

(No Model.)

2 Sheets--Sheet 1.

J. OTT.
SEWING MACHINE.

No. 524,558.

Patented Aug. 14. 1894.

Fig. 1.

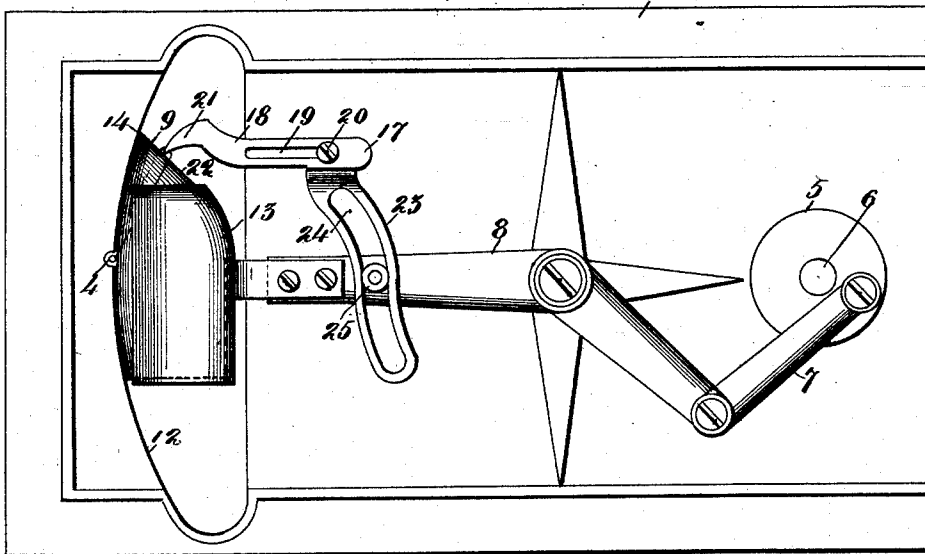
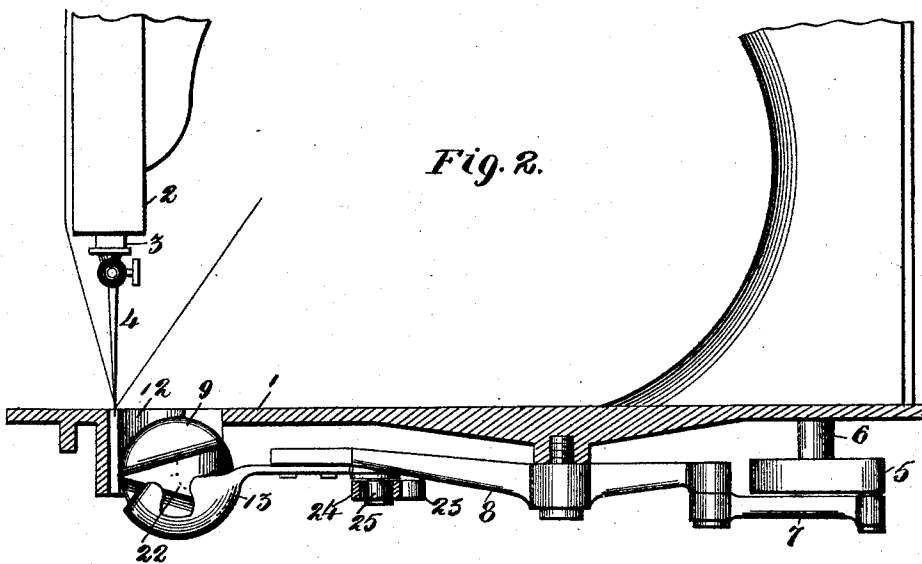


Fig. 2.



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2 Sheets—Sheet 2.

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Fig. 3.

