

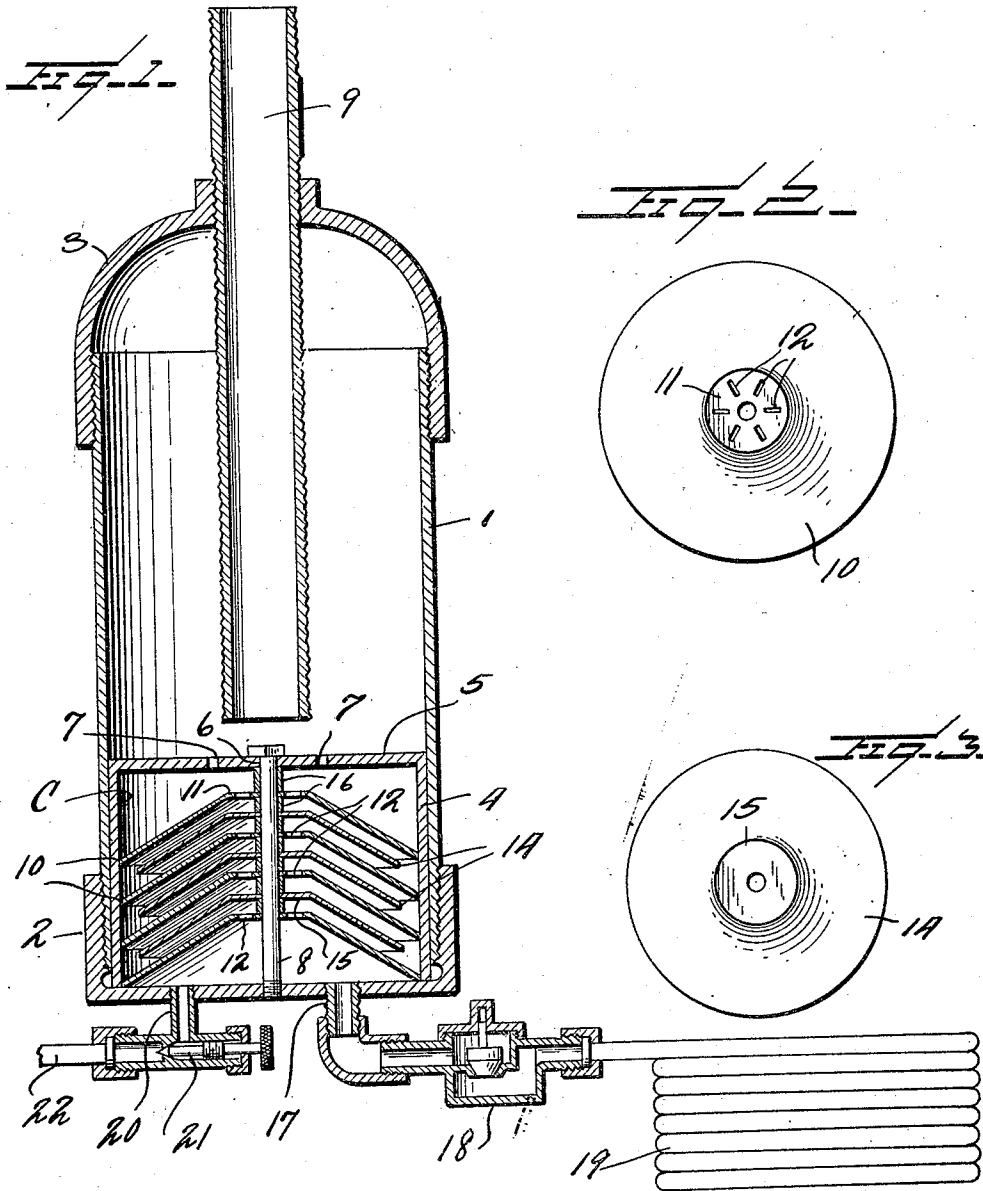
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F. E. SCOTT ET AL

CARBONATOR

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CARBONATOR.

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This invention relates to carbonators and it is an object of the invention to provide a device of this kind embodying a structure whereby the water is effectively charged
5 with the gas.

