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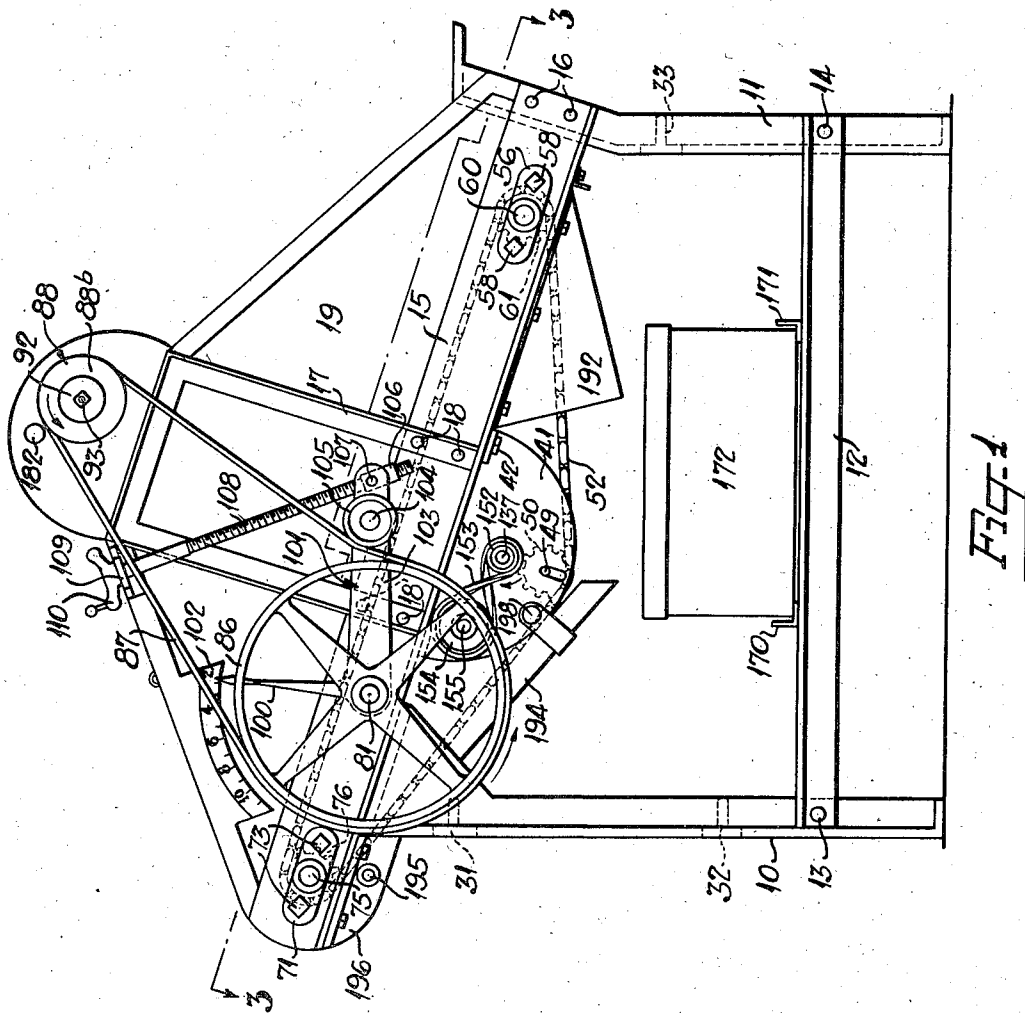
H. V. LANG

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APPARATUS FOR APPLYING TREATING FLUID TO TEXTILE FIBERS

Filed July 16, 1934

6 Sheets-Sheet 1



HOMER V. LANG
Inventor

By *Paul K. Eaton*

Attorney

June 30, 1936.

