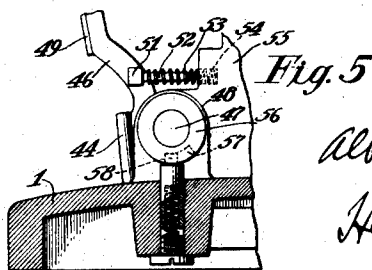
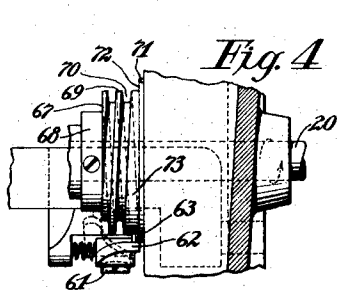
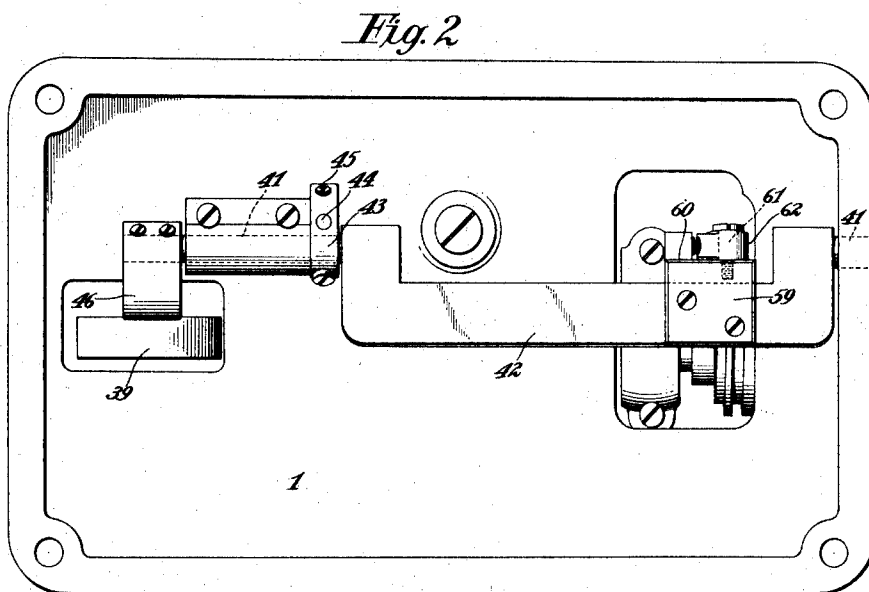
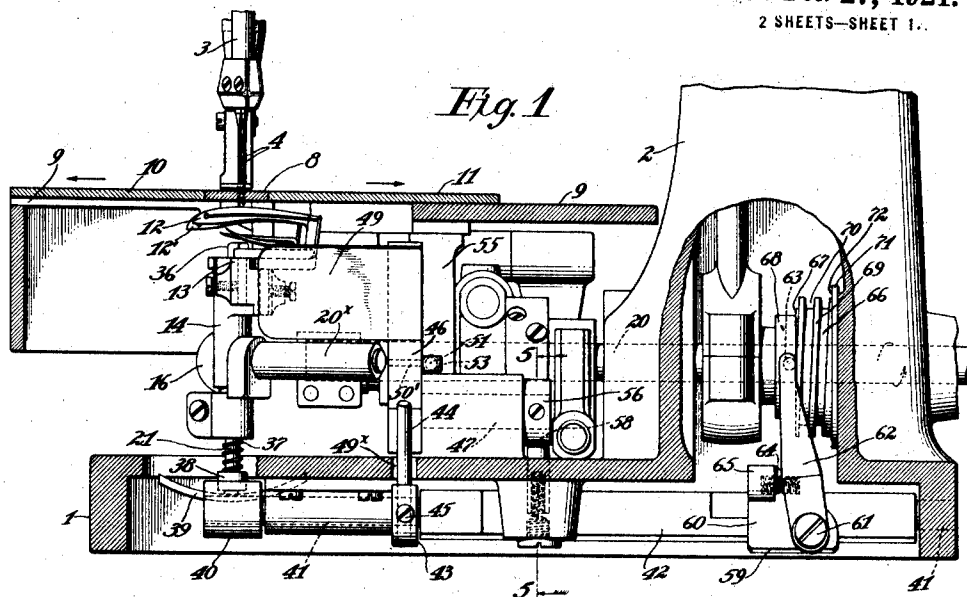


A. H. DE VOE.
 THREAD SEVERING MECHANISM FOR SEWING MACHINES.
 APPLICATION FILED NOV. 27, 1917.

1,401,465.

