

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.

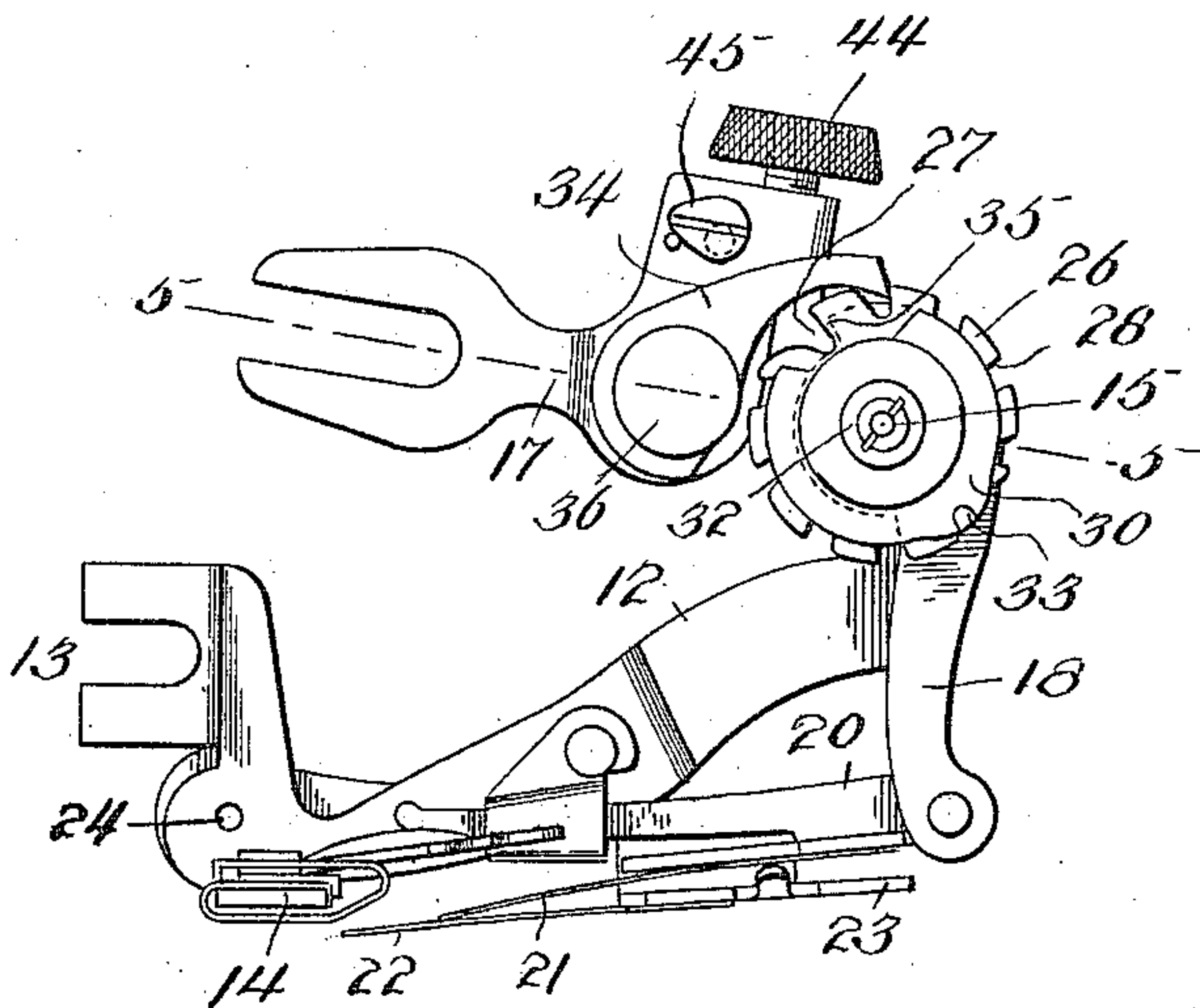


FIG. 4.

