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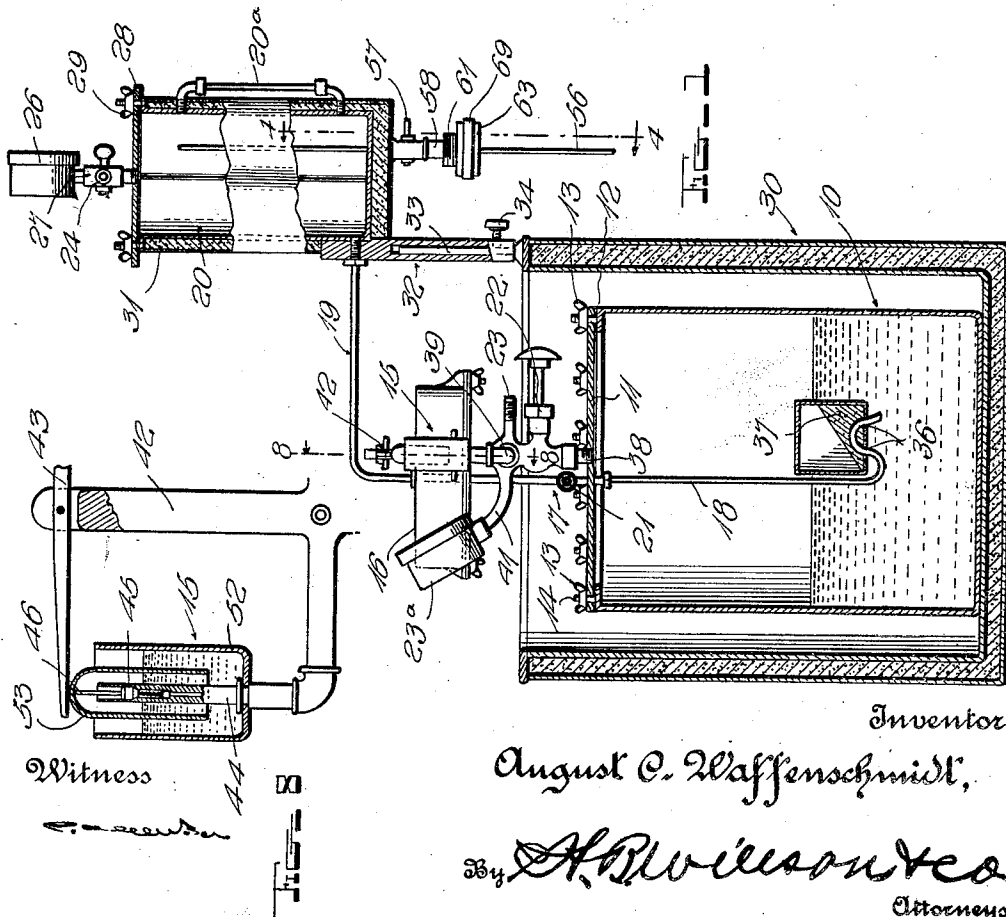
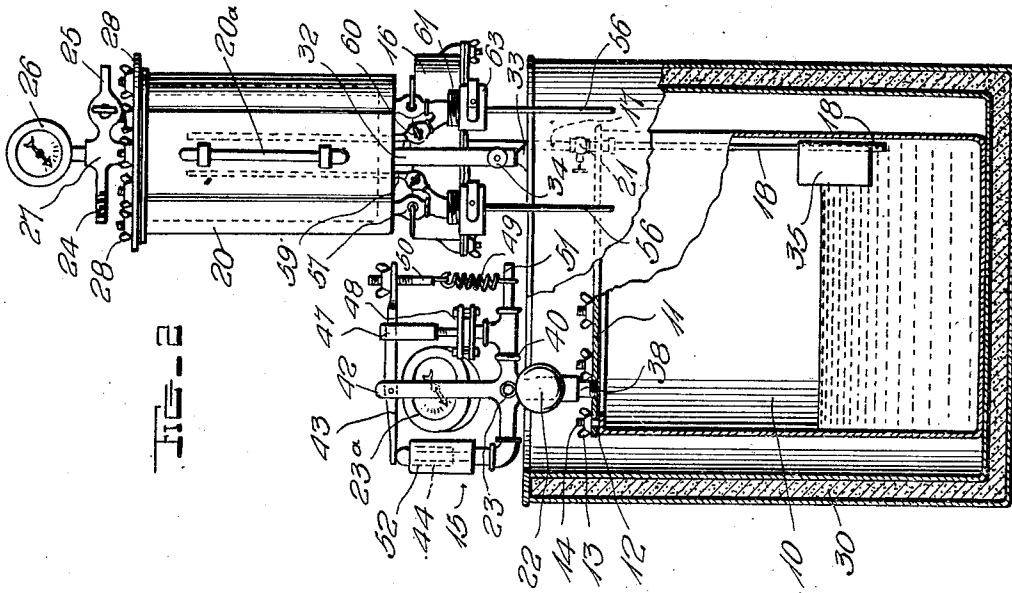
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BEVERAGE HANDLING APPARATUS

