J. C. MURPHY.

CARBONATING APPARATUS.

APPLICATION FILED JULY 24, 1901.

977,467. Patented Dec. 6, 1910.

4 SHEETS—SHEET 1.

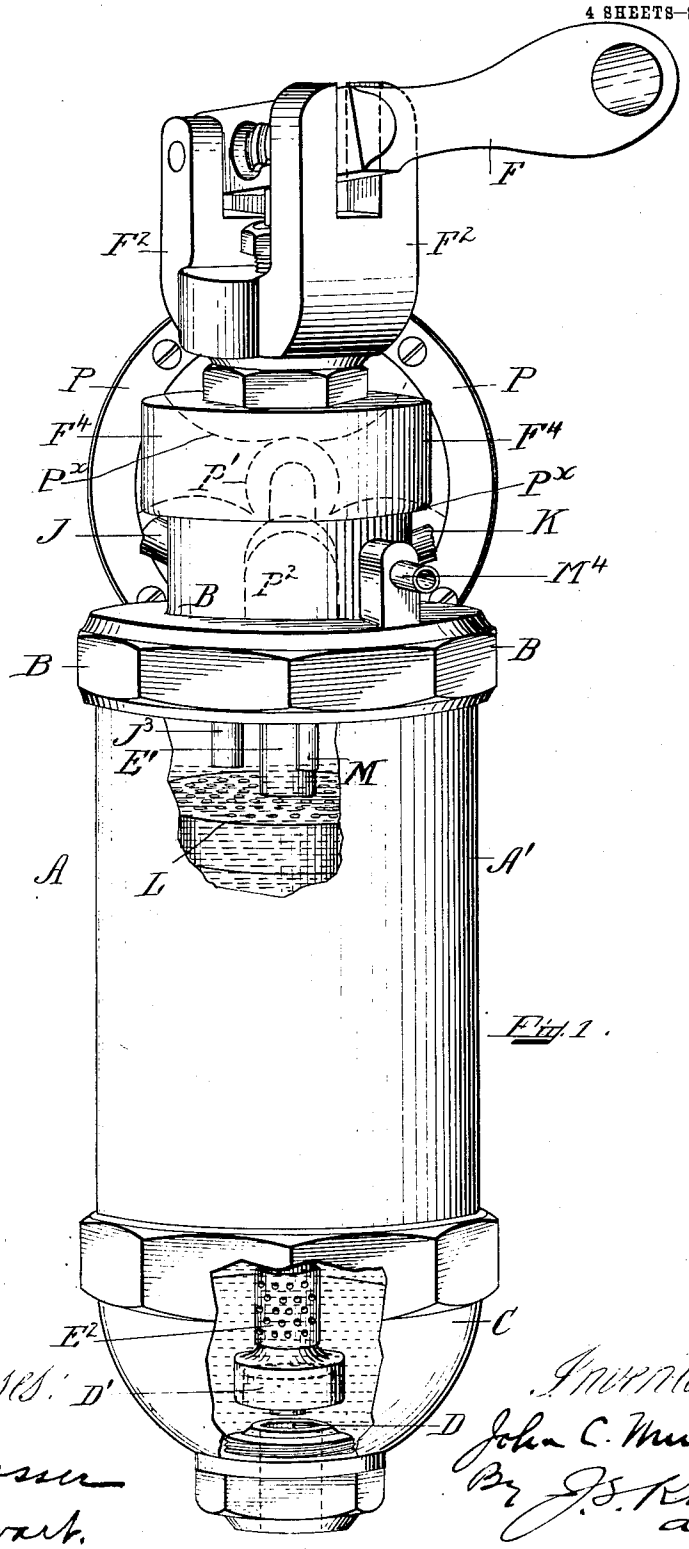

Fig. 1.

Witnesses:
A. L. Hussen
C. A. Stewart.

