

March 3, 1964

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3,123,031

WORK STACKING MECHANISM FOR SEWING MACHINES

Filed Aug. 24, 1961

5 Sheets-Sheet 2

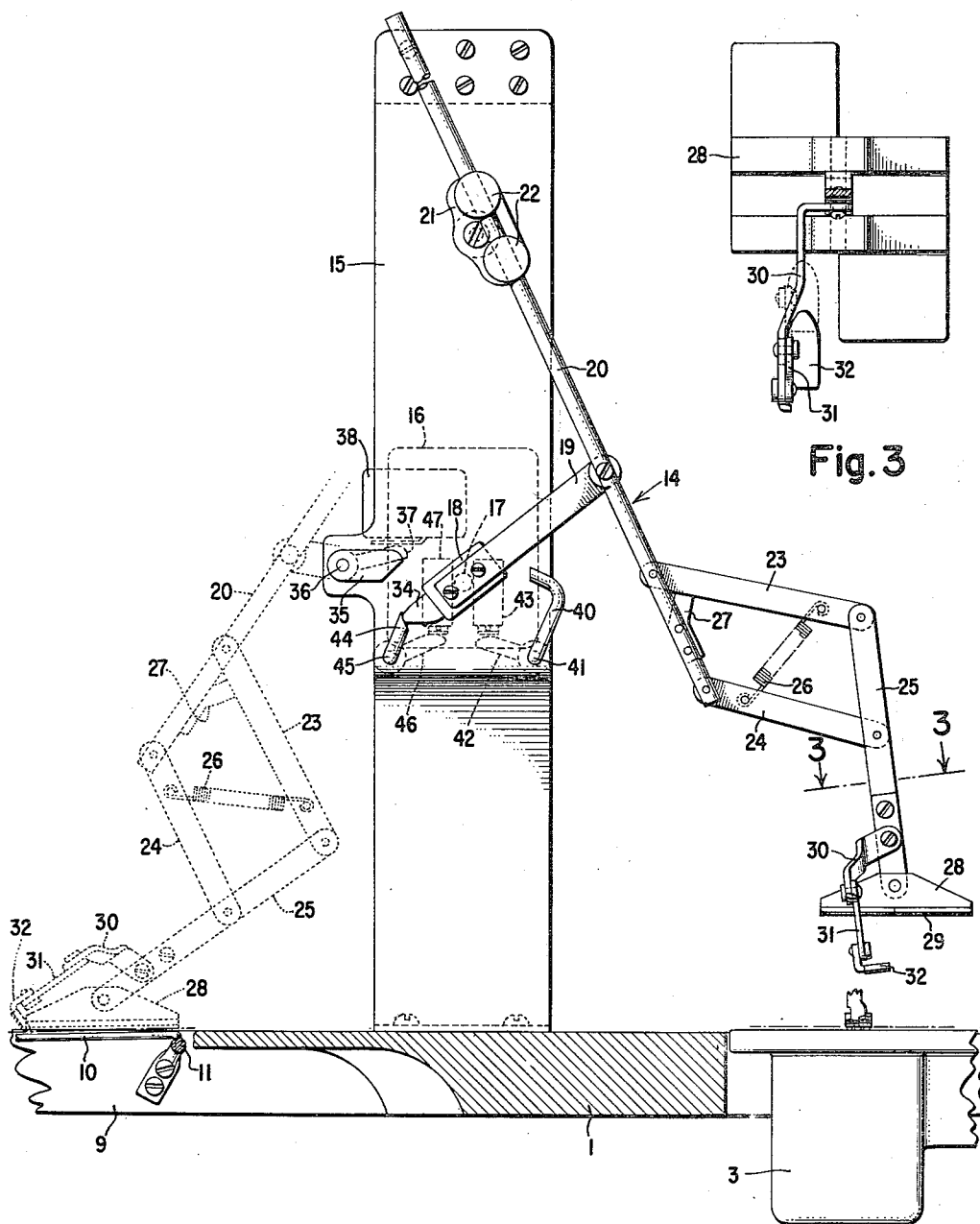


Fig. 2

Fig. 3

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5 Sheets-Sheet 3

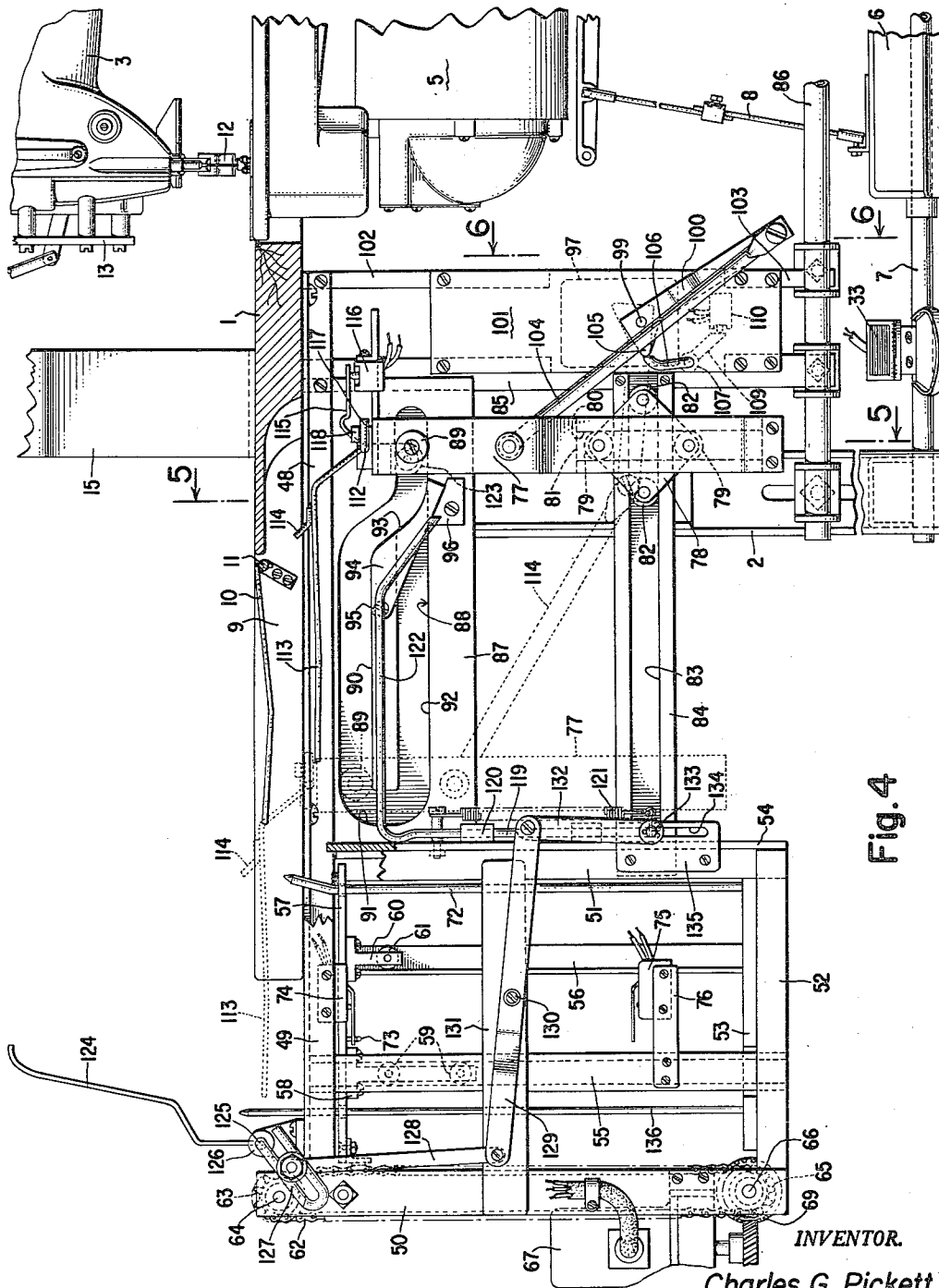


Fig. 4

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5 Sheets-Sheet 4

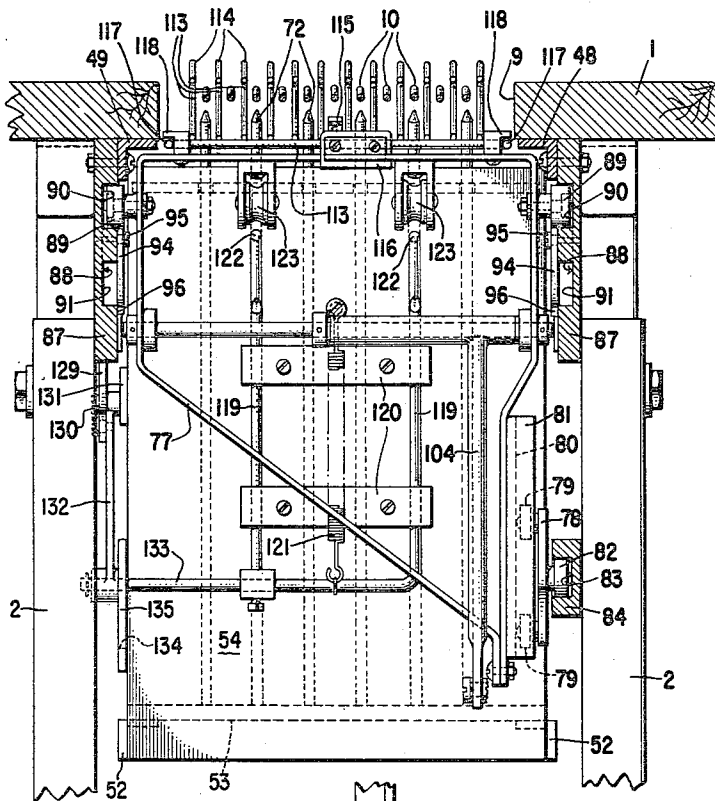


Fig. 5

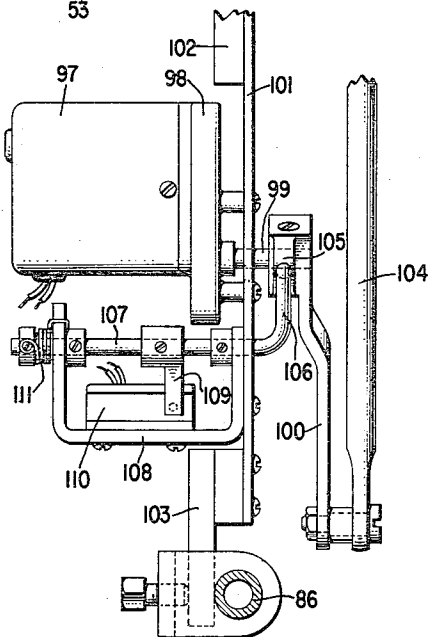


Fig. 6

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5 Sheets-Sheet 5

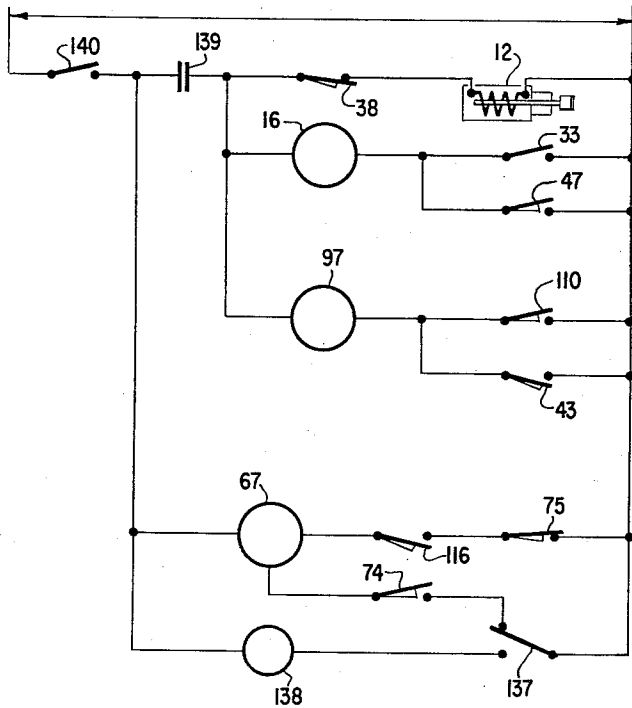
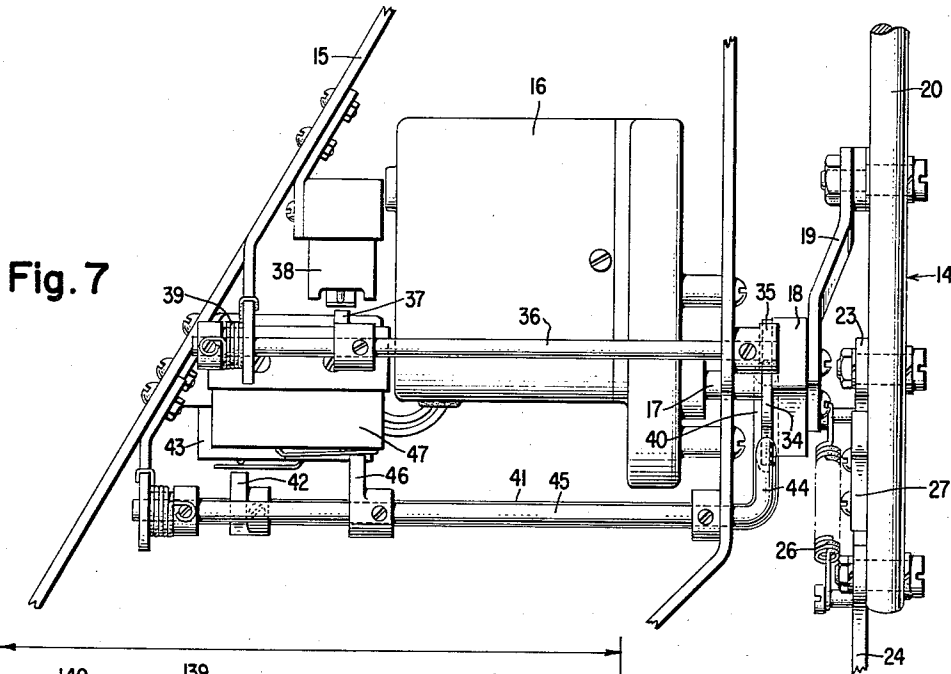


Fig. 8

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WORK STACKING MECHANISM FOR SEWING MACHINES

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17 Claims. (Cl. 112—2)

The present invention relates to a work stacking mechanism for use with sewing machines and has for an object to provide such a mechanism which will, with a minimum of attention on the part of the operator, take a work piece after the completion of a sewing operation and automatically place the same on a stack of previously sewed work pieces.

Essentially the mechanism in accordance with this invention consists of a slotted work support on which the work piece is deposited and a movable platform operable through the slots in the work support to lift the work piece and transfer it onto a stack. A further feature of the present invention is the provision of means for automatically moving the work piece from the sewing machine and onto the slotted work support.

Further objects of this invention are to provide a stacking mechanism that is economical, dependable and durable.