Filed Oct. 18, 1928

2 Sheets-Sheet 1



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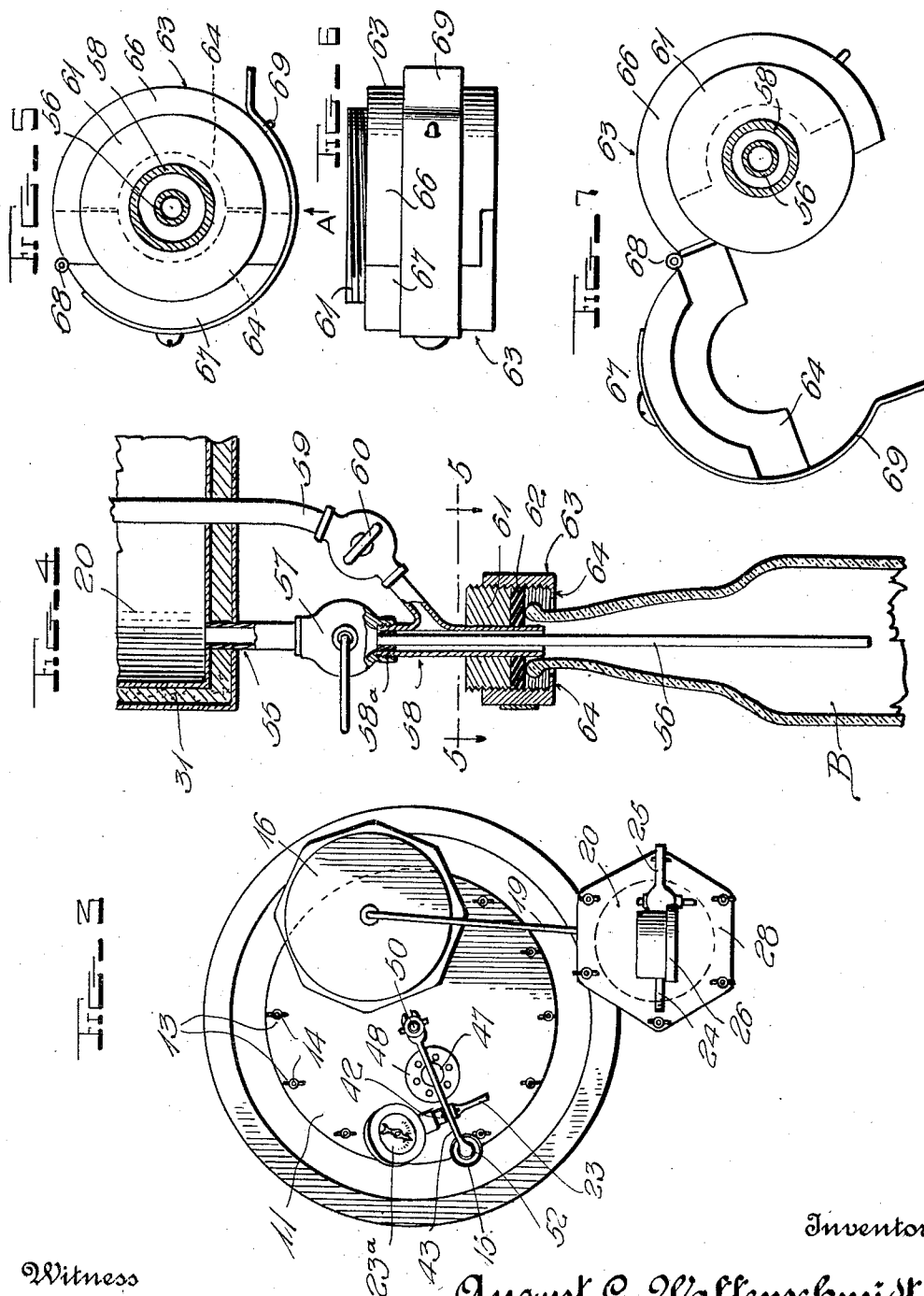
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2 Sheets-Sheet 2



Witness

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UNITED STATES PATENT OFFICE

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BEVERAGE HANDLING APPARATUS

Application filed October 18, 1928. Serial No. 313,349.

