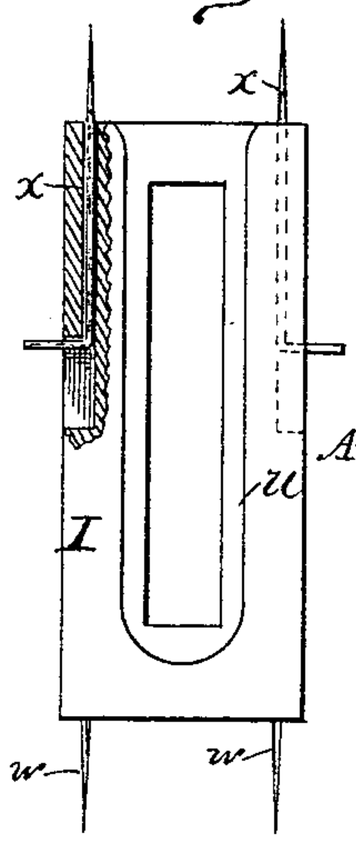
(No Model.)

W. M. AMMERMAN.

BUTTON HOLE ATTACHMENT FOR SEWING MACHINES.

No. 388,172. Patented Aug. 21, 1888.

Fig. 4.



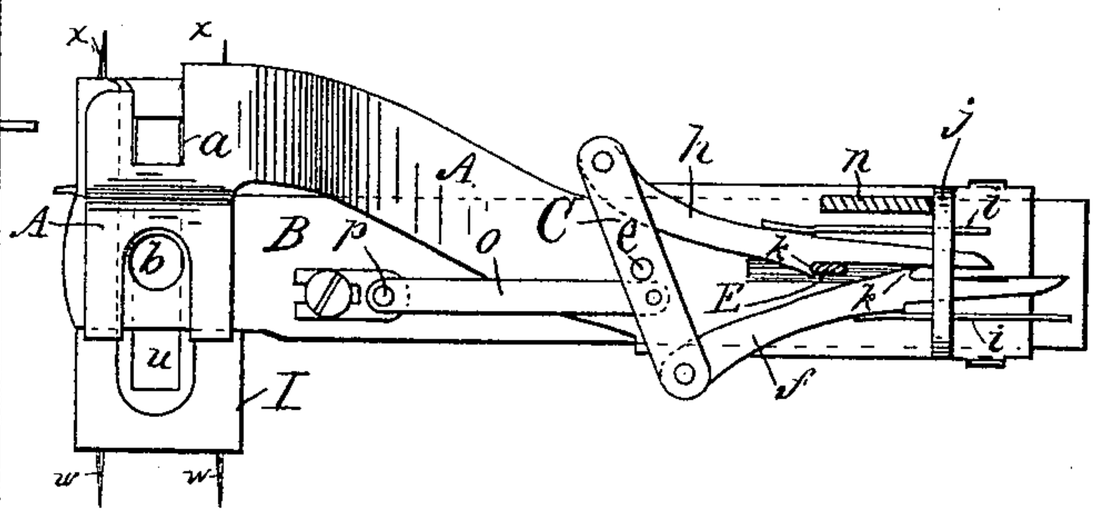


Fig. 3.

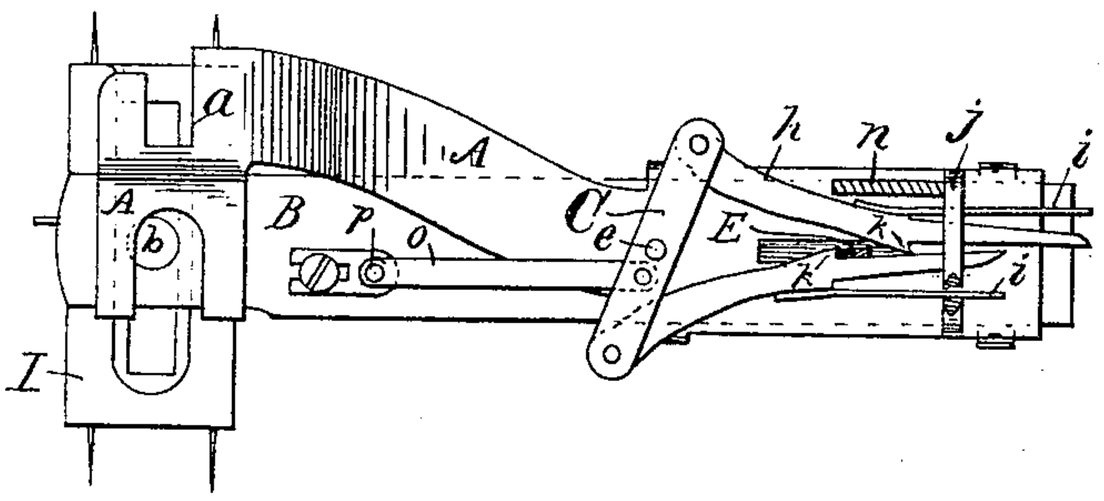
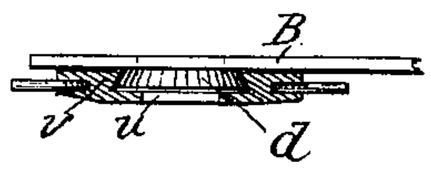


Fig. 2.

