United States Patent

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[54] **VERTICALLY MOVABLE SPRAY MECHANISM FOR WASHING MACHINE**
31 Claims, 14 Drawing Figs.

[52] **U.S. Cl.** **134/99,** 134/172, 134/176
[51] **Int. Cl.** **B08b 3/02**
[50] **Field of Search** 134/99, 140, 172, 176

[56] **References Cited**

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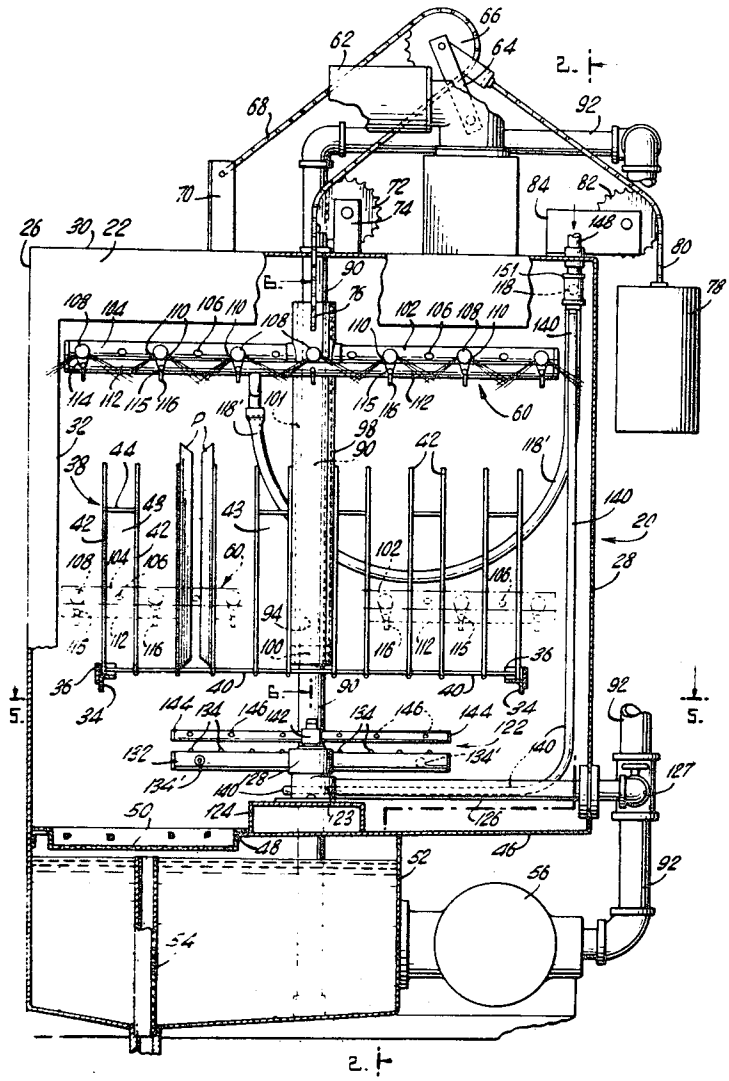
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Primary Examiner—Robert L. Bleutge
Attorney—Nolte and Nolte

ABSTRACT: A vertically movable mechanism having a plurality of wash and rinse nozzles is moved linearly between pans stacked on edge. The wash and rinse sprays alternately impinge on the surfaces of the pan in order to provide full cleaning coverage. An alternative rotary wash and rinse spray may be used for horizontally disposed bowls and utensils.

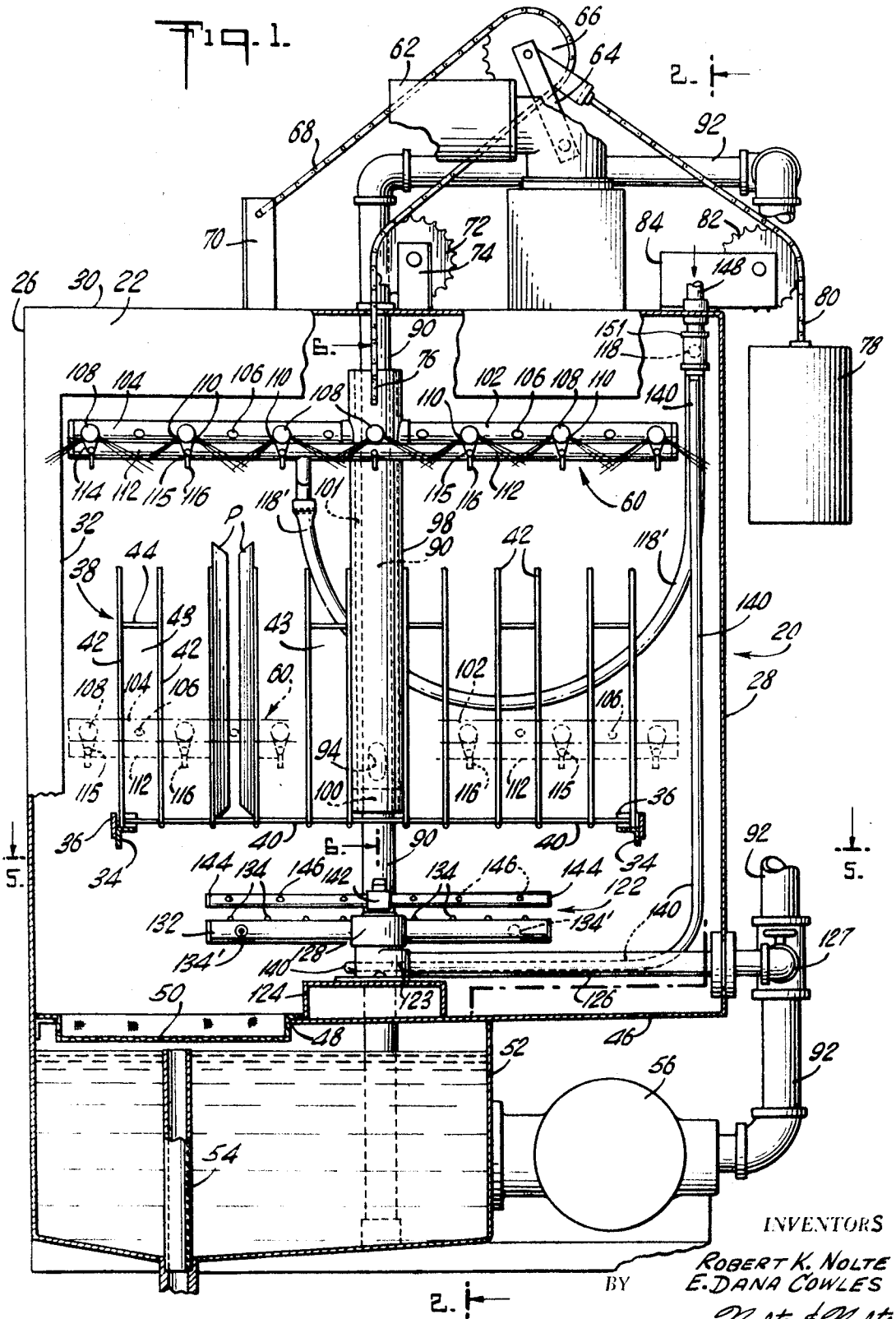


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SHEET 1 OF 5

Fig. 1.



