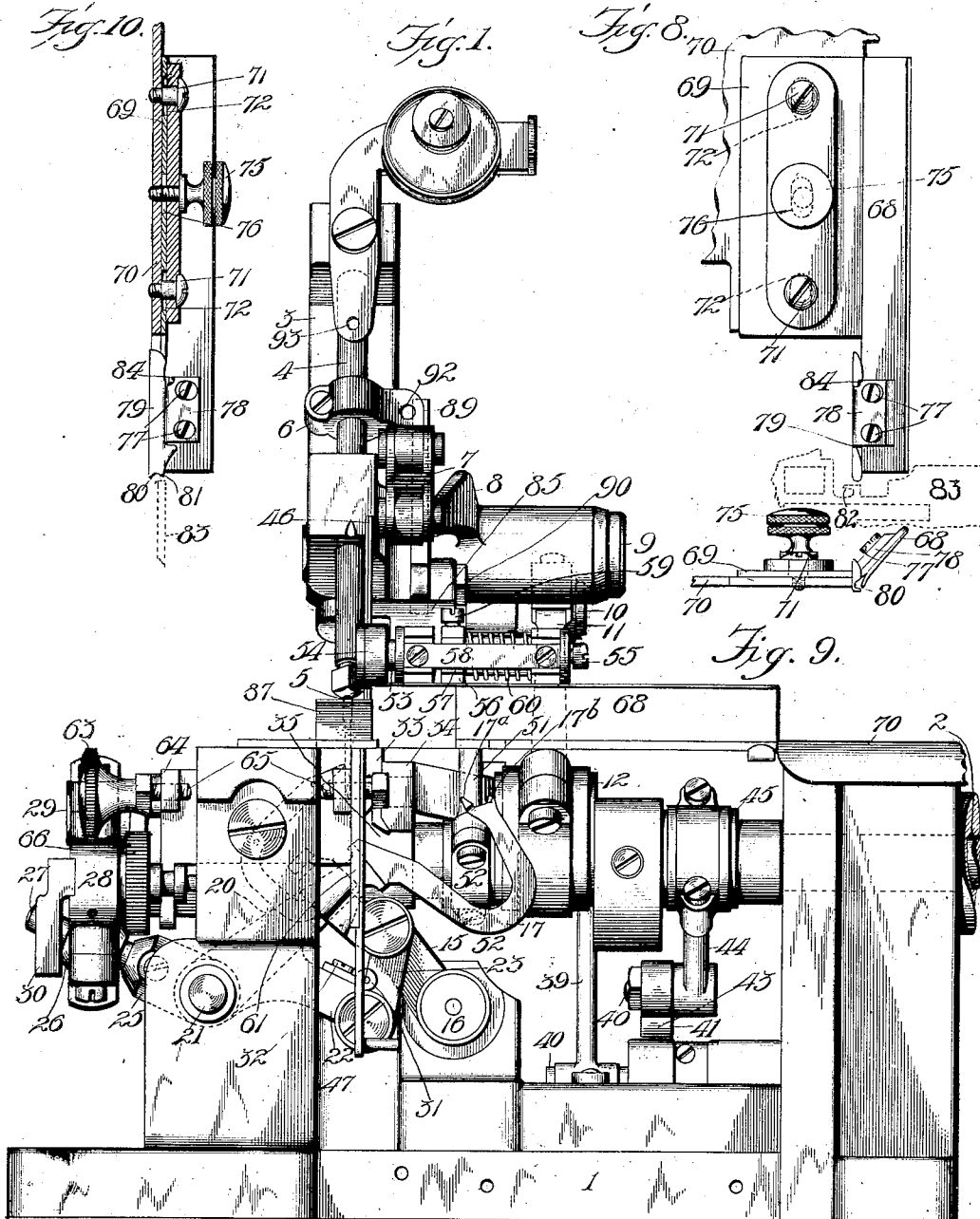


A. GRIEB.
OVERSEAMING SEWING MACHINE.
APPLICATION FILED JUNE 16, 1908.

931,058.

Patented Aug. 17, 1909.
4 SHEETS—SHEET 1.



