

April 15, 1924.

1,490,533

J. KIEWICZ

THREAD TRIMMER FOR SEWING MACHINES

Filed May 10, 1923

6 Sheets-Sheet 1

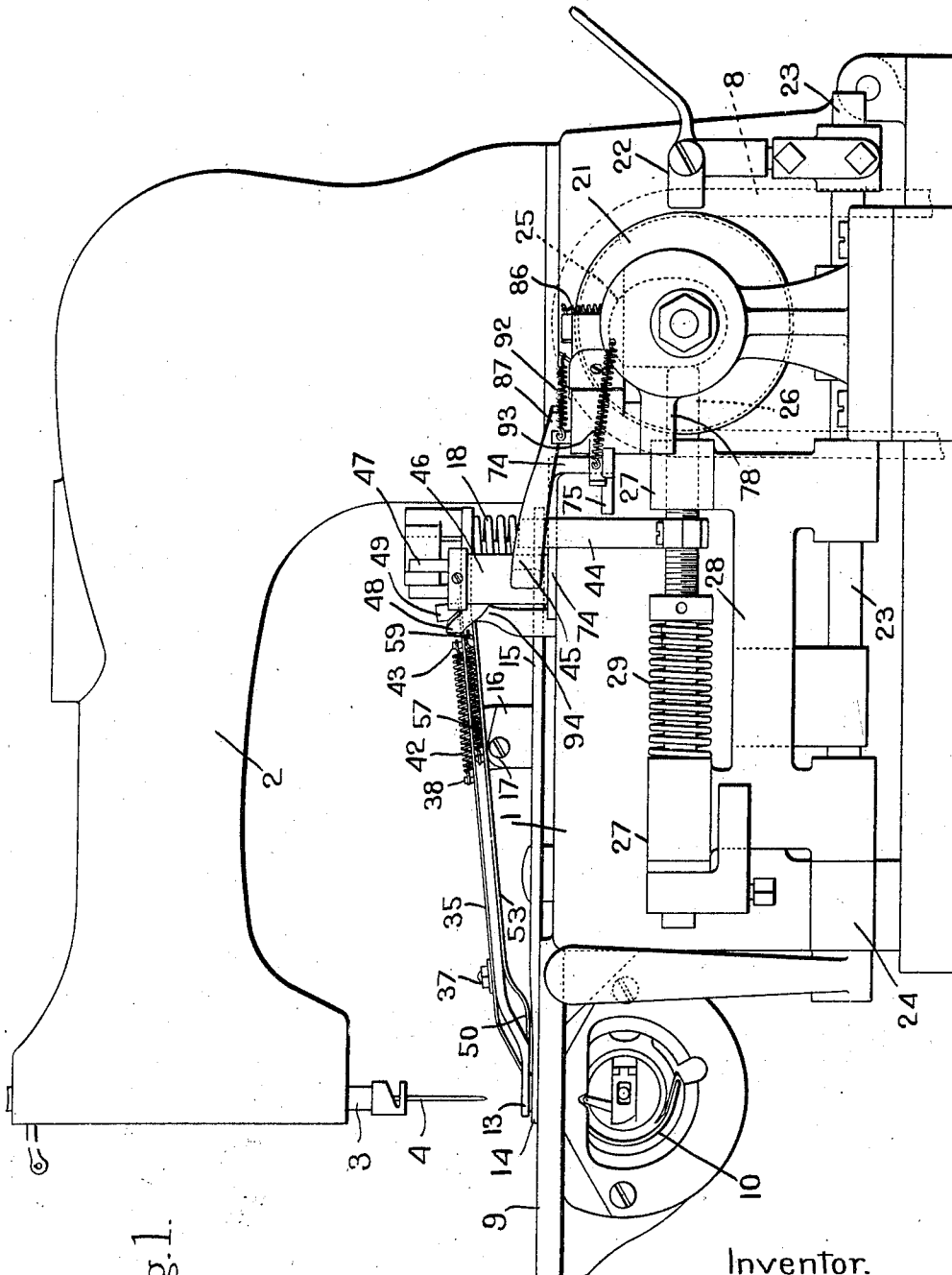


Fig. 1.

