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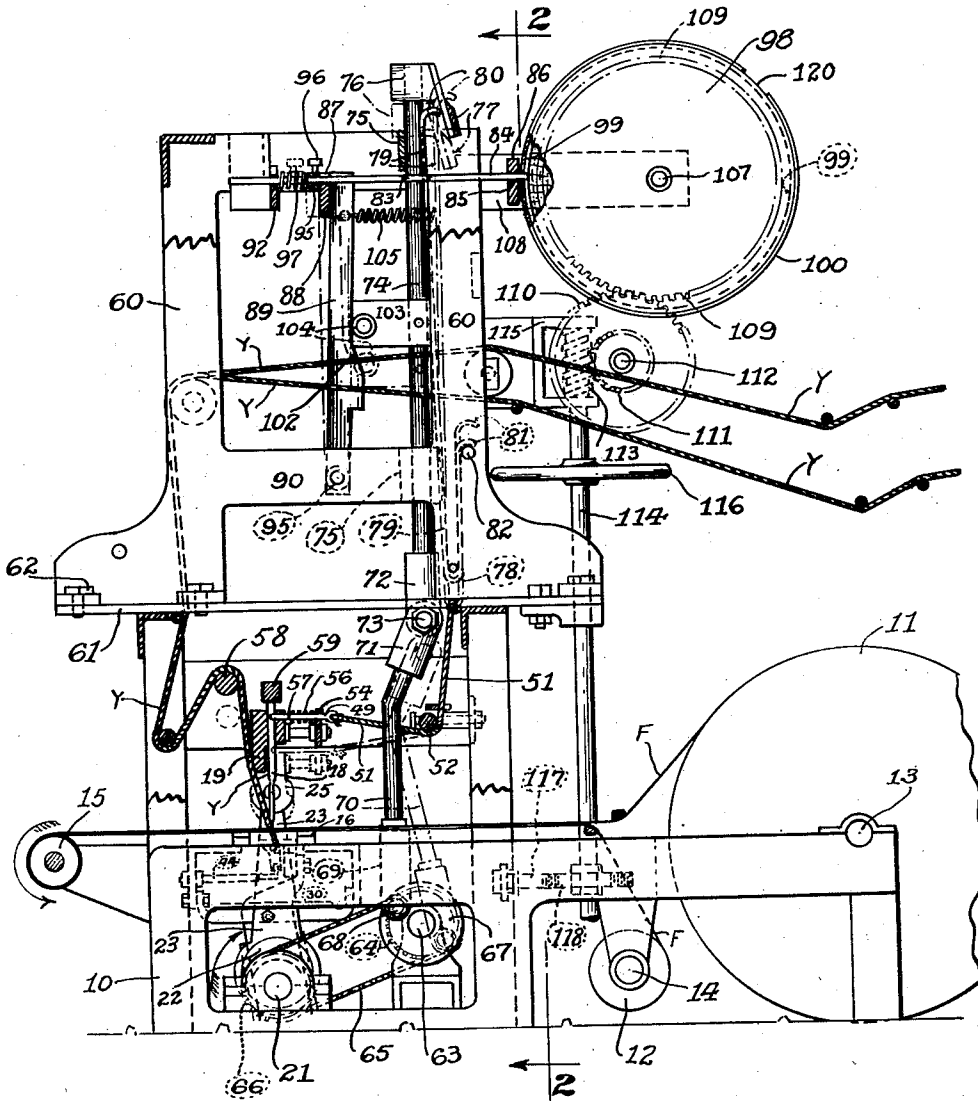
E. E. BOYCE

1,984,331

CONTROL MECHANISM FOR MULTIPLE NEEDLE SEWING MACHINES

Filed April 14, 1933 5 Sheets-Sheet 1

Fig. 1.



INVENTOR.
ERSKINE E. BOYCE
BY *J. Francis Leary*
ATTORNEY.

Dec. 11, 1934.

