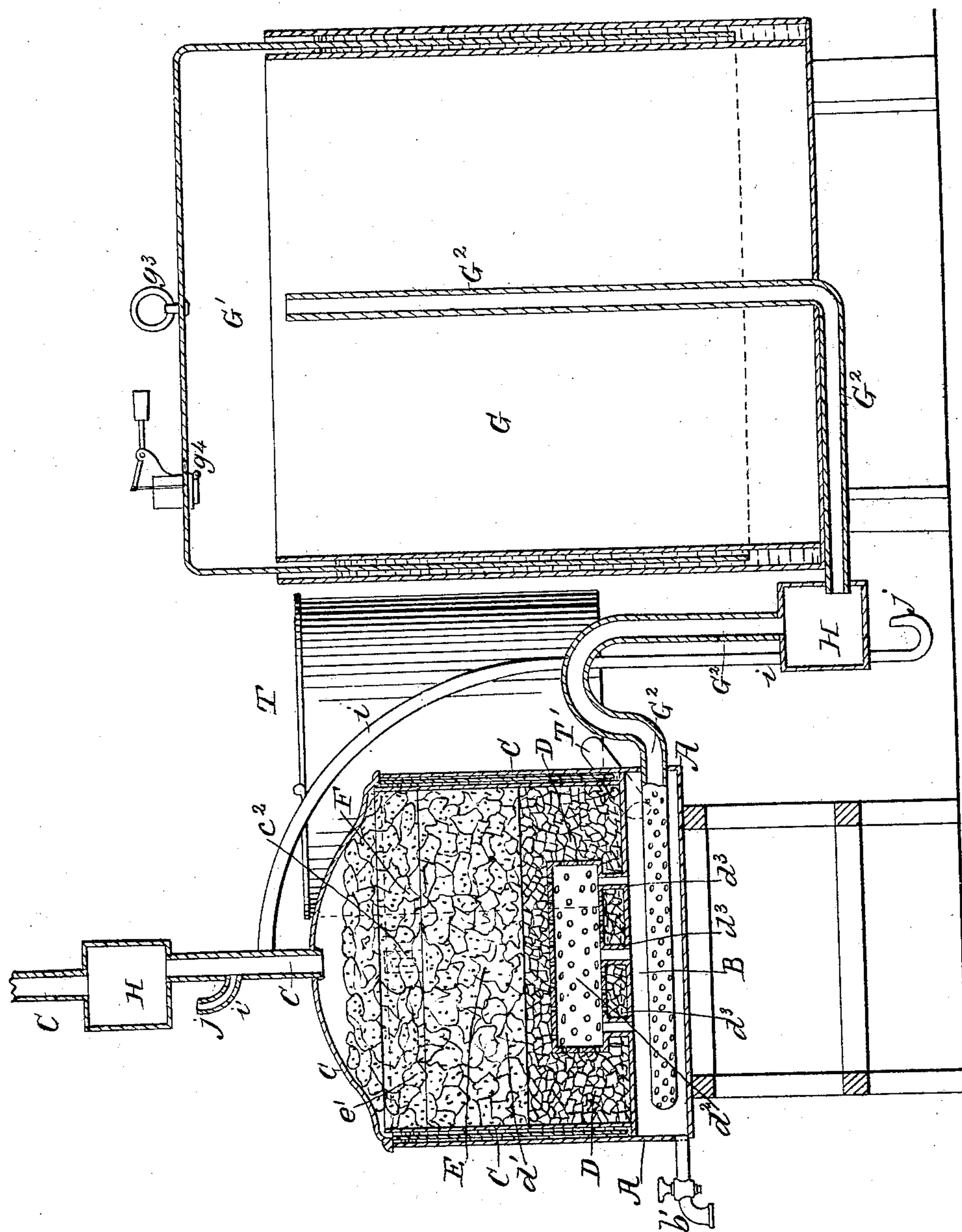


ROWLEY, SLOANE & WOODRUFF.

Apparatus for Carbureting Air.

No. 57,639.

Patented Aug. 28, 1866.



Witnesses.

B. H. Mickle
J. M. White

Inventors.

James H. Rowley
Wm. Sloan
James E. Woodruff

UNITED STATES PATENT OFFICE.

JAMES F. ROWLEY, WILLIAM M. SLOANE, AND JAMES E. WOODRUFF, OF
BUFFALO, N. Y., ASSIGNORS TO THEMSELVES AND JOHN D. CROSS.

IMPROVED APPARATUS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. 57,639, dated August 28, 1866.

To all whom it may concern:

Be it known that we, JAMES F. ROWLEY, WILLIAM M. SLOANE, and JAMES E. WOODRUFF, of the city of Buffalo, county of Erie, and State of New York, (assignors to themselves and JOHN R. CROSS,) have invented a new and Improved Apparatus for Carbureting Air or Gas; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, and which represents a vertical section of our improved apparatus.

The nature of this invention consists in an apparatus for carbureting air, composed of a reservoir for hydrocarbon, a chamber filled with lime, and one or two chambers containing cotton, sponge, or other porous material, all being arranged in such manner that the air forced into the apparatus will first pass through the hydrocarbon, then the lime, and finally the porous material, successively.

