

June 16, 1953

J. P. ENOS

2,642,021

SEWING MACHINE ATTACHMENT FOR BASTING

Filed Sept. 22, 1949

3 Sheets-Sheet 1

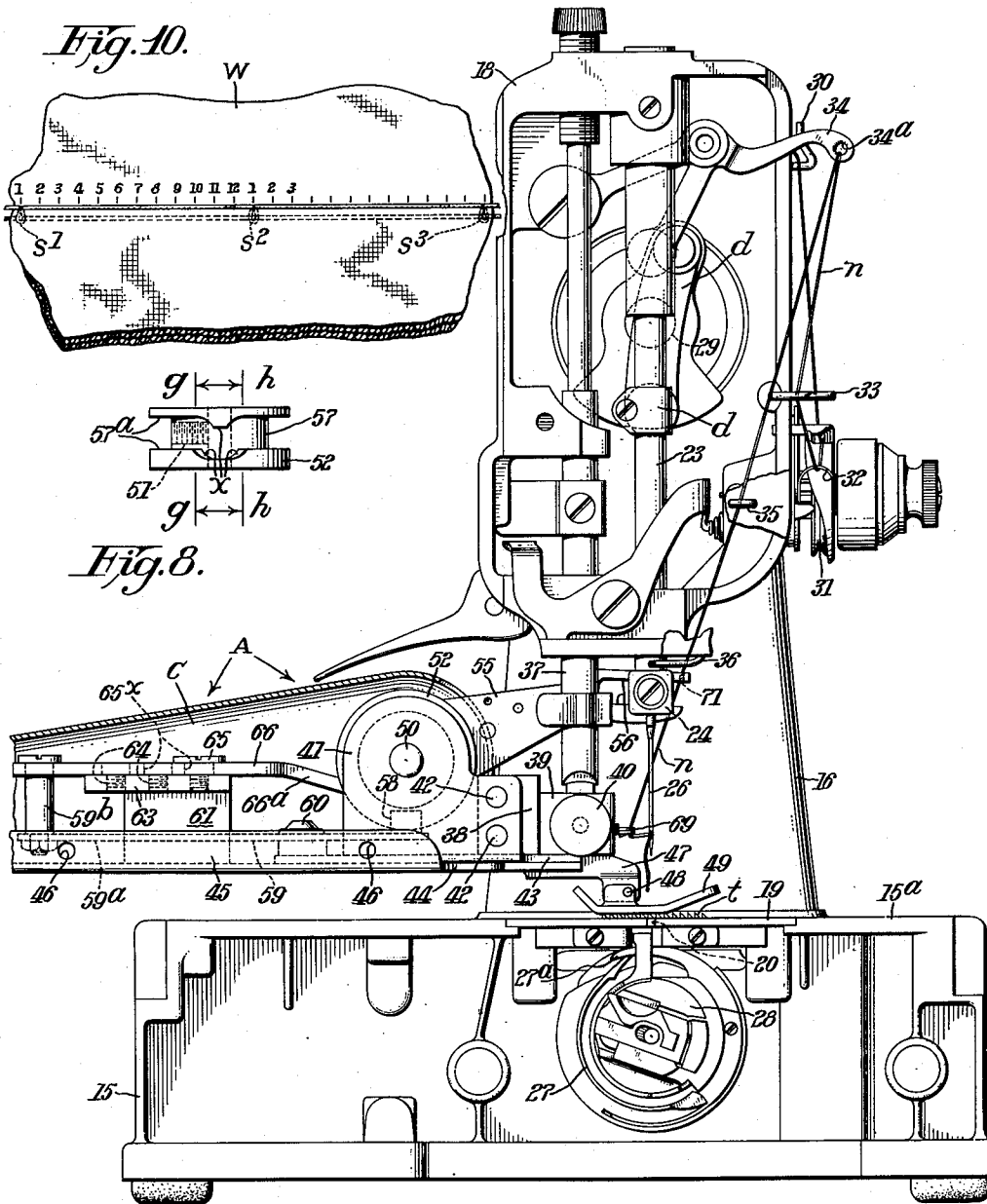


Fig. 1.