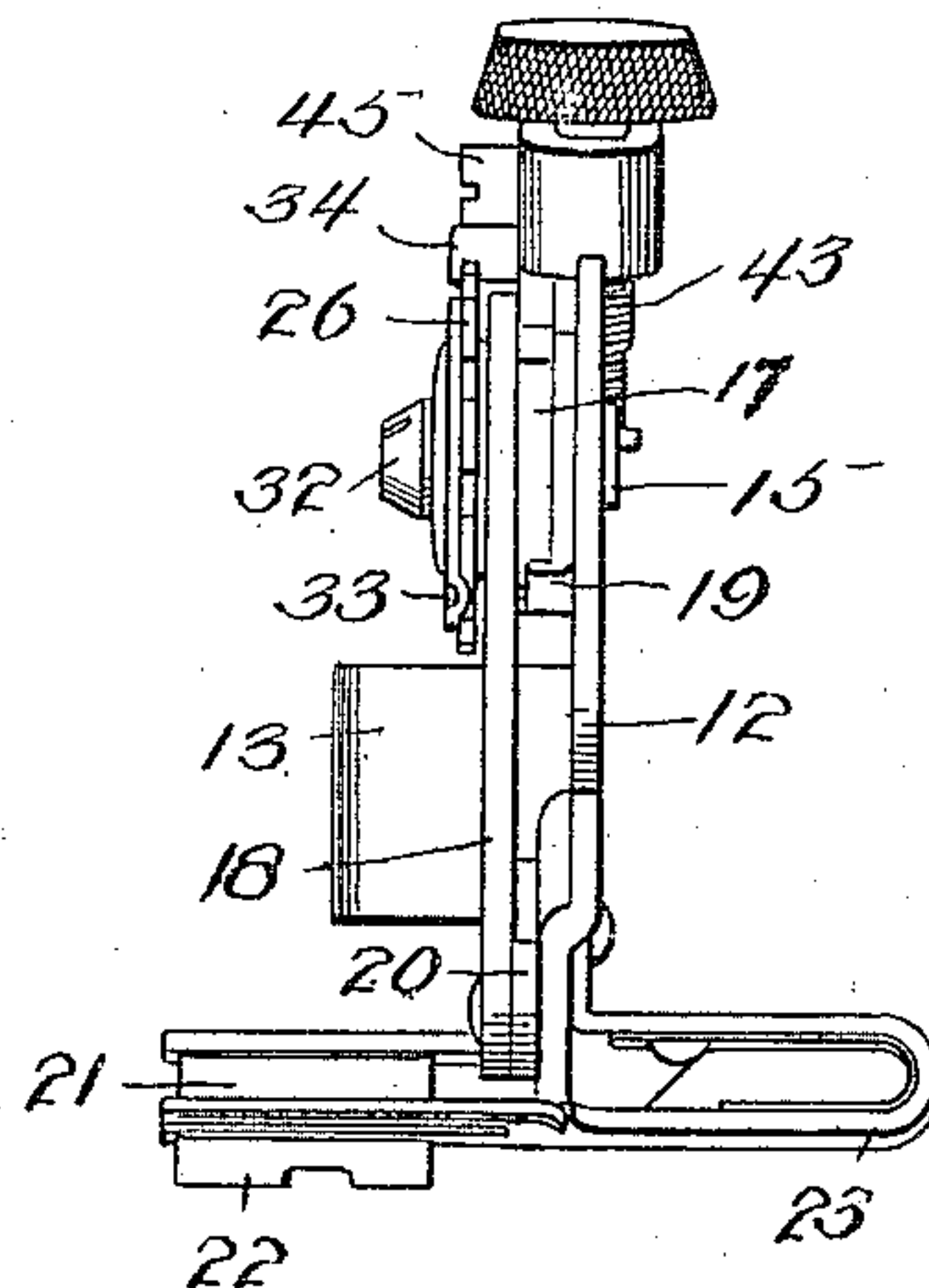


FIG. 2.

