(No Model.)

R. S. BARNUM.

RUFFLER.

No. 564,359. Patented July 21, 1896.

Fig. 1.

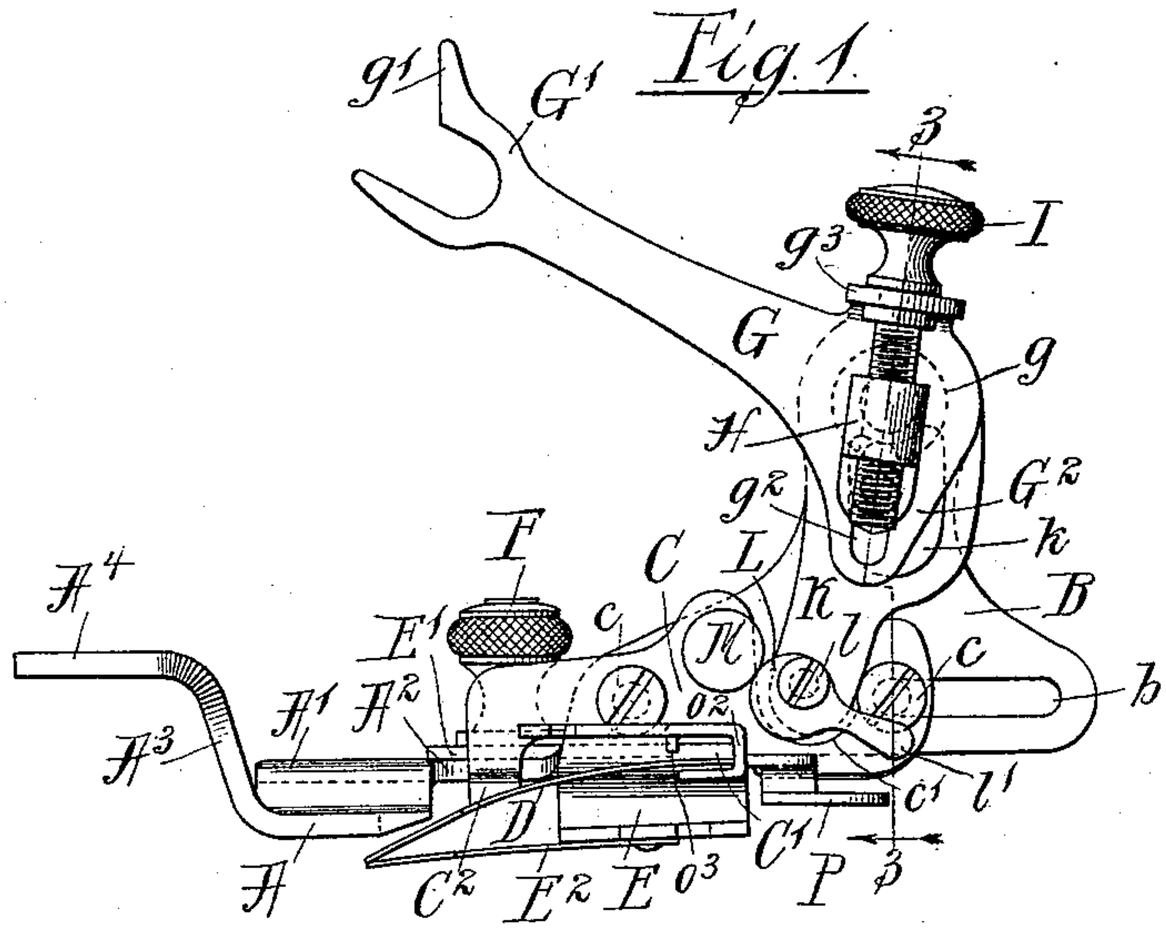


Fig. 2.

