

(Model.)

2 Sheets—Sheet 1.

F. H. CHILTON.

EMBROIDERING ATTACHMENT FOR SEWING MACHINES.

No. 301,961.

Patented July 15, 1884.

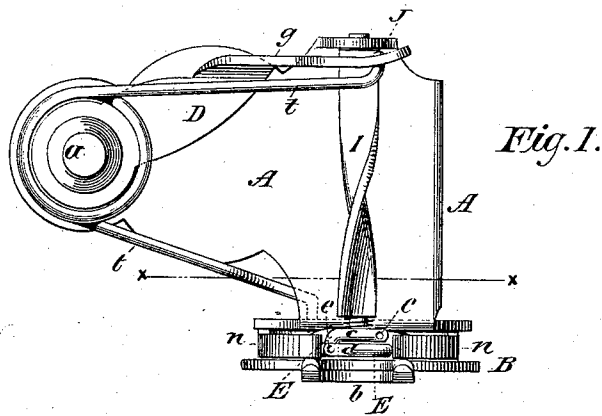


Fig. 1.

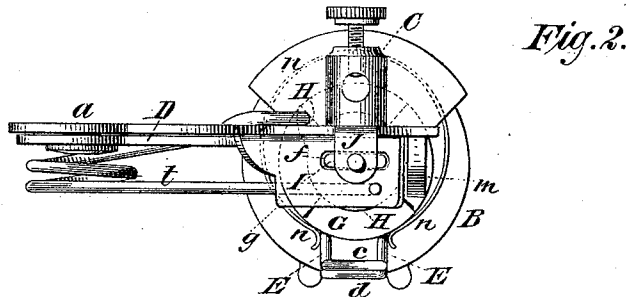


Fig. 2.

Fig. 4.

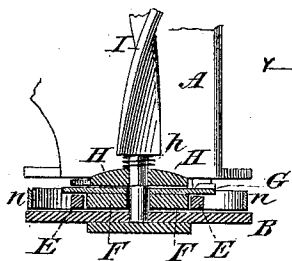
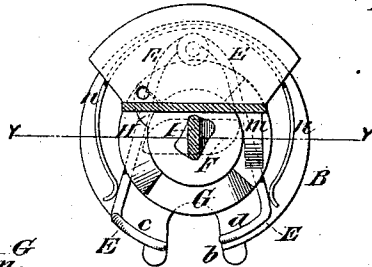


Fig. 3.



WITNESSES:
Gustav Kretsch
Herman Gustow

INVENTOR
Franklin H. Chilton,
 BY
Chas. C. Gill
 ATTORNEY

(Model.)

2 Sheets—Sheet 2.

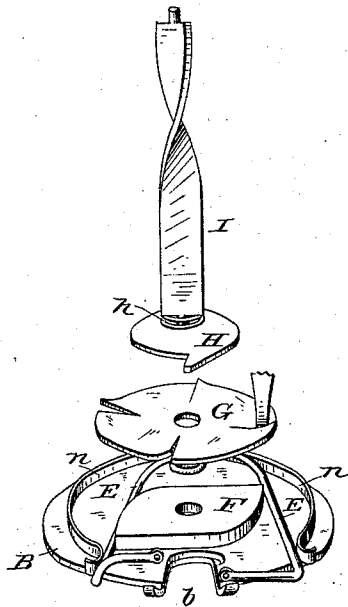
F. H. CHILTON.

EMBROIDERING ATTACHMENT FOR SEWING MACHINES.

No. 301,961.

Patented July 15, 1884.

Fig. 5.



witnesses:
H. N. Low
E. D. Smith

Inventor:
F. H. Chilton
by *Henry C. Allen*
ass. atty.

UNITED STATES PATENT OFFICE.

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

EMBROIDERING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 301,961, dated July 15, 1884.

Application filed December 11, 1883. (Model.)

To all whom it may concern.

Be it known that I, FRANKLIN H. CHILTON, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Embroidering Attachments for Sewing-Machines, of which the following is a specification.

The invention relates to an improvement in embroidering attachments for sewing-machines; and it consists in novel mechanism for forming upon a fabric a line of embroidery in what is known as the "cross-stitch."

