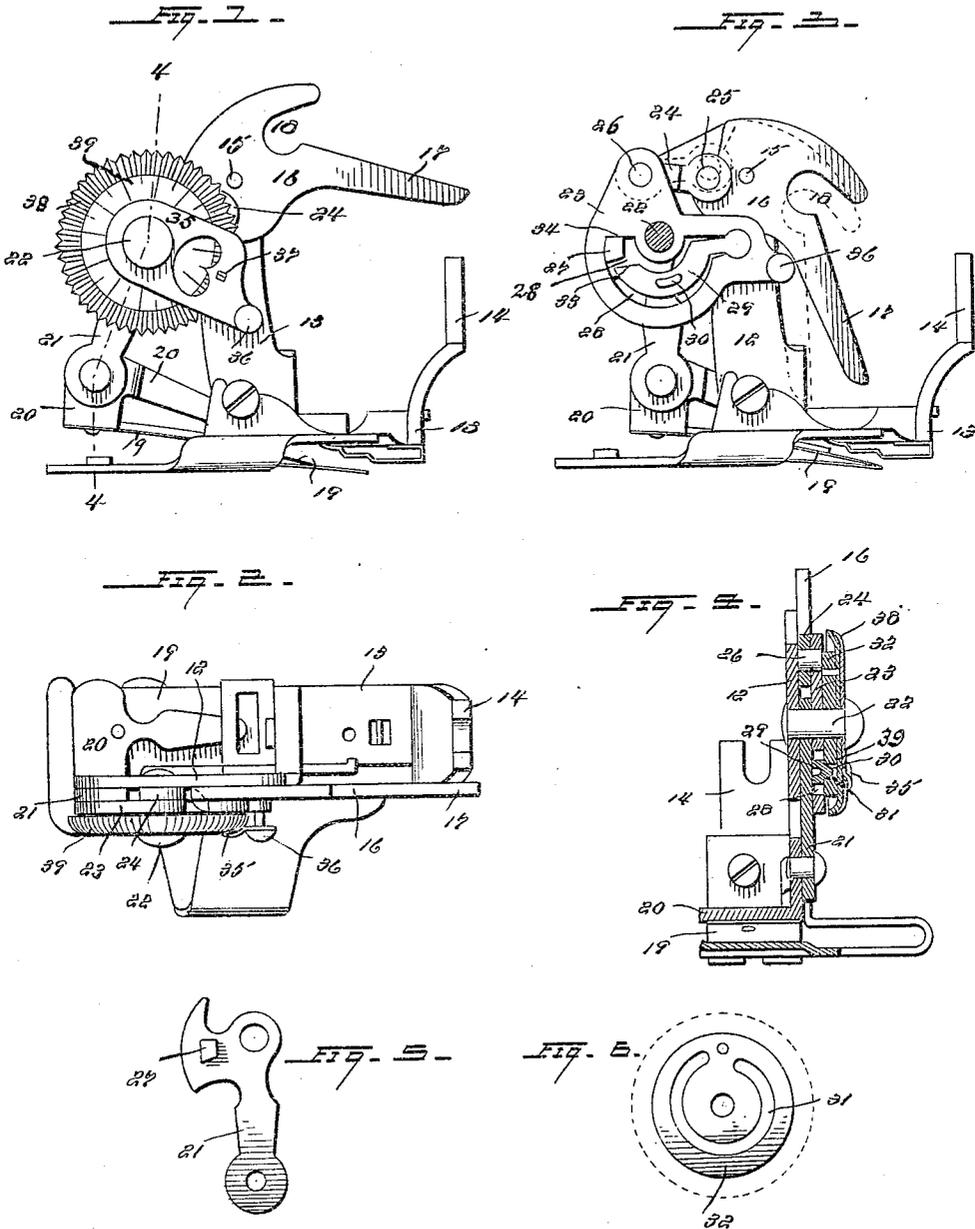


No. 822,892.

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J. M. GREIST, DEC'D.
M. F. W. & P. R. GREIST, ADMINISTRATORS.
SEWING MACHINE RUFFLER.
APPLICATION FILED OCT. 31, 1905.



