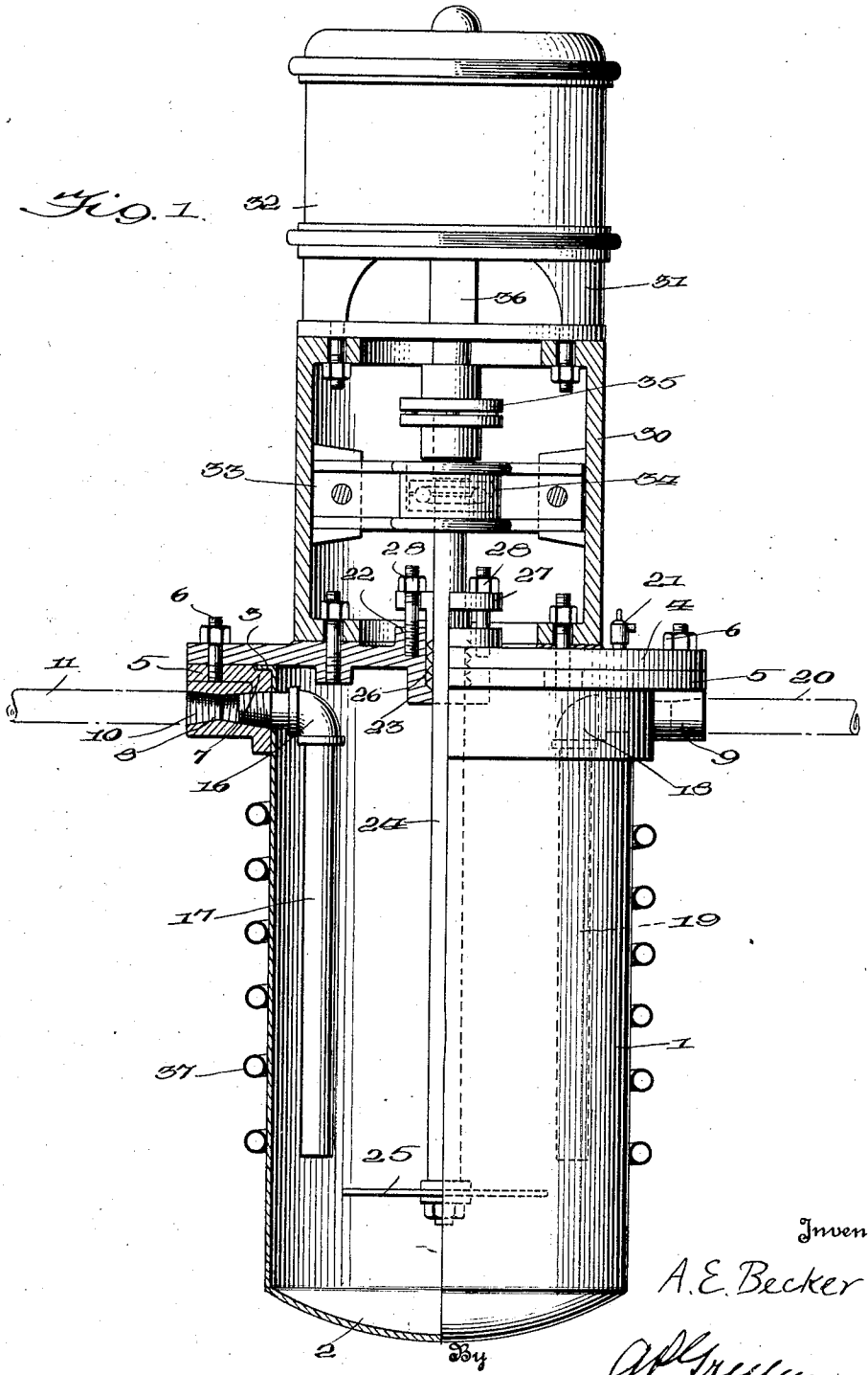
March 4, 1930. A. E. BECKER 1,749,625

APPARATUS FOR CARBONATING LIQUIDS

Filed June 15, 1929 2 Sheets-Sheet 1

Fig. 1.



