

E. B. ALLEN.
CORD LAYING DEVICE FOR SEWING MACHINES.
APPLICATION FILED JUNE 10, 1911.

1,039,241.

Patented Sept. 24, 1912.

3 SHEETS—SHEET 1.

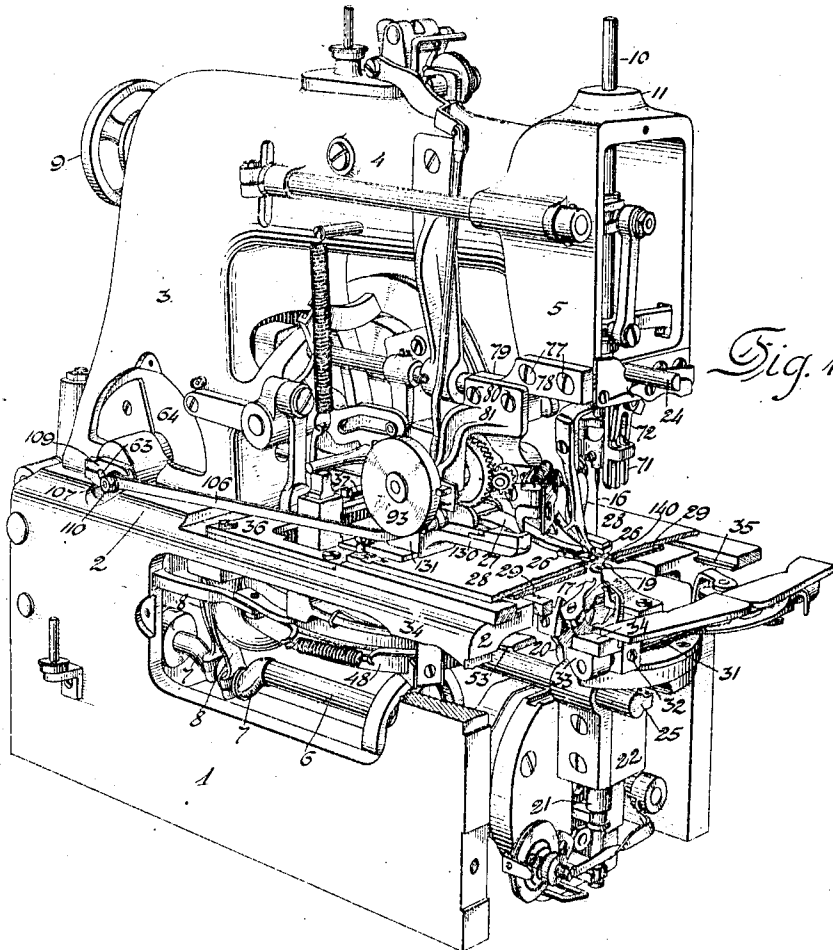


Fig. 1.

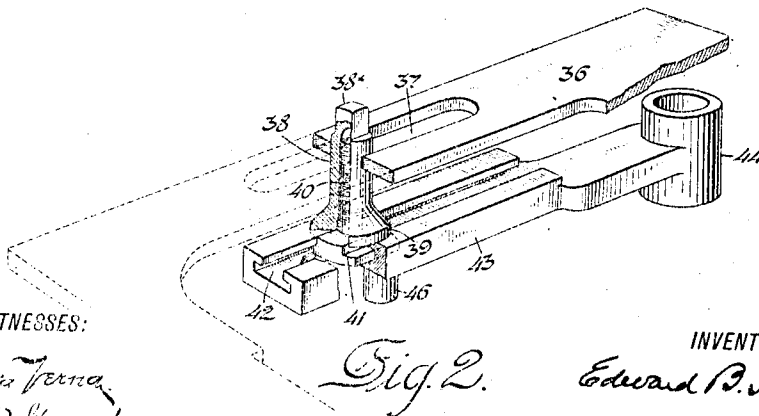


Fig. 2.

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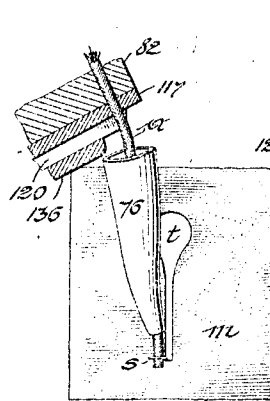
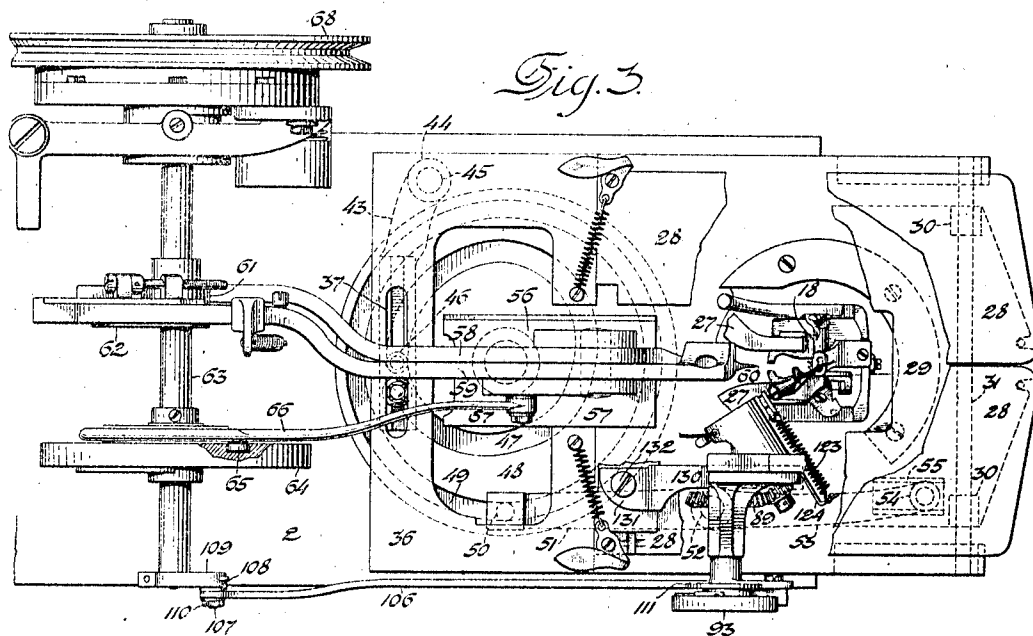


Fig. 13.

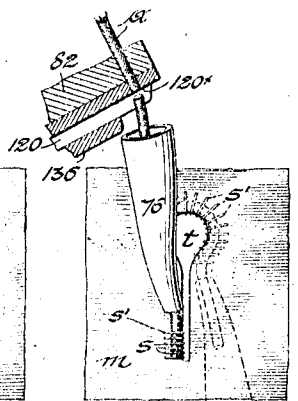


Fig. 14.

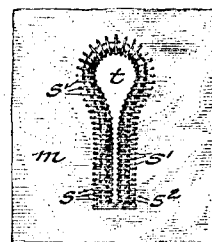


Fig. 15.

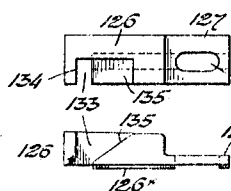


Fig. 11.

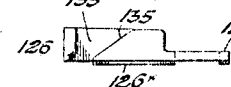


Fig. 12.

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3 SHEETS—SHEET 3.

Fig. 6.

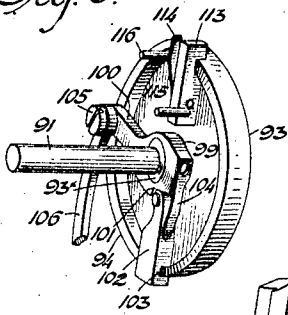


Fig. 5.

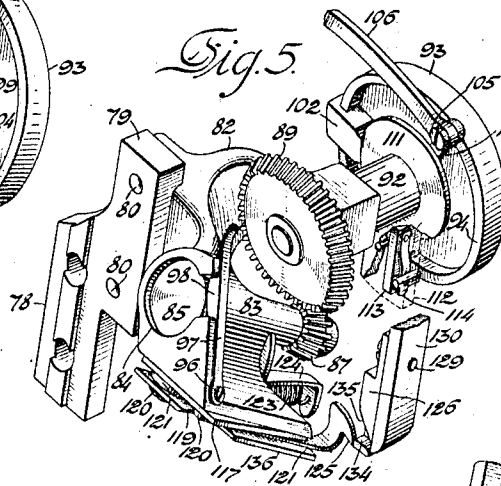


Fig. 4.

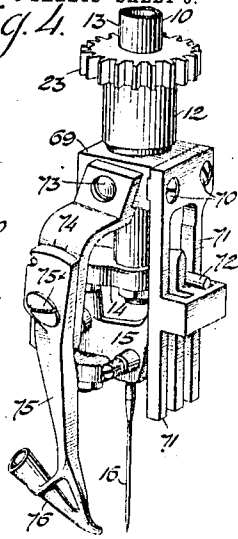


Fig. 7.

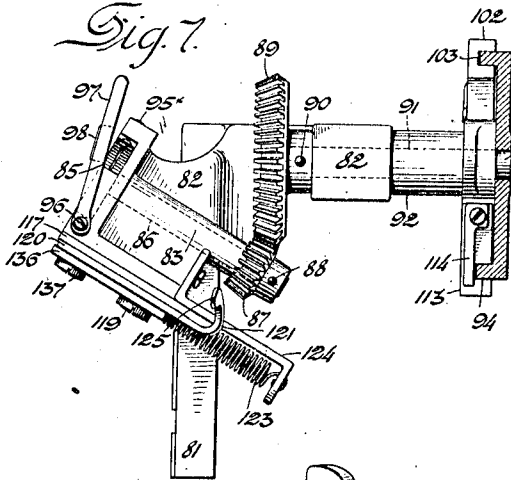


Fig. 8.