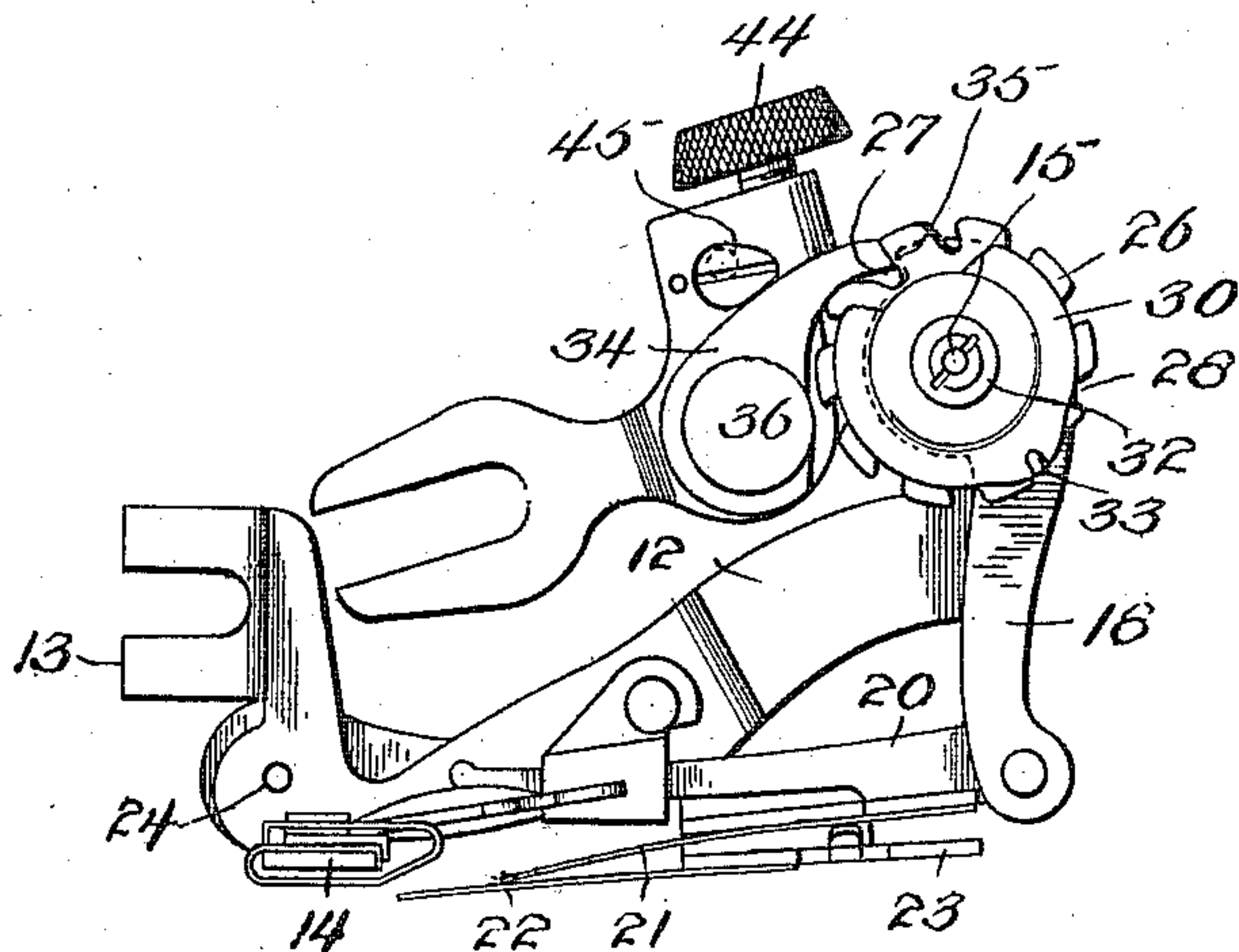
