

March 25, 1941.

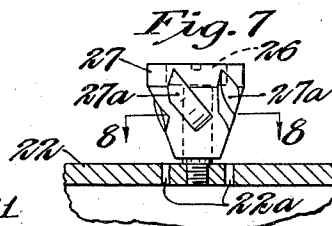
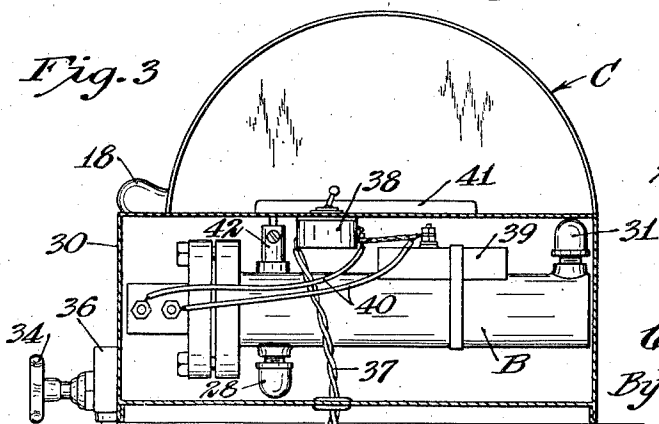
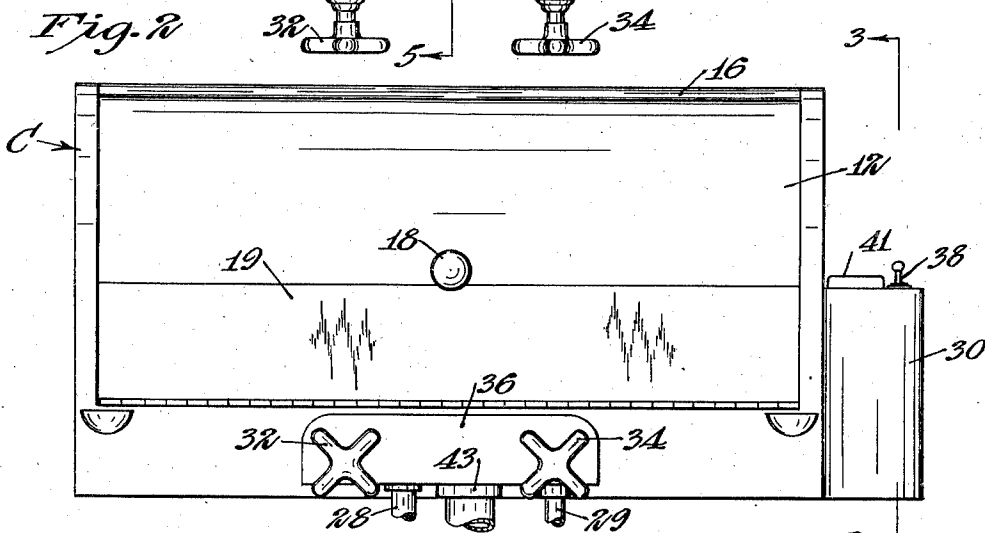
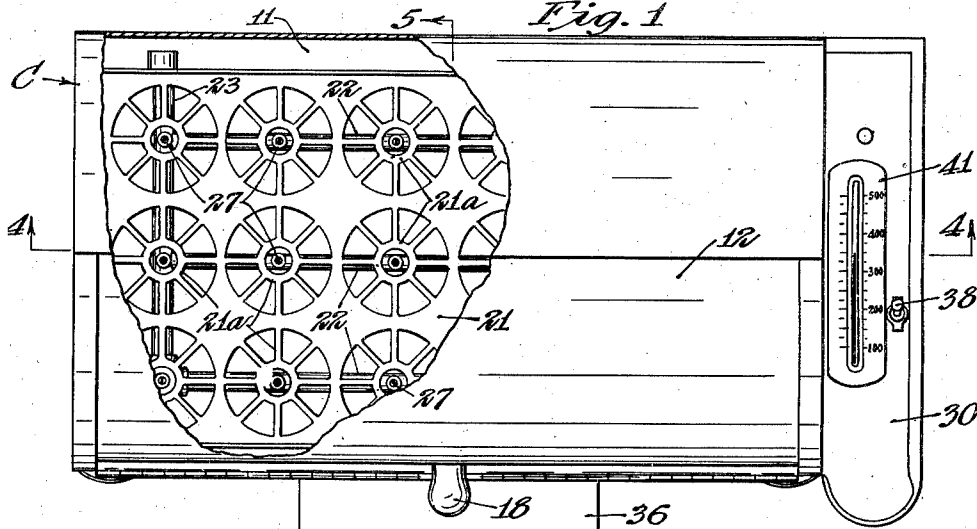
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2,235,885

