

(Model.)

F. H. CHILTON.

EMBROIDERY ATTACHMENT FOR SEWING MACHINES.

No. 250,645.

Patented Dec. 13, 1881.

Fig. 1.

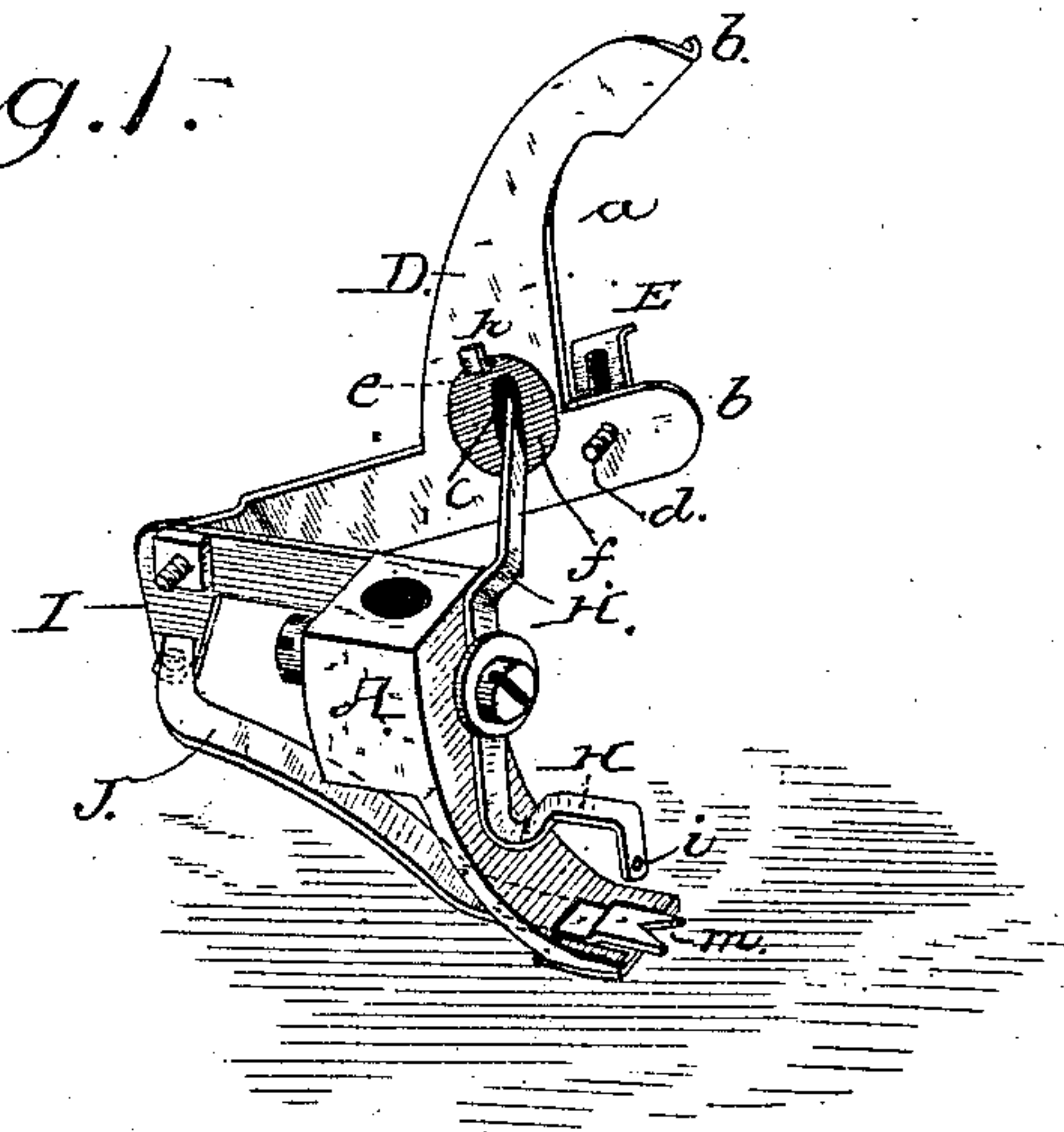


Fig. 2.

