

No. 702,772.

Patented June 17, 1902.

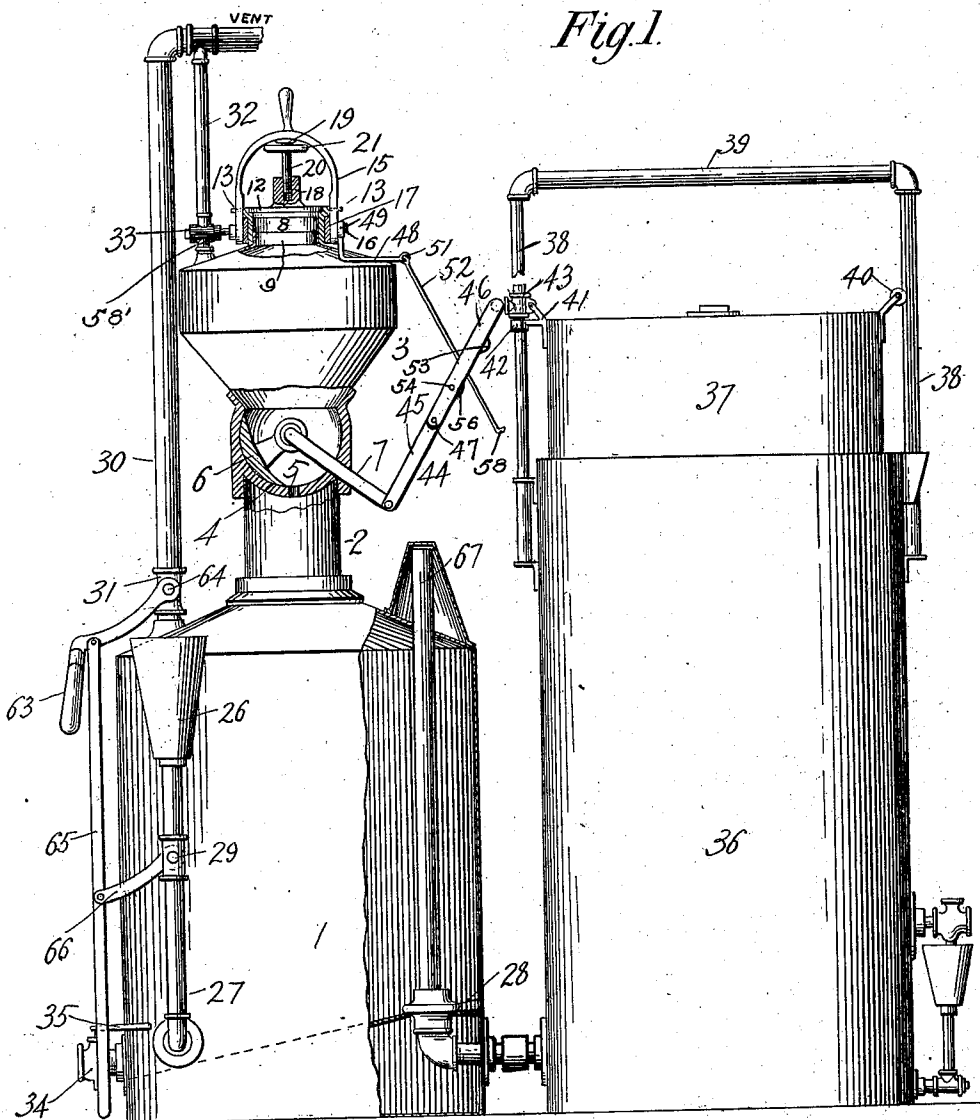
J. D. BUCKLEY & E. H. PHINNEY.
ACETYLENE GAS GENERATOR.

(Application filed Aug. 29, 1901.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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ACETYLENE GAS GENERATOR.

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3 Sheets—Sheet 2.

