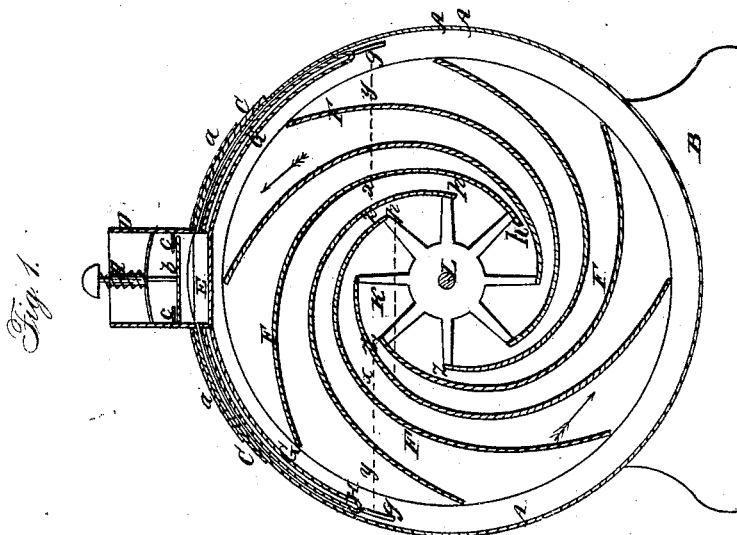
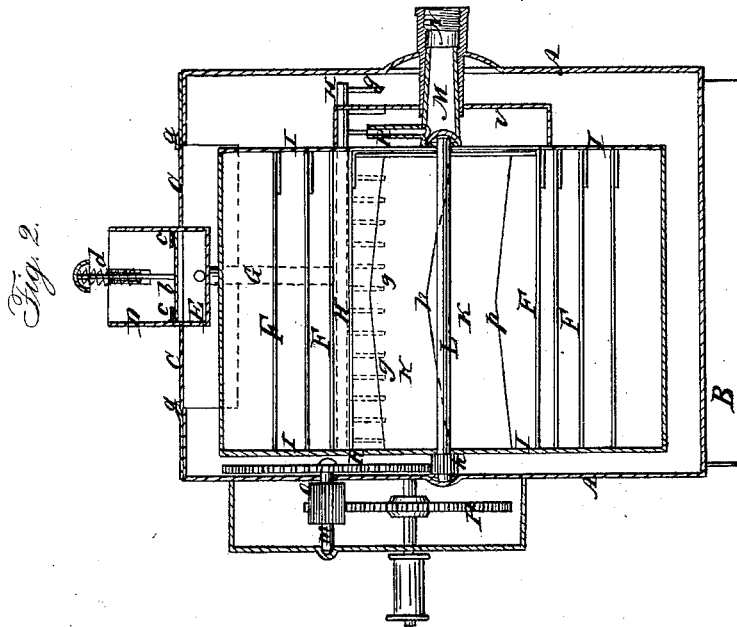


C. M. DRENNAN.

Carbureter.

No. 50,103.

Patented Sept. 26, 1865.



Witnesses:

*Thos H Dodge*  
*W L Fuller*

Inventor:

*C. M. Drennan*

# UNITED STATES PATENT OFFICE.

C. M. DRENNAN, OF BOSTON, MASSACHUSETTS.

## IMPROVED APPARATUS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. 50,103, dated September 26, 1865.

*To all whom it may concern:*

Be it known that I, C. M. DRENNAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Portable Gas Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 represents a longitudinal vertical section through said gas apparatus. Fig. 2 represents a vertical cross-section through the same.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents a cylindrical case, which is supported on its stand B. Its ends are closed tightly, but its top is provided with a slide, C, which can be moved within the ways *a* to open or close the case A at pleasure. The movable slide C is provided with a short tube or cylinder, D, within which a valve, *b*, is contained, which opens inward, but which is kept closed by being pressed against its seat *c* by the action of the spiral spring *d*. Below the tube D and in line with it is a receiver, E, the upper edge of which fits tightly against the slide C when the latter is closed. Two pipes, G, extend from the receiver E along the inner circumference of the case A, and are provided at their lower ends with cross-pipes H, from which small tubes *g* extend a short distance downward and into the hydrocarbon fluid contained in the case A, the surface-line of said fluid being indicated on the drawings by line *x y*.

