June 17, 1952 C. H. BARNES ET AL 2,600,955

APPARATUS FOR MAKING PAINT ROLLER COVERS AND THE LIKE

Filed Oct. 26, 1948 5 Sheets-Sheet 1

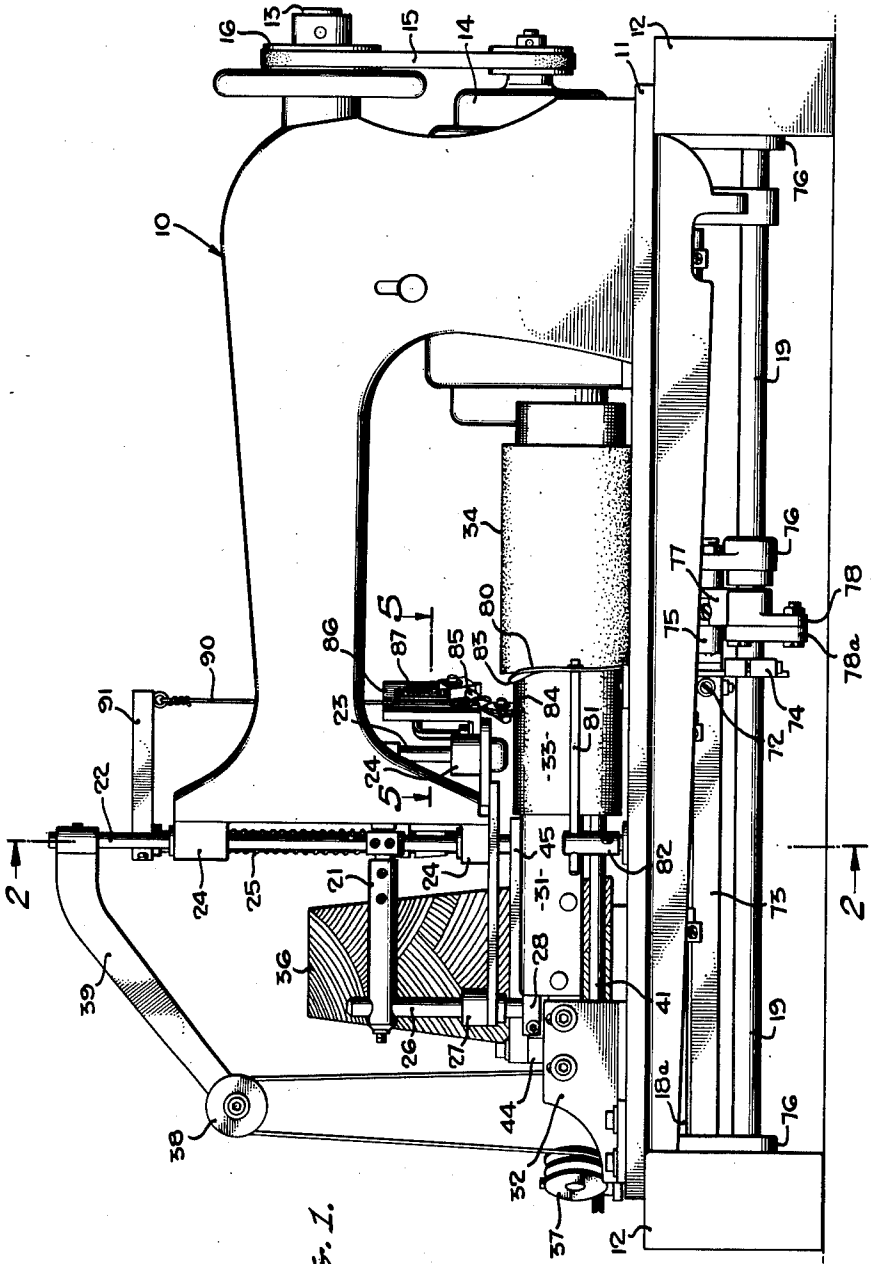

FIG. 1.

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Filed Oct. 26, 1948 5 Sheets-Sheet 2

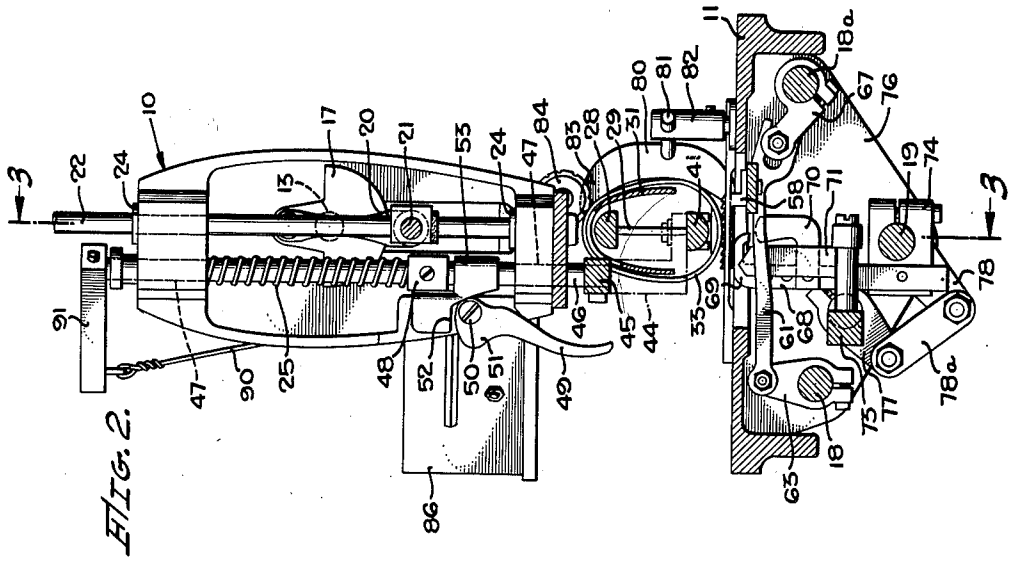

FIG. 2.