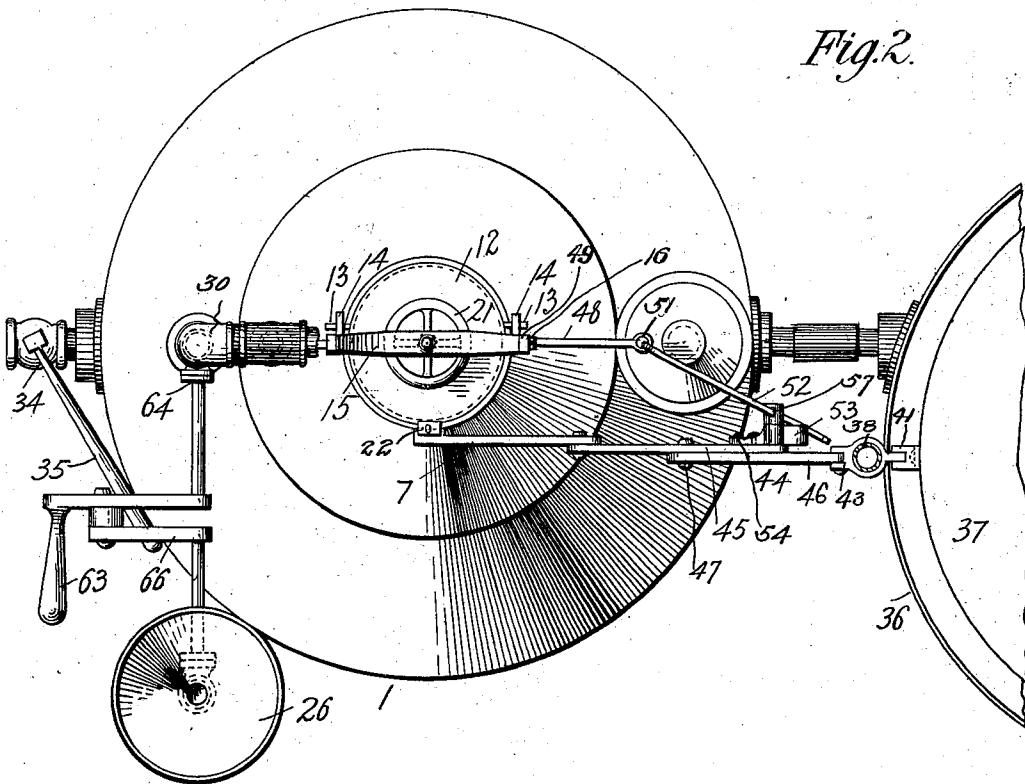
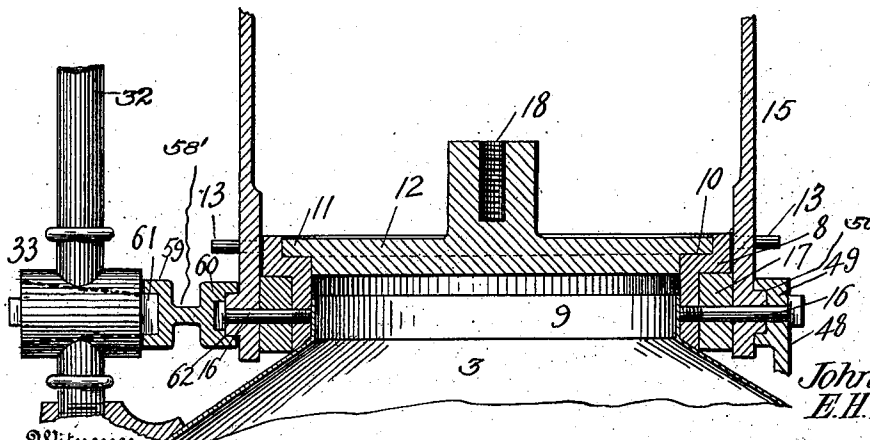


Fig. 3.



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ACETYLENE GAS GENERATOR.

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3 Sheets—Sheet 3.

