONEY.