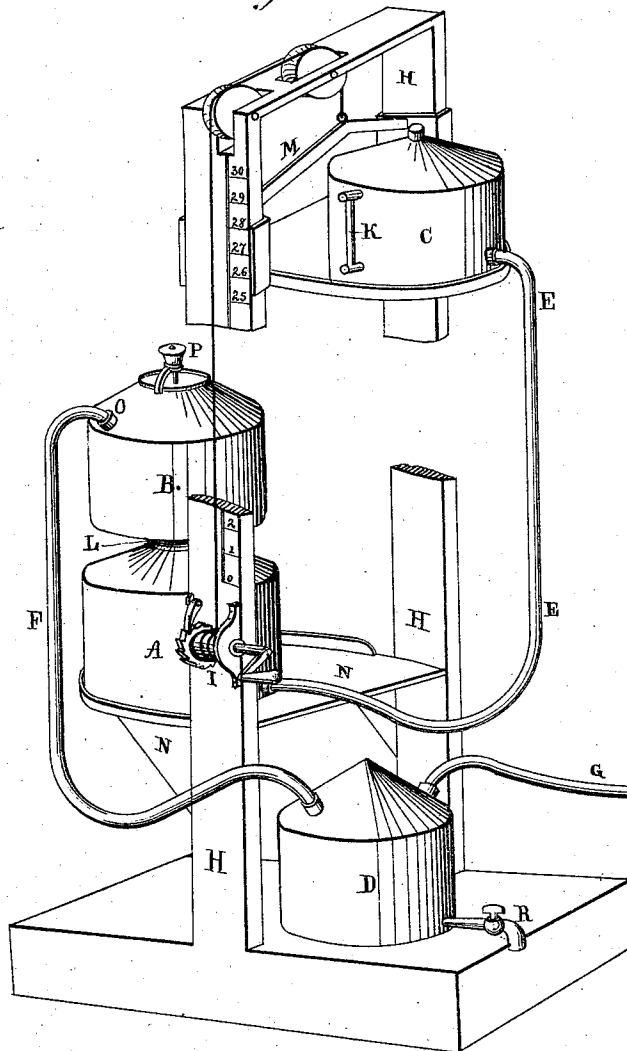


E. C. H. HILDEBRAND.
Carbonic-Acid Gas Generators.

No. 154,794.

Patented Sept. 8, 1874.

Fig 1



Witnesses:

Inventor:

Sam'l Stahl
G. B. Hoodless

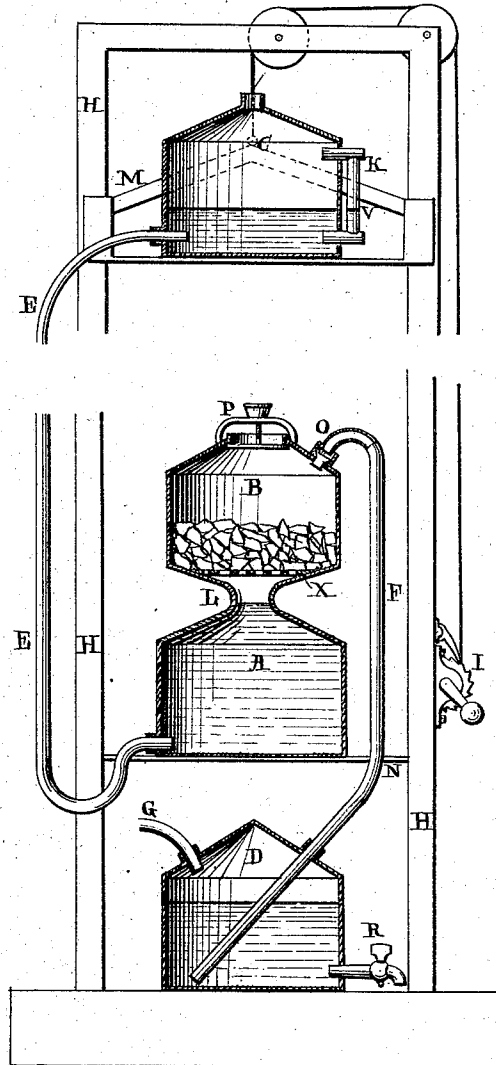
E C Herman Hildebrand

E. C. H. HILDEBRAND.
Carbonic-Acid Gas Generators.

No. 154,794.