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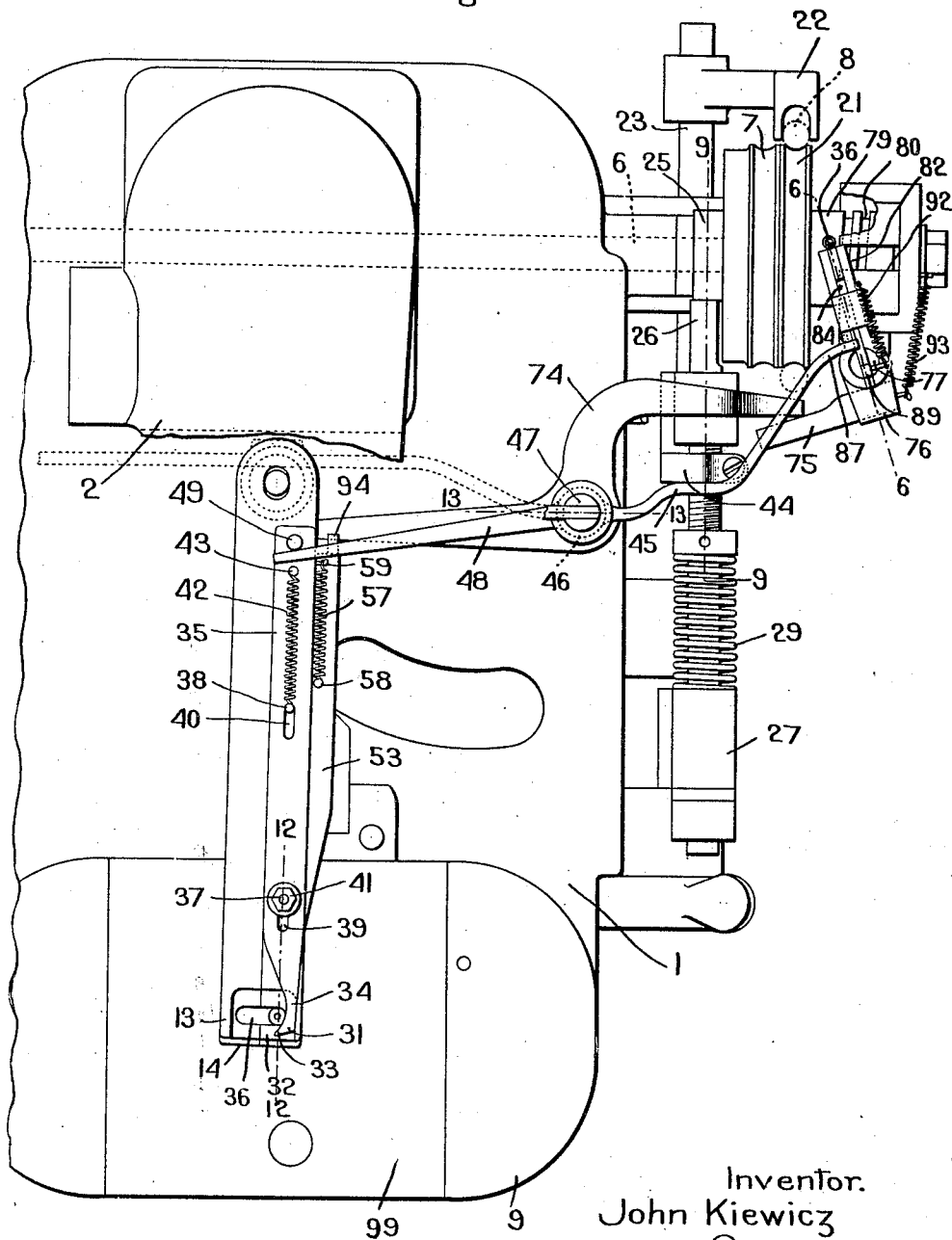
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6 Sheets-Sheet 2

Fig.2.



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THREAD TRIMMER FOR SEWING MACHINES

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6 Sheets-Sheet 3

Fig.3.

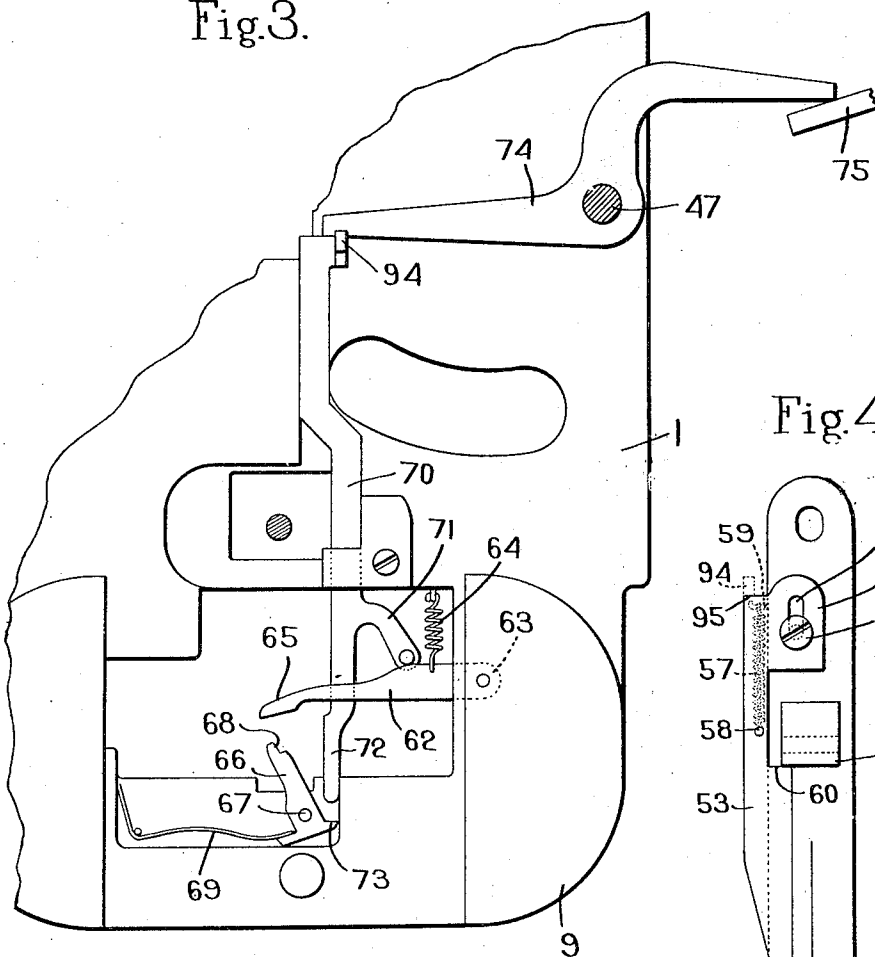


Fig.4.

