

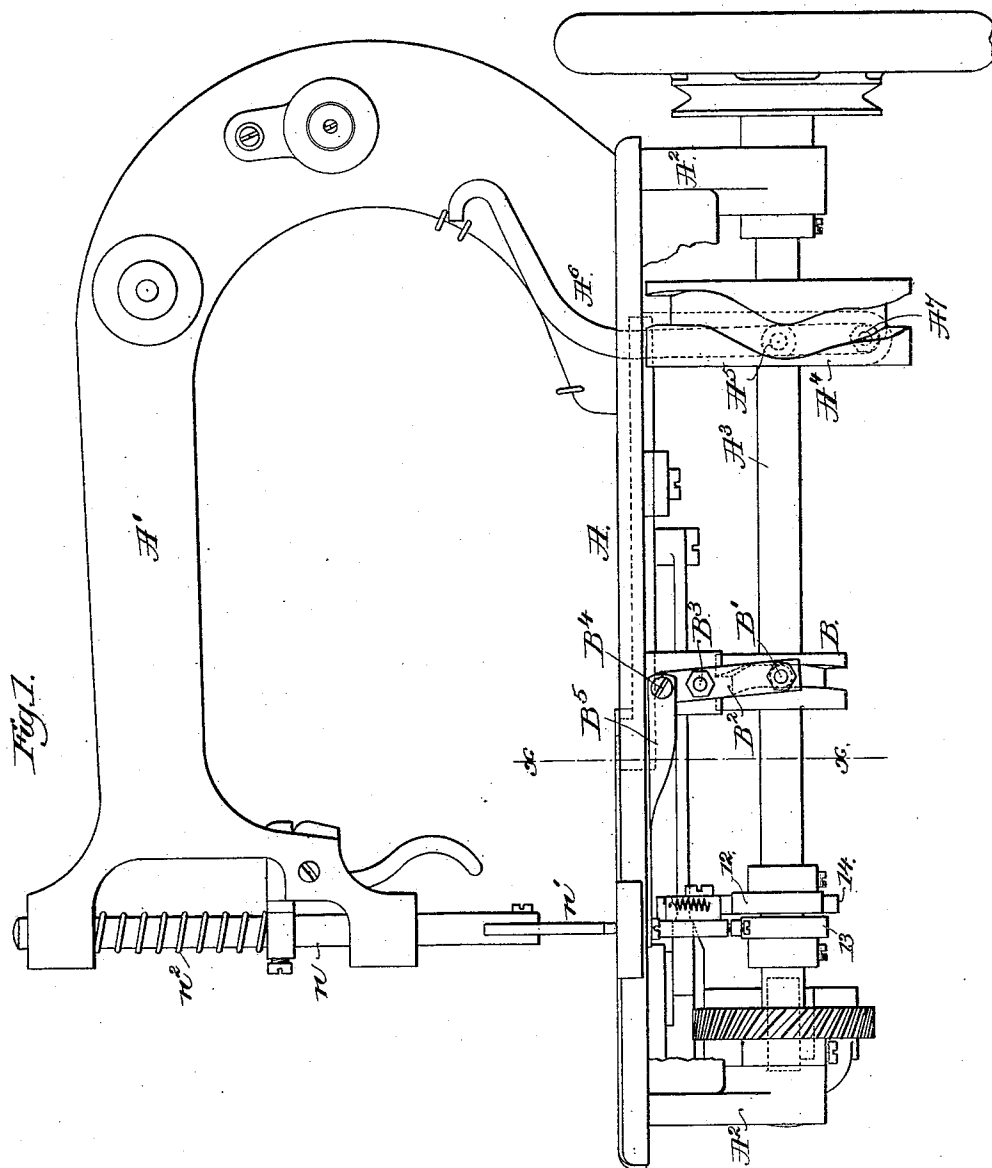
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4 Sheets—Sheet 1.

J. REECE.
SEWING MACHINE.

No. 484,671.

Patented Oct. 18, 1892.



Witnesses.
John F. C. Printz
Frederick L. Emery.

