Jan. 7, 1947. A. R. THOMPSON 2,413,736

BEVERAGE DISPENSER

Filed Sept. 27, 1941

Fig.1

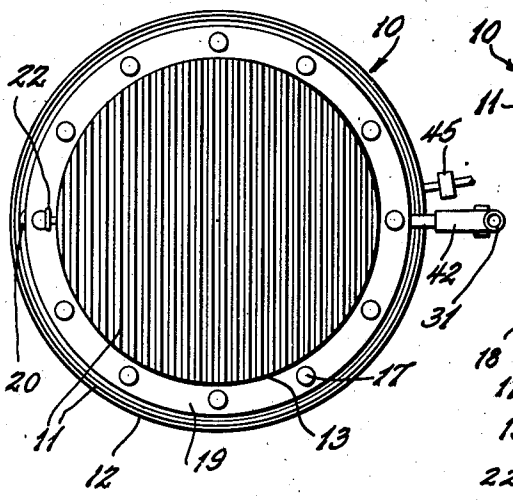


Fig.2

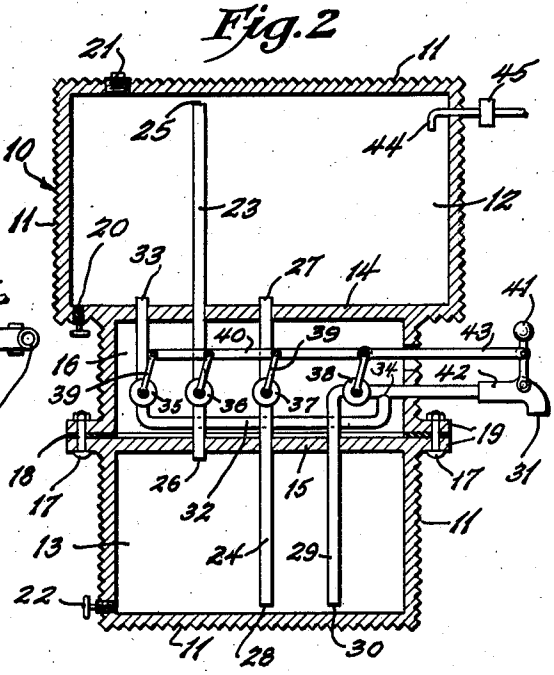


Fig.3

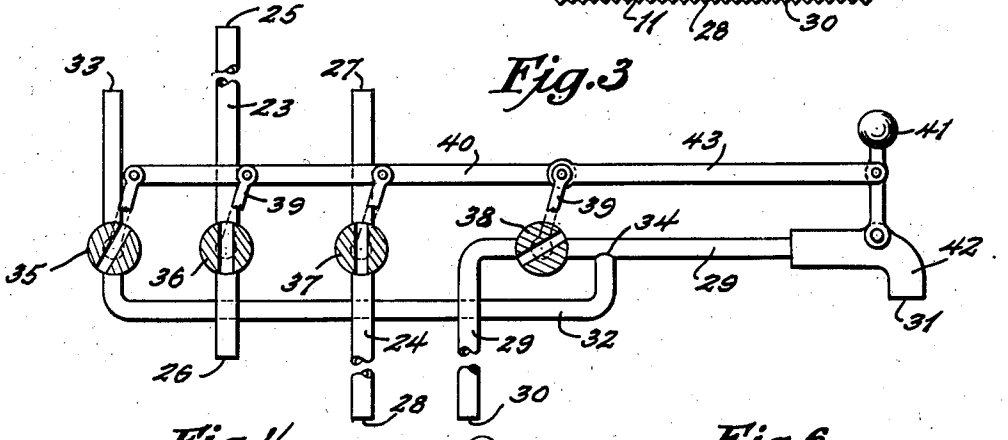


Fig.4

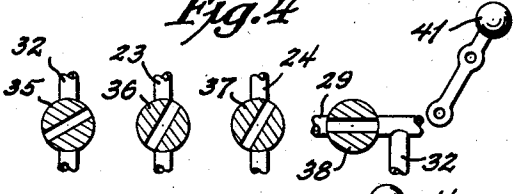


Fig.5

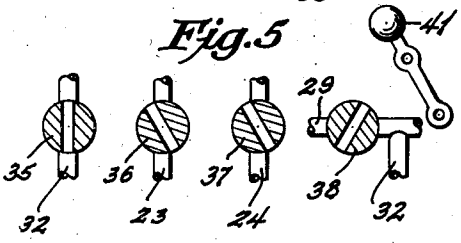
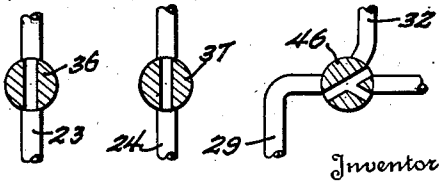


