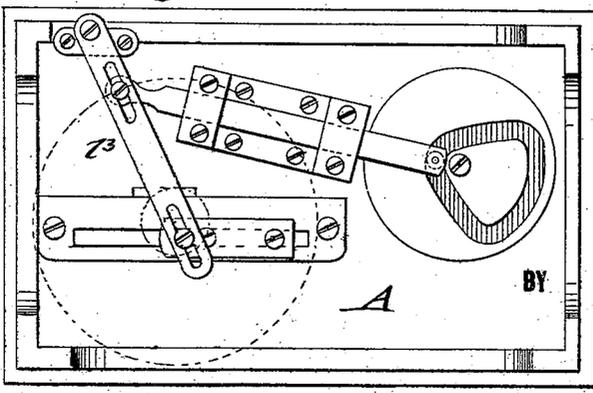
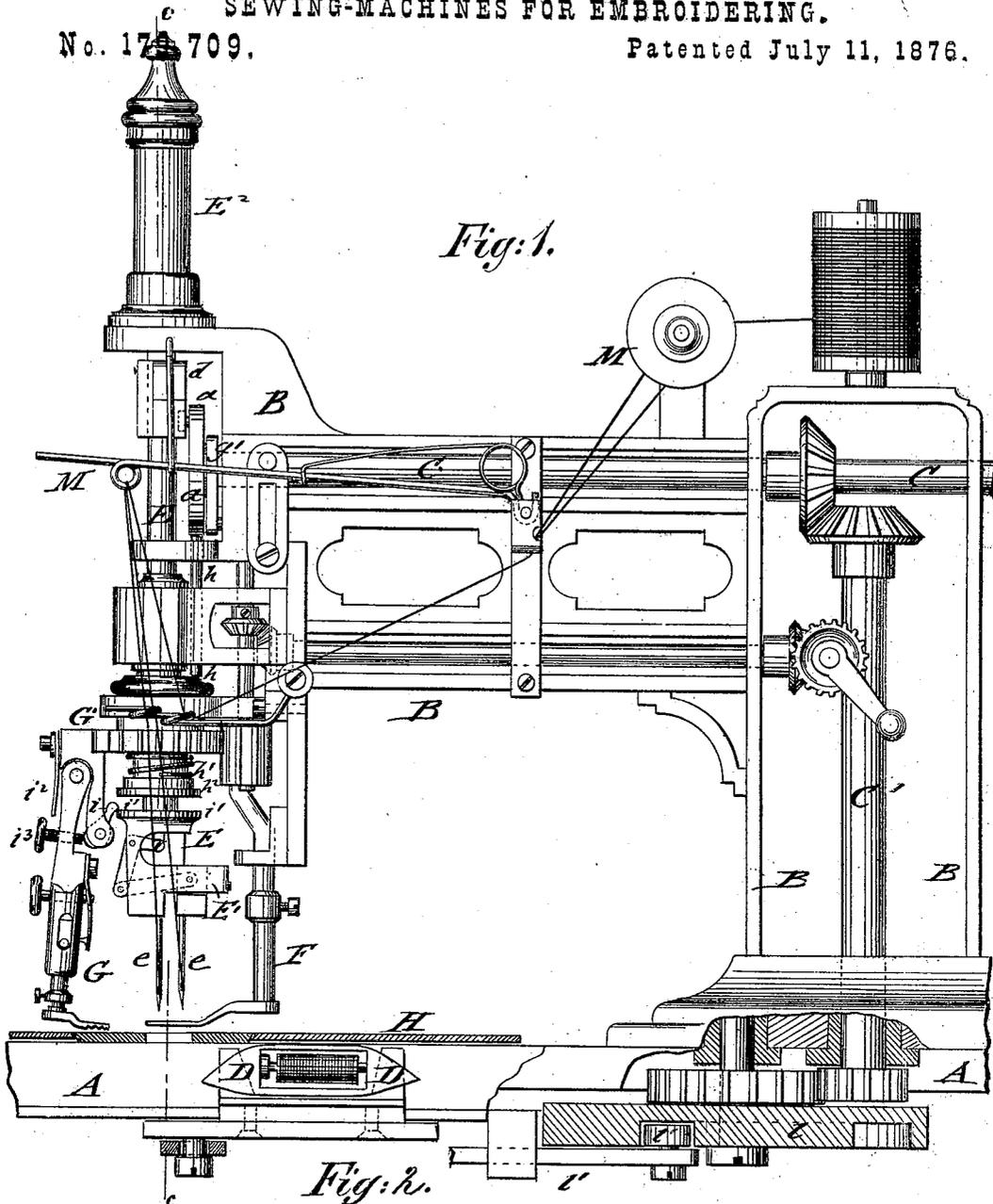


