April 15, 1941. N. KASTBERG 2,238,849

WASHING APPARATUS FOR DISHES, SILVERWARE, AND THE LIKE

Filed June 20, 1940 2 Sheets-Sheet 1

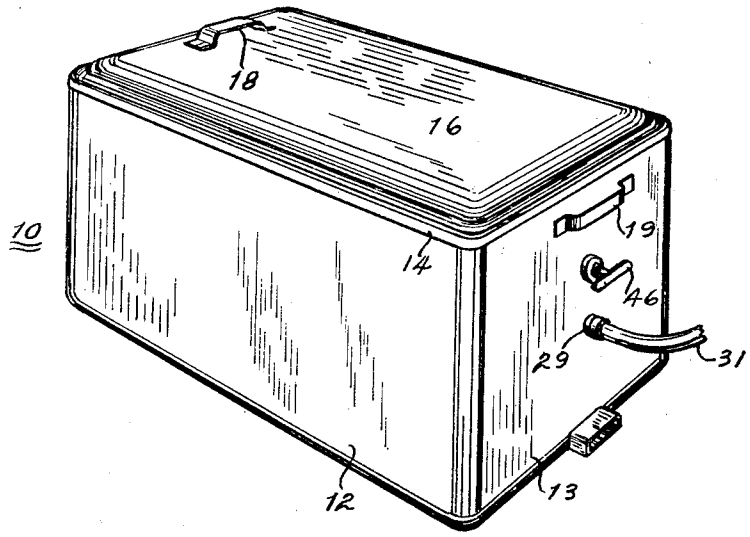


FIG-I

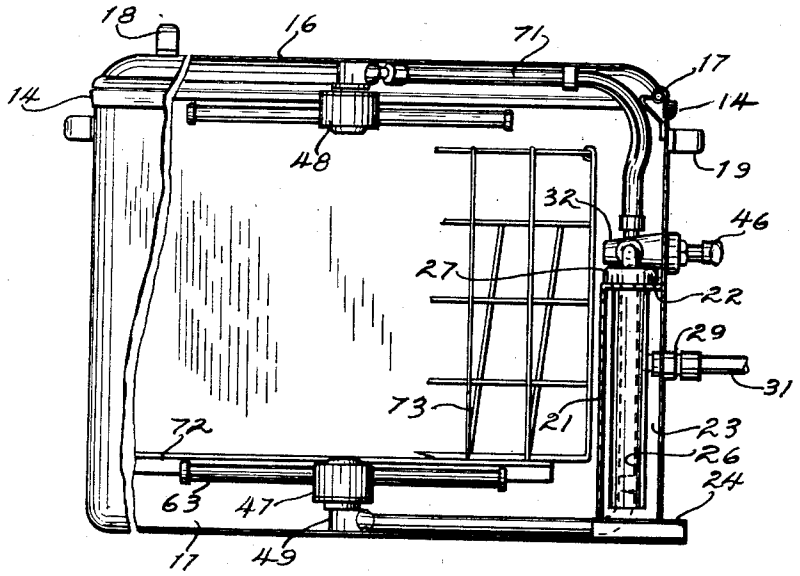


FIG-2

Inventor

Nils Kastberg

By Richmond S. Hayes

Attorney

April 15, 1941. N. KASTBERG 2,238,849

WASHING APPARATUS FOR DISHES, SILVERWARE, AND THE LIKE

Filed June 20, 1940 2 Sheets-Sheet 2

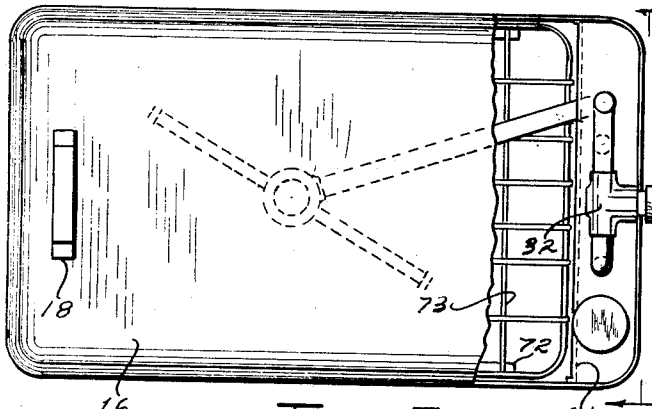


FIG-3

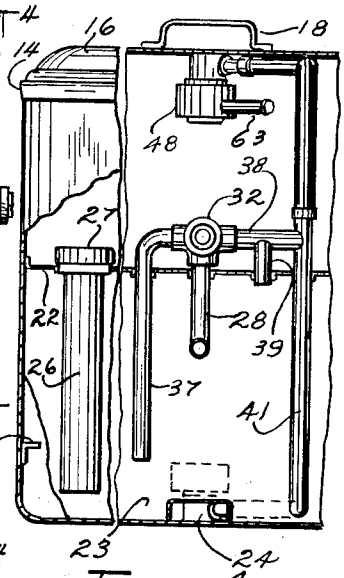


FIG-4

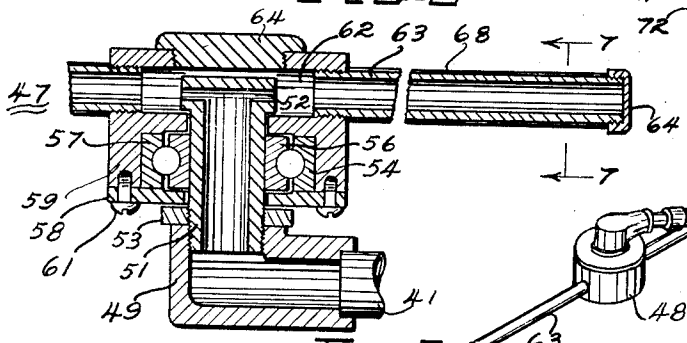
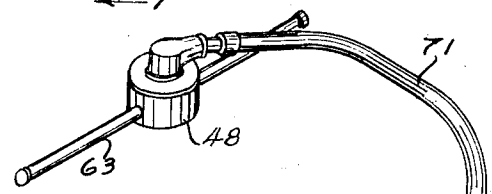


FIG-6



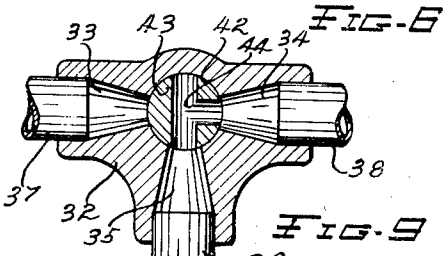


FIG-9

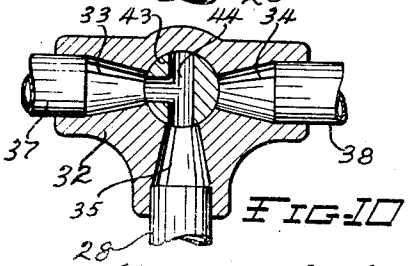


