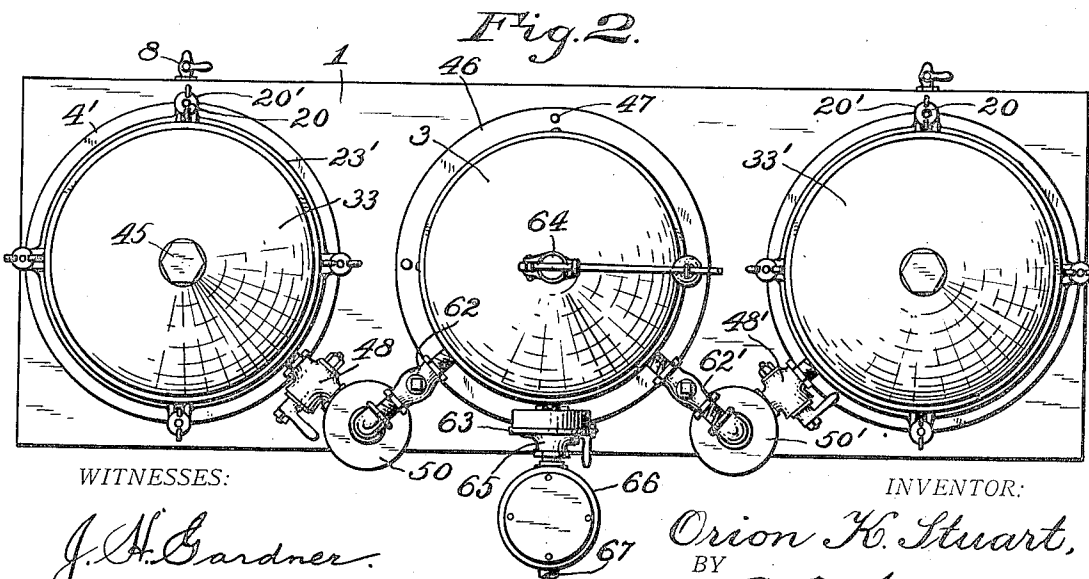
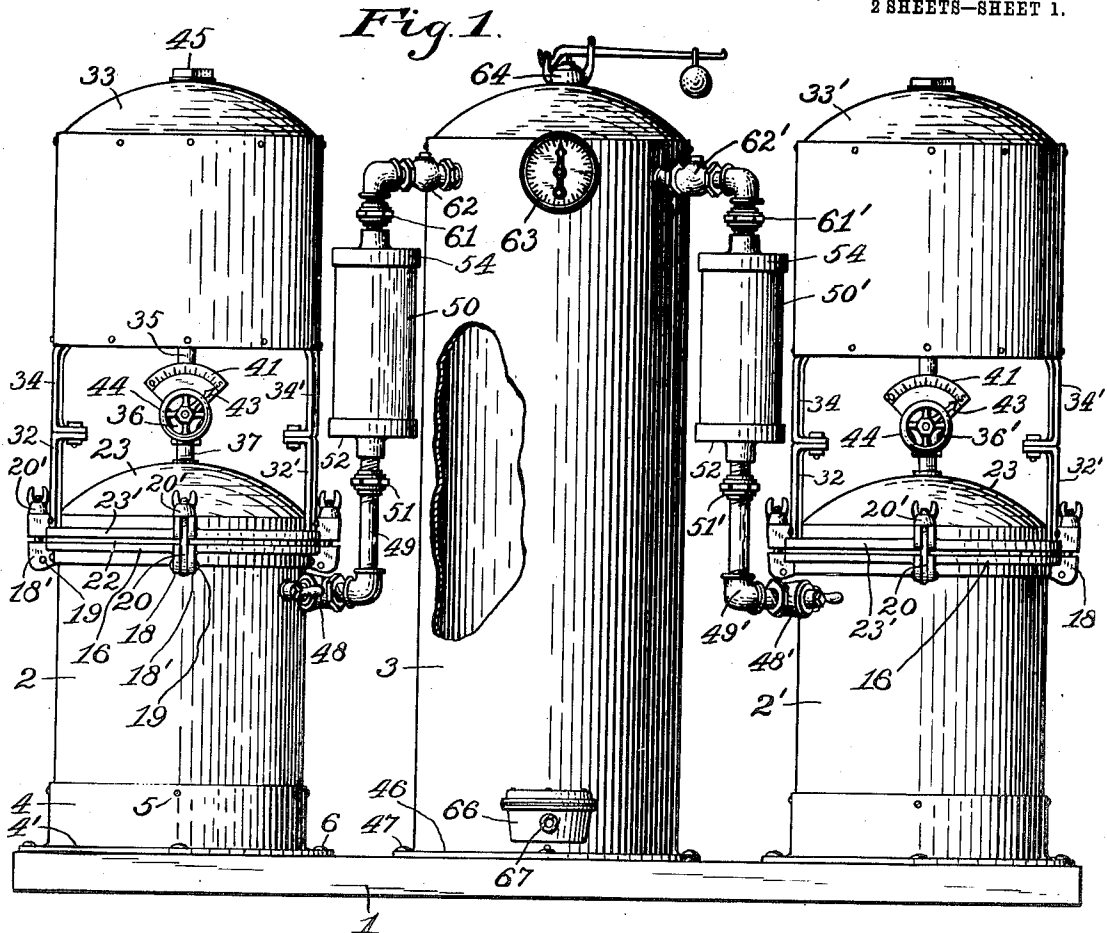


O. K. STUART.
ACETYLENE GAS GENERATOR.
APPLICATION FILED NOV. 9, 1907.

950,310.

Patented Feb. 22, 1910.

2 SHEETS—SHEET 1.



WITNESSES:

J. H. Gardner.
M. D. Beatty.

INVENTOR:

Orion K. Stuart,
BY
E. T. Silvius,
ATTORNEY.

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2 SHEETS—SHEET 2.

Fig. 3.

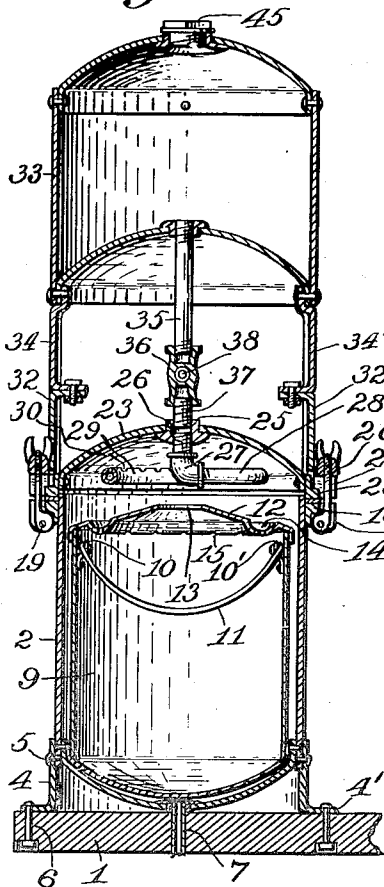


Fig. 4.

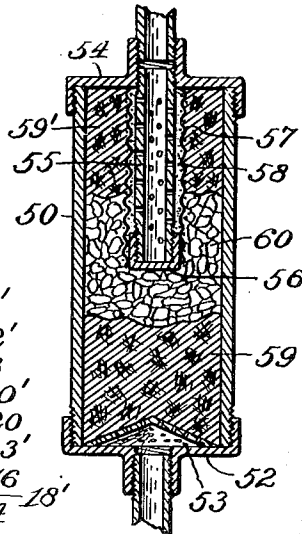


Fig. 5.

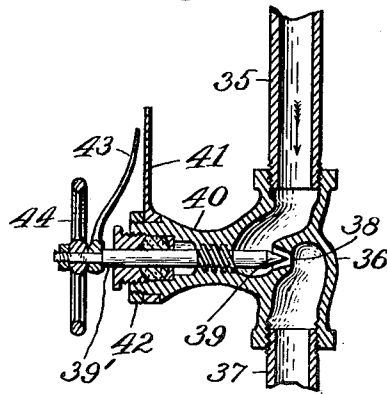


Fig. 6.

