United States Patent

[11] **3,580,304**

[72] Inventor **Robert W. Chermack**
14424 Spring Lake Road, Hopkins, Minn. 55345

[21] Appl. No. **744,033**
[22] Filed **July 11, 1968**
[45] Patented **May 25, 1971**

[54] **GLASS FILLER**
5 Claims, 8 Drawing Figs.

[52] **U.S. Cl.** **141/244,** 141/359, 141/362
[51] **Int. Cl.** **B65b 3/28,** B65b 3/36
[50] **Field of Search** ..... 141/83, 234, 236, 237, 242—244, 351, 359—362; 239/550 (Cursory)

[56] **References Cited**

UNITED STATES PATENTS

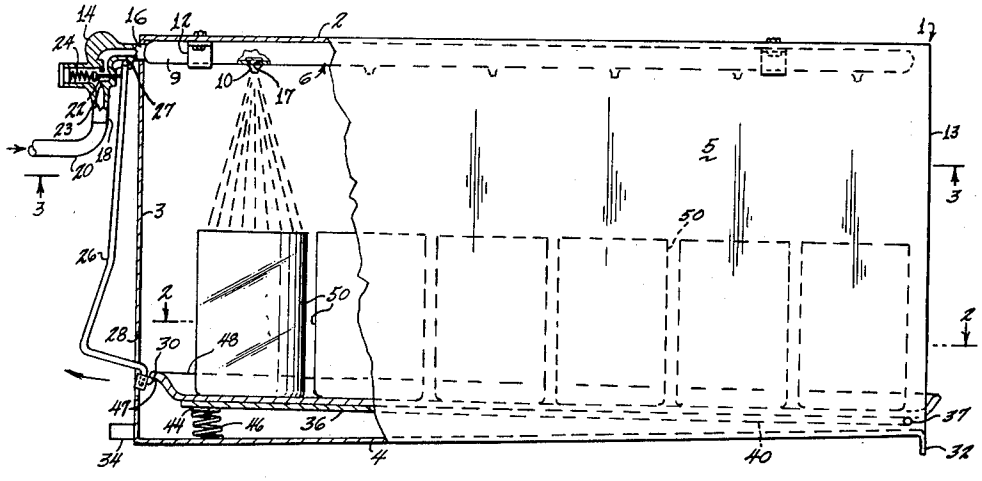
2,868,247	1/1959	Weisberg et al.	141/361
1,123,548	1/1915	Kanellos	141/244X
1,579,124	3/1926	MacGrath	141/351X
2,551,419	5/1951	Clelland	141/244X
2,727,670	12/1955	Shore	141/351
2,850,051	9/1958	Rasmusson	141/242X
2,939,495	6/1960	Thorpe	141/237X
3,163,025	12/1964	Dahlgren	141/83X

FOREIGN PATENTS

1,068,139	10/1959	Germany	141/360
572,435	3/1959	Canada	141/359

Primary Examiner—Laverne D. Geiger
Assistant Examiner—Edward J. Earls
Attorney—Williamson, Palmatier & Bains

ABSTRACT: Apparatus for simultaneously filling a plurality of receptacles, especially water glasses, having a distribution manifold with a plurality of downwardly directed discharge spouts and a flow control valve connected to the manifold, the operation of the valve being controlled by a lever positioned to be actuated in response to the movement of a glass tray into position beneath the aforesaid discharge spouts. The flow control valve may be a flush valve which passes a predetermined volume of water when its operating lever is tripped, or it may be an ordinary on-off valve which must be actuated to its open and closed positions. In the latter case, a spring-supported, weight-responsive platform supports the glass tray, and when the glasses are filled, their weight will depress the spring so as to move the glass tray out of engagement with the valve operating lever, thereby permitting the lever to return to its normal, closed position.



