

1,005,643.

Fig. 1.

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 TRIMMING MECHANISM FOR SEWING MACHINES.
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2 SHEETS—SHEET 2.

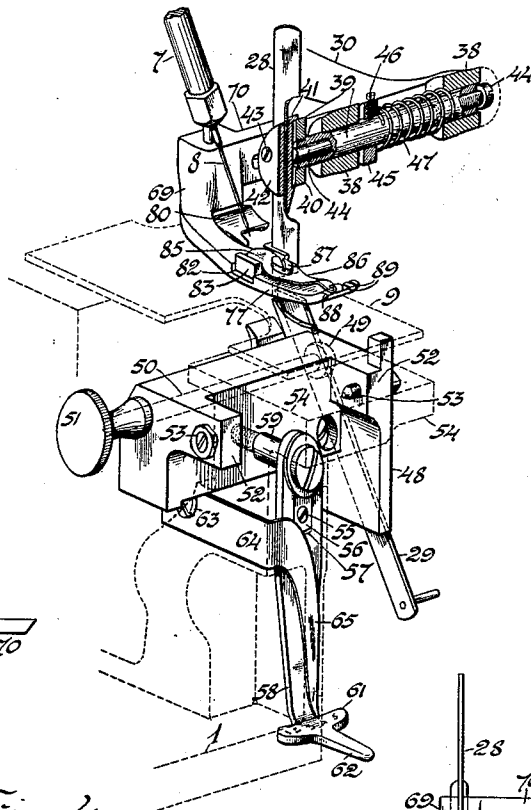


Fig. 2.

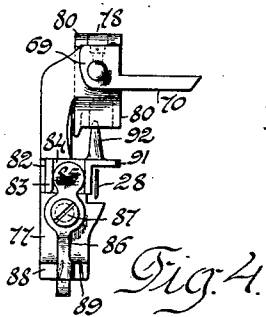


Fig. 4.



Fig. 5.

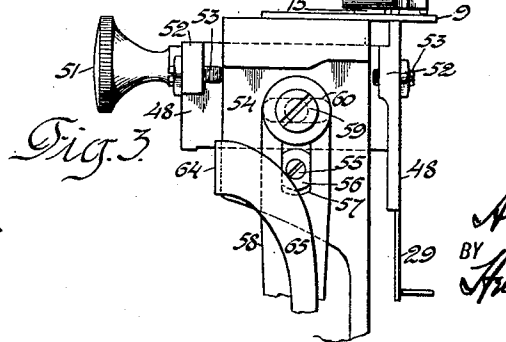


Fig. 3.

WITNESSES
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UNITED STATES PATENT OFFICE.

ALFRED GRIEB, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, A CORPORATION OF NEW JERSEY.

TRIMMING MECHANISM FOR SEWING-MACHINES.

1,005,643.

Specification of Letters Patent.

Patented Oct. 10, 1911.

Application filed September 24, 1908. Serial No. 454,620.

To all whom it may concern:

Be it known that I, ALFRED GRIEB, 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 Trimming Mechanism for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has for its object to provide means for quickly and effectively adjusting the position of the trimming mechanism in relation to the stitching line in overseaming sewing machines, and also to provide a similar adjustment for the chain-
ing finger upon its supporting presser-foot.

The invention, although applicable to different types of sewing machines, is designed more particularly for embodiment in overseaming sewing machines of the type forming the subject of my Patent No. 932,272, dated August 24, 1909, and it consists in the constructive features herein shown, described and claimed.

In the accompanying drawings, Figure 1 is a transverse sectional elevation representing the forward portion of a Singer overseaming sewing machine. Fig. 2 is a perspective view representing the trimming mechanism and the presser-foot, with a portion of the base indicated in dotted lines, and Fig. 3 a front side view of the same parts. Fig. 4 is a plan of the presser-foot and the trimming knives, and Fig. 5 a detail view of the shift-lever for the chain-
ing finger.

The machine frame comprises the base 1 and overhanging bracket-arm 2 in which is journaled the transverse inclined rock-shaft 3 with forwardly extending arm 4 connected by means of the forked link 5 with the collar 6 fixed upon the needle-bar 7 which carries the needle 8. The primary looper 10, which seizes the thread-loops from the needle beneath the throat-plate 9, is secured within the carrier 11 mounted upon the fulcrum-stud 12 fixed in the base 1; and the secondary looper 13 is fixed upon the carrier 14 suitably journaled within the bed for oscillatory movement in a plane parallel with that of the similar movements of the primary looper at an angle with the inclined needle 8, and is adapted to take loops from the primary looper and present them above

the throat-plate for passage of the needle. The means by which the needle and loopers are actuated from the main-shaft are not shown herein, as they form no part of the present improvement.

