No. 646,316. Patented Mar. 27, 1900.

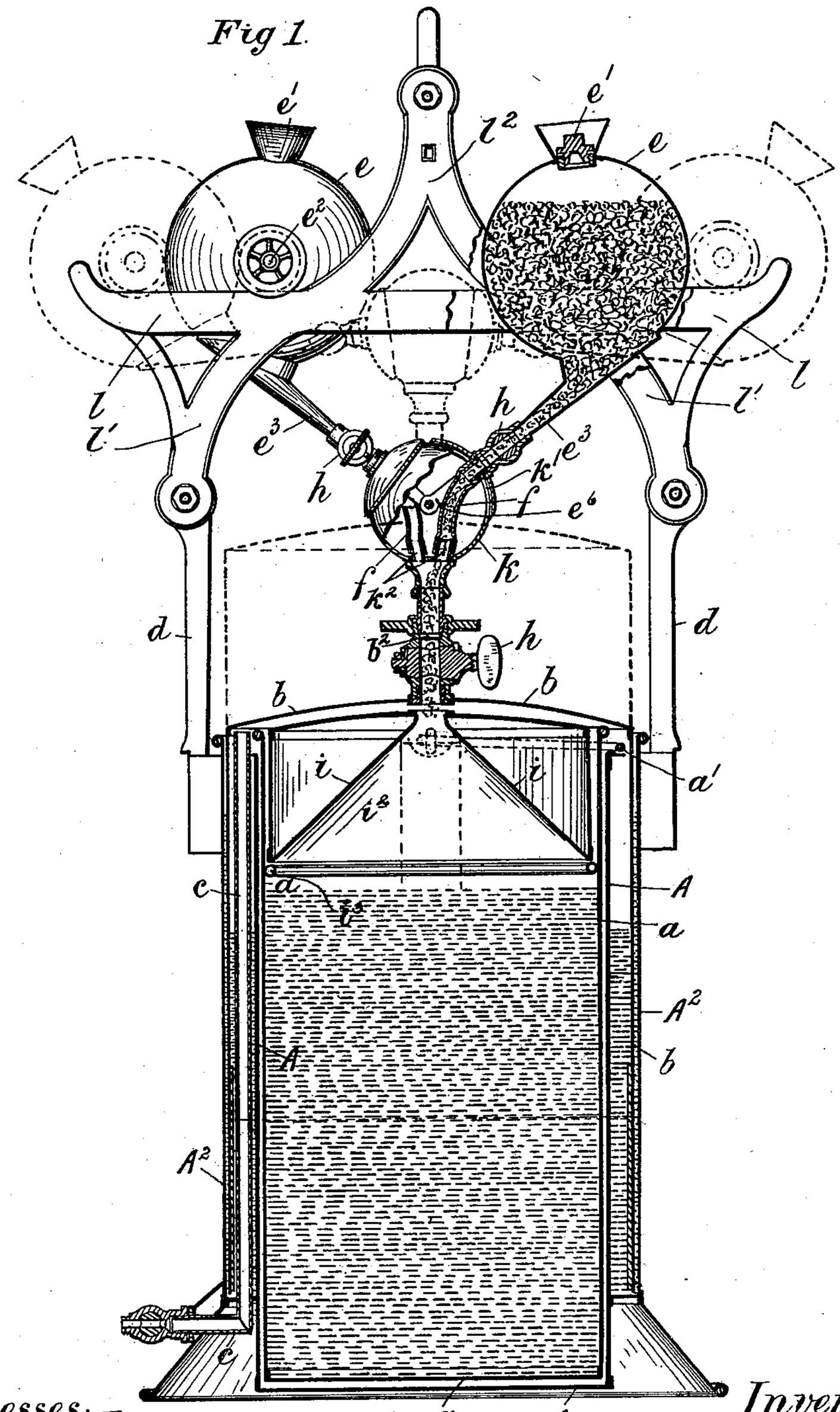
J. H. ROSS.