PATENTED MAY 25 1971

3,580,304

SHEET 1 OF 4

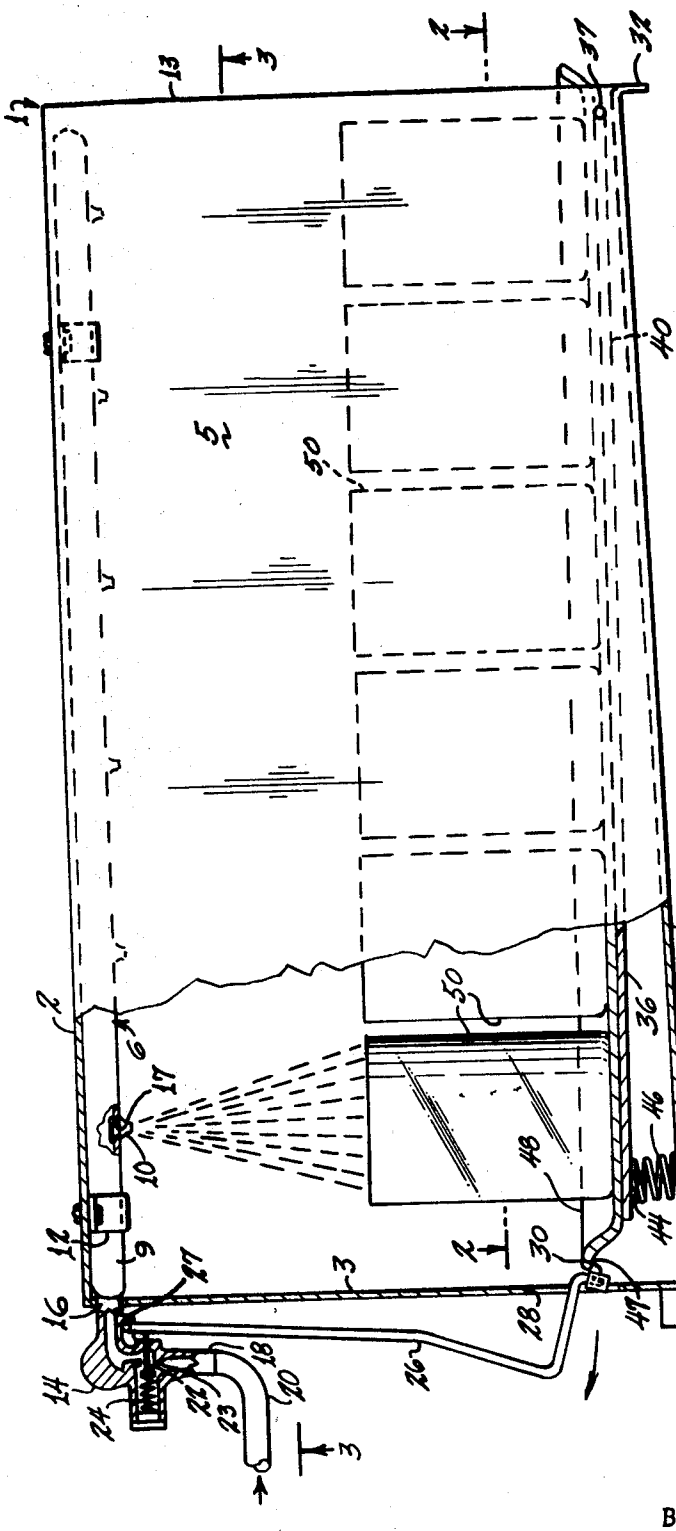


FIG. 1

INVENTOR.

