No. 656,967. Patented Aug. 28, 1900.

J. GRUBMAN.

ATTACHMENT FOR EMBROIDERING MACHINES.

(Application filed Mar. 10, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig 1

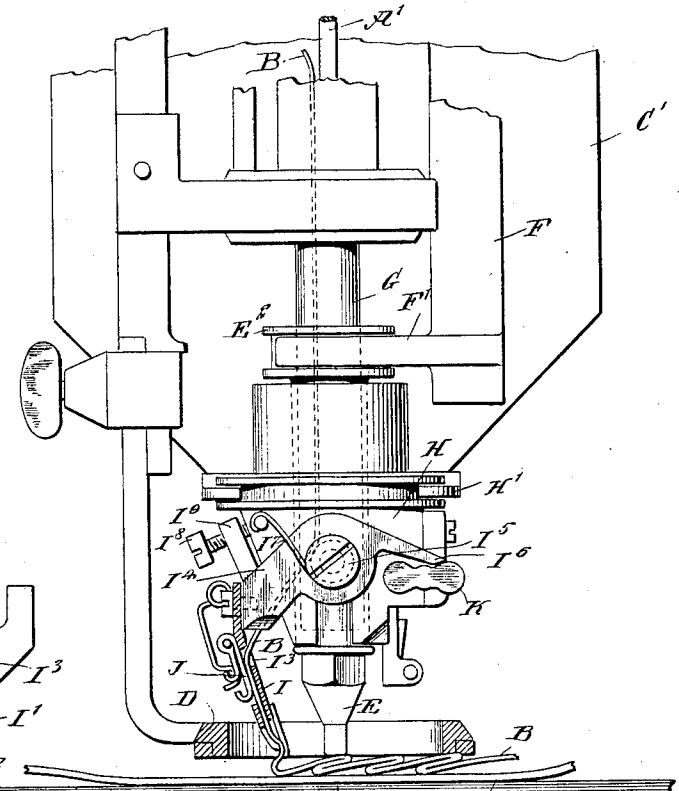


Fig 2

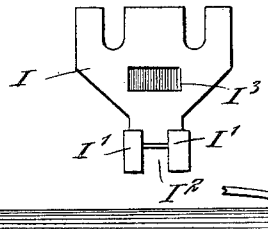


Fig 3

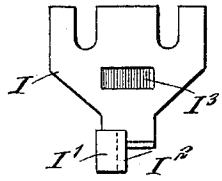
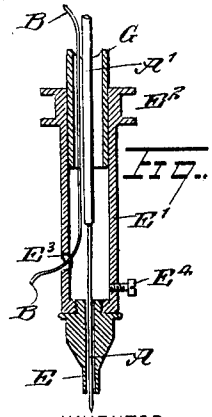


Fig. 7.



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No. 656,967. Patented Aug. 28, 1900.

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ATTACHMENT FOR EMBROIDERING MACHINES.

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(No Model.) 2 Sheets—Sheet 2.

Fig. 4.

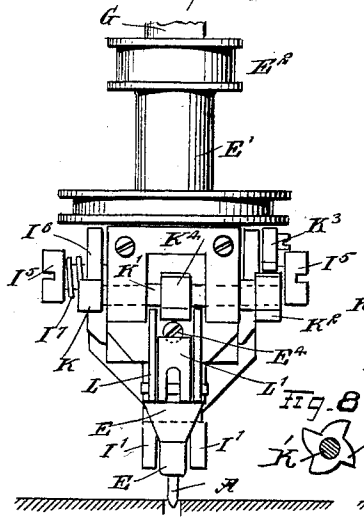


Fig. 5.

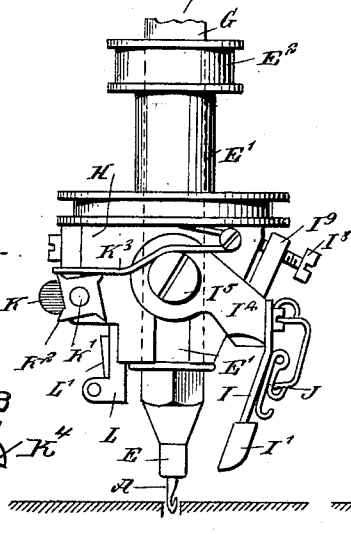


Fig. 6.

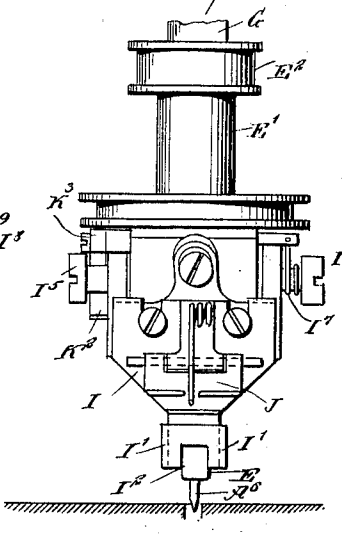


Fig. 8.