Patented Sept. 8, 1874.

Fig 2.



Witnesses:
Sam'l Strickel
G. L. Hoodless

Inventor
E. C. Herman Hildebrand

UNITED STATES PATENT OFFICE.

E. C. HERMAN HILDEBRAND, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN CARBONIC-ACID-GAS GENERATORS.

Specification forming part of Letters Patent No. **154,794**, dated September 8, 1874; application filed March 14, 1874.

To all whom it may concern:

Be it known that I, E. C. HERMAN HILDEBRAND, of Chicago, State of Illinois, have invented a Self-Regulating Apparatus for the Generation of certain Gases under a certain Pressure produced by Hydraulic Force, of which the following is a specification:

The object of my invention is the manufacture of certain gases for the purpose of keeping a certain liquid or liquids, such as beer, &c., in their receptacles, from the influence of the atmospheric air, and, under a certain given pressure of the gas produced in the apparatus, in order to preserve in them certain desirable qualities.

The apparatus is illustrated more in detail in the perspective view, Sheet I, and sectional view, Sheet II.

The whole apparatus is mounted on a suitable frame-work, H. A and B represent a vessel, narrowed somewhat near half its height at L, and there forming a shoulder, serving as rest or shelf for a perforated diaphragm or grating, on which are placed such solids as will, by contact with some liquids (acids, for instance) contained in the lower part A, evolve the desired gas. Near or on the top of B is the valve O, allowing the exit of the gas, but shutting off its return. From thence the gas passes into a suitable washing apparatus, D, or direct to where it is wanted. P is an opening, with a cover, for the supply of B with the proper solid material, and also for cleaning, and is closed securely in an appropriate manner. A is connected, by means of the flexible tube E, with vessel C, which represents a reservoir containing the acid. The elevating or lowering of C regulates the hydrostatic pressure required. Upright H has a scale, the starting-point of which is at the same height as diaphragm X, showing the elevation of the acid-level in C over the diaphragm.

The operation of the apparatus is as follows: Open vessel A B at P, and supply it with the necessary material, such as marble, &c. Let C slide down so as to bring mark V on the same level with mark zero on the scale, and pour in acid until it rises to the mark V, showing that A has been filled up to L. Close P tightly, and proceed now to create a column of liquid between L and C, corresponding in height to the required pressure, by winding up C to the point where the mark on gage K reaches that figure on the scale which indicates the length of such a column. Thus a column of ten feet length will indicate a pressure of nearly one-third atmosphere. This will raise the acid over L, and bring it in contact with the materials contained in B, causing there an evolution of gas, which counteracts the pressure of the liquid, and, overpowering it at last, forces the acid down into A. The generation of gas is now stopped. As gas is drawn off, the pneumatic pressure diminishes. The hydrostatic pressure forces the acid anew into B, causing there an increase of the pneumatic pressure, which again drives back the acid, and so on, self-acting, until the strength of the material is exhausted.

To empty the apparatus, open P, take down vessel C to the floor, and allow all liquid contained in the apparatus to run out.

I claim as my invention—

1. Generator A B, in combination with valve O, opening and cover P, diaphragm X, flexible tube E, reservoir C, and gage K, substantially as described.

2. Reservoir C, in combination with movable support M, scale H, and rope or chain and windlass I.

E. C. HERMAN HILDEBRAND.

Witnesses:

LOUIS STREHL,
OS. L. HOODLESS.