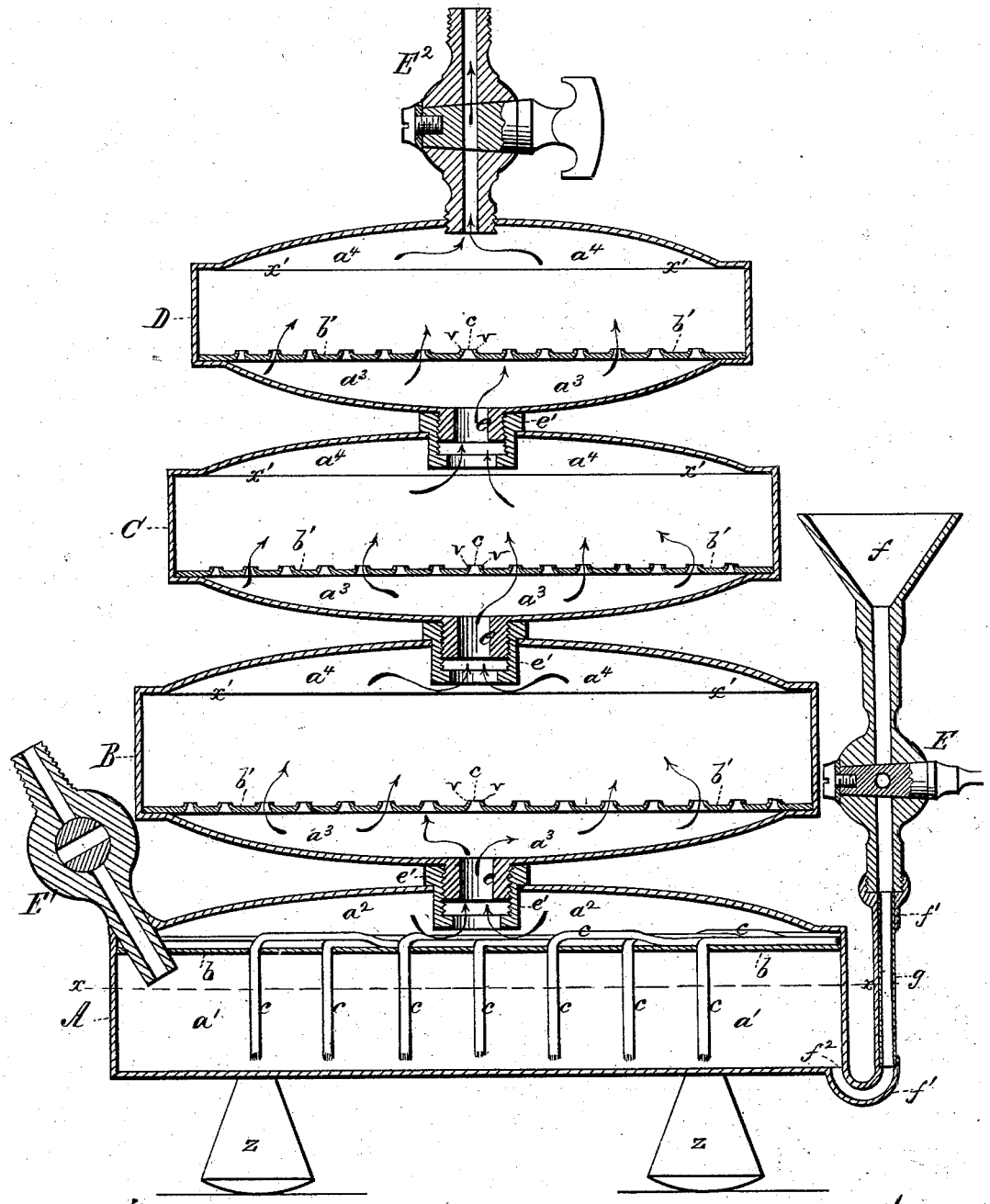
2 Sheets—Sheet 1.

W. MOREHOUSE.

Carbureter.

No. 205,201. **Patented June 25, 1878.**

Fig. 1.



Witnesses.
James Martin Jr.
John. L. Condron

Inventor.
William Morehouse
by
Mason, Fenwick & Lawrence
his Attorneys.

W. MOREHOUSE.

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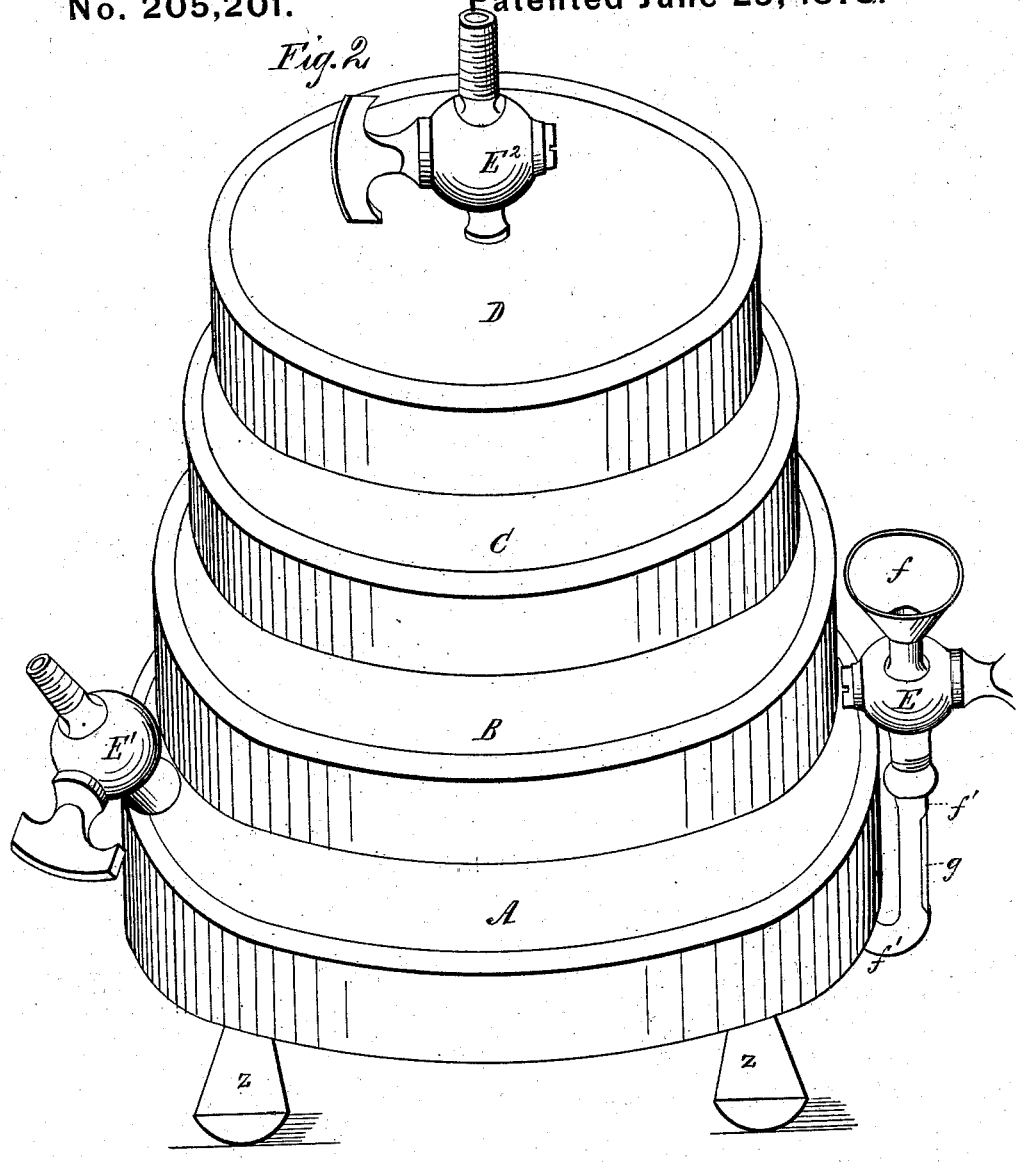
Fig. 2



Witnesses.
James Martin Jr.
Jno. D. Patten

Inventor.
William Morehouse
by
Mason, Fenwick & Lawrence
his attorneys

UNITED STATES PATENT OFFICE.