WITNESSES:

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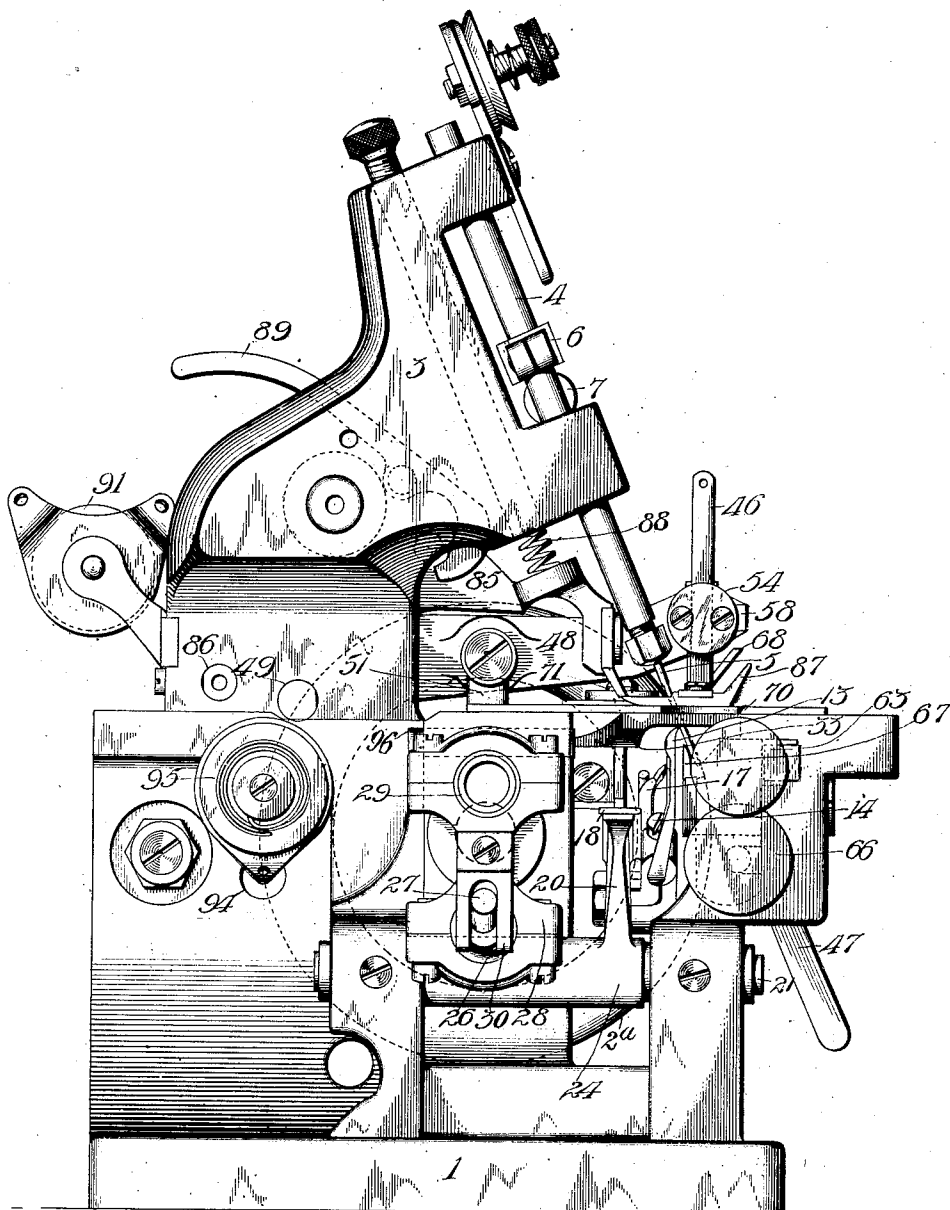
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4 SHEETS—SHEET 2.

Fig. 2.