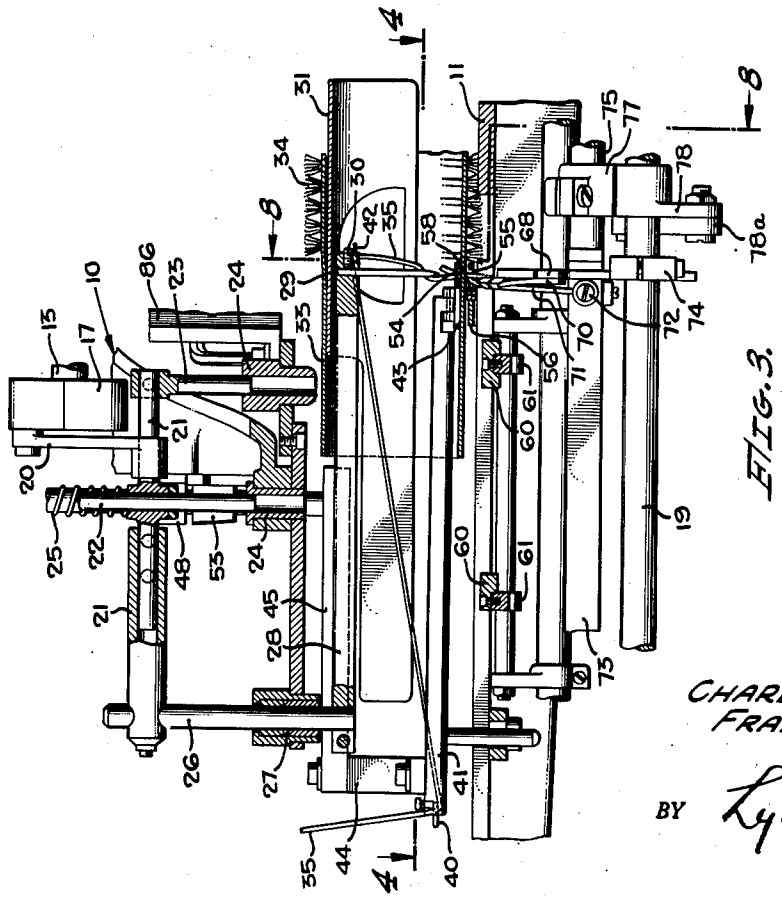

FIG. 3.

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Filed Oct. 26, 1948 5 Sheets-Sheet 3

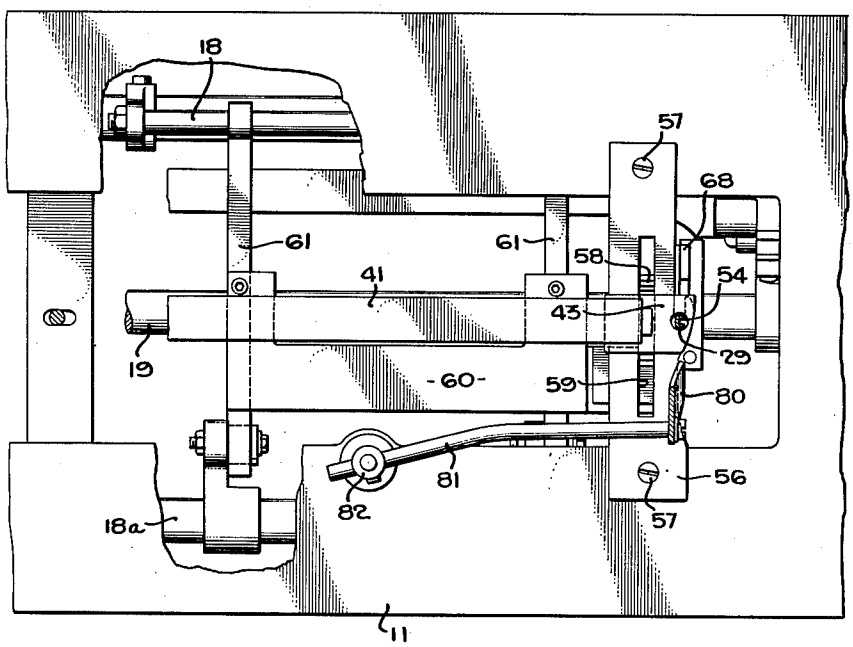

FIG. 4.

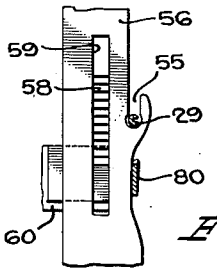

FIG. 6.

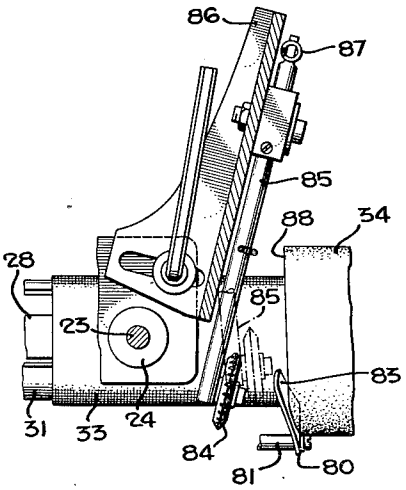

FIG. 5.

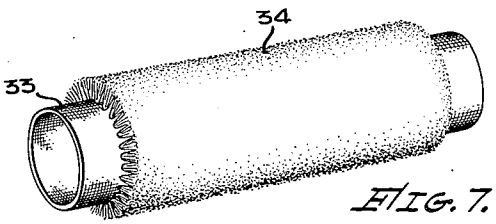

FIG. 7.