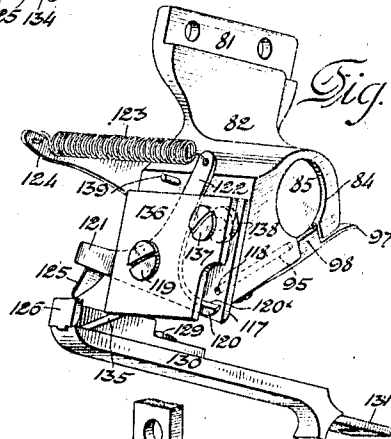


Fig. 9.

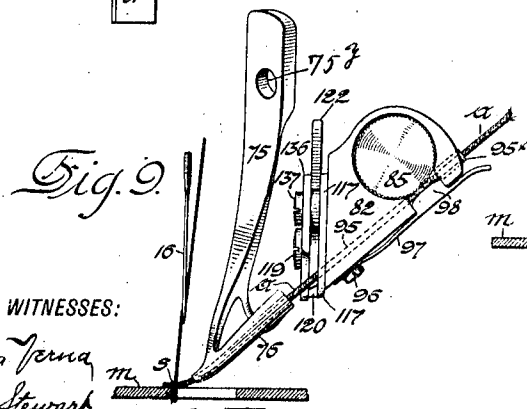
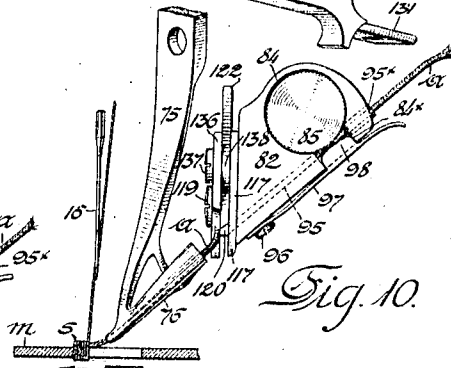


Fig. 10.



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UNITED STATES PATENT OFFICE.

EDWARD B. ALLEN, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, A CORPORATION OF NEW JERSEY.

CORD-LAYING DEVICE FOR SEWING-MACHINES.

1,039,241.

Specification of Letters Patent.

Patented Sept. 24, 1912.

Application filed June 10, 1911. Serial No. 632,332.

To all whom it may concern:

Be it known that I, EDWARD B. ALLEN, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Cord-Laying Devices 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, in combination with means for producing an overseam including stitch-forming and feeding mechanisms, means for laying a cord within the overseam with its ends embraced and concealed by the same, whereby the capability of the overseam to cover the surface beneath it is increased while the unsightly appearance of a cord-end protruding from each extremity of the overseam is avoided.

The improvement is designed more particularly for embodiment in buttonhole stitching machines wherein the cord is embraced by the edge-covering overseam stitches, but it is obviously adapted for use in connection with other classes of stitching wherein a corded overseam is desired.

In the preferred form of the improvement, a cord-guiding or delivering member is permanently directed toward the range of action of the stitch-forming mechanism, and cord-feeding and cutting devices are employed in conjunction therewith in such manner that the end of the cord is passed through the cord-guide and embraced by the initial overseam stitches through which its extremity is subsequently drawn for concealment thereunder, after which the severing of a length of cord slightly shorter than the predetermined length of the overseam permits the remainder of the section of cord to be drawn through the guide by the travel of the work to which it is thus attached and embraced within the remainder of the overseam with its other cut end covered by the final overseam stitches of the seam.

It will thus be seen that one of the chief objects of the present invention is the positioning of the initial cut end of the cord while the stitching progresses, so as to prevent the objectionable protrusion of the cord-end from the overseam in accordance with a practice heretofore prevailing. With the preferred adjustment of the mechanism,

the cut extremity of the cord is drawn within the initial overseam stitch or stitches so as to lie directly under the first of the embracing overseam stitches and so that the subsequently produced superposed barring stitches are arranged in substantially abutting relation to the cord-end. However, the exact position of the extremity of the cord relative to the initial overseam stitch is not material, so long as the cord-end does not protrude sufficiently from the overseam to be conspicuous and therefore to mar the appearance of the work. In any case, it is essential to the correct positioning of the cord-end that the cord be detained from endwise movement through the cord-guide until the stitch-forming mechanism has performed one or more stitch-forming cycles.

In the accompanying drawings, Figure 1 represents in perspective view, with certain parts omitted, a buttonhole cutting and stitching machine constructed in accordance with my pending application Serial No. 593,784, filed November 23, 1910, and embodying the present invention. Fig. 2 is a perspective view of a portion of the traveling clamp-plate and a part of the feeding mechanism for imparting thereto its longitudinal movements. Fig. 3 is a partial plan view of parts of the mechanism below the bracket-arm. Fig. 4 is a perspective view of the rotary needle-bar bushing with the cord-guide attached thereto, Fig. 5 a similar view, taken from the inner side, of the cord-feeding and cutting devices, and Fig. 6 is a perspective view of the actuating means for the cord-feeding devices. Fig. 7 is a plan of the cord-feeding device, and Fig. 8 a perspective view taken from the front side of the same, and showing the cord-cutting means. Figs. 9 and 10 are side elevations showing in different positions relatively to the stitching the cord-guiding, cutting and feeding means. Figs. 11 and 12 are, respectively, a plan and side view of the cord-cutter actuating cam-block. Figs. 13 and 14 are plan views representing diagrammatically the cord-guide and cutter in different positions relatively to the partially stitched buttonhole, and Fig. 15 represents a finished buttonhole provided with a corded overseam applied to its edges in accordance with the present invention.

