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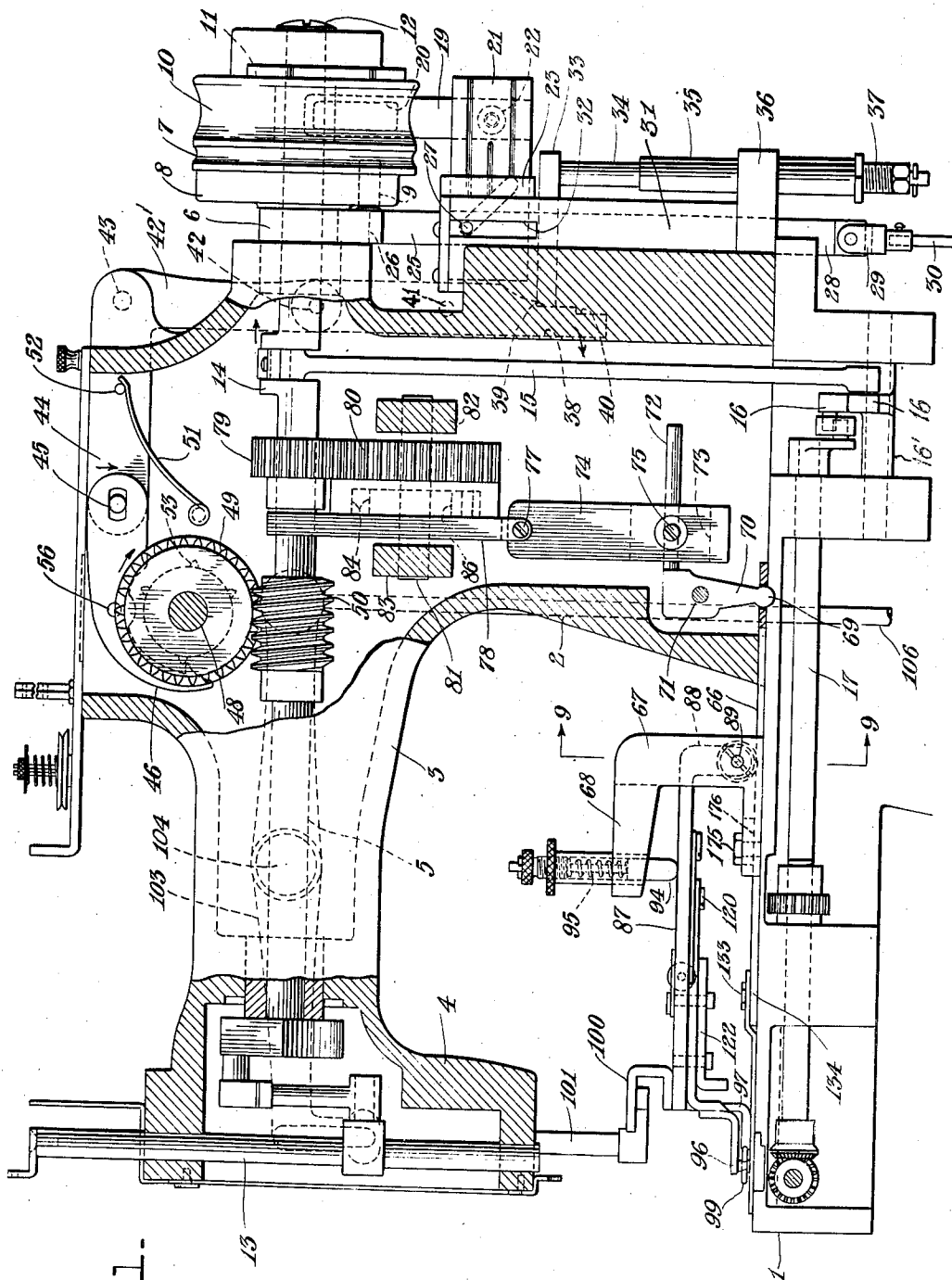
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2,175,247

