

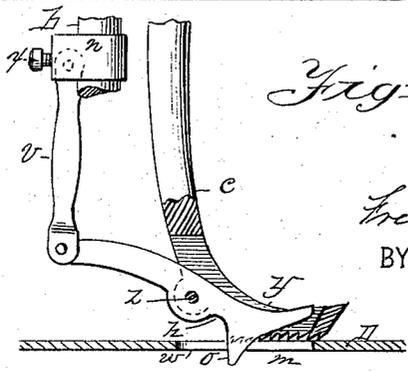
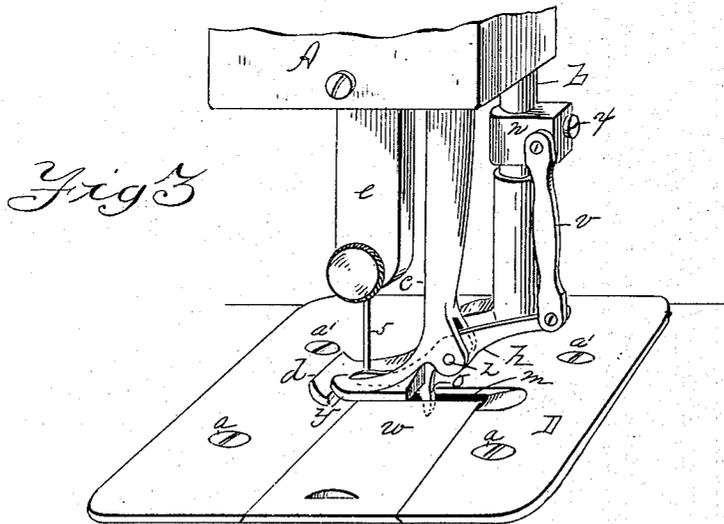
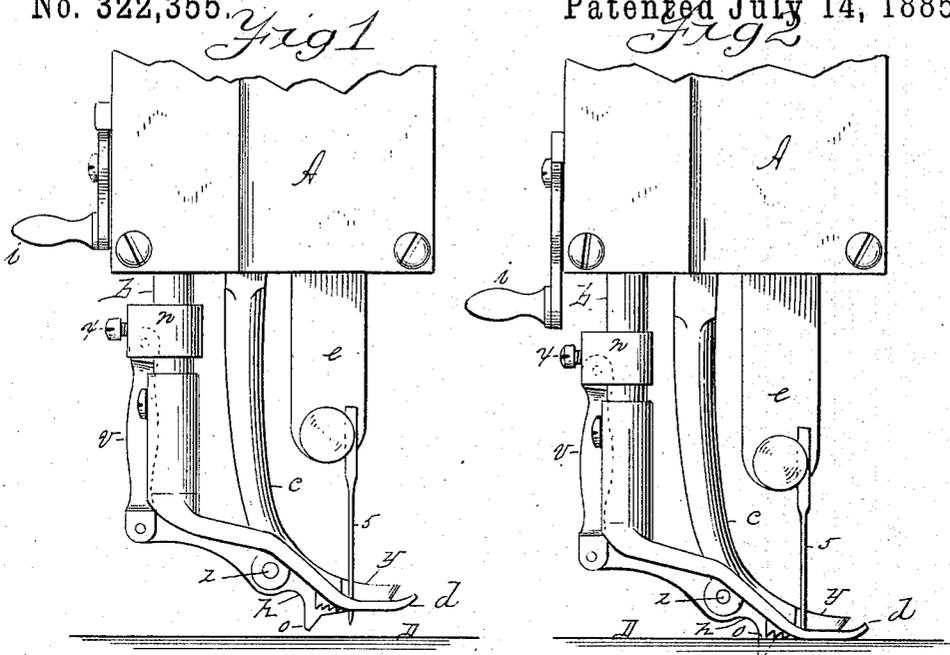
(No Model.)

F. B. DILLINGHAM.

TRIMMING ATTACHMENT FOR SEWING MACHINES.

No. 322,355.

Patented July 14, 1885.



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# UNITED STATES PATENT OFFICE.

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## TRIMMING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 322,355, dated July 14, 1885.

Application filed May 11, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, FRED B. DILLINGHAM, a citizen of the United States, residing at Freeport, in the county of Cumberland and State of Maine, have invented new and useful Improvements in Trimming Attachments for Sewing-Machines, of which the following is a specification.

This invention relates to improvements in trimming attachments for sewing-machines, the object being to provide in a sewing-machine in which the material is fed by a feed-bar located above the cloth-plate having a reciprocating vertical and a vibratory motion from and toward the needle, and having the presser-bar located contiguous to said feed-bar, a trimming blade or cutter pivoted to the latter, and having a pivotal connection with said presser-bar, whereby the said cutter is vibrated by the conjoint action of the feed and presser bars, and is by the latter given the requisite shearing motion relative to one edge of a slot in the cloth plate, in conjunction with which said cutter operates to cut the material.

