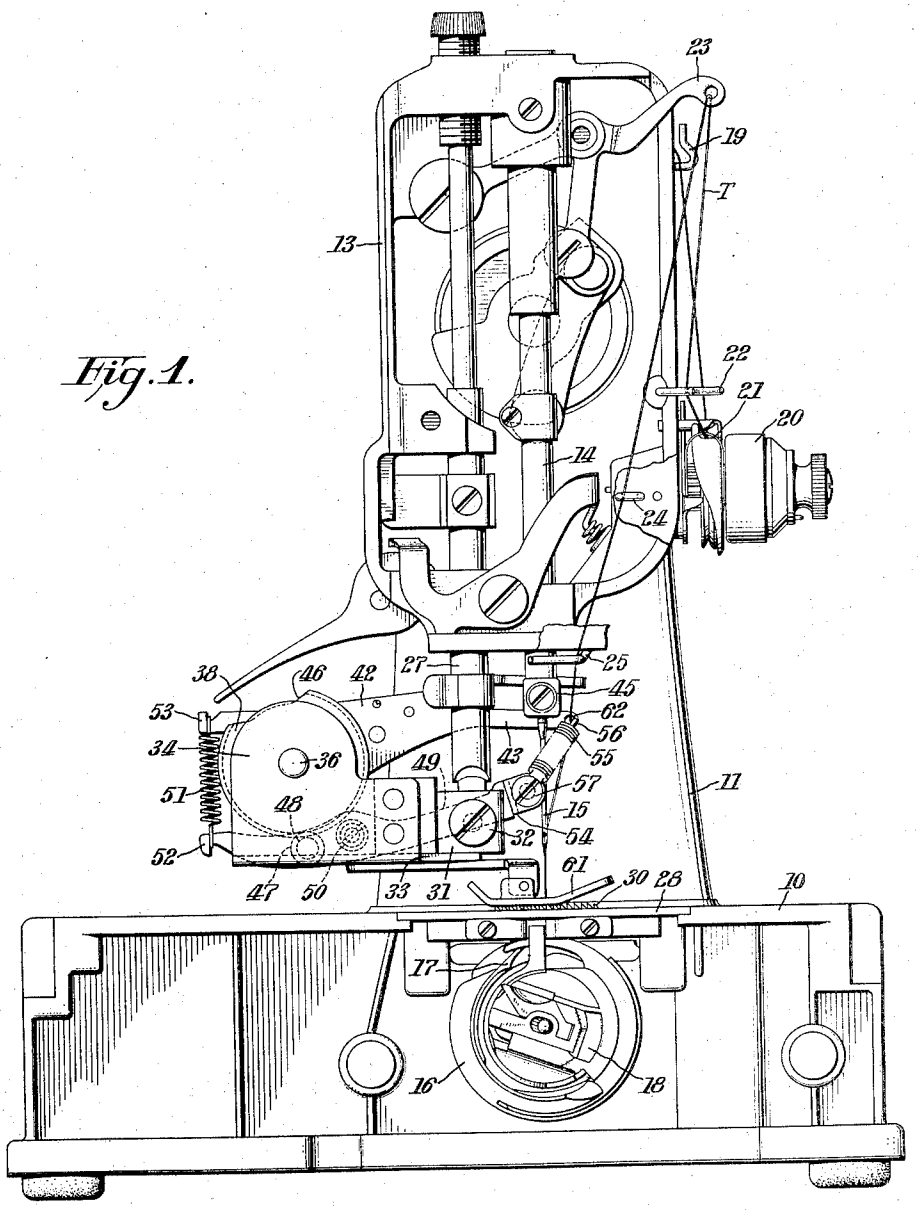
Sept. 23, 1958 J. P. ENOS 2,853,036

SEWING MACHINE ATTACHMENTS FOR BASTING

Filed June 3, 1954 3 Sheets-Sheet 1

Fig. 1.



