Sept. 17, 1940. J. MALPASS 2,215,409

CLEANER FOR EATING AND DRINKING UTENSILS

Filed Dec. 9, 1937 4 Sheets-Sheet 1

Fig. 1

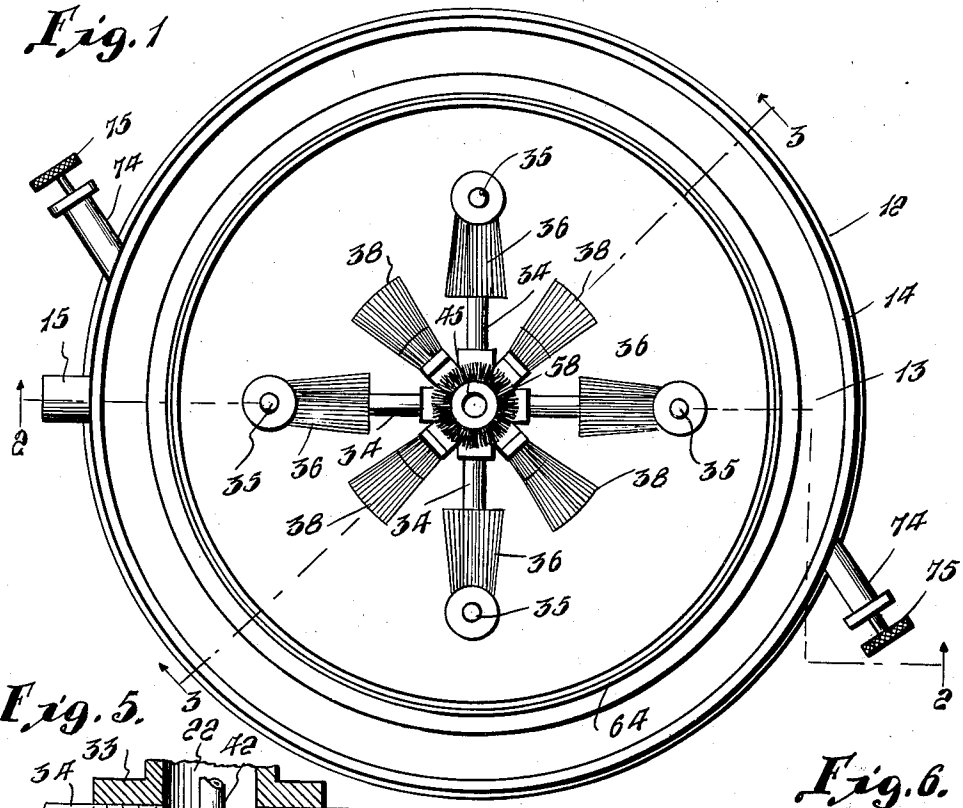


Fig. 5.

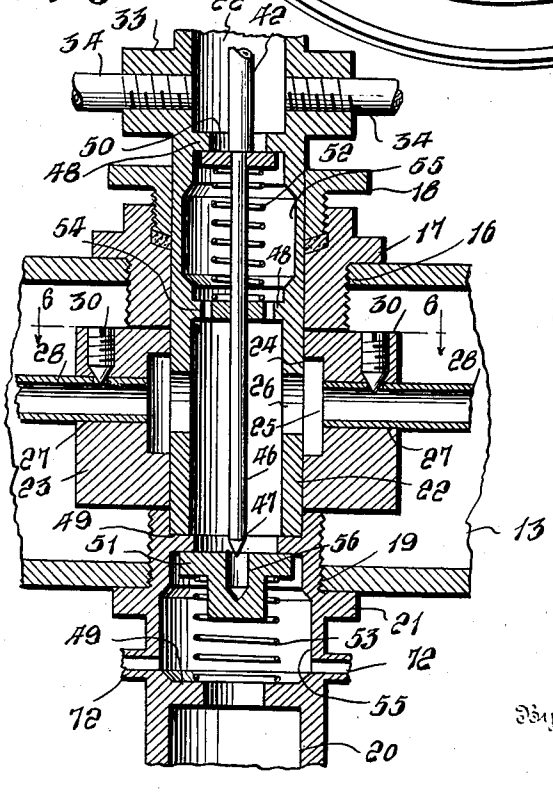
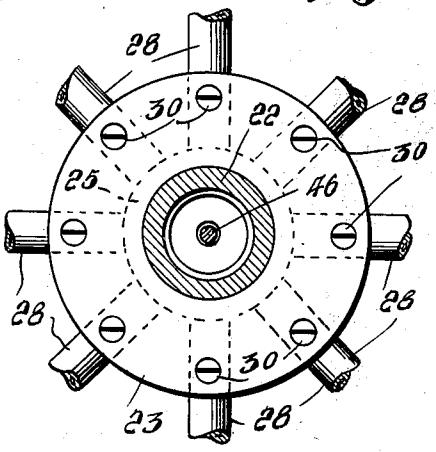


Fig. 6.