The invention relates to apparatus used in the production and bottling of beverages, and it aims to provide a new and improved apparatus in which all essential features are brought together in such a new relation as to produce an exceptionally simple and compact structure well suited to domestic use but not of course restricted thereto.

With the foregoing in view, the invention resides in the novel subject matter hereinafter described and claimed, description being accomplished by reference to the accompanying drawings.

Fig. 1 is a vertical sectional view partly in elevation showing an apparatus constructed in accordance with my invention.

Fig. 2 is a front elevation partly in vertical section.

Fig. 3 is a top plan view.

Fig. 4 is an enlarged detail vertical section partly in elevation, taken substantially on line 4—4 of Fig. 1, showing the bottle-filling and air-exhausting means and the bottle-holding means.

Fig. 5 is a horizontal sectional view on line 5—5 of Fig. 4.

Fig. 6 is an enlarged side elevation of the bottle-holding means looking in the direction of the arrow A of Fig. 5.

Fig. 7 is a view similar to Fig. 5 but showing the movable section of the bottle-holding means swung to open position for insertion or removal of a bottle neck.

Fig. 8 is an enlarged vertical sectional view partly in elevation substantially on line 8—8 of Fig. 1, showing a portion of the gas pressure relief means and the deodorizing means.

The various features of construction illustrated in the above described drawings, will be herein specifically explained, with the understanding that within the scope of the invention as claimed, variations may be made. Moreover, I wish it understood that although certain individual groups of cooperating parts are preferably of the constructions shown and preferably all embodied in a single apparatus, variations in the structures of these individual groups of parts may be resorted to, and such groups are not necessarily

restricted to use in the same apparatus with each other.

The apparatus embodies a tank 10 in which gas-forming ingredients for the beverage are placed. This tank is provided with a removable top 11 held tightly against a gasket 12 by thumb nuts 13 on studs 14 rising from the tank body. The tank top 11 supports pressure-relief means 15 and a filter 16, the latter being in communication by a pipe 17 and a flexible tube 18, with the interior of the tank 10. A flexible liquid-conducting pipe 19 extends from the filter 16 to a bottling tank 20 but during formation of the beverage in the tank 10, a valve 21 in the pipe 17, is closed. During this formation of the beverage however, while gas is being generated in the tank 10, a valve 22 which controls communication between said tank and the pressure relief means 15, is open so that while said means 15 retains predetermined pressure in the tank 10, excess pressure is permitted to escape. After complete formation of the beverage in tank 10, the retained gas pressure in said tank is augmented by injection of air under pressure through an appropriate air-inlet nipple 23, this valve being preferably formed on the body of the pressure-relief means 15. A pressure gauge 23* also preferably connects with this body. The additional pressure admitted to the tank 10 serves, upon opening of the valve 21, to drive the beverage from tank 10 through the tube 18, pipe 17, filter 16 and pipe 19, into the bottling tank 20, into which relatively low air pressure has previously been admitted through an appropriate nipple 24. This valve, an air-escape cock 25 and a pressure gauge 26 for the tank 20 are all preferably carried by a single body 27 mounted on the tank top 28, which top is tightly secured in place by any desired means 29.

Preferably, an ice jacket 30 surrounds the tank 10 and projects above it to permit effective cooling of the beverage after its formation, and to maintain it at a low temperature during the bottling operation the bottling tank 20 is by preference jacketed at 31 with insulating material. As hereinafter more fully explained, the beverage is discharged

from the tank 20 into the bottles and when all of its has been bottled, the apparatus must be cleaned for recharging. It is then necessary to release the fastening means for the top 11, to upwardly shift this top and move it aside.

A vertical tubular bearing 32 is rigidly secured to and projects downwardly from the tank 20, and for adjustment and disassembly, this bearing is slidable and rotatable upon a standard 33 which is rigidly secured to and projects upwardly from the ice jacket 30. By means of a set screw or the like 34, bearing 32 may be locked upon the standard 33.