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June 17, 1952 C. H. BARNES ET AL 2,600,955

APPARATUS FOR MAKING PAINT ROLLER COVERS AND THE LIKE

Filed Oct. 26, 1948 5 Sheets-Sheet 4

FIG. 8.

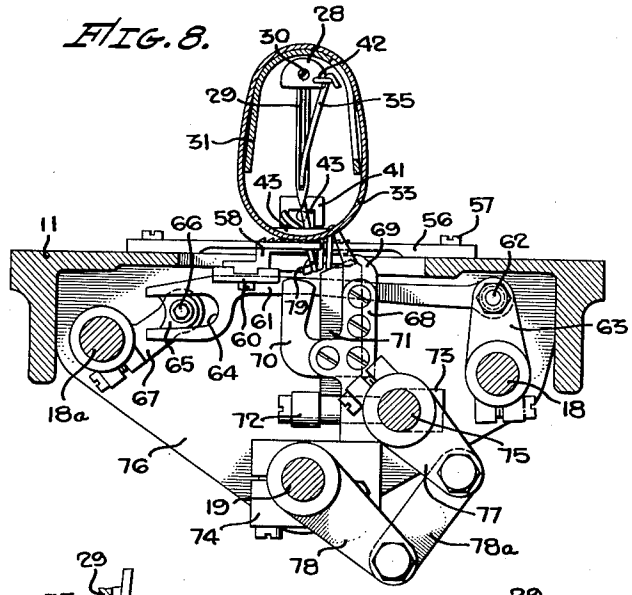


FIG. 9.

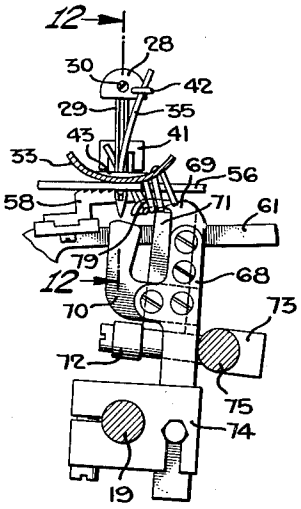


FIG. 12.

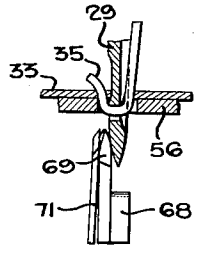


FIG. 13.

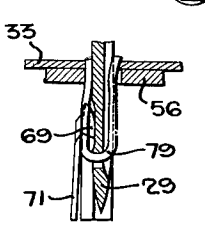


FIG. 14.

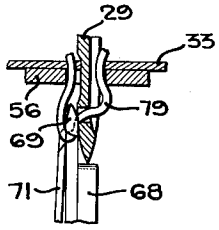


FIG. 10.

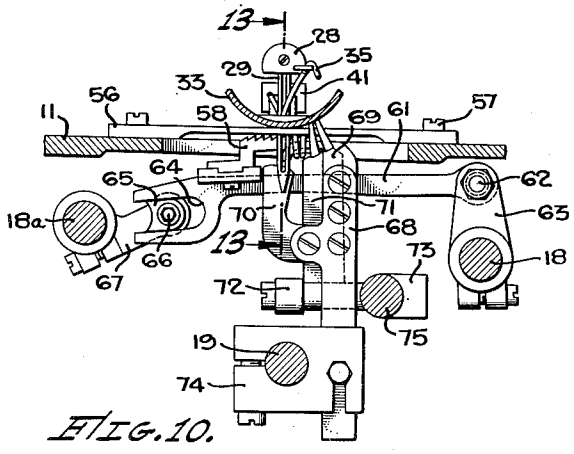
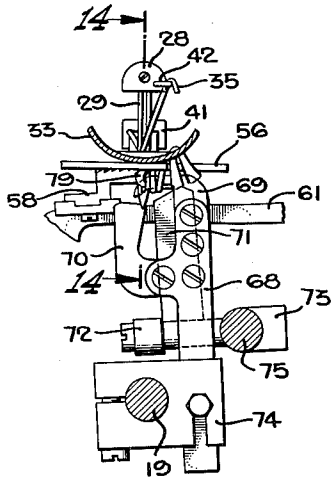


FIG. 11.



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June 17, 1952 C. H. BARNES ET AL 2,600,955

APPARATUS FOR MAKING PAINT ROLLER COVERS AND THE LIKE

Filed Oct. 26, 1948 5 Sheets-Sheet 5

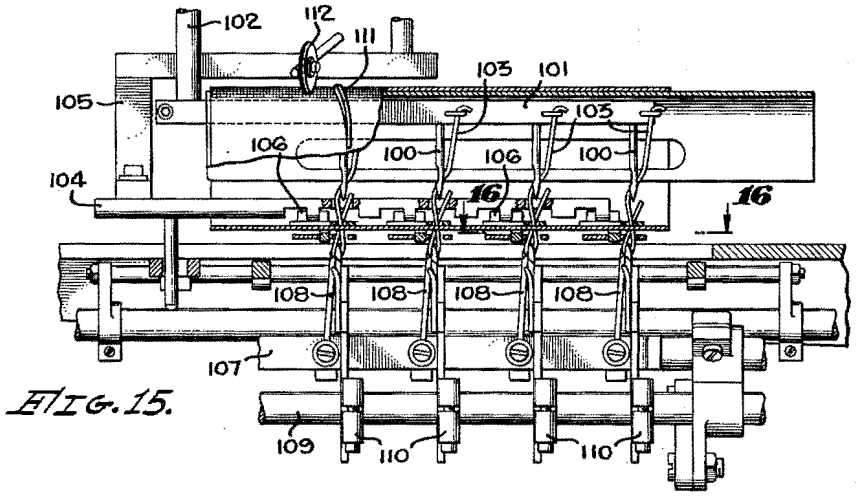

FIG. 15.

