Aug. 19, 1930. F. E. RICE 1,773,375

CARBONATOR

Original Filed May 20, 1926

Fig. 1.

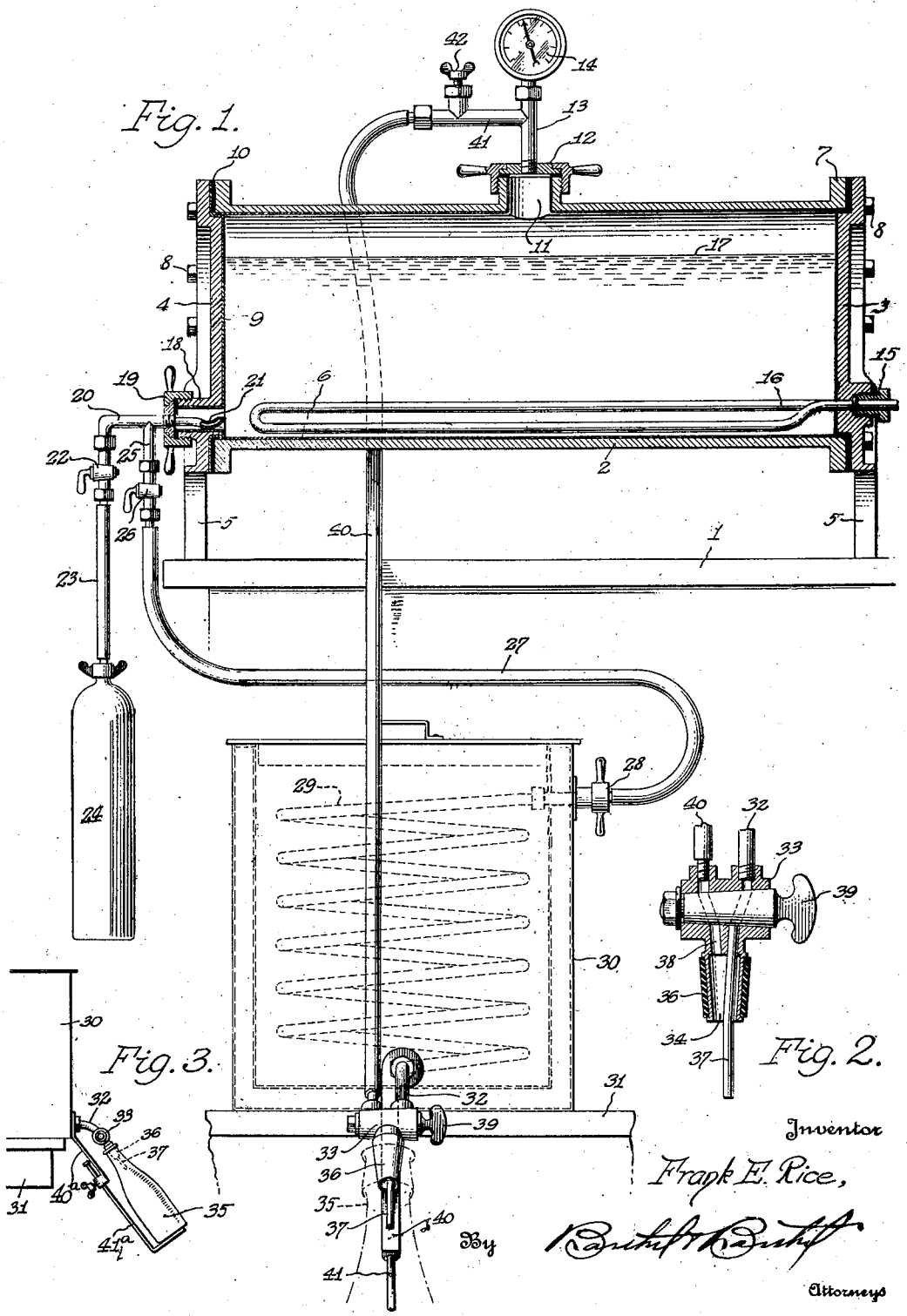


Fig. 3.

