(No Model.) 2 Sheets—Sheet 1.

E. B. ALLEN.

SEWING MACHINE TRIMMER.

No. 561,078. Patented June 2, 1896.

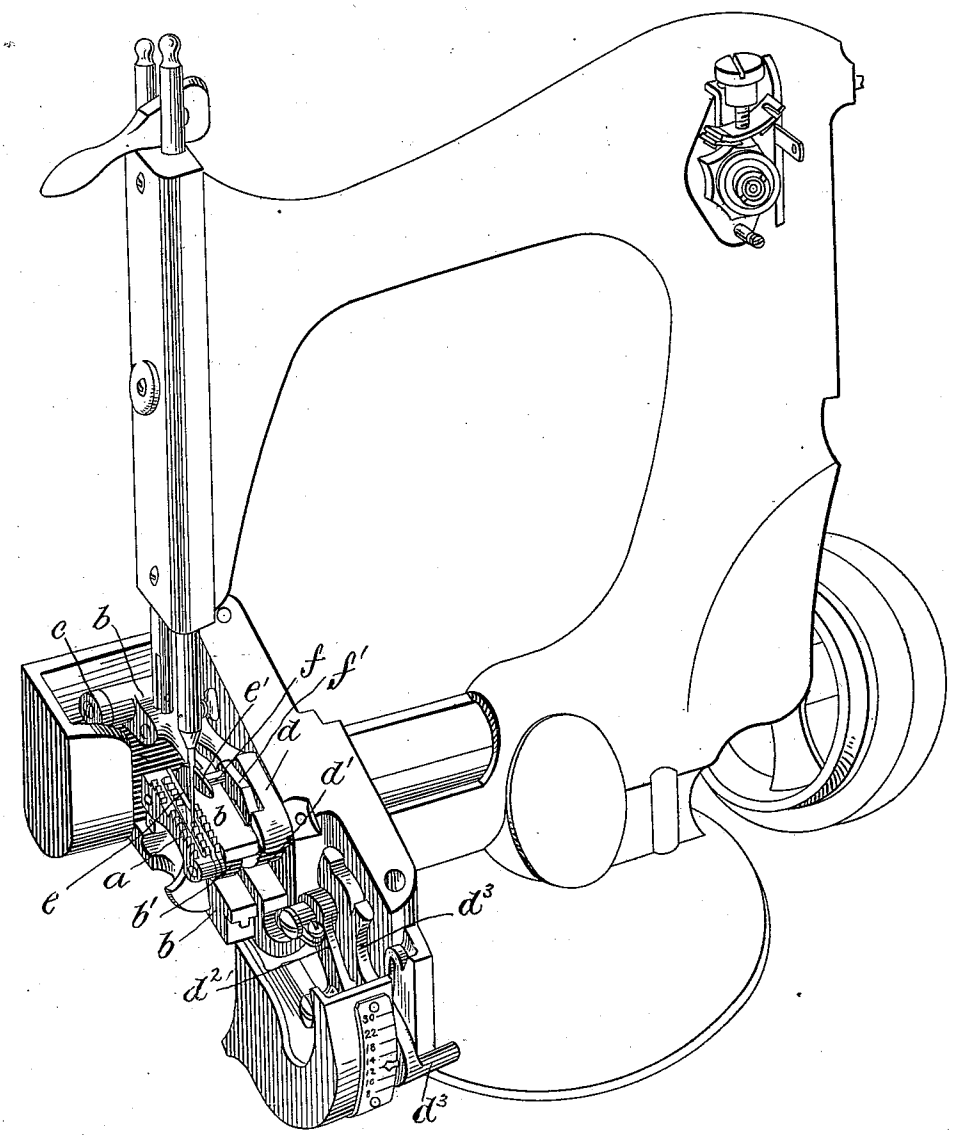

Fig. 1.

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C. M. Sweeney.

INVENTOR:
Edward B. Allen,
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(No Model.) 2 Sheets—Sheet 2.