The machine is constructed with the hollow rectangular base 1 with bed-plate 2

from the rear end of which rises the hollow standard 3 of the bracket-arm having the forwardly extending member 4 with hollow head 5. The main or driving shaft 6 is mounted in and longitudinally of the base 1 and is provided with quartering cranks 7 connected by means of pitmen 8 with similar cranks of the upper or needle driving shaft journaled in the bracket-arm member 4 and carrying at its rear end the hand-wheel 9. The jogging needle mechanism of the machine is constructed substantially in accordance with my Patent No. 945,148, of January 4, 1910, the needle making two reciprocations for each rotation of the main-shaft 6. The needle-bar 10 has its upper bearing in the boss 11 at the top of the bracket-arm head 5, and its lower bearing in the rotary bushing 12 journaled in the lower part of the head 5 and splined to the needle-bar by means of the feather 13. The needle-bar has secured upon its lower end the yoke 14 in which is journaled the vibratory needle-clamp 15 carrying the eye-pointed needle 16.

Coöperating with the needle 16 is the non-threaded looper 17, threaded looper 18 and loop-detainer 19 all mounted upon a rotary carrier 20 secured at the upper end of the spindle 21 journaled in the bearing block 22 sustained by the base 1, these parts being actuated as described in my application Serial No. 590,269, filed November 2, 1910. The needle-bar bushing 12 has fixed thereon the pinion 23 engaged by the teeth of a rack-bar 24, and the looper-carrier is connected with a similar pinion engaged by the teeth of the rack-bar 25 whereby the needle and looper mechanisms are given semi-rotations in stitching around the eyelet end of a buttonhole.

The work-clamp comprises the feet 26 upon the clamp-arms 27 suitably mounted upon the clamp-plates 28 whose upper faces afford the lower jaws of the work-holder. The clamp-plates 28 are mounted upon the cross slide-plate 29 provided with the depending lugs 30 perforated to receive the guide-bar 31 secured therein by means of set-screws 32. The opposite ends of the guide-bar enter apertures in the depending lugs 33 of the longitudinal slide-plate 34 whose undercut inner edges 35 are fitted to correspondingly formed guideways provided upon the top of the bed-plate 2, thus permitting the longitudinal movement of the plate 34.

The reduced rearward portion of the slide-plate 34 has secured thereon the plate 36 formed near its rearward edge with the transverse slot 37 entered by the cylindrical portion of the upwardly extending hollow stud 38 having squared upper extremity 38^x and flanged lower extremity 39, this stud being fitted to the threaded upper portion of the bolt 40 whose notched head 41 is

fitted within the undercut longitudinal groove 42 of the swinging arm 43 formed at one end with the boss 44 embracing the fulcrum-stud 45 sustained by the bed 2. The stud 38 is held in position upon the arm 43 by the clamping of the latter between its flange 39 and the bolt-head 41, and the stud may be shifted lengthwise of the slot 42 by loosening the same for adjustment and retightening it in the adjusted position.

The arm 43 carries upon its under side the depending stud 46 which enters the feed cam-groove 47 in the upper face of the cam-wheel 48 which is provided also with the change cam-groove 49 entered by a stud 50 depending from one arm 51 of the shift-lever fulcrumed at 52 whose other arm 53 carries a stud 54 entering a longitudinal guideway in the block 55 attached to the under side of the cross slide-plate 29. The step-by-step rotation of the cam-wheel 48 thus causes the longitudinal travel of the slide-plate 34 connected by means of the guide-bar 31 with the cross slide-plate 29, which latter, carrying the work-holder, derives its sidewise movements from the cam-groove 49 through the rock-lever 51 53 in a manner well known.

The cutting mechanism comprises the traveling fulcrum-block 56 carrying the pin 57 which serves as a fulcrum for the lower cutter-bar 58 and the upper cutter-bar 59 provided with the cutting punch 60, the rearward end of the former of these levers being sustained by the cylindrical collar 61 and the latter being actuated by means of the cam 62 upon the transverse cutter-shaft 63 which also carries a cam-wheel 64 having in its inner face a cam-groove entered by the stud 65 extending laterally from the link-bar 66 and connected by means of the stud 67 with the fulcrum-block 56. The cam 64 serves to impart traveling movements toward and from stitching position to the fulcrum-block, and the cam 62 imparts the closing movement of the upper cutting member upon the lower cutting member.

The cutter-shaft 63 is provided with a loose belt-wheel 68 connected with the source of power, and between which and its supporting shaft is interposed a coupling device and stopping means whereby the cutter-shaft receives only one complete rotation at the beginning or end of a buttonhole stitching operation.