FIG-10

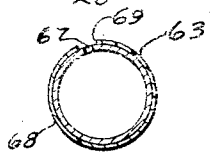


FIG-7

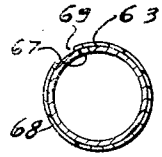


FIG-8

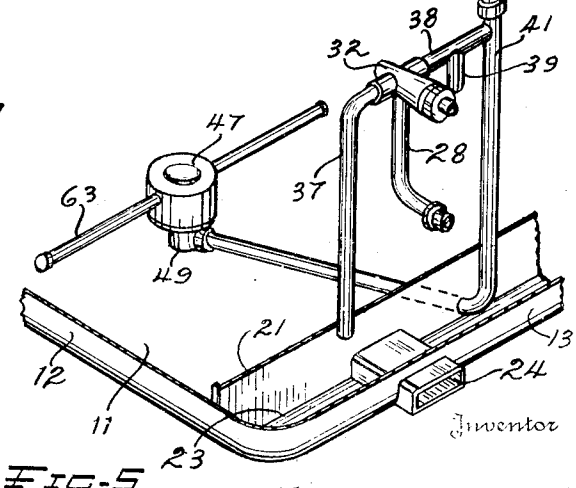


FIG-5

Inventor

Nils Kastberg

By Richmond A. Hayes

Attorney

Patented Apr. 15, 1941

2,238,849

UNITED STATES PATENT OFFICE

2,238,849

WASHING APPARATUS FOR DISHES, SILVERWARE, AND THE LIKE

Nils Kastberg, Ramlosa, Sweden, assignor to Jamestown Metal Equipment Company, Inc., Jamestown, N. Y., a corporation of New York

Application June 20, 1940, Serial No. 341,570
In Sweden February 21, 1939

6 Claims. (Cl. 299—69)

This invention relates to an improvement in washing or cleansing apparatus for dishes, tableware, and the like.