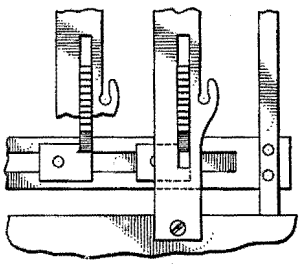

FIG. 16.

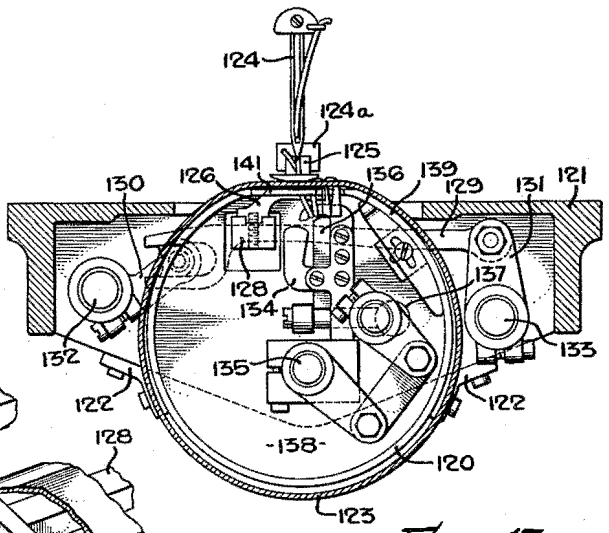

FIG. 17.

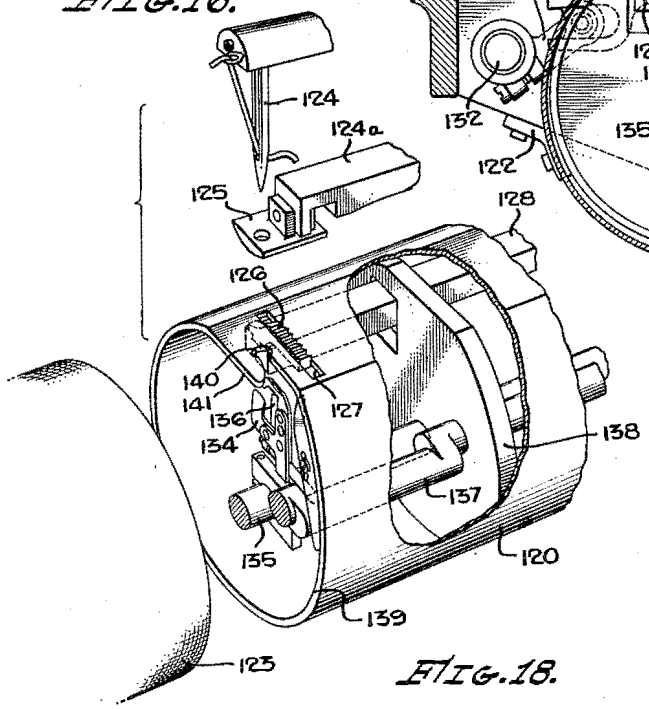

FIG. 18.

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Patented June 17, 1952 2,600,955

UNITED STATES PATENT OFFICE

2,600,955

APPARATUS FOR MAKING PAINT ROLLER COVERS AND THE LIKE

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Application October 26, 1948, Serial No. 56,628

12 Claims. (Cl. 112—79)

1

This invention relates to a method and apparatus for making paint roller covers and the like. Such paint roller covers are shown in our copending application filed of even date herewith, Serial No. 56,627. These improved paint roller covers are useful in connection with painting apparatus of the type shown in our copending application filed March 22, 1948, bearing Serial No. 16,274, and in the copending application of Alfred H. Barnes et al., filed February 11, 1946, bearing Serial No. 646,774, now Patent No. 2,509,954, granted May 30, 1950.

Paint roller covers of conventional form commonly are manufactured as a flat fabric or combination of fabrics and then joined along a butt joint or lap joint seam to form a cylindrical roller cover. The seam is highly objectionable because it interferes with uniform application of paint or of stipple effect to the work surface. The double thickness of fabric at the seam marks the painted surface when the roller is rolled upon it because of the additional thickness, as well as the variation in porosity through the double thickness as contrasted to the porosity of a single thickness. Accordingly, an important object of the present invention is to produce a cover for a paint roller which comprises a fibrous pile encircling a cylindrical tube, the cover having substantially uniform porosity at all points on its circumference.

Another object is to provide a method and apparatus for forming a chenille pile on one surface of the wall of a cylindrical seamless fabric tube.

Another object is to provide a method and apparatus for producing a chenille pile on a cylindrical seamless tube utilizing one or more yarn-threaded needles operating within the interior of the tube.

A more detailed object is to provide method and apparatus for producing a chenille pile on the inside wall of a cylindrical fabric tube, the completed article being reversible by turning inside out so that the pile is positioned exteriorly of the tube.

Other objects and advantages will appear hereinafter.

In the drawings:

Figure 1 is a side elevation showing in outline a preferred form of apparatus embodying our invention and used in carrying out our improved method.

Figure 2 is a sectional end elevation taken substantially on the lines 2—2 as shown in Figure 1.

Figure 3 is a sectional side elevation partly

2

broken away taken substantially on the lines 3—3 as shown in Figure 2.

Figure 4 is a horizontal plan view partly broken away taken substantially on the lines 4—4 as shown in Figure 3, the fabric tube being omitted for clarity of illustration.