Inventor

J. Malpass

By L. F. Randolph

Attorney

Sept. 17, 1940. J. MALPASS 2,215,400

CLEANER FOR EATING AND DRINKING UTENSILS

Filed Dec. 9, 1937 4 Sheets-Sheet 2

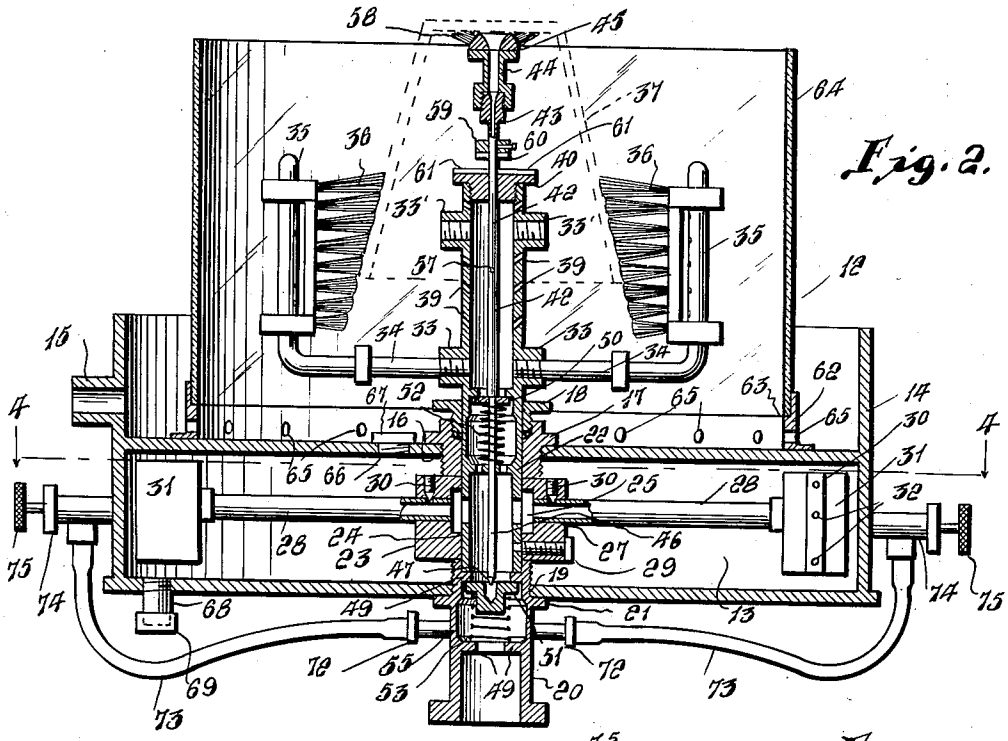


Fig. 2.

