

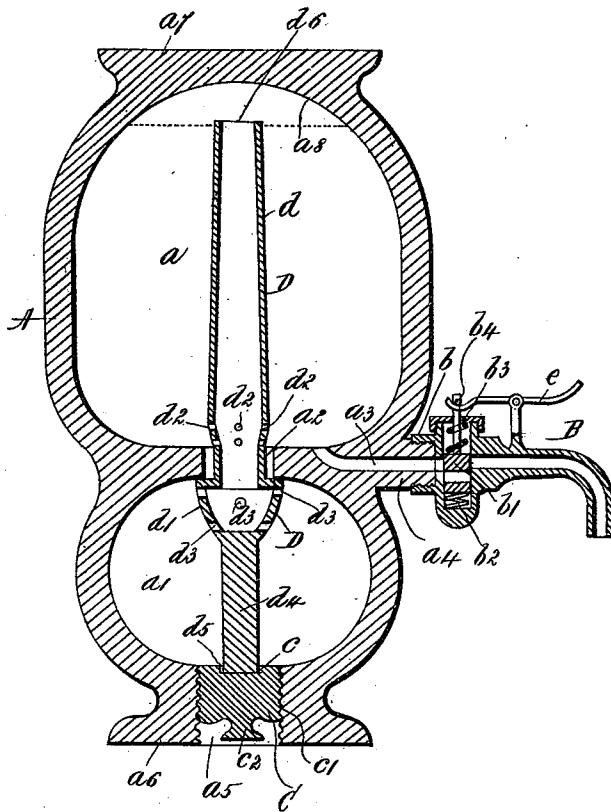
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Patented May 2, 1899.

F. D'ORBESSAN.  
CARBONATING APPARATUS.

(Application filed Dec. 9, 1897.)

(No Model.)



WITNESS  
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# UNITED STATES PATENT OFFICE.

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## CARBONATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 623,997, dated May 2, 1899.

Application filed December 9, 1897. Serial No. 661,277. (No model.)

*To all whom it may concern:*

Be it known that I, FERNAND D'ORBESSAN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Carbonating Apparatus, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to carbonating apparatus; and it has for its object to provide a simple and effective device of this class adapted for convenient domestic use and provided with means for carbonating all kinds of fluids—such as mineral and other waters, beer, &c.—whereby any aerated or carbonated beverages can be economically manufactured or bottled by the user.

The drawing represents a vertical sectional view of my improved apparatus.

In the drawing forming part of this specification the separate parts of my improvement are designated by letters of reference, and in said drawing, A designates a suitable receptacle, which comprises an upper and lower compartment  $a$  and  $a'$ , respectively, divided by an intermediate neck portion or opening  $a^2$ . Extending from the top compartment  $a$  is an outlet  $a^3$ , leading to an exterior projection  $a^4$ , adapted for the attachment of a faucet B. In the bottom of the lower compartment  $a'$  is an opening, as at  $a^5$ , through which the receptacle A is adapted to be filled, this opening being closed by a plug or stopper C.

The receptacle A may be constructed of any suitable or adapted material and may be of any adapted general contour. It is preferably formed with its various body parts integral and with a flat bottom and top surface, as at  $a^6$  and  $a^7$ , respectively, so that it may stand and be supported in upright position when in use or in inverted position in the operation of filling.

D designates a tube which is separable from the receptacle A and is adapted to be placed therein through the bottom opening  $a^5$ . This tube comprises a main stem  $d$ , adapted to project upwardly a suitable distance within the top compartment  $a$ , (preferably to a point near the top of the com-

partment,) and a base portion  $d'$ , adapted to bear up tightly against the neck or intermediate walls of the receptacle A, which divide the upper and lower compartments  $a$  and  $a'$ , and thus close the opening  $a^2$ . At the base portion of the stem  $d$  of the tube I provide a set of openings  $d^2$ , of relatively small diameter, which openings communicate with the top compartment  $a$ , while in the base portion  $d'$  of the tube, beneath the closed opening  $a^2$ , is provided a set of perforations  $d^3$ , of relatively large diameter, communicating with the lower compartment  $a'$ . The top end of the tube is open, as at  $d^6$ .

