

Jan. 16, 1945.

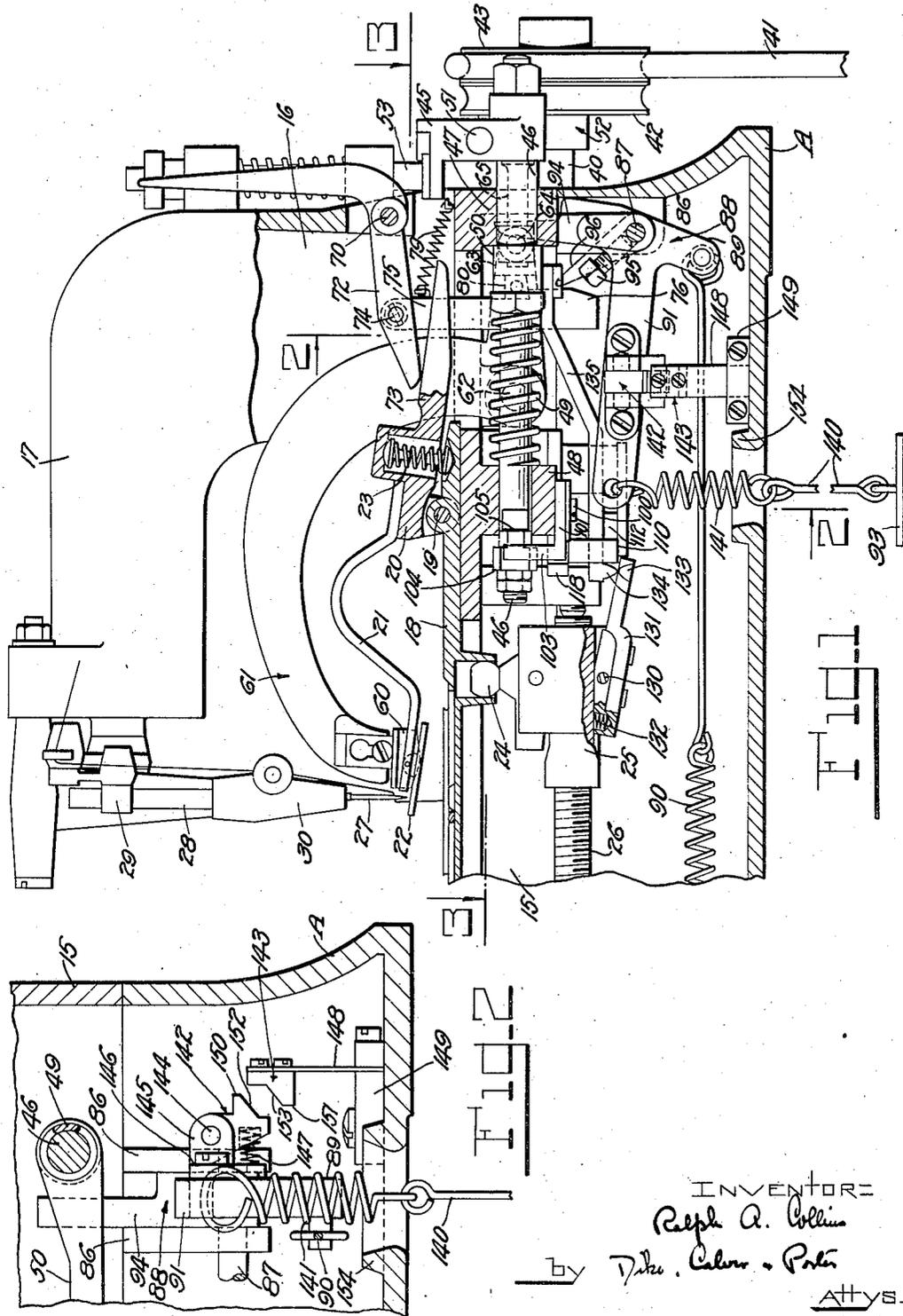
R. A. COLLINS

2,367,187

STOP MECHANISM OPERATING MEANS

Filed July 10, 1943

2 Sheets-Sheet 1



INVENTOR  
Ralph A. Collins

by J. C. Calver & Porter

ATTYS.

Jan. 16, 1945.