GLASSWARE WASHER AND STERILIZER

Filed July 29, 1937

2 Sheets-Sheet 1



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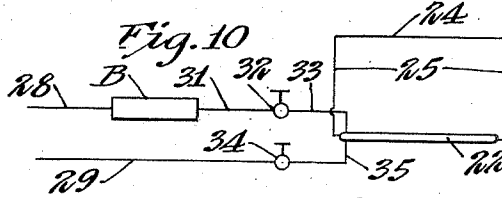
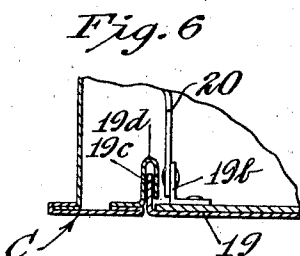
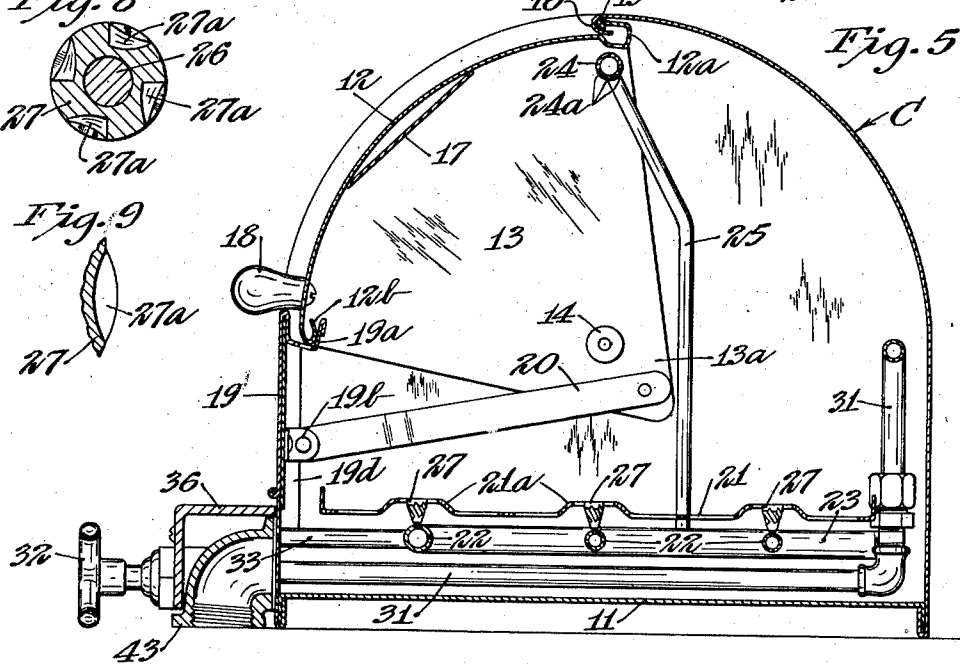
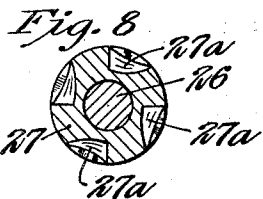
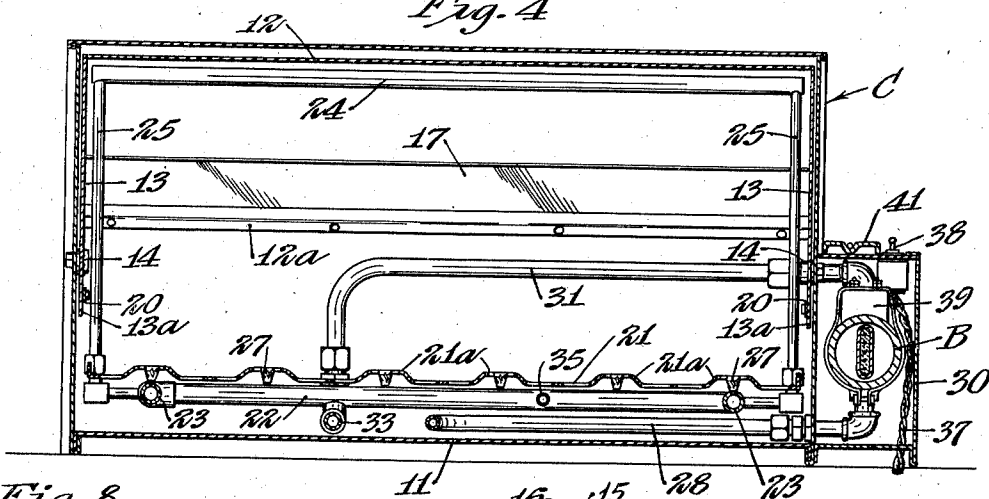
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GLASSWARE WASHER AND STERILIZER

