(No Model.) 2 Sheets—Sheet 1.

J. M. GRIEST.

RUFFLING ATTACHMENT FOR SEWING MACHINES.

No. 319,707. Patented June 9, 1885.

Fig. 1.

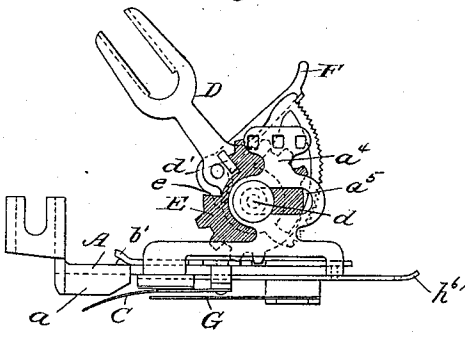


Fig. 2.

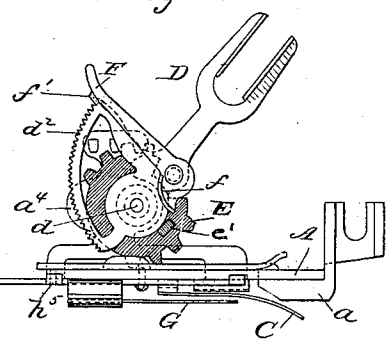


Fig. 3.

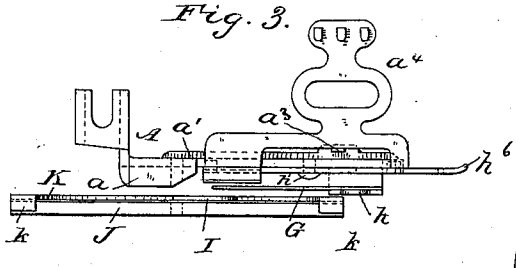


Fig. 4.

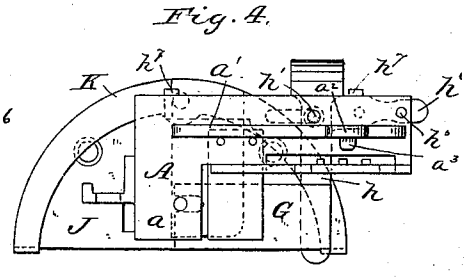


Fig. 5.

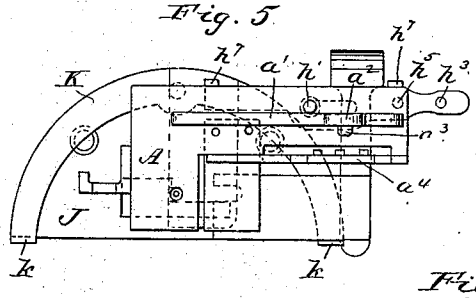


Fig. 6.

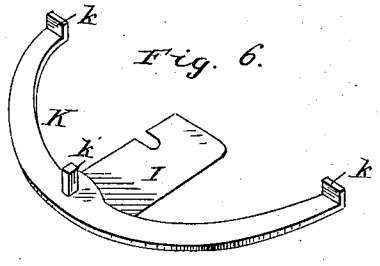
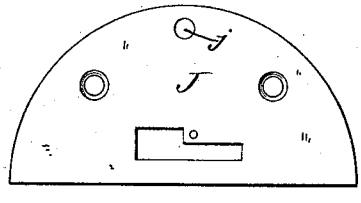


Fig. 7.



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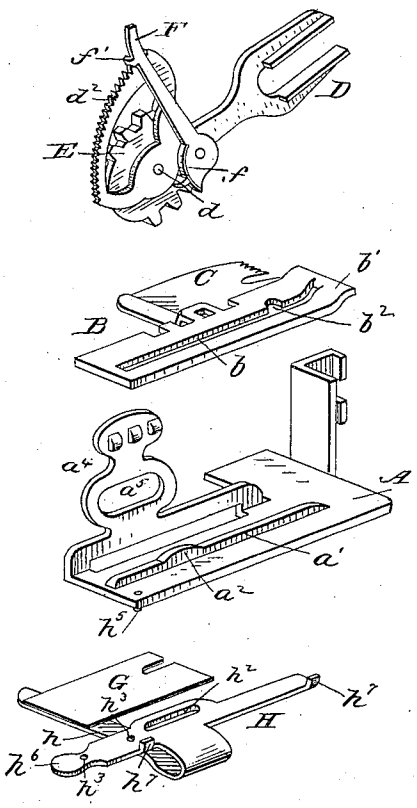
(No Model.) 2 Sheets—Sheet 2.

J. M. GRIEST.

RUFFLING ATTACHMENT FOR SEWING MACHINES.

No. 319,707. Patented June 9, 1885.

Fig. 8.



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UNITED STATES PATENT OFFICE.

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RUFFLING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 319,707, dated June 9, 1885.