C. MARIN.  
SEWING-MACHINES FOR EMBROIDERING.

No. 173 709.

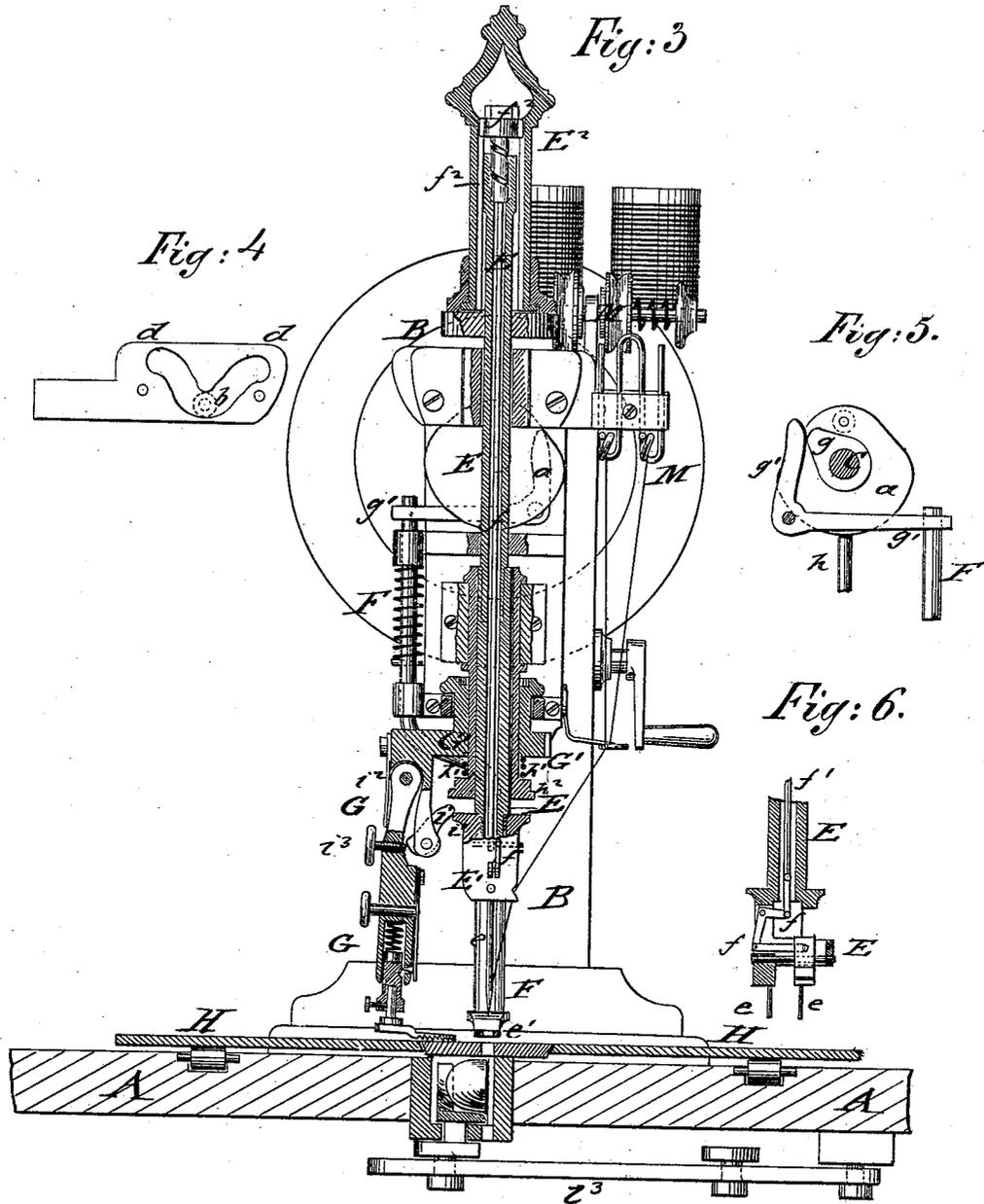
Patented July 11, 1876.