Inventor
A. E. Becker
By
A. P. Greeley
Attorney

March 4, 1930. A. E. BECKER 1,749,625

APPARATUS FOR CARBONATING LIQUIDS

Filed June 15, 1929 2 Sheets-Sheet 2

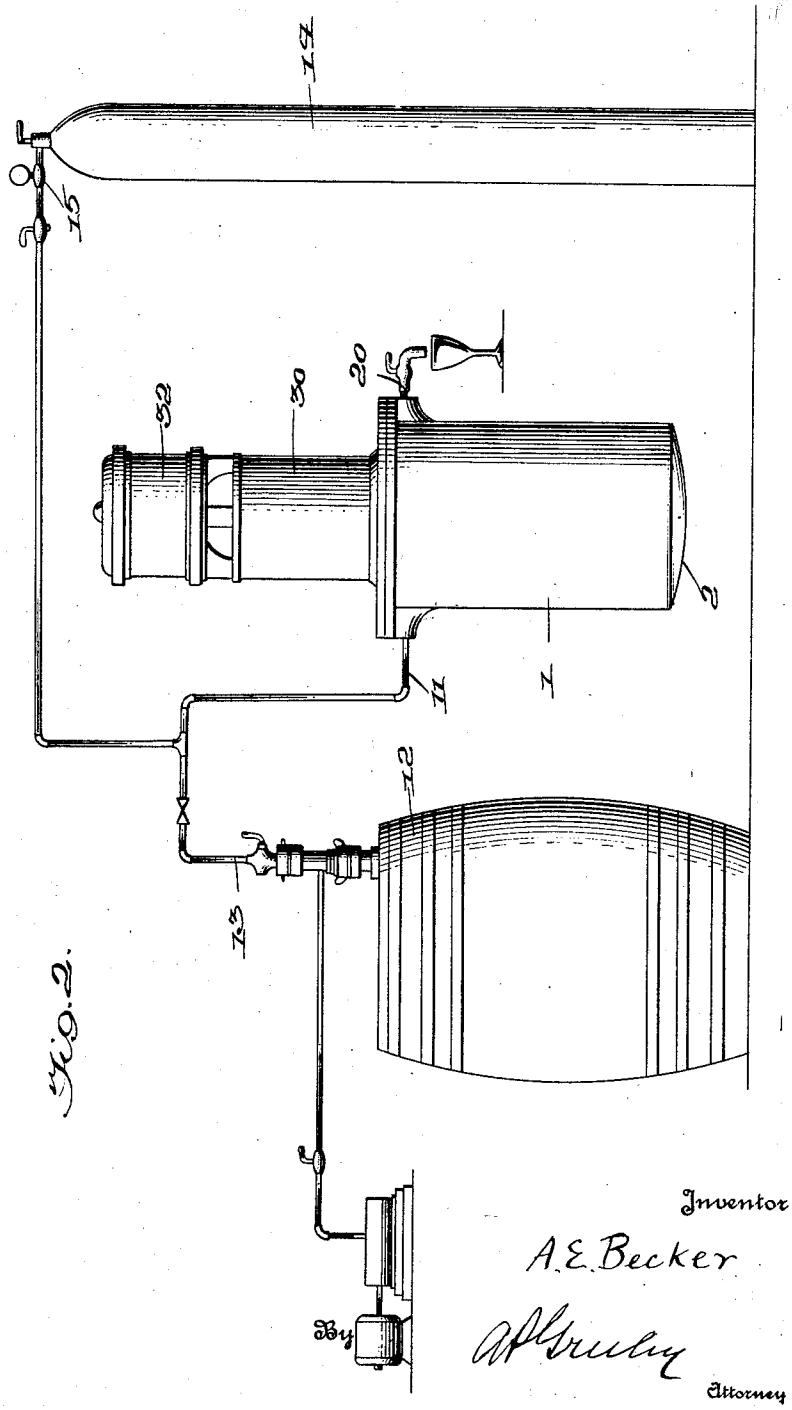


Fig. 2.

Inventor
A. E. Becker

By

Attorney

Patented Mar. 4, 1930 1,749,625

UNITED STATES PATENT OFFICE

ALBERT E. BECKER, OF OGDEN, UTAH

APPARATUS FOR CARBONATING LIQUIDS

Application filed June 15, 1929. Serial No. 371,193.

My invention consists in means for carbonating beverages and has for its object to provide a simple, compact, strong and inexpensive device for this purpose adapted to receive the beverage liquid and carbonic acid gas under pressure and to effect a complete carbonating of the liquid.

A further object of the invention is to provide a device of this character which may readily be taken apart for cleaning and which will be free from leakage.

With the objects above indicated and other objects hereinafter explained, my invention consists in the construction and combination of elements hereinafter described and claimed.

Referring to the drawings:

Figure 1 is a view partly in section and partly in side view of a carbonator embodying my invention, and

Figure 2 is a view showing the carbonator connected with the liquid and gas supplies.

