No. 649,405. Patented May 8, 1900.

# A. H. DEIKE.

## ACETYLENE GAS GENERATOR.

(Application filed Apr. 22, 1899.)

(No Model.) 2 Sheets—Sheet 1.

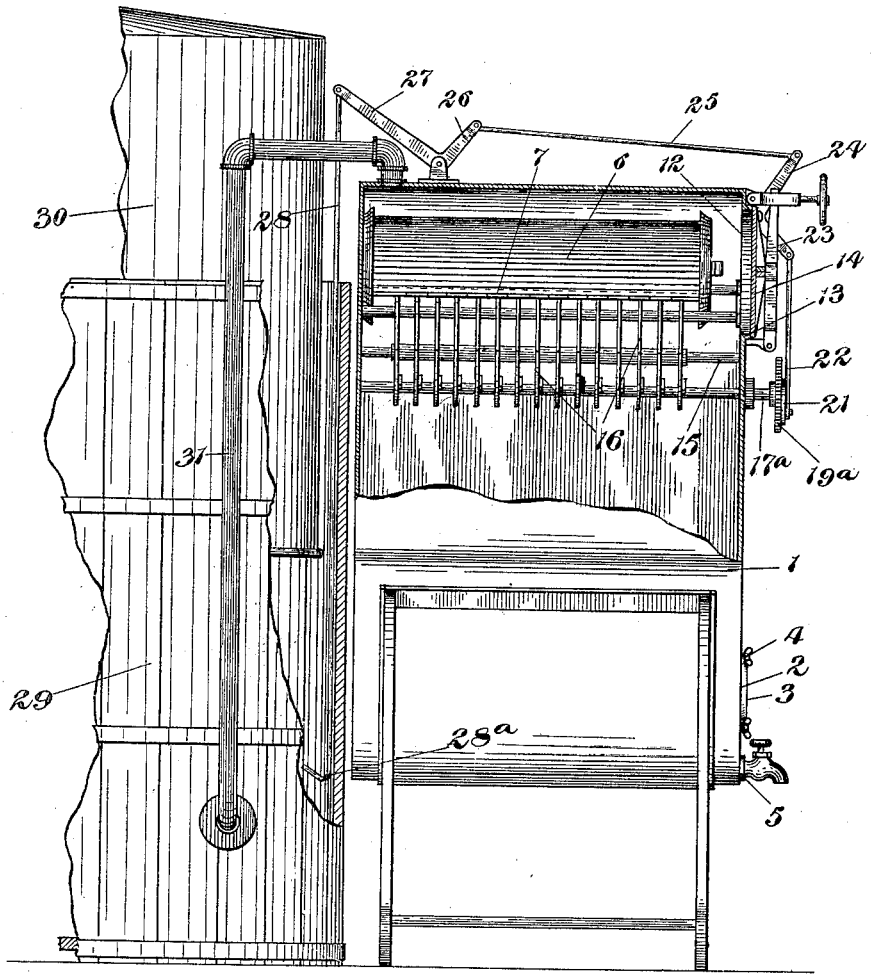


Fig. 1

Witnesses
J. E. Lamuroux
M. A. Westwood

Inventor
A. H. Deike
by C. A. Riches
his atty

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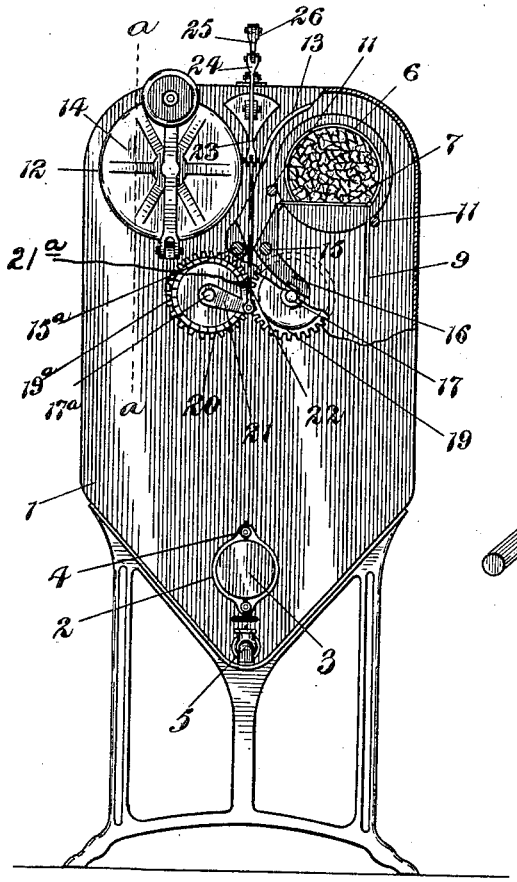