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C. MARIN.  
SEWING-MACHINES FOR EMBROIDERING.  
No. 179,709. Patented July 11, 1876.



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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN SEWING-MACHINES FOR EMBROIDERING.

Specification forming part of Letters Patent No. **179,709**, dated July 11, 1876; application filed  
April 1, 1876.

### *To all whom it may concern:*

Be it known that I, CHARLES MARIN, of Newark, in the county of Essex and State of New Jersey, have invented a new and Improved Sewing-Machine for Embroidering, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side elevation, partly in section, of my improved embroidery-machine. Fig. 2 is a bottom view of the same, showing the shuttle movement. Fig. 3 is a vertical transverse section of the machine on line *c c*, Fig. 1; and Figs. 4, 5, and 6 are detail views, respectively, of the needle-bar and feeder-operating devices, and of the mechanism for adjusting the stitching-needles.

Similar letters of reference indicate corresponding parts.

The invention relates to an improved embroidery-machine that produces embroidery-stitches of varying lengths at one side of the fabric only, and retains the embroidery-stitches at the ends by fastening stitches that pass through the fabric at a considerable saving of thread. The machine is made in the nature of the sewing-machine, and produces, by the parallel and angular disposition of the thread, flat or raised designs of any configuration, in a rapid, even, and perfect manner.

The invention consists, essentially, of a reciprocating needle-bar, with two adjustable needles, a slotted presser-foot, a swinging and parallel feeder, and a shuttle that places the embroidery-stitch in position for the fastening end stitches of the adjustable needles.

In the drawing, A represents the supporting-table, and B the stationary arm or standard of my improved embroidery-machine, which is arranged in the style and about the size of a sewing-machine. The stationary arm B forms the support for the needle-bar, feeding device, presser-foot, and tension devices, while the work is arranged and fed to the same on the table.

The machine may be driven by foot or machine power, as desired, the motion being transmitted from the driving-shaft, by a suitable belting and fly-wheel, to the main shaft C, turning in the horizontal part of arm B.

The main shaft C actuates, by conical gear-

wheels and a vertical shaft, C', and by suitable connecting mechanism, the shuttle D at the under side of the table. The main shaft C has at its front end a cam-wheel, *a*, that works by a friction-roller, *b*, in the grooved cam *d* of the hollow needle-bar E, (shown in detail in Fig. 4,) so as to reciprocate the same vertically in suitable guides of the top arm B. The lower end of the needle-bar is provided with a guide-frame, E<sup>1</sup>, in which two needles, *e*, are arranged, whose relative positions may be changed according to the length of stitch to be accomplished. Both needles may be made movable in the guide-frame E<sup>1</sup>, or one stationary and the other movable, as shown in detail in Fig. 6 of the drawing. Both needles move up and down by the action of the needle-bar, and are at the same time adjusted laterally in the guide E<sup>1</sup> by means of transmitting-levers *f*, that are worked by a rod, *f*<sup>1</sup>, passing through the interior of the hollow needle-bar to the upper end of the same. The needle-bar slides within a hollow-sleeve-shaped handle part, E<sup>2</sup>, that may be turned in either direction, engaging by side grooves and collar *f*<sup>2</sup> the spirally-grooved upper end of the needle-adjusting rod *f*<sup>1</sup>, so as to raise and lower the same, and cause the sliding of the movable needle to a greater or less distance from the stationary one.

When the needles are at greater distance from each other, the shuttle, catching the threads of the needles, forms a longer stitch on the fabric than when the needles are closer together, which produces a shorter stitch.

A cam, *g*, of the main shaft, back of cam *a*, actuates a fulcrumed bell-crank lever, *g*', and thereby the spring-acted presser-foot F, Figs. 3 and 5, that is guided in suitable manner on arm B. The lower part of the presser-foot is provided with a slot, *e*', corresponding in length to the extreme position of the needles in their guide-piece.

