Sept. 25, 1956 R. K. NOLTE 2,764,171

CAN WASHER

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Fig. 1.

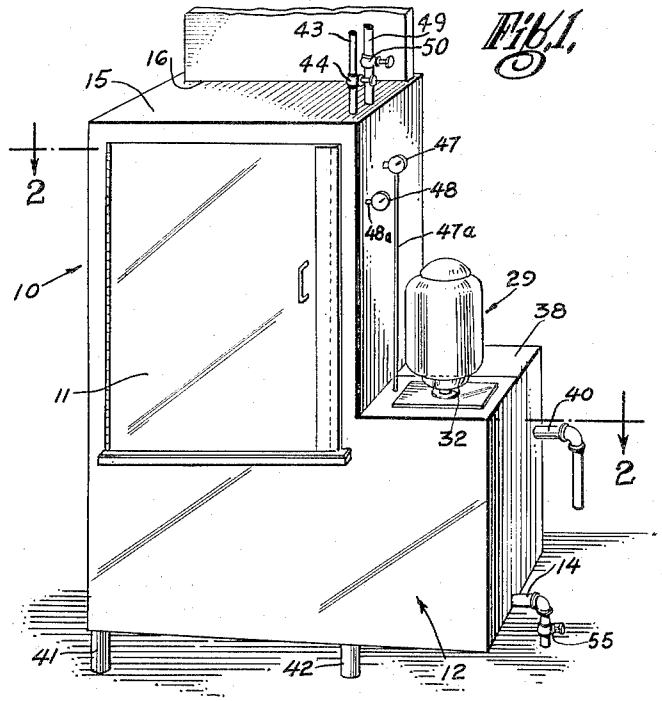
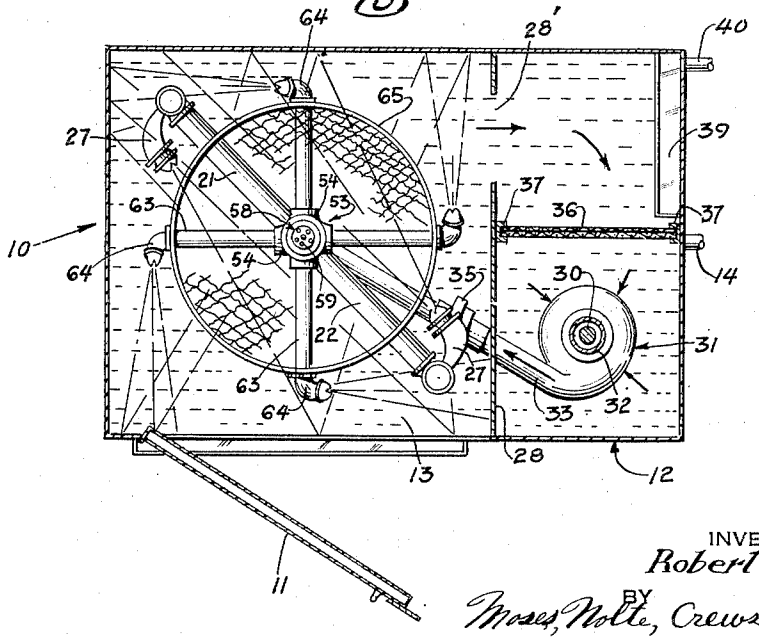


Fig. 2.



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Fig. 3.