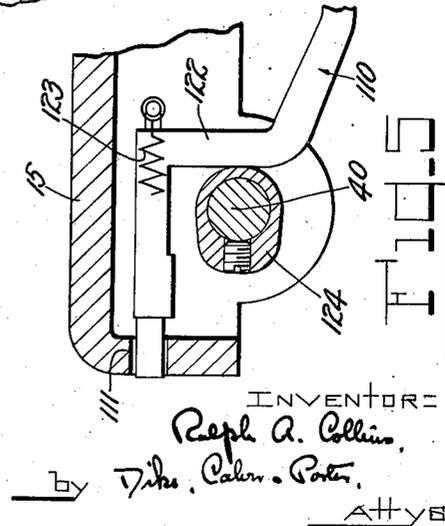
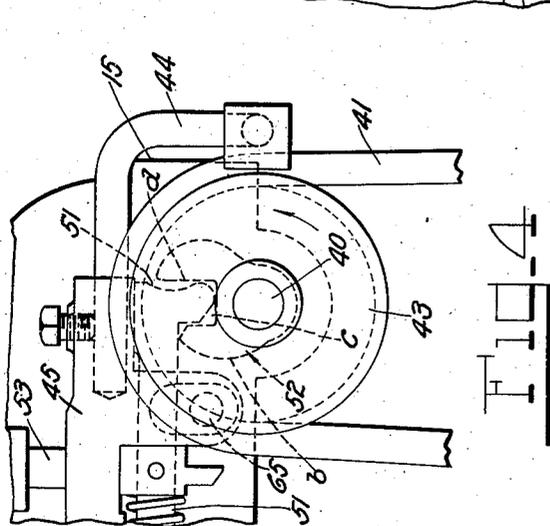
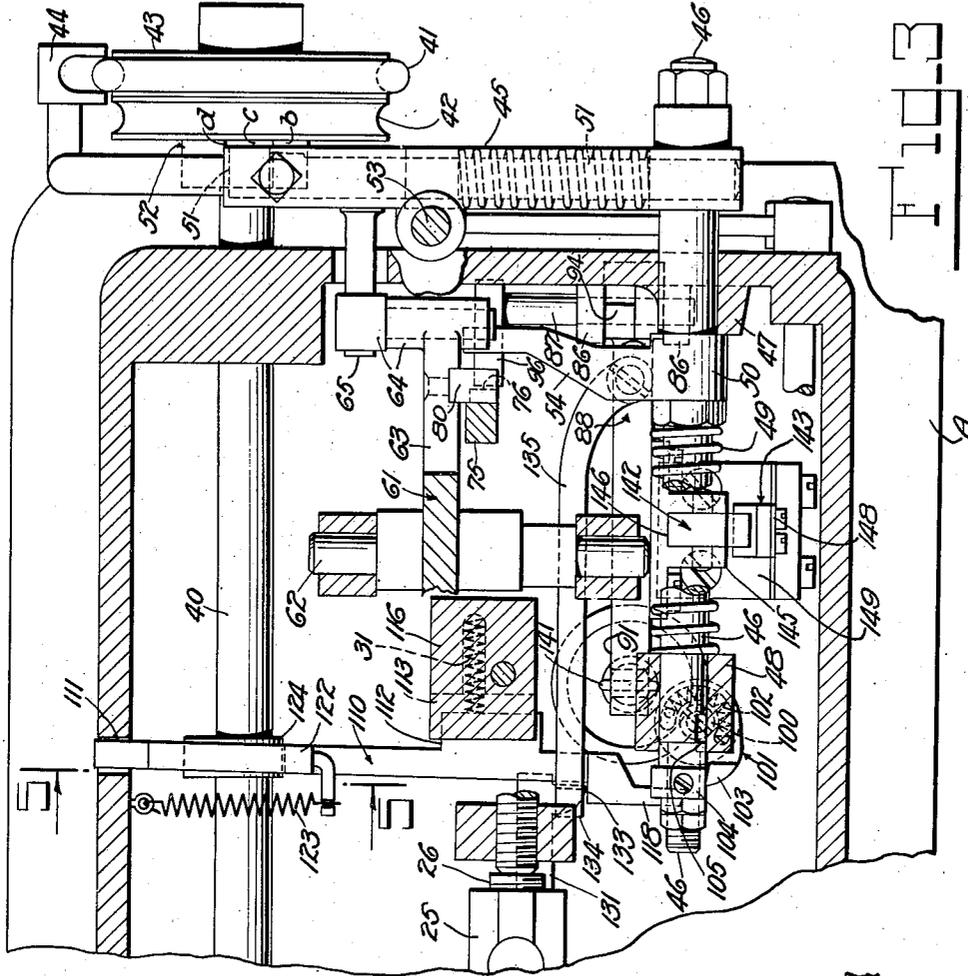
R. A. COLLINS

2,367,187

STOP MECHANISM OPERATING MEANS

Filed July 10, 1943

2 Sheets-Sheet 2



INVENTOR:  
Reph A. Collins,  
Duke, Calver & Porter,  
ATTY.