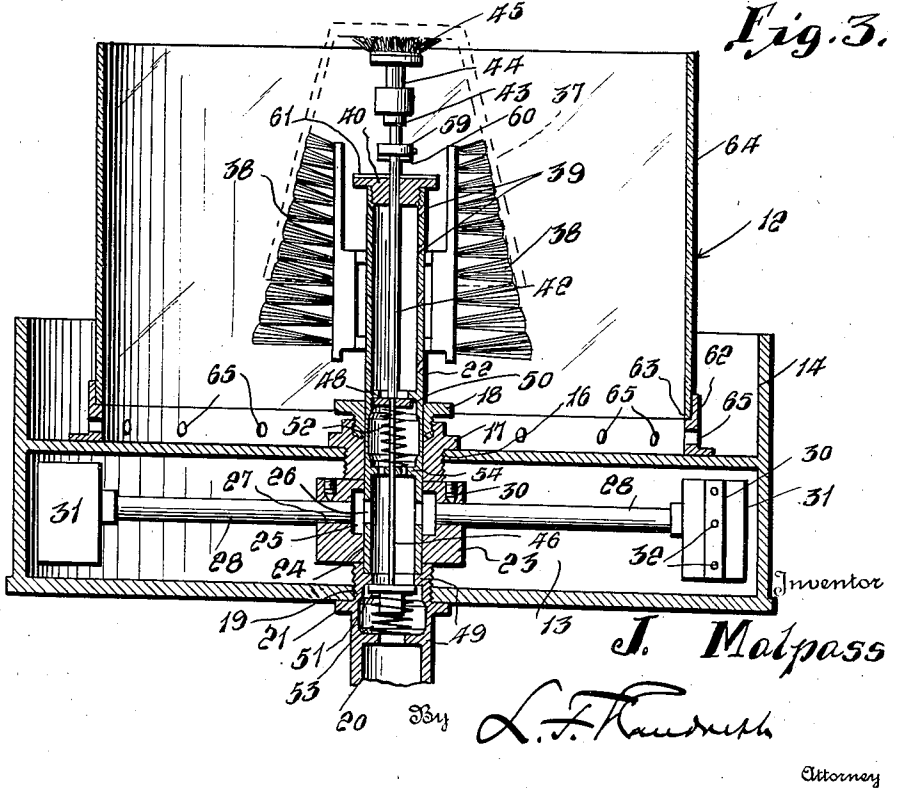


Fig. 3.

Inventor
J. Malpass
By L. F. Randolph
Attorney

Sept. 17, 1940. J. MALPASS 2,215,400

CLEANER FOR EATING AND DRINKING UTENSILS

Filed Dec. 9, 1937 4 Sheets-Sheet 3

Fig. 4.

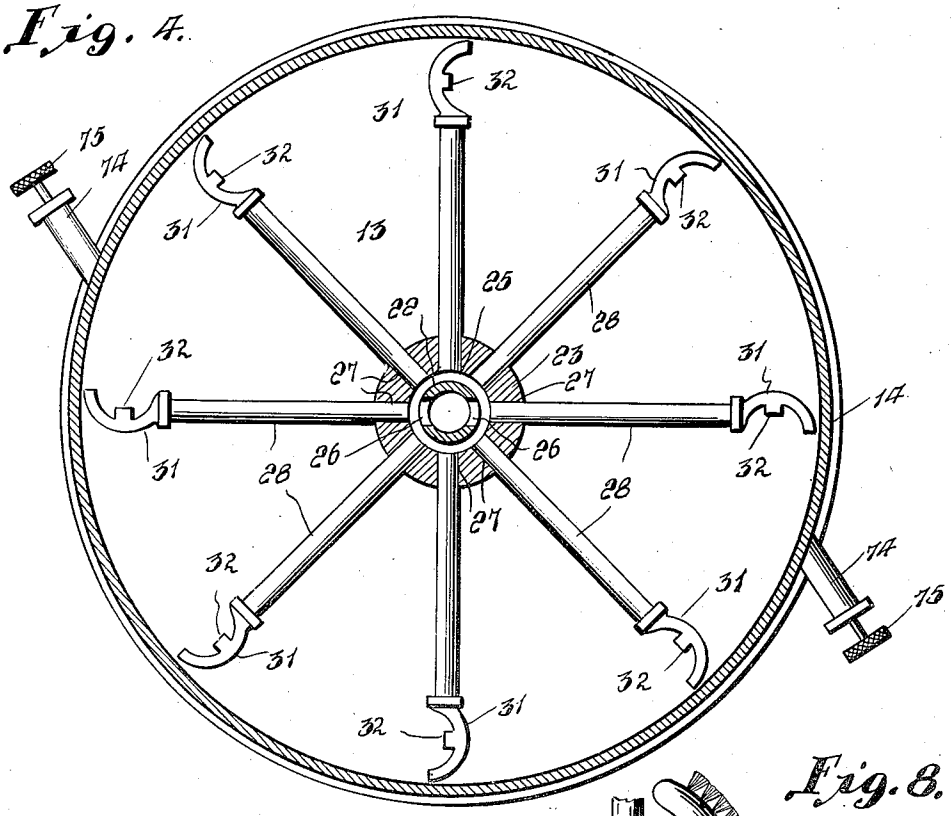


Fig. 7.