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JOSEPH GRUBMAN, OF NEW YORK, N. Y.

ATTACHMENT FOR EMBROIDERING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 656,967, dated August 28, 1900.

Application filed March 10, 1900. Serial No. 8,169. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH GRUBMAN, a subject of the Czar of Russia, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Embroidering Attachment for Sewing-Machines, of which the following is a full, clear, and exact description.

The invention relates to embroidering-machines of the Bonnaz or other type; and its object is to provide a new and improved attachment for such machines and arranged to stitch embroidering material, braid, chenille, tape, cord, bands, or the like upon the fabric to be embroidered in such a manner as to produce ruching or fluting effects.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional end view of the improvement as applied to a Bonnaz embroidering-machine, the fabric-feeding foot of which is shown in section and the attachment being arranged for producing a ruching or fluting effect. Fig. 2 is a front view of the carrier for the embroidering material. Fig. 3 is a like view of a modified form of the same. Fig. 4 is a front elevation of the improvement. Fig. 5 is a right-hand end view of the same. Fig. 6 is a rear elevation of the same. Fig. 7 is a transverse section of the needle, needle-bar, and nipple; and Fig. 8 is a side view of the star-wheel at the middle of the cam-shaft.

The improvement is shown applied to a Bonnaz sewing-machine having the usual reciprocating hook-needle A secured to the needle-bar A′ and operating in connection with a looper (not shown) to sew by "chain" or other stitch the embroidering material B upon the fabric B′, placed on a table C, said fabric B′ being moved in the desired direction by a feeder D, forming part of the usual universal feed motion of the sewing-machine. The needle A passes through a reciprocating nipple E, having a tubular shank E′ and a grooved collar E^2, engaged by the fork F′ of a vertically-reciprocating driver F, mounted to slide on the head C′ of the sewing-machine frame.

The embroidering material B extends along the needle-bar A′ inside of a needle-bar carrier G into the shank E′ and passes through an opening E^3 therein (see Fig. 7) and through an opening in the sleeve H to a carrier or embroidering-material feeder I, which plaits or otherwise lays the embroidering material B on the top of the material under the needle A, as shown in Fig. 1 and as hereinafter more fully described, it being understood that the said sleeve H and the carrier or feeder I form essential parts of the attachment, the sleeve being mounted to turn in suitable bearings H′ on the head C′ and turning with the needle and the cloth-feeder D.

The carrier I, as shown in detail in Figs. 2 and 3, is provided at its lower end with a guideway I′ for the passage of the embroidering material B, said guideway having a cut-out portion I^2 either at the middle, as shown in Fig. 2, or at one side, as illustrated in Fig. 3, to allow the passage of the needle A when it is desired to stitch the embroidering material either at its middle to the fabric A or at one side thereof, it being understood that the guideway passes with the cut-out portion under the needle, so that the needle reciprocates through the cut-out portion either at the middle or at the side of the guideway, and consequently the stitch is made either at the middle of the embroidering material or near one edge thereof.

In the carrier I, above the guideway I′, is formed an opening I^3 for the passage of the embroidering material, the latter extending downward through the hollow shaft G and through an opening in the sleeve H to reach the said opening I^3, as indicated in Fig. 1 and as before mentioned. On the back of the carrier I, below the said opening I^3, is arranged a spring-pressed hinged tension J for pressing the embroidering material against the back of the carrier and clamping it according to the tension to be given to the material B.

The carrier I is secured by screws or other means to a U-shaped carrier-arm I^4, hung on pivot-pins I^5, secured to the sides of the sleeve

H, and on the said carrier-arm I^4 is formed an extension I^6, (see Fig. 1,) engaged by an intermittently-revolving cam K, secured on a cam-shaft K', journaled in suitable bearings on the sleeve H, as is plainly indicated in Fig. 4, the said cam-shaft K' carrying a toothed wheel K^2, engaged by the free end of a flat spring K^3, secured to the sleeve H, as is plainly shown in Fig. 5, so as to hold the said toothed wheel and the cam-shaft K' against accidental turning.

At the middle of the cam-shaft K' and between its bearings is secured a star-wheel K^4, adapted to be engaged by a pawl L', pivoted on a slide L, secured on the reciprocating nipple-shank E' by a set-screw E^4, so that when the latter rises the pawl L' engages a tooth of the star-wheel K^4 and turns the latter on the cam-shaft K' accordingly, and during the movement of the reciprocating needle-bar E the shaft K' remains at a standstill. When the cam-shaft K' is turned, as described, the cam K imparts a swinging motion to the extension I^6, the arm I^4, and the carrier I, so as to swing the lower end of the carrier upon the needle A, as above described, at the time the needle is rising into an uppermost position.