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3 Sheets-Sheet 2

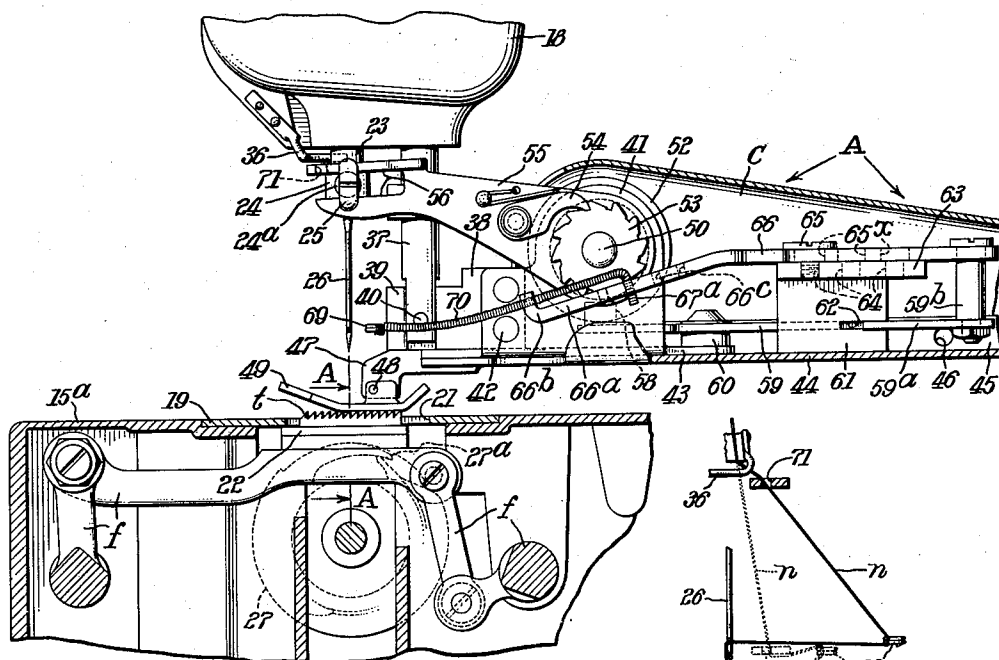


Fig. 2.

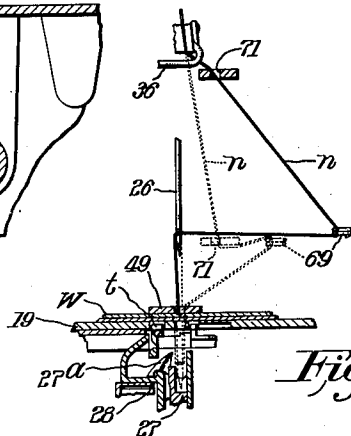


Fig. 9.

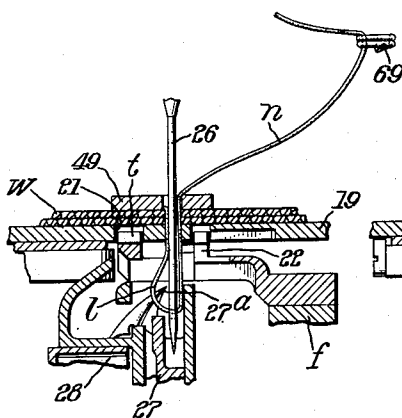


Fig. 6.

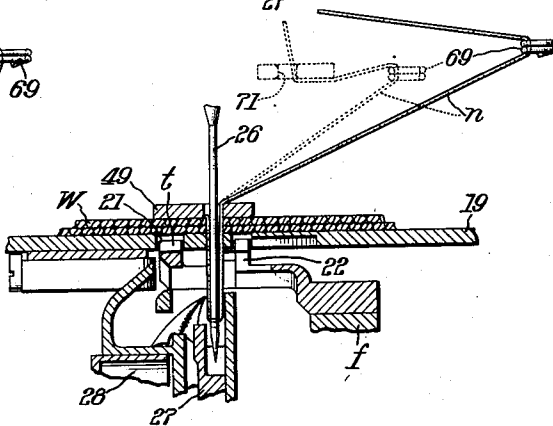


Fig. 7.

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3 Sheets-Sheet 3

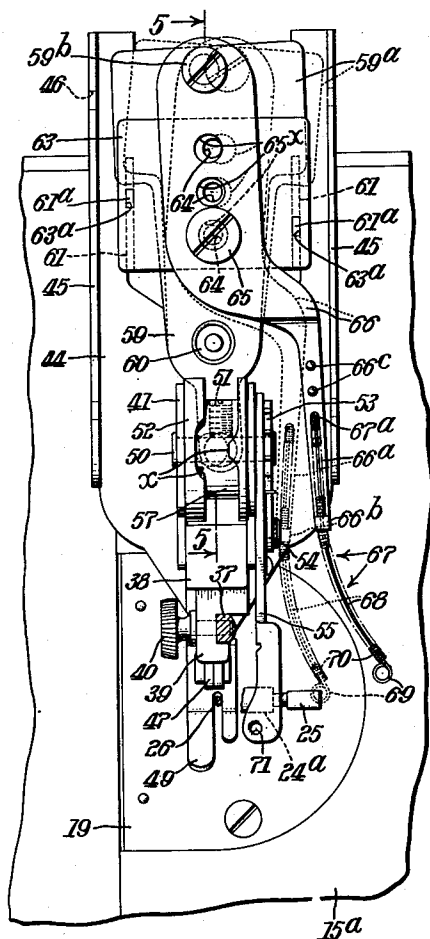


Fig. 3.