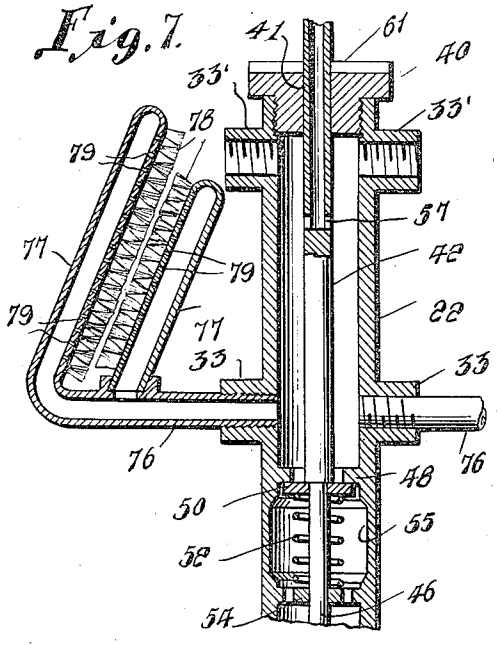
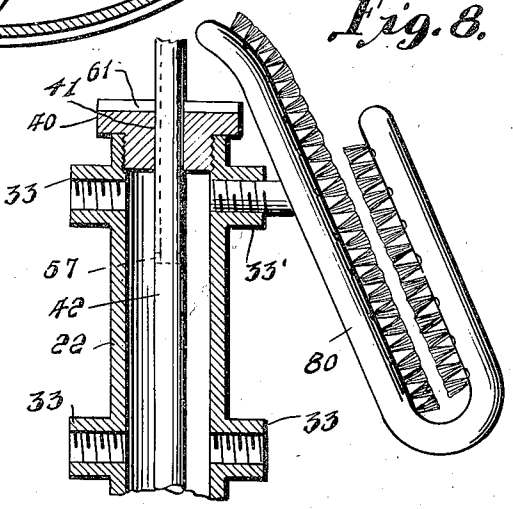


Fig. 8.



Inventor

J. Malpass

By A. F. Randolph

Attorney

Sept. 17, 1940. J. MALPASS 2,215,400

CLEANER FOR EATING AND DRINKING UTENSILS

Filed Dec. 9, 1937 4 Sheets-Sheet 4

Fig. 9.

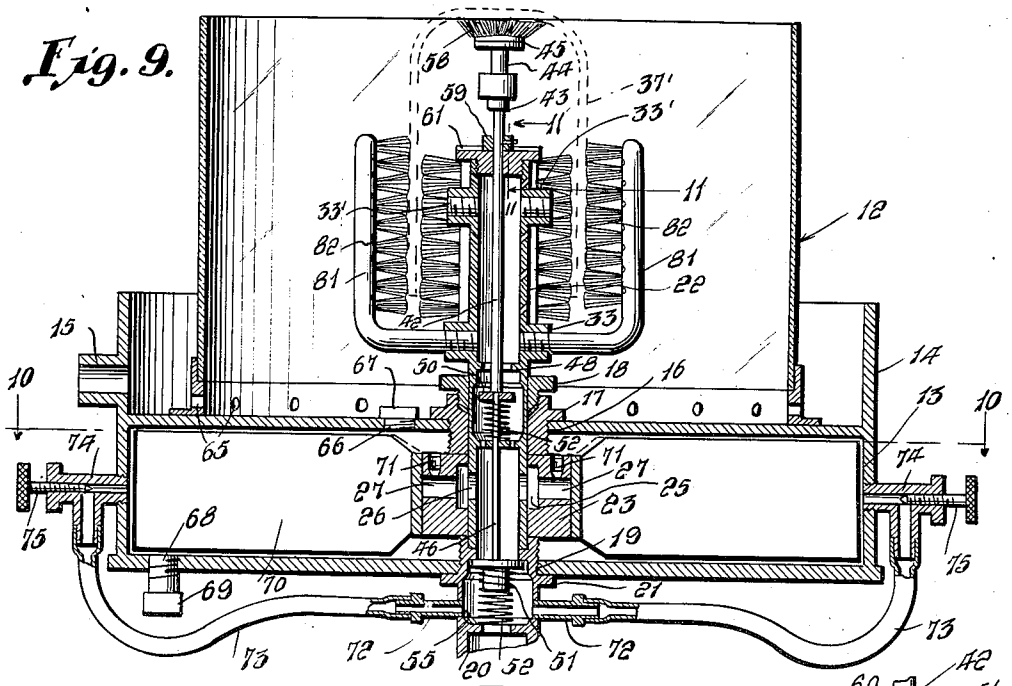


Fig. 10.