As herein represented, the feeding mechanism comprises a primary feed-dog 15 mounted upon the primary feed-bar 16 provided with a link 17 embracing the usual feed-lifting eccentric upon the main-shaft and having its rear end pivotally connected at 18 with the feed-rocker 19 mounted upon the supporting shaft 20 and operatively connected with a feed-actuating eccentric upon the main-shaft. An auxiliary feed-dog 21 is mounted upon the rock-lever 22 fulcrumed at 23 upon the primary feed-bar 16 and pivotally connected at its rearward end by means of the bent link 24 with a fulcrum-stud 25 carried by an adjustable elbow lever 26 fulcrumed at 27 upon the rearward extension of the feed-rocker 19. This feeding mechanism is or may be similar to that forming the subject of my pending application Serial No. 452,555, filed September 11, 1908.

The trimming mechanism comprises an upper reciprocating knife 28 and a lower stationary knife 29. The knife 28 is carried by the forward end of a vibrating lever 30 which is pivoted at the opposite end and securely held against lateral movement by means of the headed fulcrum pin 31 mounted upon the bearing plate 32 rising from the machine frame 1, and is pivotally connected intermediate its ends by a bolt 33 with the upper end of an eccentric-rod 34 whose lower end is provided with a strap embracing the trimmer-actuating eccentric 36 upon the main-shaft 37. The forward end of the trimmer bar 30 is forked to form a pair of spaced bearing members to which is fitted a tubular knife-carrying shaft 39 having at one end a head 40 provided with a diametrical channel in which is removably fitted a gib 41 suitably channeled to receive the upper knife-blade 28. A cap-piece 42 is secured to the head 40 by screws 43, and the end of a long clamping screw 44 with threaded outer portion entering the tubular shaft 39, by engaging the back of the gib 41, serves to clamp the same with the upper knife-blade 28 in position within the head 40.

The knife-shaft 39 is provided intermedi-

ate its bearings with a collar 45 adjustably secured thereon by means of a set-screw 46, and a spring 47 is interposed between said collar and one of the bearing members 38, whereby the upper knife is pressed normally in contact with the side of the lower knife. Suitable means are provided in practice for preventing the turning of the knife-supporting shaft 38 when in operation, while permitting its free endwise movement.

The lower knife-blade 29 is fitted to an inclined channel in a block 48 and clamped thereon by engagement therewith of the laterally notched head 49 of a pin or plug 50 passing through such block and having upon its threaded opposite end portion a milled clamping nut 51 by which the head 49 is drawn into operative engagement with the blade 29. The block 48 constituting the lower knife-carrier is mounted in suitable guideways of the frame, and is provided with lugs 52 having adjustable stop-screws 53 whose points are adapted to bear alternately upon a laterally projecting portion 54 of the forward standard of the main-frame to limit the movement of such block and knife carried thereby transversely of the direction of feed and of the cutting line. Tapped into the front side of the frame member 54 is a fulcrum-screw 55 passing through a slide-block 56 which enters a vertical slot 57 in the shift-lever 58 having its upper end journaled upon the fulcrum-screw 59 passing through a transverse slot 60 in the member 54 and tapped into the carrier 48. The lower end of the shift-lever is bent outwardly and formed adjacent its body portion with a graduated transverse segmental scale-bar 61 and a forwardly extending handle or finger 62 for operating the same. Attached to the side of the frame member 54 by means of the fastening screw 63 is the foot 64 of a pointer arm 65 extending outwardly adjacent and overlying the depending shift-lever 58, with its lower extremity disposed adjacent the scale-bar 61.

The stop-screws 53 are preferably set to arrest the throw of the carrier 48 in its extreme positions for a given class of work so that the shifting of the lever 58 may be effected without any care whatever upon the part of the operator to throw the cutting line from one to the other of its extreme positions; but by exercising the proper care, the operator may set the knives in any desired intermediate position by throwing the lever 58 to bring the corresponding number of the graduated scale-bar 61 adjacent the point of the indicator-arm 65.

The bearing plate 32 carries a lateral fulcrum-stud 66 which is embraced by the boss 67 of the presser-bar 68 carrying at its forward end a two-part presser-foot whose shank 69 is provided with a laterally pro-

jecting slotted ear 70 secured within a suitable transverse seat at the forward end of the presser-bar. The presser-bar is normally depressed by means of the pressure spring 71 interposed between a shoulder of the same and the end of an adjusting screw 72 entering a socket in the head of the bracket-arm, in a well-known manner. The usual lifting cam-lever 73 is pivotally mounted upon the bearing plate 32 by means of the pin 74 and is adapted to engage the head of the screw-stud 75 carried by the presser-bar and provided with a lock-nut 76. The presser-foot is constructed substantially in accordance with that represented in my said application Serial No. 452,555, its shank having rigidly connected therewith the forwardly extending toe portion 77 overlying the primary feed-dog 15 and provided with a lateral notch or recess embracing the trimming knife 28. The presser-foot shank is provided with the rearwardly extending perforated lug 78 to which is secured by means of the pivotal pin 79 the forked rearward end of the forwardly extending heel portion 80 disposed rearwardly of the laterally extending toe portion of the foot, and pressed normally downward by means of a spring 81 interposed between the same and the presser-foot shank.