Inventor:
John Reece.
by *Wm. H. H. H. H. H.* attys

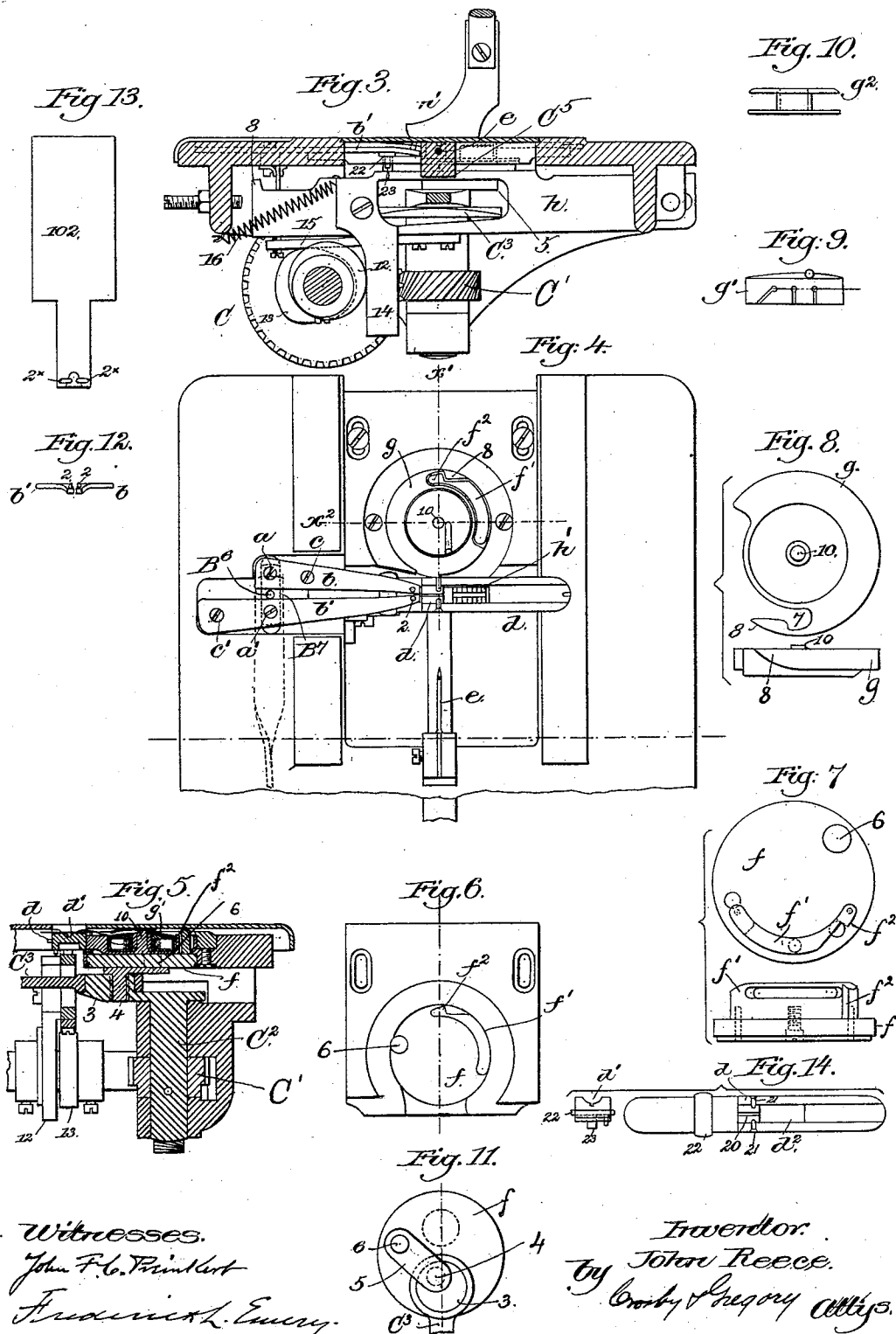
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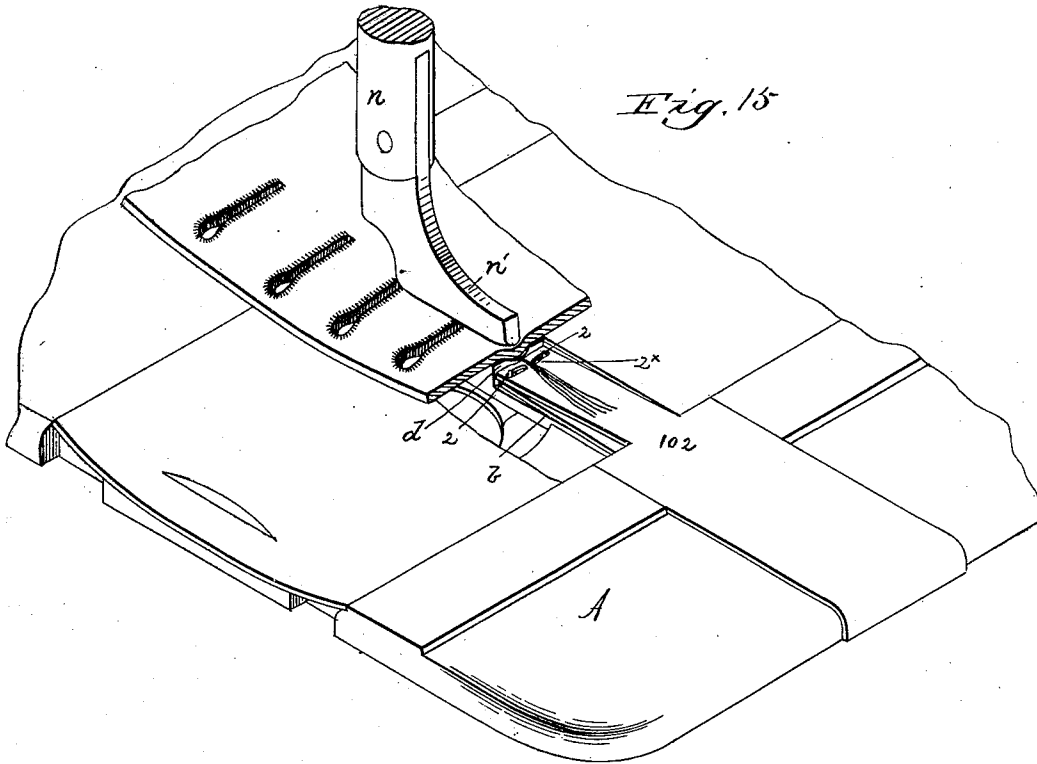
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4 Sheets—Sheet 4.

