

No. 700,538.

Patented May 20, 1902.

J. D. MOORE & F. M. MARTIN.
METHOD OF CHARGING COMPARTMENTS WITH GAS.

(Application filed May 22, 1901.)

(No Model.)

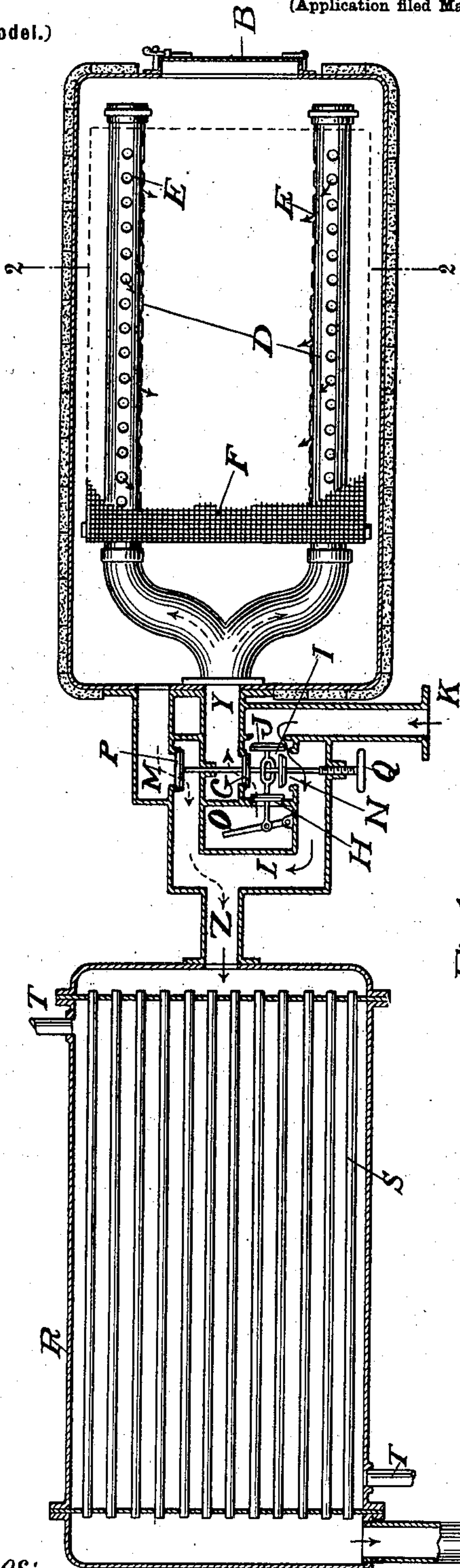


Fig. 1

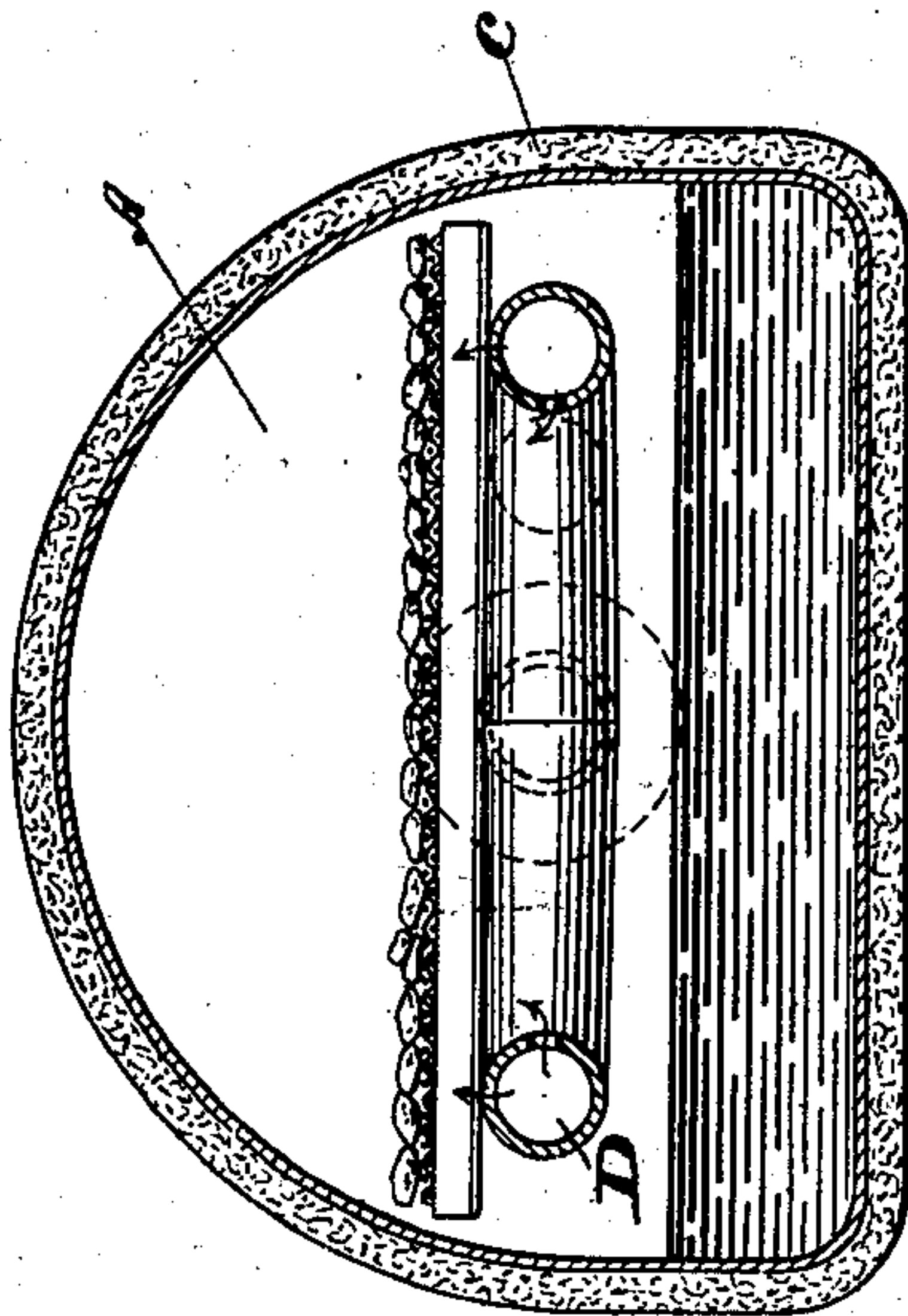
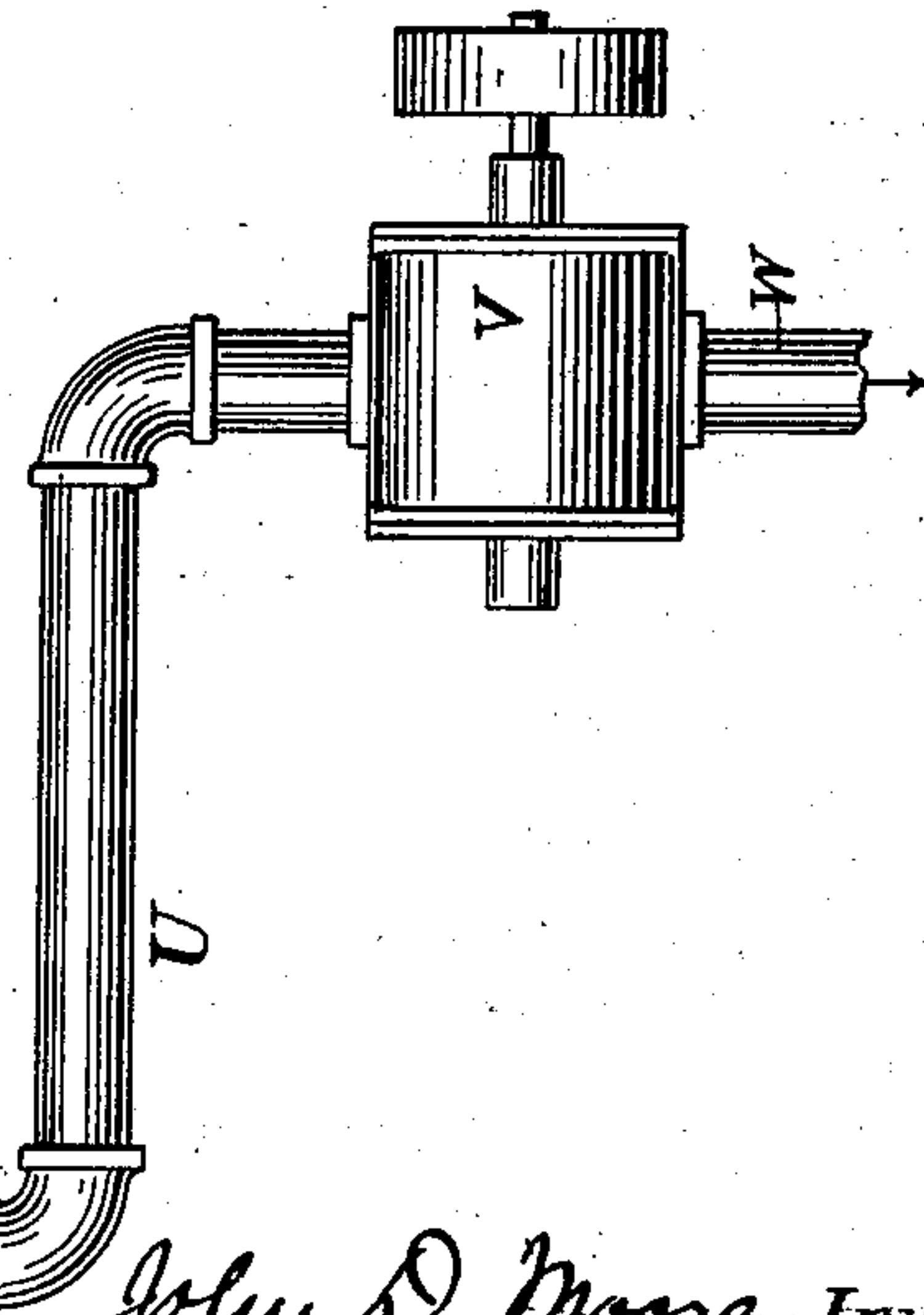