WILLIAM MOREHOUSE, OF BUFFALO, NEW YORK.

IMPROVEMENT IN CARBURETERS.

Specification forming part of Letters Patent No. **205,201**, dated June 25, 1878; application filed March 1, 1878.

To all whom it may concern:

Be it known that I, WILLIAM MOREHOUSE, of the city of Buffalo, in the county of Erie and State of New York, have invented a new and useful Apparatus for Carbureting Gas for Illuminating Purposes, of which the following specification and accompanying drawings are a full, clear, and exact description.

The object of my invention is to produce a simple, cheap, and convenient carbureting apparatus, adapted to be used in connection with the carbureted-hydrogen gas supplied to dwelling-houses or other buildings from the ordinary gas-works of towns and cities.

Heretofore in apparatus employed for carbureting gas, chambers or apartments have been made to contain lime and other substances for cleansing the gas of impurities derived from the carbureting-liquids employed; but such apartments, so far as I am aware, have been constructed in such manner that they cannot be removed for the purpose of renewing their charge without destroying or greatly injuring the integrity of the entire apparatus.

By my construction I am enabled to disconnect, remove, and replace the apartments composing my carbureter without injury; and they are so arranged as to occupy but little room laterally, each one, commencing with the top vessel, being directly supported upon an adjoining vessel beneath, which is of a greater lateral capacity or diameter, and so on, until the bottom vessel is reached.

In Figure 1, which is a vertical central section of my carbureter, A indicates a gas-tight vessel, which, in operation, is to be charged with coal-oil or other suitable carbonaceous liquid up to about the dotted line *x x*. This vessel is provided with a disk, as at *b*, thus dividing the vessel A into apartments a^1 and a^2. The disk *b* is perforated throughout with longitudinal slots or openings, through which lamp-wicking *c* is passed from above the disk into the oil or carbonaceous liquid below, as indicated in the figure, care being taken to have the wicking spread upon the entire surface of the disk *b*, so that the gas which may pass from the apartment a^1 into a^2 will be compelled to pass through the wicking, which becomes saturated with the carbonaceous liquid.

E represents a cock, provided with a funnel, *f*, which communicates with a metal pipe, f^1, which communicates with the vessel A and its apartments a^1 a^2.

When the vessel A is to be charged the carbonaceous liquid is poured into the funnel *f*, and thence passes into the vessel A at a point through its bottom at f^2.

Within the metal pipe f^1 a glass tube, *g*, is inserted, as shown, a portion of the front of the pipe being cut away, so as to indicate in the tube the height of the carbonaceous liquid in the vessel A, and signify when the vessel A requires replenishing.

E^1 indicates a gas-cock, to which the service-pipe is to be screwed, which leads out of the meter of the dwelling, so that the gas from the meter will be compelled to flow through the apparatus before reaching any of the burners.

E^2 represents a gas-cock leading out of the carbureter, to which cock the service-pipe is to be screwed, which conducts the carbureted gas to the burners throughout the building in which the carbureter is used.

B, C, and D are gas-tight vessels somewhat similar to A, but having both their top and bottom portions convex, as shown, in order to sustain superincumbent weight, as well as afford interior gas-spaces a^3 a^4 above and below their charges. Each of the vessels B C D is provided with a perforated disk, as at *b'*, the perforations, as at *c*, being made conical, with a pointed implement forced through the metal of the disk, so as to form a burr around each perforation. These disks are placed in each of these vessels with the burrs, as at *v*, pointing upward, for reasons which will presently be stated.

The vessel or apartment D is constructed with its bottom convex portion terminating centrally in a short screw-threaded tube, as at *e*. This tube is made to screw into a short tubular socket, *e'*, correspondingly situated and properly secured in the upper convex portion of the adjoining vessel C, as shown in Fig. 1; and in this manner each of the vessels A B C D is secured to another, each being made of successively-diminished horizontal diameter from the bottom one, A, to the top one, D.

