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BEVERAGE GAS CHARGING APPARATUS

Filed Feb. 10, 1931

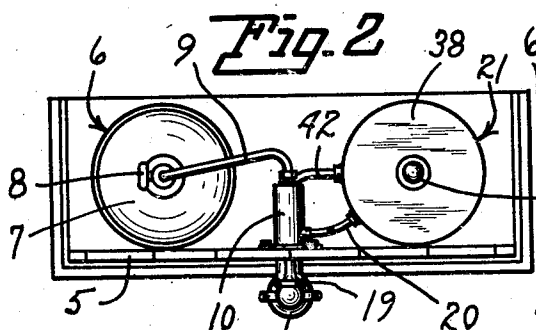
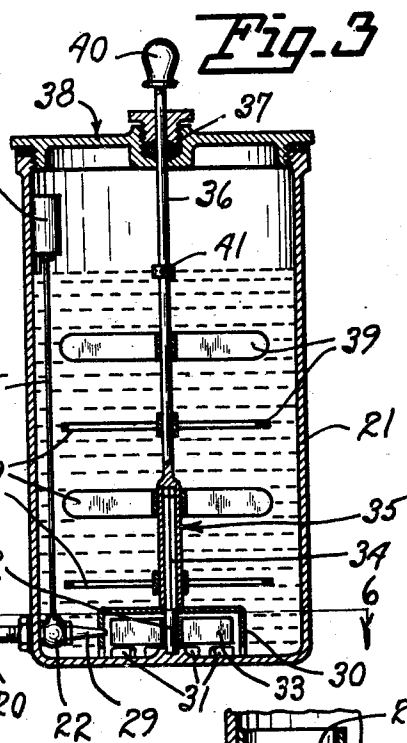
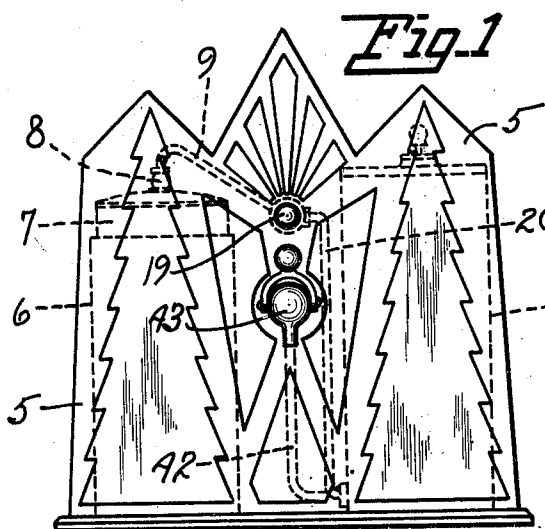


Fig. 4

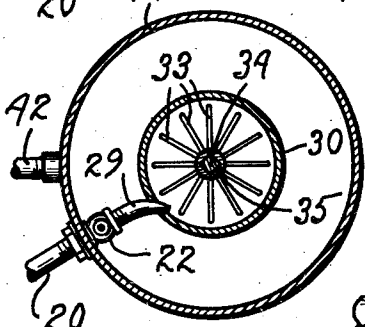
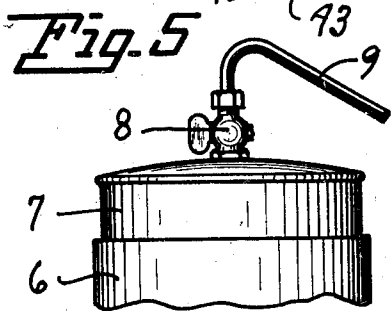
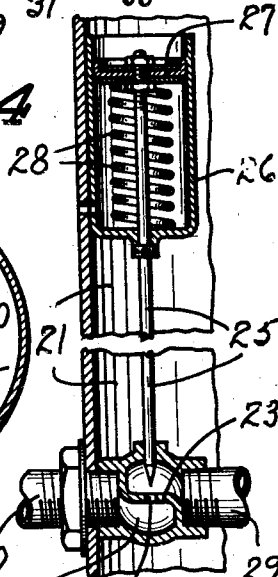
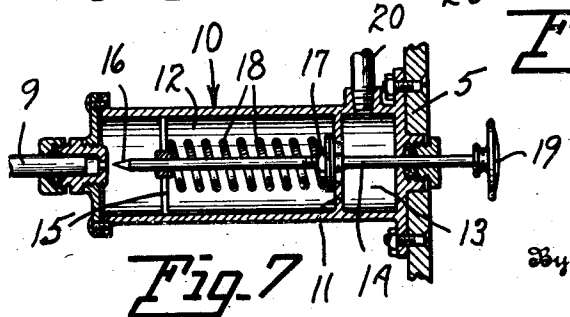


