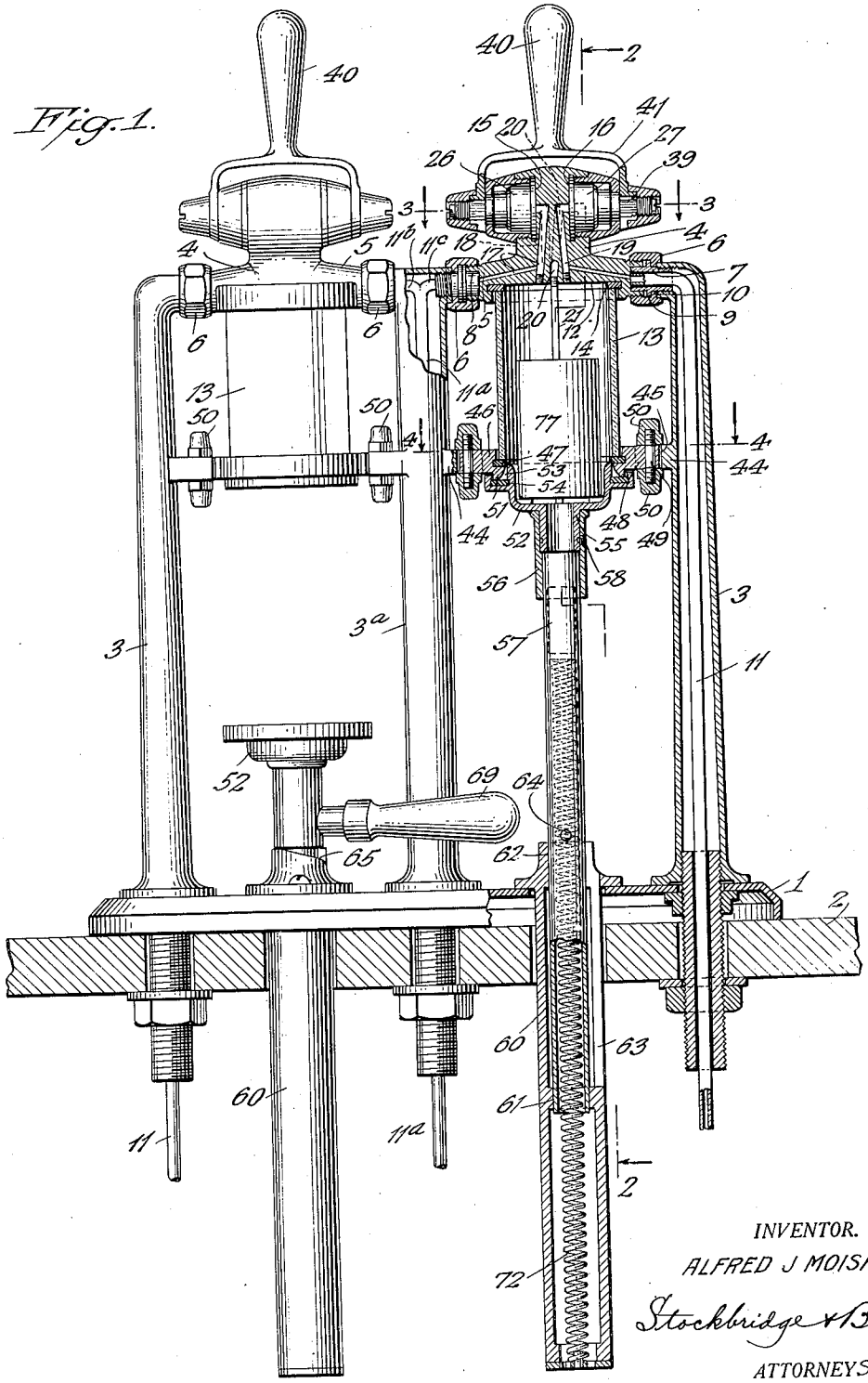
May 7, 1929. A. J. MOISANT 1,711,900

LIQUID DISPENSING DEVICE

Filed Feb. 1, 1926 3 Sheets-Sheet 1

Fig. 1.



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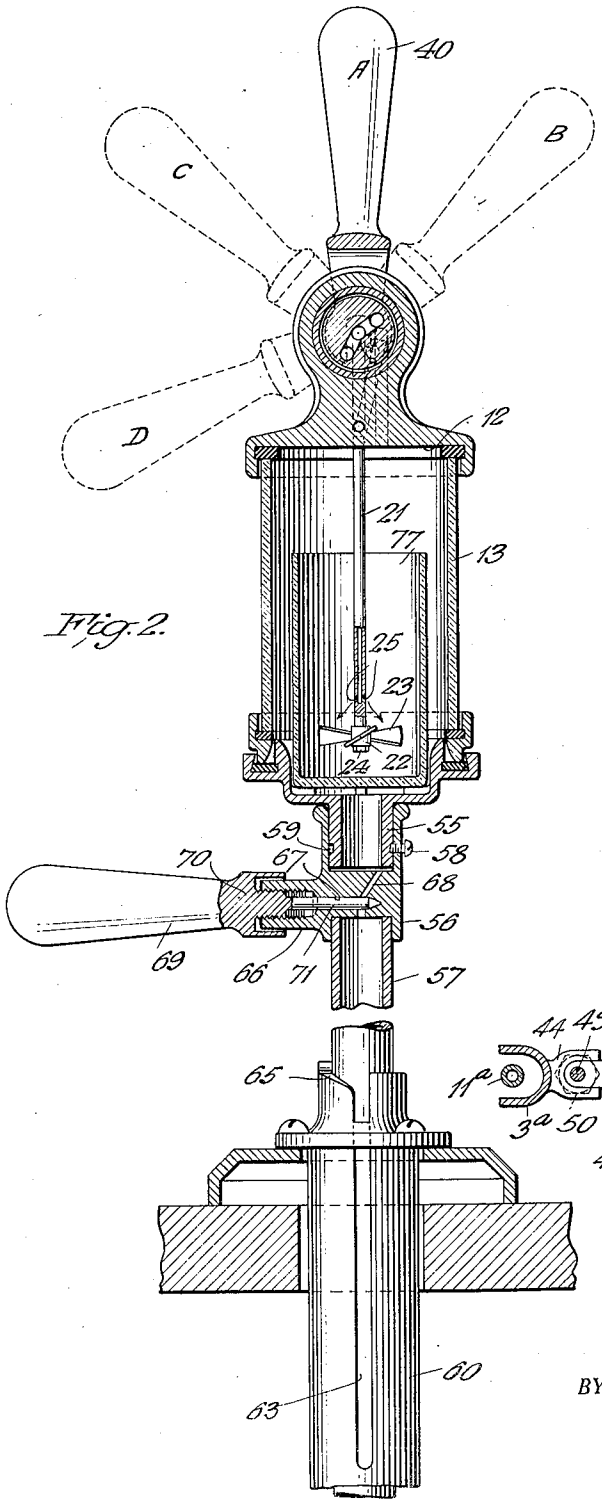
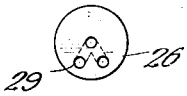


Fig. 2.

Fig. 6.



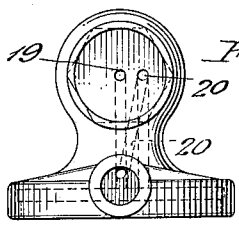


Fig. 5.

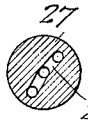


Fig. 7.

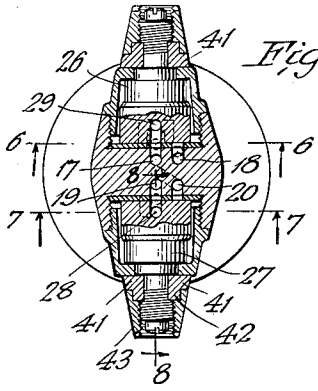


Fig. 3.

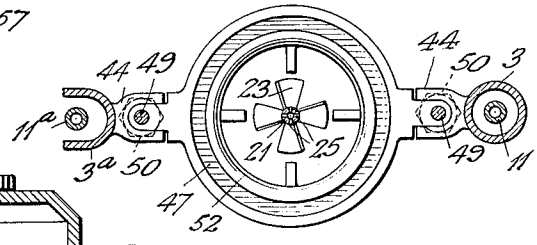


Fig. 4.

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LIQUID DISPENSING DEVICE

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Fig. 10.

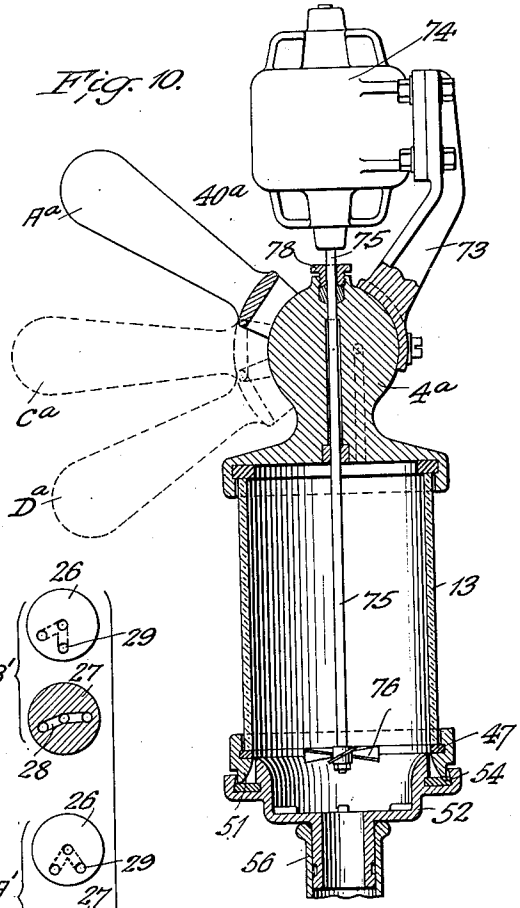


Fig. 12.

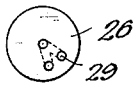


Fig. 11.

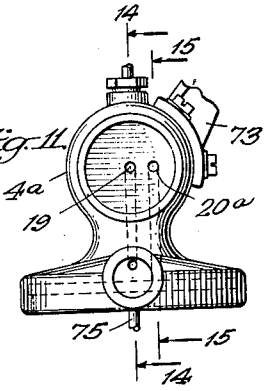


Fig. 13.



Fig. 9.

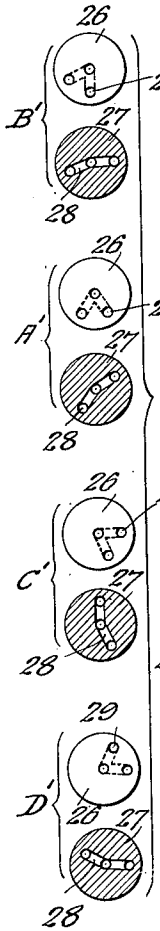


Fig. 8.

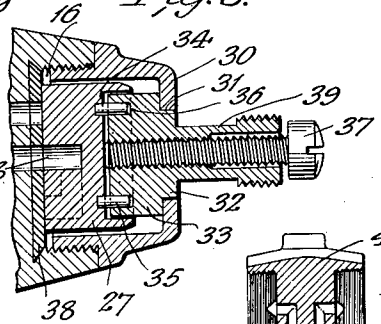


Fig. 14.

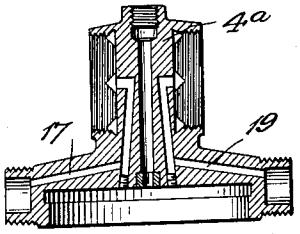
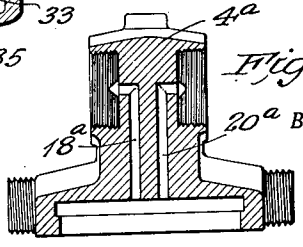


Fig. 15.



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Patented May 7, 1929. 1,711,900

UNITED STATES PATENT OFFICE.

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LIQUID-DISPENSING DEVICE.

Application filed February 1, 1926. Serial No. 85,150.

This invention relates to the dispensing of liquids charged with gas, such as carbonated soft drinks.

Heretofore difficulty has been experienced in dispensing heavily gas-charged liquids, owing to the fact that when the charged liquid, which is held under pressure in order to prevent the escape of the gas charge therefrom, is dispensed, it is necessarily agitated and subjected to a reduced pressure, causing it to foam excessively with a resulting loss of a considerable portion of the gas charge.

An object of this invention is to provide an improved method and apparatus for dispensing gas-charged liquids or transferring them from one container to another at different pressures, and in accordance with which foaming of the liquid during such dispensing or transfer may be prevented; during which loss of the gas charge may be practically entirely prevented; with which any desired degree of foaming may be created in order to put a "top" on any quantity of the dispensed liquid; and which is relatively simple.

A further object is to provide an improved apparatus for dispensing gas-charged liquids which will be sufficiently simple to be manipulated by relatively unskilled attendants; with which a gas-charged liquid may be rapidly dispensed without foaming; with which such liquid may be dispensed with any desired degree of foaming; which has a minimum of controls; and which is durable, compact, practical, attractive in appearance, and relatively inexpensive.

Various other objects and advantages will be apparent from the following description of two embodiments of the invention, and the novel features will be particularly pointed out hereinafter in connection with the appended claims.

In the accompanying drawings:—

Fig. 1 is an elevation, partly in section, of a dispensing apparatus constructed in accordance with the invention;

Fig. 2 is a transverse sectional elevation through the same, with the section taken approximately along the line 2—2 of Fig. 1;

Fig. 3 is a sectional plan through the head of the same, with the section taken approximately along the line 3—3 of Fig. 1;

Fig. 4 is a sectional plan through another part of the apparatus, the section being taken approximately along the line 4—4 of Fig. 1;

Fig. 5 is an end elevation of a head of such apparatus, and illustrating one of the valve seats thereof;

Fig. 6 is an elevation of the inner face of one of the valve elements for controlling the passage of gas under pressure through said head, and showing the appearance as if looking along the section line 6—6 of Fig. 3 and in the direction of the arrow;

Fig. 7 is a sectional elevation through the valve element controlling the passage of the charged liquid through the head, with the section taken approximately along the line 7—7 of Fig. 3 and looking in the direction of the arrow;

Fig. 8 is a longitudinal sectional elevation of a part of the head, the section being taken approximately along the line 8—8 of Fig. 3;

Fig. 9 is a diagram illustrating different relative angular positions of the valve elements of Figs. 6 and 7 when in different operative positions corresponding to the positions of the controlling handle shown in full and dash lines in Fig. 2;

Fig. 10 is a sectional elevation through a portion of a dispensing apparatus also constructed in accordance with the invention and illustrating a modification thereof;

Fig. 11 is an end elevation of the head of the same, corresponding to the similar elevation in Fig. 5 of the other embodiment of the invention;

Fig. 12 is an elevation of the inner face of one of the valve elements forming a part of the head of this embodiment of the invention;

Fig. 13 is a sectional elevation of the other valve element of this embodiment of the invention, the section being taken upon a line corresponding to line 7—7 of the other embodiment of the invention;

Fig. 14 is a sectional elevation through the head of the embodiment of the invention shown in Figs. 10 and 11, with the section

taken approximately along the line 14—14 of Fig. 11; and

Fig. 15 is another sectional elevation of the same, with the section taken approximately along the line 15—15 of Fig. 11.

Referring particularly to Figs. 1 to 9, a frame or standard 1 is supported upon a base or platform 2, and provided with upright posts 3 which support a dispensing head 4 at a distance above the base or platform 2. The dispensing head 4 is provided with cylindrical terminals 5 having threaded peripheries to which the posts 3 are connected.

In the simple form of the invention shown in Figs. 1 and 2, a double dispensing device is shown, the two devices utilizing a post 3^a in common instead of having separate posts for each device. The common post 3^a at its upper end is provided with two lateral branches extending in opposite directions, and the side posts 3 at their upper ends are turned toward one another and toward the central post 3^a. Each dispensing head 4 is mounted between the common post 3^a and a side post 3. As a simple form of connection between the posts and the head 4, each post 3 and the common post 3^a may have upon their branches a rotary sleeve 6 rotatably mounted and confined thereon and threaded over the cylindrical extensions 5 of the head.

The posts 3 and 3^a are hollow, and at their ends are connected to the head and provided with internal sleeves 7 which may be threaded therein. Each sleeve 7 has a forwardly projecting end which may be received in a suitable recess 8 in the cylindrical extension 5, and is also provided with a peripheral annular flange 9 behind which an inwardly extending annular flange 10 of the sleeve 6 is confined. The flange 9 confines the flange 10 of the sleeve 6 against the end of the tubular shell of the post 3 in such a manner that the sleeve 6 will be freely rotatable upon the sleeve and at the same time will be limited in axial movement thereon. Thus when the sleeve 6 is threaded upon the cylindrical extension 5 of the head 4, the end of the sleeve 7 will be drawn tightly into the cylindrical extension 5 and form a tight contact therebetween. The common post 3^a has two branches which are similarly connected to the heads 4 which they support in common.

Each side post 3 is provided with a conduit 11 which passes upwardly therethrough, its ends being received within and extending all the way through the sleeve 7 and anchored therein in any suitable manner. Preferably the end of the pipe 11 passing through the sleeve 7 is upset over the projecting end of the sleeve 7, so that when the sleeve 7 is drawn tightly into the recess 8, the end of the pipe 11 will be drawn tightly against the inner end wall of the recess 8. In the common post 3^a a pipe 11^a, similar to the pipe 11, is provided, the pipe 11^a having branches 11^b and 11^c which pass through the two standard branches for connection to the adjacent cylindrical extensions 5 of the two heads 4.

Each head 4 is provided with a recess 12 in its under face, the recess having a flat end wall forming a seat in which one end of a shell or casing 13 is fitted preferably with an interposed gasket 14 to provide an air-tight joint therebetween. Each head 4 is also provided with recesses 15 and 16 in opposite faces and upon opposite sides, the two recesses being aligned with one another and opening in opposite directions and away from one another. The inner bottom or end walls of the recesses are spaced from one another sufficiently to permit of the provision of passage sections therein for a purpose which will be explained presently. Passages or passage sections 17 and 18 lead from the inner end or bottom wall of each recess 15, one, such as 17, passing to a recess 8 of one cylindrical extension 5 where it communicates with the branch 11^c of the pipe 11^a, the other section 18 opening into the recess 12 within the area inclosed by the gasket 14. In a similar manner, passage sections 19 and 20, corresponding to 17 and 18, are provided in the head 4 leading to the inner end or bottom wall of the recess 16.