WITNESSES:
H. F. Doyle
W. M. Sweeney

INVENTOR:
John M. Greist
BY *Henry Calvert*
Attorney.

UNITED STATES PATENT OFFICE.

JOHN M. GREIST, OF NEW HAVEN, CONNECTICUT; MARY F. W. GREIST AND P. RAYMOND GREIST ADMINISTRATORS OF SAID JOHN M. GREIST, DECEASED, ASSIGNORS TO THE GRIEST MANUFACTURING COMPANY, A CORPORATION OF CONNECTICUT.

SEWING-MACHINE RUFFLER.

No. 822,892.

Specification of Letters Patent.

Patented June 5, 1906

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To all whom it may concern:

Be it known that I, JOHN M. GREIST, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented or discovered certain new and useful Improvements in Sewing-Machine Rufflers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to sewing-machine rufflers of that class in which the ruffling or gathering blades are operated from the needle-bars of the sewing-machines; and the invention has for its object to provide a ruffler of the class referred to which is of such construction that the ruffling-blade is advanced to form a ruffle or gather during the early part of the descent of the needle-bar and before the point of the needle penetrates the work. This operation is advantageous in some classes of sewing-machines as compared with the usual operation of ruffling attachments supplied with family sewing-machines and in which the ruffling-blades are advanced during the upward movements of the needle-bars, for the reason that in some family sewing-machines the "take-up" or stitch-tightening movement occurs after the needle has reached its highest point and before the ruffling-blade is retracted, thus subjecting the upper thread to an increased frictional strain because of its being drawn between two plaits or gathers formed in the work, while the latter is under the pressure of the ruffling-blade, thereby unduly increasing the tension of the lower thread of a lock-stitch machine to such an extent as to prevent its being properly drawn into the goods by the upper thread to form a perfect stitch.

While sewing-machine ruffling attachments in which the ruffles or gathers are formed at the downward strokes of the needle-bars and before the points of the needles penetrate the work have heretofore been made to some extent, such previous attachments did not allow of sufficient variation or latitude between the timing of differently-constructed or differently-adjusted machines or for variation in the timing of rufflers which varied slightly in construction or adjustment; and the present invention has for its object to provide a ruffler in which the

ruffling-blade is advanced to form a ruffle or gather during the early part of the downward stroke of the needle-bar and in which the ruffling-blade in forming its ruffle or gather will always be advanced to the same point notwithstanding certain inaccuracies in the adjustment or construction in the ruffler itself or of the machine to which it may be applied. This result is effected by providing a ruffler in which the lever which actuates the ruffling-blade receives its movements through an intermediate lever connected with the operating or needle-bar lever by a link which forms a toggle, the three pivot-points of which are straightened or brought into line, or practically so, to effect the extreme forward throw of the ruffling-blade before the point of the needle reaches the work, but which permits of some additional movement of the operating-lever without further forward movement of the ruffling-blade. This effects the same result as an allowance for considerable "lost motion" between the parts referred to, and thus adapts the attachment to differently-adjusted or imperfectly-constructed ruffling attachments or sewing-machines without resulting in any perceptible variations in the working or timing of the ruffling-blades.

In the accompanying drawings, Figure 1 is a side view of a ruffler embodying the present invention. Fig. 2 is a plan view of the improved ruffler, and Fig. 3 is a side view of the same with the regulating-disk removed. Fig. 4 is a vertical sectional view on line 4 4, Fig. 1; and Figs. 5 and 6 are detail views of some of the parts.

Referring to the drawings, the frame of the ruffler comprises a standard 12, a presser-foot portion 13, and a shank portion 14, adapted for attachment to a sewing-machine presser-bar, these parts or elements being preferably of one piece of metal. Attached to the standard 12 by a pin or rivet 15 is the operating-lever 16, having an arm 17 and a notch or slot 18, the latter being adapted to receive a pin or roller-stud on the needle-bar of a sewing-machine and which pin or roller-stud during the latter part of the descent of the said needle-bar will be in contact with the said arm 17.

The ruffling-blade 19 is attached to a carrier 20, which is pivotally connected at its

lower end to an actuating-lever 21, fulcrumed on a screw or pin 22, on which the intermediate lever 23 is also fulcrumed or pivoted, said intermediate lever being connected by a link 24 with the needle-bar-operating lever 16, the pivotal points or joints of said link 24 with said operating-lever and intermediate lever being, respectively, at the studs or pins 25 and 26.