ROBERT W. CHERMACK

BY

Williamson, Palmatier & Bains

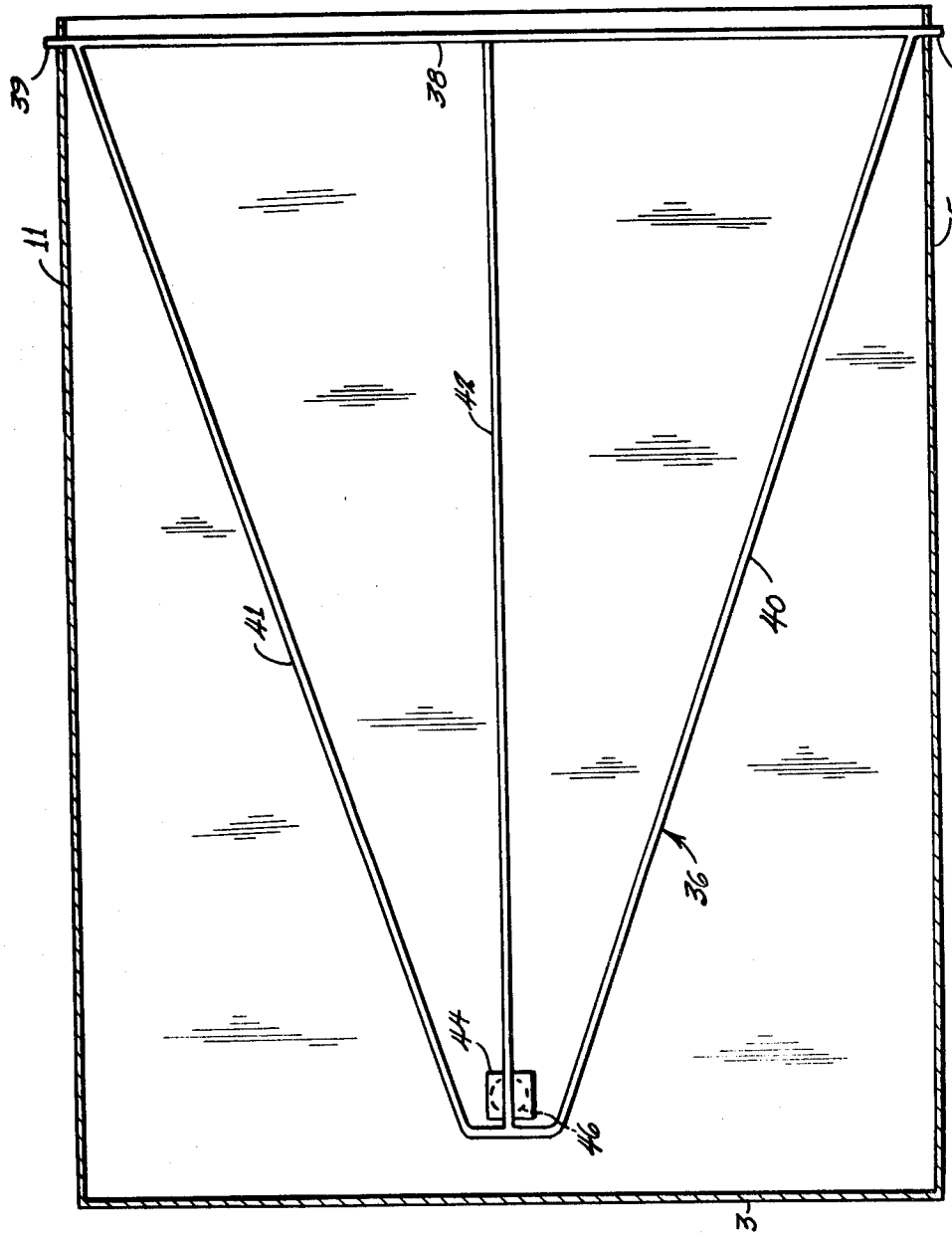


FIG. 2

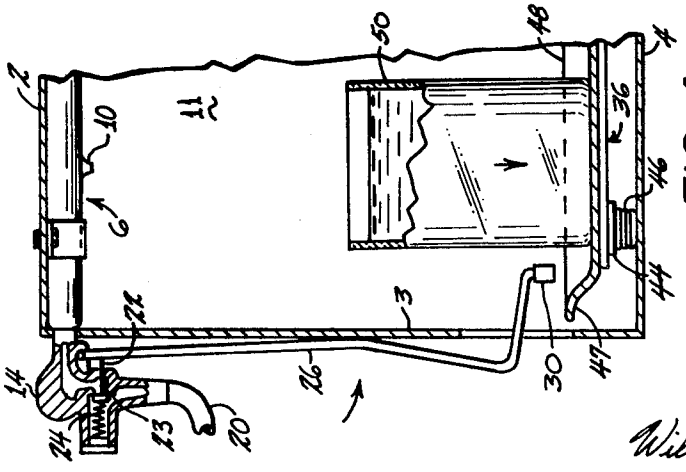


FIG. 4

INVENTOR.
ROBERT W. CHERMACK
BY

Williamson, Palmatier & Bains

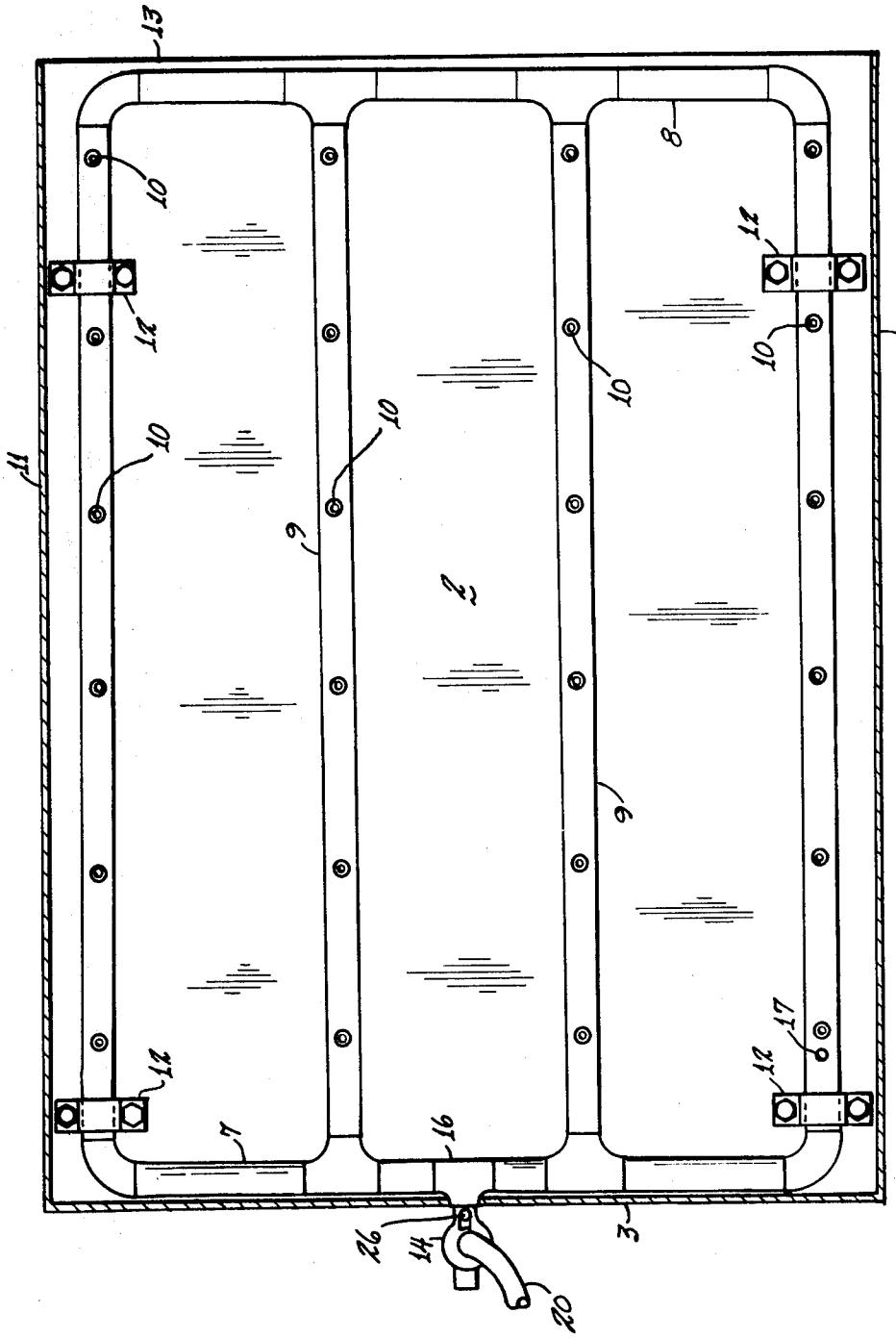


FIG. 3

INVENTOR.
ROBERT W. CHERNACK
BY
Williamson, Palmatier & Bline

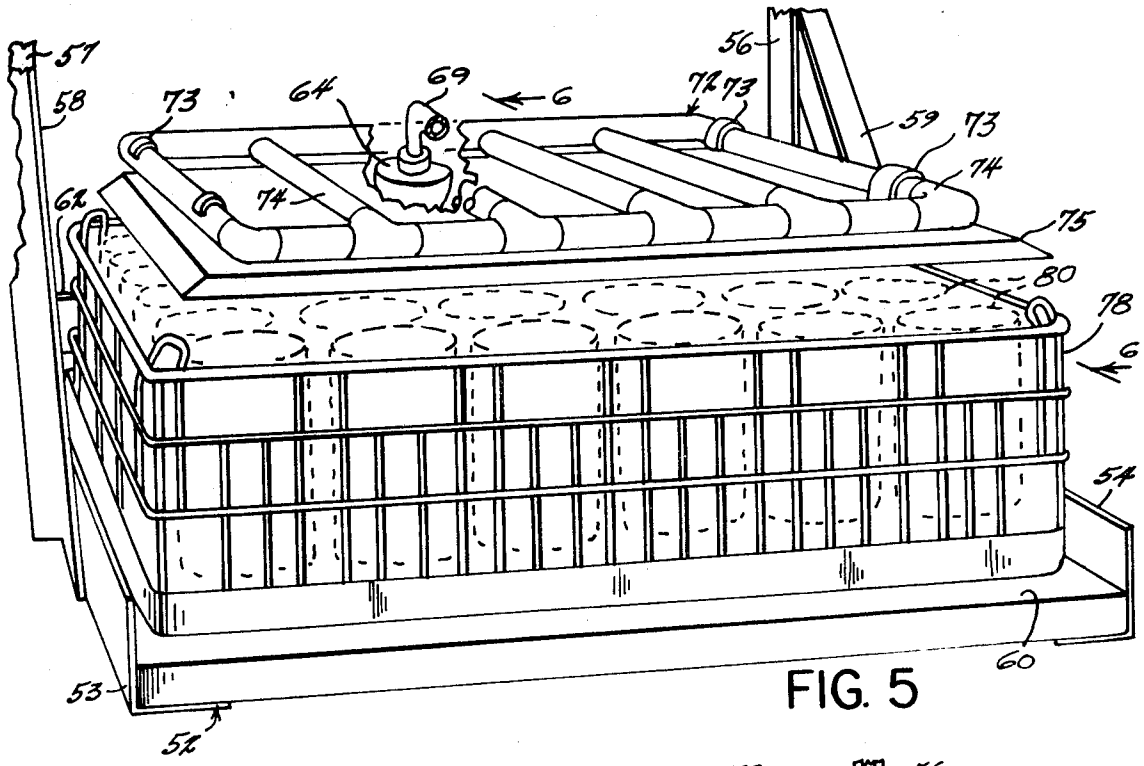


FIG. 5

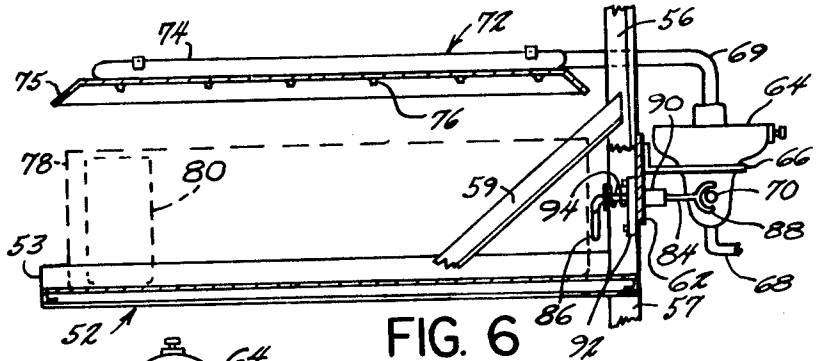


FIG. 6

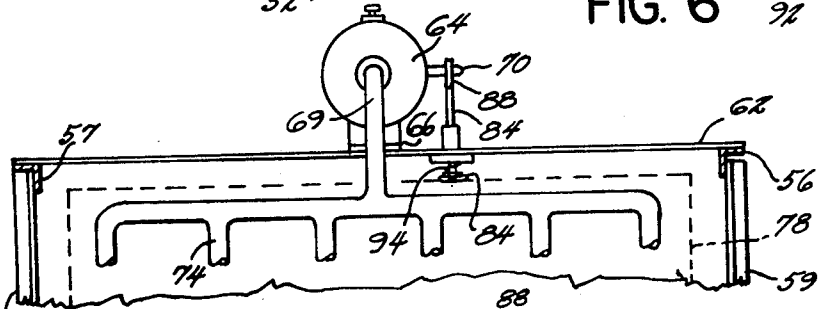


FIG. 8

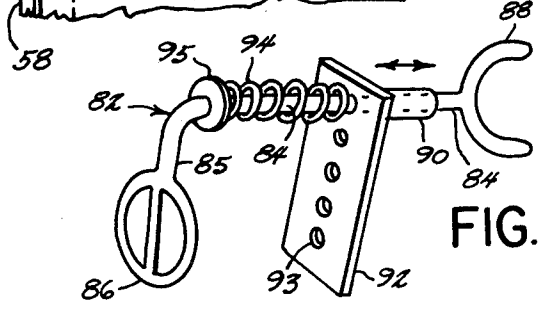


FIG. 7

INVENTOR.
ROBERT W. CHERMACK
BY
Williamson Palmatier & Baine

GLASS FILLER

BACKGROUND OF THE INVENTION

One of the most inefficient aspects of restaurant operations as they are conducted today is the time-consuming and tedious procedure used for filling water glasses. Ordinarily, water glasses are filled one at a time under a single faucet or from a water pitcher, and then delivered to a patron being served. This is obviously a very slow process, and the entire procedure of serving restaurant patrons could be considerably expedited if there were some means available for filling a relatively large number of water glasses at one time. To the best of my knowledge, there is no water dispenser on the market today which is particularly designed to speed up the filling of glasses in restaurants by automatically discharging a predetermined amount of water into a plurality of glasses on a tray.

BRIEF SUMMARY OF THE INVENTION

Having in mind the foregoing disadvantages associated with present modes of filling and serving water glasses in restaurants, I have developed an improved glass filler which is particularly characterized by its ability to fill a plurality of glasses on a tray at one time in response to the movement of the glass tray into position on the filling fixture.

