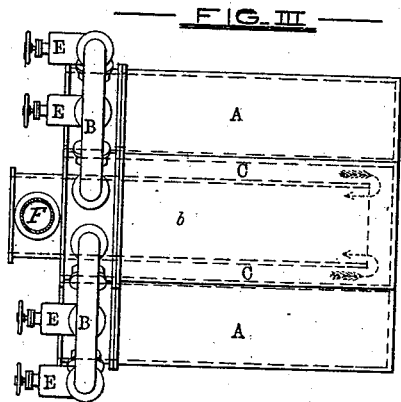
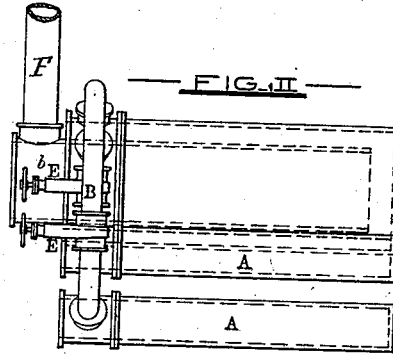
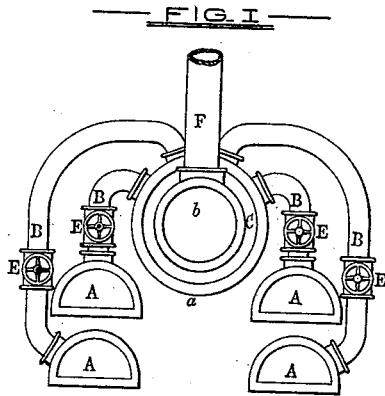


J. H. PUGH.
Gas-Apparatus.

No. 168,049.

Patented Sept. 21, 1875.



— WITNESSES —

Wm. W. Brown
W. W. Wharton

— INVENTOR —

John H. Pugh
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Atty.

UNITED STATES PATENT OFFICE.

JOHN H. PUGH, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN GAS APPARATUS.

Specification forming part of Letters Patent No. **168,049**, dated September 21, 1875; application filed July 28, 1875.

To all whom it may concern:

Be it known that I, JOHN H. PUGH, of the city of Baltimore and State of Maryland, have invented certain new and useful Improvements in Apparatus for the Manufacture of Illuminating Gas, of which the following is a specification; and I do hereby declare that in the same is contained a full, clear, and exact description of my said invention, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention relates to means whereby the products of the primary distillation of coal in the retorts are a second time subjected to the action of heat for the purpose of converting into gas the oily and tarry matter contained therein, as hereinafter fully described.

In the description of my invention which follows, due reference must be had to the accompanying drawing, forming a part of this specification, and in which—

Figure 1 is a front view of a series of retorts arranged in accordance with my invention; Fig. 2, a side view of the same; and Fig. 3, a plan of the invention.

Similar letters of reference indicate similar parts in all the figures.

A A are retorts, in which the coal is primarily distilled, and B B pipes leading from the retorts to the superheating-chamber C, which is subjected to the action of the fires in like manner as the retorts aforesaid. The superheating-chamber C is an annular compartment formed by placing within the cylinder *a* the smaller cylinder *b*, which, in order to allow of means of communication between it and the superheating-chamber, is open at its inner end, and made somewhat shorter than the outer cylinder *a*, as shown in the drawing. The pipes B, which are the only means of exit for the gas from the retorts, are fitted with valves E, by means of which the flow of gas from the retorts may be stopped during the charging of the same with coal. F is the stand-pipe connecting the front end of the inner cylinder *b* with the hydraulic main, but which main, as it embodies no part of the

present invention, is not shown in the drawing.

Supposing a retort to be newly charged with coal, and the valve E to be open, the gas generated in the retort passes through the pipe B to the superheating-chamber C, where the second distillation takes place, or that in which the oily and tarry constituents are converted into gas. The gas then ascends through the stand-pipe to the hydraulic main in the usual way.

By this process of redistillation the yield of gas is increased, and the apparatus simplified, as only one stand-pipe is required to a bench of retorts, and the hydraulic seal dispensed with.

My invention, by dispensing with the hydraulic seal, also increases the gas capacity of the hydraulic main, and relieves the retorts from pressure, thus preventing the deposit of hard carbon in the retorts consequent upon pressure therein.

While in operation the smaller cylinder *b* is fixed within the larger one *a*. It may be readily removed for purposes of repair, cleaning, or the like, and in this sense is removable.

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

The superheating-chamber C, having the stand-pipe F, and consisting of the inner and outer cylinders *b* and *a*, the cylinder *b* being open at its inner end, and a space left between said end and the rear wall of the outer cylinder *a*, in combination with the retorts A, pipes B, and valves E, whereby a communication is established or cut off between said retorts and the space existing between the walls of the cylinders *a* and *b*, substantially as and for the purpose specified.

In testimony whereof I have hereunto subscribed my name this 17th day of July, in the year of our Lord 1875.

JOHN H. PUGH.

Witnesses:

JNO. S. MADDOX,
JOHN SANDERSON,
W. G. PUGH.