ACETYLENE GAS GENERATOR.

(Application filed Aug. 25, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig 1.



Witnesses;—

Richard Skerrett

Arthur John Powell

Inventor;—

John Howard Ross

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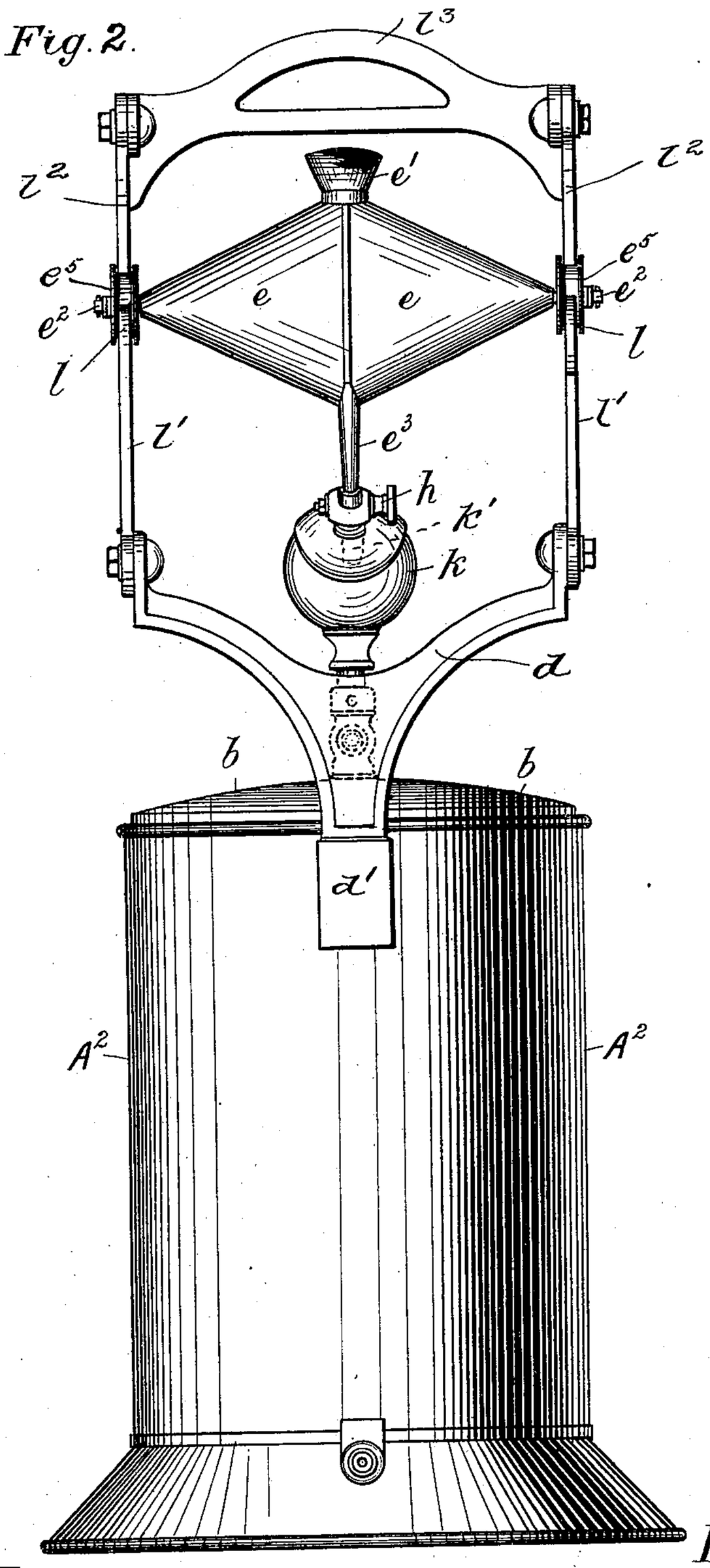
Fig. 2.