BUTTON SEWING MACHINE

Filed Aug. 4, 1937

5 Sheets-Sheet 1



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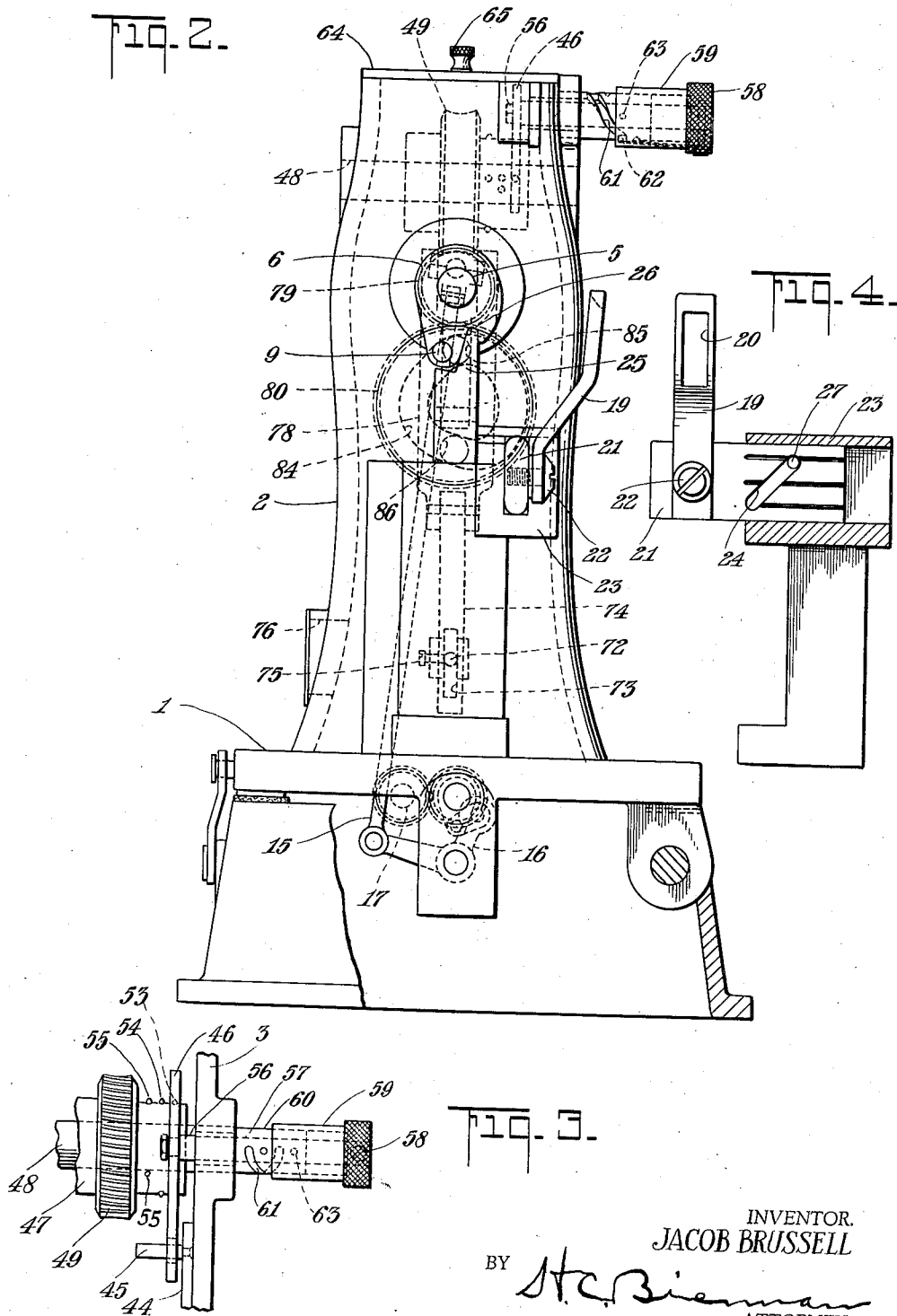
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BUTTON SEWING MACHINE

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5 Sheets-Sheet 2



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BUTTON SEWING MACHINE

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Fig. 5.

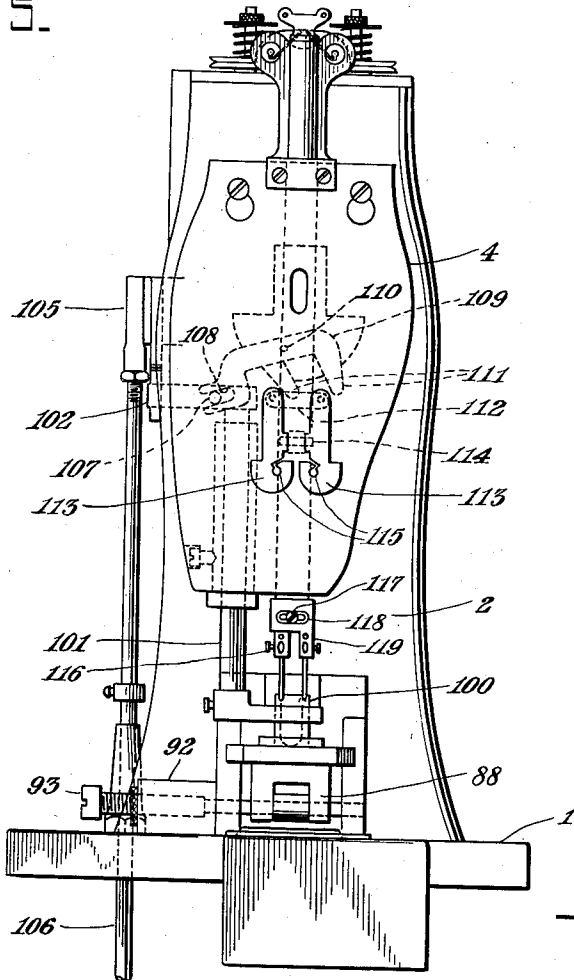


Fig. 6.

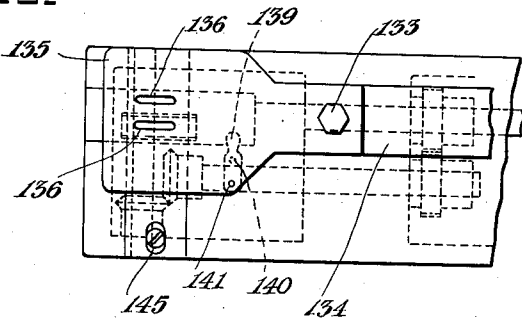
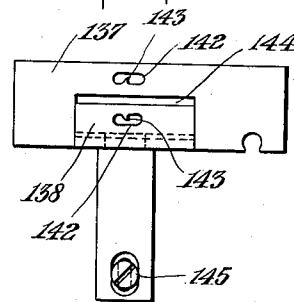


Fig. 7.



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Fig. 8.