In the accompanying drawing, A represents a circular tank, which is divided into several compartments. The lower chamber or compartment is represented at B, and contains hydrocarbon, which is fed thereto from a supply-tank, T, through the pipe T'. This chamber is made air-tight and provided with a stop-cock, b', by means of which the fluid may be drawn off after the process of carbureting has rendered it useless and a new supply of hydrocarbon becomes necessary.

The top or cover of the reservoir B forms the bottom of another chamber, the circular sides or walls of which are made double, and a water-sealed cover placed thereon, as shown at C. This chamber is subdivided into three compartments by two perforated diaphragms, d' and e', resting upon studs or brackets formed on the inner wall thereof.

A cylinder air-distributing device is placed at about the center of the lower sub-chamber, D, as shown at d². It is perforated and rests upon three (more or less) vertical pipes, d³, by means of which air is admitted from the reservoir B into the chamber D, through the perforated tube d². The chamber D is filled with unslaked quicklime or other substance tending to purify the air or gas brought in contact therewith and take up the moisture therefrom.

The middle chamber, between the perforated diaphragms d' e', is represented at E, and the upper chamber, above the diaphragm e', is represented at F. Both chambers E and F contain cotton, sponge, or other porous material, which causes the air or gas forced through it to be thoroughly strained and creates an even current.

The cover of the water-seal C has an opening through the top, to which the main gas-pipe C' is connected.

G represents an air-pressure tank, which is of common construction. The pipe through which the air is forced is shown at G². It leads to the carbureter and passes into the chamber B thereof. It is curved upward before it enters the carbureter, so as to be above the level of the top or cover of the chamber B, in order to prevent the hydrocarbon contained therein from passing into the pipe G² and pressure-tank G.

Upon the inside of the chamber B the pipe G² extends nearly across the same, is closed at its end, and has perforations through which the air forced through the pipe G² enters the chamber B and the hydrocarbon contained therein.

H H' are heating-chambers, which may be made of any desirable form and be adjusted to the pipes leading to and from the carbureter at any point where the temperature of the surrounding atmosphere is so low as to require a heating device.

The heating-chamber H is represented as attached to the air-pressure pipe G². A gas-pipe, i, leads from the top of the carbureter, or the pipe connected thereto, down to and below the heating-chamber H. It is turned upward and provided with a gas-burner of common construction, as shown at j. A small flame may be kept constantly burning for the purpose of heating the air passing through the chamber H, and thereby accelerating the process of carbureting the same by increasing its temperature.

Heating-chambers of this description may also be placed upon the pipe leading from the carbureter, as shown at H, at any point where the surrounding atmosphere is extremely cold.

The gas-pipe carrying the burner j' may be attached immediately below the chamber to

the pipe C' and curved upward, as shown at *i'*. In large buildings, where one apparatus is employed to supply a number of floors, it will be found necessary to attach one heating-chamber to each main pipe connecting the different floors, and to use them in very cold weather.

The operation of our improved apparatus may be briefly stated as follows: The inverted water-sealed tank G' being lifted up by means of the ring *g*³, in a common manner, the self-acting balanced valve *g*⁴ opens and permits air to enter the pressure-tank G. As soon as the inverted tank G' is then released its own weight, or any additional weight attached thereto, will close the valve *g*⁴ and force the air contained in the tank G through the pipe G². In passing through the chamber H the air is heated so as to accelerate the carbureting process. The reservoir B having been previously filled with hydrocarbon from the supply-tank T, the air forced through the perforations in the end of the pipe G² will be carbureted, and then pass through the pipes *d*³ and perforated distributing device *d*² into the lime-chamber D, where the gas is purified and all moisture extracted therefrom. From the lime-chamber the air is forced through the perforated diaphragms *d'* and *e'* into the chambers E and F, which are filled with cotton, sponge, or other porous substance. The gas is thereby thoroughly strained and

passes into the main gas-pipe C' in an even current.

Whenever the hydrocarbon in the chamber B becomes useless it may be drawn off by means of the stop-cock *b'* and the chamber refilled from the supply-tank T.

The water-sealed cover C is of great importance in combination with an air or gas carbureter, inasmuch as it may be from time to time removed and the chambers D E and F thoroughly cleaned and refilled with fresh lime and porous substance.

The clamps *c*² upon each side of the cover C are sufficient to hold it firmly in its place during the process of carbureting the air and resist the steady pressure of the gas through the carbureter and the main pipe C'.

What we claim as our invention, and desire to secure by Letters Patent, is—

An apparatus for carbureting air or gas having a reservoir, B, for hydrocarbon, a lime-chamber, D, and chambers E and F, containing porous substance, all arranged and constructed in the manner and for the purposes substantially as herein set forth.

JAMES F. ROWLEY.

WM. M. SLOANE.

JAMES E. WOODRUFF.

Witnesses:

B. H. MURHLE,

TRUMAN C. WHITE.