

(No Model.)

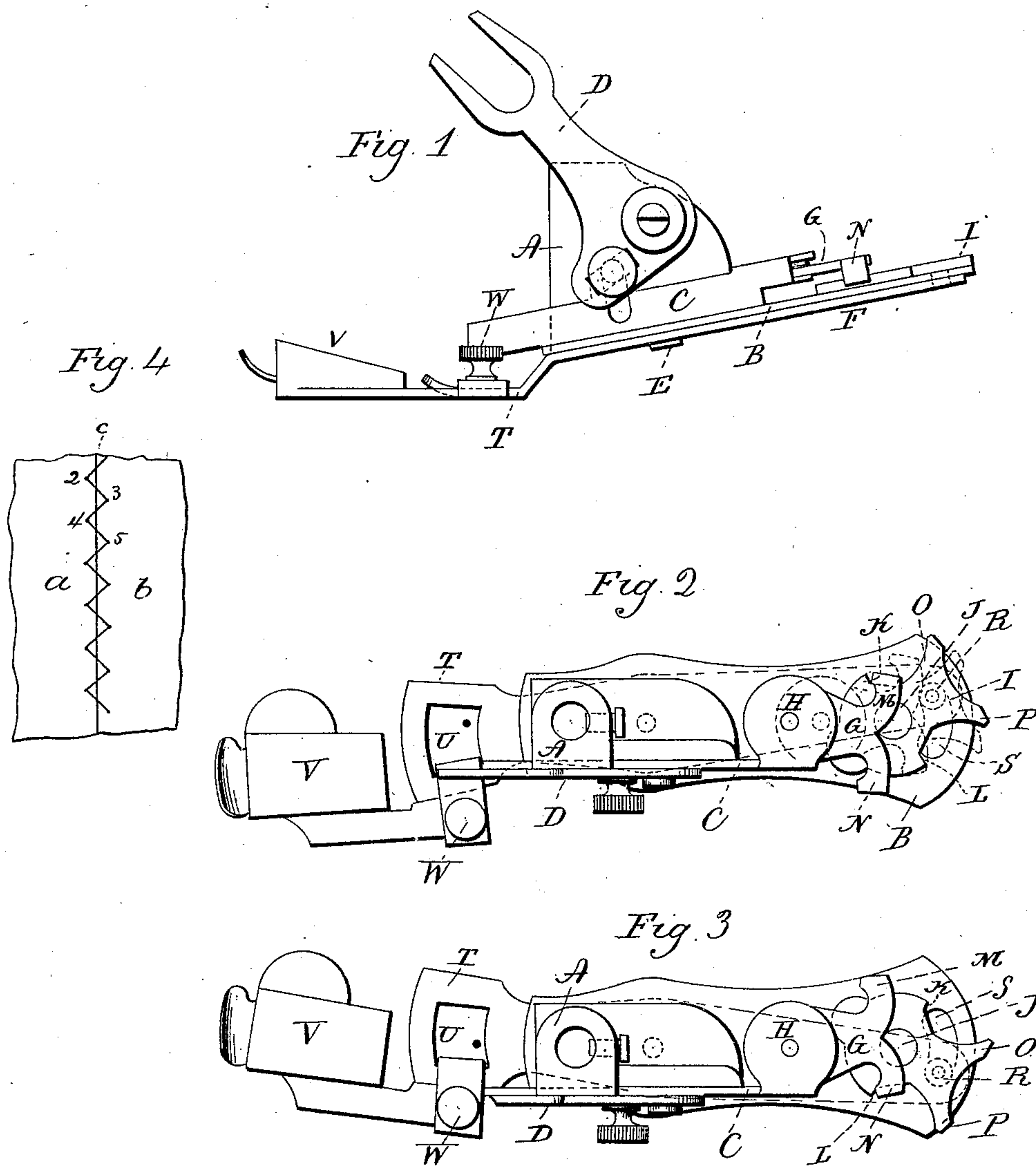
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H. B. BROWER.

HEMMING ATTACHMENT FOR SEWING MACHINES.

No. 428,885.

Patented May 27, 1890.