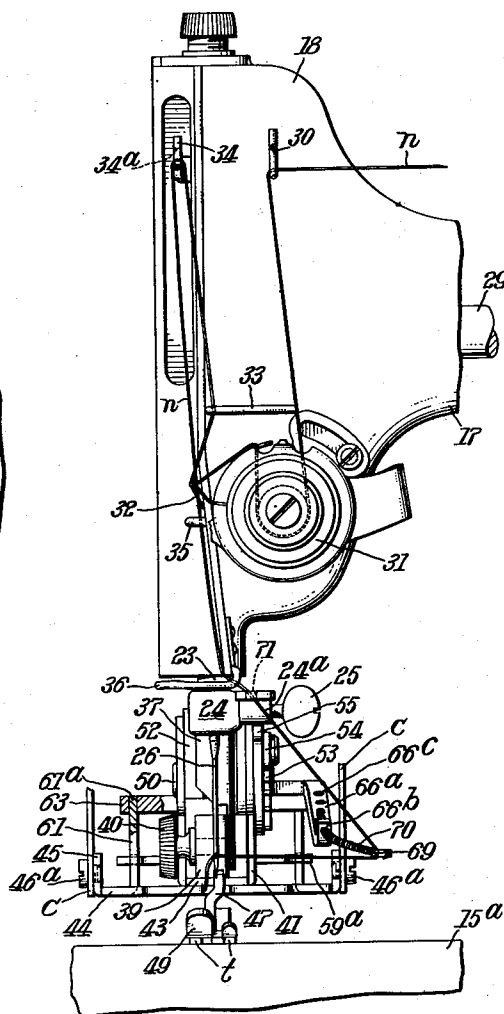


Fig. 4.

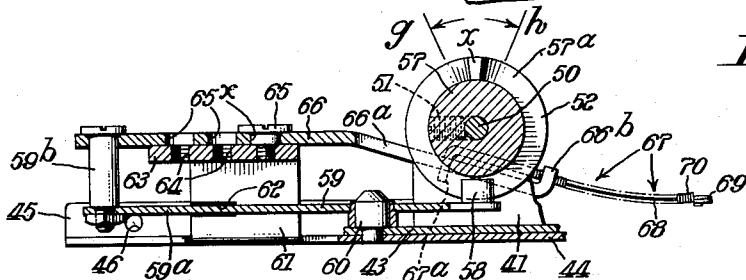


Fig. 5.

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UNITED STATES PATENT OFFICE

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SEWING MACHINE ATTACHMENT
FOR BASTINGJohn P. Enos, Union, N. J., assignor to The Singer
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Application September 22, 1949, Serial No. 117,169

21 Claims. (Cl. 112—245)

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This invention relates to a method of basting together plies of fabric or similar material by the use of a conventional sewing machine and an attachment adapted to be applied to such a machine to cause the machine to make and to skip stitches in a predetermined order so that the number of stitches made will be considerably less than the total number of reciprocations of the needle-bar and the needle carried thereby.

Heretofore it has been the practice of housewives, seamstresses and others, in the making of various articles of clothing, to cut out the component sections of the article, fit them together and temporarily to unite them with relatively long and readily removable basting stitches, by hand sewing. This permits the article to be tried on in its incompleteness and the adjustment of the sections, to obtain the desired size and fit. When the necessary adjustments have been made the sections are permanently sewn together by relatively short stitches and the long basting stitches are removed.

While organized sewing machines heretofore have been provided for making long basting stitches for commercial quantity production, no one has, insofar as I am aware, provided means for converting a conventional family sewing machine, adapted to make from eight to twenty stitches to the inch, to a basting machine adapted to make basting stitches which are spaced apart an inch or more.

This invention has as its primary object to provide an improved method of basting and an attachment which may readily be applied to a conventional family sewing machine, and actuated by the reciprocating needle-bar thereof, for producing widely spaced stitches suitable for basting purposes.

With the above and other objects in view, as will hereinafter appear, the invention comprises the devices, combinations and arrangements of parts hereinafter set forth and illustrated in the accompanying drawings of a preferred embodiment of the invention, from which the several features of the invention and the advantages attained thereby, will be readily understood by those skilled in the art.

In the drawings, Fig. 1 is an end elevation of a sewing machine having the improved basting attachment applied thereto, the cover of the attachment being shown in section.

Fig. 2 is a vertical section of a portion of the machine shown in Fig. 1 with the basting attachment applied thereto, but looking in the opposite direction.

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Fig. 3 is a plan view of the basting attachment, with the cover removed, showing it associated with portions of a sewing machine.

Fig. 4 is a front elevation of a portion of a sewing machine showing the basting attachment in end view.

Fig. 5 is a detail vertical section taken substantially on the line 5—5 of Fig. 3.

Figs. 6 and 7 are detail vertical sections taken substantially on the line A—A of Fig. 2, the former figure showing the beak of the hook entering the needle-thread loop during the formation of a conventional lock stitch and the latter figure showing, in full and dotted lines, the action of a portion of the present attachment which effects robbing of the needle-thread loop to cause the skipping of stitches.

Fig. 8 is a detail edge view of an actuating cam forming a part of the present attachment.