Fig. 2

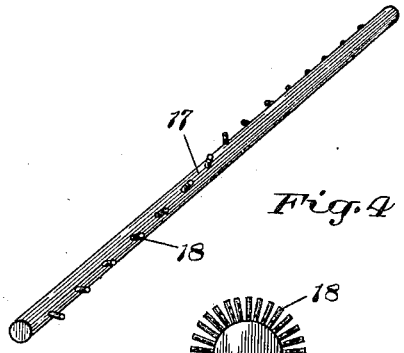


Fig. 4

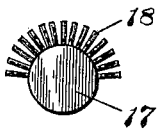


Fig. 5

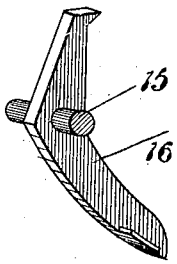


Fig. 6

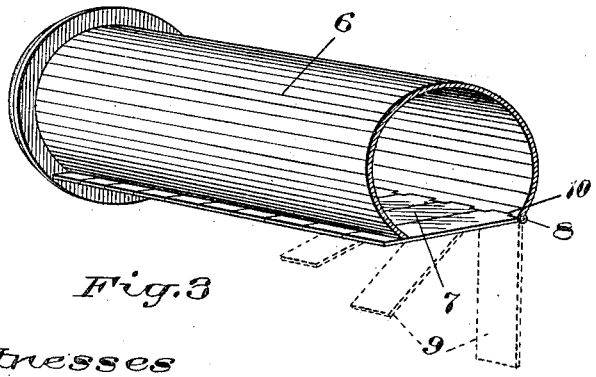


Fig. 3

Witnesses
J. L. Cameron
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Inventor
A. H. Deike
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# UNITED STATES PATENT OFFICE.

AUGUST HERMAN DEIKE, OF GUELPH, CANADA, ASSIGNOR OF TWO-THIRDS TO ALEXANDER W. ALEXANDER AND JOHN MITCHELL, OF SAME PLACE.

## ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 649,405, dated May 8, 1900.

Application filed April 22, 1899. Serial No. 714,076. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUST HERMAN DEIKE, of the city of Guelph, in the county of Wellington and Province of Ontario, Canada, have invented certain new and useful Improvements in Acetylene-Gas Generators; and I hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to certain new and useful improvements in acetylene-gas generators, and relates more particularly to the peculiar construction of the carbid-holder, which is so arranged as to automatically deposit a predetermined quantity of calcium carbid in the water when the gasometer has descended below a predetermined level. In the top of the generator is contained a carbid-holder provided with a bottom consisting of a series of independent sections hinged at one end to its body and temporarily held at the other by a series of movable supports actuated successively by the lowering of the gasometer to release the bottom sections in regular succession and permit them to swing into a substantially-perpendicular position and allow of the falling of the calcium carbid into the lower part of the generator. The quantity of carbid held by each bottom section is in proportion to the capacity of the gasometer in order that there will be no overproduction of gas beyond the capacity of the gasometer; and the invention consists, essentially, of the device hereinafter more fully set forth, and more particularly pointed out in the claims.

In the drawings, Figure 1 is a vertical section of the generator and a portion of the gas-tank, taken on the lines *a a*, Fig. 2. Fig. 2 is an end elevation of the generator. Fig. 3 is a perspective view of one of the carbid-holders. Fig. 4 is a perspective view of the shaft for operating the movable supports. Fig. 5 is an end view of the shaft shown in Fig. 4. Fig. 6 is a perspective view of one of the movable supports.

Like numerals of reference refer to like parts throughout the specification and drawings.

1 represents the generator, which is of any suitable size and shape and constructed of any suitable material.

In the lower part of the generator 1 is an opening 2, closed by a cover 3, held tightly in place by thumb-screws 4.

Fitted into the generator 1, below the opening 2, is a faucet 5 to draw off the water and residue from the generator when necessary to clean the same.

Contained in the upper part of the generator 1 are two carbid-holders, each consisting of a body portion 6 and a bottom 7, hinged to the body portion 6 by means of a hinge-bolt 8. The bottom 7 consists of a series of independent abutting sections 9, each of which is provided at one end with an eye 10, through which passes the bolt 8 to pivotally connect the sections to the body portion, the rod 8 being connected to the body portion at each end and between the sections. Each carbid-holder is supported upon two rods 11, extending from end to end of the generator, there being sufficient interval between the rods to allow of the free movement of the sections 9.

One end of the generator 1 is provided with two openings 12, one opening being opposed to each carbid-holder to allow of the removal and replacement of the carbid-holders. Each opening 12 is surrounded by a metal ring 13, to which is fitted a removable cover 14, held tightly in place by any suitable means.

Journaled in the ends of the generator below the carbid-holders are two shafts 15 and 15$^a$, upon each of which is oscillatingly mounted a series of supports 16, one support being located below each section 9. The purpose of each support is to temporarily hold its respective section in a substantially-horizontal position to enable it to retain the carbid in the holder until it is required for the production of gas.

Journaled in the ends of the generator 1, below each of the shafts 15 and 15$^a$, are two rotatable shafts 17 and 17$^a$, respectively, each provided with a series of pins 18, projecting from its perimeter sufficiently to engage the

lower ends of the supports 16 and arranged in a spiral manner, so that the supports will be actuated in regular succession.