# UNITED STATES PATENT OFFICE

2,367,187

## STOP MECHANISM OPERATING MEANS

Ralph A. Collins, White Plains, N. Y., assignor to  
The Reece Button Hole Machine Company,  
Boston, Mass., a corporation of Maine

Application July 10, 1943, Serial No. 494,166

11 Claims. (Cl. 112—67)

This invention relates to stop mechanism controlling means for automatic machines whose principle of operation is such that, when manually started, they will perform a predetermined cycle of operations and stop, and particularly to sewing machines adapted to sew a short seam and then come to rest, such, for example, as buttonhole sewing machines. The invention has for its general object to provide manually operated stop mechanism controlling means of such character that, when the stop mechanism is moved thereby into a position which will cause or permit the machine to start, the completion of the full intended cycle of operations of the machine is insured before the return of the stop mechanism to stopping position is permitted.

While not limited thereto, the invention is of particular utility in connection with buttonhole sewing machines of the type known as "straight hole" machines, described, for example, in patents, No. 714,284, November 25, 1902, and No. 749,776, January 19, 1904. Buttonhole machines of this and some other types include stitch-forming mechanism, a work clamp, means for imparting relative feeding movements to the stitch-forming mechanism and work clamp to position the stitches around the buttonhole, stop mechanism adapted to be manually operated to start the machine and automatically operated to stop the machine after the completion of the sewing cycle, and a buttonhole cutter which is automatically operated to cut the buttonhole slit just prior to the stopping of the machine. The work clamp is usually automatically closed to clamp the work when the machine is started and automatically opened to release the work when the machine is stopped. In a "straight hole" machine, as described in the patents above referred to, the stitch-positioning feeding movements are imparted to the work clamp, first in one direction from a starting position and then in the opposite direction back to the starting position; the stop mechanism comprises a stop arm which is manually moved, as by a treadle or hand lever, out of a stopping position, into which it is normally biased and in which the machine is at rest, into a running position, in which the machine is operated under power; means are provided for latching the stop arm in running position, said latching means being automatically released, when the work clamp is returned to its starting position, to permit the stop arm to return to stopping position; and the buttonhole cutter is operated through the stop arm, when the latter has been restored to stopping position,

just prior to the actual stopping of the machine. In such a machine, the stop arm must be moved at least completely out of stopping position before it can be latched in running position, and, for practical reasons, some slight clearance or leeway must be provided, that is to say, there must be some spacing, however small, between the stopping and running positions. With such an arrangement it is possible for a careless operator, by an imperfect or incomplete operation of the treadle or hand lever, to produce what is known as a "false start"; that is to say, it is possible to move the stop arm just far enough to permit the machine to start without latching it in running position. When this occurs, if the operator releases the treadle or lever after starting the machine (which, in the normal operation, must be done in order to permit the subsequent automatic stopping of the machine), the stop arm will return at once to stopping position, so that, after the formation of a relatively few stitches, the machine will be stopped, the buttonhole cutter operated, and the work clamp opened, leaving a cut but incompletely stitched buttonhole which must be restitched. This is difficult, because the unclamped work must be relocated in exactly the position in which it was cut, and is apt to result in imperfect work, because a certain number of stitches will be superimposed, and, more important, because machines of this type, being designed to stitch before cutting, cannot be relied upon to produce perfect work upon a pre-cut buttonhole.

In accordance with the present invention, the foregoing difficulties are overcome by the provision of means whereby, when the stop mechanism is manually moved, out of full stopping position, sufficiently far to permit the machine to start, it will be automatically moved into full running position, in which position it is latched or retained until automatically released upon the completion of the machine cycle.

The objects of the invention, and means whereby the latter may be carried into effect, will best be understood from the following description of a preferred embodiment thereof shown in the accompanying drawings, this, however, having been chosen for illustrative purposes merely, as it will be obvious to those skilled in the art that said invention, as defined by the claims hereunto appended, may be otherwise embodied without departure from the spirit and scope thereof.