Another object of the invention is to provide a device of this kind including a chamber into which both the water and gas are discharged under pressure together with
10 means interposed within the chamber intersecting the flow of water and gas to effect a thorough mixture or charge.

The invention consists in the details of construction and in the combination and arrangement of the several parts of our improved carbonators whereby certain important advantages are attained and the device rendered simpler, less expensive and otherwise more convenient and advantageous for
20 use, as will be hereinafter more fully set forth.

The novel features of our invention will hereinafter be definitely claimed.

In order that our invention may be better understood, we will now proceed to describe the same with reference to the accompanying drawings, wherein:—

Figure 1 is a vertical sectional view taken through a carbonator constructed in accordance with an embodiment of our invention;
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Figure 2 is a view in top plan of one form of the cone like members or plates herein employed;

Figure 3 is a view in top plan of a second type of cone like plate or member as herein disclosed.
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As disclosed in the accompanying drawings, 1 denotes an elongated cylindrical member vertically disposed and having its
40 lower end closed by the cap 2 while its opposite end is closed by a reducing cap 3. The inner face of the applied cap 2 is machined to assure a perfect seat for the cage C arranged within the lower portion of the member 1 and resting upon the cap 2, said cage fitting snugly within the member 1.
45 The cage C is open at its bottom and has its side wall 4 imperforate or solid while its top wall 5 is solid with the exception of a central opening 6 and the outlet holes or ports 7. Disposed from above through the central opening 6 is a cap screw 8 having threaded engagement with the central portion of the applied cap 2 whereby the cage
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C is effectively maintained in applied position within the member 1.

Threaded through the reducing cap 3 is an outlet tube 9 having its inserted end terminating a desired distance above the top wall 5 of the cage C, said tube 9 being
60 threaded substantially from end to end to permit the same to be adjusted lengthwise as may be preferred by the requirements of practice. The inserted end of the tube 9 is arranged below the water level within the member 1 and the outer end of said tube is adapted to have coupled thereto a conventional tubing leading to a draft arm of any desired type.

Arranged within the cage 4 are the members or plates 10 frusto-conical in shape and having their smaller ends closed, as at 11. These members or plates 10 are of an equal number and each is provided in its closed end with a concentric series of radial slots
75 12. The members or plates 10 are preferably inclined in cross section on an angle of substantially forty-five degrees with respect to a line through the vertices thereof. The peripheral edges of the members or plates 10 are in close contact with the side wall 4 of the casing C, thus sealing against flow between said peripheral edges and side wall 4. Interposed between the members or plates 10 are the members or plates 14 also
85 frusto-conical in shape and having their smaller ends closed, as at 15. These members or plates 14 are also inclined in cross section at substantially forty-five degrees with respect to a line through the vertices thereof. The members or plates 14 are imperforate and have their peripheral edges terminating inwardly of the peripheral edges of the members or plates 10 or spaced from the side wall 4 of the casing C.
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The cap screw 8 is disposed axially through the flattened portions 11 and 15 of the plates or members 10 and 14 and said plates or members 10 and 14 are maintained in desired spaced relation by the interposed
100 sleeves 16 preferably of lead surrounding the cap screw 8.

In communication with the cage C is a nipple 17 leading from a check valve 18 operating to prevent retrograde flow, said
105 check valve being interposed between the nipple 17 and a coil 19 in communication with a suitable source of water under pres-

sure. This coil serves to provide means to cool the water before it is discharged within the cage C to assure perfect carbonization.

Also in communication with the cage C through the cap 2 is a nipple 20 having the flow therethrough under control of a needle valve 21, said nipple 20 being suitably coupled to a tube 22 leading from a desired source of required gas under pressure.

In practice, the pressure of the gas is between seventy pounds and one hundred twenty pounds. The needle valve 21 is adjusted to permit a relatively small seepage of gas into the cage in accordance with the strength desired. The water is received within the cage C in a volume about twenty times the volume of gas with the member 1 at all times filled with water. The water as it passes between the members or plates 10 and 14 is thoroughly charged or mixed with the gas. The water is preferably under pressure between forty pounds to sixty pounds whereby in practice a continuous flow carbonator is provided which is further assured by the fact that the gas admitted within the cage C is cut down to such an extent as not to interfere with such water pressure.