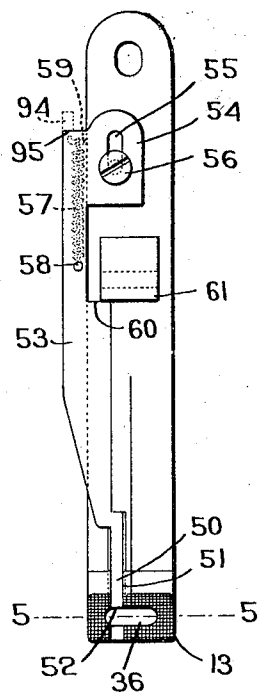
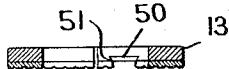


Fig.5.



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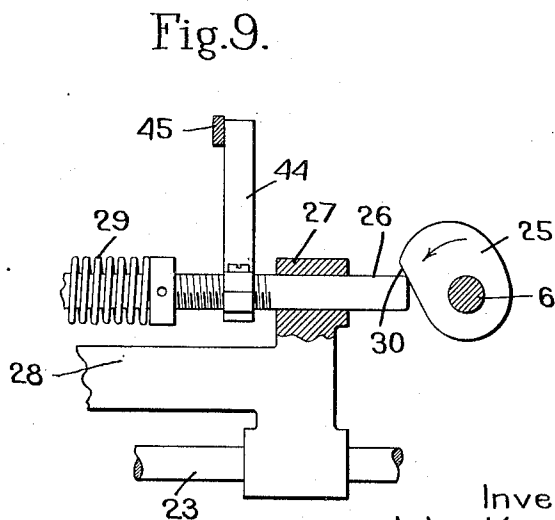
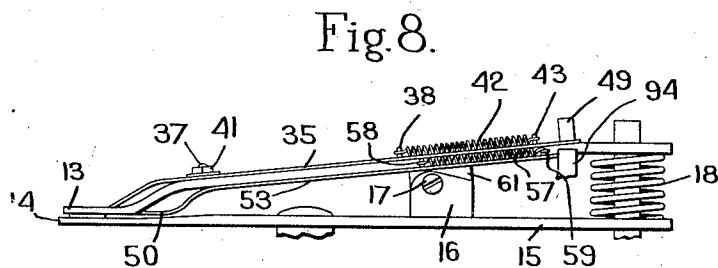
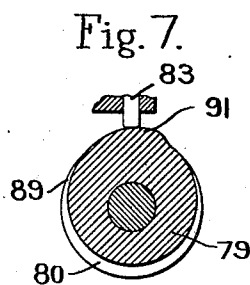
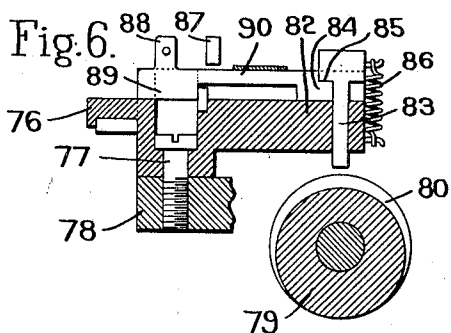
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THREAD TRIMMER FOR SEWING MACHINES

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THREAD TRIMMER FOR SEWING MACHINES

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Fig. 10.

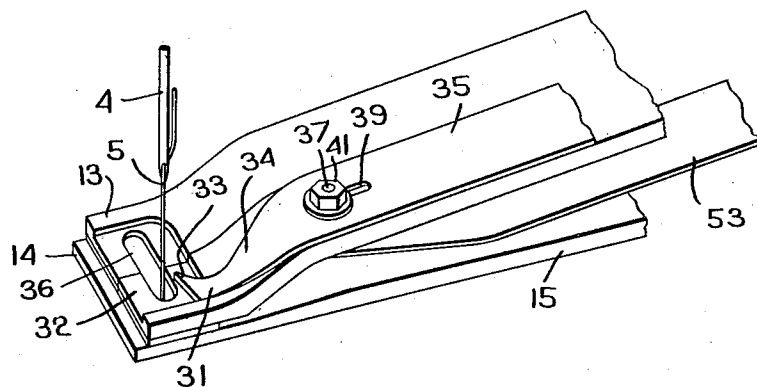


Fig. 11.

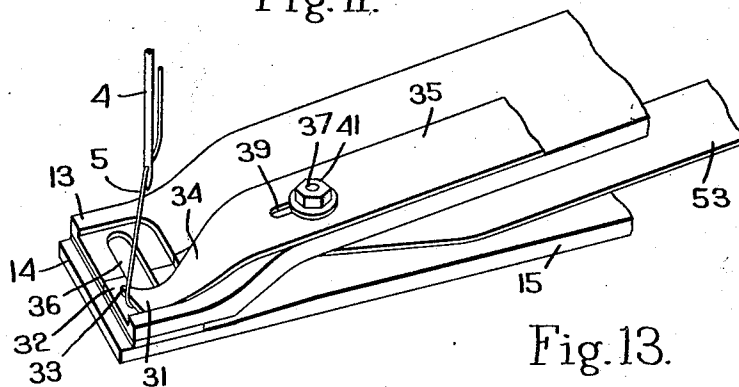


Fig. 12.