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Richard Skerrett
Arthur John Powell

Inventor;—
John Howard Ross.

UNITED STATES PATENT OFFICE.

JOHN HOWARD ROSS, OF ASTON, ENGLAND.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 646,316, dated March 27, 1900.

Application filed August 25, 1898. Serial No. 689,520. (No model.)

To all whom it may concern:

Be it known that I, JOHN HOWARD ROSS, a subject of the Queen of Great Britain, residing at Aston, near Birmingham, England, have invented new and useful Improvements in Apparatus for Generating Acetylene, of which the following is a specification.

This invention relates to improved apparatus for generating acetylene gas; and it has for its object to provide improved means for automatically feeding granulated carbid of calcium to the water in the generating-chamber.

It also has for its object to provide means for preventing scum or the like which forms on the surface of the water in the water-chamber from bubbling or splashing up against the top of the bell or gas-holder, said means also operating to so contract or reduce the space in the upper end of the generating-chamber that only a small volume of air need be displaced before the space is filled with gas.

Finally, it has for its object to improve and simplify the construction and render more efficient the operation of this class of generators generally.

To these ends my invention consists in the features and in the construction, combination, and arrangement of parts hereinafter described, and particularly pointed out in the claims following the description, reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a vertical central sectional view, partly in elevation, of my improved apparatus; and Fig. 2 is a view in side elevation thereof, taken at a right angle to Fig. 1.

The gas-holder of the apparatus consists, essentially, of a double-walled vessel A A^2, between the two walls of which is contained water in which the bell or gas-holder *b* is sealed and is free to rise and fall. The vessel for containing the water in which the carbid of calcium is immersed consists of a bucket *a*, provided with a handle *a'* and removably seated in the double-walled vessel A A^2. In the upper open end of the bucket is arranged a hollow displacer *i*, provided on its under side with a conical recess or chamber i^2, open at both its top and bottom, as shown in Fig. 1 of the drawings. The displacer *i* may be supported in any suitable manner immediately above the level of the water in the bucket *a*, said displacer in the present instance being shown as resting on an annular shoulder i^3, fixed to the interior of the bucket, and operates to prevent scum or the like which forms on the surface of the water in the bucket from bubbling or splashing up against the top of the bell or gas-holder *b* and at the same time so contracts or fills the space that only a small volume of air need be displaced before the space is filled with gas. Fitted in the top of the bell or gas-holder is a pipe b^2, forming an exit for the generated gas from said bell or gas-holder, and fitted on the upper end of said pipe is a globe or hollow sphere *k*, in the bottom of which are fixed two nipples k^2 k^2, over which are fitted the lower ends of flexible tubes *f*.

The letters *e e* indicate the carbid-containing vessels, each preferably comprising a double conoidal-shaped hollow vessel provided at its opposite ends with circumferentially-grooved wheels e^2 e^2, that are adapted to travel on rails *l l*, supported above the gas holder and generator. The rails *l l* may be supported above the generator by any suitable or preferred means; but in the drawings I have shown said rails formed integrally with depending bracket-arms *l'*, that are bolted at their lower ends to standards *d*, fitted in sockets *d'*, attached to the sides of the vessel A. Said rails are also shown as being formed with upwardly-extending bracket-arms l^2, connected together at their upper ends by a cross-brace l^3. The means shown for supporting the rails form no part of the present invention, and any means suitable for the purpose may be employed. Depending from the bottom of each of the carbid-containing vessels is a tapered pipe e^3, said pipes at their lower ends being fitted in the upper ends of the flexible tubes *f f* and pivotally connected together by pivoted arms or extensions e^6. The flexible tubes *f f* are inclosed in and protected by the globular metallic casing *k*, as shown, and the ends of the pipes e^3 work in slots *k'* in said casing. Each of the carbid-containing vessels *e* is provided with a funnel-shaped filling-aperture, through which the granular carbid of calcium may be introduced, and is closed by a screw-plug *e'*. The gas is conducted from the bell or gas-holder by a pipe *c*. Valves *h* are arranged in the pipes e^3 and

b^2, by means of which the operation of the parts may be controlled.

