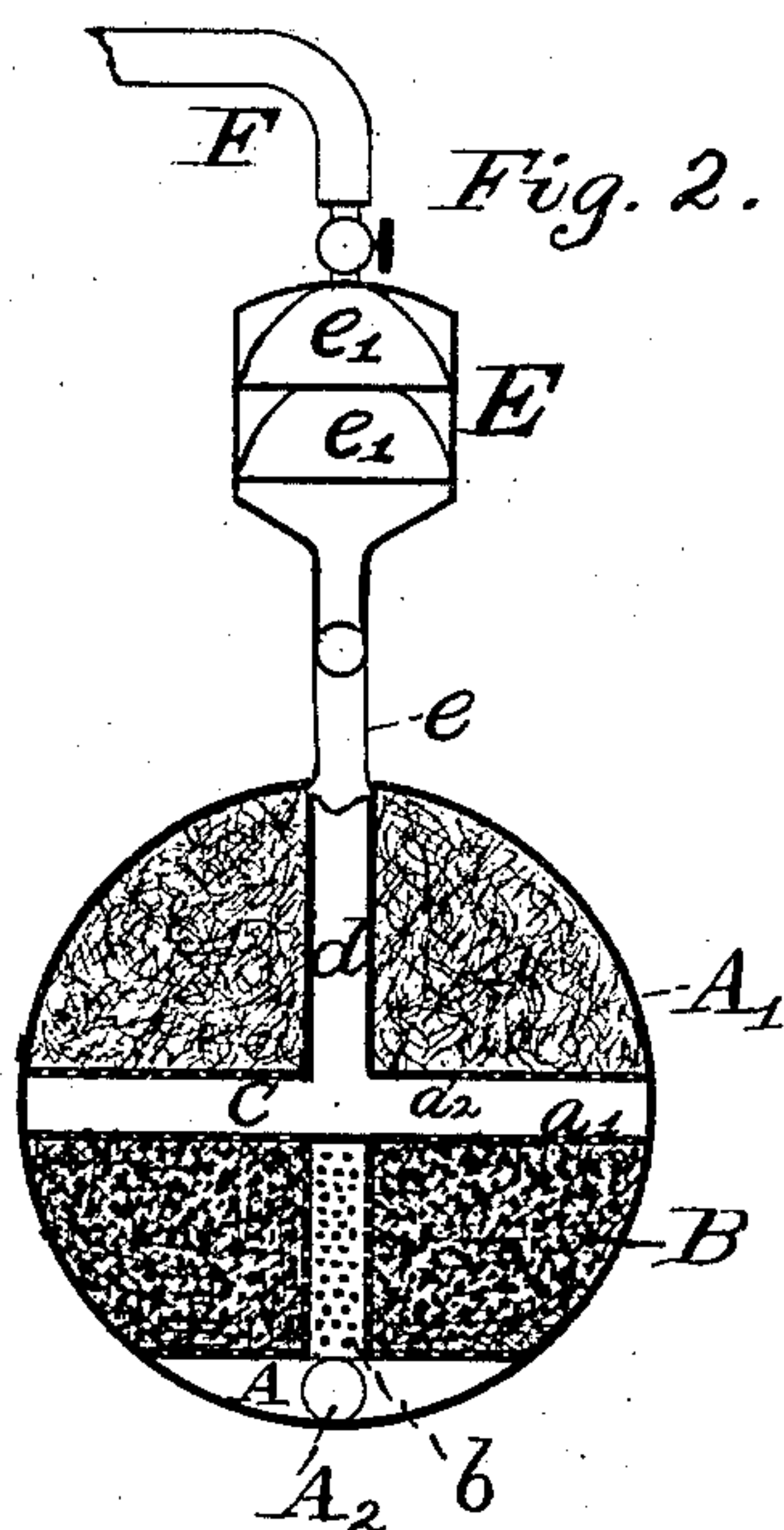
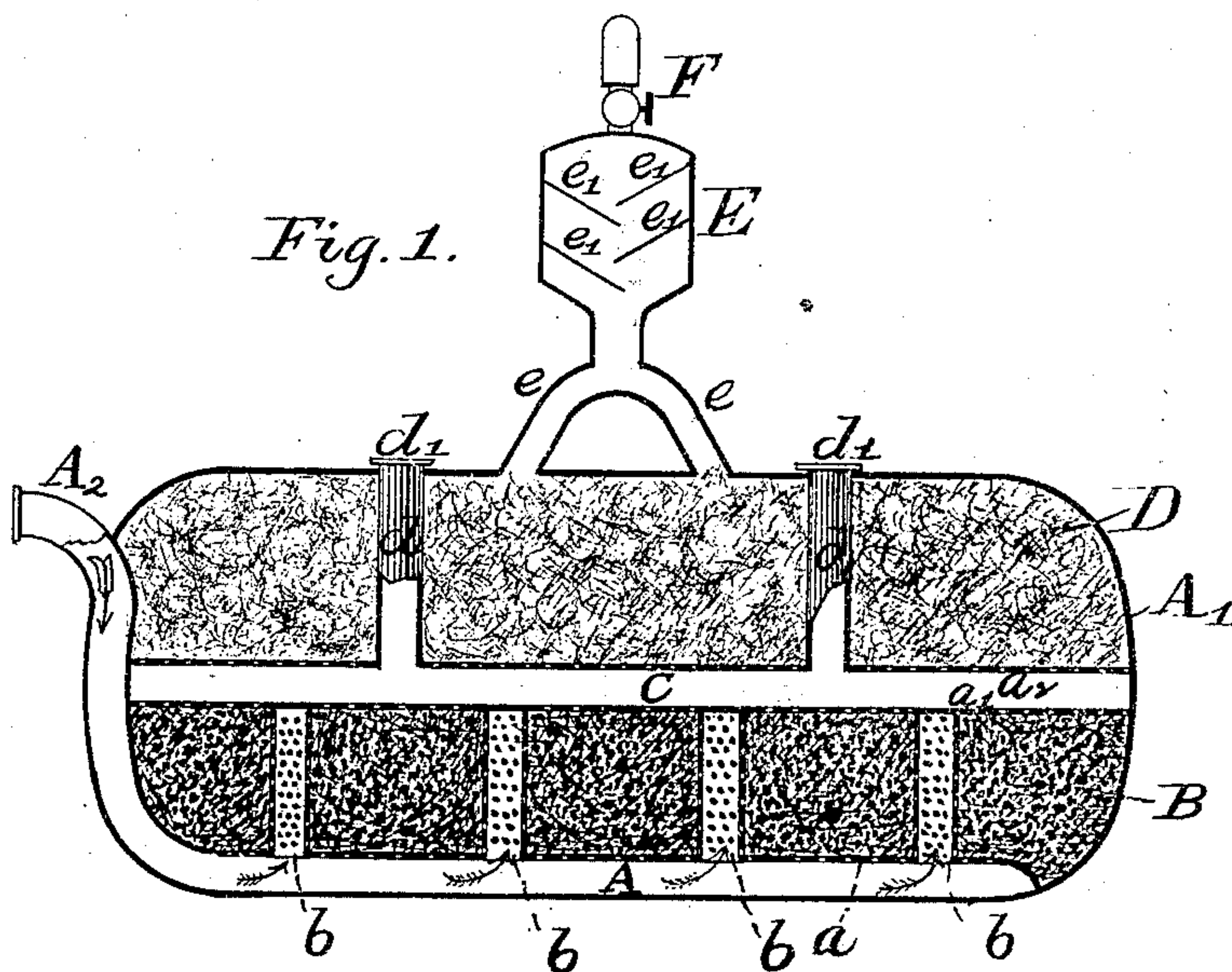