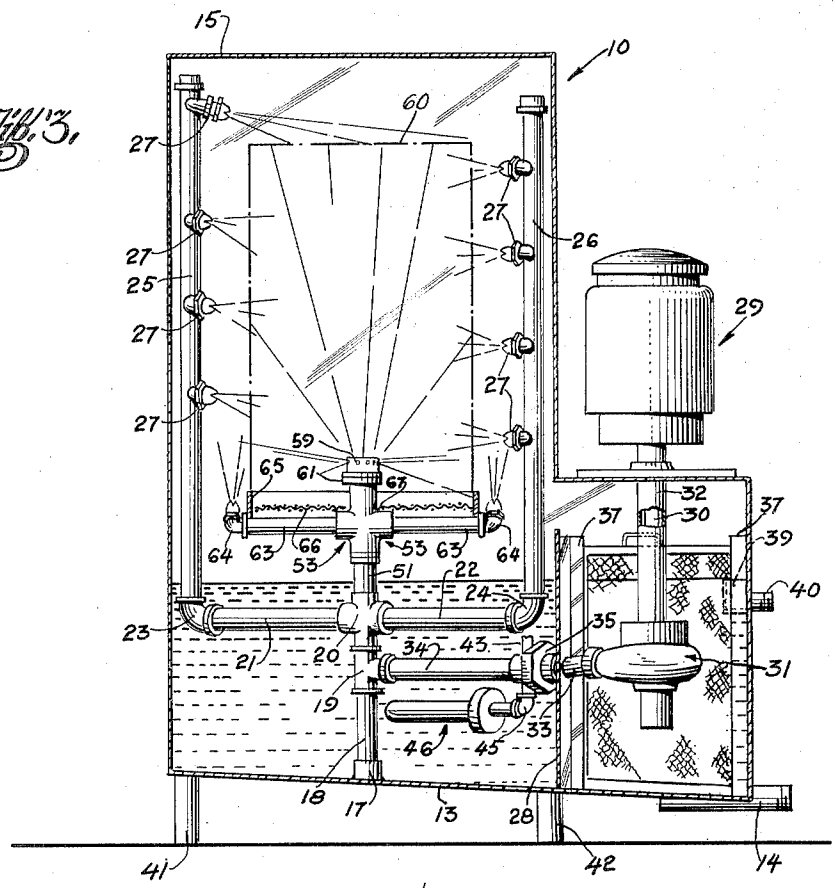
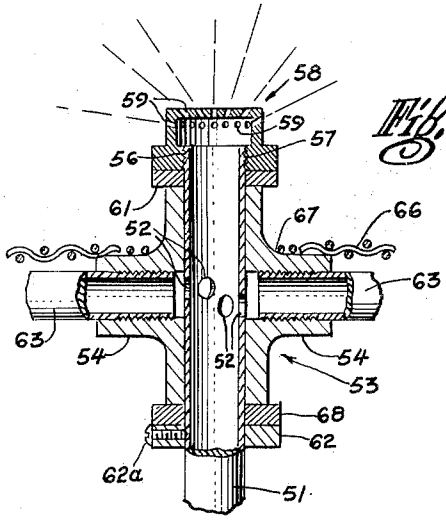


Fig. 4.



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CAN WASHER

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Application October 20, 1953, Serial No. 387,141

3 Claims. (Cl. 134—145)

This invention relates to apparatus for washing garbage cans, barrels and drums or the like.

It is an object of the present invention to provide an apparatus for washing garbage cans, barrels and drums or the like which will thoroughly cleanse all of the surfaces of the garbage can, barrel or drum, both inside and outside, with a sprayed solution, the time temperature, and composition of which may be accurately controlled.

It is another object of the present invention to provide an apparatus for washing garbage cans, barrels and drums or the like which permits substantially all of the sprayed solution to be recovered and used again, readily accessible means being provided for straining off the impurities of the solution during such recycling.

It is still another object of the present invention to provide an apparatus for washing garbage cans, barrels and drums or the like wherein the garbage can, barrel or drum is rotated within the apparatus by means of thrust nozzles which also serve to spray the cleansing liquid onto the garbage can, barrel or drum.

It is still another object of the present invention to provide an apparatus for washing garbage cans, barrels or drums employing spray nozzles extending the length of the garbage can, barrel or drum as well as an internal spray nozzle, additional washing being accomplished by the ricocheting action of thrust nozzles, which latter also serve to rotate the garbage can, barrel or drum.

It is still another object of the present invention to provide an apparatus for washing garbage cans, barrels or drums wherein a wire mesh tray supports the garbage can, barrel or drum thereon, this tray collecting waste material and being easily and readily removable.

Other objects of the present invention are to provide an apparatus for washing garbage cans, barrels and drums or the like bearing the above objects in mind which is of simple construction, inexpensive to manufacture, has a minimum number of parts, is easy and hazardless to use and is efficient in operation.