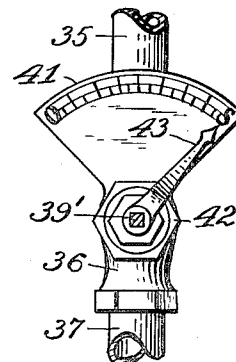


Fig. 7.

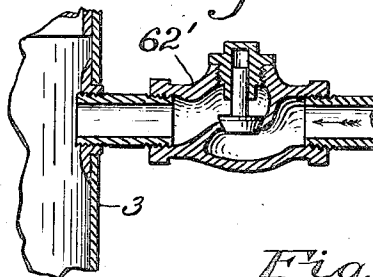


Fig. 10.

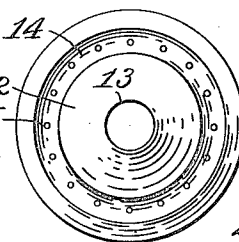


Fig. 8.

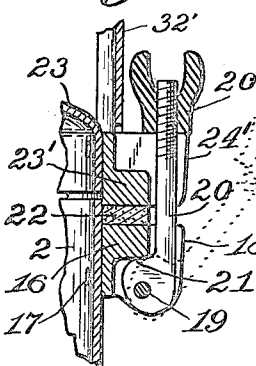


Fig. 9.

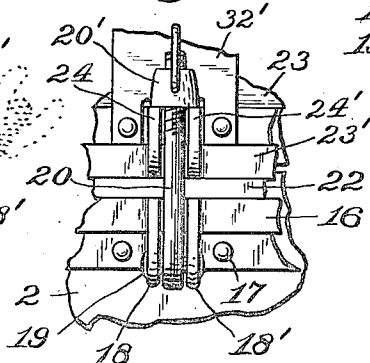
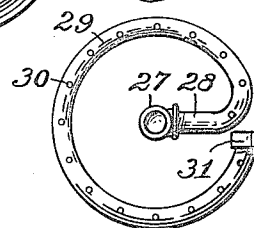


Fig. 11.



WITNESSES:

J. H. Gardner.
M. W. Beatty

INVENTOR:

Orion K. Stuart,
BY
E. T. Silvers,
ATTORNEY.

UNITED STATES PATENT OFFICE.

ORION K. STUART, OF INDIANAPOLIS, INDIANA, ASSIGNOR OF ONE-HALF TO
WILLIAM H. THOMAS, OF INDIANAPOLIS, INDIANA.

ACETYLENE-GAS GENERATOR.

950,310.

Specification of Letters Patent.

Patented Feb. 22, 1910.

Application filed November 9, 1907. Serial No. 401,383.

To all whom it may concern:

Be it known that I, ORION K. STUART, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to apparatus for generating acetylene gas, storing the gas at high pressure and delivering the gas at low pressure for consumption, the invention having reference particularly to compactly constructed and arranged apparatus of the above-mentioned character which may be operated continuously and adapted to be used on vehicles such as automobiles or locomotives or in buildings to supply gas for lighting or other purposes.

The objects of the invention are to provide simple and relatively inexpensive apparatus compactly constructed so as to be operated continuously and therefore permit of the employment of relatively small apparatus which in many cases must of necessity be placed in very small spaces, further objects being to provide durable and economical acetylene-gas generators adapted to be constructed in various sizes to suit requirements.

With the above-mentioned and minor objects in view, the invention comprises a supporting base to which is secured a container and also a pair of acetylene-gas generators, both generators being connected independently to the container, the said generators having certain novel features of construction as will be particularly described hereinafter; each generator having a gas purifier connected therewith through which the gas is delivered to the container. And the invention consists further in certain novel features or elements of construction and in the parts and combinations and arrangements of parts, as hereinafter particularly described and defined in the appended claims.

