

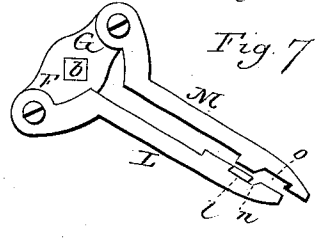
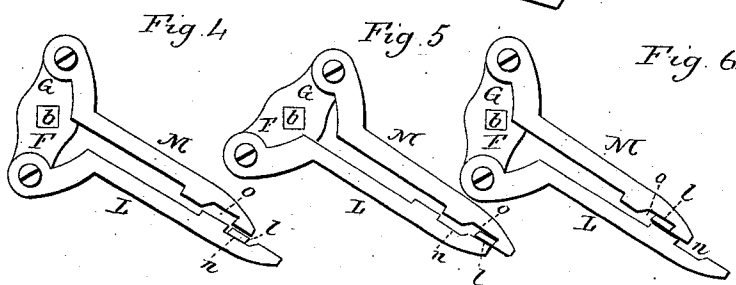
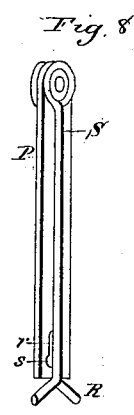
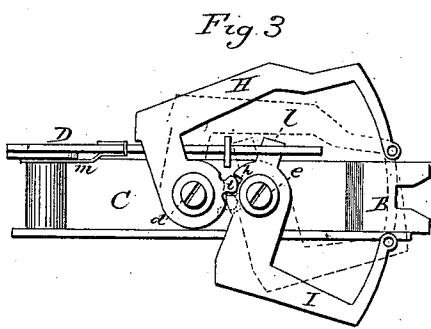
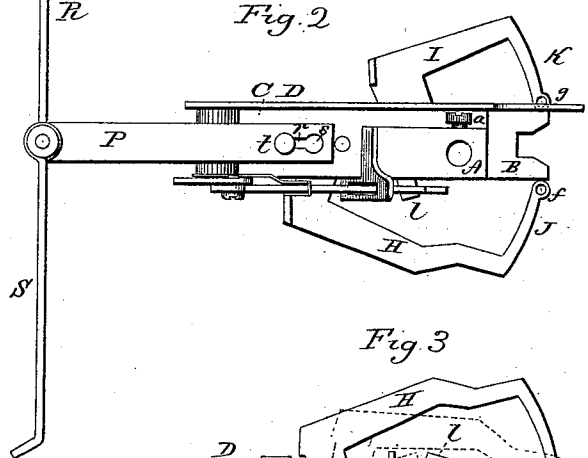
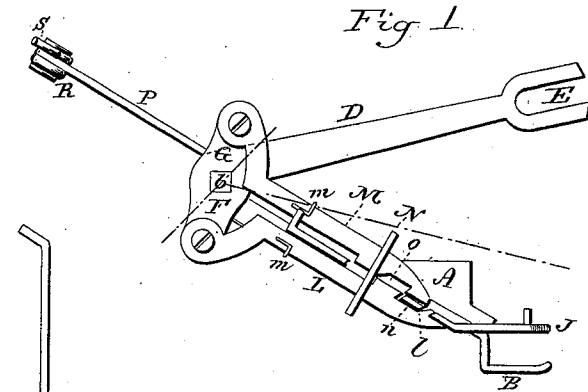
(No Model.)

A. W. JOHNSON.

EMBROIDERY ATTACHMENT FOR SEWING MACHINES.

No. 303,434.

Patented Aug. 12, 1884.



Witnesses.
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EMBROIDERY ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 303,434, dated August 12, 1884.

Application filed April 21, 1884. (No model.)

To all whom it may concern:

Be it known that I, ALBERT W. JOHNSON, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Embroidery Attachments; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view looking from the left; Fig. 2, a top or plan view; Fig. 3, an under side view. Figs. 4, 5, 6, and 7 illustrate the operation of the dogs L M; Fig. 8, a perspective view of the spool-carrier.

This invention relates to an improvement in that class of embroidery attachments in which a pair of fingers are arranged to vibrate across the path of the needle and in rear of it, each carrying an embroidery-thread, which is laid upon the surface of the work and stitched by the needle, the object of the invention being a simple and positive operation of the fingers, and whereby the attachment may be readily applied to the presser-foot of the machine; and the invention consists in the construction as hereinafter described, and more particularly recited in the claims.

A represents a socket, which is fitted for attachment to the presser-foot spindle, and to which it may be secured by a set-screw, *a*, or otherwise; B, the presser-foot proper, attached to or made a part of the socket A. The socket is extended to form a base-plate, C, to which the mechanism is attached. D is a lever hung by one end to a shaft, *b*, in the base-plate, the other end, as at E, constructed for connection with the needle-bar in the usual manner of connecting the operating-levers of sewing-machine attachments. The lever D is upon one side of the frame, and upon the opposite side of the frame, attached to the same shaft *b*, is a two-armed lever, F G, which partakes of the vibration imparted to the lever D, so as to turn from the position seen in Fig. 1 to broken lines in that same figure. Upon the under side of the base the two arms H I are hung upon pivots, respectively, *d e*. The base-plate C is inclined upward from the presser-foot, as seen

in Fig. 1. The arms H I swing in a plane parallel with this base, one of the arms H upon the left-hand side, and the other arm I upon the right-hand side, of the foot, as seen in Fig. 2. These arms carry, respectively, a finger, J K, terminating, respectively, in an eye, *f g*, these arms fitted to carry the embroidery-thread in the usual manner of this class of attachments. The hub of one arm, I, is constructed with a notch, *h*, and the other hub with a corresponding projection, *i*, the two arranged so as to work together, as seen in Fig. 3, and whereby the movement of one will impart a like movement to the other in the opposite direction, substantially as do the teeth of gear-wheels—that is to say, whichever direction one may be moved the other will be moved to a corresponding extent in the opposite direction—as indicated in broken lines, Fig. 3. From the hub of the arm I and on the opposite side a finger, *l*, is made. This finger *l* is upon the same side as the lever F G, and serves as a means for turning the arms.