Figure 5 is a sectional detail taken substantially on the lines 5—5 as shown in Figure 1.

Figure 6 is a horizontal plan view partly broken away showing the upper side of the needle plate and associated parts.

Figure 7 is a perspective view showing a completed paint roller cover as manufactured by the apparatus shown in the other figures of the drawings.

Figure 8 is a sectional end elevation taken substantially on the lines 8—8 as shown in Figure 3, the needle being in fully retracted position.

Figure 9 is a sectional view similar to Figure 8, the needle being in a partially extended position.

Figure 10 is a view similar to Figures 8 and 9, the needle being in fully extended position.

Figure 11 is similar to Figures 8, 9 and 10, the needle being in partially retracted position.

Figures 12, 13 and 14 are sectional elevations taken substantially on the lines 12—12, 13—13 and 14—14, as shown in Figures 9, 10 and 11 respectively.

Figure 15 is a sectional elevation similar to Figure 3 but showing a modified form of our invention employing a plurality of needles.

Figure 16 is a horizontal plan view partly broken away taken substantially on the lines 16—16 as shown in Figure 15.

Figure 17 is a sectional end elevation similar to Figure 8 but illustrating a further modified form of our invention.

Figure 18 is a perspective view partly broken away showing details of the modification illustrated in Figure 17.

Referring to the drawings, a sewing machine head 10 is positioned on a base 11 supported by end members 12. The crank shaft 13 may be driven by any convenient means such as, for example, an electric motor 14 driving through belt 15 to pulley 16. The sewing machine head 10 may be of conventional design; the drive shaft turns the eccentric 17 and also is connected by conventional means to oscillate the rock shafts 18, 18a and 19. The strap 20 connects the eccentric 17 to the horizontal bar member 21. Vertical guide rods 22 and 23 are fixed relative to the horizontal bar member 21 and confine its motion to vertical reciprocation. Guide bear-

ings 24 are provided for the vertical guide rods 22 and 23. At its projecting end the horizontal bar member carries the vertical post 26 which extends downwardly through the guide bearing 27. The needle bar 28 is secured to the lower end of the post 26 so that rotation of the drive shaft 13 serves to reciprocate the needle bar 28 in a vertical direction. The needle bar 28 extends forwardly from the post 26 for a considerable distance and carries an apertured needle 29 at its forward end. A set screw 30 may be provided for releasably holding the needle in place on the needle bar 28. A stationary shell 31 partially encloses the needle bar 28 and extends from a support bracket 32 to a position beyond the forward end of the needle bar 28 as shown in Figure 3. This shell is adapted to support a fabric tube from the interior thereof. This fabric tube is generally designated 33 and is preferably cylindrical in shape and formed of porous fabric. This tube 33 is preferably seamless. We have found that a commercially available seamless canvas tubing is ideally suited for this member. The purpose of the apparatus shown in the drawings is to form a fibrous pile 34 on the tube 33 so that the completed device is useful for a paint roller cover or the like.

The length of the apertured needle 29 is such that in the retracted position as shown in Figure 3 it is confined entirely within the interior of the tube 33. The downward movement of the needle 29 causes the lower pointed end thereof to pierce the wall of the tube 33. The needle is threaded with a wool yarn 35. This yarn 35 extends from a supply spool 36 through a system of conventional pulleys 37 and over a travelling pulley 38 carried on the upper end of the reciprocating rod 22 by means of the arm 39. The yarn 35 then passes through the guide 40 carried on the rearward end of the presser bar 41 and then through the guide 42 carried on the forward end of the needle bar 28. The reciprocation of the yarn threaded needle 29 causes the needle to carry a loop of yarn 35 through the wall of the tube 33.

The presser bar 41 carries a pivoted shoe 43 at its projecting end which is adapted to rest on the inside surface of the wall of the tube 33. The rearward end of the presser bar 41 is connected by a bracket 44 to the horizontal carrier 45. This carrier 45 is attached at one end to the bracket 44 and at the other end to the vertical slide rod 46 which is guided in axially spaced bearings 47 carried on the head 10. A coil spring 25 encircles the vertical rod 46 and acts against the set collar 48 to move the rod 46 vertically downwardly. An actuating lever 49 is pivotally mounted at 50 on the head 10 and carries a cam nose 51 which may be engaged with the follower surface 52 on the cam follower 53 fixed on the vertical rod 46. As will be readily understood, clockwise movement of the actuating lever 49 as viewed in Figure 2 acts to raise the vertical bar 46 against the action of the spring 25, thereby lifting the presser bar 41 within the interior of the tube 33.

The presser shoe 43 is provided with a circular aperture 54 through which the needle 29 may extend. The needle 29 also extends through the slot 55 provided at one side of the feed plate 56 which is secured to the base 11 by means of connection fittings 57. A serrated feed rack 58 operates in the transverse slot 59 provided in the feed plate 56. The construction and mode of operation of this serrated feed rack 58 are conventional and therefore need not be described in detail. This feed rack 58 is attached by a fitting 60 to the links 61 which are pivoted at 62 on the crank 63. The crank 63 is fixed on the rock shaft 18. The free end of the link 61 is provided with a slot 64 in which a slider 65 is adapted to travel. This slider is pivotally mounted at 66 on the end of the crank 67. The crank 67 is carried on the rock shaft 18*a*. The rocking motions of the shafts 18 and 18*a* are so related that the serrated feed rack 58 is caused to move upwardly within the slot 59, then to travel horizontally to the right as viewed in Figure 8, then to depress below the upper surface of the feed plate 56 and return while depressed to its initial position. The teeth are angled to secure maximum effect in moving the fabric of the lower portion of the wall of the tube 33.

