

W. CARPENTER.

Button Hole Attachment for Sewing Machines.

No. 95,320.

Patented Sept. 28, 1869.

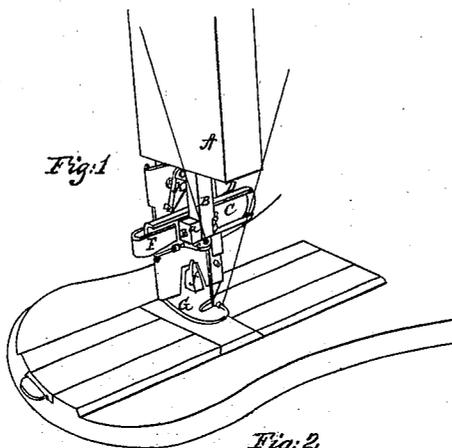


Fig. 1

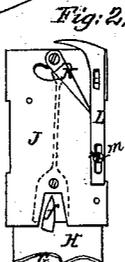


Fig. 2.



Fig. 4



Fig. 5.

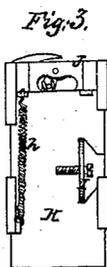


Fig. 3.

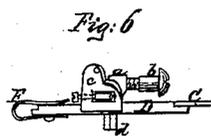


Fig. 6



Fig. 9

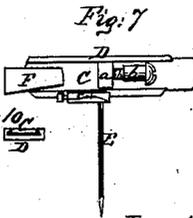


Fig. 7



Fig. 10

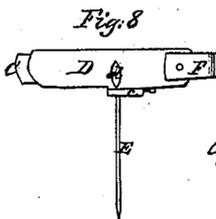


Fig. 8

Witnesses.

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IMPROVEMENT IN BUTTON-HOLING ATTACHMENT FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. 95,320, dated September 28, 1869.

To all whom it may concern :

Be it known that I, WILLIAM CARPENTER, of Fairbury, in the county of Livingston and in the State of Illinois, have invented certain new and useful Improvements in Button-Hole Attachment for Sewing-Machines; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention is intended particularly as an improvement upon the "Singer sewing-machine," and consists in giving to the needle a reciprocating motion on the needle-bar, as well as a vertical motion with said needle-bar, whereby I am enabled to make button-holes, overseam, embroider, &c. This I accomplish by attaching the needle to a sliding bar, which bar moves on another bar, that is secured to the lower end of the needle-bar, said sliding bar, to which the needle is attached, obtaining its reciprocating motion from a vibrating finger mounted upon an adjustable plate, attached to the presser-foot or its attachments. In order to enable others skilled in the art to which my invention appertains, to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a perspective of the head of a sewing-machine, with my device attached to the same. Fig. 2 is a front view of the adjustable plate, with the vibrating or reversible finger that operates the needle, all attached to the presser-foot connecting-plate. Fig. 3 is a rear view of the presser-foot connecting-plate, showing the manner of attaching the adjustable plate to the same. Fig. 4 is a rear view of the adjustable plate, the front of which is shown in Fig. 2. Fig. 5 is a perspective of the presser-foot. Fig. 6 is a bottom view of the sliding bar, to which the needle is attached, and the stationary bar, on which the same slides. Fig. 7 is a front view, and Fig. 8 is a rear view of the same. Fig. 9 is a side view of the presser-foot connecting-plate, and Fig. 10 is an end view of Fig. 7.

A represents the head of a sewing-machine, through which the needle-bar B operates vertically up and down.

To the lower end on the rear side of said needle-bar B is secured a bar, C, at right angles to the needle-bar. This bar C is, on its front side, about the center, provided with a projection, *a*, through which a screw, *b*, passes, said screw also passing through the lower end of the needle-bar, thus firmly securing the bar C to the needle-bar B.

On the rear side of the bar C is placed a grooved bar, D, the groove in the same being of such size as to admit the bar C into the same, and to form a dovetailed slide, so that the bar D can easily be moved back and forth on the stationary bar C.

On the under side of the sliding bar D is a projection, *c*, which extends forward, and in which the needle E is firmly secured in any suitable manner.

At one end of the bar D is secured a spring, F, which is bent forward and inward, and bears against the bar C, so as to hold the sliding bar D in whatever position it may be moved, by the means that will be hereinafter set forth.