(No Model.)

E. B. REYNOLDS.
GAS GENERATING APPARATUS.

No. 256,741.

Patented Apr. 18, 1882.



Witnesses:

R. Lockwood French,

Miller C. Earl

Inventor:

Edward B. Reynolds,

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UNITED STATES PATENT OFFICE.

EDWARD B. REYNOLDS, OF NEW YORK, N. Y.

GAS-GENERATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 256,741, dated April 18, 1882.

Application filed December 29, 1881. (No model.)

To all whom it may concern:

Be it known that I, EDWARD B. REYNOLDS, a subject of the Queen of Great Britain, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Gas-Generating Apparatus, of which the following is a specification.

My invention relates to certain improvements in the construction of apparatus for generating gas for illuminating and heating purposes, and the particular class of gas-generating apparatus to which my invention more especially pertains is that in which a mixture of hydrocarbon vapor and air is produced by forcing a current of atmospheric air through a mass of pulverized charcoal saturated with gasoline. In the apparatus heretofore employed for this purpose it has been found that when air is forced through the saturated carbon under a high pressure some portion of the gasoline is carried over in a liquid state and into the outlet-pipe through which the gas is delivered.

The object of my invention is to prevent any portion of the liquid gasoline from entering the delivery-pipe, and also to more uniformly and effectually distribute the air from the inlet-pipe throughout the mass of saturated charcoal.

To this end my invention consists in the combination, with a gas-generating apparatus, of a gas-receiving chamber inserted in and virtually forming a portion of the outlet-pipe above the generating-cylinder, which is provided with a series of inclined deflectors for the purpose of arresting any spray of gasoline which may be carried over from the vaporizing-chamber.

My invention further consists in the combination, in a gas-generating cylinder, of a compartment containing a mixture of pulverized charcoal and gasoline, constituting a vaporizing-chamber, a compartment containing a packing of fibrous material, constituting a drying-chamber, and an intervening compartment, separated from the drying-chamber by horizontal perforated division-walls, for the purpose of preventing the absorption by the fibrous packing of the drying-chamber of gasoline from the vaporizing-chamber.