For other objects and a better understanding of the invention, reference may be had to the following detailed description taken in connection with the accompanying drawing in which:

Figure 1 is a perspective view of an apparatus for washing garbage cans, barrels and drums embodying the features of the present invention;

Fig. 2 is a transverse sectional view taken along the line 2—2 of Fig. 1;

Fig. 3 is a vertical sectional view of the apparatus and

Fig. 4 is an enlarged vertical sectional view of a portion of the apparatus.

Referring now more in detail to the drawing, wherein corresponding reference numerals identify corresponding parts throughout the several views, there is shown a closed rectangular closet or tank 10 having a hinged door 11 in its side, the closet or tank 10 being provided at one side with an extension 12, substantially as illustrated. The tank 10 is provided with a bottom wall 13 which drains toward the extension 12, where a drain pipe 14 may be utilized

to draw off fluid to a sewer or the like. The top wall 15 of tank 10 is also provided with a vent opening 16.

The door 11, it will be noted, is of sufficient size to permit the placing of a standard garbage can, barrel or drum within the closet 10, the garbage can, barrel or drum being introduced laterally and upside down.

A bearing plate 17 (Fig. 3) is welded or otherwise secured to the upper surface of inclined bottom wall 13 at the center of tank 10 and serves to fixedly mount a vertical pipe 18, the pipe 18 being externally threaded at both ends and being screw threaded into bearing 17. A pipe T 19 is screwed onto the top of pipe 18, a cross 20 being screwed into the top of T 19.

A pair of horizontal pipes 21 and 22 are screwed into the cross 20, elbows 23 and 24 being screwed onto the ends of pipes 21 and 22, respectively. A pair of vertical pipes 25 and 26 are screwed into elbows 23 and 24 and extend upwardly within closet or tank 10 adjacent the inner walls thereof (Fig. 3). The vertical pipes 25 and 26 are closed at their upper ends and are provided along substantially their entire length with a plurality of spray nozzles 27.

A partition 28 is provided intermediate the extension 12 and the tank 10 (Fig. 2), the partition 28 terminating short of the top wall of extension 12 and being provided with an opening 28′ at one side of the extension 12. Thus, water accumulating within the bottom of tank 10 will pass into the extension 12 through the opening 28′.

A pump motor 29 is suitably mounted on the top wall of extension 12 at the side thereof remote from the opening 28′. The motor 29 includes a drive shaft 30 which extends downwardly into the interior of extension 12 where it drives a suction pump 31. A sleeve 32 extends through the top wall of extension 12, connecting the motor 29 with the pump 31 and supporting the latter. The partition 28 is provided with a suitable opening through which extends the pump outlet 33. The pump outlet 33 is connected to T 19 by means of a pump discharge pipe 34 and a pipe union 35. Thus, water will be drawn from tank 10 through the opening 28′ into pump 31, and then pumped into the cross 20 and upwardly into the vertical pipes 25 and 26 to be sprayed from the nozzles 27 therealong.

As a means of purifying this recycled solution, a vertical pump section strainer screen 36 is removably mounted in end brackets 37 (Fig. 2) of substantially U-shaped cross section and which slidably receive the vertical edges of the strainer screen 36. A removable cover 38 is provided in the top of extension 12 above the screen 36, providing access to the tank extension 12 for removal of the strainer screen 36, to permit tank cleaning and the addition of detergent cleaner compound. The screen 36, it will be noted, prevents the nozzles 27 from clogging during recycling of the cleaning solution.

As shown in Fig. 3, the liquid level will normally be slightly above the cross 20, an overflow trough 39 being provided above drain pipe 14 and having an overflow outlet pipe 40. It will be noted that the end of trough 39 terminates just short of screen 36, effecting a skimming off action prior to straining.

The drain pipe 14 will, of course, be provided with a suitable valve 55 to control the drainage.

Suitable pairs of supporting legs 41 and 42 are provided on the undersurface of bottom wall 13.