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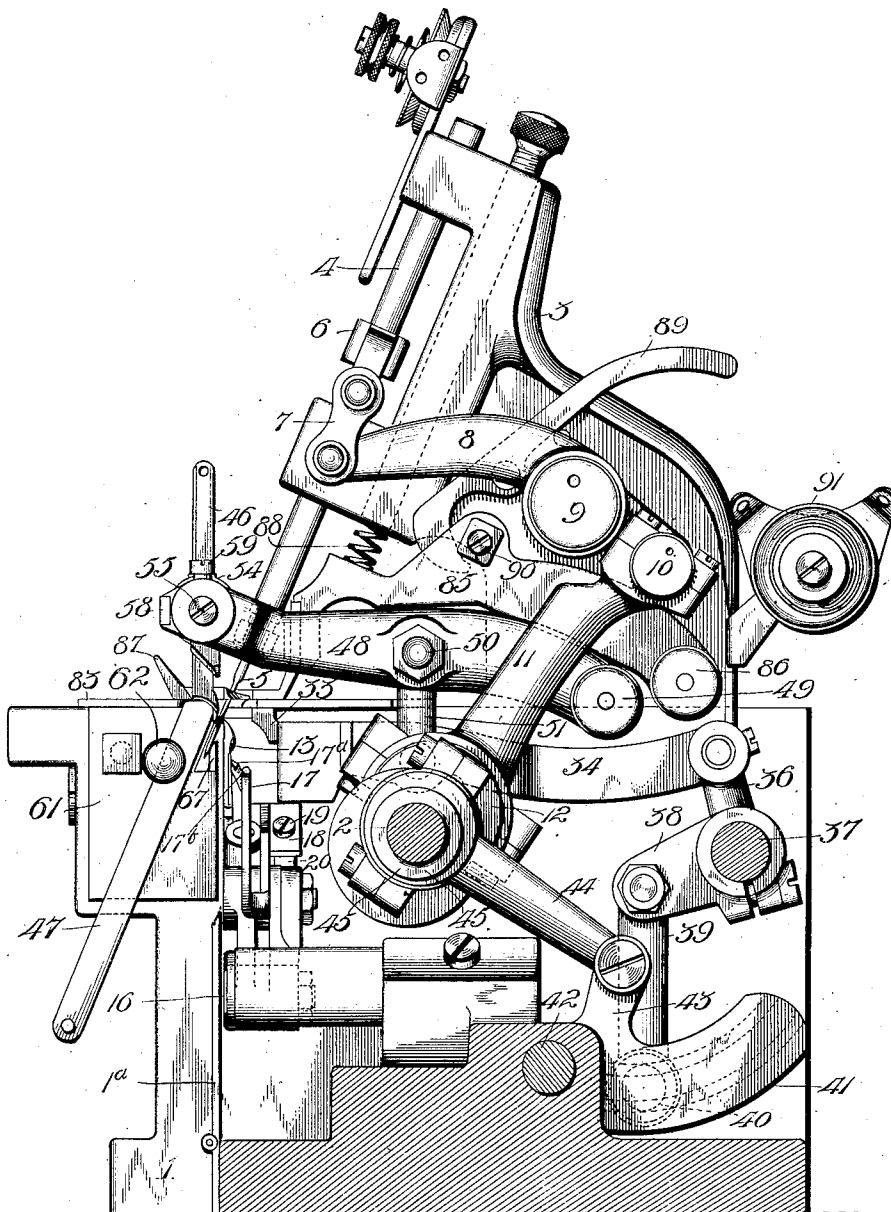
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4 SHEETS—SHEET 3.

Fig. 5.



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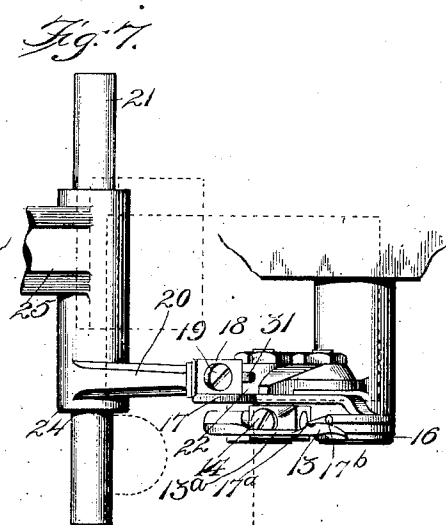
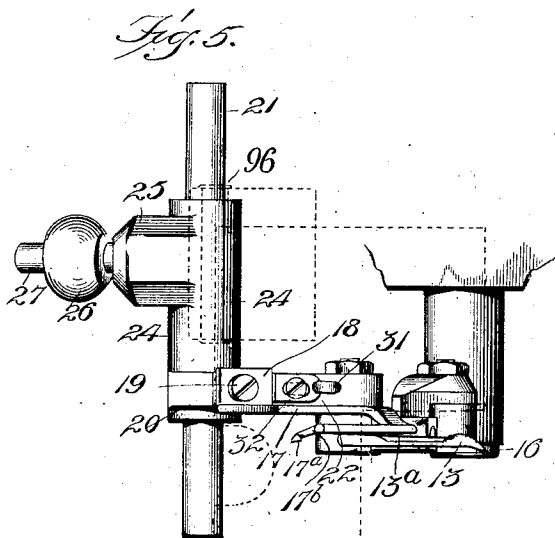
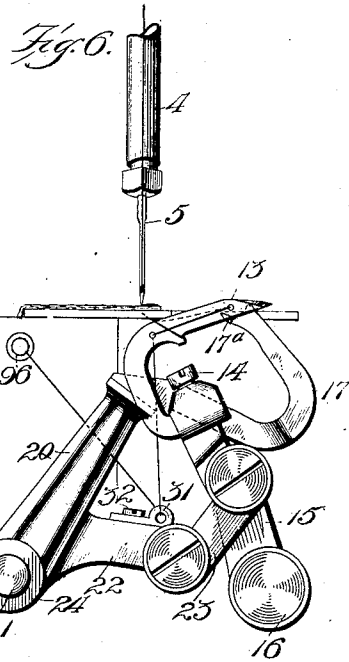
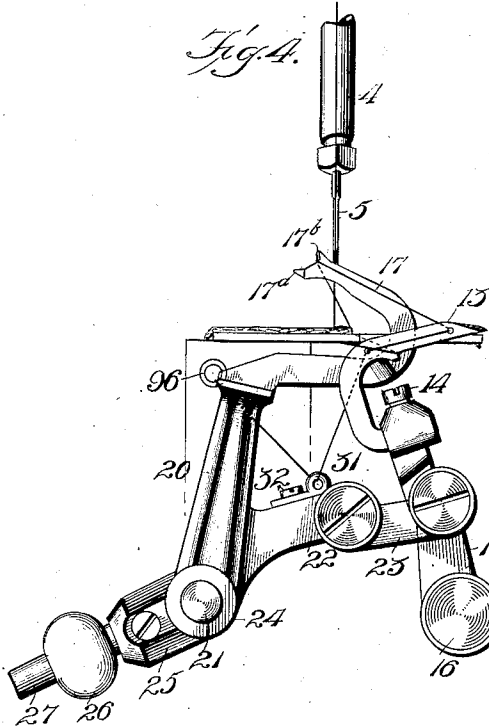
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A. GRIEB
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931,058.

