B. BATES.

Vitriol Holder for Beverage Carbonizing Apparatus.

No. 207,841. Patented Sept. 10, 1878.

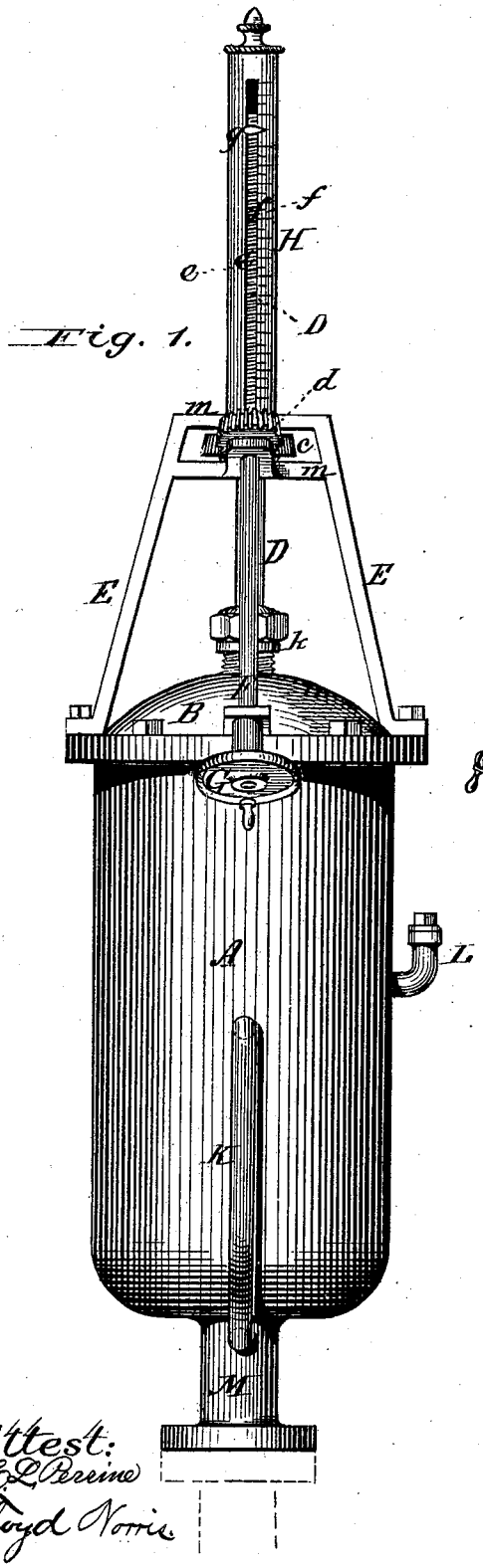

Fig. 1.

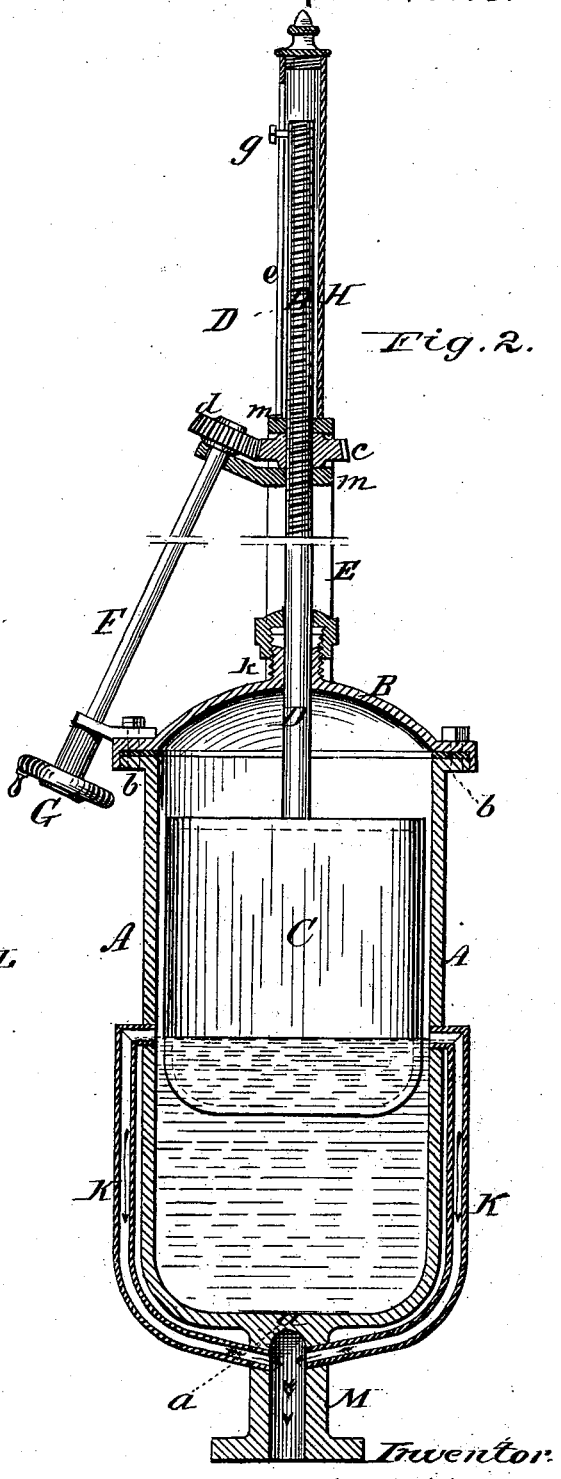

Fig. 2.

