

No. 616,483.

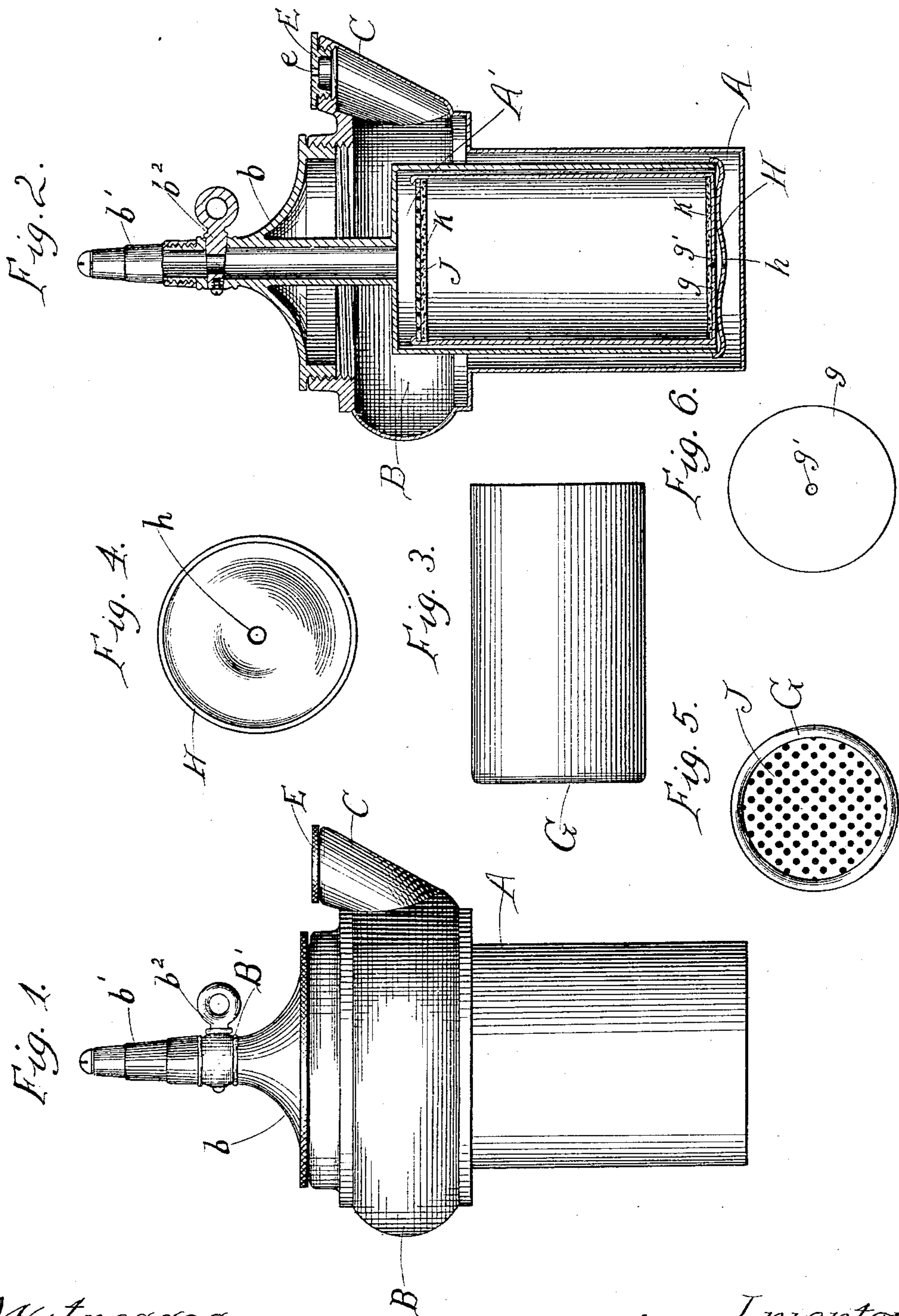
Patented Dec. 27, 1898.

J. A. MOSHER.
ACETYLENE GAS GENERATOR.

(Application filed July 6, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses.
Chas. B. Gillson.
Bester Baird

Inventor.
John A. Mosher
By Louis K. Gillson
Atty.