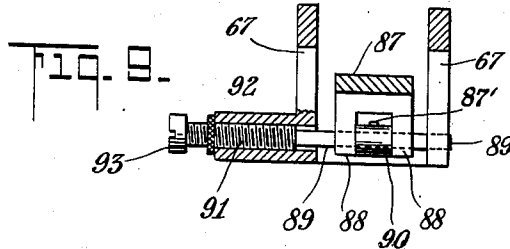
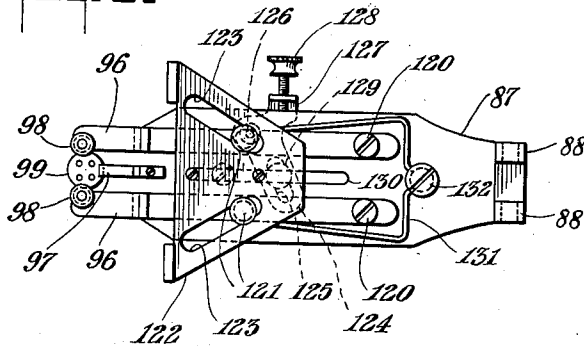


Fig. 12.

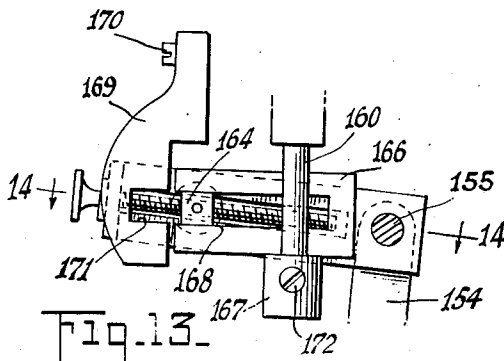
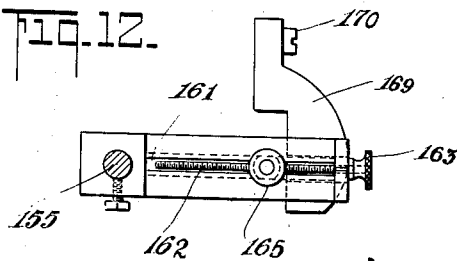
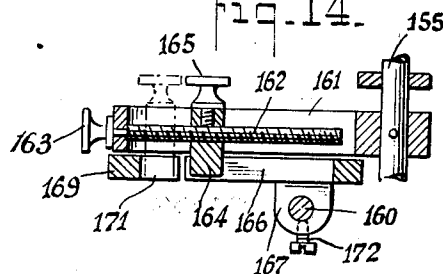


Fig. 14.



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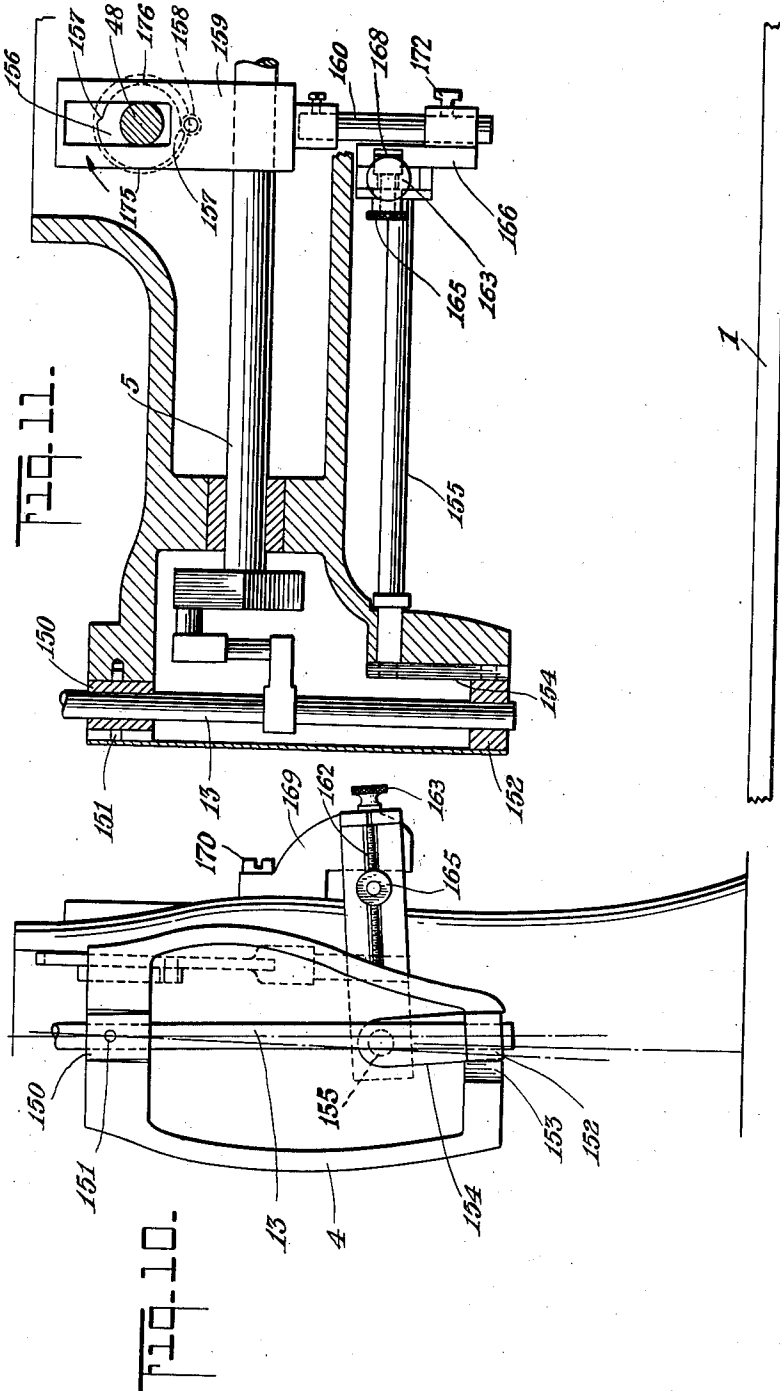
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BUTTON SEWING MACHINE

Filed Aug. 4, 1937

5 Sheets-Sheet 5



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2,175,247

BUTTON SEWING MACHINE

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Application August 4, 1937, Serial No. 157,308

19 Claims. (Cl. 112—110)

This invention relates to sewing machines, more particularly to machines adapted for sewing buttons, snaps, hooks, shanks, etc. on garments.

