F. SIEVERS.

Ruffers and Gatherers for Sewing-Machines.

No. 139,089. Patented May 20, 1873

Fig. 1.

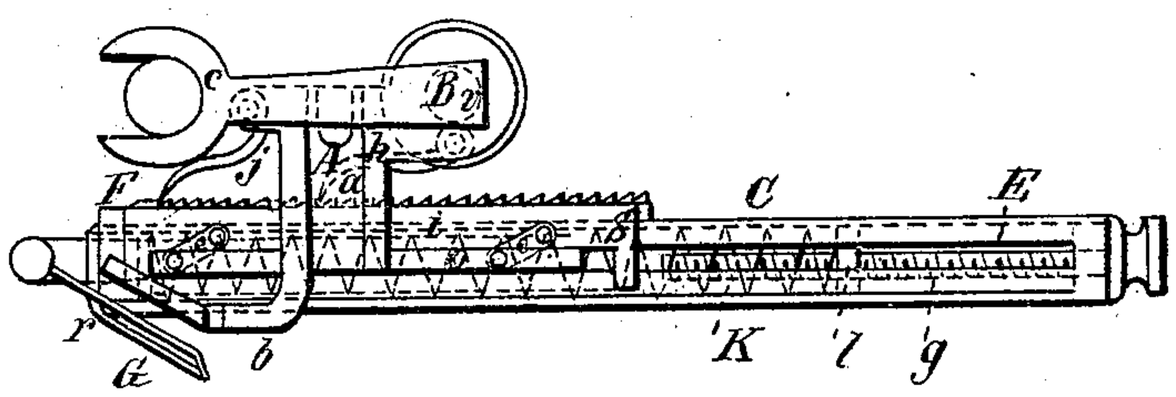


Fig. 2.

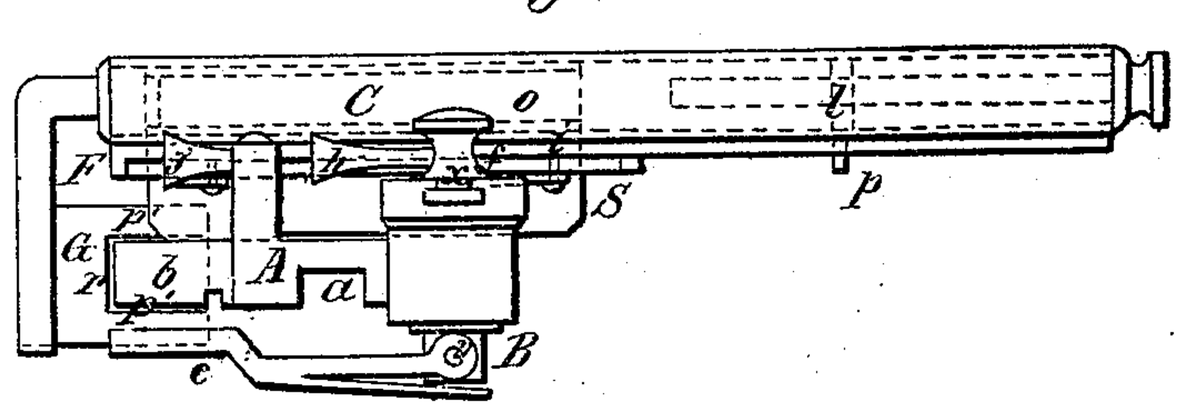


Fig. 3.

