No. 624,361. Patented May 2, 1899.

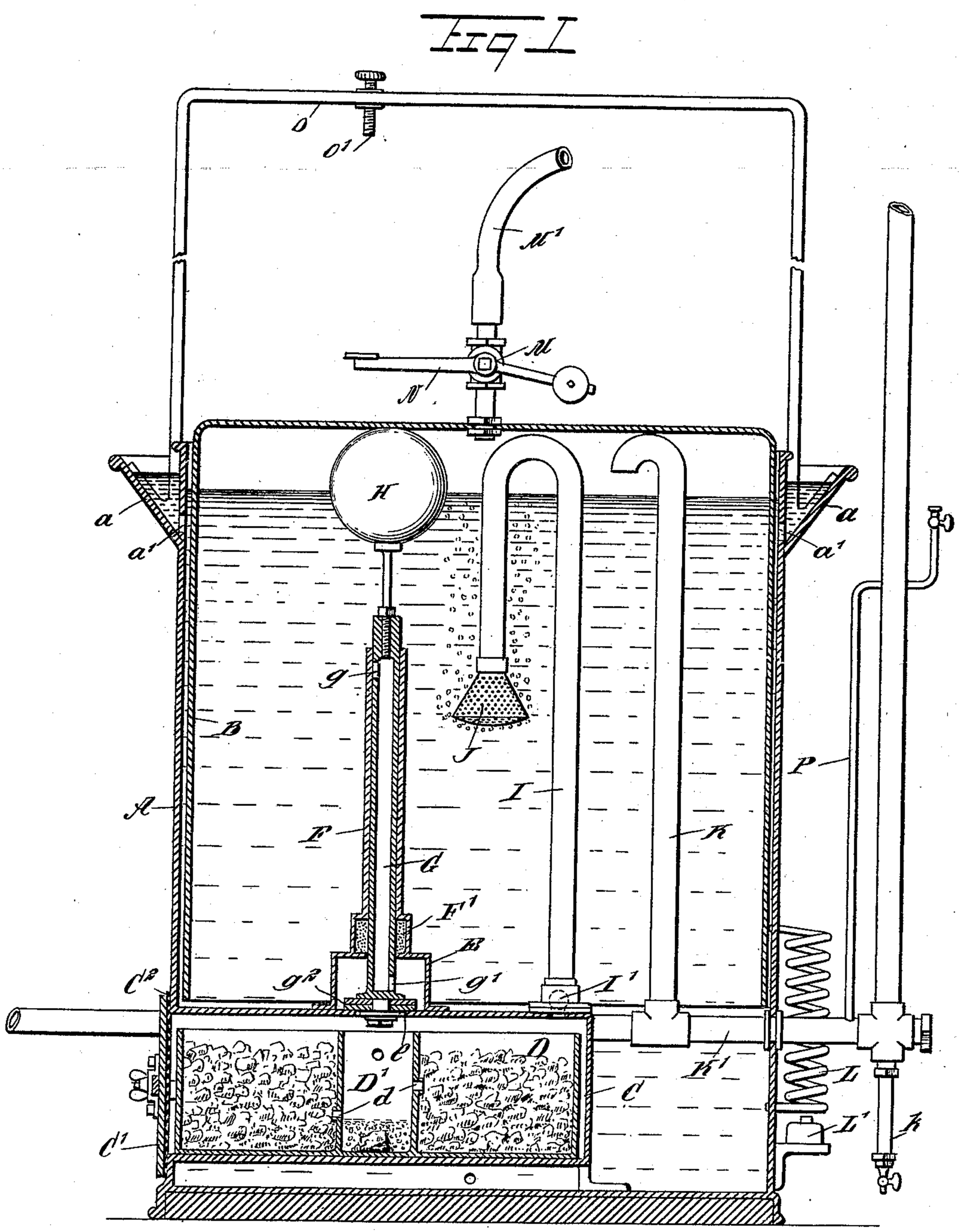
E. A. MEYER.

ACETYLENE GAS GENERATING APPARATUS.

(Application filed Nov. 3, 1898.)

(No Model.)

