

UNITED STATES PATENT OFFICE.

MARTIN HEMLEB, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, OF NEW JERSEY.

SEWING-MACHINE RUFFLER.

SPECIFICATION forming part of Letters Patent No. 623,309, dated April 18, 1899.

Application filed July 1, 1898. Serial No. 684,914. (No model.)

To all whom it may concern:

Be it known that I, MARTIN HEMLEB, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Sewing-Machine Rufflers, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to that class of sewing-machine rufflers in which the ruffling or crimping blades are operated from the needle-bars of the sewing-machines; and the object of the invention is to provide a ruffler of the class referred to which will be simple in construction and positive in operation and in which the ruffling-blade will be caused to perform its forward or ruffling stroke during the first part of the downward movement of the needle-bar and while the needle is out of the work, so that the needle will puncture the crimp or plait which has just been formed and hold the same until secured by the sewing thread or threads.

25 In the accompanying drawings, Figures 1 and 2 are side elevations of the improved ruffler in operative relation to the needle and presser bars of a sewing-machine, Fig. 1 showing the needle-bar down and the ruffling-blade in its forward position and Fig. 2 showing the needle-bar elevated and the ruffling-blade retracted. Fig. 3 is a front view of the attachment removed from the machine; and Figs. 4 and 5 are rear and top views, respectively, of the same. Fig. 6 is a view of the attachment, showing the side opposite that shown in Figs. 1 and 2. Fig. 7 is a bottom view of the presser-foot; and Fig. 8, a detail sectional view of the same on line 8 8, Fig. 7.

40 A denotes the frame of the ruffler, said frame being adapted for attachment in any suitable manner to the presser-bar A' of the sewing-machine. In the form of the invention herein illustrated the frame A is shown as having an arm or portion *a*, provided at its end with a concave seat *a'*, and a similar seat *b'* is formed at the upper end of the shank *b*, which carries the presser-foot *b'*, and by means of these seats or sockets *a' b'* and the screws

*a*² the attachment-frame is clamped to the presser-bar A'.

C is the operating-lever, fulcrumed at its upper end at *c*² to the frame A and provided with a grooved or slotted portion *c* to receive a suitable stud or roller, with which the needle-bar is provided. The grooved or slotted portion of the lever C is formed with a somewhat abrupt curve at its upper part, while the middle and lower parts thereof are straight, so that the needle-bar stud will cause the said lever to perform its downward movement to move the ruffling-blade forward during the first part of the downward movement of the needle-bar, said lever and the ruffling-blade then remaining stationary while the needle-bar continues its descent and while it is performing the greater part of its upward movement, the operating-lever being lifted and the ruffling-blade retracted during the latter part of the upward movement of the needle-bar. This grooved portion *c* of the operating-lever is in the present instance formed by the flanges *c'* embracing the needle-bar roller-stud.

D is a bell-crank ruffling-lever pivoted at the apex or junction of its arms on the screw *d*, tapped in the frame A, the ruffling-blade *d'* being pivotally attached to the lower end of the longer or lower arm of said lever and said blade being pressed downward to cause it to engage the work by a spring *d*². Beneath the blade *d'* is an auxiliary ruffling-blade *d*³, between which and the blade *d'* the work will be passed when two strips or ribbons are to be simultaneously ruffled or plaited; but when a single strip or ribbon is being ruffled or plaited it will be passed beneath the auxiliary blade *d*³. The ruffling-blades are of the usual construction in that they are serrated or toothed at their forward ends and are notched for the reception of the needle *e*, carried by the needle-bar E. Attached to the throat-plate F is a plate *f*, the forward end of which is serrated or toothed. This plate *f* is preferably employed to prevent any retraction of the work by the ruffling blade or blades.

The shorter or upper arm of the ruffling-lever D is connected by a link *g* with the slot-

ted upper portion of the operating-lever C, the stud g' , by which the upper end of said link is pivotally attached to said lever C, being adjustably secured in the slot c^3 in any suitable or well-known manner. By adjusting said stud g' farther from or nearer to the fulcrum of the lever C the throw of the ruffling-lever D and of the ruffling blade or blades carried thereby will be lengthened or shortened, as will be readily understood.