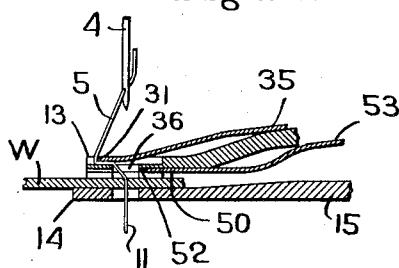
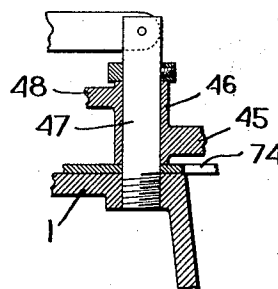


Fig. 13.



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THREAD TRIMMER FOR SEWING MACHINES

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Fig. 14.

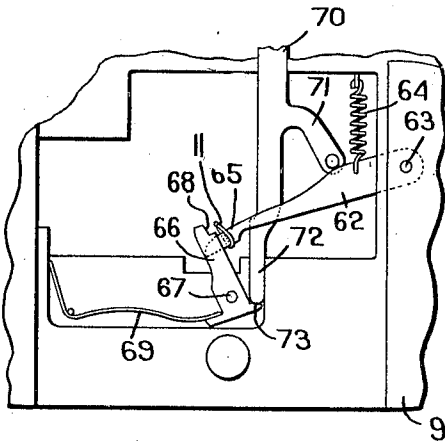


Fig. 15.

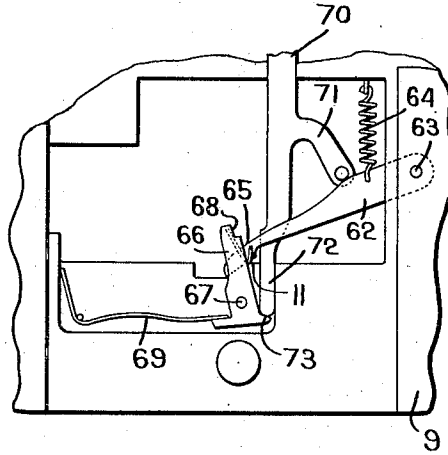


Fig. 16.

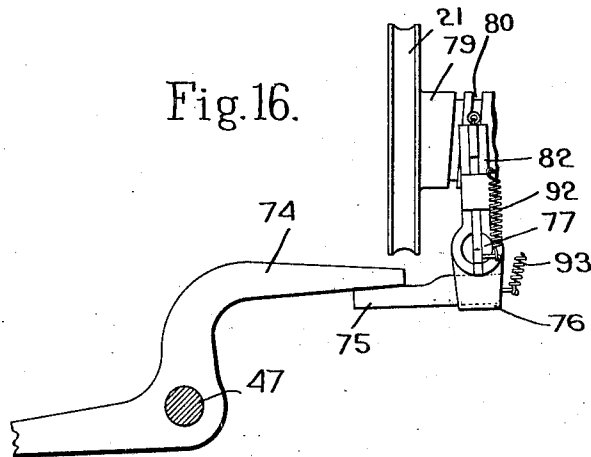
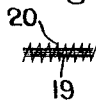


Fig. 17.



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UNITED STATES PATENT OFFICE.

JOHN KIEWICZ, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE REECE BUTTON HOLE MACHINE COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

THREAD TRIMMER FOR SEWING MACHINES.

Application filed May 10, 1923. Serial No. 638,087.

To all whom it may concern:

Be it known that I, JOHN KIEWICZ, a citizen of the United States, and resident of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Thread Trimmers for Sewing Machines, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to thread trimmers for sewing machines.

In U. S. Patent No. 1,467,898, dated September 11, 1923, there is shown a sewing machine provided with a driving mechanism comprising a fast pulley, a loose pulley and a driving belt which is shiftable from the loose pulley to the fast pulley to start the machine and is shiftable from the fast pulley to the loose pulley when the machine is to be brought to rest. Said sewing machine also has a thread trimmer for trimming the thread at the end of the sewing operation, which thread trimmer is operated by the rotation of the loose pulley after the driving belt has been shifted thereto to stop the machine.

One of the objects of the present invention is to provide an improved driving connection between the loose pulley and the thread trimmer by which the latter is actuated when the belt is shifted onto the loose pulley in order to bring the sewing machine to rest.

Another object of the invention is to provide an improved thread trimmer which is particularly adapted for use in connection with a sewing machine of the type illustrated in my co-pending application Serial No. 583,010, filed August 19th, 1922 and which are commonly known in the trade as a "tacker." Sewing machines of this type are designed to form a stay seam or reinforcing seam at the ends of buttonholes or at the ends of pocket openings or in other similar locations.

In order to give an understanding of my invention I have illustrated in the drawings a selected embodiment thereof which will now be described after which the novel features will be pointed out in the appended claims.

Fig. 1 is a side view of a sewing machine of the type illustrated in my co-pending application Serial No. 583,010 and having my improvements applied thereto;

Fig. 2 is a fragmentary plan view showing the connections for operating the trimming knives;

Fig. 3 is a fragmentary plan view of the base of the machine with the cover plate removed to illustrate the under thread trimming mechanism;

Fig. 4 is an under side view of the upper work-clamping member showing the trimming knife for trimming the upper thread;

Fig. 5 is an enlarged section on the line 5—5, Fig. 4;

Fig. 6 is a section on the line 6—6, Fig. 2;

Fig. 7 is a section through the hub taken at the end of the groove;

Fig. 8 is a side view illustrating the thread trimmers;

Fig. 9 is a sectional view on substantially the line 9—9, Fig. 2 showing the stop cam and the manner in which it actuates the thread pull-off;

Figs. 10 and 11 are fragmentary perspective views illustrating the operation of the thread holder for gripping the upper thread;

Fig. 12 is an enlarged section on the line 12—12, Fig. 2;

Fig. 13 is a section on the line 13—13, Fig. 2;

Figs. 14 and 15 are fragmentary views showing the operation of the pull-off and cutter for the under thread;

Fig. 16 is a fragmentary view of the devices actuated by the loose pulley;

Fig. 17 illustrates the character of reinforcing stitch which is made by the sewing machine herein illustrated.

