

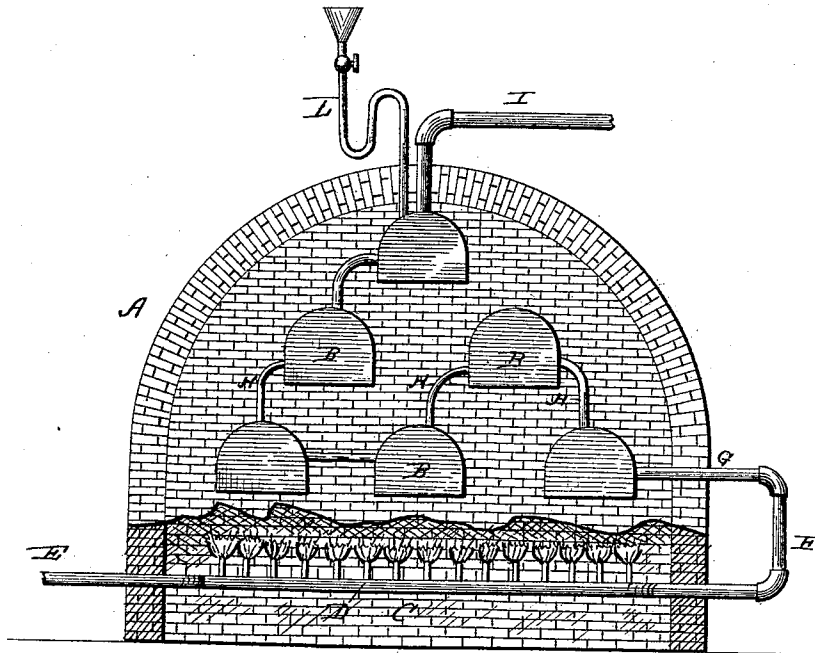
(No Model.)

R. H. SMITH.

PROCESS OF PRODUCING ILLUMINATING GAS.

No. 330,747.

Patented Nov. 17, 1885.



WITNESSES

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# UNITED STATES PATENT OFFICE.

ROLAND H. SMITH, OF PITTSBURG, PENNSYLVANIA.

## PROCESS OF PRODUCING ILLUMINATING-GAS.

SPECIFICATION forming part of Letters Patent No. 330,747, dated November 17, 1885.

Application filed September 4, 1885. Serial No. 176,164. (No model.)

*To all whom it may concern:*

Be it known that I, ROLAND H. SMITH, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Processes of Producing Illuminating-Gas, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain improvements in the manufacture of gas; and it has for its objects to provide for the production of an illuminating-gas of any desired candle-power from natural gas, in conjunction with any suitable enriching agent, such as the various fluid hydrocarbons.

The natural gas as it is generally found exists in and escapes from the earth in a condensed condition and under great pressure, and when liberated and conducted off for use expands, its naturally low temperature being reduced to such an extent that it cannot be practically enriched so as to bring it up to the proper illuminating standard by any known means.

My invention consists in an improved process of producing illuminating-gas by heating natural gas to a temperature sufficient to decompose fluid hydrocarbon, forming a fixed gas of any desired illuminating standard, as more fully hereinafter specified.

In carrying my invention into effect, any apparatus may be employed in which the successive steps of the process may be accomplished; but I preferably employ an ordinary bench of retorts, with the furnace slightly modified, as represented in the accompanying drawing, which represents a front elevation of a bench of retorts, with the front portion of the same broken away to illustrate my invention.

In the drawings, the letter A indicates an ordinary bench of retorts, and B the respective retorts of the same.

C indicates the fire or combustion chamber, which may be that of an ordinary plant, and into which is run the pipes D, extending from the main of a natural-gas supply, as indicated by the letter E. From the said main extends another branch, F, which leads to one or more of the lower retorts of the bench, as indicated by the letter G, the benches being connected successively with each other, as indicated by the letter H.

From the upper retort leads the eduction-pipe I, which delivers the gas to its storage-tanks or to the point of consumption. Into the said upper retort extends a pipe, L, through which the fluid hydrocarbon is supplied to said upper retort.

The natural-gas supply-pipes, as well as the eduction-pipes, are supplied with suitable valves, by means of which the supply of natural gas and the evolution of the final fixed gas may be regulated.

I am aware that poor gas has been enriched by passing it directly from the retorts in which it is generated through liquid hydrocarbon, so as to take up the vapor of the same, and convert the mixed gases and vapor into a fixed gas by reretorting; also, that natural gas has been, together with steam, passed through highly-heated carbon, the resultant gases being combined with liquid hydrocarbon, and the mixed gases and vapor converted into a fixed gas by subjecting the same to intense heat; and such processes I do not claim.

The operation of my invention is as follows: The natural gas as it escapes is conducted to the "plant." There it is discharged partly under the retorts, and partly into the same. The gas under the retorts escapes in the form of jets, which are lighted and supply the heat necessary to elevate the remaining portion of the natural gas to the proper temperature to form a fixed gas with the fluid hydrocarbon subsequently admitted. This being properly admitted, the fixed gas is conveyed away for storage or consumption.

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

The process herein described of producing illuminating-gas by heating natural gas to a sufficient temperature to decompose and convert a fluid hydrocarbon into a fixed gas, and then bringing such hydrocarbon into contact with the heated natural gas, whereby a fixed compound gas of suitable illuminating properties is produced, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

ROLAND H. SMITH.

Witnesses:

CHAS. D. DAVIS,  
JOHN C. JENKINS.