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Fig. 2.

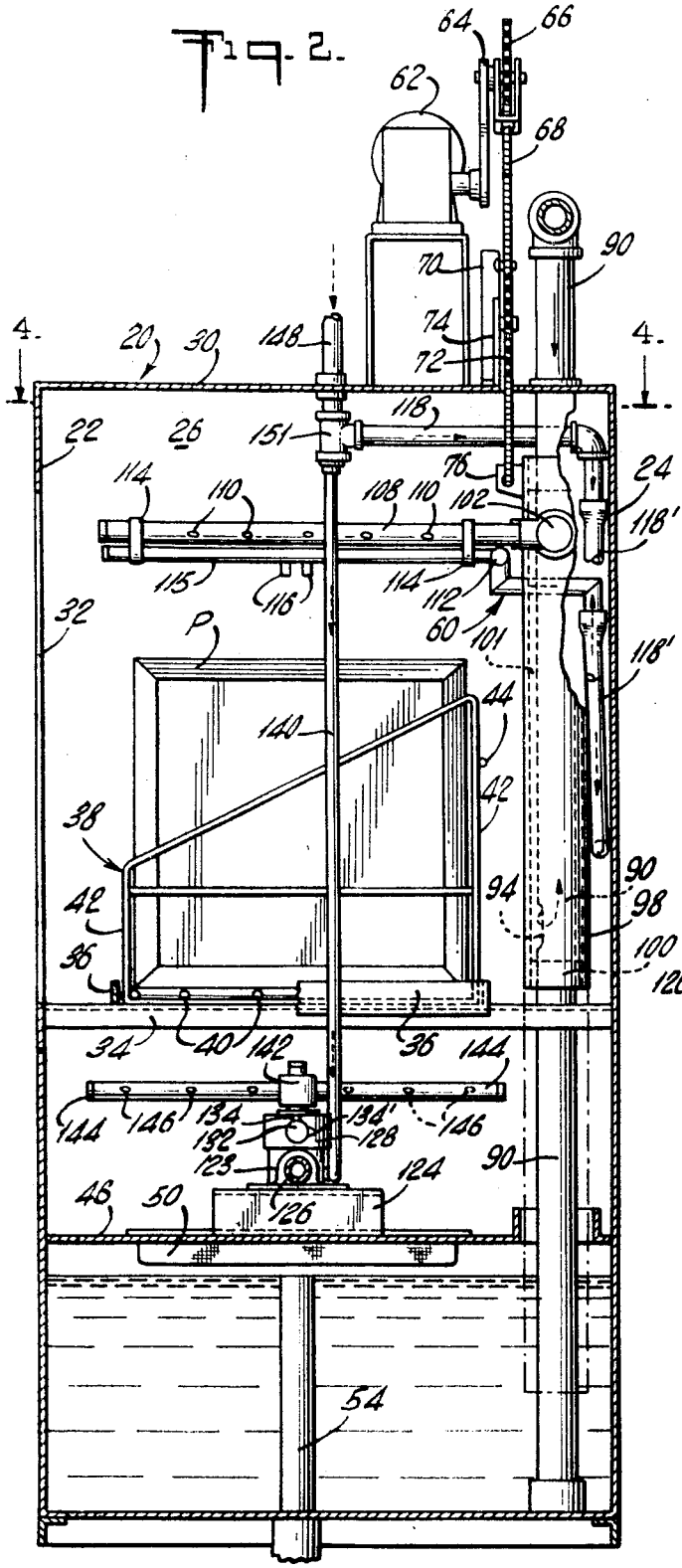
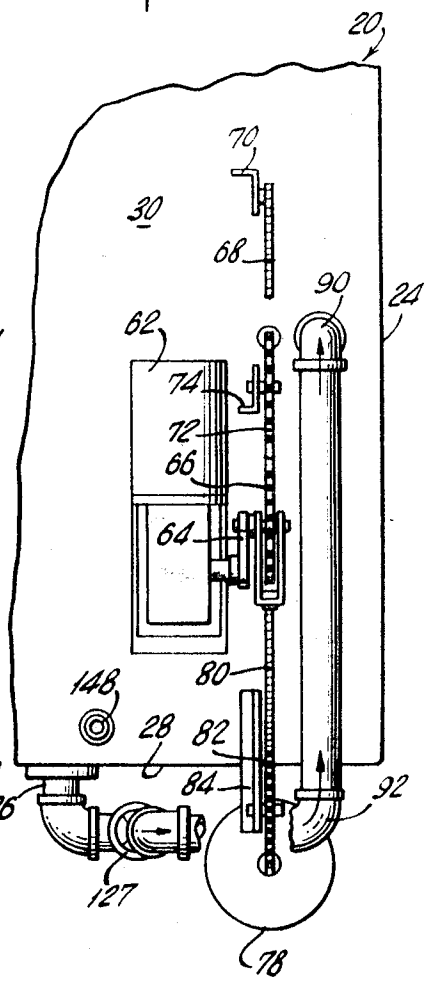


Fig. 3.



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Fig. 4.

