G. E. DOLTON.

Ruffers for Sewing-Machines.

No. 139,883. Patented June 17, 1873.

Fig. 1.

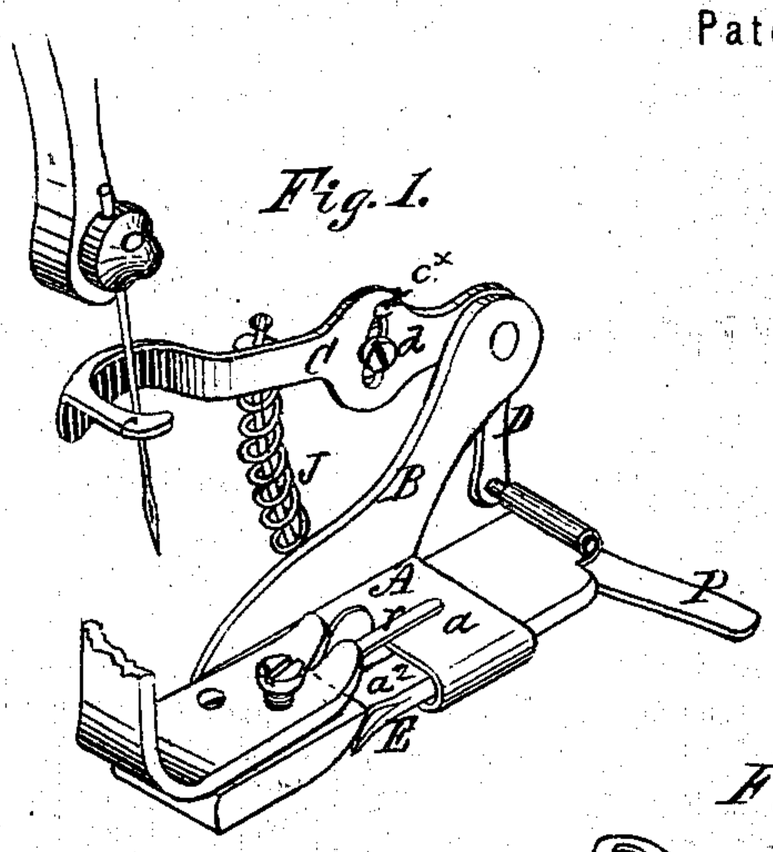


Fig. 7.

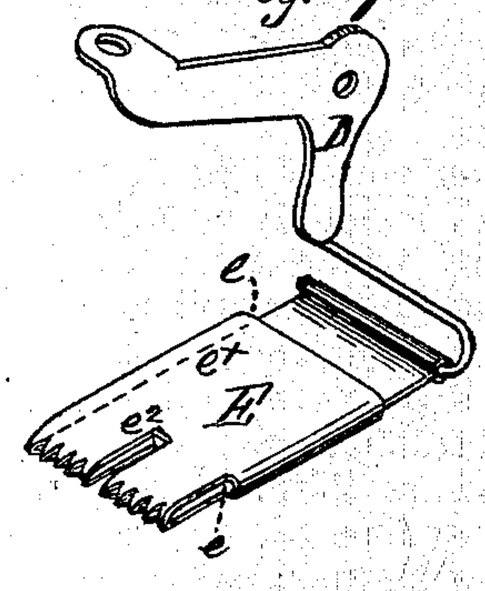


Fig. 5.

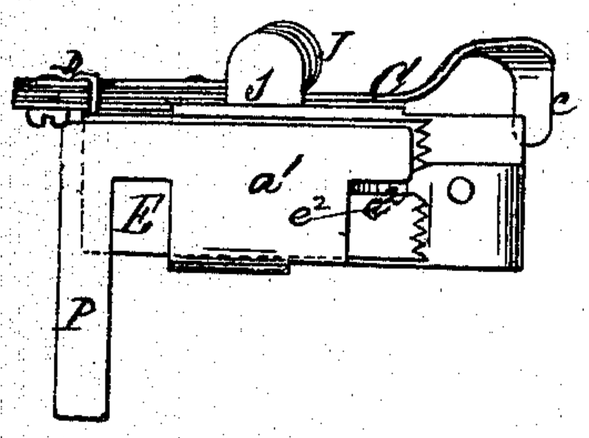


Fig. 2.