Mounted on the outer end of the shaft 17 is a pinion 19, and meshing with the pinion 19 is a pinion $19^a$, mounted upon the shaft $17^a$. Rigidly connected to the side face of the pinion $19^a$ is a ratchet-wheel 20, and pivotally mounted on the shaft $17^a$ is one end of a lever 21, the opposite end of which is connected to the lower end of a pitman 22, while the upper end of the pitman 22 is connected to the arm 23 of a bell-crank lever pivoted to the end of the generator 1, the opposite arm 24 of the bell-crank lever being connected to one end of a pitman 25, while the other end of the pitman 25 is connected to the arm 26 of a bell-crank lever pivoted to the top of the generator, while the arm 27 of the bell-crank lever is connected to a draw-rod 28, the lower part of which is contained within the well 29 of the gas-tank, and the lower end $28^a$ of which is hook-shaped to be engaged by the gasometer 30 when in its lowered position.

Connected to the lever 21 is a dog $21^a$, which engages the teeth of the ratchet-wheel 20 and causes the rotation of the ratchet-wheel when the bell-crank levers and pitmen are being operated by the descent of the gasometer. The rotation of the ratchet-wheel causes the rotation of the pinions 19 and $19^a$ and shafts 17 and $17^a$ and brings the pins 18 successively into engagement with the lower ends of the supports 16, moving the supports in succession from the under side of the sections 9.

Leading from the top or upper part of the generator 1 to the lower part of the well 29 is a gas-conduit 31, by means of which the gas is conveyed from the generator to the gasometer.

The carbid-holders after being filled are placed on the rods 11 in the generator, and the openings 12 are tightly closed by the covers 14, each bottom section 9 being held in its closed position by its respective support 16. The partial rotation of the shafts 17 and $17^a$ (either by lowering the gasometer or by operating the shaft by hand) causes the first pin 18 to be brought into engagement with the first support 16 and move it a sufficient distance to free it from engagement with the bottom of the section 9, which naturally swings into a substantially-perpendicular position, as shown in dotted lines in the drawings, and allows that portion of the contents of the carbid-holder held by it to fall to the lower part of the generator. The contact of the calcium carbid with the water generates gas, which passes from the generator through the conduit 31 to the gasometer 30 and causes the gasometer to rise. The gasometer lowers when the gas has been exhausted and engages the hook-shaped end of the draw-rod 28, which, by means of the bell-crank levers and pitmen, operates the pinions to rotate the shafts sufficiently to cause the second pin 18 to engage the second support 16 and release it from engagement with the second section 9, which swings into the same position as did the first section, allowing its portion of the contents of the carbid-holder to fall to the lower part of the generator, this operation being repeated until the supports have been successively moved to free their respective sections 9.

The shape and construction of the generator, including the operating mechanism for the supports, can be varied or modified without departing from the nature of the invention.

A generator containing any number of carbid-holders can be operated in the same manner as the above construction.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with the telescope gas-holder and the gas-generator, having gas-communicating pipe, of a carbid-holder supported in the generator, a bottom on the holder composed of a plurality of hinged plates or sections, pivotally-mounted supports adapted to hold the bottom sections closed, a shaft journaled in the generator and provided with pins arranged spirally to engage and release successively the bottom supports, a ratchet-wheel on the end of said shaft, an arm pivotally secured to the shaft, a pawl on the arm to engage the ratchet-wheel, a bell-crank lever fulcrumed to the generator, a connecting-rod between the lever and the pawl-actuating arm, a second bell-crank lever fulcrumed on the generator, a connecting-rod uniting the two levers, and a rod connected to the outer arm of the second bell-crank lever and extending down into the gas-holder, substantially as described.

2. The combination with the telescoping gas-holder and a gas-generator having an opening to admit a carbid-holder, supporting-rods extending across the generator, carbid-holders mounted on the supporting-rods, a bottom for the holder composed of a plurality of sections hinged thereto, rocking supports for the bottom sections, shafts journaled in the generator and provided with spirally-arranged pins to engage the rocking supports in succession, intermeshing gears on the said shafts, a pawl-and-ratchet mechanism on one of said gears, a series of levers and connections to operate the pawl and rotate the said shafts, and a rod depending from the system of levers connection into the gas-holder and having a hook on its free end arranged in the path of the bell of the gas-holder, substantially as and for the purpose set forth.

3. The combination with the telescoping gas-holder and the gas-generator, of the carbid-holder and means for operating it, com-

prising, the depending hooked rod 28, in the path of the bell of the gas-holder, the bell-crank lever 27, 26 fulcrumed on the generator, the rod 25 connected thereto, the bell-crank lever 24, 23 fulcrumed to the generator and connected to the rod 25, the rod 22, the pawl-and-ratchet mechanism 21, $21^a$, shafts 17, $17^a$, journaled in the generator and provided with spirally-arranged pins, bottom supports 16, 16, the carbid-holder 6, and hinged bottom sections 9, all arranged and combined substantially as and for the purpose set forth.

Toronto, Canada, April 5, A. D. 1899.

AUGUST HERMAN DEIKE.

In presence of—
J. E. CAMERON,
C. H. RICHES.