Fig 1



WITNESSES:

H. Walker

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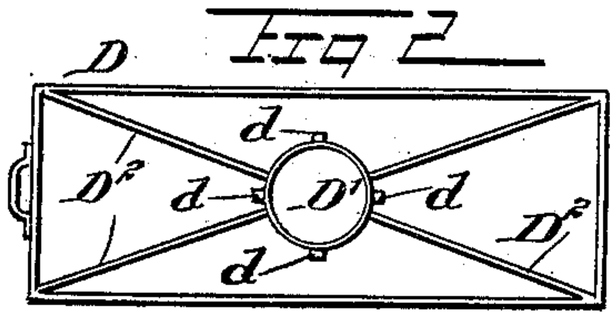
Fig 2



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ACETYLENE-GAS-GENERATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 624,361, dated May 2, 1899.

Application filed November 3, 1898. Serial No. 695,351. (No model.)

To all whom it may concern:

Be it known that I, ERNST A. MEYER, of Memphis, in the county of Shelby and State of Tennessee, have invented a new and Improved Acetylene-Gas Apparatus, of which the following is a full, clear, and exact description.

My invention relates to an improvement in acetylene-gas apparatus of that class in which water is fed in measured quantities to an excess of carbid.

My invention comprises the novel features hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indi-

Figure 1 is a sectional elevation of my decate corresponding parts in both the figures. vice, and Fig. 2 is a top plan view of the drawer or removable carbid-holder.

In constructing my device a gasometer of the usual construction is used, consisting of an outer tank A and an inner inverted bell B, the tank A being filled with water and the bell rising and falling in the water according to the supply of gas and forming in this manner a water seal. The tank is provided at its upper edge with an upwardly and outwardly sloping flange *a*, which forms a trough, into which water for filling the tank may be poured. This trough is connected at frequent intervals with the interior of the tank by means of holes *a'*, made through the wall of the tank.

Within the lower part of the tank is formed a carbid-chamber C, which is entirely surrounded with water, excepting at one end, which opens through the side of the tank. This opening is closed by a plate C', provided with any suitable means for holding it firmly in place, and between said plate and the edges of the opening is placed a sheet C^2 of packing material, so as to insure a tight joint. This carbid-chamber is adapted to receive a removable box or drawer D. (Shown in section in Fig. 1 and in plan in Fig. 2.) The drawer and the carbid-chamber are both preferably made rectangular in cross-section. The box or drawer D, which forms the carbid-holder, is provided with a central compartment D' and with partitions D^2, extending from the central compartment to the outer walls, preferably, as shown in Fig. 2, diagonally to the corners of the holder. In the walls of the central compartment is a series of apertures *d*, connecting with the various compartments and located at successively higher elevations.

Immediately over the point occupied by the central compartment when the carbid-holder is in place is an opening *e*, forming a port for the admission of water to the carbid-holder, and surrounding said port is a valve-chamber E, which extends upward into the water within the gasometer. Extending upward from said valve-chamber is a tubular valve-casing F, within which fits and slides the tubular valve G, provided with two side openings *g* and *g'*, located, respectively, at the top and bottom of the tubular valve and so spaced that when the upper opening *g* is raised just above the upper end of the valve-casing F the lower opening *g'* will be just below the top of the valve-chamber E, thus affording a free communication between the valve-chamber and the interior of the gasometer. In this position of the valve the water will flow through the valve and the port *e* into the central compartment of the carbid-holder. The chamber F' just above the valve-chamber E is filled with some suitable packing material.

To the lower end of the tubular valve G is secured a disk g^2 of any suitable material, which will act as a valve to close the port *e* when the valve is lowered upon the same, as shown in Fig. 1. In this position of the valve the upper opening *g* is closed by its being drawn below the upper end of the casing F, and the flow of water through the valve is further checked by the valve formed by the disk g^2. To the upper end of the valve G is connected a float H, the connection being of such length that the float will normally hold the valve G raised to such point that the opening *g'* is entirely above the valve-chamber E, and the flow of water is thus cut off from the carbid-chamber. When the gas has been consumed, so that the bell B drops into contact with the float H, the bell will press the float downward until the opening *g'* in the valve G is in communication with the valve-

chamber E, and the flow of water will be renewed. As the gas is generated by the new supply of water the bell will rise until the float again closes the opening g'. This operation will be repeated at each dropping and rising of the bell. When the carbid in the holder has all been consumed, the bell will continue to drop after the opening g' has been brought into communication with the valve-chamber, thus pressing the disk g^2 into contact with the edges of the port e and finally shutting off the fall of water.