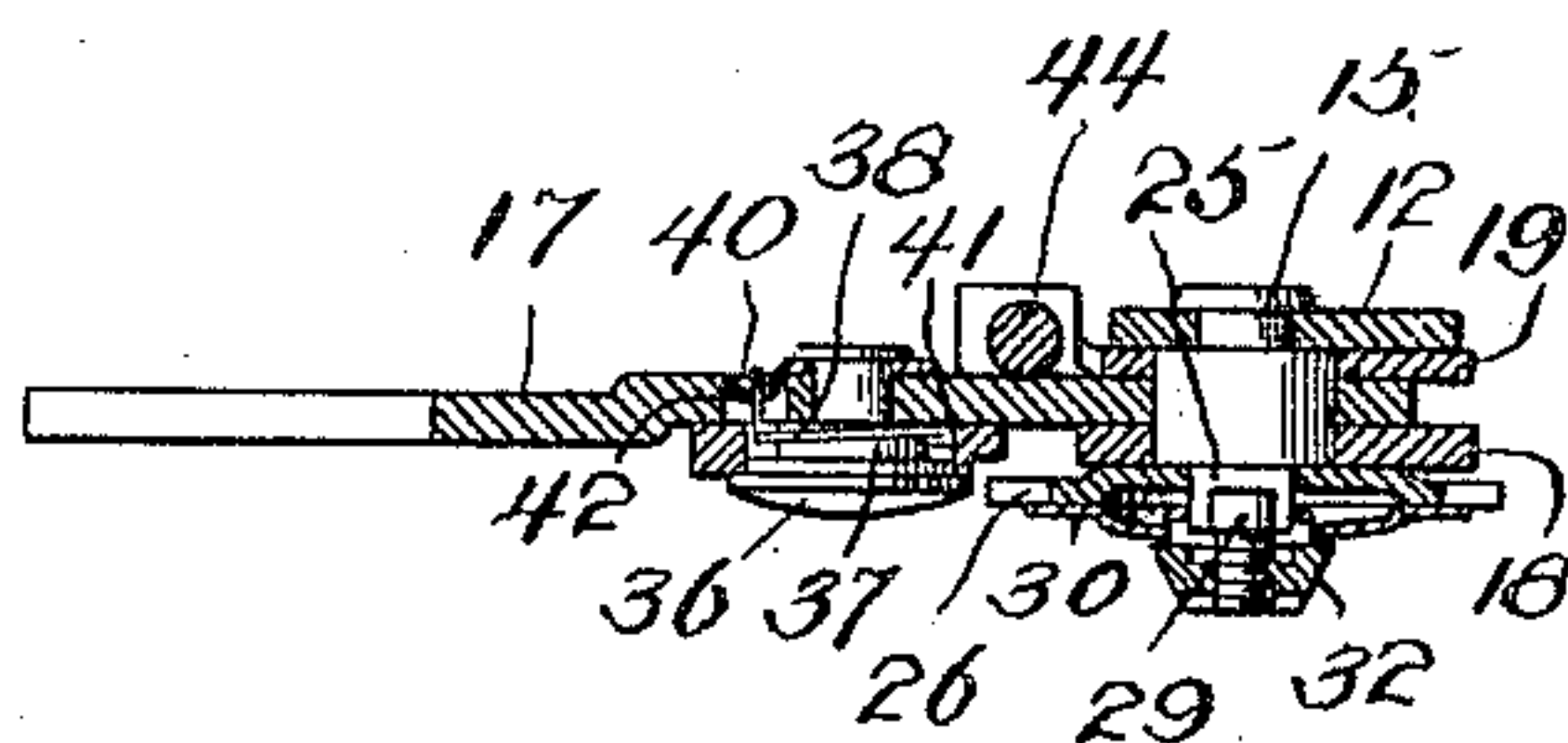