Fig. 9 is a diagrammatic view illustrating the thread-drawing action of the needle which sets a portion of the attachment in position to cause the machine to skip stitches.

Fig. 10 is a detail perspective view of a portion of two plies of material basted together by means of a sewing machine fitted with this improved basting attachment.

Referring more specifically to the drawings, the invention is disclosed as embodied in an attachment designated generally as A adapted to be applied to a sewing machine having a frame including a base 15, a standard 16, and an overhanging bracket-arm 17 terminating in a bracket-arm head 18. The base 15 provides an upper horizontal work-supporting plate 15^a which carries a throat-plate 19 formed with a needle hole 20 and slots 21 through which operate the teeth *t* of a feed-dog 22, forming a part of a conventional four-motioned work-feeding mechanism designated generally as *f*. Mounted in the bracket-arm head 18 for endwise reciprocation is a needle-bar 23 to the lower end of which is secured a needle-clamp 24 in which is held, by a thumb-screw 25, a needle 26. Cooperating with the needle 26, in the formation of lock stitches is a loop-taker, preferably, but not necessarily comprising a rotary hook 27 having a loop-seizing beak 27^a which, in a normal sewing operation, passes into a loop *l* of needle thread *n*, thrown out by the needle during the initial portion of each upstroke thereof, as shown in Fig. 6, and casts that loop about a mass of under thread (not shown) located within a bobbin-case 28. The needle-bar 23 is reciprocated by the rotation

of a rotary main shaft 29 journaled lengthwise of the bracket-arm 17. The means for reciprocating the needle-bar 23 from the rotary shaft 29 is conventional and is designated generally as *d*. The hook 27 is rotated from the main shaft 29 by conventional mechanism, not shown. This mechanism gives to the hook two rotations for each reciprocation of the needle-bar and the needle carried thereby. During normal straight-away sewing operations, the hook takes the needle-thread loop during each alternate rotation and concatenates it with the under thread, thereby forming a stitch. Normally the needle thread *n* passes from a supply, not shown, through a thread guide 30 carried by the bracket-arm head, thence through a thread tension device 31, under a check spring 32, upwardly through a thread guide 33, through an eye 34^a in a take-up lever 34, thence downwardly and through thread guides 35 and 36 to the eye of the needle. When using the present attachment, the threading is the same except that after the thread is passed through the thread guide 36 it is passed through other thread guides, later to be described, before passing through the needle-eye.

It is to be understood that the attachment is adaptable to sewing machines having other forms of loop-takers such, for example, as shuttles and chain stitch loopers.

Also mounted in the bracket-arm head 18 is a spring-depressed presser-bar 37 which normally carries, at its lower end, a conventional presser-foot (not shown) which during straightaway sewing cooperates with the feed-dog 22 in advancing the work. When the present basting attachment is to be applied to the machine the presser-foot is removed and the attachment is secured to the presser-bar as will now be described.

The attachment comprises a supporting bracket comprising a block 38 having a horizontally disposed U-shaped extension 39 adapted to be fitted to the presser-bar, in place of the usual presser-foot, and secured thereto by a clamp screw 40. The attachment also includes a U-shaped sheet metal frame comprising side walls 41 secured to the block 38 by rivets 42 and a bottom plate 43 which projects forwardly and rearwardly beyond the side walls 41. Secured to the frame plate 43 is a base plate 44 having upturned side walls 45 to which may be secured, as by screws 46^a threaded into holes 46, a sheet metal attachment cover, designated generally as C. To the forward ends of the plates 43 and 44 there is secured a shank 47 (Figs. 1 and 2) to which is pivotally secured, as by pivot pin 48, a presser foot 49 which cooperates with the throat-plate 19 and the feed-dog 22 to effect alternate holding and feeding of the work-piece designated generally as W.

Journaled horizontally in the upstanding side walls 41 of the frame member is a short shaft 50 upon which is secured, between the side walls, by a set screw 51, a cam member 52 later to be described. Also secured to one end of the shaft 50 is a twelve-tooth ratchet wheel 53 which is given step-by-step rotations by a spring-pressed pawl 54 carried by an actuating arm 55 pivoted on the shaft 50 between the ratchet wheel 53 and the adjacent side wall 41. The free end of the arm 55 is bifurcated, as at 56, and straddles a boss 24^a formed on the needle-clamp 24. Thus the arm 55 is oscillated about the axis of the shaft 50 by each reciprocation of the needle-bar and causes the pawl 54 to advance the ratchet

wheel 53 one tooth. This causes the shaft 50 and the cam member 52 to be rotated clockwise (as seen in Fig. 2) thirty degrees, with each upstroke of the needle.