Having in mind the above and other objects that will be evident from an understanding of this disclosure, the invention comprises the devices, combinations and arrangements of parts as illustrated in the presently preferred embodiment of the invention which is hereinafter set forth in such detail as to enable those skilled in the art readily to understand the function, operation, construction and advantages of it when read in conjunction with the accompanying drawings in which:

FIG. 1 is a perspective view of a machine embodying the present invention.

FIG. 2 is a fragmentary vertical sectional view longitudinally of the machine of FIG. 1, and illustrating the means for moving the work piece from the sewing machine onto the slotted table.

FIG. 3 is a detail sectional view substantially on the line 3—3 of FIG. 2.

FIG. 4 is a fragmentary vertical sectional view longitudinally of the machine of FIG. 1, and illustrating the movable platform and the stacking element.

FIG. 5 is a transverse vertical sectional view on the line 5—5 of FIG. 4.

FIG. 6 is a sectional view taken substantially on the line 6—6 of FIG. 4.

FIG. 7 is a fragmentary detail view in elevation of the means for moving the work piece from the sewing machine onto the slotted table.

FIG. 8 is a schematic diagram of the electrical components for controlling the operation of the machine.

With reference to the drawings there is illustrated in FIG. 1 a sewing machine table 1 including two pairs of supporting legs 2. Mounted upon the table 1 is a sewing machine 3 that is driven by means of a belt 4 from an electric power transmitter 5 suspended beneath the table 1. The transmitter 5 is controlled by means of a foot treadle 6 pivotally mounted on a tube 7 carried by the cross braces of the legs 2 and connected to the transmitter by a rod 8.

Extending inwardly from the left hand end of the table 1 is a cutout 9 in which is mounted a plurality of spaced parallel fingers 10 which define in effect a work support having a plurality of open ended, spaced parallel slots and upon which the work piece is to be deposited and from which it is picked up for transfer to the stack.

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The fingers 10 are carried by a rod 11, FIG. 4, that is secured at its ends to the sides of the cutout 9.

As the work is passed through the sewing machine, it moves onto the upper surface directly behind the point of stitch formation. To sever the thread chain, there is provided a solenoid actuated thread chain cutter 12 mounted on a plate 13 secured on the head of the machine. The thread chain cutter 12 is automatically actuated as hereinafter noted.

To move the work from the position in which it ends up at after the sewing operation onto the fingers 10 there is provided a transfer mechanism 14 carried by a support 15 mounted on the top of the table 1 at the rear edge thereof. The mechanism 14 comprises an electric motor 16 carried by the support 15 and having a drive shaft 17 extending through the front portion of the support 15. Upon the forward end of the drive shaft 17 is a block 18 carrying a crank arm 19 which, at its free end, is pivotally connected to an intermediate point of a rod 20. The rod 20 is slidably pivoted to the support 15 by a pivot block 21 pivoted on the support 15 and having a pair of lugs 22 through which the rod 20 slidably extends.

At its lower end the rod 20 carries a pair of links 23 and 24 which are pivotally mounted on the rod 20 at spaced points and which are pivotally connected at their free ends to an arm 25 at equally spaced points. A coil tension spring 26 is connected between the links 23 and 24 and tends to draw the same together into a stop position that is determined by a stop 27. Pivotally mounted on the lower end of the arm 25 is a main work engaging foot 28, the under surface of which is coated with a material 29 that increases the frictional engagement between the foot and the work piece. An arm 30 extends forwardly from the arm 25 and has pivotally connected to the free end thereof a depending arm 31 that extends below the foot 28 and is held slightly inclined downwardly and rearwardly and at its lower end carries a pivotally mounted auxiliary foot 32.

With the above mechanism, as the motor 16 drives the crank arm 19 in a clockwise direction, in FIG. 2, the rod 20 is moved downwardly towards the work from the full line position. Initially, the auxiliary foot 32 engages the work piece. As the arm 25 continues to move downwardly, the auxiliary foot 32 moves rearwardly from the full line to dotted line position, FIG. 3, which forces the work piece rearwardly from the point of stitch formation. The main foot 28 then comes down upon the work piece and as the crank arm 19 continues to rotate and the rod 20 pivots about and slides endwise relatively to the block 21, the foot 28 moves across the table to move the work piece onto the fingers 10 as illustrated in the dotted line position in FIG. 2. The spring 26 is flexed during this movement and acts to bias the foot 28 toward the table 1.

Actuation of the motor 16 of the transfer mechanism 14 is initiated by a foot switch 33, FIGS. 4 and 8, mounted upon the tube 7 and adapted to be closed at will by the operator. Mounted on the block 18 and extending in the opposite direction from the crank arm 19 is a trip arm 34 that initially engages a crank 35 upon a shaft 36 journaled in the support 15 and carrying a switch arm 37 adapted to close a switch 38 which actuates the thread chain cutter 12. The shaft 36 is biased by a torsion spring 39 into a position in which the switch arm 37 is out of contact with the switch 38. The arrangement of these elements is made such that the switch 38 is closed to actuate the thread chain cutter 12 after the auxiliary foot has engaged the work and moved it rearwardly relatively to the point of stitch formation, thereby tensioning the thread chain.