Fig. 2



Witnesses:
Raphael Ketter
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by Kerr, Page & Cooper, Attys

UNITED STATES PATENT OFFICE.

JOHN D. MOORE, OF NEW YORK, AND FRED M. MARTIN, OF BROOKLYN, NEW YORK; SAID MOORE ASSIGNOR TO THE CLAYTON FIRE EXTINGUISHING & DISINFECTING COMPANY, A CORPORATION OF WEST VIRGINIA.

METHOD OF CHARGING COMPARTMENTS WITH GAS.

SPECIFICATION forming part of Letters Patent No. 700,538, dated May 20, 1902.

Application filed May 22, 1901. Serial No. 61,344. (No model.)

To all whom it may concern:

Be it known that we, JOHN D. MOORE, of the borough of Manhattan, in the city and county of New York, and FRED M. MARTIN, of the borough of Brooklyn, in the county of Kings, in the city and State of New York, citizens of the United States, have invented certain new and useful Improvements in Methods of Charging Closed Compartments with Gas, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

Our invention is an improvement in methods of charging closed compartments with gas for the purposes of fumigating or preventing or extinguishing fires of the general character set forth or practiced by the apparatus described in Letters Patent to Thomas A. Clayton, No. 633,807, dated September 26, 1899, and No. 661,496, dated November 13, 1900.

Our present improvement has for its primary object the more rapid, economical, and effective production of a gas, such as sulfur dioxide, under conditions for use in fumigating ships or buildings or charging compartments, such as the holds of ships and the rooms of warehouses, for preventing or extinguishing fires therein, or for other similar purposes.

The invention may be practiced by the use of apparatus of widely-varying character; but for purposes of illustration we have annexed hereto a drawing of a special apparatus for which we have filed an application for patent of even date herewith.

Figure 1 is a view of our improved generator, a cooler, and pump or blower connected in operative relation, the generator and cooler being shown in horizontal section; and Fig. 2 is a vertical section of the generator on line 2 2 of Fig. 1.

The generator consists of a receptacle A, of metal or suitable refractory material, provided with a door B, by means of which it may be tightly closed, and with one or more outlet and intake pipes or passages, as hereinafter described.

