

(Model.)

J. M. GRIEST.

EMBROIDERING ATTACHMENT FOR SEWING MACHINES.

No. 319,701.

Patented June 9, 1885.

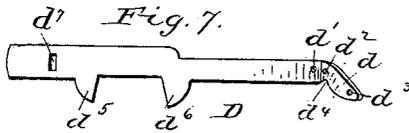
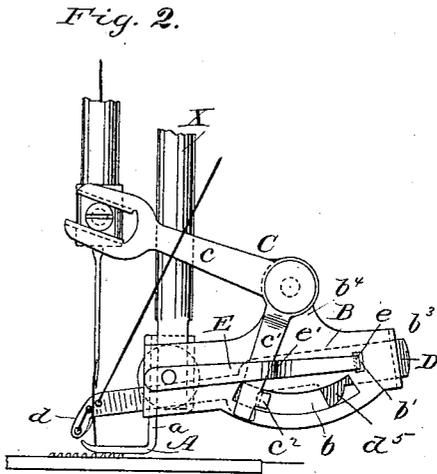
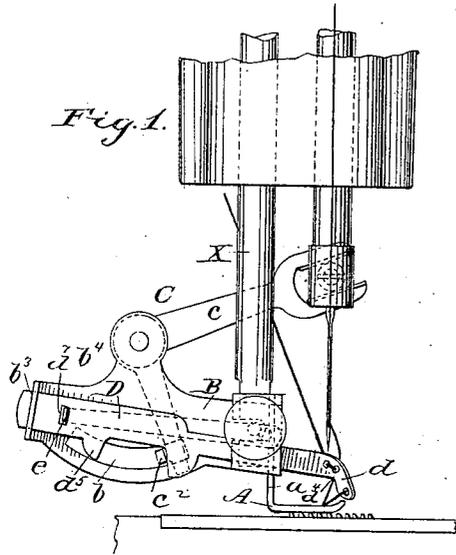


Fig. 3.

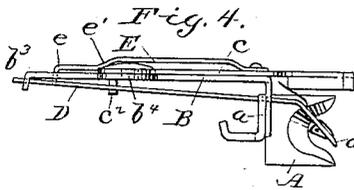
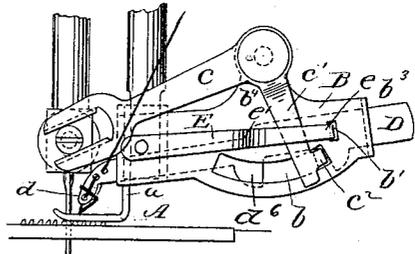


Fig. 5.

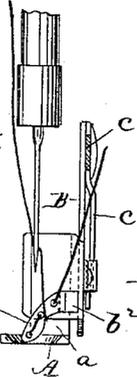


Fig. 6.

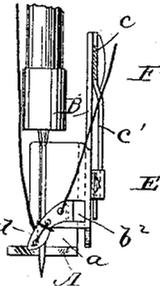
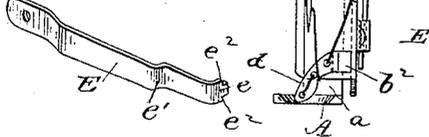


Fig. 8.



witnesses:

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UNITED STATES PATENT OFFICE.

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EMBROIDERING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 319,701, dated June 9, 1885.

Application filed September 18, 1884. (Model.)

To all whom it may concern:

Be it known that I, JOHN M. GRIEST, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Embroidering Attachments for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to that class of embroidering attachments adapted to carry an embroidering-thread around the needle and its thread at each stitch, the object of my invention being the production of an embroidering attachment of this kind which is simple in construction, and which will perform its work in a reliable manner.

In the drawings, Figures 1 and 2 are opposite side elevations showing my device in operative relation to the needle and presser bars of a sewing-machine, the needle-bar and needle thereof being at their highest point. Fig. 3 is a side view similar to Fig. 2, but with the needle-bar and needle at their lowest point. Fig. 4 is a plan view of my device with the looper thrown forward, as in Figs. 1 and 2. Figs. 5 and 6 are front views with the main arm of the operating-lever in section, the needle-bar and needle being in different positions in the two views. Fig. 7 is a detail side view of the looper, and Fig. 8 is a detail perspective view of the looper-spring.

