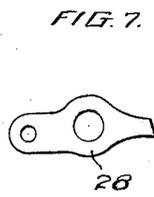
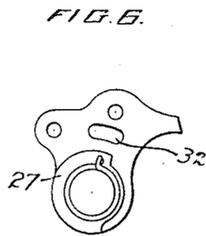
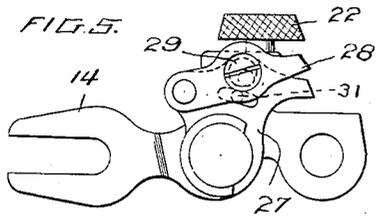
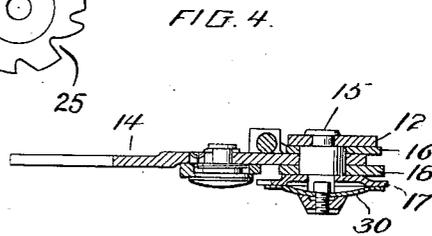
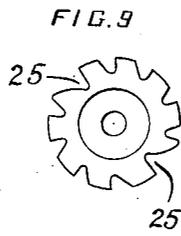
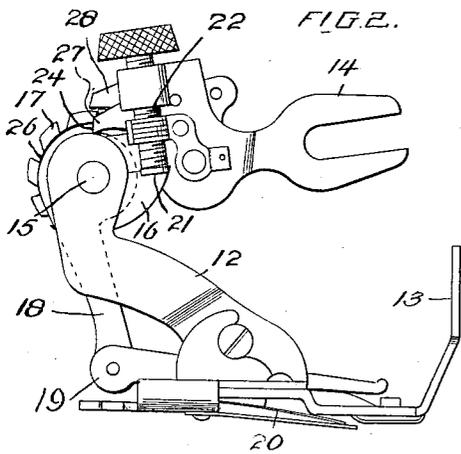
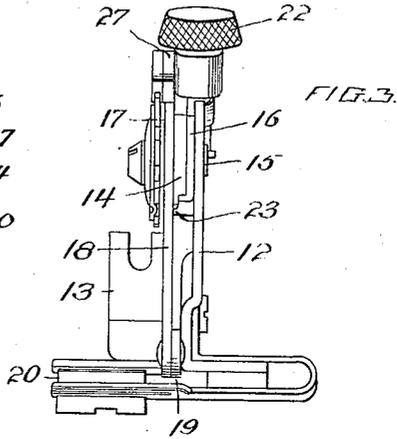
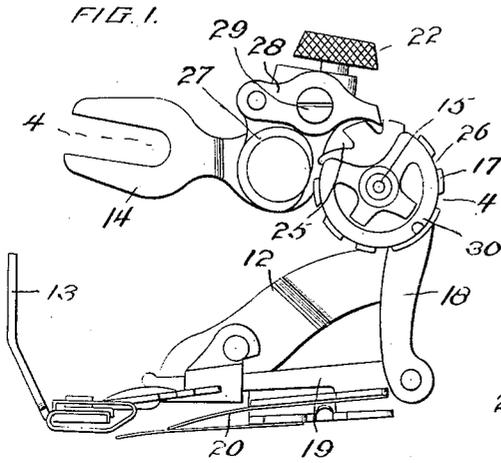


E. J. BOYLER.
 SEWING MACHINE RUFFLER.
 APPLICATION FILED JAN. 10, 1911.

1,011,907.

Patented Dec. 19, 1911.



WITNESSES

H. F. Roy
W. M. Sweeney



FIG. 8.

INVENTOR:
Emanuel J. Boyler
 BY *Calvin K. ...*
 Attorneys.

UNITED STATES PATENT OFFICE.

EMANUEL J. BOYLER, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE GREIST MANUFACTURING COMPANY, A CORPORATION OF CONNECTICUT.

SEWING-MACHINE RUFFLER.

1,011,907.

Specification of Letters Patent. Patented Dec. 19, 1911.

Application filed January 10, 1911. Serial No. 601,905.

To all whom it may concern:

Be it known that I, EMANUEL J. BOYLER, a citizen of Canada, 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.