The object of the invention is to produce an attachment which will occupy the minimum amount of space, will effectually embroider with gold tinsel, wool, and other kinds of thread, and in which the thread-carrying arms have a limited movement toward and from each other across the path of the sewing-needle in the line of the feed, all as hereinafter more fully pointed out.

Referring to the accompanying drawings, illustrating the invention sought to be protected by this application, Figure 1 is a side elevation of an attachment embodying the invention. Fig. 2 is a top view of same. Fig. 3 is a section on the line *x x* of Fig. 1. Fig. 4 is a section on the line *y y* of Fig. 3. Fig. 5 is a perspective view of portions of my device.

A denotes a supporting-bracket of suitable configuration, carrying the foot B, the hub C, by means of which the attachment may be applied to the presser-bar of a sewing-machine, and the operating-lever D, which is pivoted at *a*, and is, when the device is in use, connected with the usual needle-bar of the machine, whereby it is given a reciprocating motion during the operation of sewing. The foot B is supplied with an opening, *b*, through which the needle passes in the customary manner, and which permits the operator to view the stitches during their formation.

Upon the foot B are pivoted the thread-arms E E, a single pivot being utilized to secure both the shank ends of the arms. The ends of the bars are bent at an angle to the main part thereof, and said ends are turned toward each other, whereby a space is formed

between the arms, and centrally within this space is applied the cam F, which, when rotated, serves to move the arms E E apart, as hereinafter described. The free bent ends *c d* of the arms E E are in line with each other, one being elevated slightly above the other, so as to permit their extremities to pass each other, and are provided with apertures *e e*, through which the embroidering-thread is inserted, and which, during the operation of the cam F, carry the two strands of the thread back and forth across the path and from opposite sides of the line of the sewing-needle, whereby as each cross-stitch of the embroidery is laid it is sewed to the fabric being fed beneath the presser-foot.

The cam F will preferably be secured to or form a part of the circular ratchet-plate G, upon which is arranged the pawl H, and these three elements are retained in position upon the lower end of, and the pawl H moves with, the spiral shaft I, said end being passed through a conforming slot in the pawl and a round aperture in the ratchet and cam. The upper end of the spiral shaft I passes through the elongated slot *f*, cut in the horizontal lip *g* of the operating-lever D, and has a bearing in the lip J, formed on the bracket A.

The weight of the pawl H is usually sufficient to keep it in contact with the ratchet G; but for certainty of operation I have provided a small spring, *h*, which exerts a downward pressure upon the pawl, and thus insures its firm contact with the ratchet. The pawl H, being fitted on the squared end of the spiral shaft I, has a movement corresponding with that of the shaft, while the ratchet-plate G permits the shaft to turn within the central receiving-aperture, and hence has no movement except such as is imparted to it by the pawl H. In the operation of the device the ratchet-plate G and cam F have an intermittent rotary movement around the vertical line of center of the shaft I, while the pawl H has a reciprocating semi-rotary motion similar to and in time with that of the spiral shaft. In order to prevent the ratchet-plate G from turning backward, or from having any movement other than that imparted to it by the pawl H, a spring chock or detent, *m*, is pro-

vided, whose point is in constant contact with the upper surface of the ratchet, and falls behind a tooth thereof at the end of each movement of the pawl G and spiral shaft I.

5 The spiral shaft I and operating-lever D are similar to the devices of like name described in Letters Patent No. 262,003, granted to me August 1, 1882. The lever D receives its movement from the needle-bar of the machine, and in turn actuates the spiral shaft I and pawl H. The latter rotates the ratchet G and cam F, which cam, being of elongated form, forces the arms E E apart when its greatest length is transversely between them, and allows said arms to be moved toward each other again by the force of the spring *n* when its length is in line with the sides of the arms. The two positions of the arms E E are clearly illustrated, and need not be more fully described. Suffice it to say that with each downstroke of the lever D the pawl H slides backward over the ratchet-plate G, so as to engage a fresh tooth thereof, and with each upward stroke of the lever D the pawl rotates the ratchet a given distance.

