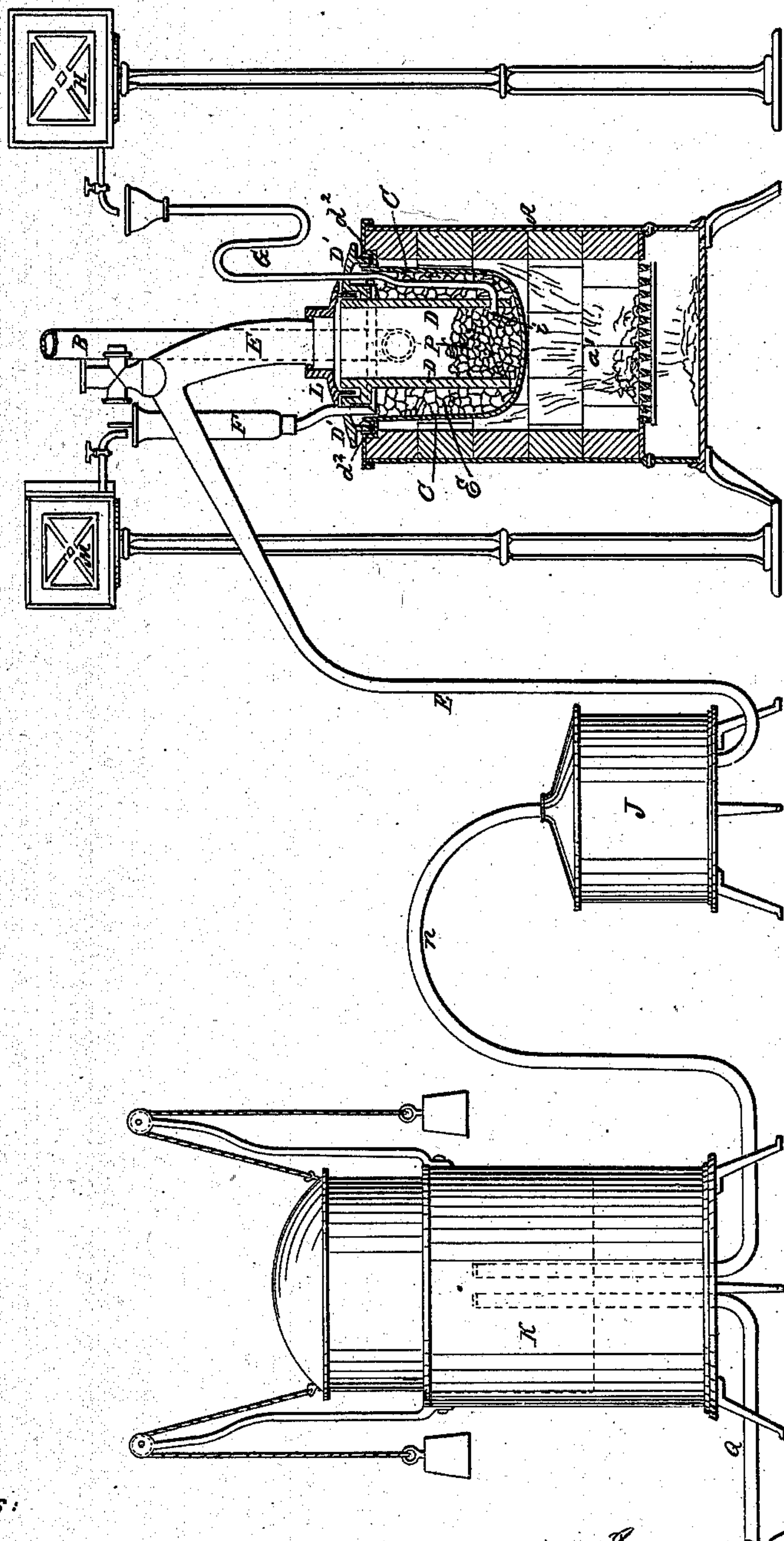


J. E. THOMSON.  
Manufacturing Gas.

No. 35,336.

Patented May 20, 1862.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

JAMES E. THOMSON, OF BUFFALO, NEW YORK.

## IMPROVEMENT IN THE MANUFACTURE OF ILLUMINATING-GAS.

Specification forming part of Letters Patent No. 35,336, dated May 20, 1862.

*To all whom it may concern:*

Be it known that I, JAMES E. THOMSON, of the city of Buffalo and State of New York, have invented or discovered a new Illuminating-Gas; and I do hereby declare that the following is a full and exact description of the mode or process of manufacturing or producing the said illuminating-gas for common use.