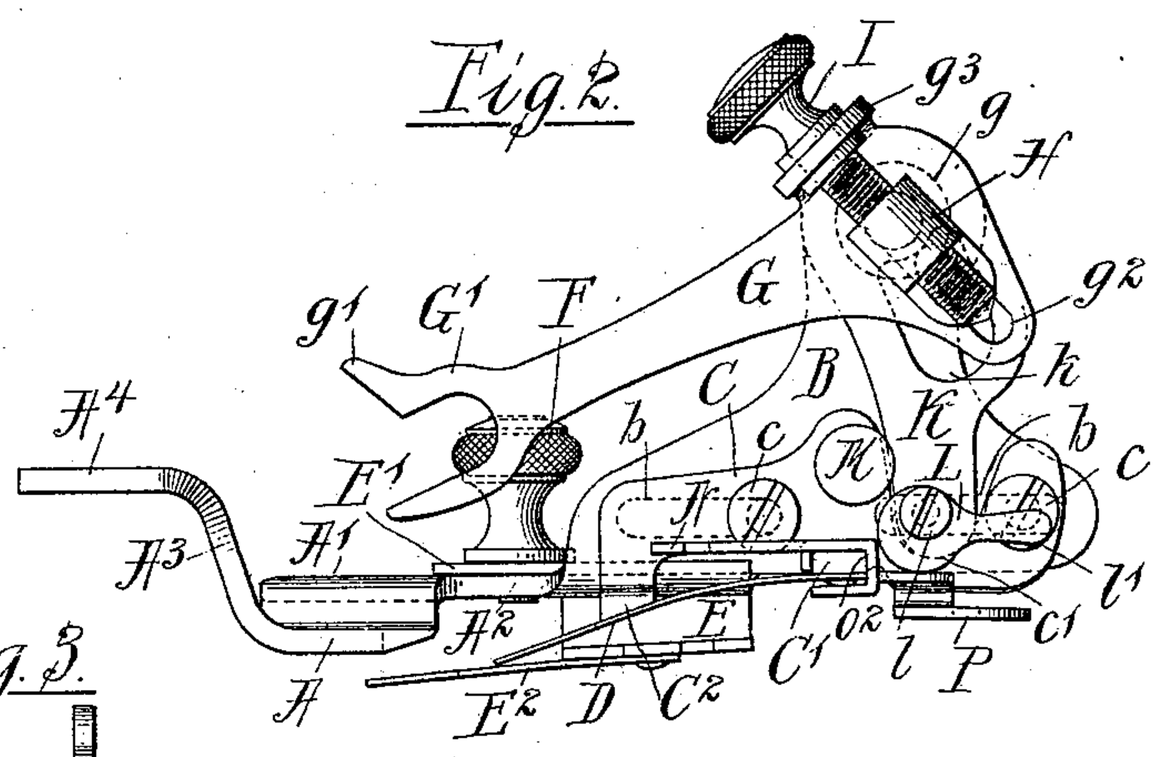


Fig. 3.

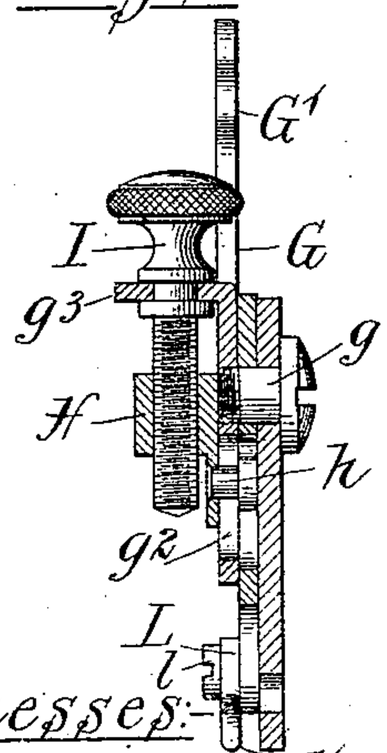


Fig. 4.

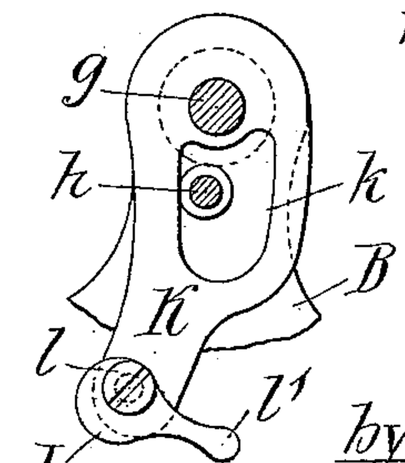
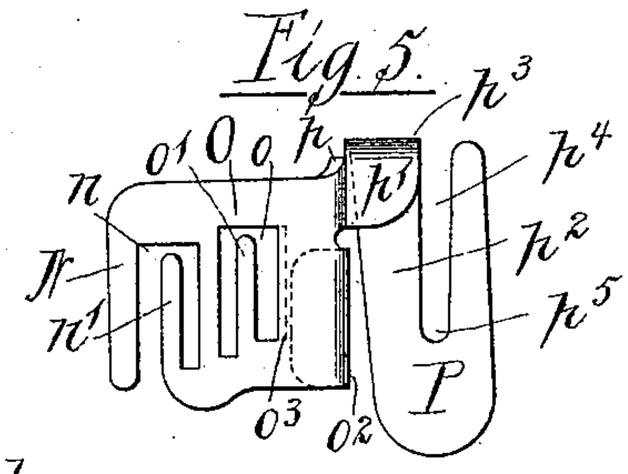


Fig. 5.



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UNITED STATES PATENT OFFICE.

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RUFFLER.

SPECIFICATION forming part of Letters Patent No. 564,359, dated July 21, 1896.