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2 Sheets-Sheet 2

Fig. 4



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UNITED STATES PATENT OFFICE

2,235,885

GLASSWARE WASHER AND STERILIZER

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Application July 29, 1937, Serial No. 156,341

2 Claims. (CL 220—34)

My invention relates to apparatus for washing and sterilizing glassware and particularly to cabinet type apparatus for acting on a plurality of units of glassware at one time.

In many establishments, such as, for example, commercial establishments wherein beverages are dispensed, considerable quantities of glassware, such as beverage glasses and the like, must be washed and sterilized and such washing and sterilizing must be done quickly and yet thoroughly and effectively.

A general object of my invention is to provide apparatus adapted for rapid and convenient manipulation to thoroughly and effectively wash and sterilize a substantial quantity of glassware at one time.

A more specific object is to provide such apparatus including a closable cabinet containing supporting means for glassware and means for effectively spraying both the interiors and exteriors of the glassware selectively with hot and cold water and steam.

Another object is to provide such apparatus having a particularly compact and quickly and conveniently operatable door structure.

Still another object is to provide such apparatus having particularly effective spraying means.

A further object is to provide such apparatus of simple, compact, rugged, light and inexpensive construction and adapted for rapid and easy installation.

These and other objects and advantages of the invention will more fully appear from the following description made in connection with the accompanying drawings wherein like reference characters refer to the same or similar parts throughout the views, and, in which:

Fig. 1 is a partially broken away top view of an embodiment of my invention with the doors thereof in open position;

Fig. 2 is a front view;

Fig. 3 is a sectional view taken along the line 3—3 of Fig. 2 as indicated by the arrows;

Fig. 4 is a sectional view taken along the line 4—4 of Fig. 1 as indicated by the arrows;

Fig. 5 is a sectional view taken along the line 5—5 of Fig. 1 as indicated by the arrows;

Fig. 6 is a detail view;

Fig. 7 is a partially sectional side view of one of the spray units of my apparatus;

Fig. 8 is a sectional view taken along the line 8—8 of Fig. 7 as indicated by the arrows;

Fig. 9 is a sectional view taken along the line 9—9 of Fig. 7 as indicated by the arrows; and

Fig. 10 is a pipe connection diagram of the pipes in my apparatus.

Referring to the drawings, my glassware washing and sterilizing device includes a casing or cabinet C of inverted U-shaped cross sections, and, when viewed from above, of rectangular shape. The casing C has a floor 11 at the lower side thereof suitably sealed to the side walls of the casing. The forward side of the casing C is open with the exception of the lowermost part thereof, and this open side is provided with suitable closure means.

A door 12 is provided for the upper portion of the open side of the cabinet C. This door 12 is of arcuate shape having a curvature corresponding to the curvature of the U-shape of the cabinet C. The door 12 is carried by sector shaped elements 13 and is secured to the curved edge portions of the sector shaped elements 13. The sector shaped elements 13 are located at the respective ends of the door 12 and cabinet C, and are connected to the end walls of the cabinet C by means of pivot elements 14 concentrically located relative to the curved portion of the cabinet C. The sector shaped elements 13 have a portion thereof extending beyond the pivot elements 14 and the door 12 and adapted for use as lever arms 13a. The upper end of the door 12 is formed into a reversely turned element 12a which engages a resilient strip 15 contained within a channel formed by a reversely turned portion 16 of the cabinet C. The lower end of the door 12 is bent to form a bead 12b. A plate 17 is secured to the inner side of the door 12 to act as a brace. A handle or knob 18 is secured to the outer side of the lower portion of the door 12. The door 12 may be swung upwardly and rearwardly on the pivot elements 14 to dispose the door within the curved rear portion of the cabinet C.