Referring to the drawings Figure 1 is a front elevation of the complete apparatus with a portion of the container broken away to expose the interior thereof; Fig. 2, a top plan of the complete apparatus; Fig. 3, a

vertical central sectional view of either one of the generators; Fig. 4, a vertical central sectional view of either one of the purifiers; Fig. 5, a vertical central sectional view of the feed valve through which water is to be fed to the carbid for producing gas; Fig. 6, a front elevation of the feed valve; Fig. 7, a fragmentary sectional view of the container and a central sectional view of a check valve connected therewith through which the gas enters from a purifier; Fig. 8, a fragmentary sectional view and Fig. 9, a fragmentary front elevation showing details of construction of portions of the generator; Fig. 10, a top plan of the top of the carbid holder; and, Fig. 11, a top plan of the conduit through which water is to be distributed onto the top of the carbid holder.

Similar reference characters in the various figures of the drawings designate corresponding elements or features of construction.

Practically embodied, the invention comprises a suitable base 1 on which is mounted a generator vessel 2 and also a like generator vessel 2' suitably spaced apart and between which a container 3 is mounted also on the base, and the base which supports all of the apparatus may be suitably secured in any desirable location, especially where space may be limited in extent. Each generator vessel 2 or 2' has a base 4 provided with a flange 4' and connected to the bottom of the vessel by screws 5, the flanges being secured to the base 1 by bolts 6. The bottom of each vessel may be provided with a drain pipe 7 and stop cock 8 to facilitate operations incidental to cleaning the vessel. Each vessel has a removable top to be hereinafter described, and when the top is removed a carbid holder 9 is inserted in the vessel and is designed to be as large as may be conveniently inserted into the available space in the vessel, the holder being formed similarly to a bucket and is provided with internal ears 10 and 10' to which is connected a bail 11. The holder has a top 12 which is preferably crowning and has a central opening 13 therein, the top resting removably on the upper extremity of the holder body. The top 12 has an annular trough 14 which is nearly as great in diameter as the top, and the bottom of the trough has a suitable number of relatively small holes 15 through which water from the trough may drop into the carbid

holder and onto the carbid which may be contained therein. The upper portion of each vessel 2 or 2' has a joint ring 16 suitably attached to the exterior thereof as by rivets 17, and has a suitable number of pairs of ears 18 and 18', each pair of ears having a pivot 19 to which is connected a bolt 20 having a cam 21 adapted to engage a portion of the ring 16 when the bolt is swung to a vertical position, each bolt having a suitable nut 20' thereon. A packing ring 22 of suitable material is placed upon the joint ring 16. A top 23 is provided with a joint ring 23' that is adapted to extend about the upper extremity of the body of the vessel and rest on the packing ring 22, the joint ring 23' being provided with a suitable number of pairs of ears 24 and 24', to correspond with ears 18 and 18', between which bolts 20 may swing, and the nuts 20' are to be screwed down upon the ears for securing the top removably to the body of the generator vessel. The top 23 has a bushing 25 in a suitable opening therein to which is connected a nipple 26, the nipple having an elbow 27 connected thereto to which is connected a distributing pipe comprising an approximately straight section 28 extending outward over the trough 14, the section 28 being connected by a curved section 29 extending in a circular direction above the trough, the top of the curved section having relatively small holes 30 therein through which water may escape when the distributing pipe is full and drop into the trough, the distributing pipe having a cap 31 on the end of the curved portion thereof.