The ends of the passages 17, 18, 19 and 20 which terminate in the recesses 15 and 16 are spaced apart from one another in each recess, the terminals of the passages 17 and 19 in such recesses being preferably arranged axially of the recesses, and the ends of the passages 18 and 20 being disposed at one side of the axis as shown in Figs. 3 and 5. The passage 20 terminates in the recess 12 at approximately its center as shown in Figs. 1 and 3, and into the open end of the passage 19, a pipe 21 is threaded. The pipe 21 extends downwardly in the casing 13 and at its lower end is provided with a mixing device, comprising a sleeve 22 which rotates freely upon the lower end of the pipe and having a plurality of paddle blades 23 which are inclined at an angle to the length of the pipe so as to resemble propeller blades.

The sleeve 22 may be rotatably confined on the lower end of the pipe 21 in any suitable manner, such as by a bolt 24 which is threaded into the lower end of the pipe, with the head of the bolt forming a shoulder against which the hub of the sleeve 22 abuts. The pipe 21 is hollow from the end that is threaded into the passage 20 to a point adjacent the mixing device. Branch outlets or orifices 25 are provided for the lower end of the conduit of the pipe 21, adjacent the mixing device, and such outlets are inclined toward the blades 23 so that when

any fluid passes through the pipe 21, it will escape through the outlets and strike the blades 23. The outlets 25 are so disposed with respect to the number of blades 23 that a blade will always be within the path of a fluid jet from one of the orifices or outlets. Therefore, a fluid passing through the pipe 21 will emerge as jets and cause continuous rotation of the mixing device. The passage 19 communicates with the recess 8 in which the pipe 11 is connected.

Valve elements 26 and 27 are disposed in the recesses or sockets 15 and 16 respectively, said valve elements each having a cylindrical portion fitting against the inner or bottom end walls of the recesses and having upon the faces abutting the end wall a channel or passage for cooperation with the passage sections which open through the end wall of the recess against which it abuts. For example, the valve element 27 is provided with a channel 28 which extends from its center or axis of rotation to opposite sides of the axis, the branches thereof making an obtuse angle to one another of approximately 150°, and with the apex of the angle at the axis of rotation.

The valve element 26 similarly has a channel 29, substantially V-shaped as shown in Fig. 6, opening through the inner end face at the center of oscillation and at two spaced points therefrom, the channel sections thereof forming with one another an acute angle of approximately 45°, and with the apex of the angle at the axis of rotation of the element. When either valve element is oscillated the channel in its inner end face will move into positions in which it connects the ports of the passage sections 17, 18, 19 and 20 of the head so as to establish or interrupt direct communication between the passage sections controlled by each valve element.

Referring particularly to Fig. 8, the recess 16 is closed by a cap 30 which is threaded into the recess, the cap 30 having a flange closing the outer end of the recess and provided in said flange with an aperture 31 which is coaxial with the axis of oscillation of the valve element. In such aperture 31 a shoulder portion 32 of a controlling element 33 is rotatably mounted, said controlling element extending into a recess 34 in the outer end face of the valve element 27.

The controlling element 33 and valve element 27 may be coupled for rotation in any suitable manner, but the valve element preferably should be capable of a limited independent endwise movement. Such a coupling may be obtained, for example, by providing pins 35 upon the valve elements in such positions as to project from the bottom wall of the recess thereof and enter apertures 36 in the abutting inner or bottom end face of the controlling element 33. A screw 37 threaded through the controlling element abuts at its inner end against the bottom wall of the recess 34, so that whenever the screw is threaded into the controlling element, it will force the valve element 27 against the bottom wall of the recess 16. A shoulder of the controlling element 33 engages with the end wall of the cap 30 so as to take up the endwise thrust created by the screw 37. In order to take up the wear caused by the oscillation of the valve element in the recess, the head may have a hardened plate 38 anchored in the recess 36 against its inner end wall and provided with ports or apertures aligned with those of the head. A similar operating and mounting means is provided for the other valve element 26 and the corresponding parts are similarly designated.

The controlling elements 33 project through the caps 30 and have non-circular peripheral portions 39 by means of which they may be operated in a manner to be now described. An operating handle 40 is provided with arms 41 forming a fork, the ends of the arms being slotted and fitted over and embracing the non-circular peripheral portions 39, one arm being fitted over one controlling element and thus operating one valve element, such as 27, and the other arm fitting over the other controlling element and operating the other valve element. Both valve elements are, therefore, concomitantly operated by a common controlling handle 40.

The arms 41 may have upon their outer faces circular hubs or bosses 42 which are concentric with the axis of oscillation of the valve element when the handle 40 is properly fitted to the controlling elements 33. Nuts 43 (Figs. 1 and 3) threaded upon the outer projecting ends of the controlling elements have flanges overlapping or embracing hub portions 42 of the arms 41, to prevent withdrawal of the operating handle and thus confine it to the controlling element. Thus by means of the single controlling handle 40, the valve elements may be operated to connect the pipes 11 or 11ª to the interior of the shell or casing 13, by placing the valve elements in such positions as to couple the passage sections controlled thereby. This control will be explained more in detail hereinafter.

The posts 3 and 3ª, at points below the lateral branches or extensions thereof which are connected to the head, are provided with lugs 44 which extend toward one another. These lugs have slots 45 vertically therethrough between their upper and lower faces and opening from the free ends thereof. An annular ring 46 is fitted against the open bottom of the shell 13, with a gasket 47 interposed between a seat of the ring and the end of the shell or casing 13 to form an airtight seal therebetween, and this

ring 46 is provided with oppositely extending ears 48 which fit the slots 45 and move vertically therethrough when the ring is moved vertically, the ears being normally disposed within the slots 45 when the ring is in closed position against the bottom of the shell or casing 13.