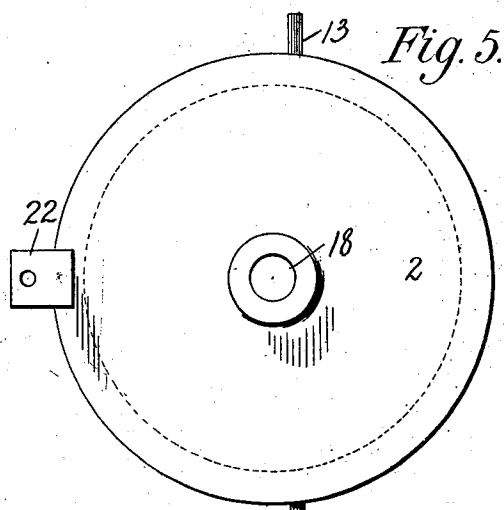


Fig. 5.

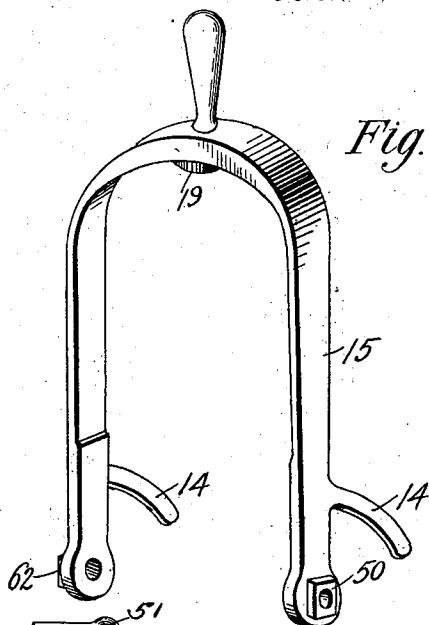


Fig. 6.

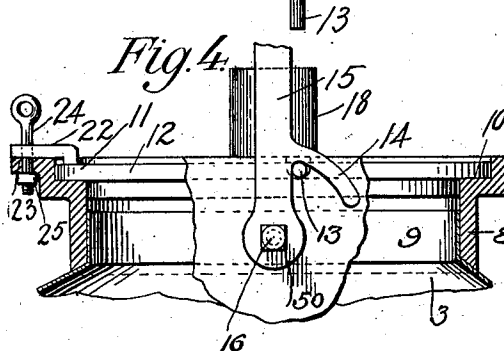


Fig. 4.

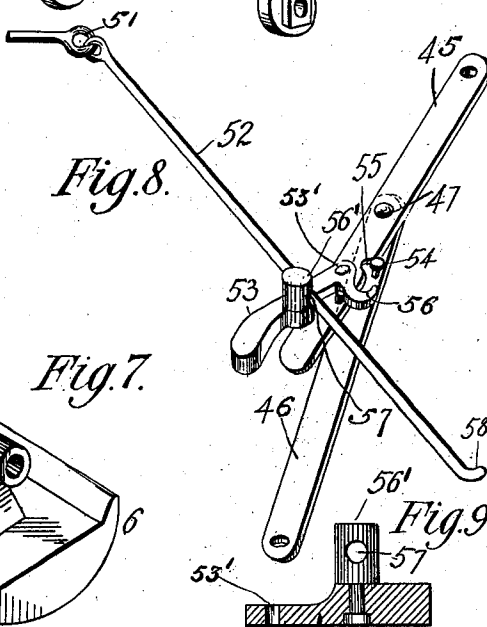


Fig. 8.

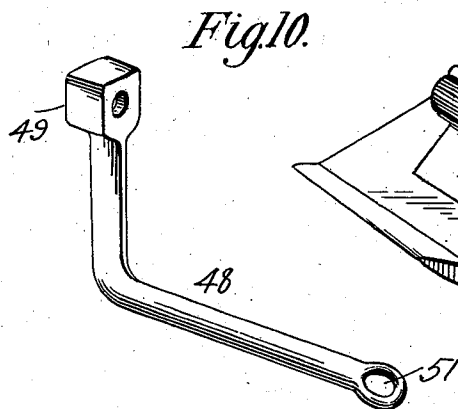


Fig. 10.