Although I have for purposes of illustration shown my invention as it might be applied to a sewing machine of the type illustrated in my co-pending application Serial No. 583,010, yet I desire to state at the outset that the invention is not necessarily limited to its use in connection with a sewing machine of this particular type, as many features of the invention are equally applicable to other types of sewing machines that employ a fast pulley and a loose pulley with a belt shipper for shifting the driving belt from one pulley to the other.

The sewing machine herein illustrated comprises a frame 1 having the usual overhanging arm 2 in which reciprocates vertically, a needle bar 3 carrying a needle 4 for manipulating the upper thread 5, the needle

bar being operated through suitable connections from a driving shaft 6 having a driving pulley 7 fast thereon, said pulley being actuated from a driving belt 8. Situated beneath the bed plate 9 of the frame 1 is an under thread mechanism indicated generally at 10 which manipulates the under thread 11. The work *w* in which the stitching is to be made is held between two work-clamping members 13 and 14. The work-clamping member 14 has a rearward extension 15 provided with an upstanding portion 16 to which the upper work-clamping member 13 is pivoted as shown at 17, the work-clamping members being held yieldingly together by means of a spring 18.

The parts thus far described are or may be all as illustrated in my co-pending application Serial No. 583,010 and they operate to produce a seam such as shown in Fig 17 and which comprises a plurality of underlying stitches 19 and a plurality of overlying stitches 20 which extend transversely of the underlying stitches 19.

Associated with the fast pulley 7 is a loose pulley 21 onto which the driving belt 8 is shifted when the machine is to be brought to rest, this shifting movement of the belt being accomplished through a belt shifter 22 which is carried by a rock shaft 23 journaled in bearings 24 formed on the frame.

The machine is brought to rest when the belt is shifted onto the loose pulley by means of a stop cam 25 which is fast on the shaft 6 and which co-operates with a stop dog 26 that is slidably mounted in bearings 27 formed on a bracket 28 rigid with the rock shaft 23 and which is acted upon by a suitable spring 29.

When the driving belt 8 is on the fast pulley 7 and the machine is running the stop dog 26 is out of register with the stop cam 25. When the belt is shifted onto the loose pulley, however, the stop dog is brought into register with the cam 25 and as said cam rotates the face 30 thereof engages the stop dog thereby bringing the shaft to rest, the spring 29 serving to cushion this stopping movement. During this operation of bringing the shaft to rest the stop dog is forced backwardly against the action of the spring 29 as illustrated in Fig. 9 and when the movement of the shaft 6 is finally arrested the expansive action of the spring 29 turns the shaft 6 backwardly slightly so as to bring the parts to rest as shown in Fig. 1.

The parts thus far described are or may be all as illustrated in my co-pending application Serial No. 583,010 and form no part of the present invention.

The thread trimmer herein illustrated comprises means for gripping the upper thread 5 at the end of the stitching operation, means for cutting the upper thread between the holding means and the work,

means for pulling off a length of under thread and for cutting the under thread close to the work.

The means for holding or gripping the upper thread at the end of the stitching operation comprises a thread-holding member 31 which operates in a recess 32 formed in the upper face of the work-holding member 13. This thread-gripping member is provided with a toe portion 33 which is connected by a neck 34 with a shank portion 35 that is slidably mounted on the upper face of the shank of the work-holding member 13. This thread-holding member is normally retained in the position shown in Fig. 2 with the toe portion 33 in front of the sewing opening 36 in the work clamps and with the neck portion 34 opposite the sewing opening. When in this position the thread holder is out of the way of the needle and does not interfere with the sewing operation.

This upper thread-holding member is retained in position on the upper work-clamping member by means of studs or pins 37, 38 rising from the shank of the work-holding member and operating in slots 39 and 40 formed in the shank 35, the stud 37 having a nut 41 screw-threaded thereto. Said thread-gripping member is retained in its normal position shown in Fig. 2 by means of a spring 42 which is connected at one end to a pin 43 carried by the shank 35 and at its other end to the pin 38.

As stated above the thread-holding member 31 is normally in a position in front of the sewing opening. Means actuated by the stop cam 25 are provided for retracting the thread-holding member 31 into a position shown in Fig. 10 wherein the toe 33 is situated in the rear of the sewing opening and then for releasing said thread-holding member to permit the spring 42 to return it to the position shown in Fig. 2 or that shown in Fig. 11. During the retracting movement of the thread holder the toe 33 wipes by the upper thread 5 but during the return movement said toe engages the upper thread as shown in Fig. 11 and thereby clamps the thread between the under face of the thread-holding member 31 and the work-clamping member. This movement of the thread-holding member is secured by the movement which is given to the stop dog 26 when acted upon by the stop cam in bringing the machine to rest.