Rods 49 are secured in the ears 48 so as to extend from the upper and lower faces thereof, the extending ends being screw threaded to receive nuts 50 which overlap with the upper faces of the lugs 44 and prevent vertical displacement of the annular ring 46. By adjusting the nuts 50, the ring 46 may be adjusted vertically and securely clamped against the bottom end of the shell 13, thus holding the shell or casing tightly against the end of the recess 12 in the under face of the head.

The annular ring 46 is provided with a depending annular flange 51 against which is fitted a bottom cap 52, the cap 52 having an annular channel 53 in which the flange 51 is received. A suitable gasket 54 is provided in the bottom of the channel 53 and the flange 51 abuts against this gasket to provide an airtight seal between the cap and ring when the cap is moved into closed position at the bottom of the shell or casing. The cap 52 is provided with a depending tubular sleeve 55, rotatably received in a sleeve 56 which is fixed upon the upper end of a depending stem 57, to serve as a support and guide for the cap 52. The bottom wall of the cap abuts against the upper end of the sleeve 56 so as to be limited in its downward movement and provide a tight joint between them. A set screw 58, carried by the sleeve 56, engages in an annular groove 59 in and extending peripherally of the sleeve 55 so as to permit relative rotation of the cap and sleeve 56 and at the same time prevent their separation from one another.

The stem 57 is tubular and extends downwardly and axially through a sleeve 60 which is carried by the base or standard 1. The bore of the sleeve 60 is provided with bearing surfaces 61 and 62 which support the stem 57 for vertical sliding and rotary movement. The sleeve 60 is also provided with a slot 63 extending downwardly from the upper end to the bearing surface 60, and the stem 57 is provided with a projecting pin 64 which runs in the slot 63 to prevent turning of the stem until it has been elevated approximately to a point which will carry the pin 64 above the upper end of the sleeve 60.

The upper end of the sleeve 60 is provided with an inclined cam surface 65 leading to the slot 63, and after the stem 57 has been elevated until the pin 64 reaches the lower end of the surface 65, the stem may be rotated to cause a travel of the pin 64 up the inclined cam surface 65. This travel of the pin 64 upon the cam surface 65 forces the stem upwardly slowly, and tightly closes the cap 52 against the lower end of the shell or casing 13. The engagement of the pin 64 with the slightly inclined cam surface 65 serves also to lock the stem in its upper position until it is released by rotating it to carry the pin 64 again into alignment with the slot 63.

The sleeve 56 which is fixed upon the upper end of the stem 57 has a laterally extending boss 66 which is provided with a passage 67 leading from its outer end to a vent passage 68 (Fig. 2). This passage 68 extends through the sleeve 56 and establishes communication between the interior of the stem 57 and the interior of the tubular sleeve or boss 55 of the cap 52. A handle 69 having a tongue portion 70 at one end is threaded into an enlarged outer end of the passage 67. The tongue portion 70 has a reduced valve or pin portion 71 which extends along the passage 67 and across the passage 68. When the handle 69 is rotated in one direction to thread the tongue portion 70 further into the boss 66, the tip end portion 71 will move across the vent passage 68 and close the same, and when the handle is rotated in the opposite direction about its own axis, the pin portion 71 will be withdrawn to a desired extent from the passage 68 and open it to establish communication between the interior of the shell 13 and the interior of the stem 57.

The handle 69 has the double function of controlling the air vent to the casing 13 through the vent passage 68 and serving as a handle by which the stem 57 may be elevated and lowered. The lower ends of the stem 57 and sleeve 60 are open, and a helical spring 72 supported in the lower end of the sleeve 60 extends into the stem 57 against an internal abutment thereof so as to serve as a cushion for the stem when lowered.

Referring now to Figs. 10 to 15, which illustrate another embodiment of the invention, the construction is generally as explained for the other figures, and corresponding parts are designated by corresponding numerals. The head 4^a, corresponding to the head 4, is provided with a bracket 73 which carries at its upper end a small electric motor 74. The shaft 75 of the motor 74 extends downwardly through the head 4^a and into the shell 13, and at its lower end carries paddle blades 76. The shaft terminates somewhat above the cap 52 and thus when a cup or other receptacle 77 (see Figs. 1 and 2) is disposed in the shell or casing 13, the shaft and paddle blades will enter the glass or receptacle, with the paddle blades positioned a short distance above the bottom of the cup or receptacle. Thus, when the motor is

operated, the paddle blades will thoroughly mix any substances which are disposed in the cup or receptacle 77. The head 4^a may be provided with a stuffing device 78 where it enters the upper end of the head, so that the shaft 75 may rotate freely and the casing 13 maintained airtight.

In this second embodiment, fewer controlling positions for the handle 40^a, corresponding to the handle 40 of Fig. 1, are provided for. The head 4^a is constructed otherwise the same as the head 4 of the first described embodiment, except that the passages 18^a and 20^a, corresponding to the passages 18 and 20 of Fig. 1, discharge at one side of the center of the shell or casing 13 as shown in Figs. 11 and 15. The gas control valve 26 is constructed as in Fig. 1, but the liquid control valve element 27^a, corresponding generally to the element 27 of the embodiment of Fig. 1, has only a simple channel 28^a for reasons which will appear in connection with the operation to be described.

Referring now to the operation of the embodiment of the invention shown in Figs. 1 to 9, the device is assembled in the manner illustrated and described. When one desires to draw a charged liquid, such as ginger ale, the pipe 11 is connected to a supply of the charged ginger ale under pressure and the pipe 11^a is connected to a source of gas under pressure, such as compressed air or carbon dioxide. A receptacle 77, such as a drinking cup or glass, into which the liquid is to be drawn, is placed upon the upper face of the cap 52, it being understood that for this purpose, the stem 57 has first been lowered into the position shown at the left in Fig. 1.

The handle 69 is then grasped, the stem 57 elevated into the position shown at the right in Fig. 1 and also in the position shown in Fig. 2, until the cap 52 abuts against the lower end of the ring 46. The handle 69 is then rotated to the left (Fig. 1) to carry the pin 64 up the inclined cam surface 65, thereby wedging the cap 52 tightly against the ring 46 and effecting an airtight closure of the shell or casing 13. The handle 69 is then rotated about its own axis in a direction to close the vent passage 68 when the liquid is to be drawn without foaming or loss of any of its gas-charge.

