A. L. KIRKPATRICK.

ACETYLENE GAS GENERATOR.

APPLICATION FILED MAY 19, 1910.

989,548.

Patented Apr. 11, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

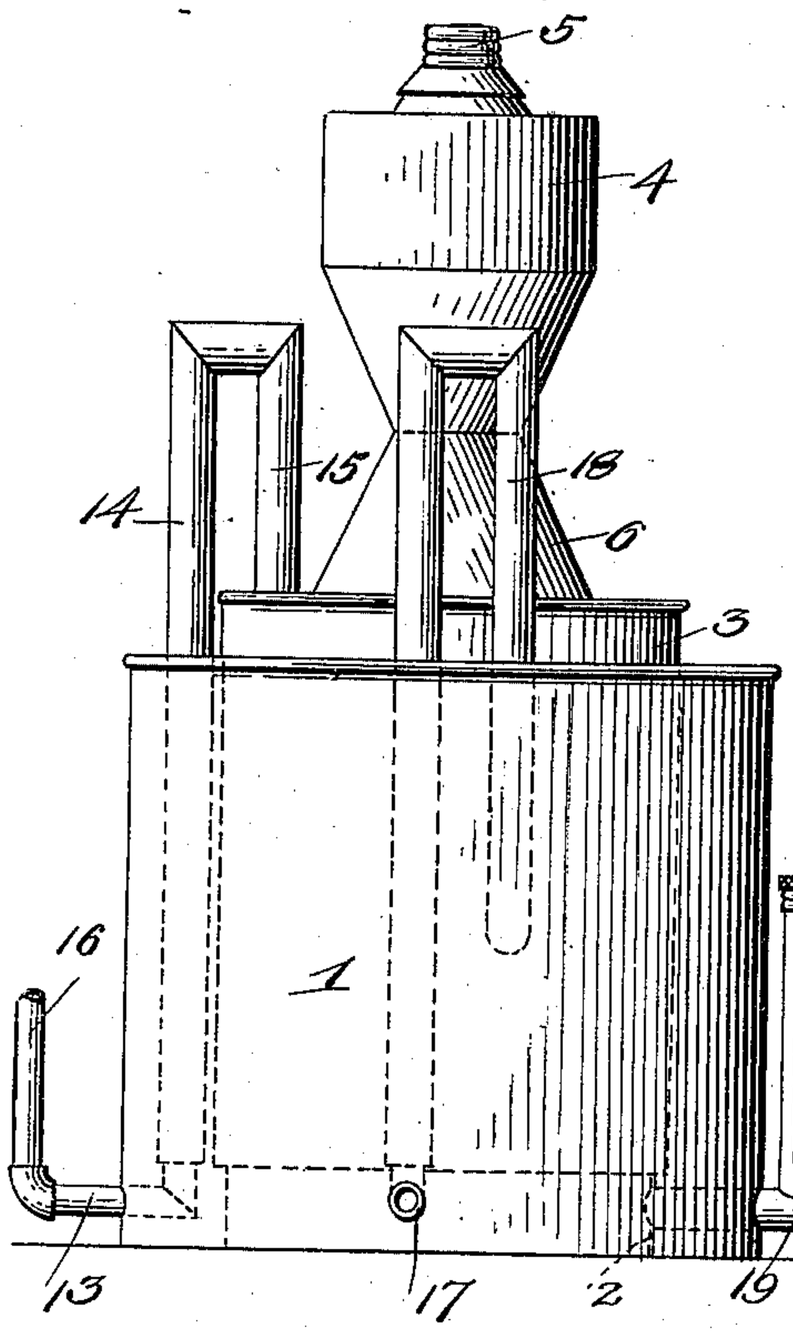


Fig. 5

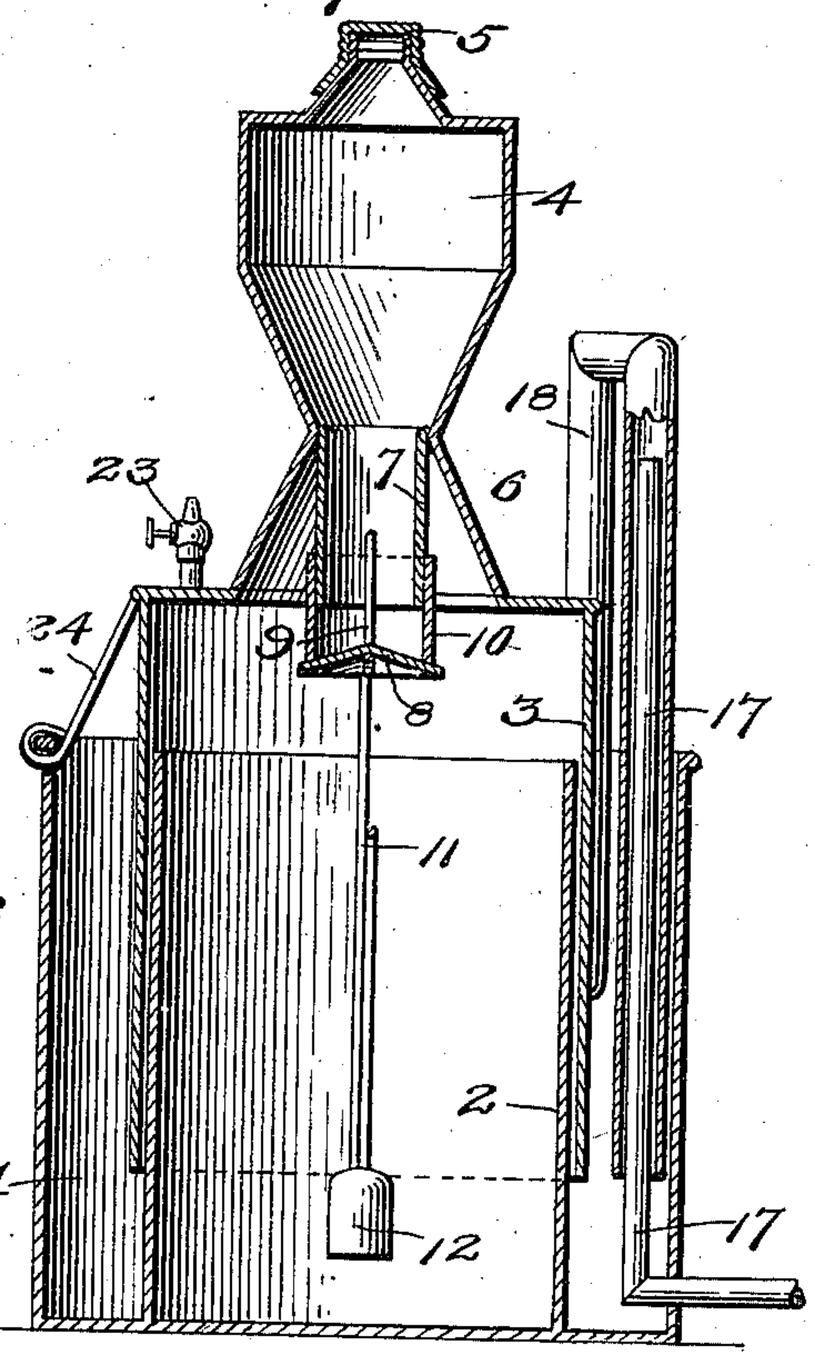
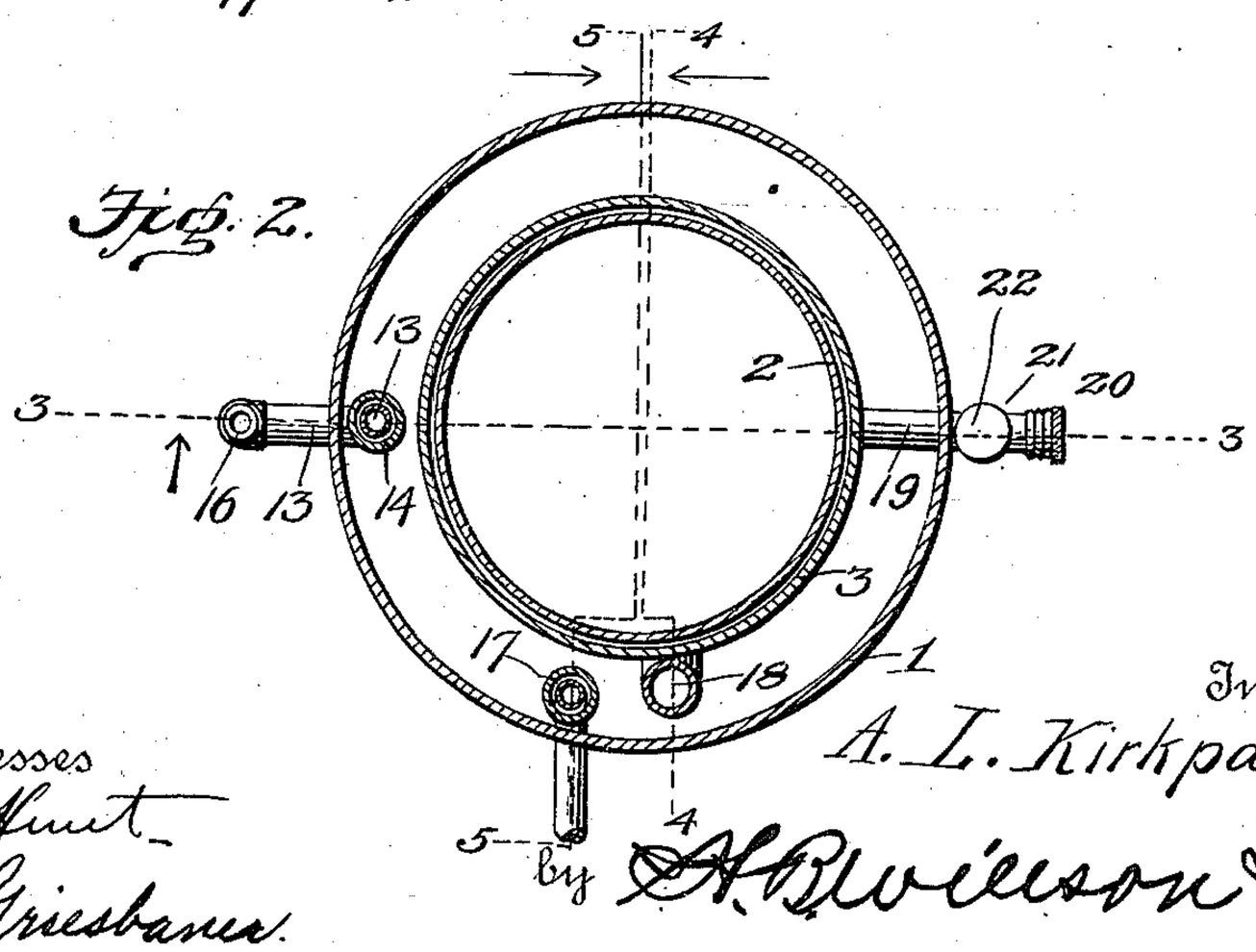


Fig. 2.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

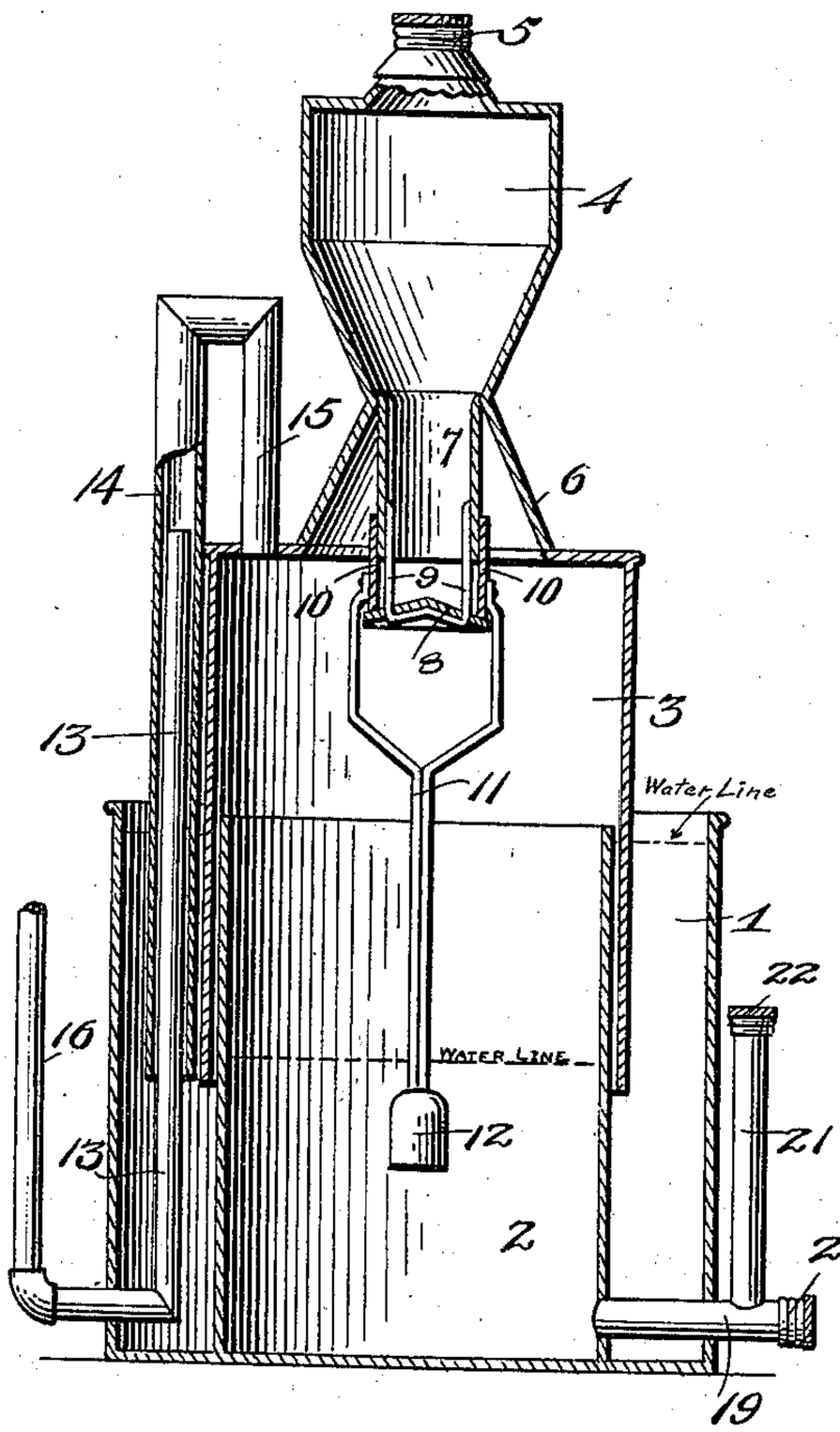
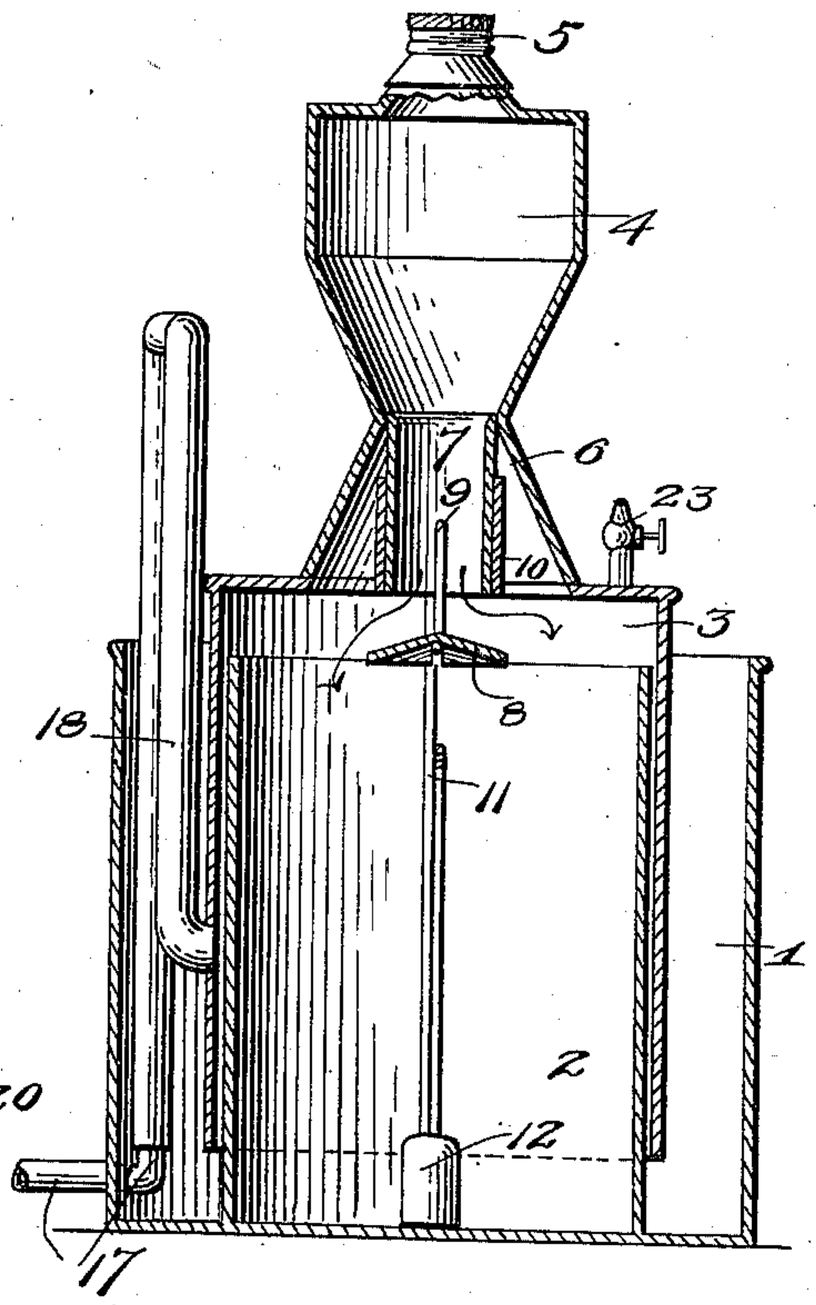


Fig. 4.



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UNITED STATES PATENT OFFICE.

ALEXANDER L. KIRKPATRICK, OF RICHMOND, MISSOURI.

ACETYLENE-GAS GENERATOR.

989,548. Specification of Letters Patent. Patented Apr. 11, 1911.

Application filed May 19, 1910. Serial No. 562,152.

To all whom it may concern:

Be it known that I, ALEXANDER L. KIRKPATRICK, a citizen of the United States, residing at Richmond, in the county of Ray and State of Missouri, have invented certain new and useful Improvements in Acetylene-Gas 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.

This invention relates to improvements in acetylene gas generators.

One object of the invention is to improve and simplify the construction of apparatus of this character whereby the same will be more efficient and reliable in operation and stronger and more durable in construction.

Another object is to provide an improved construction of carbid feed valve and means whereby the same is automatically operated.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claim.

In the accompanying drawings: Figure 1 is a side view of my improved acetylene gas generator; Fig. 2 is a horizontal sectional view of the same; Fig. 3 is a vertical section on the line 3—3 of Fig. 2 showing the carbid feed valve closed. Fig. 4 is a similar view on the line 4—4 of Fig. 2 showing the feed valve open; Fig. 5 is a view similar to Fig. 4 showing the gasometer bell supported in position for filling the carbid hopper.

In the practical embodiment of the invention I provide an outer tank 1 and an inner tank 2 said inner tank being of less diameter than the outer tank and is arranged concentrically therein as shown. The tanks 1 and 2 are open at their upper ends and over the tank 2 and between the same and the outer tank is arranged a gasometer bell 3. The gasometer bell 3 is slidably engaged with the outer side of the inner tank and is adapted to be raised and lowered thereon by the pressure of the gas as the same accumulates in the inner tank and bell. The outer tank 1 is filled to near the top with water or crude oil which forms a seal for the lower end of the gasometer bell and for the gas conveying and over flow pipes hereinafter described. In the inner tank 2 is placed a sufficient quantity of water to receive the carbid when dropped therein for the purpose of forming the gas.

On the upper end of the gasometer bell is arranged a carbid hopper 4 in the upper end of which is formed a filling opening normally closed by a suitable cap 5. The hopper 4 is provided with a tapered lower end and is preferably supported a suitable distance above the upper end of the bell by a frusto-conical shaped neck 6.

Arranged in the lower end of the hopper 4 and projecting downwardly in the center of the neck 6 is a carbid feed tube 7 below which and spaced a suitable distance therefrom is a plate or conical disk 8 which is supported in proper position below the end of the tube by a bail or hanger 9 secured to the plate or disk and having its ends secured to the opposite sides of the feed tube 7 as shown. Slidably mounted on the tube 7 is the valve 10 in the form of a tube open at each end and having connected thereto an operating rod 11 the upper end of which is bifurcated and spans the stationary plate or disk 8 as shown. The rod 10 projects downwardly to a slight distance below the lower end of the gasometer bell and on said lower end of the rod is arranged a weight 12 by means of which the tubular valve is held down in closed position against the upper side of the plate or disk 8 as shown in Fig. 3 of the drawings.

As the gas in the gasometer bell is consumed, the bell will drop and the lower end of the rod 11 will impinge against the bottom of the tank so that its movement will be arrested under the continued descent of the bell and the valve will be pushed upwardly or opened to permit the discharge of a sufficient quantity of carbid to generate the gas. The gas will rise in the bell and raise the same while the weight 12 will hold the valve so that the disk 8 will be brought against the same and further feeding of the carbid will be cut off.

Arranged in the outer tank, between the inner side of the same and the adjacent outer side of the bell 3 and inner tank 2, is the inner member 13 of a gas conducting pipe, the outer member 14 of which is telescopically engaged with said inner member. The outer member 14 projects upwardly above the tanks 1 and 2 and the gasometer bell 3 and is connected at its upper end by

a return pipe 15 with the upper end of the gasometer bell as shown. By thus constructing and arranging the gas conducting tube the gas in the upper portion of the bell will pass through said outer tube and into said inner tube whence it is conducted by the service pipe 16 to the burners. Also arranged in the outer tank between the inner side thereof and the adjacent outer side of the inner tank 2 and bell 3 is the inner member 17 of an over flow or safety pipe the outer member of which is telescopically engaged with the inner pipe and projects upwardly a suitable distance above the tanks and bell and is connected at its upper end to a return pipe 18 which extends downwardly and communicates with the interior of the bell at a suitable point which, should the gas form in the bell faster than it is used and thus tend to force the bell upwardly to such an extent that the lower end would be raised above the water seal in the outer tank, will permit the gas to escape through the pipe 18 and into the over flow pipe whereby it would be conducted through the inner member of said pipe and discharged into the atmosphere. The lower end of the inner member 13 of the over flow pipe projects through the side of the outer tank and extends to and opens into the atmosphere to permit the discharge of the over accumulation of gas as hereinbefore described.

Connected with the inner tank 2 at its lower end and extending through the adjacent side of the outer tank is a clean out pipe 19 the outer end of which is normally closed by a cap or similar device 20. By means of the pipe 19 the spent carbid and sediment may be drawn out of the inner tank when desired. Connected with the clean out pipe 20 is an upwardly projecting filling pipe 21 by means of which a fresh supply of water may be run into the inner tank when desired. The filling pipe 21 extends upwardly to about the height that it is desired the water in the inner tank to attain and said filling pipe is normally closed at its upper end by a cap 22 which prevents the escape of gas through said pipe. In the upper end of the gasometer bell 3 is arranged an air cock 23 which is adapted to be opened to admit air when the water is being drawn out of the inner tank 2 and to permit the escape of air from said tank and bell when the apparatus is to be operated.

Hingedly connected to the upper edge of the outer tank 1 is a gasometer supporting rod or bar 24 which when the carbid hopper is being filled is adapted to support the gasometer bell at a sufficient height to prevent the weighted lower end of the valve rod from engaging the bottom of the inner tank and thus holding the valve open. After the hopper has been filled the supporting bar 24 is swung down to inoperative position against the outer side of the tank 1 to permit the gasometer bell to lower and the weighted lower end of the valve rod 11 to engage the bottom of the tank 2 whereupon the valve will be opened to permit a sufficient quantity of carbid to discharge from the hopper into the water of the inner tank to start the generation of gas.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention as defined in the appended claim.

Having thus described my invention what I claim is:

The combination of a tank, a bell mounted therein, a hopper on the bell, a feed tube depending from the hopper into the bell, a bail secured to and depending below the lower end of the tube, a disk secured to the lower end of the bail, a tubular valve slidably mounted on the feed tube and adapted to rest on said disk to bridge the space between the same and the tube, and a weighted valve rod secured to and depending from said valve and adapted to impinge against the bottom of the tank to lift the valve from the disk.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ALEXANDER L. KIRKPATRICK.

Witnesses:
EVERT ENDSLEY,
HENRY COONS.