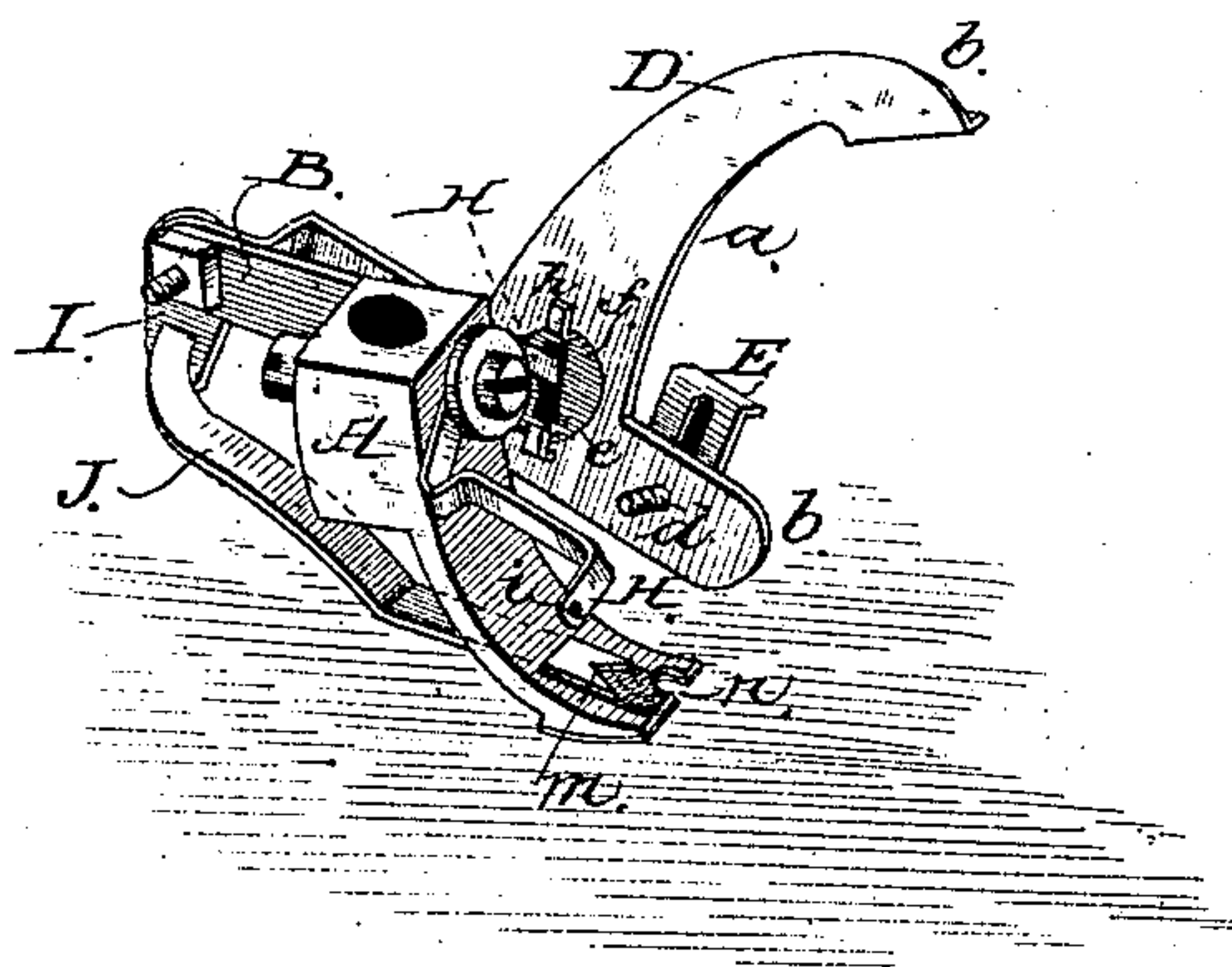