As shown in the drawings, the cam-shaft K has two arms and the star-wheel K^4 has four teeth, so that during four full strokes of the needle-bar the cam-shaft K' is turned around once, and consequently the two arms of the cam-shaft K impart two forward and backward swinging motions to the carrier I, it being understood that the return motion of the said carrier is accomplished by a spring I^7, coiled around one of the pivot-pins I^5, one end of the spring being attached to the arm I^4 and the other end to the sleeve H, as shown in Fig. 1.

It is understood that when the several parts are in the position shown in Fig. 1 the carrier I is in an uppermost position away from the needle, and during the next stroke of the nipple E a quarter-turn is given to the cam K, so as to swing the carrier I downward and forward, as previously described, and during the next stroke of the nipple the cam again assumes the position shown in Fig. 1 to allow the spring I^7 to return the carrier I to its uppermost position. The next full stroke of the nipple again causes the cam K to impart a swinging motion to the carrier I and swing the latter downward and forward to the needle, and at the next full stroke of the nipple E the carrier I is again returned by the spring I^7 to the uppermost position. (Shown in Fig. 1.) It is evident that by having a single cam K on the shaft K' it requires four full strokes of the nipple for a full forward and return movement of the carrier I; but this proportion may be varied according to the shape given to the cam and to the number of teeth on the star-wheel, so that any desired number of stitches are made for one full movement of the carrier I to place the embroidering material into a fluted or intertwined position for the needle to sew it to the fabric. It is understood that when the needle goes down through the overlapped embroidering material and sews the same to the fabric then the carrier I swings rearwardly and upwardly, whereby the embroidering material is drawn out of the carrier, (see Fig. 1,) and when the carrier again swings forward under the needle as the latter rises it is evident that a plait or fold is made of the embroidering material at the carrier I, and this plait or fold is sewed upon the fabric B' by the following stitches of the needle, it being understood that the number of stitches depend on the arrangement of the cam-shaft K and the star-wheel K^4, as above explained. The upward swinging motion of the carrier I by the action of the spring I^7 is limited by a stop-screw I^8, screwing in the arm I^9 of the carrier-arm I^4, the said stop-screw abutting with its inner end against the rear of the sleeve H.

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

1. An embroidering attachment for sewing-machines, comprising a sleeve mounted to turn on a reciprocating needle-bar, a carrier pivoted on said sleeve, a reciprocating nipple, and a cam mounted to turn on said sleeve and actuated by the reciprocating nipple, to impart an intermittent rotary motion to the said cam and cause a swinging of said carrier, substantially as shown and described.

2. An embroidering attachment for sewing-machines, having a pivoted carrier, a cam-shaft carrying a cam for imparting a swinging motion to said carrier, a star-wheel on said cam-shaft, a reciprocating nipple and a slide on the nipple and having a pawl for engaging said star-wheel, to impart an intermittent rotary motion to the cam-shaft and an intermittent swinging motion to said carrier, as set forth.

3. An embroidering-machine, comprising a reciprocating needle-bar and nipple, a sleeve mounted to turn and arranged concentric to said needle-bar, a spring-pressed carrier pivoted on said sleeve, and having guideways for the embroidering material, a cam-shaft journaled on said sleeve and having a cam and a star-wheel, of which the cam is adapted to engage said carrier to swing the latter forward and downward, and a slide carried by said nipple, and having a pawl for engaging said star-wheel, substantially as shown and described.

4. An embroidering-machine, comprising a reciprocating needle-bar and nipple, a sleeve mounted to turn and arranged concentric to said needle-bar, a spring-pressed carrier pivoted on said sleeve, means for swinging the carrier forward and downward against the tension of the spring, and a stop for limiting the upward swinging motion of the carrier, substantially as described.

5. An embroidering-machine comprising a

reciprocating needle-bar, a reciprocating nipple through which the needle passes, the said nipple having a tubular shank, a sleeve mounted to turn and arranged concentric to said needle-bar, the shank of said nipple and the said sleeve having openings for the passage of the embroidering material, a spring-pressed carrier pivoted on said sleeve and having guideways for the embroidering material, and means for swinging said carrier, substantially as described.

6. An embroidering attachment for sewing-machines, having a carrier provided with an opening for the passage of the embroidering material, and a tension device on the back of the carrier below said opening, the said carrier being formed with a guideway below said opening for guiding the material to the needle, the said guideway having a cut-out portion for the passage of the needle, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH GRUBMAN.

Witnesses:
THEO. G. HOSTER,
JNO. M. RITTER.