The cam member 52 is formed with a peripheral cam groove 57 which is tracked by a stud 58 (see Fig. 5) carried by the front end of an actuating lever 59 fulcrumed, intermediate its ends, on a stud 60 carried by the plates 43 and 44. The frame plate 44 is formed with two spaced upstanding walls 61, each slotted at 62 to receive and guide the widened rear end 59^a of the lever 59. A horizontally disposed plate 63 is secured upon the upper edges of the walls 61, as by means of tangs 61^a projecting upwardly from the walls 61 and riveted into apertures 63^a in the plate 63 (see Fig. 4). The plate 63 is formed with three threaded holes 64 into any one of which may be threaded a shoulder screw 65 which constitutes an adjustable fulcrum for a horizontally disposed lever 66 having a reduced downwardly inclined forward end portion 66^a. The lever 66 is provided with a series of holes 65^{*} for the reception of the shoulder of the screw 65. The rear end portion of the lever 59 is connected, by a bolt 59^b, with the rear end of the lever 66, whereby oscillations of the lever 59, under the influence of the cam groove 57, are transmitted to the lever 66. The extent of oscillation of the lever 66 is dependent upon into which one of the holes 64 the screw 65 is threaded and the adjustment is provided to adapt the attachment to various types of sewing machines.

To the forward end of the lever 66 is adjustably secured a flexible thread-engaging element 67, preferably, but not necessarily, made of a wire 68 formed at its forward end with a thread-eye 69 and wrapped throughout its length with a coiled wire 70. The member 67 is passed through an eye formed in the upturned end 65^b of the lever 66 and has a downturned end 67^a adapted to be fitted into any one of a plurality of apertures 66^c in the portion 66^a of the lever 66, thereby to vary the overall length of the lever 66 and the element 67, to adapt the device to various sewing machines.

When it is desired to use a conventional family sewing machine to perform basting operations, the presser-foot of the machine is removed from the presser-bar and the present device is attached thereto as above described. The machine is then threaded in the usual manner except that after the thread is passed through the thread-guide 36 it is threaded through a thread-eye 71 formed in the upper furcate of the forked end of the lever 55, thence through the thread-eye 69 in the flexible thread-engaging element 67, and finally through the eye of the needle.

It will be noted that the major portion 57^a of the groove 57 extends, as a straight run, circumferentially about the member 52 with each of the walls of the groove in a plane perpendicular to the axis of rotation of the member. The only portion of the groove in which the walls thereof are out of said planes is the offset portion *x* between the lines *g* and *h* as indicated in Figs. 5 and 8. When the stud 58 is in the portion *x* of the groove 57 the lever 66 and the eye 69 of the thread-engaging element 67 are in the position indicated in dotted lines in Fig. 3. When the thread-eye 69 is in this position the needle will descend carrying with it the needle thread *n*. As the needle starts to rise it will cast out a thread-loop *l*, as shown in Fig. 6, for entrance by the beak 27^a of the loop-taker. When this

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occurs the rotation of the loop-taker will cast the needle-thread loop about the mass of under thread and a lock stitch will be formed.

When, by rotation of the cam member 52, the stud 58 is shifted to the straight circumferential portion 57^a of the cam groove 57, the lever 66 and the threaded eye 69 carried thereby are shifted to their outermost positions shown in full lines in Figs. 3, 7 and 9.

Operation

Let it be assumed that the present attachment has been secured to the presser-bar 37 of a conventional family sewing machine, in place of the regular presser-foot; that the stud 58 is in the portion x of the cam groove 57 thereby placing the lever 66 and the thread-engaging element 67 in their innermost position as shown in dotted lines in Fig. 3; and that the machine has just produced the lock stitch s^1 , in Fig. 10, to unite the two plies of the work-piece. On the next upstroke of the needle-bar the pawl 54, carried by the needle-bar-actuated arm 55, will turn the cam member 52, thereby moving the stud 58 into the straight peripheral run 57^a of the cam groove 57. This will shift the lever 66 and its flexible thread-engaging element 67, with its thread-eye 69, to the position shown in full lines in Figs. 3, 7 and 9. The parts will remain in this position during the next succeeding eleven downstrokes of the needle and the corresponding downstrokes of the thread-eye 71 formed in the forward end of the arm 55.

As shown diagrammatically in Fig. 9, downward movement of the needle-eye and the thread-eye 71 from their uppermost positions, shown in full lines, to their lowermost positions, shown in dotted lines, causes angles to be formed in the thread between the thread-eye 71 and the thread-eye 69, formed in the flexible member 67, and between the eye 69 and the needle-eye. This causes the thread-eye 69 to be drawn inwardly from the position shown in full lines in Fig. 9 to the position illustrated in dotted lines, thereby deflecting the spring element 67 and placing it under tension. As the needle rises from its dotted line position in Fig. 9 and puts slack in the needle-thread (which slack normally would form the thread-loop l) the thread-eye 69 is moved outwardly, by the power stored in the member 67, to the position shown in full lines, thereby taking up the slack in the needle-thread and preventing the formation of a thread-loop. Thus the beak of the loop-taker passes beside the needle, as shown in Fig. 7, without taking the needle-thread, and no stitch is formed. This skipping of stitches is repeated as long as the roller 58 is in the straight run 57^a of the cam groove, i. e., during the next eleven upstrokes of the needle indicated by the numerals 2 to 12, inclusive, in Fig. 10. After each upstroke of the needle the work is advanced one stitch length by the feeding mechanism in the usual manner. As the needle makes its eleventh upstroke after forming the stitch s^1 (i. e. number 12 in Fig. 10) the stud 58 enters the offset portion x of the cam groove 57, thereby shifting the lever 66, element 67, and thread-eye 69 to the position illustrated in dotted lines in Fig. 3. In the twelfth upstroke of the needle, after forming the stitch s^1 , the thread-eye 69 is maintained in the position shown in Fig. 6, the thread-loop l is cast out by the needle and entered by the beak of the loop-taker as shown in Fig. 6 and the stitch s^2 (Fig. 10) is

