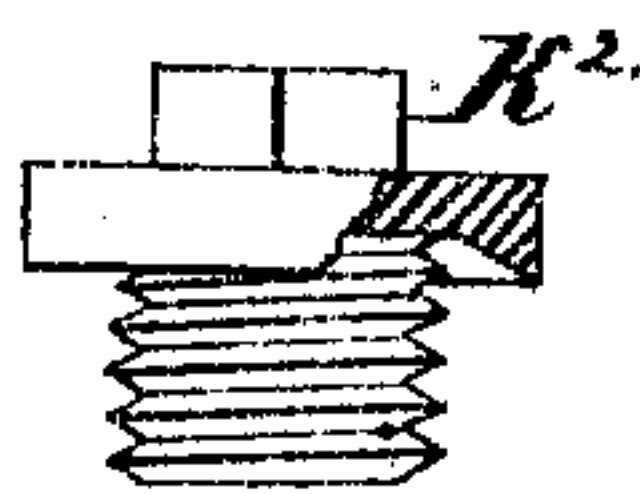
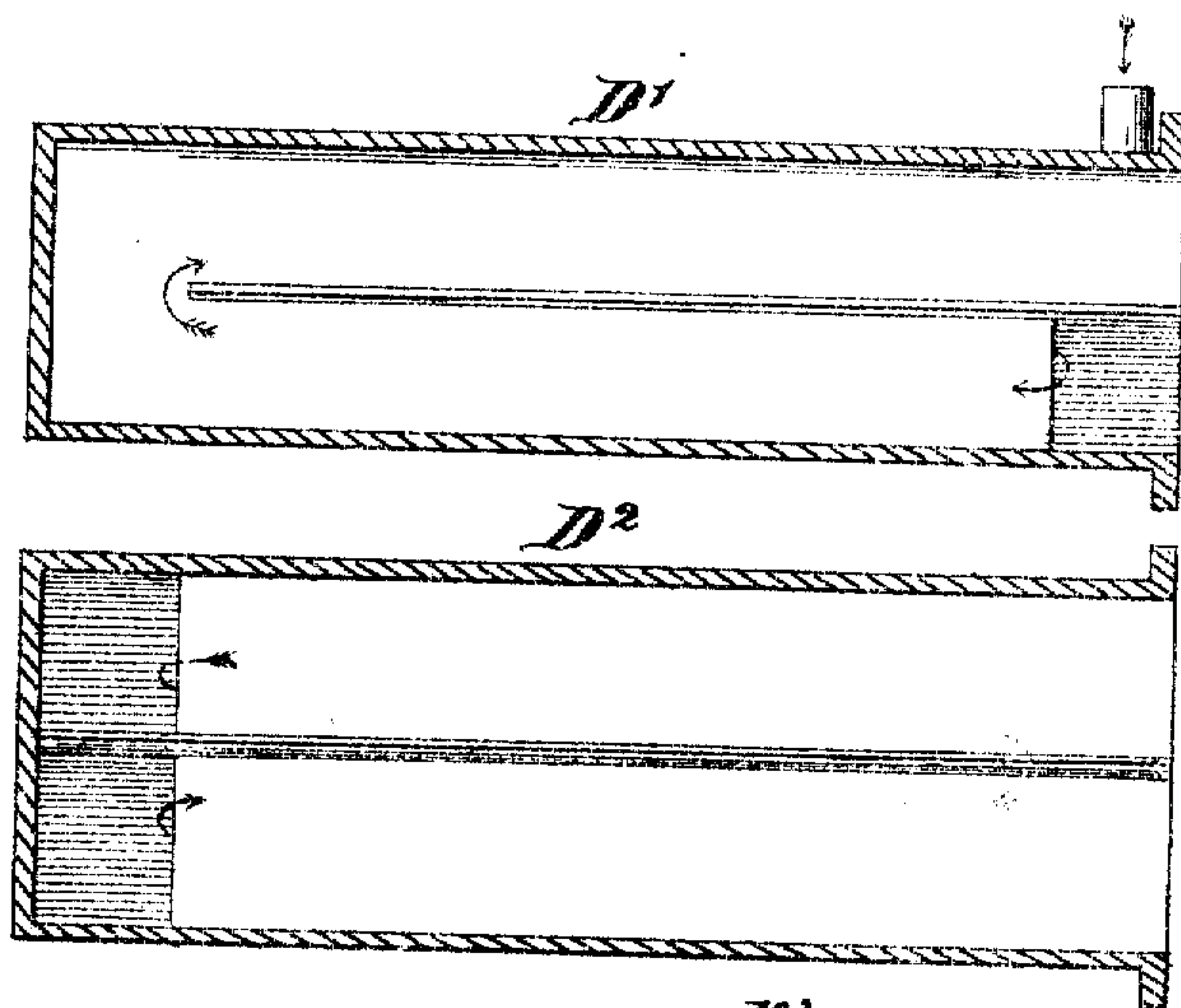
