

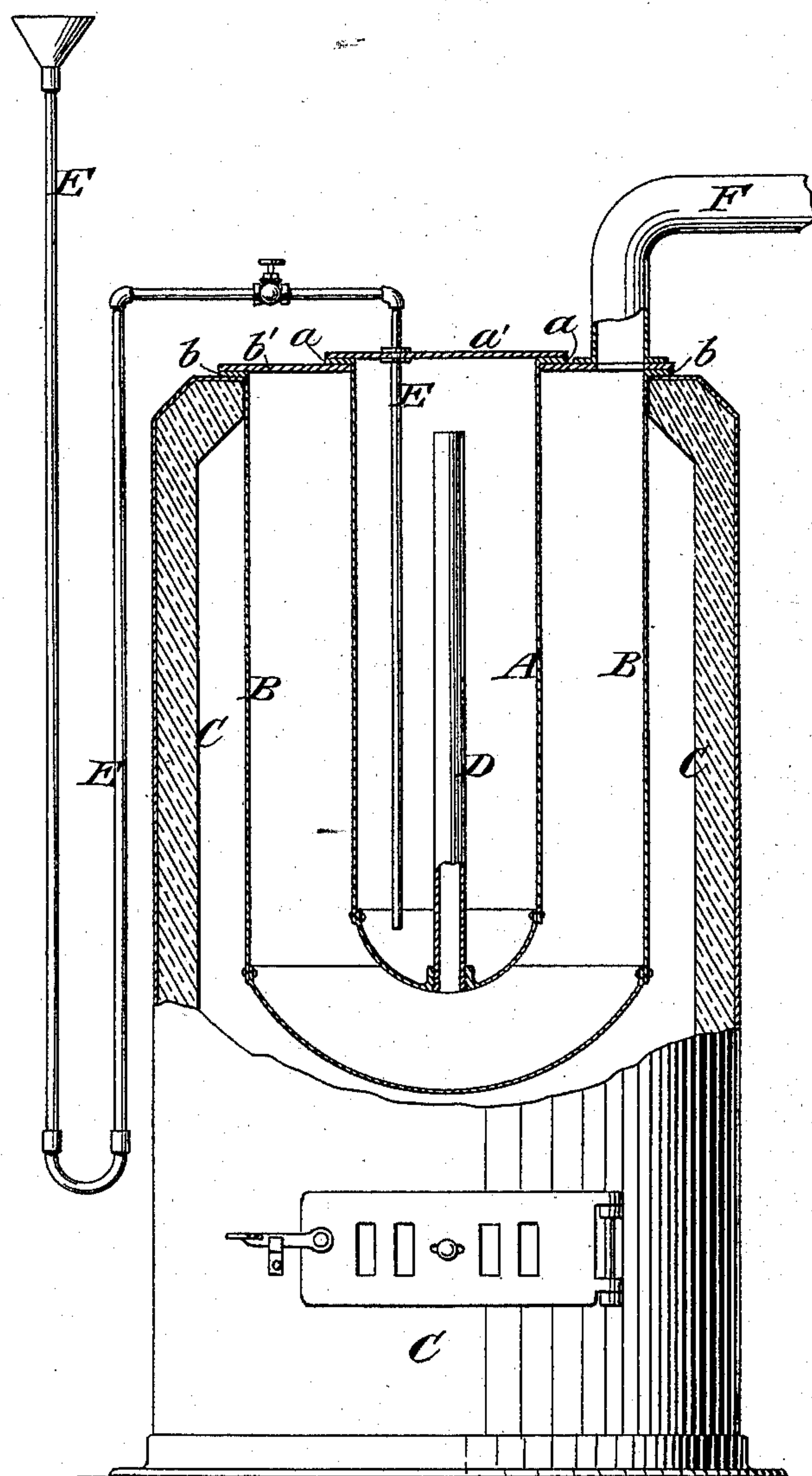
(No Model.)

D. H. KNAPP.

APPARATUS FOR THE MANUFACTURE OF GAS.