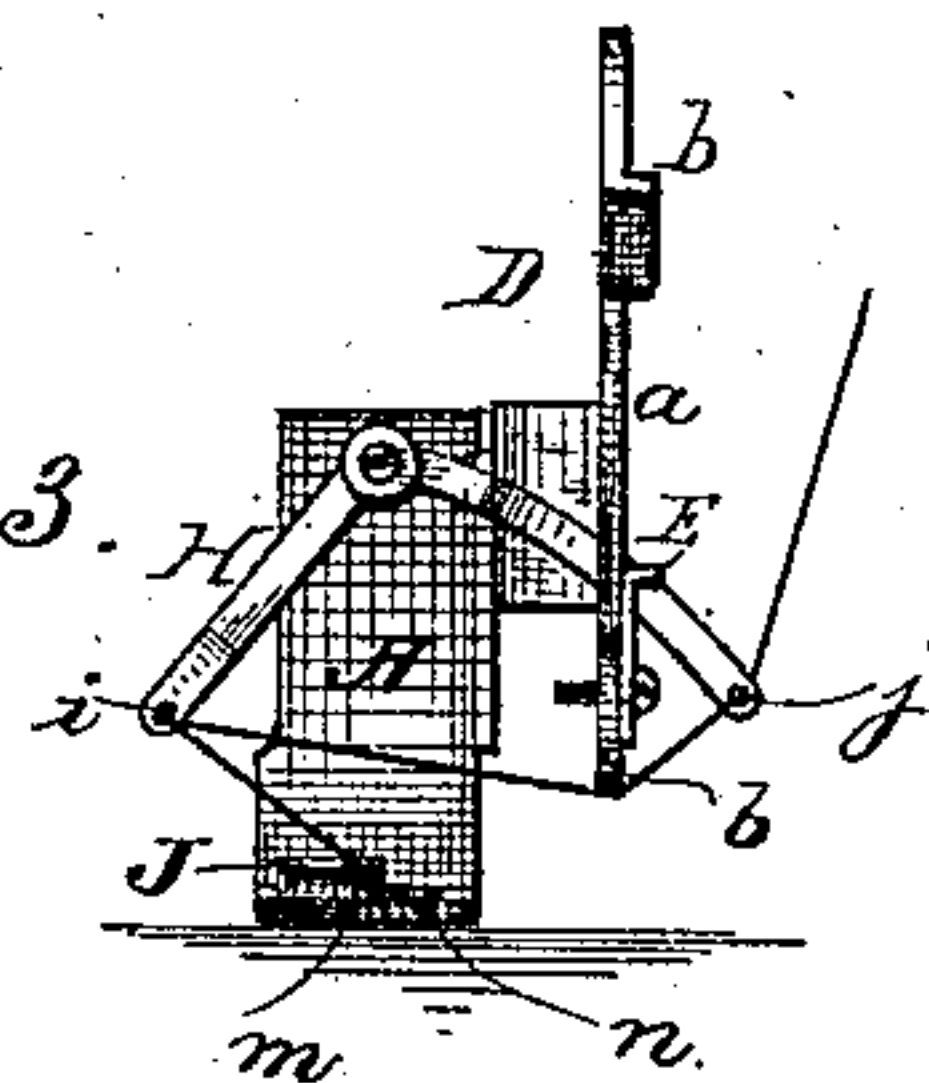


