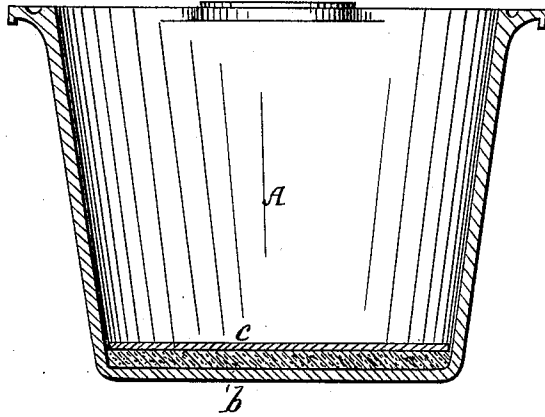


S. COATES.

Gas Retort.

No. 18,134.

Patented Sept. 8, 1857.



UNITED STATES PATENT OFFICE.

SAUNDERS COATES, OF NEW YORK, N. Y.

GAS-RETORT.

Specification of Letters Patent No. 18,134, dated September 8, 1857.

To all whom it may concern:

Be it known that I, SAUNDERS COATES, of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Gas-Retorts; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being made to the annexed drawing, making a part of this specification, in which the figure is a transverse vertical section of a retort—that is to say—

In the pot or caldron shaped retort, as heretofore constructed for the generating of olefiant gas, there has existed considerable difficulty in keeping them in good order and in continued wear, in consequence of which they have frequently to be replaced. This defect has been hitherto deemed inseparably connected with this plan of making gas, for the requisites are that the vessel shall sustain a high degree of heat; shall have capacity also for storing, as it were, the heat, and shall resist as far as possible the oxidizing effect growing out of the combustion of the residuum left by the gas making materials (oils, &c.). One prime cause of the destruction of the retort has been the method or form of constructing them so as to act as a magazine for heat, viz, by casting the bottom of much greater thickness than the sides—because it is important to keep the temperature as equable as possible, which were the metal alike thin would not be the case, since whenever the fire was renewed the retort would be cooled down, and this even by the opening of the furnace door. It often occurs therefore, in consequence of this extreme thickness, that the bottoms crack from unequal expansion, and thus the retort is ruined. A next defect is the sagging of the bottom from overheating such a mass of metal, and which not only diminishes the gas generating properties, by collecting the oil in a mass in the center, but also increases the carbonaceous deposit, causing a loss in the quantity of gas as well as prolonging the operation. By my improvement all these defects are obviated, while at the same time the gas generating power of a retort of given size is largely increased.

The nature of my invention consists in a peculiarly arranged or constructed false bottom, which bottom is composed of two dis-

similar metals—viz, one which is fusible at a comparatively low temperature, in combination with one fusible only at a much higher temperature, and thus I am enabled to cast the retort with the same thickness of metal throughout, whereby the wear is prolonged, while the quantity of metal required to act as a reservoir of heat for maintaining steadiness of the gas generating, is also secured, without risk to said retort, and whereby also the interior is protected from the oxidizing agencies due to the cleaning of the same by burning out.

In preparing my false bottom, I in the first instance pour in the more easily fused metal, having first melted it. This metal may be lead, which although a bad conductor has considerable capacity for heat. Upon this I place the other metal and which I prefer to be iron. A plate of say half an inch, more or less, in thickness is cast to fit the bottom and this is laid upon the lead, as shown in the figure wherein A represents the retort, (b) the stratum of lead, and (c) the iron plate placed thereon.

The operation is as follows: The retort is placed in the stove and connected with the rest of the apparatus as usual. Fire being raised, when the retort has attained the proper degree of heat for the admission of the oil, the lead will have become melted and the iron plate be found floating upon the top. The process then goes on as usual. I have found that the product of gas from a given quantity of oil has been much larger than by the old way—that the gas is also better, being more uniform in quality—that the retort does not change its shape or crack as before—but even if its shape should be changed by the sagging of the bottom the surface receiving the oil would still be level—and lastly the interior is protected, since the iron plate upon the lead is the part now destroyed, and that part is readily and cheaply replaced when needed.

I am aware that lead alone has been poured into such gas retorts, but the action is found to retard the gas generating. The mass soon becomes so filled with bubbles of gas that the process after a short, interval almost ceases; its use therefore has never been continued, as it was a more serious evil than the one it was intended to remedy.

I claim—

Forming a false bottom for gas retorts,
from metal of dissimilar degrees of fusibil-
ity, viz, one such as lead, in combination
5 with one, such as iron, resting upon the
easily fusible metal, substantially in the
manner and for the purpose described.

In witness whereof I have hereunto sub-
scribed by name.

SAUNDERS COATES

Witnesses:

J. P. PIRSSON,
S. H. MAYNARD.