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formed. This constitutes the first stitch of the next twelve-stitch cycle.

This taking of one needle-thread loop and the robbing of the next eleven thread loops, to cause the skipping of stitches, is repeated, thereby causing the upper and under threads to be unconnected between the stitches s^1 , s^2 and s^3 etc. as illustrated in Fig. 10.

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

1. An attachment for a sewing machine having a presser-bar, stitch-forming mechanism including a reciprocating thread-carrying needle, and a complemental loop-taker designed to take thread loops from the needle in the formation of stitches; comprising a frame constructed and arranged to be secured to the presser-bar of the machine, a movable member carried by said frame, an elongated thread-engaging element flexible in all directions laterally of its length and carried by said member, means to move said member and element to a first position to permit the formation of a stitch, means acting a plurality of times after a stitch has been formed for shifting said member and said thread-engaging element to a second position at each upstroke of the needle for robbing the needle-thread loop to effect the skipping of stitches, and means, operative after a predetermined number of stitches have been skipped, for shifting said thread-engaging element back to its first position to permit the formation of another stitch.

2. A basting attachment for a sewing machine having a reciprocating needle-bar, an eye-pointed thread-carrying needle carried by said needle-bar, a loop-taker, and work-feeding mechanism; comprising a frame constructed and arranged to be secured to the sewing machine, a member pivotally mounted on said frame, a flexible element carried by said member and having a thread-eye through which the needle thread passes in its travel to the needle-eye, and means actuated by predetermined reciprocations of the needle-bar for shifting said member and thread-eye to a position in which the flexible element is placed under tension by the downstroke of the needle and reacts to rob the needle-thread loop during the next upstroke of the needle, thereby preventing the formation of a needle-thread loop and consequently causing the skipping of a stitch.

3. An attachment for a sewing machine having a reciprocating needle-bar, an eye-pointed thread-carrying needle carried by said needle-bar, a loop-taker, and work-feeding mechanism; comprising a frame constructed and arranged to be secured to the sewing machine, a rotary cam carried by said frame, a first horizontally disposed lever fulcrumed vertically on said frame and actuated from said cam, a base-plate secured to said frame, a second horizontally disposed lever fulcrumed relative to said base-plate and actuated from said first lever, a thread-guide carried by said second lever and through which the needle thread passes in its travel to the needle-eye, and ratchet means actuated by the needle-bar for rotating said cam to cause said thread-eye to be shifted to a position in which it prevents the formation of a needle-threaded loop, thereby to cause the skipping of stitches.

4. An attachment for a sewing machine having stitch-forming mechanism including a reciprocating needle-bar, a thread-carrying needle carried by said bar, and a loop-taker designed to take thread loops from the needle in the forma-

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tion of stitches; comprising a frame constructed and arranged to be secured to the sewing machine, an arm pivotally carried by said frame and attachable to the needle-bar so as to be reciprocated thereby, a movable thread-engaging element carried by said frame, and means carried by said frame and connecting said movable thread-engaging element with said arm so as cyclically to actuate said element in response to the reciprocation of said arm.

5. An attachment for a sewing machine having stitch-forming mechanism including a reciprocating needle-bar, a thread-carrying needle carried by said bar, and a loop-taker designed to take thread loops from the needle in the formation of stitches; comprising a frame constructed and arranged to be secured to the sewing machine, an arm pivotally carried by said frame and attachable to the needle-bar so as to be reciprocated thereby, a flexible thread-engaging element carried by said frame, and means carried by said frame and connecting said flexible element with said arm so as cyclically to move said flexible element in response to the reciprocation of said arm.

6. An attachment for a sewing machine having stitch-forming mechanism including a reciprocating needle-bar, a thread-carrying needle carried by said bar, and a loop-taker designed to take thread loops from the needle in the formation of stitches; comprising a frame constructed and arranged to be secured to a sewing machine, an arm pivotally carried by said frame and attachable to the needle-bar so as to be reciprocated thereby, a second arm pivotally mounted upon said frame, a flexible finger carried upon the free end of said second arm, a thread-receiving eyelet carried upon said finger, and means carried by said frame and connecting said second arm with said first arm so as cyclically to actuate said second arm and said flexible element in response to the reciprocation of said arm.