In order that no scum may pass from the top of the liquid in the tank 10, through the tube 18, a float 35 is provided which holds the lower end of said tube considerably below the liquid level. This float is of hollow form and is provided in its bottom with two openings 36. The lower end of the tube 18 is curved under the float bottom, is passed upwardly through one of the openings 36 and then passes downwardly through the other of these openings. A tube-anchoring medium 37 is provided in the float to not only surround the float-contained portion of the tube and anchor the latter to the float, but to tightly seal the openings 36 against entrance of liquid. Then too, the filling or the like 37 is preferably placed in larger quantity at the side of the float remote from the tube 18, so that the weight of the latter acting downwardly upon the float before the latter reaches its end of downward travel, will be counterbalanced, preventing excessive tilting of the float. The medium 37 is preferably, although not necessarily paraffin or the like.

The pressure blow-off means 15 is preferably of the construction now to be described. A valve body is provided having a vertical, downwardly projecting branch 38 and two opposed horizontal branches 39—40. Then too, this same body is preferably provided with a branch 41 carrying the pressure gauge 23^a, and said body may also carry the air inlet valve 23. Rising rigidly from the valve body preferably in line with the downwardly projecting branch 38, is an upstanding post or standard 42 to whose upper end a horizontal lever 43 is fulcrumed, the fulcrum being between the ends of the lever. Branch 39 is provided with an upwardly projecting gas discharge pipe 44 carrying a normally closed pressure relief valve 45. This valve is diagrammatically shown in the form of a tire valve and it may be opened by depression of the stem or actuator 46 which projects in the present showing beyond the upper end of the pipe 44. This valve may well be an ordinary tire valve core and the valves 23—25 may be provided with similar cores. The stem 46 is positioned to be depressed by one end of the lever 43.

Near its other end, this lever is connected by an appropriate adjustable connection 47 with a pressurestat 48 which communicates with the branch 40. A tension spring 49 is adjustably connected at 50 with the last mentioned end of the lever 43, and means such as a stud 51, is provided for anchoring the lower end of the spring upon the branch 40.

When gas passes from the tank 10 through the branch 38 into the branches 39—40—41, the valve 45 will remain unaffected unless this pressure rise above a predetermined degree. When this takes place, the pressurestat 48 expands, forces upwardly upon the connection 47 and rocks the lever 43, thus causing this lever to open the valve 45 and relieve the excess pressure. As soon as it has been relieved, the spring 49 again restores the parts to normal.

By constructing the pressure-relief means 15 as shown and described, it is very sensitive, yet is not so abrupt in operation as to interfere with proper working of the apparatus.

A deodorizer is preferably used in connection with the gas outlet pipe 44 of the pressure-relief means 15. A liquid-containing cup 52 is provided and the pipe 44 extends into this cup as shown most clearly in Fig. 8. A bell 53 extends over and around the pipe 44 and projects downwardly into the liquid 54, said bell resting upon the valve stem 46 in position to be struck by the lever 43. All gases discharging from pipe 44 which might otherwise be obnoxious, must pass from the lower end of the bell 53 and bubble upwardly through the liquid 54 by which they are deodorized. In most instances, this liquid may be water.

Provision is made whereby two bottles at a time may be filled from the tank 20 but as the provision for filling one is identical with that for the other, only one will be described. A liquid discharge pipe 55 communicates with the tank 20 and projects downwardly from it, being provided with a reduced lower end 56 to pass downwardly into a bottle B, a valve 57 being provided for said pipe at the upper portion of its reduced end 56. An air escape pipe 58 surrounds the pipe portion 56 and has its upper end closed at 58^a. The lower end of pipe 58 is adapted for reception in the bottle neck as shown in Fig. 4. An air-conducting pipe 59 having a valve 60, extends from pipe 58 into the upper portion of the tank 20. When a tight connection is established at the bottle neck, opening of the valve 60 and then the valve 57 will permit filling of the bottle B and as the liquid enters this bottle from the pipe portion 56, air exhausts from it through the pipes 58—59. Then too, opening of the valve 60 effects the desirable equalization of pressure in the bottle and tank 20.