5 It is among the objects of the present invention to provide a button sewing machine having great flexibility, adaptability and adjustability in operation.

10 It is also among the objects of the invention to provide various mechanical movements whereby the desired functions may be readily obtained.

In practicing the invention, I provide a sewing machine of any ordinary or usual type, such as the lock stitch or chain stitch machines. On the 15 bed of the machine I mount a button clamp which is so constructed as to be capable of holding various sizes and types of buttons varying in thickness and in spacing and number of holes in the button. The button clamp is reciprocated 20 laterally during the sewing operation so that a needle will alternately enter two of the holes of the button. When a button with four holes is to be sewed on a piece of fabric, I may provide two needles on the needle bar which are adjustable for the different spacing of holes or I may 25 provide a single needle which in a regular sequence produces stitches in one pair of button holes, is shifted and then produces stitches in the other pair of button holes.

30 An important feature of the invention is an arrangement whereby after a certain predetermined number of stitches have been taken in the button, the machine is automatically stopped. It includes means whereby in a very simple manner, at the will of the operator, the number of 35 stitches automatically made by the machine is changed.

In the accompanying drawings, constituting a part hereof, and in which like reference characters indicate like parts,

40 Fig. 1 is a side view of a sewing machine made in accordance with the present invention, some parts being broken away for clearness;

Fig. 2 is a rear view of said sewing machine;

45 Fig. 3 is a fragmentary plan view showing some details of the stitch determining mechanism;

Fig. 4 is a detail view showing the belt shifting arrangement;

Fig. 5 is a front view of the sewing machine;

50 Fig. 6 is a fragmentary plan view of the bed of the machine showing the needle plate;

Fig. 7 is a similar view more in detail of the needle plate;

Fig. 8 is a view looking upwardly, showing the 55 adjusting device on the button clamp;

Fig. 9 is a cross-sectional view taken along the line 9—9 of Fig. 1;

Fig. 10 is a front view of a modified form of sewing machine;

Fig. 11 is a side view thereof, and

Fig. 12 is an elevational view showing a detail of the adjusting mechanism for the needle bar;

Fig. 13 is a side elevational view taken from the opposite side of Fig. 12, and

Fig. 14 is a cross-sectional view taken along the line 14—14 of Fig. 13.

The sewing machine comprises the usual bed 1, standard 2, overhanging arm 3, and head 4. The main shaft 5 has member 6 secured thereto 15 and pulley 7, having a flange 8, secured thereto, a pin 9 projecting from member 6 into flanged portion 8 bearing against shock absorbing springs therein (not shown). An idler pulley 10 alongside the driving pulley 7 is provided with a bracket 11 held by screw 12. The needle bar 13 is reciprocated by the usual connection from shaft 5.

An eccentric 14 formed on shaft 5 carries a link 15, the lower end of which projects beneath the bed 1 and is linked to one arm of an angular lever 16 fixed on rocking sleeve 16'. The other arm is connected to hook shaft 17 for transmitting the rotary motion of shaft 5 into oscillating motion of shaft 17. A belt shifter 19 having an opening 20 for the belt is secured on slide 21 by bolt 22. The slide moves in guide 23 and has a diagonal slot 24 therein.

A stop member 25 is adapted to be held in recess 26 of member 6. Said stop 25 is provided 35 with a pin 27 operating in slot 24. The lower end 28 of stop 25 has a pivot 29 carrying a rod 30 which is secured to a foot pedal or the like. The cover 31 of guide 23 has a vertical slot 32 therein to allow movement of pin 27.

The stop member has secured thereto a bar 33 having an angular extension 34 passing through a sleeve 35, having a spring therein and supported in bracket 36 with an adjusting screw 37 for varying the tension of said spring. Cooperating with the bar 33 is a latch 38 having shoulders 39 and 40 for holding bar 33 in two different positions. Said latch extends upwardly and is pivoted to the frame of the machine at 41. The upper end thereof is pivoted to the arm 42' at 42 and the lower end of arm 42' is also pivoted at 42. Horizontally extending arm 44 forms a crank with arm 42' and said crank is pivoted to the frame at 43. The free end of arm 44 has a pivot 45. A finger 46 is provided with a slotted 55

end fitting over pivot 45 so that a sliding fit is obtained, as shown in Fig. 1.

A cylinder 47 is mounted on shaft 48 having a worm gear 49 secured thereto, which meshes with worm 50 secured on shaft 5. A spring 51 bearing against pin 52 and by pressing upwardly on arm 44 tends to force finger 46 down and holds the finger 46 in operative position. The cylinder 47 has several sets of projections thereon. As shown in Fig. 3, there is a single projection 53 on the right hand section of cylinder 47, and on the section of cylinder 47 immediately to the left thereof there are two projections 54 spaced 180 degrees apart. To the left thereof on the next adjacent section of cylinder 47 is a third set of three projections 55 spaced 120 degrees apart.

The finger 46 is pivoted on shaft 56 which extends as shown at 57 to the right and is secured at 58 to movable sleeve 59. An inner sleeve 60 secured to the arm 3 has a diagonal slot 61 into which there extends a pin 62 (Fig. 2) secured to sleeve 59. A series of latch members 63, shown as of the spring pressed ball type, holds sleeve 59 in positive relation to member 60. A cover 64 is held on the top of the machine by screw 65.