Means are provided for cutting the loops of yarn exteriorly of the tube 33, and as shown in the drawings this means includes a hook member 68 which is provided with a hook element 69 and a guide plate 70 which act as a single integral member. This member is carried on an adjustable foot piece 74 which may be clamped to the rock shaft 19. An upwardly projecting knife 71 is carried on an arm 72 fixed on the knife shaft 73. This knife shaft 73 is square in cross-section for the major portion of its length and is provided with aligned offset cylindrical trunnions 75 at its opposed ends. Supporting bearings (not shown) are provided on the base 76. A crank 77 fixed on one of these trunnions 75 is connected to a crank 78 on the rock shaft 19 by means of the connecting link 78*a*. Oscillation of the rock shaft 19 serves to oscillate the trunnion 75 and knife shaft 73. Since the crank 77 is shorter than the crank 78 the knife 71 moves relative to the hook member 68 when the rock shaft 19 is moved through its arc of motion.

In operation the actuating lever 49 is raised to lift the presser bar 41 and shoe 43 away from the feed plate 56. With the needle 29 in the fully retracted position as shown in Figure 8, the seamless canvas tube 33 is slipped over the shell 31 with the shoe 43 projecting into the interior of the tube. The presser bar 41 is lowered to bring the shoe 43 into contact with the inner surface of the wall of the canvas tube 33. The electric motor 14 is energized to cause the needle bar 28 and needle 29 to reciprocate and to cause the shafts 18, 18*a* and 19 to oscillate. The needle 29 moves from the fully retracted position shown in Figure 8 to perforate the wall of the tube 33 from the inside thereof, and the needle is shown in partially extended position in Figures 9 and 12. As the needle continues its downward movement to reach the fully extended position shown in Figures 10 and 13, a loop 79 of wool yarn 35 is drawn through the wall of the canvas tube 33 to extend exteriorly thereof. The needle then begins its upward retracting movement and when partially retracted as shown in Figures 11 and 14 the hook 69 enters the loop 79 to prevent it from being withdrawn back through the wall of the canvas tube 33. When the needle is fully retracted as shown in Figure 8, the oscillatory motion of the rock shafts 18 and 18*a* cooperate to bring the serrated feed rack 58 into play, and it moves from left to right as viewed in Figure 8 to turn the tube 33 through a short distance. When the needle 29 again descends it repeats the cycle. The serrated fed rack 58 lies in an operative position so that the canvas tube 33 remains

stationary while the needle is completing its forward and reverse stroke.

Each time the needle descends through the wall of the canvas tube 33 the loop 79 carried by the needle is engaged by the hook 69. One or more loops accumulate on the hook 69 as shown in the drawings. These loops are progressively cut, however, as the reciprocating motion of the needle continues by the cooperative action of the cutting knife 71 and hook member 68. As set forth above, the knife 71 is actuated from the shaft 73 whereas the hook member 68 is actuated from the rock shaft 19, and the relative motion between these shafts causes the knife 71 to move with respect to the hook member 68 so that each time a new loop 79 is engaged by the hook 69 a previously formed loop is cut by the knife 71. The free cut ends of the loops fray or spread to form the outer surface of a chenille pile 34.

Means are provided for advancing the canvas tube 33 axially on the shell 31 so that the pile 34 may extend for a considerable length along the canvas tube 33. This advancing means may be arranged to move the tube 33 axially at intervals corresponding to the formation of a full circle of loops by the needle 29 and knife 71, or as set forth in the drawings this advancing means may be continuous so that the loops are helically positioned on the cylindrical canvas tube 33.

A preferred form of advancing means comprises the relatively stationary fender 80 which is carried on a bar 81 and adjustable support 82. This fender 80 is shaped on its inner edge to conform to the shape of the canvas tube 33 while in position on the shell 31 and extends from a position adjacent the feed plate 56 helically around the shell 31, and its upper end 83 is deflected slightly away from the helix line. As the cut loops travel around with the canvas tube 33 under the intermittent action of the serrated feed rack 58 they contact the fender 80, and under continual turning movement of the canvas tube 33 the side edges of these loops bear against the fender so that the tube 33 is caused to travel axially to the right as viewed in Figure 1. The reciprocation of the needle is continued until the desired length of pile 34 is obtained, at which time the presser bar 41 is raised, thereby lifting the shoe 43 away from the wall of the tube 33, and the completed paint roller cover is withdrawn axially to the right away from the supporting shell 31. The completed paint roller cover is shown in Figure 7.

In order that the spacing between adjacent turns of the helix formed by the loops of yarn may be accurately regulated and controlled as desired, we provide a feed control means which modifies the action of the fender 80 and causes the tube 33 and pile 34 to move axially relative to the shell 31. As shown in the drawings this supplementary means includes a roller element 84 carried on the projecting end of a pivoted arm 85. The arm 85 is pivotally carried on a swivel bracket 86 supported for adjustment about a vertical axis with respect to the frame of the machine. A tension spring 87 is provided which acts on the arm 85 to maintain pressure contact between the roller element 84 and the outer surface of the wall of the canvas tube 33.

The roller element 84 may be provided with a rubber rim or may have serrated teeth around its periphery, or provided with any other means for increasing the frictional contact between the

roller and the outer surface of the canvas tube 33. When the roller is positioned as shown in full lines in Figure 5, the spacing between adjacent turns of the helix of the pile 34 is increased and the spacing may be increased to the extent that the fender 80 is no longer operative, that is, the tube 33 is caused by the roller 84 to advance axially at such a high rate that the cut loops no longer contact the fender 80. On the other hand, the roller 84 may be swung to a position such as that shown by the phantom lines in Figure 5, so that the lateral friction force developed by the roller on the tube 33 is such as to tend to move the tube 33 toward the left. This brings the side face 88 into tighter contact with the fender 80 and results in diminishing the spacing between adjacent turns of the helix. From this description it will be understood that by varying the angular position of the roller 84 with respect to the tube 33, that within limits any desired spacing between turns of the helix may be obtained.