Fig. 5.



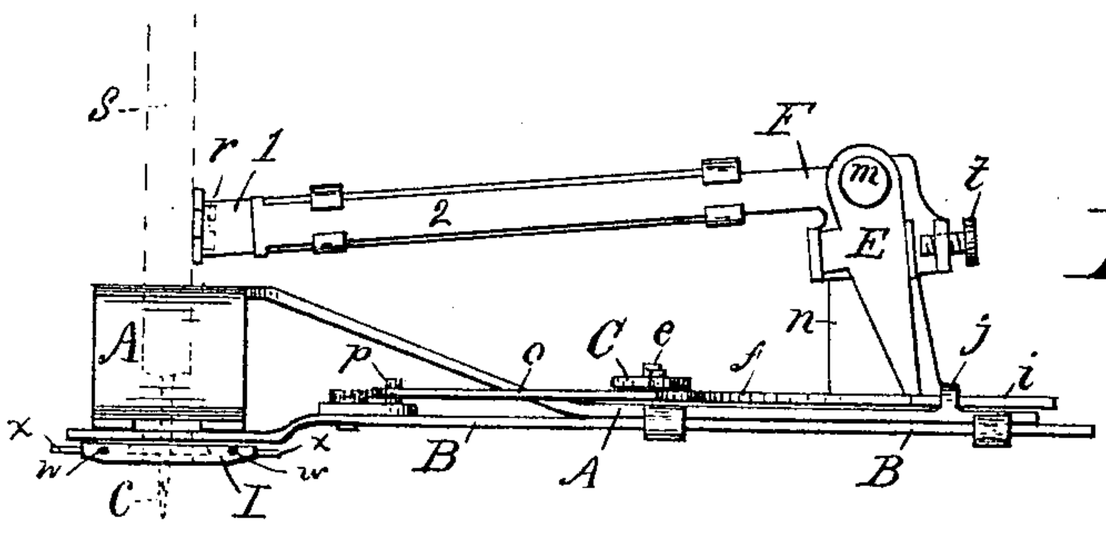


Fig. 1.

Witnesses.
M. Carsten.
V. M. Hood.

Inventor.
William M. Ammerman.
By His Attorney
H. P. Hood.

UNITED STATES PATENT OFFICE.

WILLIAM M. AMMERMAN, OF CHARLESTON, ILLINOIS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO EDWIN J. TOOF, OF NEW HAVEN, CONNECTICUT.

BUTTON-HOLE ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 388,172, dated August 21, 1888.

Application filed June 13, 1887. Serial No. 241,167. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. AMMERMAN, a citizen of the United States, residing at Charleston, in the county of Coles and State of Illinois, have invented a new and useful Improvement in Button-Hole Attachments for Sewing-Machines, of which the following is a specification.

My invention relates to an improved sewing-machine attachment for working button-holes.

The objects of my improvement are to provide, in a button-hole-working attachment, an improved detachable cloth-clamp and improved means for reciprocating the slide to which the cloth-clamp is attached, whereby the button-hole and the cloth surrounding it are alternately presented in the path of the sewing-machine needle, all as hereinafter fully described.

The accompanying drawings illustrate my invention.

Figure 1 is a side elevation. Fig. 2 is a plan in which the actuating-lever is removed and the cloth-clamp carrier is shown in position for bringing the cloth in the path of the needle. Fig. 3 is a similar plan showing the cloth-clamp carrier in position for bringing the button-hole in the path of the needle. Fig. 4 is a plan, on a larger scale, of the cloth-clamp. Fig. 5 is a transverse section of the same, showing also the end of the clamp-carrier in elevation.

A indicates the body of my attachment, to which the other parts are secured, and which is secured to the foot-bar of the sewing-machine at *a*, in place of the ordinary presser-foot.

B is the cloth-clamp carrier, which is mounted on the under side of the body A, so as to slide longitudinally thereon. The forward end of carrier B is provided with a hole, *b*, through which the sewing-machine needle *c* may pass, and said hole is surrounded on the under side of the carrier by an annular tapering flange, *d*.