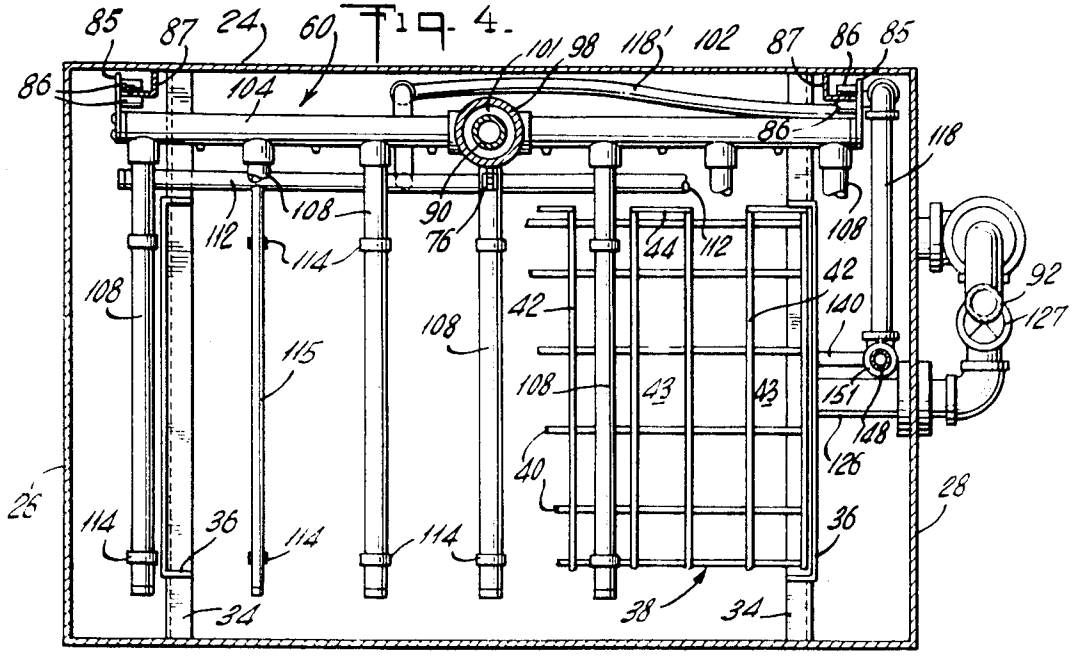
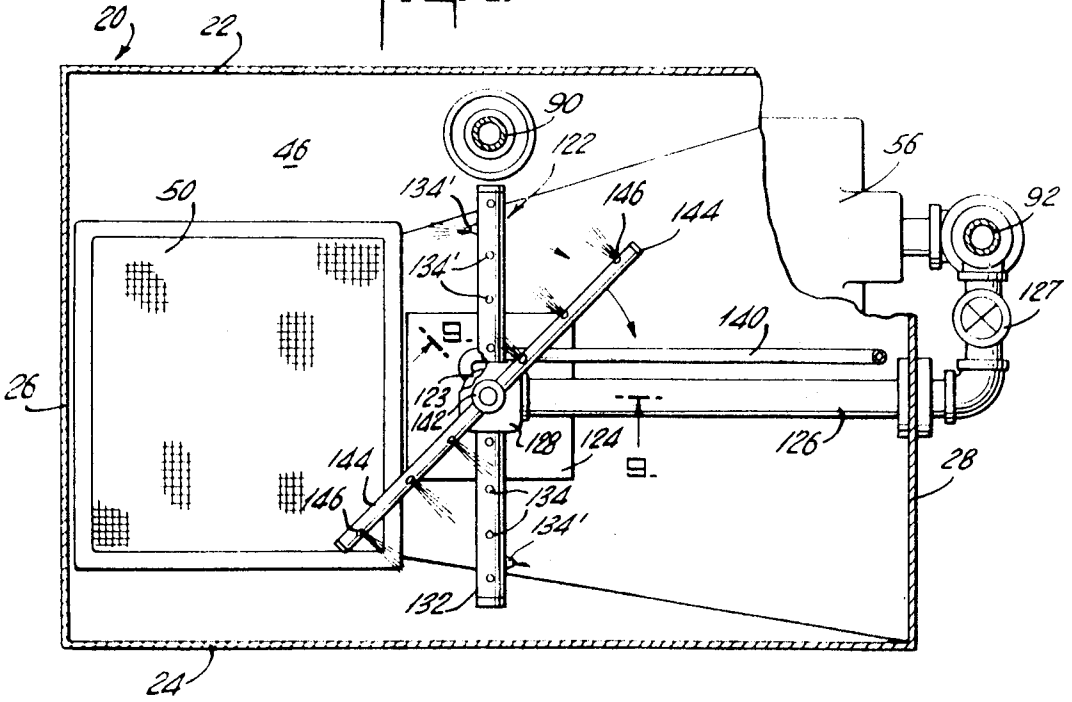


Fig. 5.



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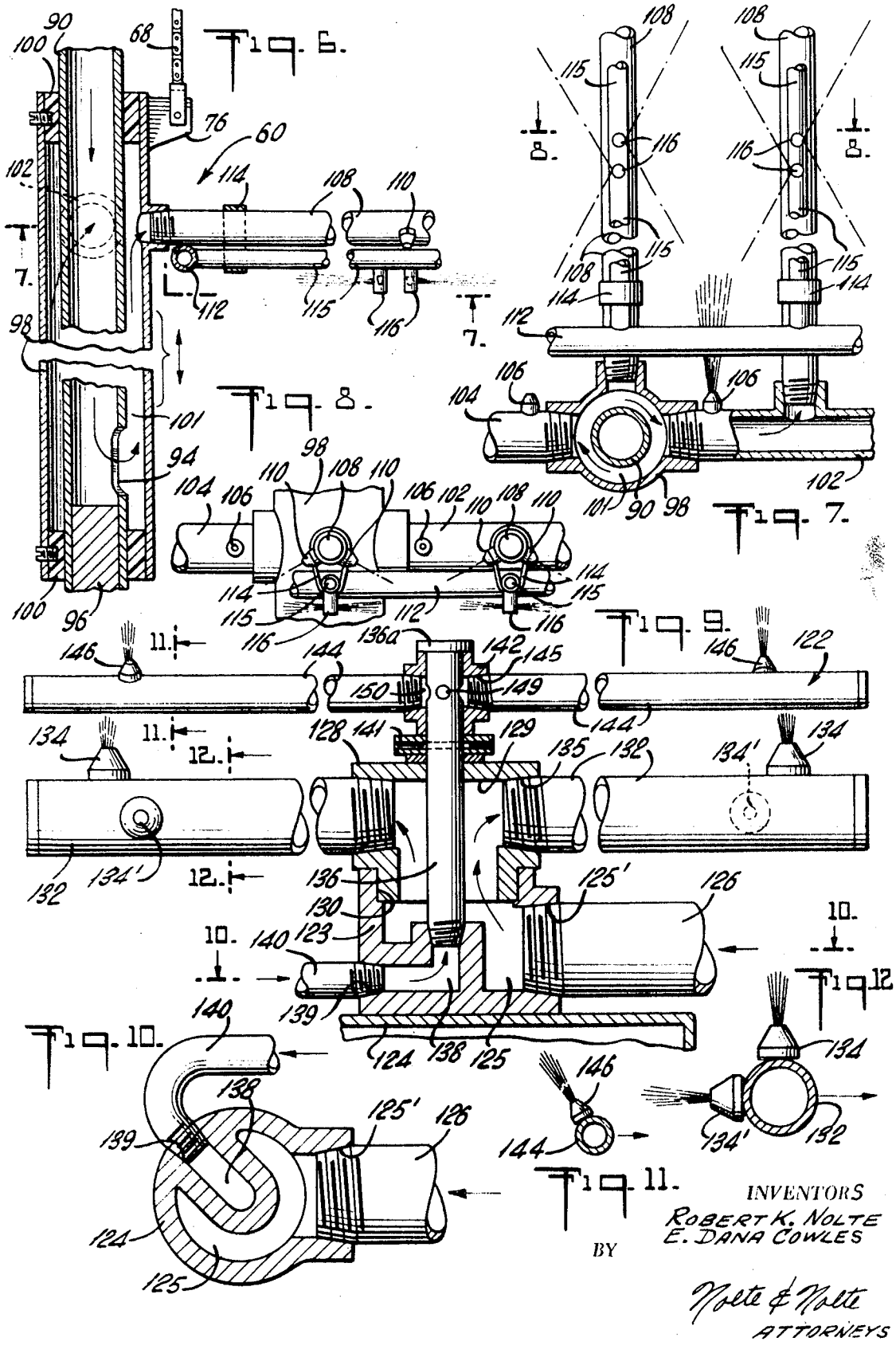
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Fig. 13.