If desired the arm 85 may be attached to the lower end of a cable 90 extending downwardly from an arm 91 carried on the upper end of the vertical rod 46. This construction affords an automatic means for lifting the roller 84 from the tube 33 whenever the actuating lever 49 is lifted to raise the presser bar 41 and shoe 43 from the interior wall surface of the tube 33. In the modified form of our invention shown in Figures 15 and 16 a plurality of apertured needles are used instead of the single needle 29. These needles 100 are carried on a reciprocating needle bar 101 attached to the vertical post 102. A separate yarn-thread 103 is supplied to each of the needles. The presser bar 104 carried on the bracket 105 is provided with a pivoted shoe 106 for each of the apertured needles 100. The knife shaft 107 carries a plurality of knives 108, and the rock shaft 109 is provided with a plurality of hook members 110. The mode of operation is substantially the same as that described in connection with the previous embodiment of our invention, except that the fibrous pile on the canvas tube base is formed from a plurality of needles rather than from a single needle. Any convenient advancing means may be provided such as, for example, the stationary fender 111 and the adjustable roller element 112. By means of this multiple needle arrangement the production time for manufacturing a paint roller cover may be greatly reduced.

The multiple needle device produces a paint roller cover or the like which is substantially similar to that produced by the single needle arrangement, the end of each helix formed by one needle being positioned adjacent the beginning of the helix formed by the next needle. It is recognized that the needles can be spaced closer together so that a multiple lead helix is formed instead of a single lead helix, that is, the series of cut loops formed by each needle lies in between similar series formed by needles on each side.

In Figures 17 and 18 we have shown a further modification in which the reciprocating apertured needle is placed outside the canvas tube while the hook member and knife are placed within the canvas tube. A substantially cylindrical shell 120 carried on the base 121 by means of suitable brackets 122 is adapted to support the canvas tube 123. A reciprocating needle 124 is positioned outside the canvas tube 123 and so is the presser bar 124a and shoe 125. The serrated feed rack 126 is positioned within the shell

120 and operates within a transverse slot 127 formed in the shell 120. A bar 128 extends axially of the shell 120 for connection with the operating link 129 which is positioned beyond the rearward end of the shell 120. This link is operated in the conventional manner by the cranks 130 and 131 from the rock shafts 132 and 133 respectively.

The hook member 134 is mounted on the rock shaft 135 which extends axially within the shell 120, and the knife 136 is mounted on the knife shaft 137 which extends parallel thereto. The shafts 135 and 137 extend through aligned bearings in spaced partitions 138 positioned at intervals within the stationary shell 120 and are actuated by conventional means beyond the rearward end of the shell. The extreme forward end 139 of the shell 120 is shaped in the manner of a helix and extends from a position adjacent one side of the needle opening 140 to the extreme forward lift 141. When the loops of wool yarn are formed inside the canvas tube 123 by the needle 124 and subsequently cut by the cooperative action of the knife 136 and hook member 134, the side edges of such loops ride against the helical or inclined surface 139. In this way the canvas tube 123 is caused to advance axially as it is turned by the serrated feed rack 126.

The completed device as formed by the mechanism shown in Figures 17 and 18 has the fibrous pile on the inside of the tube. The article is then turned inside out so that it has the appearance of the paint roller cover shown in Figure 7.

The otherwise completed paint roller cover as manufactured in any one of the types of machines disclosed above is subjected to steam on the inside of the tube. The steam shrinks the yarn and "sets" the fibers more tightly. Consequently, the shedding of wool fibers is prevented.

Having fully described our invention, it is to be understood that we do not wish to be limited to the details herein set forth, but our invention is of the full scope of the appended claims.

We claim:

1. In a device for forming a chenille pile on a wall surface of a fabric tube to produce a paint roller cover or the like, the combination of a relatively stationary member for supporting the fabric tube from the interior thereof, feed means cooperating with said member for turning the fabric tube about its longitudinal axis, a reciprocable needle bar on one side of the wall of the tube, an apertured needle carried on said bar adapted upon reciprocation of said bar to pass through the tube wall and to carry loops of yarn therewith to the other side, means for advancing the tube axially in coordination with the turning thereof, cutting means positioned on said other side of the tube wall adapted to cut the yarn loops passed through said tube by said needle, so that the free ends of the cut loops may form a chenille pile, and means for operating said feed means, said needle bar, and said cutting means in synchronism.

2. In a device for forming a fibrous pile on a fabric tube to produce a paint roller cover or the like, the combination of a relatively stationary member for supporting the fabric tube from the interior thereof, a reciprocable needle bar extending within the tube, an apertured needle carried on said bar adapted to pass through the tube wall from the interior thereof and to carry loops of yarn therewith to the exterior of said tube upon reciprocation of said bar, cutting means positioned exteriorly of the tube adapted to cut the yarn loops passed through the tube wall so that the free ends of the loops may form a pile, and means for operating said needle bar and said cutting means in synchronism.

3. In a device for forming a fibrous pile on a fabric tube to produce a paint roller cover or the like, the combination of a relatively stationary member for supporting the fabric tube from the interior thereof, a reciprocable needle bar extending within the tube, an apertured needle carried on said bar adapted to pass through the tube wall from the interior thereof and to carry loops of yarn therewith to the exterior of said tube upon reciprocation of said bar, feed means for turning the fabric tube, advancing means including a stationary fender outside the tube adapted to contact the side edge of the loops so formed to advance the tube axially, cutting means positioned exteriorly of the tube adapted to cut the yarn loops so that the free ends of the loops may form a pile, and means for operating said needle bar, said feed means and said cutting means in synchronism.