Fig.6



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BEVERAGE DISPENSER

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6 Claims. (Cl. 225—21)

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The present invention relates to a method and apparatus for dispensing liquids and beverages, particularly those which are carbonated and of the type commonly known as soft drinks although any other forms or types of beverages may be used in the dispenser.

The object of the present invention is to eliminate or control foam which forms on or constitutes the substance dispensed from premixed highly carbonated beverages.

A further object of the invention is to provide a dispenser in the form of a double chambered receptacle having a series of valves between the chambers controlling a number of communicating passages between the chambers.

A still further object of the invention is to interconnect the valves to operate simultaneously from the actual dispensing valve or handle. Another object of the invention is to provide means for closing communication between two chambers when the carbonated beverage is dispensed from one of the chambers so that the beverage will run in as liquid state as possible.

Further objects will be apparent from the following description taken in connection with the accompanying drawing in which:

Figure 1 is a bottom plan view of the dispenser.

Fig. 2 is a vertical sectional view of the dispenser,

Figs. 3, 4 and 5 are diagrammatic views of the pipe and valve connections in the non-dispensing, dispensing and foam adding positions respectively, and

Fig. 6 is a diagrammatic view of a modified pipe and valve connection.

A receptacle or container 10 constituting the beverage dispenser is made of metal, glass, composition material or any other suitable substance and is provided with a plurality of external ribs 11 on the sides as well as the top and bottom. These ribs 11 are for the purpose of cooling the contents of the receptacle since the latter is adapted to be surrounded by ice or any other refrigerating or cooling medium. The receptacle 10 may comprise any shape and may be made with smooth outer walls if desired. In the example shown for purpose of illustration in Figs. 1 and 2 the receptacle is cylindrical and is provided with an upper chamber 12 and a lower chamber 13 with a bottom partition 14 in the upper chamber and a top partition 15 in the lower chamber. Thus a space or intermediate chamber 16 is formed between the two partitions 14 and 15 although a single partition could be used if desired. As shown the two chambers are bolted together

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by means of bolts 17 with a washer 18 between two flanges 19 to form a tight joint between the chambers. Obviously any other securing means may be used.

The chamber 12 is provided with a drain plug 20 in the bottom partition 14 and a cleaning plug 21 in the top thereof. Also the lower chamber 13 is provided with a drain plug 22.

The two chambers are provided with a plurality of communicating pipes, tubes or passages which may be provided entirely in the chambers or they may pass along the outside of the receptacle. As shown a pipe 23 terminates at one end 25 near the top of the upper chamber 12 and the other end 26 near the top of the lower chamber 13. A second pipe 24 terminates at one end 27 near the lower part of the upper chamber 12 and the other end 28 near the lower part of the lower chamber 13. An outlet or dispensing pipe 29 terminates at one end 30 near the bottom of the lower chamber 13 and the other end 31 externally of the receptacle. A by-pass pipe 32 terminates at one end 33 near the lower part of the upper chamber 12 and the other end 34 in the outlet pipe 29.

Each of the pipes referred to in the foregoing is provided with a valve 35, 36, 37 and 38, each having an actuating lever 39 with all the levers connected to an actuating bar 40. An operating handle 41 is pivotally connected at the spigot 42 and is provided with a connecting link 43 which connects the handle 41 with the actuating bar 40. All of the valves 35, 36, 37 and 38, together with the levers 39 and bar 40 are provided in the intermediate chamber 16 as indicated in Fig. 2.

The beverage or liquid to be dispensed enters the upper chamber 12 through a pipe 44 after passing through a reducing valve 45, the liquid in ready mixed and carbonated form, being for instance, supplied to the pipe 44 from any suitable source of supply, not shown. Fig. 6 shows a to-way valve 46 with the valves 35 and 38 combined into the single valve 46.