The common valve controlling handle 40 is shown in normal or inactive position by the full lines on the drawing and in the position marked A in Fig. 2, and the valve elements are then in such positions that both charged liquid and gas are shut off from the shell or casing 13, and occupy the relative positions shown in Fig. 9 and designated A′, these positions corresponding to those shown in Figs. 2, 3, 6 and 7. In such normal positions of the valve elements 26 and 27, the channels 28 and 29 in those valve elements will be out of communication with both of the passage sections 18 and 20.

Where one desires to draw the charged liquid into the cup or glass 77, with foaming of the liquid, the handle 40 is shifted rearwardly into the position shown in dotted lines in Fig. 2 and designated B. In this position the valve elements 26 and 27 will move clockwise in Figs. 2, 5, 6, 7 and 9 through small angular extents into and occupy the relative positions shown in Fig. 9 and designated B′. The relative movement which has occurred may be determined by the change from the positions designated A′ in Fig. 9. In these positions (B′) of the valve elements, one end of the channel 28 will establish communication with the passage section 20, and thereupon the charged liquid from the pipe 11 will be conducted through the passage section 19 to the valve element 27, thence through the channel 28 to the passage section 20, and thence to the tube 21 which extends into the casing 13.

The liquid passing through the tube 21 is discharged in jets, inclined downwardly and radially, and striking the blades 23, with the result that the blades 23 will rotate and agitate the liquid as it enters the glass or receptacle 77. When the desired amount of foaming liquid has been drawn, the handle 40 is shifted back to the normal position (A) in Fig. 2 which cuts off the entrance of the charged liquid. The handle 69 may then be rotated about its own axis to open the vent passage 68 which releases any pressure existing in the shell or casing 13. The vent passage may, if desired, be left open when foaming liquid is being drawn. The stem 57 may be rotated to carry its pin 64 into alignment with the slot 63, and then lowered to permit removal of the cup or receptacle 77.

When one desires to draw a quantity of the charged liquid under pressure without foaming, the cup or receptacle 77 is placed upon the cap 52 and inserted within the shell 13 as just explained, the vent passage 68 being closed. The valve handle 40 is then first shifted forwardly into the position shown in dotted lines and designated C in Fig. 2, at which time the valve elements 26 and 27 will occupy the relative positions designated C′ in Fig. 9. During this movement of the valve elements with the handle 40, they partake of a counterclockwise movement as viewed in Figs. 2, 5, 6, 7 and 9.

At the end of such movement one arm of the channel 29 of the valve element 26 will have communication with the passage section 18, and since the channel is always in communication with the passage section 17, the gas under pressure in the pipe 11^a will be conducted through the passage section 17 to the channel 29, thence through the passage section 18 to the interior of the shell or casing 13. The valve handle 40 is held in this position until the desired gaseous pres-

sure has been created within the shell or casing 13 and within and surrounding the cup or receptacle 77. This pressure will never exceed that of the gas within the pipe 11ª, so that no harm will come to any of the parts if the handle 40 is left in this C position for too long an interval.

The handle 40 is then given a further forward and downward movement into the lowermost position shown in dotted lines in Fig. 2 and designated D. In this position of the handle 40, the valve elements 26 and 27 will occupy the relative positions shown in Fig. 9 and designated D'. During such movement another arm of the channel 29 has moved into communication with the passage section 18 so that the gas under pressure is still connected to the interior of the casing 13. During the same last movement an arm of the channel 28 of the valve element 27 has moved into communication with the passage section 20, whereupon the charged liquid under pressure will flow through the pipe 11, the passage section 19, the channel 28 of valve element 27, the passage section 20 and the pipe 21 into the cup or receptacle 77.

Inasmuch as the interior of the shell or casing 13 is under pressure, even though a pressure somewhat less than the pressure upon the charged liquid entering through the pipe 11, the charged liquid will enter the receptacle or cup 77 without material loss of gas or foaming, and the gas in the cup or receptacle which is displaced by the incoming liquid will return to its source through the pipe 11ª, the passage section 18, the channel 29 of valve element 26, and passage section 17. Thus the pressure in the casing or shell 13 will remain constant while the charged liquid is being drawn therein. When the desired amount of the charged liquid has been drawn into the cup 77, the valve handle 40 will be moved upwardly to the normal position A, shown in full lines in Fig. 2, which effects a cutting off of both the gas and charged liquid, leaving the liquid in the receptacle or cup 77 under pressure. The handle 69 is next rotated to open the vent 68 and release the pressure in the casing 13.

Thus the charged liquid is brought to atmospheric pressure or as near thereto as desired, without agitation or foaming of the liquid and, therefore, there will be no material loss of gas. If now one desires to have some foam or "top" on the liquid drawn into the cup, the handle 40 may be shifted rearwardly into the B position, at which time the charged liquid will be admitted to the cup or receptacle as before explained, and since the pressure in the cup is now that of atmosphere, the entering liquid will foam and produce a creamy or foamy "top" for the liquid in the cup. The handle 40 may then be returned to the A position wherein both the compressed gas and the charged liquid are cut off. The stem 57 may then be lowered to carry the cup out of the casing 13, after which the cup may be withdrawn and the contents utilized.

It will be understood that if desired the liquid could be drawn into a casing corresponding to 13 directly, and then after being brought to atmospheric pressure allowed to flow into a cup or other receptacle by gravity, during which it would have little agitation tending to cause foaming and a loss of the charging gas.

In connection with the embodiment shown in Figs. 10 to 15, the cup may be inserted in the casing 13 as described for Figs. 1 to 9. If one desires merely to mix the contents of the cup, the motor 74 may be operated, and if desired the charged liquid may be admitted by proper manipulation of the handle 40ª as in the preceding embodiment. The paddle 76 will thoroughly mix and agitate the contents of the cup while the charged liquid is being admitted. Inasmuch as the shaft 75 of the mixer extends through the central part of the casing 13, the passage sections of the head are necessarily open into the casing at one side of its center.

In order to produce foam it is merely necessary to agitate the liquid, which may be done by the paddle 76 and, therefore, it is unnecessary to have a separate position for the valve handle 40ª in which the charged liquid is admitted without first causing gas pressure in the casing 13. Therefore, the channel 28ª has a single arm, instead of two as for the channel 29 in the embodiment of Fig. 1. A charged liquid may be drawn into a cup in the casing 13, as in the preceding embodiment. By merely shifting the handle 40ª from the neutral position Aª successively to the positions Cª, Dª, the casing may be first placed under gaseous pressure, and the charged liquid then admitted while the handle is in the position Dª.

