

No. 666,204.

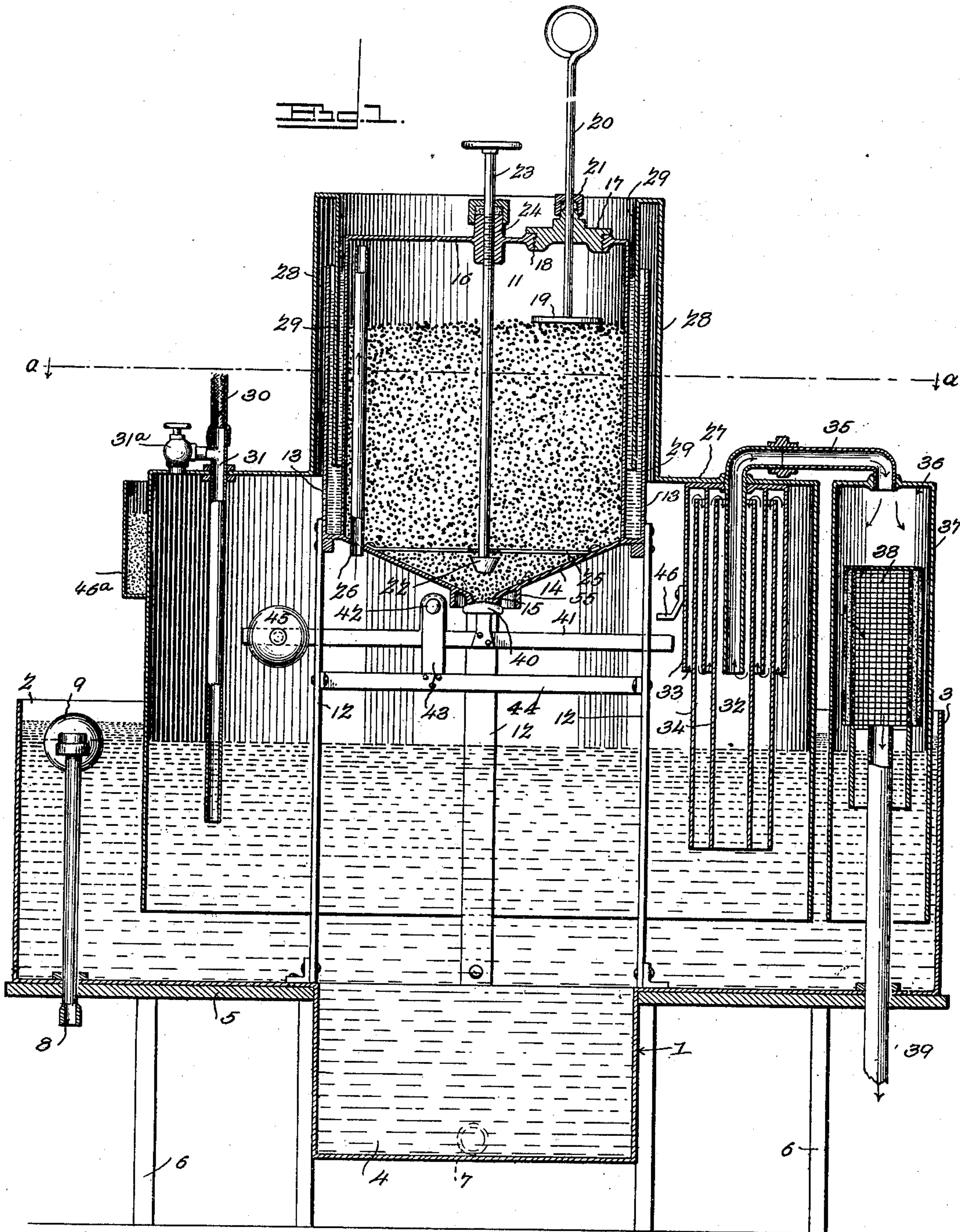
Patented Jan. 15, 1901.

W. MILLER.
ACETYLENE GAS GENERATOR.

(Application filed June 28, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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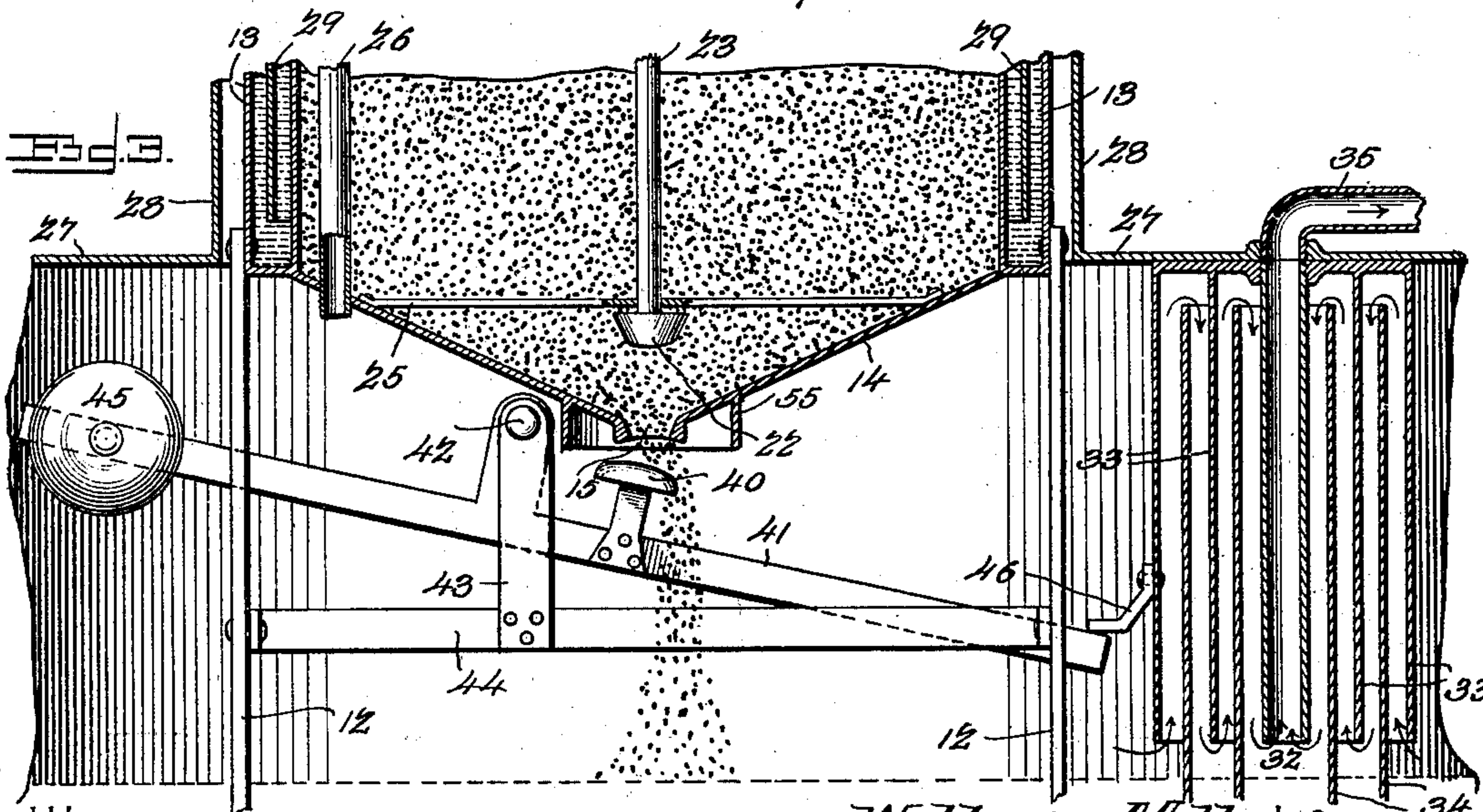
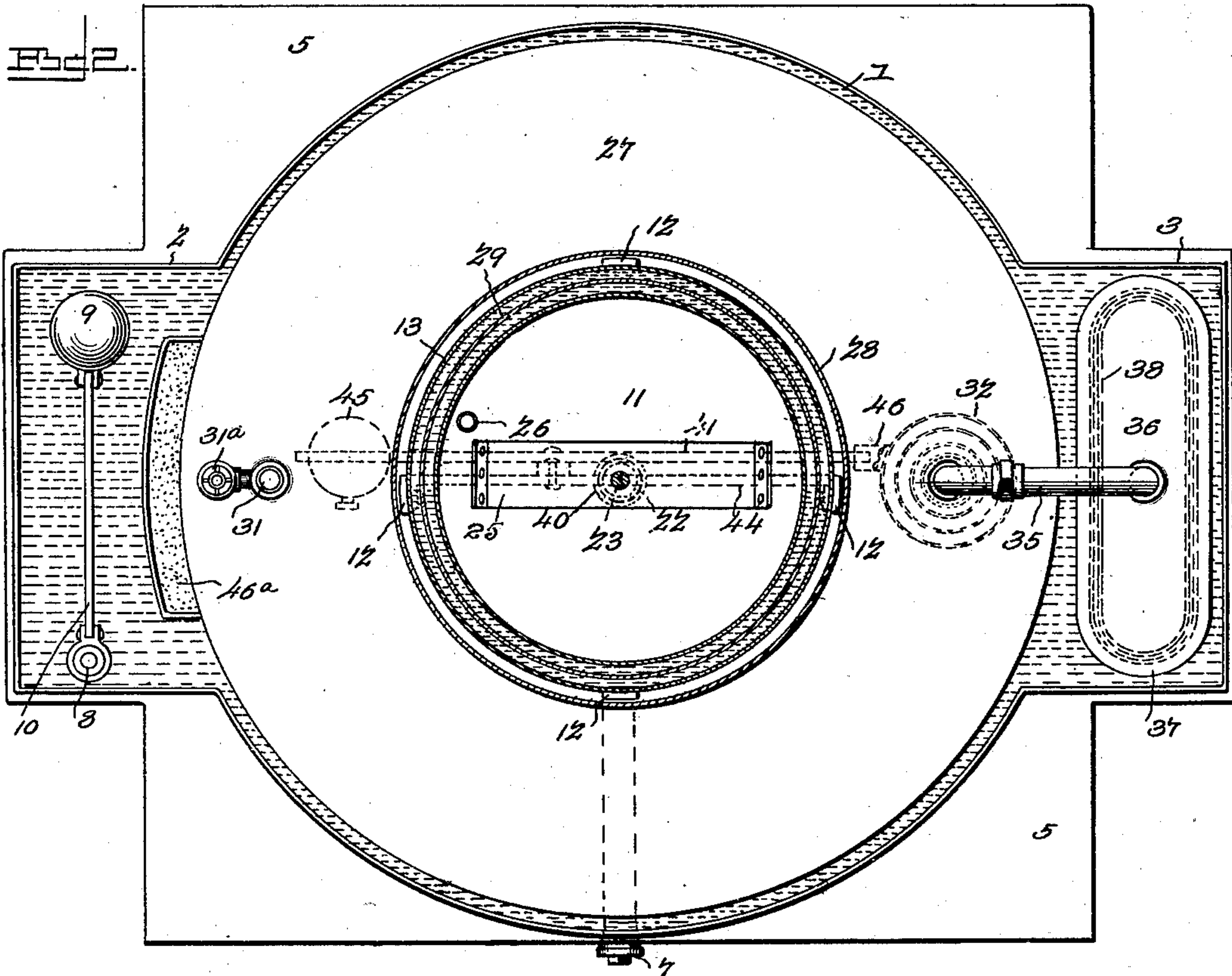
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UNITED STATES PATENT OFFICE.

WILLIAM MILLER, OF THOMASVILLE, GEORGIA.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 666,204, dated January 15, 1901.

Application filed June 28, 1900. Serial No. 21,906. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MILLER, a citizen of the United States, residing at Thomasville, in the county of Thomas and State of Georgia, have invented a new and useful Acetylene-Gas Generator, of which the following is a specification.

My invention is an improved acetylene-gas generator of that class in which the carbid is fed automatically to the water by the descent of the gas-bell.

One object of my invention is to effect improvements in the construction of the parts and so assemble them as to render the apparatus compact and reduce the size without reducing the capacity thereof.

My invention consists in the peculiar construction and combination of devices herein-after fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical central sectional view of an acetylene-gas-generating apparatus embodying my improvements. Fig. 2 is partly a top plan view and partly a horizontal sectional view of the same, taken on the line *a a* of Fig. 1. Fig. 3 is an enlarged detail sectional view.

The water-tank 1 is preferably cylindrical in form, with extensions 2 3 on opposite sides thereof, which are rectangular in form. The said water-tank is provided with a central vertical depression forming a well 4, and the said tank is preferably mounted on a platform 5, having supporting-legs 6. The well 4 is provided near the bottom thereof with a valved opening 7, through which the lime may be discharged from time to time. The tank may be supplied with water by any suitable means. Where the same is attached to a water system, I provide the tank with a water-inlet pipe 8, which is located in the extension 2 on one side thereof, and said pipe is provided at its upper end with an automatically-operated valve of suitable construction operated by a float 9, attached to a lever 10. The details of the construction of the valve are not herein shown, as the same is well understood and is not of my invention.

The carbid-magazine 11 is supported by a frame 12, which rises from the center of the water-tank, the said carbid-magazine being immovable. The same is provided with a sur-

rounding annular seal vessel 13, the top of which is open, as shown in Fig. 1. The bottom of the carbid-magazine is of inverted conical form, as at 14, and is provided with a central discharge-opening 15 for the carbid. The top of the carbid-magazine is closed, as at 16. A circular cap 17 is screwed in an opening 18 in the top of the magazine, through which pulverized carbid may be supplied to the magazine. A float 19 on the surface of the carbid falls as the carbid is consumed and is provided with an indicating-rod 20, which passes through and works in an opening and stuffing-box 21, with which the cap 17 is provided, the said rod serving to indicate approximately the quantity of carbid in the magazine at any time, as will be understood. A plug 22 is adapted to close the discharge-opening 15. The said plug is attached to the lower end of a screw-rod 23, which operates in a threaded opening 24 in the top of the magazine and is guided by a bar 25, near the bottom of the magazine. A tube 26 extends from the bottom of the magazine to a point near the upper side thereof, the ends of said tube being open.

The gas-bell 27 has its lower side immersed in the water in the tank 1, as is usual in apparatus of this class, and the said bell is provided on its top with a vertical cylindrical extension 28, which is disposed around the carbid-magazine and is provided with a depending annular flange 29, which is disposed in the annular seal-chamber 13 around the carbid-magazine, thereby forming, in connection with the water in said seal-chamber, a seal between the carbid-magazine and the bell, which effectually prevents the escape of gas from the bell, as will be understood.

A blow-off pipe for the escape of excess gas is provided with a flexible section 30 and a depending leg 31, carried by the bell, the lower end of which is normally immersed in the water in the tank. When the bell is raised by the pressure of gas under the same to an extent sufficient to uncover the lower end of the pipe 31, the excess gas escapes through the blow-off pipe, as will be understood.

In one side of the gas-bell and depending from the upper side thereof is a condenser 32. The same comprises series of concen-

trically-disposed tubular sections 33 34, which are of unequal lengths, the sections 34 being longer than the sections 33 and having their lower ends sealed in the water in tank 1 and
 5 provided with openings at their upper ends, whereby tortuous channels, which communicate with each other at their upper and lower sides, are formed between the sections 33 34 and the lower end of the gas-pipe 35. The
 10 said tortuous channels lengthen the course which the gas is required to take in escaping from the gas-bell before reaching the gas-pipe 35, and as the same passes through the condenser the moisture therein is precipitated
 15 against the surfaces of the sections 33 34 and descends to the tank, the gas being thereby dried during the passage through the condenser. The gas-pipe 35 leads from the condenser to a purifier 36. The latter comprises
 20 an inverted tubular section 37, the lower end of which is sealed in the water in tank 1, the said section being disposed in the extension 3 of the tank and a strainer 38, which is supported within the tubular section 37 on the
 25 upper end of a gas-pipe 39, which leads to the service-pipe. The strainer or filter 38 is made of wire-netting, having the top closed and at its lower end sealed in the water in the tank, and the said wire-netting is covered by layers of cotton and cloth through
 30 which the gas must pass before entering the pipe 39, and hence particles and impurities carried by the gas are removed therefrom prior to reaching the service-pipe. The filter may be of any suitable foraminous material other than wire-netting, if preferred.

I will now describe the means for automatically feeding the carbid to the water on the descent of the bell. Normally the plug 22 is
 40 raised from the discharge-opening 15, and said discharge-opening is closed by a valve 40, carried by a lever 41, which is fulcrumed, as at 42, on a standard 43, supported by a cross-bar 44 of frame 12. The said lever is
 45 provided at one end with a counterbalancing-weight 45. The other end of said lever is disposed in the path of a tappet 46, which rises and falls with the gas-bell, and is here shown as secured to the condenser 32. The counterbalancing-weight 45 normally closes the valve
 50 40 in the opening 15; but upon the descent of the bell the tappet 46 engages lever 41, turns the latter on its pivot, opens the valve 40, and permits the escape of pulverized carbid from
 55 the carbid-magazine to the water-tank, which coacts with the bell to form a gas-generator. On the ascent of the bell, caused by the accumulation of gas therein, the valve 40 closes the opening 15 by means of the counterweighted lever 41, as will be understood. The
 60 tube 26, which communicates with the gas-space in the bell and with the space in the carbid-magazine above the body of the carbid therein, equalizes gas-pressure on the carbid and facilitates the flow thereof from the magazine when the valve 40 opens the discharge-opening 15. A box or pocket 46^a on

the side of the gas-bell opposite the condenser and filter is adapted to contain sand or other suitable material to counterbalance
 70 the condenser and filter and prevent the bell from listing. The depending annular flange 29 in the upper portion of the bell coacts with the sides of the seal-chamber 13 to center and guide the bell in vertical movement. By
 75 closing the plug 22 in the opening 15, which may be done by turning the screw-rod 23, the apparatus may be put out of operation.

Around the feed-opening 15 in the bottom of the carbid-magazine is a depending annular drip-flange 55. The moisture which collects on the bottom of the carbid-magazine trickles onto the said flange and drops from the latter, the function of the drip-flange being to prevent the water of condensation from
 85 reaching the opening 15.

It will be observed that by the peculiar construction and combination of devices herein shown and described I effect a compact disposition of all the parts of the generator, so that the same will occupy but little
 90 space, which is a matter of moment, both in the use and transportation of the apparatus. Moreover the parts may be readily assembled and disassembled. The bell may be lifted
 95 from the water-tank, so as to uncover the carbid-magazine and render all the working parts accessible.

When the bell is in place, the top of the carbid-magazine is uncovered, so that the
 100 valve 22 may be manipulated readily and the magazine charged without having first to remove either the bell or the carbid-magazine or any other parts.

Having thus described my invention, I
 105 claim—

1. In acetylene-gas-generating apparatus, the combination of a water-tank having a supporting-frame therein, a carbid-magazine immovably supported on said frame, said magazine having a discharge-opening in its lower
 110 side, and a closure for said opening, said closure having an operating-rod extending through and projecting from the upper side of said magazine, a lever fulcrumed to a fixed
 115 support and having a valve to regulate the discharge of carbid from the magazine, and a gas-bell having a vertical open top extension on its upper side, in which extension the carbid-magazine is located, said magazine and
 120 bell being telescopically connected together and having a water seal, the top of the magazine being uncovered and accessible, and said bell having a tappet to engage the valve-operating rod, substantially as described. 125

2. In acetylene-gas-generating apparatus, the combination of a water-tank having a supporting-frame therein, a carbid-magazine immovably supported on said frame, said magazine having a discharge-opening in its lower
 130 side and a closure for said opening, said closure having an operating-rod extending through and projecting from the upper side of said magazine, and said magazine being

further provided with a surrounding seal vessel, a lever fulcrumed to a fixed support and having a valve to regulate the discharge of carbid from the magazine, and a gas-bell having a vertical open top extension on its upper side, in which extension the carbid-magazine is located, said extension having a depending flange telescopically disposed in the seal vessel of the carbid-magazine, and said bell being further provided with a tappet to engage

the valve-operating lever, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM MILLER.

Witnesses:

I. M. STEVENS,
JOHN W. MITCHELL.