E. E. BOYCE

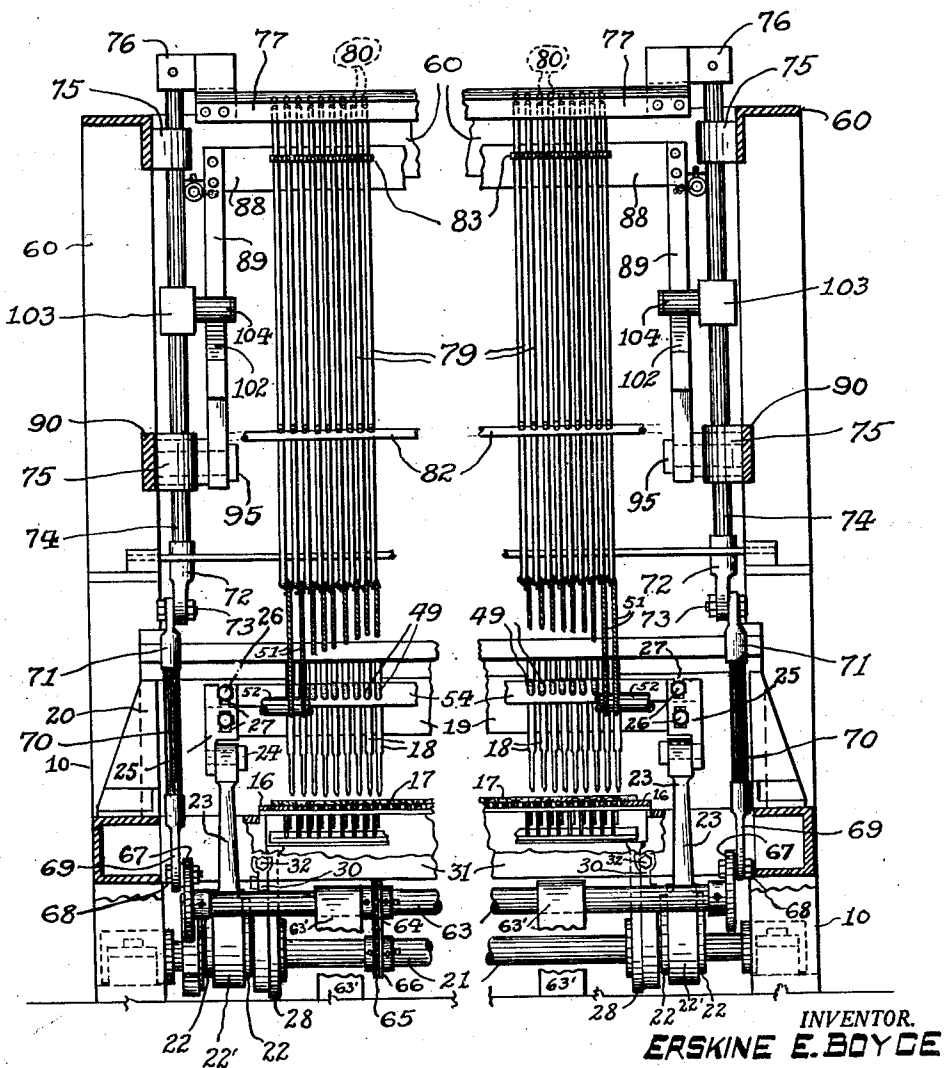
1,984,331

CONTROL MECHANISM FOR MULTIPLE NEEDLE SEWING MACHINES

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Fig. 2.



INVENTOR.
ERSKINE E. BOYCE
BY *J. Hamilton*
ATTORNEY.

Dec. 11, 1934.

E. E. BOYCE

1,984,331

CONTROL MECHANISM FOR MULTIPLE NEEDLE SEWING MACHINES

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Fig. 3.

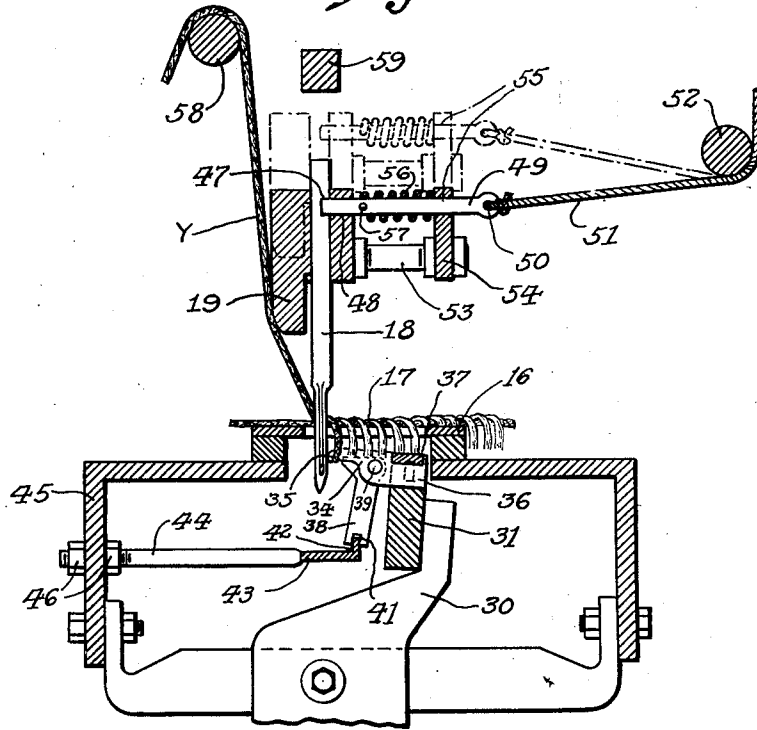


Fig. 4.

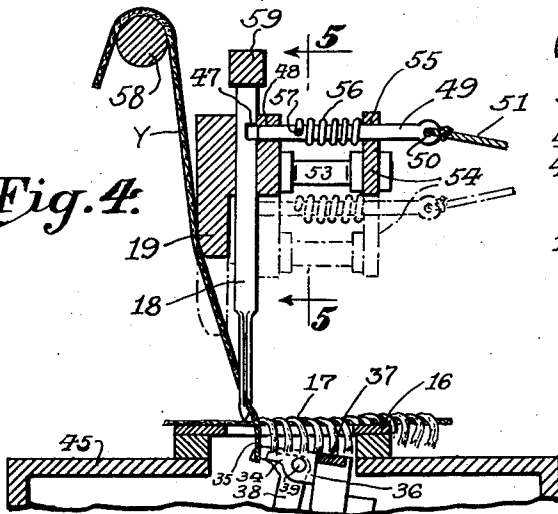
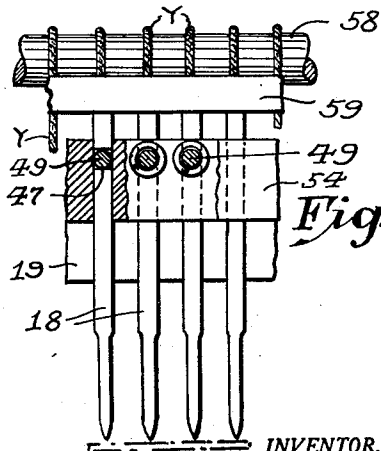


Fig. 5.



INVENTOR.
ERSKINE E. BOYCE
BY *J. L. Smith*
ATTORNEY.