The needle-bar bushing 12 carries at its lower end the block 69 having secured upon one face by means of screws 70 the depending slotted guide-plate 71 in the parallel guide-slots of which works the pin 72 carried by the needle-clamp 15; and to another side of the block 69 is secured by means of the screw 73 the depending bracket-piece 74 constituting an extension of the arm 75 having at its lower end the taper cord-guiding

5 tube 76 with its delivery orifice directed downwardly and inwardly toward the range of movement of the jogging needle 16. The cord-guide 76 is thus sustained permanently at a uniform distance from the range of
 10 action of the needle and in fixed relation therewith, and therefore partakes of its rotary movements with the bushing 12 in stitching around the eyelet end of a buttonhole. The arm 75 is shown herein secured adjustably upon the bracket-piece 74 by means of the screw 75^x, whose shank enters a larger hole 75^y therein to permit a slight lateral play, but it is evident that these
 15 parts may be made integral, and the adjustment of the guide-tube 76 otherwise provided for, if desired.

One side of the head 5 of the bracket-arm is provided near its lower end with a seat to
 20 which is secured by means of screws 77 the foot 78 of a bracket 79 to which is attached by fastening screws 80 the foot 81 of a bracket 82 formed with a transversely arranged bearing boss 83 having at one end
 25 an annular cavity 84 to receive the cord-feed wheel 85 with annularly grooved and transversely serrated periphery. The feed-wheel 85 is fixed upon one end of the rotary shaft 86 journaled in the bearing boss 83 and
 30 carrying upon its opposite end the bevel pinion 87 fixed thereon by means of the pin 88. The pinion 87 meshes with a larger bevel-gear 89 which is secured by means of the transverse pin 90 upon the adjacent end
 35 of a rotary shaft 91 which is journaled in a second bearing boss 92 of the bracket 82 and has fixed upon its opposite end the clutch-wheel 93 provided at its periphery with the inwardly extending annular flange 94.

40 The feed-wheel cavity 84 communicates with an opening 84^x at its lower side, and the bracket 82 is formed at the same side with the cord passage 95 having substantially the same inclination as the cord-guiding tube 76 and crossing the opening 84^x
 45 approximately tangentially to the cavity 84, the outer end of its passage being shown provided with a tubular bushing 95^x. Secured to the lower edge of the bracket 82 by means of the fastening screw 96 is the flat
 50 spring 97 carrying upon its upper face the block 98 fitted loosely to the opening 84^x which it enters for the purpose of applying a yielding pressure to a cord interposed between the same and the serrated periphery
 55 of the cord-feed wheel. As represented in Fig. 7, the spring 97 is adapted to be shifted laterally out of operative position to relieve the normal pressure upon the cord and
 60 to permit the introduction of the cord in threading up the machine.

Upon the hub 93^x of the feed-wheel 93, is loosely mounted the hub 99 of the clutch-lever 100, the hub being provided at one side
 65 with a notch 101 affording a shoulder for en-

gagement with the inner end of the radial clutch-dog 102 formed in one face near its outer end with the transverse notch 103 embracing the flange 94 of the clutch-wheel 93, the clutch-dog being maintained yield-
 70 ingly in operative relation with the flange 94 and with the shoulder 101 by means of the spring 104 secured to the hub 99 of the clutch-lever 100.

The clutch-lever has secured thereto by 75 means of the stud-screw 105 one end of a pitman 106 whose eyed opposite end embraces the crank-pin 107 having an undercut head 108 fitted to and clamped adjustably within a similarly formed slot in the crank-
 80 arm 109 fixed upon the cutter-actuating shaft 63, the crank-pin being clamped in position by means of the nut 110 applied thereto. The bearing boss 92 is provided adjacent the clutch-wheel 93 with an annu-
 85 lar flange 111 with a lateral extension 112 between which and the body of the clutch-wheel 93 is interposed the radial holding dog 113 laterally notched similarly to the clutch-dog 102 to embrace the flange 94 and
 90 having secured to one face the spring 114. The flange extension 112 carries two stop-pins 115 and 116, the one engaging one face of the holding dog 113 and the other contacting with the outer face of the spring
 95 114, thereby confining the holding dog yieldingly between them and insuring against the backward movement of the clutch-wheel as the clutch-lever 100 moves to-and-fro in imparting to the clutch-wheel 93 its opera-
 100 tive movements under the action of the clutch-dog 102.

One face of the bracket 82 transverse to the cord passage 95 affords a flat seat to which is secured a hardened plate 117 hav-
 105 ing an orifice 118 in register with the delivery end of the cord passage 95 and affording one member of the cord-cutting device. Fulcrumed upon the screw-stud 119 tapped into the plate 117 is an angle-lever having
 110 the forwardly extending cutter-arm 120, the backwardly extending arm 121 and the upwardly extending arm 122, the latter having a perforation entered by one end of the spring 123 whose opposite end is attached to
 115 a rigid arm 124 secured to the bracket 82. The upper inner edge of the arm 120 is sharpened to form a knife-edge 120^x which is maintained in contact with the adjacent face of the plate 117 and normally below the
 120 orifice 118 of the latter.