Inventor:
John C. Murphy
By J. S. Rusk
Atty

J. C. MURPHY.

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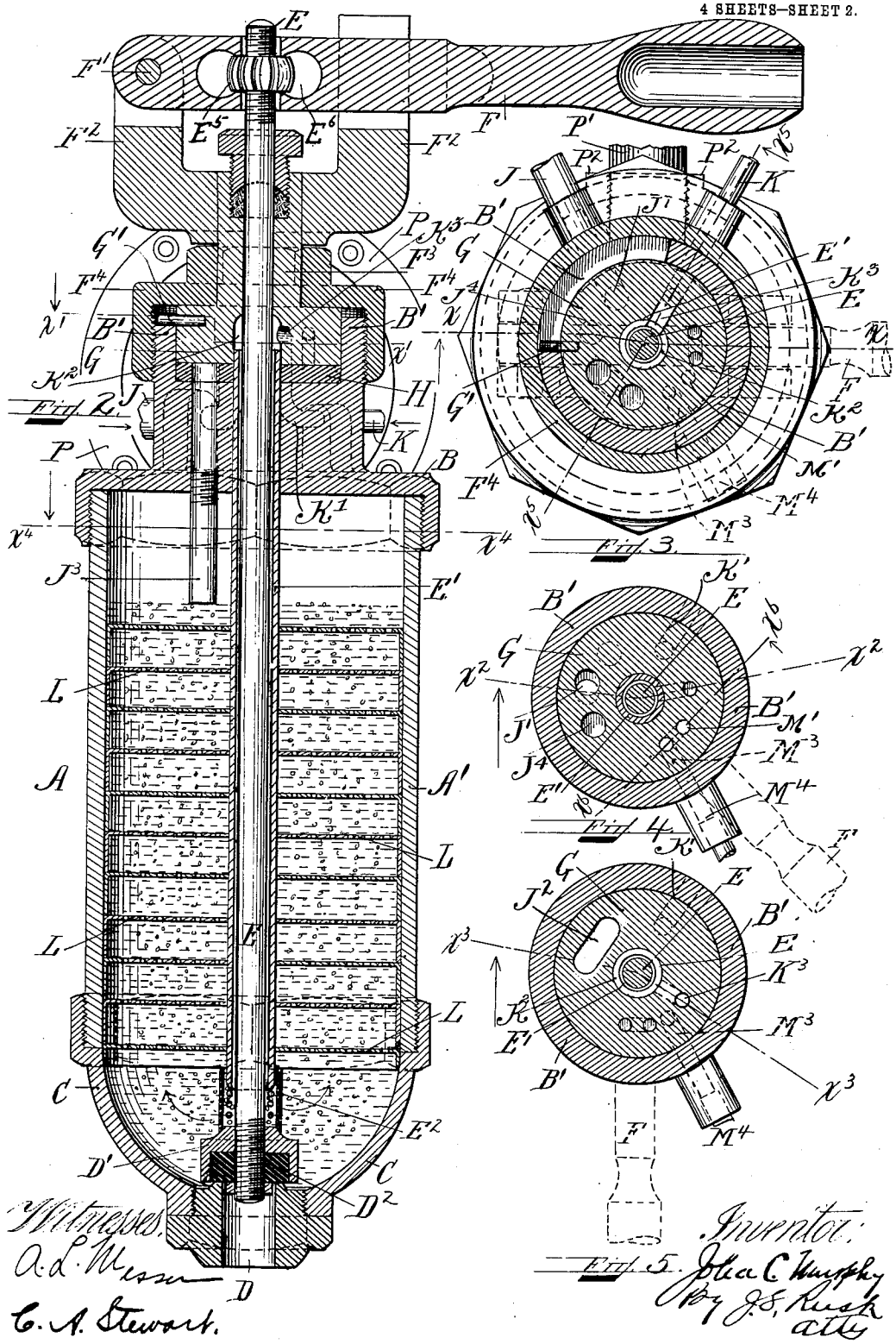
4 SHEETS—SHEET 2.



Witnesses.
A. L. Mann
C. A. Stewart.

Inventor.
Julia C. Murphy
By J. S. Rusk
Atty

J. C. MURPHY.

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4 SHEETS—SHEET 3.

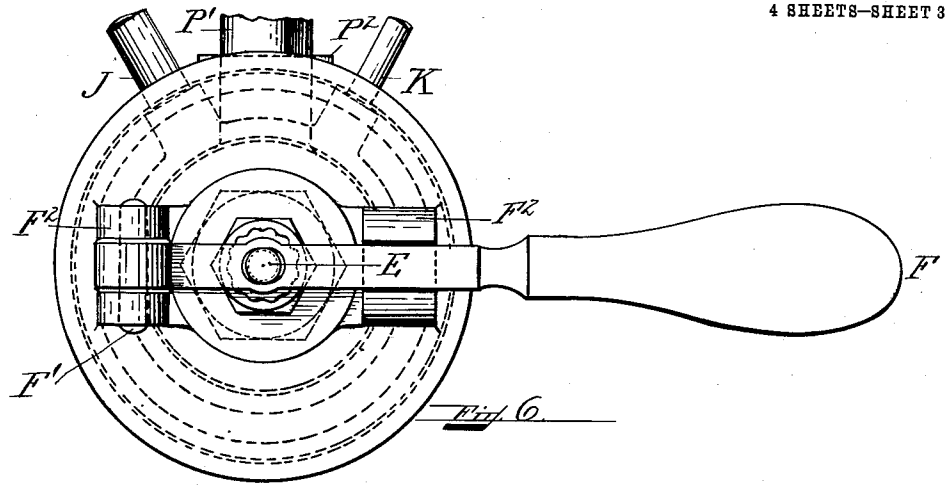

Fig. 6.

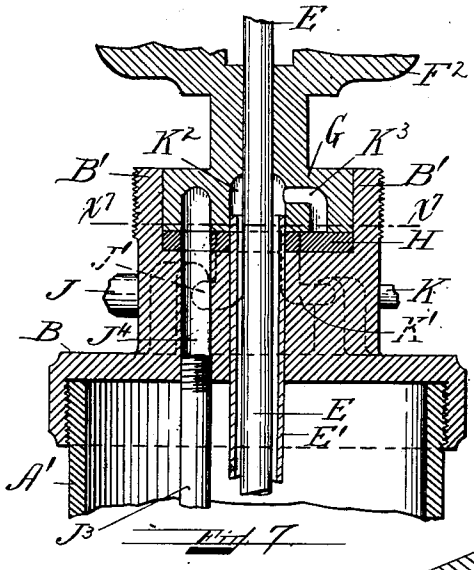

Fig. 7.

