

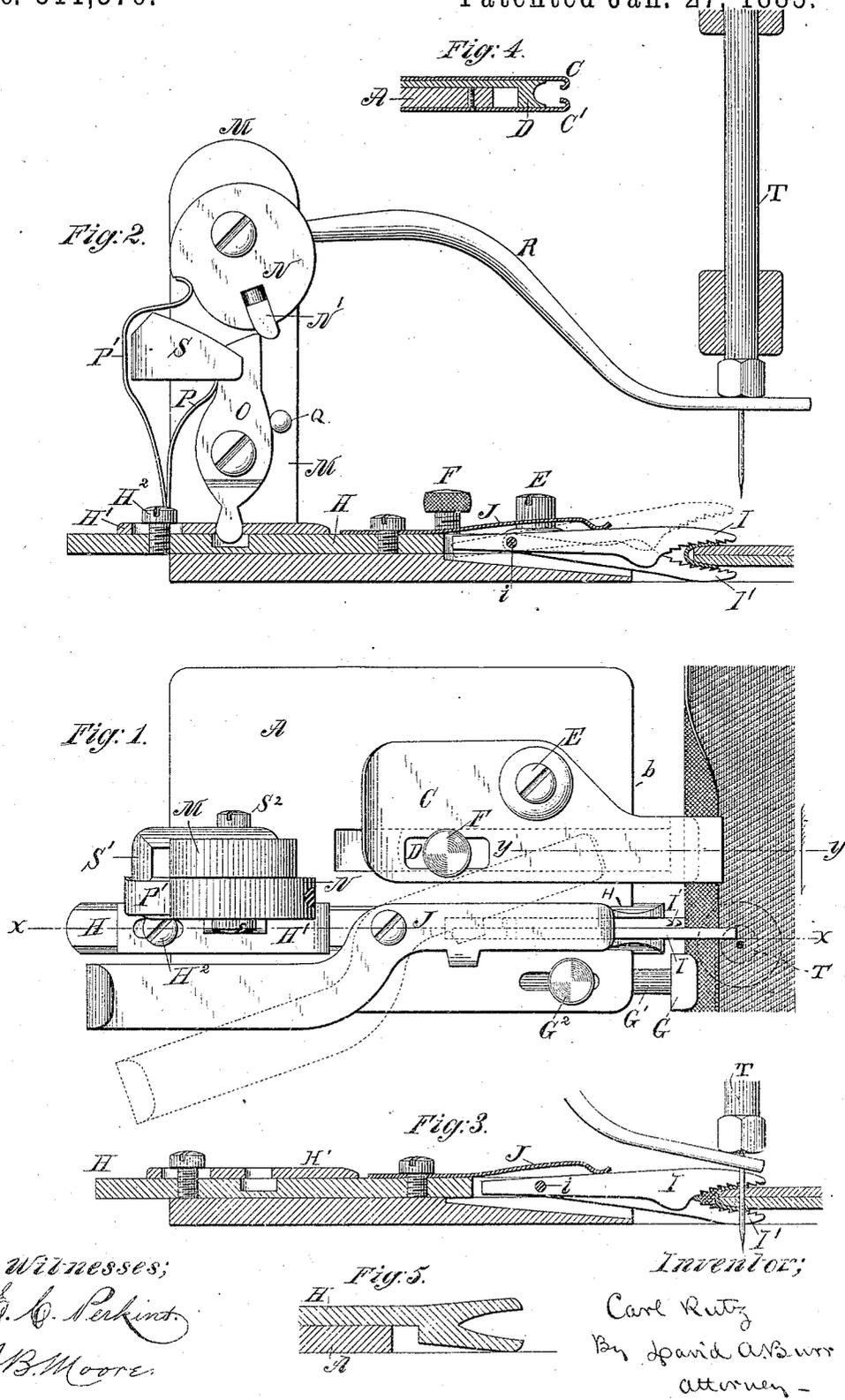
(No Model.)

C. RUTZ.

SEWING MACHINE BINDING ATTACHMENT.

No. 311,376.

Patented Jan. 27, 1885.



UNITED STATES PATENT OFFICE.

CARL RUTZ, OF BROOKLYN, NEW YORK.

SEWING-MACHINE BINDING ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 311,376, dated January 27, 1885.