Dec. 11, 1934.

E. E. BOYCE

1,984,331

CONTROL MECHANISM FOR MULTIPLE NEEDLE SEWING MACHINES

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Fig. 6.

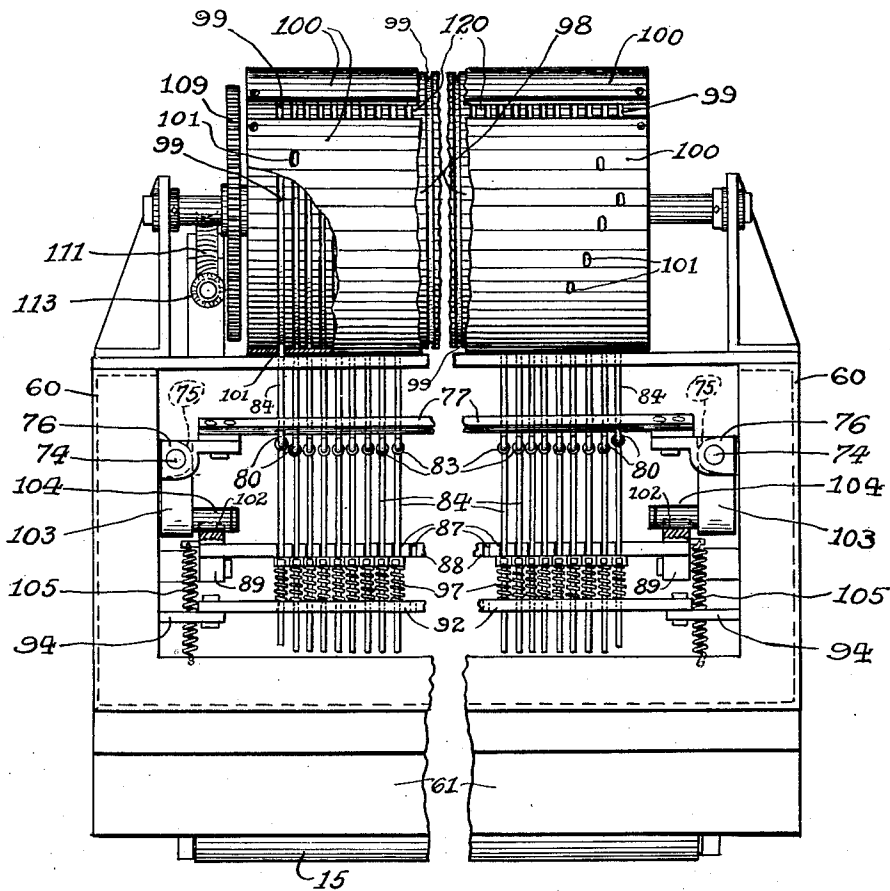


Fig. 7. A perspective view of three vertical rods 79, each having a circular head 84 at the top and a circular base 84 at the bottom.

INVENTOR,
ERSKINE E. BOYCE

BY J. Lawrence Rogers
ATTORNEY.

Dec. 11, 1934.

