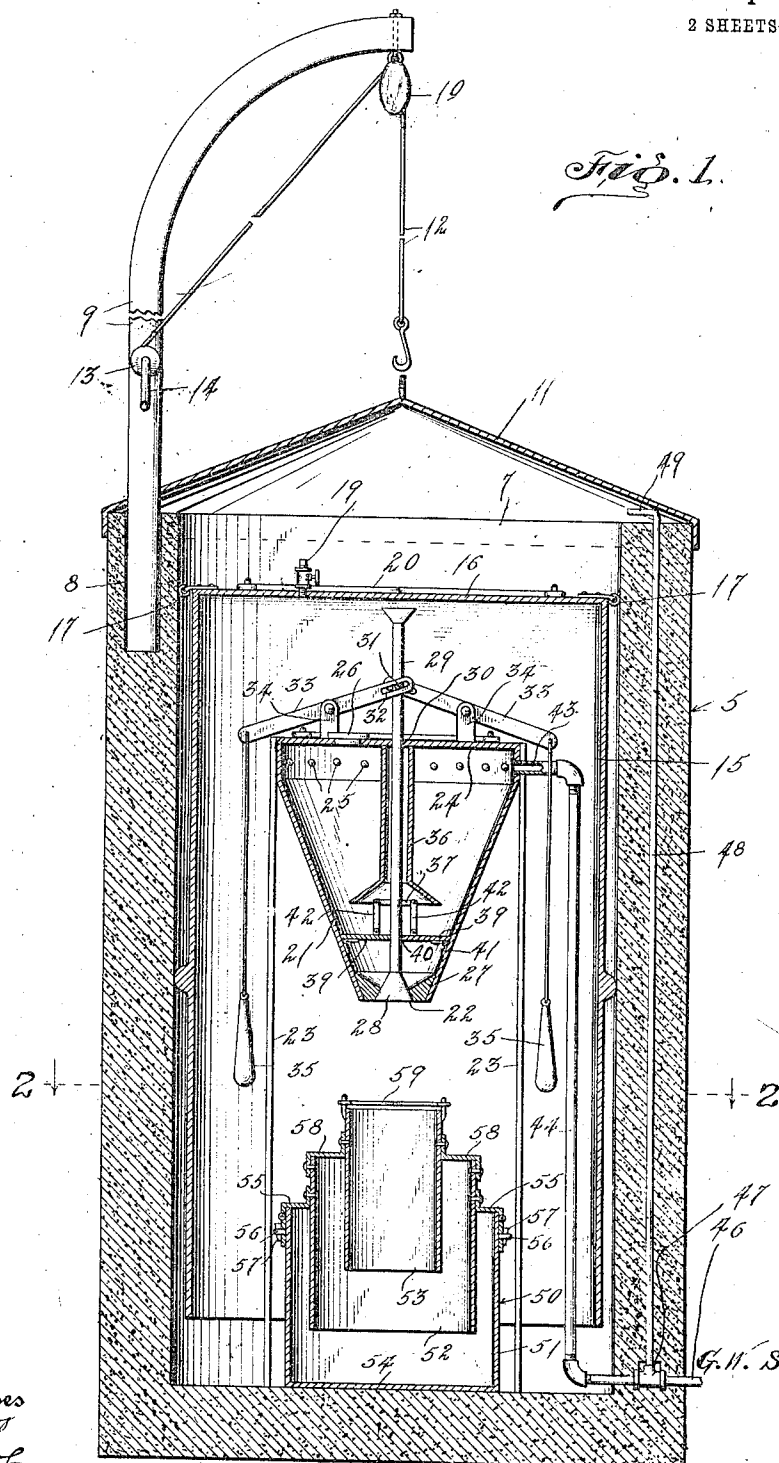


G. W. SMITH.
ACETYLENE GAS GENERATOR.
APPLICATION FILED JAN. 26, 1911.

1,023,767.

Patented Apr. 16, 1912.

2 SHEETS—SHEET 1.



Witnesses
Joseph G. ...
George F. ...

61 364

Handwritten signature of G. W. Smith

Attorneys

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2 SHEETS—SHEET 2.

Fig. 2.