4. In a device for forming a fibrous pile on a fabric tube to produce a paint roller cover or the like, the combination of a relatively stationary member for supporting the fabric tube from the interior thereof, a reciprocable needle bar extending within the tube, an apertured needle carried on said bar adapted to pass through the tube wall from the interior thereof and to carry loops of yarn therewith to the exterior of said tube upon reciprocation of said bar, means to rotate the tube and to advance it axially, cutting means positioned exteriorly of the tube adapted to cut the yarn loops so that the free ends of the loops may form a pile, and means for operating said needle bar, said tube rotating and advancing means and said cutting means in synchronism.

5. In a device for forming a fibrous pile on a fabric tube to produce a paint roller cover or the like, the combination of a relatively stationary member for supporting the fabric tube from the interior thereof, a reciprocable needle bar extending within the tube, a plurality of apertured needles carried on said bar adapted to pass through the tube wall from the interior thereof and to carry loops of yarn therewith to the exterior of said tube, feed means for turning the fabric tube on said supporting member, cutting means positioned exteriorly of the tube adapted to cut the yarn loops so that the free ends of the loops may form a pile, and means for operating said needle bar, said feed means, and said cutting means in synchronism.

6. In a device for forming a fibrous pile on a fabric tube to produce a paint roller cover or the like, the combination of a relatively stationary member for supporting the fabric tube from the interior thereof, a reciprocable needle bar extending within the tube, a plurality of apertured needles carried on said bar adapted to pass through the tube wall from the interior thereof and to carry loops of yarn therewith to the exterior of said tube, feed means for turning the fabric tube on said supporting member, advancing means including a stationary fender outside the tube adapted to contact the side edge of the loops formed by one of the needles to advance the tube axially on said supporting member, cutting means positioned exteriorly of the tube adapted to cut the yarn loops so that the free ends of the loops may form a pile, and means for operating said needle bar, said feed means, and said cutting means in synchronism.

7. In a device for forming a chenille pile on a

fabric tube to produce a paint roller cover or the like, the combination of a member to support the fabric tube from the interior thereof, an apertured needle mounted to reciprocate with respect to said support member and adapted to carry loops of yarn from the interior of the fabric tube to the exterior thereof, means for progressing the tube helically with respect to said support member, cutting means positioned exteriorly of the tube adapted to cut the yarn loops so that the free ends of the loops may form a chenille pile, a main operating shaft, and connections from said shaft for reciprocating said needle and operating said tube progressing means and said cutting means in synchronism.

8. In a device for forming a chenille pile on a fabric tube to produce a paint roller cover or the like, the combination of means to support the fabric tube from the interior thereof, an apertured needle mounted to reciprocate with respect to said means and adapted to carry loops of yarn from the interior of the fabric tube to the exterior thereof, means to turn the tube on the support means, cutting means positioned exteriorly of the tube adapted to cut the yarn loops so that the free ends of the loops may form a chenille pile, a main operating shaft, connections from said shaft for reciprocating said needle and operating said tube turning means and said cutting means in synchronism, and means including a drag roller adjustably positioned to engage frictionally the wall of the tube for moving the tube axially.

9. In a device for forming a chenille pile on a fabric tube to produce a paint roller cover or the like, the combination of means to support the fabric tube from the interior thereof, an apertured needle mounted to reciprocate with respect to said means and adapted to carry loops of yarn from the interior of the fabric tube to the exterior thereof, means to turn the tube on the support means, cutting means positioned exteriorly of the tube adapted to cut the yarn loops so that the free ends of the loops may form a chenille pile, a main operating shaft, connections from said shaft for reciprocating said needle and operating said tube turning means and said cutting means in synchronism, a stationary fender adapted to contact the sides of the yarn loops so formed as to advance the tube relative to the support means as it is turned thereon, and a drag roller frictionally engaging the wall of the tube acting to modify the advancing function of the stationary fender.

10. In a device for forming a chenille pile on a fabric tube to produce a paint roller cover or the like, the combination of a shell to support the fabric tube from the interior thereof, an apertured needle mounted outside the tube and adapted to reciprocate with respect to said shell, the needle acting to carry loops of yarn from the exterior of the fabric tube to the interior thereof, feed means for turning the tube on the shell, cutting means positioned inside of the tube adapted to cut the yarn loops, a main operating shaft, and connections from said shaft for reciprocating said needle and operating said feed means and said cutting means in synchronism.

11. In a device for forming a chenille pile on a fabric tube to produce a paint roller cover or the like, the combination of a shell to support the fabric tube from the interior thereof, an apertured needle mounted outside the tube and adapted to reciprocate with respect to said shell, the needle acting to carry loops of yarn from the exterior of the fabric tube to the interior thereof, feed means for turning the tube on the shell, cutting means positioned inside of the tube adapted to cut the yarn loops, a main operating shaft, connections from said shaft for reciprocating said needle and operating said feed means and said cutting means in synchronism, and stationary means on the shell adapted to contact the sides of the yarn loops for advancing the tube axially of the shell.

12. Apparatus for making a paint roller cover or the like, comprising a reciprocable yarn-threaded needle adapted to be passed through the wall of a cylindrical fabric tube to carry loops of yarn from the exterior thereof to the interior thereof, cutting means within the tube for severing yarn loops carried by the needle into the interior of the tube whereby the free cut ends of the loops may form a chenille pile within the tube, means for turning the tube about its axis and for advancing it axially, said means including a stationary member having an inclined surface adapted to be contacted by the side faces of the cut loops of yarn, and means for reciprocating said needle and for operating said cutting means and said tube turning means in synchronism.

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