Broadly, the invention is directed to the provision of a closed receptacle in which is contained opposed spray units. These units are connected, through a valve device, with a suitable water pressure system, the jets of each unit being caused to rotate during discharge of spray, the intensity of which may be varied. The valve device is operable to by-pass water from the system through a container having a soluble cleansing agent before passing it through the spray units. A suitable rack or basket containing articles to be cleansed may be positioned in the receptacle between the spray units. The apparatus, in use, subjects articles to opposed rotating sheets of water optionally with or without the cleansing agent.

One of the objects of the invention is to provide an apparatus for cleansing articles such as dishes, tableware and the like.

Another object of the invention is to provide an apparatus of the class described that requires no motive means for its operation other than the pressure of the cleansing liquid as it may be obtained from customary systems.

Another object of the invention is to provide an apparatus of the class described in which the cleansing liquid as it is delivered thereto serves to constantly alter the positions of the spray units with respect to the articles being cleansed.

Another object of the invention is to provide an apparatus of the class described in which the cleansing liquid is projected from at least two opposite directions on to the articles to be cleansed.

Another object of the invention is to provide an apparatus of the class described in which the cleansing liquid may be projected on to the articles to be cleansed in the form of a sheet of spray.

Another object of the invention is to provide in an apparatus of the class described, sheet spray jets that are adjustable to alter the intensity of the spray emanating therefrom.

Other objects and advantages of the invention, beyond those already set forth, will be more fully understood and appreciated from a consideration of the following specification, taken in conjunction with the accompanying drawings; and in which

Figure 1 is a perspective view of a closed receptacle embodying one form of the invention;

Figure 2 is a side elevational view of the structure of Figure 1, the near wall being broken away to disclose the interior structure;

Figure 3 is a top plan view of the receptacle, a part of the cover being broken away to disclose the location of a container for a cleansing agent;

Figure 4 is a fragmentary vertical end view, taken substantially as indicated at 4—4 of Figure 3, parts being broken away to disclose certain structural details;

Figure 5 is a perspective view of the interior parts of the receptacle showing the water connections with upper and lower spray units and a part of the container for a cleansing agent;

Figure 6 is an enlarged vertical sectional view through one of the spray units;

Figures 7 and 8 are enlarged vertical sectional veiws, taken substantially as indicated at 7—7 of Figure 6, illustrating two positions of adjustment of the jets by which the spray intensity may be altered;

Figure 9 is an enlarged vertical sectional view through a valve mechanism, positioned to pass the incoming liquid directly from the receptacle inlet to the spray units; and

Figure 10 is another vertical sectional view of the valve rotated to by-pass the incoming liquid through the cleansing agent container prior to its reaching the spray units.

Reference is now had to the drawings wherein the numeral 10 is employed to generally designate a receptacle suitable for embodiment of one form of the invention. The receptacle may be of any desired size and form and includes a base 11 and side and end panels 12 and 13, respectively. The panels 12 and 13 may be integrally joined in rounded corners as disclosed, or in any other conventional manner. A suitable rim 14 may be applied to the common upper edge of the panels and may be somewhat resilient to properly seat a cover 16. The cover is pivotally joined to one of the panels, such, for example, as end panel 13, through the use of hinge members 17. A handle 18 is conveniently located adjacent the free end of the cover for the purpose of swinging said cover about the hinges 17 from one position to another. The present modification of the invention is intended to be of such proportions as to be readily portable and, therefore, suitable handles 19 are shown applied to the end panels 13.

The body of the receptacle at one end may be fitted with a panel 21 that terminates in a horizontal plate 22. This panel, when in place, cooperates with a portion of the walls of the receptacle to form a container 23 in which it is con-

templated to place a cleansing agent. It is of course apparent that a separate container for this purpose may be mounted in the receptacle and be of proportions and location other than disclosed. The panel 21 and adjacent end panel 13 are correspondingly recessed to accommodate a tube 24 that connects the interior with the exterior of the receptacle and serves as a drain for the liquid contents. The plate or top 22 of the container 23 is apertured to receive a member 26. This member may be of any desired proportions and is adapted to contain a cleansing agent, being suitably perforated or otherwise provided with openings for permitting the agents going into solution with liquid passing through the container. For convenience, the member 26 may be readily removed from the container 23 by unscrewing a cap 27. It will be understood that the cap 27, when in place, has a fluid tight connection with the top 22 of the container.