10 This invention relates to certain improvements in that class of sewing machine rufflers shown in U. S. Patent No. 629,736, granted July 25, 1899, and adapted to make a plait or gather at each stitch, or if it be desired to make wider plaits, to form only a single plait while several stitches are being made. This class of rufflers is commercially known as "five-stitch" rufflers, in that they are usually so constructed that when the wide plaits are being made they make one gather or plait for each five stitches of the sewing machine. As these five-stitch rufflers have heretofore been made, in accordance with the patent just referred to, a ratchet-wheel having deep and shallow notches, affording deep and shallow teeth, has been employed in cooperation with an actuating pawl mounted on the operating lever which receives its motion from the needle-bar of the sewing machine. When a ruffle or gather is being made at each reciprocation of the needle-bar, for each stitch formed by the sewing machine, the actuating pawl is locked into one of the deep notches of the ratchet-wheel by means of a small eccentric mounted on the operating lever, and which is turned into such position as to effect the locking referred to. When the actuating pawl is thus locked in a deep notch of the ratchet-wheel the pawl will be depressed far enough to engage a shoulder on a pendulous lever which is connected with the ruffling-blade carrier; and when the pawl is in said locked position the ratchet-wheel, instead of being intermittently rotated by the pawl, will oscillate with the pawl and operating lever. In such oscillation of the ratchet-wheel, which is engaged by a friction spring which will prevent it from moving except when positively engaged by its actuating pawl, more or less power is expended, so that when the ruffler is adjusted to make a gather or plait at each reciprocation of the needle-bar, the attachment works with a certain objectionable

stiffness, requiring the expenditure of too much power, and the present invention has for its main object to avoid this objection by virtue of a double pawl construction which will avoid the oscillation of the ratchet wheel referred to, permitting said ratchet-wheel to remain stationary when single-stitch ruffling or gathering is being done. Also in the operation of rufflers constructed in accordance with the patent referred to, the change from single stitch to five-stitch or multiple-stitch ruffling can only be effected when the ratchet-wheel is in such position as to permit the actuating pawl to fall into one of the deep notches of said wheel; while in the present improved ruffler this change may be effected at any time, regardless of the position of the ratchet-wheel relative to its pawl. Also in the operation of rufflers made in accordance with the patent above referred to, the operative, in making the change from single-stitch to five-stitch ruffling, sometimes turns the eccentric adjusting device so tightly against the pawl that the latter is firmly locked in a notch in such position that the point of the pawl will not be in engagement with the abrupt or radial shoulder of the notch; and in such adjustment of the pawl an objectionably long or false stroke of the ruffling blade will be effected, thus resulting in more or less imperfect work. This objection is also avoided by the present invention in that there is no positive locking engagement between the pawl and ratchet-wheel, when five-stitch ruffling is being effected; the engagement of the pawl with the ratchet wheel in the improved ruffler being a spring-pressed or yielding one.

In the accompanying drawings Figures 1 and 2 are opposite side views of a ruffler embodying the present invention. Fig. 3 is a rear view of the same, and Fig. 4 is a sectional view on line 4-4, Fig. 1. Fig. 5 is a detail view of the pawls and operating lever, Figs. 6 and 7 are detail views of the pawls, and Fig. 8 a detail view of the eccentric rivet. Fig. 9 is a detail view of the ratchet-wheel.

Referring to the drawings, 12 denotes the body of the frame of the ruffler, and which frame is preferably provided with an integral attaching portion or shank 13 by which it may be secured to the presser-bar of a sewing-machine in substitution of an ordi-

60

65

70

75

80

85

90

95

100

105

110

nary presser-foot. The forked operating lever 14 is pivotally mounted on a stud 15 riveted to an upright portion of the frame 12. Also pivotally mounted on the said stud 5 are an oscillating plate 16, a ratchet-wheel 17 and a pendulous or secondary lever 18, the latter being jointed at its lower end to the carrier 19 of the ruffling blade 20. The oscillating plate 16 is provided with a projection 21 engaged by an adjustable regulating screw 22 mounted on the operating lever 14, said oscillating plate having a projection or shoulder 23 adapted to engage a front upper portion of the said pendulous lever 15 for effecting the backward or retractive movements of said lever and of the ruffling blade connected therewith. The regulating screw 22 permits, according to its position of adjustment, of more or less lost motion 20 between the operating lever 14 and the oscillating plate 16, so that any desired length of stroke may be imparted to the ruffling blade from said operating lever. The pendulous lever 18 is provided at its top with a shoulder 25 and the ratchet-wheel is provided with two relatively deep notches 25 between each of which, in the form of the invention herein shown, are four relatively shallow notches 26.

Pivotally mounted on the operating lever 14 is a spring-pressed pawl 27, which is arranged in the plane of the pendulous lever 18, so that it may engage the shoulder 24 thereof at times; and adjustably mounted on the said spring-pressed pawl 27 is a supplemental pawl 28 which is arranged in the plane of the ratchet-wheel 17 and which is connected with the pawl 27 by a rivet 29 mounted on the pawl 27 in such a manner 40 that it may be turned. Said rivet 29 is provided with an eccentric portion engaging the supplemental pawl 28 so that by partially rotating said rivet by means of a screw driver, inserted in a nick in the face thereof, the said pawls may be so adjusted that their points are in register with each other, as shown in Figs. 1 and 3, or may be so adjusted that their points are considerably separated from each other, as shown in Figs. 2 50 and 5. When the said pawls are so adjusted that their points are thus separated from or out of register with each other, the pawl 27 may engage the shoulder 24 on the pendulous lever 18, while the pawl 28 will be lifted so that it will be clear of the ratchet-wheel 17. When the pawls are adjusted as just stated a ruffling stroke will be imparted to the ruffling blade 20 at each reciprocation of the operating lever 14, to make single-stitch ruffling, and in such operation of the ruffler the ratchet wheel 17 will remain stationary, being held thus by its retaining friction spring 30.

