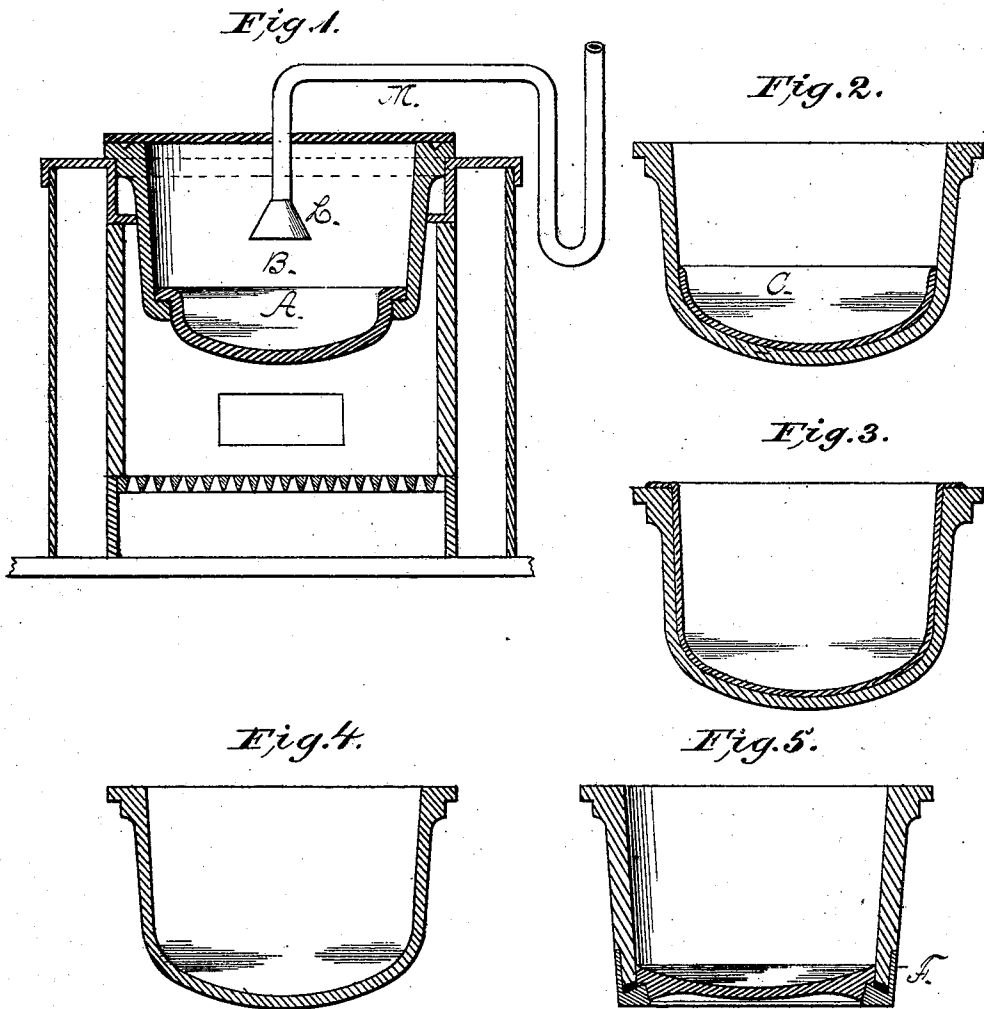


J. C. TIFFANY.
Gas-Retorts.

No. 145,256.

Patented Dec. 2, 1873.



Witnesses.
H. B. Paine
A. L. Norris.

Inventor.
Joseph Capron Tiffany.
Per. James L. Norris,
Atty.

UNITED STATES PATENT OFFICE.

JOSEPH C. TIFFANY, OF PORTSMOUTH, NEW HAMPSHIRE.

IMPROVEMENT IN GAS-RETORTS.

Specification forming part of Letters Patent No. **145,256**, dated December 2, 1873; application filed November 14, 1873.

To all whom it may concern:

Be it known that I, JOSEPH C. TIFFANY, of Portsmouth, in the county of Rockingham and State of New Hampshire, have invented certain new and useful Improvements in Gas-Retorts, of which the following is a specification:

The nature of this invention consists in the employment of platinum or its allied metals—such as palladium, iridium, rhodium, osmium, and ruthenium—as a material for lining or coating the interior or exterior surface of the retorts used in the manufacture of illuminating-gas, the object of which is to furnish a retort which is rendered very durable and non-oxidizable, a smooth inner or outer surface being also presented for preventing the incrustation or adherence of carbon to the same; and, in order to carry out my invention, I propose to apply a lining to the retort, which covers either the entire or a portion of the interior or exterior surface of the same; or the bottom of the retort may be constructed of platinum, and be securely attached to the retort-body by riveting or otherwise; or the platinum bottom may be suspended or hung within the retort-body from projecting ledges or shoulders, so as to enable it to be readily removed; and, in certain instances, when circumstances will permit it, I construct the entire retort of platinum or its allied metals. The invention also consists in locating within a retort a perforated rose-head or horizontal perforated tube, which is applied to the pipe or siphon employed for feeding the oil, used as a gas-generating medium to the retort, and the object of which is to obtain a perfect and even diffusion or distribution of the oil in a shower or spray, so as to cause it to come in contact equally with the heated surface of the retort.