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SEWING MACHINE ATTACHMENTS FOR BASTING

Filed June 3, 1954 3 Sheets-Sheet 2

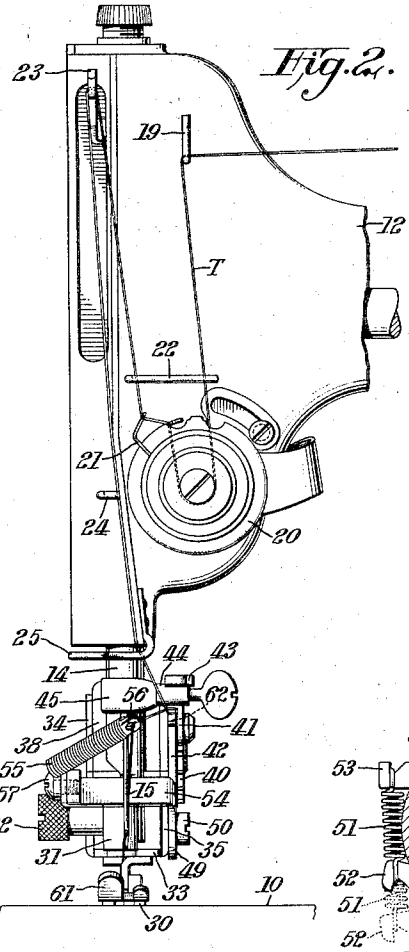


Fig. 2.

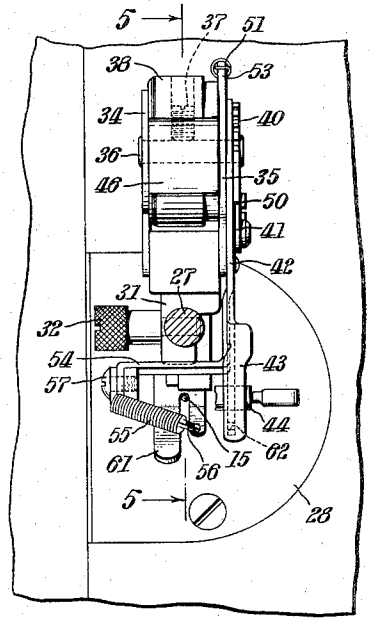


Fig. 4.

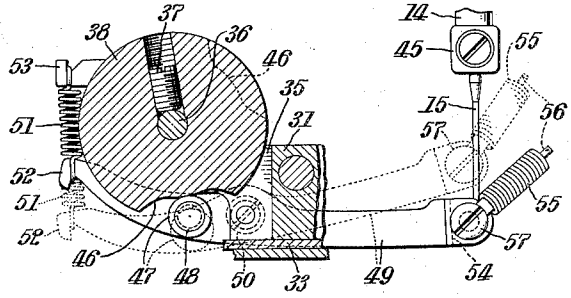


Fig. 5.

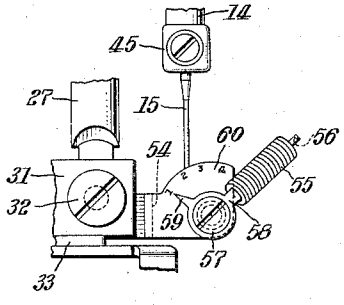


Fig. 8.

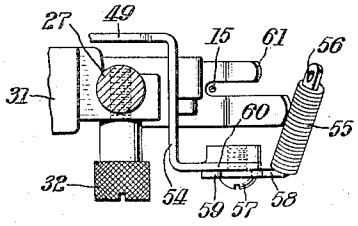


Fig. 9.

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SEWING MACHINE ATTACHMENTS FOR BASTING