It will be obvious that various changes in the details, which have been herein described and illustrated for the purpose of explaining the nature of the invention, may be made by those skilled in the art within the principle and scope of the invention as expressed in the appended claims.

I claim:—

1. The method of dispensing charged liquids into containers which comprises subjecting the container into which the liquid is to be drawn to a gas pressure, then forcing the charged liquid therein at a relatively higher pressure while maintaining a constant pressure in said container, and then reducing the pressure around said container to approximately atmospheric pressure, whereby foaming of the liquid during transfer is prevented.

2. In apparatus for dispensing charged liquids from a counter or the like, a standard having a head, means for securing said standard to a counter, means for supporting a container against the head in airtight condition, said head having a plurality of passages therein, a part of which lead to the container, a source of compressed gas connected to one of said passages, a source of charged liquid under a relatively higher pressure connected to another of said passages and valve means movable into two positions in said head for controlling said passages, whereby said source of compressed gas and the charged liquid may be connected separately or together to said container as desired.

3. In apparatus for dispensing a charged liquid from a counter or the like, a standard having a head, means for securing said standard to a counter, a casing communicating with the head and into which the charged liquid is to be drawn, said head having a plurality of passages therein leading to said casing, a source of compressed gas connected to one of said passages, a source of the charged liquid under a relatively higher pressure connected to another of said passages, and valve elements movable into two positions in said head for controlling said passages, whereby the interior of said container may be placed under gaseous pressure and the charged liquid then drawn into said container under pressure while the interior of the latter is under gaseous pressure.

4. In apparatus for dispensing charged liquids, a standard having a head, a transparent shell supported against the under face of said head, a closure fitting against the open bottom of said shell and movable vertically into and out of closed position across the bottom of the shell, said closure having a depending stem cooperating with said standard, whereby said closure will be guided vertically, an operating handle on said closure, said closure having a vent from its inner face controlled by said handle, and means for selectively admitting compressed gas and a charged liquid under pressure to said shell, whereby the interior of the shell may be first placed under gaseous pressure, the charged liquid then drawn therein while maintaining the pressure, and the pressure of the interior of the receptacle then reduced to atmospheric pressure by an opening of said vent.

5. In apparatus for dispensing charged liquids, a standard having a head, a transparent shell supported against the under face of said head, a closure fitting against the open bottom of said shell and movable vertically into and out of closed position over the bottom of the shell, said closure having a depending stem cooperating with said standard, whereby said closure will be guided vertically, an operating handle on said closure, said closure having a vent from its inner face controlled by said handle, and means for selectively admitting compressed gas and a charged liquid under pressure to said shell, whereby the interior of the shell may be first placed under gaseous pressure, the charged liquid then drawn therein while maintaining the pressure, and the pressure of the interior of the receptacle then reduced to atmospheric pressure by an opening of said vent, said standard and the stem of the closure having cooperating cam means by which the closure may be cammed tightly against the open bottom of the shell by rotation of the stem at approximately the completion of the upward movement of the closure.

6. In apparatus for dispensing charged liquids, a standard having a head, a container connected to said head, said head having a plurality of separate passages leading to said container, said head having valve faces from which two sections of each passage lead, one section of each passage from the exterior of the head and the other one from the container, valve elements fitting against said faces and having channels which connect together the sections of a passage when said valve elements are rotated into proper angular positions, means for operating said valve elements to selectively complete and close each of said valve passages, a source of compressed gas connected to the outer end of one of said passages and a source of charged liquid under pressure connected to the other of said passages, whereby upon operation of said valve elements the interior of said container may be placed and maintained under gaseous pressure and the charged liquid drawn therein under said pressure.

7. In apparatus for dispensing charged liquids, a standard having a head, a container connected to said head, said head having a plurality of separate passages leading to said container, said head having valve faces from which two sections of each passage lead, one section from the exterior of the head and one from the container, valve elements fitting against said faces and having channels which connect said sections when said valve elements are rotated into proper angular positions, means for operating said valve elements to selectively complete and close each of said valve passages, a source of compressed gas connected to the outer end of one of said passages, a source of charged liquid under pressure connected to the other of said passages, whereby upon operation of said valve elements the interior of said container may be placed and maintained under gaseous pressure and the charged liquid drawn therein under said pressure, and means whereby said container

may be vented to reduce its pressure to atmospheric pressure.

8. In apparatus for dispensing charged liquids, a standard having a head and tubular upright posts supporting said head, lugs projecting from said posts beneath the head and having vertically extending slots therein, a transparent and open ended shell abutting at one end against the under face of said head, an open ring fitting against and supporting the bottom end of said shell and having ears movable vertically into said slots when the shell is moved tightly against the under face of said head, means supported by said ears and overlapping the upper and lower faces of said lugs for locking them together, said means being adjustable to force the ring and shell tightly against the under face of the head, and a closure movable vertically against the lower face of said ring to open or close said shell, whereby a receptacle placed on said closure may be moved into said shell and the latter closed, said head having a plurality of valve controlled passages leading to the interior of said shell through the under face thereof.

9. In apparatus for dispensing charged liquids, a standard having a head, a container fitted against the under face of said head, said head having oppositely disposed valve faces, said head also having a plurality of passages, each passage therein leading to a portion of the under face covered by said container, each passage being formed of two sections terminating in spaced relation to one another in one of said valve faces, valve elements held against each valve face and having channels therein for connecting said passage sections when rotated into proper angular positions, means for confining said valve elements against said valve faces under pressure, and a common operating means connected to said valve elements for rotating the same.

10. In apparatus for dispensing charged liquids, a standard having a head, said head having a flat under face and two projecting portions provided for conduit connections thereto, said head also having oppositely disposed valve faces, passage sections leading from said projecting portions and said under face to said valve faces, valve elements fitted against said valve faces and having channels for connecting said passage sections together to establish communication between either of said conduit connections and said flat under face upon proper movement of the valve elements, and a container secured against said under flat face.

