(No Model.)

A. W. JOHNSON.

EMBROIDERING ATTACHMENT FOR SEWING MACHINES.

No. 384,257. Patented June 12, 1888.

Fig. 1.

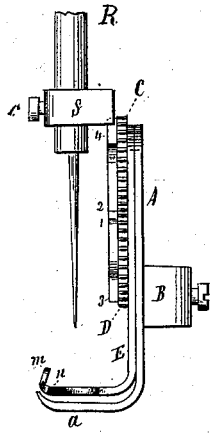


Fig. 2

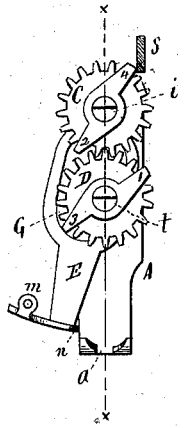


Fig. 3.

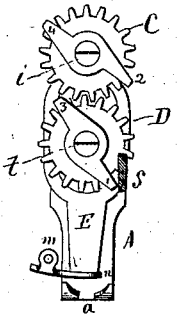


Fig. 4

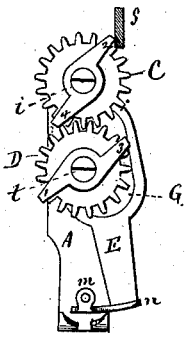


Fig. 5.

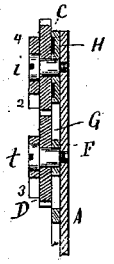


Fig. 6.

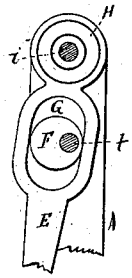
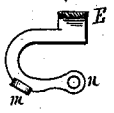


Fig. 7.

Fig. 8.



WITNESSES:

Albert H. Moulton.

Jonathan W. Chapin.

INVENTOR.

Albert W. Johnson.

UNITED STATES PATENT OFFICE.

ALBERT W. JOHNSON, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE PEERLESS BUTTON HOLE ATTACHMENT COMPANY, OF CONNECTICUT.

EMBROIDERING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 384,257, dated June 12, 1888.

Application filed April 26, 1886. Serial No. 200,218. (No model.)

To all whom it may concern:

Be it known that I, ALBERT W. JOHNSON, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Embroidery Attachments for Sewing-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in that class of embroidery attachments wherein a thread-carrier for delivering the embroidery-thread upon the surface of the fabric to be ornamented is made to cross the line of stitching of the machine from side to side in front of the needle alternately in opposite directions as each succeeding stitch of the machine is formed; and it consists in the mechanism employed to impart the above-described movements to the carrier when connected with and actuated by the needle-bar, which mechanism is composed of two wheels pivoted to a suitable frame and geared together, each provided with two wings projecting at opposite sides practically on a line with the center of the wheel, an alternating lug driven by the needle-bar, to which it is connected, arranged to impinge against said wings, whereby an intermittent rotary movement is given to said wheels, an eccentric or cam fixed to one of the wheels and adapted to engage and work in a slot in the carrier, and a spring arranged to produce friction upon one of said wheels.

In the drawings, Figure 1 is a side elevation of my invention. Figs. 2, 3, and 4 are front elevations of the same, showing the lug in section. Fig. 5 is a vertical section taken on the broken line *x x* in Fig. 2. Fig. 6 is a front elevation of part of my device, the wheels being removed. Fig. 7 is a top view of the lug as attached to a needle-bar, shown in cross-section; and Fig. 8 is a top view of the lower curved end of the carrier.

Similar letters refer to similar parts throughout the several views.