Application filed October 27, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. GRIEST, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ruffling Attachments for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to that class of sewing-machine ruffling attachments which are operated from the needle-bar of the machine, the present invention relating to improvements on the ruffling attachment covered by my Patent No. 280,926, and embracing, among other features, certain means for rendering the device capable of being used either for ruffling or shirring, and of being quickly and easily changed to adapt it for one or the other of these classes of work.

In the drawings, Figures 1 and 2 are opposite side elevations of my ruffler with the separator-plate drawn back to adapt the device for shirring. Fig. 3 is a side view of my device with the ruffler-blade and its actuating mechanism removed and the separator-plate drawn back, as in Figs. 1 and 2, in operative relation to a separator-plate attached to a sewing-machine throat-plate, and Fig. 4 is a plan view of the same. Fig. 5 is a view like Fig. 4, but with the ruffler separator-plate thrown forward in position for ruffling. Fig. 6 is an under side perspective view of the attachment-plate carrying the separator-plate, which is fastened to the throat-plate in shirring. Fig. 7 is a plan view of a Singer throat-plate, to which said attachment-plate may be fastened; and Fig. 8 is a detached perspective view to show the construction of several parts of my device.

A indicates the main plate or stock of my attachment, this part having a presser-foot, *a*, and being adapted to be removably secured to the presser-bar of a sewing-machine and to carry the ruffling-blade and its operating mechanism, as well as a separator-plate. The plate A is provided on its upper side with a rib, a', having a raised portion or protuberance, a^2, from which projects laterally a lug or lip, a^3.

B is a slide having an arm to which the ruffling-blade C is attached, said slide having a long slot, *b*, embracing the rib a', one end, b', of the slide being turned slightly upward, so that it can ride over said rib. The rib a' thus furnishes an extended wearing-surface and a steady bearing for the slide B.

To enable the slide to be placed in operative position on the rib in assembling the parts of the attachment, a notch, b^2, corresponding in size and shape to the lateral lip a^3, is formed in the slide B at one side of the slot *b*, and when said slide has been arranged in its place said notch is partly closed in any suitable manner, as by spreading the metal at the sides thereof slightly, to prevent the displacement of the slide.

The plate A has a standard, a^4, which sustains the mechanism for operating the slide B, said mechanism being essentially the same as in my patent above referred to, and consisting of a forked lever, D, and a traveling wheel, E, said lever being pivoted on a pin, *d*, passing through said wheel and working in a slot, a^5, in the standard a^4, and said wheel having teeth engaging with similar teeth on the stationary standard a^4 and the movable slide B. Thus as the lever D is vibrated by the sewing-machine needle-bar, a rotary and traveling movement will be imparted to said wheel, and the latter movement being communicated to the slide B the ruffling-blade carried by the latter will be properly reciprocated.

The movements of the lever D are imparted to the wheel E by means of a stud, d', on the former, working in a notch, *e*, in the latter, and by an eccentric portion or cam, *f*, on a regulating-lever, F, pivoted to the lever D, said cam impinging against a lug, e', on the wheel E. As the lever D is raised, the stud d', after a certain necessary amount of lost motion, strikes against the upper wall of the notch *e*, and thus turns the wheel E to move the ruffling-blade forward. As the lever D descends, the cam *f* will sooner or later, according to its adjustment, strike the lug e' and turn the wheel E in a direction opposite to its first movement to move the ruffling-blade backward. The stud d' is immovable on the lever D, and the notch e' is not variable, and therefore the ruffling-blade will always move forward to the same point, the variation of the throw of

said blade in forming ruffles of different sizes being all on the backward end of its stroke.

The regulating-lever F has a small lug, f', normally sprung into engagement with a serrated segment, d^2, on the lever D, to hold said lever F in any position to which it may be adjusted, and when said lug is at the top of said segment, as in Figs. 1 and 2, the part of the cam f having the greatest radius will come in contact with the lug e', so that the lost motion between the lever D and wheel E will be small, and the strokes of the ruffling-blade will consequently be long; but when said lug is near the bottom of said segment the part of the cam having the smallest radius will strike the lug e', thus leaving more lost motion of the lever D, resulting in short strokes of the ruffling-blade.

The regulating-lever F is a two-armed or bell-crank lever, much like many of the regulating-levers heretofore in use in this class of attachments, excepting that the working portion of the shorter arm of said lever is made in the form of an eccentric or cam, f, so that the adjustment of the throw of the ruffling-blade will not be uniform with a uniform movement of the regulating-lever, as is the case with the ordinary two-armed regulating-levers; but the adjustment will vary, owing to the cam or eccentric on said lever.