The rigid portion 77 of the presser-foot is provided opposite the trimming knives with a transverse channel 82 in which is fitted the carrier-block 83 having a recess 84 in its top arranged crosswise of the same to form ribs or shoulders which embrace the rounded rearward end of the arm 85 of a shift-lever 86 fulcrumed upon a shouldered stud-screw 87, applied to the foot portion 77 in advance of its channel 82, and having a forwardly extending arm resting upon a transverse seat 88 upon the top of the toe portion provided with a series of detent notches 89 for engagement with a detent-fin 90 upon the lever 86. The shift-lever is formed of spring metal and is pressed downwardly by engagement with the under side of the head of the fulcrum-screw 87 so that the arm 85 is caused to press upon the bottom of the recess 84 in the slide-block 83 while its other arm is normally pressed upon the transverse seat 88 of the presser-foot member 77 with its detent-fin resting in one of the notches 89 therein by which it is maintained in the desired position.

The block 83 is provided with a laterally extending ear 91 rearward of the knife 28 affording a shield to prevent the trimmings from advancing with the body of the material into the path of movement of the loopers; and extending backwardly from the shield 91 is the chaining finger 92 the point of which lies beneath the forward portion of the yielding presser-foot member 80 beneath which it delivers the overseam stitches

formed upon the same in the operation of the machine.

As will be observed, the shifting of the lever 86 causes the corresponding movement of the knife-shield 91 and chaining finger 92 which are ordinarily shifted by the operator so as to follow the adjustments of the knives when moved transversely of the direction of feed by actuation of the lever 58; but by providing independent means of adjustment of the trimming knives and chaining finger, it will be observed that the relation of the chaining finger to the cutting line may be varied when required to enable the overseam to embrace a larger or smaller margin of the material, depending upon the nature of the goods employed and the direction of the trimming and stitching with relation to its texture. It will be observed that, by connecting the trimmer shifting device with the carrier of the lower or normally stationary knife, such device may be applied to the frame of the machine beneath the work-plate and upon the front side where it is most conveniently accessible to the operator, while such location permits of the greatest simplicity of construction with a minimum amount of lost motion. The shift lever 58 is thus disposed in advance of the trimming knives, or in a position nearer the operator than cutting position. In the machine to which the present improvement is applied, the loop-taking mechanism co-operating with the needle is located mainly at the right of the cutting line or at the side of the cutting line occupied by the reciprocating knife 28, and the front of the machine below the work-plate is removable for access thereto, as described in my pending application before mentioned. By mounting the stationary carrier 48 at the left of the cutting line, or at the side thereof occupied by the stationary knife and the needle, and applying the shift-lever 58 at the same side of the cutting line, that part of the machine casing at the right of the cutting line and below the work-plate (Fig. 2) is left entirely clear of the cutting mechanism, so that access to the lower stitch-forming mechanism is not in the least impaired.

It has heretofore been proposed to mount upon the carrier for the stationary cutting blade a movable part of the stitch-supporting member of which a relatively immovable part was carried by another part of the machine, but by such means the width of overseam stitching was invariably changed with each shift of the cutting line, which has been found objectionable in some cases, for which reason the cutter-shifting mechanism has according to the present improvement been made entirely independent of the stitch-supporting member comprising the chaining finger.

From the foregoing description it will be seen that the present improvement is not limited to the particular embodiment herein shown and described, but is susceptible of very considerable modification without departure from the present invention.

Having thus set forth the nature of the invention, what I claim herein is:—

1. In a sewing machine, the combination with stitch-forming mechanism including a reciprocating needle, of trimming mechanism comprising a stationary knife disposed at one side of the needle-path, a carrier therefor mounted upon a fixed support for movement transversely of the knife-edge, a depending shift-lever pivotally connected with said carrier and fulcrumed upon and in advance of said support and at the opposite side of the needle-path from said stationary knife, and a laterally yielding reciprocating knife normally pressed in cutting relation with the stationary knife.

