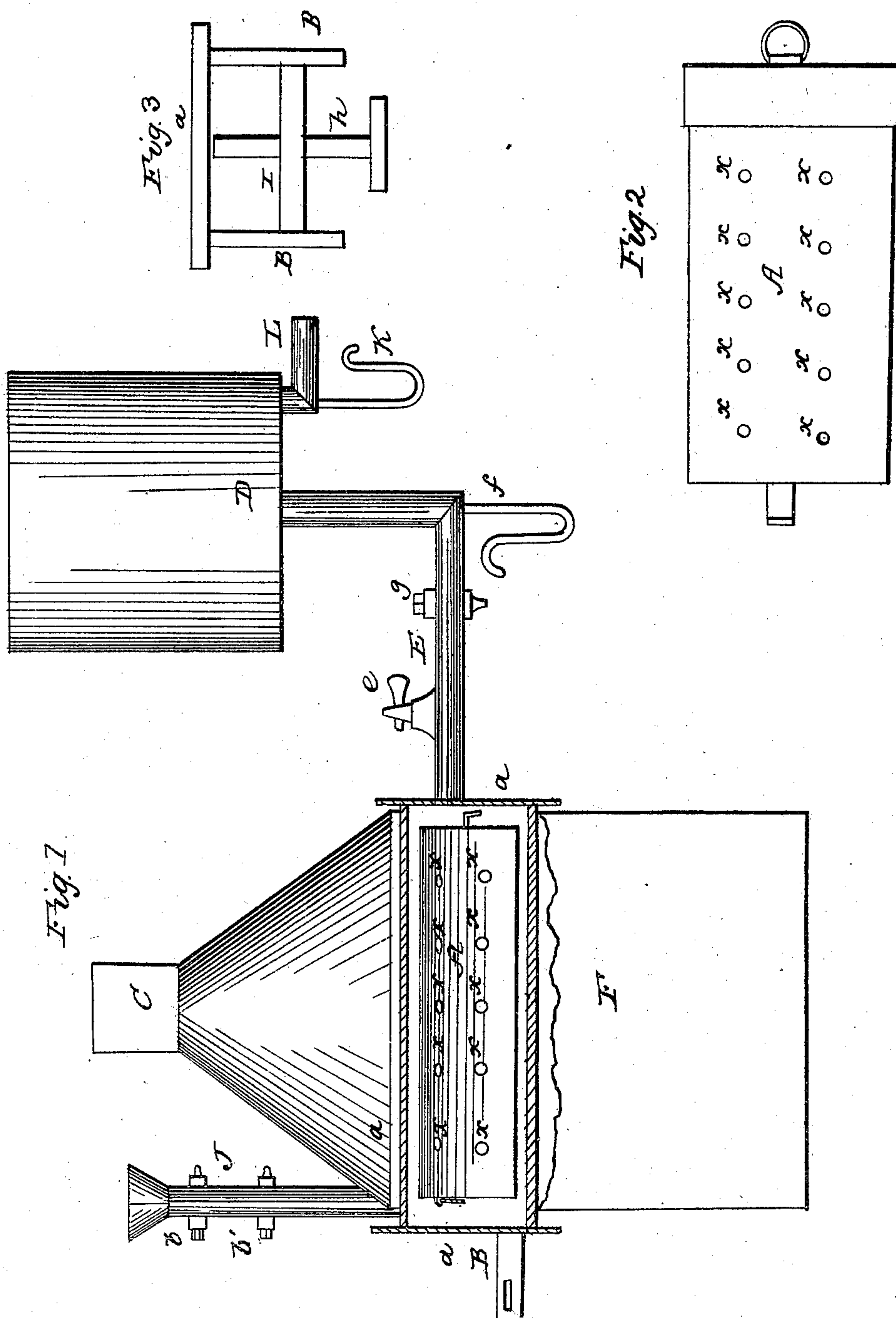


H. LYLES.  
Gas Generator.

No. 21,142.

Patented Aug. 10, 1858.





# UNITED STATES PATENT OFFICE.

HENRY LYLES, OF WASHINGTON, DISTRICT OF COLUMBIA.

## APPARATUS FOR GENERATING GAS.

Specification of Letters Patent No. 21,142, dated August 10, 1858.