Fig. 2.

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CARBONATOR

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This invention relates to a carbonating and bottling apparatus that may be constructed on a large scale and used by the manufacturer or dispenser of various kinds of beverages or charged waters, or it may be constructed on a smaller scale for retail business so that beverages or liquids may be charged and dispensed in small quantities.

My invention aims to provide an apparatus in which a beverage or water may be charged with a gas, as carbon dioxide, the beverage or water cooled, and then dispensed in small quantities or bottled for future use.

The apparatus is constructed so that it may be maintained in a sanitary condition and provision is made for charging the beverage without disturbing any sediment or foreign matter that may accumulate in the charging receptacle. This will insure a clear product for bottling. Provision has also been made for removing air or gas from a bottle as it is filled, the air or gas being conducted to the charging receptacle in which the liquid to be charged is cooled prior to entering a final cooling device. The apparatus includes a construction by which beverages and other liquids may be expeditiously and economically charged and bottled and the construction entering into my invention will be hereinafter specifically described and then claimed.

Reference willl now be had to the drawing, wherein

Figure 1 is a front elevation of the carbonating and bottling apparatus showing the charging receptacle in vertical longitudinal section,

Fig. 2 is a detail sectional view of a faucet forming part of the apparatus, and

Fig. 3 is a side elevation, on a small scale of the bottle support for the faucet of the cooling chamber.

In the drawing, the reference numeral 1 denotes a table or other support upon which may be placed a charging receptacle 2 that is preferably cylindrical and provided with detachable heads 3 and 4, and has feet 5 by which the receptacle may be conveniently supported from the table 1. The cylindrical receptacle 2 is preferably made of metal and its inner wall is provided with a lining 6 of enamel, vitreous material or some acid proof material that may be easily washed and maintained in a sanitary condition. The ends of the receptacle 2 are provided with peripheral flanges 7 and the heads 3 and 4 are set in the ends of the receptacle 2 and secured to the flanges 7 by screw bolts 8 or other fastening means. The inner walls of the heads 3 and 4 are provided with linings 9 similar to the lining 6 and gaskets 10 may be used to insure a non-leakable connection between the heads 3 and 4 and the receptacle 2. By removing the heads 3 and 4, the linings 6 and 9 can be thoroughly cleaned and any sediment removed from the receptacle.

The top of the receptacle 2 has a filling connection 11 normally closed by a detachable screw cap 12 forming an air tight connection with the filling connection 11, so that air or gas cannot escape from the top of the receptacle. Attached to the filling connection 12 is a stand pipe 13 for a conventional form of pressure gauge 14 whereby the pressure of air or gas within the top of the receptacle 2 may be easily ascertained.

The head 3 is provided with one or more stuffing boxes 15 and extending therethrough in an oblong coil of pipe 16 through which a cooling agent may be circulated to cool the liquid 17 within the receptacle.

The detachable head 4 has a connection 18 which together with the connection 11 is lined to prevent the metallic receptacle from contaminating the liquid or beverage in the receptacle 2. On the connection 18 is a cap or closure 19 and attached to said cap is a combined inlet and outlet connection 20 having its inner end provided with a nozzle 21 which is completely housed within the connection 18 but is adapted to discharge gas upwardly into liquid 17. The upwardly turned nozzle 21 will not cause the injected gas to distribute any sediment or foreign matter in the bottom of the receptacle, consequently clear liquid may be removed from the receptacle.

Attached to the connection 20 is a controlling valve 22 which is coupled, as at 23, to a gas reservoir 24 preferably in the form of a charged cartridge or tube in which carbon

dioxide gas is usually supplied. With the valve 22 open the carbon dioxide gas may enter the liquid 17 to fully charge the liquid and the pressure of gas accumulating in the top of the receptacle 2 may be observed at the gauge 14.