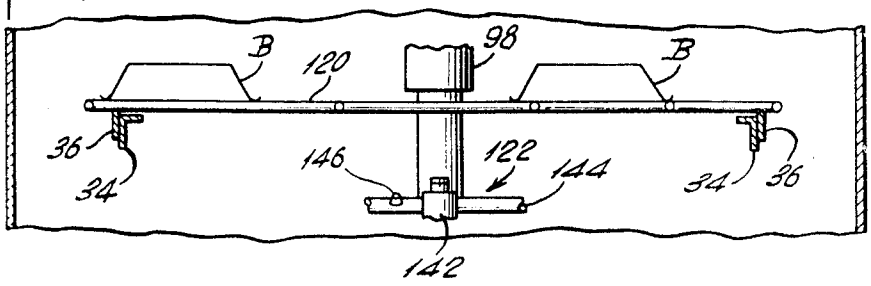
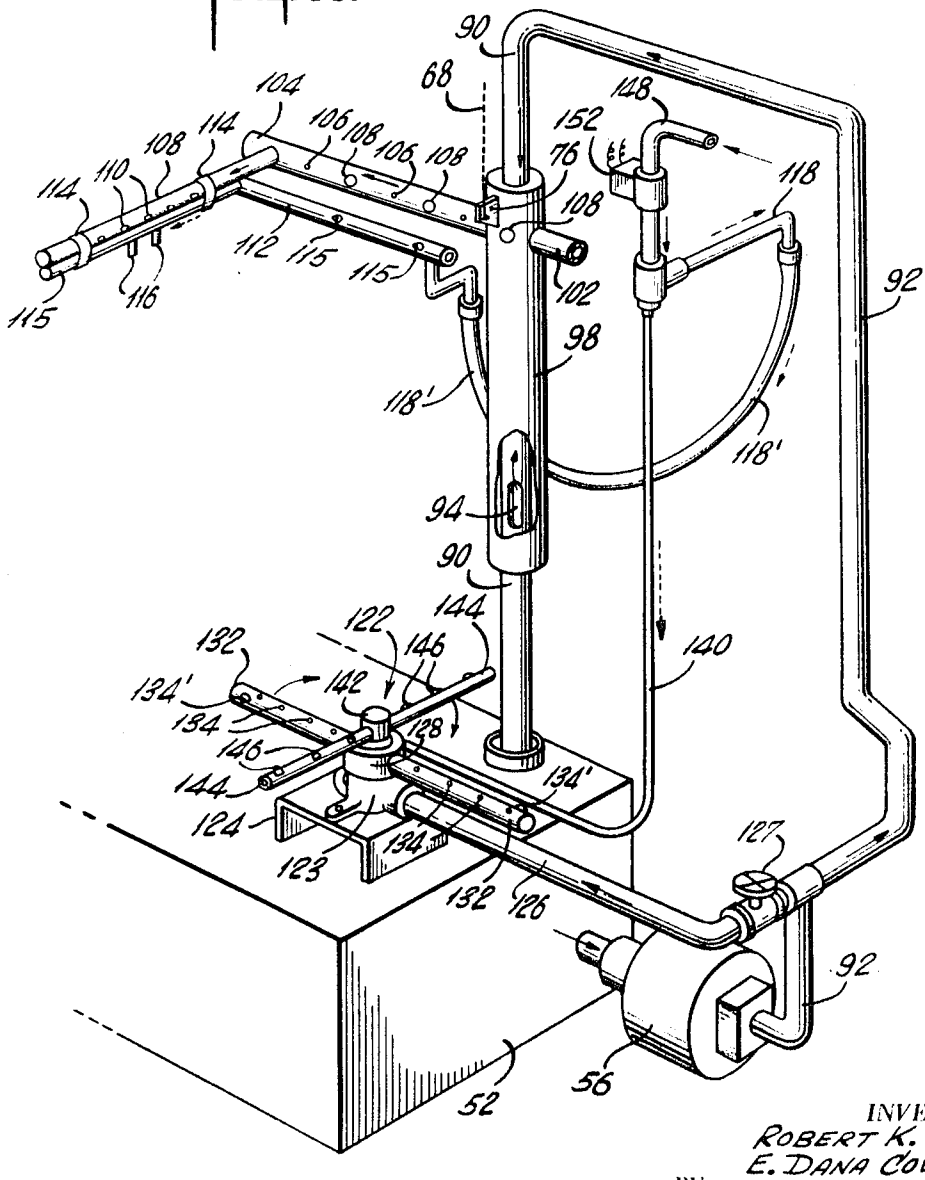


Fig. 14.



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VERTICALLY MOVABLE SPRAY MECHANISM FOR WASHING MACHINE

This invention relates generally to washing machinery for the cleaning of metallic objects such as those used in industrial applications and more particularly such apparatus wherein a vertically movable washing head passes between stationarily supported articles to be cleaned.

One general form of prior art construction provides an elongated, longitudinally movable conveyor means on which the articles to be cleaned are supported. The conveyor means transport the articles past fixed nozzles that dispense washing solution and a rinse water. An example of this type of construction is shown in U.S. Pat. No. 3,160,262 dated Dec. 8, 1964. Still another form of prior art construction provides, generally, a rack for supporting pans on their edge in a substantially vertical plane and a rotary water wheel for delivering wash and rinse water.