A pipe 28, in the present disclosure, projects downwardly into the container 23 and thence outwardly through the end panel 13, terminating in a coupling 29. One end of a hose 31 is joined to the coupling 29 and the other end with the hot water faucet of a conventional water system. A three-way valve 32 is provided with orifices 33, 34 and 35. The other end of pipe 28 connects with orifice 35 of this valve. Another pipe 37, connected with orifice 33, projects into and terminates in an open end in the container 23. A further pipe 38 projects into the orifice 34 of the valve. Adjacent the valve the pipe 38 is fitted with a short pipe 39 that projects into the container 23. Beyond the connection of pipe 39, pipe 38 opens into pipe 41. The valve 32 may be of conventional design and includes a cylindrical chamber 42 with which orifices 33, 34 and 35 connect. A shaft 43 fits the chamber 42 and is formed with a T-shaped passageway 44. It is to be noted that the valve 32 is attached in any conventional manner to the end panel 13 and the shaft 43 thereof projects exteriorly of the receptacle, being fitted with a suitable handle 46.

As shown in Figures 2, 4 and 5, the invention includes two spray units 47 and 48. With the exception of the fact that unit 48 is carried by the cover 16 and unit 47 mounted on the base 11, they are identical and only one will be described in detail. Pipe 41, as shown in Figure 5, extends to the bottom wall 11 and thence along said wall to a central position in the receptacle, terminating in a support 49. The upper end of the support is open and internally threaded to receive the lower end of a tubular member 51. This member is closed at its upper end and provided with lateral passageways 52. A lock nut 53, or corresponding structure, prevents disengagement of the tube from the support. Encircling the central portion of the tube is a bearing 54, the inner race 56 of which is fixed thereto in any suitable manner. The outer race 57 of the bearing rests upon a bottom plate 58. This plate cooperates with a cup-shaped member 59 to enclose the bearing, being secured to said member in any suitable manner, as by screws 61. The upper end of the member 59 is formed with a cylindrical, horizontally disposed chamber 62, with the open ends of which tubular spray jets 63 are engaged. A cap screw 64 closes an opening in the top of the chamber 62. It is to be noted that the upper end of the tubular member 51 is within the chamber 62 and that the member 59, plate 58, and jets 63 are free to rotate on the bearing 54 about said tubular member.

The jets 63, in the present disclosure, are opened tubes. One end of each tube is engaged with the member 59, whereas the other end is closed by a cap screw 66. Intermediate its ends each jet is formed with an upwardly opening slot 67. Encircling the jet is a sleeve 68 that is preferably formed with a full length slot 69, the width of which may be the same or greater than the width of slot 67. The sleeve 68 is adapted to engage the jet closely enough to prevent inadvertent relative adjustment of slots 67 and 69 and at the same time permit manual adjustment for the purpose of varying the width of the slit caused by a coincidence of the slots 67 and 69. The spray unit 48 is attached by means of the supporting member 49 to the inside of the cover 16. One end of a flexible tube 71 connects this support with the pipe 41.

Angle plates 72 or other suitable supports may be secured to the interior side walls 12 of the receptacle. These plates serve to mount a rack or basket 73. It will be noted that the basket is of such height as will fit within the space between the bottom and top spray units 47 and 48. The basket is formed from any suitable stainless material and is of sufficiently open design as to permit liquid from the spray units to readily penetrate and contact articles contained therein. No specific disclosure is made of an arrangement in the basket for dishes, tableware, etc., since this may be varied as the particular needs of the invention may require.

Having set forth the structural features of one modification of the invention, operation thereof is as follows: A suitable cleansing agent, such as flake or stick soap, is placed in the member 26, the cap 27 then being secured in place. The rack 73 is filled with articles it is desired to cleanse and placed within the receptacle on the supporting plates 72. The cover 16 is then closed and may be secured in closed position, if found necessary, although it is contemplated that the weight of the upper spray unit, combined with the cover, will be sufficient to hold it in place. The handle 46 of the valve 42 is rotated to connect orifices 33 and 35 through passageway 44. Thus hot water flowing through pipe 28 will pass out of the valve 32, through pipe 37 into the container 23. When the container has filled, water passes therefrom through the short pipe 39, into pipe 38, and thence into pipe 41, which is directly connected with the spray units 47 and 48. It is contemplated that the pressure of a conventional water system produces sufficient agitation in the compartment 23 to continuously take up into solution the cleansing agent in the member 26. It will be understood, however, that the relative arrangement of pipe 37 and member 26 may be altered to increase or decrease the rapidity and extent to which the water takes up the cleansing agent. The water passes through the tubular member 51, passageways 52, chamber 62 and thence into jets 63. The pressure of the water is sufficient to cause escapement through slots 67 and 69, and such escapement produces a sheet of spray the length of each jet. It is to be noted that slots 67 and 69 of one jet are inclined somewhat from the vertical and in an opposite direction to those of the other jet, and thus the force of the water causes the jets to revolve about their bearings at a sufficient rate of speed to throw water with considerable force on to the upper and under surfaces of all of the articles contained in the basket 73.

