

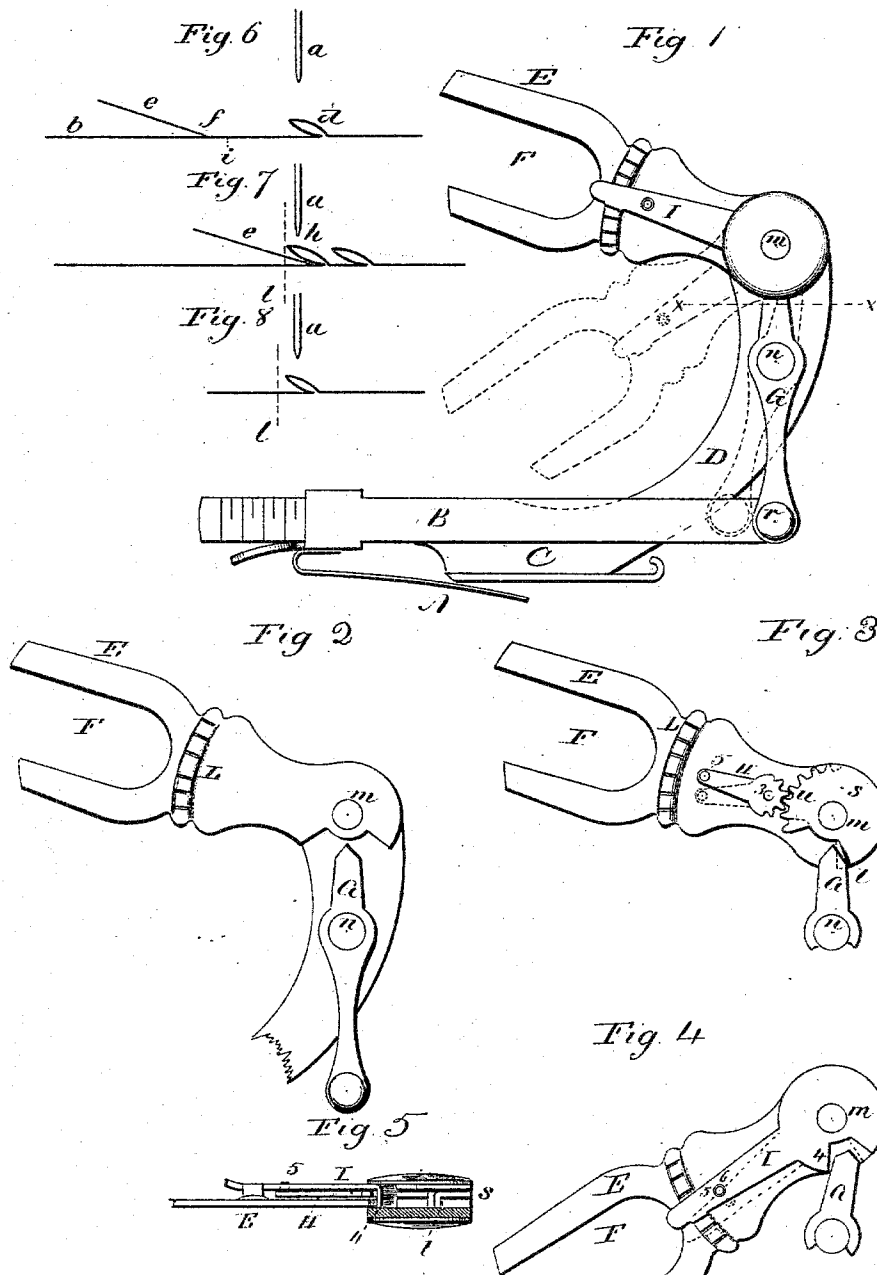
(Model.)

J. S. SACKETT.

RUFFLING ATTACHMENT FOR SEWING MACHINES.

No. 290,478.

Patented Dec. 18, 1883.



Witnesses.
J. H. Shumway
J. C. Earle

Jos. S. Sackett.
Inventor
By *Atty.*
Wm. Earle

UNITED STATES PATENT OFFICE.

JOSEPH S. SACKETT, OF NEW HAVEN, CONNECTICUT, ASSIGNOR OF ONE-HALF TO JANE HALLIWELL, OF SAME PLACE.

RUFFLING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 290,478, dated December 18, 1883.

Application filed October 1, 1883. (Model.)