The feed-motion is obtained by means of a rotating and pivoted feeder, G, which slides, by means of a movable collar, G', on the guide-sleeves of the needle-bar. The outer circumference of the collar G' is cut with cogs, and geared by a pinion, operated by bevel-wheels, shaft, and operating-crank from the side of

the machine, to allow thereby the rotating of the feeder around the needle-bar in any required direction.

If found more convenient, the mechanism for adjusting the stitching-needles may also be arranged sidewise on the vertical part of arm or standard B, so as to admit the working of the needles with greater ease and rapidity than from the top.

The feeder G is raised and lowered by the action of a rod, *h*, Fig. 1, operated by the circumference of cam-wheel *a*, and bearing on the top of collar G<sup>1</sup>; and by a spiral spring, *h*<sup>1</sup>, between the lower part of the collar and a shoulder, *h*<sup>2</sup>, of the guide-sleeve of the needle-bar.

Feeder G is pivoted to supports of the collar, and moved forward and back by a small cam, *i*, that is pivoted below the collar, and operated by a shoulder, *i*<sup>1</sup>, of the guide-frame of the needle-bar, to throw the feeder in outward direction, while a spring, *i*<sup>2</sup>, at the appointed side throws the feed-arm back again. A set-screw, *i*<sup>3</sup>, passes through the feeder to the cam *i*, and serves to set the feed to produce the greater or less of the consecutive embroidery-stitches. The feeder goes up and down with the collar alternately with the motion of the needle-bar, which pushes the parallel feeder in outward direction, so as to move the fabric to be embroidered forward ready for the descent of the needle-bar.

When the needle-bar descends, the feeder is raised and brought back ready to feed the next stitch on the upward motion of the needle-bar. The angle or bias of the embroidery can be changed by changing the position of the feeder on the needle-bar.

The grooved presser-foot of the feeder may be raised and retained or lowered by a suitable spring-catch device and interior spiral spring, as shown in Figs. 1 and 3.

The cloth may be turned by hand for the action of the needles and feed, or by means of a circular plate, H, that is mounted on small friction-rollers of the table around the throat-plate of the needles.

The shuttle D is reciprocated by a grooved cam, *l*, connected, by friction-wheel *l*<sup>1</sup> and rod *l*<sup>2</sup>, with a lever, *l*<sup>3</sup>, that moves the shuttle-carrier in the race.

The cam-rod may be directly connected to the shuttle-carrier, or any other suitable mechanism for working the shuttle be employed.

The shuttle may be single or double pointed,

and the gear be proportioned accordingly, so that in one case the shuttle takes up the threads of the needles in one direction only, while in the other case the threads are taken up in both directions.

The machine is provided with suitable spring tension devices M for the threads of the needles, the threads passing from the spools through the tensions, which are arranged sidewise of each other to the needles.

The design to be embroidered is stamped on the rear side of the fabric, and the same then exposed face downward to the action of the machine. The feed-motion is first regulated and set to the work by the side crank. The needles and shuttle are then threaded—the needles with a cheap fastening-thread, the shuttle with the silk, woolen, or other thread by which the embroidery is to be worked. The machine is then set in motion, and the fabric held by one hand, while the other continually regulates the width of the stitches according to the design on the fabric.

The stitches may be parallel, each stitch being fastened at each end or run in close zig-zag lines, and fastened by two stitches at each end. The face of the cloth exhibits the regular embroidery-stitch, while the back shows regular plain fastening-stitches.

The use of the expensive thread on the face side, and inexpensive threads for retaining the embroidery-stitch, produces a considerable saving in thread used, as compared with the other styles of embroidery, while the machine admits the rapid and elegant embroidering of any design in various colors and threads.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An embroidery-machine, consisting essentially of a needle-bar, with adjustable needles, a presser-foot, a rotating and pivoted parallel feeder, and an embroidering-shuttle, substantially in the manner and for the purpose set forth.

2. The combination of the sliding hollow needle-bar, the interior needle-adjusting rod, having spiral top grooves, and the revolving sleeve, connecting by collar and grooves therewith, substantially as described.

CHARLES MARIN.

Witnesses:

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