The articles in the basket having been subjected to hot cleansing water for a sufficient pe-

riod, the handle **46** is rotated to change the valve to the position shown in Figure 9. In this instance, the passageway **44** of the valve connects orifices **35** and **34**. Thus the water supplied through pipe **28** passes directly from the valve, through pipe **38** and pipe **41**, and thence to the spray units. Although pipe **39** is open, it will be understood that the container **23** is filled with liquid and, there being no other outlet from the container, none of the clear water enters said container but rather passes directly to the spray units. When the rinsing operation has been completed, the water is turned off at its source, or the valve may be rotated to a position midway between the position shown in Figures 9 and 10. The cover **16** is then raised and the basket of cleansed articles removed.

It is to be particularly noted that the jets **63** are susceptible to adjustment to vary the intensity of the sheet of spray issuing therefrom. If it is desired to produce a finer sheet of spray, the sleeve **68** is rotated to substantially the position indicated in Figure 8 of the drawings wherein the slots do not quite coincide and slot **67** is closed by the sleeve. With the jet so adjusted, pressure of the water forces a portion of the sleeve slightly away from the slot **67**, allowing a fine sheet of water to pass from the jet. If a greater sheet of water is desired, the sleeve may be rotated to bring the slots **67** and **69** into alignment.

Although applicant has shown and described only one modification of an apparatus for cleansing dishes, tableware and the like, it will be apparent to those skilled in the art that the structure thereof may be modified without departing from the spirit and scope of the invention as set forth in the hereunto annexed claims.

Having thus set forth my invention what I claim as new and for which I desire protection by Letters Patent is:

1. In an apparatus for cleansing dishes and the like, a stationary spray unit, a rotatable member on said unit, a tubular jet on said member, said jet having a slot extending longitudinally of and substantially the full length of said jet, and tubular means on said jet for varying the width of said slot whereby to control the force and volume of water expelled therefrom when said unit is connected with a water pressure system.

2. In an apparatus for cleansing dishes and the like having a pair of spaced apart opposed stationary spray units and means connecting said units with a water pressure system; with a rotatable spray jet for each of said units, said jet having a substantially full length longitudinally extending slot, and means extending the full length of said slot, said means being adjustable transversely of said jet to partially or fully close said slot whereby to vary the force and volume of water to be expelled from said jet.

3. In an apparatus for cleansing dishes and the like, a stationary spray unit, a rotatable member on said unit, a tubular jet on said member, said jet having a slot extending longitudinally of and substantially the full length of said jet, and means extending the full length of said slot, said means being adjustable transversely of said jet to vary the width of said slot whereby to control the force and volume of water expelled therefrom when said unit is connected with a water pressure system.

4. In an apparatus for cleansing dishes and the like, a stationary spray unit, a rotatable member on said unit, a tube engaged at one end with said member, a cap closing the other end of said tube, said tube having a slot extending substantially from said member to said cap, and a split sleeve on said tube intermediate said member and said cap, said sleeve being rotatable to vary the width of said slot whereby to control the force and volume of water expelled therefrom when said unit is connected with a water pressure system.

5. In an apparatus for cleansing dishes and the like, a stationary spray unit, a rotatable member on said unit, opposed revolvable spray jets on said unit, each of said jets having a substantially full length longitudinally extending slot, the slot of one of said jets being directed at an angle to that of the other of said jets, and means extending the full length of each of said slots, said means being adjustable transversely of said jets to alter the effective angular direction of said slots and vary the force and volume of water expelled therefrom when said unit is connected with a water pressure system.

6. In an apparatus for cleansing dishes and the like, having a pair of spaced apart opposed stationary spray units, a rotatable member on each of said units, and means connecting said units with a water pressure system; a spray jet for each member, said jet having a substantially full length longitudinally extending slot, a split sleeve on said jet, said sleeve being rotatable to partially or fully close said slot whereby to vary the force and volume of water to be expelled from said jet.

NILS KASTBERG.