The stop dog has fast thereto an upstanding arm 44 which engages an arm 45 rigid with and extending from a sleeve 46 which is journaled on a stud 47 rising from the frame 1. This sleeve 46 has another arm 48 rigid therewith which engages a stud 49 rising from the shank 35 of the thread-holding member. The parts are so adjusted that the backward movement of the stop

dog which results during the cushioned stopping movement of the shaft 6, and which is illustrated in Fig. 9, causes the upstanding arm 44 to act against the arm 45 and thereby turn the sleeve 46 sufficiently to cause the arm 48 to act against the stud 49 thereby to retract the thread holder into the position shown in Fig. 10. When the driving shaft 6 finally comes to rest in the position shown in Fig. 1 the resultant spring-impelled forward movement of the stop dog allows the spring 42 to return the thread holder to its operative position shown in Fig. 11. It will, therefore, be seen that the operation of the holder or gripper for the upper thread is derived from the motion of the stop cam as the machine is coming to rest.

The thread trimmer for cutting the upper thread operates between the thread holder and the work. Such thread cutter is shown at 50 and operates in a groove or guideway 51 formed in the upper work-clamping member 13, said cutter having the cutting edge 52. The cutter is normally in a retracted position with the cutting edge in the rear of the sewing opening 36 as shown in Fig. 4 and means are provided which are operated by the loose pulley 21 after the driving belt 8 has been shifted onto it for giving the upper thread cutter a forward movement thereby to carry the cutting edge 52 across the sewing opening and sever the upper thread.

The thread cutter 50 is shown as having a shank portion 53 which is situated underneath the shank of the upper work-clamping member, said shank portion being provided with a guiding portion 54 having a guiding slot 55 through which extends a screw 56 carried by the upper work clamp. The thread cutter 50 is normally retained in its retracted position by means of a spring 57 which is secured at one end to the shank 53 as shown at 58 and at the other end is secured to a finger 59 extending from the shank of the work-clamping member. The shank 53 of the thread cutter is formed with a stop shoulder 60 which engages the hinge member 61 and thus limits the spring-impelled movement of the thread cutter.

The thread cutter 50 is given its thread-cutting movement by the rotation of the loose pulley 21 which occurs after the driving belt has been shifted onto the loose pulley. This thread-cutting movement, however, does not occur until after the belt has been shifted onto the loose pulley and until after the stop cam 25 has functioned to operate the thread-holding member 34. Hence at the end of the sewing operation the thread holder 31 will function first to grip the upper thread as shown in Fig. 11 and then the upper thread cutter 50 will func-

tion to cut the upper thread between the holder and the work. The means by which the rotation of the loose pulley 21 causes the upper thread cutter 50 to be operated will be presently described.

As regards the under thread 11 means are provided for first pulling off a length of under thread from the shuttle or bobbin at the end of the sewing operation and then for cutting said thread close to the work. The pulling off of this length of under thread is for the purpose of providing a sufficient length protruding from the bobbin so as to ensure the proper formation of the first stitch at the next sewing operation. This pulling off of the under thread is accomplished by means of a pull-off lever 62 which is pivoted to the bed plate 9 at 63 and which operates beneath said bed plate. This pull-off lever 62 is acted on by a spring 64 which normally holds it in retracted position shown in Fig. 3, in which position the end 65 thereof is situated in the rear of the sewing opening. At the end of the stitching operation this pull-off lever is swung into the position shown in Fig. 14 during which movement it engages the under thread 11 directly beneath the bed plate 9 and draws off a length from the source of supply.

Co-operating with the pull-off finger 62 is a thread-cutting member 66 which is pivoted to the bed plate at 67 and is provided with a cutting edge 68. The swinging movement of the pull-off into the position shown in Fig. 14 forms a loop in the under thread 11 and the leg of said loop which leads to the work is carried by the swinging movement of the pull-off lever into a position in front of the cutting edge 68 as seen in Fig. 14. After this length of under thread has been pulled off the cutting member 66 is swung into the position shown in Fig. 15 thereby bringing the cutting edge 68 against the limb of the thread loop leading to the work and severing the latter.

The thread cutter 66 is normally retained in its inoperative position by means of a suitable spring 69. The operative movement of the pull-off 62 and the thread cutter 66 is accomplished through the movement of an actuator 70 which is slidably carried on the bed plate 9. This actuator 70 is provided with an arm 71 which engages the pull-off lever 62, so that when the actuator lever is moved forward into the position shown in Fig. 14 the pull-off lever will be given its operative movement to pull off the desired length of under thread. This actuator 70 also functions to give the thread cutter 66 its operative movement but at a time subsequent to the operative movement of the pull-off device. The actuator 70 is formed with the extension 72 which, during the forward movement of the actuator engages a toe 73

formed on the cutter 66 thereby swinging the cutter from the position shown in Fig. 3 to that shown in Fig. 15. The length of the extension 72 is such, however, that it does not act against the toe 73 until after the pull-off lever has been given its operative movement. The actuator 70, therefore, operates first to actuate the pull-off 62 and then to actuate the cutter 66 thereby first to pull off a length of under thread and then to cut said thread. This movement of the actuator is also derived from the rotation of the loose pulley 21 after the driving belt has been shifted thereto at the end of the sewing operation. For this purpose I have provided a lever 74 pivotally mounted on the stud 47 and having one arm engaging the actuator 70 and another arm engaging the arm 75 of an elbow lever 76 which is pivotally mounted on a stud 77 carried by a bracket 78. The elbow lever 76 normally occupies the position shown in Fig. 2 but when it is turned into the position shown in Fig. 16 it actuates the lever 74 thereby to project the actuator 70 forward into the position shown in Fig. 15, such movement of the actuator operating the pull-off 62 and cutter 66 as above described. This swinging movement of the elbow lever results from the rotation of the loose pulley by the following means.