In the drawings forming part of this specification, Figures 1 and 2 are front elevations of the lower ends of the needle-bar, presser-bar, and feed-bar, and the presser-foot of a sewing-machine having trimming attachments applied thereto embodying my invention, said Fig. 1 showing also the lower end of the box of the machine in which said bars work, and the front line of the cloth-plate. Fig. 3 is a perspective rear view of the parts referred to as shown in Fig. 1, and of the entire cloth-plate. Fig. 4 is a side elevation of the trimming attachments, a section of the presser-bar, the lower end of the feed-bar, partly in section, and a section of the cloth-plate.

The class of sewing-machines to which the within-described improved trimming attachments are applicable is that shown and described in Patent No. 251,195, of December 20, 1881, which machine contains the usual needle-bar, presser-bar, and presser-foot, and has a feed-bar operating above the cloth-plate, between the needle-bar and the presser-bar, to feed the material being sewed in a direction toward or from the operator, the said parts receiving their motion by mechanism described

in the said patent, to which reference may be had.

In the drawings, D is the cloth-plate, under which a suitable shuttle acts in conjunction with the needle 5, to form the stitch in the usual way. The cloth-plate D is secured to the bed of the machine by the screws *a a'*. A section, *w*, of the cloth-plate is arranged to slide in a slot in the latter, leading from its rear edge to a point under the foot *y* of the feed-bar *c*, an opening being formed in plate D, under said foot *y*, constituting the slot *m*, of which the end of the said sliding section *w* constitutes one side. The edges of the slot in the cloth-plate D, in which section *w* is fitted, are cut under, as shown, and the adjoining edges of the said section are made to conform thereto, making a dovetail connection between the parts. The section *w* is adjustable toward and from the center of slot *m*, for purposes hereinafter described, the plate D being sufficiently freed from the section *w* by turning screws *a a* to permit of moving said section.

The needle-bar *e* the presser-bar *b*, and the feed-bar *c* are properly supported and operate, as below described, in the box A (the lower part of which is shown) by suitable mechanism, as described in said patent.

The needle and presser bars have the usual reciprocating vertical motions, and the feed-bar *c* has a like motion, and in addition thereto its lower end, having thereon the foot *y*, which bears upon the work, has a vibratory motion in a line with the slot *m* across the cloth-plate, whereby the work being sewed is fed along. To adapt the ordinary feed-bar, however, of this machine to the trimming attachments herein described and shown, said feed-bar is made of suitable form to provide for pivoting the cutter-blade or trimmer *h* thereto at about *z*, and the foot *y*, whose under face is serrated, as shown, is slotted to receive therein the cutting end of said blade as shown.

The presser-bar *b* has secured thereto the usual presser-foot, *d*. The bar *b* and the feed-bar are lifted clear of the plate D, for adjusting the work, by means of the usual lever, having the handle *i* thereon. Fig. 1 shows said parts lifted up from the cloth-plate D, and Fig. 2 shows them resting on said plate.

The additions to the parts of said patented sewing-machine which are required to constitute completely operating trimming attachments, combined with said cloth-plate, consist of the aforesaid cutter-blade *h*, the collar *n*, secured on the presser-bar *b*, and the connecting-rod *v*, pivotally attached to said blade and said collar.

The blade *h*, in practice, is made substantially of the form shown in Fig. 4, pivoted at *z* to the feed-bar, and having its toe extending from thence, in the aforesaid slot in the foot *y*, toward the end of the latter, the rear end of the blade being pivoted to the connecting-rod *v*. On the under edge of the cutter-blade is formed the heel projection *o*, from the lower end of which to the free end of the blade is the cutting-edge of the latter, having a suitable curve to conduce to its proper and most advantageous shearing action. The collar *n* is placed on the bar *b* by removing the presser-foot *d*, and is secured in proper position thereon by the screw *x*, and the upper end of the rod *v* is pivoted thereto, as shown. The end of the section *w* of the cloth-plate is adjusted to the adjoining side of the blade *h*, and is kept in proper condition to co-operate with the latter to form a proper edge between which and the blade *h* the work is cut or trimmed.

The aforesaid adjustable feature of section *w* provides for the removal of the latter to sharpen its end and for setting it properly to the side of the blade so that it shall act suitably, as above described.

When the blade is operating to trim work that is being stitched by the machine, and particularly rather thick woolen fabric, the latter is apt to be drawn between the end of the section *w* and the adjoining side of the blade *h*, and particularly so if the latter be a little dull, thereby crowding the blade away from the end of section *w*, and preventing it from cutting the fabric, unless the blade have a suitable side support which holds it up to its work under the above-mentioned circumstances. The requisite side support for the blade is supplied by that portion of the foot *y* of the feed-bar, or one side of the slot therein which the side of the blade comes against when tending to spring away from the end of section *w*, as aforesaid. Thus it will be seen that quite a thin cutting-blade may be used in this construction.