Witnesses.  
J. H. Shumway  
Lillian D. Hickey

Hiram B. Brower  
Inventor  
By Atty.  
Earle Heymour

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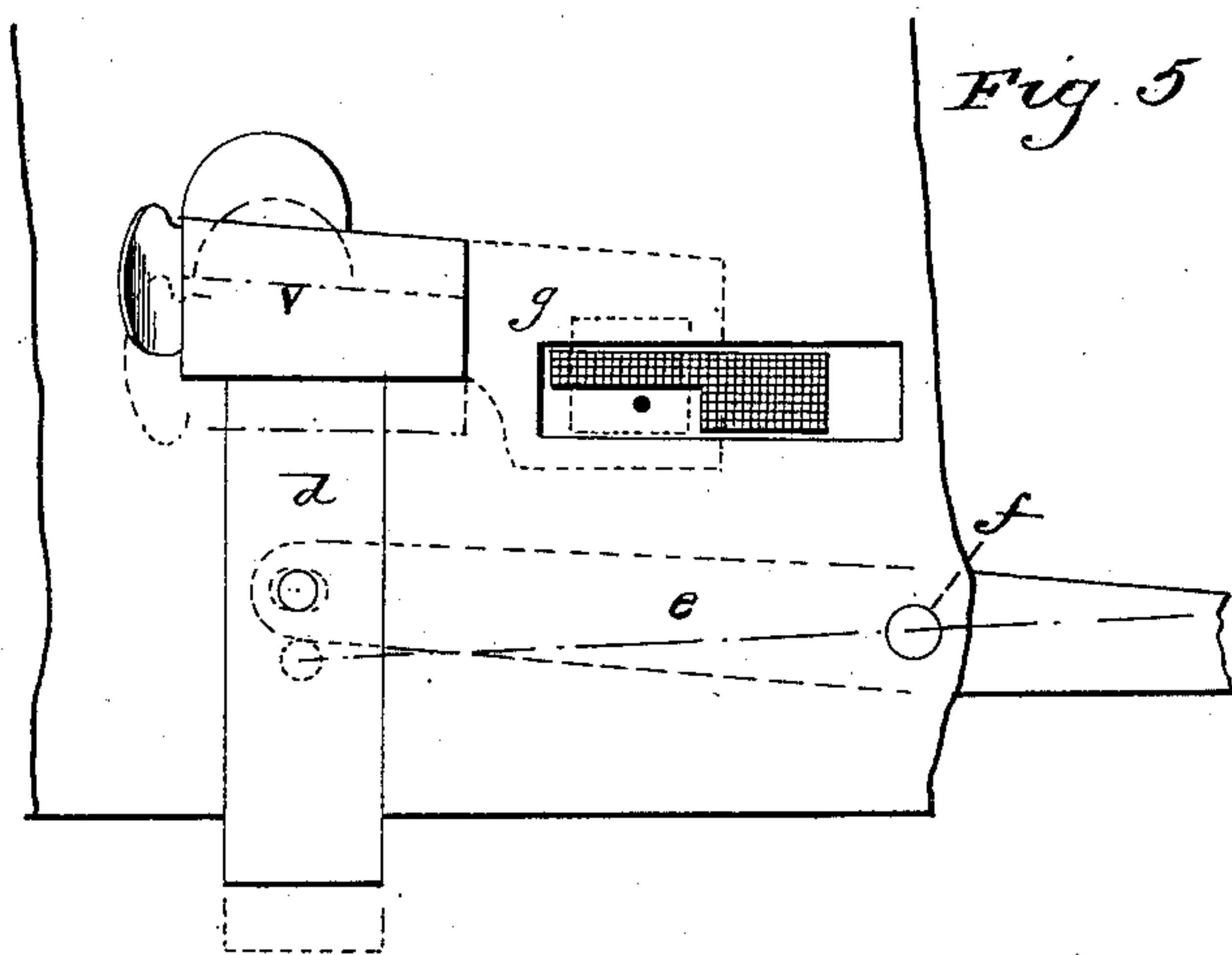
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Lillian D. Kelsey

Hiram B. Brower  
Inventor  
By Atty.  
Earle Seymour



# UNITED STATES PATENT OFFICE.

HIRAM B. BROWER, OF NEW HAVEN, ASSIGNOR OF ONE-HALF TO BENJAMAN O. PRATT, OF MIDDLETOWN, CONNECTICUT.

## HEMMING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 428,885, dated May 27, 1890.

Application filed February 28, 1890, Serial No. 342,159. (No model.)

*To all whom it may concern:*

Be it known that I, HIRAM B. BROWER, of New Haven, in the county of New Haven and State of Connecticut, have invented new Improvements in Hemmers; 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 of the attachment, looking from the right; Fig. 2, a top view of the same, showing the hemmer as in position to the right; Fig. 3, the same as Fig. 2, but showing the hemmer in the position to the left; Fig. 4, a diagram illustrating the stitching of the fold of the hem; Fig. 5, a modification in the mechanism for operating the hemmer.

This invention relates to a device for attachment to or combination with sewing-machines for performing the work commonly called "hemming."