Fig. 6



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## UNITED STATES PATENT OFFICE

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## BEVERAGE GAS CHARGING APPARATUS

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My invention relates to beverage gas charging apparatus and certain objects of the invention are to provide an apparatus for charging beverages with gas that is adapted for home or store use and which embodies means for supplying the gas from a commercially filled gas tank to the water or other liquid in predetermined increments as desired, means whereby the gas supply is automatically cut off and turned on by its own force upon reaching a predetermined pressure, means whereby the force of the charging or incoming gas is utilized for causing a thorough agitation of the water whereby a complete mixture of the gas therewith is effected, and means whereby the water may be manually agitated to cause a thorough mixture of the gas therewith.

With the above and other objects in view which will appear as the description proceeds, the invention consists of the novel construction, adaptation, combination and arrangement of parts hereinafter described and claimed. These objects are accomplished by devices illustrated in the accompanying drawings; wherein:—

Figure 1 is a view in front elevation of the assembled device;

Fig. 2 is a top plan view of the same;

Fig. 3 is a view in central vertical section of the water tank showing the agitating means;

Fig. 4 is a fragmentary view in vertical section showing the pressure valve for automatically controlling the gas supply;

Fig. 5 is a fragmentary view in elevation showing a gas tank installed in its retainer casing;

Fig. 6 is a view in horizontal section taken substantially on a broken line 6, 6 of Fig. 3 and showing the automatic agitation means; and

Fig. 7 is a detail view in central vertical section of the gas charging valve means.

Referring to the drawings throughout which like reference numerals indicate like parts, the numeral 5 designates a housing of any desired ornamental design. Said housing has a cylindrical upstanding retainer casing 6 mounted on one side thereof that is

adapted to receive and retain a gas tank 7 as shown in detail in Fig. 5 of the drawings. Said gas tanks are supplied to the trade or home already filled with carbonated gas or the like under pressure as will be understood.

From the tank 7 the gas, under pressure, is allowed to escape by means of a cock 8 connected to a pipe 9. The remote end of said pipe is connected to a cylindrical valve casing 10, shown in detail in Fig. 7, and containing means whereby the passage of the gas therethrough may be controlled. A partition 11 divides said casing into a relatively large entry compartment 12 and a relatively small discharge compartment 13. A valve stem 14 slidably disposed through the front wall of the housing 5, through the partition 11 and through a spider guide 15 within the valve casing, has a pointed end 16 that is adapted to engage a seat at the point of entry of said pipe into the casing. A cut-off valve 17 is provided at said partition and a spring 18 for the valve stem normally retain said valve in the closed position and the pointed end of the valve stem in the open position as shown. The exterior end of said stem is provided with a knob 19 and at each time pressure is applied to said knob the pointed stem end will close the entry port to the valve casing and the cut-off valve 17 will be opened. Thus the gas within the large compartment 12 will pass into the discharge compartment 13 and then outwardly through a pipe 20.

The pipe 20 conveys the gas into the bottom portion of a water tank 21 through a round valve 22 that is provided with a partition 23 having a passage 24 therethrough as most clearly shown in Fig. 4 of the drawings. An upstanding valve stem 25 passes slidably into said round valve and its pointed end is adapted to close said passage. The upper end portion of said stem is slidably disposed through a small cylindrical casing 26 secured against the upper wall portion of the water tank. A piston 27 is fixed to the upper end of the valve stem and is slidably and snugly disposed within said casing. A spring 28, within the casing, is adapted to normally retain said piston in the upward or raised position and the lower pointed end of the valve stem

away from its seat thus allowing the gas to pass through the valve 22 and through its nozzle 29 into the water within said water tank. When the gas sufficiently charges the water within said tank and its pressure reaches a predetermined point its pressure force will overcome the resistance of the spring and press the piston 27 downward causing its stem 25 to close the valve passage 24 and prevent, for the time being, any more gas from entering said water tank. As the charged water is drawn off from the tank the pressure therein will drop to a point that is less than the force of the spring 28 which will again cause the valve to open and permit more gas to enter the water tank as will be understood.

