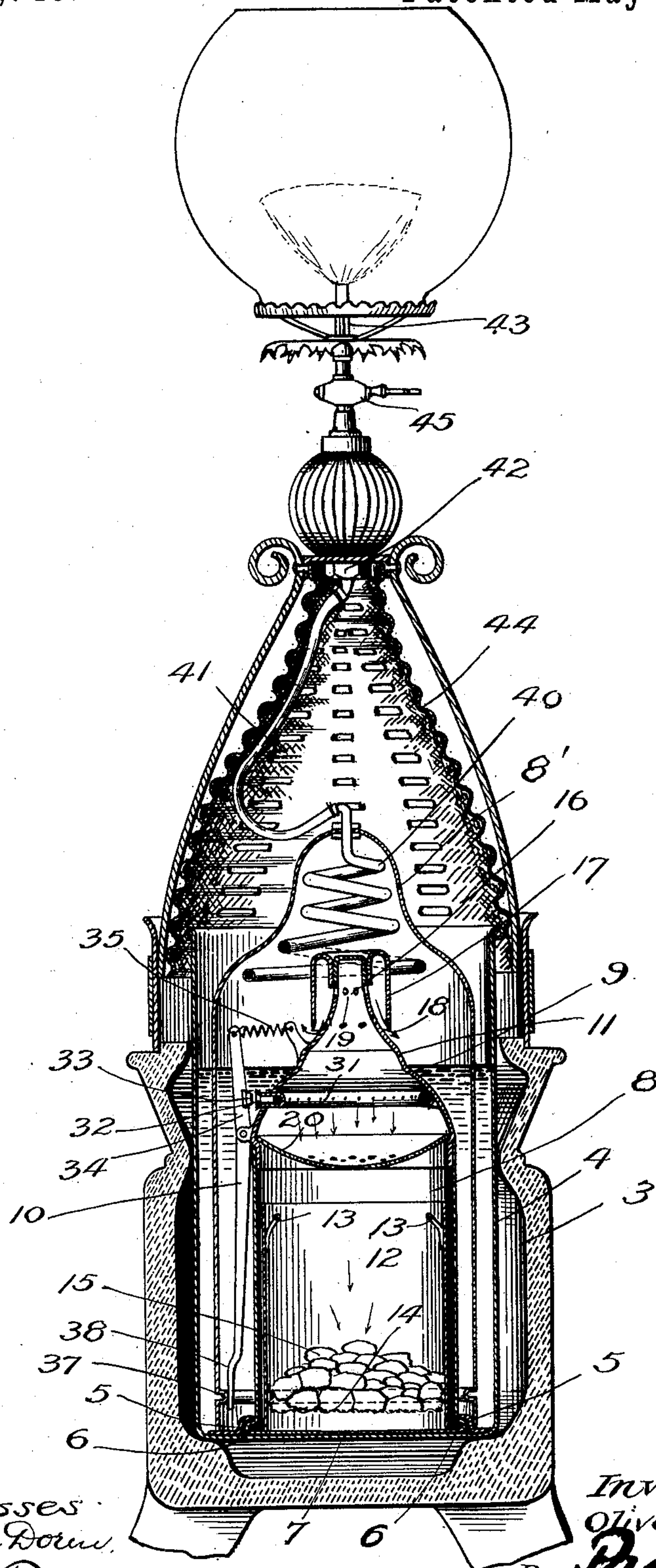


(No Model.)

O. G. SEWARD.
ACETYLENE GAS LAMP.

No. 603,746.

Patented May 10, 1898.



Witnesses
C. E. Van Dorn,
Richard Paul

Inventor;
Oliver G. Seward,
By *Paulo Hawley*
His Attorneys

UNITED STATES PATENT OFFICE.

OLIVER G. SEWARD, OF MINNEAPOLIS, MINNESOTA.

ACETYLENE-GAS LAMP.

SPECIFICATION forming part of Letters Patent No. 603,746, dated May 10, 1898.

Application filed October 15, 1896. Serial No. 608,924. (No model.)

To all whom it may concern:

Be it known that I, OLIVER G. SEWARD, of the city of Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Acetylene-Gas Lamps, of which the following is a specification.

My invention relates to automatic gas-lamps adapted to generate the gas within themselves.

The object of my invention is to provide an acetylene-gas lamp of a light, simple, and compact construction which will be complete in itself and will resemble an ordinary lamp and will be as readily movable.

A further object of this invention is to provide a lamp in which the production of gas will be automatically and reliably regulated, whereby smoking of the flame will be avoided and all danger of gas leakage or explosions will be avoided.

A further and particular object of the invention is to provide a lamp which may be made without any particular care to accuracy of dimensions or location of parts, and will therefore be capable of infinite modification, as required to take the place of the many forms of commercial lamps.

