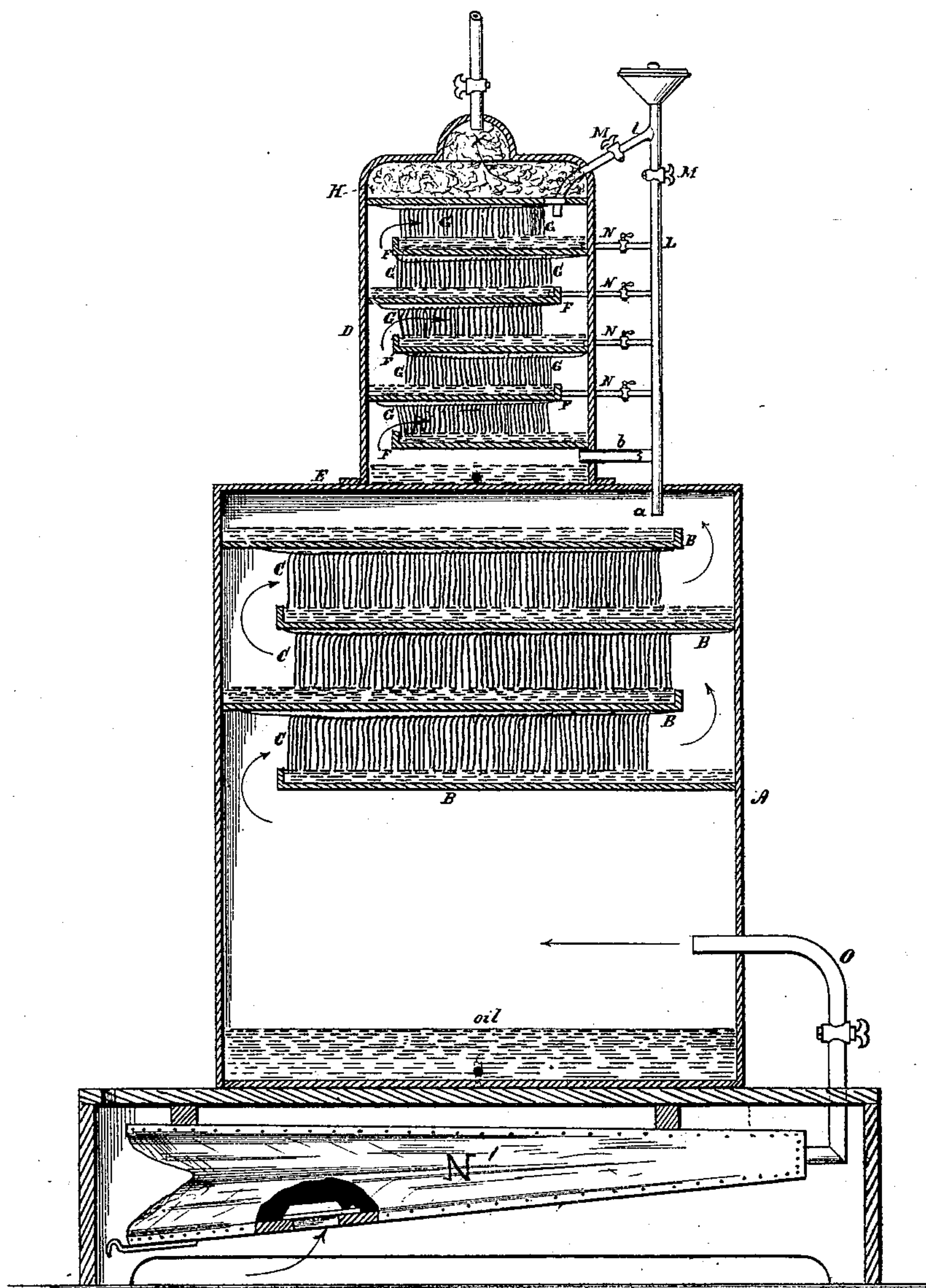


J. RUTHVEN.
Carbureters.

No. 151,625.

Patented June 2, 1874.



WITNESSES:

James L. Norris.
Henry S. Osgood

INVENTOR:

John Ruthven

UNITED STATES PATENT OFFICE.

JOHN RUTHVEN, OF POINT LEVI, CANADA, ASSIGNOR TO JOSIAH P. WYMAN, OF AUGUSTA, MAINE, AND WALLACE B. DILLINGHAM, OF BEAUFORT, CANADA.

IMPROVEMENT IN CARBURETERS.

Specification forming part of Letters Patent No. **151,625**, dated June 2, 1874; application filed April 30, 1874.

To all whom it may concern:

Be it known that I, JOHN RUTHVEN, of Point Levi, Province of Quebec, Canada, have invented certain Improvements in Gas-Machines, of which the following is a specification:

This invention is designed to improve upon that class of carbureters in which a series of evaporating or overflow pans are employed, the construction and operation of which is so well known that it is deemed sufficient to say that the atmospheric air introduced into the carbureting-chamber is made to traverse in a sinuous manner over the hydrocarbons contained in each pan, the result being that the air is more or less charged or impregnated with the oil, forming an olefiant gas.