In charging the vessel A the cock E^1 should be first closed, and then the cock E opened. The cock E^2 should remain open, and with

one of the burners lighted, thereby consuming the gas expelled by reason of the liquid poured into the vessel A. I prefer to mix a small quantity of sulphuric acid and lime with the carbonaceous liquid before it is poured into the vessel A, as I have found by so doing the illuminating power of the carbureted gas is improved.

I charge the vessel B upon its disk b' (but not above the line x') first with granulated charcoal, either of wood or bone, (wood charcoal preferred,) the granulations being, say, the size of a kernel of wheat, and of sufficient quantity to only cover the upper surface of the disk. This done, I then fill the vessel B up to the line x' with charcoal very finely pulverized.

I charge the vessel C upon its disk b' with like granulated charcoal, and then fill up the vessel, but not above the line x', with equal quantities of charcoal reduced to a very fine powder and air-slaked lime, thoroughly mixed.

The vessel D I charge with a like layer of granulated charcoal, and thereupon fill up, but not above the line x', with pure air-slaked lime.

The contents of these vessels when so filled are prevented from falling through the disks by the burrs v, which surround the perforations c; but if any portion of the powdered contents should pass into said perforations, their clogging up will be prevented by the downward flaring form of the perforations.

In the operation of my carbureter the gas from the meter is forced into the vessel A upon the carbureting-liquid therein, and thence into the gas-space a^2 of said vessel and onward through the socket e' and tube e into the gas-space a^3 of the vessel B. From the lower gas-space of vessel B the gas continues on, as signified by the arrows, through the charges of the vessels B, C, and D, and is finally delivered into the gas-space a^4 of the latter vessel, cleansed from impurities, and enriched by the vapor supplied to the gas by the liquid carbonaceous matter in the vessel A.

By constructing my carbureter as shown, I practically have a compact column of apartments, the lower one of which constitutes a proper base for the whole; and as they each at their points of junction afford a central support for each other on a vertical line from the top of the pile to the bottom, the lessening of the size of each succeeding vessel above the bottom one allows of their proper support without the aid of any other fixture than the tubular sockets e' and tubes e, through which the gas flows from one apartment to the other.

It will be seen, further, that by my construction of the carbureter either one of the vessels D, C, and B may be readily unscrewed, removed, recharged, and replaced without injury to the apparatus in whole or in part, whenever the impurities of the liquid carbonaceous matter employed have accumulated in the charges of said vessels to such an extent as to render such operation necessary.

In practice, my carbureter is provided with legs z, in order that the tube f^1 may deliver up through the bottom of the vessel A, and this tube will be screwed into said bottom, in order that it may be readily removed when it is necessary to draw off sedimentary accumulation in said vessel.

By screwing an ordinary gas-burner to the part E^2 of my carbureter, and attaching one end of a flexible gas-tube in common use for what is known as "drop lights" to the part E^1 of the vessel A, my said apparatus can be utilized for lighting apartments in a dwelling, it not being liable to be overturned, owing to its general conical form.

What I claim as new, and desire to secure by Letters Patent, is—

1. A carbureting-chamber provided with a single and central supporting-screw socket, e', and a tubular screw, e, as a means whereby one chamber of a carbureter can be united to another, the gas conducted from one chamber to another, and an abutment provided between united chambers, substantially as described.

2. The combination of a perforated disk, b', with a carbureting-chamber made with a convex top, or both a convex top and bottom, which permit a diffusion or spreading of the gas, and provided with a central screw tube and socket, by which the chambers of a carbureter may, by turning them around horizontally, be readily united or separated, the central tube and socket serving as the channel by which the chamber is filled or cleaned out, and through which the gas flows from one chamber into another of a carbureter, substantially as described.

3. A column of carbureting-chambers, which have, respectively, an arched bracing top and intermediate tubular abutments, which serve as central connections and channels for the flow of gas from one chamber into another, substantially as described.

4. In a carbureting apparatus, a series of chambers, B C D, having convex tops and bottoms, in combination with a chamber, A, having a convex top, which chambers B C D A, from the bottom vessel upward, throughout the series, have their horizontal diameters diminished consecutively, substantially as and for the purpose described.

WM. MOREHOUSE.

Witnesses:
JAMES MARTIN, Jr.,
A. G. HEYLMUN.