The generator is surrounded, preferably on top, bottom, and ends, as far as practicable, with a wrapping of asbestos, mineral wool, or other suitable adiathermanous material C, or is otherwise insulated to prevent the radiation of heat.

Within the generator is a system of pipes D, arranged in any convenient manner and containing perforations E, preferably in the top and sides only, as shown, and above said pipes there is arranged a foraminous support F for the substances used for the generation of gas. The construction and arrangement of this support may be greatly varied, the drawings showing for the purpose of illustration a shelf or partition of ordinary wire-netting.

The device for cooling the gases is represented at R, and consists of a receptacle having two chambers at its opposite ends connected by a series of pipes S, around which air or water is caused to circulate in the usual way, the inlet and outlet pipes for the cooling medium being designated by T T.

From the cooler R a pipe U leads to a suction pump or fan V, and from the latter a pipe W leads to the compartment into which the gas is to be delivered.

In connection with the generator there is employed a system of controlling-valves and chambers by the operation or manipulation of which air either from the outside or from the compartment to be charged, or both, is supplied to the interior of the generator and from the latter is drawn or forced through the cooler and into the compartment; but inasmuch as these parts are or may be of any suitable construction and will be more readily understood by a statement of their functions than by a detailed reference to their specific character or form they will be described in connection with the following exposition of the operation and manner of using the apparatus as a whole.

Let it be assumed that a given compartment is to be charged for purposes of fumigation or for the purpose of supplying therein an atmosphere which is a non-supporter of combustion either for the purpose of preventing

or extinguishing a fire. Two connections are made with said compartment—one by the pipe W from the fan or pump, the other by pipe K to the generator. A quantity of material, such as sulfur, by the combustion of which the gas is produced, is placed in the bottom of the generator and on the perforated support F and ignited by introducing a handful of burning waste saturated with oil or other inflammable substance. The generator is then closed by the door B. At the same time the blower or pump V is started and communication established from the generator to the pump through pipes M by opening a valve P and from the outside air to the generator through a valve H, a chamber I, a valve G, and a pipe Y, of which the perforated pipes D form branches. The operation of opening the valve P opens the valve G and closes a valve N, which controls communication between the chamber I and the pipe L, leading to the cooler and the pump. In like manner the opening of valve H to admit air to the chamber I closes a valve J, and thereby shuts off communication through pipe K between the compartment and the generator. For this purpose the valves G, P, and N may be and are shown as mounted on the same stem, which is operated by a hand-wheel Q, and valves H and J are similarly secured to a common stem, which is thrown by a lever O. The operation of the pump under the conditions just assumed draws in air through the valves H G, chamber I, and pipes Y D, producing a vigorous and perfect combustion of the sulfur in the generator and carrying off the products of combustion through pipe M, valve P, and pipe Z, to and through the cooler R and pipe U, and forcing it into the compartment through pipe W. In this way a large volume of gas is quickly generated; but as soon as the combination of the heated sulfur with the oxygen contained in the air supplied approximates completeness the valve N, leading to

the passage L, is partially opened, and a portion of the air-supply is diverted from the passage Y, leading to the generator, and passes through the chamber into the stream of heated gases from the generator, which gases may contain uncombined sulfur vapor in a heated state, with which the oxygen contained in the diverted stream of air unites. In this manner the gases are freed from practically all uncombined sulfur, and upon cooling almost no flowers of sulfur are deposited.

Having now described our invention, what we claim is—

1. The method of rapidly producing in closed compartments an atmosphere of sulfur-dioxid gas for fire-extinguishing or disinfectant purposes, which consists in heating the gas-producing substance in a suitable generator, bringing into union with the gas and sulfur vapor issuing from the generator, and while still in a highly-heated state, a sufficient proportion of atmospheric air to convert the uncombined sulfur into gas, and forcing the resulting gas through the system of piping which conveys it to the compartment, as set forth.

2. The method of rapidly producing in closed compartments an atmosphere of sulfur-dioxid gas for fire-extinguishing or disinfecting purposes, which consists in heating a gas-producing substance in a suitable generator, forcing air through the generator and bringing into union with the gas and vapor issuing therefrom, and while still in a highly-heated state, an additional quantity of outside air, sufficient only in amount to convert the uncombined sulfur into gas, cooling the resulting gases and conveying them to the compartment, as set forth.

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Witnesses:

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