No. 413,190.

Patented Oct. 22, 1889.



Witnesses:
O. Sundgren
John Becker

Inventor:
David H. Knapp
by attorneys
Brown & Griswold

UNITED STATES PATENT OFFICE.

DAVID H. KNAPP, OF NORWICH, NEW YORK, ASSIGNOR OF ONE-HALF TO
REED CAMPBELL, OF SAME PLACE.

APPARATUS FOR THE MANUFACTURE OF GAS.

SPECIFICATION forming part of Letters Patent No. 413,190, dated October 22, 1889.

Application filed January 21, 1889. Serial No. 297,097. (No model.)

To all whom it may concern:

Be it known that I, DAVID H. KNAPP, of Norwich, in the county of Chenango and State of New York, have invented a new and
5 useful Improvement in Apparatus for the Manufacture of Gas for Illuminating and Heating Purposes, of which the following is a specification, reference being had to the accompanying drawing.

10 This invention relates to apparatus for the manufacture of gas for heating and illuminating purposes from oils or liquid hydrocarbons.

The object is to provide a cheap and economical apparatus for the purpose.

I will first proceed to describe, with reference to the accompanying drawing, an apparatus embodying my invention, and afterward point out its novelty in the claim.

20 The drawing represents a vertical section of the apparatus.

A and B designate two retorts arranged one within the other, the inner one A being hereinafter termed the "vaporizing-retort,"
25 and the outer one B the "decomposing-retort." These retorts are represented as of the form of upright cylinders with spheroidal or rounded bottoms. The outer or decomposing retort B is represented as having an
30 external flange *b* at its upper end, by which it is supported upon the top of the furnace C, which is represented as substantially like an ordinary stove. The said retort is also represented as provided with a removable
35 cover *b'*, firmly secured to its flange, in which is an opening, through which the inner retort A is inserted, the latter being provided at its upper end with an external flange *a*, which rests upon the cover *b'*, and being also
40 provided with a removable cover *a'*. In the lower end of the inner vaporizing-retort is an opening, into which is screwed or otherwise secured an upright pipe D, which extends upward into the said retort, nearly to
45 the top thereof, and is open at its upper end, the said pipe forming communication between the upper part of the vaporizing-retort A and the lower part of the decomposing-retort B.

50 E is a pipe for supplying oil to the vapor-

izing-retort A, said pipe entering the said retort through the cover *a'*, and projecting downward into the said retort nearly to the bottom thereof.

F is a pipe connected with the decomposing-retort B at the top thereof, and forming
55 an outlet for the gas, which may pass directly to a gas-holder or to any suitable purifying apparatus, whence a pipe leads to the gas-holder.
60

In the operation of this apparatus the oil introduced through the pipe E enters the vaporizing-retort A, which, being surrounded by the decomposing-retort B, is protected from the
65 great heat of the furnace, but yet has heat enough imparted to it through the decomposing-retort B for the vaporization of the oil, which enters it at the bottom. The oil-vapor, rising to the top of the said retort A, finds its
70 exit therefrom through the pipe D to the lower part of the retort B, wherein it is decomposed by the great heat to which that retort is subjected by its exposure to the full heat of the furnace. The vapor, entering the decomposing-retort at the bottom, is caused to
75 circulate within the annular space between the two retorts and to pass along the whole length or height of the heated surface of the decomposing-retort before reaching the outlet F, and therefore a very perfect decomposition of the vapor is obtained, and it is converted into permanent gas, to be diluted for
80 use, as with air, as required for illuminating or heating purposes.

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

The combination of the upright inner vaporizing-retort, the outer upright decomposing-retort, and the furnace outside of the
90 latter, the oil-pipe entering the inner retort, and an upright pipe connected with the inner retort at its lower end and opening into the outer retort and having its open upper end extending into the inner retort, and an outlet-pipe for gas communicating with the
95 outer retort, substantially as specified.

DAVID H. KNAPP.

Witnesses:

HENRY T. BROWN,
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