The present invention distinguishes over the prior art described above in that the articles to be cleaned are stationarily supported back to back on their edges in a substantially vertical plane and the spray mechanism for the washing solution and rinse water is vertically reciprocated between spaced pairs of pans. It will be appreciated from the following more detailed description that neither the conveyor system for the pans nor the rotary water wheel for the wash and rinse solution is used in the same manner as in the prior art devices. The present invention represents an improvement over the prior art wherein conveyor means were required to move the articles past the washing and rinsing means.

The present invention also represents an improvement over that portion of the prior art wherein a rotary water wheel directed the wash and rinse liquids against vertically standing pans. The present invention assures that a more even spray impingement and coverage is available. As an additional feature, the present invention provides means for alternatively washing and rinsing pans in a horizontal position.

Accordingly, it is a primary object of this invention to provide an improved, compact industrial washing apparatus.

It is another important object of this invention to provide an industrial pan washer utilizing a vertically movable elevator which includes wash and spray material dispensing means in combination with means for stationarily supporting the pans.

A further object of this invention is to provide means for stationarily supporting the articles to be washed on their edges whereby they are in a substantially vertical plane and the wash solution and rinse water is dispensed by means moving vertically between the articles.

It is still another object of this invention to provide in the above-mentioned apparatus means for disabling the vertically movable liquid-dispensing means and providing means for support of the articles to be washed in a horizontal plane by means of rotary spray mechanisms.

It is a particular object of this invention to provide a combination of wash and rinse nozzles on a single vertically movable elevator mechanism.

A further object of this invention is to provide a combination wash and rinse nozzle mechanism in a single rotary mechanism.

These and other objects, features and advantages of the invention will be pointed out with particularity and will become obvious from the following more detailed description of the invention, taken in conjunction with the accompanying drawing, which forms an integral part thereof.

In the various figures of the drawing, like reference characters designate like parts.

In the drawing:

FIG. 1 is an elevational view, partly in section and partly broken away, of the preferred embodiment of this invention;

FIG. 2 is a sectional elevational view, partly broken away, taken along line 2–2 of FIG. 1;

FIG. 3 is a fragmentary plan view of the apparatus shown in FIG. 2;

FIG. 4 is a sectional plan view taken along line 4–4 of FIG. 2;

FIG. 5 is another sectional plan view, partly broken away, taken along line 5–5 of FIG. 1;

FIG,. 6 is a fragmentary sectional elevational view taken along line 6–6 of FIG. 1;

FIG. 7 is a fragmentary plan view taken along line 7–7 of FIG. 6;

FIG. 8 is a fragmentary elevational view taken along line 8–8 of FIG. 7;

FIG. 9 is a fragmentary elevational view, partly in section, taken along line 9–9 of FIG. 5;

FIG. 10 is a fragmentary plan view in section taken along line 10–10 of FIG. 9;

FIG. 11 is a transverse, sectional, detailed view of a rinse nozzle taken along line 11–11 of FIG. 9;

FIG. 12 is a transverse, sectional, detailed view of a wash nozzle taken along line 12–12 of FIG. 9;

FIG. 13 is a fragmentary, sectional, elevational view illustrating an optional feature of the present invention wherein horizontally disposed pans are stationarily supported for washing and rinsing by means of a rotary spray device; and

FIG. 14 is a schematic diagram illustrating the flow pattern of the wash solution and rinse water for both the elevator portion of this invention and the optional, rotary spray portion.

Referring now to FIGS. 1 through 5, there is shown an industrial washer generally designated by the reference character 20. The housing for the washer is defined by front and back walls 22 and 24, sidewalls 26 and 28 and top wall 30. An access opening 32 is provided in the front wall for insertion and removal of the articles to be washed. Although not illustrated, a door may be provided over the access opening to fully enclose the interior of the machine when it is in use.

In FIGS. 1, 2 and 4 it will be seen that angle bars 34 extend between and are secured to the front and rear walls 22 and 24 respectively. U-shaped frames 36 are rigidly secured to the top surface of each angle bar and are arranged to support a removable article support rack 38 which extends substantially across the entire width of the machine. The rack 38 is comprised of a plurality of horizontal rods 40 and a plurality of upwardly extending side rods 42 disposed in vertical planes. The side rods are spaced transversely across the width of the rack and are grouped in pairs to define spaces 43 therebetween for accommodating two pans in back-to-back arrangement. Rods 44 are secured at the rear of each pair of side rods to limit the rearward movement of the pans that are slipped in and removed from front through access opening 32. It should be noted that while the rack is removable from the machine so that other racks having different dimensions may be substituted, the rack itself is not intended to be functionally movable when the machine is in use and therefore the pans are not moved during the operation of the machine.

The housing of the machine further includes a bottom wall 46 which is provided with an enlarged opening 48 that accommodates a readily removable filter screen 50. A tank or reservoir 52 for the wash solution is positioned below wall 46 and is provided with an overflow or drainpipe 54 extending thereinto. It will be seen particularly in FIG. 1 that the bottom wall 46 is sloped downwardly to the left so that the wash and rinse water may drain, by gravity, through the filter screen and into the tank wherefrom it is recirculated. Pump means 56 is positioned beneath bottom wall 46 and is in fluid connection with the interior of the tank so that the wash solution may be pumped to the interior of the machine in a manner to be described more fully hereinafter. Although not illustrated, heating means for the wash solution in the tank may be provided as well as a temperature regulator for the wash solution. These components are conventional in the art and their construction and function need not be described in any greater detail. It is also desirable although not illustrated, to provide a vent fan at the top of the cabinet on the top wall 30.

The vertically movable elevator assembly 60 for the wash and rinse spray is located within housing 20 proximate the rear

wall 24 thereof. In order to move the elevator up and down, a gear motor 62 is mounted on the top wall 30 of the housing and a crank arm 64 is coupled to the output shaft of the motor to be rotated thereby. Sprocket member 66 is rotatably secured near the outer end of the crank arm and a roller chain 68 is trained about the sprocket. One end of the roller chain is fixed to a bracket 70 that is, in turn, secured to the top wall 30 of the housing. As is shown particularly in FIG. 1, the roller chain, in addition to being trained about sprocket 66, is also trained about an idler sprocket 72 that is rotatably journaled in a bracket 74 mounted on the top surface of housing 30. The opposite end of the roller chain 68 terminates in a bracket 76 that is suitably secured to a portion of the elevator mechanism (FIG. 6).