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BENJAMIN BATES, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN VITRIOL-HOLDERS FOR BEVERAGE-CARBONIZING APPARATUS.

Specification forming part of Letters Patent No. **207,841**, dated September 10, 1878; application filed March 27, 1878.

To all whom it may concern:

Be it known that I, BENJAMIN BATES, of Baltimore city, in the State of Maryland, have invented certain new and useful Improvements in Vitriol-Holders for Apparatus for Carbonizing Beverages; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

In the apparatus now in common use for carbonating or aerating beverages, such as soda-water, mineral waters, sparkling wines, cider, and malt liquors, the vitriol or acid is let down into the generator in unascertained quantities by the agency of a valve operated by a lever. Such apparatus necessarily has a balance or equalizing pipe or pipes to preserve an equilibrium between the gas-pressure in the generator and vitriol-cup; otherwise the vitriol could not descend into the generator.

The improvements which I have made in such apparatus relate to the vitriol chamber, cup, or holder; and they are designed to afford means for letting into the generator an ascertained quantity of vitriol, and for preserving the equilibrium of gas-pressure between the two chambers, and thus dispense with the usual equalizing pipe or pipes connecting with vitriol-chamber and generator.

My present vitriol-holder, to be hereinafter specifically described, is a cylindrical chamber mounted upon the generator by a short neck, which has its throat or connection with the vitriol-chamber closed or imperforate, the vitriol being directed through said neck into the generator by means of pipes running from near the middle of said cylindrical chamber on the outside thereof, and piercing its walls thence to the said neck, which they also pierce. A displacing-block of little less diameter than the clear diameter of the chamber, carried by a stem or rod, guided in a suitable frame, and operated by gearing, is made to displace a certain amount of vitriol, ascertained from an index and scale on the carrying-rod, or on a case inclosing it, by causing the vitriol to rise and flow down the pipes on the outside, as heretofore mentioned. Said pipes are made large enough to admit an upward flow of gas while permitting the downward flow of vitriol, in order to preserve the equilibrium of pressure between cup and generator. The vitriol in the first instance is preferably introduced into the chamber through an elbowed conduit on the side.

In the accompanying drawings, Figure 1 represents an elevation of my improved vitriol-chamber, and Fig. 2 a vertical section thereof.

The vitriol chamber, cup, or holder A is of cylindrical form, and preferably of brass or copper, and made sufficiently strong. It is mounted upon the generator. Unlike the vitriol-cup in common use, it has no bottom opening valve; but its connection or throat *a* in the neck, which connects it with the generator, is imperforate, the vitriol being discharged in another manner, as will be presently described.

The chamber A has a cover, B, lapping over an extension or flange, *b*, having a gasket-joining or suitable air-tight packing. It is fastened down with bolts and nuts. Within this cylinder is a displacing block or plunger, C, carried by a stem or rod, D, which passes through a stuffing-box, *k*, in the cover, and guided in a suitable frame-work, E, rising from the vitriol-chamber cover in example shown. The relation of the diameter of the displacer C to the diameter of the chamber A is such as to cause it to force the liquid vitriol up as the displacer descends. It does not touch the inner walls like a piston-head. The displacer is caused to descend or to rise, when desired, by means of matching gear-wheels *c d*, one of which, *c*, is a feeding-nut held between fixed parts *m m* of the frame, so that it may neither rise nor fall, and is provided with a female thread, which engages with a male thread on the carrying or displacer rod D, while the other, *d*, is attached to a connecting-rod, F, operated by a hand-wheel, G, or a crank.

Any suitable equivalent gearing might be used to perform this function of raising and lowering the displacer-rod at will. This displacer-rod D is embraced above the top of the frame E by a stationary sleeve, H, supported by said frame, and having a longitudinal slot, *e*, and a graduated scale, *f*, exhibiting the measure in drams, ounces, and pounds, or gills, pints, quarts, and gallons. The slot is for the purpose of permitting the travel of

an index, *g*, fastened to the upper end of the rod D, whereby, as the rod descends, the quantity of vitriol displaced and thrown into the generator is indicated.

The chamber is preferably supplied with the vitriol or acid through an elbow-conduit, L, piercing its side, which is provided with a cap to prevent the escape of gas. Two or more pipes, K K, pierce the walls of the chamber A at about the middle of its height, (or above that, for there must be left room enough in the chamber to avoid unnecessary frequency of supplying it,) and descend upon the outside to the neck M, which they also pierce. This neck is hollow from the point of entry of said pipes down, and is fastened to the generator by flanged joint or coupling firmly and tightly. The pipes K K are of sufficient diameter to admit a downward flow of the acid and a simultaneous upward flow of gas from the generator, whereby, as before stated, a balance of pressure is kept up between the vitriol-chamber and generator.

I claim—

1. In a vitriol chamber, cup, or holder, the combination of the displacer C, the closed or imperforate bottom of said chamber *a*, and the pipes K K, whereby the vitriol is displaced and conducted through said pipes to its exit, while the gas from the generator rises in said pipes to balance the pressure, substantially as described.

2. In a vitriol chamber, cup, or holder having the combination of displacer C, egress-balance pipes K K, and closed bottom, the index and scale, in combination with the displacer-rod and operating-gearing, whereby the quantity of vitriol to be let down into the generator is preascertained, substantially as described.

In testimony that I claim the foregoing I have affixed my signature in the presence of two witnesses.

BENJAMIN BATES.

Witnesses:

C. H. SLICER,

JOHN B. N. BERRY.