The presser-foot is preferably formed in two parts, one of which consists of the portion b^2 , pivotally attached to the shank b by a pin b^3 , a small coil-spring b^4 pressing on the said portion b^2 to hold it down against the work, the said spring yielding, when necessary, to permit the toe portion of said foot to rise slightly when the ruffling-blade forces a crimp or plait beneath it. The other part b^5 of the presser-foot is rigid with the shank b , the said part b^5 serving as a stop to limit the downward movement of the part b^2 by virtue of the bridge-piece b^6 on the part b^2 , and which extends over the part b^5 and on which bridge-piece the spring b^4 presses. This construction is particularly advantageous with thick goods, but for thin goods a foot rigid with its shank might be employed.

Owing to the fact that the ruffling-lever is connected with the operating-lever between the pivot or fulcrum of the latter and the free end or the part engaged by the needle-bar stud, a very compact, strong, and simple ruffling attachment is provided, and as in the operation of the improved ruffler the crimps or plaits are formed during the first part of the downward movements of the needle-bar and before the needle reaches the work, each crimp or plait thus formed will be pierced by the needle, and will consequently be held until secured by the sewing thread or threads, as heretofore stated. It will also be noted that the connection of the operating-lever C with the needle-bar stud or roller is a positive one, owing to the fact that the said stud or roller is always between, and therefore is always embraced by, the flanges c' on the said operating-lever.

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

1. In a sewing-machine ruffler, the combination with a suitable frame, of an operating-lever pivoted to said frame and provided with means for connection with the needle-bar of the machine, a bell-crank ruffling-lever also pivoted to said frame at the apex or junction of its two arms and the lower arm of which is provided with a ruffling-blade, and a link connecting the upper arm of said bell-crank ruffling-lever with the said operating-lever between the fulcrum of the latter and its free end.

2. In a sewing-machine ruffler, the combination with a suitable frame, of an operating-

lever pivoted to said frame and having a groove or slot the walls of which are adapted to embrace a stud or roller on the needle-bar of the machine and which walls are formed with an abrupt curve at their upper portions and straight below, a bell-crank ruffling-lever also pivoted to said frame at the apex or junction of its arms and the lower arm of which is provided with a ruffling-blade, and a link connecting the upper arm of said bell-crank ruffling-lever with the said operating-lever between the fulcrum of the latter and its free end.

3. In a sewing-machine ruffler, the combination with a suitable frame provided with a presser-foot one portion of which is rigid with said frame and the other portion of which is hinged or pivoted so as to have an upwardly-yielding toe, a spring serving to press said hinged portion downward, a stop to limit the downward movement of said hinged portion under the stress of said spring, an operating-lever adapted for connection with the needle-bar of the machine, and a bell-crank ruffling-lever connected with said operating-lever and provided with a ruffling-blade which, in its forward throw, forces the goods beneath said yielding toe.

4. In a sewing-machine ruffler, the combination with the frame A provided with a suitable presser-foot, of the operating-lever C pivoted to said frame and provided with means whereby it may be connected with the needle-bar of the sewing-machine, the bell-crank lever D also pivoted to said frame at the apex or junction of its arms and the lower arm of which is provided with a ruffling-blade, and the link g adjustably connecting the upper arm of said ruffling-lever with the said operating-lever.

5. In a sewing-machine ruffler, the combination with the frame A, of the operating-lever C pivoted to said frame and provided with means whereby it may be connected with the needle-bar of a sewing-machine, the bell-crank lever D also pivoted to said frame, and the lower arm of which is provided with a ruffling-blade, the link g adjustably connecting the upper arm of said ruffling-lever with the said operating-lever, the shank b rigidly attached to said frame A, the presser-foot b^2 , hinged to said shank, and the spring b^4 for yieldingly holding the toe portion of said presser-foot downward.

6. In a sewing-machine ruffler, the combination with a suitable frame provided with a presser-foot one portion of which is rigid with said frame and the other portion of which is hinged or pivoted so as to have an upwardly-yielding toe, of a spring serving to press said hinged portion downward, a stop to limit the downward movement of said hinged portion under the stress of said spring, an operating-lever pivoted to said frame and having a groove or slot the walls of which are adapted

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of the machine and which walls are formed
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and straight below, a bell-crank ruffling-lever
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ating-lever between the fulcrum of the latter
and its free end.

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

MARTIN HEMLEB.

Witnesses:

HENRY J. MILLER,
HAROLD W. BROWN.