Further, it is the object of my invention to provide a lamp the body of which will at all times be cool, and therefore will not alarm timid persons nor those not acquainted with the chemical action and the production of heat which takes place when calcium carbide is moistened with water; and a further and another object of my invention is to provide a lamp in which all of the working or moving parts are concealed, while a symmetrical and artistic configuration is retained.

To these ends my invention consists in the combination, with a base or body, of a water tank or holder provided therein, a gas chamber or holder portion, a gas-producing-material holder or cartridge provided within said tank, and means for admitting water from the latter to the material in said cartridge; and, further, the invention consists in means for automatically controlling or regulating the flow or supply of water to the interior of said cartridge; and, further, the invention consists in particular constructions and in combinations of parts, all as hereinafter de-

scribed, and particularly pointed out in the claims.

The invention further consists in various means for condensing the vapor and in particular constructions and combinations of parts, all as hereinafter described, and particularly pointed out in the claims.

The invention will be more readily understood by reference to the accompanying drawing, forming part of this specification, which shows the lamp in vertical section, and in which—

2 represents a base, of a suitably-ornamental construction, in all respects similar to the base or body portion of the well-known oil-lamps, particularly those of the Rochester type. Within this base is a cavity 3 to receive the metal tank 4. In the bottom of the tank 4 are the quarter-turn fastenings 5, adapted to engage with pins or lugs or beads 6 upon the bottom 7 of the carbide cartridge or container 8.

8' represents a gravity gas-holder adapted to rise and fall according to the quantity of gas generated and to maintain a constant pressure of gas. This holder is smaller than the tank and moves therein, and the cartridge is smaller than either and is preferably placed eccentrically upon the bottom of the tank 4 in order to leave space upon one side of it for the regulating-lever 10, which is actuated by the movable gas-holder 8'. The cartridge 8 is provided with a removable top 11, having a slip or a screw-dent upon the upper end of the lower part of the cartridge, and when this part is removed the inner carbide holder or basket 12 may be placed within or removed from the cartridge.

13 13 represent the handles of the basket.

14 represents a screen-bottom for a basket, which bottom is raised slightly above the bottom of the cartridge and supports the calcium carbide or other gas-producing material 15. The tank is filled with water to about the level shown in the drawing and, as shown, the cap or neck of the cartridge always projects above the level of the water to permit the free egress of the gas produced within the cartridge. On the top of the cap or upper part 11 of the cartridge, which cap is reduced to a small neck 16, is a cap 17, the sides of which flare downwardly. An annular opening 18 is

left between the lower edge of the cap and the top of the cartridge. The gas escapes from the cartridge through holes 19 in the top thereof.

20 represents a preferably concave perforated diaphragm, preferably made a part of the upper portion 11 of the cartridge to be removed therewith. It might be made separate and adapted to rest upon the top of the basket. It is intended to distribute the water admitted above it evenly over the carbid beneath it. The water is admitted above the diaphragm through a perforated coil 31, having an opening 32 through the wall of the cartridge, in which opening is a valve-seat to receive the valve 33, provided upon the lever 34. This lever is preferably pivoted upon the cartridge or generator, and the valve is normally held closed by a spring 35, while the valve is opened by the engagement of the lower end of the lever with a bead or lug 37, extending inwardly from the wall of the movable gas-holder. The lever is provided with a flat part 38, so that the same and the movable gas-holder may remain in engagement some time after the gas-holder starts to rise. Thus the valve is held open and a small quantity of water will be admitted and deposited upon the calcium carbid within the generator or cartridge.

40 represents a condenser-coil arranged in the top of the gas-holder and from which the gas is conducted through a flexible tube 41 and through a burner-tube 42, upon the upper end of which is a burner 43.

The ornamental nature of the burner-fixature and the top 44 of the lamp-body may be altered to any extent, and the number and the arrangement of the burners may be increased at will.

45 represents an ordinary gas cock or valve arranged in the burner 2 and by which the gas may be shut off.

The top 44 is readily removable from the base to permit access to the gas-generator parts.

The operation of my device is as follows: The top 44, with the burner and globe also, being removed, the movable gas holder or chamber is lifted out of the tank. The cartridge or generator proper is then removed therefrom, and, being opened, the basket is filled with the calcium carbid or like material. The parts are then returned to their places, and as the movable gas-holder is dropped down into the water and over the cartridge the lever is moved to open the small valve, whereupon a small stream of water will flow into the distributing-coil 31 and, dropping upon the diaphragm, will be distributed over the top of the body of calcium carbid within the generator. Gas will be instantly produced, and its generation will be continued so long as water remains present in the mass of carbid. The gas-holder will begin to rise immediately, and a small movement thereof will close the valve and prevent the entrance of more water to

the generator. The material within the generator will take up the water which has been supplied thereto, and the holder will rise to the limit of its movement, where it will remain unless the gas is used and burned at the tip or burner 43. If so used, the holder will gradually sink until it again strikes the valve-lever, whereupon more water will be admitted to the calcium carbid. Thus the action of the device is entirely automatic, and the judgment of the user is not required as to the amount or the time of using the water. The cap upon the top of the cartridge or generator deflects the greater part of moisture from the gas, and the remainder is condensed in the coil 40, so that the gas passing to the burner is dry and cool and ready for use.