To all whom it may concern:

Be it known that I, JOSEPH S. SACKETT, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Ruffling Attachments for Sewing-Machines; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view; Fig. 2, the lever E detached; Fig. 3, the lever E with the adjustable shoulder *t* applied and without the shoulder 4; Fig. 4, the lever E with the adjustable shoulder 4 applied and without the shoulder *t*; Fig. 5, an under side view of the lever E and its attachments, showing the adjustable shoulders *t* 4; Figs. 6, 7, and 8, diagrams to illustrate the method of making crimps and the adjustment produced by my invention.

This invention relates to an improvement in attachments for sewing-machines designed to shirr or ruffle a strip of fabric as it is presented to the needle, and so that the shirrs, crimps, or plaits will be stitched in the regular progress of the needle, commonly called "ruffling attachments." The crimping or shirring is produced by a blade, to which a reciprocating movement is imparted toward and from the needle on the surface of the strip to be ruffled, and so that it takes the requisite quantity of fabric in rear of the needle and forces that quantity of fabric forward in advance of the feed of the machine, so as to double, shirr, or plait the fabric, each successive fold being stitched in the regular progress of the stitching mechanism. The extent of the reciprocating movement of the blade limits the quantity of fabric which shall be taken; hence the extent of movement of the blade must be adjusted according as a greater or less fullness is required. To make the best work, the fold made by the crimping-blade should be laid in a position beneath the needle and equidistant forward and back of the needle, so that the needle in its descent will pass centrally through the crimp or plait, or should always pass down in the same relative position to the crimp

or plait. For illustration, let *a*, Fig. 6, represent the needle; *b*, the strip which is to be ruffled; *d*, the last shirr, crimp, or plait made. It will be observed that there are three thicknesses of material in the crimp; hence for the next crimp or plait the crimping-blade *c* must retreat so far as to take material three times the width of the plait—say as at *f*. Then, as the crimping-blade advances (see Fig. 7) and makes the next crimp, *h*, it presents that crimp or fold directly below the needle, and so that the needle will pass through it. Now, suppose it be desired to take less material into the crimp, the blade must not retreat to so great an extent as before—say to the point *i*, Fig. 6. In starting from that point the requisite quantity of material will be taken; but as the blade is adjusted only in one direction, it moves forward to the same point as before; hence the shirr will be laid at a different relative position to the needle, as seen in Fig. 8—that is, the needle will enter nearer the rear edge of the crimp than before, but at the same position with relation to the edge of the blade as before. The crimping-blades are usually made adjustable only in one direction; hence the position of the needle with relation to the crimp made varies according to the variation in the quantity of material contained in each crimp. In some cases the needle descends directly in rear of the edge of the last crimp laid, instead of passing through the crimp. Under such condition, if the needle pass directly in rear of the broad crimp, as indicated by the line *l*, Fig. 7, when the narrower crimp is laid as in Fig. 8, the needle will pass down a considerable distance from the edge of the crimp, as indicated by the line *l*, Fig. 8.

The object of my invention is to avoid this irregular crimp with relation to the needle or stitch made.

As the fold or crimp requires material three times the width of the crimp, as before described, two-thirds of which is forward of the needle and one-third in rear, my invention consists in mechanism, as more fully hereinafter described and particularly recited in the claims, whereby the adjustment is applied to the stroke of the blade one-third forward and two-thirds rearward.

A represents the crimping-blade attached to a reciprocating slide, B, in the usual manner for rufflers, and is attached to a base, C, so as to be secured to the machine by any of the known or usual means. From the base an upright, D, rises to support the operating-lever E. This lever is hung to vibrate upon a pivot, *m*, in the usual manner for hanging the operating-lever of rufflers. The free end of the lever is forked, as at F, to engage the needle-bar, whereby an up-and-down vibratory movement will be imparted to the lever E in the usual manner.

G is a lever hung to the upright D, upon a fulcrum or pivot, *n*, below the pivot *m* of the lever E. The lower arm of the lever G is attached to the crimping-blade slide as at *r*.