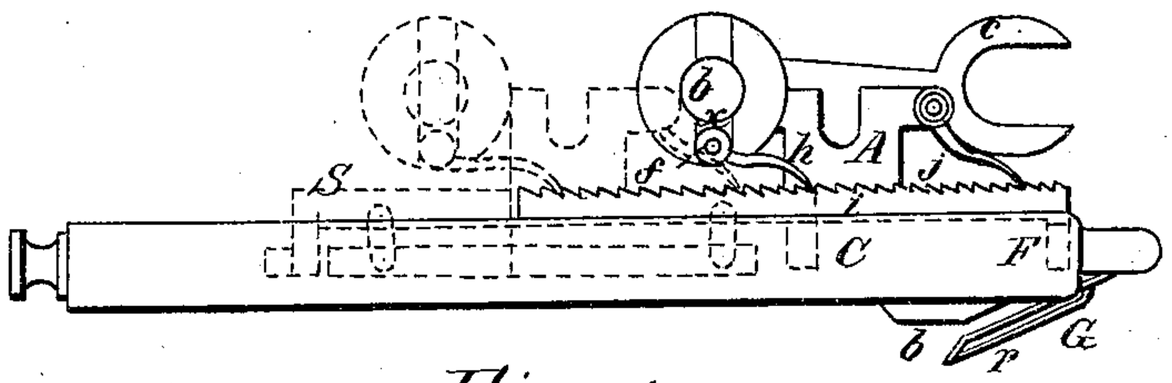
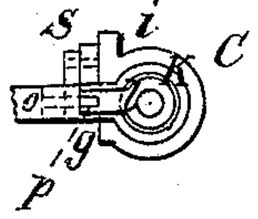


Fig. 4.



Witnesses

H. J. Willson.
Wm Hildebrand

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UNITED STATES PATENT OFFICE.

FREDERICK SIEVERS, OF FORT WAYNE, INDIANA, ASSIGNOR OF ONE-HALF HIS RIGHT TO WILLIAM H. HILDERBRANN, OF SAME PLACE.

IMPROVEMENT IN RUFFLERS AND GATHERERS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **139,089**, dated May 20, 1873; application filed March 20, 1873.

To all whom it may concern:

Be it known that I, FREDERICK SIEVERS, of Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Ruffling, Gathering, or Plaiting Attachments for Sewing-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, in which like letters refer to like parts in the different figures.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the drawing, Figure 1 represents a side elevation; Fig. 2, a plan view; Fig. 3, a side elevation; Fig. 4, an end elevation.

The nature of my invention consists in the construction, arrangement, and combination of certain mechanical devices, which form an attachment to be used in connection with a sewing-machine, for the purpose of folding cloth in plaits and presenting them, having any desired width or fullness, and holding them in a position where they may be stitched by the machine.

In the drawing, A represents a clamp, which is to be secured to the vertical bar of the cloth-presser. Upon this clamp are formed bearings, which support all of the working parts of the apparatus. This portion of the apparatus may be constructed in any desired form that will adapt it to the various forms of machines manufactured. The form illustrated in the drawing is provided with a recess, *a*, which admits the vertical bar, to which it is to be secured by any suitable means. *b* represents a cloth-presser, which is formed on the lower side of said clamp A, and serves all of the purposes usual to this device. B represents a rocking axle with bearings formed on the upper side of clamp A. *c* represents a forked lever or arm, which is secured at one end by means of a joint, *v*, to rocking axle B, while its forked end takes hold of the head of the screw used to secure the needle in the needle-bar, or in any other suitable manner. When said needle-bar is reciprocated a rocking motion is imparted to the axle B through said arm. On the opposite end of said axle B is formed an arm, *x*, the length of which may be, at pleasure, increased or decreased by any suitable means, and on said arm is a wrist-pin, *f*, having a pawl, *h*. *i* represents a ratchet secured to the upper surface of a reciprocating bar or case, C. The pawl *h* engages the teeth of the ratchet, and imparts to the case an intermittent horizontal movement in the direction opposite to the direction in which the cloth is moving. A dog, *j*, is also pivoted to a suitable bearing formed on clamp A, and engages the teeth of the ratchet, and serves to hold the case C at rest in its forward movement. Case C is tubular in form, as seen in Fig. 4, and is provided with a groove or slot, *g*, to receive tongue *o* projecting from the presser. The edge of said tongue is provided with a tube, *n*, and with the tongue *o* forms a way or guide, upon which the case C is supported and moves. E represents an adjusting-screw for moving nut *l*, the latter having a projection, *p*, extending through slot *o* to the outside of the case. S represents a bar, which is connected, by means of parallel bars or links *e*, to the upper surface of the tongue *o*. The object of this bar is to disengage the pawl and dog *j* from the teeth of the ratchet, as will be hereafter described. G represents a flexible folding or ruffling plate, of sheet metal, secured, by any suitable means, to the end of the case opposite the adjusting-screw E, and made in the form shown. Its inner end impinges on the surface of the cloth, and is so shaped (as shown) or roughened that in its outward movement it passes freely over the cloth, but in its return-movement it takes firm hold of the cloth and draws it up to the needle. This plate is slotted, as seen at *p' p'*, forming a tongue, which is bent abruptly downward, as seen at *r*, and it then extends forward parallel with the side pieces of the plate, and all are brought in line. The tongue *r* is made about the width of the cloth-presser. F represents a stop secured to the case C, and serving to reverse the motion of the case, as will be more fully described. K represents a spiral spring, which is compressed within the case.