Patented Dec. 27, 1921.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 3

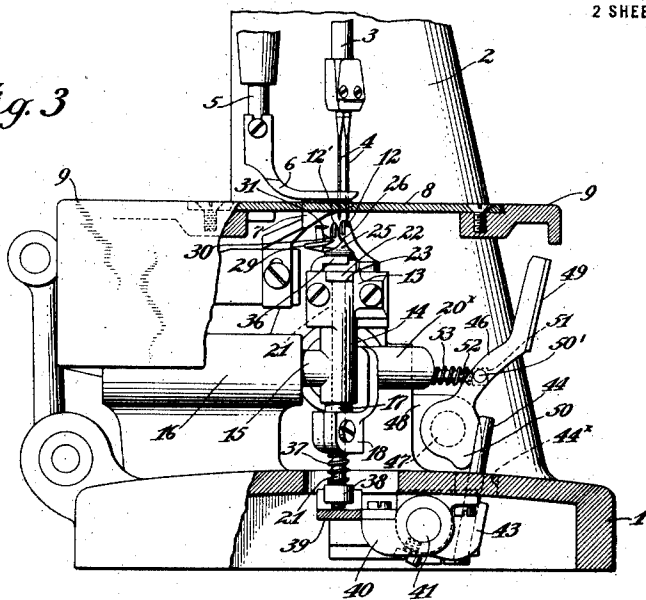


Fig. 6

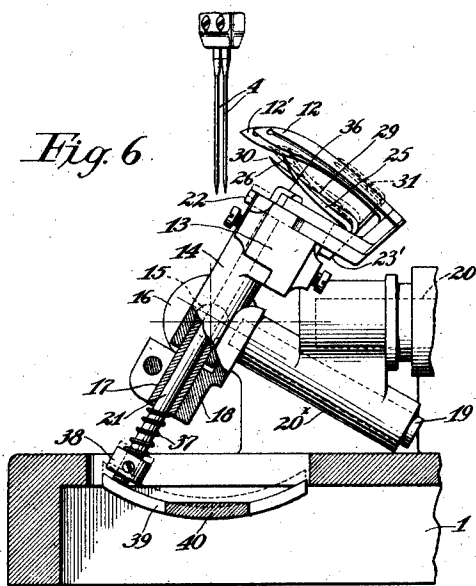


Fig. 7

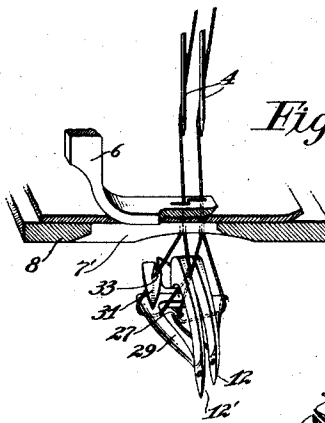


Fig. 10

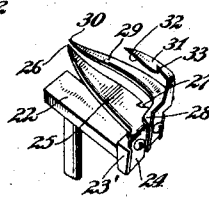


Fig. 9

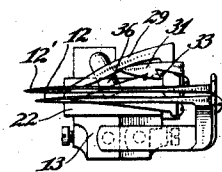
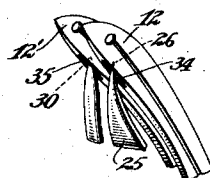


Fig. 8

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UNITED STATES PATENT OFFICE.

ALBERT H. DE VOE, OF WESTFIELD, NEW JERSEY, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, A CORPORATION OF NEW JERSEY.

THREAD-SEVERING MECHANISM FOR SEWING-MACHINES.

1,401,465.

Specification of Letters Patent.

Patented Dec. 27, 1921.

Application filed November 27, 1917. Serial No. 204,143.

To all whom it may concern:

Be it known that I, ALBERT H. DE VOE, a citizen of the United States, residing at Westfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Thread-Severing Mechanisms for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to thread-severing mechanism for sewing machines, more particularly of the chain-stitch type, and has for an object to provide simplified and efficient means for severing the stitching thread prior to the removal of the work, so that the appearance of the finished work will not be marred by a loose thread-end sticking up at the end of the seam.

