P. R. GREIST & F. W. BECKERT.

SEWING MACHINE RUFFLER.

APPLICATION FILED JAN. 27, 1910.

983,048.

Patented Jan. 31, 1911.

2 SHEETS—SHEET 1.

FIG. 1.

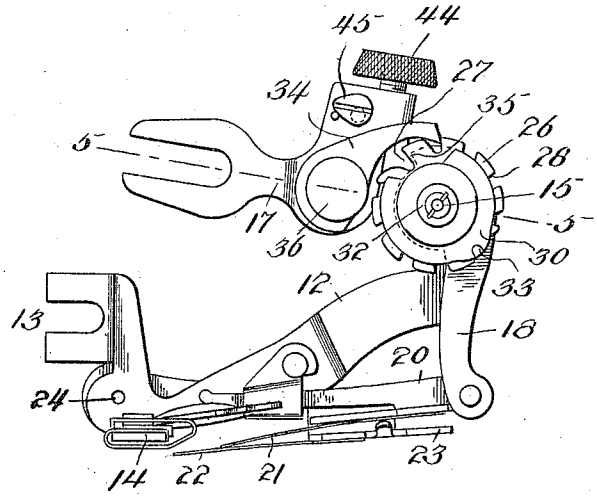


FIG. 4.

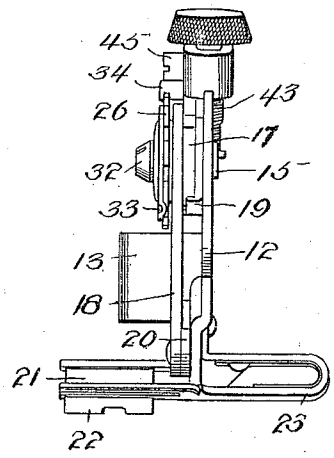


FIG. 2.

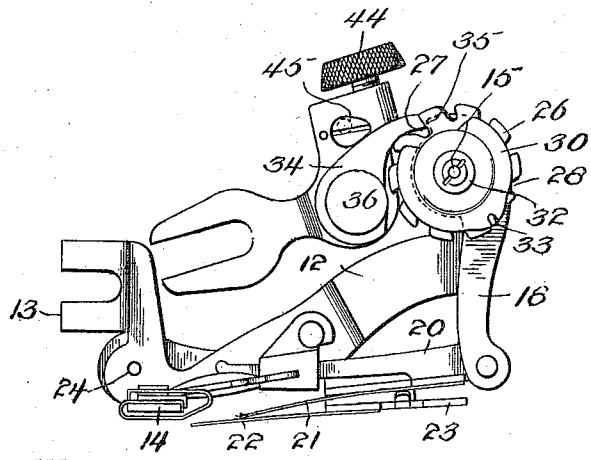
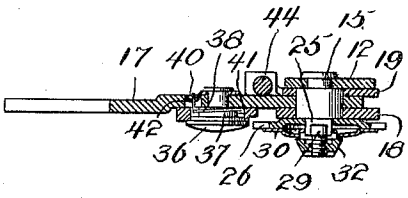


FIG. 5.



WITNESSES:

J. F. Coyle.

C. M. Sweeney.

INVENTORS:

Percy R. Greist,

Frederick W. Beckert,

BY Cadwalader & Eaton,

Attorneys.

P. R. GREIST & F. W. BECKERT.

SEWING MACHINE RUFFLER.

APPLICATION FILED JAN. 27, 1910.

983,048.

Patented Jan. 31, 1911.

2 SHEETS—SHEET 2.

FIG. 3.

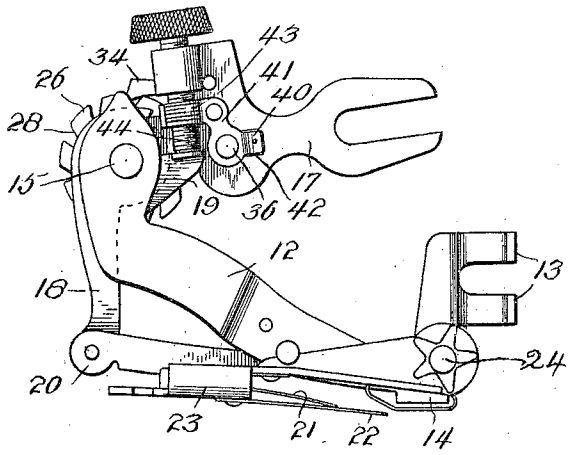


FIG. 8.

