

Sewing Machine.

No. 43,285.

Patented June 28, 1864.



Witnesses
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UNITED STATES PATENT OFFICE.

FRANKLIN H. BROWN, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **43,285**, dated June 28, 1864; antedated June 18, 1864.

To all whom it may concern:

Be it known that I, FRANKLIN H. BROWN, of Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in a Sewing-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 represents a front end view of face-plate E, showing the shuttle-carrier A and its attachments. Fig. 2 represents a back view of face-plate E, showing feeding-bar F and its attachments. Fig. 3 is a vertical section of face-plate E, cut through the center of shaft D, showing the shuttle-carrier A at its highest point, and clearly showing the relative position of all the parts combined in the feeding apparatus with those essential to the movement of the shuttle. Fig. 4 represents a perspective view of the back side of face-plate E, with the feeding-bar F and a part of lever G removed, showing the dovetailed race H and sliding fulcrum I v.

The nature of my invention consists in a novel combination and arrangement of parts, constituting a much cheaper and more simple device for producing the feed-motion of the machine than has hitherto been attained, and also in a novel arrangement for carrying the shuttle without reversing its position in any part of its path or orbit.

Face-plate E stands vertically, and is the lower front part of the frame of the machine. It serves as a support to the bed-plate of the machine, assists in keeping the shuttle in the carrier, and is a firm basis to which several parts of the machine are attached.

B is a shuttle.

A is a shuttle-carrier.

t is a slot in carrier A.

x is a stationary pin.

D is a rotating shaft.

C is a ring or wheel made fast to shaft D, and sunk into face-plate E, so as to be level with the surface of the face-plate, and forming a part of the same, for the purpose of enabling me to operate or move the shuttle around against the face-plate E, that being necessary, since the loop from the perforating-needle in race S is formed just at the surface of the face-plate E, where the point of the shuttle must come in order to enter and pass it. Z is a crank-pin which attaches carrier A to wheel C, and causes it

to be carried around at each revolution of wheel C. The lower end of carrier A is restricted, so far as horizontal motion is concerned, by the stationary pin x, which is fitted to the slot t of the carrier, allowing carrier A to rise and fall and be oscillated upon x as a center, thereby causing shuttle B in the upper end of carrier A to describe an elliptical or nearly circular path, but not allowing its nose to be at any time pointed in a direction the reverse of that shown in the drawings, thus avoiding the twisting of the thread, which is being run out from the shuttle, while in the act of sewing.

S is the needle-race.

F is the feeding-bar, attached to the regular eccentric m on shaft D.

y is a screw holding the feeding-bar in its place on the eccentric.

v is the fulcrum, made fast to sliding piece I. Sliding piece I is placed in a dovetailed race immediately behind and parallel with feeding-bar F.

G is a lever fastened at one end to the back side of face-plate E by pin p.

O is a short slot cut in the center of lever G, through which fulcrum v is placed for the purpose of being moved up or down by lever G whenever it is desirable to change the length of the stitch.

The regular eccentric m imparts a continuous rotary motion to the lever end of the feeding-bar F, causing it to slide and turn upon the fulcrum v in slot u, thus imparting a continuous motion also to the feeding-surface on the upper end of the bar. I project the feeding-surface of the bar F through the table or bed-plate sufficiently for it to grip the material being sewed while the bar F is at its highest or swiftest moving point only, thus moving the material being sewed forward until the curved motion of the feeding-surface carries it below, freeing it from the material being sewed. The material then remains stationary during a portion of the downward and upward stroke of the needle while forming the seam, the feeding-surface at the same time continuing to move round, and reaches its highest point in time to move the material forward again for the next stitch, while the needle is yet out of the cloth, finishing its upward and beginning its downward stroke. To shorten the stitch I move the fulcrum higher up in slot u, and to lengthen the stitch I move it proportionately downward.

The whole forms a very simple and effective

combination of parts for sewing, when combined with a needle and other necessary parts common to most sewing-machines. By my movement of the shuttle, as above described, I avoid the constant jar and great wear attendant upon those shuttles which are moved backward and forward, stopping and starting for each stitch that is made.

I am aware that the feeding motion in sewing-machines has been produced heretofore by the operation of three slotted levers and two eccentrics, which impart the desired motion to the feed-bar; but my invention consists in simplifying this combination and changing this arrangement so as to accomplish the same result by means of a single eccentric operating directly upon the feed-bar, which is itself provided with an adjustable fulcrum, avoiding the complication of parts heretofore used, and thus producing a sewing-machine much cheaper, much less liable to get out of order and repair, and much more easily understood and managed by the operator.

I am also aware that the movement of the shuttle in a circular path without reversing the direction of its point has been accomplished by pivoting the shuttle to a revolving circular disk or wheel by rigidly attaching to the shuttle a long projecting horizontal bar sliding in a loop; but the arrangement whereby I produce this movement of the shuttle possesses, among others, two important advantages, for in the arrangement heretofore employed, from the exposed condition of the sliding bar, which controls the direction of the shuttle-point, and its projecting out horizontally from the machine, there is a great liability of its being bent or broken by accident, and thus rendering the machine useless for the time being. By my arrangement, however, by placing the sliding bar in a vertical position, and pivoting it to the wheel, and attaching the shuttle to the end of said bar, making it the shuttle-carrier instead of the wheel, as before, the parts are all so arranged as to be inclosed in the casing of the machine, and so protected

from all accidental injury. In the second place, it will be observed that by the arrangement referred to, where the shuttle is attached directly to the disk by a fixed point, and so moved in a circular path, while at the same time it is kept in a horizontal position by the sliding guide, the shuttle passes through the loop diagonally with respect to its longitudinal axis, and that therefore, by this oblique motion of the shuttle-point, there is great danger and liability that shuttle, instead of passing properly through the loop, will catch upon the thread and break it, or by failing to pass through the loop make imperfect stitches and do imperfect work, whereas by my arrangement, as herein shown and described, this difficulty is obviated, for it will be readily seen that its effect is to cause the shuttle to move in an elliptical or elongated orbit, in which that part through which the shuttle moves when passing through the loop approximates nearly to a straight line and is parallel to the axis of the shuttle. Thus the shuttle passes directly through the loop, insuring great certainty and precision in the performance of its function, instead of passing diagonally through, as heretofore, with its necessary objections. These advantages I consider important ones, and such as deserving of protection by Letters Patent.

What I claim, and desire to secure by Letters Patent of the United States as my invention, is—

1. The combination and arrangement of the feed-bar *F*, the eccentric *m*, and fulcrum *v* with the lever *G*, slide *I*, and dovetailed race *H*, arranged and operating substantially as shown and described.

2. The combination and arrangement of the shuttle-carrier *A*, sliding upon the pin *x*, the wheel *C*, and face-plate *E*, operating as and for the purposes specified.

FRANKLIN H. BROWN.

Witnesses:

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