The operation of my invention is as follows: The apparatus is secured in position by clamping it to the vertical bar of the cloth-presser. The edge of the cloth is then inserted, as is

usual for stitching purposes, and the material is held in a position such as will facilitate the formation of stitches along its margin. At each reciprocation of the needle-bar the forked arm C is vibrated, rocking axle B and moving arm *x*, to which pawl *h* is pivoted. The ratchet and case C are forced forward a distance proportioned to the length of the throw of arm *x*. An intermittent longitudinal motion is thus given to said case C in the direction opposite to the movement of the cloth by the feed-motion of the machine. Folding or ruffling plate G, secured to the bar or case C, as it moves away from the presser, passes lightly over the cloth until it has moved sufficiently far to form the required width of plait; then bar S is brought in contact with projection *p* on the nut *l*, which forces the bar upward, and disengaging the pawl and dog simultaneously from the ratchet. The ratchet, being thus relieved, is acted upon by the spiral spring, which forces it, with plate G, back to its original position. In resuming its original position the projection F on the ratchet strikes bar S and moves and lowers it, so that the pawl and ratchet are engaged, and the outward movement then again commences. Plate G, in passing outward, slides over the cloth freely, but when its motion is reversed it engages the cloth and draws a portion of it forward to a point where the needle in its next downward stroke will pass through it, and simultaneously with forming the stitch the motion of the case is reversed, and the plate passes outward as before; and during its outward progress the cloth is stitched across said plait to a point where the edge of the next plait will commence.

In order to increase or decrease the fullness of the plaits the outward motion of the case is increased or decreased by lengthening or shortening the arm to which the pawl is pivoted. The width of the plait is increased or decreased by shifting the position of projection *p* on nut *l*, which may be adjusted by the screw. This adjustment is of great importance in practice, for the reason that when narrow plaits are being made a far greater force of the spring is required than when a wide one is being made. Thus the same adjustment that regulates the width of plait also regulates the pressure of the spring.

This attachment will form successive plaits of any degree of fullness or any width as rapidly as the stitching can be done.

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

1. Ratchet *i*, in combination with pawl *h* and dog *j*, adjustable arm *x*, and rocking axle B, each being constructed in the manner specified, for the double purpose of giving the outward movement to the bar or case C, and also increasing or decreasing the fullness of the plaits, in the manner described.

2. Ratchet *i*, pivoted bar S, adjustable projection *p*, and stop F, for the purpose of reversing the motion of case C.

3. The spiral spring K, adjustable nut *l*, and projection *p*, for the purpose of increasing the pressure of the spring increasing or decreasing the width of the plaits.

FREDERICK SIEVERS.

Attest:
H. F. WILLSON,
WM. HILDEBRAND.