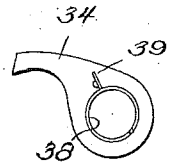


FIG. 6.

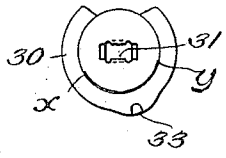


FIG. 9.

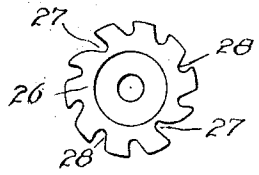


FIG. 7.

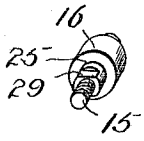


FIG. 10.

WITNESSES:

M. F. Coyle.

L. M. Sweeney.

INVENTORS:

Percy R. Greist

Frederick W. Beckert,

BY

Calvert & Calvert

Attorneys

UNITED STATES PATENT OFFICE.

PERCY R. GREIST AND FREDERICK W. BECKERT, OF NEW HAVEN, CONNECTICUT, ASSIGNORS TO THE GREIST MANUFACTURING COMPANY, A CORPORATION OF CONNECTICUT.

SEWING-MACHINE RUFFLER.

983,048. Specification of Letters Patent. **Patented Jan. 31, 1911.**

Application filed January 27, 1910. Serial No. 540,371.

To all whom it may concern:

Be it known that we, PERCY R. GREIST and FREDERICK W. BECKERT, citizens 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 ruffling attachments for sewing machines, and more particularly to that class of ruffling attachments shown in U. S. Patent No. 629,736, 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, although certain features of the present improvement are adapted for use in ruffling attachments other than the class just referred to.

In the accompanying drawings Figures 1 and 2 are side views of a ruffling attachment embodying the present improvements, but with some parts in different positions in the two views. Fig. 3 is an opposite side view of the same from that shown in Figs. 1 and 2. Fig. 4 is an end view of the same looking from the right of Fig. 1. Fig. 5 is a detail section on line 5—5, Fig. 1. Fig. 6 is a detail view of the friction washer. Fig. 7 is a detail view of the stud on which the operating lever and other parts are mounted. Fig. 8 is a detail view of the pawl. Fig. 9 is a detail view of the ratchet-wheel, and Fig. 10 is a detail perspective view of the shouldered rivet.

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 and an integral presser foot part 14.

Attached to the upper part of the frame portion 12 is a stud 15 which is preferably riveted to the part 12, and provided with an enlarged part 16 on which the operating lever 17, the pendulous lever 18 and the plate 19, serving to loosely connect said levers, are pivotally mounted; the said pendulous lever being jointed at its lower end to a sliding part or plate 20 to which the ruffling blade 21 is attached in the usual manner. The ruffling blade coöperates with a separator-plate 22 attached to the carrier 23 which is preferably pivotally connected with the attaching portion 13 of the frame 12 by the rivet 24.

Rotatably mounted on a portion 25 of the stud 15 and against a shoulder afforded by the enlarged part 16 of said stud, is a ratchet wheel 26 provided with two deep notches 27 and with a series of shallower notches 28; and non-rotatably mounted on a flattened portion 29 of said stud is a spring steel washer 30 having a central aperture adjacent to which are oppositely located struck-out lugs 31 embracing the flattened or irregular portion of said stud to prevent rotation of said washer. The said washer 30 is cut through from point x to point y, thus forming a segmental slit in said washer and affording a central circular portion against which bears a nut 32 screwed on the threaded outer end of the stud 15, the portion of said washer outside the slit referred to affording a curved spring arm which bears frictionally against the ratchet wheel 26, and which arm is provided with a small indented lug 33 adapted to fall into the teeth of said ratchet wheel as the latter is rotated, and thus serve as a stop to prevent the backward rotation of the ratchet wheel with the pawl when it is desired that the ratchet-wheel should rotate intermittingly. The central portion of the washer 30, against which the nut 32 bears, may, if desired, be partly cut away, as by forming a series of radial openings therein, thereby making a series of radial spring fingers to make this central part of the washer more elastic.