J. REECE.
SEWING MACHINE.

No. 484,671.

Patented Oct. 18, 1892.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN REECE, OF BOSTON, MASSACHUSETTS.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 484,671, dated October 18, 1892.

Application filed September 25, 1888. Serial No. 286,327. (No model.)

To all whom it may concern:

Be it known that I, JOHN REECE, of Boston, county of Suffolk, 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 on the drawings representing like parts.

This invention has for its object to improve the construction of the machine described in my application, Serial No. 248,827, filed September 5, 1887. In the said application the needle-bar is shown as arranged to reciprocate in a vertical plane, the shuttle is a straight reciprocating shuttle, and the feed is arranged above the bed-plate and the guide is projected above the bed-plate, and the work-holder is arranged to reciprocate horizontally, while the thrum ends and stay-cord are secured to the material. In this embodiment of my invention the needle-bar is arranged to reciprocate horizontally below the bed-plate, the work-holder is arranged to reciprocate vertically with relation to the bed-plate, and the guide is so placed as to receive and support upon its top the material to be stitched, the said guide having a groove to receive the thrum ends and stay-cord and having a cross groove or passage constituting a guide for the needle, and co-operating with the said parts is a thrum-gatherer, the said gatherer being shown as composed of two vibrating fingers or arms; but I do not desire to limit my invention to the exact form of thrum-gatherer shown, as instead of the one shown I may use any other usual thrum-gatherer.

My invention consists, essentially, in the combination, in sewing-machines for stitching thrum ends, of the following instrumentalities, namely: a feeding device to engage the material, an eye-pointed needle and complementary 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 plane at right angles to the plane of reciprocation of the needle and having a narrow or thin acting edge, a guide-block having a longitudinal groove or recess at right angles to the plane in which the needle reciprocates, and thrum-gathering devices, the said

work-holder operating to bend 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 by the material outside the stay-cord and thrum ends, thus making a stitch to cross and hold the stay-cord and thrum ends in place.

Other features of my invention will be hereinafter described in the specification, and set forth in the claims at the end thereof.

Figure 1 is a side elevation of a sewing-machine containing my improvements; Fig. 2, an under side view thereof; Fig. 3, a section of Fig. 1 in the line *x*, looking to the left; Fig. 4, a partial top or plan view of the bed-plate with the cover-plates removed to show the needle-bar, shuttle, feed-bar, and guide, said figure also showing clearly the thrum-gathering fingers. Fig. 5 is a partial section in the line *x'*, Fig. 4. Fig. 6 is a plan view of the shuttle race and carrier, the shuttle being removed; Fig. 7, details of the carrier; Fig. 8, different views of the shuttle; Fig. 9, the bobbin-case; Fig. 10, the bobbin; Fig. 11, details of the parts co-operating with the needle and shuttle; Fig. 12, an enlarged detail showing the front end of the thrum-gathering fingers and their projections; Fig. 13, a top view of the gatherer throat-plate, it having holes through which work the lips or projections of the gatherer. Fig. 14 shows a plan, side, and end view of the guide into which the material is bent by the work holder or presser; and Fig. 15 is a detail in perspective showing part of the bed-plate and part of the thrum-gatherer, the presser or holder, and guide-block, with the material to be stitched placed between the holder and guide-block.