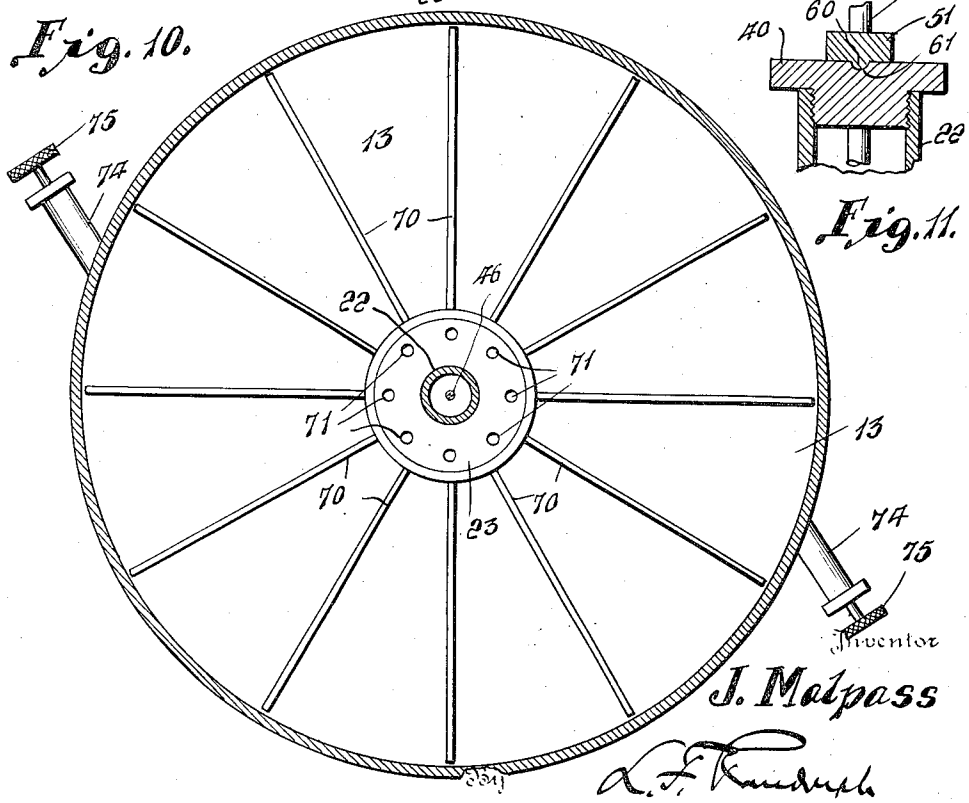


Fig. 11.

Inventor
J. Malpass
A. F. Randolph
Attorney

Patented Sept. 17, 1940 2,215,400

UNITED STATES PATENT OFFICE

2,215,400

CLEANER FOR EATING AND DRINKING UTENSILS

Joseph Malpass, New York, N. Y.

Application December 9, 1937, Serial No. 179,013

7 Claims. (Cl. 15—75)

This invention relates to a fluid operated device for washing eating and drinking utensils.

An object of this invention is to provide a device actuated by water pressure to wash glasses, dishes, etc., the device employing water for cleansing and also being actuated by water.

One important object of the invention is to provide an automatically operated device which will be set into operation by engagement of the article to be washed with the washing means.

Other objects of the invention are to provide a device readily adjustable to be actuated by different types of turbine means; which means may be controlled by manually and automatically actuated valves; and which device is provided with means to enclose the washing apparatus to prevent water from splashing out of it.

While the machine will be described throughout as adapted to be operated by and in conjunction with water, obviously, any other fluid detergent could be equally well used. The water will preferably carry soap in solution therewith for properly cleaning the utensils. The salient advantage of this invention resides in its ease and simplicity of operation, and its automatic features whereby it will be started and stopped by engagement and disengagement of the article to be washed with the washing mechanism; and whereby all parts of an article may be simultaneously washed.

Another advantage of the invention resides in the fact that the washing brushes are all detachable so that brushes of different shapes may be employed depending upon the shape of the article to be washed.

Other objects and advantages of the invention will hereinafter become more fully apparent from the following specification of which the drawings form a part, and wherein—

Figure 1 is a top plan view of a preferred form of the invention,

Figure 2 is a vertical sectional view on the line 2—2 of Figure 1,

Figure 3 is a vertical sectional view on the line 3—3 of Figure 1,

Figure 4 is a horizontal sectional view on the line 4—4 of Figure 2,

Figure 5 is a fragmentary central vertical sectional view of the invention on an enlarged scale,

Figure 6 is a horizontal sectional view on the line 6—6 of Figure 5,

Figure 7 is an enlarged fragmentary central vertical sectional view showing the device in use with a modified form of brush,

Figure 8 is a view similar to Figure 7 showing another form of brush,

Figure 9 is a central vertical sectional view showing another form of actuating means and another form of brush,

Figure 10 is a horizontal sectional view on the line 10—10 of Figure 9, and

Figure 11 is a vertical sectional view on the line 11—11 of Figure 9.

Referring more particularly to the drawings wherein like reference characters designate like or corresponding parts throughout, 12 designates generally the machine comprising a circular shaped casing 13 provided with an upwardly extending annular flange 14 having an outlet passage 15 in one side thereof.