In the attachment illustrated and hereinbefore described, I show a wire spring, *t*, the lower end of which is in contact with the lower part of the attachment, and the upper end is inserted in an aperture formed in the horizontal lip *g* of the operating-lever D. The purpose of this spring is to facilitate the movement of the devices, and to perform without additional means the upward stroke of the lever D. In view of this arrangement of the spring *t*, I am enabled to place the embroiderer close to the vertical line of the descent of the sewing-needle, and to perform the downstroke of the lever D simply by the pressure of the edge of the needle-bar resting upon the edge of the lip *g*. The movement of the needle-bar downward will depress the lever D, and on its upward stroke the spring *t* will cause the lever to follow the bar. I thus accomplish the operation of the lever D without the usual lips and other means which have heretofore been employed to connect the needle-bar with the means for operating the spiral shaft I. The construction described renders the device readily adjustable to the different styles of sewing-machines.

While I have shown the means for operating the thread-carrying arms as consisting of a cam arranged between the same, and a spring for holding the arms in contact with the cam, I do not wish to be understood as limiting my invention to this precise construction, as it will be obvious that the spring might be dispensed with by constructing the arms of spring metal, so as to be moved toward the cam by their own resilience, or by providing the arms with downwardly-projecting pins, and forming the cam with a groove of such shape as to give the proper movement to the arms, thus giving them positive movements in both directions. The form of my invention shown is, however, considered the best.

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

1. In an embroidering attachment for sewing-machines, the thread-carrying arms, a cam for spreading or moving said arms away from each other, and means for moving them toward each other, combined with a lever adapted to be actuated by the needle, a spiral shaft receiving movement from said lever, and means for imparting an intermittent rotary motion to said cam from said shaft, substantially as set forth.

2. In an embroidering attachment, the thread-carrying arms, a cam arranged between said arms, and a spring for holding said arms in contact with said cam, in combination with a lever adapted to be actuated by the needle-bar, a spiral shaft, and means for imparting an intermittent rotary motion to said cam from said shaft, substantially as set forth.

3. In an embroidering attachment, the thread-carrying arms, a cam for spreading or moving said arms away from each other, means for moving them toward each other, and a ratchet plate or disk connected with said cam, in combination with means for imparting an intermittent rotary movement to said ratchet-plate from the needle-bar of the machine, substantially as set forth.

4. The combination, with the frame or bracket A, provided with means whereby it may be attached to the presser-bar of the machine, and having connected therewith the part B, adapted to serve as a presser-foot, of the thread-carrying arms E, arranged horizontally on the foot B, a cam for spreading or moving said arms away from each other, means for moving them toward each other, and means for imparting an intermittent rotary movement to said cam from the needle-bar of the sewing-machine, substantially as set forth.

5. The combination, with the frame or bracket A, having the foot B, of the thread-carrying arms E, cam F, spring *n*, ratchet-plate G, and means for imparting an intermittent rotary movement to said ratchet-plate from the needle-bar of the machine, substantially as set forth.

6. The combination, with the frame or bracket A, having the foot B, of the thread-carrying arms E, a ratchet-plate having an attached cam for spreading or moving said arms away from each other, means for moving them toward each other, a pawl, and means for holding the same in yielding contact with said ratchet-plate, and means for operating said pawl from the needle-bar of the machine, substantially as set forth.

7. The combination, with the frame or bracket A, having the foot B, of the arms E, spring *n*, cam F, ratchet-plate G, pawl H, spiral shaft I, and a lever adapted to operate said shaft from the needle-bar of the machine, substantially as set forth.

8. The combination of the frame or bracket A, having the foot B, the arms E, spring *n*, cam F, ratchet-plate G, pawl H, spiral shaft

I, lever D, and spring *t*, substantially as set forth.

9. The combination of the frame or bracket A, having the foot B, the arms E, spring *n*, cam F, ratchet-plate G, pawl H, spring *h*, spiral shaft I, lever D, having slot *f*, and spring *t*, substantially as set forth.

Signed at New York, in the county of New

York and State of New York, this 8th day of December, A. D. 1883.

FRANKLIN H. CHILTON.

Witnesses:

CHAS. C. GILL,
HERMAN GUSTOW.