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To all whom it may concern:

Be it known that I, CARL RUTZ, of the city of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Sewing-Machine Binding Attachments; and I do hereby declare that the following is a full, clear, and exact description of the invention, 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 that class of attachments for sewing-machines by which the application and stitching of a binding upon the edge of a fabric is facilitated. Ordinarily the binding when applied and stitched by a machine does not embrace the edge to which it is secured with the close, snug, even fit which is noticeable in hand-work; but the fold of the binding is apt to stand off from the fabric, and to be consequently more or less uneven and irregular.

The object of my invention is to sew a binding upon the edges of cloth or other fabrics by means of an ordinary sewing-machine with even greater neatness, precision, and closeness of fit than is possible by hand-sewing; and it consists in the combination, with a lever to be actuated by the needle-bar of a sewing-machine, of a V-shaped recess adapted to embrace the edge of the cloth, and which is formed at the end of a bar or pair of parallel bars made to reciprocate by the movement of the lever to and from the edge of the cloth at a right angle thereto, so that as the needle approaches the cloth the V-shaped recess shall operate to clasp and push the braid or binding material closely against and upon the edge of the binding, and hold the same until it is caught and made fast by the needle.

In the accompanying drawings, Figure 1 is a plan view of my improved binding attachment for sewing-machines, the actuating-lever being broken away to uncover the parts beneath it. Fig. 2 is a longitudinal section in line *xx* of Fig. 1, showing the standard of the device and the parts connected thereto in elevation. Fig. 3 is a detached sectional view of the base and sliding plate of the device corresponding to Fig. 2, but illustrating the clamping recess or jaws thrust forward. Fig.

4 is a longitudinal section of the folding device detached, and Fig. 5 illustrates by a sectional view the modification of the binding device, in which a fixed recess is formed in the end of the reciprocating bar.

A represents the bed-plate of my improved attachment, adapted to be fitted upon the cloth-plate of a sewing-machine so that its front edge, *b*, shall be parallel with the line of movement of the fabric to be sewed as it is carried forward by the feed device of the machine. A device for folding and fitting the piece of binding upon the edge of the fabric is secured upon this front edge in position to be brought to the rear of the feed-plate and throat-plate of the machine when the attachment is fitted thereon. This folding device consists, as illustrated in the sectional view, Fig. 4, of two thin plates, *C C'*, attached to the upper and lower faces respectively of the bed-plate *A*, (see Fig. 4,) and of a bar, *D*, adapted to slide under the upper plate, *C*, in a recess in the face of the plate *A* at right angles to its front edge, *b*. The lower plate, *C'*, is riveted to the under side of the bed-plate *A*. The upper plate is secured by means of a set-screw, *E*, Figs. 1 and 2, upon the upper face of the bed-plate *A* to extend both laterally over the bar *D*, and thus confine it in its recess, and also forward parallel with the lower plate, *C'*, the front projecting ends of the two plates *C C'* being doubled inward, as shown in Fig. 4. The front end of the bar *D*, projecting between said plates, is enlarged to fill the entire width of the opening between them. (See Fig. 4, and dotted lines, Fig. 2.) After the front end of the bar *D* has been properly adjusted with reference to the outer ends of the two plates *C C'*, so that the space between the end of the bar and the inwardly-bent ends of the plates has been adapted to the width of binding to be used, the bar is made fast by means of a set-screw, *F*, led through a slot in the outer plate, *C*, and into the bar *D*. A guide-block, *G*, Fig. 1, is secured upon the end of an adjustable rod, *G'*, which is fitted to slide in and out of a slot or groove in the front edge, *b*, of the bed-plate *A*, so as to project therefrom in front of the throat-plate and needle of the machine when the bed-plate is attached thereto, and the rod is made fast when adjusted by