The tube D is supported upon a solid lower stem  $d^4$ , extending downwardly from the perforated tubular base portion  $d'$  and having its bottom end  $d^5$  received by a corresponding recess  $c$  in the inner end of the plug or stopper C, by which construction and arrangement the tube D is retained against lateral movement and is forced tightly against its seat in the opening  $a^2$ .

The plug or stopper C preferably operates within the bottom opening  $a^5$  by means of a threaded connection, as at  $c'$ , and it is provided with a knob or angular projection  $c^2$  at its bottom, forming a head or handle by which it may be conveniently inserted into or removed from position.

The faucet B may be of any suitable or adapted construction, and preferably has a threaded connection, as at  $b$ , with the projection  $a^4$  of the receptacle A. I prefer to provide a faucet embodying a vertically-sliding valve  $b'$ , governed by coiled springs  $b^2$  and  $b^3$ , and having a projecting stem  $b^4$ , engaged by a finger-piece  $e$ , fulcrumed so that it forms an operating-lever by which the valve may be elevated against the pressure of the top governing-spring  $b^3$ .

The operation and advantages of my invention will be readily understood. In practice the receptacle A is first reversed and the compartment  $a$  is filled through the opening  $a^5$  with water or any other liquid which it is desired to carbonate or aerate. The tube D is then inserted in the bottle and adjusted so that it will tightly close the intermediate opening  $a^2$  between the compartments  $a$  and  $a'$ . Powders for generating gas are then placed in the compartment  $a'$ , and the plug or stop-

per C is screwed securely in position, so that it will bind the tube against the intermediate walls surrounding or forming the opening  $a^2$ . The receptacle is then turned into normal or upright position, when the water or liquid in the top space of the upper compartment  $a$  above the top end of the tube will flow through the open top end  $d^6$  into the tube and from thence through the larger-diameter openings  $d^3$  into the lower compartment  $a'$ , which is charged with powders for generating carbonic-acid gas. Virtually only the quantity of water filling the space in the top of the upper compartment  $a$  above the level of the top outlet  $d^6$  of the tube will flow into the lower compartment, the generation of the gas in the latter being instantaneous, so that only a small quantity, if any, of the water will pass through the small-diameter openings  $d^2$ . Any material passage of water through these small openings  $d^2$  would be further retarded by the air within the lower compartment. As soon as the water or liquid thus comes in contact with the powders pure carbonic-acid gas will be generated in the lower compartment  $a$  and will freely escape through the larger-diameter openings  $d^3$  into the tube D and from the top inlet  $d^6$  of the latter into solution with the water or the liquid in the upper compartment  $a$ . The water or beverage thus treated may be drawn off from the upper compartment  $a$  through the faucet mechanism B for use or for bottling, as desired. A part of the gas from the lower compartment  $a'$  passing up through the tube will escape at the small openings  $d^2$  into the bottom portion of the body of water in the upper compartment, and the operation of carbonating or aerating will be thoroughly and completely effected.

The perforations  $d^2$  are of such size that but very little water can pass therethrough, and in the operation of the device at the beginning of the generation of gas in the lower chamber the pressure in the upper chamber will be such that the gas will overcome the pressure of the water in the upper chamber and a portion thereof will pass through the perforations  $d^2$ , and during this operation but very little, if any, water can pass through said perforations. As the pressure increases in both chambers the pressure of the gas in the central tube, in which the perforations  $d^2$  are formed, will practically counterbalance the pressure of the water in the upper chamber, and neither gas nor water will pass through the perforations  $d^2$ . Whenever water is drawn from the upper chamber, however, the pressure therein is relieved, and the gas will again flow through said perforations  $d^2$  into and through the water in the upper chamber as long as gas is forming in the lower chamber. The fact that some water may pass through the perforations  $d^2$  into the lower chamber is absolutely immaterial. Even if enough water should enter the lower chamber to fill it this would not interfere at all

with the working of the apparatus, and the perforations  $d^2$  thus facilitate to a large extent the carbonating of the water in the upper chamber, and the process of carbonating the said water in the upper chamber is much more quickly performed than if the said perforations  $d^2$  were not employed.