FIG. 5.



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2 SHEETS-SHEET 2.

FIG. 3.

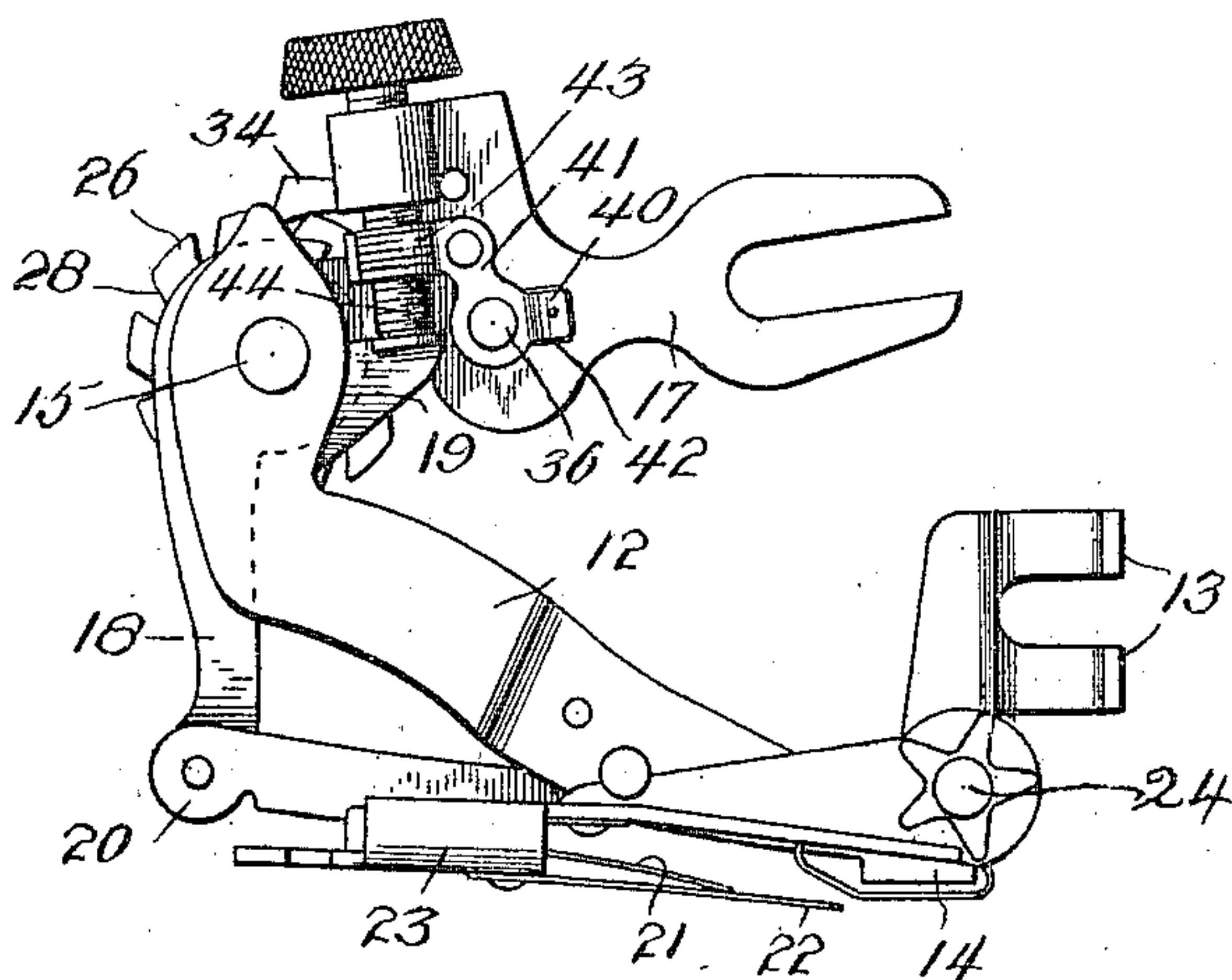


FIG. 4.