Application filed April 15, 1895. Serial No. 545,670. (No model.)

To all whom it may concern:

Be it known that I, RUSSELL S. BARNUM, a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Rufflers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to sewing-machine rufflers of that class in which a bell-crank lever, actuated by direct engagement with the vertically-reciprocatory needle-bar of the machine, forms the principal actuating-lever of the attachment.

Among the objects of the present invention are to provide an improved construction in the connections between the vibratory arm of said bell-crank lever and the other operative parts of the ruffler, and to simplify and reduce the cost of the attachment as a whole.

The invention consists in the matters hereinafter described, and particularly pointed out in the appended claims, and will be readily understood by the following description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a ruffler embodying the invention, the parts being shown in the position occupied when the bell-crank lever is elevated and the crimper-blade thrown to its farthest extent beneath the needle. Fig. 2 is a view similar to that of Fig. 1, showing the parts in changed position. Fig. 3 is a transverse sectional view taken on line 3 3 of Fig. 1. Fig. 4 is a fragmentary view showing more particularly the pendulum-lever. Fig. 5 is a plan view of the combined ruffle, band, and piping-gage detached.

In the said drawings, A designates the presser-foot of the ruffler, this presser-foot being in the form of a thin flat plate of approximately rectangular form and provided with the usual needle-aperture therethrough. From the inner side of the presser-foot A a flat curved extension A′ projects outwardly and rearwardly, which is formed integrally with the presser-foot and is raised slightly above the level of the latter. At the rear of the extension A′, and formed integrally therewith, is the main frame-plate A^2 of the ruffler, this part being also approximately rectangular in form and being raised slightly above the level of the extension A′.

A^3 is a fork-standard formed integrally with the front end of the presser-foot and provided at its upper end with the usual fork A^4 for connection with the presser-foot bar of the machine.

B is a vertical main standard of somewhat triangular shape formed integrally with the main frame-plate A^2.

C designates the crimper-carrying frame, which is mounted to reciprocate horizontally upon the vertical standard B by means of studs or screws *c c*, inserted in said crimper-carrying frame and extending at their ends through horizontal slots or elongated openings *b b*, disposed in horizontal alinement with each other in the lower limb of said standard B.

C′ is a crimper-carrying bar formed integrally with the reciprocatory frame C and extending horizontally outward at right angles with the latter. The crimper-blade D is secured to this bar C′ by being riveted at its rear end to the under side thereof.

C^2 is a second bar extending horizontally outward from the crimper-carrying frame at a point some distance in front of the bar C′. The bar C^2 is arranged to stand in a lower plane than that of the bar C′ and bears at its under side upon the upper side of the spring-plate crimper-blade D, thereby holding the latter at all times in engagement with the fabric and with a uniform pressure throughout the entire travel of the blade.

E designates the dividing or separator carrying-plate of the ruffle. The lower or body portion of the plate is of properly elongated form, so as to extend transversely beneath the main frame-plate A^2. The outer end of this lower body portion is turned upward and bent upon itself in such manner as to form an integral overlying extension E′, within the margin of which is formed a notch or slot to receive the shank of the clamping or attaching screw F, which serves to clamp said plate upon the main frame-plate. The separator-blade proper, E^2, is secured to the lower body

portion of the carrying-plate E, by riveting or otherwise, in such manner as to underlie the crimping-blade D, thus serving to separate the ruffling-band from the fabric upon which it is to be sewed.

Next describing the crimper-actuating mechanism, G designates a main actuating bell-crank lever pivoted at its angle, as at *g*, to the upper part of the standard B. This lever is provided at the end of its longer arm with a fork G′ for engagement with a suitable screw or stud carried on the needle-bar in the usual manner. The upper member *x x* of the fork G′ is provided with an angled or divergent end portion *g′*, which construction is for the purpose of preventing the needle-bar from lifting said lever-arm above a certain point in its upward stroke. The shorter or depending arm G^2 of the lever G is provided with a slot g^2, extending radially with relation to the pivot-stud *g* of the lever, and within this slot is arranged to travel a tappet-stud *h*, Figs. 3 and 4, carried by an adjustable nut or collar H, which rests and slides longitudinally upon the said arm G^2 of the bell-crank lever. The nut H is adjustably held in position with its stud *h*, projecting through the slot g^2, by means of an adjusting-screw I, mounted in a suitable bracket-bearing g^3, formed integrally with the lever G in a position parallel with and adjacent to the slot g^2, as clearly shown in the drawings.

K is a pendulum-lever mounted upon the same pivot-stud with the lever G and between the latter and the vertical standard B. The body of the pendulum-lever K is provided with an enlarged slot or opening *k* within which the tappet-stud *h* protrudes. The lower or free end of the lever K is suitably rounded and rests within a U-shaped recess *c′*, formed in the upper edge of the crimper-carrying frame C. The recess *c′* is of such size and shape as to approximately conform to and loosely fit the end of the lever K, but to allow the latter to oscillate back and forth upon its pivot freely.