When it is desired to make relatively wide 65 plaits or gathers, or multiple-stitch ruffling,

the eccentric rivet 29 will be so turned as to cause the pawl 28 to be yieldingly engaged with the walls of the notches of the ratchet-wheel, for the purpose of intermittingly rotating the same. When, however, the said 70 pawl 28 is in engagement with the shallower notches 26 of the ratchet wheel the pawl 27, owing to its rigid connection with the pawl 28, will be held lifted above the shoulder 24 on the pendulous lever 18, so that no motion 75 will be imparted to said lever excepting when the pawl 28 falls into one of the deeper notches 25 of the said ratchet wheel; and at such times the pawl 27 will engage the said shoulder 24 of the said pendulous lever to 80 cause a forward movement to be imparted to the ruffling blade, for the purpose of forming a relatively wide plait or gather, or to form a plait or gather at each five stitches formed by the sewing machine. 85

From the foregoing it will be apparent that the present invention avoids any turning of the ratchet-wheel during the times when the ruffles or gathers are being made at each stitch, and thus enables the ruffler to be 90 operated more freely, or with less power, than would be the case if the ratchet-wheel were to be oscillated at each stitch against the stress of its friction spring 30. It will also be apparent that, as the pawl 28 has no 95 positive locking engagement with the ratchet wheel at any time, the strokes imparted to the ruffling blade, in making five-stitch or multiple-ruffling, will always be even and uniform; while the novel construction permits the adjustment from single-stitch 100 ruffling to five-stitch ruffling to be effected at any time, regardless of the relative positions of the pawls and the deeper notches of the ratchet wheel. The movements of the 105 pawl 27 relative to the lever 14 are limited by a pin 31 on the said lever, and which pin is received in a slot 32 in the said pawl.

Having thus described my invention I claim and desire to secure by Letters 110 Patent:

1. In a sewing machine ruffler, the combination with an operating lever, of two pawls mounted thereon beside each other, a secondary lever provided with a shoulder, an adjustable connection between said operating lever and said secondary lever, a ruffling blade operatively connected with said secondary lever, a ratchet-wheel having deep and shallow notches, and adjusting means 115 whereby the point of one of said pawls may be caused to engage said shoulder while the point of the other is out of engagement with said ratchet-wheel, or whereby said 120 pawls may be so adjusted that one will engage said shoulder only when the other is in engagement with the said deep notches of said ratchet-wheel.

2. In a sewing machine ruffler, the combination with an operating lever, of a 130

spring-pressed pawl pivotally mounted thereon, a supplemental pawl arranged beside and adjustably connected with the said first-named pawl, an oscillating disk, a pendulous lever provided with a shoulder, a ruffling blade operatively connected with said pendulous lever, a ratchet-wheel having deep and shallow notches, and adjusting means whereby the points of said pawls may be caused to be either in or out of register with each other, for the purpose of forming single-stitch or multiple-stitch ruffling.

3. In a sewing machine ruffler, the combination with an operating lever, of a spring-pressed pawl pivotally mounted thereon, a supplemental pawl arranged beside and adjustably but rigidly connected with said first-named pawl, an oscillating disk, a pendulous lever provided with a shoulder, a ruffling blade connected with said pendulous lever, a ratchet-wheel having deep and shallow notches, and adjusting means whereby the points of said pawls may be caused to be either in or out of register with each other

for the purpose of forming single-stitch or multiple-stitch ruffling.

4. In a sewing machine ruffler, the combination with an operating lever, of a spring-pressed pawl pivotally mounted thereon, a supplemental pawl arranged beside and adjustably connected with the said first-named pawl, an oscillating disk, a pendulous lever provided with a shoulder, a ruffling blade operatively connected with said pendulous lever, a ratchet-wheel having deep and shallow notches, and a rotatable eccentric device mounted on one of said pawls, whereby the points of said pawls may be caused to be either in or out of register with each other, for the purpose of forming single-stitch or multiple-stitch ruffling.

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

EMANUEL J. BOYLER.

Witnesses:

P. R. GREIST,
H. M. GREIST.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."