In said drawings:

Fig. 1 is a side elevation, partly in vertical section and partly broken away, of a machine hav-

ing the invention applied thereto, certain parts not necessary to the understanding of the invention being omitted for simplicity of illustration.

Fig. 2 is a vertical section taken substantially on the line 2—2, Fig. 1.

Fig. 3 is a horizontal section taken substantially on the line 3—3, Fig. 1.

Fig. 4 is a fragmentary end elevation as viewed from the right in Figs. 1 and 3.

Fig. 5 is a fragmentary vertical section taken substantially on the line 5—5, Fig. 3.

In the drawings (see particularly Figs. 1 and 3) is shown a portion of a "straight-hole" buttonhole sewing machine of the general type described in the patents above referred to. Said machine comprises a hollow base A having at its top a bed 15 from which rises a standard 16 carrying an overhanging arm 17 spaced above the bed. Guided on the bed for longitudinal movement thereon is a work clamp comprising a clamp plate 18 to which is pivoted at 19 a lever 20 carrying clamp arms 21 to the extremities of which are pivoted clamping feet 22. The clamp arms 21, except when restrained as hereinafter described and as shown in Fig. 1, are normally depressed, to close the clamp and cause the feet 22 to clamp the work upon the plate 18, by a spring 23 interposed between the lever 20 and the plate 18. The clamp plate 18 is connected by a ball and socket connection, generally indicated at 24, with a nut 25 threaded on a feed screw 26 which is intermittently rotated by mechanism not shown, first in one direction and then in the other, to cause the nut 25, and consequently the work clamp as a whole, to be moved, from a starting position shown in Figs. 1 and 3, first toward the left, as viewed in said figures, to position the stitches along one side of the buttonhole, and then toward the right back to the starting position to position the stitches along the opposite side of the buttonhole.

The stitch forming or sewing instrumentalities comprise an eye-pointed needle 27 above the bed and cooperating underthread handling mechanism not shown, below the bed. The needle 27 is carried by a needle bar 28, which is longitudinally or vertically reciprocated, by means generally indicated at 29, in a needle bar guide 30, means, not shown, being provided for oscillating said guide alternately in opposite directions transversely to the direction of feed of the work clamp between successive strokes of the needle to position the depth stitches.

A main shaft 40 journalled in bearings in the bed 15 has power applied thereto by a belt 41 alternatively engageable with fast and loose pulleys 42 and 43 on said shaft under the control of a belt shifter 44. The belt shifter 44 constitutes an extension of a stop member or arm 45 carried by an oscillating and longitudinally movable rock shaft 46 mounted for oscillation and a limited longitudinal movement in bearing lugs 47 and 48 depending from the bed. The shaft 46 is normally biased or urged toward the right, as viewed in Figs. 1 and 3, to engage the belt 41 with the loose pulley 43, by a spring 49 surrounding said shaft and interposed between the bearing lug 48 and a collar 50 secured to the shaft, engagement of said collar with the bearing lug 47 limiting the movements of said shaft under the influence of said spring. The collar 50 is provided with a laterally extending arm 54 by which the shaft 46 may be moved to the left against the tension of the spring 49 by means hereinafter described.

Slidably mounted in the stop arm 45 is a spring

pressed stop bolt 51, the end of which, when the shaft 46 is in the longitudinal position shown in Figs. 1 and 3 (i. e., the stopping position in which the belt 41 is engaged with the loose pulley 43) is in the path of a cam 52 (see also Fig. 4) fast on the shaft 40, said cam having a rising portion b; a notch c and a stop shoulder d. The bolt 51, when in the path of movement of the cam 52, is held in engagement with the periphery of the latter by a spring pressed plunger 53 carried by the upright 16 and engaging the stop arm 45, said plunger tending to force said stop arm downwardly and press the end of the bolt 51 against the periphery of the cam 52.

A buttonhole cutter 60 is carried by a lever 61 journalled on a short stud shaft 62 supported in the bed, said lever having an arm 63 connected by a universal joint, generally indicated at 64 (Fig. 3) with a stud 65 extending inwardly from the stop arm 45. The arrangement is such that when the end of the stop bolt 51 rides upon the rising portion b of the cam 52, the buttonhole cutter 61 is depressed to cut the buttonhole slit, after which, when the end of the bolt enters the notch c the spring pressed plunger 53 causes the buttonhole cutter to rise to its original position, and when the end of the bolt 51 is engaged by the stop shoulder d the machine is positively stopped, the stopping impact being cushioned by the yielding of said bolt.