Casing 13 is provided with a threaded opening 16 arranged centrally of its top wall and in which is mounted an externally threaded bushing 17 having a central bore and an internally threaded recess in the top to receive the packing washer 18. In the bottom of casing 13 beneath opening 16 is a threaded opening 19 adapted to receive the threaded end of a pipe 20 having a collar 21 adapted to engage against the bottom of casing 12 to form a water-tight connection. Pipe 20 communicates with a source of water supply and conveys the water under pressure to machine 12.

A pipe 22 is rotatably mounted in bushing 17 and extends through casing 13 and into the upper end of pipe 20 in which it is likewise rotatably mounted. Mounted on pipe 22 is a collar 23 having a central bore 24 through which pipe 22 extends and an annular chamber 25 communicating with openings 26 in pipe 22 and with radially extending bores 27 in collar 23 in which are mounted the rigid radially extending tubes or pipes 28. Collar 23 has a bolt 29 provided with a reduced shank to engage a recess in pipe 22 to key pipe 22 to collar 23 as best seen in Figure 2; and the threaded plugs 30 which secure tubes 28 in bores 27. Mounted on the outer ends of tubes 28 are the heads 31 provided with jets or outlets 32 through which water from pipes 20 and 22, openings 26, and tubes 28 is released to revolve heads 31 and pipe 22 to produce a radial type turbine motor.

Pipe 22 is provided with the outlets 33 in which are mounted pipes 34 connecting with pipes 35 on which are mounted brushes 36. Pipes 35 are provided with a plurality of openings, not shown, to supply water to the brushes 36 which are positioned to engage the outer side of a drinking glass 37. Removably mounted on pipe 22 are the brushes 38 which engage the inner side of glass

37. Pipe 22 adjacent the brushes 38 has a plurality of upwardly inclined apertures 39 to direct streams of water on the inner side of glass 37.

Mounted in the upper threaded end of pipe 22 is a threaded plug 40, to close the same, which is provided with a bore 41 through which extends tube 42 the upper end of which is provided with a threaded head 43 to detachably support a nozzle or brush head 44 preferably having a rubber base 45 to receive the pressure of glass 37 as will hereinafter be explained. Tube 42 extends down through pipe 22 and is provided with the lower half 46 which is in the form of a rod the lower end 47 of which extends to about the bottom of pipe 22.

Mounted in spaced relationship in pipe 22 above and beneath openings 26 are the pairs of annular shoulders 48 and 49 each pair being arranged in spaced relationship to the other to form a valve seat for valves 50 and 51, respectively; which are normally held in engagement with the underside of the upper shoulder of each of the pairs 48 and 49 by the coil springs 52 and 53, respectively, as best seen in Figure 5. Valve 50 is mounted on the upper end of rod 46 and abuts against the bottom of tube 42 so that spring 52 normally urges tube 42 and rod 46 upwardly to the position shown in Figures 2 and 3. The bottom shoulder of the pair 48 is provided with a centrally arranged disk 54 connected to but spaced from the shoulder 48 forming a guide for rod 46 and a seat for spring 52. The water passes between the disk 54 and its supporting shoulder 48. The lower end of pipe 22 rests against the upper side of the upper shoulder 49. The inner side of pipe 22 is cut away at 55 between the pairs of shoulders 48 and 49 to allow the water to pass around the heads of the valves 50 and 51 when they are in a depressed position. Valve 51 is provided with a recess 56 opening at the top to receive end 47.

Tube 42 is provided with openings 57 intermediate its ends which communicate with pipe 22 to allow the water to pass through tube 42 to brush head 44 and out through brush 58 mounted in the base 45. Mounted on tube 42 above plug 40 is an adjustable collar 59 having a diametrically extending rib 60 adapted to engage a corresponding recess 61 in the top of plug 40 when tube 42 is completely depressed to keep tube 42 to pipe 22 and to limit the movement of tube 42 and rod 46.

From the foregoing it will be seen that water held in the lower part of pipe 20 under pressure will be released when tube 42 and rod 46 are depressed by a utensil such as glass 37 being pressed down on base 45 to cause valves 50 and 51 to be depressed to allow the water to rush up through pipe 22 and out through passages 33 to brushes 36; through openings 39 to brushes 38; and through opening 57 through base 45 and to brush 58. The size of these outlets together is less than the size of pipe 22 so that a back pressure results which can only be released by the water passing through the tubes 28 which are radially disposed in casing 13 relatively to pipe 22. Here again a pressure results because the jets 32 restrict the release of the water into casing 13. The water passing out through jets 32 under pressure causes heads 31 to revolve in a counterclockwise direction, as viewed in Figure 4. This causes casing 23 and pipe 22 to which it is keyed to revolve, to revolve brushes 36 and 38 around the inner and outer sides of glass 37 to wash the sides of the glass 37. If tube 42 is fully depressed rib 60 will engage recess 61 to key tube 42 to pipe 22 causing brush 58 to revolve in the bottom of the glass 37 while the water is passing out through base 45.