11. In apparatus for dispensing charged liquids, a standard having a head, said head having a seat on its lower face and having sockets on opposite sides of its head, a container closed against said seat on the under face of the head, said head having passages leading from the seat covered by the container to the end faces of said sockets and also having passages leading from said end faces of the sockets to the exterior of the head for connection to sources of fluids, valve elements rotatably mounted in said sockets and having channels cooperating with said end faces to connect the passages leading to each end face when said valve elements are moved into given angular positions, a common operating handle connected to and rotating said valve elements.

12. In apparatus for dispensing charged liquids, a standard having a head, said head having a seat on its lower face and having sockets on opposite sides of its head, a container closed against said seat on the under face of the head, said head having passages leading from the seat covered by the container to the end faces of said sockets and also having passages leading from the end faces of the sockets to the exterior of the head for connection to sources of fluids, valve elements rotatably mounted in said sockets and having channels cooperating with said end faces to connect the passages leading to each end face when in given angular positions, a common operating handle connected to and rotating said valve elements, and means for forcing said valve elements tightly against the end faces.

13. In apparatus for dispensing liquids, the combination with a head, said head having passages leading to the exterior for connection to sources of fluids under pressure, a sealed container connected to said head and a hollow pipe extending into said container from the head, of a device rotatably mounted on the lower end of said pipe and having inclined paddle blades, said pipe having a conduit extending from its upper end close to but terminating just above said device, said pipe also having apertures from the lower end of its conduit inclined downwardly against said blades, whereby a fluid passing through said pipe will engage said blades and rotate said device, adapted to mix the fluids discharged from said tubes while in said sealed container.

14. A device for dispensing charged liquids, comprising a head having valve sockets and also having a plurality of passage sections leading from faces of said sockets to the exterior of the head, a casing connected to said head for communication with part of said passage sections, said head being constructed with provision for the attachment of conduits to the portions at the exterior terminals of the other part of the passage sections, whereby conduits may be connected to said last named sections, valve elements cooperating with said sockets and having channels in the faces thereof cooperating with ends of the passage sections for connecting the passage sections leading to

each socket when said valve elements are given angular positions.

15. A device for dispensing charged liquids, comprising a head having valve sockets and also having a plurality of passage sections leading from faces of said sockets to the exterior of the head, a casing connected to said head for communication with part of said passage sections, said head having provision for the attachment of conduits to the portions at the exterior terminals of the other part of the passage sections, whereby supply conduits may be connected to said last named passage sections, valve elements cooperating with said sockets and having channels in the faces thereof, cooperating with ends of the passage sections for connecting the passage sections leading to each socket when said valve elements are given certain angular positions, and means for pressing said valve elements tightly against their seats.

16. In a device for dispensing charged liquids, a standard having a head, an open bottom casing secured against the under face of the head so as to depend therefrom, and a closure for the open bottom of said casing having a depending stem, said standard having an elongated tubular guide in which said stem reciprocates vertically to move said closure into and out of closed position, said guide and stem having a pin and slot connection with one another for preventing rotation of said stem while moving vertically, said pin and slot connection terminating in a laterally extending inclined cammed relation as the closure moves into closed position, whereby upon rotation of the stem after the closure has approximately been seated against the open bottom of the casing said closure may be cammed tightly against the casing.

17. In a device for dispensing charged liquids, a standard having a head, an open bottom casing secured against the under face of the head so as to depend therefrom, a closure for the open bottom of said casing having a depending stem, said standard having an elongated tubular guide in which said stem reciprocates vertically to move said closure into and out of closed position, said guide and stem having a pin and slot connection with one another for preventing rotation of said stem while moving vertically, said pin and slot connection terminating in a laterally extending inclined cammed relation as the closure moves into closed position, whereby upon rotation of the stem after the closure has approximately been seated against the open bottom of the casing said closure may be cammed tightly against the casing, said closure having a passage leading to the exterior thereof, and a handle connected thereto for elevating the same and its stem and operating said valve.

18. The method of dispensing liquid into a container which comprises, forcing the liquid into said container under direct pressure against a relatively lower counter pressure above atmospheric pressure while holding said counter pressure constant.

19. The method of dispensing a charged liquid into a container which comprises forcing the liquid under pressure into the container against a relatively lower counter pressure which is at least equal to the normal pressure of the charged liquid and thereafter reducing the counter pressure to atmospheric pressure.

20. The method of dispensing a charged liquid into a container which comprises forcing the liquid under pressure into the container against a relatively lower counter pressure which is at least equal to the normal pressure of the charged liquid while maintaining the counter pressure substantially constant and thereafter reducing the counter pressure to atmospheric pressure.

21. In a counter device for dispensing charged liquids into a container, means for securing the device to a counter, a chamber for enclosing said container, a source of charged liquid, a source of compressed gas at a relatively lower pressure, a multiple port valve operable to move into two positions communicating with said container and said chamber, connections from one port of said valve to said source of gas, and connections from another port of said valve to said source of charged liquid whereby said container and chamber may be subjected to said gas pressure and said liquid may be dispensed into said container under pressure.

22. In a counter device for dispensing charged liquids into a container, means for securing the device to a counter, a chamber for enclosing said container, a source of charged liquid, a source of compressed gas at a relatively lower pressure, a multiple port valve operable to move into two positions communicating with said container and said chamber, connections from one port of said valve to said source of gas, connections from another port of said valve to said source of charged liquid whereby said container and chamber may be subjected to said gas pressure and said liquid may be dispensed into said container under pressure and means for maintaining said gas pressure constant while said liquid is being dispensed into said container.

23. In a counter device for dispensing charged liquids into a container, means for securing the device to a counter, a chamber for enclosing said container, a source of charged liquid, a source of compressed gas at a relatively lower pressure, a multiple port valve operable to move into two positions communicating with said container and said chamber, connections from one port

of said value to said source of gas, connections from another port of said valve to said source of charged liquid whereby said container and chamber may be subjected to said gas pressure and said liquid may be dispensed into said container under pressure, means for maintaining said gas pressure constant while said liquid is being dispensed into said container and means for reducing the gas pressure in said chamber to atmospheric pressure.

In witness whereof I hereunto subscribe my signature.

ALFRED J. MOISANT.