Except as hereafter pointed out, the construction, arrangement and mode of operation of the parts above referred to are, or may be, substantially as more fully described in the above mentioned patents, particularly Patent No. 714,284.

Pivoted at 70 in the wall of the upright 16 is a lever having one arm 72 extending into the upright into a position to engage an extended portion 73 of the lever 20 which carries the clamp arms 21. When the clamp closes under the influence of the spring 23, the arm 72 is moved upwardly, while downward movement of said arm will cause the clamp to be opened to release the work against the tension of said spring. Pivoted at 74 to the arm 72 is a depending link 75 carrying a catch or block 76. The link 75 is normally urged by a spring 79 in the direction to cause the catch or block 76 to engage a lug 80 carried by the arm 63 of the buttonhole cutter lever 61. Consequently, when the buttonhole cutter 60 rises, the arm 72 is drawn downwardly to open the work clamp.

Journalled in ears 86 in the base A is a rock shaft 87 having secured thereto, as by a set screw 95, a three-armed lever indicated as a whole at 88. One arm 89 of the lever 88 has connected therewith a spring 90 tending normally to turn the shaft 87 in a clockwise direction as viewed in Fig. 1. A second arm 91 of the lever 88 is connected, as hereinafter described, with a foot treadle 93, whereby depression of the treadle will turn the shaft 87 in a counter-clockwise direction against the tension of the spring 90. The third arm 94 of the lever 88 is extended into a position to engage the arm 54 when the shaft 87 is turned in the counter-clockwise direction, thereby sliding the shaft 46 toward the left in Figs. 1 and 3, out of stopping position, to start the machine as above explained. Also fast on the shaft 87 is a trip finger 96 adapted, when the shaft 87 is turned in a counter-clockwise direction, to engage the catch or block 76 and disengage the latter from the lug 80. The arrangement is such that when the treadle 93 is depressed to turn the shaft 87

in a counter-clockwise direction from its normal position as shown in Fig. 1, in which it is held by the spring 90, the trip finger 96 will engage the catch 76 to disengage the latter from the block 80.

Mounted, as by a screw 100, on the bearing lug 48, is a rotary latch 101 normally urged in a clockwise direction (as viewed in Fig. 3) by a spring 102. The latch 101 has an upstanding finger 103 (see also Fig. 1) which cooperates with a collar 104 on the shaft 46. The arrangement is such that when the shaft 46 is moved toward the left from the position shown in Figs. 1 and 3 into full running position, the finger 103 is caused by the spring 102 to snap back of the shoulder 105 provided by the collar 104 to hold the shaft 46 in running position.

A floating angular bar 110 (Figs. 3 and 5) has one end received in an opening 111 in the wall of the bed 15 in such a manner as to permit both longitudinal and angular movement of said bar in a horizontal direction. The bar 110 is formed with a laterally extending flange or ear 112 which is guided in a horizontal groove 113 in the lateral face of a boss 116 depending from the bed 15, whereby the bar 110 is guided for lateral horizontal angular or swinging movement about its connection at 111 with the bed 15. The bar 110 is normally urged toward the left, as viewed in Fig. 3, by a spring 31 seated in an extension of the groove 113, the normal position of said bar under the influence of said spring being shown in Fig. 3. When in this position, the end of a dog 118, carried by the end of the bar, is laterally offset from the finger 103, as shown in Fig. 3. When the bar 110 is swung to the right against the tension of the spring 31, the end of the dog 118 is brought opposite the finger 103. The bar 110 is formed with an angular portion 122 (see particularly Fig. 5) which is held by a spring 123 in engagement with the periphery of a cam 124 on the main shaft 40, whereby at each rotation of said shaft, that is to say, during each stitch forming cycle of the machine, said bar is given a longitudinal movement, said movement being guided by the opening 111 and slot 113. When said bar is in the lateral position shown in Fig. 3, this movement is an idle one, but when said bar is swung to the right from this position, thereby bringing the dog 118 opposite the finger 103, such longitudinal movement will cause said dog to engage said finger and release the latter from the shoulder 105.