A steam supply pipe 43 extends downwardly through the top wall 15 of closet 10 (Fig. 1) and terminates slightly above the tank bottom 13, a valve 44 being provided in the steam supply pipe 43 above top wall 15 of closet 10. An elbow 45 is screwed onto the bottom of pipe 43, a steam injector heater 46 of conventional design being connected to elbow 45 (Fig. 3).

A temperature gauge 47 is mounted at one side of tank 10 and includes a line 47*a* connecting with an extension bulb, not shown, immersed in the tank liquid

whereby to indicate to the operator the temperature of the tank liquid. A pressure gauge 48 is mounted alongside gauge 47 and is connected by pipe 48*a* (Fig. 1) to one of the vertical pipes 26 whereby to indicate pressure within the latter.

A water fill pipe 49 extends downwardly through top wall 15 of closet 10 adjacent the steam supply pipe 43, terminating just above the top of partition 28 in a laterally extending portion, not shown, which extends over the pump 31. A valve 50 is provided in water fill pipe 49 above top wall 15.

A vertical pipe 51 is screwed into the top of cross 20 (Fig. 4) the top end of pipe 51 having a plurality of radially spaced feeder openings 52. A distributor head 53 is rotatably mounted on pipe 51, the distributor head 53 having four outlets 54 adapted to be aligned with the openings 52. The top of pipe 51, it will be noted, extends above the top of distributor head 53 and is externally threaded, as at 56, whereby to receive thereon the internally threaded portion 57 of a spray head 58, the spray head 58 being provided with a plurality of peripheral openings 59 adapted to spray liquid around the interior of the drum, garbage can or barrel 60. A washer 61 is provided on pipe 51 intermediate the bottom of spray head 58 and the top of distributor head 53, to facilitate the rotation of distributor head 53 on pipe 51. A collar 62 is fixed to pipe 51 by screw 62*a* and serves to rotatably support distributor head 53, a washer 68 being provided on pipe 51 intermediate collar 62 and the bottom of distributor head 53.

A horizontal pipe 63 is screwed into each of the outlets 54 of distributor 53, providing four such pipes disposed at right angles to each other. Thrust nozzles 64, directed upwardly at an inclined angle, are provided at the end of each horizonal pipe 63. It will be noted that the nozzles 64 are directed in such a manner as to impart a circular motion to the pipes 63 due to the jet action of the liquid being sprayed outwardly from the thrust nozzles 64. Thus, as liquid is pumped upwardly through cross 20, it will pass upwardly into the distributor 53 through the openings 52 in pipe 51 and be forced outwardly through the spray 58 and the thrust nozzles 64. Additional washing of the exterior of garbage can 60 will be accomplished by the ricocheting of the spray from the thrust nozzles 64 against the inner walls of the tank 10 and onto the exterior of the can.

A removable tray consisting of a ring 65 and a wire mesh portion 66 is supported on the pipes 63 within the nozzles 64, the center of the wire mesh portion 66 having an opening 67 receiving the spray head 58 and the top of distributor 53. The inverted garbage can, barrel or drum 60 will rest upon the wire mesh portion 66 within the ring 65. As waste material is collected on the wire mesh portion 66 of the tray, it may, from time to time be removed and cleaned with a minimum of effort, as will be obvious.

In operation, the tray 65, 66 is placed upon the pipes 63 and the liquid level attained by regulation of valve 50 of the water fill pipe 49. The valve 44 is then opened to provide steam at a temperature and pressure indicated by gauges 47 and 48, respectively, to heater 46, thereby heating the water within the tank to the desired temperature. The valve 55 of drain pipe 14 will, of course, be closed. The overflow pipe 40 will prevent the liquid from rising above the desired level. The strainer screen 36 will be in position within the channel members 37 and detergent cleaner compound may be added through the removable top 38. The motor 29 is then started after the inverted drum or garbage can 60 has been placed on the wire mesh portion 66 of the removable tray through the door 11, which is then closed. The action of motor 29 will cause the pump 31 to circulate liquid in the direction of the arrows of Fig. 2, this liquid being discharged from the pump to pass upwardly through the cross 20 where it enters the horizontal pipes 21 and 22 to be discharged through the vertical nozzles 27 and onto the exterior of the rotating garbage can 60. The cleaning solution will also be forced upwardly through pipe 51 into the distributor 53 where it will be ejected through the thrust nozzles 64 and the internal spray 58, the latter assuring a thorough cleansing of the interior of the can. The liquid discharge from the thrust nozzles 64 will cause the pipes 63 to rotate and, with them, the can and tray, this liquid from thrust nozzles 64 ricocheting off the inside of tank 10 and back on to the exterior of the can. The strainer screen 36 will prevent the nozzles from clogging. After thoroughly cleansing the can 60, the operations are reversed to permit the removal of a clean, sterilized can.