On the rear side of the bar D is a cam or projection, *d*, as seen in Figs. 6 and 8.

The usual presser-foot in the Singer sewing-machine I dispense with, and use another presser-foot, G, of any suitable construction, said presser-foot being provided with a vertical plate, H, having an ear, I, on its rear side, by means of which it is firmly secured to the presser-bar. A screw passing through said ear into the presser-bar accomplishes this fully.

On the front side of the presser-foot connecting-plate H is placed another plate, J, the sides of which are turned, so as to form clasps fitting around the edges of the plate H, which allow the plate J to slide up and down on the same. The inner or rear side of the plate J is grooved or cut out, so as to form a vertical recess its entire length from top to bottom. In this recess is pivoted a rod, *e*, having an enlarged plate at its lower end, as seen in Fig. 4, from which a cam-shaped projection, *f*, extends forward through a slot in the lower end of the plate J.

The upper end of the rod *e* is forked, and embraces a pin on the rear side of a finger, K, which is pivoted in the center at the upper

edge, on the front side of the plate J, said plate having a suitable curved slot, through which the pin mentioned extends toward the rear.

The plate J, being constructed and attached in the manner set forth, and so that the pivot-points of the finger K and rod *e* are exactly on a line in rear of the vertical line of motion of the needle-bar, the operation for giving the needle its reciprocating motion will be readily seen.

Supposing the finger K and projection *f* are in the position represented in Fig. 2, then when the needle-bar moves upward, the projection *d* on the sliding bar D, to which the needle is attached, will strike the finger K, and the side of this finger, being an inclined plane, will cause the bar D, with the needle, to be moved a certain distance on the bar C to the left. Then when the needle-bar descends again, the said projection *d* will strike the projection *f* on the left side, and cause it (viz., the projection *f*) to move to the right. This, of course, reverses the position of the finger K, so that at the next upward stroke of the needle-bar the projection *d* will come on the right side of said finger, and cause the bar D, with the needle, to move the same distance back to the right again; and so on, at every upward stroke the needle is changed, and at every downward stroke the device, by which the change of the needle is effected, is placed in proper position to make such change. The plate J is held in position on the plate H in the following manner:

On the rear side of the plate H, at the upper edge, is attached a spiral spring, *h*, the lower end of which is secured to the lower rear edge of the sliding plate J, by which means said sliding plate is at all times pressed up against the head of the machine. But if the plate J were at all times in exactly the same position, then, as the needle is always raised to the same height, the stitch would be of the same length, because the needle would at all times shift the same distance.

To avoid this, and to enable the operator to make any-sized stitch he may desire, I attach to the plate J an adjustable guide-bar, L, which can be moved up and down on said plate, and fastened at any point desired by a screw, *m*. This bar L is, at its upper end, bent inward, as seen in Fig. 2.

Now, it will be seen that if this bar is

placed so as not to extend above the plate J, then the upper edge of said plate will be pressed against the head of the machine, and, of course, the finger K be raised to its highest point. As the needle-bar is always raised to the same height, the projection *d* will only follow the inclined side of the finger for a short distance, and consequently the needle is moved only a very short way to the right or left. But in proportion as the bar L extends above the plate J, the finger K is lowered, and consequently the projection will have a proportionately greater distance to follow the inclined side of the finger, and hence the needle will be moved a greater distance to the right or left.

Although this device is particularly intended to be used in connection with a Singer sewing-machine, it may be used with any other, in which case it will have to be slightly modified to suit the same.

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

1. The grooved sliding bar D, moving from side to side on the bar C, and provided with projection *c*, cam *d*, and spring F, all substantially as and for the purposes herein set forth.

2. The plate J, constructed as described, with a vertical groove or recess on the rear side, and sliding on the presser-foot connecting-plate H, substantially as and for the purposes herein set forth.

3. The movable cam *f*, forked rod *e*, and reversible finger K, all constructed and combined with the plate J, to operate in the manner and for the purposes herein set forth.

4. The adjustable bar L, constructed as described, on the sliding plate J, to regulate the backward and forward motion of the needle, substantially as herein set forth.

5. The sliding plate J, connecting with the presser-foot connecting-plate H by means of a spring, *h*, so as to hold the said plate J up to the head of the machine, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 21st day of June, 1869.

WM. CARPENTER.

Witnesses:

C. M. ALEXANDER,
J. M. MASON.