In the more general construction and arrangement of hemmers they are set upon the machine in a fixed position with relation to the needle, and so that the line of stitches is run near and parallel with the edge of the fold turned to produce the hem. The hem thus produced on a sewing-machine differs from that made by hand in that in the hand operation the stitches take directly into and cross the edge of the fold, thereby securing the fold to the body of the fabric at the extreme edge, whereas in a sewing-machine hem the line of stitches must necessarily be at a greater or less distance from this extreme edge and parallel therewith, leaving that edge free and unsecured, so that in thin light work, as muslin, linen, &c., this edge is liable to turn away from the body of the fabric and give to it an unfinished appearance. In laundering unless great care is used the edge is frequently turned over onto the fold, so as to give an irregular appearance to the edge. In the very soft fabric—such as light wools or silk—used for ladies' wear—this difficulty is a serious objection to a sewing-machine hem. Again, in light fine fabrics—such as linen,

muslin, &c.—where a finely-stitched hem is desirable the line of stitches to secure the fold of the hem is run on very short feed, so that the stitches may present a neat and finished appearance; but such succession of stitches laid so closely together serves to cut the fabric and destroy the durability of the hem.

The object of my invention is to produce a sewing-machine hem which will more strongly resemble the hand hem than the usual sewing-machine hem can do and overcome generally the objections to the common sewing-machine hem; and the invention consists in the arrangement of the hemmer by which the fold in the fabric is arranged upon a movable device adapted to give to said hemmer a transverse reciprocating movement across the path of the needle, and so that the edge of the fold produced by the hemmer will be presented to the needle first at one side, so that a stitch will be made through the body of the fabric close to the edge of the fold, and then the next stitch made directly through the fold and fabric near the edge, and so continuing, stitches being made alternately through the fabric and through the fold, thereby running a zigzag line of stitches across the edge of the fold, and whereby the fold is secured over its edge directly to the body of the fabric.

In the best construction of the hemmer I employ an attachment adapted to be applied to the presser-foot of the sewing-machine, said device provided with an arm which will carry the hemmer in the usual relation to the needle, and with mechanism between said arm and the needle-bar, whereby the up-and-down reciprocating movement of the needle-bar will be converted into transverse reciprocating movement of the said arm carrying the hammer. Such an attachment is illustrated in the drawings.

A represents the socket by which the device is attached to the presser-foot bar, and in the usual manner of applying other operating attachments to the sewing-machine. To this socket the base B is attached or made a part thereof. Preferably it stands at the rear of the needle and inclines downward and



forward toward the needle. On this base is a longitudinal slide C, to which a backward-and-forward reciprocating movement is imparted from the needle-bar by means of a bell-crank lever D, such as commonly used in connection with sewing-machine attachments, such as rufflers, braiders, &c. Upon the under side of the base and upon a pivot E a vibrating arm F is hung, which receives from the needle-bar, through the slide C, a vibratory movement as from the position in Fig. 2 to that seen in Fig. 3, and as here represented this vibratory movement is imparted by means of a dog G, hung upon a pivot H in the said slide C so as to swing in a horizontal plane. On the base B beneath said dog is a switch I, hung upon a pivot J. The said switch is constructed with a shoulder K on one side of the pivot and a similar shoulder L on the opposite side of the pivot, with which the corresponding arms M and N of the dog G are adapted to alternately engage. At the rear of the shoulders K L the switch is constructed with an outwardly-projecting cam O on one side and P on the opposite side, and so that as the needle-bar rises and the slide C is moved forward the arm M has engaged the shoulder K and turned the switch to the left, as seen in Fig. 2. Then as the slide C on the next downward movement of the needle makes a rear movement, the arm M will strike the cam J of the switch, and so as to throw the dog to the left, as indicated in broken lines, Fig. 2. This will bring the arm N to the rear of the other shoulder L of the switch, and so that on the next advance the arm N will engage the shoulder L and turn the switch to the right, as represented in Fig. 3. On the next return the arm L will strike the cam P of the switch, so as to throw the dog to the right and adapt it on the next advance movement to again engage the shoulder K. Thus the forward-and-back movement of the dog will impart a corresponding vibratory movement to the switch, and this vibratory movement is communicated to the arm F by a stud R, working through a slot S in the bed-plate and in connection with the arm F below. This is a common and well-known construction for converting the vertical reciprocating movement of the needle-bar into a horizontal vibratory movement.

The arm F extends forward of the pivot and terminates in a presser-foot T, so that the presser-foot receives a corresponding vibratory movement. Through the presser-foot T is an opening U, through which the needle works to form the stitch. The under face of the presser-foot is preferably longitudinally serrated or otherwise roughened, so as to give it a sufficient hold upon the work, that the work may partake of the vibratory movement of the presser-foot.

To the presser-foot end of the arm F the hemmer V is attached. This hemmer is of the usual construction, adapted to fold the hem, and of a size corresponding to the width

of the fold required or the work to be performed. As represented, the hemmer is detachably connected with the presser-foot by means of a clamp and screw W, but so that it will partake of the vibration of the presser-foot, as from the position seen in Fig. 2 to that seen in Fig. 3 and return.