It will be appreciated that, for each revolution of the gear-motor output shaft, the crank arm 64 will make one revolution and in so doing, will first lower the elevator spray assembly towards the position shown in dotted outline in FIG. 1, and then will raise the elevator assembly to the solid showing in FIG. 1. This action will be continued as long as the motor is running. It may also be seen in FIG. 1, that a counterweight 78 is provided for the elevator assembly. The counterweight is secured to one end of a roller chain 80 whose opposite end is mounted on the same axis as sprocket 66. Still another sprocket 82, rotatably mounted on a bracket 84 that is secured to the top surface of the housing 30 is provided for the roller chain 80. To assure positive control and guidance of the elevator assembly 60 brackets 85 are secured to the lateral ends thereof and extend rearwardly as may be seen in FIG. 4. Each bracket 85 has a pair of spaced rollers 86 journaled thereon, the space between each pair of rollers being sized to accommodate one leg of a vertically disposed angle bracket 87 that is rigidly secured to rear wall 24. It will be appreciated that the elevator will be smoothly guided along a vertical path by means of the combination of the rollers and guides.

The construction of the spraying apparatus for the elevator mechanism 60 will now be described in detail and in particular, with reference to FIGS. 6, 7 and 8. A hollow pipe 90 extends between the top and bottommost walls of the apparatus and is connected through conduit means 92 to pump 56. At approximately the midpoint of the housing, pipe 90 is provided with an aperture 94 and just below this aperture the internal bore of the pipe is plugged by means of a cylinder 96. A hollow sleeve 98 is spacedly disposed coaxially about pipe 96 by means of spacer members 100. It will be seen in FIG. 6, that the wash solution entering through the top of pipe 96 travels downwardly and then out through the aperture 94 in order to enter the annular space 101 between the pipe and the sleeve.

A pair of headers in the form of hollow pipes 102 and 104, are threadably secured to sleeve 98 such that they extend outwardly therefrom in opposite directions and span substantially the entire width of the apparatus. It will be evident then that the bore of pipes 102 and 104 is in fluid communication with annular space 101 and, by means of the aperture 94, with the interior of pipe 90 and the fluid source. Jet nozzles 106 are spacedly secured to and along the length of arms 102 and 104 such that they are located between pairs of upright rods 42 of the utensil rack as shown in FIG. 1. Thus, when the spray elevator is lowered, the wash-dispensing nozzles 106 will travel downwardly towards the position shown in dotted outline in FIG. 1 so that they are in between the confronting bottom surfaces of each two adjacent sets of pans. Each pipe 102 and 104 includes a plurality of hollow pipes 108 extending outwardly therefrom and in fluid communication with space 101, the interior of pipe 90 and the fluid source. Each pipe 108 includes a plurality of jet nozzles 110 in fluid communication with the interior thereof. It will be seen in FIG. 1, that nozzles 106 and pipes 108 are alternately placed transversely in the machine so that as the elevator is lowered and raised the spray nozzles 110 will direct sprays of wash solution into the space between the pairs of vertical rods 42 of the utensil rack 38 to wash the contaminated surfaces of the pans.

A rinse head in the form of an elongated, transversely positioned pipe 112, is secured to arms 108 by means of straps 114. The rinse head is further comprised of a plurality of pipes 115 extending outwardly parallel to and below pipes 108. Straps 114 are disposed about pipes 108 and 115. As may best be seen in FIGS. 6 and 7, each pipe 115 includes a plurality of nozzles 116 which receives clear rinse water through a conduit 118, that is connected to an external supply source (not shown).

From the immediately foregoing description, it will be observed that the nozzles 106, 110 of pipes 102, 104 and 108 respectively, are all in fluid communication with the wash solution in tank 52 by means of pump 76, conduit 52, pipe 90 and aperture 94 in pipe 90. In the same manner nozzles 116 of pipes 115 are in fluid communication with the rinse water supply by means of pipe 112 and conduit 118, having a flexible portion 118' connected to pipe 112. It will also be apparent, that when the motor 62 is running, the elevator assembly will be raised and lowered because roller chain 68 is connected by means of bracket 76 to the sleeve 98. Spacers 100 assure smooth, trouble-free movement of sleeve 98 relative to tube 90 and also provide a measure of sealing.

When the machine is to be used to clean bowls and various other utensils, the elevator and the wash sprays connected therewith are functionally disabled and the articles labeled B in FIG. 13 are positioned on a rack 120 which replaces rack 38. Positioned directly below rack 120 is a rotary spray device generally designated 122 which is used only when the rack 38 is not used. The relative positions of the rotary spray assembly 122 and rack 120 are illustrated in FIG. 13 and the structural detail of the rotary spray assembly is shown in FIG. 9.

The rotary spray device 122 is comprised of a hub member 123 mounted on a bracket 124 that is secured on the top surface of bottom wall 46. Hub 123 includes an internal chamber 125 and a port 125' to threadably secure a conduit 126 thereto. The wash solution from tank 52 can therefore flow through conduit 126 and hub 123.

Valve means 127, in line 126, permits opening of line 126 when the rotary wash assembly is to be used. A fitting 128 having an internal chamber 129 that is in fluid communication with chamber 125 is rotatably fitted into socket 130 of hub 123 to be in fluid communication with conduit 126. Hollow pipes 132, each having a plurality of wash nozzles 134 and at least one driving jet nozzles 134', are threadably secured in appertures 135 of fitting 128 and extend outwardly from the center of fitting 128 in order to dispense the wash solution. Nozzles 134 are arranged to deliver a cone of wash solution in a vertical direction to impinge on pans B while the jet nozzles 134' are positioned at the outer ends of arm 132 to direct a jet spray in the horizontal plane and in opposite directions in order to rotate arms 132. It should be understood that no motor drive is provided for the rotary spray means. The pressure of the water delivered through conduit 126 is sufficient to rotate the arms 132 through jet nozzles 134' in much the same manner as the common garden sprinkler.

A hollow, nonrotatable pipe 136 extends downwardly through the chamber 129 in the fitting 128 and terminates in a chamber 138 that is integrally formed in hub member 123. It should be noted that chambers 125 and 138 are separate to avoid a fluid mix and that chamber 138 terminates in a threaded aperture 139. A rinse water conduit 140 is threadably secured in the aperture 139 and is in fluid communication with the same source of rinse water as is conduit 118. A pin 141 extending through pipe 136, in combination with the threads at the bottom end of pipe 136 prevents fitting 128 from moving upwardly out of socket 130 in hub 123 when the water is delivered under pressure.