A further object of the invention is to provide simplified needle-thread severing mechanism which will pull or measure a length of thread from the supply through the eye of the needle prior to the thread-severing action, in order that the end of thread left hanging from the needle may be long enough to permit the starting of a new sewing operation.

A further object of the invention is to so construct the mechanism that it will pull the beginning end of the needle-thread below the work.

Still further, the invention has for an object to provide improved pull-off and thread-severing mechanism which will pull off and sever the stitching thread at the under side of the work and which will be mounted and operated independently of the throat-plate or cover-plate of the machine so that said plate or plates may be removed without disturbing the cooperative relation of the stitch-forming instrumentalities and thread pull-off and severing means, whereby the machine may be readily freed from an accumulation of lint or the like and adjusted while the working parts are under observation in their normal operative positions.

A still further object of the invention is to provide improved thread-severing mechanism which is under manual control and may be thrown into action to pull off and sever the thread at the end of a sewing operation and which will be automatically thrown out of operation at a predetermined time after the beginning of a new stitching

operation, preferably after the beginning end of the needle-thread has been pulled down below the upper surface of the work.

Further objects of the invention will appear from the following description and claims.

In the present instance the invention is embodied in a chain-stitch machine having a pair of reciprocating needles and a corresponding pair of thread-carrying loopers cooperating with said needles to produce two closely spaced rows of double chain-stitches; such machines being commonly used for stitching thumbs to gloves. The present machine is fitted with a raised work-plate to which is screwed a removable throat-plate having the usual needle and feed-dog apertures. The loopers are sustained below the throat-plate upon a looper-carrier to which operative advancing and retracting movements are imparted to cause the loopers to seize and shed the needle-loops and also to partake of the usual sidewise or "needle-avoiding" movements.

The present thread-severing mechanism comprises pull-off and severing instrumentalities mounted, preferably upon the looper-carrier, to partake of the advancing and retracting movements of the loopers. During a sewing operation these implements occupy an inoperative position, spaced below the looper-blades so as not to interfere with the threads handled by said looper-blades. When it is desired to sever the stitching thread, in the present instance the needle-threads, the thread-severing implements are moved to operative position, preferably through the action of a manually controlled lever and, during a subsequent advance of the loopers, seize and spread the needle-thread loops, thereby pulling a measured amount of needle-thread from the supply through the eyes of the respective needles. The thread-severing action preferably occurs at a later stage or during the retraction of the loopers. Automatic means are preferably provided for shifting the thread-severing implements to ineffective position at a predetermined time after the beginning of a new stitching operation; preferably after said implements have acted to pull down the beginning ends of the needle-threads.

In the accompanying drawings, Figure 1 is a front side elevation of a machine em-

bodying the invention; the showing of the usual bracket-arm being omitted. Fig. 2 is a bottom plan view of the machine. Fig. 3 is a front end elevation of the machine. 5 Fig. 4 is a top plan view of the automatic device for determining the time at which the severing mechanism will be thrown out of operation. Fig. 5 is a cross section on the line 5-5 of Fig. 1. Fig. 6 is a front side 10 elevation of the loopers and the looper-carrier, showing the thread-severing implements mounted thereon. Fig. 7 is a perspective view illustrating the action of the pull-off implements and the presentation of the 15 needle-thread to the severing means. Fig. 8 is a top plan view of the looper-carrier and parts mounted thereon. Fig. 9 is an enlarged perspective view showing the spreaders in operative relation with the loopers. 20 Fig. 10 is a perspective view of the loop-spreading and thread-severing instrumentalities.

In the preferred embodiment of the invention, as illustrated, the machine frame comprises a bed 1 and standard 2 carrying the 25 usual bracket-arm, not shown, which sustains the usual reciprocating needle-bar 3 fitted in the present instance with a pair of eye-pointed needles 4 arranged diagonally of the line of seam, as shown in Figs. 1, 3 30 and 7, to produce two closely spaced rows of stitches. The presser-bar 5 is sustained in the usual manner and carries a presser-foot 6 which coöperates with the feed-dog 7 to 35 feed the work.

The feed-dog operates through the usual feed-dog aperture 7' in the throat-plate 8 which is screwed to the raised work-plate 9 40 carrying slide-plates 10 and 11, Fig. 1; said slide-plates being shiftable in the directions indicated to expose the mechanism thereunder.

