

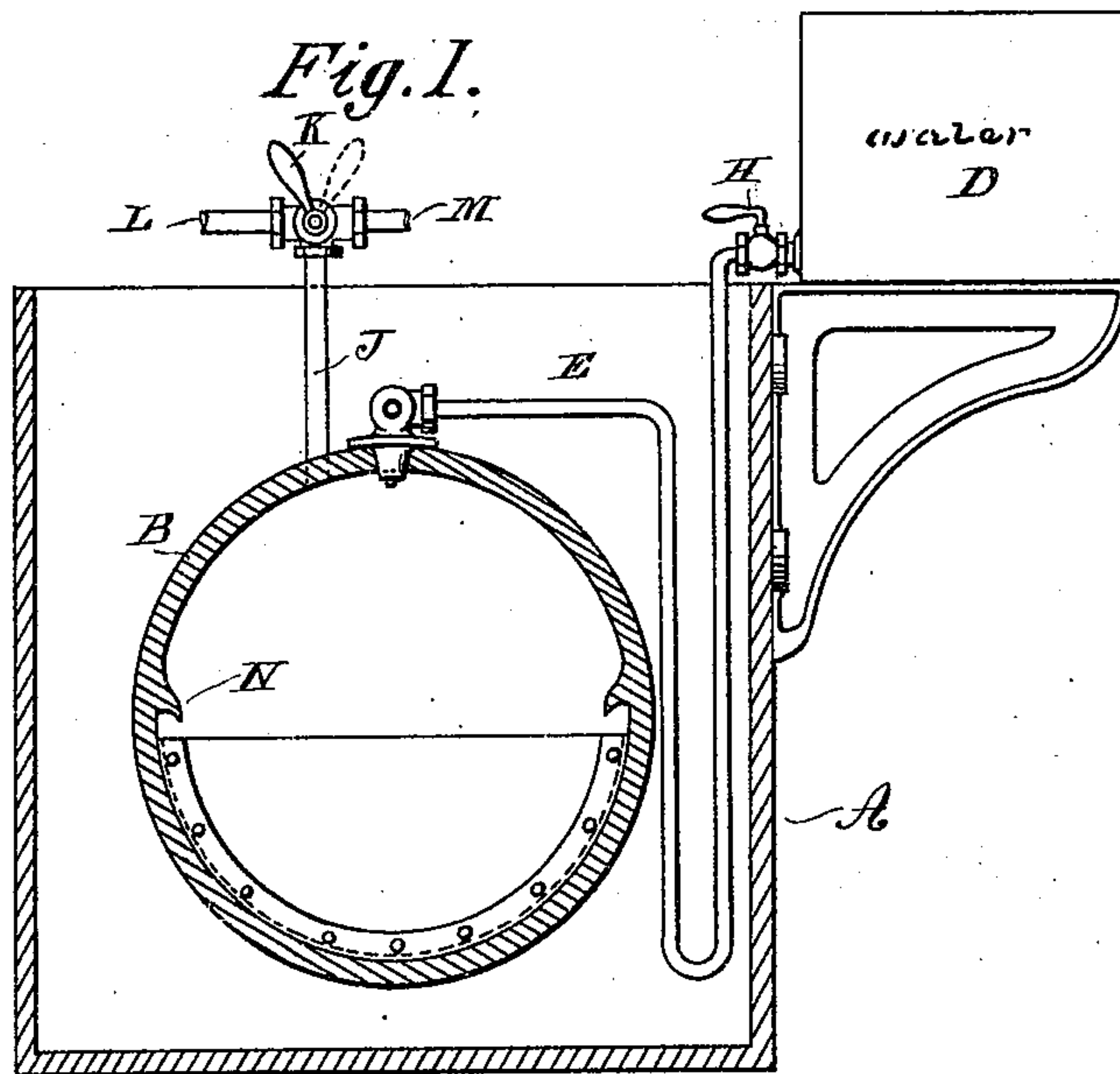
(No Model.)

2 Sheets—Sheet 1.

H. C. SERGEANT.
GAS GENERATOR.

No. 562,040.

Patented June 16, 1896.



WITNESSES:

C. E. Combs.

E. A. Smith.

INVENTOR

Henry C. Sergeant.

BY

Amos A. Bros.