To provide for an adjustable connection between the actuating-lever 21 and the intermediate lever 23, the said lever 21 is provided with a lug or projection 27, received in a recess 28 in the said intermediate lever 23, and said recess also receives a pivoted regulating-dog 29, provided with a small lug or projection 30, which is received in an eccentric slot 31, formed in an adjusting-disk 32, and which disk may be turned to provide for more or less lost motion between the free end 33 of the said regulating-dog and the said lug or projection 27 on the lever 21. This construction, whereby the throw of the ruffling-blade is adjusted or regulated, is essentially the same as that shown and described in my United States Patent No. 802,637, granted October 24, 1905. If the said regulating-dog be so adjusted as to be in contact with the said lug or projection 30 when the latter is against the stop afforded by the upper wall at the point 34 of the slot or recess 28 in the intermediate lever 23, there will be no lost motion between the said intermediate lever and the actuating-lever 21, and the ruffling-blade will have its full forward and backward throw; but if the said regulating-dog be so adjusted that there is more or less lost motion between the said intermediate and actuating levers the throw of the ruffling-blade will be correspondingly lessened. The disk 32 is retained in any position to which it may be adjusted by a spring plate or pawl 35 engaging a pin 36 on the lever 23 and provided with an intumed tooth or projection 37, engaging the serrated portion 38 of an index-disk 39, attached to the said disk 32, as in the construction shown in my said patent.

In the operation of this improved ruffler the ruffling-blade is advanced from its rearward or retracted position (shown in Fig. 1) to its extreme forward position (shown in Fig. 3) during the early part of the descent of the needle-bar and before the point of the needle reaches the work. When the ruffling-blade reaches its extreme advanced position to form a ruffle or gather, the pivotal points 15, 25, and 26 are so nearly in line, as shown by full lines in Fig. 3, that the further descent of the needle-bar, so as to move the operating-lever 16 from the position shown in full lines to the position shown in dotted lines in Fig. 3, will simply move the center of the pivotal point 25 at the forward end of the

link 24 from slightly below to slightly above a straight line running between the pivotal point 15 of the operating-lever and the joint 26, where the said link is attached to the intermediate lever, without producing any perceptible further forward movement of the ruffling-blade. This admits of considerable variation in the timing or adjustments of different sewing-machines or of some variations in the construction or adjustment of the rufflers without producing any perceptible difference in the timing of the forward throw of the ruffling-blade, so that this construction permits the improved ruffler to be applied to differently-adjusted or somewhat differently timed sewing-machines without making any noticeable difference in the ruffling operations, and thereby adapts the improved ruffler, forming ruffles during the early parts of the descents of the needle-bar, to family machines generally.

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

1. In a sewing-machine ruffler, the combination with a ruffling-blade, an actuating-lever with which said blade is connected, a needle-bar-operated lever, an intermediate lever loosely connected with said actuating-lever, and a link connecting said intermediate lever with said needle-bar-operated lever.

2. In a sewing-machine ruffler, the combination with a ruffling-blade, an actuating-lever with which said blade is connected, a needle-bar-operated lever, an intermediate lever, a link connecting said intermediate lever with said needle-bar-operated lever, and adjusting means between said intermediate lever and said actuating-lever.

3. In a sewing-machine ruffler, the combination with the operating-lever 16 having the arm 17 and the open slot or notch 18, of the ruffling-blade lever 21, the ruffling-blade connected therewith, the intermediate lever 23 and the link 24 connecting said levers 16 and 23.

4. In a sewing-machine ruffler, the combination with the operating-lever 16 having the arm 17 and the slot or notch 18, of the ruffling-blade lever 21, the ruffling-blade connected therewith, the intermediate lever 23, the link 24 connecting said levers 16 and 23, said intermediate lever 23 being provided with a recess, a pivoted regulating-dog 29 in said recess, and means for adjusting said dog in said recess and for retaining it in its different positions of adjustment.

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

JOHN M. GREIST.

Witnesses:

WALTER C. GREIST,
HUBERT M. GREIST.