The point of the heel *o* on the lower edge of the blade *h* is not lifted quite out of the slot *m* in the cloth-plate when the free end of the blade swings upward in the ordinary operation of cutting, nor when the foot *y* is lifted from said plate in the operation of feeding the work; and therefore said heel constitutes, in a certain sense, a pivotal point whereby the work which is being stitched and trimmed can be swung around on the cloth-plate when the trimming is to be operated on a curved line, and be retained in proper relative position under the trimmer-blade and needle. Thereby the trimmed line is always,

in curved work, kept parallel with the line of stitches. When, for placing work under the sewing and trimming devices, it becomes desirable to clear them from the cloth-plate, they are, by operating the lever to which handle *i* is attached, lifted up, as shown in Fig. 1.

The operation of the above-described trimming attachments is as follows: In sewing and trimming, the feed-bar and cutter having operated, the needle and presser-foot descend together, and the latter having come to a bearing on the work, the feed-bar and cutter rise and swing forward toward the needle, and then move down against the work, the cutter operating to make the cut by said action of the feed-bar and the immediately following upward movement of the presser-bar, the needle having moved upward away from the work prior to said upward movement of the presser-foot, and the feed-bar having operated to feed the work after the rise of the presser-foot.

The operation in detail of the trimming devices is as follows: The needle, the presser-bar, and the feed-bar having been elevated clear from the cloth-plate sufficiently to permit the introduction of the work under the foot of the feed-bar, but not so far as to draw the heel of the blade clear from the slot in the plate, the work is placed upon the latter, and the feed-bar is let fall against the work in the usual manner. The machine being started, the feed-bar has a feeding motion immediately followed by a downward motion of the presser-foot and the needle. Said downward movement of the presser bar vibrates the cutter *h*, elevating its free end, and as the needle continues its downward movement the feed-bar rises, lifting the free end of the cutter above the work, the heel thereof remaining engaged with the latter. The feed-bar then swings forward toward the needle, crowding the sharpened edge of the heel *o* close against the point on the work against which the cutter is operating, (the work being firmly held by the presser-foot,) and then, as the needle rises, the feed-bar descends upon the work to feed it, carrying the edge of the cutter against the latter. In this last-mentioned downward movement of the feed-bar the free end of the cutter is made to swing downward at the edge of the section *w*, by reason of the pivotal connection of the rear end of the cutter with the presser-bar, the latter meanwhile not moving, and thereby the cut is begun and it is continued by the immediately following upward movement of the presser-bar, whereby the said swinging movement of the cutter at the edge of the section *w* is continued, the cutter swinging on its pivot *z* in the feed-bar, and completing the cut. The presser-foot being lifted clear of the work, the feed-bar and blade *h* swing away from the needle, feeding the material, and then they rise and swing forward toward the needle and drop upon the work, as before, repeating said operations.

What I claim as my invention is—

1. In sewing-machine trimming mechanism, the combination of the following elements, viz: a presser-bar having reciprocating vertical movements, a feed-bar located above the cloth-plate, having reciprocating vertical and vibratory movements, a cutting-blade pivoted on said feed-bar near its foot, having its cutting end extending toward the toe thereof and its opposite end pivotally connected with said presser-bar, and a cloth-plate having a slot therein under the cutting-blade, one of whose edges is parallel with the side of the latter, substantially as set forth.
2. In sewing-machine trimming mechanism, the combination of a presser-bar having reciprocating vertical movements, a feed-bar located above the cloth-plate, having reciprocating vertical and vibratory movements, a cutting-blade having a downwardly-projecting heel thereon, pivoted on said feed-bar near its foot, having its cutting end extending toward the toe thereof and its opposite end pivotally connected with said presser-bar, and a cloth-plate having a slot therein under the cutting-blade, one of whose edges is parallel with the side of the latter, substantially as set forth.
3. In a sewing-machine provided with a presser-bar having normally reciprocating

vertical motions, and with a feed-bar above the cloth-plate, having normally reciprocating vertical and vibratory motions, the combination, with said two bars, of a cutter-blade, substantially as described, pivoted to the feed-bar, and having a pivotal connection with the presser-bar, whereby said blade is given a vibratory motion in a plane at right angles to the cloth-plate, substantially as set forth.

4. In a sewing-machine provided with a presser-bar having normally reciprocating vertical motions, and with a feed-bar above the cloth-plate, having its foot slotted in the direction of its length, and having normally reciprocating vertical and vibratory motions, the combination, with said two bars, of a cutter-blade, substantially as described, pivoted to the feed-bar, and having its free end extending between the sides of the slot in said foot and its opposite end pivotally connected to said presser-bar, and the cloth-plate having a slot therein, one of whose edges is adjustable to and from said cutter-blade, substantially as set forth.

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Witnesses:

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