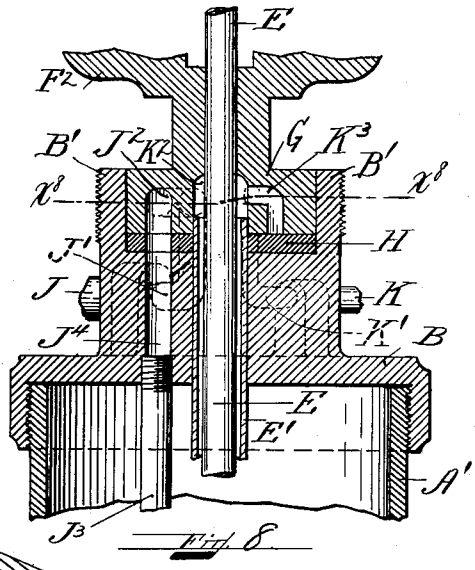

Fig. 8.

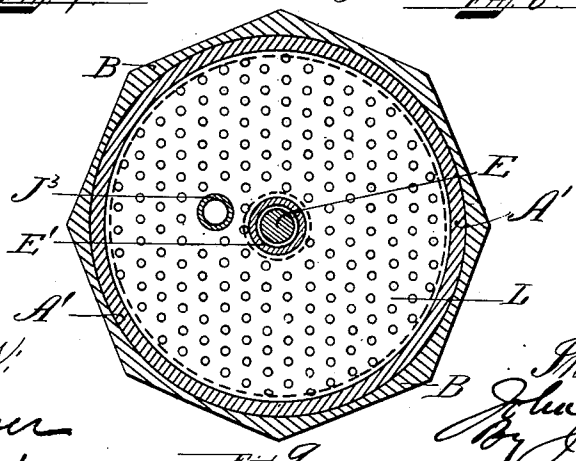

Fig. 9.

Witnesses:
A. L. Mesner
C. A. Stewart.

Inventor:
John C. Murphy
By J. S. Kirk
Atty

J. C. MURPHY.

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977,467.

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4 SHEETS—SHEET 4.

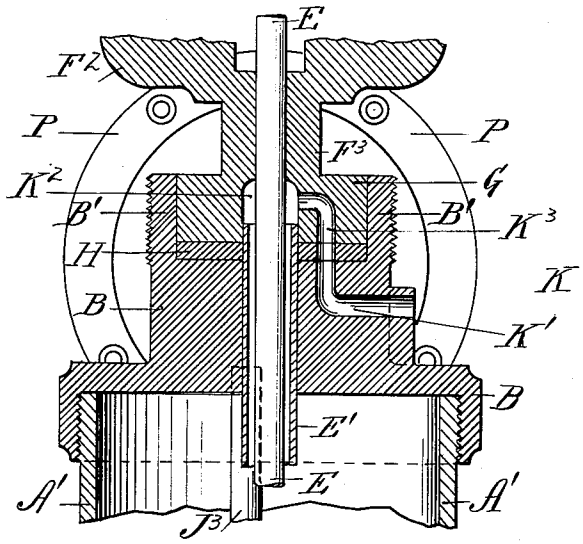

Fig. 10.

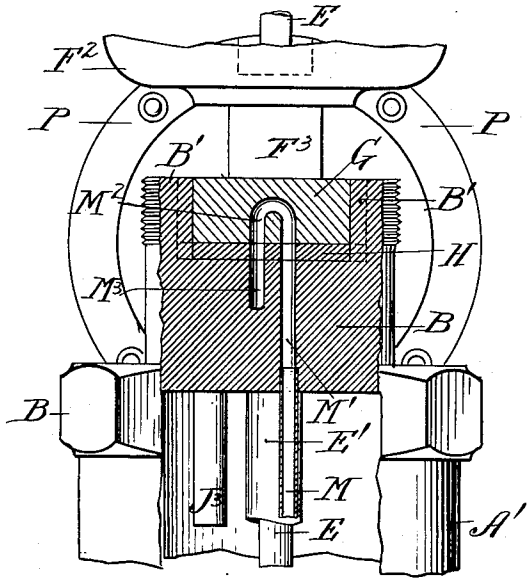

Fig. 11.

Witnesses:
A. L. Messer
C. A. Stewart.

Inventor:
John C. Murphy
By J. S. Lusk
Atty

UNITED STATES PATENT OFFICE.

JOHN C. MURPHY, OF CHELSEA, MASSACHUSETTS, ASSIGNOR TO THE CARBONATING COMPANY OF AMERICA, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CARBONATING APPARATUS.

977,467. Specification of Letters Patent. Patented Dec. 6, 1910.

Application filed July 24, 1901. Serial No. 69,494.

To all whom it may concern:

Be it known that I, JOHN C. MURPHY, of Chelsea, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Carbonating Apparatus, of which the following is a specification.

My invention relates to carbonating apparatus, and particularly to a combined carbonator and draft-arm or liquid-dispenser.

Among the objects of my invention may be noted the following: to provide a simple, compact and cheap device for carbonating fluids and dispensing the same; to provide a simple and compact device for carbonating and dispensing fluids provided with independent valves controlled by a single operating mechanism; to provide a carbonating apparatus by means of which fluids can be thoroughly charged with gas in an expeditious and effective manner and by means of which also the charged fluid may be dispensed from the mixing-chamber of the device; to provide a combined carbonating apparatus and liquid-dispensing apparatus having inlet and outlet ports controlled by independent valves, all of which may be operated by a common manipulating lever; and to provide a device which may be used either as a liquid-charging apparatus, or as a liquid-dispenser or draft-arm.