Fig. 4.

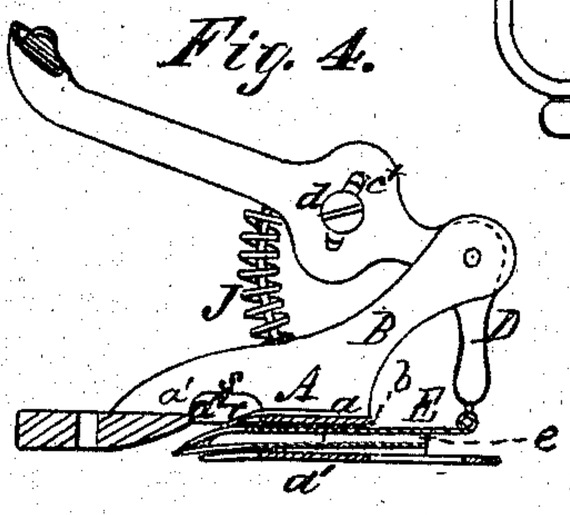


Fig. 6.

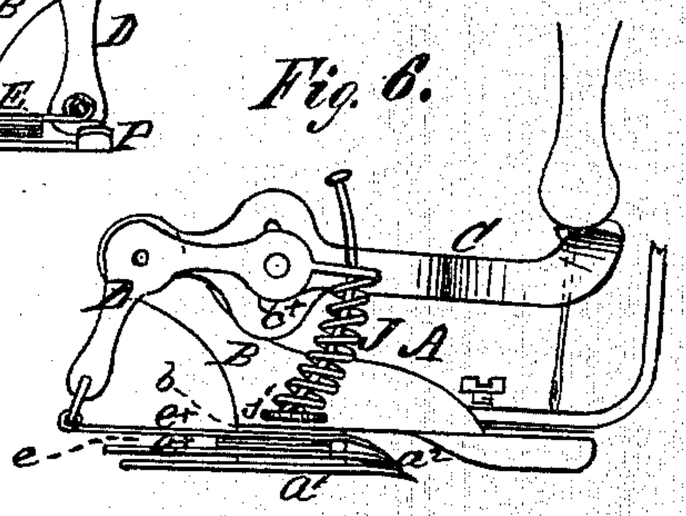
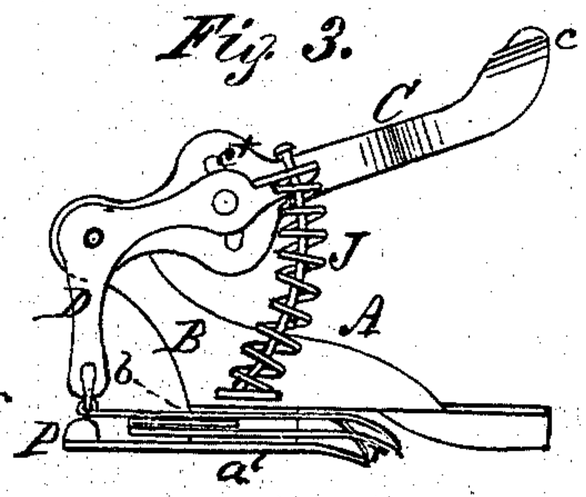


Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE E. DOLTON, OF MONEE, ILLINOIS.

IMPROVEMENT IN RUFFLERS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **139,883**, dated June 17, 1873; application filed October 16, 1872.

To all whom it may concern:

Be it known that I, GEORGE E. DOLTON, of Monee, in the county of Will and State of Illinois, have invented certain new and useful Improvements in Ruffling-Attachments for Sewing-Machines, of which the following is a description:

My invention consists in a slotted ruffle-former through which the cloth to be ruffled passes, and by which it is intermittingly clamped and carried forward to form the ruffle, said ruffle-former being situated and reciprocated between the upper and lower plates of the attachment.

In the drawings, Figure 1 is a perspective view of my attachment as applied to the presser-foot of a sewing-machine. Fig. 2 is a side elevation of the same; Fig. 3, a similar view on the opposite side to Fig. 2; Fig. 4, a vertical longitudinal section of Fig. 5. Fig. 5 is a plan of my attachment; Fig. 6, a side elevation, showing the lever depressed by the needle-arm; Fig. 7, a perspective view of the ruffle-former detached.