The dispenser operates as follows. In the position of the valves shown in Fig. 3, no beverage is being dispensed from the spigot 42, and it can be assumed that the carbonated liquid is entering through filling pipe 44 whereby the liquid first fills the lower chamber 13 by gravity and pressure through pipe 24, at the same time giving up some of the CO_2 gas which passes through the pipe 23 into the upper chamber 12 since the gas is lighter than the liquid. When the lower chamber 13 is completely filled, the upper chamber 12 begins to fill until the pressure of the CO_2 gas in the upper

chamber 12 equals the pressure of the incoming liquid in pipe 44 after which no further liquid can enter the dispenser. When the carbonated liquid is to be dispensed, the handle 41 is rotated clockwise so that the valves will be in the positions shown in Fig. 4 with only valve 38 open, thus releasing the liquid from the bottom of the lower chamber 13 through pipe 29. Since the liquid comes from the bottom of the lower chamber 13, practically immediately upon opening the valve 38 the pressure in the lower chamber drops so that the liquid is dispensed only by the pressure of the CO_2 gases forming in the top of the lower chamber 13 thereby avoiding a sudden rush or splash of carbonated liquid as well as foam, caused by high pressure. However, the carbonated liquid dispensed will contain the full amount of CO_2 gas as contained in the liquid under high pressure.

If a slight amount of foam is to be provided on the top of the dispensed liquid the valves and handle 41 are turned counterclockwise to the position of Fig. 5 in which the carbonated liquid from the high pressure chamber 12 is dispensed which is immediately converted into a foam at the point 31.

It is, of course, obvious that the dispenser will operate equally as well by connecting the inlet supply for the ready-mixed beverage to the lower chamber instead of to the upper chamber, in which case the pipe 23 or 24 may be eliminated together with its valve and when using such a source of supply, the inlet pipe for the beverage is shut off when the beverage is dispensed from the container. Such a shut off valve in the supply pipe may be simultaneously operated from the dispensing valve.

It is understood that the various features of the invention herein shown and described are not restricted to such particular embodiment. Moreover, it is not indispensable that all the features of this invention be used conjointly, since they may be employed advantageously in various combinations and sub-combinations.

It is also to be understood that the pipe 44 may be connected to a high pressure tank or cylinder, not shown, from which the ready-mixed carbonated beverage is forced under high pressure to and through the reducing valve 45 and into the chamber 12. It is, of course, well known that a sugar containing carbonated beverage foams readily, and also completely, when under high pressure, and, therefore, the present dispenser is so designed to eliminate the conversion of the liquid into a foam when dispensed. Thus, if the liquid is drawn from the chamber 12, Figs. 1 and 5, with valve 35 open and valves 36, 37 and 38 closed, the liquid is at the pressure of the reducing valve since the supply liquid through 44 will immediately flow when valve 35 is opened, causing a foam to issue at 31. However, when the valves are in the position of Fig. 4, the liquid is forced out of chamber 13 only, and no liquid replenishes the dispenser until valve 38 is closed and valves 36 and 37 are opened, Fig. 3.

I claim as my invention:

1. A carbonated beverage dispenser and the like comprising a receptacle, having two spaced partitions therein dividing the receptacle into an upper chamber, a lower chamber and an intermediate chamber; at least one pipe communicating with the upper and lower chambers and passing through the intermediate chamber; a valve in said pipe provided in the intermediate chamber; means for supplying a ready-mixed beverage into one of the upper and lower chambers; means for dispensing the beverage from the lower chamber; means connected to said dispensing means and the valve, to simultaneously close the valve when the dispensing means is operated to dispense the beverage to the exclusion of foam; a by-pass pipe provided from the upper chamber and the dispensing means, and passing through the intermediate chamber; and a valve provided in the by-pass pipe in the intermediate chamber and operable from the dispensing means, said by-pass valve being operable from the dispensing means to dispense foam when desired.

2. A carbonated beverage dispenser and the like comprising a receptacle, having two spaced partitions therein dividing the receptacle into an upper chamber, a lower chamber, and an intermediate chamber; a pipe communicating with the upper parts of both the upper and lower chambers and passing through the intermediate chamber; a second pipe communicating with the lower parts of both the upper and lower chambers and passing through the intermediate chamber; a valve in each of said pipes and provided in the intermediate chamber; an inlet pipe in the upper chamber for supplying the ready-mixed beverage under pressure into the upper chamber and into the lower chamber by means of said second pipe; an outlet pipe connected to the lower chamber; a valve in the outlet pipe; and means in the intermediate chamber operable by the outlet valve operating means to close the first and second mentioned valves when the outlet valve is opened to dispense the beverage only from the lower chamber to the exclusion of foam.