7. An attachment for a sewing machine having stitch-forming mechanism including a reciprocating needle-bar, a thread-carrying needle carried by said bar, and a loop-taker designed to take thread loops from the needle in the formation of stitches; comprising a frame constructed and arranged to be secured to a sewing machine, a cam rotatably mounted upon said frame and adapted to be rotated by said needle-bar, a flexible finger supported by said frame, a thread-receiving eyelet carried upon said finger, and means carried by said frame and connecting said flexible finger with said cam so as cyclically to actuate said finger in response to the rotation of said cam.

8. An attachment for a sewing machine having stitch-forming mechanism including a reciprocating needle-bar, a thread-carrying needle carried by said bar, and a loop-taker designed to take thread loops from the needle in the formation of stitches; comprising a frame constructed and arranged to be secured to the sewing machine, an arm movably carried by said frame and attachable to the needle-bar so as to be actuated thereby, a pair of thread-engaging elements supported by said frame, and means carried by said frame and connected with said arm for causing relative movement between said two elements in response to the movements of said arm.

9. An attachment for a sewing machine having stitch-forming mechanism including a reciprocating needle-bar, a thread-carrying needle carried by said bar, and a loop-taker designed to

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take thread loops from the needle in the formation of stitches; comprising a frame constructed and arranged to be secured to the sewing machine, an arm movably carried by said frame and attachable to the needle-bar so as to be reciprocated thereby, a pair of thread-engaging elements supported by said frame, one of said elements being in the form of an elongated flexible finger, and means carried by said frame and connected with said arm for causing relative movement between said two elements in response to reciprocations of said arm.

10. An attachment for a sewing machine having stitch-forming mechanism including a reciprocating needle-bar, a thread-carrying needle carried by said bar, and a loop-taker designed to take thread loops from the needle in the formation of stitches; comprising a frame constructed and arranged to be secured to the sewing machine, an arm movably carried by said frame and attachable to the needle-bar so as to be reciprocated thereby, a first thread-engaging element associated with said arm so as to be actuated thereby, a second thread-engaging element carried by said frame, and means carried by said frame and connecting said second thread-engaging element with said arm so as cyclically to actuate said second element relative to said first element in response to a predetermined number of reciprocations of said arm.

11. An attachment for a sewing machine having stitch-forming mechanism including a reciprocating needle-bar, a thread-carrying needle carried by said bar, and a loop-taker designed to take thread loops from the needle in the formation of stitches; comprising a frame constructed and arranged to be secured to the sewing machine, an arm movably carried by said frame and attachable to the needle-bar so as to be reciprocated thereby, a first thread-engaging element associated with said arm so as to be actuated thereby, a second thread-engaging element in the form of an elongated flexible finger, and means carried by said frame and connecting said second thread-engaging element with said arm so as cyclically to actuate said second thread-engaging element relative to said frame and said first thread-engaging element in response to a predetermined number of reciprocations of said arm.

12. An attachment for a sewing machine having stitch-forming mechanism including a reciprocating needle-bar, a thread-carrying needle carried by said bar, and a loop-taker designed to take thread loops from the needle in the formation of stitches; comprising a frame constructed and arranged to be secured to the sewing machine, an arm pivotally carried by said frame and attachable to the needle-bar so as to be reciprocated thereby, a movable thread-engaging element carried by said frame, and a cam rotatably carried by said frame and operatively connected with said arm so as to be actuated thereby, said cam being operatively connected with said movable thread-engaging member so as cyclically to actuate said member in response to a predetermined number of reciprocations of said arm.

13. An attachment for a sewing machine having stitch-forming mechanism including a reciprocating needle-bar, a thread-carrying needle carried by said bar, and a loop-taker designed to take thread loops from the needle in the formation of stitches; comprising a frame constructed and arranged to be secured to the sewing machine, an arm movably carried by said frame and

attachable to the needle-bar so as to be reciprocated thereby, a pair of thread-engaging elements supported by said frame, one of said elements being in the form of an elongated flexible finger, and a cam rotatably carried by said frame and operatively connected with said arm so as to be actuated thereby, said cam being operatively connected with one of said elements for cyclically causing relative movement between said two elements in response to a predetermined number of reciprocations of said arm.

14. An attachment for a sewing machine having stitch-forming mechanism including a reciprocating needle-bar, a thread-carrying needle carried by said bar, and a loop-taker designed to take thread loops from the needle in the formation of stitches; comprising a frame constructed and arranged to be secured to the sewing machine, an arm pivotally carried by said frame and attachable to the needle-bar so as to be reciprocated thereby, a movable thread-engaging element carried by said frame, means carried by said frame and connecting said movable thread-engaging element with said arm so as cyclically to actuate said element in response to a predetermined number of reciprocations of said arm, and means disposed between said frame and said element for altering the amplitude of cyclic movement of said element.