To the arm F a dog, L, is hinged, and to the arm G a similar dog, M, is hinged, and so that the vibration of the lever F G gives a reciprocating movement to the two dogs. The dogs extend toward the presser-foot, and are each provided with a spring, *m*, the tendency of which is to force the two dogs toward each other. They work through a slotted guide, N.

In the nose of the dog L is a notch, *n*, and in the nose of the dog M is a like notch, *o*, corresponding substantially to the size of the finger *l* on the arm I, and so that when the lever is raised, as seen in Fig. 1, the notch *n* on the dog L will stand in connection with the finger *l*, the nose of the other dog resting on the finger. In this condition the arms I H stand in their extreme open or spread position, as seen in Fig. 3. This position of the dogs with relation to the finger *l* is more clearly seen in Fig. 4. As the lever D descends under the action of the needle-bar, the dog L will be drawn rearward, as before described. In this movement the end of the notch *n* next the presser-foot is inclined, so that the dog escapes from the finger *l*, as seen in Fig. 5, and therefore retreats without action upon that arm. As the dog L thus retreats the dog M advances

and its notch *o* falls upon and engages the finger *l* as the descent of the lever *D* is completed, and as seen in Fig. 5. Then when the lever *D* ascends under the action of the needle-arm the position of the dogs is again reversed, as seen in Fig. 6, and in the retreat of the dog *M* the finger *l* is turned to its other extreme, thereby correspondingly turning the arm *I* and also the arm *H* into the position indicated in broken lines, Fig. 3. Then, as the lever *D* again descends, the dog *M* advances, the inclined end of its notch causing it to rise and escape from the finger *l* and ride over it, as seen in Fig. 7, without effect upon it, and the dog *L* as it arrives at its extreme retreat rises to bring its notch *n* into engagement with the finger *l*, as seen in Fig. 7, so that in the next rise of the lever *D* the dog *L* will advance and return the finger *l*, and with it the arms *I* *H* to their open position. The working end of the notch in each lever is undercut, so as to make a hook-like engagement within the corresponding edge of the finger *l*, and the depth of the notches *n o* corresponds substantially to the thickness of the finger *l*, and so that while one dog is engaged with the finger the other will ride upon it, and be prevented from engaging it, the notch of the one dog, *L*, operating to move the finger in one direction and escape from it on the retreat, the notch of the other dog, *M*, operating to turn the finger in the opposite direction and escape from it on its advance. Thus the arms *I* *H* are opened on one ascent of the needle and closed on the next ascent, the descent of the needle having no effect upon those arms.

In some cases only one of the embroidery-thread-carrying arms is required, and in such case the arm *I* will be employed, and the arm *H* may be dispensed with. Sufficient friction is applied to the hubs of the arms *H* *I* to prevent their accidental turning. This may be done by the screws which form their pivots, or otherwise.

Two spool-carriers are desirable for this class of attachments, and to construct them for convenient application to the attachment I construct an arm, *P*, fitted at one end with a narrow slot, *r*, one end of the slot enlarged, as at *s*. On the bed *C* is a headed stud, *t*, its head corresponding in diameter to the enlarged portion *s* of the slot, and its body to the narrower portion, and so that it may be set over the head of the stud, and then moved to bring

the narrower portion of the slot onto the body, as seen in Fig. 2, which will securely hold the arm to the attachment. At the outer end of this arm two fingers, *R* *S*, are hinged, so as to extend the one to the right and the other to the left, as seen in Fig. 2, but so as to turn upon their hinge as a pivot in a plane parallel with the arm *P*, to adjust them to the proper inclination with relation to the embroidery-arms, as well as to permit them to be turned upon the arm to contract their extent when the attachment is not required, and as seen in Fig. 8.

I claim—

1. In an embroidery attachment, the combination of a vibrating embroidery-arm hinged to the base so as to swing in a plane across the path of the needle, and constructed to carry the embroidery-thread, a lever, *D*, constructed for connection with the needle-bar, the two dogs *L* *M*, hung to the pivot-shaft of the said lever, the one below and the other above the axis of said shaft, each provided with a notch at its nose end, the said dogs arranged the one to engage the embroidery-arm in one ascent of the needle-bar and escape from it on the return, the other to engage said arm in the next ascent of the needle-bar and escape therefrom on the return, and whereby one ascent of the needle-bar will turn the embroidery-arm in one direction, and the next ascent will return the embroidery-arm, substantially as described.

2. In an embroidery attachment, the combination of a pair of vibrating arms hung upon independent pivots, the hub of one constructed with a recess, *h*, the other with a corresponding projection, *i*, whereby the movement of one will be imparted to the other, one of the arms constructed with a finger, *l*, projecting from its hub, the lever *D*, constructed for connection with the needle-bar, the two-armed lever *F* *G*, in connection with the lever *D* and upon the same axis, the two dogs *L* *M* hinged to the lever *F* *G*, respectively, the one above and the other below the axis, the nose of each of the said dogs constructed with a notch, arranged to alternately engage the said finger *i*, substantially as described.

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