Sept. 13, 1932.

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BOTTLE WASHER AND RINSING MACHINE

Filed June 12, 1930

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Application filed June 12, 1930. Serial No. 460,687.

This invention relates to a bottle cleaning and rinsing device, and has for its object to devise an improved form of a bottle washer and rinser of this nature which will be simple and cheap to manufacture, very efficient in operation, and of a form such that the wear of the working parts will be reduced to a minimum.

The invention consists in a rotary turbine comprising a casing having inlet outlet orifices, a turbine or rotor concentrically mounted within the casing, and means for separating the inlet from the outlet openings comprising an interconnecting conduit having a control valve arranged in the conduit.

The arrangement of the conduit is such that it projects obliquely into an opening formed in the wall of the turbine chamber, thus assuring uniform application of liquid to the turbine blades, arms or vanes. This construction also directs the water in the turbine chamber so that it follows a substantially elliptical course in the turbine chamber.

The bottle cleaning device may be fixed to a suitable source of liquid supply, and because of the flexible conduit connected to the spout on the turbine or working chamber, the rinsing jet or nozzle with its supporting frame may be placed in juxtaposition or remote from the cleaning device, as desired.

This invention comprises the association of a cleaning instrumentality and a rinsing instrumentality, wherein the vessel after being cleaned and removed therefrom may be placed over the rinsing jet or nozzle for the purpose of rinsing while the subsequent bottle is being mounted on the cleaning instrumentality.

The invention also consists in other details and arrangements hereinafter described or indicated.

The accompanying drawing illustrates one convenient form of a bottle washer, or cleaner and rinser, Figure 1 showing a rotary brush positioned in a bottle, the bottle shown in section, and also showing a bottle in section over the rinser nozzle or jet, and positioned in a supporting structure over a basin or sink, the basin or sink being connected to a drain pipe.

Figure 2 is a cross sectional enlarged view of the bottle cleaner or washer showing its construction, with a rotor or turbine mounted therein, parts being broken away.

Figure 3 is a plan view of a supporting frame, showing the rinser jet or nozzle mounted therein, taken on the line 3—3 in Figure 1.

Figure 4 is a reduced top view of the device showing the check valve positioned in the interconnecting means.

In carrying my invention into practice I provide a cylindrical casing A, having an integral portion 1, provided with a flange 2, and a socket 3, and having mounted rotatably thereon a connecting member 4, adapted to be secured to a suitable source of water supply.

The socket is provided with an egress or outlet 5 having connected thereto a conduit 6. The conduit interconnects the socket with the turbine or rotor chamber 7, and has interposed in its length a control, check, or other suitable valve 8. The valve may be used to cut off the liquid supply at any desired time, thus eliminating the detaching of the device from the supply line. The end 9 of the conduit projects obliquely into the chamber wall 10, and is fixedly secured therein.

The casing is provided with a hubbed integral portion 11, provided with a bearing 12 in which the upper end of the turbine carrying shaft is journaled. The lower wall 13 of the turbine chamber is provided with a flanged portion 14, having an egress opening 15 therein that communicates with a long hollow cylindrical body portion 16, that projects from the underside of the lower wall 13 of the turbine chamber. The extreme end 18 of the long, hollow cylindrical body portion is provided with a flange 19, having a bore 20 in the center thereof, and adjacent the center bore, an aperture 21, adapted to release the water that flows down through the long hollow cylindrical body portion from the turbine chamber. This arrangement provides a water supply at all times to the brush member while in use.
The turbine or rotor comprises a plate member 22 having a series of equi-circumferentially spaced blades, arms, or vanes 23, of concaved, cupped, or other suitable configuration mounted thereon. The blades, arms, or vanes are so positioned on the plate that the cupped or concaved portion 24 thereof is positioned in the direct path of the impelling liquid entering the turbine chamber through the obliquely positioned conduit entering the chamber.

The shaft member 25 is fixedly mounted in the turbine plate 22, and extends through and projects beyond the end of the long, hollow cylindrical member 16, coaxial therewith, and forms within the tubular member or long, hollow cylindrical member an annular space 26, this space providing a chamber for the liquid that flows from the orifice 18 in the turbine chamber, and passes out of the annular chamber at the opening 21 to supply liquid to the rotary brush member.

The upper end of the turbine shaft member 27 is journaled in the bearing 12 in the integral hub 11 in the turbine chamber 7. The lower end of the shaft is journaled in the flange 19 positioned in the extreme end of the long, hollow cylindrical member 16, and extends therebeyond, and has removably mounted thereon a cylindrical shaped or other suitably shaped brush member 28, at 29.

The lower wall of the turbine chamber 13 is provided with a suitable spout 30, or other similar instrumentality, having connected thereto a conduit or flexible tube 31 to convey the liquid from the turbine chamber 7 to the rinsing jet or nozzle 32, mounted in a suitable support 33, placed over the basin 34 having a drain pipe 35.

Thirty-six (36) designates a bottle having a rotary brush mounted therein in the process of being cleaned, and 37 designates a bottle placed over the rinsing nozzle, showing the rinsing process.

By means of my invention I have provided a very compact form of bottle washer and rinser which is capable of very high efficiency and which has very few parts liable to wear while at the same time the life of the cleaner will not be materially affected by the foreign matter or substance that is usually found in the supply liquid, and find their way into the working parts.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is—

1. In a bottle cleaner and rinser of the class described, comprising a body having a working chamber, a connecting member rotatably mounted thereon for connecting the working chamber to a suitable source of liquid supply, the connecting member having an egress opening therein, the working chamber having an ingress opening in the wall thereof, means interconnecting the egress opening in the connecting member to the ingress opening in the working chamber, an egress opening in the working chamber, a tubular portion projecting from the lower wall of the working chamber and communicating with the egress opening, a shafted turbine mounted in the working chamber and journalled in the tubular member and extending beyond the end thereof, a bottle cleaning instrumentality mounted on the shaft, and means for leading clean water from the working chamber.

2. In a bottle cleaner and rinser of the class described, comprising a body portion having a working chamber, a connecting member rotatably mounted thereon for connecting the working chamber to a suitable source of liquid supply and having an outlet opening therein, the chamber having an inlet opening in the wall thereof, a conduit interconnecting the outlet and inlet openings, a valve in the conduit for controlling flow of liquid therethrough, an outlet opening from the working chamber through the lower wall thereof, a tubular portion extending from the said lower wall and communicating with the outlet opening, a shafted turbine mounted in the chamber and journalled in the tubular member, the wall of the tubular member defining an annular space around the shaft, the space communicating with the outlet opening through the lower wall of the working chamber, a cleaning instrumentality mounted on the shaft, means for leading clean water from the working chamber.

In testimony whereof I affix my signature.

JAMES FLEMING.