

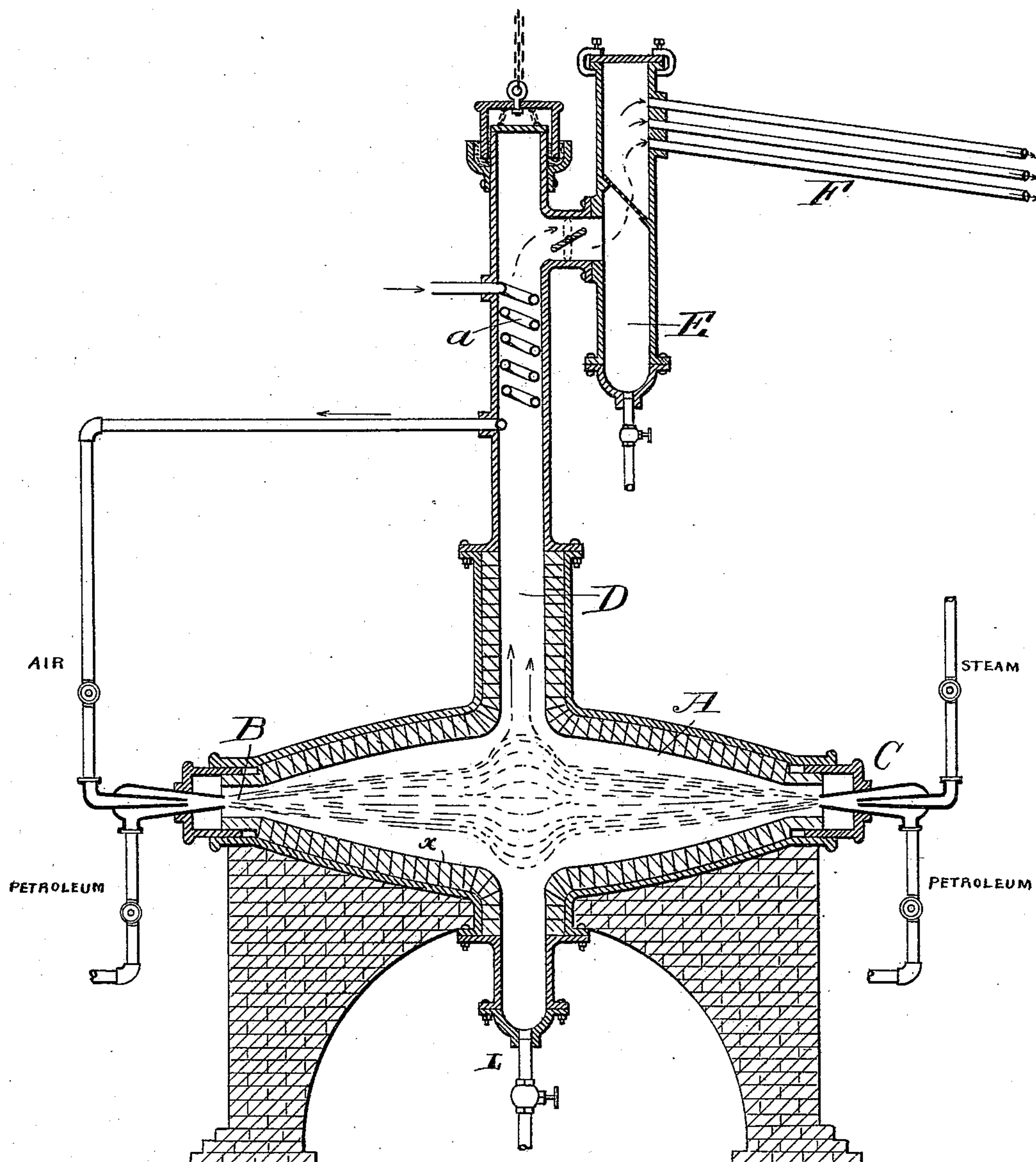
(No Model.)

E. D. KENDALL.

PROCESS OF AND APPARATUS FOR MANUFACTURE OF GAS.

No. 549,515.

Patented Nov. 12, 1895.



Witnesses

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UNITED STATES PATENT OFFICE.

EDWARD D. KENDALL, OF SEWAREN, NEW JERSEY.