The lower portion of the open side of the cabinet C is provided with a door 19, this door 19 being rectangular in shape and being hinged at its lower edge to the lower portion of the cabinet C. It should be apparent that the door 19 is swingable forwardly and downwardly to the open position thereof. The upper edge portion of the door 19 is bent to form a channel element 19a for receiving the bead 12b on the lower edge of the first described door 12. A pair of links 20 are provided. Each link is associated with one of the sector shaped elements 13 and is pivotally connected at its inner end of the lever arm portion of the associated sector shaped element 13. The remaining or forward end of each of the links 20 is pivotally connected to a lug or ear 19b mounted

on and projecting inwardly from the lower portion of the door 19 a short distance above the lower edge thereof. By means of the link 20 raising of the knob 18 to open the upper door 12 is accompanied by movement of the lower door 19 outwardly and downwardly to its open position. Also, of course, closing of one of the doors 12 and 19 will be accompanied by closing of the other door. The vertical edge portions at the respective ends of the door 19 are bent inwardly to form sealing flanges 19c which are received in channels formed in complementary elements 19d secured to the end portions of the cabinet C as shown in Figure 6.

A reticulated platform 21 is provided in the lower portion of the cabinet C parallel to and spaced a moderate distance above the floor 11 of the cabinet C. The platform 21 is raised in a plurality of places to form glass locating elements 21a, each of which is cut away to form a grating like structure and each of which is centrally apertured. The reticulated platform 21 is, of course, suitably secured to the cabinet C to derive support therefrom. A conduit 22 is disposed under and extends along each row of glass locating elements 21a and each of the conduits 22 is provided with upwardly directed spray means beneath each of the glass receiving elements 21a associated therewith. The conduits 22 are connected together by other conduits 23 extending in a direction from front to rear of cabinet C. An upper conduit 24 is disposed in the upper portion of the cabinet C and extends longitudinally thereof. The upper conduit is provided in its lower side with a series of apertures suited for directing jets of liquid downwardly on the exteriors of glasses disposed on the reticulated platform 21. The upper conduit 24 is connected to the conduits 23 by suitable generally vertical conduits 25.

As previously mentioned, upwardly directed spraying means is provided on the conduits 22 beneath the respective glass locating elements 21a. At each of the locations of such spraying means a vertically disposed headed pivot screw 26 is mounted on the conduit 22. A liquid directing element or member 27, shown in detail in Figures 7, 8 and 9, is mounted on the screw 26 to be retained thereon by means of the head of the screw 26, and to be rotatable about a vertical axis. The liquid directing rotatable members 27 are of downwardly tapered or inverted frusto-conical shape. The conduit 22 is provided with apertures or orifices 22a situated just outside the limits of the lower portion of the periphery of the member 27. These apertures 22a are adapted, when the conduit 22 is filled with liquid under pressure, to project jets of liquid upwardly against the periphery of the member 27. The member 27 is shaped in its peripheral portion to present angularly disposed surfaces adapted to be impinged upon by jets of liquid issuing from the orifices 22a in such manner that impingement of the jets of liquid on such angularly disposed surfaces will act to cause rotation or spinning of the member 27. Such angularly disposed surfaces may be formed in various ways, and I have found it preferable to form such surfaces in a manner to be described. I cut away the peripheral portion of the member 27 to form a circumferentially extending series of circumferential spaced grooves or recesses 27a. Each of the recesses 27a is disposed at an angle to the vertical axis of the member 27 and so varies in depth that the portions of the member 27 defining the inner limits of the recess 27a are ar-

uate in shape. Also the recess 27a is so tilted that the depth thereof at the side thereof defined by a generally downwardly facing surface is greater than the depth at the side opposite. Such recesses 27a may be formed by applying a cutting or grinding wheel of small diameter and disk shape to the member 27 at suitable points on the periphery thereof. Such wheel would be situated at an angle to the vertical axis of the member 27 and at an angle to a radius of the member 27 at the point of application of the wheel. It should be apparent that jets of liquid issuing from the orifices 22a and striking the member 27 will engage the angularly disposed generally downwardly facing surfaces partially defining the recesses 27a, and will act to cause rotation or spinning of the member 27. Also liquid striking the member 27 will be somewhat deflected thereby. The liquid moving upwardly above the member 27 will be in the form of a divergent whirling spray composed of relatively fine drops of liquid. Such spray will be delivered to the interior of an inverted glass disposed upon the glass locating element 21a and will reach all portions of the interior of the glass to thoroughly wash the same. Steam delivered through the orifices 22a will similarly reach all portions of the interior of a glass to thoroughly sterilize the same.