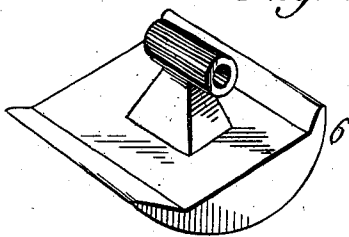


Fig. 7.

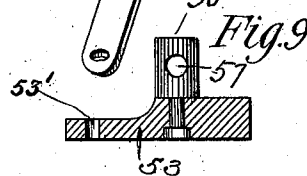


Fig. 9.

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UNITED STATES PATENT OFFICE.

JOHN D. BUCKLEY AND EDWARD H. PHINNEY, OF BRUNSWICK, MAINE.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 702,772, dated June 17, 1902.

Application filed August 29, 1901. Serial No. 73,740. (No model.)

To all whom it may concern:

Be it known that we, JOHN D. BUCKLEY and EDWARD H. PHINNEY, citizens of the United States, residing at Brunswick, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Acetylene-Gas Generators; and we 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.

The invention relates to acetylene-gas generators.

The object of the invention is to provide a device of this character which shall be simple of construction, durable in use, comparatively inexpensive of production, and efficient in action.

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

In the accompanying drawings, Figure 1 is a side elevation, partly in section, illustrating our improved acetylene-gas generator. Fig. 2 is a top plan view, on an enlarged scale, of the generator-tank and a portion of the gasometer. Fig. 3 is a vertical sectional view through the cap of the carbid-chamber, showing its connection with said chamber. Fig. 4 is a similar view taken at right angles to Fig. 3. Fig. 5 is an enlarged detail top plan view of the cap. Fig. 6 is an enlarged detail perspective view of the yoke-shaped locking-lever for the cap. Fig. 7 is a similar view of the valve for the carbid-chamber. Fig. 8 is a perspective view taken from the rear of the jointed bar for operating said valve. Fig. 9 is a vertical sectional view through the swiveled head, and Fig. 10 is a detail perspective view of the crank-arm connected to the locking-lever.

Referring more particularly to the drawings, 1 denotes the generator-tank, having at its upper end a neck portion 2, which supports and establishes communication between the carbid-chamber 3 and the tank.

4 denotes a curved valve-seat having a discharge-orifice 5, which is covered and uncov-

ered by a rocking valve 6, having a crank-arm 7, projecting through the side of the neck portion.

8 denotes a collar secured to an upwardly-projecting annular flange 9, formed on the upper end of the carbid-holder and provided with a cap-seat 10 to receive the annular flange 11 of a removable cap 12. This cap is provided with laterally-projecting studs 13, which are engaged by hooks 14 of a yoke-shaped locking-lever 15. This lever is pivoted by bolts 16 to the collar 8 and when swung up in the position shown in Fig. 1 engages the studs 13 of the cap and prevents its removal from the upper end of the carbid-holder. Blocks 17 may be employed for filling the space between the inner sides of the yoke-shaped lever and the collar 8.

The upper side of the cap is provided with a screw-threaded socket 18, while the bight of the yoke-shaped lever is provided with a smooth socket 19. The screw-threaded socket 18 is engaged with the screw-threaded end of a hand-screw 20, the upper smooth end of which engages the smooth socket 19. When the locking-lever is swung to its elevated position, as shown in Fig. 1, the screw 20 is worked by its hand-wheel 21 to force the cap 12 tightly to its seat 10 in the annular collar 8 to form a gas-tight joint. When it is desired to remove the cap, the screw is first worked to loosen its upper end from engagement with the socket of the locking-lever, and by swinging said lever downward the cap may be removed from its seat. That the cap may not become displaced we connect it to the collar 8, so that after it has been lifted a slight distance above its seat it may be swung around to one side. This connection consists in forming the cap with a laterally-projecting lug 22 and forming the collar 8 with a similar lug 23, and passing through the apertures formed in each lug is a bolt 24, which is provided with a nut 25. The head of this bolt extends sufficiently far above the lug 22 to permit of said lug having a sliding engagement upon the bolt sufficient to free the cap from its seat and permit the cap to be swung around to one side.