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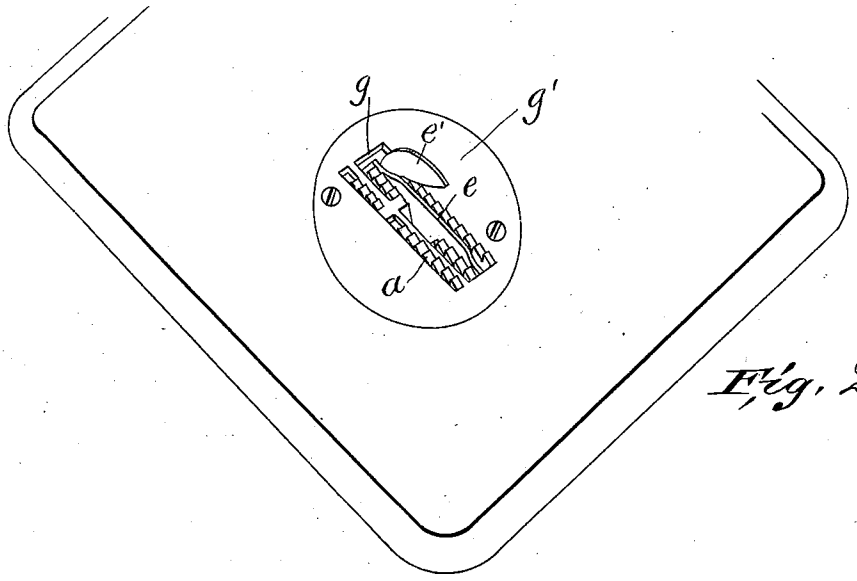
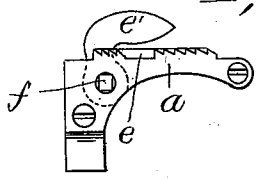


Fig. 2.

Fig. 4.



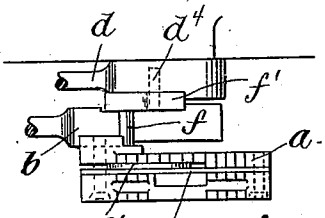


Fig. 3.

Fig. 5.

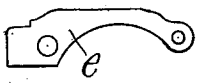


Fig. 6

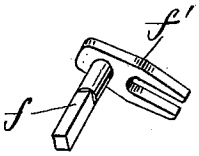
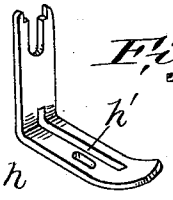


Fig. 7.

Fig. 8.



WITNESSES:

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UNITED STATES PATENT OFFICE.

EDWARD B. ALLEN, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, OF NEW JERSEY.

SEWING-MACHINE TRIMMER.

SPECIFICATION forming part of Letters Patent No. 561,078, dated June 2, 1896.

Application filed April 24, 1895. Serial No. 547,023. (No model.)

To all whom it may concern:

Be it known that I, EDWARD B. ALLEN, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Sewing-Machine Trimmers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to that class of trimmers known as "shear-trimmers," by which the work is trimmed parallel with and closely adjacent to the line of stitches simultaneously with the sewing operation; and my invention has for its object to provide a trimmer of the class referred to which will offer little or no obstruction to the work-plate of the machine, which will be of simple construction, and which will be positive and reliable in operation.

In carrying my invention in its preferred form into effect the lower or ledger blade of the shear-trimmer is mounted in the feed-dog of the machine, while the upper or vibrating blade is carried by a small rock-shaft also mounted in the feed-dog and having a slotted arm engaged by a pin carried by the link or connection which imparts horizontal or feeding movements to the feed-bar, and as the said link or connection (which is part of a toggle) has vertical movements imparted to it from its operating-eccentric, and as these vertical movements are in opposition to or are alternated with the vertical movements of the feed-bar and feed-dog the upper or vibrating shear-blade will be oscillated to open and close the shears in opposition to the vertical movements of the lower blade carried by the feed-dog, both blades reciprocating horizontally with the feed-dog, closing as the feed-dog is rising and is moving forward in advancing the work, opening when the feed-dog is being lowered, and returning to first position for a new cut when the feed-dog is retracted.