In the bed of the machine there is fitted a slide member 66 having upstanding arms 67 having overhanging portion 68 for holding and adjusting the button clamp. Arms 67 are held on slide 66 by a screw 175 and slot 176 in the base of arms 67. At the rear of said slide is a recess into which there fits a pivot 69 secured to arm 70 pivoted at 71 and carrying an angular member 72 operating in slot 73 of vertical plate 74. A set screw 75 passing through plate 74 is adapted to hold said member 72 in adjusted position. An opening 76 in standard 2 allows access to set screw 75 for adjustment purposes. At the upper end of plate 74 there is connected to pivot 77 a forked member 78, the upper end of which is guided by shaft 5. A gear 79 fixed to said shaft meshes with a corresponding gear 80 on stub shaft 81, which is held in bearings 82 and 83. A cam 84 fixed to gear 80 has rollers 85 and 86 secured to follower 78 fitted therein.

An angular member 87 has legs 88 fitted loosely around pin 89 and a stop member 90 is fixed to pin 89 by a set screw 87' or the like. A threaded extension 91 of said pin cooperates with corresponding threads in member 92 secured to arm 67. A slotted head 93 thereon allows for movement of pin 89 and adjustment of the position of member 87. In order to hold the button clamp normally on the work, there is provided a member 94 secured in extension 68 and pressed by adjustable spring arrangement 95.

The button clamp is provided with a pair of button jaws 96 and a button stop 97, said jaws being provided with rollers 98 whereby a button 99 is held between the same. In order to raise the button clamp, there is provided an extension 100 on arm 87 connected to an upwardly extending bar 101 having a lateral extension 102 and secured to arm 103 pivoted at 104, and having pivoted at the rear end 105 thereof a downwardly extending rod 106 leading to a foot pedal or the like. On extension 102 is a pin 107 operating in slot 108 of member 109 pivoted at 110. Said member has pressure members 111 adapted to press on bar 112. Secured to the ends of said bar on the outside of the machine are two flat, thin, flexible plates 113 pivoted at 114. The lower ends thereof have openings 115 which serve as thread guides. The movement of members 111 presses bar 112 forwardly and similarly moves the

upper ends of plates 113. Because of pivot 114 the lower ends of 113 are pressed against the head 4 to clamp the thread.

The needle bar 13 has secured at the lower end thereof a needle clamp 116 carrying a needle as usual. A screw 117 adjustable in the lower end of needle bar 13 holds in adjustable position slotted member 118 having a needle clamp 119 at the lower end thereof.

The jaws 96 are pivoted at 120 and have pins 121 at an intermediate point. An angular plate 122 has a pair of converging slots 123, as more particularly shown in Fig. 8. A plate 124, having a slot 125, is pivoted to arm 87 at 126 and has an angular member 127 extending beyond the edge of arm 87 with a hand-operated adjusting screw 128 passing through the same and bearing upon the side of arm 87. A pin 129 passes through members 122 and 124 and into a guide slot 130 in arm 87. Spring 131 held by screw 132 presses the member 122 in the forward position. Secured by screw 133 to extension 134 of slide 66 is a plate 135 having a pair of laterally elongated openings 136 therein. Underneath said plate is a needle plate 137 having a cut-out portion and a supplemental needle plate 138 fitted in said cut-out. A member 139 pivoted at 140 and having a pin connection 141 to plate 135 serves to move needle plates 137 and 138. By reason of the connection to extension 134 of slide 66, the movement of plate 135 is simultaneous with the button clamp. Such movement is transmitted through pin 141 to member 139 causing plates 137 and 138 to move in the opposite direction. Each of said plates is provided with an elongated slot 142 having a hook 143 therein. The space 144 is intended to allow adjustment of the relative positions of the needle plates by means of screw and slot arrangement 145.

With reference to the modification shown in Figs. 10 to 14, inclusive, there is provided the ordinary needle bar 13 which is held in sleeve 150, the latter being pivoted to the top of the head of the sewing machine by pins 151. A similar sleeve 152 at the lower end of the head of the machine operates in guide 153 and an arm 154 is secured thereto. A shaft 155 extends horizontally from arm 154. A cam 156 secured to shaft 48 has lifting surfaces 157 cooperating with a roller 158 secured in follower 159. To shaft 155 is fixed slotted arm 161 having screw 162 operable therein by head 163. A block 164, rectangular in cross-section fits in the said slot and has screw 162 threaded therethrough. A locking screw 165 holds it in adjusted position. Extending end of 164 fits in slot 168 of member 166 which is integral with collar 167 held on shaft 160 by set screw 172. Bracket 169 is fixed by screw 170 to the machine and has a slot 171 adapted to be aligned with 168. In the position shown in Fig. 13, motion from shaft 160 is transmitted through 167, 166, 164, 161, 155 and 154 to shift the needle. When block 164 is in slot 171, the motion of shaft 160 is not transmitted.

In the operation of the machine for the sewing on of a button having four holes, the mechanism is in the position shown in Fig. 1. By the adjustment of screw 128, the jaws 96 may be set at any desired point and the stop 97 is adjusted by means of its adjusting screw so that the button 99 fits snugly between the jaws, being held in place by rollers 98 which facilitate the insertion and removal thereof. By means of screw 93, the arm 87 is adjusted forward or backward by sliding 75

arm 87 on pin 89 until the fixed needle in clamp 116 is in alignment with the rear pair of holes in the button. Needle clamp 119 is then adjusted by loosening screw 117 and shifting said needle clamp until it is in line with the front set of holes in the button, and screw 117 is then tightened. Similarly, needle plate 138 is adjusted by means of screw 145 until it is in alignment with the needle of needle clamp 119. The lateral movement of the button clamp on its base 66 is then adjusted so that the throw thereof is equal to the distance between the holes of each pair of holes in the button. This is accomplished by loosening screw 75 and shifting plate 74 relative to bar 72 a sufficient distance one way or the other and then the screw 75 is tightened to hold the parts in relative position.

