H. M. HALL.

Sewing-Machine Ruffling Attachment.

No. 106,481. Patented Aug. 16, 1870.

Fig. 1.

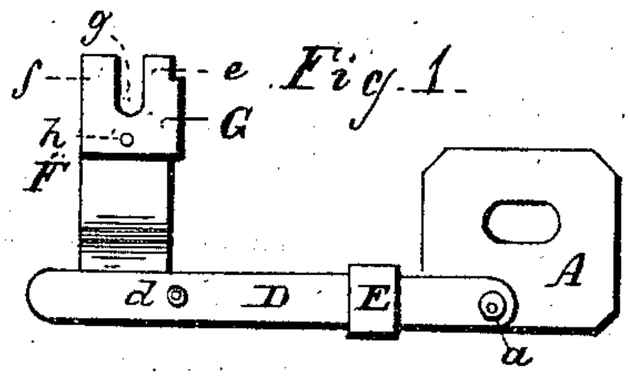


Fig. 2.

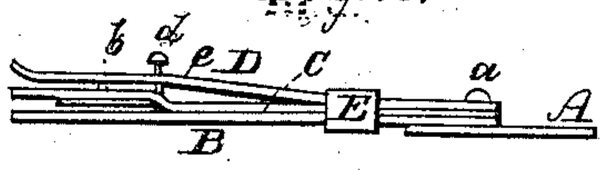


Fig. 3.

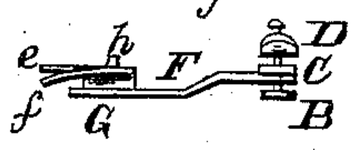


Fig. 4.

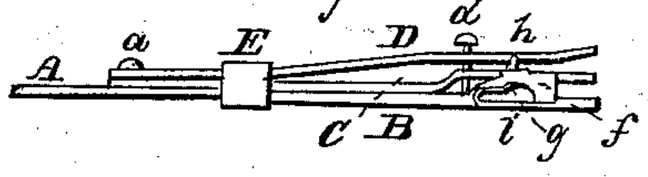
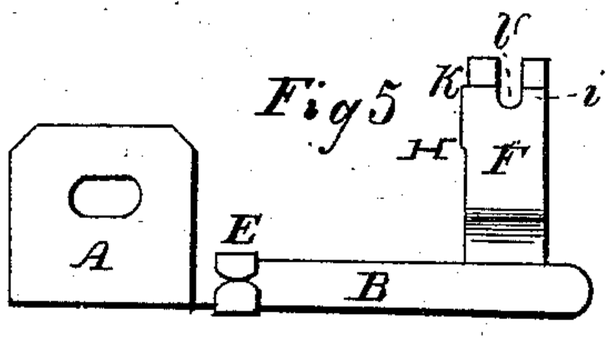


Fig 5



Witnesses.

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UNITED STATES PATENT OFFICE.

HENRY M. HALL, OF NEW YORK, N. Y.

IMPROVEMENT IN RUFFLING ATTACHMENT FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **106,481**, dated August 16, 1870.

To all whom it may concern:

Be it known that I, HENRY M. HALL, of New York city, in the county of New York, and in the State of New York, have invented certain new and useful Improvements in Ruffers for Sewing-Machines; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon, in which drawing—

Figure 1 is a plan view of the top of my device. Fig. 2 is a rear-side elevation of the same as placed for use; Fig. 3, a front end elevation of the same; Fig. 4, a front side elevation of the same; and Fig. 5 a plan view of the bottom of the same.

Like letters denote like parts in each figure.

The nature of my device is an attachment intended for ruffling, capable of connection with any of the sewing-machines in common use; and my invention consists in the novel construction and arrangement of its various parts, hereinafter more fully described.

In the drawing, A represents a slotted base-plate, by which the ruffler is secured for use to the sewing-machine in any proper manner, which plate may be varied in form, so that it may be fitted conveniently to any of the sewing-machines in public use. To the upper side of this base-plate are secured three narrow guide-plates, of elastic metal, by means of any proper rivet, *a*, passing down through one end of each of them into said base-plate A. These guide-plates are of equal length and width and of about equal thickness, and are arranged one immediately above the other.

The lower guide-plate, B, is bent downward a little, so that its free end nearly touches ths table of the sewing-machine. The center guide-plate, C, fits closely to the top of the plate B for about two-thirds of the distance toward its free end, where it bends upward a distance about double its thickness, and then outward in a plane corresponding to that of the plate C. This upper bent portion is designated in the drawing by the letter *b*.

The upper guide-plate, D, begins to bend a little upward on leaving the edge of the base-plate, and continues its upward bend on the same plane to a point, *c*, a little short of the commencement of the upward bend of the plate C. From this point it follows the horizontal plane of the plate B nearly to its free end, which turns up in about the same bend as the first-described portion next the base-plate.

An upright guide-pin, *d*, having a proper head, passes down through the plate D a little forward of the point *c*, and through the plate C at its point of upward bend into the plate B, where it is secured.

A strap, E, passes closely entirely around the three guide-plates above-named, by the forward movement of which said plates are compressed.

To the under side of the guide-plate C, and reaching from the pin *d* to a point pretty near the free end of said guide-plate, a ruffler-plate, F, of elastic metal, is secured, whose inner end coincides with the outside of said guide-plate. This ruffler-plate, which extends at right angles from the guide-plate, directly after leaving the guide-plate C bends downward until its center reaches the horizontal plane of the plate B, whence it continues in the same plane to its own termination.