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4 SHEETS—SHEET 4.



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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.

OVERSEAMING SEWING-MACHINE.

No. 931,058.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed June 16, 1906. Serial No. 321,952.

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 Overseaming Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an improvement in that class of overseaming sewing machines provided with stitch-forming mechanism comprising a reciprocating needle and two looping implements coöperating therewith, one of which takes the thread-loops from the needle below the work and the other presents loops of thread for passage of the needle above the work.

The invention has for its object to provide a simple, compact and effective machine of this character capable of operating upon fabrics of all kinds under all ordinary conditions.

In the preferred embodiment of the present improvement, all of the moving parts are driven by means of cranks and eccentrics upon the rotary main shaft. The needle-bar carrying the usual eye-pointed needle is mounted in an inclined position upon a bracket-arm extending transversely of the bed-plate and is reciprocated in such inclined path by a link connection between the same and one end of a rock-lever mounted upon a fixed fulcrum intermediate its ends and having the opposite end connected with one end of an eccentric-rod whose other end embraces an eccentric upon the main shaft. The two thread-carriers, either or both of which may be constructed and arranged to carry a lower or locking thread, vibrate upon fixed fulera in parallel planes transversely of the direction of feed and adjacent the needle path, and are connected to receive synchronous movements by means of an intermediate link. The stock of one of the thread-carrying implements is provided with a lateral crank-arm having a ball-connection with the lower end of a pitman whose upper end embraces a crank of suitable form upon the main shaft from which the thread-carriers derive their vibrating movements. As represented in the accompanying drawings, the thread-carrier receiving thread loops from the needle is itself threaded and

delivers its own thread to the open-jawed implement or spreader which seizes and spreads it for passage of the needle in the succeeding descent of the latter. In some cases it is contemplated to replace the spreader with a second eyed looper carrying a lower thread whose loop is passed through that of the primary looper and presented for passage of the needle, and it is further proposed in certain cases to substitute for the primary thread-carrier an open-jawed spreading implement adapted to receive thread-loops from the needle and deliver them for passage of the secondary looper whose thread is thereafter presented for passage of the needle. As the production of two- or three-thread overseams has been heretofore effected as described, the adaptability of the present improvement to the described methods of forming the overseam is set forth herein merely to indicate the range of utility of the present improvement.

The machine may be provided with any usual or suitable feeding mechanism and with trimming mechanism adjustable transversely of the direction of feed; and it is represented herein with means for guiding a cord along the lower edge of the material to be bound thereto by the overseam.

The invention will be understood by reference to the annexed drawings in which—

Figure 1 is a front elevation of the machine with the work-plate and lateral cover-plates removed to expose the operative parts more clearly; and Fig. 2 is a front end elevation of the machine. Fig. 3 is a sectional elevation representing the stitch-forming and trimming mechanism upon a section line rearward of the bracket-arm. Figs. 4 and 5 are respectively a detail elevation and plan representing the several members of the stitch-forming mechanism in the positions in which the needle is about to descend through the looper-thread distended therefor by the spreader; and Figs. 6 and 7 are respectively a detail elevation and plan representing the stitch-forming mechanism in the positions of its component members as the spreader is about to engage the looper-thread to carry it under the needle. Figs. 8, 9 and 10 are respectively, a detached plan view, a front elevation and a partial sectional side elevation of the trimming-shield and the cord-guide carried thereby.

The machine is constructed with the main frame 1 having journaled in suitable bearings therein the longitudinally extending main-shaft 2 with balance wheel 2^a (Fig. 2). Upon the main frame is secured the transversely disposed bracket-arm 3 provided with the usual bearings in which is journaled the inclined needle-bar 4 carrying the eye-pointed needle 5. The needle-bar is provided with the usual fixed collar 6 connected by means of a link 7 with the extremity of the longer arm of an actuating lever 8 mounted intermediate its ends upon the fulcrum stud 9 carried by the bracket-arm 3 and having the extremity of its shorter arm connected by a pin 10 with the upper end of the eccentric-rod 11 whose opposite end embraces the needle-actuating eccentric 12 upon the main shaft 2.