Near the end of the cycle, the trip arm 34 engages

a crank 40 on the end of a shaft 41 journaled in the support 15. The shaft 41 carries a trip arm 42 that closes a switch 43, which, as hereinafter more fully explained, initiates operation of the next phase of the cycle. The trip arm 34 then engages a crank 44 on a shaft 45 journaled in the support and having a trip arm 46 that opens a normally closed switch 47 to deenergize the motor 16 and thereby stop the transfer mechanism 14.

Secured to the underside of the table 1 are a pair of opposed angle members 48 and 49 which are arranged longitudinally of the table 1 on opposite sides of the cutout 9 and extend from inwardly of the cutout 9 to beyond the end of the table 1. Depending from the angle members 48 and 49 are four rectangularly arranged angle members including a pair of angle members 50 at the free ends thereof and a pair of angle members 51 at a point near to the end of the fingers 10. The members 50 and 51 are connected together at the bottom thereof by cross pieces 52 upon which is supported a bottom plate 53. A backing plate 54 is carried by the members 51.

Extending respectively between the members 48 and 49 and the corresponding cross pieces 52 are a vertical channel piece 55 and an angle piece 56. A vertically movable plate 57 is disposed within the area defined by the members 50 and 51 and has a first depending bracket 58 having a pair of wheels 59 guided within the flanges of the channel piece 55 a second depending bracket 60 having a wheel 61 that is guided by the flange of the angle piece 56. The plate 57 is carried by a pair of chains 62 each running about sprockets 63 on a shaft 64 journaled between the members 50 at the top thereof and about sprockets 65 on a shaft 66 journaled between the members 50 at the bottom thereof. The shaft 66 is adapted to be driven by a reversible electric motor 67 connected to the shaft 66 by gears 68 and 69.

The plates 53 and 57 are provided with a plurality of vertically aligned holes 70 and 71 that are designed to accommodate a series of guide rods 72 which may be arranged in any manner to suit the configuration of the particular work piece being stacked. The guide rods 72 are adapted to be threaded into the holes 70 in the bottom plate 53 and to extend loosely through the holes 71 in the movable plate 57 to permit movement of the plate 57 relative thereto. The plate 57 has a switch arm 73 mounted on the underside thereof and adapted to open a normally closed upper limit switch 74 mounted on the member 49 and a lower limit switch 75 carried by an arm 76 mounted on the channel piece 55. The switches 74 and 75 are adapted to control the operation of the motor 67 as hereinafter noted.

The transfer mechanism for lifting the work piece from the fingers 10 and depositing them in a stack on the plate 53 comprises a movable frame 77. The frame 77 is confined to vertical movement by a guide element 78 having a pair of wheels 79 disposed in a vertical guide channel 80 in a block 81 carried by the frame 77. The guide element 78 is confined to horizontal movement by a pair of wheels 82 carried thereby and disposed in a horizontal guide channel 83 in a guide member 84. The guide member 84 is secured at one end to one of the angle members 51 and at the other end to a depending support 85 secured at its upper end to the member 48 and at its lower end to a tube 86 extending between the legs 2. The frame 77 is thus freely movable longitudinally and vertically relatively to the table 1 but is confined to a vertical disposition or in other words, is held against any turning relatively to the table 1.

Depending from the members 48 and 49 are a pair of opposed guide plates 87 each of which is formed with a guide channel 88 that receives a wheel 89 journaled on the frame 77. The guide channel 88 includes an upper horizontal advance run 90, a lower horizontal return run 92, a connecting descending run 91 and a connecting ascending run 93. The ascending run 93 is formed by a section 94 pivotally mounted on the guide plates 87 at

95 and biased by gravity against a stop 96. The sections 94 are deflected by the wheels 89 during the movement thereof along the return run 92 and then fall to the position illustrated in FIG. 4 so that, upon the advance movement of the frame 77, the wheels will ride up the ascending run 93 onto the advance run 90.

The frame 77 is driven by an electric motor 97 which, through a reduction unit 98, drives a shaft 99 on which is secured a crank arm 100. The motor 97 is mounted on a plate 101 carried by the support 85 and supports 102 and 103 which are secured respectively to the member 48 and the tube 86. The free end of the crank arm 100 is pivotally connected to one end of a link 104, the other end of which pivotally connected to the frame 77. Thus as the shaft 99 is rotated by the motor 97, the frame 77 is driven from the rest position as illustrated in full lines in FIG. 4 through an advance stroke to the dotted line position in FIG. 4 and then through a return stroke to the full line position. To stop the motor 97 in the rest position, the crank arm 100 has a trip arm 105 that engages a crank 106 on a rod 107 journaled in a bracket 108 carried by the plate 101. The rod 107 carries a switch arm 109 which engages a normally closed switch 110 to open the same when the crank 106 is moved by the trip arm 105. A torsion spring 111 biases the rod 107 into operative position.

A rod 112 is journaled transversely of the frame 77 at the top thereof and carries a plurality of fingers 113 that for the most part are disposed in a horizontal plane and are parallel and spaced apart in a manner comparable to that of the fingers 10 so they can rise in the slots between the fingers 10. During operation, the fingers 113 individually move in vertical planes extending through the slots between the fingers 10 so that, during the advance stroke as the frame 77 rides on the ascending run 93, the fingers 113 rise between the fingers 10 and lift the work piece from the same. The fingers 113 are provided with stops 114 to insure that the work pieces will remain on and move therewith during the advance stroke thereof.