The frame or plate A, supporting the working parts, is secured to the presser-foot or presser-rod as may be necessary in applying it to different styles of machines, and in such a manner that the body of the attachment extends outward in front of the needle and presser-foot, as shown in Fig. 1. A horizontal slot or space, *b*, is formed between the upper plate *a*, and the lower arm or plate *a'*, preferably by bending an extension of the upper plate down and under, as in the drawings, a sufficient space being left between to receive the ruffle-former E. The ruffle-former E consists of two plates or folds, forming or provided with a broad horizontal slot or groove, *e*, between, which groove *e* is open at both ends and on the side of the opening between the upper and lower plates of the attachment. It is preferably formed by bending or doubling a piece of elastic sheet metal so as to form the upper and lower plates $e^{\times}$ $e^{\times}$, with slot *e* between.

The edges nearest the needle-hole are bent toward each other in the form of clamps until their extreme edges touch, or nearly so, so that when the cloth to be ruffled is passed in between and through the slot *e* of the ruffle-former, its edges being elastic, allow the cloth to pass and then clamp it. Where very stiff smooth goods are being operated upon it is preferable to furnish the clamping edges of the ruffle-former E with teeth or serrations, but in ordinary work this is not necessary.

A bearing, B, projecting from the frame A, forms a fulcrum to which the lever-arm C is pivoted. This lever C extends back and immediately under the needle-arm, where a suitable bearing, *c*, is formed on which the needle arm rests in its descent. The opposite end of the lever may extend downward beyond the fulcrum, and be attached directly to the ruffle-former E, but I prefer to employ a supplementary arm D, pivoted to the same fulcrum, and having its lower arm attached to the former E, while the opposite end receives a set-screw, *d*, which passes through a concentric longitudinal slot, $c^{\times}$, in the lever *c*, and clamps the latter and the supplementary arm D rapidly together. By adjusting the lever C higher or lower upon the arm D, by means of this set-screw *d*, the extent of motion, and consequently that of the ruffle-former E, is correspondingly increased or diminished, thus allowing the width of ruffle or plait to be regulated as required. One end of a coiled or other suitable spring, J, rests against or is screwed to a lug or bearing, *j* projecting from the side of the frame A, while its opposite end bears against either the lever C directly, or against the latter's supplementary arm D, and tends constantly to raise the lever C and maintain it in that position. In operation, the needle-arm depresses the lever C and causes the ruffle-former to recede from the needle, and then the spring J forces the lever C up after the needle-arm, and causes the ruffle-former E to advance toward the needle, forming and carrying the new ruffle during the movement, thus rendering the whole device automatic in its operation. A projection of or strip of metal, *r*, attached to the upper plate *a* of the frame, curves downward in the direction of the needle-hole through the opening a^2 of the plate, until it is even with and nearly touches the edge of the lower plate a^1 nearest the needle-hole. This strip or projection *r* is preferably made elastic, to allow different thicknesses of cloth to pass under

and between it and the edge of the lower plate a^1, and is also preferably serrated so that, although it allows the cloth to pass freely on its way to the needle, it prevents the possibility of its returning with the ruffle-former E, as the latter recedes from the needle. The ruffle-former E has a vertical longitudinal slot, e^2, which allows it to pass beyond the point of the retainer r, which latter performs the double office of preventing the return of the ruffle, and forming a guide for the upper cloth (when the latter is employed) in its passage through the opening a^2, and under the plate on its way to the needle, in which latter office the spring r co-operates with the guide s, preferably formed by bending up a portion of the plate a during the forming of the opening a^2.

In adapting my device to some machines, or where desired, this spring or strip r may be dispensed with entirely by arranging the ruffle-former so that its serrated edge carrying the new ruffle passes under and beyond the needle, the needle descending through the slot e^2 of the former E, and remaining long enough in the ruffler to retain it during the withdrawal of the former E.

By connecting the supplementary arm D with the former E by passing the connecting-wire over the latter to the opposite side, as shown in Fig. 7, the upper cloth can be passed over the former E, and thus have the edges all toward the front, thus increasing the capacity for variety of work.

A finger, P, projects from the lower plate or arm a' at the front end of the attachment and transversely of the latter, its office being to guide the cloth that is sometimes required to be passed under the cloth being ruffled, and to which the latter is, in such case, sewed, as hereinafter described.

