March 7, 1939. R. S. FETTERLY 2,149,670

CARBONATOR

Filed Feb. 15, 1937

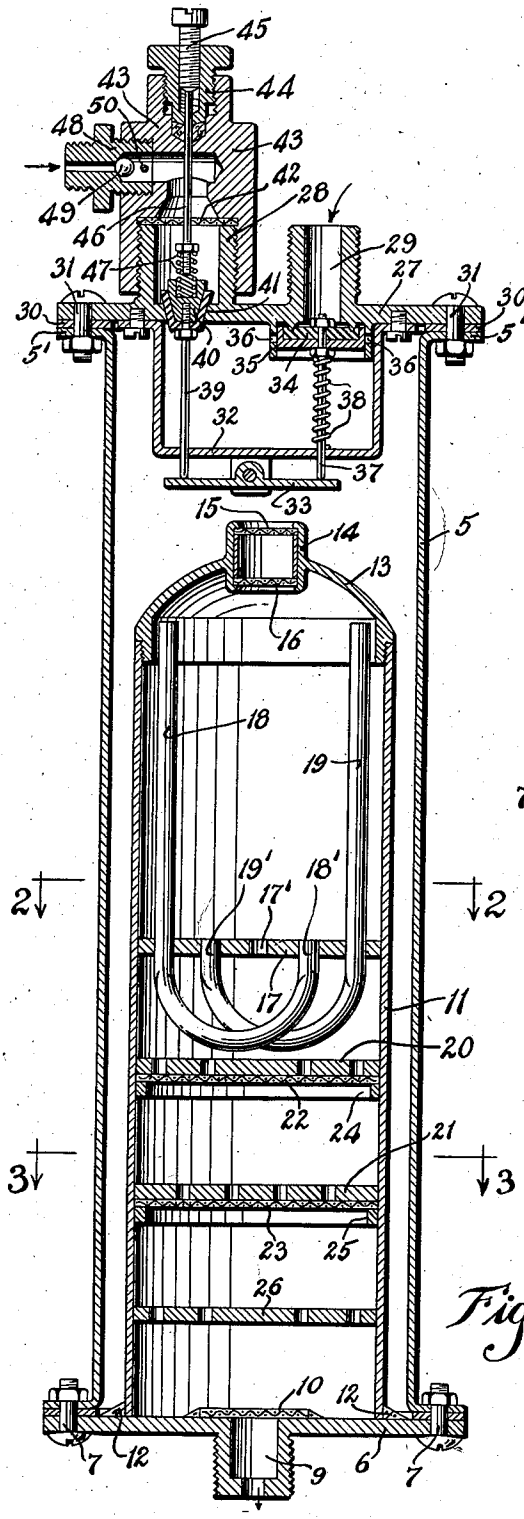

Fig. 1

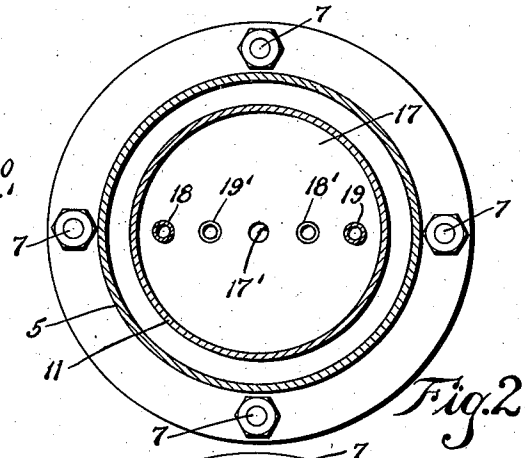

Fig. 2

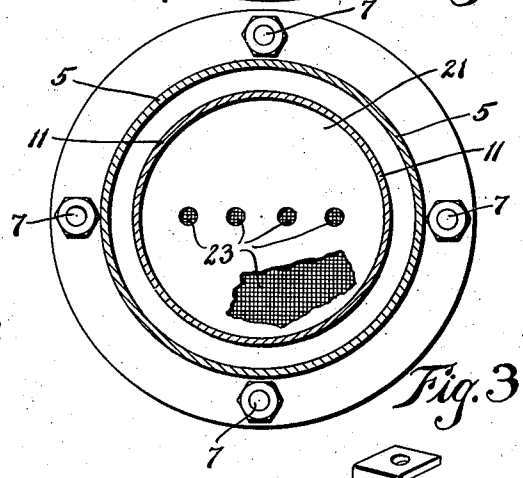

Fig. 3

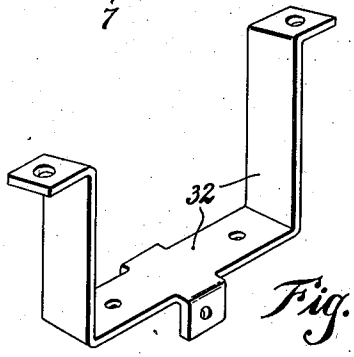

Fig. 4

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CARBONATOR

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3 Claims. (Cl. 261—59)

My invention relates to carbonators, and more particularly to a carbonator requiring no power for its operation and having no moving parts other than the valves to control the flow of water to and the outflow of the carbonated water.

I have thus provided a greatly simplified carbonator which has proven to be most practical, economical, noiseless, sanitary, and of small compass.

In order to describe my invention, I have shown on the accompanying sheet of drawings one practical embodiment of my invention, which I will now describe:

Figure 1 is a vertical sectional view through a carbonator embodying my invention;

Figure 2 is a cross sectional view thereof taken on the line 2—2 of Fig. 1;

Figure 3 is a cross sectional view thereof taken on line 3—3, of Fig. 1; and

Figure 4 is a perspective view of a supporting bracket.