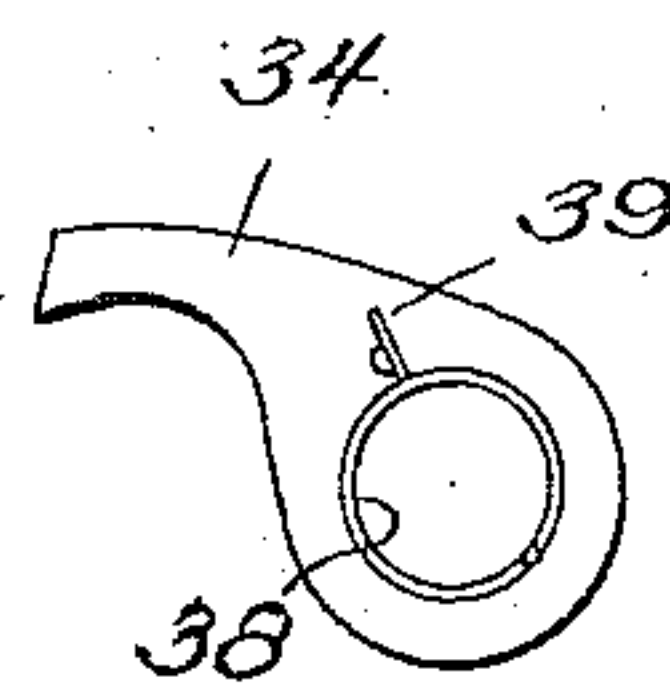


FIG. 5.

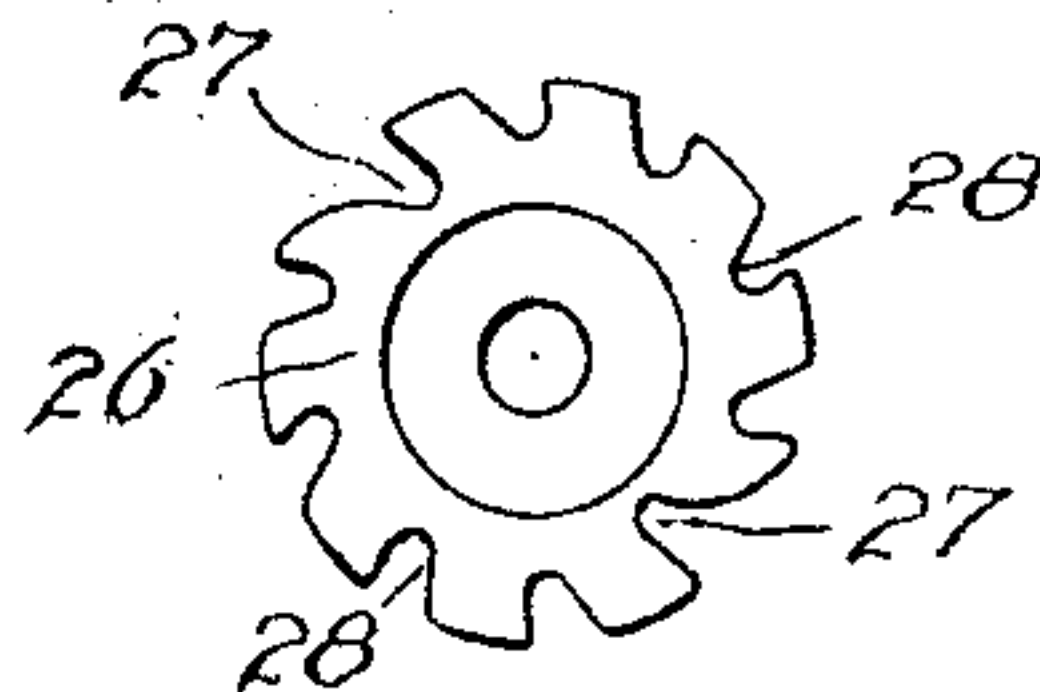


FIG. 6.