The bed-plate A and the overhanging arm A', together with the lugs A², form the main frame of the machine, the said lugs forming bearings for the main rotating shaft A³, having fast upon it a cam-hub A⁴, which receives in its cam-groove a roller or other stud, as A⁵, extended from the take-up lever X⁶, having its fulcrum at A'. The shaft A³ has fast upon it a cam B, which receives in its groove a

roller or other stud B' at the lower end of a lever B², having its fulcrum at B³ and connected by a suitable pivot or screw, as B⁴, to a slide-bar B⁵, which at its front end is suitably jointed, as at B⁶, to a block or slide B⁷. The block or slide B⁷ is connected by suitable pins or connections, as a a', to the fingers or jaws b b', forming part of the thrum-gatherer to be described. The finger or jaw b has its fulcrum at c, while the finger or jaw b' has its fulcrum at c'. The fingers or jaws b b' are bent or curved down somewhat at their front ends near the guide d and are provided with like lips or projections 2, between which pass the usual thrum ends and stay-cord, the connection of the slide-block B⁷ with the said fingers or jaws being such that during the operation of the machine the fingers or jaws are opened and shut once for each stitch, to thereby gather or collect together and to the stay-cord the thrum ends, the fingers or jaws completing their operation upon the thrums and bringing them close to the stay-cord just before the collected thrum ends and stay-cord arrive in position above the guide d, which sustains the material while the needle e operates. The lips or projections 2 of the thrum-gathering fingers extend up through the slots 2^x of a plate 102, which I call the "gathering throat-plate," and in addition to their opening and closing movements the said fingers are made to rise and fall with relation to the said throat-plate, the said lips or projections rising just before they are closing to collect the thrum ends to the stay-cord, and vice versa. The shaft A³, near the front end of the machine, has fast upon it a worm-toothed gear C, which engages a worm-toothed pinion C' on a short vertical shaft C², which at its upper end carries a crank, pin, or projection 3, (see Figs. 5 and 11,) over which is fitted one end of a connecting-link C³, which is jointed at C⁴ (see Fig. 2) to the needle-bar C⁵, the latter carrying the needle e. As herein shown, the crank or projection 3, referred to, receives (see Fig. 5) a stud 4, projecting from a link 5, (shown best in Fig. 11,) the said link at its opposite end engaging a stud 6 at the lower side of a disk f, (shown in Fig. 5 in dotted lines and in Figs. 6 and 7,) constituting a part of the shuttle-carrier, the said disk at its upper side having a projection, as f', provided with a hook, as f², which enters the space 7 immediately back of the point 8 of the shuttle g, herein shown as substantially circular in shape, the said shuttle having a post 10, which receives upon it the bobbin-holder g' and bobbin g², the rotation of the shaft C² rotating the shuttle in a circular race formed in the bed of the machine, the link-motion described acting, however, to give to the shuttle a variable speed, so that it will pass through the loop quickly and then move slowly while the stitch is being drawn up and the needle makes its next forward movement toward the material.

The shaft A³ has upon it two cams 12 13, the one 12 acting on the leg 14, attached to and depending from the usual sliding feed-bar h, while the cam 13 acts upon the adjustable piece 15, secured to the feed, raising the latter for the proper distance preparatory to each feed movement, the spring 16 depressing the feed-bar. The feed-bar is cut away centrally, as in Fig. 3, to enable the link C³ to pass through it.

The guide d (shown separately in plan and end and side view in Fig. 14) is provided with a longitudinal groove d' (see the end view) and is cut through at d² for the passage of the usual serrated block h', attached to the feed-bar, as shown in Fig. 4. The guide is supported at its opposite ends on the bed-plate at opposite sides, and the slot covered by the usual cover-plate. The guide has in its bottom a longitudinal groove 20 for the usual stay-cord and thrum ends, and a cross-slot, as at 21, to form a throat for the needle e. The guide d has laid upon it a lifting-block 22, provided with a stem 23, which extends below the guide, as shown in Fig. 3, in such position that when the feed-bar is lifted it meets the said stem and lifts the block 22, the latter in its ascent acting against the under side of and lifting the two fingers or jaws b b', as described.