C is a short bar pivoted at *e* to the upper side of the body A. Pivoted to the opposite ends of bar C are a pair of arms, *f* and *h*, which are bent toward each other, so as to lie parallel at their free ends, and are forced lightly together by flat springs *i i*, secured to their outer edges and passing through an opening in the transverse guide-bar *j*, which is secured to the body A. The opposed edges of arms *f* and *h* are each provided with a projecting slightly-hooked shoulder, *k*, which is adapted to engage the front edge of a lever, E, which is pivoted at the opposite end by a stud, *m*, to a short standard, *n*, which forms a part of the body of the attachment. Bar C is connected to the cloth-clamp carrier B by a short pitman, *o*, which is pivoted at one end to the bar and at the other end to a pin, *p*, which is adjustably secured to the carrier.

F is a bell-crank lever, pivoted, also, on stud *m*, and having its longer arm adapted to engage a screw-stud, *r*, projecting from the needle-bar *s*. The shorter arm of lever F embraces loosely lever E at a short distance below stud *m*, the arrangement being such that when lever F is vibrated vertically there is a certain amount of lost motion between it and the lever E, which amount is regulated by the adjusting-screw *t*, by which means the length of the movement communicated from the needle-bar to lever E is regulated. To avoid cramping the movement of the needle-bar, the long arm of lever F is formed in two parts, 1 and 2, 1 being attached to the needle-bar and sliding slightly on the other.

The cloth-clamp consists of a flat plate, I, having a central longitudinal slot, *u*, the sides of which are undercut, as at *v*, to receive the tapering annular flange *d*, which projects from the under side of the carrier B. One end of that portion of the slot which is undercut is semicircular and the other end is open, so that the plate may be turned on the flange, as on a bearing, at one end, and be easily drawn on or off the flange at the other or open end. For the purpose of securing the cloth to the plate I, two fixed pins, *w w*, project from one end of the plate, and a pair of sliding pins, *x x*, are arranged to slide within the body of the plate at the opposite end, so as to be projected from the end of the plate or retracted within the plate at the will of the operator.

In operation the body A of the attachment is secured to the foot-bar, parallel with the driving-arm of the sewing-machine, in place

of the presser-foot, as before described, and lever F is connected with the needle bar, so that the free end of its longer arm will move up and down therewith. The cloth is now secured to the cloth-clamp by the pins *w w* and *x x*, so that the slit for the button-hole is central with the slot *u*, the clamp being removed from the carrier-plate for that purpose. The cloth-clamp is now slipped over flange *d*, the flange entering the open end of the undercut portion of slot *u* and the slot lying parallel with the line of feed of the sewing-machine. The sewing-machine being now put in motion, with the first upward movement of the needle-bar lever E, moved by lever F, engages the shoulder *k* of arm *f*, carrying arm *f* forward and swinging bar C on its pivot, and thus forcing arm *h* backward and carrying the pitman *o* and the carrier B forward to the position shown in Fig. 2. The needle-bar and needle now descend and the needle passes through the cloth a short distance from the button-hole slit. During the descent of the needle-bar lever E is swung backward to its first position, the spring *i* of arm *h* yielding as the arm is pushed laterally by the lever as it passes backward over shoulder *i* of arm *h* and the cloth-clamp carrier remaining stationary. At the next downward movement of the needle-bar shoulder *k* of arm *h* is engaged by lever E in its forward movement, and the bar C is swung in the opposite direction, thus drawing the carrier B backward to the position shown in Fig. 3, so that the next descent of the needle is through the slit of the button-hole. The cloth-clamp is thus alternatety moved sidewise in opposite directions with each upward movement of the needle-bar, and at the same time is moved forward on flange *d* by the feed mechanism of the sewing-machine operating on the cloth secured to the clamp. When the semicircular end of the slot is reached, the cloth-clamp is turned by hand until the other straight side is reached, and the cloth and clamp are then moved along by the feed mechanism of the sewing-machine, as before, until the other side of the button-hole is stitched.

I claim as my invention—

1. In a sewing-machine attachment for working button-holes, the combination, with the presser-foot bar, the stitch-forming and the feeding mechanism of a sewing-machine, of the body A, having means for securing it to the presser-foot bar, carrier B, arranged to slide longitudinally thereon and having the downwardly-projecting tapering annular flange *d*, the slotted cloth-clamp mounted on said flange, bar C, arms *f* and *h*, each having a hooked shoulder, *k*, and a spring, *i*, guide-bar *j*, lever E, and lever F, having adjusting-screw *t*, all arranged to co-operate in the manner and for the purpose specified.

2. In a sewing-machine attachment for working button-holes, the combination, with the presser-foot bar, the stitch-forming and the feeding mechanism of a sewing-machine, the body A, secured to the presser-foot bar, and the reciprocating cloth-clamp carrier B, having hole *b* and tapering annular flange *d*, of the plate I, having slot *u*, adapted to engage said flange *d*, fixed pins *w w*, and sliding pins *x x*, arranged to be retracted within the plate, all substantially as and for the purpose specified.

WILLIAM M. AMMERMAN.

Witnesses:
GEO. W. ROSEBAUGH,
I. L. SWEGLE.