Coöperating with the needles are loop-taking means preferably in the form of 45 thread-carrying loopers 12 and 12' which are mounted upon a looper-carrier comprising a head 13 and a depending sleeve 14 carrying a pin 15 directed preferably at 50 right angles to the sleeve 14 and fitted to rock and slide within the apertured boss 16 formed on the bed 1. The axes of the sleeve 14 and pin 15 preferably intersect.

Fitted within the sleeve 14 is a smaller sleeve 17 to the lower projecting end-portion of which is clamped the split hub of a 55 bracket 18 carrying a pin 19 directed preferably at right angles to the sleeve 17. The axes of the pin 19 and sleeve 17 preferably intersect at a point spaced from the point 60 of axial intersection of the sleeve 14 and pin 15.

The loopers are of the usual four-motion type and are actuated from the main-shaft 20 journaled below the cloth-plate 9 and 65 carrying a crank-sleeve 20* which embraces

the pin 19 and the axis of which is inclined to and preferably intersects the axis of the main-shaft. Through the above described connections, rotation of the main-shaft will cause the loopers to perform their usual end- 70 wise reciprocatory loop-seizing and shedding movements and lateral or needle-avoiding movements.

The thread-severing mechanism comprises thread-engaging and severing instrumentalities 75 mounted independently of the throat-plate and adapted to partake of the loop-seizing and shedding movements of the loopers. Slidably fitted within the sleeve 17 is a rod 21 which forms the supporting shank of 80 a carrier 22 in the form of a rectangular block normally seated within a recess 23 in the top of the head 13 of the looper-carrier. The carrier 22 for the thread-severing implements is formed at one end with a head 85 23' to which is secured the shank 24 of the loop-spreading and severing implement 25 whose pointed and upturned extremity 26 is normally spaced below the looper 12 as 90 shown in Figs. 3 and 6. The implement 25 is preferably in the form of a flat blade which is widened out toward its rearward or shank end so that it will spread the needle-loop and pull off the needle-thread 95 from the supply. The implement 25 is notched to form a thread-severing edge 27 which is preferably sharpened to cut the thread clean at this point during the retracting stroke of the looper.

Secured to the head 23' is the shank 28 of 100 an outwardly bowed loop-spreading implement 29, Figs. 7 and 10, the pointed and upturned extremity 30 of which is normally spaced below the looper 12' as shown in Figs. 3 and 6. Secured to the head 23, along with 105 the spreading implement 29, is a severing implement 31 having a thread-deflecting edge 32 and notched to form a thread-severing edge 33 which is preferably sharpened to cut the thread during the retraction of 110 the loopers.

The carrier 22 is adapted to be elevated, in the present instance by manually controlled means, for the purpose of projecting the extremities 26 and 30 of the loop-spreading 115 implements 25 and 29 into the recesses 34 and 35 formed respectively in the under surfaces of the loopers 12 and 12'. A stop 36 secured to the head 13 of the looper-carrier and overhanging the cutter-carrier 22 prevents excessive upward displacement of the 120 latter. The cutter-carrier 22 is normally retained in its seat 23 in the looper-carrier by means of the spring 37, Fig. 6, which surrounds the lower projecting end of the rod 125 21 and bears downwardly against the collar 38 secured to said rod. The spring 37 reacts against the lower end of the sleeve 17.

Disposed below and close to the curved path of movement of the lower extremity of 130

the rod 21 is a curved plate 39 having its center of curvature substantially coincident with the axis of the pin 15 when in operative or dotted line position, Fig. 6, and forming the operative end of a cutter-lifting arm 40 clamped to the rock-shaft 41 which is journaled in suitable bearings beneath the bed 1 and is formed with an offset portion 42, shown best in Fig. 2. Secured to the shaft 41 is a collar 43 enlarged and socketed at one side to receive a pin 44 which is held in place by the set-screw 45 and projects upwardly through an aperture 44* in the bed 1.