The eyed thread-carrier or threaded looper 13 is represented herein of U-shape with the member parallel with the blade adjustably secured by means of a set-screw 14 within a transverse socket of the stock or carrier 15 journaled upon the fixed fulcrum stud 16 secured to the main frame; and the open-jawed thread-carrier or spreader 17 is provided with a shank having a lateral foot 18 adjustably secured by means of a screw 19 upon a transverse seat formed at the upper extremity of the arm 20 of the stock or carrier which is similarly journaled upon the fixed fulcrum pin 21 secured upon the main frame.

As will be observed, each of the thread-carrying members may be regarded as composed of two parts, comprising a thread-engaging implement and its pivotally mounted carrier. As herein shown and described the eyed thread-carrier thus comprises the thread-engaging implement 13 and its carrier 15, and the so-called "open-jawed thread-carrier" comprises the thread-engaging implement 17 and its carrier 20. For the purposes of the present improvement, broadly considered, it is not material whether these thread-carriers be each formed of two separate parts, as represented, or whether they be formed each as a single member mounted upon its respective fulcrum, and therefore in certain of the appended claims the carrier for the thread-engaging implement is not recited as an essential element. The carrier 20 is provided with a lateral crank-arm 22 the end of which is pivotally connected with the shank of the looper-carrier 15 by means of a short link 23; the crank-arm 22 and link 23 together forming a toggle connection between the looper-carrier and the fulcrum-pin 21. The tubular hub 24 of the spreader-carrier is provided with a radial arm 25 having a ball 26 and guide-pin 27, the ball being embraced by a split spherical socket provided in the lower end of a pitman 28 whose upper end is

similarly provided with a spherical socket embracing a crank 29 upon the forward extremity of the main shaft 2, a forked guide-lug 30 carried by the pitman 28 embracing the pin 27 for retaining the pitman in the required relation with the members which it connects.

A lower-thread pull-off eye 31 is adjustably secured upon the upper side of the crank-arm 22 by means of a screw 32 passing through a slot in the fastening foot of the pull-off eye.

The feeding mechanism comprises a feed-dog 33 mounted upon the feed-bar 34 provided with the usual link 35 embracing a feed eccentric upon the main shaft and having its rear end pivotally connected with an upright arm 36 carried by the feed-actuating rock-shaft 37 having a lateral arm 38 connected with the upper end of a link 39 whose lower end is adjustably secured by means of a bolt 40 with the slotted segmental arm 41 of a rocker pivotally mounted upon a fulcrum pin 42 and having a second arm 43 whose extremity is pivotally connected with one end of an eccentric rod 44 having at its opposite end a strap embracing the feed-actuating eccentric 45. The length of feeding movement may evidently be varied by shifting the pivotal bolt 40 upon the segmental arm 41, the change being effected without disturbing the relation of the feed-actuating eccentric to the rocking member 41, 43, and hence without disturbing the timing of the operative movements of the feed-dog.

As represented herein, the trimming mechanism comprises an upper reciprocating knife 46 and a lower stationary knife 47. The trimmer-actuating mechanism comprises a vibrating bar 48 carrying the knife blade at one end and pivoted at the opposite end upon a fixed fulcrum-pin 49 pivotally connected intermediate its ends by a bolt 50 with the upper end of an eccentric-rod 51 whose lower end is provided with a strap 52 embracing the trimmer-actuating eccentric upon the main shaft. The forward end of the trimmer-bar 48 is forked and provided with bearings to receive a tubular knife-carrying shaft 53 having at one end a split head 54 provided with a suitable channel in which the upper knife-blade 46 is clamped by means of the fastening screw 55 passing through the hollow shaft 53 and pressing upon the knife blade 46. The knife shaft 53 is provided intermediate its bearings with a collar 56 having lateral projections 57 adapted to embrace the guide-bar 58 carried by the trimmer-bar 48, such collar being adjustably secured upon the knife shaft by means of a set-screw 59, and a spring 60 is interposed between the collar 56 and one of the knife shaft bearings whereby the upper knife 46 is pressed nor-

mally in contact with the lower knife 47. The lower knife-blade 47 is shown fitted to an inclined channel in a carrier-block 61 and clamped therein by engagement therewith of the laterally notched clamping-plug 62 passing through said block and terminating in a threaded shank to which is applied the milled nut 63 by which the same is drawn into operative engagement with the blade 47 entering its notch. The carrier-block 61 is mounted in suitable guideways and is provided with lugs 64 having adjustable stop-screws 65 whose points are adapted to bear alternately upon a laterally projecting portion of the main frame to limit the movement of such block and the knife carried thereby transversely of the direction of feed, which is effected by means of an adjusting screw 66 tapped into the machine frame and provided with a swivel connection with the block 61. As will be readily understood, the shifting of the working position of the stationary knife 47 produces a corresponding lateral movement of the knife-blade 46 which follows the same under the yielding action of its spring 60. The carrier-block is provided with a needle-guiding blade 67 having a chisel-shaped upper edge to insure against the deflection of the needle into the looper path and consequent breakage of the needle.