*To all whom it may concern:*

Be it known that I, HENRY LYLES, of Washington, District of Columbia, have invented certain new and useful Improvements in Gas-Generators; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in the arrangement of the inner perforated chamber to be used for consuming solid matter and this with the cock, for the purpose of ascertaining the condition of the retort, and the pipe for discharging continually the gas tar; as will be hereinafter fully described.

In order that those skilled in the arts may use and construct my invention I will proceed to describe its construction and operation.

In the annexed drawings, Figure 1 is a side elevation, showing the retort in section, and the arrangement of the inner perforated chamber. Fig. 2, is a bottom view of the perforated chamber seen in Fig. 1. Fig. 3, is a view of the front of the retort showing the manner of securing the retort door.

In Fig. 1 (*a, a*) represents the retort, which is located in a horizontal position within the stack F.

A, is a perforated chamber, in the form of the retort, and occupying a position within the retort as seen in this figure. This chamber A, is perforated both on its top, sides and bottom,—the top being perforated to allow of the escape of gas when material is placed within it,—the bottom being perforated for the purpose of allowing the oil, or, fluid matter to run down into the retort as it passes from any solid material which may be placed in this chamber.

J, is a pipe for the purpose of supplying the retort, said pipe being provided with two stop cocks, *b* and *b'*. In supplying the retort with this pipe I close the lower (*b'*) and open the upper cock, (*b*) then pour in the oil, until the pipe is full and then by stopping the upper cock, and opening the lower one, the oil is allowed to pass down into the retort.

E, is a pipe which conducts the gas from the retort, to the receiver, D. This pipe

E, is provided with two cocks, and a discharge siphon, pipe. Cock (*e*) of this pipe is for the purpose of telling the condition of the retort, with reference to its supplies, which I determine in this manner. If I am uncertain that my retort, has a sufficient supply of material within it, for producing gas, I turn the cock (*e*) and if the gas rises very slowly, I know that my retort requires more material, but if on the contrary the gas rises very fast and strong I know that I have in a sufficient supply.

Cock (*g*) on pipe E, is for the purpose of cutting off the supply of gas from the receiver D, which is accomplished by simply turning the cock right or left as may be required. Pipe (*f*) is in the form of a siphon, and is located at the bottom of pipe E, connecting with it, and is for the purpose of conveying off gas tar, or any fluid matter which may gather, or be deposited in the pipe E,—and being in this form it is continually converging this fluid matter away without permitting the gas to escape.

In Fig. 3, (*a*) represents the head of the retort. B, B, are bars extending out from this head; (*i*) is a cross bar connecting the bars B, B and entering them, (*h*) is a screw passing through cross bar (*i*) for the purpose of securing the door of the retort firmly in position.

In the operation of my invention if I use oily or liquid matter, I enter it through the pipe J, at the front of the retort,—it falls on to the bottom of the retort and spreads itself along under and around the chamber, A, the material may come in contact with the chamber A, and thus more heated surface is gained for converting the material into gas, and for purifying the gas after it is made and before it enters the conducting pipe E. If I wish to use solid matter, I draw out the chamber A, and deposit the material in it. I then replace it in the retort, secure the door; and apply the heat as in other cases—any fluids passing from this solid matter, pass down through the apertures in the bottom of the chamber, and spread along the bottom of the retort and are there converted into gas, and pass into the receiver.

The employment of this perforated chamber, is very necessary in making gas of this description of materials. If this chamber was not used the bottom of the retort would



be covered in a very short time with a heavy  
hard refuse matter—which not only chokes  
up the retort but prevents the heat acting  
freely upon the material—an ordinary retort  
5 will fill completely up with this refuse mat-  
ter, in making gas four or five times with-  
out cleaning it out. In my invention I use  
two or more of these chambers. When one  
of them is charged with material and is in  
10 the retort, the other is out, and may be  
thoroughly cleansed before reëntering it in  
the retort—and thus by cleaning the cham-  
bers after every charge, the apparatus is  
easily kept in working order.  
15 Pipe L, in Fig. 1 is for the purpose of  
conveying the gas to the burners, and

siphon pipe K, secured to it is intended to  
carry off water.

I do not claim any of the members of  
this apparatus singly, or individually, but 20

I do claim—

The peculiar arrangement of the perfo-  
rated chamber, A, as constructed, with the  
retort (a) gage cock (e) stop cock (g) and  
siphon pipe F, when they are constructed, 25  
combined and operated in the manner and  
for the purpose herein specified.

HENRY LYLES.

Witnesses:

C. M. ALEXANDER,  
CHARLES ALEXANDER.