A suitable number of standards 32 and 32' are secured in any suitable manner to the top 23. A closed water vessel 33 is provided which is approximately as large in diameter as the generator vessel, and is provided with a suitable number of legs 34 and 34' (or separable parts of standards), which are suitably attached to the standards whereby to rigidly connect the water vessel with a generator vessel. A pipe 35 is connected to the bottom of the water vessel, and is connected by a feed valve 36 or 36' to which is connected a pipe 37 which is connected to the bushing 25 for conveying water to the distributing pipe. Either feed valve 36 or 36' has a valve opening 38 therein on which operates a valve proper 39, having a stem 39' that is screwed into a branch 40 of the valve body or case, the branch 40 having an indicator dial 41 mounted adjustably thereon and normally secured by a nut 42, a pointer or finger 43 being secured on the stem 39' at the front of the indicator dial, a suitable wheel or handle 44 being also attached to the stem 39' for operating the valve rotatively, so that the desired amount of valve opening may be readily obtained after having once determined what such amount of opening should

be. If the valve requires reseating owing to wear, either the pointer 43 or the dial 41 or both may be readjusted respectively, one to the other, so that the pointer will always point toward zero or the mark indicating that the valve is closed when it is so closed. The water vessel is provided at the top thereof with a filling plug 45. The container 3 has a flange 46 at the bottom thereof whereby it is secured to the base 1 by bolts 47.

The generator vessels 2 and 2' have stop cocks 48 and 48' connected therewith respectively, which are connected by pipes 49 and 49' respectively, one pipe having a purifier body 50 connected thereto by a union 51, and the other pipe having a similar purifier body 50' connected thereto by means of a union 51'. Each purifier body has a lower head 52 upon which is a strainer 58, an upper head 54 being attached to the upper end of the body. A perforated tube 55 is attached to the upper head 54 and extends partially through the purifier body, and has a cap 56 on its lower end from which a strainer 57 extends up to the head 54, and loose cotton or similar material 58 is placed between the tube 55 and the strainer 57. The heads 52 and 54 may be screwed off of the purifier body in order to renew the material therein which preferably comprises cork 59 that is placed on the strainer 53 and extends upward a short distance and upon which is a suitable quantity of charcoal or suitable material 60, and upon the charcoal a quantity of cork 59' is placed that fills the remainder of the space in the upper end of the purifier body. One purifier body is connected by means of its upper head and a union 61 to a check valve 62 that is connected to the container 3, the other purifier being similarly connected by a union 61' that is connected to a check valve 62' which is connected also to the container 3. The container is provided with a pressure gage 63 and also with a safety valve 64, and the container is provided also with a suitable outlet valve or cock 65 to which is connected a regulator 66, to which is connected a distributing pipe 67 to convey the gas away for use. The safety valve may be of any suitable construction, and the regulator may be any one of a number of well known types of valves or devices whereby high pressure gas from the container may be delivered to the distributing pipe at very low pressure desired for use with gas lamps.

In practical use, the feed valves are to be closed before charging the apparatus, and the stop cocks 48 and 48' may usually be left open except when repairs or cleaning becomes necessary. The nuts 20' may be loosened so that the top 23 of either generator vessel may be removed from the body of the vessel with the water tank 33 or 33' that

is connected thereto. Then the carbid holder may be emptied if it contains refuse from prior use, and having charged the holder with a suitable quantity of carbid
 5 may be replaced with its top in the generator vessel and the top 23 again secured thereon by means of the nuts 20'. Then the feed valve 36 or 36' is to be opened slightly to permit the water to feed down onto the carbid, the water vessel of course having been
 10 previously filled and its filling plug inserted. The gas produced will pass through the connected purifier into the container in which it will be held by the check valve 62 or 62'. The pressure in the container may
 15 increase to a high degree, but explosion will be prevented by the safety valve, and the amount of pressure may be ascertained by reference to the pressure gage. The gas
 20 may be used until the pressure in the container becomes reduced below that which may remain in the generator vessel and in the water vessel into which gas of course will escape through the feed valve, and the
 25 remaining gas will then flow into the container as fast as used therefrom, and when the pressure becomes as low as desirable for use, the other generator may be put in operation by opening its feed valve, the generator of course having previously been properly
 30 charged. Then at a convenient time the exhausted generator may be recharged ready for use when required, so that the operations of generating the gas may be practically continuous. It will be understood that while gas is being generated the pressure will be approximately equal in the generator vessel and its feed water vessel and in the container, the equality of pressure continuing until the gas has been used
 40 down to the lowest pressure practicable.