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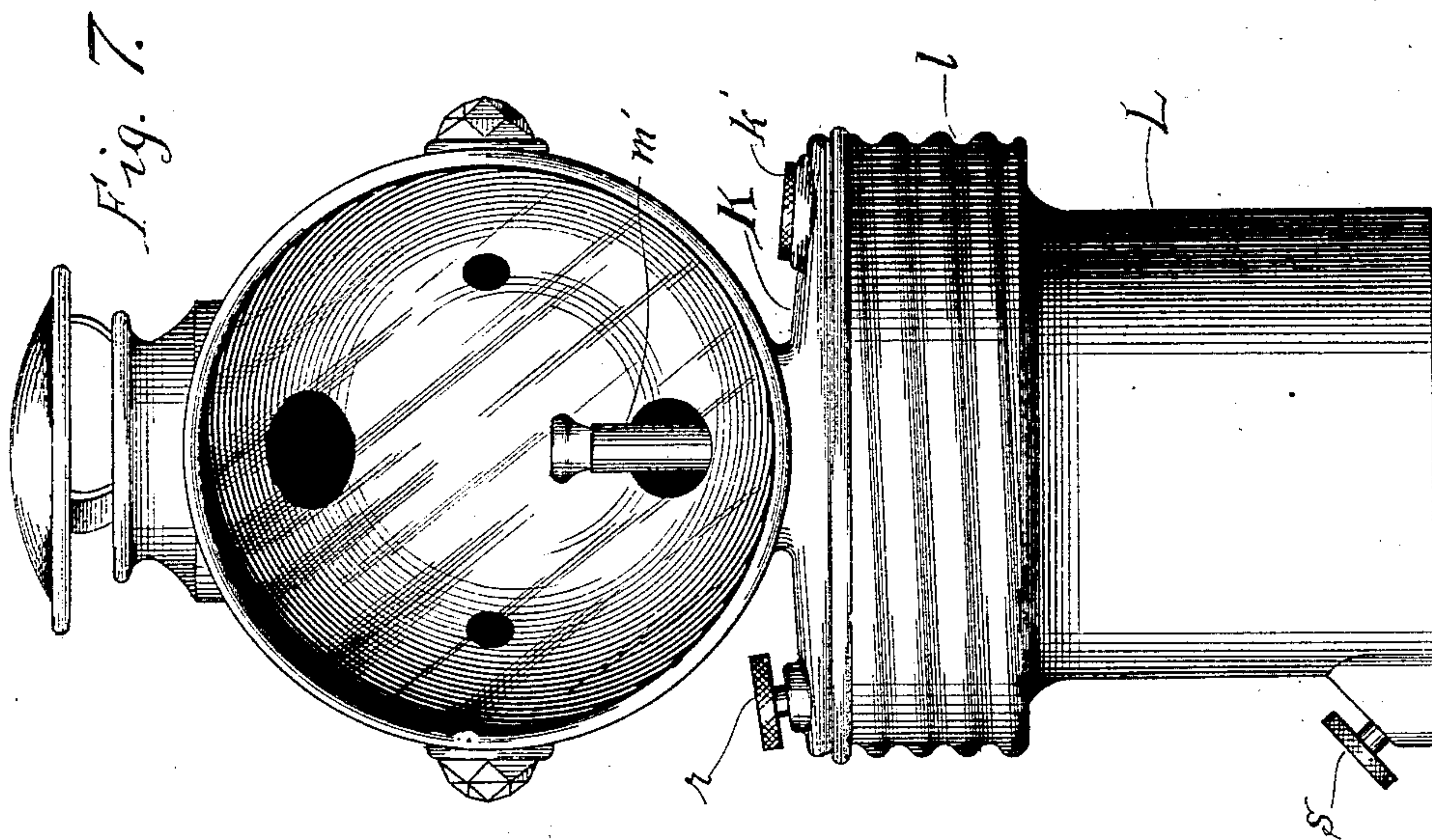
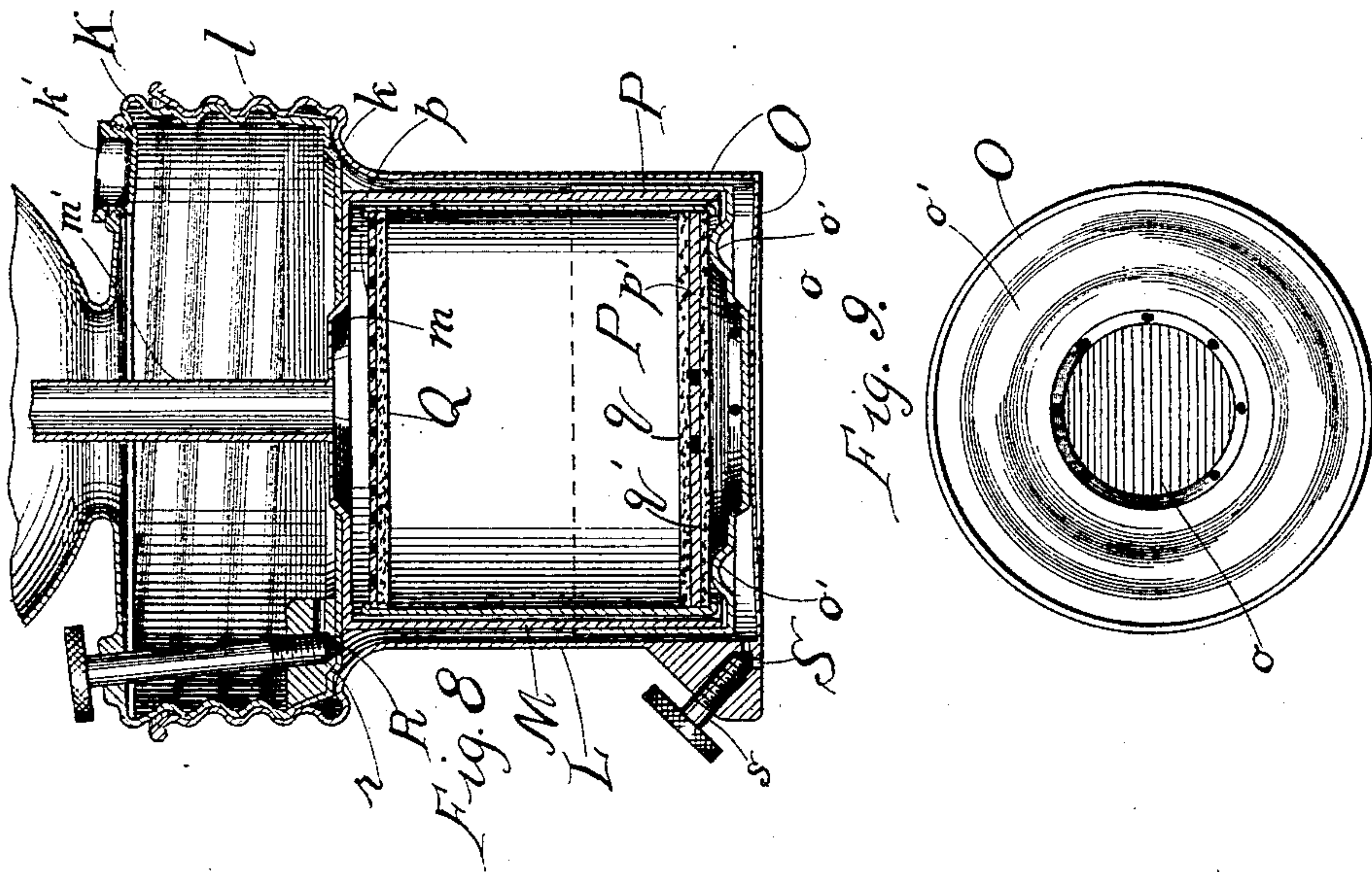
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Witnesses:
Chas. B. Gillson.
Hester Baird