PROCESS OF AND APPARATUS FOR MANUFACTURE OF GAS.

SPECIFICATION forming part of Letters Patent No. 549,515, dated November 12, 1895.

Application filed September 8, 1894. Serial No. 522,494. (No model.)

To all whom it may concern:

Be it known that I, EDWARD D. KENDALL, a citizen of the United States of America, residing at Sewaren, county of Middlesex, State of New Jersey, have invented certain new and useful Improvements in Processes of and Apparatus for the Manufacture of Gas, of which the following is a specification.

My present invention relates generally to processes and apparatus for producing gas for fuel and illuminating purposes, and the object of my invention is to produce, at moderate expense and by comparatively simple apparatus, gas containing less nitrogen and a larger proportion of combustibles than is contained in ordinary so-called "producer gas," a portion of the combustibles being also luminants.

In conducting my process I do not confine myself to the particular apparatus and its specific details illustrated in the accompanying drawing, but an apparatus having the essential features shown in the drawing may be employed in practice.

My process consists in directing immediately against each other a flame in the form of a blast or jet and a blast or jet of hydrocarbon vapor, and carrying off the resultant gases. This may be performed in any suitable chamber. The flame can be produced by hydrocarbon vapor and a limited amount of air acted upon by a suitable forcing apparatus, such as a blower or compressor, and introduced into the chamber by an atomizer or injector of any approved form. The opposing (and preferably diametrically opposing) blast of hydrocarbon and steam, with, but preferably without, air, may be produced conveniently by boiler-pressure through a similar or other atomizer or injector. I am thus enabled to mix spray or vapor of hydrocarbon and vapor or spray of water and to subject this mixture to the combined chemical actions of heat and the products of combustion derived from that hydrocarbon which is burned with air with or without a respective portion of steam, and which is sprayed through the first-mentioned opening into the oven. The vapors and gases produced by the reactions within the oven pass out of the oven through a suitable opening and pipe, and may be conducted through condensers

and scrubbers or other suitable apparatus, as is common in gas-plants.

In the drawing, A is the oven or chamber lined with fire-clay.

At B is the opening into the oven at and through which hydrocarbon is by an atomizer of any proper form sprayed, to be burned with air preferably heated, as by a proper coil *a*, drawn or forced through this opening by any suitable means.

At C is the atomizer of any proper form, by which and the opening at and through which hydrocarbon is sprayed with steam alone from any suitable source and superheated, if desired, preferably no air being admitted at this point.

D is the opening and pipe through which the gases and vapors resulting from the said reactions pass out of the oven A.

E is a receptacle for the reception of pitchy and other condensed matters, from which the gas may pass through, say, a cooler F, to the gas-holder. Said chamber or oven is preferably horizontally widened or extended and concave or dished at its bottom, as illustrated at *x*, so as to better collect any liquid residuum of the process.

It is not desired to limit the process to any particular form of apparatus. The pipes leading to the injectors will have suitable valves to control the supply of hydrocarbon air and steam admitted to the combustion-oven. The injectors, which are shown somewhat out of proportion to the rest of the apparatus, may be adjustable to and from the oven to obtain the proper flame therein and point at which the flame and sprayed hydrocarbon should meet. The lower portion of the chamber may have a drip trap or receptacle R to catch any tar or other liquid matter that may collect. The receptacle R is provided with liquid-drawing-off devices L.

What is claimed is—

1. The herein described process for the manufacture of gas consisting in directing immediately against each other a flame in the form of a blast or jet, and a blast or jet of hydrocarbon vapor, and conveying off the resultant gases.

2. The herein described process for the manufacture of gas consisting in directing immediately against each other a hydrocar-

bon flame in the form of a blast or jet with which is mingled air, and a blast or jet of hydrocarbon and steam, and conveying off the resulting gases.

- 5 3. The combination of a chamber, opposing injecting devices delivering thereinto, one of which comprises hydrocarbon and air supply pipes and the other hydrocarbon and steam supply pipes, means for conducting off the

gas, and a liquid receptacle below and communicating with said chamber and having liquid drawing off devices, as set forth.

In witness whereof I have hereunto signed my name in the presence of two witnesses.

EDWARD D. KENDALL.

Witnesses:

GEO. H. GRAHAM,
E. L. TODD.