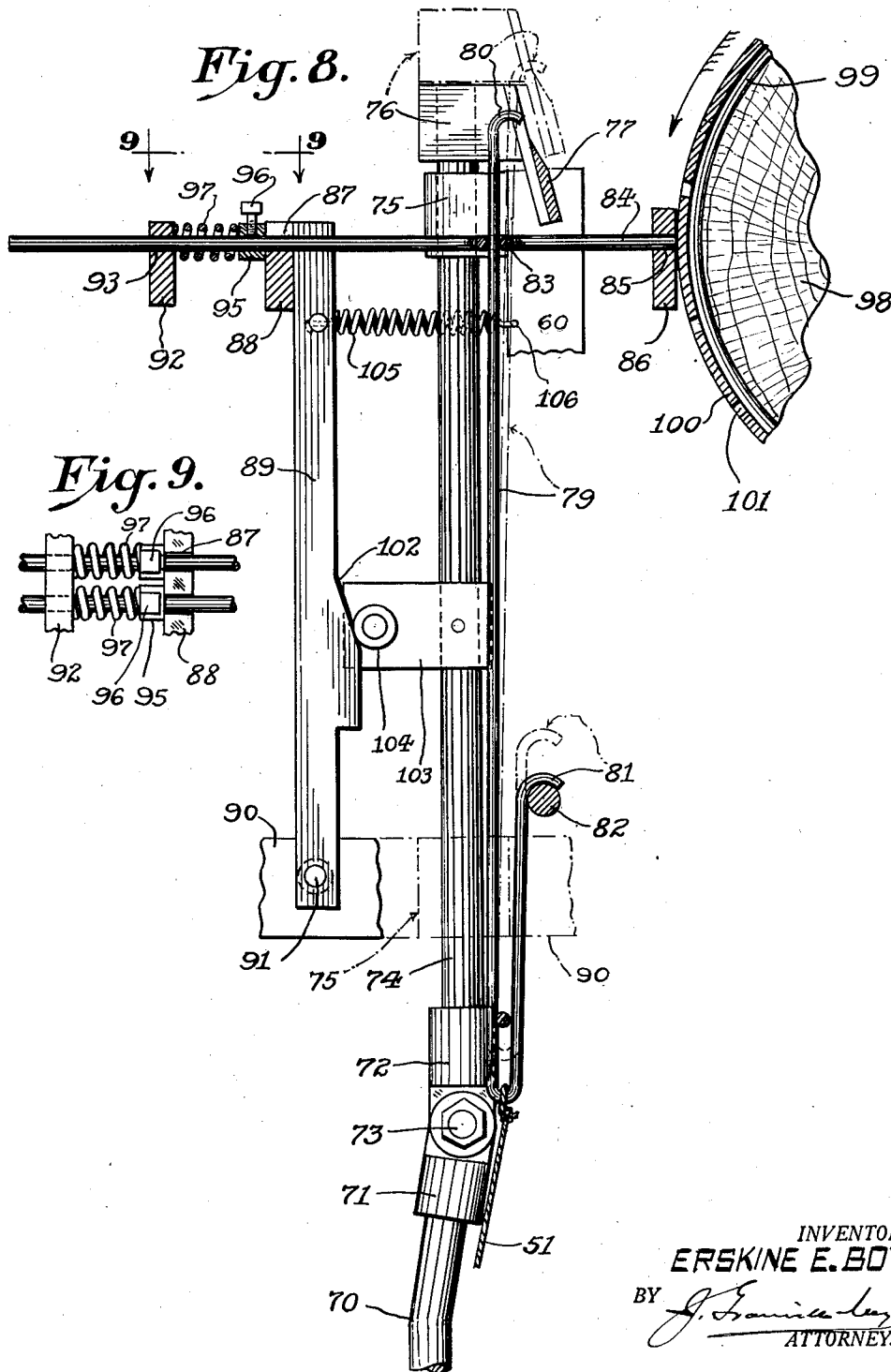
E. E. BOYCE

1,984,331

CONTROL MECHANISM FOR MULTIPLE NEEDLE SEWING MACHINES

Filed April 14, 1933

5 Sheets-Sheet 5



INVENTOR.
ERSKINE E. BOYCE
BY *J. Francis Leary*
ATTORNEY.

UNITED STATES PATENT OFFICE

1,984,331

CONTROL MECHANISM FOR MULTIPLE
NEEDLE SEWING MACHINES

Erskine E. Boyce, Gastonia, N. C., assignor to
The Boysell Company, Gastonia, N. C., a cor-
poration of North Carolina

Application April 14, 1933, Serial No. 666,208

15 Claims. (Cl. 112—221)

My present invention relates to sewing machines of the multiple needle or gang type especially designed for use in producing tufted fabrics such as bath mats, rugs and the like.

In my co-pending application Serial No. 586,204, filed January 12, 1932, I disclose electrically actuated means for controlling the pattern forming mechanism, that is, for latching and unlatching the needles, so that certain ones will pierce the fabrics and others will not according to the design to be formed. In the present application I disclose a different construction and operation of parts for controlling the latching and unlatching of the needles in the carrier to effect the formation of the pattern according to predetermined designs.

Another object of the invention is to provide means for producing on a continuous strip of fabric a succession of spaced tufted areas of predetermined size and design which when severed form the mats or rugs.

All of the objects and advantages of the invention will become apparent and will be pointed out during the course of the following detailed description of the accompanying drawings, wherein is shown a preferred operative embodiment of the invention, and in which

Fig. 1 is a side elevation of a machine embodying the invention with parts shown in section.

Fig. 2 is a view taken on the line 2—2 of Fig. 1;

Fig. 3 is an enlarged fragmentary sectional view of the needle carrier and tufting mechanism showing one of the needles, latches, loop retaining means and loop severing member in elevation;

Fig. 4 is a view similar to Fig. 3 showing the parts in another position;

Fig. 5 is a view taken on the line 5—5 of Fig. 4;

Fig. 6 is a top plan view of the apparatus shown in Fig. 1;

Fig. 7 is an enlarged fragmentary view of three needle latch controlling rods;

Fig. 8 is a vertical sectional view through the needle controlling frame and a portion of the pattern drum; and

Fig. 9 is a view taken on the line 9—9 of Fig. 8.

Referring in detail to Figs. 1 and 2, the numeral 10 designates the base or frame of the machine, through which runs the fabric F from rolls 11 and 12 journaled on shafts 13 and 14 respectively, and which shafts may be supported by the frame 10. It is not essential to the practice of the invention to use two strips of fabric, as this is done only when it is desired to increase the weight or thickness of the mat or rug, but in the draw-

ings I have illustrated the two strips of fabric being fed across the frame 10 to a roll 15, which may be operated by feed mechanism exactly or substantially like that disclosed in detail in my said co-pending application, wherein the feed roll is rotated step by step by ratchet mechanism. The feed roll which draws the fabric across the frame may also be driven by any other suitable type of mechanism to advance the fabric step by step in synchronism with movements of other parts hereinafter described. The fabric runs across a plate 16 having a plurality of needle openings 17 therein in alinement with the needles 18, the shanks of which extend through a bar or carrier plate 19 slidably mounted for reciprocating movement on tracks 20 substantially in the same manner as disclosed in my said co-pending application. Adjacent the bottom of the frame 10 and between opposite ends thereof is journaled a shaft 21 driven by any suitable means, such as disclosed in my said co-pending application. Eccentrics 22 are mounted on the shaft 21 adjacent the ends thereof and receive the ends 22' of rods 23, the other ends of which are pivotally connected by stub shafts 24 to couplings 25 which may be adjustably connected to the needle carrier bar 19 by bolts 26 extending through slots 27 in the couplings and into or through the carrier.

Also mounted on the shaft 21, preferably at regular spaced intervals, are a plurality of discs 28 having cams which engage arms 30 secured at their upper ends to a beam 31 as by bolts 32. As in the case of the apparatus disclosed in my said co-pending application, the mechanism thus far described imparts a reciprocating motion to the beam 31 through the cam discs 28 and arms 30 as the shaft 21 rotates, and at the same time the eccentrics 22, rods 23 and couplings 25 impart a reciprocating up and down motion to the needle carrier 19. The relative arrangement of the cams and eccentrics on the shaft 21 is such that the beam 31 will be moved to the right of the position shown in Fig. 1, as the carrier descends and vice versa for reasons hereinafter pointed out. It will thus be understood that the carrier 19 moves up and down while the beam 31 moves transversely to the path of movement of the carrier 19.