With the above objects in view, and others which will be described during the course of this description, my invention consists in the parts, features and elements and combinations of elements hereinafter described and claimed.

In the drawings forming part of this description: Figure 1 is a perspective view of a form of my invention, portions of the fluid-receptacle being broken away in order to illustrate certain details of the mixing-chamber and outlet-valve, which latter is shown open; Fig. 2 is a longitudinal, central section of Fig. 1, the section being taken substantially on the line x—x of Fig. 3, that is, the view of the valves and parts showing the condition represented in said Fig. 3 on said section line, the arrow indicating the direction of sight; Fig. 3 is a horizontal section on the line x', Fig. 2, the arrow indicating the direction of sight; Fig. 4 is a horizontal section on the line x^7—x^7 of Fig. 7; Fig. 5 is a horizontal section on the line x^8—x^8 of Fig. 8; Fig. 6 is a top plan view of the apparatus shown in Fig. 1; Fig. 7 is a vertical sectional view on the line x^2—x^2 of Fig. 4, the arrow indicating the line of sight; Fig. 8 is a vertical sectional view on the line x^3—x^3 of Fig. 5, the line of sight being indicated by the arrow; Fig. 9 is a horizontal sectional view on the line x^4—x^4, Fig. 2, the arrow indicating the direction of sight; Fig. 10 is a vertical sectional view on the line x^5—x^5 of Fig. 3, the line of sight being indicated by the arrow; and Fig. 11 is a vertical sectional view on the line x^6—x^6 of Fig. 4, the arrow indicating the line of sight.

Viewing Figs. 1 and 2 of the drawings, the letter A indicates, generally, the main receptacle of the apparatus, A′ being the cylindrical, outer shell having at its top the head B and at its bottom the nipple C, each being secured to the respective ends of the cylinder A′ by means of screw-threaded flanges, enabling them to be screwed upon said cylinder and tightly held in place. The nipple C is provided at its lower end with the centrally-bored nozzle D, which is screw-threaded into the reduced end of said nipple. Coöperating with the inner end of the nozzle D is the valve-head D′ recessed for the reception of a yielding or flexible packing or washer D^2, which rests upon the inner end of said nozzle, the latter thus affording a valve-seat. The valve-head D′ is centrally bored and screw-threaded so as to be applied to the screw-threaded end of the central rod E, the upper end of which passes through the several valves and other coöperating parts, presently to be described, and the extreme upper end of which is provided with the thumb-nut screwed thereon and coöperating in any suitable manner with the handle F, so as to enable the latter to lift the said valve-rod or stem when desired. The valve-stem E is surrounded by the tube E′, the lower end of which in turn is surrounded by the perforated sleeve E^2, the lower end of which rests upon the top of the valve-head D′. The tube E′ is sufficiently great in diameter to provide ample clearance between the same and the valve-stem E for the free admission of gas into the chamber formed between the perforated sleeve E^2 and the valve-stem E, just above the valve-head D′.

The head B is provided with the vertical neck or extension B′, the upper end of which is externally screw-threaded and internally

chambered, said head and neck being also centrally bored. A portion of the top of the neck is cut out so as to provide the groove B^2, in which operates a pin G′ secured in the valve-head G, seated on a washer H, and both of which are disposed in the chamber of the neck B′ and surround both the tube E′ and valve-stem E. The valve-head G and washer H are provided with several passages and chambers, as hereinafter described. The valve-head G is carried by the neck F^3 of the yoke F^2 to which the lever F is pivoted at F′ between the two ears shown, and said yoke being also provided, opposite the pivotal point of the lever F, with the two guide-arms between which said lever operates, as shown, and which affords the means whereby said lever may turn the valve-head G in the chamber of the extension B′. A cap F^4 is screwed upon the extension B′ and affords the journal and support for the neck F^4 of the yoke F^2. To prevent the escape of fluid through the yoke, a packing-chamber is provided at the top thereof, in which a suitable packing may be placed and held by the screw-sleeve shown in Figs. 1 and 2.

From this description it will be clear that, by lifting the lever F, the valve-stem E and the valve-head D′ can be lifted in order to open the passage or outlet at D through the nipple of the receptacle A, and also that, by turning the lever to either the right or left, the yoke may be rotated upon the valve-stem E as a journal, thus also turning the valve-head G in the chamber of the neck B′ within the limits prescribed by the length of the slot B^2 and the limiting-pin G′. The washer H has no rotary movement, but fits tight in the bottom of the chamber and around the tube E′, while the latter extends slightly above the upper surface of said washer and a short distance into the valve-head G above the upper surface of the washer H. Said valve-head, around the valve-stem E, is provided with a chamber K^2 extending above the upper end of the tube E′, this chamber being formed and located so as to coöperate with the gas-passage or space between the valve-stem E and tube E′, for a purpose presently described.