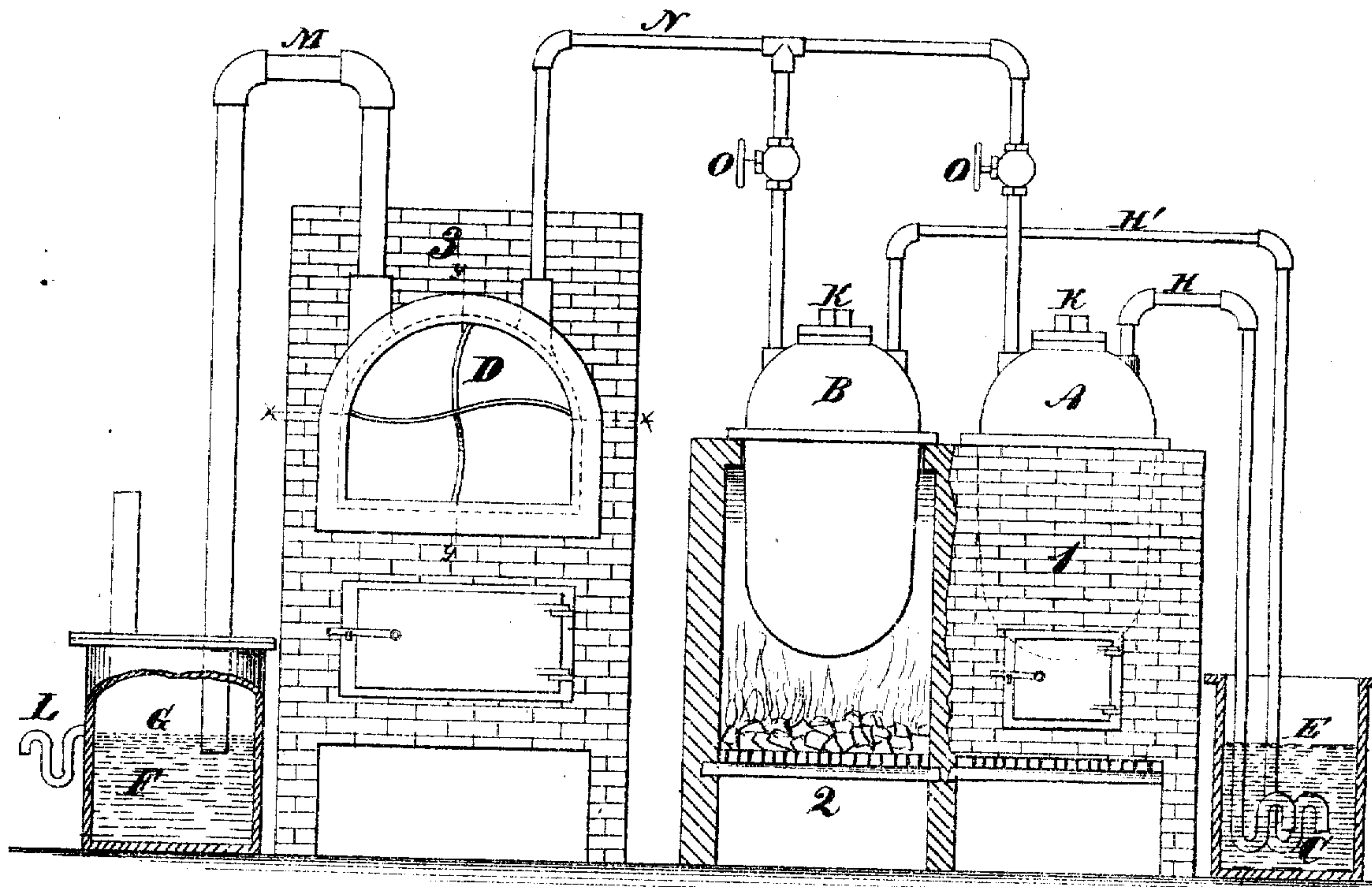


