July 29, 1924. 1,503,107

C. L. BASTIAN

DISPENSING APPARATUS

Filed Sept. 17, 1923

Fig. 1

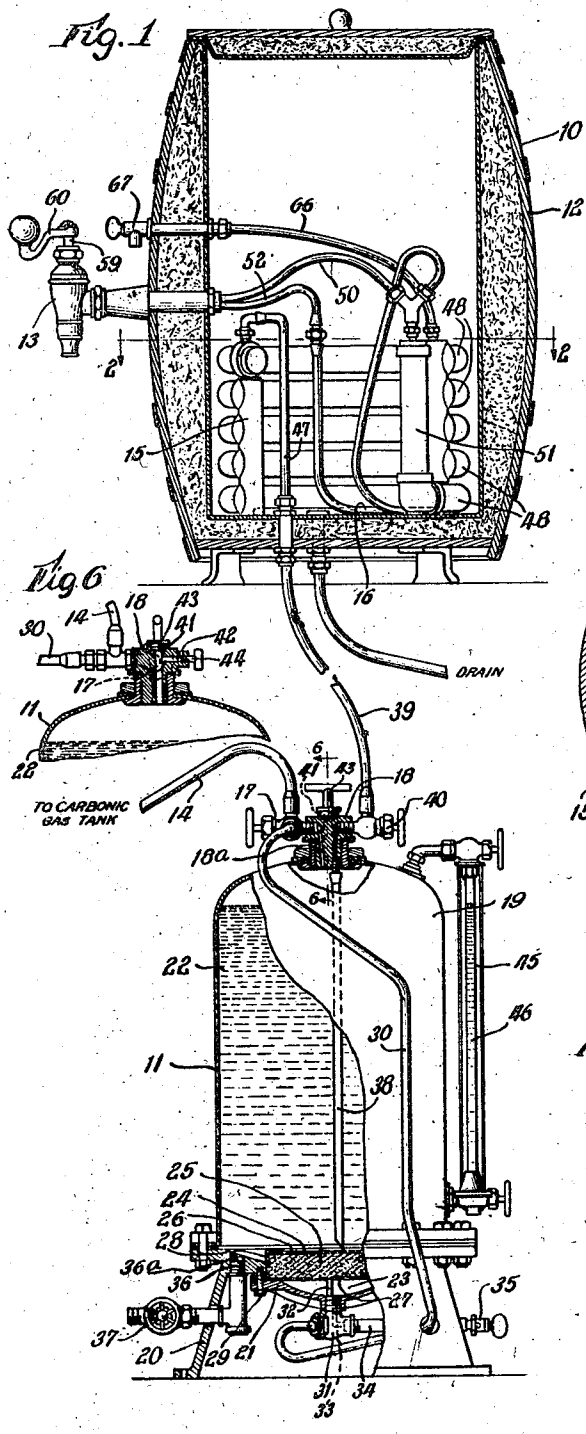


Fig. 4

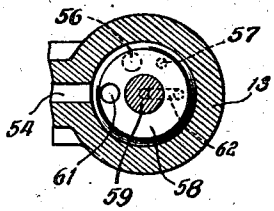


Fig 2

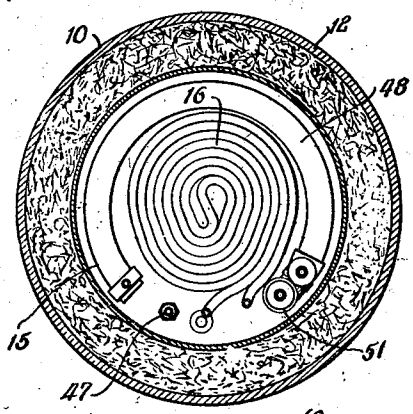


Fig. 6

Fig. 3

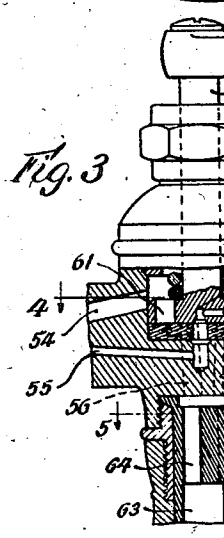


Fig. 5



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UNITED STATES PATENT OFFICE.

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DISPENSING APPARATUS.

Application filed September 17, 1923. Serial No. 663,052.

To all whom it may concern:

Be it known that I, CHARLES L. BASTIAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dispensing Apparatus, of which the following is a specification.