ATTORNEYS

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

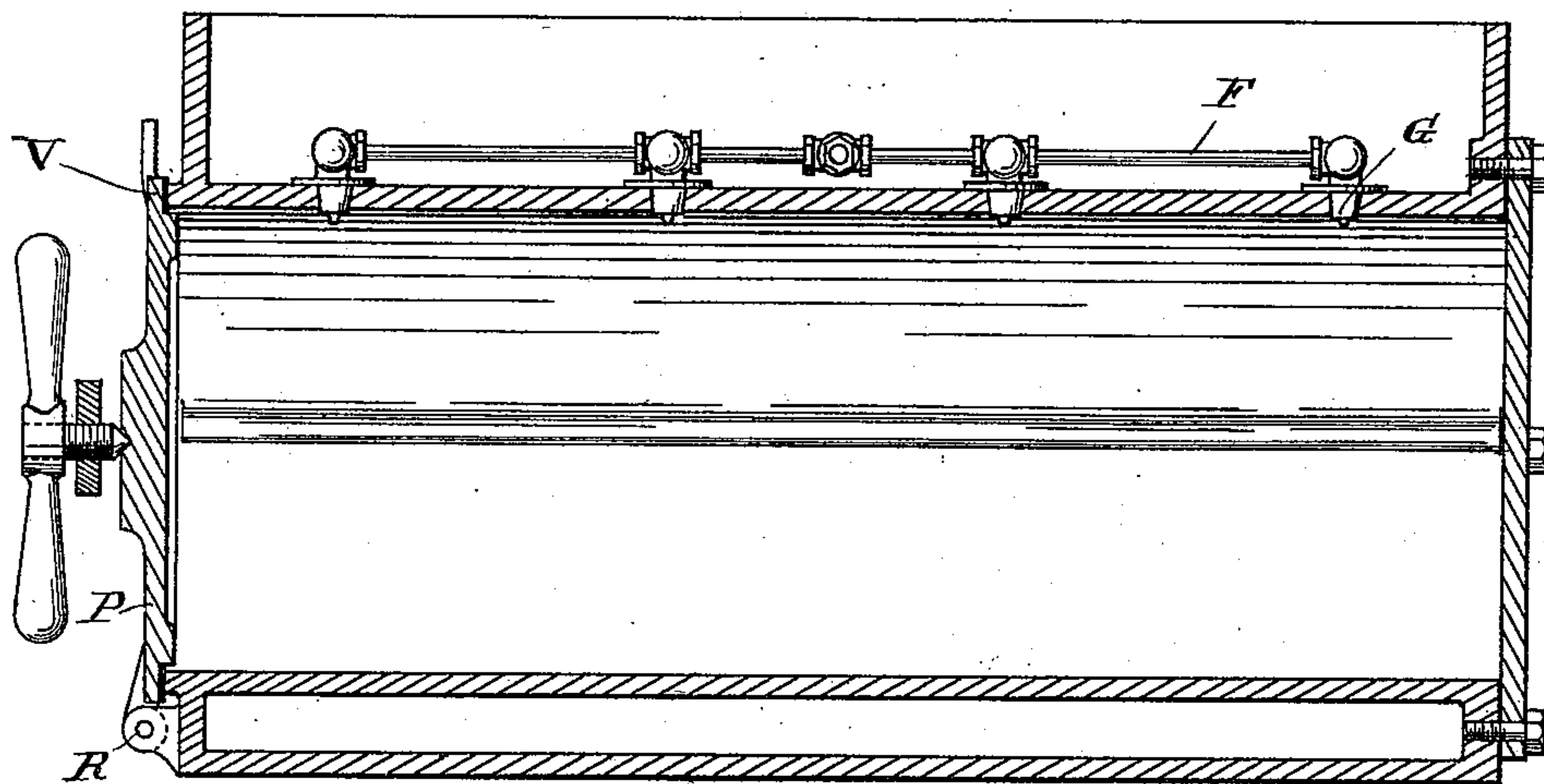
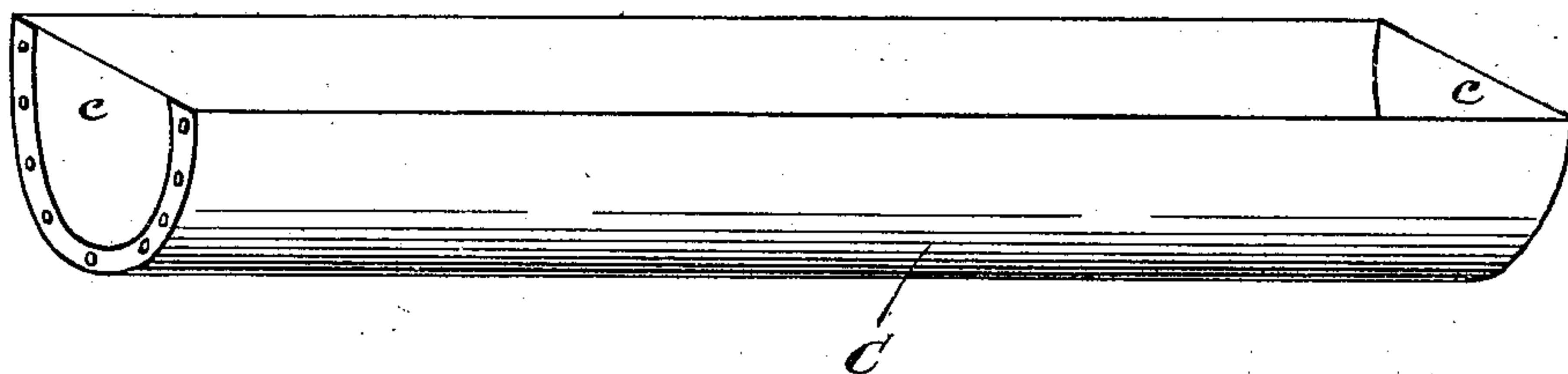


Fig. 3.