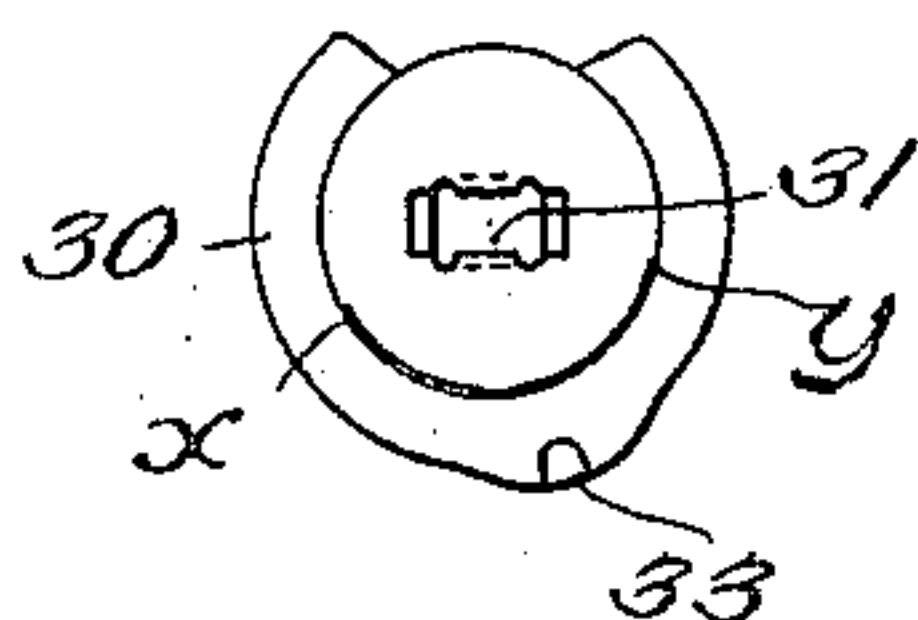


FIG. 7.

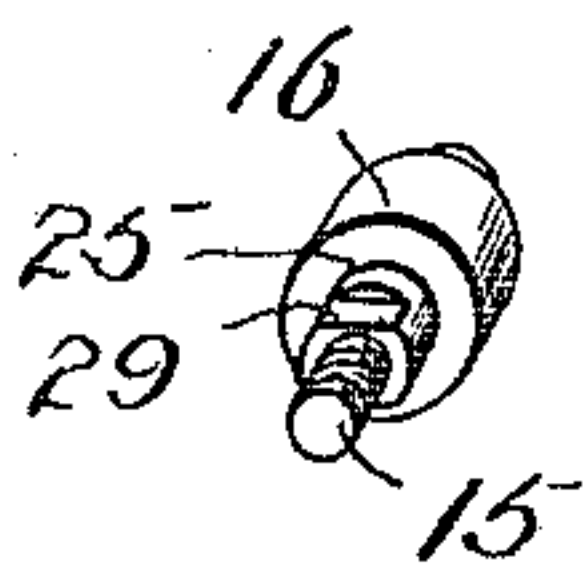


FIG. 10.



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UNITED STATES PATENT OFFICE.

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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 intermittently. 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 tor-
 sional 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 cor-
 responding 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 pro-
 viding 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 suit-
 able 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 suffi-
 cient 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 op-
 erated 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, how-
 ever, the eccentric 45 is turned to the posi-
 tion shown in Fig. 2, with the pawl in en-
 gagement 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, form-
 ing 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 combi-
 nation with a frame portion, of a stud fixed
 to said frame portion and having a threaded
 outer end, connected operating and pendu-
 lous 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 in-
 terposed between said nut and said ratchet-
 wheel, and a ruffling blade connected with
 said pendulous lever.

2. In a sewing machine ruffler, the combi-
 nation with a frame portion, of a stud fixed
 to said frame portion and having a thread-
 ed outer end, connected operating and pen-
 dulous 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 inter-
 posed between said nut and said ratchet
 wheel, said friction washer having a seg-
 mental 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 combi-
 nation 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 inter-
5 posed 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
10 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 inter-
20 posed 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
25 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
30 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
35 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
40 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 ad-
45 justment, 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
50 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 move-
55 ment 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,
60 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
65 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
70 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
75 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
80 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
85 a torsional spring housed in said chamber and acting on said pawl.

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

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FREDERICK W. BECKERT.

Witnesses:

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W. C. GREIST.