In practice, the working parts of the machine are inclosed in front by means of suitable cover-plates, one of which is partially represented at 1^a in Fig. 3, and the trimmings are deflected downwardly from the trimmer-blades by means of an inclined shield-plate 68 having a foot 69 secured to the work-plate 70 by means of shouldered fastening-screws 71 passing through longitudinal slots 72 therein. By this means, the operative end portion of the shield-plate 68 may be shifted to follow the adjustments of the trimmer by contact with the upper blade of the same, and a clamp-screw 75 passing through a slot 76 in the foot is provided for setting the same in the desired position of adjustment.

To the upper face of the operative end of the shield-plate 68 is fastened by means of screws 77 the shank 78 of a cord-guiding member 79 which is provided with a longitudinal cord-channel 80. The delivery end of the cord-guide is provided with a transverse notch 81 so disposed as to deliver the cord adjacent to and slightly below the chaining-finger 82 of the throat-plate 83, as indicated in dotted lines in Figs. 8 and 10; and the shank 78 of the cord-guide is provided in its rearward portion with a notch 84 through which the cord is adapted to be led intermediate the tubular portion of the cord-guiding member 79 and the adjacent edge of the shield-plate 68.

The machine is provided with a well-

known form of presser-bar 85 mounted at one end upon a fixed fulcrum pin 86 and provided at the other end with the presser-foot 87 pressed normally upon the throat-plate 83 by means of a spring 88 interposed between the presser-bar and the head of the bracket-arm 3, and adapted to be lifted in opposition to said spring by means of a lifting-lever 89 fulcrumed upon the bracket-arm and provided with a cam-shaped lower end adapted to engage a lateral stud 90 upon the presser-bar.

In the use of the machine, the needle thread is led from the source of supply to the tension 91, thence through the thread-eye 92 formed in the collar 6 and fixed guide-eye 93 downwardly along the needle-bar to the eye of the needle. The looper thread is led through an aperture 94 in the machine frame to the lower-thread tension 95 and thence through a thread-guiding tube 96, extended transversely through a member of the frame, to the take-up eye 31 through which it passes to the eyed-looper 13.

In the formation of the overseam, the needle descends through the throat-plate and in rising presents a thread-loop for passage of the looper 13 as represented in Fig. 1. The threaded looper thereupon passes through the needle-thread loop and rises to a position in which its beak is slightly above the throat-plate, at which the laterally offset point 17^a of the spreader is presented to the limb of the looper loop extending between its eye and the throat-plate, as represented in Figs. 6 and 7. In the continued operation of the machine, the spreader advances rapidly to seize the looper-thread loop which slides backwardly upon the laterally offset portion of the spreader against the loop-detaining shoulder 17^b as it is carried slightly beyond the needle path, the looper 13 continuing its advance movement a slight distance and then receiving a dwell by reason of the straightening of the toggle 22, 23, as represented in Figs. 4 and 5, in which position of the two lower thread carriers the needle is in the act of making a subsequent descent to pass its thread through that of the under thread. In the return of the stitch-forming members to the positions represented in Fig. 1, the looper-thread take-up eye 31 moves rapidly with the retraction of the spreader 17, thereby taking up the slack thread drawn from the looper 13 for presentation to the needle and thus acting to control such thread throughout the remainder of the cycle of operation of the parts until the stitch is finally set by the completion of the descent of the needle-bar and the tightening of the needle thread by means of the take-up member provided by the collar 6 and thread-eye 92.

By reference to Figs. 5 and 7 it will be observed that the blade of the looper 13 is

formed with a lateral recess 13^a upon the side adjacent the spreader 17 which affords a clearance space entered by the laterally offset point 17^a of the spreader so as to insure the seizure of the looper loops; while the laterally inclined slideway afforded by the offset portion of the spreader serves to deflect the loop held by such member so as to insure the proper distention of the looper-loop for passage of the needle.

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

1. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of two cooperating thread-carriers independently mounted and adapted for relative movement each in respect of the other, a driving member, actuating means operatively connecting one of said thread-carriers with the driving member, and a connection intermediate said thread-carriers independent of said driving member, whereby the one is operated to seize thread-loops from the needle beneath the throat-plate and the other to present loops of thread for passage of the needle above the throat-plate.

2. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of two cooperating thread-carriers pivotally and independently mounted and adapted for relative movement each in respect of the other, a driving member, actuating means operatively connecting one of said thread-carriers with the driving member, and a connection intermediate said thread-carriers independent of said driving member, whereby the one is operated to seize thread-loops from the needle beneath the throat-plate and the other to present loops of thread for passage of the needle above the throat-plate.

3. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of a looper pivotally mounted upon a fixed fulcrum and adapted to enter thread-loops presented by the needle beneath the throat-plate, a spreader pivotally mounted independently of said looper and operated to seize thread-loops from the latter and present them above the throat-plate for passage of the needle in its succeeding descent, means connected directly with one of said pivotally mounted thread-carrying members for giving it its said operative movements, and a connection intermediate said members whereby operative movements from the one are communicated to the other.

4. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of an eye-pointed

looper and an open-jawed spreader independently mounted upon fixed fulcrum disposed beneath the throat-plate, the former adapted to enter needle-loops presented by the needle beneath the throat-plate and the latter to seize loops from the former and present them above the throat-plate for passage of the needle, means for communicating vibrating movements to said spreader, and a connection between the latter and the looper for communicating operative vibrating movements thereto.

5. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of two independent thread-carriers pivotally mounted upon fixed fulcrum, the one being adapted to take thread-loops presented by the needle beneath the throat-plate and the other to take thread-loops from the first and present thread-loops for passage of the needle above the throat-plate, means for communicating operative movements to one of said thread-carriers, and a toggle connection between said carriers whereby the other of said thread-carriers derives an operative movement and a dwell for each simple movement of the first.

6. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of a looper and a spreader cooperating therewith, a looper-carrier, a pivotally mounted spreader-carrier having one arm by which said spreader is carried and another arm provided with a crank, a rotary shaft provided with a crank, a pitman connecting said cranks, and a connection between said spreader-carrier and looper-carrier through which the latter derives its operative movements.

7. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of a looper and a spreader cooperating therewith, a pivotally mounted looper-carrier, a pivotally mounted spreader-carrier having one arm by which said spreader is carried, another arm provided with a crank, and a lateral crank-arm extended toward said looper-carrier, a rotary shaft provided with a crank, a pitman connecting said cranks, and a connection between said lateral crank-arm of the spreader-carrier and the looper-carrier through which the latter derives its operative movements.

8. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of a looper and a spreader cooperating therewith, a looper-carrier, a pivotally mounted spreader-carrier having one arm by which said spreader

is carried and another arm provided with a crank having an axially projecting pin, a rotary shaft provided with a crank, a pitman connecting said cranks and provided with a fork embracing said axial pin, and a connection between said spreader-carrier and looper-carrier through which the latter derives its operative movements.

9. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of two independently mounted thread-carriers, the one being operated to take thread-loops presented by the needle beneath the throat-plate and the other to take thread-loops from the first and present thread-loops for passage of the needle above the throat-plate, means for communicating operative movements to the last-named thread-carrier, and means connected with the latter for producing successively an operative movement and a dwell of the first-mentioned thread-carrier.

10. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of a threaded looper and a cooperating thread-carrier pivotally mounted independently thereof upon a fixed fulcrum beneath the throat-plate, the former adapted to enter thread-loops presented by the needle beneath the throat-plate and present thread-loops for seizure by said thread-carrier and the latter to present thread-loops above the throat-plate for passage of the needle, means for communicating operative movements to said looper and thread-carrier, and a thread-controller connected and movable with said thread-carrier, the same being movable differentially of said threaded-looper but cooperating therewith in the handling of the thread.

11. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of a threaded looper and a cooperating thread-carrying implement, a looper-carrier, a pivotally mounted carrier for said thread-carrying implement, means for communicating operative movements to said carriers, and a thread-controller mounted upon the second-named carrier and adjustable thereon toward and from the pivotal support of said carrier.

12. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of a looper and a spreader cooperating therewith, a pivotally mounted looper-carrier, a pivotally mounted spreader-carrier having one arm by which said spreader is carried and a crank-arm extended toward said looper-carrier, means for communicating operative vibrating move-

ments to said spreader-carrier, a link connecting the lateral crank-arm of said spreader-carrier with said looper-carrier, and a thread-controlling eye mounted upon said lateral crank-arm of the spreader-carrier.

13. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of two cooperating thread-carriers, fixed fulcrum upon which said thread-carriers are respectively mounted, a driving member, and actuating means operatively connecting one of said thread-carriers with the driving member and a connection intermediate said thread-carriers independent of said driving member, whereby the one is adapted to seize thread-loops from the needle beneath the throat-plate and the other to present loops of thread for passage of the needle above the throat-plate.

14. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of two cooperating thread-carriers, fixed fulcrum upon which said thread-carriers are respectively mounted, a driving member, actuating means operatively connecting one of said thread-carriers with the driving member, and an intermediate member pivoted to and forming a direct connection between said thread-carriers, whereby the one is adapted to seize thread-loops from the needle beneath the throat-plate and the other to present loops of thread for passage of the needle above the throat-plate.

15. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of a looper adapted to enter thread loops presented by the needle, a fixed fulcrum disposed beneath the throat-plate upon which said looper is pivotally mounted, a thread-carrier pivotally mounted independently of said looper and adapted to seize thread-loops from the latter and to present thread-loops above the throat-plate for subsequent passage of the needle, means connected directly with one of said pivotally mounted thread carrying members for giving it its operative movements, and a positive connection intermediate said members whereby operative movements from the one are communicated to the other.

16. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of two cooperating thread-carriers, the one being adapted to take thread-loops presented by the needle, and the other to take thread-loops from the first and present thread-loops for passage of the needle above the throat-plate, fixed fulcrum disposed beneath the throat-

- plate upon which said thread-carriers are respectively mounted, means for communicating operative movements to the last named thread-carrier, and means connected with the latter for producing successively an operative movement and a dwell of the first mentioned thread-carrier for each simple operative movement of the other thread-carrier.
17. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of two cooperating thread-carriers, the one being adapted to take thread-loops presented by the needle, and the other to take thread-loops from the first and present thread-loops for passage of the needle above the throat-plate, fixed fulcrum disposed beneath the throat-plate upon which said thread-carriers are respectively mounted, means for communicating operative movements to the last named thread-carrier, and an intermediate member having a pivotal connection with each of said thread-carriers, one of said pivotal connections being adapted to cross a line passing through the fulcrum of one of the thread-carriers and the pivotal connection with the other of said thread-carriers whereby an operative movement and a dwell of the first mentioned thread-carrier are produced for each simple operative movement of the thread-carrier.
18. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of a thread-carrying looper and a cooperating thread-carrier, means for imparting to said thread-carriers differential operative movements, and a thread controller mounted upon one of the carriers for said thread-carrying members and partaking of its operative movements and cooperating with the other of said implements in handling the thread carried by the latter.
19. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of two cooperating thread-carriers, fulcrum upon which said thread-carriers are respectively mounted, one of which is fixed, a driving member, actuating means operatively connecting one of said thread-carriers with the driving member, and a connection intermediate said thread-carriers independent of said driving member, whereby the one is adapted to seize thread-loops from the needle beneath the throat-plate and the other to present loops of thread for passage of the needle above the throat-plate.
20. In an overseaming sewing machine, the combination with the throat-plate, a needle and means for reciprocating the same through said throat-plate, of a pivotally mounted looper adapted to enter thread-loops presented by the needle, a thread-carrier pivotally mounted independently of said looper and adapted to seize thread-loops from the latter and to present thread-loops above the throat-plate for subsequent passage of the needle, a fixed fulcrum disposed beneath the throat-plate upon which one of said pivotally mounted thread-carrying members is supported, means connected directly with one of said members for giving it its operative movements, and a positive connection intermediate said members whereby operative movements from the one are communicated to the other.
21. A stitch-forming mechanism having in combination a needle, a looper, and a spreader mounted independently of said looper, means for actuating the spreader, and looper actuating means comprising the entire spreader-actuating means and a connection between the looper and the spreader whereby the looper is actuated by the spreader.
22. A stitch-forming mechanism having in combination a needle and a plurality of cooperating thread-engaging implements comprising a looper and a spreader mounted independently of said looper, means for actuating one of said implements, and means directly connecting said implements together independently of said actuating means whereby one of said implements is actuated by the other.
23. A stitch-forming mechanism having in combination a needle and thread-engaging implements including a looper, each of said implements being mounted independently of the other and both cooperating with said needle in the production of overseam stitches, means for actuating one of said implements, and actuating means for the other of said implements comprising the entire actuating means for the first-named implement, and a connection between said implements whereby one of said implements is actuated by the other.
24. A stitch-forming mechanism having in combination a needle, a looper and a spreader each mounted independently of the other, means directly connecting the looper and the spreader whereby one will drive the other, means for actuating the looper and spreader including a rotary driving element, and a connection therefrom to one of the said connected elements.
25. A stitch-forming mechanism having in combination a needle, a looper and a spreader, means for actuating the needle, and means for actuating the looper and spreader including a link connection between the two, whereby the movement of the one is imparted to the other but the said

looper and spreader are permitted to move relatively.

26. A stitch-forming mechanism having in combination a needle, a pivotally mounted
5 looper, and a spreader pivotally mounted independently of said looper, means for actuating the needle, and means for actuating the looper and spreader including a pivotal connection between the two, whereby
10 the movement of the one is imparted to the

other, but the said looper and spreader are permitted to move relatively.

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

ALFRED GRIEB.

Witnesses:

HENRY J. MILLER,

HENRY A. KORNEMANN.