3. A carbonated beverage dispenser and the like comprising a receptacle, having two spaced partitions therein dividing the receptacle into an upper chamber, a lower chamber, and an intermediate chamber; a pipe communicating with the upper parts of both the upper and lower chambers and passing through the intermediate chamber; a second pipe communicating with the lower parts of both the upper and lower chambers and passing through the intermediate chamber; a valve in each of said pipes and provided in the intermediate chamber; an inlet pipe in the upper chamber for supplying the ready-mixed beverage under pressure into the upper chamber and into the lower chamber by means of said second pipe; an outlet pipe connected to the lower chamber; a valve in the outlet pipe; means in the intermediate chamber operable by the outlet valve operating means to close the first and second mentioned valves when the outlet valve is opened to dispense the beverage only from the lower chamber to the exclusion of foam; a by-pass pipe provided in the intermediate chamber connected to the lower part of the upper chamber and the outlet pipe; and a valve in the by-pass pipe in the intermediate chamber operable by the outlet valve to open the by-pass valve to dispense a small amount of beverage from the upper chamber as a foam when said first and second-mentioned valves and the outlet valve are closed..

4. A carbonated beverage dispenser and the like comprising a receptacle, having two spaced partitions therein dividing the receptacle into an upper chamber, a lower chamber, and an intermediate chamber; a pipe communicating with the upper parts of both the upper and lower chambers and passing through the intermediate chamber; a second pipe communicating with the lower parts of both the upper and lower cham-

bers and passing through the intermediate chamber; a valve in each of said pipes and provided in the intermediate chamber; an inlet pipe in the upper chamber for supplying the ready-mixed beverage under pressure into the upper chamber and into the lower chamber by means of said second pipe; an outlet pipe connected to the lower chamber; a valve in the outlet pipe; means in the intermediate chamber operable by the outlet valve operating means to close the first mentioned valves when the outlet valve is opened to dispense the beverage only from the lower chamber to the exclusion of foam; a by-pass pipe provided in the intermediate chamber connected to the lower part of the upper chamber and the outlet pipe; and a valve in the by-pass pipe in the intermediate chamber operable by the outlet valve to open the by-pass valve to dispense a small amount of beverage from the upper chamber as a foam when said first and second-mentioned valves and the outlet valve are closed, said means for operating all the valves being operable by a common member on the outlet pipe.

5. A carbonated beverage dispenser comprising a receptacle having means dividing it into first and second chambers, intercommunicating pipe means between the two chambers each having a valve therein, a pipe extending from the second chamber to the outside of the receptacle acting as an outlet for the beverage and having a valve therein, means in communication with the first chamber and a source of supply to maintain the second chamber and a part of the first chamber filled with the beverage, means connected to operate all the valves simultaneously whereby when the outlet valve is open the intercommunicating

valves will be simultaneously closed to dispense beverage only from said second chamber, an intermediate chamber provided between the first and second chambers in which the valves are provided, and a pipe with a valve provided in the intermediate chamber operative by the valve operating means and communicating with the first chamber and the outlet to dispense beverage as a foam from the first chamber.

6. A carbonated beverage dispenser comprising a receptacle, having means to divide it into two separate chambers of which one is above the other, a tube extending from the lower chamber into the upper chamber, a pair of tubes extending into the lower chamber and of which one extends into the upper chamber and the other extends out from the receptacle, a valve in each tube which extends into both chambers, a valve in the tube which extends into the lower chamber and out from the receptacle, means connected to all the valves which may be actuated in one position in which both chambers are in communication and the valve in the tube which extends out from the receptacle is closed and in another position when the last mentioned valve is open and the valves in the tubes which communicate with both chambers are simultaneously closed, to dispense a liquid in the absence of foam, and a by-pass pipe and valve, the by-pass pipe being in communication with the upper chamber and the outwardly extending tube, whereby upon actuating of the common valve connecting means to a third position the valve in the by-pass pipe is open and the other valves are simultaneously closed to dispense foam.

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