A indicates a presser-foot having a shank, *a*, by which it is adapted to be attached to the presser-bar X of a sewing-machine in any usual way. The presser-foot is preferably bifurcated or left open around the needle, and also chamfered off around the opening, as clearly shown in Fig. 4, so as to permit of the free action of the looper, and to let the latter on its forward movement slide down close to the work. This opening also gives an unobstructed view of the work and of the pattern-lines to be followed in embroidering.

B is the main plate, constituting the supporting-frame of the attachment, said plate being secured to or formed integral with the shank *a* of the presser-foot, and provided with a long curved slot, *b*, and a small slot, *b'*, both in its side or main portion. The

front end of the plate B is bent at right angles to its main portion, and in said end is formed a hole, *b²*, preferably square, or approximately so. The rear end of the plate B is also bent at right angles, or nearly so, to the main portion of the plate, and is provided with a slot or opening at *b³*.

To a standard, *b⁴*, on the upper portion of the plate B is pivoted an angular or bell-crank lever, C, the main arm *c* of which is slotted at its end to embrace a screw on the needle-bar, while the smaller arm, *c'*, extends downward, and is provided with a lug, *c²*, working in the slot *b* of the main plate or supporting-frame B.

D is the looper, which is arranged to slide freely back and forth in bearings in the plate B, afforded by the hole *b²* and slot at *b³*, said looper being provided with lugs *d³* *d⁴*, between which lug *c²* on the arm *c'* of the bell-crank lever works. The forward or working end, *d*, of the looper is bent so as to be inclined at an angle of about forty-five degrees to the main portion thereof, and is also bent downward and provided with thread-holes *d'*, *d²*, and *d³*. The downwardly-bent end of the looper is rounded out slightly on its rear or underside, forming a small notch at *d'* for catching the needle-thread. The looper D is preferably arranged at an inclination to a horizontal plane, as shown, so that as it moves forward its thread-carrying end will approach the work, said end receding therefrom when it is moved backward.

E is a plate-spring, which is secured at one end to the plate B, its free end *e* being bent inward, passing through the slot *b'* in the plate B, and bearing at proper intervals against the shank of the looper, as will presently be explained. The spring E is arranged outside of the lever-arm *c* of the bell-crank lever, said spring being bent so that said arm may work freely under the forward portion of the same without engagement therewith; but when said arm in its backward movement comes in contact with the bend *e'* said spring will be raised by said arm from contact with the looper D, leaving the forward end of the latter free to move sidewise in the hole *b²*, through which it loosely plays. The looper D is provided near

its rear end with a small slot, d' , and the end e of the spring E is diminished slightly to fit said slot and still leave small shoulders e' , to bear against the looper when the end of the spring

5 is in the said slot.

The needle of the mechanism being supplied with one of the embroidery-threads, and the attachment being secured to the presser-bar, in place of the ordinary presser-foot, and threaded, in the manner shown in Figs. 1 and 2, with the other of the embroidery-threads, the device is ready for operation. When the needle is at its highest point and the looper is thrown fully forward, (see Fig. 1,) the point 15 e of the spring E engages the slot d' of the looper D, locking said looper positively in place, so that it cannot be accidentally displaced or get in the way of the needle. The needle-thread is at this moment held in the notch d^4 of the looper, passing thence to the work beneath the presser-foot, while the looper-thread, emerging from the outer hole, d^5 , in the looper, also extends beneath the presser-foot. The two threads, being thus held 25 apart from each other by the looper and coming together beneath the presser-foot, form a V, or, with the adjacent part of the looper, a triangle directly beneath the needle, which, on its descent, carries its thread through said V or triangle. The bell-crank lever C moves 30 constantly with the needle-bar; but, by reason of the distance apart of the lugs d^5 d^6 on the looper, there will be considerable movement of the said lever before the lug e^2 on the arm e' thereof comes in contact with the lug d^5 on the looper, to move the latter backward. In the meantime the arm e' of the lever C will have reached the bend e' of the spring E, and will not only have released the point of 40 said spring from the slot d' in the looper, thus leaving the latter free to move endwise, but will have lifted said spring entirely clear of the looper, so that its forward end can move laterally in the hole b^2 in the front end of the plate B. The looper, as the needle continues 45 to descend, is next moved backward, and its inclined forward end, d , being thus forced in contact with the needle, (as will be understood from Fig. 4,) said looper is moved sidewise by contact with the needle toward the right of 50 the operator, carrying its thread around on the right-hand side of the needle. When the needle rises, the looper momentarily remains stationary (by reason of the lost motion of the lug e^2 between the lugs d^5 d^6 , as before explained) 55 until the arm e of the lever C shall have passed forward of the bend e' of the spring E, leaving said spring again free to act on the looper and force the forward end thereof to the left in the hole b^2 . The lug e^2 next comes in contact with the lug d^6 , and the looper, now inclined to the left, is moved forward to the position shown by Fig. 4. As the looper moves forward, the needle is raised, so as to be out of its way, and the inclined end of the looper is pushed against 65 the needle-thread, so that the latter falls into the notch d^4 , where it is retained until the nee-

