(No Model.)

A. JOHNSTON.

RUFFLING ATTACHMENT FOR SEWING MACHINES.

No. 264,038. Patented Sept. 5, 1882.

Fig. 1.

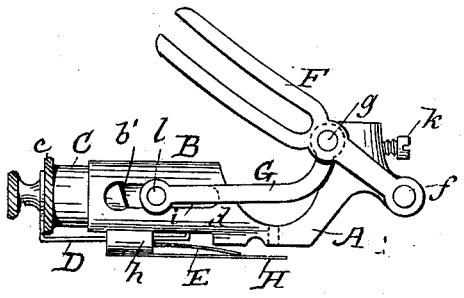


Fig. 2.

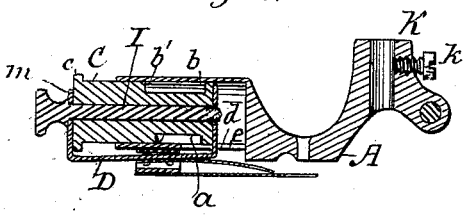


Fig. 3.

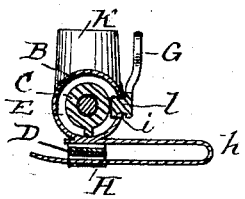


Fig. 4.

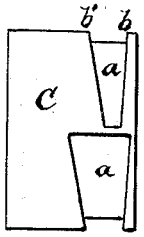
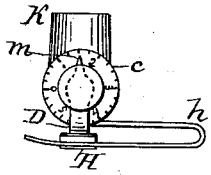


Fig. 5.



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UNITED STATES PATENT OFFICE.

ALLEN JOHNSTON, OF OTTUMWA, IOWA.

RUFFLING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 264,038, dated September 5, 1882.

Application filed June 27, 1882. (No model.)

To all whom it may concern:

Be it known that I, ALLEN JOHNSTON, of Ottumwa, in the county of Wapello and State of Iowa, have invented a new and useful Improvement in Ruffling Attachments for Sewing-Machines, which improvement is fully set forth in the following specification.

This invention, although in part applicable to other styles of ruffling or gathering attachments, has reference more particularly to those in which the ruffler-blade is carried by a sliding blade-carrier, and is operated from the needle-bar of a sewing-machine through a lever, and in which the stroke of said blade and blade-carrier is varied by regulating the space between stops wherein a device connected with said lever plays.

Sliding blade-carriers have ordinarily been connected with the ruffler-frame by a dovetail or similar form of tongue-and-groove connection, or have been formed of a bar or plate working in ears or lugs of said frame. In the present invention the carrier has a cylindrical slide which works in a cylindrical tube or barrel forming part of the ruffler-frame, this construction being more durable and better adapted for manufacture than those heretofore employed.

In ruffling attachments wherein motion is imparted to the blade-carrier from a separate device—such as a lever attached to the ruffler-frame—through a pin or other projection that plays between stops, the said stops have heretofore ordinarily been made of separate pieces, one stop being made integral with the blade-carrier, and the other formed by an adjustable cam, lever-arm, set-screw, or the like, although both stops have in some cases been made adjustable, and in some cases have been carried by the operating-lever. In the present invention both stops are formed in one piece with an adjustable cylinder—namely, by the walls of a groove or slot of variable width cut in the periphery of said cylinder—and the free play or lost motion of a pin or projection between the stops is increased or diminished by turning said piece so as to bring a wider or narrower part of the groove or slot opposite the said pin or projection. The groove or slot may be so shaped that the ruffler-blade on its forward movement comes to the same point for all lengths of stroke; but it is preferred to have this forward limit variable, as set forth in Letters Patent No. 259,643, granted to me June 13, 1882; and as shown herein both walls of the slot or groove are cut in spiral form. As it is most advantageous to vary the length of stroke mainly by alterations in the backward limit of movement, the wall against which the pin or other projection strikes to carry the ruffler-blade forward is inclined less than the other. This improvement in the means of adjustment is combined with the cylindrical slide first referred to by having a proper groove cut in the said slide and adapting the latter to be turned on its axis and to be clamped in the position in which it is set.

Other new improvements residing mainly in the special construction and combination of parts will be hereinafter set forth.

The accompanying drawings, which form a part of this specification, illustrate a ruffling attachment constructed in accordance with the invention.

Figure 1 is a side elevation; Fig. 2, a longitudinal vertical section; Fig. 3, a vertical cross-section; Fig. 4, a development of the grooved cylinder or slide, and Fig. 5 an end view of the attachment.

A is the ruffler-frame; B, a barrel or tubular guide forming part of said frame; C, the cylindrical slide fitting the bore of said barrel and adapted to work back and forth therein; D, a frame or bent strip forming part of the blade-carrier; E, the ruffler-blade attached to said strip; F, the operating-lever, pivoted at *f* to the ruffler-frame, and forked at its outer end so as to embrace the needle-screw or other projection on the needle-bar; G, a link pivoted at *g* to the lever F, and serving to communicate motion therefrom to the sliding blade-carrier C D and the ruffler-blade E; and H, a separator-plate fixed at one end to a bow, *h*, the latter being attached to the ruffler-frame.