In the drawings 1 indicates a container closed at its lower end 2 preferably formed in one piece of sheet copper lined with tin or otherwise made non-corrosive, and having at its upper end outwardly turned flange 3. 4 indicates a supporting plate and 5 indicates a ring extending about the upper end of container 1 beneath plate 4 to which it is secured by bolts 6—6, this ring having at its upper inner edge an annular recess 7 adapted to receive flange 3 of the container, flange 3 being thus clamped between the ring and the plate and held in position by bolts 6. At suitable points, preferably diametrically opposite points, ring 5 is provided with openings 8 and 9 extending horizontally through the ring, the container being provided with openings in line with openings 8 and 9. These openings in the ring are screwthreaded from both ends as shown. The outer screwthread of opening 8 is adapted to receive the end 10 of pipe 11. Pipe 11 leads from a beverage liquid supply tank 12 in which the beverage is maintained under pressure and at a convenient point has a branch 13 leading from a carbonic acid tank 14. A check valve 15 in pipe 11 between branch 13 and liquid supply tank prevents the gas from entering the supply tank. The screwthread in the inner end of opening 8 is adapted to receive the end of an elbow 16 to the other end of which is secured pipe 17 leading downward to near the bottom of the container.

Into the inner end of opening 9 is secured elbow 18 to which is secured pipe 19 leading from near the bottom of the container. Into the outer end of opening 9 is secured the end of pipe 20 leading to a suitable delivery nozzle.

Liquid and gas enter opening 8 until the container is filled and the charged liquid is drawn off as desired through opening 9, the initial filling being permitted by opening air outlet valve 21 in plate 4 so as to permit the contained air to be driven out by the incoming liquid and gas.

Plate 4 is provided at its centre with a boss 22 extending upward and a boss 23 extending downward. Through these bosses 22 and 23 a shaft 24 extends to near the bottom of container 1 and carries on its lower end a disk 25. The bosses 22 and 23 are suitably chambered to receive packing 26 about shaft 24 which is held under compression by gland 27 which is secured in place by bolts 28.

On the upper face of plate 4 is secured by bolts 29, a cylinder 30 and to the upper end of this cylinder is secured a casing 31 in which is contained an electric motor 32. About midway between its upper and lower ends a bar 33 is secured in cylinder 30. This bar carries a thrust bearing 34 of which the lower member is secured to the bar, and the upper member is secured to shaft 24, antifriction balls being interposed between the two members. Shaft 24 terminates above bar 33 and is connected by flexible coupling 35 to shaft 36 of motor 32.

In operation, the delivery nozzle connected with pipe 20 being closed, the air outlet valve 21 is opened and beverage liquid is admitted to container 1 under pressure from supply tank 12 through pipe 11 and opening 8, carbonic acid gas under pressure being admitted at the same time through pipe 11 and opening 8. As soon as container 1 is completely filled with liquid and gas air outlet valve 21 is closed. Motor 32 is then set in operation

rotating shaft 24 and disk 25 carried by it. This effects thorough mixing of the gas with the liquid, any decrease of pressure in the container due to absorption of the gas by the liquid being compensated for by additional liquid and gas supplied under pressure from the liquid and gas supply tanks.

The gas being thoroughly mixed with the liquid, the beverage may be drawn off as wanted through delivery nozzle on pipe 20, the supply in container 1 being kept constant by the pressure on the liquid supply tank 12 and the carbonic acid tank 14, the motor 32 being run from time to time as may be found necessary to ensure thorough admixture of the gas and liquid.

Container 1 should be suitably cooled and this may be effected by a cooling coil 37 extending about the container in which brine or other cold fluid is circulated, or if means for so cooling it is not available, ice may be packed about the container.

It will be readily seen that by unscrewing bolts 6, 6, the container ring 5 with container 1 may be separated from plate 4 for cleaning.

Having thus described my invention what I claim is:—

1. In apparatus for carbonating liquids a container having its lower end closed, a plate closing the upper end of the container, a ring secured to the lower face of the plate clamping the upper end of the container therebetween and having inlet and outlet openings formed in it, a shaft extending through the plate into the container provided with an agitator, means carried by the plate for rotating said shaft, means for supplying liquid and gas to the inlet opening of the ring and delivery means connected to the outlet opening of the ring.

2. In apparatus for carbonating liquids a container having its lower and closed, a plate closing the upper end of the container, a ring secured to the lower face of the plate clamping the upper end of the container therebetween and having inlet and outlet openings formed in it, a shaft extending through the plate into the container provided with an agitator, means carried by the plate for retating said shaft, means for supplying liquid and gas to the inlet opening of the ring and delivery means connected to the outlet opening of the ring, and pipes connected with the inlet and outlet openings within the container extending to near the bottom thereof.

3. In apparatus for carbonating liquids a container having its lower end closed, a plate closing the upper end of the container, a ring secured to the lower face of the plate clamping the upper end of the container therebetween, and having inlet and outlet openings formed in it, a shaft extending through the plate into the container provided with an agitator at its lower end and extending upward from said plate, a thrust bearing for said shaft, means carried by the plate for supporting the thrust bearing, and a motor supported by said plate having its shaft connected to the shaft carried by the plate, means for supplying liquid and gas under pressure to the inlet opening of the ring and delivery means connected to its outlet opening.

In testimony whereof, I hereunto affix my signature.

ALBERT E. BECKER.