The beam 31 operates the tufting mechanism, that is, the loop catching and retaining members and the loop severing members in the same manner as disclosed in detail in my said co-pending application, and as shown also in detail in Fig. 3 of the present application, wherein the beam 31

is shown supporting or carrying a plurality of loop receiving members each comprising a finger 34 having a hook 35 at its outer end and a notched extension 36 disposed in slots in the beam 31 and held in place by a bar 37 fixed across the top of the beam 31. A cutting blade 38 is pivotally connected to each of the fingers by pin 39 and the lower end of each blade has a recess 41 disposed on or receiving a flange 42 of a plate 43 held in place by rods 44 secured to the housing 45 by nuts 46. The housing 45 may be rigidly connected to or formed as part of the frame 10. The fingers 34 are each alined with one of the openings 17 in the plate 16 and are each alined with one of the needles 18.

Still referring to Figs. 1-4, it will be noted that each of the needles 18 has a squared shank provided with a notch 47 adjacent its top and that the carrier bar 19 has openings 48 in one side in alinement with the needles, and furthermore in alinement with the notches when the needles are in the full line position of Fig. 4. Through each of the openings 48, is disposed a pin 49 having an eye 50 at its outer end to which is tied a cord 51, the cord 51 running around a guide rod 52 and to the pattern controlling mechanism hereinafter described. A bracket 53 is secured to the carrier 19 and supports a plate 54 spaced from and parallel to the carrier 19, said plate 54 having openings 55 alined with the openings 48 and also receiving the pin 49. A coil spring 56 abuts the plate 54 and is rigidly attached at one end 57 to the pins 49, so that the springs normally tend to urge the pins toward the needles to keep the ends of the pins disposed in the notches 47 in the needles to lock the needles to the carrier 19 for movement therewith, so that when the carrier descends, the points of the needles will pierce the fabric and pass through the openings 17. A strand of yarn Y of selected color and characteristics is threaded through the eye of each needle and passes over a fixed round guide bar 58 supported between opposite ends of the frame 10.

Above the needles is a fixed bar 59 rigidly supported by the frame 10 and adapted to aline the needles, so that the notches 47 will be disposed in alinement with the pins 49 when the carrier ascends, as shown in Fig. 4.

In order to produce a pattern on the rug or mat, it is necessary to control needles through their respective latches, so that in predetermined groups some of them will pierce the fabric to carry the yarn therethrough and form loops to be caught by the fingers 34, and subsequently severed by the blades 38 to form the tufting, while other needles are idle, that is, do not pass through the fabric. A needle passing through the fabric and forming a loop caught by a finger 34 is illustrated in Fig. 3. This needle passed through the fabric because the pin 49 was seated in the notch 47 and hence locked this needle to the carrier 19 for downward movement therewith, and consequently was forced through the fabric. On the other hand, Fig. 4 shows how another needle idled. The full line position of the parts in Fig. 4 shows the pin 49 withdrawn from the notch 47, so that when the carrier 19 descended to the dotted line position it did not carry the needle down with it but moved along the needle and the needle rested on top of the fabric.

The mechanism or means for accomplishing the predetermined selective control of the needles is shown best in Figs. 1, 2, 6-9. In the Fig. 1, the numeral 60 designates a frame superimposed on

the plate 61 resting on top of the frame 10, the frame 60 being secured to the plate by bolts 62. In Figs. 1 and 2, the numeral 63 designates a countershaft journaled at 63' between the ends of the frame 10, and having keyed to it sprocket wheels 64 over which is trained a sprocket chain 65 also trained around the sprocket wheel 66 on the shaft 21. On the shaft 63 adjacent its ends, are wheels or discs 67 each connected by a bolt 68 to the end of coupling 69 connected to crank shaft 70, the other end of which is connected to a coupling 71. The coupling 71 is connected to another coupling 72 by bolt and nuts 73 and the coupling 72 is connected to a shaft 74. There are two shafts 74 one at each end of the frame, and they are journaled through bosses 75 on the frame 60. Thus, in obvious manner, rotation of the countershaft 63 by the sprocket wheels and sprocket chain will impart to the shaft 74 through the crank mechanism 68, 69, 70, a straight up and down reciprocating motion. To the upper end of each of the shafts 74 are secured brackets 76 between which is mounted a blade 77. Each of the cords 51 described in connection with Figs. 3 and 4, that is, the cords which are tied to the ends of the pins 49 and which run around rods 52 are secured to the bend 78 in rods 79, there being one rod for each needle and cord 51. The upper ends of the rods or wires 79 are bent to provide hooks 80 and the lower ends of the rods 79 are U-shaped and terminate in hooks 81 normally resting on a fixed rod 82 mounted between opposite ends of the frame 60. The arrangement just described in connection with the rods or wires 79 is shown best in Fig. 8, wherein each of the rods 79 is shown extending through a loop 83 in rods or wires 84, the forward ends of which are disposed in openings 85 in a beam or plate 86. The other ends of the rods or wires 84 extend through openings 87 in a beam 88 secured at opposite ends to uprights 89 pivoted to the cross pieces 90 of the frame 60 at 91. A beam 92 having openings 93 receiving the rods 84, is fixedly secured to brackets or supports 94 at opposite ends of the frame 60 as shown best in Fig. 6. On each of the rods 84, as shown clearly in Fig. 8, there is a collar 95 held to the rod by set screw 96 and a coil spring 97 is compressed between the collar 95 and the fixed beam 92 normally forcing the rods 84 to the right of the position shown in Fig. 8, that is, toward the drum 98 which is provided with grooves 99. To the outer surface of the drum is secured a pattern plate or sheet 100 having openings 101 of predetermined dimensions and relative arrangement to control the pattern. In other words, the drum 98 and plate 100 secured thereto is the master pattern control. These pattern plates are preferably made of very thin metal and are placed on the drum 98 which has the grooves 99 spaced the same distance apart as the bars 84. The openings 101 in the pattern plate are provided at predetermined intervals and when the plate is placed on the drum the openings 101 are over the grooves 99, and, therefore, also in alinement with the rods 84.