My invention consists in combining, with such ordinary carbureting-chamber and its evaporating or overflow pans, a secondary carbureting-chamber, in which are arranged a series of evaporating or overflow pans, such secondary chamber communicating with the main chamber by one or more openings or pipes, in such a manner that the atmospheric air, after a sinuous course in the main chamber over the overflow-pans, is impregnated with the hydrocarbons, and in its moist state enters the secondary carbureting-chamber, where it is caused to again traverse the surface of the auxiliary overflow-pans, the result being that all atoms of the air not acted upon in the main chamber are moistened and saturated uniformly, and converted into a rich, pure, olefiant gas, the purity and brilliancy of the light of which will be found much superior to the gas produced in the old form of carbureter hereinbefore specified. Above the auxiliary overflow-pans is arranged a drying-chamber, in which is placed a suitable waste, such as cotton, and through which chamber all the produced gas must pass prior to reaching the main pipe leading to the burners; the object and result being that the gas is freed from all moisture, and enters the main pipe deprived of all its saturation, so that but little condensation of water is present in the gas-pipe. The auxiliary overflow-pans of the main and the

secondary carbureting-chambers are supplied with hydrocarbons by means of a tunnel or supply-pipe having a branching pipe, each of such being supplied with a suitable valve or stop-cock, in such a manner that either the main or auxiliary overflow-pans can be supplied with oil. Each of the auxiliary pans is in communication with a stop-cock, in such a manner that either can be discharged of its contents for the purpose of regulating or determining the supply of gas to the burners.

The figure in the drawing represents a vertical section of my improved gas apparatus, illustrating the construction of its various parts, the arrows indicating the course of the atmospheric air over the various pans.

Referring to the drawing, the letter A designates the casing of the main carbureting-chamber, the form and outline of which may be circular, square, or polygonal. Within this chamber are arranged in succession, one above the other, the usual evaporating or overflow pans B, from the bottom of each of which depends the usual wicking C, in such a manner that the wicking depending from the bottom of each pan will be over the oil contained in the pan below, so that all parts of said wicking is constantly permeated with the hydrocarbons from the pan below it. Above such main chamber and pans is arranged a secondary chamber, D, separated from each other by a plate, or by the top plate E of the main chamber, a communication between the two being effected by one or more openings or pipes, *a*, through which the air impregnated by the hydrocarbon passes on its way to the main pipe and the burners. The secondary chamber, forming one of the essential features of my invention, has arranged within it a series of auxiliary evaporating or overflow pans, F, positioned in respect to each other as in the main chamber, and likewise provided with suitable wicking G, depending from the bottom of each in such a manner that whatever atoms in the air that escape through the main carbureter unacted upon by the hydrocarbons, or, at least, not thoroughly saturated, will be brought in intimate contact with the oils in this second-

ary chamber, and thoroughly saturated prior to reaching the main gas-pipe, the result being that a pure, rich, and brilliant gas is produced.

In order to purify the gas, and to avoid all collection of water or oils in the gas-pipes, due to condensation and other causes, I locate above the auxiliary evaporating-pans of the secondary carbureting-chamber an apartment, H, which I term a drying-chamber, and in which will be placed a suitable fibrous substance, such as cotton waste or wicking, in such a manner that all the air, in its highly-saturated condition, must pass through this drying-chamber, and thus be purified, and be deprived and freed from all moisture or dampness before reaching the gas-pipe, so that the purity and richness of the gas produced are increased; and, further, the collection of water in the gas-pipes by condensation is avoided.

It is evident that the drying-chamber may be located in any suitable position with respect to the secondary and the main carbureting-chambers, so long as the auxiliary pans are between the main pans and the drying-chamber. In the present instance, communication between the main and the secondary carbureters is effected through the pipe *a*, which supplies the pans with hydrocarbons, a branch pipe, *b*, extending from such pipe into the secondary chamber.

The main and the auxiliary evaporating or overflow pans are supplied with the requisite oils or hydrocarbons by means of a tunnel or supply-pipe, L, from which extends a branch pipe, *l*—the former for feeding the main pans, the latter for supplying the auxiliary pans—and each of such feeders are provided with a suitable cock or valve, M, so as to supply either or both sets of pans in either chamber. Each of the auxiliary evaporating or overflow pans is provided with a stop-cock, N, which, in the present instance, though not necessarily, communicates with the tunnel or main supply-pipe in such a manner that the contents of

either or all of the auxiliary pans can be withdrawn, and may be conducted through the tunnel into the main pans, so that the supply of gas for a number of burners may be regulated or determined, the number of the auxiliary pans being increased or decreased according to the number of burners desired to be employed.

The air is projected into and through the main and auxiliary carbureting-chambers by any well-known means; in the present instance by a bellows, N', and a pipe, O, connecting said bellows with the main carbureter, the bottom of which is filled with oil, over the surface of which the incoming air passes.

I claim as my invention—

1. In combination with the ordinary carbureting-chamber and its evaporating-pans, a series of auxiliary evaporating-pans arranged above such chamber within a secondary chamber, a communication being established between the two by one or more openings or pipes, substantially as described.

2. One or more auxiliary evaporating-pans arranged within a chamber, below or between a drying-apartment and the pans of the ordinary carbureting-chamber, substantially as described.

3. A tunnel or supply-pipe provided with a branching pipe, both constructed with stop-cocks or valves for admitting hydrocarbon oils for manufacturing illuminating-gas into either the auxiliary or the main evaporating-pans of the carbureter, substantially as described.

4. The auxiliary evaporating-pans of the secondary carbureting-chamber, each communicating with stop-cocks for withdrawing the liquid of the pans for controlling the number of gas-lights, substantially as described.

JOHN RUTHVEN.

Witnesses:

R. H. EDDY,
J. R. SNOW.