Referring now to Figs. 2 to 11, it will be seen that the valve-head G is provided with a passage K^3 communicating with the chamber K^2 and, when the valve-head is properly adjusted, also communicating with the passage K′ extending down through the washer H and neck B′ and communicating with the outlet K. The valve-head G is also provided with two vertical passages J^2 joined at their top by a horizontal passage below the top surface of said head G, as shown in Figs. 5 and 6, one of which vertical passages communicates, when the valve is properly adjusted, with the passage J′ extending down through the washer H and neck B′ and communicates with the outlet J, while the other vertical passage communicates with a passage extending down through the valve H, neck B′, head B and also with the outlet-pipe J^3, which extends into the receptacle A and terminates a short distance below the top thereof. The valve-head G is also provided with two vertical passages M′ and M^3 joined at their top by the horizontal passage M^2 located below the top surface of said head G, the vertical passage M′ extending down through the washer H and neck B′ and communicating with the pipe M, which extends down through the head B and into the receptacle A, terminating a short distance below the top thereof, as clearly shown in Figs. 1 and 11. The vertical passage M^3 also extends down through the washer H and into the neck B′ and then passes laterally through said neck into communication with the inlet M^4.

The inlet K is connected in any suitable manner with a tank or cylinder containing carbonic acid gas, for example, and, by opening the same, it will be obvious that gas will be admitted to the passage K′ and will thence pass into the passage K^3 when the valve-head is properly turned for the purpose, permitting the gas to enter the chamber K^2 surrounding the valve-stem, and from thence will pass down between said valve-stem E and the tube E′ and will escape into the bottom of the receptacle A through the perforated or foraminous sleeve E^2, as clearly shown in Figs. 1 and 2. It will be noted that the chamber K^2 is extended slightly above the horizontal portion of the passage K^3 and that, by the absence of the tube E′, said chamber is quite large. By thus constructing the chamber between the passage K^3 and the passage down through the tube E′, a considerable amount of gas can accumulate in said chamber, which gas will expand therein, and create pressure to help drive said gas down through the tube E said chamber K^2 thus becoming a pressure-chamber for the gas; and, by forming this chamber in continuation of the aperture through the washer H, through which the tube E′ extends, said tube can be projected into the chamber above the said washer, thus enabling said tube to hold the washer in place and preventing it from having any buckling or lateral movement which might tend to either close or curtail some of the passages through the neck B′ and the valve-head G; and by thus extending the tube E′ into a chamber, such as K^2, the washer is prevented from being compressed over the top of the tube, thus avoiding the accidental closing of the gas-inlet down through said tube.

Water or other liquid, from any suitable source, will be admitted through the inlet M^4 and from thence will pass, when the

valve-head is properly adjusted for the purpose, into the passage M^3 through the horizontal passage M^2 and down through the passage M′ into the tube M, and thence into the top of the receptacle A, as clearly shown in Figs. 1 and 11. When it is desired to snift off gas from the receptacle A, the same can be done by properly adjusting the valve-head G, whereupon the gas will pass up through the tube J^3, through the passage J^4, horizontal passage J^2, and down through the passage J′ and through the outlet J. The different operations thus described, viz., the inlet of gas, the inlet of water, and the outlet of gas, can be performed at will by the simple manipulation of the lever F to either the right or left, which will turn the yoke F^2 and its head G and bring the respective passages or groups of passages in the said head G into proper registry with the complemental passages in the washer H and neck B′, or will throw the several passages or groups of passages in the head G out of registry with the complemental passages in the washer H and neck B′, thus cutting off the inlet of water or of gas into the tank, or the outlet of gas for snifting purposes from the top of the neck, as the case may be; and these different effects or results are produced within the limits of movement of the pin G′ controlled by the slot B^2 in the upper end of the neck B′.

As just described, both water and gas may be admitted to the receptacle A, the former at the top and the latter at the bottom, the result being that as the water descends, the gas will ascend, and mingle with the water, but not materially, charging the water with gas. In order to thoroughly and effectively charge the water with gas, I have provided a mixing-chamber within the receptacle A, said mixing-chamber consisting of a series of U-shaped, perforated diaphragms or disks L, each of which is centrally perforated to permit of the passage of the tube E′ therethrough. The disks are arranged inverted, and one upon the other, that is, the flange of one resting upon the bottom of another, thus building up a rigid, foraminous structure within the receptacle A, which will permit the water to pass downwardly and the gas upwardly. Preferably, the sections L of the mixing-chamber are combined in sufficient number to fill the receptacle to within a short distance of the lower end of the snifting-tube J^3 and to within a short distance of the lower end of the tube E′. Hence, a perforated diaphragm is formed near the top of the receptacle A and a similar perforated diaphragm is formed near the bottom of said receptacle, thus providing a space above and a space below said mixing chamber for the accumulation of water and gas, the upper space providing for the easy snifting of gas from the top of the receptacle and the lower space providing for the diffusion of the gas in the body of water accumulated therein. It will be evident that, by providing a mixing-chamber of the character just described, as the gas is emitted from the foraminous sleeve into the space below the bottom of the mixing-chamber, it will be in a measure trapped or retarded in its upward progress by the several diaphragms L, and can only pass the latter through the apertures in said diaphragms; this is also true of the water, which will flow down through the tube M into the space above the top of the diaphragm, said water being retarded by the diaphragm and being able to reach the bottom only by passing through the perforations in the several diaphragms. Thus, as the water goes down, it is broken into small globules, and as the gas passes up, it is distributed and thoroughly broken up by the mixing-chamber at the several diaphragms thereof, thus causing the thorough intermixing of the gas and water and the very effective absorption of the gas by the water. By the time the water reaches the space at the bottom of the receptacle, it will be thoroughly charged and, notwithstanding the dispensation of charged water through the nozzle or outlet D, the liquid left behind in said space will be thoroughly charged, first, by the immediate escape thereinto of the gas through the foraminous sleeve E^2 and, secondly, by the constant addition thereto of the charged liquid from the mixing-chamber. Hence, it will be seen that carbonated liquid can be dispensed and produced by one and the same instrument and at substantially the same time.