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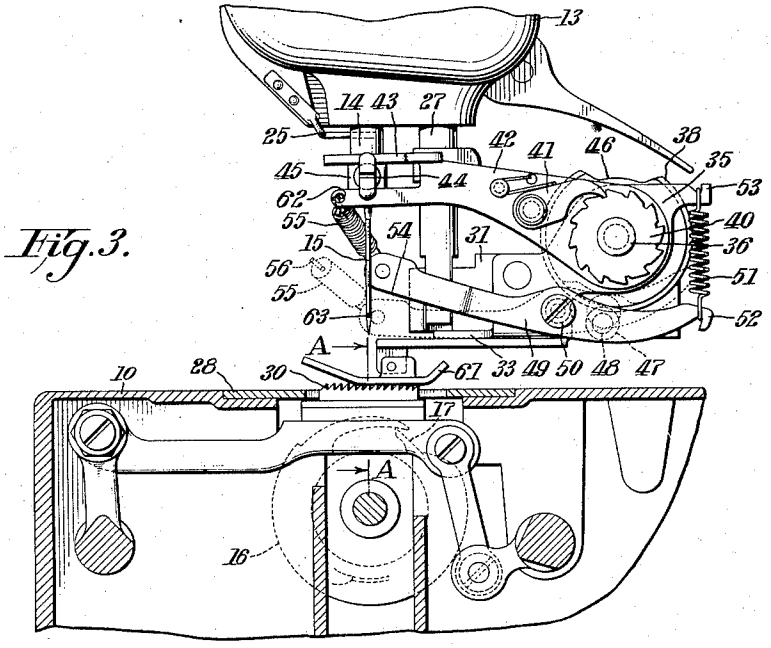


Fig. 3.

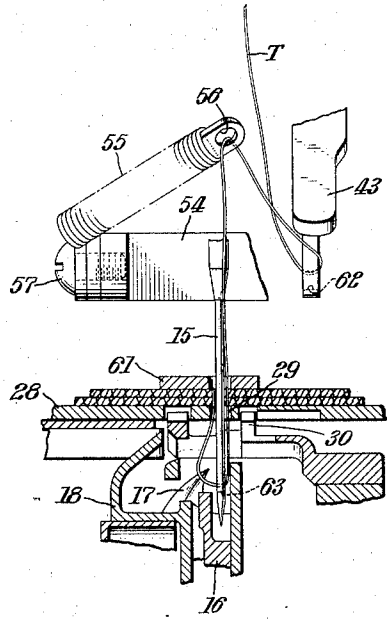


Fig. 6.

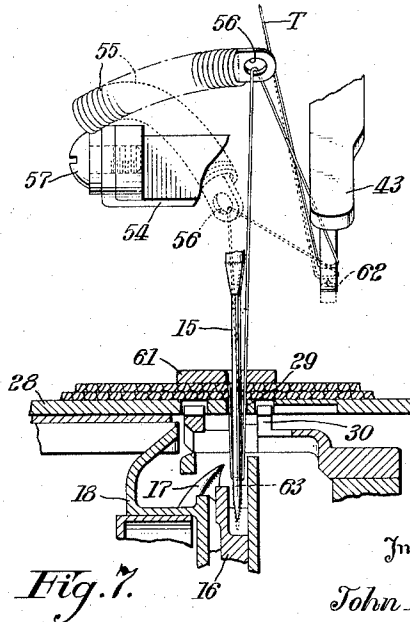


Fig. 7.

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SEWING MACHINE ATTACHMENTS FOR BASTING

John P. Enos, Union, N. J., assignor to The Singer Manufacturing Company, Elizabeth, N. J., a corporation of New Jersey

Application June 3, 1954, Serial No. 434,119

3 Claims. (Cl. 112—245)

The invention relates to attachments for sewing machines and more particularly to a basting attachment which may be attached to a conventional family sewing machine for the purpose of temporarily uniting, by widely spaced connected stitches, two sections of a garment or article.

The primary object of this invention is to produce a new and improved basting attachment that may be applied to the presser-bar of existing family sewing machines.

Another object of this invention is the provision of a basting attachment which is compact, consists of relatively few parts and which may be manufactured at relatively little expense yet will be efficient and positive in operation.

With these and other objects in view, the invention consists of the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is an end elevation of a sewing machine having my improved basting attachment applied thereto.

Fig. 2 is a front elevation of the head of the sewing machine shown in Fig. 1, and showing a front elevation of the basting attachment.

Fig. 3 is a vertical section of a portion of the machine shown in Fig. 1 with the basting attachment applied thereto, the opposite side of attachment being shown.

Fig. 4 is a top plan view of the attachment.