This invention relates to apparatus for dispensing a carbonated beverage, such as root beer, the main object being to provide an improved apparatus for carbonating and dispensing the beverage as a creamy drink or a liquid drink depending upon the proper manipulation of the apparatus by the operator.

A further object of the invention is to provide apparatus of the character described which facilitates the work of the operator so that drinks of desired creamy consistency may be drawn from the apparatus after a minimum amount of regulation or adjustment of the apparatus.

A still further object of my invention is to provide apparatus of the character described having improved means for diffusing the carbonating gas through the beverage which is to be dispensed.

Other objects of my invention will become apparent as the detail description progresses, reference being had to the accompanying drawing, wherein—

Fig. 1 illustrates a selected embodiment of my invention, certain parts of the apparatus being shown in elevation and other parts in section.

Fig. 2 is a section taken on line 2—2 of Fig. 1.

Fig. 3 is an enlarged detail view of a draught arm or faucet which forms a part of my improved apparatus.

Fig. 4 is a section taken on line 4—4 of Fig. 3.

Fig. 5 is a section taken on line 5—5 of Fig. 3, and

Fig. 6 is a section taken on line 6—6 of Fig. 1.

In the specific embodiment of my invention which is illustrated in the accompanying drawing, the reference character 10 designates a cooling unit to which a carbonated beverage is supplied by a carbonator 11. The carbonator 11 is adapted to be used in connection with a carbonic gas tank (not shown) of usual construction including a valve for regulating the pressure of the gas which flows from the tank. As the construction of the carbonic gas tank and its regulating valve does not form a part of this invention, no description of the specific details thereof will be given.

The cooling unit 10 comprises a barrel 12 adapted to be placed upon a counter or the like, the barrel being provided with a draught arm or faucet 13 whereby the operator may draw the carbonated beverage from the apparatus. The carbonator 11 is conveniently disposed with respect to the cooling unit 10 and the carbonic gas is supplied to the carbonator by way of a flexible tube 14 which communicates with the aforementioned carbonic gas tank. The gas is diffused through a supply of beverage held in the carbonator and the beverage, after being properly carbonated, is fed under the desired pressure to the cooling unit 10 comprising a plurality of coolers 15 and 16 which are disposed within the barrel 12 and which are hereinafter more fully described.

The flow of carbonic gas to the carbonator is controlled by the aforementioned regulating valve of the carbonic gas tank and to some extent by a valve 17 carried by a head 18 rigidly secured to the upper end wall of a substantially cylindrical drum 19, which, together with a base 20 and a cover plate 21, forms a chamber 22 adapted to hold the beverage which is to be carbonated and dispensed. A chamber 23 located in the lower end of the carbonator 11 is separated from the chamber 22 by a partition or wall 24 which preferably comprises a porous artificial stone 25 manufactured of siliceous material. As shown in Fig. 1, the artificial stone 25 is preferably disposed between a plurality of perforate plates 26 and 27, the perforate plate 26 being held in place by a ring 28 which, together with the perforate plate 27 and the cover plate 21, is rigidly secured to the base 20 by a plurality of bolts 29. The partition or wall 24 permits carbonic gas to pass from the chamber 23 into the chamber 22, the carbonic gas being supplied to the chamber 23 by a pipe 30 which communicates at all times with the flexible tube 14 and which also communicates at all times with the chamber 23 through the medium of a T-fitting 31 threaded into an apertured boss formed upon the cover plate 21. The T-

fitting is bored to receive a small section of pipe 32 which projects into the chamber 23 and which is adapted to receive the gas flowing from the pipe 30 and to discharge this gas in close proximity to the partition or wall 24. A second bore, indicated by the reference character 33, in the T-fitting 31 communicates with a pipe 34 threaded into the T-fitting. The bore 33, together with the pipe 34 and a valve 35, provide means whereby the chamber 23 can be drained of any beverage which may seep through the wall 24. The chamber 23 may be drained through a pipe 36 which is threaded into an opening 36[a] in the base 20. A valve 37 is provided for controlling the flow of beverage through the pipe 36.

Depending from the head 18 and disposed substantially central of the substantially cylindrical drum 19 is a pipe 38. The pipe 38 provides means whereby the carbonated beverage may flow from the carbonator 11 to the cooling unit 10 by way of a tube 39. A valve 40 carried by the head 18 is adapted to control the flow of beverage from the pipe 38 to the pipe 39.