An adjustment is now made for the desired number of stitches for each button. This is accomplished by turning sleeve 59, causing finger 46 to move laterally one way or the other until it comes in contact with one of the sets of projections 53, 54 and 55, respectively. When it is desired, for example, to have twenty-four stitches, the sleeve 59 is rotated until the parts are in the position shown in Fig. 3 with the finger in line with projection 53. If the finger is on the second set of projections 54, the machine becomes set to make twelve stitches, and if the finger is in line with projections 55, the machine is set to make eight stitches. It is, of course, apparent that the number of stitches for which a machine is designed may be varied at will and that the numbers given herein are illustrative and not limiting.

Assuming the parts are all in position for operation as described above, and the setting is as shown in Fig. 1, with the fabric in place under the button clamp, rod 30 is pulled downwardly thereby pulling projection 25 out of socket 26 and releasing member 6. At the same time, bar 33 is removed from shoulder 39, pulled downwardly against the compression of spring in sleeve 35, and into engagement with shoulder 40 of the latch 38. The downward movement of stop 25 causes a similar movement of pin 27 in slot 24 of slide 21 causing said slide to move to the left, in Fig. 1, thereby shifting the belt from the idler 10 to the driving pulley 7.

The rotation of pulley 7 is transmitted to the shaft 5 through the pin 9 and the shock absorbing springs causing the normal reciprocating motion of the needles. At the same time, the rotation of the shaft is transmitted through gears 79 and 80, cam 84, rollers 85 and 86, to the follower 78, which is caused to move in an up and down direction. This motion is transmitted by plate 74 through arm 72 to link 70 and thus to base 66 of the button clamp, causing lateral reciprocating movement of said button clamp. Thereby, the needles first penetrate one set of holes in a button and then as the needles travel upward, the button clamp is shifted to the right or left as the case may be and on the downward stroke of the needles, they enter the other pair of holes. The spring 95 keeps the button in proper position relative to the fabric on which it is being stitched.

Simultaneously, the shaft 5 causes rotation of shaft 48 through worm and worm gear 50 and 49, causing a rotation of the cylinder 47 in a clockwise direction, as shown by the arrow, until a projection, as for example, projection 53, comes in contact with the finger 46 and raises the same after the desired number of stitches has been

made. As the finger 46 is raised, it is pivoted about pin 56, the rear end thereof moving downwardly at connection 45, causing the left hand side of link 44 to move downwardly as shown by the arrow, and the angular portion 42 to move to the right, as shown by the arrow, causing latch 38 to move to the left, releasing bar 33 from shoulder 40. Under the action of spring in sleeve 35, the bar is quickly forced upwardly causing stop 25 to engage in its socket 26, stopping the pulley 7 and at the same time causing pin 27 to move upwardly in diagonal slot 24 and shifting the belt onto the idler 10.

In the reciprocating movement of the needles, they pass through openings 136 of plate 135 and then through openings 142 in needle plates 137 and 138. In some cases, it has been found that the loops formed by the passage of the needles are not sufficiently open so as to be positively caught by the hooks beneath the bed of the machine. To prevent any failure of a hook to hold a loop, there is provided a hook 143 in opening 142 which positively holds the loop open and thus makes certain the catching of the stitch in the next reciprocation.

After the sewing operation is complete, rod 106 is pulled down, raising bar 101, which in turn raises arm 87 of the button clamp against the action of the spring 95. At the same time, the upward motion of bar 101 causes a downward movement of clamping fingers 111 on the bar 112 which force thread guides 115 against the head of the sewing machine, holding the thread in place. The work may now be removed from the machine, a new button inserted, and the operation repeated.

In some cases, a thread may break accidentally so that one of the needles has not performed the stitching operation. In such case, the button is allowed to remain in its place, the machine is again started and one of the thread guides 115 is pressed down by hand so as to prevent feeding of thread therethrough, whereas the other thread guide is allowed to operate so that it now would stitch the pair of button holes which were omitted in the first operation.

In the modification shown in Figs. 10 to 14, inclusive, a slightly different mode of operation is obtained. In this modification there is but a single needle. The button clamp reciprocates laterally, as previously, and where a two-hole button is to be sewed, the needle clamp is adjusted as before with the holes in the button in alignment with the needle. Member 165 is loosened and screw 162 is turned until the block 164, connected to member 161, has been shifted in slot 168 to the left, as shown in Fig. 12, until it has left the slot 168 and is completely in slot 171. In said position, the needle shifting mechanism is inoperative.

The material and the button to be sewed thereon are placed in position on the machine which is started as before and caused to operate by simple reciprocation of the needle, and after the predetermined number of stitches has been made, the machine automatically stops.

When a four-hole button is to be sewed onto a fabric, the button clamp is adjusted in such a position that the needle is aligned with one of the pairs of button holes. Screw 162 is turned until block 164 is in slot 168 and the adjustment is continued until by trial it is found that the amount of shifting of the needle is equal to the distance between a pair of holes in the button.

In the modification shown in Fig. 11, there is

a cam 156 operating on the shaft 48. Assuming that the device is set to make twenty stitches in a button and the starting position is as shown in Fig. 11, the cam moves in the direction of the arrow allowing stitching to be made between one pair of holes in the button and after ten stitches have been made, the cam shifts fork member 159, pushing the same down; the downward movement of rod 160 causes a downward movement of boss 167, resulting in oscillation of bar 155 about its pivot. Said oscillation is transmitted through arm 154 to block 152 operating in slot 153, shifting the needle to the left, opposite its position shown in Fig. 10. This places the needle in alignment with the second set of holes in the button and stitching continues for another ten stitches, or until the cam 156 is again in the position shown in Fig. 11. At this time, the stop mechanism operated through finger 46 and associated parts stops the machine and the operation is complete.