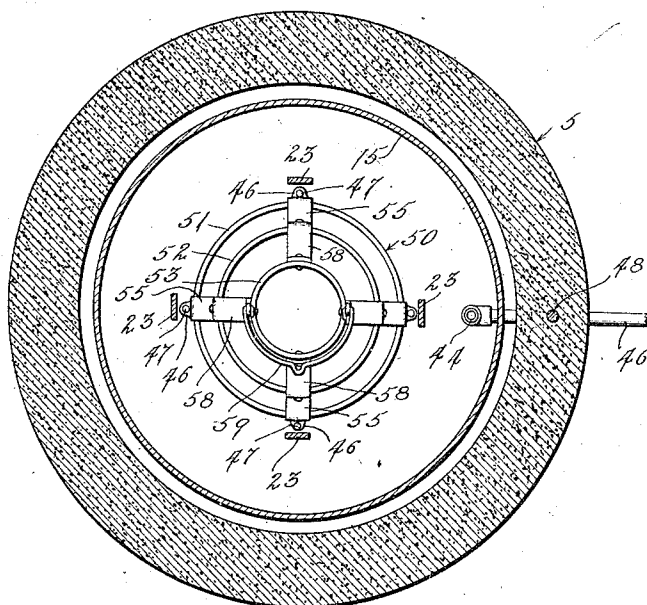
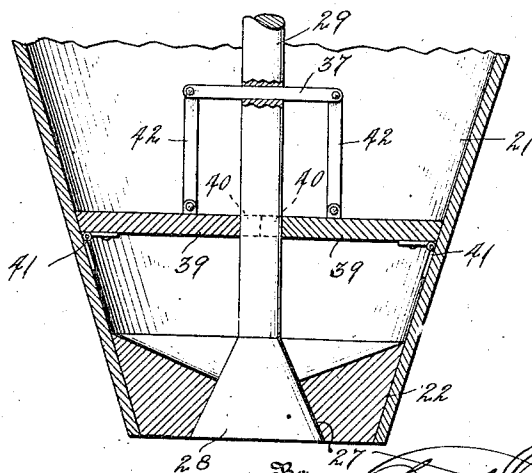


Fig. 3.



Witnesses
Geo. H. Gregory
George F. Lutz

Inventor
G. W. Smith

By

Charles H. Chandler

Attorneys

UNITED STATES PATENT OFFICE.

GARD W. SMITH, OF MARKLE, INDIANA.

ACETYLENE-GAS GENERATOR.

1,023,767.

Specification of Letters Patent.

Patented Apr. 16, 1912.

Application filed January 26, 1911. Serial No. 604,829.

To all whom it may concern:

Be it known that I, GARD W. SMITH, a citizen of the United States, residing at Markle, in the county of Huntington, State of Indiana, have invented certain new and useful Improvements in Acetylene-Gas Generators; and I do hereby 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 an improvement in acetylene gas generators of that type generally known as the carbid feed type.

The principal object of this invention is to provide a generator having a novel construction whereby gas may be generated in unusually large quantities.

Another object of the invention is to provide a novel construction of valve for permitting the egress of the carbid from its chamber.

A still further object of the invention is to provide a generator having its parts arranged to permit of the same being easily removed from the casing.

Another object of the invention is to provide a generator of the class described which is simple in construction, positive in operation, and extremely cheap to manufacture.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings: Figure 1 is a vertical sectional view through the generator, parts thereof being in elevation, Fig. 2 is a sectional view taken on the line 2-2 of Fig. 1, Fig. 3 is an enlarged sectional view of the valve mechanism.

Like reference numerals designate corresponding parts in all the figures of the drawings.

Referring to the drawings the invention comprises a casing 5, which is preferably formed of concrete. This casing is provided with a bottom 6 and an open upper end 7. A socket 8 is formed in the wall

and opens at the top edge thereof. Disposed within the said socket is one end of a crane 9, the free end of the crane being preferably curved and provided with a pulley 10 of ordinary construction. A top 11 is normally positioned on the casing and may be lifted therefrom or positioned therein by means of a cable 12 connected to the top and passing over said pulley 10, as will be readily understood. The other end of the cable 12 is connected to a ratchet-drum 13, having the usual handle 14 thereon.

Disposed within the casing 5 and spaced from the inner face thereof is a bell 15 having a top 16. Secured to the top by any suitable means are spaced rollers 17 which bear against the inner face of the casing. A positively actuated valve 19 of any preferred construction is located on the top 16 of the bell for permitting the egress of air from the bell when the latter is being positioned within the casing. Secured to the top 16 by suitable means is a bail 20 by means of which the said bail can be readily lifted out from within the casing.

Disposed within the bell 15 is an inverted frusto-conical carbid chamber 21 having an outlet opening 22 at its lower end. This chamber is supported a suitable distance above the bottom 6 of the casing by suitable standards 23. The upper end of the chamber is closed by a top 24 and formed in the wall of the chamber below the said top is a plurality of openings 25 through which the gas may enter as will be hereinafter more fully explained. A suitable inlet opening for the carbid is formed in the top 24 and associated therewith is a closure cap 26. Located within the chamber 21 and contiguous to the opening 22 thereof is a valve-seat 27 upon which a valve 28 is adapted to be seated. This valve 28 is provided with a stem 29 which projects through a suitable opening 30 formed in the top 24, and terminates in a point some distance above the said top. Extending transversely through the stem 29 above the top is a pin 31, which is received into elongated openings 32 formed in the lever-arms 33-33. These lever-arms are pivotally connected upon suitable brackets 34-34 and have their opposite ends suitably connected to weights 35-35. At this point it will be observed that on account of the elongated slots 32 in the lever arms, the said levers will be permitted to be oscillated upon movement in either direction of the

valve stem 29. Disposed within the said chamber 21 is a deflector 36 of any preferred construction. This deflector is preferably disposed around the valve stem 29 and terminates short of the walls of said chamber.