While in the drawing the heating has been shown as supplied by the steam supply pipe 43 and the heater 46, it will be apparent to those skilled in the art that available gas or electrical power may also be utilized to supply heat to the wash solution without departing from the spirit and scope of the present invention.

It will also be noted that the liquid ejected by the nozzles 27, 64 and spray 58 will drain downwardly through wire mesh portion 66 and onto the sloping floor 13 where it will pass through the opening 28' and be drawn through the strainer screen 36 where it will again be pumped through the system by means of the suction pump 31.

While various changes may be made in the detail construction, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claims.

What is claimed as new is:

1. A washing apparatus comprising in combination a closed chamber having a door, a central conduit extending upwardly within said chamber, means for supplying cleansing fluid under pressure to said conduit, stationary spray means connected to said conduit and extending upwardly within said chamber, rotating distributor means on said conduit, top spray means above the upper end of said distributor means, rotating spray means connected to said distributor means, said rotating spray means being adapted to support thereon a receptacle to be washed, said rotating distributor means comprising said conduit having a plurality of radially spaced openings near the top thereof, and a distributor member rotatably mounted on said conduit surrounding said openings therein, said distributor member having a plurality of radially spaced outlets adapted to communicate with said conduit openings, horizontal pipes extending from each of said distributor member outlets and terminating near the walls of said chamber, a thrust nozzle on the end of each of said horizontal pipes, said thrust nozzles being adapted to rotate said distributor member and horizontal pipes during ejection therefrom of wash solution, the upper end of said conduit extending above the upper end of said distributor member and being externally threaded, said top spray means having an internally threaded lower portion, the lower end of said top spray means being screwed onto the upper end of said conduit, and said upper end being provided with a plurality of radially spaced openings, a washer on the upper end of said conduit intermediate said top spray means and distributor member, a shoulder provided on said conduit and rotatably supporting said distributor and a washer intermediate said shoulder and said distributor member.

2. A washing apparatus comprising, in combination, a closed chamber having a door, a central conduit extending upward within said chamber, means for supplying cleansing fluid under pressure to said conduit, stationary spray means connected to said conduit and extending upwardly within said chamber, rotating distributor means on said conduit, top spray means above the upper end of said distributor means, rotating spray means connected to said distributor means, said rotating spray

means being adapted to support thereon a receptacle to be washed, said rotary distributor means comprising said conduit having a plurality of radially spaced openings near the top thereof, and a distributor member rotatably mounted on said conduit surrounding said openings therein, said distributor member having a plurality of radially spaced outlets adapted to communicate with said conduit openings, horizontal pipes extending from each of said distributor member outlets and terminating near the walls of said chamber, a thrust nozzle on the end of each of said horizontal pipes, said thrust nozzles being adapted to rotate said distributor member and horizontal pipes during ejection therefrom of wash solution, a removable tray comprising a ring portion and a flat wire mesh portion, said wire mesh portion having a central opening receiving therethrough said top spray means, said ring lying within said thrust nozzles and being supported on said rotating spray means.

3. A washing apparatus comprising, in combination, a closed chamber having a door, a conduit extending upwardly within said chamber near the bottom thereof,

means for supplying cleansing fluid under pressure to said conduit, stationary spray means connected to said conduit and extending upwardly within said chamber, said conduit being perforated near its upper end and terminating in a spray head, a distributor member rotatably supported on said conduit and having a plurality of radially spaced openings, horizontal pipes terminating in thrust nozzles extending from each opening and a removable mesh tray having a central opening receiving therethrough said spray head and being supported by said horizontal pipes.

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