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

FRANKLIN H. CHILTON, OF NEW YORK, N. Y., ASSIGNOR TO EMPRESS EMBROIDERER COMPANY, OF SAME PLACE.

EMBROIDERING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 250,645, dated December 13, 1881.

Application filed November 6, 1880. (Model.)

To all whom it may concern:

Be it known that I, FRANKLIN H. CHILTON, of New York, in the county of New York and State of New York, have invented a new and
5 useful Improvement in Embroidering Attachments for Sewing-Machines, of which the following is a specification, reference being had to the accompanying drawings.

The invention relates to an improvement in
10 embroidering attachments for sewing-machines; and it consists in a novel device to be attached to a sewing-machine, whereby a line of embroidery may be formed and sewed to the goods simultaneously, each stitch of the em-
15 broidery being formed in rear of the sewing-machine needle and sewed down before another is made.

The nature and operation of the invention will be understood from the detailed description hereinafter presented.

Referring to the accompanying drawings, Figure 1 is a perspective view of a device embodying the invention, the oscillating shoe D being in an elevated position, and the eye *i*
25 holding the embroidering-thread being thrown to the right of the line in which the sewing-machine needle travels. Fig. 2 is a similar view of same, the shoe D being depressed and the eye *i* forced outward to the left; and Fig.
30 3 is a front view of the device, the different parts being in the positions illustrated in Fig. 2.

A indicates the presser-foot of a sewing-machine, which foot will be attached to the presser-bar in the usual way by a set-screw or otherwise.

Upon one side of the presser-foot A is secured a plate, B, which extends rearward a suitable distance, and has pivoted in its end the rear extremity of the oscillating shoe D,
40 which consists of a vertical piece of sheet metal running parallel with and a proper distance from the plate B, a recess, *a*, being cut in the front portion of the shoe, leaving at the upper and lower ends thereof the arms *b*.

Upon the outer face of the lower arm *b* is secured by a set-screw, *d*, the plate E, which may be adjusted vertically at will, according to circumstances. In some cases the adjustable plate E will not be required, but with it
50 the attachment may be applied to and success-

fully operated upon almost any sewing-machine.

In the shoe D, at a point about opposite the upper front edge of the foot A, is cut a circular aperture, *e*, against which, on the outer side
55 of the shoe D, is placed the swivel *f*, consisting of a circular plate having lips *h* at its upper and lower portions, which lips turn inward and are bent against the edges of the circular aperture *e*, whereby the swivel is held in place
60 and permitted to turn freely against the face of the shoe.

Upon the upper front portion of the foot A is pivoted the angular eye-bar or thread-carrier H, one end of which passes through a slot cut
65 in the swivel *f*, while the other end passes downward and then forward and downward again in proper relation to and just above the front edge of the foot A, where it is supplied with an eye, *i*, for the embroidering-thread.

The rear end of the shoe D is provided with an extension or arm, I, which projects downward and has pivoted in its extremity the rear end of the arm J, which is of appropriate
75 shape and extends forward through a slot formed in the presser-foot, as shown, terminating in proper relation to the front edge thereof. The front end of the arm J is formed into a head which is enlarged to prevent it from passing rearward through the slot in the presser-foot, and
80 provided with a notch or catch, *m*, for the thread. To the right of the catch *m* the presser-foot is provided with a similar catch, *n*, in which the sewing-machine needle has the usual vertical
85 movement.

In placing the attachment above described upon a sewing-machine, the presser-foot is secured to the presser-bar in the usual manner, and the head of the screw which fastens the
90 sewing-machine needle in the needle-bar is placed in the recess *a*. The end of the embroidering-thread is carried from a spool, bobbin, or other device, and passed through the eye *i* in the angular bar H; thence it is placed in the notches or catches *m n*, and its extremity passed
95 rearward under the presser-foot. The fabric being now placed on the feed, the presser-foot is lowered and the machine set in motion. The vertical movement of the needle-bar brings the head of the set screw securing the needle
100

in place alternately against the upper and lower arms *b*, whereby the shoe *D* is given an oscillatory movement on the pivot securing it in place. The motion imparted to the shoe *D* by the needle-bar is communicated to the angular eye-bar *H* and the arm *J*, the bar *H* having an oscillatory movement on its pivot, and the bar or arm *J* a sliding movement backward and forward in line with the greatest length of the presser-foot.