means of a set-screw, G², led through a slot in the bed-plate to enter the rod. The front edge of the block G is inwardly recessed to adapt it to embrace the bound edge of the cloth as it passes from the needle, and to afford proper support thereto as it is fed forward in the operation of the machine. A bar, H, is fitted to slide back and forth in a longitudinal groove or recess in the upper face of the base-plate A at a right angle to its front edge, b, so as to fall directly in line with the throat through which the needle plays when the base-plate is in position upon the machine. The rear end of this reciprocating bar H projects beyond the rear edge of the base-plate A, and its front end, extending to and beyond the front edge of the base-plate, is slotted back vertically to receive two arms, I I', pivoted together at their rear ends upon a transverse pivot-pin, i, within the slot. The opposite inner faces of the outer ends of the two arms I I', projecting beyond the end of the reciprocating slotted bar H to which they are pivoted, are cut at an angle with each other, each in a straight or slightly-curved line, so that the two form in conjunction substantially a V-shaped recess, (see Figs. 2 and 3.) and these diverging faces of the angle are preferably serrated, as illustrated in said drawings, to afford a firm bearing against the cloth. The front edge of the lower arm, I', projects beyond the edge of the bed-plate far enough to rest upon the cloth-plate of the sewing-machine to which the attachment is secured. The front or outer end of the upper arm, I, is free also to drop toward said cloth-plate and rest thereon. A flat spring-plate, J, is pivoted upon the upper face of the reciprocating bar H at the rear end of the slot in the front end of said plate, within which the clamping-arms I I' vibrate, so that its front end may swing to and fro over the slot. (See dotted lines in Fig. 1.) This front elastic end of the spring-plate, which is made to swing over the slot, extends out far enough to rest upon the upper arm, I, and thereby limit with an elastic pressure its upward movement, and consequently the opening or widening of the V-shaped recess formed between the ends of the arms. (See Figs. 2 and 3.) The inner end of the upper arm, I, is made to project far enough rearwardly from its pivot at i to bear, when its front end is depressed and the outer V-shaped recess between it and the lower arm, I', is closed, against the under side of the plate J, (see Fig. 3.) and the edge of said plate is provided with an offset, L, at one side thereof, (see Fig. 1.) which is so bent down as that when the plate is swung to one side upon its pivot to remove its front end from contact with the forward end of the arm I, (see dotted lines in Fig. 1.) this offset shall bear upon the unsupported rear end of the arm, and forcing it down into the slotted recess in the bed-plate will throw up its front end, and thus open or separate the arms so as to widen the V-shaped recess, as illustrated by dotted lines in Fig. 2. A standard, M, is se-

cured upon the rear end of the base-plate A, parallel with and close to the edge of the rear end of the reciprocating bar H. A cam or eccentric, N, is pivoted upon the upper end of the standard M, upon the face thereof next to the bar H, and from the periphery of this eccentric a pawl or tooth, N', is made to project so as to contact with the upper end or arm of a lever, O, also pivoted to the face of the standard, so that its lower end or arm may enter and engage a notch or slot in the sliding bar H, or, preferably, in an adjustable plate, H', fitted upon said bar and confined thereto, when adjusted longitudinally thereon, by means of a set-screw, H², as shown in Figs. 2 and 3. The upper end of the pivoted lever O is automatically carried toward the pawl or tooth N' and into contact therewith by means of a spring, P, whose inner end is secured to the standard near its base, so that its upper end may bear against the upper end of the lever, as shown in Fig. 2. This movement of the lever is arrested by a stop, Q. A second spring, P', is brought to bear against the periphery of the eccentric N and made to engage the same, so as to arrest the movement of the tooth or pawl N' out from the end of the lever O, and, being retracted when the eccentric and tooth are turned toward the lever O, this spring will operate to cause an automatic return of the tooth N' to its first position, as illustrated in Fig. 2. The tooth or pawl N' is left free to play in a radial recess in the periphery of the eccentric N, and is forced outward to engage the lever O by means of a spring within the recess. An arm or lever, R, extends from the periphery of the eccentric N into line with the lower end of the needle-bar T, and under the same when the latter is fully elevated, so that in the descent of the needle the end of the lever shall be carried down therewith. As the lever R descends the eccentric N is rotated, its spring P' retracted, and the tooth or pawl N' made to bear against the upper end of the lever O to force it back against its spring P. This movement of lever O will cause its lower end to carry forward the bar H and force outward the binding-arms I I', pivoted thereto, until it is released by an automatic disengagement of the tooth N' therefrom, produced by its sliding contact with the inclined surface of a block or plate, S, (see Fig. 2,) supported upon a bracket, S', (see Fig. 1,) secured to the standard M by means of a set-screw, S². This set-screw passes through a slot in the bracket to permit of an adjustment of the block, so that its inclined surface shall engage and force inward the pin N' to release it from the lever O at any desired point in its movement. So soon as the lever O is thus released it will be automatically forced back to its first position and operate thereby to draw back the bar H by the resilient action of the spring P.