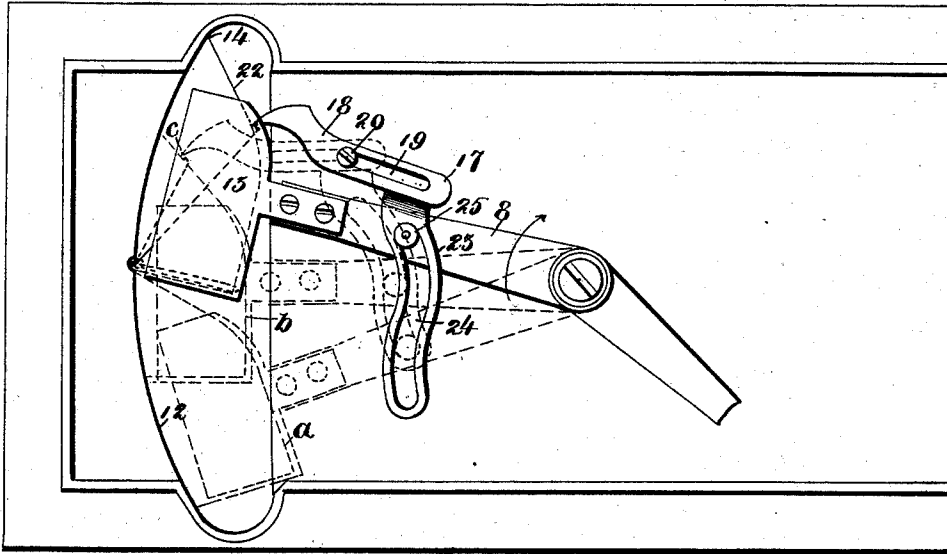


Fig. 4.

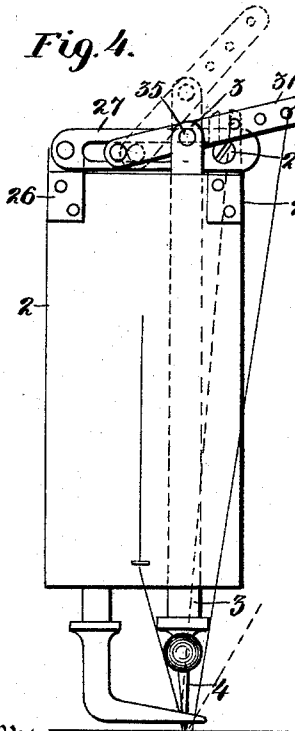


Fig. 5.

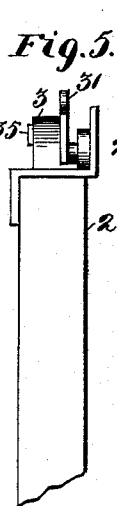


Fig. 6.

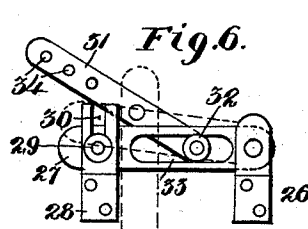


Fig. 7.

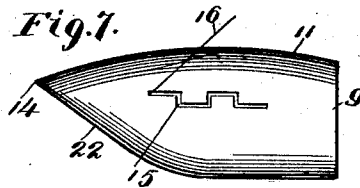
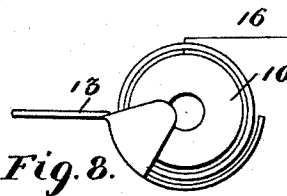


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOHN OTT, OF ST. LOUIS, MISSOURI.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 524,558, dated August 14, 1894.

Application filed July 7, 1893. Serial No. 479,828. (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 mechanisms for sewing machines and consists in the novel arrangement and combination of parts more fully 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 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 side elevation of the same. Fig. 6 is a rear plan view of the take-up device detached from the machine. Fig. 7 is a top plan view of the shuttle; and Fig. 8 is an end view of the shuttle and holder for the same.

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 which holds only a small quantity of thread as heretofore usually employed; and thus dispense with the inconvenience of frequently winding said bobbin.

My invention further consists in parts so constructed that the same may be attached to any ordinary sewing machine having an oscillating arm generally employed to carry the shuttle bodily and having one needle.

To this end my invention is especially applicable to the machine known to the trade as the "New Home" and can be applied thereto without changing any of its parts by merely removing the shuttle and support for the same from the oscillating arm.

The invention to be described is composed of the following parts: a shuttle carried by the oscillating arm of the machine of such a size as to accommodate an ordinary spool of thread; an arm movably secured to the bed

plate of the machine which is operated both by the movement of the shuttle and the oscillating arm and adapted to assist the thread passing from the needle over the shuttle; and a device secured to the head of the machine and operated by the needle bar to take up the thread after the same has passed over the shuttle and previously co-operated with the thread passing from the shuttle.

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

5 represents a disk which is rotated by a shaft 6 and secured to the 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 ends 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 which is of the usual construction, but of such a size as to accommodate an ordinary spool of thread, 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 rests and is held thereby loosely in order to allow the thread from the needle to pass freely around and over the same. The said shuttle is provided with a pointed 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 top of the shuttle is a zigzag slot 15 through which the thread 16 passing from the spool 10 is passed as shown in Fig. 7 which 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.