The embroidering and sewing threads being in position and the machine set in motion, as aforesaid, the embroidering is accomplished as follows: The downward movement of the needle-bar causes the sewing thread and needle to enter the fabric and depresses the shoe *D*, which has the effect of throwing the lower arm of the bar *H*, carrying the embroidering-thread, outward to the left and drawing the arm *J* toward the rear. The succeeding upward stroke of the needle-bar causes the shoe *D* to ascend, whereby the lower arm of the angle-bar *H* is drawn inward and the arm *J* forced toward the front. The inward movement of the lower arm of the angle-bar *H*, as aforesaid, carries that portion of the embroidering-thread in the eye *i* to the right in rear of the sewing-needle, while the arm *J* conveys the portion thereof in the notch *m* forward beyond the edge of the presser-foot *A*. The upward movement of the needle-bar continuing, the sewing-needle is drawn upward out of the fabric, when it is immediately returned, now entering the fabric on the opposite side of the embroidering-thread to which it was before, on account of the feed-motion of the machine, and making a stitch which fastens the embroidering-thread to the fabric. When in this downward movement of the needle-bar the screw securing the needle in place strikes the lower arm *b*, the shoe *D* is depressed and the embroidering-thread carried to the left again by the movement of the angle-bar *H*. The needle-bar being elevated again, the operation above described is repeated. At each upward stroke of the needle-bar the embroidering-thread is carried in a diagonal line in rear of the needle, and at each downward stroke the said diagonal line is stitched down, and the said thread again carried to the left, whereby what may be termed an "eye" is formed around the stitch, securing the embroidering-thread down, and said thread looped, or preferably embroidered, in stitches of a cycloidal form. The motion of the oscillating shoe *D* lost by the device actuating it having to pass through the recess *a* before coming in contact with the arms *b* gives the sewing-needle time to perform its work as each loop of the embroidery is formed and before another is made. The swivel turns slightly with each movement of the angular bar *H*. Thus the said bar may rotate upon a pivotal center without any of the parts being bent or otherwise deranged.

For the purpose of having the angular arm or thread-carrier *H* serve as a take-up, if desired, I have supplied an eye, *j*, in the outer extremity of its upper portion, through which the embroidering-thread is passed, as shown in Fig. 3. The oscillating movement of the angular arm acts to alternately slacken the thread for the formation of the loop and then to tighten it again.

I attach great importance to the fact that, as will be observed, the embroidering-stitch is formed in rear of the sewing-needle, whereas in the attachments now in use the mechanism for forming the stitch is arranged in front of the needle, and is a serious obstruction when the operator is designing upon or ornamenting a fabric, on account of the stitches as they are formed and the line of the design being hidden by said mechanism.

The presser-foot of my device does not cover or encircle the stitches, but leaves them fully exposed to the eye of the operator. The same is true also of the thread-carrying arms.

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

1. An embroidering attachment consisting of the reciprocating sliding arm *J*, arranged in line with the length of the presser-foot and to one side of the sewing-needle, and adapted to carry the embroidering-thread forward of the needle, the presser-foot *A*, the eye-bar *H*, carrying the embroidering-thread, and having a movement across the line of travel of the arm *J*, and mechanism for imparting motion to the bar *H* and arm *J*, substantially as set forth.

2. In an embroidering attachment, the oscillating shoe *D*, supplied with a swivel, *f*, in combination with the angular eye-bar *H* carrying the embroidering-thread, the sliding arm *J*, and foot *A*, substantially as specified.

3. The oscillating shoe *D*, having a recess, *a*, adjustable plate *E*, and swivel *f*, in combination with the angular eye-bar *H*, sliding arm *J*, and foot *A*, substantially as set forth.

4. An embroidering attachment consisting of the foot *A*, eye-bar *H*, and arm *J*, and mechanism for giving the arm *J* a sliding movement in line with the length of the presser-foot, and the bar *H* a movement across the path of the arm *J* and behind the needle-bar, whereby the embroidering-stitch is formed behind the sewing-needle, substantially as set forth.

In testimony that I claim the foregoing improvement in embroidering attachments for sewing-machines, as above described, I have hereunto set my hand this 5th day of November, 1880.

FRANKLIN H. CHILTON.

Witnesses:

CHAS. C. GILL,
JAMES F. RYAN.