Pivoted at 130 (Fig. 1) to the underside of the feed nut 25 is a dog 131 normally held by a spring 132 with its right hand end (as viewed in Fig. 1) elevated or in such position that, when the nut 25 is moved to the right into its initial or starting position upon the completion of the buttonhole, said end will engage the bar 110 and swing the latter toward the right from the position shown in Fig. 3 into a position to bring the dog 118 opposite the finger 103. The dog 131 is formed with a laterally offset cam projection 133 adapted to be engaged by a cooperating cam projection 134 on an arm 135 extending from the collar 50. The arrangement is such that when the shaft 46 moves toward the right (as viewed in Figs. 1 and 3) to stop the machine (the nut 25 being in the position shown in said figures) the cam projection 134 engages the cam projection 133, thereby depressing the free end of the dog 131 into the position shown in Fig. 1, causing the same to disengage the bar 110, and permitting the latter to swing into its normal po-

sition shown in Fig. 3 under the influence of the spring 31.

The machine being at rest, and the parts in the positions shown in Figs. 1 and 3, complete depression of the treadle 93 causes the trip finger 96 to engage the link 75 and disengage the catch 76 from the lug 80, thereby permitting the work clamp to close under the influence of its spring 23, and causes the arm 94 to move the shaft 46 toward the left into running position, in which position it is retained by engagement of the finger 103 with the stop shoulder 105 under the influence of the spring 102. When the parts are in this position, the belt 41 is engaged with the fast pulley 42, and the end of the stop bolt 51 is out of the path of the cam 52. As above stated, during the buttonhole sewing cycle the feed nut 25 is moved by the screw 26, first toward the left and then toward the right back to its initial or starting position shown in Figs. 1 and 3. Movement of the shaft 46 into running position has caused a corresponding movement of the cam lug 134 to the left from the position shown in Figs. 1 and 3. Consequently, when the feed nut 25, in its movement toward the right, approaches its initial position, the cam lug 133 will have passed out of engagement with the cam lug 134 before said initial position is fully reached, permitting the free end of the dog 131 to rise, under the influence of the spring 132, into such a position that it will engage the bar 110 and swing it into the position in which the dog 118 is opposite the finger 103, whereupon longitudinal movement of said bar by the cam 124 will cause the dog 118 to engage the finger 103 and disengage the latter from the stop shoulder 105, thereby permitting the spring 49 to move the shaft 46 into the stopping position. The latter operations require that the treadle 93 shall have been released after starting the machine, or at least before the completion of the buttonhole cycle, and the shaft 87, lever 88 and trip finger 96 restored to the position shown in Fig. 1 under the influence of the spring 90. Movement of the shaft 46 into stopping position shifts the belt 41 from the fast pulley 42 to the loose pulley 43 and brings the end of the stop bolt 51 into the path of movement of the cam 52. Consequently, just prior to the positive stopping of the machine, the buttonhole cutter 61 is depressed to cut the buttonhole slit and then caused to rise, as above explained. Restoration of the trip finger 96 to its normal position shown in Fig. 1, causes said finger to release the link 75, so that when the buttonhole cutter is depressed the catch 76 is re-engaged with the lug 80 by the spring 79, and when the buttonhole cutter rises the work clamp is opened. Movement of the shaft 46 into stopping position also restores the cam lug 134 to the position shown in Fig. 1, thereby depressing the dog 131, releasing the bar 110, and permitting the spring 123 to restore said bar to idling position as shown in Fig. 3.

The automatic cycle above outlined depends upon a sufficient counter-clockwise angular movement of the lever 88 to move the shaft 46 far enough toward the left to be latched in running position by engagement of the finger 103 with the shoulder 105 when the machine is started. In prior machines of this type, in which the treadle 93 has been connected with the arm 91 by a simple link or chain, it has been possible for a careless operator, by reason of an incomplete depression of the treadle, to move the shaft 46 and stop arm 45 far enough to engage the

belt 41 with the fast pulley 42 and disengage the end of the stop bolt 51 from the stop shoulder *d* (thereby starting the machine) without moving said shaft far enough to be latched in running position. If this occurs, when the treadle is released after starting (as, for reasons above stated, must always be done), the shaft 46 and stop arm 45 are immediately returned to stopping position under the influence of the spring 49, the buttonhole cutter operated, the work clamp opened, and the machine stopped, all without completing the sewing cycle. In accordance with the present invention, means are provided whereby, if the stop mechanism is moved far enough to start the machine at all, its movement into full running position (in which it is latched until automatically released only at the completion of the sewing cycle) is insured. As herein shown, such means are as follows.

