

(No Model.)

2 Sheets—Sheet 1.

J. OTT.
SEWING MACHINE.

No. 524,559.

Patented Aug. 14, 1894.

Fig. 1.

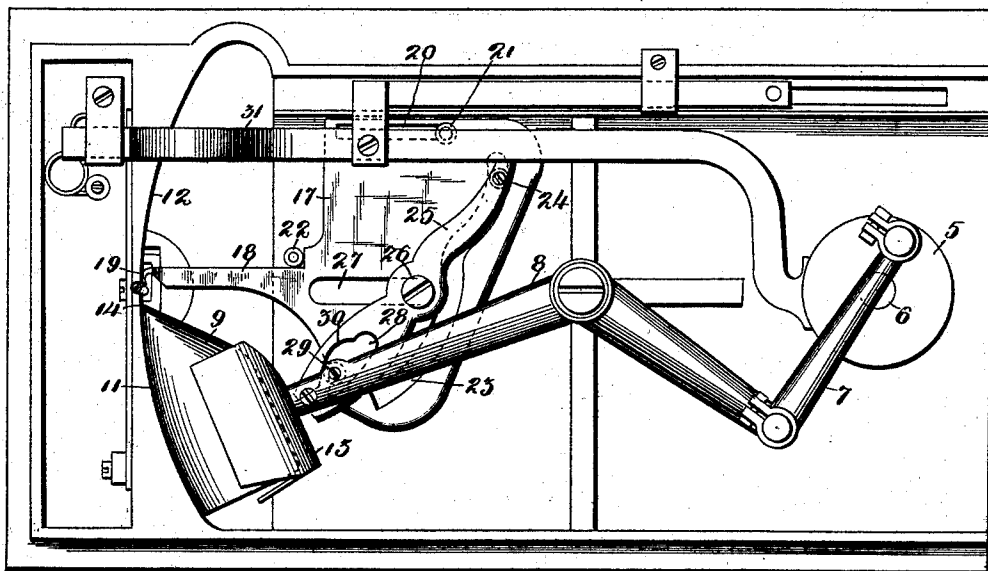
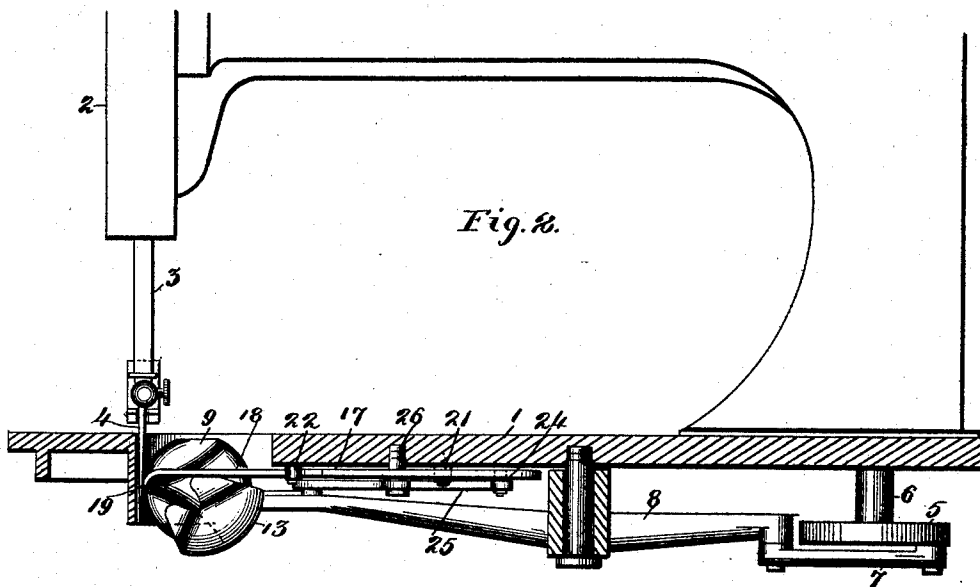


Fig. 2.



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Fig. 5.