I prefer to form the compartments with a curved or concave interior contour to best receive and resist the explosive action of the gases, a curved interior dome being especially provided for the top compartment  $a$ , as shown at  $a^3$ , just above the outlet end of the tube to receive the impact of the escaping gas and effectively distribute the same with relation to the body of water.

Having fully described my invention, I claim as new and desire to secure by Letters Patent—

1. An apparatus of the class herein described, comprising a suitable receptacle divided into separate compartments by a transverse partition having a central circular opening, the outer wall of one of said compartments being provided in line with said opening with a tubular orifice, and a plug which is adapted to be screwed into said orifice, said plug being provided with a shank, and said shank with a tubular extension which is adapted to be inserted through said central opening in the partition and which is provided at its lower end with a circular enlargement which is adapted to close said circular opening, said enlargement being perforated, and the tubular extension of said shaft being open at the lower end thereof, and perforated adjacent to said partition, the compartment into which said tubular extension projects being also provided at one side with a discharge-faucet, substantially as shown and described.

2. An apparatus of the class described, comprising a receptacle divided into an upper and lower compartment and having a filling-opening at the bottom, in combination with a tube extending between said compartments and adapted to close the intermediate neck portion or opening between the same, said tube being provided with openings communicating with both compartments, and a plug or stopper closing the bottom opening of the receptacle and bearing with relation to the tube to retain the latter tightly in its seat at the neck portion or intermediate opening between the compartments, substantially as and for the purpose set forth.

3. An apparatus of the class described, comprising a receptacle divided into an upper and lower compartment and having an intermediate neck portion forming the opening between said compartments, a filling-opening being provided in the bottom of the lower compartment, a tube inserted through said neck portion or intermediate opening and adapted to bear upwardly against the walls thereof and tightly close the same, said tube projecting within both compartments and having openings communicating with the re-

spective compartments and provided with a downwardly-projecting stem, a plug or stopper adapted to close the bottom filling-opening and having a recess forming a seat for the bottom end of the tube-stem, and means for drawing off the liquid from the upper compartment, substantially as and for the purpose set forth.

4. An improved apparatus of the class described, comprising a receptacle divided into separate compartments by a transverse partition having a central circular opening, said compartments being normally in communication with a faucet connected with the receptacle, and in communication with one of said compartments, and the other compartment being provided with a tubular orifice in line with the central circular opening in the partition, a plug for closing said tubular orifice, and a tube connected with said plug and passing through the circular opening in the partition, said tube extending approximately through the compartment with which the faucet communicates and the lower end thereof opposite said plug being open, the end of said tube adjacent to said plug being adapted to close the opening in the partition and being perforated, substantially as shown and described.

5. An apparatus of the class described, adapted for domestic uses, and comprising a reversible receptacle divided into respective upper and lower compartments, said reversible receptacle having a filling-opening in its bottom, means for drawing off the liquid from the upper compartment, a detachable tube

adapted to be inserted within the receptacle so that it projects within both said compartments and provided with openings respectively communicating with both compartments, and a plug or stopper for closing the bottom filling-opening, substantially as and for the purpose set forth.

6. An apparatus of the class herein described, comprising a suitable receptacle divided into separate compartments by a transverse partition having a central circular opening, the outer wall of one of said compartments being provided in line with said opening with a tubular orifice and a plug which is adapted to be secured in said orifice and provided with a shank, and said shank with a tubular extension which is adapted to be passed through said central opening in the partition, and which is provided adjacent to the shank with a circular enlargement which is adapted to close said opening, said enlargement being perforated and the tubular extension of said shank being open at the end thereof opposite said shank, the compartment into which said tubular extension projects being also provided at one side with a discharge-faucet, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 7th day of December, 1897.

FERNAND D'ORBESSAN.

Witnesses:

L. M. MULLER,  
A. C. McLOUGHLIN.