H. V. LANG

2,045,783

APPARATUS FOR APPLYING TREATING FLUID TO TEXTILE FIBERS

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6 Sheets-Sheet 2

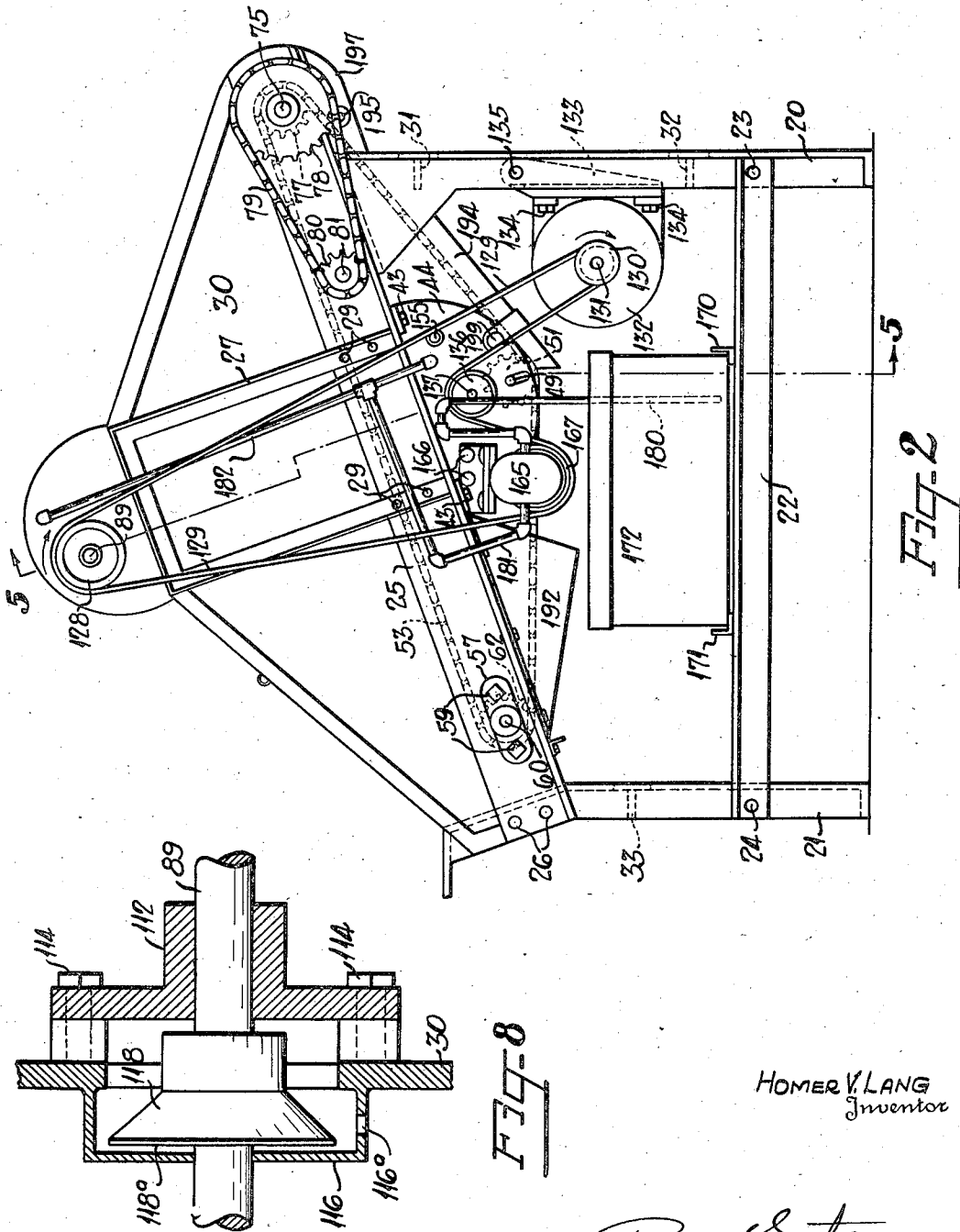


FIG-8

HOMER V. LANG
Inventor

Paul Eaton

Attorney

June 30, 1936.