These basic objectives are achieved by virtue of the combination of a water distribution manifold having a plurality of downwardly directed discharge nozzles with a flow control valve connected to the manifold and having an operating lever constructed and arranged to be actuated by the glass tray when it is moved under the discharge nozzles. The water flow control valve may be either a flush valve which dispenses a predetermined amount of water upon being tripped, or a two-position valve which must be actuated between its opened and closed positions.

A particularly beneficial aspect of my invention resides in the utilization of a spring-supported rack or platform upon which a tray of glasses is placed when carrying out a filling operation. The movement of the glass tray onto the rack opens the water-filling valve to start water flowing into the glasses; and the weight of the glasses when filled with water to a predetermined level compresses the rack-support spring, whereby the glass tray will move downwardly to release the valve operating lever and permit the valve to close.

My improved glass filler is advantageously contained within a plastic housing having a top wall from which the aforesaid water distribution manifold is supported and an inclined floor or bottom wall which slopes towards an outlet through which spilled water may drain.

These and other objects and advantages of my invention will become readily apparent as the following description is read in conjunction with the accompanying drawings wherein like reference numerals have been used to designate like elements throughout the several views.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side, elevation view, partially in section of one embodiment of my improved water filler;

FIG. 2 is a horizontal section view taken along lines 2–2 of FIG. 1 and showing the spring-supported tray platform;

FIG. 3 is a horizontal section view taken along lines 3–3 of FIG. 1 and showing the bottom of the water-distribution manifold;

FIG. 4 is a fragmentary, side elevation view showing the filler apparatus of FIG. 1 in the position which the parts will assume after a plurality of glasses have been filled to a predetermined level;

FIG. 5 is a front, perspective view of a modified version of my improved glass filler;

FIG. 6 is a vertical section view taken along lines 6–6 of FIG. 5 showing the flush valve and its operating mechanism;

FIG. 7 is an enlarged perspective view of the valve-actuating mechanism of FIG. 6; and

FIG. 8 is a fragmentary, top view of a portion of the filler apparatus of FIG. 5.

FIGS. 1 through 4 show one version of my improved glass filler wherein a housing 1 is utilized to enclose the major structural components of the filling apparatus. Housing 1 is preferably molded from rust-resistant plastic, such as fiber glass, and is comprised of a top wall 2, rear wall 3, bottom wall 4 and sidewalls 5 and 11. Receptacles to be filled may be moved in and out of housing 1 through open front end 13. Although my filler mechanism may be utilized to dispense a variety of fluids, I anticipate that its major application will be for the filling of water glasses in restaurants. Therefore, housing 1 and open end portion 13 are sized to receive an ordinary tray of type on which water glasses are stored and carried.