Pivotally mounted on the operating lever 17 is a spring-pressed pawl 34 arranged to engage the teeth of the ratchet wheel 26, and also to engage a shoulder 35 on the pendulous lever 18 when the said pawl is in one of the deeper notches 27 of the ratchet wheel, but when the said pawl is in the shallower notches 28 of said ratchet wheel it will be held out of engagement with said shoulder, and will then not actuate the pendulous lever for the purpose of operating the ruffling blade. The pawl 34 is pivotally mounted on a shouldered rivet 36 attached to the operating lever 17, the pivotal mounting of said pawl on said rivet being at the enlarged portion of the latter closely adjacent to its head and closely fitting the circular opening in said pawl. Between said enlarged portion and the small shank of the

rivet is a boss 37 which only partly fills the opening in the pawl, thus leaving a small annular chamber for the reception of a torsional spring 38 by which the free end of the said pawl is yieldingly pressed against the ratchet wheel 26. As a convenient means of connecting said spring with said pawl the inner face of the latter is provided with a small slit 39 in which one end of said torsional spring is inserted, and in which said end is held when said pawl is secured in place against the face of the operating lever 17, the other end of said spring entering a small hole punched for its reception in the arm 40 of a very thin spring metal plate 41 riveted to the operating lever 17, the said arm 40 being housed in the slot or recess 42 formed for its reception in the said lever 17. A second arm 43 of the said plate 41 bears frictionally against the adjusting screw 44, by which the throw of the ruffling blade is regulated, for the purpose of retaining said screw in any desired position of adjustment, said arm 43 being preferably provided with a series of indentations or corrugations corresponding to and fitting into the threads of the screw, thereby increasing its frictional hold against said screw.

In the construction of these "five-stitch" rufflers made under U. S. Patent No. 629,736, hereinbefore referred to, a very small hole for the insertion of one end of the pawl spring, corresponding to the spring 38, was drilled either in the operating lever or in the pawl. As both of these parts are of relatively thick metal this small hole could only be made by drilling, and could not be punched; but the very fine drills required for making these very small holes were liable to break in the drilling operation, so that this operation was both relatively slow and expensive. In forming the hole for one end of the spring 38 in the arm 40 of a very thin metal plate 41 this hole may be punched, this operation being possible owing to the extreme thinness of the metal of this plate, thereby greatly simplifying and cheapening the operation and the resulting construction.

By mounting the pawl 34 on the enlarged part of the shouldered rivet 36 adjacent to the enlarged head of the rivet, and by providing said rivet with a boss of lesser diameter than the part of the rivet on which the pawl is pivotally mounted, and of larger diameter than the shank of said rivet, a suitable annular chamber in which the spring 38 can be properly housed is afforded, as will be understood.

The operation of the improved attachment is similar to the operation of the attachment shown by Patent No. 629,736 above referred to. When the cam or eccentric-headed stud 45 is in the position shown in Fig. 1 sufficient movement of the pawl 34 is permitted to allow it to operate freely so that it will engage the deep and shallow notches of the ratchet wheel 26, the ruffling blade being operated only at the time when said pawl is in engagement with the deep notches 27 of said ratchet wheel, and when the said pawl is in the shallower notches 28 of said ratchet wheel it will be held out of engagement with the shoulder 35 on the pendulous lever 18, so that the said ratchet wheel will be rotated in one continuous direction. When, however, the eccentric 45 is turned to the position shown in Fig. 2, with the pawl in engagement with one of the deeper notches 27 of said ratchet wheel, the pawl will be held in said notch so that at its backward or return movement it will carry the ratchet wheel with it, and a rocking movement will be imparted to the ratchet wheel, so that the pawl will, at each upward movement of the operating lever 17, engage the shoulder 35 on said lever, and thus impart a ruffling or gathering movement to the ruffling blade at each vibration of said operating lever, forming a ruffle or gather at each stitch, instead of forming a plait at each five stitches, as is the case when the said eccentric is in the position shown in Fig. 1.