In a similar manner, if for example it is desired to make say a total of ten stitches in a button having four holes, the cam 156 is in a position such that part 175 thereof is in contact with roller 158. Upon the operation of the machine, five stitches are made in a pair of openings, the lift 157 comes in contact with roller 158 causing movement of bar 160 and shifting the needle to the other set of holes where five more stitches are made, and then the stop mechanism cuts off the machine. The cam is now in a position with part 176 in contact with roller 158 and is ready for the next operation. The machine shown in Fig. 1 may be used with a single needle to sew a 2-hole button. When it is used with a single needle to sew a 4-hole button the needle shifting mechanism of Fig. 11 is superposed on the mechanism of Fig. 1 by shaft 48 either in front of or behind the same. In such case the needle bar 13 of Fig. 1 is pivoted in head 4 at its upper end and is connected to the shifting mechanism of Fig. 11 at its lower end.

Although I have described my invention setting forth two specific embodiments thereof, it will be apparent to those skilled in the art that various modifications may be made within the spirit of the invention. Various other means than shown for performing the several functions outlined may be substituted for the specific mechanisms shown and described. It is, of course, well known that various mechanisms are the equivalent of those here illustrated and the present invention contemplates the use of such equivalents. The location of the various parts may of course be changed at will but retaining the function described herein. While the various mechanisms have been described in connection with a button sewing machine, it is obvious that they may be used in machines for other purposes, as for example, there are many situations in which it is desirable to have a stop mechanism for limiting and predetermining the number of stitches to be made in a piece of work. From the above, it will be apparent that my invention is broad in character and it should be broadly construed and limited only by the character of the claims appended hereto.

What I claim is:

1. A button sewing machine comprising a rotating shaft, stitch forming mechanism operated thereby, a button clamp in proximity to said mechanism, means for reciprocating said clamp in time with said mechanism including a connection to said shaft having means for adjusting the

throw of said clamp, means for stopping the rotation of said shaft at predetermined intervals including a stop member, a latch for tripping the same, a rotating member having a plurality of sets of projections the spacing of which represents a predetermined number of stitches, and a finger adapted to contact with one of said sets, whereby the contact of a projection with said finger releases said latch.

2. A button sewing machine comprising a rotating shaft, stitch forming mechanism operated thereby, a pair of needles and means for adjusting the spacing thereof, a button clamp in proximity to said mechanism, means for reciprocating said clamp in time with said mechanism including a connection to said shaft having means for adjusting the throw of said clamp, means for stopping the rotation of said shaft at predetermined intervals including a stop member, a latch for tripping the same, a rotating member having a plurality of sets of projections the spacing of which represents a predetermined number of stitches, and a finger adapted to contact with one of said sets, whereby the contact of a projection with said finger releases said latch.

3. A button sewing machine comprising a rotating shaft, stitch forming mechanism operated thereby, a button clamp in proximity to said mechanism, means for reciprocating said clamp in time with said mechanism including a connection to said shaft having means for adjusting the throw of said clamp, said clamp having a plurality of button holding jaws movably mounted and rollers on said jaws for gripping a button, means for stopping the rotation of said shaft at predetermined intervals including a stop member, a latch for tripping the same, a rotating member having a plurality of sets of projections the spacing of which represents a predetermined number of stitches, and a finger adapted to contact with one of said sets, whereby the contact of a projection with said finger releases said latch.

4. A button sewing machine comprising a rotating shaft, stitch forming mechanism operated thereby, a button clamp in proximity to said mechanism, means for reciprocating said clamp in time with said mechanism including a connection to said shaft having means for adjusting the throw of said clamp, said adjusting means having an angular pivoted bar cooperating with a second bar and a set screw for holding said bars in adjustable relation, means for stopping the rotation of said shaft at predetermined intervals, including a stop member, a latch for tripping the same, a rotating member having a plurality of sets of projections the spacing of which represents a predetermined number of stitches, and a finger adapted to contact with one of said sets, whereby the contact of a projection with said finger releases said latch.

5. A button sewing machine comprising a rotating shaft, stitch forming mechanism operated thereby, a button clamp in proximity to said mechanism, means for reciprocating said clamp in time with said mechanism including a connection to said shaft having means for adjusting the throw of said clamp, means for stopping the rotation of said shaft at predetermined intervals including a stop member and a belt shifter operatively secured thereto, a latch for tripping the same, a rotating member having a plurality of sets of projections the spacing of which represents a predetermined number of stitches, and a finger adapted to contact with one of said sets, whereby the contact of a projection with

said finger releases said latch and shifts the belt to idle position.

6. A button sewing machine comprising a rotating shaft, stitch forming mechanism operated thereby, a button clamp in proximity to said mechanism, means for reciprocating said clamp in time with said mechanism including a connection to said shaft having means for adjusting the throw of said clamp, means for stopping the rotation of said shaft at predetermined intervals including a stop member, a latch for tripping the same, a rotating member having a plurality of sets of projections the spacing of which represents a predetermined number of stitches, a finger adapted to contact with one of said sets, whereby the contact of a projection with said finger releases said latch, and means for adjusting said finger to cause it to contact with a different set of projections.

7. In a sewing machine having a rotating shaft and stitch forming mechanism, mechanism for predetermining the number of stitches to be made comprising a stop member, a latch for holding the same in inoperative position, an operating finger connected to said latch, a tripper for said finger actuated by said shaft, a set of tripper elements thereon, the distance between the same representing a predetermined number of stitches whereby the rotation of said shaft causes movement of said finger, moving of said latch and stopping of said shaft.