A transverse pin 37 is secured to the stem 29 above the valve 28 and below the deflector 36 and has its opposite ends projecting from said stem. A secondary valve is disposed within the chamber below the transverse pin 37, and consists of two semi-circular plates 39—39 which are respectively provided with partial recesses 40—40 which coact to tightly fit around the valve-stem 29. These sections are connected to the chamber 21 by means of hinges 41, which are respectively arranged in a plane at right angles to the plane of the meeting edges of said sections. Links 42—42 are respectively pivotally connected at both ends to a section 39, and the corresponding end of the transverse pin 37. It will thus be observed that as the valve stem 29 is depressed the links 42 will cause the sections 39 to be lowered in unison, and that upon the upward movement of the valve stem the said sections will be closed in unison. It will also be noted that when said sections are in the open position, they, together with the deflector 36, will cause the carbid to be readily broken as it passes through the valve opening 22. By this means the said valve opening will be prevented from becoming clogged as will be readily understood. The weights 35 are adapted to normally retain the valve 28 against the seat 27.

Extending from the upper portion of the chamber 21 and preferably in alinement with the openings 25, is an outlet pipe 43 which extends downwardly within the bell 15 as shown by reference numeral 44. The pipe then extends outwardly through the casing 5, as shown by 46. Disposed within this section 46 is a turning-plug 47 of any suitable construction, and connecting the said plug is an operating rod 48 having a handle 49 at its upper end. By means of this handle the said block can be actuated and thereby regulate the egress of the gas. Seated upon the bottom 6 of the casing 5 is a receiver designated as a whole by the reference numeral 50. This receiver is composed of three nested members 51—52 and 53 respectively, the member 51 being provided with a bottom 54. The members 52 and 53 are open ended and are disposed in stepped relation and are of different sizes. Secured to the member 52 near the upper end thereof is a plurality of brackets 55 having fastening means 56 connected thereto, said means operating in conjunction with suitable staples 57. Thus it will be observed that the member 52 is detachably secured to the member 51 and is held in spaced relation thereto. Brackets 58 are rigidly se-

cured to the members 52 and 53 by rivets or other suitable means. Thus it will be observed that these brackets 58 rigidly connect the members 52 and 53 together so that upon release of the hasps 56 the said members can be separated from the member 51. A bail 59 is connected to the upper end of the center member 53, and by means of this bail the receiver, in its entirety, can be easily positioned or withdrawn as may be desired.

In the operation of the generator the carbid is placed within the chamber 21, and water is of course poured into the casing 5 to a point below the valve opening 22. The bell 15 is then positioned, and as the same makes its downward movement, the valve 19 is opened, thereby permitting the egress of air from the bail. The valve is then closed, and the top 16 will contact with the upper end of the valve stem 29, thereby actuating the double-hinged valve 39 and the valve 28. A quantity of carbid will then pass through the opening 22 and into the water. As a result gas will be generated which will cause the bell 15 to rise. As the weight of the bell 15 is lifted from the valve stem 29, the weights 35 will cause the valve 28 to engage its seat 27 and thereby close the chamber 21. The gas thus generated will pass out through the outlet pipe 43, the portion 44, past the turning plug 47, through the section 46, and thence through suitable service pipes.

What is claimed is:—

1. In a gas generator, the combination with a casing, of a gas-bell disposed therein, a carbid chamber having an outlet, a valve for the outlet, a valve-stem connected to the valve and disposed in the path of the movement of the bell, a secondary valve disposed above the first mentioned valve consisting of sections hingedly connected to the wall of the chamber, and means connecting the opposite ends of the sections to the valve-stem for operating the said secondary valve in unison with the first mentioned valve.

2. In a gas generator, the combination with a casing, of a gas-bell disposed therein, a carbid chamber having an outlet, a valve for the outlet, a valve stem connected to the valve and disposed in the path of movement of the bell, a secondary valve disposed within the chamber consisting of two semi-circular plates hingedly connected at their peripheries to the wall of the chamber, and links respectively and pivotally connected to the sections and to the stem for operating the said sections in unison with the first mentioned valve.

3. In a gas generator, the combination with a casing, of a gas-bell disposed therein, an inverted frusto-conical carbid chamber having an outlet opening at its lower end, a valve for the said opening, a valve stem connected to the valve and extending through

and above the chamber for engagement with
the bell, a deflector disposed around the stem
above the outlet opening of the chamber, a
transverse pin carried by the stem above the
5 valve and below the deflector, a secondary
valve disposed within the chamber consist-
ing of two semi-circular plates hingedly con-
nected at their peripheries to the wall of
the chamber, and links respectively and piv-
10 otally connected to the sections and to the

transverse pin for operating the said sec-
tions in unison with the first mentioned
valve.

In testimony whereof, I affix my signa-
ture, in presence of two witnesses.

GARD W. SMITH.

Witnesses:

HOWARD D. FOX,
ROBERT E. FOX.