Means is provided for delivering hot water, cold water, or steam to the conduits 22, 23, 24, and 25 so that such fluids may be ejected from the orifices 22a and 24a. The plumbing connections for such supply are diagrammatically shown in Figure 10 and are as follows:

Pipes 28 and 29 are provided for connections respectively to sources of hot and cold water under pressure. The hot water pipe 28 runs to the inlet of a super-heater or boiler B contained in a casing 30 secured to one end of the main casing C. The outlet of the boiler B is connected through a pipe 31, a valve 32 and a pipe 33 to one of the conduits 22 which, of course, is in communication through the conduits 23 with the remaining ones of the conduits 22 and through the conduits 25 with the upper conduit 24. The cold water pipe is connected through a valve 34 and a pipe 35 to one of the conduits 22. The handles of the valves 32 and 34 are disposed in front of the casing C and the valves and pipe connections associated therewith are housed in an auxiliary casing 36 mounted on the front of the lower portion of the main casing or cabinet C. Obviously the valves 32 and 34 may be separated to deliver hot water to the spray device by opening valve 32 or to deliver cold water to the spray device for chilling the washed or sterilized glasses by opening valve 34. Hot water supplied to the boiler B may be super-heated or converted into steam by the boiler B.

The boiler B will preferably be an electrically heated type of boiler serviced through an electrical supply cord 37 through a switch 38. Conveniently mounted in the upper portion of the auxiliary casing 30 are a thermostat 39 and wires 40. The thermostat 39 is associated with the boiler B so as to automatically control the application of the electric current to the boiler in such manner as to maintain a substantially fixed temperature in the contents of the boiler B. The thermometer 41 is mounted on the top of the auxiliary casing 30 with its bulb portion disposed within an element 42 secured to the upper side of the boiler B and hence being in intimate

thermo relation with the boiler B and its contents.

Means are provided for draining the moisture which will otherwise accumulate in the lower portion of the cabinet C. For this purpose an outlet fitting is provided. This outlet fitting, contained within the auxiliary casing 36, is in communication with the lower portion of the cabinet C and is adapted to be suitably connected to the sewer or other place suited for disposal of waste water.

The prevailing method of use of my device is as follows: The switch 38 is kept closed during the periods of time when the device will be used so that the temperature of the hot water supplied from a source thereof will be raised to produce steam. The glasses to be washed and sterilized are placed within the cabinet in inverted position, each glass being located on the reticulated platform by means of the raised glass locating elements 21a, the rims of the glasses, of course, encircling the elements 21a. At first the hot water control valve is opened so that hot water and steam will be delivered to the interior and exterior of each glass to thoroughly wash and sterilize the same. Then the cold water valve 34 is gradually opened to temper the liquid with which the glasses are being sprayed after which the hot water valve 32 may be closed so that only cold water will be delivered to the glasses to chill the same as a final part of the operation.

The above described embodiment of my invention has been built and put to practical use and has been found to be highly satisfactory.

It is apparent that I have invented a novel, compact, effective and easily operated apparatus for washing, sterilizing and chilling glassware.

It will, of course, be understood that various changes may be made in the form, details and arrangement of the various parts without departing from the scope of my invention.

What is claimed is:

1. In a cabinet of inverted U-shaped cross section having one open side, an arcuate door for closing the upper portion of said open side and situated within the limits of said cabinet, brackets on said door extending downwardly and rearwardly, beyond and being pivotally mounted at points concentric with the curved portion of said cabinet whereby said door may be swung between a normal position and a position just inwardly of the closed side of said cabinet, a door for closing the lower portion of the open side of said cabinet, said last mentioned door being hinged at its lower edge to said cabinet so as to be swingable outwardly, and links each pivotally connected at its respective ends to the lower end of one of said brackets and to said last mentioned door whereby said doors will open and close in unison responsive to force applied to open and close one thereof.

2. In a cabinet of inverted U-shaped cross section having one open side, an arcuate door for closing the upper portion of said open side, sector-shaped door-carrying members attached at their respective curved edges to said door and pivotally mounted adjacent their respective inner corners to points in said cabinet concentric with the curve of said cross section so that said door may be shifted edgewise between its closed position and a position within the closed side of said cabinet, a flat rectangular door for closing the lower portion of said open side and being hinged at its lower edge to said cabinet so as to be swingable outwardly and inwardly relative thereto between closed and open positions, and a link pivotally connected at its respective ends to the inner corner of one of said sector shaped members and a suitable point on said flat door whereby said respective doors will open and close in unison responsive to force applied to open and close one thereof.

CARL W. JOHNSON.