(No Model.)

J. REECE.

SEWING MACHINE FOR FINISHING BUTTONHOLE PIECES.

No. 479,572. Patented July 26, 1892.

Fig. 1.

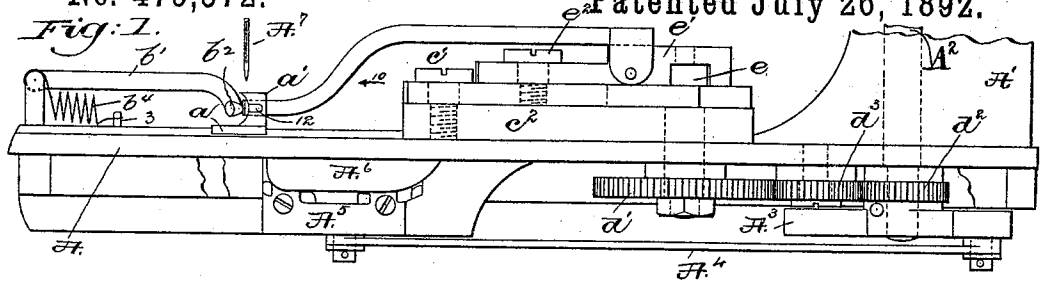


Fig. 2.

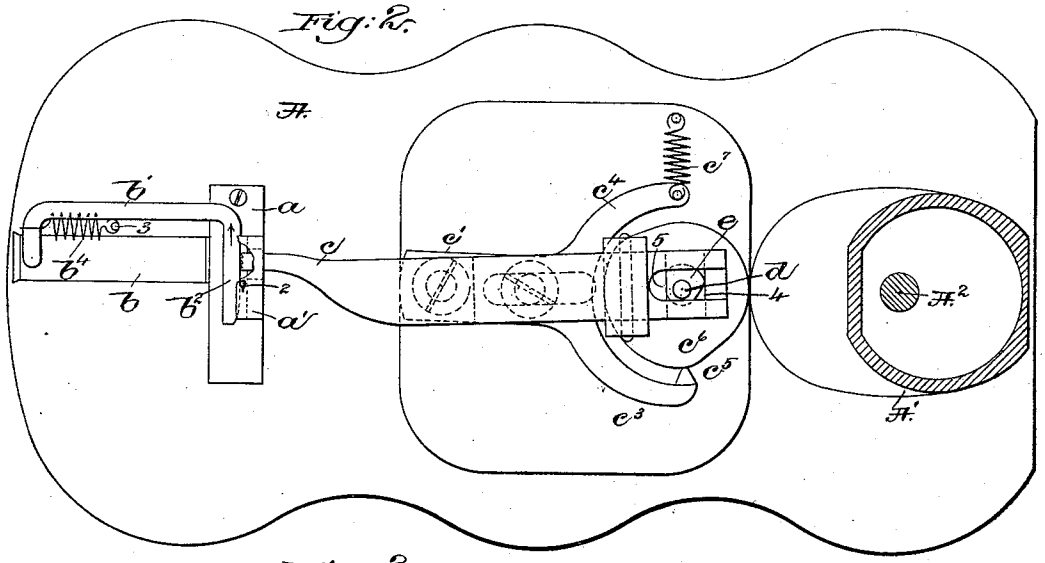
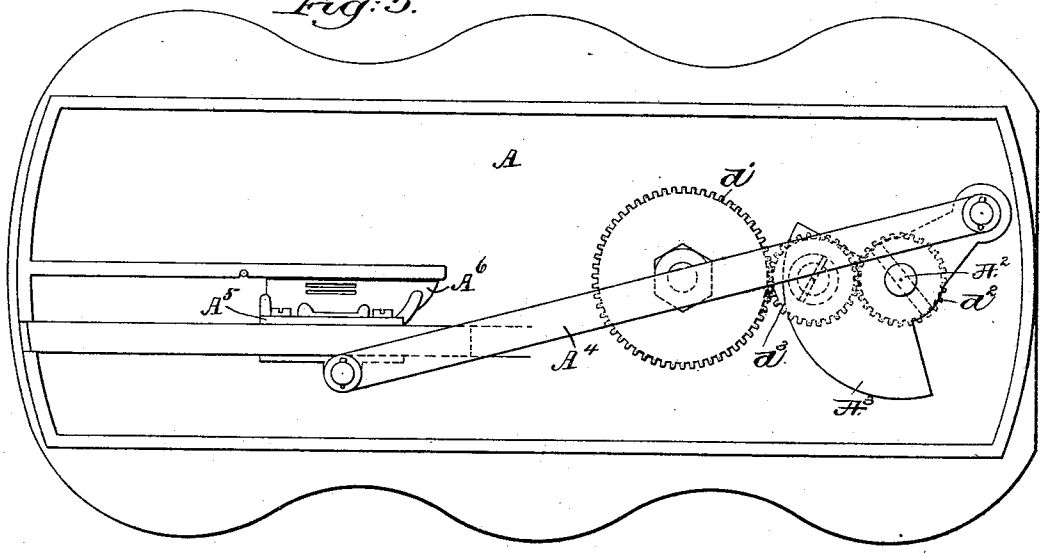


Fig. 3.