F represents a number of spiral or scroll partitions, which are fastened to the two circular heads I. The scrolls F do not extend to the center of the head, but an open space, K, is left for the free passage of the gases, as will be hereinafter described. The heads I are mounted upon a shaft, L, whose end 2 rests in a bearing within the end of case A, while the other end, 3, has its bearing within the angular tube M, which in its turn extends into the escape-pipe N, forming a tight joint with the latter, which is rigidly secured to the case A.

The shaft L is provided with a pinion, *h*, which is in gear with the spur-wheel *k*, the shaft

*m* of the latter being so far above the fluid within the case A that no stuffing-box is required to keep its bearing water-tight. The pinion O is secured to the shaft *m* of the wheel *k*, and is in gear with the spur-wheel P, on whose shaft a pulley or windlass, Q, is secured for the purpose of operating the gearing and the shaft L, to which the heads I of the scroll partitions F are secured.

This apparatus may be used either for generating gas or for forcing air through water or other unvolatile liquid when used in connection with a gas-generating apparatus. When used for generating gas, the case A is filled with hydrocarbon liquid up to the line marked *x y* on the drawings, and the sliding cover C is closed. Motion being given to the shaft L, the scrolls F are revolved within the case A in the direction of the arrows, and thus draw in the air by suction through the tube D, the valve *b* being forced open by the pressure of the air, and the latter passes into the receiver E and through the two pipes G, thence into the branch pipes *g*, which extend into the hydrocarbon liquid, and, being sucked through said pipes and through the liquid, it is impregnated with the volatile parts thereof, rises in bubbles, and escapes between the scrolls F, through the spaces *z*, thence into the space K, into the box U, angular pipe R M, and into the escape-pipe N, to which the gas-pipe is secured.

It will be observed that by the use of the angular pipe R M within the box U, and which serves the purpose of the bearing for the shaft L, I dispense with any packing at the bearing 3 of said shaft, as no gas can escape there.

The inner edges, *p*, of the scrolls F are not made in straight but in curved or angular lines, as represented at Fig. 2, the object being to prevent said buckets from acting upon the liquor by suction, and in making said inner edges curved or oblique the different points thereof will emerge from the liquid at different times, and the scrolls can thus operate upon the liquid only by stirring it up without raising it by suction.

When the apparatus is to be used for forcing air through water or other unvolatile liquid contained within the case A, the sliding cover C is opened and the air is forced by the action of the curved partitions F through the liquid, and

by the same operation, as above described, passes out through pipes R M N, but does not first pass through pipes G g.

It will be observed that the scrolls F when in motion, as first above described, with the cover closed create a partial vacuum above the fluid in case A, while the resistance of the gas as it is forced through the outlet-pipes causes a depression of the liquid in the center, as shown in red line at Fig. 1.

The edges of the scrolls F may be notched differently, if preferred.

In conclusion I would observe that I do not wish to be understood as laying claim to scroll-buckets as described in the patent of H. L. McAvoy of December 13, 1864; but the machine as constructed by me possesses important advantages over McAvoy's.

Having thus fully described the nature of my invention, what I claim herein as new, and desire to secure by Letters Patent, is—

1. The uneven angular or curved edges of

the partitions F, as and for the purposes herein specified.

2. In combination with the revolving bucket-wheel I within the closed case A, the air-pipes G and receiver E, substantially as and for the purposes set forth.

3. In combination with the closed case A and revolving bucket-wheel I, the removable top C, constructed as and for the purposes specified.

4. The combination of the curved partitions F and heads I with the box U and escape-pipe R M, substantially as and for the purposes specified.

5. The combination, with the receiver E, of the valve b and pipes G H g, as and for the purposes specified.

C. M. DRENNAN.

Witnesses:

THOS. H. DODGE,  
J. HENRY HILL.