From the above description it will be seen that the movement imparted to the bell-crank lever by the needle-bar serves, through the medium of the pendulum-lever, to actuate the crimper-carrying frame, but with a variable degree of lost motion between the main actuating-lever and the pendulum-lever, dependent upon the width of the opening or slot in the pendulum and the distance at which the tappet-stud is removed from the lever-pivot. By adjusting the nut H toward or from the pivot the throw of the tappet-stud is shortened or lengthened correspondingly, thereby decreasing or increasing the throw of the pendulum-lever.

In order to provide for the slight adjustment of the crimper-blade necessary to compensate for the shortening of its operating end by wear and for slight structural variation incident to manufacture, a small adjustable cam or eccentric L is secured, by means of a set-screw *l*, to the lower end of the pendulum-lever K, said eccentric being provided at one side with a small extension or handle *l′*, by which it may be turned to adjust it.

M is a cylindric boss secured in the crimper-carrying frame C, adjacent to the front side of the U-shaped recess thereof, in such position as to contact with the eccentric L in the forward throw of the pendulum-lever, the boss M thus forming the engaging surface upon which the lever K acts, instead of against the front side of the U-shaped recess proper.

N, O, and P, Fig. 5, designate, respectively, a band-gage, piping-gage and ruffle-strip gage, all three of said gages being formed integrally from a single piece of sheet metal. The band and piping gages each comprises an oblong rectangular opening *n o*, extending longitudinally of which is a centrally-arranged tongue *n′ o′*, about which the strip is trained in its passage through the gage, said gages being arranged one behind the other in the usual manner. The ruffle-strip gage P is arranged to stand back of the piping-gage and in a lower horizontal plane, the two being connected by a vertical portion *p*. The gage P comprises upper and lower horizontally-arranged parts *p′* and p^2, joined by a U-shaped bend p^3. The lower part p^2 is provided with a slot or opening p^4, extending inwardly from the right-hand side and terminating in a rounded end p^5. By reason of the above construction the gage is adapted for use either as a right or left hand guide. In the one case the edge of the ruffle-strip is guided by the U-shaped portion p^3, while in the other the rounded end p^5 of the slot p^4 serves as the guide.

As a convenient means of attachment a spring-clasp adapted to fit upon the bar C′ of the ruffler is provided by turning a portion o^2 of the rear margin of the gage O at right angles downward and then horizontally beneath said gage, thereby forming, in conjunction with a depending lip o^3, turned down from the rear margin of the opening *o*, a square sleeve adapted to embrace the four sides of the bar C′. The forming of said gages integrally, as described, very materially reduces their cost as a whole, while at the same time this construction dispenses with one or more extra parts on the ruffler for supporting said gages.

I claim as my invention—

1. A ruffler for sewing-machines, comprising a main frame provided with a standard, a crimper-carrying frame mounted to reciprocate thereon and provided in its upper side with a U-shaped recess, a bell-crank lever pivoted on said standard having on one arm an engaging fork, a pendulum-lever mounted upon the same pivot with said bell-crank lever, and having operative engagement with the U-shaped recess of said crimper-carrying frame and means provided for lost motion between said pendulum-lever and the arm of the bell-crank lever other than that provided with the fork, comprising a tappet-stud rig-

idly, but adjustably mounted on said arm and arranged to project within a slot or opening in the pendulum-lever, substantially as set forth.

2. A ruffler for sewing-machines, comprising a main frame, a vertical standard thereon, a crimper-carrying frame mounted to reciprocate on said main frame and provided with a U-shaped recess, a bell-crank lever pivotally mounted upon the vertical standard, provided on one arm with a connecting-fork and in its other arm with a slot extending longitudinally thereof, an adjusting-screw mounted on said lever in parallel relation to said slot, a nut mounted on the adjusting-screw and provided with a tappet-stud extending through said slot and occupying the full width of the latter, a pendulum-lever pivotally mounted on said standard and operatively engaged at its vibratory end with the U-shaped recess of the crimper-carrying frame, an adjusting-cam upon the vibratory end of said pendulum-lever, and a slot or opening in the body of the latter within which the tappet-stud extends, substantially as set forth.

3. A combination-gage for ruffler attachments, comprising the band-gage N and piping-gage O formed adjacent to each other and in the same horizontal plane, and the ruffle-strip gage P arranged in a parallel but lower plane and connected with the band and piping gages by the U-shaped bend p^3; all of said gages being formed integrally with each other from sheet metal, and means for securing the device to the ruffler, substantially as set forth.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

RUSSELL S. BARNUM.

Witnesses:

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TAYLOR E. BROWN.