It will be understood that when the conventional draft arm is opened, the carbonated water will be discharged therefrom through the outlet tube 9. As the water is received within the cage C, its tortuous path of travel between the members or plates 10 and 14 assures the requisite charging or mixing of the gas therewith.

It is to be understood that the various parts herein employed are preferably made of block tin or of tin-coated metal as is well known in connection with devices of this general character.

From the foregoing description it is thought to be obvious that a carbonator constructed in accordance with our invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that our invention is susceptible of some change and modification without departing from the principles and spirit thereof and for this reason we do not wish to be understood as limiting ourselves to the precise arrangement and for mation of the several parts herein shown in carrying out our invention in practice except as hereinafter claimed.

We claim:—

1. A carbonator comprising, in combination, a vertically disposed member having its opposite ends closed, a cage snugly fitting within the member and resting upon the bottom thereof, the upper end of the cage being closed, an outlet tube extending within the member through the opposite end thereof and terminating adjacent to the closed end

of the cage, said closed end being provided with ports, plates supported within the cage one above the other in spaced relation, alternate plates having their peripheral edges in close contact with the side wall of the cage and having openings in their central portions, the remaining plates having their peripheral edges spaced from said side wall of the cage, and nipples in communication with the cage through the bottom of the member and below the plates, one of said nipples being adapted for communication with a source of water supply and the second of said nipples being adapted for communication with a source of gas supply.

2. A carbonator comprising, in combination, a vertically disposed member having its opposite ends closed, a cage snugly fitting within the member and resting upon the bottom thereof, the upper end of the cage being closed, an outlet tube extending within the member through the opposite end thereof and terminating adjacent to the closed end of the cage, said closed end being provided with ports, plates supported within the cage one above the other in spaced relation, alternate plates having their peripheral edges in close contact with the side wall of the cage and having openings in their central portions, the remaining plates having their peripheral edges spaced from said side wall of the cage, and nipples in communication with the cage through the bottom of the member and below the plates, one of said nipples being adapted for communication with a source of water supply and the second of said nipples being adapted for communication with a source of gas supply, said plates being substantially conical in form.

3. A carbonator comprising, in combination, a vertically disposed member having its opposite ends closed, a cage snugly fitting within the member and resting upon the bottom thereof, the upper end of the cage being closed, an outlet tube extending within the member through the opposite end thereof and terminating adjacent to the closed end of the cage, said closed end being provided with ports, plates supported within the cage one above the other in spaced relation, alternate plates having their peripheral edges in close contact with the side wall of the cage and having openings in their central portions, the remaining plates having their peripheral edges spaced from said side wall of the cage, nipples in communication with the cage through the bottom of the member and below the plates, one of said nipples being adapted for communication with a source of water supply and the second of said nipples being adapted for communication with a source of gas supply, and a member disposed through the top wall of the cage and engageable with the bottom wall

of the first member for holding the cage in applied position, said second member being also disposed through the plates.

4. A carbonator comprising, in combination, a vertically disposed member having its opposite ends closed, a cage snugly fitting within the member and resting upon the bottom thereof, the upper end of the cage being closed, an outlet tube extending within the member through the opposite end thereof and terminating adjacent to the closed end of the cage, said closed end being provided with ports, plates supported within the cage one above the other in spaced relation, alternate plates having their peripheral edges in close contact with the side wall of the cage and having openings in their central

portions, the remaining plates having their peripheral edges spaced from said side wall of the cage, and nipples in communication with the cage through the bottom of the member and below the plates, one of said nipples being adapted for communication with a source of water supply and the second of said nipples being adapted for communication with a source of gas supply, said plates being substantially conical in form, the apex portions of all of the plates being flattened, the openings in the first named plates being in the flattened portions thereof.

In testimony whereof we hereunto affix our signatures.

FRED EVANS SCOTT.

JAMES FRANKLIN DAWSON.