The carrier-frame or bent strip D embraces the slide C between its ends, which by a long screw-pin, I, tapped into the inner of said ends, can be drawn together so as to clamp the said slide in position. When the pin is not screwed up tight the slide C is left free to be turned by the milled head *c*. The frame or bent strip D is prevented from turning by the part *d*, that works in the slot *e* in the barrel or tubular guide B. In slide C is cut a groove, *a*. The

walls or edges *b b'* of this groove incline in opposite directions—the former but slightly, the latter at a greater angle. Between the walls plays a stud, pin, or projection, *l*, fastened at the end of link G, the slot *i* in cylinder B admitting said pin or projection *l*, and also serving as a guide therefor. When lever F is lifted by the needle-bar the pin or projection *l* strikes the wall *b* of the groove *a* and moves the blade-carrier forward. On the descent of the needle it strikes the opposite wall, *b'*, and moves the blade-carrier backward to its original position. The walls *b b'* thus form stops to the pin or projection *l*, which, during the portion of its movement that it is out of contact with said stops, has no effect upon the slide C. The amount of this lost motion depends upon the distance between the stops or walls *b b'* of the groove *a*, and this distance can be varied at will by turning the slide C so as to bring opposite the pin or projection *l* a portion of the groove which has a greater or less width, according as it is desired to diminish or increase the length of stroke. If the wall *b*, which the pin *l* strikes on its forward movement, were straight, the slide would always be advanced in this direction to the same point; but said wall being slightly inclined, and inclined, moreover, in an opposite direction from the wall *b'*, at every adjustment the slide advances to a different point, and this point is farther forward or back, according as the amount of motion of the slide is increased or diminished; or, in other words, in increasing or diminishing the motion of the slide its path is lengthened or shortened at both ends.

In making fine gathers the nicest work is done by having the ruffler-blade (which is slotted at the end, as usual) carried forward just far enough for the needle to catch the fold; but for large gathers or folds it is better to have the operating end of the blade-carrier move some little distance beyond the needle. The parts are therefore proportioned and disposed so that when the attachment is secured to the machine the ruffler-blade moves just beyond the needle if the adjustment is such as to give a short stroke. The proper variation in the position of the blade at the end of its forward movement is effected for longer strokes simultaneously and automatically with the adjustment. To change the length of stroke of the ruffler-blade, pin I is loosened sufficient to release the slide C from frame D, and the slide is then turned either to the left or right, Fig. 5, according as the size of the ruffle is to be increased or diminished. In order to indicate the size of the ruffle the end of slide C is graduated, and the end of strip or frame is provided with an index-finger or pointer, *m*.

The attachment is secured in place on the machine by inserting the presser-bar in socket K, and is held in place by set-screw *k*. The two arms of lever F embrace the needle-screw or a projection on the needle-bar, and the reciprocation of the latter imparts motion to lever F, which is communicated to the sliding carrier C D and ruffler-blade E through link G and pin or projection *l*.

In the device shown the ruffler-blade is adapted to gather downwardly against a separator-plate; but it is obvious that it could be made to gather upwardly against the presser-foot, and also that many other modifications could be made in the details of construction without departing from the spirit of the invention. For example, the invention, in whole or in part, may be adapted to a ruffler having a frame adapted to be secured to the bed-plate of the sewing-machine, or to a ruffler operated by a bell-crank or bent lever, or other device from the needle-bar, or from other moving part of the sewing-machine.

Having now fully described my said invention and the manner of carrying the same into effect, what I claim is—

1. In a ruffling attachment, a cylindrical slide forming part of the blade-carrier, and working in a barrel forming part of the ruffler-frame, substantially as described.

2. The combination of the barrel forming part of the ruffler-frame, the blade-carrier comprising a cylindrical slide working in said barrel, and a frame or strip connected with said slide, and having a portion thereof extending through a slot in the barrel, and the ruffler-blade attached to said carrier, substantially as described.

3. The combination of a blade-carrier, an adjustable cylinder provided with stops forming a part thereof, and operating means—such as a lever and link—connected with said carrier by pin or projection working between the said stops, substantially as described.

4. The combination of the cylindrical slide provided with stops, and adjustable, as explained, with operating means comprising a pin or projection working in the groove or between said stops, substantially as described.

5. In a ruffling attachment, an adjustable slide provided with a groove of varying width, the walls of said groove forming stops through which motion is imparted from a reciprocating device to said slide, substantially as described.

6. In a ruffling attachment, the cylindrical slide supported in a tubular guide or barrel, and having stops extending around the slide and separated from each other by a variable distance, combined with operating means comprising a pin or projection working between the said stops, said slide being capable of turning in its support to regulate the stroke thereof, substantially as described.

7. In a ruffling attachment, an adjusting device having stops formed by the walls of a groove inclined in opposite directions and at different angles, substantially as described.

8. The combination of the operating-lever, the link, the tubular guide or support, the cylindrical slide supported therein, and having stops extending around its surface and inclined in opposite directions, the strip or frame hav-

ing the ruffler-blade attached thereto, and means for clamping said strip or frame and slide together, and for releasing them at will, substantially as described.

9. In a ruffling attachment, the combination, with the stationary index-finger, of the graduated adjusting device for regulating the stroke of the ruffler-blade, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ALLEN JOHNSTON.

Witnesses:
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J. T. HACKWORTH.