15. An attachment for a sewing machine having stitch-forming mechanism including a reciprocating needle-bar, a thread-carrying needle carried by said bar, and a loop-taker designed to take thread loops from the needle in the formation of stitches; comprising a frame constructed and arranged to be secured to the sewing machine, an arm pivotally carried by said frame and attachable to the needle-bar so as to be reciprocated thereby, a first thread-engaging element carried by said arm for direct actuation thereby, a cam rotatably carried by said frame and operatively connected with said arm for actuation thereby, a second thread-engaging element in the form of a flexible finger movably carried by said frame, and means connecting said second element with said cam for cyclically actuating said element relative to said frame and said first element in response to a predetermined number of reciprocations of said arm.

16. An attachment for a sewing machine having stitch-forming mechanism including a reciprocating needle-bar, a thread-carrying needle carried by said bar, and a loop-taker designed to take thread loops from the needle in the formation of stitches; comprising a frame constructed and arranged to be secured to the sewing machine, a work-engaging foot carried by said frame, an arm pivotally carried by said frame and attachable to the needle-bar so as to be reciprocated thereby, a first thread-engaging element carried by said arm for reciprocation toward and away from said work-engaging foot, a second arm pivotally carried by said frame, a second thread-engaging element in the form of a flexible finger carried upon the free end of said second arm, means for normally maintaining said second arm a predetermined fixed distance from said work-engaging foot during a plurality of reciprocations of said first arm so that the interaction of said two elements will impose a tension upon the needle-thread, a cam carried by said frame and operatively connected with said first arm so as to be actuated thereby, and means connecting said second arm with said cam so that such arm will be periodically shifted

from its normal position and toward said work-engaging foot in response to a predetermined number of reciprocations of said first arm thereby to prevent the interaction of said two elements from applying a tension upon the needle thread.

17. A sewing machine comprising in combination, a loop-taker; a reciprocatory thread-carrying needle adapted for movements toward and away from said loop-taker in the formation of stitches; a needle-thread take-up; driving means for actuating said loop-taker, said needle, and said take-up in timed relation; a finger pivotally mounted at one end upon the machine and having its other end flexible about its pivot axis; a needle-thread receiving eyelet carried upon said finger for receiving the needle-thread at a point along the line of thread lead between said take-up and said needle; and means operated by said driving means for cyclically moving said finger about its pivot axis and laterally of the direction of thread lead thereby to tension the thread so as to prevent the formation of a stitch.

18. A sewing machine comprising, in combination, a loop-taker; a reciprocatory thread-carrying needle adapted for movements toward and away from said loop-taker in the formation of stitches; a needle-thread take-up; driving means for actuating said loop-taker, said needle, and said take-up in timed relation; a pair of thread-engaging elements for successively engaging the needle-thread at spaced points along the line of thread lead between said take-up and said needle; and means operated by said driving means for cyclically altering the relative positions between said two elements thereby to tension the thread so as to prevent the formation of a stitch.

19. A sewing machine comprising, in combination, a loop-taker; a reciprocatory thread-carrying needle adapted for movements toward and away from said loop-taker in the formation of stitches; a needle-thread take-up; driving means for actuating said loop-taker, said needle, and said take-up in timed relation; a pair of thread-engaging elements for successively engaging the needle-thread at spaced points along the line of thread lead between said take-up and said needle; means operated by said driving means for reciprocating a first of said elements in timed relation with said needle; and means operated by said driving means for cyclically shifting a second of said elements relative to the path of reciprocation of said first element so that the interaction of said two elements upon the thread will tension the thread thereby to prevent the formation of a stitch.

20. A sewing machine comprising, in combination, a loop-taker; a reciprocatory thread-carrying needle adapted for movements toward and away from said loop-taker in the formation of stitches; a needle-thread take-up; driving means for actuating said loop-taker, said needle, and said take-up in timed relation; a pair of thread-engaging elements for successively engaging the needle-thread at spaced points along the line of thread lead between said take-up and said needle; a first of said elements being in the form of a flexible finger; means operated by said driving means for reciprocating a second of said elements in timed relation with said needle; and means operated by said driving means for cyclically shifting said flexible finger element relative to the path of reciprocation of said second element so that the interaction of said two elements upon

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the thread will tension the thread thereby to prevent the formation of a stitch.

21. A sewing machine comprising, in combination, a loop-taker; a reciprocatory thread-carrying needle adapted for movements toward and away from said loop-taker in the formation of stitches; a needle-thread take-up; driving means for actuating said loop-taker, said needle, and said take-up in timed relation; a pair of thread-engaging elements for successively engaging the needle-thread at spaced points along the line of thread lead between said take-up and said needle; a first of said elements being in the form of a flexible finger; means operated by said driving means for reciprocating a second of said elements in timed relation with said needle; a cam operated by said driving means; and means con-

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necting said flexible finger element with said cam for cyclically shifting said flexible finger element relative to the path of reciprocation of said second element so that the interaction of said two elements upon the thread will tension the thread thereby to prevent the formation of a stitch.

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