Having thus described the invention, what is claimed as new is—

1. In acetylene-gas apparatus, a generator vessel, a vessel-top secured removably on the vessel, a carbid-holder in the vessel, a vertical feed-pipe connected to and extending through the center of the vessel-top, a closed water-vessel above the vessel-top, a
 50 feed-valve connected to the top of the feed-pipe, and a feed-pipe connected to the feed-valve and also to the center of the bottom of the water-vessel, the vessel-top providing a supporting base for the water-vessel when
 55 on and when removed from the generator-vessel.

2. In acetylene-gas apparatus, a generator vessel, a vessel-top on the vessel, a carbid-holder in the vessel, a crowning holder
 60 top on the carbid-holder and having a central opening therein and having also an annular trough thereon arranged concentrically to the opening, the bottom of the trough having holes therein, and a distributing pipe
 65 connected centrally to and extending as a

straight section thence horizontally under the vessel-top and above the crowning holder-top, the distributing-pipe comprising also a curved section extending laterally from the straight section horizontally in a circle
 70 around nearly to the straight section, and a cap on the end of the curved section, there being perforations in the upper portion of the wall of the said curved section.

3. In acetylene-gas apparatus, a generator vessel comprising a bottom, a vessel-top on the vessel, a carbid-holder having a bottom normally resting on the bottom of the generator vessel, ears attached to the inner
 80 side of the carbid-holder, a bail connected to the ears, an apertured holder top on the carbid-holder and normally covering the bail, the holder top comprising an annular apertured trough, and a distributing-pipe connected to the vessel top and extending horizontally above the holder top and also in a
 85 circle above the trough, the upper portion of the wall of the circular portion of the distributing-pipe being perforate.

4. In acetylene-gas apparatus, a generator vessel, a crowning vessel-top secured removably on the vessel, a plurality of standards each comprising two parts connected rigidly together, one part of each standard being connected rigidly to the vessel-top, a
 90 water-vessel secured rigidly to the other parts of the standards, a feed-pipe connected to the bottom of the water-vessel, a feed-valve connected to the feed-pipe, a feed-pipe connected to the feed-valve and connected
 95 also to and extending through the vessel-top, and a distributing-pipe connected to the last-described feed-pipe.

5. In acetylene-gas apparatus, an open-top generator vessel body, a vessel-top and a
 105 water-vessel with space between them, the vessel-top being removably secured to the vessel body and having a plurality of standards secured thereto, the water-vessel having a plurality of legs secured thereto, means securing the legs of the water-vessel rigidly to the standards of the vessel-top, a feed-pipe connected to the bottom of the water-vessel, a feed-valve body connected to the feed-pipe, a dial on the valve body, a valve-stem in the
 115 valve body, a pointer on the valve stem, a feed-pipe connected to the feed-valve body and also to the vessel-top, and a distributing-pipe connected with the last-described feed-pipe under the vessel-top.

6. In acetylene-gas apparatus, the combination of a base, a generator vessel on the base and secured thereto, the vessel comprising a removably secured top having a plurality of standards mounted fixedly thereon,
 125 a water-vessel supported on the standards, a feed-valve arranged between the bottom of the water-vessel and the top of the generator vessel and connected therewith, the said generator vessel top having a distributing-pipe
 130

mounted on the underside thereof and in communication with the feed-valve, a carbide-holder in the generator vessel, a container secured to the base and extending substantially to the plane of the top of the water-vessel, a check-valve connected with the upper portion of the container, a gas-purifier arranged vertically above the forward portion of the base adjacent to the container, the gas-purifier having its upper end connected with the check-valve, and a con-

duit connected with the upper portion of the generator vessel and the lower end of the gas-purifier.

In testimony whereof, I affix my signature 15
in presence of two witnesses, on the 1st day
of November, 1907.

ORION K. STUART.

Witnesses:

HARRY D. PIERSON,
E. T. SILVIUS.