As hereinbefore set forth, the flexible tube 14 is at all times in communication with the pipe 30 (Fig. 6). This construction permits the beverage to be subjected at all times to the carbonating influence of the gas flowing from the carbonic gas tank, the pressure of the gas being controlled by the regulating valve of the gas tank. The gas which enters the carbonator by way of the flexible tube 14 and the pipe 30 must, of course, pass through the porous stone 25 if it is to carbonate the beverage. However, carbonic gas may be admitted directly to the chamber 22 from the flexible tube 14 by way of a bore 18[a] formed in the head 18, the valve 17 serving to control the flow of gas from the flexible tube 14 to the bore 18[a].

As best shown in Fig. 6, the head 18 is provided with a filling opening 41 and a vent opening 42, screw threaded plugs 43 and 44 being provided for the openings 41 and 42 respectively. The plugs 43 and 44 are withdrawn, of course, from the openings 41 and 42 when the chamber 22 is to receive a supply of beverage. I prefer to provide a gauge 45 having a sight glass 46 which indicates, at any time, the amount of beverage contained in the chamber 22.

The carbonated beverage which is supplied to the cooling unit 10 through the medium of the tube 39 is admitted to the upper coil of the aforementioned cooler 15, a short section of pipe 47 being interposed between the cooler 15 and the tube 39. The cooler 15 preferably comprises a plurality of coils 48 through which the carbonated beverage must pass before it can be drawn from the draught arm or faucet 13. It will be noted that the draught arm 13 is connected with the lowermost coil 48 of the cooler 15 by a pipe 50 and a vertically disposed riser 51 which forms a continuation of the lowermost coil 48. It will also be noted that the aforementioned cooler 16 communicates with the lowermost coil 48 of the cooler 15 by way of the riser 51 and that the discharge end of the cooler 16 is connected to the faucet 13 by a short section of pipe 52. The pipe from which the cooler 16 is formed is of small diameter as compared with the diameters of the several coils 48 of the cooler 15. It is apparent that the cooler 16 comprises a long passage of comparatively small cross sectional area. As shown in the drawing, the pipe from which the cooler 16 is formed and the pipes 50 and 52 are of substantially the same diameter. The purpose of this construction will presently appear.

The pipe 52, which connects the cooler 16 with the faucet 13, communicates with an inlet port 54 provided in the faucet 13 (Figs. 1 and 3). The inlet port 54 is preferably of a diameter substantially larger than the inside diameter of the pipe 52. The pipe 50 communicates with an inlet port 55 which is also formed in the faucet 13 and which has a cross sectional area substantially less than the cross sectional area of the inlet port 54 but equal to the inside diameter of the pipe 50. The faucet 13 is also provided with outlet ports 56 and 57, the outlet port 56 being of a diameter substantially equal to the diameter of the inlet port 54 and the outlet port 57 being of a diameter substantially equal to the diameter of the inlet port 55. Communication between the inlet ports 54 and 55 and the outlet ports 56 and 57 is controlled by a valve 58 carried by a rotatably mounted valve stem 59 which is provided with a handle 60 for the use of the operator. The valve 58 has a passage 61 extending therethrough, the passage 61 being of a diameter substantially equal to the diameters of the inlet port 54 and the outlet port 56. A second passage 62 formed in the valve 58 is of a diameter substantially equal to the diameters of the inlet port 55 and the outlet port 57. The outlet ports 56 and 57 are adapted to discharge through the nozzle 63 of the faucet, the nozzle being provided with a plurality of passageways 64 adapted to prevent swirling of a stream of beverage flowing from the nozzle.

Referring now to Figs. 1, 3 and 4, it is apparent that if the handle 60 is moved to the right (Figs. 1 and 4) until the passage 62 registers with the outlet port 57, the carbonated beverage which is supplied to the cooler 15 by the carbonator 11 may be discharged by the cooler 15 through the pipe 50, the inlet port 55, the passage 62, the outlet port 57 and the nozzle 63. It is also

apparent that if the handle 60 is moved to the left (Figs. 1 and 4) until the passage 61 registers with the outlet port 56, the carbonated beverage will flow from the cooler 15 through the cooler 16 and through the pipe 52, the inlet port 54, the passage 62, the outlet port 56, and the nozzle 63. In addition to the above described positions of the valve 58, the valve may be moved into positions wherein the inlet port 55 will communicate with the outlet port 56 and wherein the inlet port 54 will communicate with the outlet port 57. This construction enables the operator to draw liquid drinks or drinks of varying creamy consistency as hereinafter more fully explained.

The barrel 12 in which the coolers 15 and 16 are disposed is adapted to hold a quantity of cracked ice which may be packed tightly around the coolers to increase their efficiency.