A hub member 142 is rotatably mounted on the upper end of pipe 136 and is provided with hollow tubes 144 threadably secured in oppositely facing apertures 145. The enlarged upper end 136*a* of pipe 136 prevents hub 142 from moving upwardly when the water is delivered under pressure. Each of the outwardly extending tubes 144 includes a plurality of jet

nozzles **146** that are arranged to dispense the clear rinse water in a rotary pattern. As shown in FIG. **11**, the jets **146** dispense a cone of liquid at an angle to the vertical. The rotary propulsion force for the arms **144** comes from the pressure with which the rinse water is delivered in the same manner as arms **132**. No motor drive is required. Rinse water is delivered to the arms **144** and jet nozzles **146** through a conduit **148** that is in fluid communication with the same rinse water supply as conduit **118**. The rinse liquid from conduit **148** travels through conduit **140**, chamber **138** in hub **123**, through hollow tube **136** and exits through apertures **149** in the wall of the tube at the upper end thereof. A chamber **150** in hub **142** is positioned about apertures **149** so that the rinse liquid may then flow to arms **144** and nozzles **146**. It will be seen in FIG. **14** that a fitting **151** provides the common connection and that a solenoid valve **152** controls the flow of water to the two rinse conduits **118** and **140**.

METHOD OF OPERATION

When utensils such as baking pans are to be washed, they are loaded through access opening **32** and placed in an on edge-standing position on the rack **38**. The pans are placed back to back with their concave surfaces facing outwardly. Two pans are positioned between each pair of vertically standing rods **42** of the rack, as shown in FIG. **1**. Pump means **56** and motor **62** are energized such that the wash solution is delivered to the spray head **60** and the elevator mechanism is set into motion. It will be seen that by the crank arm and sprocket arrangement the elevator will travel up and down and that spray nozzles **106** will direct a stream of wash solution into the space defined by the closely adjacent base portions of each pair of pans. At the same time, spray nozzles **110** will dispense the wash solution to the right and left against the concave faces of opposed pans that are positioned on adjacent pairs of rods **42**. The wash solution drips off the pans and falls against bottom wall **46** which is sloped to the left as shown in FIG. **1** whereby it drains into tank **52**. Sediment that is removed from the pans by the wash solution collects on filter or strainer **50** which is removed for cleaning at periodic intervals. The wash solution passing through the filter may then be recirculated by means of pump **56**.

At suitable time intervals, the pumping of the wash solution is stopped and the rinse water is pumped into header **112**, and arms **115** whereby it is dispensed through nozzles **116** against the concave faces of the pans. The elevator continues to fall and rise being aided in its movement by the chain **80** and counterweight **78**. The rinse water may drain to the bottom wall **46** in the same manner as the wash solution. It should be noted that the rinse water is delivered simultaneously to the elevator rinse system as well as the rotary rinse system **122**. Although not illustrated, it is contemplated that suitable gauges for the wash solution temperature, the wash solution pressure and the rinse water temperature may be provided on the external surface of the housing, so that the operator may control these functions very closely.

When large bowls or other utensils are to be washed, rack **38** is replaced by rack **120** and the bowls are placed in an inverted position as shown in FIG. **13**. Valve **127** is opened so that the wash solution is directed to the rotary spray mechanism and, at the appropriate time, the rinse water is delivered to the rotary spray mechanism at the bottom as well as to the elevator spray mechanisms. Both the wash solution and the rinse water header of the rotary wash assembly, are secured to hollow hubs which are freely rotatable on the base member into which the wash and rinse are introduced. It will be noted that the wash solution header and the rinse water header are out of phase with each other when they are rotating.

For maximum cleaning efficiency, the nozzles for the wash solution and the rinse water in the elevator assembly are arranged to provide a spray that is 30° off horizontal. That is, each spray cone covers an arc of approximately 120° and an overlap of adjacent spray cones may be provided by properly spacing the jet nozzles.

The bearings secured to the vertically movable sleeve in the elevator assembly provides a measure of sealing in addition to their bearing function to thereby minimize leakage of the wash solution and to assure that a maximum quantity of the wash solution is delivered to the headers.

There has been disclosed heretofore the best embodiment of the invention presently contemplated. It is to be understood, however, that various changes and modifications may be made by those skilled in the art without departing from the spirit of the invention.

What we claim is:

1. An improved utensil-washing machine comprising:

a. a housing having means for inserting and removing the utensils to be washed;

b. utensil support means stationarily mounted within said housing having pairs of spaced upstanding support members and a plurality of spaces between pairs of said spaced upstanding support means;

c. a first spray means to direct a wash solution and a second spray means to direct rinse liquid against the utensils;

d. elevator means movably mounted in said housing and carrying said spray means;

e. drive means to move said elevator and said spray means along a linear path past the utensils;

f. means to deliver the wash solution and rinse liquid to said spray means; and

g. said first spray means being a pipe extending substantially horizontally and provided with a plurality of spaced jet nozzles so located that a predetermined number of said jets are aligned with each of said spaces between pairs of said upstanding support members and a predetermined number of other jets are aligned with the areas between adjacent pairs of upstanding support members, said second spray means for said rinse liquid being located adjacent to said first spray means and coupled thereto, said second spray means having a plurality of spaced nozzles directed downwardly for dispensing said rinse liquid therethrough towards said utensils to be washed.

2. The apparatus in accordance with claim **1** wherein said utensil support means includes means to drain the wash solution and rinse liquid therethrough and means to support the utensils on the edges thereof, said spray means during its linear movement passing between adjacent utensils.

3. The apparatus in accordance with claim **1** wherein said utensil support means includes means to drain the wash solution and rinse liquid therethrough there being further included rotary spray means positioned below said utensil support means to direct a wash solution and rinse liquid upwardly against the utensils.

4. The apparatus in accordance with claim **3** wherein said rotary spray means comprises:

a. a fixed hub member having separate wash solution and rinse liquid inlet means;

b. a fitting rotatably mounted in said hub member and in liquid communication with said wash solution inlet means;

c. a first pair of hollow arms each having a plurality of spaced liquid discharge means thereon, said arms being secured to said fitting and extending in opposite directions therefrom for rotation with said fitting, said first arms being in liquid communication with said wash solution inlet means; and

d. a second pair of hollow arms each having a plurality of spaced liquid discharge means thereon, said arms being mounted on said fitting for independent rotation with respect to said first arms, said second arms being in liquid communication with said rinse water inlet means.