The manually controlled means for rocking the shaft 41 to elevate the loop-spreading and severing implements to operative position comprise, in the present instance, a hand-lever 46 mounted on the fulcrum-shaft 47 which is journaled in the bearing boss 48 at the upper side of the bed 1. The hand-lever 46 is formed at its upper end with a rectangular finger or push-plate 49 and at its lower end with a cam nose 50, which, when the finger-plate 49 is pushed inwardly, engages and forces the pin 44 outwardly or toward the right, Fig. 3, thereby rocking the shaft 41 and elevating the curved plate 39 to move or lift the cutter-carrier 22 and implements sustained thereby into operative position. The manually controlled means for moving the thread-severing device to operative position is not intended to be limited to a manually operated lever or element whose sole function is to throw the thread-severing mechanism into operation, but is intended to cover broadly any means under the control of the operator which acts to throw the thread-severing mechanism into action at the will of the operator.

Journaled in the lever 46 is the pin 50* forming the shank of the thrust-block 51 carrying a lateral pin 52 which is surrounded by the expansion spring 53, the inner end of which is mounted within the recess 54 in the support 55 for the cloth-plate 9. Secured to the end of the fulcrum-shaft 47 remote from the lever 46 is a collar 56 having a peripheral recess 57 which receives an upwardly spring-pressed stop-pin 58, Fig. 5, slidably fitted within a suitable aperture in the bed 1. The end walls of the recess 57 are adapted to strike the stop-pin 58 and limit the movement of the hand-lever 46.

As a means for retaining the pull-off and thread-severing implements in operative position until they have performed their functions, the following mechanism is provided:—

Screwed to the offset portion 42 of the shaft 41 is a supporting block 59 to the side 60 of which is pivoted by means of a screw-pin 61 the latch-arm 62 which extends upwardly within the standard 2 and at its

extremity carries a short lateral pin or follower 63. An expansion spring 64 housed at one end within a recess in an ear 65 on the block 59 and at its opposite end in an aperture at the side of the latch-arm 62 urges said arm toward the right, Fig. 1.

Fixed to the main-shaft 20 within the standard 2 is a controlling screw comprising a cylindrical hub 66 having an end face 67, a reduced hub extension 68 and carrying a square thread 69 which extends spirally around the hub 66 and defines a spiral groove 70 having in the present instance a length equal to about two times the circumference of the hub 66. The hub 66 is formed at the end opposite the reduced hub extension 68 with a flange 71 of larger diameter than the thread 69 and having an end face 72.

When the hand-lever 46 is pushed inwardly to elevate the loop-spreading and severing implements, the latch-arm 62 is shifted outwardly or away from the main-shaft 20 thereby withdrawing the pin 63 beyond the maximum circumference of the thread 69 and allowing the spring 64 to urge the lever 62 to full line position, Fig. 4, in which latter position the side of the pin 63 bears against the end face 72 of the flange 71 while the end of the pin 63 bears against the cylindrical surface 73 at the beginning end of the spiral groove 70 and prevents the return of the rock-shaft 41 to initial position. The loop-spreading and severing implements are therefore retained in operative position with the points 26 and 30 well buried within the recesses 34 and 35. It may be stated at this time that the recesses 34 and 35 are preferably made large enough to loosely receive the points 26 and 30 so that in case the device is thrown into operation when the loopers are in the needle-loops, said loops may slip past the points 26 and 30 and be shed by the loopers during the retracting stroke of the loopers.

As the main-shaft turns in the direction indicated by the arrow from the position shown in Fig. 4, the pin 63 will drop into the beginning end of the groove 70 and in so doing will permit a rocking movement of the shaft 41 under the expansive force of the spring 37. During this movement, however, the points 26 and 30 will not be withdrawn from the shielding recesses 34 and 35 in the loopers 12 and 12'. Further movement of the main-shaft will carry the pin 63 to the end of the groove 70 whereupon it will move inwardly into engagement with the reduced hub extension 68 and in so doing will permit a further rocking movement of the shaft 41 as the spring 37 shifts the loop-spreading and severing implements from dotted line or operative position, Fig. 6, to full line or in-operative position.

The present mechanism is described as

applied to a machine which is not equipped with a stop-motion device and, while it may be operated in various ways at the election of the operator, is preferably operated as follows:—

Starting with the machine stitching a seam, the cutter-carrier 22 in inoperative position and the latch-arm 62 in full line position, Fig. 1, the machine is stopped by the operator as usual at the end of the seam preferably with the loopers in extreme retracted position, Fig. 6. The operator now pushes inwardly upon the plate 49 thereby shifting or elevating the loop-spreading implements to operative position with the points 26 and 30 within the recesses 34 and 35 of the loopers. The latch-arm 62 snaps into full line position, Fig. 4, and retains the loop-spreading and severing implements in operative position.