By an adjustment of the cam-block S with reference to the tooth N' of the eccentric N, and of the plate H' with reference to the bar H, the reciprocating movement of the arms I I'

may be regulated with precision in conformity with the movement of the needle-bar T, so that the ends of the arms shall push against the binding at the moment the needle enters the same, and then be instantly released and drawn back therefrom.

In the operation of the machine, its several parts being properly adjusted, as described, the descent of the needle-bar T, actuating the lever R, will produce a rotation of the eccentric N. The tooth N' of the eccentric, engaging the upper end of the lever O, will produce an oscillation of the latter upon its pivot, and forcing back its spring P will cause its lower end to push forward and outward the sliding bar H, and with it the arms I I', pivoted thereto, so that the V-shaped recess formed between their outer ends, and which embraces the binding that is bent or doubled by the folding plates C C upon the edge of the fabric, will be pushed against and upon the binding, so as to force it closely and snugly against the edge at the moment the needle enters the same to secure it. The continued downward movement of the needle-bar T as the needle is carried into the cloth farther, by depressing the lever R will cause it to carry the tooth N' into contact with the fixed inclined surface of the block S, and up thereon far enough to cause a disengagement of the tooth from the lever O. The latter, thus left unsupported, will be instantly forced back to its first position by the action of the spring P, and will in its movement draw back the bar H and clamping arms or jaws I I'. As the arms I I' are thus drawn back the fabric is left free to be fed forward during the return movement of the needle.

It is evident that various well-known mechanical devices may be employed as a substitute for those herein described for producing a reciprocating movement of the bar H and of the adjustable recess at the ends of its arms I I' by the action and movement of the needle-bar, and I contemplate the use of such equivalent devices and mechanical movements. It is also evident that a fixed recess formed in the end of a reciprocating bar, H, as illustrated in Fig. 5, may be employed instead of a recess whose width is adjustable, such as is formed by the ends of the two arms I I', and I contemplate such a recess, as a part of my invention.

I claim as my invention—

1. A binding attachment for sewing-machines, consisting of a reciprocating bar adapted to move at a right angle to the line of movement of the fabric to be bound and to be actuated mediately by and in unison with

the movements of the needle-bar, and which is provided with a terminal recess formed to embrace the edge of the fabric, substantially in the manner and for the purpose herein set forth.

2. In a binding attachment for sewing-machines, having a bed-plate adapted to be secured upon the cloth-plate of the machine with its front edge parallel to the line of feed, the combination, with said feed-plate and with a sliding bar reciprocating thereon at right angles to the line of feed and provided with a terminal recess adapted to embrace the edge of the fabric to be bound, of an oscillating lever adapted to be engaged and operated by the needle-bar and to actuate mediately the reciprocating bar, and a folding device projecting from the front edge of the bed-plate in advance of said bar, substantially in the manner and for the purpose herein set forth.

3. The combination, in a binding attachment for sewing-machines, with a reciprocating bar adapted to move intermittently at a right angle to the line of movement of the fabric to be bound, of arms pivoted longitudinally to said bar to project therefrom and embrace between their outer ends the edge of the cloth, and a spring-plate adapted to bear upon the upper arm and close it with an elastic pressure toward the lower arm, substantially in the manner and for the purpose herein set forth.

4. A binding attachment for sewing-machines, constructed of a bed-plate, A, a standard, M, a bar, H, sliding upon the plate at a right angle to its front edge, parallel arms I I', pivoted to said bar to move therewith beyond the front edge of the bed-plate, a spring bearing upon the upper arm, I, a lever, O, pivoted to the standard M and engaging at its lower end the reciprocating bar H to actuate the same, an eccentric, N, pivoted to the standard M, armed with a tooth, N', to engage the upper end of the lever O, an arm, R, projecting from the eccentric to be engaged by the needle-bar of the machine, and springs P and P', adapted, respectively, to actuate the eccentric N and lever O, all substantially in the manner and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARL RUTZ.

Witnesses:

E. C. PERKINS,
A. B. MOORE.