The arm 121 of the angle-lever has a depending lug 125 whose extremity normally rests in contact with the top of the cam-
 125 block 126 formed with an extension 127 having an elongated aperture 128 entered by the shank of a fastening screw 129 by means of which said block is adjustably secured upon the rigid sustaining arm 130 whose
 foot 131 is secured by means of the screw 130

132 upon one of the clamp-plates 28, the bottom of the cam-block 126 being provided with a longitudinal tongue 126^x entering a suitable groove in the rigid arm 130. The top of the cam-block is preferably inclined downwardly and backwardly, and in one side it is provided with the notch 133 having an abrupt shoulder 134 at its forward end and an inclined shoulder 135 forming the rearward end.

Overlying the cutter-lever 120, 121, 122 is the cover-plate 136 which is secured in position partly by means of the fulcrum screw-pin 119 and partly by the screw 137, a spacing washer 138 surrounding the screw 137 being interposed between the plates 117 and 136 to space them apart for the free action of the angle-lever in performing its function.

In the starting position of the mechanism, the lug 125 rests upon the top of the forward end of the cam-block 126 as represented in Fig. 8. Early in the travel of the work-holder in stitching the first side of the buttonhole, the lug 125 drops off the shouldered part 134 into the notch or recess under the action of the spring 123 which draws the arm 122 into contact with the stop-pin 139, thus causing the knife-edge 120^x to move across the cord orifice to sever the cord. The continued movement of the work-holder carries the cam-block beneath the lug 125 and causes the latter to ride up the incline 135 and along the top of the block during the remainder of travel of the work-holder in stitching the first side of the buttonhole, the shifting of the latter for the second side-stitching operation causing the travel of the lug 125 across the rearward end of the block and the movement of the work-holder in the second side-stitching operation causing the lug 125 to perform its return movement upon the straight upper face of the block along the opposite edge from the notched portion.

In preparing the machine for covering the edges of a buttonhole with a corded overseam, the several members of the stitch-forming mechanism are threaded in the usual manner, a lower cord or purl-thread being preferably threaded through the needle aperture of the throat 140, and the upper cord *z* is introduced in the bushing 95^x and drawn freely through the opening or recess 84^x beneath the feed-wheel 85 and thence through the cord passage 95 with its extremity substantially at the mouth of the orifice 118 of the cutter-plate 117. In the initial position of the work-holder the lug 125 of the cutter-lever 121 rests upon the top of the forward end of the cam-block 126 and preferably in longitudinal alinement with the notch or recess 133 and adjacent the shoulder 134. The actuation of the buttonhole cutting mechanism involves a single rotation of

the cutter-shaft 63 and its crank-arm 109, thereby imparting to the clutch-lever 100 a single vibration communicating to the cord-feed wheel 85 a partial rotation which serves to propel a section of the cord through the orifice 118 into the mouth of the guide-tube 76 which directs its initial end upon the work *m* within the range of jogging movement of the needle 16, as represented in Fig. 13. The stitch-forming mechanism now being thrown into operation, the initial overseam stitches *s* are applied to the edge of the buttonhole slit *t* at the closed end and they are spaced by the longitudinal feed of the work-holder under the action of the cam-wheel 48, the position of the initial end of the cord and of the first overseam stitches being represented in Fig. 9. As the initial end portion of the cord thus embraced within the first of the overseam stitches is still connected with the portion gripped by the now stationary feed-wheel 85 mounted within the fixed bracket 82, it will be observed that the fabric *m* will travel with the work-holder while the cord is detained, thus causing the extremity of the latter to be drawn beneath the initial overseam stitches *s* as represented in Figs. 10 and 14. After the travel of the cam-block 126 with the work-holder in the production of the first new stitches, the lug 125 of the cutter-lever-arm 121 rides off the shoulder 134 into the recess 133, thereby permitting the spring 123 to rock the cutter-lever so as to sever the cord at the end of the orifice 118, and effecting the release of a section of cord partially fastened to the work by the first overseam stitches, and causing this section of the cord to be drawn through the guiding member 76 during the longitudinal feed and side-shift movements of the work and the semi-rotation of the stitching mechanism in the production of the succeeding overseam stitches *s'*, as represented in full and dotted lines in Fig. 14, and inclosing the remainder of the section of cord within the overseam in the usual manner. The position of the crank-pin 107 is so adjusted upon the arm 109 that the cord-feed wheel 85 receives just sufficient movement to advance the required length of cord for each buttonhole, and each section of cord is in practice of such a length that its final end is laid within the last few overseam stitches *s'*, so as to be wholly covered and concealed thereby as represented in Fig. 15.

It has been common heretofore to lay a cord within the covering overseam stitches of a buttonhole, but the mechanism for applying the cord has been such that the initial end of the cord was undisturbed after the application of the first overseam stitch overlying the same and the section of the cord embraced by the overseam was severed from the body of the cord only after the completion of

the stitching operation, thereby leaving the cut ends of the cord exposed upon the face of the work in the finished buttonhole. According to the present improvement, the cord is laid upon the face of the work and serves not only to give body to the overseam around the edges of the slit but to increase the covering effect of the overseam, even when the component stitches thereof are comparatively widely spaced, and the ends of the cord are as completely invisible as if the cord were entirely absent.