It will thus be seen that when the regulating-lever F is set for short strokes of the ruffling-blade, or for fine ruffles or gathers, the cam f presents that part of its acting surface nearest its pivot to the lug e' on the wheel E, and as said lever is moved upward on the serrated segment, the variation in the throw of the ruffling-blade for a given adjustment of said lever will at first be very slight, this variation for a given adjustment of the lever gradually increasing as the length of the strokes of the ruffling-blade is increased and the ruffles or plaits become wider.

G is the separator-plate, which is carried by an arm, h, of a plate, H, which is adjustably attached to the main plate A by a rivet, h', passing through a slot, h^2, in the said plate H, the latter having two upwardly-projecting lugs, h^7, impinging against the edge of the plate A, to steady the plate H in place and to preserve its alignment with the plate A when adjusted. The plate H is provided with two small holes, h^3 h^3, a distance apart about equal to the length of the slot h^2, and projecting beneath the under surface of the plate A is a small pin, h^5, fitting said holes. When the plate H is in operative position, one or the other of said holes is engaged by said pin to lock the said plate in place on the plate A. By depressing the end h^6 of the plate H, the latter may be disengaged from the pin h^5, and said plate with its attached separator-plate may then be adjusted forward or backward the length of the slot h^2, the ends of the latter serving as stops to limit the adjustment of the said plate H.

In the ordinary use of my device as a ruffler, the separator-plate is thrown forward so that its end is beneath the presser-foot a, and the ruffling-blade then works against the separator-plate, which divides the strip being ruffled from the fabric passing below it, to which the ruffle is being sewed. When, however, it is desired to use my device for "shirring," or, in other words, for gathering or plaiting a single thickness of fabric, usually at some considerable distance from the edge thereof, it is necessary to throw the separator-plate G out of working position or to remove the same entirely, and to substitute therefor a separator-plate attached to the work-plate of the machine, thus permitting the free passage of the goods to be plaited beneath the ruffling device.

By means of the construction of parts hereinbefore described, I am enabled to throw the separator-plate G out of working position simply by disengaging the plate H from the pin h^5, as above described, and then sliding said plate outward to the position shown in Figs. 1, 2, 3, and 4, when it is entirely out of the way of the ruffling-blade. A separator-plate, which is secured to the throat-plate or work-plate of the machine, is then necessary to take the place of the plate G, and I prefer to fasten the substitute separator-plate I to the throat-plate J by means of an attachment-plate, K, to which the separator-plate I is fixed.

The plate K is formed of thin metal, so that it will spring somewhat, and is provided at its ends with downwardly-turned lips or lugs k, and intermediate of its ends with a depending pin or lug, k', adapted to fit a hole, j, in the throat-plate J. By placing the pin or lug k' in the hole j, and then springing the lips or lugs k over the edge of the throat-plate, the attachment-plate and the separator-plate carried thereby may be quickly and easily secured to the throat-plate, and may be readily removed therefrom by reversing this operation.

I do not wish to claim the above-described attachment plate, broadly, in this application, as the same is embraced by another application, No. 146,585, which I have filed simultaneously herewith; but,

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. In a ruffling attachment for sewing-machines, the combination, with the ruffling-blade and its carrying-slide, of an actuating-lever having a stud, a traveling wheel having a notch in which said stud is arranged, and also a lug, and an adjusting-lever carried by said actuating-lever, and arranged to impinge against the lug on said wheel, substantially as set forth.

2. In a ruffling attachment for sewing-machines, the combination, with the ruffling-blade, the actuating-lever and intermediate connecting mechanism, of a two-armed regulating-lever carried by the former lever and having on its shorter arm an eccentric working portion or cam, whereby the changes in the throw of the ruffling-blade will be more rapid with a given adjustment of the regulating-lever when the strokes thereof are long

and the variation in the lengths of said strokes with such adjustment will be finer or less when the strokes are short, substantially as set forth.

3. In a ruffling attachment for sewing-machines, the main plate provided with a rib having a protuberance from which project laterally a lip or lug, a ruffling-blade, and a slide to which said blade is attached, said slide having a slot in which said rib fits, and an upturned end riding over said rib, combined with mechanism for operating said slide, substantially as set forth.

4. In a ruffling attachment for sewing-machines, the combination, with the main plate, the ruffling-blade, and devices for operating the latter, of an adjusting-plate carrying a separator-plate, and having a longitudinal sliding connection with said main plate, and being provided with two holes, stops to limit the movements of the said adjusting-plate, and a pin on said main plate to enter said holes, and thus lock the said sliding adjusting-plate and separator in different positions, substantially as set forth.

5. The combination, with a ruffling attachment adapted to be secured to a sewing-machine above the work-plate thereof, of a resilient semicircular attachment-plate provided with a separator-plate, and having three depending lugs, one at each end and one near its center, whereby said attachment-plate and separator are adapted to be removably secured to the throat-plate of a sewing-machine, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN M. GRIEST.

Witnesses:
JOSIAH SIMMS,
RICHARD SIMMS.