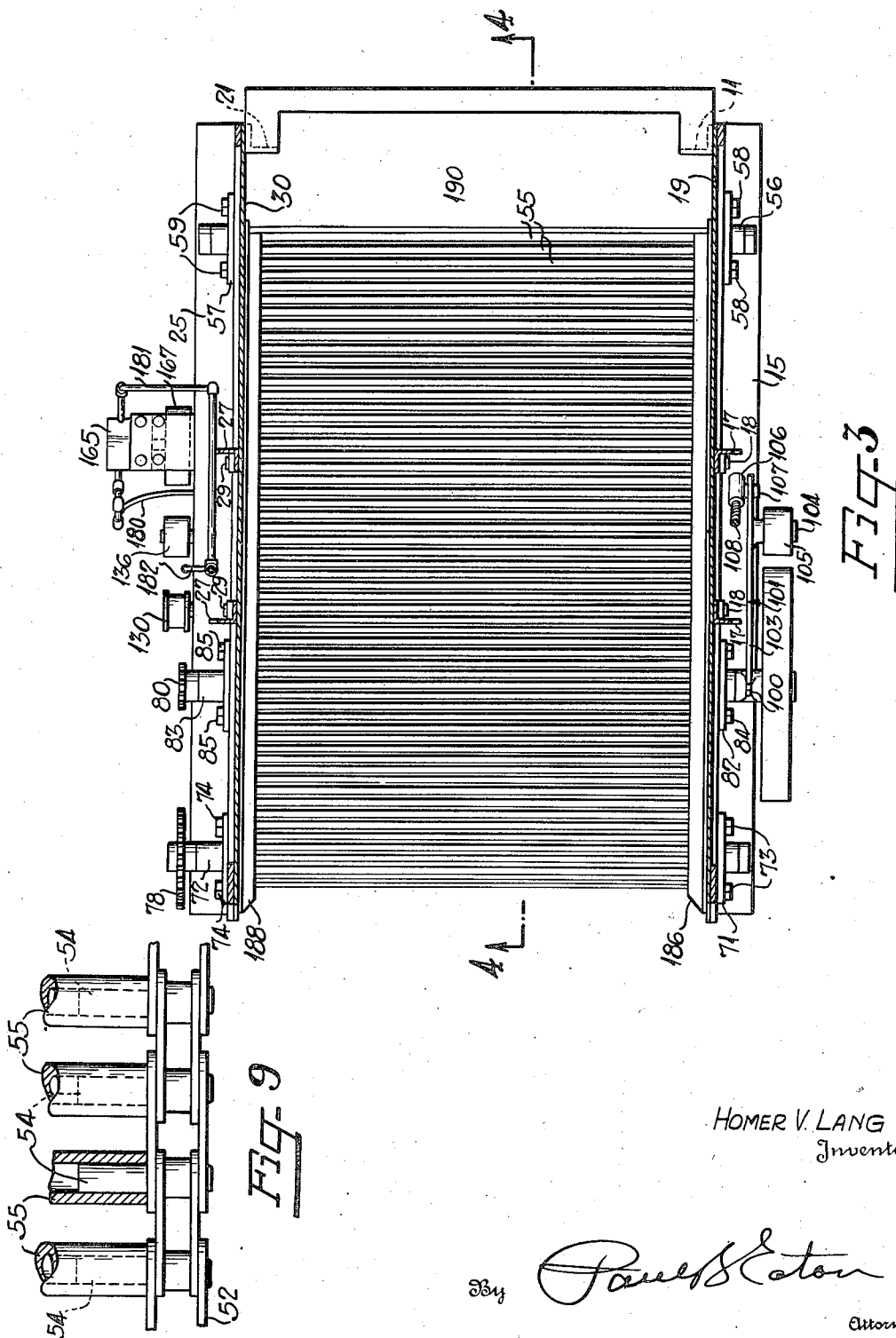
H. V. LANG

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APPARATUS FOR APPLYING TREATING FLUID TO TEXTILE FIBERS

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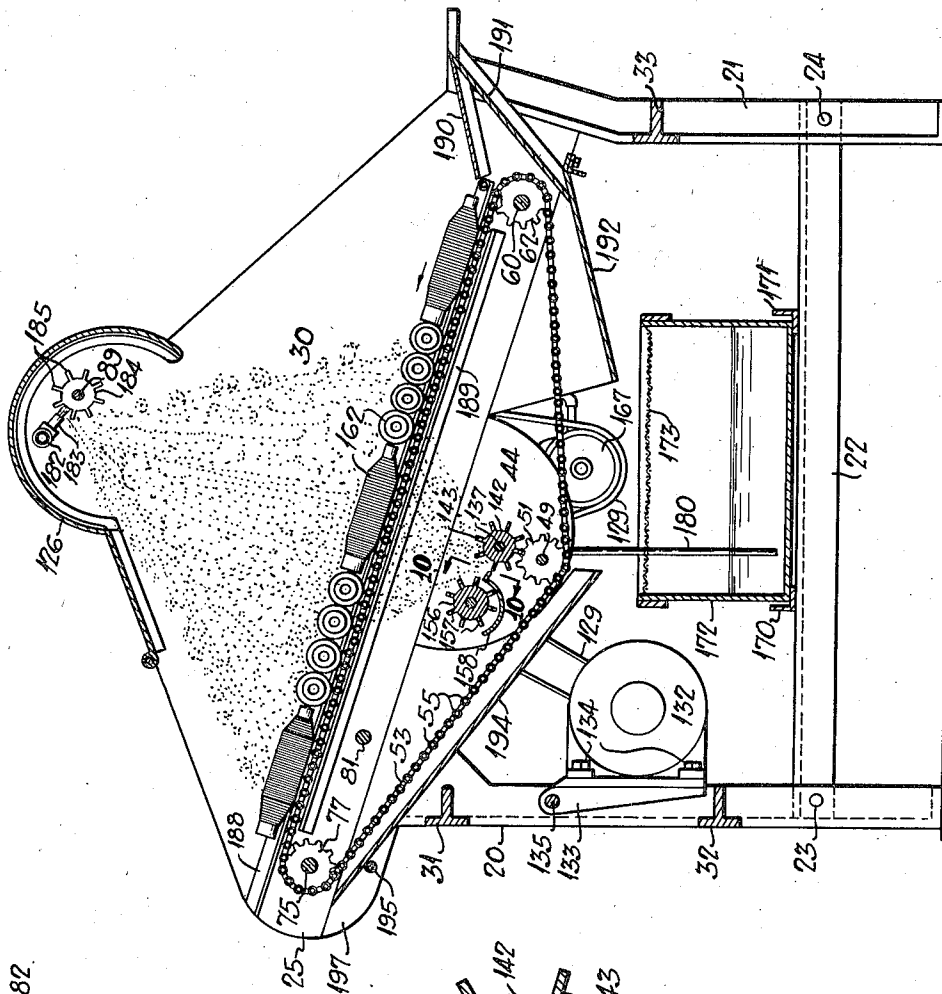
H. V. LANG

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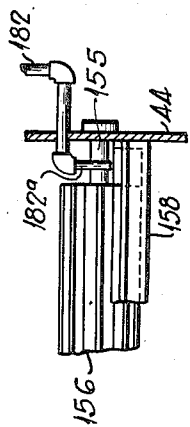
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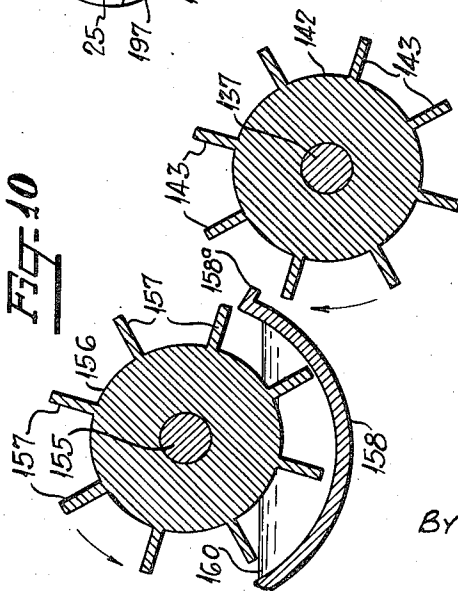
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HOMER V. LANG
Inventor

By

James Eaton

Attorney

June 30, 1936.

H. V. LANG

2,045,783

APPARATUS FOR APPLYING TREATING FLUID TO TEXTILE FIBERS

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6 Sheets-Sheet 5



HOMER V. LANG
Inventor

By

James Eaton

Attorney

June 30, 1936.