Fig. 5 is a detailed vertical sectional view taken along the line 5—5 of Fig. 4.

Figs. 6 and 7 are detailed vertical sections taken substantially along the line A—A of Fig. 3 showing the action of my improved attachment in the robbing of the needle-loop to cause the skipping of stitches.

Figs. 8 and 9 are detailed views of the adjustment which permits the attachment to be used on various classes of machines.

In the embodiment of my invention selected for illustration, my improved basting attachment is shown applied to a sewing machine having a bed 10, standard 11, and an overhanging bracket-arm 12 terminating in a hollow head 13. Journaled within the hollow head for endwise reciprocating movement is a needle-bar 14 carrying an eye-pointed thread carrying needle 15. Cooperating with the needle 15 is a loop-taker 16 having a loop-seizing beak 17 which in normal sewing operation passes into a loop of needle thread thrown out by the needle on the initial portion of its upstroke and then expands the loop and casts it about a bobbin case 18 which carries the lower thread mass. The means for reciprocating the needle-bar 14 and rotating the loop-taker are old and well known and are fully shown in the Goosman Patent No. 1,975,744 to which reference may be had for a detailed disclosure of the machine and its actuating mechanism.

During normal straightaway sewing operations, the loop-taker 16 takes the needle-thread loop from the needle each time the needle descends through the work and casts out its loop, and then concatenates the needle-thread with the under thread, thereby forming a lock-stitch all of which is well known. Normally the needle-thread T passes from a spool, not shown, through a thread guide 19 fixed to the hollow head, thence through a tension device 20, under check spring 21, through a thread guide 22 through an eye in the take-up lever 23, thence downwardly through thread guides 24 and 25 to the eye of the needle 15.

Also mounted in the hollow head 13 is a spring depressed presser-bar 27 which normally carries a presser-foot (not shown) which during straightaway sewing rests upon a throat-plate 28 formed with a needle-hole 29 and suitable slots through which the teeth of a feed-dog 30 extend. The feed-dog 30 is actuated by the conventional four-motion work feeding mechanism and cooperates with the presser-foot to intermittently advance 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.

The attachment comprises a supporting block 31 which is adapted to be secured to the lower end of the presser-bar by a screw 32. Carried by the block 31 is a U-shaped bracket having a connecting portion or bottom plate 33 and upstanding limbs 34 and 35.

The bottom plate 33 extends forwardly and rearwardly of the limbs 34 and 35 and to the forwardly extending portion a presser-foot 61 is pivotally secured. The presser-foot 61 cooperates with the feed-dog 30 to intermittently advance the work. Journaled for rotary movement in the upstanding limbs 34 and 35 is a stub-shaft 36 and secured to the shaft intermediate the limbs 34 and 35 by a set screw 37 is a barrel cam 38. The shaft 36 and cam 38 have imparted to them an intermittent one-way rotary motion by means of a twelve-tooth ratchet wheel 40 fixed to one end of the shaft 36 and actuated by a spring-pressed pawl 41 carried by a lever arm 42 pivoted on the shaft 36 between the ratchet wheel 40 and the limb 35 of the U-shaped bracket.

The free end 43 of the lever arm 42 is bifurcated to receive a boss 44 formed on a needle-clamp 45 secured to the needle-bar 14. Upon operation of the machine each reciprocation of the needle-bar causes the lever arm 42 to oscillate about the axis of the shaft 36, and the pawl to advance the ratchet wheel 40 one tooth, or one-twelfth of a revolution.

The cam 38 is formed with a peripheral notch 46 which extends one-sixth of the circumference of the cam, or the amount the ratchet wheel 40 will advance the cam through two reciprocations of the needle-bar. The periphery of the cam 36 is tracked by a roller 47 journalled on a stud 48 which is fixed to a lever 49 pivotally secured by a shouldered screw 50 to the limb of the U-shaped bracket. The roller 47 is constantly urged into engagement with the periphery of the cam 38 by means of a tension spring 51 which reacts between the end 52 of the lever 49 and a fixed arm 53 formed on the limb 35 of the U-shaped bracket. As shown in Figs. 4 and 9, the other end 54 of the lever 49 is bent at right angles so that it passes between the needle 15 and presser-bar 27 and to its free end there is adjustably secured by a screw 57, a spring 55 having a thread-receiving eye 56. In the modification shown in Figs. 8 and 9 the spring 55 has one end fixed to a sheet metal member 58 formed with a pointer 59 which cooperates with suitable indicia 60 placed on the free end of the arm 54. The purpose of this construction is to quickly and accurately adjust the position of the spring 55 and thread eye 56 relative to the needle for the different kinds of sewing machines on which this attachment may be used.