Suspended from the underside of top wall 2, by means of brackets 12, is a water distribution manifold 6 having end headers 7 and 8 through which water or other fluids are conveyed to longitudinally extending distribution pipes 9 extending therebetween. Each of the distribution pipes 9 is provided with a plurality of spaced apart outlets or orifices 17 through which water may be discharged. One of the openings or orifices 17 is shown in FIGS. 1 and 3. In order to guide the water flowing out of orifices 17 in downwardly directed streams or jets, I prefer to utilize nozzles 10 which are removably inserted within orifices 17. Nozzles 10, as shown in FIGS. 1 and 3, are preferably formed from plastic material, such as Teflon or nylon, so that they will not rust. Nozzles 10 simply snap in place in orifices 17, and may thus be very easily removed and cleaned or replaced if they become clogged with foreign material. For the purpose of regulating the flow of water into distribution manifold 6, I provide a control valve 14 connected to header 7 by means of T-fitting 16. Inlet 18 of valve 14 is connected to water supply pipe 20. Those skilled in the art will readily appreciate that various types of flow control valves could be satisfactorily employed in my fluid distribution and filling apparatus. The valve shown at 14 in FIGS. 1, 3, and 4 is an ordinary, two-position valve having a valve element or stem 22 which is normally held in a closed position on seat 23 by spring 24.

For the purpose of opening and closing valve 14, I provide an operating lever 26 which is connected to valve stem 22 and pivotally supported from its upper end at pivot point 27 in the manner shown in FIGS. 1 and 4. The lower end of operating lever 26 extends inwardly through a slot 28 in rear wall 3 of housing 1 and terminates at an adjustable strike member 30. Member 30 is a threaded sleeve which may be adjusted vertically by threading it up or down on the inner end of lever 26 for a purpose hereinafter described.

As may be seen with reference to FIG. 1, the front end of housing 1 is elevated by means of a leg 32 from which bottom wall 4 inclines rearwardly towards drainage tube 34. Fluid that is spilled in the course of filling receptacles within housing 1 will thus flow along rearwardly sloping bottom wall or floor 4 and be discharged through tube 34. Resting in a generally horizontal position upon bottom wall 4 is a platform 36, which as shown in FIG. 2 is preferably of a triangular configuration. Platform 36 is constructed of tubular segments including base 38, and side arms 40 and 41. Longitudinally extending reinforcing rod 42 extends from base 38 to the inner end of platform 36. Platform 36 is pivotally supported at its forward end by means of tubular extensions 37 and 39 of base tube 38 which are rotatably journaled in sidewalls 5 and 11 of housing 1. Guide block 44 is secured to support rod 42 at its inner end, and rests upon compression spring 46 extending upwardly from base wall 4. Platform 36 serves to support a portable receptacle carrier, which in the embodiment shown in FIGS. 1 and 4 may take the form of an ordinary glass tray 48. A plurality of fluid receptacles, such as glasses 50, will ordinarily be carried on tray 48.

When it is desired to fill a number of water glasses for the purpose of serving patrons in a restaurant, my above-described filling apparatus may be utilized very easily and quickly by simply inserting tray 48 into housing 1 so that it rests on platform 36 in the manner shown in FIG. 1. Glasses 50 will normally be arranged on tray 48 so that they will be disposed directly under discharge orifices 10 in position to

receive water therefrom when tray 48 is in position on platform 36. The forward movement of tray or receptacle carrier 48 into housing 1 will bring its front end 47 into contact with strike element 30 of operating lever 26, thereby pushing operating lever 26 rearwardly in the clockwise direction indicated by the directional arrow in FIG. 1. As operating lever 26 swings rearwardly about pivot point 27 it will carry valve stem 22 off of seat 23 against the resistance of valve spring 24. Valve 14 will thus be opened, and water will flow therethrough into distribution manifold 6 from which it will be discharged downwardly through orifices 17 and nozzles 10 into glasses 50. As water accumulates in glasses 50, the weight of the water will cause tray 48 and platform 36 to start compressing spring 46. When glasses 50 have been filled with water to a predetermined level, the increased weight of the water-filled glasses acting downwardly on platform 36 will compress spring 46 to the position shown in FIG. 4, thereby lowering the front end 47 of tray 48 to a point where it is moved out of contact with strike member 30 of operating lever 26. The disengagement of tray 48 from strike head 30 permits lever 26 to swing back forwardly in the direction indicated by the arrows in FIG. 4 to carry valve stem 22 back into closed position on valve seat 23. The flow of water through valve 14 and distribution manifold 6 is thus stopped, and tray 48 may be removed from housing 1 to distribute filled water glasses 50 in any manner desired. When the weight of tray 48 and water glasses 50 is removed from platform 36, spring 46 will automatically extend to its normal position shown in FIG. 1. With spring 46 extended upwardly in the manner shown in FIG. 1, platform 36 will be at such a level that when another tray 48 is placed thereon, the forward end 47 of the tray will contact strike member 30 of operating lever 26.

