

(No Model.)

G. W. BAKER.

EMBROIDERING ATTACHMENT FOR SEWING MACHINES.

No. 300,434.

Patented June 17, 1884.

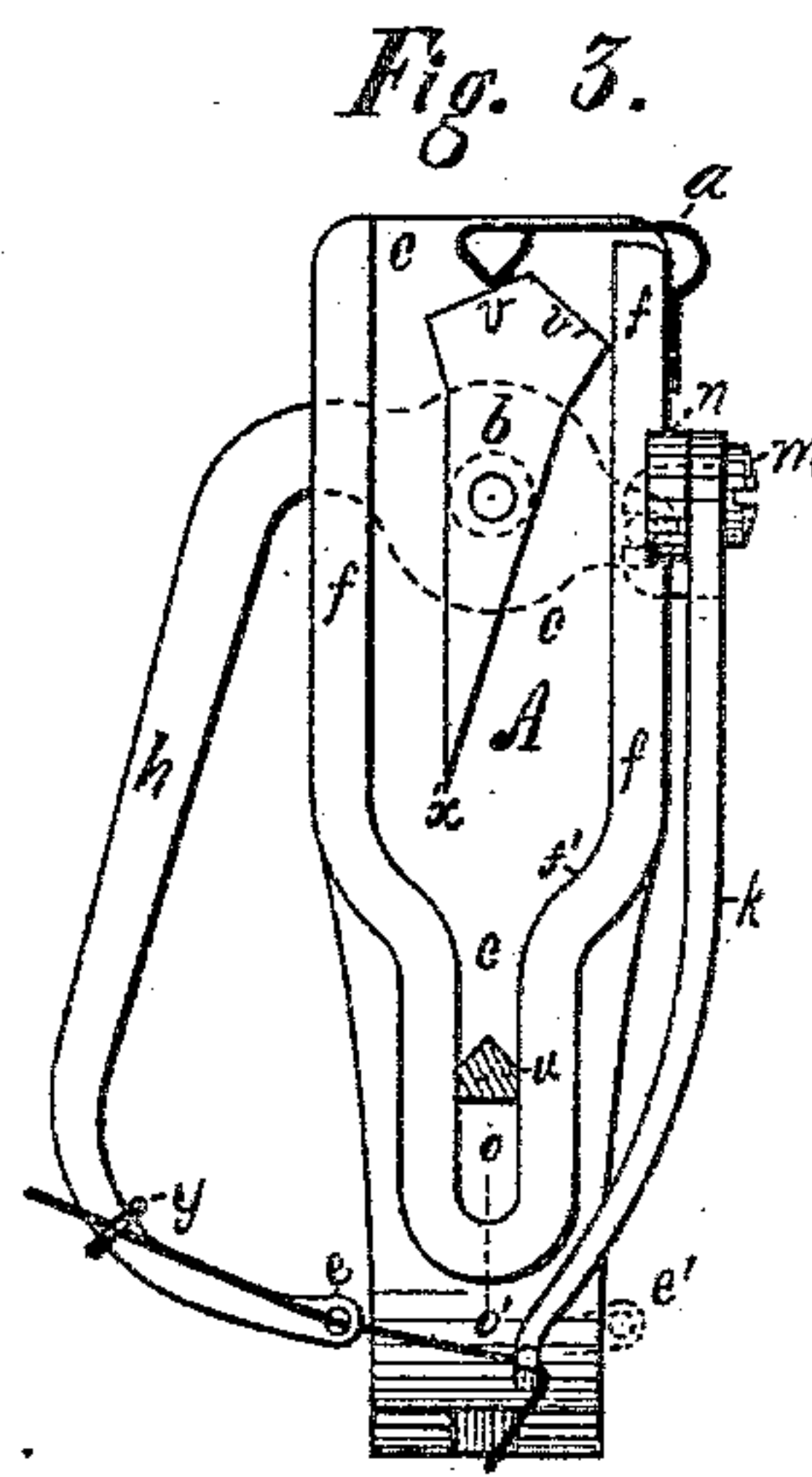
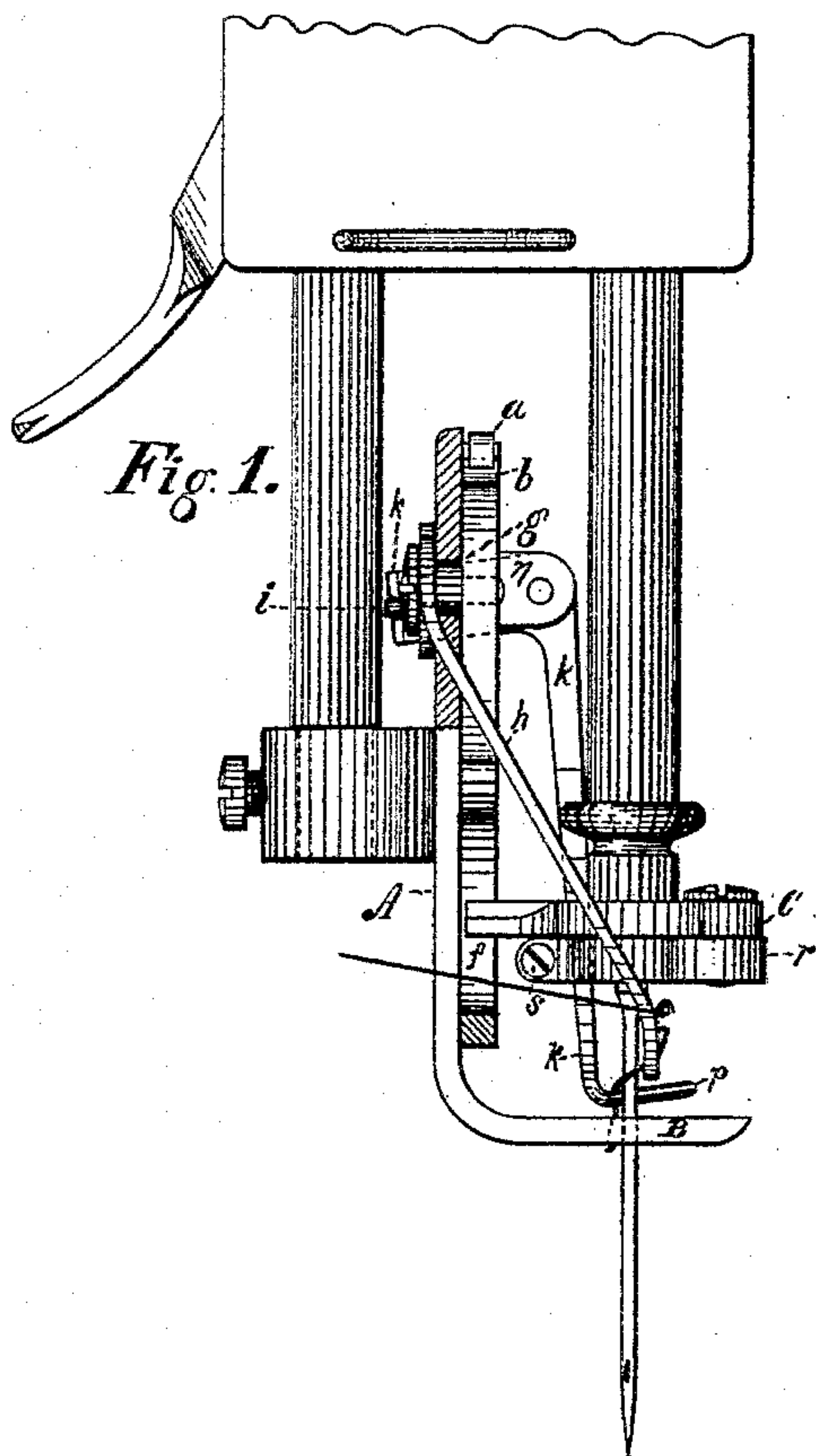


