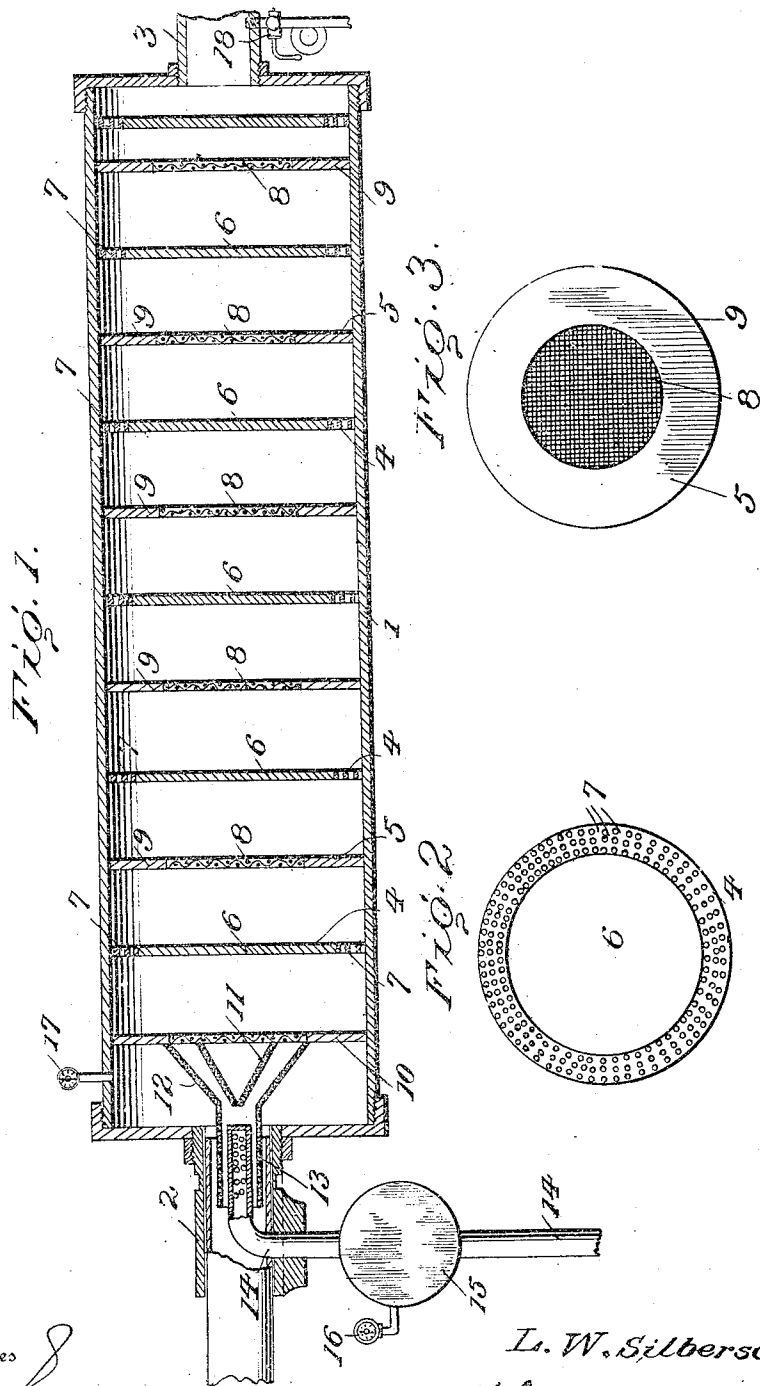


L. W. SILBERSCHMIDT.
 CARBONATOR.
 APPLICATION FILED JULY 3, 1908

935,698.

Patented Oct. 5, 1909.



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UNITED STATES PATENT OFFICE.

LOUIS W. SILBERSCHMIDT, OF LA CROSSE, WISCONSIN.

CARBONATOR.

935,698.

Specification of Letters Patent.

Patented Oct. 5, 1909.

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To all whom it may concern:

Be it known that I, LOUIS W. SILBERSCHMIDT, citizen of the United States, residing at La Crosse, in the county of La Crosse and State of Wisconsin, have invented certain new and useful Improvements in Carbonators, of which the following is a specification.