s is a disk arranged upon the same pivot *m* as the lever E, and on its lower side is constructed with a shoulder, *t*, which stands in the plane of the upper end of the lever G. On the rear edge of the disk *s* several gear-teeth, *u*, are cut. On the lever E, and in rear of the disk, a lever, H, is hung upon a pivot, 3. (See Fig. 3.) This lever stands in the same plane with the disk *s*, and its forward arm forms a segment-gear to work into the teeth *u* on the disk *s*, and so that when the lever H is turned, say, from the position seen in Fig. 3 to that in broken lines same figure, the disk is correspondingly turned to carry the shoulder *t* farther to the rear, or in the opposite direction will carry the shoulder in a correspondingly opposite direction. On the same center or pivot *m* a third lever, I, is hung, constructed with a shoulder, 4, also in the same plane with the upper end of the lever G, but in rear of the shoulder *t*. This lever I overlies the lever H. On the rear end of the lever H is a stud, 5, which enters a corresponding hole, 6, in the lever I. The rear end of the lever I is elastic and works in a serrated rack, L, on the lever E. If the lever I be turned, say, downward from the position seen in Fig. 4 to the position seen in broken lines same figure, it will correspondingly turn the shoulder 4 forward, as also seen in broken lines. The shoulders *t* and 4 on their respective sides of the upper end of the lever G serve to engage that lever G as the lever E is turned up or down, the shoulder *t* engaging the rear side of the lever G, as seen in Fig. 3, when the lever E ascends, and the shoulder 4, engaging the forward side of the lever G, when the lever E descends; hence the up-and-down movement of the lever E will impart a vibratory movement to the lever G, and a corresponding reciprocating movement to the crimping-blade, the space or time which the lever G and crimping-blade will stand idle is the distance between the two shoulders *t* and 4, and as those shoulders are made to approach each other that time will be shorter, or as they are separated the time will be longer, the shorter the space between the two the longer will be the swing of the lever G, and corresponding reciprocating movement of the blade A, and the greater the space between the shoulders the less will

be the swing of the lever G, and the reciprocating movement of the blade A. In adjusting the blade as before described two parts of the extent of adjustment should be forward of the needle and one part at the rear—that is to say, whatever the extent of adjustment is required to be, two-thirds of it should be in the rear movement of the blade and one-third forward. The adjustment is produced by turning the lever I to carry the shoulder 4 nearer to or farther from its side of the lever G. In such turning of the lever I the lever H is also turned upon its pivot 3, because of its connection with the lever I, and its gear-connection with the disk *s* turns that disk with its shoulder *t* in the opposite direction to which the shoulder 4 of the lever I is turned, as indicated by broken lines, Figs. 3 and 4, and the relation of the two levers H and I is such that the shoulder 4 approaches its side of the lever twice as fast as the shoulder *t* approaches the opposite side of the lever, and as this space between the two shoulders *t* and 4 governs the vibration of the lever G, it follows that whatever the variation of that lever produced by the movement of the two shoulders, it will be two-thirds in one direction and one-third in the opposite direction. As represented, the lever G is behind the crimping blade and needle. The shoulder 4 therefore turns the lever G to throw the crimper back, as indicated in broken lines, Fig. 1, while the shoulder *t* will turn it in the opposite direction, and any variation required will be given by shortening or lengthening the space between the two shoulders *t* and 4, as before described, which will cause the extent of adjustment to be divided—two-thirds on the rear movement of the blade and one-third on the forward—and whereby whatever may be the extent of movement of the crimping-blade, it will always bear the same relation to the needle.

The ruffling mechanism is immaterial to this invention, it only being essential that there shall be a ruffling-blade arranged to receive reciprocating movement from the vibrating lever which is in connection with the needle-arm.

It will be apparent to those skilled in the art to which this invention pertains that this adjustment between the lever in connection with the needle-arm and the crimping-blade slide may be made by other mechanisms. Such other mechanisms I have devised, and they constitute the subject of independent applications for Letters Patent filed in even date herewith. I therefore do not wish to be understood as limiting my invention by this application to the particular devices for adjusting the two shoulders through which the vibratory movement is imparted to the crimping-blade, the essential feature of my invention, as hereinbefore set forth, being that the said shoulders are adjusted in relation to the mechanism which connects the lever with the crimping-blade, so that two-thirds of the adjustment will be produced on the rear move-

ment of the crimping-blade and one-third on the advance.

I claim—

1. The combination of the crimping-blade, 5 arranged to receive reciprocating movement, a vibrating lever constructed for connection with the needle-arm, shoulders *t* 4 on said lever, a lever having one arm between said shoulders, the other in connection with the 10 ruffling-blade, and said two shoulders made adjustable with relation to each other, whereby the movement of one in adjusting is double that of the other, and mechanism, substantially such as described, for adjusting said 15 shoulders with relation to each other, substantially as described.

2. The combination of the lever E, the disk

s, hung upon the same pivot with the lever, and constructed with a shoulder, *t*, the lever H, hung upon the lever E, and in gear-connection 20 with said disk *s*, the lever I, also hung upon the same pivot with the lever and disk *s*, constructed with a shoulder, 4, and in connection with the lever H a ruffling mechanism substantially such as described, and a lever, 25 G, one arm of which works between said shoulders *t* and 4, the other arm in connection with the ruffling mechanism, substantially as described.

JOSEPH S. SACKETT.

Witnesses:

JOHN E. EARLE,
JOS. C. EARLE.