Near the end of the advance stroke, the fingers 113 move over the tops of the rods 72 and over the movable plate 57. As the frame moves through that portion of its stroke defined by the descending run 91, the fingers are lowered into proximity to the plate 57 and between the rods 72 with the workpiece disposed behind the rods 72 so that as the frame 77 moves through its return stroke, the work piece is engaged by the fingers 72 and is slid off the fingers 113 onto the plate 57.

As the work pieces accumulate on the plate 57, the height of the stack increases. In order to lower the stack so that the fingers 113 can advance over the same and deposit the next work piece on the top thereof, the rod 112 has a switch arm 115 that engages a switch 116 carried by the frame 77. The weight of the fingers 113 normally pivots the rod 112 in a direction to move the switch arm 115 away from the switch 116, that is, counterclockwise as seen in FIG. 4, into a stop position determined by the engagement of a crank arm 117 on the rod 112 against a stop 118. As the frame 77 is lowered on the descending portion of its cycle, the fingers 113 engage the top of the stack and pivot the rod 112 in the direction to cause the switch arm 115 to close the switch 116. The switch 116 energizes the motor 67 to lower the plate 57. The motor 67 is deenergized as soon as the switch 116 is opened so that the plate 57 is thus only indexed downwardly a small amount.

A pair of vertically arranged rods 119 are mounted by means of brackets 120 on the backing plate 54 for endwise movement relatively thereto. The rods 119 are biased upwardly by a coil tension spring 121 and are provided with horizontal arms 122 which are adapted to receive a pair of wheels 123 journaled on the underside of the top portion of the frame. The arms 122 are normally disposed only a slight distance below the wheels 123 dur-

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ing the advance stroke of the frame 77 so that the wheels engage the arms as soon as the frame enters the descending portion of the cycle and the further downward movement thereof depresses the rods 119 against the action of the spring 121, thus cushioning the descent thereof.

As a further means for insuring that the work piece will be slid from the fingers 113 as the frame 77 is returned to withdraw the fingers from over the plate 57 on which the stack is formed, there may be provided fingers 124 mounted on a rod 125 journaled in brackets 126 mounted on the members 48 and 49. The rod 125 is formed with a crank arm 127 to which is pivotally secured on end of a link 128 pivotally connected at its other end to one end of a lever 129 pivotally mounted at 130 on a cross piece 131 secured to the members 50 and 51. The other end of the lever 129 is connected by a link 132 to a rod 133 on the rods 119. The rod 133 is guided by means of a slot 134 in a plate 135 on the member 51. Thus, as the frame 77 forces the rods 119 downwardly, the rod 125 is pivoted to lower the fingers 124 with the ends thereof disposed over the work piece to hold the same from moving with the fingers 113 as they are withdrawn. The arms 122 are elongated so that the fingers 124 will be held in the lowered position during the major portion of the return movement of the frame 77.

A second series of rods 136 similar to the rods 72 may be provided to assist in supporting the stack of work pieces on the plate 57.

The sequential actuation of the various elements may be readily understood from FIG. 8. When the operator closes the foot switch 33, the motor 16 or the transfer mechanism is energized. The initial rotation of the trip arm 34 releases the crank 44 permitting the normally closed switch 47 to close. The switch 33 can now be opened and the motor 16 will then continue to operate until the switch 47 is opened. Continued rotation of the trip arm 34 sequentially closes the switch 38 to energize the solenoid of the thread chain cutter 12, closes the switch 43 to initiate actuation of the motor 97, and finally opens the switch 47 to stop the motor 16.

When the switch 43 is closed to energize the motor 97, the trip arm 105 moves away from the crank 106 and thus permits the switch 110 to close so that the switch 43 can be opened and the motor 97 will continue to operate until the switch 110 is opened. At the completion of one revolution, the trip arm 105 engages the crank 106 and thus opens the switch 110.

When the stack of work pieces on the plate 57 becomes high enough to pivot the fingers 113 and thus close the switch 116, the motor 67 is energized forwardly to lower the plate 57. As soon as the plate 57 lowers enough to permit the switch 116 to open, the motor 67 is deenergized. This process continues until the switch arm 73 on the plate 57 opens the switch 75. The stack is then removed and the plate 57 is returned to its uppermost position by reverse rotation of the motor 67 which is obtained by throwing a manual switch 137 into the full line position in FIG. 8. When the plate 57 reaches its uppermost position, the switch arm 73 opens the switch 74 to stop the motor 67. The switch 137 is then returned to its position for normal operation. To prevent actuation of the motors 16 and 97 while the plate 57 is being reset, there is provided a relay 138 which is energized when the switch 137 is in the normal operating position, which relay 138 has a set of contacts 139 in the line to the motors.

A master on-off switch 140 is provided in the line. The switches 137 and 140 and the relay 138 are mounted in a box 141 depending from the table 1.