This invention has for its object a simple and efficient construction of apparatus for carbonating beer or other liquids, and the invention consists in certain constructions and arrangements of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention and the merits thereof, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a longitudinal sectional view of my improved carbonating apparatus; and, Figs. 2 and 3 are detail face views of the two different forms of diaphragms employed.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

My improved carbonating apparatus comprises a cylinder 1 of copper or any other suitable metal or material of any desired length and diameter, said cylinder being provided at one end with an inlet pipe 2 and at its opposite end with an outlet pipe 3 for the carbonated beer. Within the cylinder 1 are two sets of diaphragms, the diaphragms 4 of one set alternating with the diaphragms 5 of the other set, and said diaphragms being spaced from each other as shown and extending parallel with each other and secured in place by any desired fastening devices. Each of the diaphragms 4 consists of a central solid portion 6 of any desired metal or material, and a circular rim portion 7 which is foraminous in the present instance, such rim being perforated, although it is to be understood that it may be otherwise formed to secure the perforate or foraminous character. Each of the diaphragms 5 of the other set is formed with a central foraminous portion 8 which may, as shown in the present instance, be constructed of wire mesh, and a solid or imperforate rim portion 9. It is to be particularly noted that the foraminous portion of each screen is in longitudinal alinement with the solid portion of the next or adjacent screen or diaphragm and that the solid portion of each

diaphragm is of greater superficial area than the foraminous or perforated portion of the next diaphragm. Hence the beer, as it passes through the apertures of one diaphragm will be formed into currents that will be directed against the solid portion of the next diaphragm and be deflected thereby, and it is therefore obvious that as the beer flows through the cylinder, it will be caused to pursue a circuitous course and thereby effect a thorough commingling of the beer and carbonic acid gas. Instead of the wire mesh and perforated screens described above, all of the screens may be made of wire mesh or perforated metal, but I prefer the above described construction.

Near the inlet 2, the cylinder 1 contains a partition 10. A preferably centrally located tapered screen 11 with its apex outermost is secured to the partition 10 and is preferably surrounded by a similar tapered or conical screen 12, to the apex of which an open ended tube 13 is secured, as clearly illustrated in the drawings. An inlet pipe 14 is received within the outer end of the tube 13 and preferably the innermost end of the pipe 14 is perforated, as shown. The gas pipe 14 is connected to any suitable source of supply (not shown) of carbonic acid or other carbonated gas and contains a gas regulating device 15 of any conventional form and a pressure gage 16, by which the flow of gas into the cylinder 1 may be controlled at the desired or predetermined pressure. The cylinder 1 carries a pressure gage 17 and the outlet 3 carries a small testing cock 18 provided with a spiral tube, so that the beer may be tested as to the degree with which it is charged with the gas before it passes to the bottles or other receptacles.

In the practical use of my improved beer carbonating apparatus, it will be understood from the foregoing description in connection with the accompanying drawing, that the beer flows in through the inlet pipe 2 and passes through the funnels 12 and 11, being mixed at this point with the gas flowing in through the pipe 14 which is directed as shown at the apex of the tapered funnel 11 and which is mounted centrally of the inflowing stream of beer and thereby forced to impregnate the same to the best possible advantage. Instead of as shown in the drawing, the perforated pipe 14 may extend through one or more of the screens, thus delivering the gas farther up in the recep-

tacle. The beer and gas then flow, as above noted, through the two sets of screens 4 and 5, and a thorough commingling of the gas and beer is effected, the charged beer finally passing out through the outlet pipe 3 to the bottling apparatus, or other receptacle.

It will thus be seen that I have provided a very simple and efficient beer carbonating apparatus which avoids the necessity of using a pump between the outlet pipe and bottling apparatus, and which will more completely mingle the gas and beer than the ordinary air pump carbonating apparatus.

Having thus described the invention, what is claimed as new is:

1. A carbonating apparatus, comprising a cylinder with an inlet pipe and an outlet pipe and a series of alternately arranged diaphragms mounted within and extending transversely of the cylinder, one diaphragm being formed with an imperforate central portion and a foraminous rim portion, and the next diaphragm being formed with an imperforate rim and a foraminous central portion, the imperforate portion of one diaphragm facing and being in longitudinal alinement with the foraminous portion of the next diaphragm.

2. A carbonating apparatus, comprising a cylinder with an inlet and an outlet pipe

and a series of alternately arranged diaphragms mounted within the cylinder and extending across the same, one of said diaphragms being formed with an imperforate central portion and a foraminous rim portion and the next diaphragm being formed with an imperforate rim portion and a foraminous central portion, the imperforate portion of each diaphragm being in longitudinal alinement with and of greater superficial area than the foraminous portion of the next diaphragm.

3. A carbonating apparatus, comprising a cylinder, provided at one end with an inlet pipe and at its other end with an outlet pipe, a series of foraminous diaphragms mounted within the cylinder, a tapered mixing screen mounted in said cylinder contiguous to the inlet pipe and formed with a sleeve projecting into and spaced from the walls of said inlet pipe, and a gas inlet pipe extending into the first named inlet pipe and provided with a perforated discharge end projecting into said sleeve.

In testimony whereof I affix my signature in presence of two witnesses.

LOUIS W. SILBERSCHMIDT. [L. S.]

Witnesses:

FRANK WINTER,
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