The arm 91 of the lever 88 is connected with the treadle 93 through a link 140 and a spring 141. Associated and cooperating with the arm 91 is a resistor assembly adapted to interpose a substantial resistance to the movement of said arm (and consequently of the stop mechanism) to an extent sufficient to cause or permit the machine to start, and to suddenly discontinue the resistance when the arm has been moved to such an extent. This resistor assembly comprises (see particularly Fig. 2) an element 142 carried by the arm 91 and a cooperating element 143 on the frame. The element 142 comprises a dog pivoted at 144 to a bracket 145 secured to the arm 91, said dog having a stop shoulder 146 adapted to engage a portion of said bracket and thereby limit movement of said dog on its pivot in a counter-clockwise direction (as viewed in Fig. 2), in which direction it is urged by a spring 147. The element 143 comprises a block secured to the free upper end of a flat spring 148 secured at its lower end to a bracket 149 which, in turn, is secured to the bottom wall of the base A. The elements 142 and 143 are formed respectively with opposed projections 150 and 151 having cooperating inclined cam faces 152 and 153 which are brought into engagement when the arm 91 is moved downwardly.

In operation, when the treadle 93 is depressed, initial downward movement of the arm 91 brings the cam surface 152 into engagement with the cam surface 153. Since the dog 142 is held against counter-clockwise movement about its pivot 144 by engagement of its stop shoulder 146 with the bracket 145, further downward movement of the arm 91 is possible only by forcing the block 143 laterally, against the resistance of the spring 148, by the wedging or camming action of the surfaces 152 and 153, thereby imposing a considerable strain or tension upon the spring 141. This all occurs before the end of the stop bolt 51 is completely withdrawn from the notch *c* and stop shoulder *d* of the cam 52, and therefore before the machine can start. As, or just before, the end of the stop bolt 51 leaves the notch *c* and stop shoulder *d*, the cam surface 152 passes out of engagement with the cam surface 153, so that the tension (previously applied as above explained) of the spring 141 causes the lever 88 and shaft 46 to be snapped into the full running position in which said shaft is retained by the latch 101, the downward movement of the arm 91 under the influence of the spring 141 being checked by engagement thereof with an upturned stop projection 154 on the bottom wall of the base A. When the treadle 93 is subsequently released to permit

the lever 88 to return to its normal position under the influence of the spring 90, leaving the stop mechanism latched in running position, the arm 91 can move upwardly without interference by the resistor assembly since the dog 142 can turn in a clockwise direction to permit the projection 150 to pass the projection 151 during the upward movement.

From the foregoing it will be seen that if the treadle 93 is not depressed far enough to carry the cam surface 152 of the resistor element 142 beyond the cam surface 153 of the element 143, the stop bolt 51 will not be completely withdrawn from the notch *c* and stop shoulder *d*, and the machine will not start, so that if the treadle is released, the spring 49 will return the stop devices to full stopping position, and there will be no "false start." If, however, the treadle is depressed far enough to withdraw the end of the stop bolt from the notch *c* and shoulder *d*, so as to permit the machine to start, the cam surface 152 will have passed out of engagement with the cam surface 153, and the tension which has been imparted to the spring 141 by the coaction of the resistor elements during the initial depression of the treadle, will cause the stop devices to be snapped into the full running position in which they are retained by the latch 101. Therefore, when the treadle is released, the stop devices will not be returned to stopping position until the completion of the full cycle of operations of the machine and the automatic release of the latch 101, as above explained, and there will have been no "false start."

It is obvious that in place of the treadle 93, a hand or knee operated lever might be employed, and the terms "manually operated means", "manually operated member" and the like, as herein-after used, are intended to include all such equivalent, foot, leg, hand, etc. operated devices.

I claim:

1. In a sewing machine or the like having a predetermined cycle of operations, stop mechanism movable into and out of stopping position, means for retaining said stop mechanism out of stopping position during said cycle of operations and for restoring the same to stopping position upon the completion of said cycle, manually operated means for moving said stop mechanism out of stopping position, and means for compelling movement of said stop mechanism into a position to be retained by said retaining means, when moved out of stopping position by said manually operated means, before permitting its return to stopping position.

2. In a sewing machine or the like having a predetermined cycle of operations, stop mechanism movable between a stopping position and a running position and normally biased toward stopping position, manually operated means for moving said stop mechanism out of stopping position, a detent for retaining said stop mechanism in running position, means for automatically releasing said detent upon completion of the cycle of operations, and means associated with said manually operated means for insuring the movement of said stop mechanism into a position to be retained by said detent when moved out of stopping position.