17 represents an arm which is movably secured to the bed plate of the machine the extension 18 of which is provided with a slot 19 through which passes the screw 20 which secures said arm to the bed plate. The outer end of the extension 18 is hook-shaped as shown at 21 and co-operates with the inclined surface 22 of the shuttle after the same has

picked up the thread passing from the needle. The extension 23 of the arm 17 is provided with a slot 24 of suitable compound curvature, and fixed to the oscillating arm 8 is a roller 25 which moves in the slot 24 and governs the action of the arm 17 in a manner hereinafter to be described.

In order to take up the thread which has been used in passing around the shuttle, I employ means as follows: To the head 2 of the machine is attached a bracket 26 to which is movably secured one end of a plate 27 the opposite end of which is adjustable upon a second bracket 28 by binding screws 29 passing through said plate and through a slot 30 formed in the bracket as shown in Fig. 6. By this construction the plate 27 can be adjusted as shown in dotted lines in said figure.

31 represents an arm to one end of which is movably attached a roller 32 which moves in a slot 33 formed in the plate 27, and formed in the opposite end of the said arm are openings 34 through which the thread passing to or from the needle moves. The upper end of the needle bar 3 is movably secured to the arm 31 intermediate of its ends by a pivot 35, which, when the said bar is in an elevated position the arm 31 will assume the position as shown in dotted lines in Fig. 4 whereby the slack in the thread is taken up after the same has passed around the shuttle and the needle is in its highest position. Of course when the needle is in its lowest position, and the thread passing from the same moving around the shuttle, the arm 31 will be in its lowest position and a sufficient amount of thread left to form the loop. In Fig. 4 I have shown the thread passing first to the needle, thence to one of the openings 34 formed in the arm 31, but if found desirable the thread may be first passed through one of the openings of said arm and thence to the needle as shown in dotted lines in said figure.

The take-up device is not claimed in the present application, but is shown and described in connection with the loop forming mechanism to better illustrate the operation of the latter. It is also illustrated in the present case as a part of the machine with which the loop forming mechanism necessarily co-operates. Of course any other form of take-up device which could co-operate with the present form of loop forming mechanism might be substituted for the one here illustrated.

By referring to Fig. 3 the complete operation of the machine is readily understood: Assuming that the needle is at its lowest position and the shuttle is in the position as shown in dotted lines "a" to receive the loop formed in the thread by the downward movement of the needle, the second movement of the shuttle as shown by dotted lines "b" will carry the thread in a position to co-operate with the hooked end of the arm 17 as shown

by dotted lines "c." As the oscillating arm 8 further advances in the direction as shown by the arrow, the thread from the needle will be assisted in passing around the shuttle and the arm 17 and the parts will assume the position as shown in solid lines in said figure after which the thread will pass freely around the shuttle. As the shuttle is moved back to its normal position or that shown by the dotted lines "a," the arm 17 is forced back to its normal position or as shown in dotted lines where it is in position to co-operate with the inclined surface 22 of the shuttle in making the second stitch. The arm 17 is caused to assume the position as shown in solid lines by the shuttle coming in contact with the end of the same, and is forced back to its normal position by the movement of the roller 25 in the slot 24. It will be understood that the thread from the needle as it passes over the shuttle crosses or co-operates with the thread 16 passing from the spool 10 located within the shuttle whereby the stitch is made. Should the arm 17 be dispensed with, the shuttle being of such a size as to accommodate a spool of thread, the thread passing from the needle would bind on the shuttle when in the position as shown at "b" and consequently break the thread, but by the employment of said arm, the thread is forced over said binding position, and is passed in such a position on the shuttle as to freely move around and over the same.

Having described my invention, what I claim is—

1. In a sewing machine, the combination with a machine frame of an oscillating arm, a holder secured to said arm, a shuttle carried by said holder and accommodating a spool of thread, an arm movably secured to the bed plate of the machine and operated both by the shuttle and the oscillating arm, and suitable complementary stitch-forming mechanism, substantially as set forth.

2. In a sewing machine, the combination with a machine frame, of an oscillating arm 8, a holder 13 secured to the same, a shuttle carried by the holder, an arm 17 operated both by the shuttle and oscillating arm movably secured to the bed plate of the machine and having a slotted arm 18, a screw 20 passing through said slot and into said bed plate, an extension 23 also forming a part of said arm and provided with a slot of compound curvature, a roller 25 fixed to the oscillating arm and movable within the slot 24, and suitable complementary stitch-forming mechanism, 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.