The amount of water which is permitted to flow through valve 14 in any filling operation can be varied in accordance with the size of the receptacles to be filled and the level to which filling is desired by adjusting the position of threaded strike sleeve 30 on operating lever 26. For example, turning sleeve 30 clockwise will cause it to move downwardly on the threaded end of lever 26; and, this will necessitate the filling of water glasses 50 to a higher lever before the weight load on platform 36 is great enough to depress spring 46 to a point where the forward end 47 of tray 48 disengages lever 26. The downward movement of platform 36 and tray 48 required to release valve operating lever 26 thus varies with the vertical adjustment of threaded sleeve 30 on lever 26. It would of course be possible to open and close valve 14 manually by sliding tray 48 back and forth on platform 36, the flow of water through valve 14 being stopped by pulling tray 48 out of housing 1 to release lever 26 and permit it to return to its closed position of FIG. 4. However, such an arrangement would have the disadvantage of requiring the operator to stay in attendance during the filling operation to observe when the glasses are filled and then to pull tray 48 out of contact with lever 26.

In FIGS. 5 through 8, I have shown an alternate embodiment of my invention which is particularly suitable for expediting the filling of water glasses in commercial establishments which use automatic dishwashers. The filling apparatus shown in FIGS. 5 and 6 is comprised of a stationary platform 52 which is constructed from sidewalls 53 and 54 suspended from angle iron uprights 56 and 57 and inclined, angle iron braces 58 and 59. Extending horizontally between sidewalls 53 and 54 is a generally horizontal floor or base wall 52 on which a receptacle carrier may be received. Cross brace 62 at the rear of the filler apparatus (as shown in FIGS. 5, 6, and 8) is affixed to uprights 56 and 57. As appears most clearly in FIGS. 6 and 8, flow control valve 64 is supported from cross brace 62 by means of bifurcated bracket 66. Valve 64 is a flush valve of the type manufactured by the Sloan Valve Company, and is designed to pass a predetermined amount of fluid upon the tripping of valve operating lever or handle 70. A spring return mechanism (not shown) would normally be provided within valve assembly 64 to return handle or lever 70 to its normal position after it is displaced rearwardly to open valve 64. Inlet connection 68 for valve 64 is connected to a water supply pipe, and outlet fitting 69 is connected to overhead, water distribution manifold 72. Manifold 72 is of the same general design as that shown at 6 in FIGS. 1 and 3, and incorporates longitudinally extending water distribution pipes 74. Secured to the underside of manifold 72 by a plurality of brackets 73 is a splash sheet and nozzle guide 75. As is indicated in FIG. 6, discharge nozzles 76 are attached to sheet 75 and projected downwardly therefrom in alignment with complementary orifices (not shown) provided in distribution pipes 74. The filling apparatus of FIGS. 5 through 8 is particularly designed to handle and cooperate with a receptacle carrier in the form of a wire rack 78 of the type normally employed for holding glasses in automatic dishwashers. A plurality of glasses 80 are shown in position within wire rack 78 in FIGS. 5 and 6. Discharge nozzles 76 would normally be of such a number and spacing as to be indirect vertical alignment with the glasses 80 with which a standard dishwasher rack would be filled.

Referring now to FIGS. 6 and 7, I have provided an actuator assembly 82 for tripping valve operating lever 70 in response to the movement of glass rack 78 into position on platform 60. Actuator 82 is comprised of a slide rod 84 having a bifurcated end portion 88 constructed and arranged to engage valve lever 70 in the manner shown in FIG. 6. Downwardly depending portion 85 at the front end of actuator 82 is provided with a strike member 86 which may take various forms, but which preferably is a circular member as shown in FIG. 7. Slide rod 84 is shiftably received within guide tube 90 affixed to the rear face of mounting bracket 92. A plurality of through holes 93 in bracket 92 permit it to be mounted in the desired position on cross brace 62. Guide collar 95 is affixed to rod 84 and serves as a seat for compression spring 94 extending between collar 95 and bracket 92. The mounting arrangement of valve support bracket 66 and actuator bracket 92 on cross brace 62 is shown in FIGS. 6 and 8.

As was noted above, the filling apparatus of FIGS. 5 through 8 has been designed with a particular view towards rapidly filling a plurality of water glasses as they are removed from an automatic dishwasher. Since the filling fixture shown in FIGS. 5 through 8 is adapted to receive and automatically respond to a standard, dishwasher glass rack, there is no need for transferring glasses 80 from the dishwasher rack to a separate tray or carrier before filling the glasses with water. When rack 78 containing a plurality of cleaned glasses 80 is removed from a dishwasher, it may be placed directly on platform 60 of my water-filling apparatus with the open ends of glasses 80 facing upwardly, directly under discharge spouts or nozzles 76. Since glasses 80 will normally be placed in a dishwasher rack upside down for proper washing, the glasses must be inverted after the washing operation. The open ends of the glasses would then be facing upwardly in position to receive water from distribution manifold 72.