The loose pulley 21 has rigid therewith a hub portion 79 provided with a spiral groove 80 which gradually disappears at one end and emerges into a cam face 91. The arm 82 of the elbow lever 76 carries at its end a vertically-movable pin 83 which is normally held in elevated position by means of a latch 84 projecting under a shoulder 85 formed on the head of the pin 83. The pin 83 is acted on by a spring 86 which tends to force it downwardly when the latch is withdrawn. When the pin 83 is in elevated position shown in Fig. 6 the lower end thereof is withdrawn from the spiral groove 80 and the loose pulley can, therefore, rotate freely without acting on the pin. When the latch 84 is withdrawn, however, the spring 86 acts to force the pin 83 downwardly so that the lower end thereof will enter the spiral groove 80. When this occurs the continued rotation of the loose pulley will swing the elbow lever into the position shown in Fig. 16 thereby actuating the lever 74 and operating the cutter. This release of the latch 84 is secured by the movement of the stop dog 26 into the position indicated in Fig. 9.

The lever 45 is provided with a tail 87 which normally lies adjacent to an upstanding projection 88 formed on a head 89 at the end of a shank 90 extending from the latch 84. When the stop cam 25 is functioning to bring the machine to rest the backward movement of the stop dog into the position shown in Fig. 9 operates through the finger

87 and the projection 88 to retract the latch 84 thus releasing the pin 83 so that it will be carried by the spring 86 into its operative position, and as stated above the engagement of the pin in the spiral groove 80 will actuate the elbow lever 76 thereby turning the lever 74 and giving the cutting knives their thread-cutting movement.

Means are provided whereby when the pin 83 has been carried the length of the spiral groove 80 said pin will be withdrawn from the groove 80 and will be automatically retained in its raised position by the latch 84. This is accomplished by making the end of the groove 80 of progressively-decreasing depth until it diminishes and by providing a cam member 91 at the end of the groove onto which the pin runs as it leaves the groove. This cam member raises the pin sufficiently to carry the shoulder 85 thereof above the latch 84 and as soon as this point is reached the latch is drawn forward automatically by a spring 92 thus re-engaging it with the shoulder 85 and maintaining the pin in raised position.

The elbow lever is acted on by a spring 93 which operates automatically to return said lever to the position shown in Fig. 2 as soon as the pin 83 is disengaged from the cam groove 80.

The thread cutter 50 for the upper thread is also actuated by the actuator 70 and for this purpose said actuator has an upstanding arm 94 at its rear end, the upper end of which arm engages a shoulder 95 formed on the shank 53 of the upper thread cutter. When, therefore, the lever 74 is operated to move the actuator 70 forward such movement operates through the arm 94 to give the knife 50 its thread-cutting movement.

The operation of the machine will be apparent from the above but might be briefly summarized as follows:

During the operation of the machine the driving belt is on the fast pulley 7 and at the end of the seam the belt shipper is automatically actuated to shift the belt onto the loose pulley 21 and this movement carries the stop dog 26 into position to engage the stop cam 25 thereby bringing the machine to rest. During this operation of stopping the machine the stop cam shifts the stop dog 26 backwardly as shown in Fig. 9 and such backward movement causes the arm 44 to engage the lever 45 thereby swinging the arm 48 which moves the thread holder 31 backwardly into the position shown in Fig. 10. This movement is momentary only and as soon as the thread holder is released it moves forward again thereby gripping the upper thread as shown in Fig. 11.

This movement of the arm 45 also operates through the tail 87 to release the latch 84 thereby allowing the pin 83 to be carried into operative engagement with the

spiral groove 80. It will be remembered that the belt is now on the loose pulley and the consequent rotation of the hub 79 thereof with its spiral groove 80 causes the pin to travel along the spiral groove thus swinging the elbow lever 76 into the position shown in Fig. 16. The arm 75 of this elbow lever actuates the lever 74 which in turn moves the actuator 70 forwardly. This forward movement of the actuator operates through the arm 71 to actuate the pull off 62 thereby pulling off a length of under thread and through the extension 72 said actuator operates the cutter 66 thus cutting the under thread. Said actuator also operates through the upstanding arm 94 to give a thread-cutting movement to the cutter 50 for the upper thread. All of these cutting movements are thus secured by the rotation of the loose pulley after the belt has been shifted thereto.

An advantage which is gained by operating the pull-off lever 62 for the under thread from the loose pulley rather than from the stop dog is that it is possible to provide for giving the pull-off a sufficiently easy movement so as to obviate the danger of breaking the under thread. If the pull-off should be actuated with too quick a movement there would be danger that the under thread would be broken because of the sudden strain of the pull-off thereagainst. By using the loose pulley with the spiral groove it is possible to give the pull-off lever 62 a movement sufficiently slow to obviate any danger of breaking the under thread.

While I have illustrated herein a selected embodiment of my invention I do not wish to be limited to the constructional features shown.

I claim.

1. In a sewing machine adapted to perform a predetermined sewing operation and then come to rest, the combination with stitch-forming mechanism, of driving means for the machine comprising a driving shaft having a driving pulley fast thereon and a driving belt, a loose pulley, means to shift the belt from the fast pulley to the loose pulley at the end of the sewing operation, a stop cam, a yielding stop dog co-operating therewith to bring the machine to rest, a thread holder actuated by movement of the stop dog, and a thread cutter actuated by the loose pulley.