In the accompanying drawings, Figure 1 is a perspective view, with the work-plate and presser-foot removed, of a Singer single-thread chain-stitch machine with my invention applied thereto. Fig. 2 is a perspective view showing the trimmer-shears, throat-plate, work-plate, and feed-dog. Fig. 3 is a detail plan view of the feed-dog and shears and the operating devices for the latter. Fig. 4 is a detail side view of the feed-dog and shears, and Figs. 5, 6, and 7 detail views of the parts constituting the shears. Fig. 8 is a detail perspective view of the presser-foot.

The machine herein shown is provided with a feeding mechanism essentially the same as that embraced by United States Patent No. 339,624, dated April 13, 1886, in which the feed-dog a is carried by a feed-bar b, jointed to a rocker c, the said feed-bar being forked to embrace an eccentric b' on the driving-shaft A, which eccentric imparts vertical movements to said feed-bar, the horizontal movements of the feed-bar being effected by a toggle consisting of the link d, jointed to the feed-bar and having a yoke or fork embracing the eccentric d' on the shaft A, and the link d^2, jointed to said link d and to the feed-regulating lever d^3.

In the form of my invention herein shown the feed-dog a is slotted for the reception of the shear-blades e and e' of the trimmer, the lower blade e being mounted in the feed-dog and the upper blade e' being rigidly attached to a small rock-shaft f, journaled in the feed-dog and having an arm f' slotted for the reception of a pin d^4 in the yoke of the link d, so that as said yoke is raised and lowered by the eccentric d' the shaft f will be rocked to vibrate the blade e', the vertical movements of these blades being in opposition to each other, as above stated. The shank of the blade e' has an opening, which is preferably square or of other form than round, and the part of the shaft f in said opening is of corresponding form in cross-section, so that the said blade will be fast to said shaft to rock therewith.

The blade e' extends upward through the feed-slot g in the throat-plate g' and through the slot h' in the presser-foot h; but owing to the shape and the small size of the said blade, as also to its location rearward of the needle, it is not at all in the way of the operator and offers no obstruction to the free handling of the work.

When it is desired to sew without trimming, the feed-dog can be readily taken off

and the blade e' with its operating rock-shaft removed, the lower blade e being left in place, as it does not interfere with the normal operation of the feed. To trim at different distances from the line of stitches, interchangeable parts, with the shear-blades at different distances laterally from the needle, will preferably be provided.

When the machine is in operation, the shear-blades, operated as above described, will, as stated, be so timed as to be closed together to make their cut during the time the feed-dog is rising (lifting the blade e) and is making its advancing or feeding movements, said blades being separated to open the shears when the feed is lowered, so that when the feed is retracted the opened shears move toward the uncut work to bring their blades above and below the material to be sewed.

By timing the operation of the horizontally-reciprocating shears, so that they will be closing to do most of the cutting during the time they are moving forward with the advancing work, a cleaner and smoother cut is made than would result by closing the shears, which reciprocate horizontally with the feed during the time the feed is being retracted.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. In a sewing-machine, the combination with a feeding mechanism comprising a feed-dog, of a shear-trimmer consisting of a lower blade which is mounted in said feed-dog so as to move therewith both vertically and horizontally, and an upper pivoted vibrating blade the cutting edge of which is movable toward and from said lower blade, and which is actuated by said feeding mechanism.

2. In a sewing-machine, the combination with the feed-dog and its operating mechanism, of a shear-trimmer comprising a lower blade mounted in and movable with said feed-dog, a rock-shaft also mounted in and movable with said feed-dog, an upper shear-blade attached to said shaft, and connections to said feed-operating mechanism to actuate said rock-shaft and thus vibrate said upper blade.

3. In a sewing-machine, the combination with the feed-dog a, of the feed-bar b by which said dog is carried, the lower shear-blade e attached to and movable with said feed-dog, the rock-shaft f also movable with said feed-dog and having the slotted arm f', the upper shear-blade e' carried by said rock-shaft, the toggle comprising the links d and d^2, the former having the pin d^4 engaging said slotted arm f' to actuate said upper shear-blade.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD B. ALLEN.

Witnesses:
J. MORRIS MOSES,
JOSEPH F. JAQUITH.