The operator now preferably causes the machine to turn over in a forward direction to project the loopers into the needle-loops which are then caught by the implements 25 and 29 and spread open as shown in Fig. 7, the excess thread required being pulled from the supply through the eyes of the needles. At the end of this forward movement of the loopers the needle-loops have been fully spread and the limbs of said loops which lead to the last stitch have been so directed as to slip behind the sharpened thread-cutting edges 27 and 33. Continued movement of the main-shaft effects the retraction of the loopers and the severing of the needle-thread loops by the cutting edges 27 and 33 at points such that plenty of thread is left hanging from the eyes of the needles to permit the machine to start sewing at the beginning of a new stitching operation.

After the severing of the needle-thread has been effected the operator may turn the main-shaft backwardly a half-revolution to elevate the needles, whereupon the work may be readily removed from the machine; the severed ends of the thread being disposed at the under side of the work.

New work having been inserted beneath the presser-foot, the machine is started and during the first upstroke of the needle the implements 25 and 29 in spreading the initial needle-loops serve to draw the beginning ends of the stitching threads downwardly below the work. During the second down stroke of the needles, while the loopers are retracting, the pin 63 rides out of the end of the groove 70 and moves inwardly into contact with the hub extension 68, thereby permitting the spring 37 to shift the loop-spreading and severing implements to inoperative position.

It is to be understood that the machine need not be turned backwardly to elevate

the needles after the thread has been severed for removal of the work, but may be turned forwardly a half revolution to accomplish this purpose. In the latter event, however, the thread 69 of the throw-out screw should be made one revolution longer in order to maintain control of the pin 63 until the initial thread end has been drawn down below the work at the beginning of a new stitching operation, or the throw-out screw shown and described may be used in this latter case provided the device is not thrown into operation until after the loopers have started forwardly and the beginning end of the groove 70 has passed the follower pin 63, thereby causing said pin to ride upon the cylindrical surface 73 of the controlling screw for practically an entire revolution of the main-shaft 20 before dropping into said groove.

It is to be further understood that the present mechanism may be thrown into action at any time during a cycle of operations without stopping the machine or before stopping the machine. If thrown into action while the machine is running, the machine may subsequently be brought to rest in any desired manner, after the thread has been severed and the needles have emerged from the work; the particular means employed to stop the machine being immaterial to the present invention. If the device is thrown into action and the machine is not subsequently brought to rest, the needle-thread will be severed below the work and the beginning end of the needle-thread will be drawn down, after which the machine will continue stitching, having left a gap in the stitching at the upper side of the seam at the point where the thread-severing mechanism was thrown into operation. If the machine is not provided with a stop mechanism, the thread-severing device may be thrown into action after the machine has been slowed down by the operator but is still running. After the thread has been severed and the needles raised from the work the machine may be stopped and the work removed.

By virtue of the present construction, the slide-plates 10 and 11 and throat-plate 8 may be readily removed without disarranging the working positions of the parts. Therefore, the machine may be easily cleaned and the operation of the various thread-handling implements may be readily observed and critical adjustments may be made, if necessary, while the parts are under observation in normal working position on the bench. This is an important desideratum in machines intended for present day factory use where production is being speeded up as much as possible and machines must be kept running with a minimum loss of time.

It will be obvious that the present improvement is useful in single needle machines and is susceptible of material modification both in the form and arrangement of the various parts within the scope of the invention.

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

1. In a sewing machine, in combination, a reciprocating needle, a looper, means for imparting advancing and retracting loop-seizing and shedding movements to said looper in the formation of enchain thread-loops, a normally ineffective thread-severing implement mounted to partake of the advancing and retracting movements of the looper, and means for rendering said implement effective to sever the needle-thread.

2. In a sewing machine, in combination, a reciprocating needle, a looper, means for imparting advancing and retracting loop-seizing and shedding movements to said looper in the formation of enchain thread-loops, a normally ineffective thread-severing implement mounted to partake of the advancing and retracting movements of the looper, and means for rendering said implement effective to sever the needle-thread without stopping the machine.