2. In a sewing machine, the combination with stitch-forming mechanism including a reciprocating needle, of trimming mechanism comprising a stationary knife disposed at one side of the needle-path, a carrier therefor mounted upon a fixed support for movement transversely of the knife edge, a depending shift-lever pivotally connected with said carrier and fulcrumed upon and in advance of said support relative to the cutting line and at the opposite side of the needle-path from said stationary knife, a transverse graduated scale carried by said shift-lever, an indicator-arm fixed upon the carrier-support with its operative extremity overlying said scale, and a laterally yielding reciprocating knife normally pressed in cutting relation with the stationary knife.

3. In a sewing machine, the combination with a reciprocating needle and complementary switch-forming mechanism and a work-plate, of trimming mechanism comprising a pair of coöperating knives, a carrier for one of said knives mounted upon a fixed support at the side of the cutting line occupied by said needle and adapted for movement transversely of said knife, a vertically arranged lever disposed beneath said work-plate upon the same side of the cutting line as the needle and in front of the switch-forming and trimming mechanisms and pivotally connected with said support and knife-carrier for shifting the latter, and a carrier for the other of said knives with means for pressing the same toward the first mentioned knife.

4. In a sewing machine, the combination with overseaming stitch-forming mechanism and feeding mechanism, a throat-plate, a presser-foot, and a stitch-support comprising a chaining finger mounted upon said presser-foot, of trimming mechanism comprising a laterally yielding reciprocating

knife, a cooperating knife, a carrier for the latter mounted upon a fixed support for movement transversely of the direction of feed, and means including independently 5 movable levers for shifting said carrier with the cooperating knives and the said stitch-support.

5. In a sewing machine, the combination with overseaming stitch-forming mechanism and feeding mechanism, a throat-plate, a presser-foot, and a stitch-support comprising a laterally adjustable chaining finger, of 10 trimming mechanism comprising a laterally yielding reciprocating knife, a cooperating knife, a carrier for the latter mounted upon a fixed support for movement transversely 15 of the direction of feed, means for shifting said carrier and the cooperating knives independently of the said stitch-support, means for shifting the position of said 20 stitch-support on the presser-foot, and detaining means for holding said shifting means in predetermined position.

6. In a sewing machine, the combination 25 with overseaming stitch-forming mechanism, feeding mechanism, and trimming mechanism comprising a pair of cooperating cutting members movable transversely of the direction of feed, and means for 30 shifting the same, of a presser-foot, a chaining finger mounted upon and transversely movable in relation thereto, and a shift-lever mounted upon said presser-foot and adapted to move said chaining finger to- 35 ward and from and transversely of said knives.

7. In a sewing machine, the combination with overseaming stitch-forming mechanism, feeding mechanism, and trimming 40 mechanism comprising a pair of cooperating cutting members movable transversely of the direction of feed, and means for shifting the same, of a presser-foot formed with a transverse seat with spaced detent- 45 notches, a chaining finger mounted upon and transversely movable in relation to said presser-foot, and a shift-lever fulcrumed upon said presser-foot and having one end 50 pivotally connected with the chaining finger and the other end provided with a detent fin adapted to enter said notches to maintain the shift-lever in position.

8. In a sewing machine, the combination with overseaming stitch-forming mecha-

nism, feeding mechanism, and trimming 55 mechanism comprising a pair of cooperating cutting members movable transversely of the direction of feed, and means for shifting the same, of a presser-foot provided at one end with a transverse seat with spaced 60 detent notches and intermediate the ends with a transverse channel, a slide-block fitted to said channel and provided in its upper side with a recess, and carrying at one end a chaining finger, a shouldered fulcrum- 65 screw mounted upon said presser-foot adjacent said channel, and a spring shift-lever mounted upon said fulcrum-screw and having one end bearing upon said slide-block within the recess therein and the other end 70 resting upon said seat and formed with a detent fin entering one of said detent notches.

9. In a sewing machine, the combination with overseaming stitch-forming mecha- 75 nism and feeding mechanism, a throat-plate, and a presser-foot, of trimming mechanism comprising a laterally yielding reciprocating knife, a cooperating knife, a carrier for the latter mounted upon a fixed 80 support for movement transversely of the direction of feed, and means for laterally shifting said carrier and the cooperating knives, and a combined knife-shield and chaining finger mounted upon said presser- 85 foot in advance of said knives and transversely adjustable independently thereof.

10. In a sewing machine, the combination with overseaming stitch-forming mechanism, feeding mechanism, and trimming 90 mechanism comprising a pair of cooperating cutting members movable transversely of the direction of feed, and means for shifting the same, of a presser-foot formed with a transverse channel, a slide-block fit- 95 ted to said channel and provided with a chaining finger, and a shift-lever fulcrumed upon said presser-foot and connected with said slide-block whereby the position of said chaining finger may be adjusted. 100

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ALFRED GRIEB.

Witnesses:

HENRY J. MILLER,
JOSEPH F. JAQUITH.