In order to afford an ample support for the device as above described, some means must be provided for rigidly fastening the same to the wall, counter or other support, and, as an example of a means for the purpose, I have shown, see Figs. 1, 2, 3, 6, 10 and 11, a plate P, which may be secured by screws to the wall or a counter, said plate having an arm P′ extending from the center thereof and connected by an elbow P^2 to the head B of the receptacle. Thus, the apparatus may be properly supported so as to enable the operator to manipulate the several valves with perfect ease and freedom to produce any of the results required.

The following brief description of the mode of operation will now be understood: The valve-head D′ should be seated against the end of the nozzle D, as shown in Fig. 2, the lever, in consequence, will be in the horizontal position shown in said figure. Water should now be turned in through the inlet M^4 and, as it passes down through the mixing-chamber, the perforated diaphragm thereof will thoroughly break up the same. At the same time, or shortly thereafter, the

gas should be turned in through the inlet K, and as the same is discharged through the foraminous sleeve E^2 into the space below the mixing-chamber, it will seek to rise through the latter and will be broken up by the perforated diaphragms thereof. Hence, as the water flows down and the gas flows up, it will be thoroughly intermixed and, by the time the water reaches the space above the discharge nozzle or outlet D, it will be thoroughly saturated with the gas. It may be necessary, from time to time, to open the snifting-valve to relieve gas-pressure at the top of the receptacle, which can be accomplished by turning the handle around so as to open the passage through the pipe J^3 from the inside of the receptacle to the outlet J. After a sufficient quantity of water has become charged within the receptacle A, or in fact at any time while the process is going on, the charged liquid can be dispensed through the outlet-nozzle D by merely lifting the lever F, thus lifting the valve-stem E and raising the valve D′ from its seat. Thus, the apparatus can be operated continuously or periodically, as desired, for carbonating liquids and for dispensing the same either by the glassful, or for filling bottles, or for any other purpose desired.

From the above detailed description of my apparatus and the mode of operation of the latter, it will be understood that the following are among the advantages of my invention; the construction described provides a combined draft-arm or dispensing vessel and carbonating apparatus, thus enabling the user to have readily at hand a device by means of which carbonated liquids can be dispensed by the glass full, by the bottle, etc., without the necessity for having a miscellaneous lot of apparatus in combination therewith, as is now usual; the liquid to be dispensed can be carbonated in, and dispensed by, one and the same vessel; by entering the liquid at the top of the receptacle and the gas at the bottom, and placing intermediate the top and bottom of said receptacle a mixing-chamber, the liquid becomes thoroughly charged or saturated with the gas and can be subsequently passed off or dispensed at the bottom of the vessel substantially at the point where the gas is entering, thus rendering it absolutely impossible for any water to pass from the receptacle without being first saturated with the gas; by having all the valves coöperating with the passages, ports, or inlets and outlets controlled by a single operating lever, it becomes possible to quickly charge liquids with gas and dispense the same, and these two operations can be done, in fact, at substantially the same moment; by providing a mixing-chamber within the receptacle, nothing is left to chance in the matter of charging the liquid with gas, the disposition of said chamber being such that it becomes impossible for the liquid to pass from the receptacle without being first highly charged with gas, this being a feature, function and operation of my apparatus absolutely impossible in any receptacle or vessel where the gas and liquid enter thereinto at large; a combination carbonating and dispensing apparatus is produced which is portable and capable of being set up in restaurants or bar-rooms, and used practically for supplying carbonated water without the necessity of having dozens of siphons in the way and occupying space which is often valuable and absolutely necessary for other purposes; an apparatus is provided by means of which the supply of carbonated liquid is practically inexhaustible, is always ready, is capable of being kept at a uniform, low temperature, and is substantially and highly charged, all by reason of the fact that the mixing is done in the dispensing-receptacle and the gas and liquid are drawn from sources of supply which may be disposed at a great distance from the dispensing-device, thus rendering it possible to pass the liquid through cooling-coils and supply the gas from large tanks by direct connections; by providing the outlet and its controlling-valve independent of the gas and liquid-inlets and their controlling-valves, the possibility of opening the outlet at the time the charging of the liquid is progressing is avoided, and by having all the valves connected to one and the same operating-device, it becomes possible to easily and quickly control said valves in rapid succession and, at the same time, it is also possible to dispense the liquid in the receptacle simultaneously with the admission of gas thereto, all of which are structural, functional and commercial advantages not obtainable in any other structures; and, by having the sniffing-port and the gas and liquid-inlets controlled by a single or common valve-head, a cheap and compact apparatus is produced, as well as one which can be quickly and readily operated for the described purposes.