The nozzle 29 of the valve 22 discharges into a small housing 30 fixed centrally within the bottom of the water tank 21 and having a plurality of openings 31 spaced around its bottom whereby the gas may escape and spread out into the water within said tank. A stub-shaft 32 is revolvably mounted in said housing and projects upwardly therethrough and propeller or fan blades 33 are secured thereto within the housing. The upper exterior end portion 34 of said stub-shaft is square in cross section and the lower enlarged end portion 35 of a relatively long shaft 36 is provided with a hollow recess that is also square in cross section and which slidably receives the projecting end of the stub-shaft. Said long shaft extends upwardly through a packing gland 37 centrally disposed in the top 38 of the water tank which is threadedly installed and may be readily removed for the purpose of supplying fresh water to the tank, and a plurality of paddle blades 39 are keyed in spaced relation to said long shaft in alternate vertical and horizontal disposition as shown in Fig. 3.

Referring to Fig. 6 of the drawings, it will be noted that the nozzle 29 is arranged to cause the gas discharged from the pipe 20 to strike the propeller blades 33 at a tangent thus revolving said blades together with the shaft 36 and its paddle blades 39. The rotary motion of said paddle blades will thoroughly agitate the water within the tank 21 and thus cause a complete mixture of the incoming gas therewith. The water within said tank may also be manually agitated by means of a knob 40 on the upper exterior end of the long shaft whereby said shaft may be rotated. At the same time said shaft may be moved up and down by hand, as its enlarged socket end portion 35 slides on the square stub-shaft portion 34, thus increasing the agitation of the water. A stop member 41 is fixed to said long shaft and engages the top 38 of the water tank to prevent the socket end shaft portion from being disengaged from the stub-shaft. The charged water is drawn off from

the water tank through a pipe 42 and discharges through a delivery faucet 43.

It will now be apparent that I have provided a beverage gas charging apparatus comprising means for supplying gas to the beverage in predetermined amounts, means whereby the gas supply is automatically cut off and turned on by its own pressure, automatic means whereby the force of the gas is used to agitate the beverage and cause the gas to be more thoroughly mixed therewith, and means whereby the automatic agitating means may be manually operated.

Having thus described my invention, it being understood that minor changes may be resorted to in its construction and arrangement without departing from the scope and spirit of the invention, what I claim and desire to secure by Letters Patent of the United States is:—

1. A beverage gas charging apparatus having in combination a housing, a cylindrical retainer casing mounted on the housing, a gas tank mounted in the retainer casing, a water tank mounted on the housing, a closed top for the water tank, a pipe connecting the gas and water tanks, a cylindrical valve interposed in the pipe, a partition dividing said valve into an entry and a discharge compartment, a spring controlled valve stem adapted to normally retain the entry compartment open and the discharge compartment closed and whereby pressure on the stem will open the discharge compartment and close the entry compartment, a round valve for the discharge end of the connecting pipe within the bottom of the water tank, a stem for said valve extending to the top portion of said water tank, a piston for the top of said stem, a cylinder for the piston open at its top, a spring for said piston adapted to normally retain said valve stem away from its seat and whereby the downward gas pressure will compress the stem to its seat, a small housing in the bottom of the water tank having opening around its lower portion, a discharge nozzle for the round valve projecting into the small housing, an upstanding stub-shaft projecting into the water tank, a long shaft extending slidably through the top of the water tank, a bottom socket for the long shaft fitting slidably on the square portion of the stub-shaft, paddle blades fixed to the long shaft in spaced relation and with their edges alternately disposed in horizontal and vertical arrangement, a stop for the long shaft adapted to engage the top of the water tank when said shaft is raised, a knob on the exterior end of the long shaft whereby same may be manually raised and rotated, and faucet delivery means for the water tank.

2. A beverage gas charging apparatus having in combination a housing, a gas tank and a water tank for the housing, a closed top for the water tank, a pipe connecting said gas

and water tanks, valve means for the connecting pipe whereby gas may be fed from the gas tank into the water tank in predetermined amounts, a valve for the discharge end portion of said connecting pipe disposed in the bottom of the water tank, means whereby variations in the gas pressure will automatically open and close said valve located in the top portion of the water tank, means for agitating the water within the water tank actuated by the force of the gas at the discharge end of the connecting pipe, means for manually actuating said actuating means, and faucet delivery means for the water tank.

15 In testimony whereof I affix my signature.  
ANTHONY W. MORRIS.

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