Witnesses.
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JOHN REECE, OF BOSTON, MASSACHUSETTS.

SEWING-MACHINE FOR FINISHING BUTTONHOLE-PIECES.

SPECIFICATION forming part of Letters Patent No. 479,572, dated July 26, 1892.

Application filed September 5, 1887. Serial No. 248,827. (No model.)

To all whom it may concern:

Be it known that I, JOHN REECE, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Sewing-Machines for Finishing Buttonhole-Pieces, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

In the manufacture of buttonhole-pieces for boots and shoes the buttonholes have their edges overstitched on a suitable buttonhole-stitching machine, and the inner ends of the overstitched holes are connected by the stay-cord, and the ends of the threads used are left to project at the under side of the buttonhole-piece, the said threads being designated as "thrums."

The chief object of this invention is to secure these so-called "thrums" and stay-cord to the material between the ends of adjacent buttonholes and without showing at the face of the buttonhole-piece the stitches used for such purpose.

In accordance with my invention the buttonhole-piece, the buttonholes therein having been overstitched in usual manner, is bent or folded longitudinally in the line of the inner ends of the buttonholes and the connecting stay-cord, so that the said stay-cord between the ends of adjacent buttonholes is left at the outer or convexed edge of the bend or fold referred to.

The buttonhole-piece, bent or folded, as described, is passed through or in contact with a guide having a grooved or recessed face for the reception of the said bent or folded edge, the said guide also having a needle-hole through which descends an eye-pointed needle, the said needle at one thrust entering and emerging from the same side of the material back of the stay-cord and at the next thrust passing just by the bent or folded edge and at the other side of the stay-cord, the loop of needle-thread at each thrust of the needle being locked by an under thread carried, preferably, by a shuttle.

The guide referred to has co-operating with it a reciprocating work-holder having a narrow or thin acting edge bearing upon the right face of the material to be stitched, bending the back of the material into the groove or recess of the guide-block. The work-holder and guide-block have co-operating with them a feeding device or lever, the latter vibrating in a plane at right angles to the plane in which the needle reciprocates, the said feeding lever or device engaging the material at its side opposite the side against which the work-holder bears. The feed lever or device referred to, besides its movement of vibration to feed the material longitudinally, has also given to it, as herein shown, at every other movement of the needle away from the buttonhole-piece a movement to push the buttonhole-piece out from under the path of movement of the needle at its next thrust or descent.

Figure 1 in side elevation represents a sufficient portion of a sewing-machine with my improvements added to enable my invention to be understood. Fig. 2 is a top or plan view of the machine shown in Fig. 1, and Fig. 3 is an under side view of the said machine.

The bed-plate A, the upright portion A′, the vertical shaft A^2, the crank A^3, attached to its lower end and provided with a crank-pin, the link A^4, and the shuttle-carrier A^5, shuttle A^6, and the eye-pointed needle A^7 are and may be all as common to the Singer "Family Machine."

The bed-plate A has suitably attached to it a plate *a*, rising from which is a guide *a′*, one face of which is grooved or recessed, as best shown at the left in Fig. 1, the said guide also having a needle-hole, as 2, through which the needle A^7 descends, the needle in its passage crossing the groove made in the face of the guide.