2. In a sewing machine adapted to perform a predetermined sewing operation and then come to rest, the combination with stitch-forming mechanism, of driving means for the machine comprising a driving shaft having a driving pulley fast thereon and a driving belt, a loose pulley, means to shift the belt from the fast pulley to the loose pulley at the end of the sewing operation,

a stop cam, a yielding stop dog co-operating therewith to bring the machine to rest, a thread holder actuated by movement of the stop dog, and a thread cutter actuated by the loose pulley and operating to cut the thread after it is engaged by the thread holder.

3. In a sewing machine adapted to perform a predetermined sewing operation and then to come to rest, the combination with stitch-forming mechanism comprising an upper and under thread-manipulating mechanism, of driving mechanism for the machine comprising a driving shaft, a driving pulley fast thereon and a driving belt, a loose pulley, means to shift the belt from the fast pulley to the loose pulley at the end of the sewing operation, a stop cam, a yielding stop dog co-operating therewith to bring the machine to rest, a thread holder for the upper thread actuated by movement of the stop dog, and means controlled by the loose pulley to cut both threads.

4. In a sewing machine adapted to perform a predetermined sewing operation and then to come to rest, the combination with stitch-forming mechanism comprising an upper and under thread-manipulating mechanism, of driving mechanism for the machine comprising a driving shaft, a driving pulley fast thereon and a driving belt, a loose pulley, means to shift the belt from the fast pulley to the loose pulley at the end of the sewing operation, a stop cam, a yielding stop dog co-operating therewith to bring the machine to rest, a thread holder for the upper thread actuated by movement of the stop dog, and means controlled by the loose pulley to cut the under thread.

5. In a sewing machine adapted to perform a predetermined sewing operation and then to come to rest, the combination with stitch-forming mechanism comprising an upper and under thread-manipulating mechanism, of driving mechanism for the machine comprising a driving shaft, a driving pulley fast thereon and a driving belt, a loose pulley, means to shift the belt from the fast pulley to the loose pulley at the end of the sewing operation, a stop cam, a yielding stop dog co-operating therewith to bring the machine to rest, a thread holder for the upper thread actuated by movement of the stop dog, and means controlled by the loose pulley to pull off a length of under thread and then to cut the latter.

6. In a sewing machine adapted to perform a predetermined sewing operation and then come to rest, the combination with stitch-forming mechanism comprising an upper and under thread-manipulating mechanism, of driving mechanism for the machine comprising a driving shaft, a driving pulley fast thereon and a driving belt, a loose pulley, means to shift the belt from

the fast pulley to the loose pulley at the end of the sewing operation, a stop cam, a yielding stop dog co-operating therewith to bring the machine to rest, a thread holder
 5 for the upper thread actuated by movement of the stop dog, and means controlled by the loose pulley to pull off a length of under thread and to cut both threads.

7. In a sewing machine adapted to perform a predetermined sewing operation and then come to rest, the combination with stitch-forming mechanism, of driving mechanism for the machine comprising a driving shaft having a driving pulley fast thereon
 15 and a driving belt, a loose pulley, means to shift the belt from the fast pulley to the loose pulley at the end of the sewing operation, a stop cam, a yielding stop dog co-operating therewith to bring the machine to
 20 rest, a thread cutter, a normally inoperative driving connection between the loose pulley and the thread cutter, and means operated by the yielding movement of the stop dog to render such connection operative whereby
 25 the cutter is actuated by the loose pulley.

8. In a sewing machine adapted to perform a predetermined sewing operation and then come to rest, the combination with stitch-forming mechanism, of driving mechanism for the machine comprising a driving shaft having a driving pulley fast thereon
 30 and a driving belt, a loose pulley, means to shift the belt from the fast pulley to the loose pulley at the end of the sewing operation, a stop cam, a yielding stop dog co-operating therewith to bring the machine to
 35 rest, a thread cutter, a driving connection between the loose pulley and the cutter, a latch normally holding said driving connection inoperative, and means to release the
 40 latch by the stop cam.

9. In a sewing machine adapted to perform a predetermined sewing operation and

then come to rest, the combination with stitch-forming mechanism, of driving mechanism for the machine comprising a driving
 45 shaft having a driving pulley fast thereon and a driving belt, a loose pulley, means to shift the belt from the fast pulley to the loose pulley at the end of the sewing operation, a stop cam, a yielding stop dog co-operating therewith to bring the machine to
 50 rest, a thread cutter, a driving connection between the loose pulley and the cutter, a latch normally holding said driving connection inoperative, and means to release the latch by the yielding movement of the stop dog when the machine comes to rest, whereby
 55 the driving connections are rendered operative and the cutter is actuated by the continued rotation of the loose pulley.

10. In a sewing machine adapted to perform a predetermined sewing operation and then come to rest, the combination with stitch-forming mechanism comprising upper
 65 and under thread-manipulating means, a driving shaft for operating the machine, a driving pulley fast thereon, a driving belt, a loose pulley, means to shift the belt from the fast to the loose pulley at the end of
 70 the sewing operation, a stop cam, a yielding stop dog co-operating therewith to bring the machine to rest, a thread holder for the upper thread actuated by the yielding movement of the stop dog, a thread cutter, driving
 75 connections between the loose pulley and the thread cutter, a latch normally holding the driving connections inoperative, and means to release the latch by the yielding movement of the stop dog, whereby the
 80 driving connections are rendered operative and the cutter is actuated by the continued rotation of the loose pulley.

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

JOHN KIEWICZ.