5. The apparatus in accordance with claim **4** wherein said liquid discharge means on said first arms are jet nozzles, at least two of which are directed in the horizontal plane and face in opposite directions.

6. The apparatus in accordance with claim 4 wherein said liquid discharge means on said second arms are jet nozzles, at least two of which are directed in the horizontal plane and face in opposite directions.

7. The apparatus in accordance with claim 4 wherein said first and second pair of arms are angularly out of phase with each other.

8. The apparatus in accordance with claim 1 further including tank means in liquid communication with the interior of said housing to receive the wash solution and rinse liquid drained therefrom, said means to deliver the wash solution comprising a pump having an inlet and outlet, said inlet being in liquid communication with said tank and conduit means in liquid communication with said pump outlet and at least said first spray means.

9. An improved utensil-washing machine comprising a housing having means for inserting and removing the utensils to be washed, a utensil support mounted in a fixed position within said housing, spray means to direct a wash solution and rinse liquid against said utensils, elevator means in said housing movably mounted in said housing and carrying said spray means, drive means to move said elevator and said spray means in a linear path past said utensils, said elevator means including a hollow tube rigidly mounted in said housing and in liquid communication at one end thereof with said means to deliver the wash solution to said spray means, the other end of said tube being sealed, there being an aperture in the wall of said tube above said sealed end, a hollow sleeve coaxially mounted about said hollow tube to define an annular space therebetween, said sleeve having at least one aperture therein to receive said spray means, said elevator means being coupled to said drive means to reciprocate said sleeve in two opposite directions along a linear path, and means to deliver the wash solution and rinse liquid to said spray means.

10. The apparatus in accordance with claim 9 including bearing means disposed about said tube in the annular space.

11. The apparatus in accordance with claim 9 including first and second bearing means sealingly disposed about said tube in the annular space, said first bearing means being above the aperture in said tube, said second bearing means being below the aperture in said tube.

12. The apparatus in accordance with claim 7 wherein said first and second bearing means are formed of a low coefficient of friction material.

13. The apparatus in accordance with claim 9 wherein said spray means are comprised of a plurality of headers secured to said sleeve in liquid communication with the annular space and the interior of said pipe, said headers extending in a direction over said support means and having a plurality of means to discharge the wash solution, said discharge means being spaced along the length of said headers.

14. The apparatus in accordance with claim 13 wherein said discharge means are jet nozzles.

15. The apparatus in accordance with claim 13 wherein said discharge means are jet nozzles alternately facing in substantially opposite directions.

16. The apparatus in accordance with claim 13 wherein said plurality of headers is comprised of a first set of headers extending outwardly from said sleeve in a direction substantially parallel to one dimension of the apparatus and a second set of headers secured in liquid communication with said first set and extending in a direction substantially parallel to another dimension of the apparatus and at right angles to the first dimension.

17. The apparatus in accordance with claim 9 wherein said spray means includes a plurality of rinse headers coupled to said sleeve for movement therewith, said rinse headers extending in a direction substantially parallel to the depth of the apparatus and having a plurality of fluid discharge means spaced along the length of said headers, said rinse headers being in liquid communication with a source of rinse liquid.

18. The apparatus in accordance with claim 17 including flexible conduit means providing communication between said rinse headers and the source of rinse liquid.

19. The apparatus in accordance with claim 17 wherein said discharge means are jet nozzles.

20. The apparatus in accordance with claim 17 wherein said jet nozzles alternately face in substantially opposite directions.

21. The apparatus in accordance with claim 1 wherein said drive means comprises:

a. a motor;

b. a crank arm having first and second ends, said first end being operatively connected to the output of said motor for rotation thereby; and

c. means coupling said crank arm second end and said elevator.

22. The apparatus in accordance with claim 21 wherein said coupling means comprises a sprocket rotatably mounted on said crank arm second end and an elongated chain trained about said sprocket, one end of said chain being nonmovably anchored, the other end of said chain being secured to a movable portion of said elevator means.

23. The apparatus in accordance with claim 21 including counterweight means acting on said crank arm second end.

24. The apparatus in accordance with claim 1 further including additional, rotary spray means positioned below said support means, said means to deliver the wash solution and rinse liquid being common to both said spray means, there being included first valve means controlling the flow of rinse liquid to both said spray means and second valve means selectively directing the flow of the wash solution to either one of said spray means.

25. In a utensil washing machine having a housing, rack means to nonmovably support the utensils within the housing and means to deliver a wash solution and rinse liquid to the interior of the housing, improved means to dispense the wash solution and rinse liquid, said improvement comprising:

a. elevator means arranged for vertical movement in said housing;

b. spray means carried by said elevator means and in liquid communication with the wash solution and rinse liquid, said spray means having discharge means arranged to direct the wash solution and rinse liquid against the surface of the utensils to be washed; and

c. means to move said elevator means up and down along a substantially linear path whereby said spray means travels past the utensils on the support rack;

d. a hollow tube rigidly mounted in the housing and in communication at one end thereof with the means to deliver the wash solution, the other end of said tube being sealed, there being an aperture in the wall of said tube above said sealed end;

e. a hollow sleeve coaxially mounted about said tube to define an annular space therebetween, said sleeve having at least one aperture therein to receive said spray means; and

f. said elevator means being coupled to said drive means to reciprocate said sleeve in two opposite directions.

26. The apparatus in accordance with claim 25 wherein said elevator means includes low coefficient of friction first and second bearing means sealing disposed in the annular space, said first bearing means being above the aperture in said tube, said second bearing means being below the aperture in said tube.

27. The apparatus in accordance with claim 25 wherein said spray means are comprised of a plurality of headers secured to said sleeve in liquid communication with the annular space and the interior of said pipe, said headers extending in a direction over the rack means, said discharge means being spaced along the length of said headers.

28. The apparatus in accordance with claim 27 wherein said discharge means are jet nozzles alternately facing in substantially opposite directions.

29. The apparatus in accordance with claim 27 wherein said plurality of headers is comprised of a first set of headers extending outwardly from said sleeve in a direction substantially parallel to one dimension of the apparatus and a second set of headers secured in liquid communication to said first set and

extending in a direction substantially parallel to another dimension of the apparatus and at right angles to the first dimension.

30. The apparatus in accordance with claim **25** wherein said spray means includes a plurality of rinse headers coupled to said sleeve for movement therewith, said rinse headers extending in a direction over the rack means and having a plurality of liquid discharge means spaced along the length of said headers and alternately facing in opposite directions, said rinse headers being in liquid communication with a source of rinse liquid.

31. The apparatus in accordance with claim **30** wherein said discharge means are jet nozzles.