Numerous alterations of the structure herein disclosed will suggest themselves to those skilled in the art. However, it is to be understood that the present disclosure relates to a preferred embodiment of my invention which is for purposes of illustration only and not to be construed as a limitation of the invention. All such modifi-

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cations which do not depart from the spirit of the invention are intended to be included within the scope of the appended claims.

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

1. In combination, a table, a sewing machine mounted upon said table, a work support on said table for receiving work pieces from said sewing machine and having a plurality of spaced parallel slots, and means for moving work pieces from said work support and onto a stack comprising a frame having a plurality of parallel fingers disposed in a plane and spaced for movement through the slots in said work support, means for mounting said frame on said table for movement of said fingers in parallel planes extending through the slots in said work support and including an ascending movement wherein said fingers move from a rest position upwardly through the slots in said work support, an advance movement wherein said fingers move to a stacking position, and a return movement wherein said fingers move to said rest position, means for imparting said movements to said frame, and means for engaging a work piece and holding the same against movement with said fingers during the return movement of said frame.

2. In combination, a table, a sewing machine mounted upon said table, a work support on said table for receiving work pieces from said sewing machine and having a plurality of spaced parallel slots, and means for moving work pieces from said work support and onto a stack comprising a frame having a plurality of parallel fingers disposed in a plane and spaced for movement through the slots in said work support, means for mounting said frame on said table for movement of said fingers in parallel planes extending through the slots in said work support and including an ascending movement wherein said fingers move from a rest position upwardly through the slots in said work support, an advance movement wherein said fingers move to a position above a surface on which the work piece is stacked, a descending movement wherein said fingers move downwardly onto said surface, and a return movement wherein said fingers move to said rest position, means for imparting said movements to said frame, and means for engaging a work piece and holding the same against movement with said fingers during the return movement of said frame.

3. In combination, a table, a sewing machine mounted upon said table, a work support on said table for receiving work pieces from said sewing machine and having a plurality of spaced parallel slots, a plate on said table spaced from said work support and upon which work pieces are to be stacked, and means for moving work pieces from said work support and onto said plate comprising a frame having a plurality of parallel fingers disposed in a plane and spaced for movement through the slots in said work support, means for mounting said frame on said table for movement of said fingers in parallel planes extending through the slots in said work support and including an ascending movement wherein said fingers move from a rest position upwardly through the slots in said work support, an advance movement wherein said fingers move to a position above said plate, and a return movement wherein said fingers move to said rest position, means for imparting said movements to said frame, and means for engaging a work piece and holding the same against movement with said fingers during the return movement of said frame.

4. In combination, a table, a sewing machine mounted upon said table, a work support on said table for receiving work pieces from said sewing machine and having a plurality of spaced parallel slots, a plate on said table spaced from said work support and upon which work pieces are to be stacked, and means for moving work pieces from said work support and onto said plate comprising a frame having a plurality of parallel fingers disposed in a plane and spaced for movement through the slots in said work

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support, means for mounting said frame on said table for movement of said fingers in parallel planes extending through the slots in said work support and including an ascending movement wherein said fingers move from a rest position upwardly through the slots in said work support, an advance movement wherein said fingers move to a position above said plate, and a return movement wherein said fingers move to said rest position, means for imparting said movements to said frame, and means for engaging a work piece and holding the same against movement with said fingers during the return movement of said frame, comprising a plurality of rods extending above said plate and over which said fingers pass during said advance movement and between which said fingers pass during said descending movement to place the work piece behind the same.

5. In combination, a table, a sewing machine mounted upon said table, a work support on said table for receiving work pieces from said sewing machine and having a plurality of spaced parallel slots, a plate on said table spaced from said work support and upon which work pieces are to be stacked, and means for moving work pieces from said work support and onto said plate comprising a frame having a plurality of spaced fingers disposed in a plane and spaced for movement through the slots in said work support, means for mounting said frame on said table for movement of said fingers in parallel planes extending through the slots in said work support and including an ascending movement wherein said fingers move from a rest position upwardly through the slots in said work support, an advance movement wherein said fingers move to a position above said plate, and a return movement wherein said fingers move to said rest position, means for imparting said movements to said frame, means for engaging a work piece and holding the same against movement with said fingers during the return movement of said frame, and means for mounting said plate on said table for vertical movement and for indexing said plate downwardly as the stack of work pieces thereon increases.

6. In combination, a table, a sewing machine mounted upon said table, a work support on said table for receiving work pieces from said sewing machine and having a plurality of spaced parallel slots, a plate on said table spaced from said work support and upon which work pieces are to be stacked, and means for moving work pieces from said work support and onto said plate comprising a frame having a plurality of parallel fingers disposed in a plane and spaced for movement through the slots in said work support, means for mounting said frame on said table for movement of said fingers in parallel planes extending through the slots in said work support and including an ascending movement wherein said fingers move from a rest position upwardly through the slots in said work support, an advance movement wherein said fingers move to a position above said plate, a descending movement wherein said fingers move downwardly onto said plate, and a return movement wherein said fingers move to said rest position, means for imparting said movements to said frame, and means for engaging a work piece and holding the same against movement with said fingers during the return movement of said frame, and means for mounting said plate on said table for vertical movement and for indexing said plate downwardly as the stack of work pieces thereon increases.