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

1. In an acetylene-gas lamp, the combination, with a water-tank, of a carbid holder or cartridge to be submerged in the water in said tank, a valve in the upper part of said holder or cartridge and through which water is admitted from the tank to the interior of the holder or cartridge, a suitable chamber above the surface of the water in said tank, and into which the gas from the holder or cartridge is conducted therefrom, and automatic means actuated by the pressure of gas to open and close said valve, substantially as described.

2. In an acetylene-gas lamp, the combination, with a water tank or receptacle, of a carbid holder or cartridge arranged in said tank to be submerged by the water therein, and having a water-inlet opening whereby water is admitted to the holder from said tank, a valve for said inlet-opening, said holder having a port or gas-outlet projecting above the surface of the water in the tank, a movable gas-holder arranged in said tank and inclosing said holder and into which the gas from the latter is delivered, and means in connection with said gas-holder for operating the valve at the said inlet-opening to regulate the flow of water into the holder or cartridge, in accordance with the quantity of gas in the gas-holder, substantially as described.

3. In an acetylene-gas lamp or generator, the combination, with the water-tank, of a carbid-holder, a gas-holder arranged in said water-tank to rise and fall therein, the gas being held in the upper part of said gas-holder, a gas or burner pipe arranged above said gas-holder and a condenser arranged in the upper part of said gas-holder and carried thereby, the gas having to pass through said condenser to escape from the gas-holder and enter said pipe, and said condenser being so arranged that the liquid of condensation flows downwardly therein, substantially as described.

4. In an acetylene-gas lamp, a body comprising a lower base portion and an upper part, said upper part bearing a burner and said lower part provided with a water tank

or receptacle and with a carbid-holder, a gas-holder in said tank to rise and fall therein and in the upper part of the body, and a distensible connection between said gas-holder and said burner, substantially as described.

5 5. In an acetylene-gas lamp or generator, the combination, with the water-tank or carbid-holder, of a cartridge provided in the said tank, means for locking the same there-
10 in, said holder or cartridge being submerged by the water in said tank and having an opening to admit water from the tank, a valve-lever, a movable gas-holder to actuate said lever, and a gas-outlet from said carbid holder
15 or cartridge substantially as described.

6. In an acetylene-gas lamp or generator, the combination, with a carbid-holder or tank surrounded or submerged by water and where-
20 by it is kept cool, means for supplying water to the interior of said holder or cartridge, a gas-chamber into which the gas is delivered from said holder or cartridge, and the down-
wardly or backwardly turned deflector 17 ar-
25 ranged at the gas-outlet of the said holder and in the said chamber, and by which the moisture in the gas is caught and condensed, substantially as described.

7. In an acetylene-gas lamp, the combina-
30 tion, with a water-containing tank, of a stationary generator or cartridge almost submerged therein and removable therefrom, a gas-con-
taining chamber or portion, said cartridge comprising upper and lower parts, making a
water-tight joint between them, a basket pro-
35 vided in the lower part, said upper part hav-
ing gas-outlet openings and a deflector sur-

rounding the same, said upper part also pro-
vided with a water-inlet opening, and a valve therefor, and means for distributing the water entering said opening, substantially as de- 40
scribed.

8. The combination, with a suitable base, of an upper removable part carrying a burner, a water-tank provided in the lower part, a
45 stationary cartridge or generator almost sub-merged therein, a movable gas-holder, means for regulating the flow of water from the tank into said generator, and a flexible connection
from said gas-holder to the burner-pipe, said
50 connection, the gas-holder and the generator being readily accessible upon the removal of
said upper part of the base or body of the lamp, substantially as described.

9. The gas-generator inclosed in a suitable
55 chamber or holder and comprising the lower portion 8 to contain the gas-producing ma-
terial, the upper portion secured upon the top of said portion 8 and provided with the
spreading or distributing diaphragm and with
60 the perforated neck or top, means for admit-ting water above said diaphragm, and the
downwardly-turned deflector 17 arranged
upon said top or neck and whereby moisture
in the gas is condensed, substantially as de-
65 scribed.

In testimony whereof I have hereunto set
my hand this 10th day of October, A. D. 1896.

OLIVER G. SEWARD.

In presence of—

C. G. HAWLEY,
RICHARD PAUL.