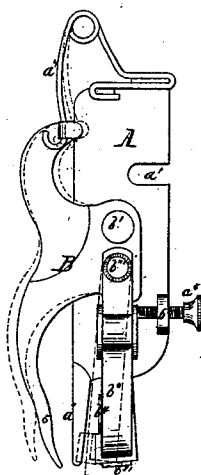
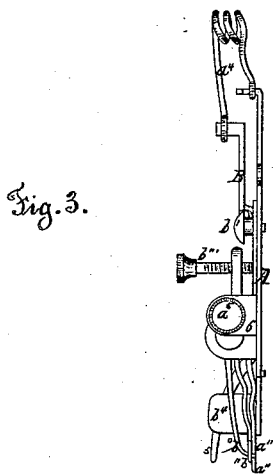
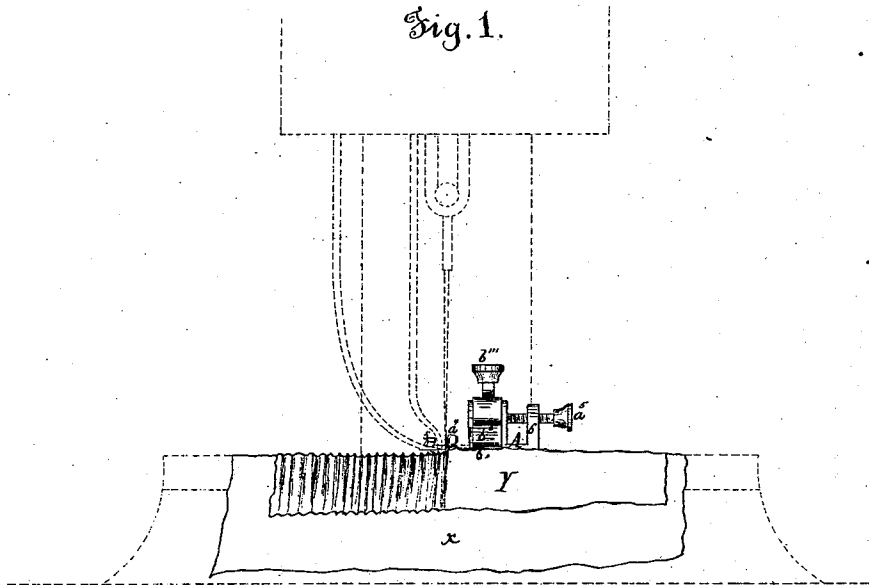


C. W. HOWARD.  
Ruffler for Sewing Machines.

No. 108,787.

Patented Nov. 1, 1870.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

CHARLES W. HOWARD, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN RUFFLERS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. 108,787, dated November 1, 1870.

I, CHARLES W. HOWARD, of the city of Philadelphia, in the State of Pennsylvania, have invented certain Improvements in Rufflers for Sewing-Machines, of which the following is a specification:

### *Nature and Object of the Invention.*

My improvements relate to the production of a ruffler for the Davis vertical-feed sewing-machine, and such other machines as have a vibrating needle and presser-foot feed; and the nature of my invention consists in a device whereby one piece of the fabric is relieved from any tension by supporting the pressure-foot in front of the feed on a spur or other suitable projection, so as to allow the said piece of fabric to pass beneath the foot to the needle, while the piece of fabric which is to be ruffled or gathered and sewed to the first piece passes over the spur and beneath the pressure-foot, and is held firmly in position by the pressure of the same in such a manner that, after the two said pieces of fabric are moved forward in the usual direction, the under piece, which is not held by the pressure-foot, will, by means of a nipper on the plate, be drawn backward to the whole extent (if desired) of the stitch just taken, thereby gathering a plait of corresponding width in the upper piece, which is held by the pressure of the said foot, the back-drawing motion, of course, occurring after the needle and feed-bar have been raised from all connection with the fabric.

### *Description of the Accompanying Drawings.*

Figure 1 is a front-end elevation of my said ruffler with the two pieces of fabric attached, the dotted lines indicating its position in relation to the pressure-foot, feed-bar, and needle of a sewing-machine. Fig. 2 is a plan view of the ruffling device. Fig. 3 is an elevation of the right-hand side of Fig. 2.