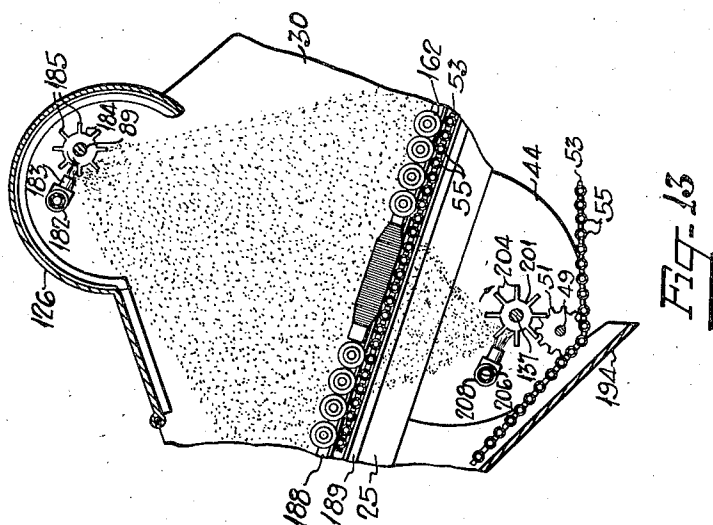
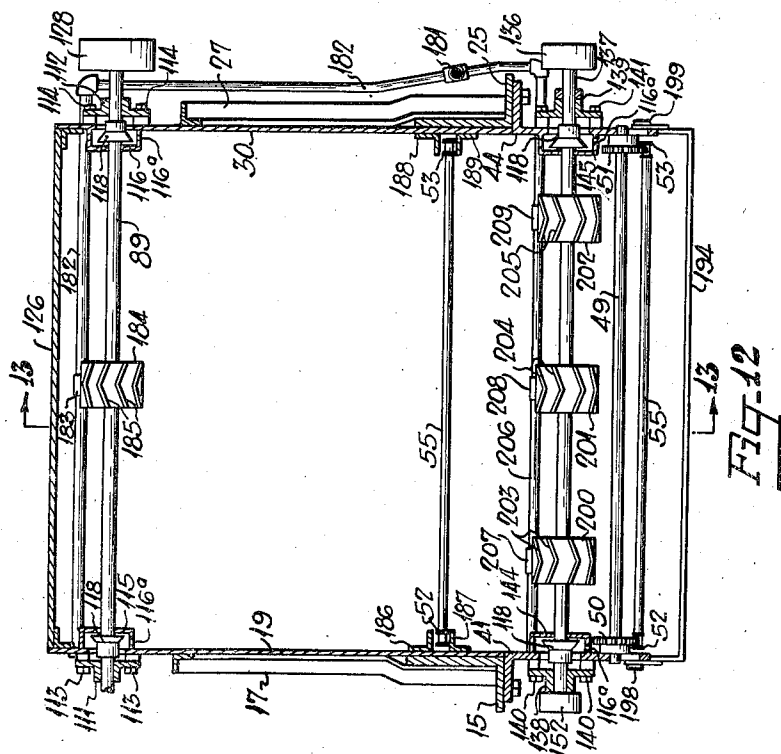
H. V. LANG

2,045,783

APPARATUS FOR APPLYING TREATING FLUID TO TEXTILE FIBERS

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6 Sheets-Sheet 6



HOMER V. LANG
Inventor

Jane Eaton

Attorney

UNITED STATES PATENT OFFICE

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APPARATUS FOR APPLYING TREATING
FLUID TO TEXTILE FIBERS

Homer V. Lang, Charlotte, N. C.

Application July 16, 1934, Serial No. 735,464

16 Claims. (Cl. 8—19)

This invention relates to apparatus for applying a treating fluid to packages of yarn comprising an endless conveyor for conveying the packages of yarn through the apparatus and a series of pipes for conducting a treating fluid to points above and below the upper portion of the endless conveyor together with revolving means driven at suitable rates of speed onto which the treating fluid is projected so that these revolving members atomize the treating fluid and project it onto the upper as well as the lower sides of the packages of yarn thus covering not only the lower and upper sides but also the side portions of the packages of yarn.

It is an object of this invention to provide apparatus for treating yarns, comprising a plurality of revolving members with means for feeding a treating fluid to the revolving members and some of said revolving members having angularly disposed vanes thereon for spreading the fluid and atomizing the same and projecting it onto the packages of yarn.

It is also an object of this invention to provide an apparatus which will not only apply a treating fluid to packaged yarn but which can also be used to apply a treating fluid to fibers such as cotton, wool and other fibers.

Some of the objects of the invention having been stated other objects will appear, as the description proceeds, when taken in connection with the accompanying drawings, in which:—

Figure 1 is an elevation of one side of my apparatus;

Figure 2 is an elevation of the opposite side of my apparatus;

Figure 3 is a sectional plan view taken along the line 3—3 of Figure 1;

Figure 4 is a longitudinal sectional view taken along the line 4—4 of Figure 3;

Figure 5 is a transverse sectional view taken along the line 5—5 in Figure 2;

Figure 6 is a sectional view taken along the line 6—6 of Figure 5;

Figure 7 is a longitudinal sectional view taken through the variable speed pulley shown in the upper left-hand portion of Figure 5;

Figure 8 is a sectional view taken through the shaft bearing shown in the upper right-hand portion of Figure 5;

Figure 9 is a plan view with portions shown in section showing the means for forming a conveyor upon which the yarn is placed while it is being treated with the solution;

Figure 10 is a sectional view taken along the line 10—10 in Figure 4 showing the right-hand

portion of the propeller mounted in a tubular trough;

Figure 11 is a sectional view taken along the line 11—11 in Figure 5;

Figure 12 is a transverse sectional view similar to the upper portion of Figure 5 but showing a modified form of the invention;

Figure 13 is a sectional view taken along line 13—13 in Figure 12.

Referring more particularly to the drawings the numerals 10 and 11 denote suitable supports for one side of my apparatus which are connected together at their lower ends by a suitable strut 12, said strut being secured to these supports by any suitable means such as rivets 13 and 14. Secured to the upper portion of members 10 and 11 is an inclined angle member 15. The left-hand portion of member 15 is mounted on the top of member 10 whereas the right-hand portion of this member is secured to member 11 by any suitable means such as rivets 16. Secured to the central portion of member 15 is a frame member 17 by any suitable means such as rivets 18 and secured to the inner portion of this frame is a sidewall 19.