A vertical frame, A, bent and formed into a presser-foot, *a*, at its lower end, is provided with a hub, B, adapted to be attached to the presser-bar of a sewing-machine. Pivoted to the frame A, upon pivots *i t*, are two wheels, C D, one above the other, geared together and provided with wings 1 2 3 4, projecting outwardly. Hung upon the same pivot with the wheel C, between it and the frame A, extending downward also between the wheel D and the frame, is the thread-carrier E, bent outwardly and curved at its lower end to adapt it to pass in front of the needle of the machine. At this end the carrier is provided with a guide-hole, *m*, and an eye, *n*, for the guidance and delivery of the embroidery-thread. On the back face of the wheel D and secured thereto is an eccentric, F, which engages and works in a slot, G, in the carrier E. A spring-washer, H, rests in an annular recess in the carrier E, concentric with its pivot *i*, upon which it is hung, and is in frictional contact with the back face of the wheel C.

R designates a portion of a needle-bar of a sewing-machine, to which is attached the lug S, which may be rigidly held in proper position by the needle-screw *r*.

The operation of my device is as follows, beginning with the several parts in the positions shown in Fig. 2, where the lug S (seen in vertical section) is at its highest point reached at the upstroke of the needle-bar, and the carrier E is at its extreme position at the left of the path of the needle, such path being represented by the broken line *x x*. As the lug S descends, carried by the needle-bar, it impinges against and carries downward the wing 1 of the wheel D, which is thereby caused to turn on its pivot practically one-quarter of a revolution by the time the lug reaches the lower limit of its stroke. The wheels C and D being of equal size and geared together, the wheel C will also have turned one-quarter of a revolution, but in the opposite direction, bringing thereby its wing 2 across the path of the lug S, and the carrier E, turning upon its pivot, will have been carried by the eccentric F, turning in the slot G, into a central position, as shown in Fig. 3, which also shows the positions of the various parts at this stage of

the operation. As the needle-bar next ascends, the lug S impinges against and carries upward the wing 2 of wheel C, causing thereby both wheels to again turn one-quarter revolution, as before, and wing 3 of wheel D to take its position across the path of the lug, and the eccentric F to move the carrier to its extreme position to the right. The positions of the several parts at this stage of the operation are shown in Fig. 4. When the lug S next descends, it impinges against and carries downward wing 3 of wheel D, causing the wheels to turn, as before, one-quarter revolution, bringing thereby wing 4 of wheel C across the path of the lug and the carrier again into the position shown in Fig. 3. At the next upstroke of the needle-bar the lug S impinges against and carries upward wing 4 of wheel C, causing the wheels to again turn one-quarter revolution, thus completing one entire revolution of said wheels and moving the carrier from its last central position again to its extreme left, so that all the parts will have assumed their first positions. It will be observed that each stroke of the needle-bar in either direction causes the wheels C D and the eccentric F to turn one-quarter of a revolution, and that one-half revolution is made by them during the formation of one stitch by the machine, or while the needle-bar makes one stroke in each direction, and that the carrier is thereby made to swing upon its pivot from one extreme to the other of its path across the line of stitching, alternately crossing in opposite directions as each succeeding stitch is formed.

The object of the spring-washer H is to produce friction upon one of the wheels C D, to prevent them from being thrown farther than the lug S necessarily turns them when in rapid motion.

It is not essential in my invention that the driving-lug S should be rigidly fixed to the needle-bar, as it may be guided in its proper path by other means and made to engage loosely with the needle-screw, or otherwise connected with the moving mechanism of the machine, whereby it is caused to reciprocate or alternate with the needle-bar and impinge against the wings 1 2 3 4, as described.

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

1. In an embroidery attachment for sewing-machines, the combination, with a supporting-frame, A, of two wheels, C D, geared together and provided with wings 1 2 3 4, an operating-lug connected and actuated by the needle-bar and impinging alternately against said wings, whereby an intermittent rotary movement is given to said wheels, the thread-carrier, and means for communicating motion from said wheels to the thread carrier, substantially as described.

2. The combination of the frame A, carrier E, wheels C D, provided with wings 1 2 3 4, eccentric or cam F, spring H, and an operating-lug connected to and actuated by the needle-bar and impinging alternately against said wings, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT W. JOHNSON.

Witnesses:

ALBERT H. MOULTON,

JONATHAN W. CHAPIN.