In operation, rack 78 would be placed on platform 60 and slid rearwardly until the rear portion of the wire rack engages strike member 86 of actuator 82. A further, slight rearward movement of rack 78 will then cause slide rod 84 to be pushed rearwardly whereby bifurcated end portion 88 thereof will trip valve handle or lever 70. Rack 78 must then be pulled forwardly to disengage the rack from strike member 86; and return spring 94, which will have been compressed by the rearward movement of rod 84 and collar 95, will extend to its normal position and thereby return slide bar 84 to its rest position by acting on collar 95. The return movement of slide bar 84 by spring 94 will serve to disengage bifurcated end 88 from valve operating lever 70, thereby permitting lever 70 to be returned to its normal, rest position. Flush valve 64 is so designed and set as to pass a predetermined amount of water into distribution manifold 72 when operating lever 70 is actuated. The setting of valve 64 may of course be varied in order to insure that a sufficient quantity of water passes into

manifold 72 to fill glasses of a particular size to the desired level. After the predetermined amount of water has been directed into glasses 80 through nozzles 76, and the flow of water has stopped, rack 78 is removed to a suitable storage location from which filled glasses 80 may be delivered to restaurant patrons in the manner and at the time desired.

It will be readily apparent from the foregoing description that the water dispensing and glass filling apparatus as described with respect to FIGS. 1 through 8 is particularly effective in quickly and easily accomplishing the filling of a plurality of receptacles. My filling apparatus could of course be modified in various ways without losing the particular advantages of a tray or rack actuated water filler of the basic type which I have shown and described herein. I contemplate that it would be highly desirable to incorporate an ice dispenser with the filler apparatus described herein, the ice dispenser being located above the water distribution manifold to direct ice downwardly into the glasses on a tray or rack. Various changes in the size, proportion and arrangement of the various parts may be made without departing from the spirit and scope of my invention as defined by the following claims.

I claim:

1. Apparatus for simultaneously filling a plurality of receptacles with water comprising:

a housing having top, bottom and sidewalls and an open front end;

a water distribution manifold having a plurality of spaced apart discharge orifices therein supported from the top wall of said housing with said orifices directed downwardly;

a flow control valve connected to said manifold;

an operating lever connected to said valve constructed and arranged for opening and closing said valve by the movement thereof;

a generally horizontally extending platform disposed under said water distribution manifold and pivotally supported upon a horizontal axis at one end thereof, said platform having sufficient length and width to slidably support a portable receptacle carrier having a plurality of removable water receptacles thereon inserted through said open end of said housing, said operating lever having a contact portion thereon so located as to be contacted and actuated by said receptacle carrier to open said valve when said carrier is slidably placed on said platform at a location completely within said housing wherein said receptacles are in vertical registration with said discharge orifices in said manifold; and

spring means supportably engaging said platform at the opposite end thereof and serving as the sole means for holding said platform in a normal position in which said receptacle carrier will contact and actuate said operating lever to open said valve when said carrier is slidably inserted into said housing on said platform, the increased weight of said receptacles when filled with water to a predetermined level causing the gradual displacement of said spring means and thereby permitting said platform and carrier to slowly move downwardly to a position wherein said operating lever released by said carrier to close said valve.

2. Filling apparatus as defined in claim 1 wherein:

said bottom wall of said housing is contoured to provide a depressed, water-collecting portion remote from said open front end of said housing at the rear of said housing;

said platform is pivotally supported at the front end of said housing upon a horizontal axis extending generally perpendicular to the sidewalls of said housing; and

said spring means is located adjacent the rear end of said housing and supports the inner, free end of said platform thereby holding said inner end of said platform in an elevated position above said water-collecting portion of said bottom wall.

3. Filling apparatus as defined in claim 1 wherein:

said operating lever has a downwardly depending portion with an adjustable strike member thereon arranged to be contacted by an upper edge of said receptacle carrier, the position of said strike member relative to said carrier being vertically adjustable on said operating lever to thereby permit the changing of the level to which said receptacles will be filled before said spring means will have been displaced sufficiently to disengage said carrier from said operating lever to close said valve.

4. Filling apparatus as defined in claim 1 wherein:

said valve operating lever is pivotally supported and has its free end disposed for contact by said receptacle carrier; and

a valve and valve stem assembly normally held in a closed position in said flow control valve by a spring, said valve stem being connected to said pivotal operating lever, whereby said spring serves to close said valve and pivot said operating lever to its normal position of rest after it has been released by said receptacle carrier.

5. Apparatus for simultaneously filling a plurality of glasses with water comprising:

a fluid distribution manifold having a plurality of spaced apart, downwardly directed, discharge orifices therein;

a flush valve means having an operating lever connected thereto, said valve means being arranged to pass a predetermined amount of water therethrough when said operating lever is tripped;

a generally horizontally extending platform for slidably supporting a portable receptacle carrier which carrier comprises a rack having upright end and sidewalls containing a plurality of water glasses, said platform being open at its front, carrier receiving end and having a rear frame structure at the opposite end thereof on which said flush valve means is mounted; and

a shiftable rod reciprocally movable along the same linear path as that of said receptacle carrier slidably received on said platform and operatively associated at one end thereof with said valve means operating lever, said shiftable rod having an enlarged contact portion at the opposite end thereof so located at an elevated position above said platform as to be contacted by the inner upright end of said receptacle carrier as said carrier is slidably moved on said platform through said open end thereof into position beneath said fluid distribution manifold to orient a plurality of water glasses with said discharge orifices, and spring means engaging said shiftable rod and normally urging said rod towards said open end of said platform to a release position with respect to said operating lever.