The carbid chamber or generator proper is connected with the gasometer by means of a pipe I, which has its upper end bent downward and extending beneath the level of the water, said end terminating in a perforated cone J or other equivalent device, by which the gas is discharged into the water through small openings, thus securing a contact between the gas and the water and the purification of the gas while rising through the water. A backflow of water within the pipe I is prevented by means of a check-valve of any suitable construction. As herein shown, a check-valve is placed at the lower end of the pipe and consists of a ball I', seating upon an opening communicating with the carbid-chamber.

The gas is drawn from the gasometer for use through a pipe K, which connects with a horizontal pipe K', extending out through the sides of the tank in one or both directions.

To the upper end of the gasometer-bell is connected a relief-valve M, upon the stem of which is secured a weighted lever N, so constructed that the weight of the lever will hold the valve closed. Upon a cross-bar O or other suitable support located above the bell is secured a pin O' or equivalent device, so located as to engage one end of the lever N and open the valve in case the bell rises sufficiently. This will discharge the overplus of gas through the pipe M', which extends to the outer atmosphere or any other point where the gas may be freely discharged without danger.

A pipe P is connected to the gas-discharge pipe K' and is provided with a petcock, by which the air or gas within the gasometer may be discharged whenever necessary.

In order to prevent possibility of the water within the device freezing, a coiled pipe L is placed outside the tank and connected at top and bottom with the interior of the tank. Beneath this coil is placed a lamp or burner L', which may be lighted and the water within the coil thus heated, so as to induce a circulation within the tank and warm the water therein. To the discharge-pipe K are also connected a drip-pipe and valve k, by means of which any moisture which collects in the pipe may be discharged.

When the carbid within the holder has all been consumed, the valve G will sink to the position shown in Fig. 1, thus closing all communication between the carbid chamber or generator and the gasometer. The plate C' is then removed and the carbid-holder D taken out. A fresh holder charged with carbid may be in readiness and be inserted within the chamber C. Before inserting the fresh holder the compartment D' is supplied with a quantity of water, not sufficient, however, to rise to the first opening d. As the holder is inserted a lump or two of carbid is dropped in the water. The gas generated thereby will be sufficient to cause the gasometer-bell to rise, so as to permit the disk g^2 to be raised from its seat and the supply of water by way of the valve to be renewed. Except for this some means would have to be provided for raising the valve.

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

1. A water-supply-controlling valve for acetylene-gas generators, comprising a valve-chamber having connection with the carbid-holder, a valve casing or tube connected therewith and extending into the water-reservoir, a tubular valve slidable in the casing-tube, and having a hole in its side near each end, adapted in the middle position of the valve to connect respectively with the reservoir and the valve-chamber, and each in one extreme position to lie wholly within the casing-tube, and a float connected with the valve to operate it, substantially as described.

2. An acetylene-gas generator, comprising a gasometer having a carbid-chamber in its lower part, a valve-chamber above the carbid-chamber and having a port connecting with said carbid-chamber, a tubular valve-casing extending from the valve-chamber into the water in the gasometer, a tubular valve fitting and sliding in said casing, said valve having a side opening near each end adapted in the middle position of the valve to connect respectively with the water in the gasometer and the valve-chamber, and in extreme positions of the valve to close one or the other opening by drawing the valve into the casing-tube, the end of said valve-tube acting in its lowermost position to close the port connecting the valve-chamber and the carbid-chamber, and a float in the gasometer and connected with the tubular valve, and adapted to be engaged by the gasometer-bell when in its lowermost position and thereby to close the side ports in the tubular valve, substantially as described.

3. An acetylene-gas apparatus, comprising a gasometer, a carbid-holding chamber in the bottom of the gasometer and having a door communicating with the outside, a carbid-holding drawer or removable box within said chamber and divided into a central compartment and surrounding compartments, the central compartment communicating directly with each of the surrounding ones by apertures in its wall at successively greater heights,

a water-supply valve located at the central compartment and communicating with the water-space in the gasometer, means for controlling said valve by the gasometer-bell, and a gas-discharge pipe leading from the carbid-chamber and discharging through a return-bend beneath the water in the gasometer and having a check-valve therein, substantially as described.

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