The opposite side of the apparatus (see Figure 2) is supported by members 20 and 21 which are secured together at their lower ends by any suitable means such as a horizontally disposed strut 22 said strut 22 being secured to these members by means of suitable rivets 23 and 24. Another inclined member 25 is secured to the upper portion of supports 20 and 21. It will be noted that the right-hand end of member 25 is mounted on top of support 20 and the left-hand portion of member 25 is secured to the side of the support 21 by any suitable means such as rivets 26. Secured to the central portion of angle member 25 is another frame member 27 by any suitable means such as rivets 29 and mounted on the inside of this frame member is another sidewall 30 which is similar to sidewall 19 just described.

Supports 10 and 20 are secured together by means of horizontally disposed struts 31 and 32 whereas the other supports 11 and 21 are secured together by a means of horizontally disposed strut 33. It is seen that this forms a rigid frame work since the two sides are secured together rigidly by means of these struts.

Mounted on the lower central portion of angle member 15 by any suitable means such as stud bolts 42 is a semi-circular bracket 41. A similar semi-circular member 44 is secured to the lower central portion of angle member 25 by any suitable means such as stud bolts 43. A suitable

shaft 49 has one end rotatably mounted in bearing 41 and the other end rotatably mounted in bearing 44. Secured on this shaft are suitable sprockets 50 and 51 upon which are mounted sprocket chains 52 and 53 respectively. These sprocket chains are a conventional type but it will be noted by referring to Figure 9 that each joint of the chain has a pin 54 projecting therefrom which enters the end of a pipe 55. It is evident that these pins equally space the pipes 55 on the chains 52 and 53 to form a suitable apron for supporting the bobbins of yarn when they are treated.

Members 15 and 25 have secured to their lower ends suitable bearings 56 and 57 by any suitable means such as stud bolts 58 and 59 respectively. In these bearings is rotatably mounted a shaft 60 which has fixedly mounted thereon sprockets 61 and 62. These sprockets are identical to the sprockets 50 and 51 just described and have mounted thereon chains 52 and 53.

The upper ends of members 15 and 25 also have bearings of 71 and 72 secured thereto by any suitable means such as stud bolts 73 and 74. Rotatably mounted in these bearings is shaft 75 which has fixedly mounted thereon suitable sprockets 76 and 77. Sprocket chains 52 and 53 are also mounted on these sprockets.

Fixedly secured on the end shaft 75 is a sprocket 78 which has mounted thereon a chain 79, said chain 79 being also mounted upon a smaller sprocket 80 which is secured on the end of shaft 81. (See Figure 2.) Shaft 81 is rotatably mounted in bearings 82 and 83 which bearings are secured to members 15 and 25 by any suitable means such as stud bolts 84 and 85 respectively. The other end of shaft 81 has fixedly mounted thereon a pulley 86 upon which is mounted a belt 87 said belt being also mounted upon an adjustable pulley 88. By referring to Figure 7 it is seen that this pulley 88 is comprised of two portions, namely; 88a and 88b. The portion 88a is fixedly secured on shaft 89 by suitable means such as set screw 90 whereas the portion 88b is loosely mounted on the shaft 89 but confined thereon by means of a compression spring 91. This compression spring 91 is held in the position shown in Figures 5 and 7 by means of a washer 92 and nut 93.

By referring to Figures 1 and 3 it is seen that an L-shaped member 101 is also loosely mounted on shaft 81. Leg 100 of member 101 projects upwardly and points to the dial 102 whereas the other leg 103 projects horizontally and has rotatably mounted thereon as at 104 a pulley 105, said pulley 105 being adapted to contact the lower portion of belt 87 at all times. The extreme right-hand end of leg 103 has pivotally mounted therein a bracket 106 as at 107. Threadably mounted in this bracket 106 is a rod 108 which projects upwardly and is loosely mounted in the bracket 109 which bracket is secured to the upper portion of sidewall 19. The upper end of rod 108 has a handle 110 fixedly secured thereon which is adapted to be turned when adjustment is desired in the speed of the conveyor belt. It is seen that by turning the handle 110 that the pulley 105 will be lowered or raised. When the pulley 105 is raised the upper portion of belt 87 on pulley 88 (Figure 7) will be caused to move downwardly and the portion 88b will be separated from 88a. When the portions 88a and 88b spread the peripheral distance travelled by the belt 87 will not be as great; therefore, it will take more revolutions of the pulley

88 to cause the pulley 86 to make one revolution. It is, therefore seen that adjustment as to the speed of the conveyor belt can be obtained in this manner.

The shaft 89 is rotatably mounted in suitable bearings 111 and 112 which are in turn secured to the upper portion of sidewalls 19 and 30 by any suitable means such as stud bolts 113 and 114 respectively. The upper portion of sidewall 19 has a box 115 integral therewith and the upper portion of sidewall 30 has a similar box 116. By referring to Figure 8 a detailed description of the box 116 and its associated parts will be given. Fixedly mounted on shaft 89 is a conical shaped member 118. In the operation of my apparatus it has been found that the solution as it is sprayed upon the bobbins has a tendency to leak thru the bearings to the exterior and waste upon the floor. In order to prevent the escapement of the solution to the outside of the machine I have provided this box 116 and the conical shaped member 118. When water leaks around the shaft 89, as seen in Figure 8, it contacts the surface 118a of the member 118. The centrifugal force of the member 118 as it is rotated by shaft 89 will throw the water outwardly and against the interior sidewalls of the box 116. It will be noticed that the hole 116a is provided in the lower portion of the box which allows the water that has thrown up against the sidewalls of the box to escape back on to the inside of the apparatus. The box 115 and its associated parts are identical in all respects and like reference characters will be given to like parts.

It will be further noted by referring to Figures 4 and 5 that a suitable hood 126 is secured to the upper portions of sidewall members 19 and 30 to prevent the spray and the solution from escaping from the machine due to the rotary motion of shaft 89 which will be later described.