The head of the machine (see Fig. 1) has bearings for the shank n of the spring-actuated presser or work-holder n', surrounded by a spring, as n², so that the said work-holder is normally pressed down against the material of the buttonhole-piece lying on the bed-plate and over the guide d, the said work-holder n' normally acting to press the material into the groove d' of the guide d, so that the material is bent, as it were, partially about the work-holder, the stay-cord and thrum ends being collected and laid substantially parallel by the thrum-gathering device in front of the bottom of the groove d'. The needle e at one forward thrust is operated to pass into one side of the material, bent over the work-holder, and held bent between it and the guide d and to emerge from the same side of the material and have its loop taken by the shuttle, the feed at such time being down; but before the next forward thrust of the needle the feed h rises through the throat, lifting the material out of the groove d' of the guide and with it the work-holder, so that the needle passes close to the material just outside the stay-cord and thrum ends, and the loop of needle-thread is again locked together with the shuttle or second thread, leaving a thread to cross and bind the stay-cord and thrum ends to the under side of the buttonhole-piece. The needle makes two thrusts to each feed-stroke of the feed-bar.

I disclaim the combination, with feeding and stitch forming mechanism, of a device consisting of two separate points arranged in front of the needle and devices to separate the said points and to bring them together,

and also the combination of feeding and stitch-forming mechanism, independent levers pivotally connected to the machine and having upwardly-projecting points, a cam for operating said levers to separate the points and to close the levers and compress together the points; also, the combination of feeding and sewing mechanism, a presser-foot, pivoted levers having upwardly-projecting points, positive means for moving the points laterally to open them, automatic means for closing the same, and means for pressing upwardly the ends of the said levers, causing them to bear on the material under the machine presser-foot.

In my invention the stitch forming and feeding mechanism act to make an overseaming stitch and the stitch made is a blind stitch.

I claim—

1. In a sewing-machine for stitching thrum ends, the combination of the following instrumentalities, viz: a feeding device to engage the material, an eye-pointed needle and complementary 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 plane at right angles to the plane of reciprocation of the needle and having a narrow or thin acting edge, a guide-block having a longitudinal groove or recess within the path of movement of the needle and at right angles to the plane in which the needle reciprocates, and thrum-gathering devices arranged in front of the needle and of the said guide-block, the said work-holder operating to bend 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 by the material outside the stay-cord and thrum ends, thus making a stitch to cross and hold the stay-cord and thrum ends in place, substantially as described.

2. In a sewing-machine, stitch-forming mechanism, the guide-block grooved to receive the material of the buttonhole-piece in the line of the stay-cord and thrum ends, the presser foot or holder *n'*, the thrum-gatherer having jaws provided with points, and a feed-bar and operating mechanism therefor, combined with the slotted gatherer, throat-plate, and lifting-block to lift the thrum-gatherer

and enable its points to rise through the slots in the said throat-plate, substantially as described.

3. In a sewing-machine for stitching thrum ends, the combination of the following instrumentalities, viz: a feeding device to engage the material, an eye-pointed needle and complementary 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 plane at right angles to the plane of reciprocation of the needle, a guide-block having a longitudinal groove or recess within the path of movement of the needle and at right angles to the plane in which the needle reciprocates, and thrum-gathering devices arranged in front of the needle and of the said guide-block, the said work-holder operating to bend 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, thus making a stitch to cross and hold the stay-cord and thrum ends in place, substantially as described.

4. In a sewing-machine, the rotating shuttle-carrier, the race and rotating shuttle, and the horizontally-reciprocating needle-bar and needle, combined with the link *C*⁵, connected directly to the said bar, and the crank-pin *C*², carried by the said shuttle-carrier, to operate substantially as described.

5. In a sewing-machine, the bed-plate, a guide-block, a presser or holder to bear upon the material resting upon the guide-block, a horizontally-reciprocating needle-bar and needle, and a shuttle and shuttle-carrier, and a link to connect the needle-bar and shuttle-carrier, combined with a feed-bar slotted for the passage through it of the said link, and with a shaft and cams thereon to actuate the said feed-bar to move the material after each stitch, substantially as described.

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

JOHN REECE.

Witnesses:

JAS. H. CHURCHILL,
F. L. EMERY.