Inventor.
John A. Mosher
By Louis K. Gleason
Atty.

UNITED STATES PATENT OFFICE.

JOHN A. MOSHER, OF CHICAGO, ILLINOIS.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 616,483, dated December 27, 1898.

Application filed July 6, 1897. Serial No. 643,495. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. MOSHER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Acetylene-Generators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The invention relates particularly to small generators of acetylene gas, and more especially to such as are embodied directly in a lamp, such as a hand or bicycle lamp.

The object of the invention is to secure in a generator in which the water-feed is regulated by the pressure generated convenience in charging the device with the solid material, such as calcium carbide, and in removing the residuum.

This object is attained by the novel construction shown and hereinafter described, in which a pervious container is employed which is adapted to removably enter the generating-chamber and which may be sold as a separate article of manufacture, the calcium carbide being placed within it and the container closed permanently, and being of such small cost that it may be thrown away after its contents have been decomposed.

In the drawings, Figure 1 is a side elevation of the generator in the form of a hand-lamp. Fig. 2 is a central vertical section of the same. Fig. 3 is an elevation of the container. Fig. 4 is a bottom plan of the generating-cylinder. Figs. 5 and 6 show the upper and lower ends, respectively, of the container. Fig. 7 is an elevation of a modified form of lamp, especially adapted for use as a bicycle-lamp. Fig. 8 is a detail central vertical section of the same, and Fig. 9 is a plan view of the bottom of the generating-chamber removed.

The body of the generator is shown in Figs. 1 and 2 as comprising a cylinder A, surmounted by a water-chamber B of greater diameter than the cylinder and being closed by a screw-threaded cap b, from which pro-

jects upwardly a burner-tip b', controlled by a valve or key b''.

The generating-chamber A' is cylindrical in form and is inclosed within the cylinder A and is connected directly with the burner b' and is supported by a tube B', formed, as shown, integrally with the cap b. The bottom II of the generating-chamber is removable and has a small central aperture h.

The container G is cylindrical in form and is made of light sheet metal. Its upper end J is freely perforated, and its lower end g has a small aperture g'. Both ends are secured in place by turning in the ends of the cylindrical portion, and adjacent to each end is a disk K, of porous material, such as felt or blotting-paper, so that while water and gas may enter and leave the container they do so slowly and the discharge of the solid material, even the very fine particles, is wholly prevented.

The tank B is provided with a filling-tube C, closed by a screw-plug E, having a vent-aperture e, from which gas may escape if the generation becomes excessive.

In the form of construction shown in Figs. 7, 8, and 9 as being intended for a bicycle-lamp the body of the lamp consists of a water-tank K, having a filling-aperture closed by a screw-plug k', having its side walls screw-threaded, and having its bottom k centrally apertured, and of the case L, extending below the tank, being cylindrical in form and having its upper end screw-threaded to take into the screw-threads formed on the side walls of the tank and having a closed bottom, except as to a drain-passage S, controlled by a screw-valve s. The generating-chamber consists of the case M, cylindrical in form and having at the top a central dome m, adapted to enter and close the central aperture in the bottom of the tank, a gas-pipe m' leading from this dome to the flame-chamber of the lamp. The bottom of the generating-chamber is closed by a flanged cap O, having a central inverted dome o, provided with lateral apertures, as shown, and being adapted for contact with the bottom of the case L, so that when this case is screwed upon the water-tank the dome m is forced into the aperture in the bottom of the latter.

The carbide container or cartridge P is cy-

lindrical in form and adapted to enter and substantially fill the case M. The upper end p of the container is freely perforated, as shown, for the escape of the gas, and its lower end p' has one or more small approximately central apertures for the admission of water. The ends of the container are secured by in-
 5 turning the ends of its cylindrical portion after the charge has been inserted. A pad Q ,
 10 of porous material, such as felt or blotting-paper, forms a lining for the end p of the container, and a similar pad q for the end p' , and an additional pad q' , of similar material, is placed outside of and in contact with the bot-
 15 tom p' .

The cap O is provided with an annular inwardly-projecting rib o' , surrounding the inverted dome o and adapted to bear forcibly against the pad q' .

20 A port R in the bottom of the water-tank admits water to the case L and is controlled by a screw-plug valve r , the stem of which projects from the tank.