3. In a sewing machine or the like having a predetermined cycle of operations, stop mechanism movable into and out of stopping position, means for moving said stop mechanism out of stopping position, a manually operated member, means including a spring connecting said manu-

ally operated member and moving means, and means for interposing a yielding resistance to the initial movement of said moving means and for discontinuing said resistance substantially upon the completion of the movement of said stop mechanism out of stopping position.

4. In a sewing machine or the like having a predetermined cycle of operations, stop mechanism movable into and out of stopping position, means including a lever for moving said stop mechanism out of stopping position, a manually operated member, means including a spring connecting said manually operated member and lever, and means for interposing a yielding resistance to the initial movement of said lever and for discontinuing said resistance substantially upon the completion of the movement of said stop mechanism out of stopping position.

5. In a sewing machine or the like having a predetermined cycle of operations, stop mechanism movable into and out of stopping position, means for retaining said stop mechanism out of stopping position during said cycle of operations and for restoring the same to stopping position upon the completion of said cycle, means for moving said stop mechanism out of stopping position, a manually operated member, means including a spring connecting said manually operated member and moving means, and means for interposing a yielding resistance to the initial movement of said moving means and for discontinuing said resistance substantially upon the completion of the movement of said stop mechanism out of stopping position.

6. In a sewing machine or the like having a predetermined cycle of operations, stop mechanism movable into and out of stopping position, means including a lever for moving said stop mechanism out of stopping position, a manually operated member, means including a spring connecting said manually operated member with one arm of said lever, a dog carried by said lever arm, a block, and a spring for yieldingly resisting movement of said block transversely of the path of movement of said lever arm, said dog and block having cooperating cam surfaces brought into engagement upon initial movement of said arm in the direction to move said stop mechanism out of stopping position, whereby further movement of said arm is possible only by forcing said block laterally against the resistance of its spring, and said cam surfaces being so relatively arranged as to pass out of engagement with each other substantially upon the completion of the movement of said stop mechanism out of stopping position.

7. In a sewing machine or the like having a predetermined cycle of operations, stop mechanism movable into and out of stopping position and normally biased toward said position, a detent automatically released upon the completion of said cycle of operations for holding said stop mechanism out of stopping position, means including a lever for moving said stop mechanism out of stopping position, a manually operated member, means including a spring connecting said manually operated member with one arm of

said lever, a dog carried by said lever arm, a block, and a spring for yieldingly resisting movement of said block transversely of the path of movement of said lever arm, said dog and block having cooperating cam surfaces brought into engagement upon initial movement of said arm in the direction to move said stop mechanism out of stopping position, whereby further movement of said arm is possible only by forcing said block laterally against the resistance of its spring, and said cam surfaces being so relatively arranged as to pass out of engagement with each other substantially upon the completion of the movement of said stop mechanism out of stopping position.

8. In a sewing machine or the like having a predetermined cycle of operations, stop mechanism movable into and out of stopping position, manually operated means for moving said stop mechanism out of stopping position, and means for interposing a yielding resistance to the initial movement of said moving means and for discontinuing said resistance substantially upon the completion of the movement of said stop mechanism out of stopping position.

9. In a sewing machine or the like having a predetermined cycle of operations, stop mechanism movable into and out of stopping position, means for retaining said stop mechanism out of stopping position during said cycle of operations and for restoring the same to stopping position upon the completion of said cycle, manually operated means for moving said stop mechanism out of stopping position, and means for interposing a yielding resistance to the initial movement of said moving means and for discontinuing said resistance substantially upon the completion of the movement of said stop mechanism out of stopping position.

10. In a sewing machine or the like having a predetermined cycle of operations, stop mechanism movable into spaced stopping and running positions, respectively, means for retaining said stop mechanism in running position during said cycle of operations and for restoring the same to stopping position upon completion of said cycle, manually operated means for moving said stop mechanism out of stopping position, and means for compelling movement of said stop mechanism into running position when moved out of stopping position sufficiently far to permit the machine to start.

11. In a sewing machine or the like having a predetermined cycle of operations, stop mechanism movable into spaced stopping and running positions, respectively, means for retaining said stop mechanism in running position during said cycle of operations and for restoring the same to stopping position upon completion of said cycle, manually operated means for moving said stop mechanism out of stopping position, and means, associated at least in part with said manually operated means, for compelling movement of said stop mechanism into running position when moved out of stopping position sufficiently far to permit the machine to start.

RALPH A. COLLINS.