dle again descends between it and the looper-thread. Thus the operation continues, the looper moving intermittently backward and forward, carrying its thread to the left of the needle on its forward movement and to the right of the needle on its backward movement, thereby winding its thread around the needle-thread and producing the kind of embroidery 70 hereinbefore referred to. 75

I claim as my invention—

1. In an embroidering attachment, the combination, with a supporting-frame, a reciprocating looper, and an operating-lever for the latter, of a spring adapted to press against said looper during its forward movement, and means, as an arm of said lever, for releasing said spring from said looper during the backward movement of the latter, substantially as 85 set forth.

2. In an embroidering attachment, the combination, with a supporting-frame and a looper and its operating mechanism, of a spring adapted to engage said looper and lock the same in place when it has reached the end of its forward throw, and means, as a vibrating arm of a bell-crank lever, for releasing said spring from said looper when the latter is to be moved backward, substantially as set forth. 95

3. In an embroidering attachment, the combination, with a supporting-frame, a looper having an inclined forward end, and mechanism for imparting an intermittent longitudinal movement to said looper, of a spring normally pressing against said looper when the latter is being moved forward, and means, as a vibrating arm of a bell-crank lever, for releasing said looper from the pressure of said spring when the looper is being moved backward, 105 substantially as set forth.

4. In an embroidering attachment, the combination, with a supporting-frame and a presser-foot having a bifurcated front or toe, the opening between the prongs of which flares 110 or widens outwardly, of a reciprocating looper extending forward during its movements into said opening, and mechanism for operating said looper, substantially as set forth.

5. In an embroidering attachment, the combination, with a supporting-frame and a presser-foot having a bifurcated front or toe, the opening between the prongs of which flares or widens outwardly, and the upper edge of said toe around said opening being chamfered off 120 or beveled, as shown, of an inclined reciprocating looper extending forward during its movements into said opening, and mechanism for operating said looper, substantially as set forth. 125

6. In an embroidering attachment, the combination, with a presser-foot and a main plate or supporting-frame carried thereby, and provided with openings affording bearings for the looper, one of said openings being much wider 130 than the thickness of said looper, so that the latter can vibrate therein, of a looper sustained in said bearings, and mechanism for reciprocating said looper longitudinally, and

vibrating the same laterally, substantially as set forth.

7. In an embroidering attachment, the combination of a presser-foot, a main plate or supporting-frame carried thereby and provided with a curved slot, a bell-crank lever pivoted to said supporting-frame, and having one of its arms adapted for engagement with the needle-bar, and the other arm provided with a lug working in said slot, a looper sustained in bearings in said supporting-frame, and having lugs arranged in the path of the lug on the lower arm of the bell-crank lever, and a spring adapted to press against said looper and to be intermittingly released therefrom by one of the arms of said lever, substantially as set forth.

8. The combination of the presser-foot A, main plate or supporting-frame B, having slot

b' , bell-crank lever C, having lug c^2 on its lower arm, looper D, having inclined end d and lugs d^5 d^6 , and the spring E, having bend e' and inwardly-bent end e , substantially as set forth.

9. The combination of the presser-foot A, main plate or supporting-frame B, having slots or openings b b' b^2 b^3 , bell-crank lever C, having lug c^2 on its lower arm, looper D, having inclined end d , lugs d^5 d^6 , and slot d' , and the spring E, having bend e' and inwardly-bent end e , having shoulders e^2 , substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN M. GRIEST.

Witnesses:

FRANK E. JOHNSON,
JOEL R. FORD.