Secured to the other end of shaft 89 is a pulley 123 which has mounted thereon a belt 129 said belt 129 being also mounted on pulley 130. Pulley 130 is fixedly mounted on shaft 131 of motor 132. The motor 132 is secured to bracket 133 by any suitable means such as stud bolts 134 and the bracket 133 is pivoted around the rod 135 which rod is secured in the supports 10 and 20. It is evident that by having the motor pivoted in this fashion that tension upon the belt 129 will be present at all times. Belt 129 is also mounted on pulley 136 which is fixedly mounted on the end of shaft 137. Shaft 137 is rotatably mounted in bearings 138 and 139 which are secured to members 41 and 44 by any suitable means such as stud bolts 140 and 141 respectively. It is seen that boxes 144 and 145 are also provided which are similar in all respects to the box 116 as shown in Figure 8 and has been described. Mounted on this shaft and inside these boxes are conical members 118 which rotate and prevent the water from escaping around the shaft to the exterior portions of the apparatus.

Fixedly secured upon shaft 137 is a propeller 142 which has propeller blades 143 integral therewith. It is seen that propeller 142 is rotated by means of pulley 136 and belt 129 which is connected to the motor 132. The other end of shaft 137 has fixedly secured thereon a pulley 152, said pulley 152 having mounted thereon a belt 153. Belt 153 is also mounted upon pulley 154 which is fixedly secured on the end of shaft 155. The shaft 155 is rotatably mounted in brackets 41 and 44 and also has fixedly secured thereon intermediate the ends thereof another propeller 156.

Propeller 156 has blades 157 integral therewith and are adapted to rotate in a suitable trough 158 which is disposed directly beneath the propeller 156 and the ends of this trough 158 are secured in any suitable manner to brackets 41 and 44. It is further seen that since the belt 153 is crossed that the shafts 137 and 155 will rotate in opposite directions thereby causing the propeller 156 to rotate in a counter-clockwise direction and the propeller 142 to rotate in a clockwise direction as shown in Figure 11. The end of trough 158 has a lip 158a over which the solution 160 in the trough 158 is caused to flow by means of the propeller blades 157. By noticing the gearing operating it is seen that the shaft on which the propeller 142 is mounted will rotate very much faster than the propeller 156. This is done in order to cause the water when it hits the propeller blade 143 to be impelled upwardly onto the lower surfaces of the bobbins 162 which are disposed on the apron comprising the rods 55.

By referring to Figure 2 it is also seen that a suitable water pump 165 is secured to bracket 44 by any suitable means such as bolt 166. Pump 165 has a pulley 167 which has mounted thereon the belt 129 which drives the pump in timed relation to the other parts of the apparatus. Secured to the upper portion of struts 12 and 22 are angle members 170 and 171 which support container 172, said container 172 being adapted to contain suitable solution for the treatment of the bobbins. The upper portion of the container 172 has a screen 173 secured thereto to prevent enlarged particles from entering the solution again which would prevent the liquid from flowing freely through the pump.

A suitable supply pipe 180 leads from the pump 165 to the container 172 for the purpose of drawing the liquid therefrom. It will be noticed that this pipe 180 projects substantially above the top of the pump and then down again to the pump. This inverted U shape portion of the pipe is provided in order that the pump may be kept primed at all times. Leading from the other side of the pump 165 is another pipe 181 which is joined to a pipe 182. The lower end of pipe 182 (see Figures 2 and 10) leads downwardly and through the bracket 44 to the trough 158. The upper portion of the pipe 182 conducts the liquid upwardly and through the upper end of sidewall 30 and across the apparatus to approximately the central portion thereof.

A suitable nozzle 183 is provided (see Figure 6) which has an opening therein which allows the liquid to be forced upon the pipe 182 against a propeller 184 having blades 185 thereon. Since this propeller 184 is fixedly secured upon shaft 89 and is adapted to rotate very fast as the water strikes this propeller it is thrown out upon the bobbins in very fine particles. It will be further noticed that these propeller blades 185 on the propeller 184 are disposed at an angle, which will cause the liquid when it strikes the propeller to diverge from the central portion of the propeller 184 and cause it to spread to all portions of the top of the apron. It is therefore seen that the propeller 184 rotates and throws the liquid down upon the upper portions of the bobbins whereas the propeller 142 rotates and projects the liquid upon the lower portions of the bobbins. It is further seen that a liquid which is propelled from the lower side of the apron by the propeller 142 will pass between the rods 55 and onto the lower portions of the bobbins 162. This

provides mechanical means for applying the liquid and solution to the lower portions of the bobbins as well as the upper portions of the bobbins without the necessity of turning any of the bobbins over. The amount of liquid which will flow downwardly through pipe 182 into trough 158 can be controlled by varying the size of nozzle 182a on the lower end of pipe 182. Likewise by varying the size of nozzle 183 the amount of liquid which flows upwardly to propeller 184 can be limited. Of course the speed of the pump determines the total amount of water to flow through both pipes.

Secured to the inside of sidewall 19 are angle members 186 and 187 which act as sprocket chain guides and prevent the bobbins from becoming entangled between the socket chain and the sidewall 19. Similar angle members 188 and 189 are secured to sidewall 30 which answer the same purpose as previously described. An apron 190 is disposed at the feed end of the apparatus (see Figure 4) which conducts the bobbins down upon the apron which is comprised of rods 55. Disposed below the apron 190 is another apron 191 which is secured to the sidewalls 19 and 30. This apron 191 acts in conjunction with another apron 192 which is secured to the lower portion of angle members 15 and 25 to conduct the water which falls from the bobbins back into the container 172. Another apron 194 is provided for a similar purpose and is held in position at its upper end by means of a rod 195, said rod 195 being secured in brackets 196 and 197. The brackets 197 are secured to outsacling leg of members 15 and 25. The lower end of apron 194 is supported as at 198 and 199 by brackets 41 and 44 respectively. In Figure 4 the bobbins of yarn 162 are shown orderly spaced on the conveyor but in actual operation they will be indiscriminately thrown on the conveyor.