Having thus described our invention we claim and desire to secure by Letters Patent:

1. In a sewing machine ruffler, the combination with a frame portion, of a stud fixed to said frame portion and having a threaded outer end, connected operating and pendulous levers and a ratchet wheel mounted on said stud, a spring-pressed pawl carried by said operating lever and engaging said ratchet wheel, a nut on said threaded outer end of said stud, a spring friction device interposed between said nut and said ratchet-wheel, and a ruffling blade connected with said pendulous lever.

2. In a sewing machine ruffler, the combination with a frame portion, of a stud fixed to said frame portion and having a threaded outer end, connected operating and pendulous levers and a ratchet wheel mounted on said stud, a spring-pressed pawl carried by said operating lever and engaging said ratchet-wheel, a nut on said threaded outer end of said stud, a friction washer interposed between said nut and said ratchet wheel, said friction washer having a segmental slit forming a curved spring arm, said spring arm being provided with a stop adapted to engage the teeth of said ratchet wheel, and a ruffling blade connected with said pendulous lever.

3. In a sewing machine ruffler, the combination with a frame portion, of a stud fixed thereto and having a threaded outer end and a non-circular portion near said threaded end, connected operating and pendulous levers and a ratchet wheel mounted on said stud, a spring-pressed pawl carried by said

operating lever and engaging said ratchet wheel, a ruffling blade connected with said pendulous lever, a nut on the outer threaded end of said stud, and a friction device interposed between said nut and said ratchet wheel and having struck-out lugs to engage said non-circular portion of said stud, to hold said friction device from rotation.

4. In a sewing machine ruffler, the combination with a frame portion, of a stud fixed thereto and having a threaded outer end and a non-circular portion near said threaded end, connected operating and pendulous levers and a ratchet wheel mounted on said stud, a spring-pressed pawl carried by said operating lever and engaging said ratchet wheel, a ruffling blade connected with said pendulous lever, a nut on the outer threaded end of said stud, and a friction device interposed between said nut and said ratchet wheel and having struck-out lugs to engage said non-circular portion of said stud, to hold said friction device from rotation, said friction device having a spring arm provided with a stop to engage the teeth of said ratchet wheel.

5. In a sewing machine ruffler, the combination with a ruffling blade and actuating mechanism therefor, comprising an operating lever, of a pawl pivoted to said lever, a thin metal plate fixed to said lever and having a small hole, and a torsional spring one end of which is engaged with said pawl and the other end of which is entered into said hole in said thin metal plate.

6. In a sewing machine ruffler, the combination with a ruffling blade and actuating mechanism therefor comprising an operating lever, of a screw mounted on said lever and serving to regulate the throw of said ruffling blade, a thin metal friction spring bearing against and fitting a threaded portion of said screw and serving to retain the said screw in any desired position of adjustment, said thin metal plate having an arm or portion provided with a small hole, a pawl pivotally mounted on said lever, and a torsional spring one end of which is engaged with said pawl and the other end of which is entered into said hole in said thin metal plate.

7. In a sewing machine attachment, the combination with two moving parts, of a regulating screw passing through a threaded socket and through which screw the movement of one of said parts is imparted to the other of said parts, and a thin spring metal friction plate having a portion bearing against the threads of said screw at one side of the latter, outside of said threaded socket, said plate being corrugated to fit into said threads to retain said screw in any desired position of adjustment.

8. In a sewing machine attachment, the combination with a vibrating lever, of a pawl having a circular opening, a shouldered stud fixed to said lever and having a bearing portion fitting one part of said circular opening, and a boss of lesser diameter than said opening, leaving an annular chamber between said boss and the wall of said opening, and a torsional spring housed in said chamber and acting on said pawl.

9. In a sewing machine ruffler, the combination with a ruffling blade, and operating mechanism for said blade comprising an operating lever, an intermediate or pendulous lever and a ratchet wheel, of a shouldered stud fixed to said operating lever, a pawl having a circular opening one portion of which closely fits a shouldered portion of said stud adjacent to its head, said stud having a boss of lesser diameter than said opening, leaving an annular chamber between said boss and the wall of said opening, and a torsional spring housed in said chamber and acting on said pawl.

In testimony whereof we affix our signatures, in presence of two witnesses.

PERCY R. GREIST.
FREDERICK W. BECKERT.

Witnesses:
MARGARET J. STUMPF,
W. C. GREIST.