Referring in detail to the drawing, my invention as here shown, includes a cylindrical body or case 5, secured to a base 6, by means of bolts 7, 7, with a gasket therebetween. Said base 6 is provided with an outlet means 9, threaded for the attachment of a pipe. A screen member 10 is placed over said outlet.

Mounted on said base 6, within said cylindrical body 5, substantially as shown, is a smaller cylinder 11, which may be welded or otherwise secured at its lower open end to said base, as at 12. The upper end of said cylinder 11 is closed by means of a head 13, screwed thereinto, and having a neck-like inlet at 14, with screens 15 and 16 placed therein, substantially as shown.

Mounted in said smaller cylinder is a floor or partition 17, through which is extended two upstanding pipes, 18 and 19, which are bent upwardly at their lower ends, under said floor 17, and secured therein to receive fluid from above said floor, which can rise in said pipes 18 and 19, which are open at their upper ends.

Also mounted in said smaller cylinder are two perforated plates or floors, as 20 and 21, with screens 22 and 23 thereunder, and all supported on ring members 24 and 25 secured to the inside of said cylinder.

In the lower part of said cylinder 11, is another perforated plate or floor member 26.

In the top of the outer cylinder or case 5 is a head member 27, having two upstanding tubular extensions, 28 and 29, externally threaded, said head being secured to the upper end of said cylinder 5 by means of flange 5', a gasket 30, and bolts 31, as shown.

Suspended from the underside of said head is a supporting bracket 32, as seen also in Fig. 4. On the underside of this bracket is pivoted a lever or rocker member 33. A valve member 34 closes the inner end of the extension 29, said valve moving in an annular flange-like extension 35, with holes 36 therethrough. Said valve 34 is mounted on the upper end of a rod 37, with coiled spring 38 thereon to normally move the same upwardly to close said valve, while the lower end of said rod 37 rests on one end of said rocker arm 33. On the other end of said rocker member 33 is a rod 39, having connected to its upper end a conical valve 40, for closing an opening 41, through said head 27, within the extension 28. On top of said extension is a screen 42, and screwed down over said extension is a body 43, having in its top a bushing plug 44, with a screw member 45 therein, to which is secured a rod 46, on the lower end of which is a spring 47, the lower end of which is seated in said conical valve, whereby the tension of said conical valve can be regulated by said screw member 45, all substantially as illustrated in said drawing. A lateral pipe connection member 48 is screwed into the side of said body 43, with ball valve 49 therein, with confining pin 50 therefor, substantially as illustrated.

A water supply is connected at 29 and the source of gas is connected at 48. The water pressure will depress the valve 34 which will open the valve 40. Thus water and gas will flow into the tank 5 until it is filled, including the inner tank 11 and the pipes 18 and 19. The water inflow will be discharged through the openings 36 in the flange extension 35 spraying outwardly therefrom and mixing with the gas as both flow into the tank under pressure.

When the draw-off is opened, which is connected at the bottom member 9, there is set up in the cylinders a surging and mixing which results in a thorough mixing of gas and water as it is drawn off. This is due to the fact that the contents must flow through the openings in the floor members 20, 21 and 26 and the one opening 17' in the member 17, in which member 17 the pipes 18 and 19 are supported.

I have found from actual construction and much experimenting that the construction and arrangement of the parts substantially as illustrated on the drawing produces a most satisfactory result, and that the proportions used and

about as shown give the best result. Just what causes the peculiar surging and mixing I am not as yet quite sure, but that surging takes place is very evident from the results. The absence of moving parts or any power to operate the device makes it most economical to operate and to maintain, and it is also easy to connect and install for use.

I do not limit my invention to the details of construction and arrangement shown in the drawing for explanatory purposes, except as I may be limited by the hereto appended claims forming a part of this specification.

I claim:

1. In a carbonator, a casing, a valve controlled water inlet thereto, a valve-controlled gas inlet thereto, said valves being operatively connected for movements in opposite directions to simultaneously open said inlets, an inner casing shorter than the inside of said casing and open at its top to receive the mixture of water and gas as it rises in said casing to the top of said inner casing, an outlet means at the bottom of said casings communicating with the inner casing, and means within said inner casing to cause a surging and better mixing of gas and water in said inner casing when outflow is caused through said outlet means.

2. In a carbonator, an outer casing having water inlet and gas inlet, valve-controlled openings at its upper end, an inner casing having an inlet opening at its upper end, to receive water and gas from said outer casing as said outer casing fills to the top of said inner casing, partition members in said inner casing having openings therethrough, screens over said openings, said openings being designed to cause a better mixing of water and gas being drawn therethrough, and means at the lower end of said inner casing for drawing out said mixture of water and gas from said inner casing.

3. A carbonator including in combination an outer casing, a valve-controlled water inlet to the upper end thereof, a valve-controlled inlet for gas at the upper end thereof, means operatively connecting said valves whereby they are operated together, by water pressure through said water inlet operating on said valve, whereby inflow of water opens the valve for inflow of gas, an inner casing having an inlet opening at its top and an outlet at its bottom, whereby said inner casing is filled as water and gas in said outer casing rises to the top of said inner casing, a plurality of partitions in said inner casing with openings therethrough for passage of water and gas, and means associated therewith to cause a better mixing of said water and gas in said inner casing as the mixture is drawn out through said outlet from said inner casing.

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