Mounted on the top of casing 13 is an annular support 62 having an inwardly extending shoulder 63 on which is mounted an annular wall 64 open at its top and bottom and of sufficient height to prevent the water striking the glass 37 from splashing out and over the wall 64. Wall 64 is preferably formed of glass. Support 62 is provided with openings 65 through which the water off of glass 37 may pass to outlet 15 from which it can be drained in any suitable manner.

Casing 13 is provided with a threaded opening 66 in its top adapted to receive the threaded plug 67, and an outlet 68 in its bottom which may be closed by a cap 69. Cap 69 is removed to allow the water passing out through jets 32 to be drained from casing 13, and plug 67 can be removed to allow a part of the water off of glass 37 to drain through casing 13.

In Figures 9 and 10 a modified form of impelling means is provided, comprising blades or vanes 70 which are mounted on collar 23 in place of tubes 28 and heads 31. The inner ends of blades 70 close the outer ends of bores 27. Set screws 30 are removed thus providing a passage 71 from casing 13 to bore 27, recess 25 and openings 26 to pipe 22. The collar 23, shown in Figures 9 and 10, is keyed to pipe 22 by a bolt 29, not shown, in the same manner as illustrated in Figure 2.

Mounted in pipe 20 are outlets 72 connected by flexible hose 73 to nozzles 74 mounted in the side wall of casing 13, diagonally thereto, as indicated in Figure 10, to direct streams of water from pipe 20 onto the blades 70 successively. Nozzles 74 are controlled by the needle valves 75.

It will thus be seen that with plug 67 and cap 69 in place valves 75 can be opened to permit the water under pressure from pipe 20 to be directed by nozzles 74 onto blades 70 to revolve the blades counterclockwise to revolve pipe 22 in the same manner as heretofore explained in regard to the jet type radial turbine heretofore described. The water will pass through casing 13 into passages 71, bores 27, recesses 25 and openings 26 to pipe 22 where it will be forced up to valve 50 which being seated against the upper shoulder 48 will stop its flow and prevent further water entering nozzles 74 to rotate blades 70.

When the glass 37' is applied to base 45 and pressed down valve 50 will be opened to allow the water to pass up and out as heretofore explained and allowing blades 70 to again be rotated. As best seen in Figure 5, end 47 is spaced from engagement with valve 51 by recess 56 so that collar 59 can be positioned on tube 42 to engage plug 40 before end 47 begins to open valve 51. Valve 50, which abuts against the lower end of the tube 42, will move with it to an open position without valve 51 being moved. This directs the full pressure of the water from pipe 20 through nozzles 74 and against blades 70 producing an inward flow turbine type of impeller.

Figures 7, 8 and 9 illustrate modified forms of brushes adapted for other kinds of eating and drinking utensils such as bowls, dishes, etc. In Figure 7 the hollow pipe-like brush heads 76 are mounted in the outlets 33 and include the upwardly extending portions 77 on which are mounted the inwardly extending bristles 78 arranged in opposed relationship and adapted to engage the opposite sides of any suitably shaped utensil, not shown. Portions 77 are provided with apertures 79 to direct the water into the bristles

78. In Figure 8, a fountain brush 80, shown mounted in outlets 33' adjacent the top of pipe 22, is illustrated. In Figure 9 the fountain brushes 81 and 82 are illustrated, mounted in the outlets 33 and 33' to wash the glass 37'. The various shapes of brushes which may be employed will vary to the same extent as the shape of eating and drinking utensils.

It is to be understood that various changes and modifications in the invention as disclosed may obviously be resorted to without departing from the spirit and scope of the invention as hereinafter claimed.

I claim as my invention:

1. A dish and glass washer comprising a casing, a conduit extending through said casing and adapted to connect with a source of water supply, a rotatable pipe forming a part of said conduit, fountain brushes secured to and communicating with said pipe and adapted to engage an article to be washed, a rod slidably mounted in said pipe, spring means for holding the rod in a projected position, a head mounted on the upper end of said rod and adapted to be engaged to retract said rod, valves controlled by said rod and controlling the supply of water to said brushes; tubes connecting and communicating with said rotatable pipe, radiating therefrom, and disposed in said casing; and jets arranged on the ends of said tubes to receive water from said pipe through said tubes to revolve said pipe and said brushes to wash the article.