WILLIAM C. WREN & GEORGE W. WREN.
 Improvement in the Manufacture of Illuminating Gas from Petroleum.
 No. 120,409. Patented Oct. 31, 1871.



Witnesses.

M. B. Whillsey
Onm Croft

Inventor.

William C. Wren.
George W. Wren.

UNITED STATES PATENT OFFICE.

WILLIAM C. WREN AND GEORGE W. WREN, OF BROOKLYN, NEW YORK; SAID GEORGE W. WREN ASSIGNS HIS RIGHT TO WILLIAM C. WREN.

IMPROVEMENT IN THE MANUFACTURE OF ILLUMINATING-GAS FROM PETROLEUM.

Specification forming part of Letters Patent No. 120,409, dated October 31, 1871.

To all whom it may concern:

Be it known that we, WILLIAM C. WREN and GEORGE W. WREN, of the city of Brooklyn, county of Kings, State of New York, have invented a new and Improved Method of Generating Illuminating-Gas from Crude Petroleum or other liquid hydrocarbons; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

The nature of our invention consists in the use of stills for the distillation of the fluid hydrocarbons, and a retort or superheater that comprises within itself a number of retorts or superheaters, the stills and superheaters placed in separate furnaces and fires; also safety-valves attached to each of the stills, that will prevent the stills from bursting and at the same time condense any vapor that may come from the same.

In order to enable others skilled in the art to make and use our invention, we will now proceed to describe its construction and operation, reference being had to the annexed drawing, in which—

Figure 1 is an ordinary furnace. Fig. 2 is the same kind of furnace with the front removed. Fig. 3 is a furnace holding-retort or superheater.

A is a still; B, another one; D, the retort or superheater with the lid removed, divided into compartments longitudinally; the partitions making said compartments made on a curve to prevent the partitions from breaking away from the outside shell, or the expansion and contraction breaking the retort. The partitions must be so shortened and lengthened at each end as to allow the vapors to pass from one division to the other continuously. D¹, a longitudinal section of the same divided perpendicularly; D², a transverse section of same divided horizontally. K and K¹ are plugs, with thread cut on them, tapped into the mouth of the stills, large enough when taken out of the stills to allow the stills to be filled or emptied. As the screw cut on the plugs will not keep in the vapor when the stills are hot unless they (the plugs) are leaded and screwed in very tight, have a flange all around the plug on the side toward the screw, beveled under, as shown

at K², (grooved will answer the same purpose,) in which put putty, clay, or anything like; then, in screwing down the plug, the clay or putty will make a tight joint, and the screw-joint need not be very tight. F, a tight covered vessel filled with water to the line G, fitted with a siphon, L, put in at the water-line; M, a pipe going from the last compartment of the retort D into the vessel F, just below the water-line G; N, a pipe fitted with the stop-cocks O O', connecting with the stills and the first compartment of the retort D. C is an open vessel, filled with water to the line E. H H' are pipes, without stop-cocks, leading from each still into the vessel C, said pipes dipping into the water in the vessel C several inches deeper than the pipe M dips into the water in the vessel F.

Having described the apparatus, we will now show the method of working: In the first place, heat the retort D to a bright red heat; then fill the stills, while cold, with the material to be used; then start a fire gradually under the stills A B, alternately, allowing one to cool while the other is being used. If two stills are not enough to allow sufficient time to cool, add more stills. In the still that is being used, the stop-cock O in the pipe N must be opened and the other cock shut; then the product of distillation will pass through the pipe N into the retort D, where it is converted into gas; then it passes through the vessel F, where it leaves any vapor; thence to the gas-holder. The use the pipes H H' are put to is, if from any carelessness the stop-cocks O O' are left shut at the wrong time, or there should be any stoppage in the retort or any of the other pipes, the vapor generated in the stills will run over into the vessel C and be condensed by the water therein, while, when the stop-cocks O O' are open the vapor will not pass into the vessel C, because the dip of the pipes H H' is greater than the dip of the pipe M.

What we claim as our invention is—

1. The combination of a retort, divided into two or more compartments, with a still or stills, to be used separately, alternately, or together with the retort, each still to be in separate furnaces or fires from the retort, as described.

2. The combination of the safety-valve or valves

and condensing vessel with the still or stills, as described.

3. The combination of the condensing-vessel C, the pipes H, the stills A and B, the retort D, and the condenser F, as described.

4. The plug K, with a combination of a screw and a bevel or groove on the flange, for the purpose as described.

5. The partition of a retort, with a curve instead of a straight line, for the purpose as described.

WILLIAM C. WREN.
GEORGE W. WREN.

Witnesses:

M. B. WHITTLESEY,
ORIN CROSS.

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