With the present method of laying the cord the work has practically all of the advantages of employment of a corded overseam without the disadvantage of marring the appearance of the finished article at the end of the buttonhole. One of the chief objects of employing a corded overseam upon the face of the work is to effectively cover the surface around the buttonhole slit, and it is found in practice that with the present improvement a cotton cord may be embraced within an overseam formed of silk of which the component stitches are comparatively widely spaced, thereby producing a saving in the quantity of silk required and increasing rate of production by reducing the total number of stitches in each buttonhole.

The present improvement is shown and described herein as embodied in an eyelet buttonhole stitching machine in which the cutting of the buttonhole slit takes place in advance of the stitching operation and in which barring stitches are applied at the smaller end of the buttonhole at the completion of the side-stitching operation, but the relative timing of the buttonhole cutting and stitching devices, the method of laying the barring stitches, and provision for making barring stitches are obviously immaterial to the invention, which is susceptible of association with widely different types of mechanism for production of an overseam.

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

1. In a sewing machine, the combination with means for producing an overseam comprising stitch-forming and feeding mechanisms, of a cord-guide for laying a cord within said overseam, and means for effecting the drawing of the cord-end within the initial end of the overseam.

2. In a sewing machine, the combination with means for producing an overseam comprising stitch-forming and feeding mechanisms, of a cord-guide for laying a cord within said overseam, and means disposed between the delivery end of the cord-guide and the source of cord-supply for measuring and cutting off a length of cord prior to its delivery from the cord-guide.

3. In a sewing machine, the combination with means for producing an overseam comprising stitch-forming and feeding mecha-

nisms, of a cord-guide for laying a cord within said overseam, intermittently acting means for effecting the drawing of the initial cord-end through the initial overseam stitches, and means for measuring and cutting off a length of cord proportionate to but shorter than the length of the overseam.

4. In a sewing machine, the combination with means for producing an overseam comprising stitch-forming and feeding mechanisms, of a cord-guide for laying a cord within said overseam, a cord-cutter, and actuating means adapted to impart operative movements to said cord-cutter and timed to impart such operative movements while the stitch-forming mechanism is in action.

5. In a sewing machine, the combination with means for producing an overseam comprising stitch-forming mechanism, and feeding mechanism for producing relative feeding movements between the stitch-forming mechanism and the work for spacing the stitches, of cord-presenting means sustained at a fixed distance from said stitch-forming mechanism and adapted to present to it a cord to be embraced by said overseam, and means for temporarily detaining the cord from passage through said cord-presenting means as the stitching and feeding progresses.

6. In a sewing machine, the combination with means for producing an overseam comprising stitch-forming mechanism and feeding mechanism for producing relative feeding movements between the stitch-forming mechanism and the work for spacing the stitches, of a cord-guide, cord-supply means for delivering a cord thereto, and cutting mechanism intermediate the cord-guide and the cord-supply means and controlled in its action by said relative feeding movements for cutting off lengths of cord delivered to said cord-guide.

7. In a buttonhole sewing machine, the combination with means for producing an overseam comprising stitch-forming and feeding mechanisms, of a cord-guide revolvably mounted for movement around the stitch-forming mechanism, and a cord-supply device mounted independently of said cord-guide and adapted to register with the cord-guide in the latter's initial position but to remain out of register therewith at other times.

8. In a buttonhole sewing machine, the combination with means for producing an overseam comprising stitch-forming and feeding mechanisms, of a cord-guide revolvably mounted for movement around the stitch-forming mechanism, a cord-supply device mounted independently of said cord-guide and adapted to deliver the cord thereto, and means adjacent the cord-supply device for cutting the lengths of cord delivered to the cord-guide.