The hemmer is arranged upon the presser-foot, and in such relation to the line of the needle that the edge of the fold made by the hemmer will alternately cross the path of the needle.

In Fig. 4 I represent the stitches to be produced. In that figure, *a* represents the body of the fabric, *b* the fold of the hem, and *c* the edge of the fold. As this edge of the fold is passed to the right and left across the path of the needle one stitch will be made through the fabric, as at 2, Fig. 4, and near the edge of the fold. Then as the needle rises and before its next descent the work is moved to carry the edge of the fold across the path of the needle, so that the next stitch will be made through the fold, as at 3. Then for the next stitch the work is returned, and that stitch set through the fabric, as at 4, again returning. The next stitch will be made through the fold, as at 5. Thus continuing, successive stitches will be laid alternately, one through the fabric, through the edge of the fold, and the next through the fold near the edge, thus laying a zigzag line of stitches over the edge of the fold.

By making these stitches as I have described obliquely across the edge of the fold the thread serves to lay and hold the edge of the fold firmly upon the fabric, substantially the same as in hand-hemming, where each stitch is taken through the fabric and edge of the fold, and as the stitches are made thus alternately the perforations to form the stitches are made in two parallel lines, thus making a greater distance between each two piercings of the needle than would be with single stitches, and the thread, lying diagonally as it does across the fabric, avoids the cutting of the fabric, and the stitches may be made extremely short, much more so than practical in straight-line stitching, and the hem produced is not only better, stronger, and more durable than the straight-line stitching, but the appearance of the hem is far more tasteful and artistic than can be produced by the straight-line stitching.

I have represented the hemmer as being made substantially a part of an independent attachment of the sewing-machine; but it will be understood that while this is preferable, it is not essential to the invention, as it may be made a permanent part of the machine and operated directly from the shaft of the sewing-machine, or otherwise—as, for illustration, in Fig. 5 a transverse slide *d* is arranged in the sewing-machine bed or work-plate carrying the hemmer V, and to this slide and hemmer a transverse reciprocating movement may be imparted directly from the



shaft of the sewing-machine, as through a lever *e*, hung to the bed of the machine, as upon a pivot *f*, and extending to a convenient point where a cam or other device may be applied, (not shown,) which will impart a vibratory movement to the said lever, which vibratory movement of the lever will be converted into transverse reciprocating movement of the hemmer, as indicated in broken lines, Fig. 5, and the same result attained as first described; but under this arrangement the presser-foot should be so formed as to permit the work to slide beneath it.

It will be understood the usual sewing-machine feed is employed to give the longitudinal feed to the work which passes through the hemmer the same as in the first illustration, the hemmer serving to pass the edge of the hem backward and forward across the path of the needle, as in the first illustration. The sewing-machine feed is represented in Fig. 5; but the mechanism connecting with the driving-shaft for operating the feed is not shown, it being common and well known, and the cam for operating the hemmer is not shown for the reason that it is unnecessary, such cam attachments for operating mechanism from the machine being common and well known to all persons skilled in the art to which this invention pertains; or the hemmer may be provided with a tongue *g*, (represented in broken lines, Fig. 5,) which will extend beneath the presser-foot, and through which the needle will work, this tongue being adapted to move the work to the right and left, as before described. I therefore do not wish to be understood as limiting the invention to any particular mechanism for giving to the hemmer a transverse reciprocating

movement with relation to the path of the needle, which I have described.

It will be understood that the invention is applicable, substantially, to all sewing-machines, and that it is unnecessary in the illustration of the invention to show any part of the sewing-machine other than that already shown and described.

I claim—

1. In a sewing-machine substantially such as described, having a stitch-forming mechanism and a longitudinal feeding mechanism, the combination therewith of a hemmer adapted to present the work to the needle, and mechanism, substantially such as described, for imparting to said hemmer a transverse reciprocating movement, substantially as specified, and whereby the stitches to secure the fold of the hem will be run in a zig-zag line across the edge of the fold.

2. In a sewing-machine substantially such as described, having a stitch forming mechanism and a longitudinal feeding mechanism, the combination of a transversely-vibrating arm carrying the presser-foot at its forward end, mechanism, substantially such as described, between said arm and the needle-bar, whereby the vertical reciprocating movement of the needle-bar will be converted into said transverse vibratory movement of said arm, and a hemmer in connection with said arm, and arranged forward of the presser-foot and so as to partake of the transverse vibratory movement of said arm, substantially as and for the purpose described.

HIRAM B. BROWER.

Witnesses:

FRED C. EARLE,  
GEO. D. SEYMOUR.