

(No Model.)

L. C. EMERSON.
SEWING MACHINE.

No. 444,565.

Patented Jan. 13, 1891.

Fig. 1.

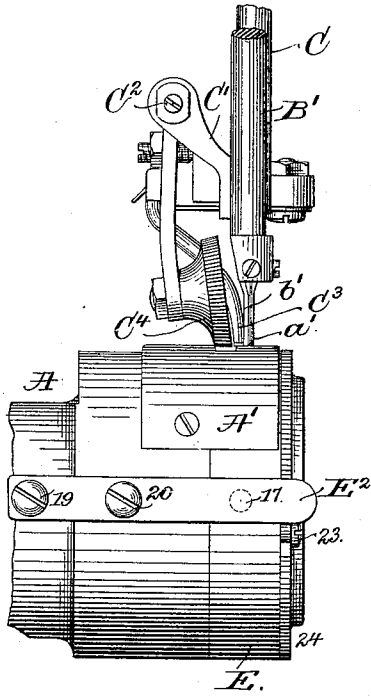


Fig. 2.

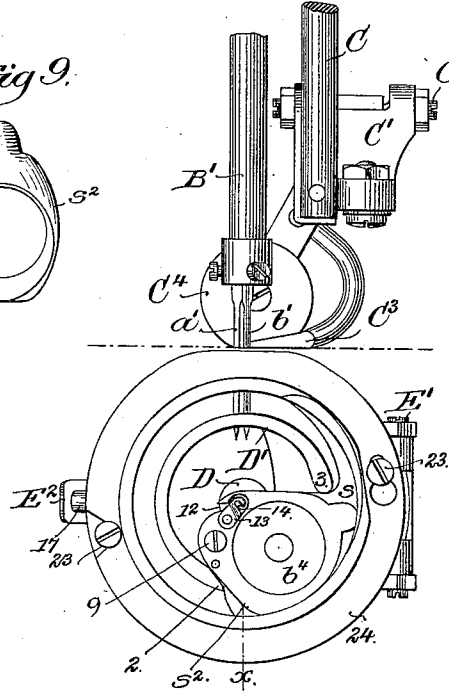


Fig. 9.

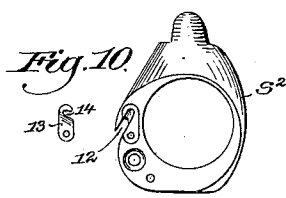


Fig. 10.

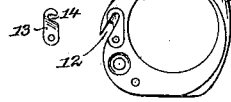


Fig. 3.

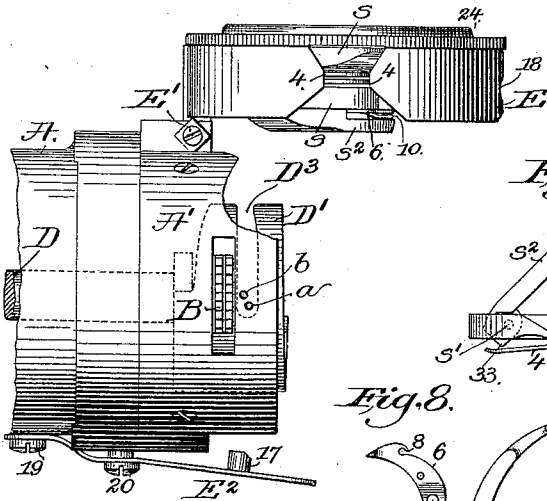


Fig. 4.

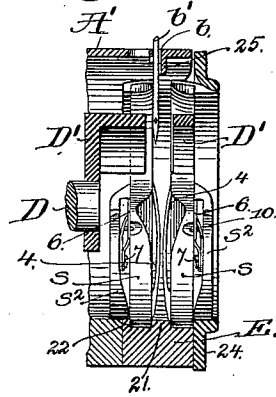


Fig. 6.

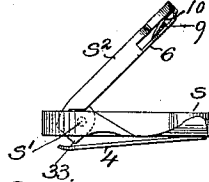


Fig. 8.



Fig. 5.