Figures 12 and 13 show a modified form of the invention in which a plurality of rollers having angularly disposed vanes thereon, are disposed below the conveyor for projecting the treating fluid upwardly instead of having a rotor 142 working in conjunction with a similar rotor 156 which propels the solution from trough 158 to rotor 156. In these figures like reference characters indicate like parts whereas, the new parts will be given new reference characters.

The means for projecting the solution downwardly onto the yarn are identical to that shown in the previous figures, but a different means for propelling the solution upwardly is provided which comprises rotors 200, 201, and 202 fixedly mounted on shaft 137, said rollers having angularly disposed vanes 203, 204 and 205 respectively, integral therewith. The lower end of supply pipe 182 has a horizontally disposed pipe 206 connected thereto and leading from this pipe are nozzles 207, 208 and 209 which direct the solution on rotors 200, 201 and 202 respectively.

Pipe 206 is mounted in brackets 41 and 44 and has the left-hand end (Fig. 12) plugged to cause the solution to flow through nozzles 207, 208 and 209.

Since vanes 203, 204 and 205 are disposed at an angle with respect to the center line of the roller, it is evident that as the solution strikes these vanes after it leaves the nozzles, that the solution will be spread outwardly and upwardly due to the rotation of shaft 137. Three rotors are disposed below the conveyor in the present instance because the rotors are closer to the belt than the upper rotor 184; consequently, the solu-

tion from each rotor could not treat as wide a space as it would were it disposed farther from the conveyor. This form of the invention requires very much less material for building than the first form shown, and in many instances is more desirable for treating fibrous material, or packages of yarn.

In the drawings and specification there has been set forth a preferred embodiment of the invention, and although specific terms are employed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being set forth in the appended claims.

I claim:

1. Apparatus for applying a treating fluid to packages of yarn comprising an endless perforated conveyor for conveying packages of yarn through the apparatus, a rotary member disposed above the conveyor, means independent of said rotary member for feeding the treating solution onto the rotary member for projection onto the packages of yarn, a second rotary member disposed below the conveyor, means for feeding the treating fluid to the second rotary member for projection onto the bottom of the packages of yarn, a source of treating fluid and means for returning surplus treating fluid to said source.

2. Apparatus for applying a treating fluid to packages of yarn comprising an endless perforated conveyor for conveying packages of yarn through the apparatus, a rotary member disposed above the conveyor, a nozzle for directing the treating fluid onto the rotary member for projection onto the packages of yarn, a second rotary member disposed below the conveyor, a second nozzle for feeding the treating fluid onto the second rotary member for projection onto the bottom of the packages of yarn, a source of treating fluid connected to said second nozzle, and means for returning surplus treating fluid to said source, said first rotary member having V-shaped vanes thereon for spreading the treating fluid as it is atomized by the vanes.

3. Apparatus for applying a treating solution to packages of yarn, comprising a perforated conveyor for moving the packages of yarn through the apparatus, a revolving member disposed above the conveyor and having diverging vanes thereon, means for feeding the treating solution externally to the apices of said vanes on said revolving member for projection onto the tops and sides of the packages of yarn, second revolving member disposed beneath the conveyor and having diverging vanes thereon, means for feeding a treating solution externally to the apices of said vane on the second revolving member for projection onto the bottoms and sides of the packages of yarn disposed on the conveyor.

4. Apparatus for applying a treating fluid to packages of yarn comprising a perforated conveyor for moving the packages of yarn through the apparatus, a revolving member disposed above the conveyor, a nozzle for projecting a stream of treating solution onto said revolving member in atomized form onto the tops and sides of the packages of yarn, second revolving member disposed beneath the conveyor, and a second nozzle for feeding a treating solution onto the exterior of said second revolving member for projection onto the bottoms and sides of the packages of yarn disposed on the conveyor, the first revolving member having angularly disposed vanes for spreading the treating fluid.

5. In a machine for applying a treating fluid

to packages of yarn, a perforate conveyor for moving the packages of yarn through the machine, a rotary member having diverging vanes thereon and disposed above the conveyor, means for feeding a stream of treating solution to the apices of the vanes on the rotary member for projection onto the packages of yarn, another rotary member disposed below the conveyor and also having diverging vanes thereon, means for feeding a stream of the treating solution onto the exterior of said second rotary member for projection onto the bottom portions of the packages of yarn disposed on the conveyor.

6. In a machine for applying a treating fluid to packages of yarn, a perforate conveyor for moving the packages of yarn through the machine, a rotary member having vanes thereon and disposed above the conveyor, means for feeding a treating solution to the rotary member for projection onto the packages of yarn, another rotary member disposed below the conveyor, a nozzle for feeding the treating solution onto the exterior of the second rotary member for projection onto the bottom portions of the packages of yarn disposed on the conveyor, the means for feeding the treating solution to the first rotary member comprising a nozzle and said vanes being divergent to spread the fluid over the width of the conveyor, and a source of treating fluid connected to said nozzle.

7. Apparatus for applying a solution to packages of yarn comprising an endless perforated conveyor for conveying the packages through the apparatus, a housing surrounding the conveyor and provided with a feed opening at one end of the conveyor and a discharge opening at the other end of the conveyor, a rotary member disposed in the upper portion of the housing, a second rotary member disposed between the upper and lower portions of the endless conveyor, a pair of nozzles for directing fluid onto the rotary members, a source of treating fluid, a pump having an intake communicating with said source, a discharge outlet to said pump having means connected therewith for conducting the fluid to the two nozzles to be projected by said rotary members onto all portions of the packages of yarn, and means for conducting surplus treating fluid back to the said source.