To vent any gas which may collect in the uppermost coil 48 of the cooler 15, I provide a pipe 66, one end of which communicates with the uppermost coil 48 and the other end of which terminates in a valve 67 disposed adjacent the faucet 13. The operator may, from time to time, open the valve 67 and permit gas which has collected in the uppermost coil 48 to escape.

In the operation of the above described apparatus, the beverage to be dispensed is introduced to the chamber 22 through the filling opening 41, the plugs 43 and 44 having been withdrawn from the filling opening 41 and the vent opening 42 in the head 18. The regulating valve of the carbonic gas tank, the valve 17 and the valve 40 are closed during the filling operation, the regulating valve being opened directly after the plugs 43 and 44 have been replaced in the openings 41 and 42 respectively after a desired amount of beverage has been supplied to the carbonator. It is preferable that the beverage does not completely fill the chamber 22 as it is advantageous to leave a space at the top of the chamber into which space carbonic gas may be later introduced by way of the valve 17 and bore 18^a. The initial adjustment of the regulating valve of the carbonic gas tank, after the filling operation has been completed, permits the carbonic gas to flow under comparatively high pressure through the flexible tube 14 and the pipe 30 to the chamber 23, the gas then passing through the porous artificial stone 25 into the chamber 22 where it diffuses through the beverage contained in the chamber. The beverage becomes thoroughly saturated with gas four or five minutes after the initial adjustment of the regulating valve and after such saturation the regulating valve is again adjusted to reduce the pressure of the gas flowing to the carbonator. The valves 17 and 40 are then opened and in a moment the apparatus is in a condition to dispense drinks having the desired characteristics.

If the operator now turns the handle 60 to the right until the passage 62 registers with the outlet port 67, the carbonated beverage will flow from the cooler 15 through the pipe 50 and through the inlet port 55, the passage 62, the outlet port 57 and the nozzle 63. It is readily understood that the carbonated liquid is then discharged from the outlet port 57 under a pressure equal to the pressure obtaining in the cooler 15. When the beverage under its comparatively high pressure is discharged from the outlet port 57 and strikes the atmosphere, the gas with which the beverage is saturated immediately expands and its pressure is evolved in an innumerable number of small bubbles. The beverage then takes on an exceedingly creamy consistency as distinguished from a foamy consistency. A very pleasing drink may thus be obtained. However, if a liquid drink is desired, it is only necessary to move the handle 60 to the left until the passage 61 registers with the outlet port 56. The carbonated beverage will then flow from the cooler 15 through the cooler 16 and through the pipe 52, the inlet port 54, the passage 62, the outlet port 56 and the nozzle 63. It will be readily understood that the comparatively long passageway extending through the cooler 16 coupled with the small diameter of the pipe from which the cooler 16 is formed serves to reduce the pressure of the carbonated beverage discharged from the cooler 15 into the cooler 16. In addition to this reduction of pressure by the cooler 16, the inlet port 54 permits a further reduction in pressure as it is of a diameter substantially larger than the inside diameter of the pipe 52. Therefore, when the carbonated beverage is discharged through the inlet port 54 and outlet port 56 after having passed through the cooler 16, there will not be a sudden expansion of the gas in the beverage when the beverage strikes the atmosphere, the pressure of the gas having been reduced to a comparatively low value.

If the valve 58 is moved into positions wherein the inlet port 55 communicates with the outlet port 56 or wherein the inlet port 54 communicates with the outlet port 57, creamy drinks may be drawn from the apparatus, but these drinks will have a foamy characteristic not found in the drinks which may be obtained by registering the passage 62 with the outlet port 57.

I am aware that changes in the form, construction and arrangement of parts may be made without departing from the spirit and without sacrificing the advantages of

the invention and I reserve the right to make all such changes as fairly fall within the scope of the following claims.

I claim:

1. In dispensing apparatus, a plurality of coolers arranged seriatim, means for supplying beverage under pressure to one of the coolers, means for drawing the beverage after it has passed through only one of the coolers, and means for drawing the beverage after it has passed through the plurality of coolers.

2. In dispensing apparatus, a cooler, means for supplying beverage under pressure to the cooler, a second cooler adapted to receive the beverage discharged by the first mentioned cooler, means for drawing the beverage after it has passed through the first mentioned cooler only, and means for drawing the beverage after it has passed through both the first mentioned cooler and the second cooler.

3. In dispensing apparatus, a cooler, means for supplying beverage under pressure to the cooler, a second cooler, means connecting the first mentioned cooler with the second cooler, means for drawing the beverage after it has passed through the first mentioned cooler only, and means for withdrawing the beverage after it has passed through both the first mentioned cooler and the second cooler.