To perform basting operations on a family type sewing machine the usual presser-foot is first removed and the above described attachment is secured to the presser-bar

27 by the screw 32. The machine is then threaded in the usual manner, except that after the thread is passed through the thread guide 25, it is threaded through a thread-eye 62 formed in the lower furcate of the bifurcated end of the actuating lever 42, thence through the thread-eye 56 carried by the spring 55 and finally through the eye of the needle.

As shown in Fig. 5 the peripheral notch 46 in the cam 38 extends for a distance of one sixth of the circumference of the cam and the roller 47 which tracks the cam rides in this notch for one-sixth of one rotation of the cam or two stitch-forming cycles. When the roller 47 is in the notch the lever 49 is in the position shown in dotted lines in Fig. 3 and the spring 55 and thread eye are also in the position shown in dotted lines. When the parts are in this position the needle will descend carrying with it the needle-thread T and after the needle has descended to its lowest position and starts its ascent it will cast out a needle-thread loop (as shown in Fig. 6) which will be seized by the beak 17 of the hook, expanded and cast about the lower thread mass to form the usual and well known lock-stitch. Upon the next reciprocation of the needle another stitch is formed thereby producing two lock-stitches in succession.

Operation

Assuming the parts to be in the positions shown in Figs. 1 and 3, the tracking roller 47 riding on the periphery of the cam and the lever 49 and spring 55 being in its upper position as shown in full lines. On the next downstroke of the needle-bar the spring pressed pawl 41 will drop into the next tooth on the ratchet wheel 40 when the needle-bar reaches its lowest position, also, as shown diagrammatically in Fig. 7, the downward movement of the needle-eye 63 and the thread-eye 62 from the positions shown in Fig. 3 to the positions shown in Fig. 7 causes angles to be formed in the thread between the thread-eye 62, thread-eye 56 in the spring 55, and the needle-eye 63. The forming of these angles increases the distances between these thread eyes thereby causing the thread-eye 56 carried by the spring 55 to be drawn down to the position shown in dotted lines in Fig. 7, thereby placing the spring 55 under tension. As the needle starts its ascending motion a needle-loop normally would be formed in the limb of the needle-thread between the needle-eye and the material, however, when the parts are in the position shown in dotted lines in Fig. 7 the tension in the spring places a tension on the thread and, consequently, when the needle rises the slack is taken out of the needle thread by the spring 55 and a needle-loop is not formed. Thus the beak 17 of the hook passes beside the needle and as there is no loop for the hook to seize, no stitch is formed and a "skipped stitch" results.

The skipping of stitches is repeated and the work advanced one stitch length as long as the tracking roller 47 rides on the outer periphery of the barrel cam 38. When the notch 46 is encountered by the tracking roller 47, the lever 49 is moved about its pivot 50 by the spring 51, and the other end of the lever 49 is moved downwardly in relation to the needle from the dotted line, to the full line position shown in Fig. 5. When the parts are in this position the needle descends and as the needle thread T is no longer under tension a needle-thread loop is thrown out as shown in Fig. 6 and this loop is entered by the beak 17 of the hook and cast about the lower thread mass 18 to form a lock-stitch. This is the first lock-stitch formed and after its formation the needle again descends and throws out its loop which is seized by the hook and a second lock-stitch is formed. During the upstroke of the needle-bar in the formation of the lock stitches, the ratchet wheel 40 is advanced one tooth for the first stitch and one tooth for the second stitch and the advancement of the ratchet wheel on the second upward stroke of the needle-bar advances the

cam 38 to the point at which the roller 47 rides out of the notch 46 and over the periphery of the cam, thus moving the lever 49 from the full line to the dotted line position illustrated in Fig. 5.