From this description, it will be observed that distinction has been made between the receptacle indicated by A and the mixing-chamber in said receptacle composed of the diaphragm-sections L, and it will be noted that, in some of the claims appended hereto, the receptacle is recited without reference to the mixing-chamber, in others the mixing-chamber is recited as combined with a receptacle, and in others the mixing-chamber is recited without specific reference to the receptacle. By these differences in phraseology, I desire it to be distinctly understood that, in the first instance, I intend a receptacle, irrespective of whether it contains a mixing-chamber or not, in the second in-

stance I intend to cover a mixing-chamber of any character within, and in combination with, an inclosing receptacle, and in the third I intend to cover the idea of means comprehended by the term mixing-chamber in its broadest aspect, irrespective of whether it be combined with a receptacle, or whether the said mixing-chamber also constitutes a receptacle.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a carbonating apparatus, a receptacle; a mixing-chamber therein comprising a series of U-shaped, perforated diaphragms arranged one upon the other and almost filling said receptacle; a liquid-inlet leading to said receptacle above said mixing-chamber; a gas-inlet leading to said receptacle below said mixing-chamber; a valve common to and controlling both of said inlets; an outlet for the charged liquid below said mixing-chamber; and a valve separate and distinct from the first-mentioned valve for controlling said outlet.

2. In a carbonating apparatus, a mixing-chamber; a liquid-inlet leading to said chamber; a gas-inlet leading to said chamber; a valve common to and controlling both of said inlets; an outlet for the charged liquid leading from said chamber; a valve separate and distinct from the first-mentioned valve for controlling said outlet; and an operative mechanism common to both of said valves for successively moving the same.

3. In a carbonating apparatus, a receptacle; a mixing-chamber in said receptacle; a liquid-inlet leading to said receptacle above said chamber; a gas-inlet leading to said receptacle below the chamber; a pressure-relief port leading from said receptacle; a valve common to and controlling said inlets and port; an outlet for the charged liquid leading from said receptacle; and a valve separate and distinct from the first-mentioned valve for controlling said outlet.

4. In a carbonating apparatus, a mixing-chamber; a liquid-inlet leading to said chamber; a gas-inlet leading to said chamber; a pressure-relief port leading from said chamber; a valve common to and controlling said inlets and port; an outlet for the charged liquid leading from said chamber; a valve separate and distinct from the first-mentioned valve for controlling said outlet; and an operative mechanism common to both of said valves for successively moving the same.

5. In a carbonating apparatus, a receptacle having an upper head and a lower head; a liquid-inlet passing through said upper head into said receptacle; a gas-inlet passing through said upper head into said receptacle; a valve in said upper head controlling both of said inlets; an outlet for the charged liquid passing through said lower head; a valve separate and distinct from the first-mentioned valve for controlling said outlet; and an operative mechanism common to both of said valves for successively moving the same.

6. In a carbonating apparatus, a receptacle having an upper head and a lower head; a liquid-inlet passing through said upper head into said receptacle and terminating near its top; a gas inlet passing through said upper head into said receptacle and terminating near its bottom; a pressure-relief port passing through said upper head and leading from said receptacle; a valve in said upper head controlling said inlets and port; an outlet for the charged liquid in said lower head and leading from said receptacle; and a valve separate and distinct from the first-mentioned valve for controlling said outlet.

7. In a carbonating apparatus, a receptacle having an upper head and a lower head; a liquid-inlet passing through said upper head into said receptacle; a gas-inlet passing through said upper head into said receptacle; a pressure-relief port passing through said upper head and leading from said receptacle; a valve in said upper head controlling said inlets and port; an outlet for the charged liquid in said lower head and leading from said receptacle; a valve separate and distinct from the first-mentioned valve for controlling said outlet; and an operative mechanism common to both of said valves for successively moving the same.

8. In a carbonating apparatus, a mixing-chamber; liquid and gas-inlets leading to said chamber; a valve controlling both of said inlets and provided with a pressure-chamber communicating with said gas-inlet; a passage leading from said pressure-chamber to said mixing-chamber; an outlet for the charged liquid; and a valve separate and distinct from the first mentioned valve for controlling said outlet.

9. In a carbonating apparatus, a receptacle having an upper head and a lower head; liquid and gas-inlets leading through said upper head into said receptacle; a rotatable valve journaled in said upper head and controlling said inlets; an outlet for the charged liquid in said lower head and leading from the receptacle; a valve controlling said outlet; a lever and means connecting the same to said rotatable valve for actuating the latter; and a stem connecting said lever with said valve controlling the outlet in the lower head.

10. In a carbonating apparatus, a receptacle having an upper head and a lower head; a liquid-inlet passing through said upper head into said receptacle; a gas-inlet passing through said upper head into said receptacle; a rotatable valve journaled in said up-

per head and controlling said inlets and provided with a pressure chamber communicating with said gas-inlet; an outlet for the charged liquid in said lower head and leading from said receptacle; a passage leading from the chamber in said rotatable valve into said receptacle and opening into the same adjacent to said outlet; a lever and means connecting the same to said rotatable valve for actuating the latter; and a stem passing through said passage and connecting said lever with said valve controlling the outlet for the charged liquid.

11. In a carbonating apparatus, a receptacle having an upper head and a lower head; a liquid-inlet passing through said upper head into said receptacle; a gas-inlet passing through said upper head into said receptacle; a pressure-relief port passing through said upper head and leading from said receptacle; a rotatable valve journaled in said upper head and controlling said inlets and port and provided with a pressure chamber communicating with said gas-inlet; an outlet for the charged liquid in said lower head and leading from said receptacle; a passage leading from said chamber in said rotatable valve into said receptacle and opening into the same adjacent to said outlet for the charged liquid; a lever and means connecting the same to said rotatable valve for actuating the same; and a stem passing through said passage and connecting said lever with said valve controlling the outlet for the charged liquid.