The loop of thread carried in usual manner by the needle is locked by a thread carried by the shuttle. The bed-plate receives a slide-block *b*, to which is secured the work-holder *b′*, bent, substantially as shown in Fig. 2, to form an acting edge, as b^2, to act upon the buttonhole-piece having its buttonholes stitched and connected at their small ends by the stay-cord and bend the said buttonhole-piece into the groove or recess of the said guide-block to be entered at desired intervals by the needle to form a blind stitch, the said holder keeping the convex back of the material in the guide-block. The bent or folded material is fed longitudinally over the said holder in

the direction of the arrow thereon in Fig. 2. The holder is acted upon by a spring, as b^4, connected to the holder and to a fixed portion of the frame or bed-plate in any suitable manner—as, for instance, a pin 3. The guide a' referred to has, as herein shown, a slot, through which is extended the narrow serrated end of a feed-lever c, having as its fulcrum a screw-stud c', which enters a block c^2, properly secured to or forming part of the bed-plate. The rear end of the feed-lever is bifurcated or forked, as best shown in Fig. 2, leaving two arms c^3 c^4, one of the said arms having a toe, as c^5, which is normally kept in contact with the periphery of the feed-cam c^6 by means of a suitable spring, as c^7. The feed-cam c^6 is attached to a short shaft d, which, extended below the bed-plate, has attached to it a toothed gear d', which is driven from the pinion d^2, fast on the shaft A^2, through an intermediate pinion d^3, (shown best in Fig. 3,) the said cam d being rotated once for each two complete strokes of the needle A^7. The shaft d above the bed-plate and above the feed cam c^6 has secured to it the auxiliary feed-cam e, it acting upon the faces 4 and 5 of a block e', attached to the feed-lever by a screw e^2.

The cam e is of such size and shape as that by its action upon the block e' it causes the feed-lever c to be moved longitudinally for a slight distance, while the needle A^7 at every other descent is out of the material, the said longitudinal movement of the feed-lever in the direction of the arrow 10 causing the end of the feed-lever in contact with the button-hole piece, acted upon at its other side by the holder, to be moved out of the groove or recess in the guide-block a' sufficiently far to enable the needle in its next descent to pass and not penetrate the material and to pass outside of the stay-cord and thrums; but when the feed-bar is moved by the cam e in the direction opposite the arrow 10 then the spring b^4, acting through the holder b', causes the rest about which is bent or folded the button-piece to be carried into the concaved groove of the guide a' just far enough to permit the needle A^7 in its descent to pass through a bend in the material, the needle entering and emerging from the same side of the material, so that the stitch made by the needle A^7 does not show at the face of the material, the said needle in its descent, as stated, passing under or behind the stay-cord and thrums. In this manner the stay-cord and thrums are blind-stitched to the under side of the material between the inner ends of adjacent button-holes, thus finishing the button-piece.

The grooved or recessed face of the guide a' from its front end to the needle-hole is provided with an auxiliary throat, as 12, (shown best in Fig. 1,) which serves to receive in it the stay-cord and thrums, thus collecting them together and placing them in a straight line in position to be readily and surely covered by the stitch made by the needle A^7 and shuttle.

I have herein shown the stitch-forming mechanism as consisting of an eye-pointed needle and a shuttle, and I have also shown the feed-lever as being forked at one end and as having connected to it a block, the lever being vibrated and the block being moved horizontally by two cams on one and the same shaft; but I desire it to be understood that I do not intend to limit my invention to the exact form of stitch-forming devices shown, nor to the exact form of devices employed to impart the movements described and in the time described to the feed-lever.

I am aware prior to my invention herein described that guides employed for piping have been provided with grooves at one face, into which grooves the cord to be covered was placed and traveled, a strip of material which is stitched about the said cord overlapping the said grooved guide and being held in position thereon by a concaved surface, as in United States Patents Nos. 272,847 and 320,043. I do not claim anything shown in the said patents, and by the guides described in the said patents it would be impossible to do the work which the machine described in this specification is especially adapted to perform.

I do not desire to limit my invention to the exact form of devices for producing an overseaming or zigzag stitch, as the stitch described may be formed by any usual or well-known equivalent devices.

I claim—

In a sewing-machine for stitching thrum ends, the combination of the following instrumentalities, viz: a feeding device arranged above the bed-plate and to engage the material, a vertically-reciprocating eye-pointed thread-carrying needle and complemental stitch-forming devices, devices to actuate the said feeding and stitch-forming devices to form an overseaming or zigzag stitch, a work-holder movable longitudinally in a horizontal plane, and a guide-block supported on the bed-plate and having a longitudinal groove or recess within the path of the needle and above the cloth-plate and disposed thereto so that a line perpendicular to the base of said groove is parallel with the cloth-plate, the said horizontally-movable work-holder bending the material into the groove or recess of the said guide-block, thus enabling the needle at one thrust to enter and pass out from the material at the same side and between the right face of the material and the stay-cord and thrum ends, the needle at another thrust or descent passing the material outside the stay-cord and thrum ends and making a stitch to cross and hold the stay-cord and thrum ends in place, substantially as described.

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

JOHN REECE.

Witnesses:
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B. DEWAR.