7. The combination of claim 6 in which said last mentioned means includes an electric motor, means for mounting said fingers on said frame for pivotal movement, and means responsive to the pivotal movement of said fingers upon engagement of said fingers with work pieces on said plate during said descending movement to actuate said motor and to index said plate downwardly.

8. In combination, a table, a sewing machine mounted upon said table, a work support on said table for receiving

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ing work pieces from said sewing machine and having a plurality of spaced parallel slots, and means for moving work pieces from said work support and onto a stack comprising a frame having a plurality of parallel fingers disposed in a plane and spaced for movement through the slots in said work support, means for mounting said frame on said table for movement of said fingers in parallel planes extending through the slots in said work support and including an ascending movement wherein said fingers move from a rest position upwardly through the slots in said work support, an advance movement wherein said fingers move to a stacking position, and a return movement wherein said fingers move to said rest position, means for imparting said movements to said frame and control means for initiating operation thereof and for terminating operation thereof at the completion of one cycle, and means for engaging a work piece and holding the same against movement with said fingers during said return movement.

9. In combination, a table, a sewing machine mounted upon said table, a work support on said table and having a plurality of spaced parallel slots, means for moving work pieces from said sewing machine and onto said work support, and means for moving work pieces from said work support and onto a stack comprising a frame having a plurality of parallel fingers disposed in a plane and spaced for movement through the slots in said work support, means for mounting said frame on said table for movement of said fingers in parallel planes extending through the slots in said work support and including an ascending movement wherein said fingers move from a rest position upwardly through the slots in said work support, an advance movement wherein said fingers move to a stacking position, and a return movement wherein said fingers move to said rest position, means for imparting said movements to said frame, and means for engaging a work piece and holding the same against movement with said fingers during the return movement of said frame.

10. In the combination of claim 9 in which said means for moving work pieces from said sewing machine and onto said work support comprises a cyclically operated mechanism, operator actuated means for initiating operation thereof, means for automatically terminating operation thereof at the completion of one cycle, means responsive to the actuation of said mechanism for initiating actuation of said frame, and means for automatically terminating operation of said frame at the completion of one cycle.

11. In the combination of claim 10, a thread chain cutter on said sewing machine, and means responsive to the operation of said cyclically operated mechanism for actuating said thread chain cutter.

12. In the combination of claim 9 in which said means for moving said work pieces from said sewing machine and onto said work support comprises a rod, a rotary crank connected to said rod at an intermediate point for imparting circular movement to said rod at said point, means for anchoring said rod at a second point, a work engaging foot, and means for yieldingly mounting said foot on said rod on the end at the opposite side of said first mentioned point from said second point.

13. In the combination of claim 12, operator actuated means for initiating operation of said crank, means for automatically terminating operation thereof at the completion of one revolution, a thread chain cutter on said sewing machine, and means responsive to the operation of said crank for actuating said thread chain cutter.

14. In the combination of claim 13, an auxiliary foot, means for mounting said auxiliary foot on and disposed below said work engaging foot and for pivotal movement of said auxiliary foot away from said sewing machine after said auxiliary foot has engaged a work piece and a said work engaging foot continues to descend.

15. In combination, a table, a sewing machine mounted

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upon said table, a support on said table and behind said sewing machine, a rod, a rotary crank connected to said rod at an intermediate point for imparting circular movement to said rod at said point, means for anchoring said rod to said support at a second point, an arm, a pair of substantially parallel links pivotally mounting said arm on said rod on the opposite side of said first mentioned point from said second point, spring means biasing said links together, and a work engaging foot carried by said arm.

16. In combination, a table, a sewing machine mounted upon said table, a support on said table and behind said sewing machine, a rod, a rotary crank connected to said rod at an intermediate point for imparting circular movement to said rod at said point, means for anchoring said rod to said support at a second point, an arm, a pair of substantially parallel links pivotally mounting said arm on said rod on the opposite side of said first mentioned point from said second point, spring means biasing said links together, and a work engaging foot carried by said arm, means for initiating operation of said crank, and means for automatically stopping the same at the completion of one cycle.

17. In combination, a table, a sewing machine mounted upon said table, a support on said table and behind said sewing machine, a rod, a rotary crank connected to said rod at an intermediate point for imparting circular

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movement to said rod at said point, means for anchoring said rod to said support at a second point, an arm, a pair of substantially parallel links pivotally mounting said arm on said rod on the opposite side of said first mentioned point from said second point, spring means biasing said links together, and a work engaging foot carried by said arm, an auxiliary foot, means for mounting said auxiliary foot on and disposed below said work engaging foot and for pivotal movement of said auxiliary foot away from said sewing machine after said auxiliary foot has engaged a work piece and as said work engaging foot continues to descend, a thread chain cutter on said sewing means, operator-actuated means for initiating operation of said crank, means for automatically stopping said crank at the completion of one cycle.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,123,031

March 3, 1964

Charles G. Pickett

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 8, line 73, for "a", second occurrence, read
-- as --.

Signed and sealed this 7th day of July 1964.

(SEAL)

Attest:

ERNEST W. SWIDER
Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents