

No. 638,449.

Patented Dec. 5, 1899.

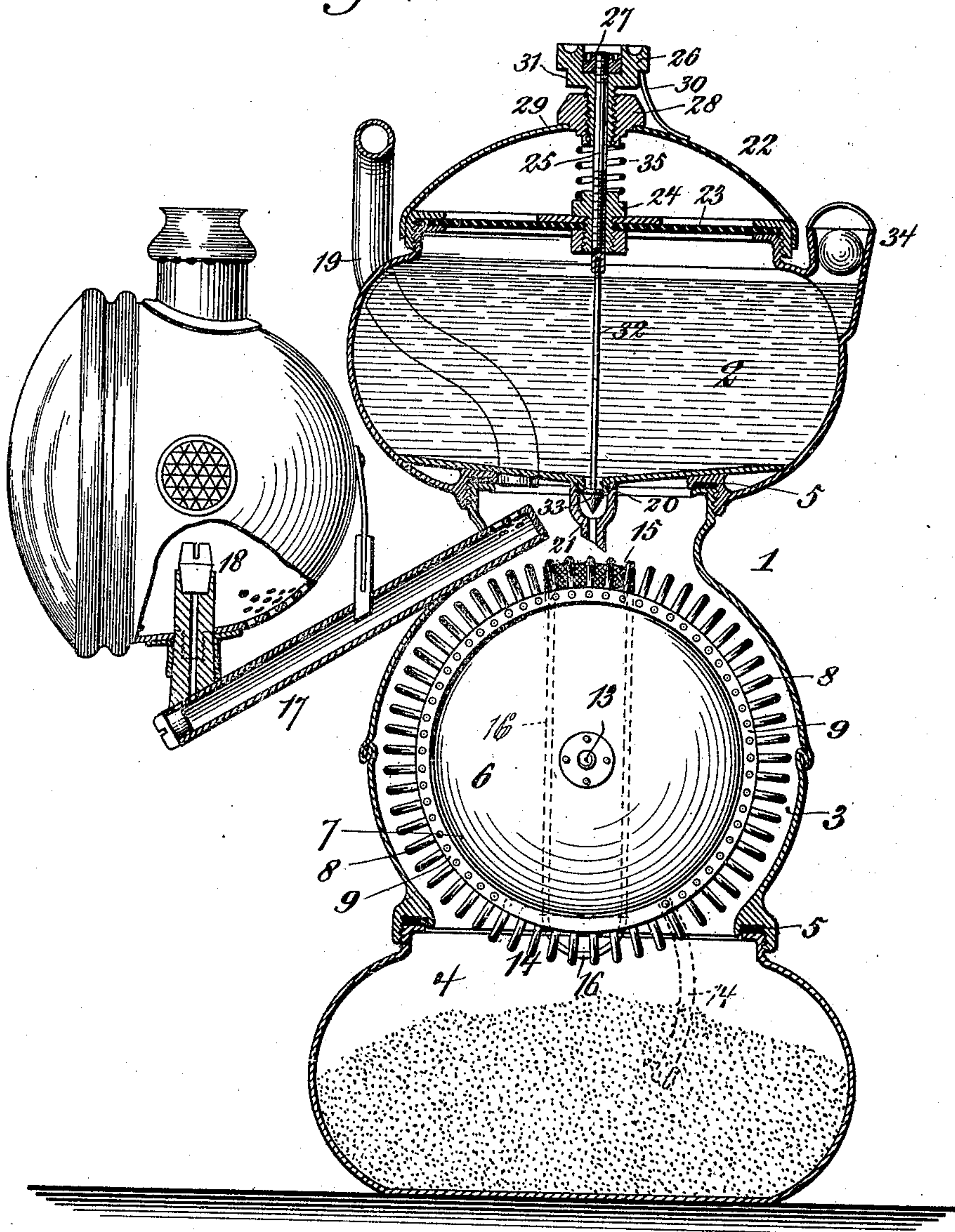
E. J. DOLAN.
ACETYLENE GAS GENERATING LAMP.

(Application filed Dec. 17, 1897.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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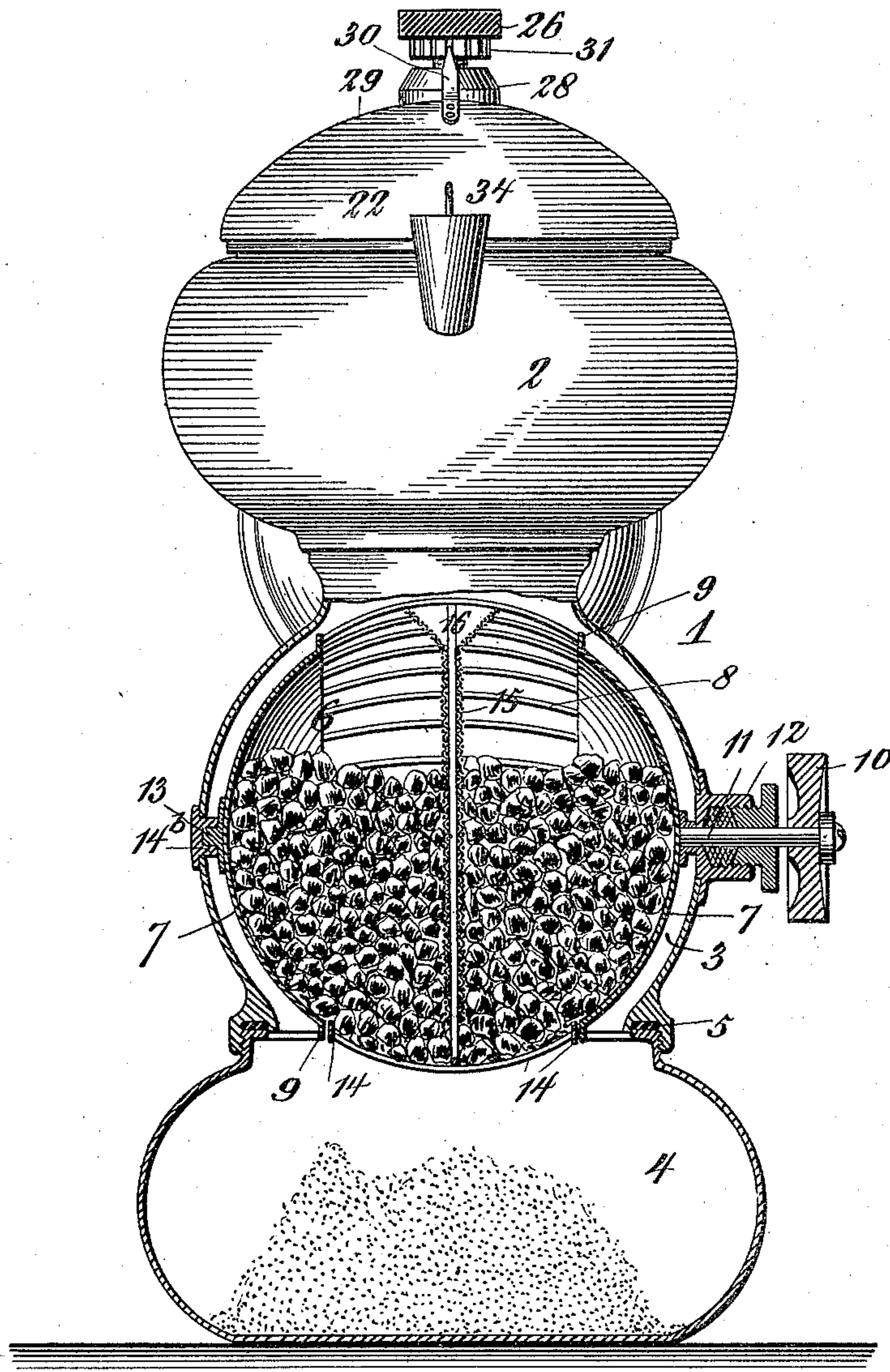
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Fig. 2,



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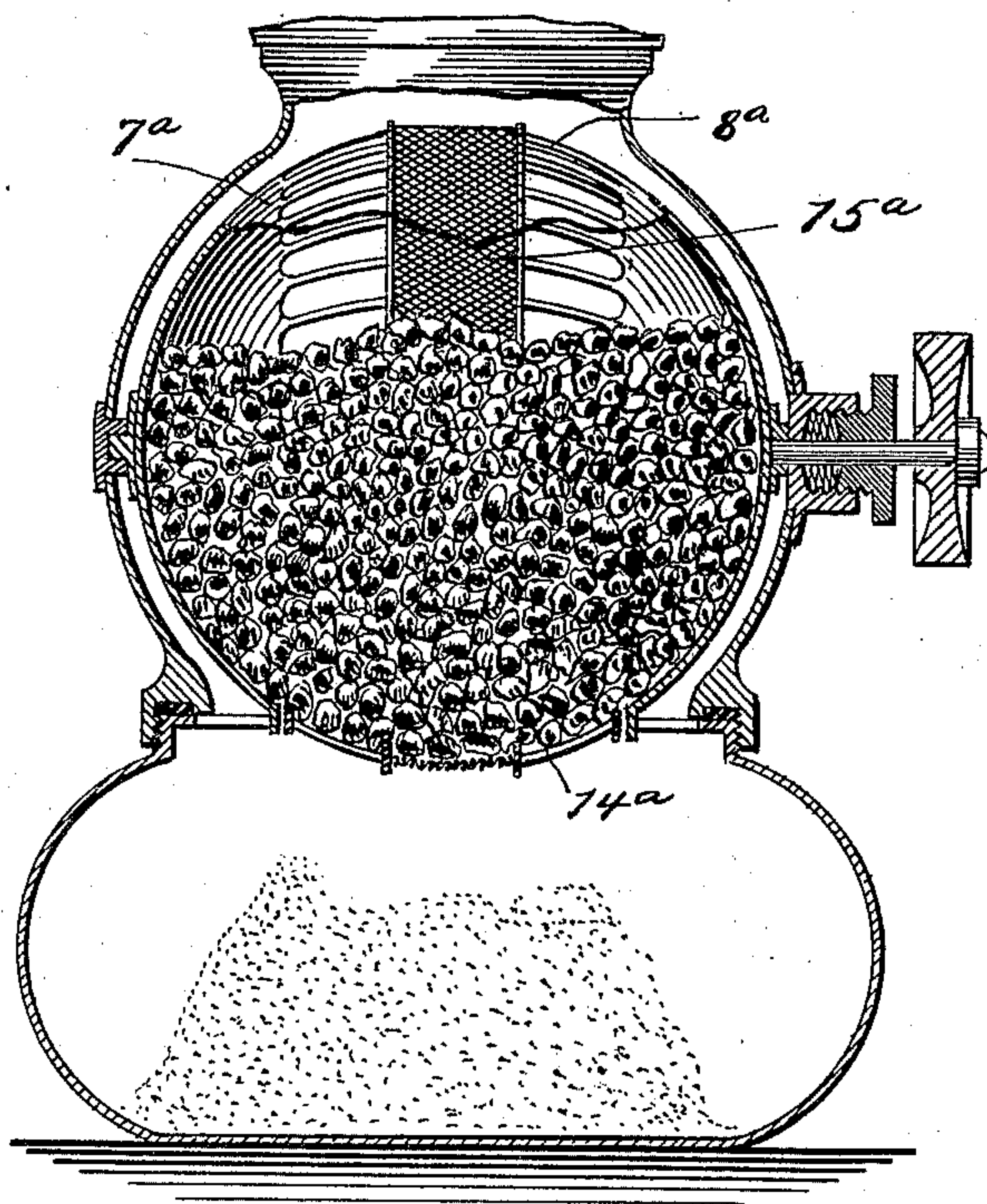
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Fig. 3,



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UNITED STATES PATENT OFFICE.

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ACETYLENE-GAS-GENERATING LAMP.

SPECIFICATION forming part of Letters Patent No. 638,449, dated December 5, 1899.

Application filed December 17, 1897. Serial No. 662,266. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. DOLAN, of Philadelphia, in the State of Pennsylvania, have invented a new and useful Improvement in Lamps, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

This invention relates to lamps in which gas is generated and burned, especially acetylene gas, its objects being to provide means to effectively spray the water through the calcium carbide, so that a larger quantity of gas will be generated than heretofore; to provide means for regulating the supply of water to the calcium carbide, and consequently the amount of gas generated at intervals, and also to provide means for separating the lime formed by the chemical action of the water on the carbide from the carbide. In accomplishing these objects I preferably employ a casing separate from the burner, in which are located the water-supply chamber, a vessel or receptacle for containing the gas-producing material, and an additional receptacle for receiving the matter freed from the gas-producing material. The water-receptacle is provided with a diaphragm, to which is connected a valve controlling the supply of water to the gas-producing material, and the diaphragm is influenced and operated upon by the gas generated. The receptacle containing the gas-producing material is provided with a webbing or net or screen, onto which the water drops in order that it may be sprayed, and it may be rotated at intervals to free the lime formed from the gas-producing material, which escapes through a peripheral grating formed for that purpose.

My invention will be readily understood from the accompanying drawings, in which similar numerals of reference refer to similar parts, and in which—

Figure 1 is a vertical section showing part of the burner-casing in elevation. Fig. 2 is a rear view of the lamp, part being in elevation and part being in section; and Fig. 3 is a vertical sectional view of the lower part of the casing, showing a modification of the receptacle containing the gas-producing material.

Referring now more particularly to Figs. 1 and 2, 1 represents the generator-casing of the lamp, which for convenience is made up of

several compartments. The upper compartment is made into a water-receptacle 2, the middle compartment 3 formed to receive a vessel or receptacle for containing the gas-producing material, preferably calcium carbide, while the lower compartment 4 forms a receptacle into which the lime from the carbide is discharged. These several compartments are made detachable, and at the union of the parts a washer 5 is inserted to effect a tight joint. Located within the compartment 3 of the casing is a ball or globular shaped vessel or receptacle 6, which contains the calcium carbide. It is composed of the struck-up or dish-shaped sides 7 and the bowed wires 8, which are secured at their ends in the flanged edges 9 of the sides 7, so that a peripheral grating may be formed through which the lime from the calcium carbide escapes during the rotation of the vessel. The vessel is rotated by means of the milled wheel 10, carried on the short shaft 11, which is secured at one end to one of the sides 7 and which has bearing in the stuffing-box 12, while the other side of the vessel is provided with a projection 13, fitting in a bearing 14^b, secured in the wall of the compartment. A hinged gate 14 is provided at one portion of the periphery of the vessel, which affords a means for filling and emptying the vessel of the gas-producing material. The vessel 6 is further provided with a webbing, net, or screen 15, which is held in position by means of the wire frame 16. The sides or ends of the webbing, net, or screen extend for a considerable distance into the interior of the vessel, while its bowed portion is flared where it contacts with the wires 8 of the vessel 6. The purpose of this webbing or net is to spray the water as it drops onto it, so that a greater area of the carbide will be affected by the water, and consequently a larger quantity of gas generated, and also by reason of its extending into the body of the carbide the water will be conducted by the screen into the interior of the mass of carbide, so that the gas resulting therefrom will pass up through the carbide, which dries it, thereby enabling a drier gas to be obtained. The gas generated rises to the upper part of the receptacle, and from there it passes through the supply-tube 17 to the burner 18. The gas also passes into one end of the tube 19,

the other end of which projects into the water-receptacle between the top of the water contained therein and the under side of the diaphragm for the purpose of affecting the diaphragm to close the outlet from the receptacle to shut off the supply of water to the carbid, thereby temporarily stopping the generation of gas.

The water-receptacle 2 is provided at its bottom 20 with an outlet, to which is connected the short tube 21. It is also provided with a removable top 22, between which and the top of the water-receptacle a diaphragm 23 is held. This diaphragm is provided with a nut 24, through which the screw-threaded end of a rod 25 passes, the other end of which is held in an adjusting-nut 26 by means of a nut 27. The adjusting-nut 26 works in a bushing 28, carried by the dome-top 29, and it is held in its adjusted position by means of a catch 30 in engagement with a milled surface 31, formed thereon. To the lower end of the rod 25 is secured the head 32 of the valve 33, which has a seat provided for it in the outlet of the bottom of the water-receptacle.

In Fig. 3 I have shown a modified form of receptacle for containing the calcium carbid. In this form the sides 7^a and grating 8^a are preferably made integral, though, if desired, they may be separate and united in the manner shown in Figs. 1 and 2. The screen or webbing 15^a extends completely around the receptacle, so that the water will be conducted all around the carbid. A gate 14^a is also provided to permit of the filling of the receptacle.

The operation of the device is as follows: The water-receptacle is filled through the ball-valve 34 and the valve 33 adjusted against the action of the spring 35 to permit of a quantity of water escaping therefrom. The water drops onto the screen, which sprays it before it comes in contact with the calcium carbid, and it also conducts a portion of the water to the interior of the mass of carbid in the form shown in Figs. 1 and 2, while in Fig. 3 the water is conducted around the receptacle. The gas generated therefrom rises to the top of the receptacle 3 and passes to the burner and also to the space between the diaphragm and water. As soon as the quantity of gas increases to any great extent the diaphragm will be acted on by the gas to close the valve against the action of the spring, thereby shutting off the supply of water to the carbid. As soon as the quantity of gas decreases the spring will again open the valve to allow the water to pass out. The vessel 6, containing the carbid, is rotated at intervals in order to separate the lime therefrom, which drops into the receptacle 4, from where it may be removed whenever desired.

What I claim as new is—

1. The combination of a suitable casing, a rotatable vessel or receptacle located therein and containing the material from which the

gas is to be generated, suitable means for supplying water thereto, and a screen or webbing carried by said receptacle and moving therewith for spraying the water and conducting it to the mass of material from which the gas is generated, substantially as described.

2. The combination of a revoluble vessel or receptacle for containing the material from which the gas is to be generated, means for supplying water to said revoluble vessel or receptacle and a webbing or net carried by said revoluble receptacle, for spraying the water, and said webbing or net having its ends projecting into the mass of material contained therein, whereby the water will be conducted to that part of the material, substantially as shown and described.

3. The combination of a suitable casing, a vessel for containing the material from which the gas is to be generated, said vessel or receptacle being composed of solid side pieces united at their edges by wires which form a peripheral grating, means for supplying water to the material contained in said vessel or receptacle, and a webbing carried by said receptacle adapted to spray the water falling into it, and having its ends extending into the interior of the vessel or receptacle whereby the water will be conducted by said ends to the gas-producing material adjacent them, substantially as described.

4. The combination of a suitable casing, a rotatable vessel or receptacle located therein and containing the material from which the gas is to be generated, means for supplying water thereto, a grating for said vessel or receptacle and means carried by said rotatable vessel or receptacle for distributing the water onto the said material, substantially as described.

5. In a lamp, the combination of a suitable casing formed from separable compartments superimposed and suitably joined together, the upper of said compartments forming a water-supply for the compartment next beneath, means in said upper compartment for controlling the discharge of water therefrom, said means being under the control of the gas generated in the compartment beneath, a rotatable vessel or receptacle in the second compartment for containing the material from which the gas is generated, means carried by said receptacle for spraying the water onto the material within the receptacle, a burner connected with said compartment, and the last of said compartments adapted to contain the resultant from the combination of the water and gas-generating material, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD J. DOLAN.

Witnesses:

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