The connection 20 includes an outlet branch 25 provided with a control valve 26 connected by a tube or pipe 27 to a coupling 28. This coupling is attached to the end of a cooling coil 29 within a refrigerator or cooling chamber 30. The chamber 30 contains ice or other cooling agent and has been shown somewhat in the form of a tank upon a table or suitable support 31, or if found desirable may be attached directly to the legs 5.

The cooling coil 29 has an outlet connection 32 to a tubular plug valve or faucet 33. This faucet has a discharge nozzle 34 adapted to fit in the neck or mouth of a bottle 35. On the nozzle 34 is a resilient sleeve or cushion 36, which will prevent the bottle from being injured by contact with the nozzle. The sleeve 36 also constitutes a seal for the bottle 35 while being filled, and extending through the nozzle 34 is a filling tube 37.

The faucet 33 serves as an outlet for bottled air or gas during a bottle filling operation. To this end, the faucet 33 has an additional passage 38 controlled by the plug 39 of the faucet. Communicating with the passage 38 is a return pipe 40 coupled to a branch 41 of the stand pipe 13 with said branch provided with a shut off valve 42. With this shut off valve open during a bottling operation, air or gas from the bottle 35 can enter the receptacle 2. The valve 42 may be closed while the liquid 17 is being charged and this will prevent gas from the top of the receptacle 2 passing into the return pipe 40 and escaping the faucet, should this faucet have been left open. It is during the charging operation that the valve 26 is closed and is opened only when the charged liquid is to be supplied to the cooling coil 29 and eventually to the bottle 35 or a glass or other receptacle placed under the nozzle 34.

For supporting the bottle 35 relative to the nozzle 34, the front wall of the cooling chamber 30 is provided with an angularly disposed bracket 40^a having an adjustable support 41^a on which the bottle 35 may be placed with the neck of the bottle on the sleeve 36. In such position the bottle is safely supported and bottles of various lengths may be supported by simply adjusting the support 41^a.

My apparatus has been especially designed for the dispenser of small quantities of beverage, because various kinds of beverages may be placed in the receptacle 2, a cartridge of carbon dioxide gas purchased and coupled to the receptacle, and then the apparatus will carbonate the beverage placed in the receptacle. Various kinds of cooling apparatus may be used and with tight connections there is no waste of gas or chance of beverage being contaminated.

It is thought that the utility and operation of my apparatus will be apparent without further description, and while in the drawing there is illustrated the preferred embodiment of my invention, it is to be understood that the structural elements are susceptible to such variations and modifications as fall within the scope of the appended claims.

What I claim is:—

1. A carbonating apparatus comprising a liquid receptacle having an extended base of sufficient area to permit settling of sediment, a combined inlet and outlet connection at said base and adapted to admit gas to said receptacle, and an upturned nozzle forming part of said combined inlet and outlet connection above the bottom of the receptacle to prevent interference with any sediment in said receptacle.

2. A carbonator including a horizontally disposed tank constituting a liquid receptacle, said tank having a connection in one end thereof near the bottom thereof which forms a recess communicating with the interior of said tank, a pipe extending into and terminating within said recess and having its discharge end upturned above the bottom of said tank, and valve controlled connections communicating with said pipe outwardly of said recess connection.

3. A carbonator including a horizontally disposed cylindrical tank constituting a liquid receptacle, a combined inlet and outlet connection in one end of said tank communicating with the interior of said tank, a part of said connection including a horizontally disposed pipe having its open end upturned and disposed above the bottom of the tank.

4. A carbonator including a horizontally disposed cylindrical tank constituting a liquid receptacle, said tank having a connection in one end thereof near the bottom thereof which forms a recess communicating with the interior of the tank, a combined inlet and outlet connection communicating with the interior of said recess, and a part of said connection including a horizontally disposed pipe having its open end upturned and disposed above the bottom of the tank.

In testimony whereof I affix my signature.

FRANK E. RICE.