My ruffling attachment, thus arranged, is capable of performing a great variety of styles of work, a few of which will now be described.

The ruffling attachment having been attached to the machine so as to project outward in front of the presser-foot and needle-arm, as before described, the width of the ruffle or plait required is attained by adjusting the extent of movement of the lever C by means of the set-screw d, as before explained, and the fullness of the ruffle or plait by the length of the stitch of the machine.

First. Then, to ruffle a single piece of cloth, pass it through and between the two plates or folds of the ruffle-former E until the cloth is brought into the required position, and proceed.

Second. To ruffle one piece and sew onto another piece of goods, and have the two edges even, place the piece to be ruffled as before, and that to which it is to be sewed under the whole of the attachment, bringing the edge even with that of the ruffle-cloth, and proceed.

Third. To ruffle one piece onto and between two other pieces of cloth, pass the piece to be ruffled and the under piece as before, fold under the edge of the third piece, and pass said edge over the plate a, through the opening a^2, and against the guide s, and underneath to the needle, and proceed to operate the machine.

Fourth. To ruffle one piece of cloth onto the body of a garment and have an edge-stitched band on top of the edge of the ruffle, pass the garment under the body of the attachment, insert the piece to be ruffled as before, and the folded edge of the band over and through the upper plate, as in case 3, and proceed.

Fifth. To ruffle a piece having previously had both edges hemmed, and sew the same onto the body of a garment, pass the garment under the attachment, as before, and insert the piece to be ruffled as before, case 1, and proceed.

Sixth. To ruffle a piece having the upper edge of the ruffle turned under, and sew onto a garment, pass the garment under the attachment, as before, turn the edge of the cloth to be ruffled under, and insert as before, as case 1, and proceed.

Seventh. To ruffle one piece and sew on between two bands having their edges turned inside and edge-stitched, insert the piece to be ruffled as before, case 1, turn the edges of the two bands, and pass the upper over and through the plate, as in case 3, and the under piece over the finger P, and thence under the body of the attachment to the needle, and proceed.

Eighth. To ruffle one piece into and between a band folded double, with its edges turned in, insert the piece to be ruffled, as before, turn both edges of the folded band inside, and pass the upper edge over and through the plate, and the under edge over the finger and under the attachment, as in case 7, and proceed.

Ninth. To make puffing, ruffle both edges of the piece between bands having both edges stitched, as in 7, or on a single band, as in case 12; or, for biasing puffing, ruffle the piece on the body of the goods.

Tenth. To make ruffle with one, two, or more thicknesses, insert the desired number of pieces together, as in case 1, and sew onto the other portions of goods in any of the manners herein described, as described.

Eleventh. For fancy edge-trimming for sleeves, necks, &c., the cloth to be ruffled is doubled and inserted, as in case 1, and the edges of the bands turned in and edge-stitched, as in case 7.

Twelfth. To ruffle one piece onto a single piece and edge-stitch the latter, insert the piece to be ruffled as before, case 1, and pass the band over and through the plate, as in 3, and proceed.

The above examples are a few selections to illustrate the principal points of operation; but the known different styles and combinations of work that can be done with the aid of the device are more numerous, and I believe practice will develop others.

One advantage of my arrangement is, that all the styles of work, including those described, may be made plain or without ruffles by simply removing the set-screw *d*, and letting the lever-arm C drop out of gear with the needle-arm, thus obviating the expense of a separate attachment with which to do plain work.

Again: My device may be made a plate attachment by simply extending the lower plate a^1, and providing for its attachment to the presser-foot; but in such case the usefulness of the device would be lessened, as no portion of goods could be passed under the attachment.

Practical operation has demonstrated that it is almost completely automatic in operation after the cloth has been inserted and started; and, in no case, whether in sewing around corners or curves or on straight edges, is it necessary to touch the cloth to be ruffled, which is a great desideratum.

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

The frame A, having the upper plate *a* and lower arm or plate a^1, the guide-finger P, guide *s*, opening a^2, and bearing B, in combination with the ruffle-former E, sliding between the upper and lower plate, the lever C, and the spring J, substantially as and for the purpose described.

In witness whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE E. DOLTON.

Witnesses:

AUGUST EHRHARDT,

W. F. HUTCHINSON.