3. In a sewing machine, in combination, a reciprocating needle, a looper, means for imparting advancing and retracting loop-seizing and shedding movements to said looper in the formation of enchain thread-loops, a normally ineffective thread-severing mechanism including a thread-engaging implement mounted to advance and retract with the looper, and means for moving said implement to effective position to cause the severance of the needle-thread.

4. In a sewing machine, in combination, a reciprocating needle, a loop-taker cooperating therewith to concatenate thread-loops, actuating means for said needle and loop-taker and needle-loop spreading and severing means mounted to partake of movements of said loop-taker and movable relatively to said loop-taker from inoperative to operative position.

5. In a sewing machine, in combination, a reciprocating needle, a loop-taker cooperating therewith to concatenate thread-loops, actuating means for said needle and loop-taker, needle-loop spreading means mounted to partake of movements of said loop-taker and also movable relatively to the latter from inoperative to operative position, and means for severing the spread needle-loop.

6. In a sewing machine, in combination, a reciprocating needle, a four-motion looper, actuating means for said needle and looper, and needle-thread severing means mounted to partake of the advancing and retracting movements of said looper.

7. A sewing machine having in combina-

tion, a reciprocating needle, a reciprocating looper cooperating therewith to form fastening stitches, and a thread-severing device mounted to reciprocate with said looper and occupying a normally inoperative position relative to said looper while the machine is in operation, and means for moving said device to operative position relative to said looper to sever the needle-thread.

8. A sewing machine having in combination, a reciprocating needle, a reciprocating looper cooperating therewith to form fastening stitches, and thread-severing means mounted to reciprocate with said looper and occupying a normally ineffective position while the machine is in operation, and means for directing a needle-loop to said severing means.

9. A sewing machine having in combination, a reciprocating needle, a reciprocating looper cooperating therewith to form fastening stitches, and a thread-severing device mounted to reciprocate with said looper and occupying a normally ineffective position relative to said looper, and means for moving said device to operative position relative to said looper to sever the needle-thread while the machine is in operation.

10. In a sewing machine, in combination, a reciprocating needle, a looper cooperating therewith to form fastening stitches, a looper-carrier, means for imparting to-and-fro movements to said looper-carrier to move said looper into and out of a needle-loop, and a thread-severing implement mounted upon said looper-carrier in a normally inoperative position relative to said looper and adapted to sever the stitching thread when shifted to operative position relative to said looper.

11. In a sewing machine, in combination, a reciprocating needle, a looper cooperating therewith to form fastening stitches, a looper-carrier, means for imparting to-and-fro movements to said looper-carrier to move said looper into and out of the needle-loops, and needle-thread pull-off and severing means mounted to partake of the movements of the looper.

12. A chain-stitch sewing machine having, in combination, a reciprocating needle, a looper, means including a looper-carrier for imparting advancing and retracting movements to said looper, a needle-thread severing device movably mounted on said looper-carrier and adapted to occupy an inoperative position while the machine is operating to form a line of fastening stitches, and means for moving said thread-severing device to operative position.

13. A chain-stitch sewing machine having, in combination, a reciprocating needle, a looper, means including a looper-carrier for imparting advancing and retracting movements to said looper, a needle thread sever-

ing device movably mounted on said looper-carrier and including a thread-engaging element adapted to occupy an inoperative position while the machine is forming a line of fastening stitches, and manually controlled means for moving said thread-engaging element to operative position.

14. A chain-stitch sewing machine having, in combination, a reciprocating needle, a looper, means including a looper-carrier for imparting advancing and retracting movements to said looper, a needle-loop spreading and severing implement movably mounted on said looper-carrier and adapted to occupy an inoperative position while the machine is forming a line of fastening stitches, and means for moving said implement to spread and sever a needle-loop seized by said looper.

15. A chain-stitch sewing machine having, in combination, a reciprocating needle, a looper, means including a looper-carrier for imparting advancing and retracting movements to said looper, means moving with the looper in its advancing stroke for entering and spreading the needle-loop seized by the looper, and means for severing one limb only of the spread needle-loop.

16. A chain-stitch sewing machine having, in combination, a reciprocating eye-pointed needle, a thread-carrying looper cooperating therewith to seize and shed needle-loops in the formation of fastening stitches, actuating means for said needle and looper, and means moving with the looper to sever one limb only of the last needle thread-loop.