From the foregoing it will be seen that the rods 84 are pushed toward the drum 98 by the springs 97 and whenever any of the rods 84 are alined with an opening 101, they will enter the openings and grooves 99 as shown in Fig. 1. Such movement of the rods 84 causes the upper ends of the rods or wires 79 to move to the right. Normally when all of the rods 79 are down they are to be left of and beyond the blade 77, but such of the rods 79 as are moved to the right

when the rods 84 enter openings 101 are positioned over the blade 77, hence when the shafts 74 move up carrying the blade 77 with them, those of the rods 79 having their ends 80 disposed over the blade will also be pulled up, thus exerting a pull on the cords 51 and pulling latch pins 49 out of notches 47 in the needles. On the other hand, some of the rods 84 will be engaging against the solid surface of the plate 100 and hence will not move to the right so that the hooked ends 80 of such of the latter rods 79 will remain in the full line position of Fig. 8, and when the blade 77 rises, these rods 79 will remain stationary and the pins 49 connected to these rods by the cords 51 will remain in the notches 47 of their respective needles, and such needles will be forced through the fabric as previously explained.

Since the grooves 99 are spaced apart the same distance as the rods 84 which is also the same distance as the spacing between the needles, it is possible to use a direct pattern or to make it the same size as the mat or rug to be made. The openings in the direct pattern or plate 100 are provided at such intervals as to form the desired design which may be any geometrical, conventionalized floral, or other figure.

I preferably provide for retraction of all of the rods 84 collectively each time that the cylinder 98 is moved, the mechanism for moving the cylinder being presently described. For the present I would state that the movement of the cylinder 98 is preferably intermittent, the same as that of the feed roll 15, that is, it rotates step by step in the direction of the arrow in Fig. 1, in synchronism with the movement of the other parts of the apparatus. To effect the collective retraction of the rods 84 from contact with the surface of the cylinder each time the cylinder moves, I provide on the uprights 89 which are located at opposite sides of the machine, cam surfaces 102 and on the bars 74 are rigidly clamped brackets 103 each carrying a roller 104 to engage the cam surfaces 102. The uprights 89 are mounted for pivotal movement as previously explained, and adjacent their upper ends are connected to a coil spring 105 which is also connected to a fixed part of the frame at 106. These springs normally pull uprights 89 toward the drum 98. In Fig. 1, the roller 104 is shown above the cam surface in full lines and at the lower end of the cam surface in dotted lines, and it will be noted that in the full line position the uprights 89 and bar 88 carried therebetween are toward the drum 98, at which time of course the shafts 74 are in elevated position. At this time such of the rods 79 as have their ends 80 disposed over the blade 77 are also elevated and corresponding needles are unlatched so as not to pierce the fabric. Also at such time the cylinder is still. As soon as the needle carrier 19 has moved down and loops have been formed beneath the fabric, the carrier is then elevated and as the carrier 19 rises, shafts 74 descend bringing the blade 77 down to the dotted line position of Fig. 1 and full line position of Fig. 8. During the descending movement of the shafts 74, the rollers 104 ride against the cam surfaces 102 and push the uprights 89 to the dotted line position of Fig. 1. This swinging movement of the uprights 89 moves the bar 88 against all of the collars 95 on the rods 84 moving all of the rods to the left, that is, retracting them from contact with the plate 100, at which time the cylinder is then advanced another step.

Still referring to Fig. 1, it will be noted that

the drum 98 is rotatably supported on the shaft 107 mounted between brackets 108 extending from frame 60 and that the shaft has keyed thereto a gear 109 meshing with a gear wheel 110 to which is connected another gear 111 supported on shaft 112. The gear 111 meshes with the worm 113 on shaft 114 journaled through the plate 61, frame 10 and bracket 15. As is usual, the shaft 114 may be provided with a wheel 116 for manual operation in turning over the machine at any desired time. A ratchet 117, actuated by any suitable mechanism not shown, engages a gear wheel 118 on the shaft 114 and every time that all of the needles are in elevated position or out of the cloth and all of the rods 84 are retracted from contact with the pattern plate 100 as previously explained, the ratchet 117 is given a pick which actuates or turns the gear 118 and shaft 114, worm 113 and hence gears 111, 110 and 109 to move the cylinder a predetermined distance. At the same time the cloth feed roll 15 pulls the cloth a corresponding distance and after the cloth and drum 98 have been moved or advanced, the rods 74 ascend disengaging the rollers 104 from the cam faces 102 and permitting the springs 105 to pull the uprights 99 and beam 88 to the right, so that if there be openings 101 in alinement with any of the rods 84, such rods will enter the openings and grooves 99, thus moving corresponding rods or wires 79 and their hooked ends 80 to the right for engagement by the blade 77, so that corresponding needles will be unlatched when the blade is moved up.