In operation the water finds its way slowly
 25 to the carbid through the bottom of the container and the gas is discharged through the top thereof, the fibrous pad or disk at the top straining out all of the lime which might otherwise be carried upwardly with the gas.
 30 Should the gas be developed more rapidly than required for consumption, its pressure forces back the water out of the container and into the tank, entirely stopping the generation should the discharge of gas through
 35 the gas-pipe be cut off. The construction shown in Figs. 7, 8, and 9 provides for a very sensitive regulation of the gas, as it prevents the escape of the gas downwardly around the container by reason of the contact of the rib
 40 o' with the pad q' , and hence no gas can escape from the bottom of the generating-chamber except as it first expels all of the water. When it is desired to extinguish the light, the valve r is closed and the valve s is opened,
 45 so that a further discharge of water from the tank is cut off and the water within the case L and the bottom of the generating-chamber is allowed to drain off. The gas is preferably allowed to burn out and does so in a
 50 very few minutes. There is no discharge of gas through the drain-passage S , for the reason that by the use of the pad q a greater resistance to its egress from the container is provided at the bottom than at the top, and
 55 hence it finds its way to the burner exclusively so long as the generation continues.

I show only a conventional form of valve for controlling the discharge-passage from the water-tank and the drain-passage from
 60 the bottom of the lamp-body, and I do not desire to be limited to the particular form of construction shown.

The container or cartridge is made of such cheap material that it need not be preserved,
 65 but may be sold as a separate article of manufacture to be thrown away when its contents have been decomposed. The container is

readily inserted by opening the lamp-body and removing the cap at the bottom of the generating-chamber, and it will be seen that
 70 by this means the user is entirely relieved of the disagreeable task of cleaning out the generating-chamber after the carbid has been decomposed, a task so disagreeable that it is a serious obstacle to the introduction of lamps
 75 of this class.

By the use of the carbid-cartridge herein described the difficulty of preserving the carbid until required for use is also solved, as the fibrous lining for its ends, while offering
 80 no impediment to the free admission of water as required or to the discharge of gas as generated, prevents the access of atmospheric moisture to the carbid before the cartridge is placed within the lamp, so that it becomes
 85 practicable for the user of the lamp to provide himself with a sufficient number of these cartridges to last for a considerable period of time.

I claim as my invention—

1. In a gas-generator of the type described, the combination with a liquid-tank, a gener-
 90 ating-chamber, and a passage for conveying liquid from the tank to the lower portion of the chamber, of a container for the material
 95 to be acted upon by the liquid and having impervious side walls and its ends closed with pervious material, such container being adapted to fit within the generating-chamber and to cover the liquid-induction passage where-
 100 by communication between the interior of the chamber and such passage is exclusively through the container.

2. In a gas-lamp of the type described adapted to have its flame extinguished by cutting
 105 off the supply of liquid to its generating-chamber and allowing the gas-supply to be exhausted at the burner, the combination with a generating-chamber and a liquid-tank, and a passage connecting such chamber and
 110 tank, of means for cutting off the tank from such passage, means for draining off the contents of the passage and a pervious diaphragm interposed between the chamber and such
 115 drainage device, the passage from the generating-chamber to the burner being constructed to offer less resistance to the gas than the resistance of such pervious diaphragm.

3. In an acetylene-generator the combination with a water-tank having a valve-con-
 120 trolled eduction-port, a case, L , having a valve-controlled drainage-port and being detachably secured to the tank so as to inclose its eduction-port, of a case, M , adapted to fit within the case, L , and having an eduction-
 125 pipe for gas, a perforated cap for closing the bottom of the case, M , and having an annular instanding rib inclosing its perforations, a carbid-receptacle having perforations at its
 130 top and bottom, and pervious pads covering such perforations, the bottom of such receptacle resting upon the said instanding rib, all substantially as and for the purposes set forth.

4. The combination in an acetylene-generator, with a water-tank and a generating-chamber, of a carbid-container adapted to enter the chamber, and having impervious side
5 walls and its top and bottom closed by pervious disks, whereby liquid may enter and gas leave the container and solid material will be wholly retained therein.

5. As an article of manufacture, a carbid-

container comprising a cylinder having perforated ends, and porous pads forming linings for such ends.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN A. MOSHER.

Witnesses:

LOUIS K. GILLSON,
CHAS. B. GILLSON.