WITNESSES:

C. E. Combs.

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INVENTOR

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UNITED STATES PATENT OFFICE.

HENRY C. SERGEANT, OF WESTFIELD, NEW JERSEY.

GAS-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 562,040, dated June 16, 1896.

Application filed September 5, 1895. Serial No. 561,535. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. SERGEANT, a citizen of the United States, residing at Westfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Generators for Making Acetylene Gas, of which the following is a specification.

The primary object of my invention is to provide a simple and economical generator or retort for making acetylene gas and of a size adapted for use in houses where only a limited amount of illuminating-gas is consumed each day. Secondarily, my invention has for its object the construction of such a machine or apparatus which is adapted, by the means hereinafter fully described, to produce fresh gas every day and from day to day, as required, the parts being so distributed and arranged that it will readily lend itself to this end, thereby, as I claim, producing a much more satisfactory and economical arrangement than has heretofore been produced in this art.

Another object which I have sought to meet and attain is the producing of an apparatus which can be easily handled by an unskilled person, so that no accident or derangement of the apparatus will happen.

Referring to the accompanying drawings, which form a part of this specification and which serve to illustrate my present invention, Figure 1 represents a cross-section of the apparatus. Fig. 2 is a longitudinal section; Fig. 3, a perspective view of the removable calcium-carbide-containing pan.

In the drawings, A represents a tank containing water, which I employ for the purpose of cooling the retort while it is in use.

B represents the retort, and C the calcium-carbide-containing pan. The pan is rounded at the bottom and open at the top, provided with the ends *c c*, the ends *c* being riveted to the body C, as shown.

At D, I show a water-containing tank connected to the upper part of the retort B by means of the pipe E and branch pipe F. The branch pipe enters the retort at several points through the medium of discharge-tubes G, said discharge-tubes G terminating in needle-openings. The cock H regulates the flow of water from the tank D, and the pipe E is ar-

ranged as a siphon, thus preventing any flow of gas from the retort into the tank.

At J, I provide a lead-off pipe, and at K, I show a three-way cock by means of which I may direct the gas into the pipe L, which leads to a storage-tank (not shown) and to the gas-lighting system and at M to a waste.

At N, I show lips overhanging the upper edge of the pan, so that when the vaporization of the water takes place and condenses upon the inner or upper surface of the retort it will flow out and drop again through the medium of the lips into the pan.

At P, I show a head hinged at R, and S is a locking-lever engaging with pin T, provided with a packing device U.

At V, I show packings.

The method of operation of my apparatus is as follows: The door P being removed, the pan C is withdrawn and a predetermined amount of calcium carbide is placed in the pan, and in this connection I will state that each apparatus is built for and intended to accommodate a certain fixed amount of material, which when used, and the refuse being removed, the apparatus is ready for action again upon the pan being refilled with a like amount as before. To illustrate, I place in a pan of an ordinary size machine five (5) pounds of calcium carbide and insert the pan in the retort and close the door. The three-way cock K being then turned to the full position, as shown in Fig. 1, and the cock H being opened, the apparatus is ready for action. The water will flow from the tank D through the siphon-pipe E into the transverse pipe F and therefrom, through the medium of needle-openings G, into the retort B, dropping upon the calcium carbide in the pan C. The vaporization ensuing, the gas will pass through the pipe J into the pipe L and from thence into a suitable reservoir or storage-tank or into the pipe system proper. Neither of these is shown, as it is not necessary. The process goes on without intermission until completed, and if the gas is used continuously a second supply of calcium carbide can be inserted; otherwise the gas proceeds to the storage-tank.

When it is necessary to renew the calcium carbide in the pan, the cock K is turned to the dotted position, thus cutting off the stor-

age-tank and house-pipes, and the gas within the retort flows out from the pipe M and escapes. The door P can then be opened and the pan C removed and the resultant products therein can be dumped. A duplicate pan can be utilized, if necessary, and the supply of calcium carbide already placed therein the pan can be immediately inserted and the above operation repeated. The lips N serve to return to the pan any condensation of steam upon the inner upper surface of the retort, so that when the pan is removed the retort is left perfectly clean.

The tank for supplying the water to make the gas is proportioned to the quantity of carbide to be placed in the pan, so that the best result may be obtained without waste or overflowing the pan.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a gas-generator, the combination of a retort, a removable pan occupying the bottom of said retort and adapted to contain the gas-producing material, and overhanging sides for returning the condensed vapors to the pan and preventing the same getting between the pan and retort, as set forth. 25

2. In a gas-generator, the combination of a retort having water-inlet and gas-outlet, with a pan fitting closely in the retort and adapted to contain the gas-producing carbide, with an overhanging roof or projecting lips on the inside of the retort adapted to return the condensed vapors to the pan and prevent the same from getting between the pan and bottom of retort, as set forth. 30 35

HENRY C. SERGEANT.

Witnesses:

WM. E. KNIGHT,
J. GREEN.