8. Apparatus for applying a solution to packages of yarn comprising an endless perforated conveyor for conveying the packages through the apparatus, a housing surrounding the conveyor and provided with a feed opening at one end of the conveyor and a discharge opening at the other end of the conveyor, a rotary member disposed in the upper portion of the housing, a second rotary member disposed between the upper and lower portions of the endless conveyor, a source of treating fluid, a pump having an intake communicating with said source, a discharge outlet to said pump, a pair of nozzles having a piped connection with said outlet for projecting the fluid onto the exterior of the two rotary members to be projected by said rotary members onto all portions of the packages of yarn, and means for conducting surplus treating fluid back to the said source, the upper rotary member having diverging vanes thereon disposed at an angle to the longitudinal axis to spread the fluid laterally of the apparatus.

9. Apparatus for applying a treating solution to packages of yarn comprising an endless conveyor having a plurality of spaced members for supporting the packages of yarn and providing

openings between the members smaller than the packages of yarn disposed thereon, a rotary member having vanes thereon and disposed above the conveyor, means remote from the rotary member for delivering a treating fluid to the vanes on said rotary member whereby the fluid is broken up and deposited on the packages, a second rotary member disposed below the upper portion of the conveyor and having vanes thereon, means remote from the second rotary member for delivering a treating fluid to said second rotary member whereby the fluid is broken up and deposited on the lowermost portions of said packages resting on the conveyor, a source of fluid supply and means for conducting any surplus fluid not deposited on the packages back into the source of fluid supply.

10. Apparatus for applying a treating solution to packages of yarn comprising an endless conveyor having a plurality of spaced members for supporting the packages of yarn and providing openings between the members smaller than the packages of yarn disposed thereon, a rotary member having vanes thereon and disposed above the conveyor, means remote from the rotary member for delivering a treating fluid to the vanes on said rotary member whereby the fluid is broken up and deposited on the packages, a second rotary member disposed below the upper portion of the conveyor and having vanes thereon, means remote from the second rotary member for delivering a treating fluid to said second rotary member whereby the fluid is broken up and deposited on the lowermost portions of said packages resting on the conveyor, a source of fluid supply and means for conducting any surplus fluid not deposited on the packages back into the source of fluid supply, the vanes on the first rotary member being angularly disposed with relation to the horizontal axis of the first rotary member to spread the fluid laterally of the apparatus.

11. Apparatus for applying a treating solution to packages of yarn comprising a framework, an endless perforated conveyor disposed within the framework, means for driving the endless conveyor, a rotary member having vanes thereon and being disposed above the conveyor, a nozzle disposed exteriorly of the rotary member for feeding a treating solution to the rotary member for projection of the treating solution onto the packages of yarn on the conveyor, a second rotary member disposed between the upper and lower portions of the conveyor, a second nozzle for feeding a treating solution to the second rotary member for projection of the treating fluid through the upper portion of the conveyor and onto the bottom portions of the packages of yarn.

12. Apparatus for applying a treating fluid to packages of yarn comprising a housing, an endless conveyor disposed within the framework, said housing having a feed opening and a discharge opening, means for driving said conveyor, said conveyor being perforated, a pipe in the upper portion of the housing, a tank for the treating fluid, means for forcing the fluid from said tank into said pipe, said pipe in the upper portion of the housing extending transversely thereof and having a nozzle through which the

fluid may escape, a rotary member having vanes thereon disposed within the paths of the jets of fluid issuing from said nozzle, means for driving said rotary member for dispersing and projecting the fluid issuing from said nozzle onto the packages of yarn on said conveyor.

13. Apparatus for applying a treating fluid to packages of yarn comprising a housing, an endless conveyor disposed within the framework, said housing having a feed opening and a discharge opening, means for driving said conveyor, said conveyor being perforated, a pipe in the upper portion of the housing, a tank for the treating fluid, means for forcing the fluid from said tank into said pipe, said pipe in the upper portion of the housing extending transversely thereof and having nozzle through which the fluid may escape, a rotary member having vanes thereon disposed within the path of the fluid issuing from said nozzle, means for driving said rotary member to impel the fluid issuing from said nozzle onto the packages of yarn on said conveyor, a trough disposed below the upper portion of said conveyor, a pipe leading from the tank to said trough, a second rotary member having vanes thereon and rotatable in said trough for expelling treating fluid therefrom, and a third driven rotary member having vanes thereon for receiving the fluid from the second rotary member and projecting it upwardly through the perforate conveyor onto the lowermost portions of the packages of yarn.

14. Apparatus for applying a treating fluid to packages of yarn comprising a casing, an endless conveyor disposed within the casing, means for conducting the treating fluid into the casing, a nozzle disposed within the casing and through which the fluid is adapted to flow, a rotating shaft having a plurality of divergent vanes thereon and onto which the fluid from said nozzle projects whereby the fluid is atomized and spread in the casing and onto the packages.

15. Apparatus for applying treating fluid to textile material comprising a casing, an endless conveyor disposed within the casing, said casing having an intake opening and a discharge opening for the material to be conveyed by the conveyor, means for driving the conveyor, means for conducting the treating fluid to the interior of the casing, a plurality of nozzles through which the treating fluid is released inside the casing, a plurality of revolving members having divergent vanes thereon for receiving the fluid from the nozzles and atomizing and spreading the fluid onto the material, and means for varying the rate of travel of the conveyor to determine the amount of fluid deposited thereon.

16. Apparatus for applying a treating solution to textile fibers comprising an endless conveyor for conveying the fibers, means for conducting the fluid above and below the fibers under treatment as they are moved by the conveyor, a plurality of nozzles through which the fluid is adapted to flow, a plurality of rotating members in close proximity to the nozzles having divergent vanes thereon for atomizing and spreading the fluid from the nozzles and depositing the fluid onto the fibers.

HOMER V. LANG.