### *General Description.*

A is a plate of sheet metal, having a recess,  $a'$ , for receiving a screw, whereby the plate can be readily attached to or detached from the bed of the sewing-machine, or otherwise secured to the said machine. The front end of the plate A has a spur or narrow projec-

tion,  $a''$ ; attached to its upper side, near the left-hand corner, so as to leave a recess,  $a'''$ , beneath the forward half of said spur, for the purpose of preventing the pressure-foot from pressing the said spur down upon the fabric, which is to pass across beneath the recessed end of said spur. Attached to the opposite end of plate A is a bent spring,  $a^4$ , and near the middle of the plate a bifurcated lever, B, is attached by its fulcrum-pin  $b'$ , and presents its branched end in front, while its opposite end is connected to the spring  $a^4$  in such relation that the spring constantly tends to force the front end of the lever B against an adjusting-screw,  $a^5$ , supported on the right-hand side of the plate A (see Fig. 2) by an upright, 6, through which the screw can be rotated, so that it will regulate the length of motion of said lever, and, consequently, the length of the stitches in ruffling.

The right-hand branch of the lever B has a nipper,  $b''$  attached, which can be adjusted by a screw,  $b'''$ , so as to gripe, more or less firmly, the lower one of the two pieces of fabric  $x y$ , as will hereinafter be explained.

On the upper side of the nipper  $b''$  a thin spring-plate,  $b^0$ , is attached, for the purpose of loosely keeping the upper piece of fabric,  $y$ , in place against a vertical plate,  $b^4$ , which guides the said piece of fabric. The other branch, 5, of the front end of the lever B projects forward across the left-hand side of the feed-bar, and is periodically forced thereby toward the left, and therefore against the action of the spring  $a^4$ , which, in turn, forces the said branched end of the lever toward the right-hand side, and consequently moves with it the nipper  $b''$  and its connected parts.

The two pieces of fabric,  $x y$ , to be operated upon are applied by inserting one end of the lower one,  $x$ , in the recess  $a'''$ , beneath the spur  $a''$  of the plate A, which is previously screwed fast to the bed-plate or platform of the sewing-machine, and the fabric then clamped between the jaws  $b''$  of the nipper. The piece of fabric  $y$  is then slipped under the spring-plate  $b^0$ , with its inner edge against the guide  $b^4$ , and its end then carried over the spur  $a''$ . The sewing-machine is then put in motion, and the pressure-foot holding the upper piece,

*y*, down upon the spur *a''*, the two fabrics are moved along forward by the feed-bar and entering needle in the usual direction, and the under piece of fabric, *x*, not being held by the pressure-foot, will be drawn backward by the now backward movement of the nipper *b''*, thus causing the gathering required in the upper piece, *y*. The feed-motion of the feed-bar and needle is then repeated, drawing the lower piece, *x*, through the nipper, when the pressure-foot again holds fast the upper piece, *y*, and so on until the ruffling of the piece *y* is completed and secured to the piece *x*.

It will now be understood, without further explanation, that a proper degree of pressure can be given by the set-screw *b'''* to the nipper-jaws to cause the nipper *b''* to draw the bottom piece of fabric, *x*, backward, so as to cause the gathering required in the upper piece, *y*, and that the feed-motion of the feed-bar and needle will readily draw it forward; that any length of stitch required for ruffling can be produced by varying the backward motion of the lever B by means of the adjusting-screw *a<sup>5</sup>*.

It will also be observed that the ruffling or gathering is produced by the drawing backward of the under piece, *x*, while the upper piece, *y*, is held fast by the pressure-foot, thus producing, in my opinion, greater regularity and certainty in the plaits than can be produced by a double feed of unequal velocities, as heretofore.

### Claims.

I claim as my invention—

1. The spur *a''*, attached to a sewing-machine, for the purpose of supporting the pressure-foot, so as to allow the free passage of a piece of fabric, *x*, to the needle without receiving any pressure from said foot while other pieces of fabric, *y*, are being gathered and sewed to the said first-named piece, *x*, when the said spur is constructed and applied to operate substantially as described.

2. The combination of the screw *a<sup>5</sup>* with the nipper *b''*, for the purpose of gaging the extent of motion communicated to the nipper, substantially as hereinbefore set forth.

3. The combination of the spring *a<sup>4</sup>* with the nipper *b''*, for the purpose of producing the ruffling movement in the nipper, by causing it to draw backward the under piece of fabric, *x*, while the upper piece, *y*, is held fast by the pressure of the foot, substantially as hereinbefore described and set forth.

4. The combination of the spur *a''* on the plate A, the lever B, and the nipper *b''*, and set-screws and gages, when arranged to operate together substantially as and for the purpose hereinbefore set forth.

CHARLES W. HOWARD.

Witnesses:

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