The spring 55 and thread-eye 56 having again assumed their upper or raised position, the tension in the spring 55 will again function to "steal" the needle-loop from the beak of the hook and the machine will again skip stitches. The skipping of stitches will continue during ten upstrokes of the needle-bar, which advances the ratchet-wheel ten teeth.

After the tenth reciprocation of the needle-bar and the advancement of the ratchet-wheel ten teeth, the notch 46 is again encountered by the roller 47 and, as above described, two lock-stitches are again formed in the material.

From the above, it will be understood that the use of my improved basting attachment first causes a conventional family sewing machine to make two lock-stitches in the material to be basted together and then causes the machine to skip ten stitches, the material being advanced by the feeding mechanism between the stitches. This sequence will be repeated as long as the machine is operated, thereby causing the upper and lower threads to be concatenated twice in succession for each twelve reciprocations of the needle.

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

1. A basting attachment for sewing machines having feeding mechanism, a reciprocatory thread-carrying needle and a loop-taker for seizing thread loops thrown out by said needle; said attachment comprising a frame adapted to be secured to the presser-bar of the sewing machine, a cam having a depression in its outer periphery and mounted for rotary movement in said frame, mechanism operated by a moving part of the machine when the machine is operated for imparting an intermittent step-by-step movement to said cam, a lever mounted on said frame for movement about a horizontal pivot, a tracking roller carried by said lever and riding on the outer periphery of said cam and adapted to enter the depression in said cam, a spring having one end connected to one end of said lever and its other end connected to said frame for causing said roller to track said cam, a yieldable member carried by the other end of said lever and having its free end formed with a thread eye, and means for adjusting said yieldable member relative to said lever.

2. A basting attachment for a sewing machine having feeding mechanism, a reciprocatory needle-bar having a thread-carrying needle, and a loop-taker for seizing thread loops from said needle in the formation of stitches, said attachment comprising a frame adapted to be secured to said machine, an actuating lever pivoted to said frame on a horizontal axis, said actuating lever being connected to said needle bar for oscillation upon reciprocation of said needle-bar, cam means journaled in said frame, a pawl and ratchet connection between said lever and said cam means for imparting rotation to said cam means, a second lever pivoted to said frame on an axis arranged parallel to the pivot axis of said first lever, a cam follower on said second lever, a spring acting between said frame and one end of said second lever for biasing the same about its pivot and urging said cam follower into engagement with said cam means, and a yieldable member carried by the other end of said second lever and having a thread eye, said cam means pivoting said second lever at predetermined intervals to move said yielding member into and out of operative position in which it acts to place a tension on a needle-thread running about said first lever adjacent to the connection to said needle-bar, through said thread eye, and then to the needle, thereby to prevent the formation of a thread loop and thus to cause skipping of stitches.

3. A basting attachment for a sewing machine having feeding mechanism, a reciprocatory needle-bar having a

thread-carrying needle, and a loop-taker for seizing thread loops from said needle in the formation of stitches, said attachment comprising a frame adapted to be secured to said machine, a shaft journaled in said frame on a horizontal axis, an actuating lever loosely pivoted on said shaft and connected to said needle-bar for oscillation upon reciprocation of said needle-bar, a barrel-type cam secured on said shaft, a ratchet secured on said shaft and a cooperating pawl carried by said actuating lever for imparting rotation to said shaft and cam, a second lever pivoted to said frame on an axis parallel to the axis of said shaft, a cam follower on said second lever, a spring acting between said frame and one end of said lever for biasing the same about its pivot and urging said cam follower into engagement with said cam, and a yieldable member carried by the other end of said second

lever and having a thread eye, said cam being operative to pivot said second lever at predetermined intervals to move said yielding member into and out of operative position in which it acts to place a tension on a needle-thread running about said first lever adjacent to the connection to said needle-bar, through said thread eye, and then to the needle, thereby to prevent the formation of a needle-thread loop and thus to cause skipping of stitches.

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