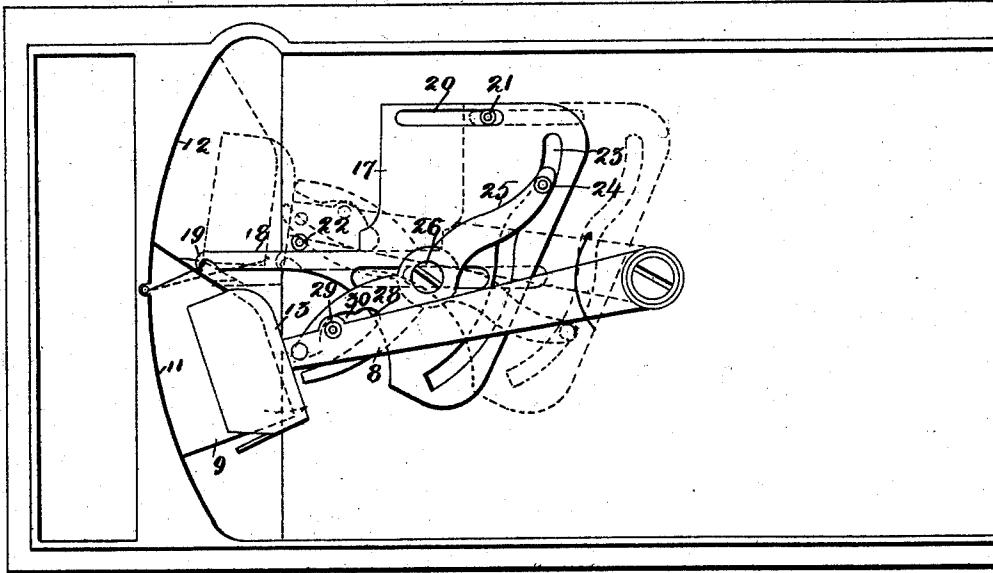


Fig. 4.

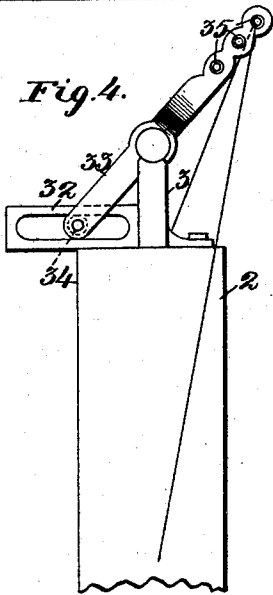


Fig. 5.

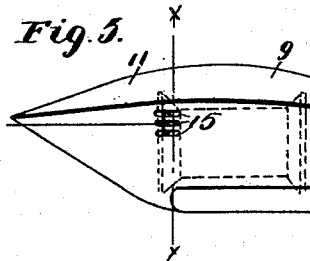
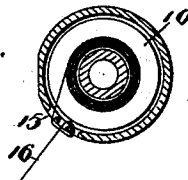


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN OTT, OF ST. LOUIS, MISSOURI.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 524,559, dated August 14, 1894.

Application filed October 9, 1893. Serial No. 487,596. (No model.)

To all whom it may concern:

Be it known that I, JOHN OTT, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in loop forming mechanism for sewing machines and consists in the novel arrangement and combination of parts more particularly set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a bottom plan view of my complete invention. Fig. 2 is a combined sectional and side elevation of the same. Fig. 3 is a diagrammatic view showing the different positions of the various parts. Fig. 4 is a front elevation of the head of the machine showing the take-up device for the thread which is used in connection with the needle. Fig. 5 is a plan view of the shuttle, and Fig. 6 is a cross section taken on the line $x-x$ of Fig. 5.

The object of my invention is to construct a sewing machine in such a manner that the oscillating shuttle may accommodate an ordinary spool of thread in place of the bobbin usually employed which holds only a small quantity of thread; and thus dispense with the inconvenience of frequently supplying said bobbin with thread, the construction of the parts being such as to allow the shuttle to be passed easily and with little friction through the loops of the needle thread.

Referring to the drawings, 1 represents the bed plate of the machine which supports the head 2 within which head moves the ordinary needle bar 3 carrying the needle 4.

5 represents a disk which is rotated by a shaft 6 and secured to said disk is one end of a link 7 the opposite end of which is movably secured to the oscillating arm 8. The said oscillating arm is pivoted intermediate of its end to the bottom of the plate 1 all of which parts are of the well known construction and have their usual function.

9 represents a shuttle of such a size as to accommodate an ordinary spool of thread 10, the curved surface 11 of said shuttle being

normally in contact with the curved surface 12 of the bed plate 1.

Secured to the free end of the oscillating arm 8 is a holder 13 within which the shuttle is located and supported but held thereby loosely in order to allow the thread from the needle to pass freely over and around the same. The said shuttle is provided with a rounded end 14 which passes into the loop formed by the thread when the needle is in its lowest position, the operation of which is well known.

Formed in the shuttle as shown in Figs. 5 and 6 are three slots 15 through which and around the metal separating the same the thread 16 passing from the spool located within the shuttle passes, as shown best in Fig. 6, which arrangement renders a sufficient amount of friction to prevent said spool from unwinding the thread faster than it is used, thus taking the place of the spring which is usually secured to the shuttle for that purpose.