4. In dispensing apparatus, a cooler, means for supplying beverage under pressure to the cooler, a second cooler, means connecting the first mentioned cooler with the second cooler, a faucet, means connecting the discharge end of the first mentioned cooler with the faucet, and means connecting the disharge end of the second cooler with the faucet.

5. In dispensing apparatus, a cooler, a second cooler, means connecting the carbonator with the first mentioned cooler, means connecting the first mentioned cooler with the second cooler, a faucet, means connecting the discharge end of the first mentioned cooler with the faucet, and means connecting the discharge end of the second cooler with the faucet.

6. In dispensing apparatus, a plurality of coolers arranged seriatim, means for supplying beverage under pressure to one of the coolers, and a faucet connected with the coolers and having means movable to draw the beverage after it has passed through one of the coolers only or after it has passed through the several coolers.

7. In dispensing apparatus, a cooler, a carbonator, means connecting the carbonator with the cooler, a second cooler, means connecting the first mentioned cooler with the second cooler, and a faucet connected with the discharge end of the first mentioned cooler and with the discharge end of the second mentioned cooler and adapted to draw the beverage after it has passed through both the first mentioned cooler and the second cooler.

8. In dispensing apparatus, a cooler, a carbonator for supplying carbonated beverage to the cooler, a second cooler arranged seriatim with the first mentioned cooler, and a faucet having two inlet ports, one of the inlet ports communicating with the discharge end of the first mentioned cooler and the other of the inlet ports communicating with the discharge end of the second cooler.

9. In despensing apparatus, a cooler, a carbonator for supplying carbonated beverage to the cooler, a second cooler arranged seriatim with the first mentioned cooler, a faucet having two inlet ports, one of the inlet ports communicating with the discharge end of the first mentioned cooler and the other of the inlet ports communicating with the discharge end of the second cooler, the faucet having movable means for drawing the beverage through one or the other of said ports.

10. In dispensing apparatus, a cooler, a carbonator for supplying carbonated beverage to the cooler, a second cooler arranged seriatim with said first mentioned cooler, and selective means for drawing the beverage after it has passed through the first mentioned cooler only and for drawing the beverage after it has passed through both the first mentioned cooler and the second cooler.

11. In dispensing apparatus, the combination of a cooler, a carbonator for supplying carbonated beverage to the cooler, a second cooler arranged seriatim with the first mentioned cooler, and a faucet comprising an inlet port communicating with the discharge end of the first mentioned cooler, a second inlet port communicating with the discharge end of the second cooler, the second inlet port having a large cross sectional area as compared with the cross sectional area of the first mentioned inlet port, and valve means for selectively controlling the flow of beverage through the inlet ports.

12. In dispensing apparatus, the combination of a cooler, a carbonator for supplying carbonated beverage to the cooler, a second cooler arranged seriatim with the first mentioned cooler, and a faucet comprising an inlet port communicating with the discharge end of the first mentioned cooler, a second inlet port communicating with the discharge end of the second cooler, the second inlet port having a large cross sectional area as compared with the cross sectional area of the first mentioned inlet port, an outlet port having a cross sectional area substantially equal to the cross sectional area of the first mentioned inlet port, a second outlet port having a cross sectional area substantially

equal to the cross sectional area of the second inlet port, and valve means for controlling the flow of beverage from said inlet ports to said outlet ports.

13. In dispensing apparatus, a cooler, means for supplying carbonated beverage to the cooler, a second cooler adapted to receive carbonated liquid discharged from said first mentioned cooler and adapted to reduce the pressure of said carbonated beverage as it flows therethrough, a faucet, means connecting the faucet with the discharge end of the first mentioned cooler, and means connecting the faucet with the discharge end of the second cooler.

14. In dispensing apparatus, a cooler, means for supplying carbonated beverage to the cooler, a second cooler arranged serially with said first mentioned cooler and adapted to reduce the velocity of the carbonated beverage as it flows therethrough, a faucet having a plurality of outlet ports therein, means connecting the discharge end of said first mentioned cooler with one of said outlet ports, and means connecting the discharge end of the second cooler with the other of said outlet ports.

15. In dispensing apparatus, a cooler, means for supplying a carbonated beverage to the cooler, a faucet, means connecting the discharge end of the cooler with the faucet, and a second means connecting the discharge end of the cooler with the faucet including friction means for gradually reducing the pressure of the carbonated beverage.

CHARLES L. BASTIAN.