2. A device of the class described comprising a casing, a pipe journaled in said casing and connected to a source of water supply, said source of water supply including a bushing, a tube slidably mounted in said pipe and closed at one end, the opposite end being provided with apertures, a fountain brush mounted on said end above the pipe, a valve slidably mounted in said pipe and actuated by said tube to be opened thereby, a second valve slidably mounted in the bushing and movable to an open position by the tube, springs normally holding the valves in a closed position, water actuated means disposed within said casing and attached to said pipe to rotate it, fountain brushes mounted on said pipe and adapted to engage an article to be washed, said first mentioned brush being depressible by engagement with the article to depress the tube to open said valves to admit the water to said brushes and to the water actuated means, and means formed on said tube and pipe to key the tube to said pipe to rotate said first mentioned brush when it is fully depressed.

3. A washer for eating and drinking utensils comprising a casing, a pipe rotatably mounted therein, fountain brushes fed by said pipe and mounted thereon, slidable means supporting one of said brushes, a valve mounted on said means and controlling the passage of fluid through said pipe, impelling members mounted in said casing and keyed to said pipe, nozzles connected to a source of water supply and mounted to direct a stream of water on said impelling members to rotate said brushes, and a passage in said pipe leading from said casing to said pipe to convey the water to the brushes, said valve supporting means being depressible by engagement of its attached brush with the utensil to operate the device.

4. In a device of the class described, a casing, bushings centrally arranged in the top and bottom thereof, said lowermost bushing being adapted to be connected to a source of water supply, a pipe rotatably mounted in said bushings and extending upwardly from said casing, a turbine connected to said pipe and disposed in said casing, fountain brushes mounted on the upper part of said pipe, a rod slidably mounted in said pipe and projecting upwardly therefrom, a valve mounted on said rod to normally close said pipe above the turbine, a valve mounted in said lower bushing, spring means normally retaining said last mentioned valve in a closed position, and spring means engaging said first mentioned valve to hold it in a closed position and to hold said rod projected, the upper end of said rod being adapted to be engaged by an article to be washed and to be depressed thereby to open said valves for the passage of water to said turbine to revolve the pipe and brushes, the water passing upwardly through said pipe and through said brushes for washing the article, and into the turbine for actuating it to rotate the pipe, the upper end of said rod being tubular and provided with openings communicating with said pipe, a fountain brush mounted on the upper end of said rod, and means to key said rod to said pipe when the rod is pressed downwardly.

5. In a device of the class described, a casing, a conduit extending upwardly through the center thereof and adapted to be connected at its lower end with a source of liquid supply, said conduit including a rotatably mounted pipe, fluid impelled members connected to said pipe and disposed in said casing, a valve slidably mounted in said conduit beneath said pipe, spring means normally urging said valve upwardly into a closed position, a rod slidably mounted in said pipe, a valve carried by said rod, spring means normally urging said last mentioned valve upwardly to its closed position, said last mentioned spring means retaining said rod in a raised position above the pipe, the upper end of said rod being adapted to be engaged by an article to be washed to depress said rod to thereby open said valves to permit the liquid to pass through said conduit to actuate said fluid impelled members for revolving the pipe, and pairs of fountain brushes arranged in spaced opposed relationship and connected to said pipe above said last mentioned valve and adapted to engage the opposite sides of said article, said fountain brushes receiving the liquid from said pipe and being revolved thereby to wash the opposite sides of the article.

6. A dish and glass cleaner comprising a rotatably mounted pipe connected at one end to a source of liquid supply including a bushing, fountain brushes connected to said pipe for engaging and supplying liquid to an article to be washed, liquid actuated members attached to the pipe and rotatable by the liquid therefrom for rotating the pipe and brushes, said pipe and bushing each having a valve seat, said valve seats being disposed above and beneath said liquid actuated members, spring actuated valves slidably mounted to normally engage said seats to close the passage to and through the pipe, and a plunger slidably mounted in the pipe and adapted to be depressed by engagement with the article to be washed, said plunger being secured to the upper valve and normally spaced above the lower valve to successively open the valves when depressed.

7. A device for washing eating and drinking utensils, comprising a casing, conduits connected to a source of liquid supply and including a pipe rotatably mounted in said casing, a turbine keyed to the pipe and disposed in the casing, fountain brushes carried by said pipe, a tubular plunger

slidably mounted in the pipe and extending thereabove, a valve connected to the tubular plunger and disposed in the pipe above the turbine, spring means normally holding the valve in a closed position, one of said brushes being connected to the upper end of said plunger and being adapted to be actuated by engagement with a utensil to depress the plunger and valve for opening the passage through the pipe to supply liquid to the brushes, the liquid being admitted to the casing by the opening of said valve for actuating the turbine to revolve the pipe, and means for keying the pipe to the plunger when the latter is depressed.

JOSEPH MALPASS.