The nature of my invention relates to the discovery and production of a new illuminating-gas by a combination of gases, which are produced by a destructive distillation of petroleum or rock-oil, or any other hydrocarbon of allied or homologous character; but I prefer petroleum as subserving the purposes of my process better than any other known hydrocarbon and water.

The accompanying drawing represents an apparatus which I employ in the manufacture of the said new illuminating-gas.

A represents a portable or stationary retort stove or furnace (shown in vertical section) having an appropriate fire-chamber, A', and chimney B. This furnace is surmounted by a hemispherical retort, C, which also includes the central hollow cylinder or core, D, which core is open at the bottom and connected at the top to the eduction-pipe E. The lid or cover L fits tightly over the core D by sealed joints, as shown at l', and the core has a rim, D', cast with it, which forms a cover to the furnace and fits thereon by sealed joints, as shown at d<sup>2</sup>. The eduction-pipe E fits tightly into the top of the core.

F is a pipe which conducts crude petroleum or rock-oil or other hydrocarbon of allied or homologous character from the reservoir M to the retort. In this pipe may be placed a siphon valve or cock for regulating the flow of the oil into the retort. This pipe is continued around the body of the core within the retort, as shown by the dotted lines, and has numerous orifices or openings through which the oil will percolate and drop into the retort.

At G is represented a siphon-pipe for conducting water from the reservoir H into the core. It opens into the core, as shown at i, so that the water will spurt upon the red-hot coke or charcoal or upon lumps of fire-brick contained in an enlargement of the pipe at I within the core.

J represents a washing or purifying vessel

into which the eduction-pipe E leads. Hydrochloric acid diluted with water is used in this vessel for deodorizing or purifying the gas. After the hydrochloric acid is mixed with the water in the washing-vessel, the process of washing and purifying is conducted in a common manner.

K represents a gasometer of common construction, which is connected to the washing-vessel by the pipe n, the gas passing from the purifier through this pipe to the gasometer. The gas is taken from the gasometer through the main pipe g and used in a common manner.

The cylinder or core D is filled, or nearly so, with coke or charcoal, as shown at P, and the space in the retort between the core and retort is filled with fire-brick, or equivalent, as shown at R.

Operation: The apparatus being constructed and prepared substantially as herein described, the fire is lighted in the furnace, and when the retort is red-hot crude petroleum or rock-oil or other hydrocarbon of allied or homologous character is allowed to flow from the reservoir M through the pipe F and trickle down upon the hot fire-brick within the retort and upon the red-hot surface of the core and retort. The effect of this will be to decompose the oil and convert it into gases and volatile hydrocarbons, which will pass through the interstices of the fire-brick and through the lower open end of the core into the interior of the core, where they combine and mix with the gases from the water, as hereinafter more fully described. Water is allowed to flow from the reservoir H through the siphon-pipe G, which falls or spurts upon the red-hot charcoal or on the lumps of fire-brick contained in an enlargement of the tube at I, if preferred, near the bottom of the core, as shown at i. The water, striking upon the red-hot coke or charcoal or fire-brick, is instantly converted into the spheroidal state and steam and decomposed in its nascent state, by contact with heated hydrocarbon vapors, into permanent illuminating-gases and into gases, (hydrogen, carbonic oxide, and carbonic acid,) which also pass up the core D and eduction-pipe E and there mingle and combine with the petroleum or rock-oil gases or gases from other hydrocarbons of allied or homologous



character, forming a new combination-gas of great illuminating-power, which is purified and used, as before described. The retort should be kept at a red heat during the process.

The difference or discrimination between my process and those of White, Barlow and Gore, J. Milton Saunders, and others of a similar kind, is that in my process water is thrown into its spheroidal state and acts nascently upon volatile hydrocarbon vapors and converts them into permanent gases, thus preventing the condensation of hydrocarbon vapors. In the patented processes of White, Barlow and Gore, and others of a similar kind, waster-gases—namely, hydrogen, carbonic oxide, and carbonic acid—are made by the action of steam on heated charcoal or coke, or steam hydrocarbon vapors and coke are brought together in a heated retort, as in Saun-

ders's process. In my process the formation of highly-carbureted hydrogen is direct and instantaneous by the mutual decomposition and recomposition of water in a spheroidal state and hydrocarbon vapors, producing permanent illuminating-gases.

What I claim as my invention, and desire to secure by Letters Patent, is—

The manufacture and use of an illuminating-gas produced by a combination of petroleum or rock-oil or other hydrocarbon gases, petroleum being used, by preference, with combination-gases produced by the action of water in a spheroidal state on hydrocarbon vapors, substantially as herein described.

JAS. E. THOMSON.

Witnesses:

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