Inasmuch as the operation of the loop forming and severing mechanism is explained in detail in my said co-pending application, I do not deem it necessary to make further detailed description in this application, it being understood that the movement of the carrier head 19, tufting mechanism, needle latching mechanism, cloth feed and drum 98 are all synchronized, and that the operation as above described is continuous.

Another feature of the invention resides in the fact that the pattern sheet 100 being of the same size as the mat or rug provides for production on a long length or strip of cloth of a plurality of identical mats or rugs of the same design, and each spaced apart a predetermined distance. It will be noted in Fig. 1, that the ends of the pattern sheet 100 are spaced apart at 120, thus exposing grooves 99 in the drum 98 a predetermined distance which may be two or three inches. When this exposed portion of the drum passes the rods 84, all of the rods will enter the grooves and unlatch all of the needles, so that the machine keeps on operating but no tufting is formed while the space 120 is passing the rods 84. This untufted space on the web or material between the mats permits cutting between the tufted areas forming the mats or rugs, so that the ends of the mats are formed by said untufted areas and may be finished up by hand or by other single needle machines. If a plain sheet 100, that is, a sheet having no openings, is placed on the drum, then the machine turns out a plain tufted rug, as none of the needles will be unlatched during rotation of the drum until the end of the sheet 100 is brought across rods 84. If a flower or other design is drawn on the sheet and cut out, then a tufted rug having a corresponding design in untufted area is produced. In either case if the sheet is of less length than the diameter of the drum, the untufted space is provided between the tufted areas on the strip, which latter form the mats.

Obviously, whether the mats be formed with untufted design areas or not by the mechanism hereinabove described, the strip having the tufted areas of predetermined length thereon is severed transversely along the center of the untufted portions between said areas, and the ends of the individual pieces or mats are then finished off on other machines or by hand. It should also be obvious that where untufted design areas are also produced, that the mats made in accordance with each pattern form on a continuous strip each have an identical tufted background of appreciable area and untufted areas which may be filled in with yarn of a different character or color either on machines of the type shown and described in my co-pending applications, Serial Nos. 538,845 and 577,817, or other suitable machines, or by hand, so that the completed mats will comprise tufted backgrounds of one color or character and filled in tufted areas of a different color or character.

So far as I am aware, I am the first to have provided this method of producing tufted rugs or mats, that is, of producing a succession of mats tufted from side to side, by a continuous operation and each having corresponding untufted design areas subsequently filled in with a yarn of contrasting color or character.

I claim:

1. In a multiple needle sewing machine for tufting fabrics, a carrier for a plurality of needlebars, means to reciprocate the carrier toward and away from the fabric, means to selectively latch and unlatch the needlebars to the carrier prior to its movement toward the fabric, said means including a rotatable pattern drum, and means to move the drum a predetermined distance each time the carrier is away from the fabric.

2. In a multiple needle sewing machine for tufting fabrics, a carrier for a plurality of needlebars, means releasably latching each of the needlebars to the carrier, a drum, means for rotating said drum step by step, a plurality of members normally urged toward said drum for contact therewith, means for retracting all of said members each time the drum moves, and a connection between each of said members and each of the means releasably latching the needlebars to selectively unlatch said needlebars when the drum is at rest, and means for moving said carrier toward the fabric when the drum is at rest.

3. In a multiple needle sewing machine for tufting areas of predetermined length on a strip of fabric to form individual mats and the like, a carrier for a plurality of needlebars, means releasably latching the needlebars to the carrier, a rotatable drum, a pattern sheet of less length than the diameter of the drum secured to the drum for rotation therewith, means to rotate the drum, a plurality of members yieldably urged towards the drum, a connection between each of said members and the means releasably latching each of the needlebars to the carrier to maintain the needles latched to the carrier when said members contact the surface of said pattern sheet and to unlatch said needles when the area of the drum between the ends of said sheet pass the ends of said members to form untufted areas on the strip of fabric between the tufted areas.

4. In a multiple needle sewing machine for tufting fabrics, a carrier for a plurality of needlebars, means to reciprocate the carrier toward and away from the fabric, means to selectively latch and unlatch needles to the carrier prior to its movement toward the fabric, said means includ-

ing a rotatable drum, means for rotating said drum step by step, a pattern sheet secured to the drum for rotation therewith and having openings therein formed according to a predetermined design, a plurality of members yieldably urged towards said drum and sheet, a connection between each of said members and each of the means releasably latching the needlebars to the carrier whereby those of said members which enter said openings in the pattern sheet will move corresponding connections and needle latching means to unlatch corresponding needles prior to the movement of the carrier toward the fabric.

5. In a multiple needle sewing machine for tufting fabrics, a carrier for a plurality of needlebars, means to reciprocate the carrier toward and away from the fabric, means to selectively latch and unlatch needles to the carrier prior to its movement toward the fabric, said means including a rotatable drum, means for rotating said drum step by step, a pattern sheet secured to the drum for rotation therewith and having openings therein formed according to a predetermined design, a plurality of members yieldably urged towards said drum and sheet, a connection between each of said members and each of the means releasably latching the needlebars to the carrier whereby those of said members which enter said openings in the pattern sheet will move corresponding connections and needle latching means to unlatch corresponding needles prior to the movement of the carrier toward the fabric, and means to collectively retract all of said members away from said pattern sheet each time the drum moves.

6. In a multiple needle sewing machine for tufting fabrics and including a bed over which the fabric is moved, a needlebar carrier mounted to reciprocate transversely to the plane of the bed, a plurality of needlebars loosely mounted in the carrier, means for locking said needlebars to the carrier for movement therewith to penetrate the fabric on the bed, means normally urging each of said locking means into locking engagement with the needlebars, a drum, means for rotating said drum, a pattern sheet secured to the periphery of the drum and having openings formed therein at predetermined intervals, rods yieldably urged toward said drum and adapted to enter said openings as said openings pass the ends of the rods, and means movable by those rods, which enter said openings to unlatch predetermined needlebars in the carrier.