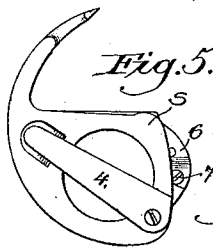
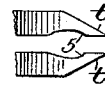


Fig. 7.



Witnesses:
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UNITED STATES PATENT OFFICE.

LOENDER C. EMERSON, OF NORTH GRAFTON, MASSACHUSETTS, ASSIGNOR
OF ONE-HALF TO CHARLES H. NELSON, OF SAME PLACE.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 444,565, dated January 13, 1891.

Application filed March 18, 1890. Serial No. 344,352. (No model.)

To all whom it may concern:

Be it known that I, LOENDER C. EMERSON, of North Grafton, county of Worcester, State of Massachusetts, have invented an Improvement in Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object to improve that class of sewing-machines having a cylindrical or arm-like work-support, the object of my invention being to provide such class of machines with suitable stitching devices, whereby parallel seams may be stitched at the same time.

In this my invention I have provided the cylindrical work-support with two shuttles which are actuated by a single driver, and two needles carried by a single needle-bar.

My invention consists in a cylindrical arm and a shaft having two shuttle-drivers and a race-block mounted to turn about a vertical pivot and provided with two shuttle-guiding faces combined with two eye-pointed needles, means to actuate them, and two shuttles fitted into the said race-block from opposite sides, the innermost shuttle being accessible from the rear side of the race-block after turning the same about its vertical pivot, substantially as will be described.

Other features of my invention will be pointed out in the specification and claims.

Figure 1 is a partial side elevation of a sufficient portion of a so-called "cylindrical arm sewing-machine" with my improvements added to enable my invention to be understood. Fig. 2 is a front or right-hand view of the parts shown in Fig. 1. Fig. 3 is a top or plan view of the cylinder shown in Fig. 1, the shuttle-race being swung aside to gain access to the innermost shuttle. Fig. 4 is a vertical section through the raceway and driver in the line x , Fig. 2, the shuttles being shown in elevation, the drawings showing one of the needles in place. Fig. 5 is an inner side view of one of the shuttles. Fig. 6 is an edge view showing one part of the shuttle turned out, the bobbin being supposed to be removed; Fig. 7, an enlarged detail of the beaks of the two shuttles to show the shape

of their points. Fig. 8 shows the tension-spring in side elevation and edge view. Fig. 9 shows the removable side piece detached, and Fig. 10 shows the thread-delivery plate.

Referring to the drawings, A represents a cylindrical arm; A', a throat-plate secured thereto and having a slot through which works the usual feed-bar B, the throat-plate having two needle-holes a b , through which pass the two eye-pointed thread-carrying needles a' b' , attached in usual manner to the needle-bar B'.

C is a presser-bar having a bracket C', upon which is pivoted at C² a suitable arm provided with a flat presser-foot C³, and also with a roller-presser C⁴, adapted to bear upon the material to be sewed. These parts and the actuating devices for the needle-bar and feed are and may be all as usual in this class of machines.

The cylindrical arm A has extended through it a shuttle-actuating shaft D, provided at its front end with a shuttle-driver D', herein represented as nearly cylindrical in shape, that part of the cylinder which contacts with the bodies of the two shuttles s near the base of the beak being bifurcated or slotted, as at D³, to constitute two horns, each horn so formed bearing against its own shuttle, the said slot being necessary in order that the shuttle-driver may pass the needles and move the shuttle in its backward stroke while the needles are below the throat-plate, and also so as to let the threads passing from the shuttles to the work have free play. I denominate the bifurcated end D³ of the shuttle-driver as "horns," and the other end, contacting with the heel of the shuttle to pass the same through the loop, as "heel." Each shuttle s has a long beak, of usual shape, to enter the loop of needle-thread, and the body of each shuttle has hinged to it at s' a side piece s^3 , one end of each side piece having a lug or corner, as 3 3, which is acted upon by a spring 4, the latter normally serving to keep the side plate of the shuttle closed, it also having a slight notch or depression in it near its end, so that when the side piece is fully turned out, as in Fig. 6, the spring will serve to retain the side plate in its open position. The body of the shuttle is of substantially the

same thickness from its heel to near the end of the beak. The beaks of the shuttles are pointed in opposite directions, as at *t*, or from their sides farthest from the line of travel of the needles toward the said needles, and each point is inset slightly toward its own needle, as at 5 in Fig. 7, which figure shows both of the points in order that their bevels may be understood.

Each side piece *s*² is provided at its inner side with a suitable tension-spring, as 6, (shown separately in Fig. 8,) which is attached thereto by a screw 7, the said spring having a slotted eye 8. The extent of pressure of this spring upon the shuttle-thread passing between it and the side of the shuttle-body next to it is regulated by means of a screw 9, (shown in Fig. 2,) the said screw preferably acting against a second spring 10, (shown best in Fig. 6,) the latter acting directly upon the tension-spring 6. Each side piece has a slot, as 12, (see Fig. 9,) in which is placed a delivery-plate 13, made of thin metal, the said plate having a hook or slotted eye 14. Each thread, as it is lead out from the bobbin *b*¹ between the shuttle and the tension-spring, is drawn into the hook 8 of the tension device, then into the hooked part or eye of the side piece, and then about the end of the plate 13 into its eye 14, from whence the shuttle-thread passes up to the work through the throat-plate. This construction of the tension device, side piece, and delivery-plate makes the "shuttle," as it is called, self-threading and avoids inserting the shuttle-thread into a hole.

The shuttle-race block E is represented as pivoted at E' by a bolt upon a suitable lug or projection forming part of or attached to the cylindrical arm A. This shuttle-race is adapted to be locked in its closed position by means of a suitable locking device, as E², herein represented as a spring having a teat 17 to enter a hole or notch 18 in the shuttle-race block, the said locking device being attached in place by a screw 19, and being adjustable as to its strength by a screw 20.

The shuttle-race block E is grooved annularly, or in such manner as to constitute a double race or an independent raceway for each shuttle. This race-block has a central lip or projection 21, against which bears at its opposite sides the "inner side faces," as I shall call them, of the main bodies of the shuttles. The shuttle-race block has a lip 22, against which bears the outer face of the innermost shuttle, or that face of the shuttle which is farthest from the vertical plane in which the needles reciprocate. The outer or right-hand

side of the shuttle-race block E has attached to it by screws 23 a ring or cap 24, the said ring acting upon the outer or right-hand side of the body of that shuttle at the outer end of the cylinder A. The lip 21 is interrupted for a short distance, and receives within it the downward extension 25 of the throat-plate, the said downward extension being suitably shaped in cross-section to support the sides of the two needles, each in its proper plane, so that the said needles shall not be easily deflected by reason of strain upon the threads.

To supply both shuttles with bobbins it is only necessary to swing the race-block E aside, as in Fig. 3, when the operator by engaging the side piece of each shuttle by his finger may swing the same out and insert or remove the bobbin. This may be done for the shuttle at the extreme right or at the outer end of the cylinder at any time and in any position of the shuttle-race block, and to insert or remove a bobbin the shuttles may remain in place. This saves very considerable time in the operation of the machine.

I claim—

1. In a sewing-machine, a cylindrical arm A and the shaft D, having the two shuttle-drivers, the race-block E, mounted to turn about the vertical pivot E', the said race-block being provided with two shuttle-guiding faces, combined with two eye-pointed needles, means to actuate them, and two shuttles, substantially as described, fitted into the said race-block from opposite sides, the innermost shuttle being accessible from the rear side of the race-block after turning the same about its vertical pivot, substantially as described.

2. The cylindrical arm A, the pivoted shuttle-race block E, having two shuttle-races with a lip, as 21, between them, the throat-plate having a downward extension 25 to support the needles, two eye-pointed needles, a needle-bar, and means to actuate the latter, the lip being interrupted to receive said extension, combined with two shuttles having their points beveled in opposite directions and adapted to operate substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LOENDER C. EMERSON.

Witnesses:

HENRY E. HILL,
BENJAMIN THOMAS HILL.