A cylindrical externally threaded head 61

surrounds and is suitably secured to the pipe 58, the lower side of this head being provided with a gasket 62 to abut the bottle neck. A freely rotatable collar 63 is threaded upon the head 61 and projects downwardly below the gasket 62 to surround the neck of the bottle, the lower edge of said collar being provided with an inwardly projecting flange 64 to abut the lower side of the usual bottle neck bead as seen in Fig. 4. Collar 63 is formed of two arcuate sections 66—67, section 66 being of more than 180° in length so that it will remain permanently threaded upon the head 61. The other relatively short section 67 is hinged at 68 so that it may swing outwardly as shown in Fig. 7 to permit insertion or removal of a bottle neck. An appropriate spring catch 69 is provided for holding the collar section 67 in its closed position and when it is in this position, turning of the entire collar 63 in the proper direction will cause the flange 64 to upwardly force the bottle neck against the gasket 62, establishing a fluid-tight connection. After filling of the bottle and closing of the valves 57—60, the collar 63 may be retrogradely turned, the catch 69 released and the section 67 swung outwardly, permitting easy disconnection of the filled bottle from the apparatus.

The operation of the apparatus as a whole, is as follows:—With the cover 11 removed, the ingredients for the beverage are placed in the tank 10 and said cover is then secured in place. When fermentation or other chemical action takes place to form gas, the gas pressure accumulates in the upper portion of the tank, valve 21 being then closed. Consequently, while pressure below that predetermined will be held back in the tank 10, excess pressure will be vented by the pressure-relief means 15 and the escaping gas will be deodorized by passage through the liquid 54. After the proper action has taken place to form the beverage, the latter may be chilled by introducing ice into the jacket 30. Then, sufficient air under pressure is injected through the valve 23 to augment the retained gas pressure in the tank 10, producing a pressure sufficiently strong to drive the beverage from said tank 10 through the tube 18, pipe 17, filter 16, and pipe 19 into the tank 20 upon opening of valve 21. Prior to opening of this valve 21, relatively low air pressure is introduced into the tank 20 through the valve 24, approximately fifteen pounds pressure in this tank and thirty-five or forty in the tank 10 being usually sufficient. When tank 20 has been filled to the desired extent, discernible at the gauge glass 20^a, the valve 21 may be closed and the bottling operation may then be started. Each bottle to be filled is placed over the pipe portion 56 and has its neck held by the provision previously described for that purpose. The valve 60 is opened to equalize pressure in the bottle and

in the tank 20 and when valve 57 is now opened, the beverage from said tank 20 flows into the bottle and at the same time, the air from the latter escapes through the pipes 58—59 into said tank. Before removal of the filled bottle, the valves 57—60 are again closed.

It will be seen from the foregoing that the apparatus provides efficient means for the formation and bottling of beverages, so constructed as to hold the beverage under gas pressure until it is bottled and hence requiring no extraneous carbonating means.

I claim:—

1. A pressure relief valve comprising a body having a downwardly projecting branch and two opposed horizontal branches all communicating with each other, and provided also with an upstanding post, a lever fulcrumed between its ends to said post, a pressure escape pipe rising from and communicating with one of said horizontal branches, said pressure escape pipe having a relief valve positioned for opening by depression of one end of said lever, a pressurestat carried by and communicating with the other of said horizontal branches, lever-operating means connecting said pressurestat with the other end of said lever, a tension spring connected with this end of the lever, and anchoring means for said spring carried by said other horizontal branch.

2. In a gas escape means, an upstanding pipe having a relief valve, said valve being provided with an upstanding actuator adapted to be depressed to open the valve, an open-topped liquid-containing cup into which said pipe projects, a bell over and around said pipe to receive the gas when said valve is opened, said bell resting on said actuator and having its lower end disposed in the liquid of said cup, and means for depressing said bell to open said valve.

3. In a beverage forming and dispensing apparatus embodying a tank, a valved discharge line therefor, a filter for said discharge line, and pressure-venting, gauging and admission means for said tank; a removable cover for said tank constituting a carrier for said line and filter and for said pressure venting, gauging and admission means, and means for securing said cover to said tank.

4. In a beverage handling apparatus embodying a storage tank having a cooling jacket, and a dispensing tank in communication with said storage tank; two vertical telescopically and rotatably engaged members secured one to said dispensing tank and the other to said jacket, and means for holding said members in relatively adjusted positions.

5. In a beverage handling apparatus, an ice receptacle open at its upper end, a storage tank within said ice receptacle, a dispensing tank mounted upon the wall of said ice recep-

tacle, a discharge line from said storage tank to said dispensing tank embodying a flexible portion connected with the latter, a pressure-gauging and pressure-admitting connection for said storage tank, a removable cover for said storage tank constituting a carrier for said discharge line and said pressure-gauging and admitting connection, and means for securing said cover to said storage tank.

10 In testimony whereof I have hereunto affixed my signature.

AUGUST CARL WAFFENSCHMIDT.

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