26 denotes a water-filling funnel located on the outside of the generator-tank and communicating with the tank through a pipe 27

at a point immediately above the inclined bottom 28 of the tank. The pipe 27 is provided with a cock or valve 29 for a purpose hereinafter to appear.

5 30 denotes a vent-pipe extending from the gas-space within the tank 1 to a point where it may communicate with the outside air. This pipe is provided with a cock or valve 31 and communicates with the upper end of the carbide-holder 3 through an escape-pipe 32, which is provided with a cock or valve 33.

34 denotes a draw-off cock located at the lower end of the generator-tank immediately above the inclined bottom thereof and is designed to permit of the removal from the tank of the residuum. This valve is provided with an operating-handle 35, which when the cock is closed is adapted to lie against the side of the tank, as shown in Figs. 1 and 2.

20 36 denotes the tank of the gasometer, and 37 the bell thereof. The tank is provided with fixed guide-rods 38, connected together at their upper ends by a cross-piece 39. The bell has at its upper end at one side a roller 40, which engages one of the rods, and has at a point diametrically opposite said roller a bracket 41, formed with sleeves 42 and 43, which have a sliding engagement with the opposite guide-rod.

30 44 denotes a jointed bar or connection consisting of the parts 45 and 46, pivoted together at 47. The part 45 has its lower end pivoted to the crank-arm 7 of the valve, and the part 46 has its upper end pivoted to the sleeve 43 or any other part movable with the bell of the gasometer.

48 denotes a crank-arm having at one end a socket-head 49, which is adapted to fit over a polygonal stud 50, formed on one of the ends of the yoke-shaped locking-lever and held in place by the bolt 16, as shown on the right-hand side of Fig. 3. The opposite end of this crank-arm 48 is formed with an eye 51, to which is loosely connected a rod 52.

45 The part 45 of the jointed bar 44 at its upper end is provided with a weighted hook 53, pivoted at 53', said hook being adapted to coact with a laterally-projecting stud 54, carried by the lower end of the part 46, this stud in turn being adapted to coact with a notch or recess 55, formed in the edge of the part 45. When the stud 54 is in engagement with the notch or recess 55 and the bill 56 of the hook is in engagement with the stud, the two parts or members of the bar will be locked rigidly together.

56' denotes a head swiveled to the weighted hook and provided with an aperture 57, through which extends the rod 52, said rod having a head 58 at its lower end to prevent its withdrawal through the aperture 57.

58' denotes a coupling having polygonal socket ends 59 and 60, the former being connected to the valve-stem 61 of the valve 33 and the latter being connected to a polygonal lug 62, formed on one of the ends of the locking-lever, so that when said locking-lever is

swung downwardly the valve 33 will be opened prior to the removal of the cap or cover, and thereby allow any gas which may have accumulated within the carbide-holder to escape through the pipe 32 into the pipe 30, whence it is carried to the outside of the building.

63 denotes a lever fixed to the stem 64 of the valve 31 and having pivoted to it a rod or bar 65, which projects downwardly below the handle 35 of the valve or draw-off cock 34 and when in its lowermost position prevents the handle 35 from being turned outwardly to open the valve. A link 66 is fixed to the stem of the valve 29 and is pivoted to the rod or bar 65.