In the accompanying drawings, Figure 1 is a vertical sectional view of a gas retort and furnace, showing the application to the body of the retort of a suspended platinum bottom and oil distributing or spraying device. Fig. 2 is a sectional view of a retort provided with a bottom lining of platinum. Fig. 3 represents a retort possessing a lining-jacket which covers the entire interior surface of the same. Fig. 4 designates a solid retort made entirely of platinum. Fig. 5 is a vertical sectional view

of a retort provided with a detachable bottom supported upon internal shoulders.

As heretofore constructed, retorts for generating illuminating-gas are made of iron, or of an earthenware material, which, in a comparatively brief time, are rendered useless by the action of the heat upon the bottom, which causes the same to be burned, cracked, fused, or otherwise damaged; and, furthermore, the continuous dripping of the oil to be converted into gas will also tend to abrade the bottom, and internally weaken the same. A partial remedy for these defects is found in the employment of a detachable retort-bottom, such as is shown in the patent No. 130,453, granted to me August, 13, 1872; but, as the materials heretofore used for their construction are liable to fusion or breakage, considerable expense is entailed in constantly renewing the defective bottoms.

In order to remedy these objections, and to furnish a retort which is capable of withstanding the greatest degree of heat, I propose to use in the construction of the same platinum or its allied metals, such as palladium, rhodium, osmium, ruthenium, and iridium, or alloys of either of the metals stated. It is well known that platinum is so infusible that no considerable portion of it can be melted by the strongest heat of a furnace; and, furthermore, it is unchangeable in the air and water, nor does a white heat impair its polish. It is therefore proposed to take advantage of its infusibility, hardness, and smooth or lustrous surface in the construction of retorts for generating illuminating-gas, more particularly from oils or liquid substances.

In Fig. 1 of the drawing is shown a retort for generating gas combined with a furnace and non-conducting exterior shell or casing, as in my patent dated November 26, 1872, and No. 133,391. In this instance the bottom A, which is made of platinum, is wrought, hammered, or formed into shape, and detachably applied to the retort-body B by suspending it from internal shoulders formed on the same. The retort-body is made of any of the ordinary materials heretofore used, such as iron, fire-clay, and of any desired shape or form.

As shown in Fig. 2, the retort is made in a

single piece or shell, and has applied thereto an internal lining or jacket, C, which is secured to the retort either by hammering, pressure, or by brazing; or, if found most preferable, it may be applied by the process of electro-deposition, and by either mode applied to the exterior as well as the interior. The lining, in this instance, covers only as much of the bottom and sides of the retort as is exposed to the direct contact of the oil and heat; but, if found more desirable, the entire interior or exterior of the retort may be lined with platinum, as shown in Fig. 3.

Fig. 4 represents a retort which is made entirely of platinum, wrought or formed into shape, and of such a thickness as will resist the action of the heat to which it is exposed.

In Fig. 5, the platinum bottom is made separate from the retort-body, and is connected to the same by means of a bottom-supporting ring, F, as shown in my patent No. 130,453.

A platinum lining or bottom for retorts is indestructible by heat, and, as it is also non-oxidizable, its smooth or lustrous surface is always retained, thus preventing the formation of scales or the adherence of carbon thereto. The hardness of the bottom or lining of platinum will also counteract the abrasion or disintegration thereof by the falling stream of oil which is liable to ensue by a prolonged use of the ordinary retorts; and, when the exterior surface is covered with a lining or coating, the action of fire on the iron will be prevented, and the durability of the retort increased.

In order to distribute the oil equally, or in a regular shower over the heated retort-surface, I propose to suspend from the cover of the same, as shown in Fig. 1, a rose-head or perforated pipe, L, which is applied to the end

of an oil-feed tube or siphon, M, which always contains a sufficient quantity of liquid to form a seal. The oil, as it is discharged from the many perforations in the rose-head or tube, is disseminated or diffused in a shower or spray, and, by contact with the highly-heated bottom of the retort, it is decomposed and converted into gas, which is carried away to the purifiers and washers, and subsequently to the gasometer.

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

1. A retort for the generation of gas, made wholly or in part of platinum or its allied metals, for withstanding the action of heat and the gas-generating agent.

2. A gas-retort provided with a lining or jacket of platinum or its allied metals, whether the lining covers the entire or only a portion of the interior or exterior surface of the retort, substantially as set forth.

3. A gas-retort provided with a bottom of platinum, made separate from the retort-body, and attached thereto by suitable means, substantially as herein set forth.

4. In combination with a retort for generating gas, one or more perforated rose-heads or tubes, for diffusing the liquid in a spray or shower over the heated surface of the retort, as herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 7th day of November, 1873.

JOSEPH CAPRON TIFFANY.

Witnesses:

JAMES L. NORRIS,
A. H. NORRIS.