Fig. 2.

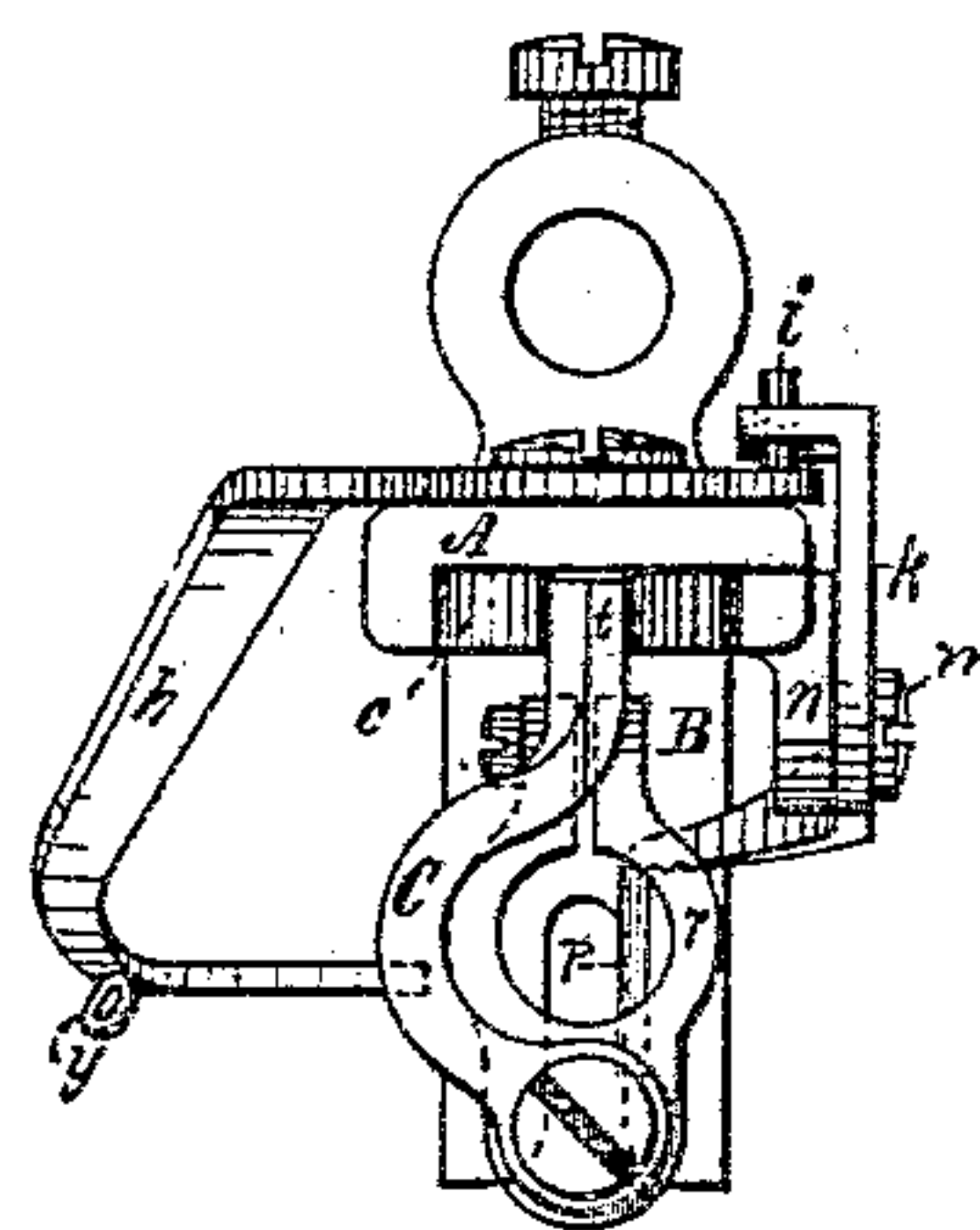
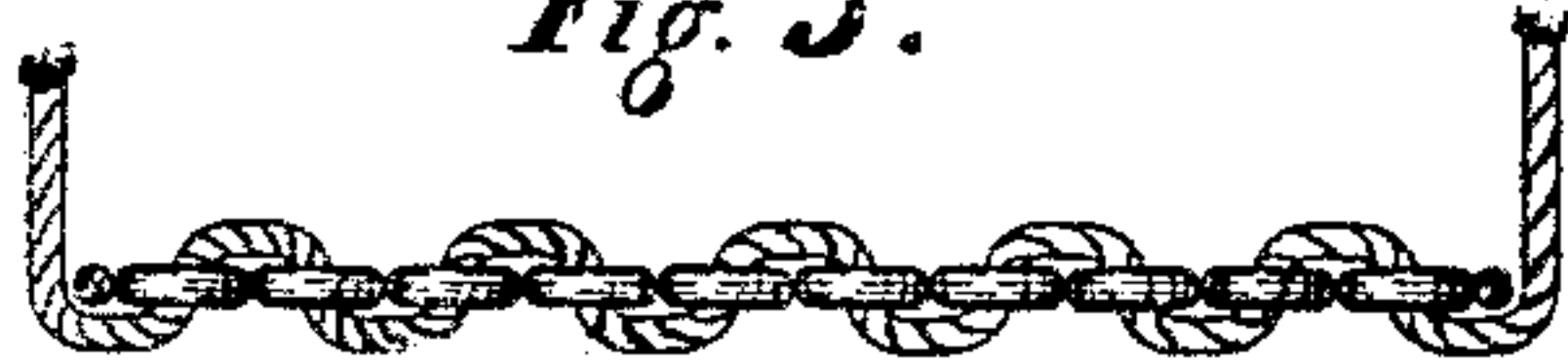


Fig. 4.