The outer end of this ruffler-plate has a wing, G, of a length about equal to the width of the main ruffler-plate and of a width a little greater than its length, which wing is doubled with a flat plane over the outer end, H, of said main ruffler-plate, so that the outsides of each coincide vertically, but are not in the same horizontal plane, the wing inclining upward from its bend and away from the horizontal plane of the end H. The front end of said wing reaches a little beyond said end H, and has two lips, *e* and *f*, separated by a slot, *g*, open at its outer end.

The outside of the lip *e* is cut away a little, so as to coincide with the line of the inner end of the main ruffler-plate, and the lip extends horizontally its whole length.

The lip *f* is bent downward until a portion of its end reaches the horizontal plane of the end H of the main ruffler-plate, and has its inner corner next the slot *g* bent down a little farther than its other corner.

An upright stud, *h*, is secured to the wing G near the end of the slot *g*.

The end H of the main plate has also two lips, *i* and *k*, separated by a slot, *l*, which lips extend horizontally in the plane of the end H.

The slots *g* and *l* coincide with each other

vertically upon their sides and closed ends, one being directly over the other.

In use this device is attached to a sewing-machine in the ordinary way, in such a position that the presser-foot of the machine rests upon the wing G and the needle-slot in the presser-foot comes directly over the slots *g* and *l*. In this position the lips *k* and *i* will rest wholly upon the feed-teeth of the machine, and the lip *f* will also press somewhat upon the same feed-teeth.

In the operation of ruffling, this device being in place, as above described, the cloth to be ruffled should be slipped in between the guide-plates B and C, with its edge against the guide-pin *d*, or between the table and the guide-plate B, and brought forward under the ruffler-plate F, so as to be affected by the feed-teeth. The presser-foot should then be let down, the stitch lengthened, and the tension increased upon the upper thread, and in the movement of the machine it will ruffle the cloth upon which the needle acts.

When it is desired to ruffle and to sew the band upon the ruffle at the same time the band is passed between the plates C and D, with its edge against the guide-pin *d* and between the wing G and the end H of the ruffler-plate and out under the needle.

The strap E should be pushed out, so as to give considerable pressure of the plate upon said band. Three or four stitches should be taken, however, before this pressure is put upon the band, so that said band may be so attached to the ruffle that the feed upon the ruffle will draw the band along with it. The presser-foot being let down as before, it will be found that the band will be properly stitched to the ruffle while the ruffle is being made or gathered upon the cloth.

The fullness of the gathering when the band is sewed on is increased by increasing the pressure upon the plate D and by lengthening the stitch, and when the band is not sewed on by increasing the length of the stitch and the tension of the upper thread. If the feed-teeth of the machine are fine or dull it may be necessary to increase the feed of the machine.

The object of the stud *h* upon the wing G is to fit into a corresponding recess in the presser-foot, and so to hold the ruffler more firmly in place.

The advantage of the construction of the ruffler-plate and wing G consists in their elasticity, adapting them to the different thicknesses of cloth, in its lip *f* exerting a constant gentle pressure by its inner corner upon the cloth, and thus continually drawing it toward and against the guides and holding the band upon the lower piece after they are sewed together.

The advantages of the construction of the guide-plates consist in their elasticity and the ease with which pressure is applied, regulated, and continued by the strap E, and of the guide-pin in its simplicity and convenience.

In the operation of my device it will be seen that there is a constant elastic pressure upward of the lip *i*, arising from the fact of its compression between the presser-foot and the feed-teeth, which are raised a little above the plane of the table of machine, and at the same time a constant elastic pressure downward of the lip *f* from the force exerted upon it by the presser-foot.

It will be noticed also that the result of the pressure of the lip *i* resting upon the cloth to be gathered, which, in turn, rests upon the feed-teeth, is to give to said cloth an elastic pressure into the feed-teeth, so that they may take hold of and move said cloth, whether the same be thicker or thinner.

It will also be noticed that the elastic pressure of the lip *f* upon the cloth to be gathered is exerted after the cloth has been acted upon by the needle, and that this pressure is exerted upon both the cloth to be gathered and the band to be sewed to it after the two are stitched together.

The advantages of this pressure upon the cloth and band after they are acted upon by the needle will be found in the greater accuracy and regularity of the line of seam, the cloth being guided constantly from a point beyond the needle, and being thus kept uniformly under the needle in the same line of direction.

The advantage of holding the cloth beyond the needle, and after it is sewed, consists in preventing the tendency of the cloth, from its flexibility and elasticity, to fly backward and upward under the restraining influence of the needle as it enters it.

The office of the lip *k* is to serve as a moderately elastic bearing upon the table of the machine, and of the lip *e* to hold down the cloth after it is gathered, and resist its inclination to fold back under the needle.

The office of the bend between the wing G and the end H is to serve as a guide directly before and after the cloth is gathered and directly before and after the band is stitched to it.

Having thus fully set out the nature, description, manner of use, and merits of my device, what I claim as my invention therein is—

1. The ruffling-plate F, provided with the lips *k*, *i*, and *f*, when constructed and arranged substantially as described and shown, and for the purpose of holding two pieces of cloth passing between them after said pieces are sewed together and are beyond the needle, and also for the purpose of directing said piece of cloth toward the guide.

2. In combination with the ruffler-plate F, constructed as described, the guide-plates B, C, and D, arranged substantially as described and shown, and as and for the purposes set forth.

3. In combination with the ruffler-plate F, constructed as described, and the guide-plates B, C, and D, the strap E, as described

and shown, and as and for the purposes set forth.

4. The ruffler-plate F, the guide-plates B, C, and D, the guide-pin *d*, the straps E, and the base-plate A, all constructed and arranged substantially as described, and as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this day of June, 1870.

HENRY M. HALL.

Witnesses:

E. STEPHENSON,

THOMAS W. SMITH.