9. In a buttonhole sewing machine, the combination with overseaming stitch-forming mechanism comprising needle-mechanism and cooperating looper mechanism, a rotary support for said needle mechanism, and feeding mechanism for producing relative feeding movements between the stitch-forming mechanism and the work, whereby an overseam is produced, of a cord-guide mounted upon said rotary support, and a cord-supply device mounted upon a non-rotary part of the machine and adapted to register with the cord-guide in the latter's initial position but to remain out of register therewith at other times.
10. In a buttonhole sewing machine, the combination with means for producing a buttonhole with overseamed edges comprising buttonhole cutting mechanism, and stitch-forming and feeding mechanisms, of a cord-guide, cord-feeding mechanism connected with and actuated by said cutting mechanism whereby the cord is delivered to the cord-guide, and means for cutting off lengths of cord entering the cord-guide.
11. In a buttonhole sewing machine, the combination with a frame, overseaming stitch-forming mechanism sustained thereby, a traveling work-holder, and feeding mechanism connected with said work-holder, of a cord-guide sustained by said frame in fixed relation to the stitch-forming mechanism, cord-feeding means for delivering the cord to said guide, a cord-cutting device, and actuating means therefor controlled in its action by the travel of the work-holder.
12. In a buttonhole sewing machine, the combination with overseaming stitch-forming mechanism, a traveling work-holder, and feeding mechanism connected with said work-holder, of a cord-guide, feeding means for delivering the cord to said guide, a cord-cutting device comprising a spring-pressed lever, and a cam-block connected to and moving with the work-holder and operatively engaging said lever to effect the actuation of the cord-cutting device.
13. In a buttonhole sewing machine, the combination with means for producing a buttonhole with overseamed edges, comprising stitch-forming mechanism including a reciprocating needle-bar carrying a needle and journaled in and connected for rotation with a rotary support, and feeding mechanism, of a cord-guide fixed to and revoluble with said support and directed toward the range of movement of said stitch-forming mechanism, and a cord-supply device sustained upon a fixed support eccentrically to the axis of movement of the cord-guide and in register with the latter in one of its positions and adapted to deliver a section of cord to the same.
14. In a buttonhole sewing machine, the combination with means for producing a buttonhole with overseamed edges, comprising stitch-forming mechanism including a reciprocating needle-bar carrying a needle and journaled in and connected for rotation with a rotary support, and feeding mechanism, of a cord-guide fixed to and revoluble with said support and directed toward the range of movement of said stitch-forming mechanism, a cord-supply device sustained upon a fixed support eccentrically to the axis of movement of the cord-guide and in register with the latter in one of its positions and adapted to deliver a section of cord to the same, and means sustained in permanent operative relation with the cord-supply device for cutting off sections of cord.
15. In a buttonhole sewing machine, the combination with stitch-forming and feeding mechanisms, actuating means therefor, buttonhole cutting mechanism and actuating means for the same including an intermittently rotating cutter-shaft driven independently of the first-named actuating means, of a cord-guide, and cord-feeding mechanism connected with and actuated by said cutter-shaft.
16. In a buttonhole sewing machine, the combination with a traveling work-holder, stitch-forming and feeding mechanisms, actuating means therefor, buttonhole cutting mechanism and actuating means for the same including an intermittently rotating cutter-shaft driven independently of the first-named actuating means, of a cord-guide, cord-feeding mechanism connected with and actuated by said cutter-shaft, a cord-cutting device, and means connected to and movable with the work-holder for actuating the same.
17. In a sewing machine, the combination with means for producing an overseam comprising stitch-forming and feeding mechanisms, of a cord-guide, cord-feeding means, and actuating means therefor operative independently of and timed to act prior to the initial operation of the stitch-forming mechanism.
18. In a sewing machine, the combination with means for producing an overseam comprising stitch-forming and feeding mechanisms, of a cord-guide, cord-feeding means including a rotary feed-wheel, and actuating means for said feed-wheel timed to complete its action before the end of the period of operation of the stitch-forming mechanism.
19. In a sewing machine, the combination with means for producing an overseam comprising stitch-forming and feeding mechanisms, of a cord-guide, a cord-feeding device, actuating means therefor concluding its action prior to the operation of the stitch-forming mechanism, a cord-cutting device, and actuating means for the same acting during the period of operation of the stitch-forming mechanism.

20. In a sewing machine, the combination with means for producing an overseam and comprising stitch-forming and feeding mechanisms, of a cord-guide, a cord-supply member formed with a cord passage terminating in a delivery aperture, a cord-feed wheel disposed in substantially tangential relation with said cord passage, a cord-cutting implement movable transversely of said passage and adjacent its delivery aperture, and means for successively actuating the cord-feed wheel and cutting implement.

21. In a sewing machine, the combination with overseam-producing means comprising stitch-forming and feeding mechanisms, of a cord-guide directed within the range of action of the stitch-forming mechanism, and means operating to detain the advance portion of the cord against endwise movement through the cord-guide during the production of an initial overseam stitch and to thereafter release the same for delivery from the cord-guide.

22. In a sewing machine, the combination with overseam-producing means comprising stitch-forming and feeding mechanisms, of a cord-guide, and a cord-feeding device acting to detain the cord through a portion of the period of continuous operation of the machine and in opposition to the feed of the work whereby the advance end of the cord may be positioned beneath the overseam stitches.

23. In a sewing machine, the combination with overseam-producing means, of a cord-guide for laying a cord within the overseam, and means for measuring a length of cord and cutting off the same during its delivery from the cord-guide.

24. In a sewing machine, the combination with overseam-producing means comprising stitch-forming and work-feeding mechanism,

of a cord-guide for laying a cord within the overseam, a cord-cutting device, and actuating means therefor having an operative connection with a moving part of the machine and timed to produce the cord-cutting action before the work-feeding mechanism has completed its action in the production of the overseam.

25. In a sewing machine, the combination with stitch-forming mechanism and feeding mechanism including a work-engaging member, of a cord-guide directed within the range of action of the stitch-forming mechanism, and cord-severing means arranged crosswise of the cord-guide and controlled and timed in its severing action by the movement of said work-engaging member.

26. In a sewing machine, the combination with stitch-forming and feeding mechanisms, of a cord-guide directed within the range of action of the stitch-forming mechanism, a cord-cutting device arranged crosswise of the cord-guide, and actuating means therefor operatively connected with the feeding mechanism from which it derives operative movements communicated to the cutting device for severing the cord.

27. In a sewing machine, the combination with overseam-producing means comprising stitch-forming and feeding mechanisms, of a cord-guide directed within the range of action of the stitch-forming mechanism, and means for insuring against the advance of the cord through said guide until after an initial overseam stitch has been produced.

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

EDWARD B. ALLEN.

Witnesses:

HENRY J. MILLER,

HENRY A. KORNEMANN, Jr.