Fig. 5.



Witnesses.

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EMBROIDERING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 300,434, dated June 17, 1884.

Application filed May 19, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEO. W. BAKER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in an Embroidering Attachment for a Sewing-Machine; and I do hereby declare that the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention relates to an attachment for a sewing-machine, for laying on the surface of a fabric across the line of stitching in front of the needle-thread a single embroidery thread or braid. While it is in this position a stitch is taken, firmly interlocking it. It is then returned, forming a loop. Another stitch is taken to secure said loop, and so on alternately.

It consists of mechanism for laying the embroidery-thread; a looper for forming, releasing, and insuring the perfect uniformity of the loops; in a novel device for communicating motion to the thread-laying arm and looper from the upward movement of the needle-bar, and in means provided for changing the embroidery at the will of the operator from extended loops or scallops on one side of a row of stitching to a sinuous line, alike on both sides of the aforesaid stitching, all of which will be herein more fully described.

In the accompanying drawings, Figure 1 is a side elevation of my invention attached to a sewing-machine. The body of the embroiderer is broken away at the top, and the rib *f* on the front of said body is shown in section through dotted line *o o'*, Fig. 3. Fig. 2 is a plan or top view of my attachment removed from the machine. The retaining-spring *a* and peculiar wedge-shaped rocking piece *b* are in this view omitted, and the pivoted finger *C*, that operates the said rocking piece, is shown in position corresponding to that shown in Fig. 1. Fig. 4 shows the looped, and Fig. 5 the sinuous, line embroidery made by this attachment.

In the drawings, *A* represents the body of my attachment, which may be secured to the

presser-bar of a sewing-machine in the usual manner of attaching the presser-foot. The upper portion of the said body is enlarged, in which is a groove, *c*, cut partly through its face, said groove being bounded on opposite sides by the curved ribs *f f*, and in this groove, near its upper end, is a wedge-shaped piece, *b*, which rocks on the stud *g*, projecting from its back near its center and extending through the body *A*, said stud working freely in a hole through the said body. To this stud is rigidly secured the vibrating thread-laying arm *h*. (Shown partly by full and partly by dotted lines in Fig. 3.) This arm extends downward, is curved to clear the body *A* when vibrating, is bent forward so as to pass close to and in front of the needle a short distance above the foot *B* of the body *A* in its vibrations, and is provided at its extremity with the eye *e* for the embroidery-thread. In the opposite end of said arm is a pin, *i*, projecting from an elongation of the arm at right angles thereto, for conveying motion to the looper *k*.

Extending from the rib *f* on the right of the body *A*, and at right angles thereto in the same horizontal plane as the stud *g*, is a lug, *n*, and in the latter is a screw, *m*, on which the looper *k* vibrates, said looper being a bell-crank lever with arms of unequal lengths. The long arm of said looper extends downward, is bent forward at nearly a right angle, forming a short hook at its extremity, and is also curved to the left, so that the said hook, when vibrating, passes closely to and at the right of the needle below the path of the thread-laying arm and between it and the foot *B*. The short arm of the looper *k* extends backward past the body *A*, is there bent at a right angle toward the left, and bifurcated for engagement with the pin *i* in the thread-laying arm *h*, said pin being best shown in Fig. 2.

It is evident that, within certain limits, motion communicated to the thread-laying arm will be imparted to the looper by means of the pin and bifurcated end of the said looper, and I will now describe my novel device for communicating the said motion to the said thread-laying arm. On the lower

end of the needle-bar a split collar, *r*, is clamped by means of a screw, *s*, and on its upper side, in front of said needle-bar, is pivoted a finger, *C*, which extends partly around the needle-bar and into the groove *c* in the body *A*, its construction being such that its end *t* may swing from one side of the said groove to the other. The end *t* is fitted to work freely in the contracted lower portion of the groove *c*, and its upper corners are beveled, as shown in section at *u*, Fig. 3. The lower point of the rocking wedge *b* is shown in said Fig. 3 a little to the left of the center of groove *c*, and retained in that position by the action of a spring, *a*, which, pressing on an incline, *v*, forces the upper end of the said rocking wedge against the rib *f*, as plainly shown in the drawings.