Movably secured to the bottom of the bed plate of the machine is a plate 17, and projecting therefrom and forming a part thereof is an arm 18 having a hooked end 19. Formed in the said plate adjacent to one edge thereof is a straight slot 20 which receives a roller 21 secured to the bed plate 1 which operates to partially guide the said plate 17; and also secured to said plate 1 is a roller 22 against which one edge of the arm 18 passes for further holding the plate 17 in its proper position when actuated. Also formed in said plate 17 is a slot 23 of compound curvature within which moves a roller 24 carried by one end of the lever 25.

26 represents a screw which passes loosely through the lever 25 and a slot 27 formed in the plate 17 and is screwed into the bed plate 1 of the machine. The lever 25 is provided with a slot 28 which receives a roller 29 carried by the oscillating arm, said slot being enlarged as shown at 30 whereby the said oscillating arm is allowed a slight movement in advance of the movement of the lever 25, whereby the pointed end 14 of the shuttle will first pass into the loop formed in the thread passing from the needle, before the same is taken hold of and manipulated by the hooked arm.

31 represents the feed bar actuating lever which is operated by means on shaft 6 in a manner well known over which the shuttle passes.

5 In order to take up the surplus thread which has been used in passing around the shuttle I employ means as follows: To the head 2 of of the machine is attached a slotted plate 32 and, movably secured to the upper
10 end of the needle bar 3 is an arm 33 the lower end of which is provided with a roller 34 which is adapted to move in said slotted plate. Formed in the free end of the said arm 33 are
15 any suitable number of openings 35 through which the thread going to the needle passes as shown in Fig. 4.

The operation of the machine is as follows: When the needle is in its lowest position and a loop formed in the thread carried by the
20 same as previously stated, the shuttle will assume the position as shown in Fig. 1 and the hooked arm forming a part of the plate 17 a position to take hold of the said thread at the proper time. When the shuttle advances
25 farther in the direction as shown by the arrow in Fig. 3, the pointed end of the same will pass into said loop, and as the shuttle advances farther in the same direction, the hooked end of the arm 18 will take hold of the
30 thread as shown in solid lines in said figure, and continue to pull the said thread as the shuttle advances in the same direction until the loop is of sufficient size to allow the shuttle to pass through the same, after which the
35 thread passes over the shuttle in the usual manner co-operating with or crossing the thread passing from the shuttle, in a manner well known. After the shuttle has passed through the loop formed in the thread from
40 the needle as shown in dotted lines in Fig. 3, the movement of the plate 17 and consequently the hooked arm 18 will cease until the shuttle has been moved nearly back to its normal position as shown in Fig. 1, when
45 the roller 24 carried by the lever 25 will force the said plate 17 suddenly back to its normal position to repeat the operation previously stated.

It will be seen by an inspection of Fig. 3
50 that the movement of plate 17 is governed entirely by the oscillating arm and lever, the

slot 23 formed in said plate being of a suitable compound curvature, approximately as shown, so that the said plate will always be actuated at the proper time, or in other words
55 it is intermittently actuated. It will also be observed that there is considerable thread used in passing around a shuttle of this size, and for this reason I employ the arm 33 which instantly brings back the thread not used in
60 the sewing operation, after the shuttle has passed through the loop formed in the thread from the needle. In Fig. 4 it will be seen that the needle bar is in its highest position and likewise the upper end of the arm 33 op-
65 erated by said bar, and as the needle bar descends, the thread will be permitted to be fed through the needle.

Having described my invention, what I claim is—

1. A sewing machine comprising an oscillating arm, a holder secured to the same, a shuttle carrying a spool of thread received
70 loosely by said holder, a plate movably secured to the bed of the machine and provided with a hooked arm, a slot of compound curvature formed in said plate, a lever also movably
75 secured to the bed of the machine one end of which co-operates with said slot and the other with the oscillating arm, and means for guiding said plate, substantially as set forth.

2. A sewing machine consisting of an oscillating arm, a holder secured to the same, a shuttle carrying a spool of thread received
85 by said holder, a plate 17 suitably secured and guided upon the bed of the machine, an arm 18 forming a part of said plate and provided with a hooked end 19, a slot 23 of compound curvature formed in said plate, a lever
90 also movably secured to the bed of the machine one end of which co-operates with said slot, a slot 28 formed in the opposite end of the lever, and means carried by said oscillating arm and co-operating with said slot 28,
95 substantially as set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN OTT.

Witnesses:

JAMES J. O'DONOHUE,
EMIL STAREK.