8. In a sewing machine having a rotating shaft and stitch forming mechanism, mechanism for predetermining the number of stitches to be made comprising a stop member, a latch for holding the same in inoperative position, an operating finger connected to said latch, a tripper for said finger actuated by said shaft, a set of tripper elements thereon, the distance between the same representing a predetermined number of stitches, whereby the rotation of said shaft causes movement of said finger, moving of said latch and stopping of said shaft and means connected to said stop member for shifting the belt of said machine.

9. In a sewing machine having a rotating shaft and stitch forming mechanism, mechanism for predetermining the number of stitches to be made comprising a stop member, a latch for holding the same in inoperative position, an operating finger connected to said latch, a tripper for said finger actuated by said shaft, a set of tripper elements thereon, the distance between the same representing a predetermined number of stitches, whereby the rotation of said shaft causes movement of said finger, moving of said latch and stopping of said shaft, means connected to said stop member for shifting the belt of said machine and means for retracting said stop member to inoperative position.

10. In a sewing machine having a rotating shaft and stitch forming mechanism, mechanism for predetermining the number of stitches to be made comprising a stop member, a latch for holding the same in inoperative position, an operating finger connected to said latch, a tripper for said finger actuated by said shaft, a set of tripper elements thereon, means for moving said finger to engage various tripper elements, the distance between the same representing a predetermined number of stitches, whereby the rotation of said shaft causes movement of said finger, moving of said latch and stopping of said shaft.

11. In a sewing machine having a rotating

shaft and stitch forming mechanism, mechanism for predetermining the number of stitches to be made comprising a stop member, a latch for holding the same in inoperative position, an operating finger connected to said latch, a tripper for said finger actuated by said shaft, said tripper being in the form of a cylinder and rotated by said shaft, several sets of tripper elements around the periphery thereof, said finger adapted to be aligned successively with each of said sets, the distance between the elements of each set representing a predetermined number of stitches, whereby the rotation of said shaft causes movement of said finger, moving of said latch and stopping of said shaft.

12. In a sewing machine having a rotating shaft and stitch forming mechanism, mechanism for predetermining the number of stitches to be made comprising a stop member, a latch for holding the same in inoperative position, an operating finger connected to said latch by a series of pivoted links, a tripper for said finger actuated by said shaft, a set of tripper elements thereon, the distance between the same representing a predetermined number of stitches, whereby the rotation of said shaft causes movement of said finger, moving of said latch and stopping of said shaft.

13. In a sewing machine having a rotating shaft and stitch forming mechanism, mechanism for predetermining the number of stitches to be made comprising a stop member, a spring tending to move the same into operative position, a latch for holding the same in operative position, an operating finger connected to said latch by a series of pivoted links, a tripper for said finger actuated by said shaft, a set of tripper elements thereon, the distance between the same representing a predetermined number of stitches, whereby the rotation of said shaft causes movement of said finger, moving of said latch and stopping of said shaft.

14. In a button sewing machine having a rotating shaft and stitch forming mechanism and a button clamp, means for reciprocating the same comprising a cam geared to said shaft, a follower operated thereby, a connection between said follower and clamp whereby the rotary motion of said shaft causes reciprocation of said clamp, said connection including a pivoted angular member the vertical arm of which is secured to said clamp and the horizontal arm is secured to said follower.

15. In a button sewing machine having a rotating shaft and stitch forming mechanism and a button clamp, means for reciprocating the same comprising a cam geared to said shaft, a follower operated thereby, a connection between said follower and clamp whereby the rotary motion of said shaft causes reciprocation of said clamp, said connection including a pivoted angular member the vertical arm of which is secured to said clamp and the horizontal arm is secured to said follower, the connection being adjustable.

16. In a button sewing machine having a rotating shaft and stitch forming mechanism and a button clamp, means for reciprocating the same comprising a cam geared to said shaft, a follower operated thereby, a connection between said follower and clamp whereby the rotary motion of said shaft causes reciprocation of said clamp, said connection including a pivoted angular member the vertical arm of which is secured to said clamp and the horizontal arm is secured to said follower, the upper end of said follower

being guided by said shaft and the lower end being pivotally connected to a bar, said bar constituting part of said connection and being secured to said angular member.

- 5 17. In a sewing machine having a rotating shaft and stitch forming mechanism, a needle bar operated by said shaft, a needle clamp in fixed position on said bar, a second needle clamp on said bar, means for adjusting the same laterally with respect to the first named clamp, a
10 needle plate on the bed of said machine, a pair of needle openings therein, a reciprocating button clamp, and a connection between said clamp and plate whereby the plate is caused to reciprocate oppositely to the clamp.

- 15 18. In a sewing machine having a rotating shaft and stitch forming mechanism, a needle bar operated by said shaft, a needle clamp in fixed position on said bar, a second needle clamp on said bar, means for adjusting the same laterally with respect to the first named clamp, a
20 needle plate on the bed of said machine, a pair

of needle openings therein, and a pair of independent thread guides whereby pressure on one prevents movement of its thread.

19. In a sewing machine having a rotating shaft and stitch forming mechanism, a button clamp for holding a button and means for causing stitches to be formed in the holes of said button, a needle bar operated by said shaft to cause said bar to be reciprocated vertically, means for shifting said bar in a direction substantially at right angles to the reciprocation thereof at predetermined intervals including a
10 cam operated by said shaft and a connection between said cam and said bar including a split guide member, a slide therein, and means for adjusting the position of said slide in one or the
15 other part of said split member, said cam causing shifting of said bar after the completion of a series of stitches through a pair of holes in a button.

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