The invention also consists in the combina-

tion of an air-distributing chamber located beneath the vaporizing-chamber, and separated therefrom by an intervening perforated wall, an inlet-pipe communicating therewith, and a series of perforated upright pipes leading from the air-distributing chamber for distributing the air as uniformly as possible throughout the mass of pulverized charcoal saturated with gasoline and contained in the vaporizing-chamber.

In the accompanying drawings, Figure 1 represents a longitudinal vertical section of my improved gas-generating apparatus, and Fig. 2 is a transverse section of the same.

In the drawings, A' represents the outer wall of the generating-cylinder, which may be constructed of sheet metal, iron, or other suitable material. Throughout the length of this cylinder extend three internal horizontal walls or partitions, *a*, *a'*, and *a''*, which are constructed of sheet metal or other suitable material perforated with small holes, or of wire-gauze. By these partitions the cylinder is divided into four compartments or chambers, A B C D. The compartment B is closely packed with a mass of pulverized charcoal, which is to be kept saturated with gasoline or naphtha, and may be termed a "vaporizing-chamber." The compartment D is occupied by a tightly-compressed mass of cotton or other fibrous material, and constitutes a drying-chamber for the gas. The intervening chamber, C, separates the mass of fibrous packing from the vaporizing-chamber, and thereby prevents the absorption of the liquid gasoline therefrom.

Through one end of the outer wall, A', the air-supply pipe A² enters, passing directly to the bottom of the cylinder and communicating with the air-distributing chamber A. A series of upright pipes, *b*, leading from the chamber A, extend to the upper part of the vaporizing-chamber B. These pipes are perforated throughout their length, in order to facilitate the distribution of the air throughout the mass of carbon; but their upper extremities are preferably closed to prevent the air from escaping directly into the chamber C. In case, however, it is desired to produce a gas containing a maximum amount of air, the upper extremities of the pipes may be provided with openings of greater or less size, according to the

amount of atmospheric air which it is desired to incorporate with the hydrocarbon vapor.

From the exterior wall, A' , one or more pipes or tubes, d , lead to the intermediate chamber, C . These are provided with suitable screw-caps or lids, d' , and are employed for replenishing the gasoline in the compartment B , when necessary. This is effected by removing the screw-caps and pouring the required amount of fluid through the tubes d into the chamber C , from which it filters through the perforated wall a' into the vaporizing-chamber B , saturating the charcoal contained therein.

The method of generating the gas consists in forcing a current of atmospheric air through the inlet-pipe A^2 , the chamber A , and the pipes b , in the direction indicated by the arrows. The air thus introduced escapes through the perforations in the wall a and the pipes b , and permeates the entire mass of pulverized charcoal in the chamber B , at the same time taking up the required amount of hydrocarbon vapor. The gas thus formed passes through the mass of fibrous material in the drying-chamber D , from which it escapes through suitable outlet-pipes, e , which communicate with a gas chamber or reservoir, E . From opposite sides of the gas-chamber E project toward its interior inclined walls or deflectors e' , each of which extends somewhat beyond the center of the chamber and between the ends of the opposite deflectors, as seen in Fig. 1. The object of these deflectors is to conduct the gas from side to side of the chamber as it escapes from the generating-cylinder, and in this way to arrest any spray or liquid gasoline which may be carried into the outlet-pipe by the force of the current of air from the inlet-pipe A^2 . The deflectors e' and the lower portion of the gas-chamber E are preferably constructed with a downward slope to allow the

liquid gasoline thus arrested to flow back into the generating-cylinder. A delivery-pipe, F , is connected to the upper portion of the gas-chamber E , and serves to conduct the gas to any required place.

I am aware that it is not new to employ inwardly-projecting deflectors for preventing fluid substances from escaping into the outlet-pipes, and do not broadly claim the same; nor do I claim the combination of a vaporizing-chamber, a drying-chamber, a replenishing-chamber separated therefrom by perforated division-walls, and replenishing-pipes.

I claim as my invention—

1. In a gas-generating cylinder, the combination, substantially as hereinbefore set forth, of the air-inlet pipe, the air-distributing chamber, the vaporizing-chamber above said air-distributing chamber, the intervening perforated division-wall, the upright air-distributing perforated pipes leading from said air-distributing chamber, the drying-chamber, the horizontal chamber intervening between said vaporizing and drying chambers, the perforated division-walls, and the replenishing-pipes leading to said intervening chamber.

2. The combination, substantially as hereinbefore set forth, in a gas-generating cylinder, of the air-distributing chamber, the horizontal vaporizing-chamber above said air-distributing chamber, the horizontal drying-chamber, the intervening perforated division-walls, and the gas-receiving chamber provided with inwardly-projecting deflectors.

In testimony whereof I have hereunto subscribed my name this 19th day of December, A. D. 1881.

EDWARD B. REYNOLDS.

Witnesses:

MILLER C. EARL,
CHARLES A. TERRY.