7. In a multiple needle sewing machine for tufting fabrics and including a bed over which the fabric is moved, a needlebar carrier mounted to reciprocate transversely to the plane of the bed, a plurality of needlebars loosely mounted in the carrier, means for locking said needlebars to the carrier for movement therewith to penetrate the fabric on the bed, means normally urging each of said locking means into locking engagement with the needlebars, a drum, means for rotating said drum, a pattern sheet secured to the periphery of the drum and having openings formed therein at predetermined intervals, rods yieldably urged toward said drum and adapted to enter said openings as said openings pass the ends of the rods, and means movable by those rods which enter said openings to unlatch predetermined needlebars in the carrier, and means for collectively moving all of said rods away from said drum and pattern sheet each time the drum moves.

8. In a multiple needle sewing machine for

tufting fabrics and including a bed over which the fabric is moved, a needlebar carrier mounted to reciprocate transversely to the plane of the bed, a plurality of needlebars loosely mounted in the carrier, means for locking said needlebars to the carrier for movement therewith to penetrate the fabric on the bed, means normally urging each of said locking means into locking engagement with the needlebars, a drum, means for rotating said drum, a pattern sheet secured to the periphery of the drum and having openings formed therein at predetermined intervals, rods yieldably urged toward said drum and adapted to enter said openings as said openings pass the ends of the rods, and means movable by those rods which enter said openings to unlatch predetermined needlebars in the carrier, said pattern sheet being of lesser length than the diameter of the drum to provide a space on the drum between the ends of the pattern sheet of predetermined width to receive the ends of all of the rods as said space passes said rods to collectively unlatch all of the needles.

9. In a multiple needle sewing machine for tufting fabrics and including a bed over which the fabric is moved, a needlebar carrier mounted to reciprocate transversely to the plane of the bed, a plurality of needlebars loosely mounted in the carrier, each of said needlebars having a notch in its shank, a pin for each needlebar extending through the carrier, a spring normally urging the end of each pin into each of said notches to lock said needlebars to the carrier, a plurality of hooks, a connection between each hook and each of said pins, means normally holding said hooks in position to maintain said pins in said notches, and means to selectively move said hooks from said position to effect unlatching of corresponding needles.

10. The structure of claim 9 wherein said last means comprises a movable pattern form, elements normally urged into engagement with said pattern form, and a connection between said elements and hooks.

11. In a multiple needle sewing machine, a carrier for a plurality of needlebars, means releasably latching the needlebars individually to the carrier, means to reciprocate the carrier toward and away from a fabric to move the latched needles through the fabric, a movable pattern form, a plurality of members yieldably urged toward said form, there being one member corresponding to each of said needle bars, said members comprising a plurality of rods, each having one end confronting said pattern form, a plurality of hook-shaped members engageable with said rods and each connected to the means for releasably latching the needlebars, and a common operating member engageable with selected hook-shaped members to unlatch corresponding needlebars.

12. In a multiple needle sewing machine, a carrier for a plurality of needlebars, means releasably latching the needlebars individually to the carrier, a reciprocating frame, a pivoted frame, a movable pattern form, a plurality of rods carried by the pivoted frame and normally urged toward the pattern form for engagement

therewith, a member connected to each of the latching means for the needlebars, means operable by the reciprocating frame to move all of said rods away from the pattern form at predetermined intervals, and means carried by the reciprocating frame to move said members to unlatch said needlebars, the members moved by said reciprocating frame being selectively determined by said rods and pattern form.

13. In a multiple needle sewing machine, a carrier for a plurality of needlebars, means releasably latching said needlebars to said carrier, a rotatable drum, a pattern form applied circumferentially to said drum and having its ends spaced apart a predetermined distance exposing a surface of the drum therebetween, a plurality of members normally urged toward said drum for engagement with said pattern form and the area of the drum exposed between the ends thereof, and a connection between each of said members and said latching means operable to permit the latching means to latch the needles to the carrier when said members are in contact with the surface of the pattern form and to unlatch said needlebars when the members are in contact with said area of the drum for the purpose described.

14. In a multiple needle sewing machine, a carrier for a plurality of needlebars, means releasably latching said needlebars to said carrier, a rotatable drum, a pattern form of appreciable thickness applied circumferentially to said drum and having its ends spaced apart a predetermined distance exposing a surface of the drum therebetween, and its outer surface spaced from the surface of the drum, a plurality of members normally urged toward said drum for engagement with said pattern form and the area of the drum exposed between the ends thereof, and a connection between each of said members and said latching means operable to permit the latching means to latch the needles to the carrier when said members are in contact with the surface of the pattern form and to unlatch said needlebars when the members are in contact with said area of the drum for the purpose described.

15. In a multiple needle sewing machine, a carrier for a plurality of needlebars, means releasably latching said needlebars to said carrier, a rotatable drum having a plurality of circumferential parallel grooves in its outer surface, a pattern form applied circumferentially to said drum and having its ends spaced apart a predetermined distance exposing a portion of each of said grooves, a plurality of members aligned with said grooves and normally urged toward said drum for engagement with said pattern form and the area of the drum exposed between the ends thereof, and a connection between each of said members and said latching means operable to permit the latching means to latch the needles to the carrier when said members are in contact with the surface of the pattern form and to unlatch said needlebars when the members are disposed in the exposed portions of said grooves for the purpose described.

ERSKINE E. BOYCE.