The operation of my improved apparatus is as follows: As the gas passes out through the pipe *c* the bell or gas-holder descends, said descent being accompanied by the descent of the delivery ends of the pipes e^3 and the globular casing *k*, thus straightening out the flexible tubes *f* and permitting the granular carbid of calcium to feed down into the vessel *a*, whereupon an increased supply of gas is generated and the bell or gas-holder again rises, carrying with it the parts to the position shown in dotted lines in Fig. 1 of the drawings, and thereby shutting off the feed of the carbid until the bell or gas-holder again descends. The feed of the carbid will be thus automatically regulated and controlled.

Having described my invention, what I claim is—

1. In an acetylene-gas generator, the combination with a gas-generating chamber, of a tilting carbid-container arranged above the gas-generating chamber, a discharge-pipe connected with the carbid-container, a vertically-movable gas-holder, and means actuated by the rising-and-falling movement of the gas-holder for tilting the carbid-container to move the discharge-pipe toward and from a perpendicular position and alternately feed the carbid to the gas-generating chamber by gravity and cut off such feed, substantially as described.

2. In an acetylene-gas generator, the combination with a gas-generating chamber, of a tilting carbid-container arranged above the gas-generating chamber, a rigid discharge-pipe connected with the carbid-container, a flexible tube leading from said discharge-pipe and discharging into the generating-chamber, a vertically-movable gas-holder, and means actuated by the rising-and-falling movement of the gas-holder for tilting the carbid-container to move the discharge-pipe toward and from a perpendicular position and alternately feed the carbid to the gas-generating chamber by gravity and cut off said feed, substantially as described.

3. In an acetylene-gas generator, the combination with a gas-generating chamber, of two tilting carbid-containers arranged above the gas-generating chamber, a rigid discharge-pipe connected with each of said containers, flexible tubes leading from said discharge-pipes into the gas-generating chamber, a vertically-movable gas-holder, and means actuated by the rising-and-falling movement of the gas-holder for tilting the carbid-containers to move the discharge-pipes toward and from a perpendicular position and alternately feed the carbid to the gas-generating chamber by gravity and cut off such feed, substantially as described.

4. In an acetylene-gas generator, the combination with a gas-generating chamber, of two tilting and rolling carbid-containers arranged above the gas-generating chamber and arranged to move toward and from each other on suitable guideways, a rigid discharge-pipe connected with each of said containers, flexible tubes leading from said discharge-pipes into the gas-generating chamber, means pivotally connecting together the ends of said discharge-pipes, a vertically-movable gas-holder, and means actuated by the rising-and-falling movement of the gas-holder for tilting the carbid-containers to move the discharge-pipes toward and from a perpendicular position, substantially as described and for the purpose specified.

5. In an acetylene-gas generator, the combination with a gas-generating chamber, of parallel rails fixed above said chamber, two tilting and rolling carbid-containers provided with wheels arranged to travel on said rails, a rigid discharge-pipe connected with each of said containers, flexible tubes leading from said discharge-pipes into the gas-generating chamber, arms pivotally connected to the ends of the discharge-pipes and to each other, a slotted globular casing inclosing the said flexible tubes and the ends of the discharge-pipes, a vertically-movable gas-holder, and means connecting said holder and globular casing, substantially as described and for the purpose specified.

6. In an acetylene-gas generator, the combination with a gas-generating chamber and a bell or gas-holder, of a hollow displacer supported above the water-level in the generating-chamber and provided centrally with a conical recess or chamber open at both its upper and lower end, substantially as described and for the purpose specified.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

JOHN HOWARD ROSS.

Witnesses:

RICHARD SKERRETT,

ARTHUR JOHN POWELL.