The operation of the finger is as follows: As the needle-bar ascends, the finger impinges against the inclined surface of the rocking wedge *b*, is thereby gradually swung to the right until it strikes against the rib *f* above the center of the said rocking wedge, and, continuing its upward movement, forces the latter to the left, the incline *v* on its upper end raising the spring *a*, and as the apex of the rocking wedge passes the end of said spring, the latter, pressing on the incline *v'* of the said rocking wedge, holds it in its new position against the opposite rib, *f*, the lower end, *x*, being at the right of the center of the groove *c*, and with room between it and the rib *f* for the passage of the finger on its downward stroke. As the needle-bar descends, the finger will follow the rib *f*, and be guided by its curved surface *f'* into the central narrow groove, and as it again ascends will pass to the left of the rocking wedge, and move it in precisely the same manner as before, but in the opposite direction, this alternating movement imparting simultaneous vibrating movements to the thread-laying arm and looper in a manner readily understood from the previous description.

The operation of my invention is as follows: The embroidering attachment is secured to a sewing-machine, as shown in Fig. 1, and said machine threaded in the usual manner for sewing. The spool of embroidery-thread is located at any convenient point on the machine. The loose end of said thread is passed down through the eyelet *y*, then from the front through the eye *e* in the end of the thread-laying arm, and is then held between the needle and its thread while a stitch is taken to secure it. Starting with the thread-laying arm in the position shown in Fig. 3, with the needle-bar ascending, the latter part of its ascending movement will cause the thread-laying arm to vibrate to a point on the right of the foot *B*, (indicated by the dotted lines *e'*, Fig. 3,) carrying with it across the line of stitching the embroidery-thread, the looper at the same time vibrating back-

ward, its horizontal portion being parallel to the line of stitching. Its hook disengages from the embroidery-thread, which now lies between the path of the needle and its thread. The needle descends, a stitch is taken inclosing within it the embroidery-thread, and the needle again ascending causes the thread-laying arm to return to the left of the foot, and the looper forward to its former position, the latter passing in front of the embroidering-thread and under the thread-laying arm, thereby forming a loop in said thread, as shown in Fig. 3. Again the needle descends, passing through the loop, as shown in Fig. 1, and forms another stitch, which holds the said loop securely in position. The needle-bar ascends, again vibrates the thread-laying arm to the right, and the looper backward, as before. Said backward vibration of the latter disengages its hook from the loop of the embroidery-thread, which again lies between the path of the needle and its thread, and will be secured in that position on the descent of the needle, and these movements repeated form the looped embroidery shown in Fig. 4, the loops being extended, as shown, on one side only of the row of stitching. When it is desired to form the embroidery alike on both sides of the row of stitching, the looper is removed by taking out the screw *m*, on which it vibrates; and by then operating the machine as before, the embroidery will be formed without any extended loops, and the embroidery-thread lie closely interwoven with the needle-thread, as clearly shown in Fig. 5.

The mechanism for producing alternating vibratory motion from a reciprocating one will not be claimed, broadly, herein, but forms the subject-matter of a separate application, which was filed April 21, 1884, Serial No. 128,699.

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

1. In an embroidering attachment, the peculiar U-shaped groove *c c*, with converging boundary-ribs *f f*, the rocking wedge *b*, and thread-laying arm *h*, connected thereto, in combination with the operating-finger *C*, pivoted on the needle-bar of a sewing-machine, adapted to enter the groove *c c*, engage with the rocking wedge, and operate the thread-laying arm, substantially as herein set forth.

2. In combination with the body *A*, having the groove *c* therein, rocking wedge *b*, thread-laying arm *h*, connected thereto, and finger *C*, carried by the needle-bar, the detachable looper *k*, and means for connecting the same with the thread-laying arm, adapted to engage the embroidery-thread at each alternate vibration of the said arm, substantially as herein set forth.

3. In an embroidering attachment for sewing-machines, a body with the groove *c c* formed by converging ribs *f f* therein, a rock-

ing wedge pivoted thereon, connected to a
thread-laying arm, and provided with means
for retaining it in position while the needle
descends, in combination with the needle-bar
5 provided with an operating-finger suitably
pivoted thereto, reciprocating therewith, and
adapted to swing laterally thereon, substan-
tially as and for the purpose set forth.

In testimony whereof I affix my signature,
in presence of two witnesses, this 16th day of 10
May, 1883.

GEO. W. BAKER.

Witnesses:

M. R. HUGHES,
F. M. SANDERSON.