17. A chain-stitch sewing machine having, in combination, a reciprocating needle, a thread-carrying looper, actuating means for said needle and looper, and means moving in fixed relation with the looper to sever one limb only of the needle-loop.

18. A chain-stitch sewing machine having, in combination, a reciprocating needle, a looper, means including a reciprocating looper-carrier for imparting advancing and retracting movements to said looper, means normally inoperative during the stitching for spreading the last needle-loop seized by the looper, and means for severing one limb only of said spread needle-loop, said loop-spreading and severing means being mounted to partake of the movements of the looper.

19. A chain-stitch machine having, in combination, a throat-plate, a reciprocating needle, a looper cooperating with said needle below said throat-plate to form fastening stitches, thread severing means mounted independently of said throat-plate for movement relatively to said looper, and a connection between said means and a moving part of the machine for shifting said means to cause the severance of one limb only of the needle-thread.

20. A chain-stitch machine having, in combination, a throat-plate, a reciprocating

needle, a reciprocating looper cooperating with said needle below said throat-plate to form fastening stitches, and needle-thread pull-off and severing means mounted upon a moving part of the machine and adapted when thrown into operation to first pull off and then sever the needle-thread.

21. In a sewing machine adapted to sew the first stitch with a free end of thread hanging from the needle, in combination, a reciprocating needle, a loop-taker cooperating therewith to form fastening stitches, actuating means for driving said needle and loop-taker, and needle-thread pull-off and severing means mounted in a normally ineffective position upon a moving carrier part of the machine and shiftable to a position effective to pull off and sever the needle-thread during movement of said carrier part.

22. In a sewing machine adapted to sew the first stitch with a free end of thread hanging from the needle, in combination, a reciprocating needle, a loop-taker cooperating therewith to form fastening stitches, actuating means for driving said needle and loop-taker, and manually controlled needle-thread pull-off and severing means mounted in a normally ineffective position upon a moving carrier part of the machine and acting when thrown into operation to pull off and sever the needle-thread during movement of said carrier part.

23. In a sewing machine adapted to sew the first stitch with a free end of thread hanging from the needle, in combination, a reciprocating needle, a loop-taker cooperating therewith to form fastening stitches, actuating means for driving said needle and loop-taker, manually controlled needle-thread pull-off and severing means mounted in a normally ineffective position upon a moving carrier part of the machine and acting when thrown into operation to pull off and sever the needle-thread during movement of said carrier part, and automatic mechanism for throwing said pull-off and severing means out of operation.

24. In a sewing machine, in combination, a reciprocating needle, a looper-blade having a recess, actuating means for said needle and looper-blade, a loop-spreading implement mounted to move with said looper-blade and having a beak adapted to enter said recess, and means for severing the spread needle-loop.

25. In a sewing machine, in combination, a reciprocating needle, a looper cooperating therewith to form a line of fastening stitches, a looper-carrier, a needle-loop spreader, movably mounted upon said looper-carrier and occupying an ineffective position during the sewing, means for shifting said needle-loop spreader relative to said looper to position said spreader for entry

into the last needle loop seized by said looper, and means for severing the spread needle-loop.

26. In a sewing machine, in combination, 5 a reciprocating needle, a looper having a blade coöperating with said needle to form a line of fastening stitches, a thread-severing implement moving with the looper in an inoperative position during the sewing, 10 and means for shifting said implement into coöperative relation with the looper-blade to enter and spread the last needle-loop along with said looper-blade and subsequently sever one limb of said loop.

27. In a sewing machine, a feeding mechanism, a reciprocating needle element, a moving loop-taker element coöperating with the needle element to sew a line of fastening stitches, a thread-cutter mounted to 15 partake of motion of one of said elements and occupying an ineffective position during the sewing, and means for imparting a 20

second motion to said thread-cutter without interrupting its first mentioned motion to move it to a position wherein it will operate to cut the sewing thread. 25

28. In a sewing machine, a feeding mechanism, a reciprocating needle element, a moving loop-taker element coöperating with the needle element to sew a line of fastening stitches, a thread-cutter performing a cycle of motion for each stitch-forming cycle but occupying a position during the sewing such that the thread is beyond its range of action, and means for moving the 30 thread-cutter to a position wherein it will catch and sever the thread prior to stoppage of the machine in its stitch-forming motion. 35

In testimony whereof, I have signed my name to this specification.

ALBERT H. DE VOE.