12. In a carbonating apparatus, a mixing-chamber; liquid and gas-inlets leading to said chamber; a rotatable valve controlling both of said inlets; an outlet for the charged liquid leading from said chamber; a reciprocating valve controlling said outlet; and mechanism common to said valves for respectively rotating and reciprocating the same.

13. In a carbonating apparatus, a mixing-chamber; a liquid-inlet leading to said chamber; a gas-inlet leading to said chamber; a pressure-relief port leading from said chamber; a rotatable valve controlling said inlets and port; an outlet for the charged liquid leading from said chamber; a reciprocating valve controlling said outlet; and mechanism common to said valves for respectively rotating and reciprocating the same.

14. In a carbonating apparatus, a receptacle having an upper head and a lower head; a liquid-inlet passing through said upper head into said receptacle; a gas-inlet passing through said upper head into said receptacle; a rotatable valve journaled in said upper head for controlling both of said inlets; an outlet for the charged liquid passing through said lower head; a reciprocating valve controlling said outlet; and mechanism common to said valves for rotating and reciprocating the same respectively.

15. In a carbonating apparatus, a receptacle having an upper head and a lower head; a liquid-inlet passing through said upper head into said receptacle; a gas-inlet passing through said upper head into said receptacle; a pressure-relief port passing through said upper head and leading from said receptacle; a rotatable valve journaled in said upper head and controlling said inlets and port; an outlet for the charged liquid passing through said lower head; a reciprocating valve controlling said outlet; and mechanism common to both of said valves for rotating and reciprocating the same respectively.

16. In a carbonating apparatus, a mixing-chamber; liquid and gas-inlets leading to said chamber; a rotatable valve controlling both of said inlets and provided with a pressure chamber connected with said mixing-chamber and located so as to coöperate with said gas-inlet; an outlet for the charged liquid; a reciprocating valve controlling said outlet; and mechanism common to both of said valves for rotating and reciprocating the same respectively.

17. In a carbonating apparatus, a receptacle; a mixing-chamber therein; liquid and gas-inlets leading into said receptacle; a rotatable valve controlling both of said inlets; an outlet for the charged liquid leading from said receptacle; a reciprocating valve controlling said outlet; a lever, and means connecting the same to said rotatable valve so as to actuate the latter; and a stem connecting said lever with said reciprocating valve.

18. In a carbonating apparatus, a receptacle; a mixing-chamber therein; liquid and gas-inlets leading into said receptacle; a rotatable valve controlling both of said inlets and provided with a pressure chamber located so as to coöperate with said gas-inlet; a passage leading from said chamber into said receptacle; an outlet for the charged liquid leading from said receptacle; a reciprocating valve controlling said outlet; a lever and means connecting the same to said rotatable valve so as to actuate the latter; and a stem passing through said passage and connecting said lever with said reciprocating valve.

19. In a carbonating apparatus, a receptacle; a mixing-chamber therein; liquid and gas-inlets leading into said receptacle; a pressure-relief port leading from said receptacle; a rotatable valve controlling said inlets and port and provided with a pressure chamber located so as to coöperate with said gas-inlet; a passage leading from said chamber into said receptacle; an outlet for the charged liquid leading from said receptacle; a reciprocating valve controlling said

outlet; a lever and means connecting the same to said rotatable valve; and a stem passing through said passage and connecting said lever with said reciprocating valve.

20. In a carbonating apparatus, a receptacle; a liquid-inlet in the top of the receptacle; a liquid-outlet in the bottom of the receptacle; a gas-inlet to the receptacle; valves controlling the said inlets and outlet; and means for actuating said valves, including a handle and connections to the several valves combined so that by a rotary movement of the handle two of the valves may be operated and by a vertical movement of said handle the other valve may be operated.

21. In a carbonating apparatus, a receptacle; a liquid-inlet; a gas-inlet; and a pressure-relief port, all in the top of said receptacle; a liquid-outlet in the bottom of said receptacle; valves controlling said inlets, outlet and port; and common means for actuating said valves.

22. The combination of a dispensing-chamber having a liquid-inlet, a gas-inlet, and a liquid-outlet; a valve jointly governing said liquid-inlet and gas-inlet; a valve governing said liquid-outlet; a handle connected by intermediate means jointly to said two valves and operating each of the latter independently of the other, substantially as set forth.

23. The combination of a dispensing-chamber having a liquid-inlet and a liquid-outlet; valves respectively controlling such inlet and such outlet, the stem of one of said valves being tubular and having the stem of the other valve passing therethrough; a handle connected jointly to said two valve-stems and operating each of the latter independently of the other, substantially as set forth.

24. The combination of a dispensing-chamber having a liquid-inlet and a liquid-outlet; a rotary valve controlling said inlet and having a tubular stem; a rectilinearly-working valve controlling said outlet and having a stem passing freely through said tubular valve-stem; a lever-handle fulcrumed on said tubular stem and connected to the stem of said outlet-valve, substantially as set forth.

25. The combination of a dispensing-chamber having a liquid-inlet; a gas inlet extending to near the bottom of said chamber; a liquid-outlet for said chamber; a valve controlling such outlet and having a stem passing freely through said gas-inlet along substantially its entire length; and a handle connected to the projecting extremity of said stem for actuating said valve, substantially as set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this sixteenth day of July A. D. 1901.

JOHN C. MURPHY.

Witnesses:
A. L. MESSER,
C. A. STEWART.