In operation, assuming the parts to be in the position shown in Fig. 1 of the drawings, in which position the valve 6 is arranged to permit the carbide from the holder 3 to discharge therefrom into the tank 1 as the gas is generated by the carbide coming in contact with the water in the tank 1, it will escape from the tank 1 through the pipe 67 into the gasometer 36 and will gradually elevate the bell thereof. As the bell continues to rise, due to the filling of the gasometer with the gas, the valve 6 will be moved toward the opening 5, and when a predetermined amount of gas has entered the gasometer and the bell thereof risen to a certain height said valve will close the opening and prevent further discharge of the carbide into the tank. As the gas is consumed from the gasometer the bell lowers, moves the valve from over its opening, and allows fresh charges of carbide to enter the tank. In the vertical movement of the bell the jointed bar remains rigid and the bar acts the same as if constructed of but a single piece. Should it be desired to replenish the holder 3 with a fresh supply of calcium carbide, the screw 20 is turned to free its upper end from the locking-lever, and said lever is then swung downward. This movement of the lever operates the valve 33 to allow any gas which may have accumulated in the carbide-holder to escape through the pipe 32 into the pipe 30 and also swings the crank 48 upwardly, which slides the rod 52 through the aperture in the swiveled head 56' until the head 58 of said rod contacts with the head 56'. When this contact is made, a further movement of the lever will disengage the weighted hook 53 from the stud 54, and thus permit the rod 52 to move the inner ends of the members 45 and 46 of the bar upwardly in a direction toward the carbide-holder, so as to shift the valve 4 to close the opening 5, and thereby prevent the escape of gas from the tank 1 into the carbide-holder, which may now be opened by removing the cap or cover and a fresh charge of calcium carbide placed therein. When it is desired to clean out the tank 1 of the generator, the handle 63 is elevated. This opens the valve 31, as well as the valve 29, and thus allows any gases within the generating-tank to escape through the pipe 30. When elevated, the lever 63 holds

the lower end of the rod 65 above the handle 35 of the draw-off cock 34 to permit the residuum to be removed from the bottom of the tank 1. The cock 31, however, having been opened before it was possible to open the cock 34, the gas will have escaped through the cock 31 previous to the opening of the cock 34, so that in cleaning out the tank 1 there is no danger of the gas escaping into the room in which the generator is located. When it is desired to fill the tank 1 with a fresh supply of water, the lever 63 is elevated, as before described, thus opening the valves 29 and 31, when water may be fed into the funnel 26 by a pail or hose. It will thus be seen that the pipe 30 acts as a vent—that is, it allows the air and gas to escape from the tank in the filling of the tank with water—and in cleaning out the tank it first acts to allow any gas which may be confined within said tank to escape therefrom, and after the valve 34 has been opened said pipe serves as an air-vent to permit the withdrawal of the residuum through said cock or valve 34.

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

Various changes in the form, proportion, and details of construction may be made within the scope of the invention without departing from the spirit or sacrificing any of the advantages thereof.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In an acetylene-gas generator, the combination with the carbid-holder, of an escape-pipe communicating with the said carbid-holder, a valve in said escape-pipe, a cover for said carbid-holder, studs projecting laterally from said cover, a pivoted yoke-shaped locking-lever having curved arms to engage said studs when the valve is closed, and a connection between said locking-lever and the valve for actuating said valve to allow the escape therefrom of the gas within the carbid-holder previous to the disconnection of said cover from the curved arms, substantially as set forth.

2. In an acetylene-gas generator, the combination with the generating-tank, of a carbid-holder communicating therewith, a valve for controlling the communication between the two and provided with a crank-arm, a gasometer, a jointed bar connected to said crank-arm and the dome of the gasometer, a lock for holding the two parts of the jointed bar rigid, a cover for the carbid-holder, means for locking the cover in position, and means connected to the first-named means for unlocking and “breaking” the jointed bar, substantially as set forth.

3. In an acetylene-gas generator, the com-

bination with the generating-tank, of a carbid-holder communicating therewith, a valve for controlling the communication between the two and provided with a crank-arm, a gasometer, a jointed bar connected to said crank-arm and to the dome of the gasometer, a lock for holding the two parts of the jointed bar rigid, a cover for the carbid-holder, means for locking the cover in position, means connected to the first-named means for “breaking” the jointed bar when the cover is unlocked, and a valved escape-pipe communicating with said carbid-holder, the valve thereof being connected with the first-named means and adapted to be opened thereby in the act of unlocking the cover from the carbid-holder, substantially as set forth.

4. In an acetylene-gas generator, the combination with the generating-tank, of a carbid-holder communicating therewith, a valve for controlling the communication between the two and provided with a crank-arm, a gasometer, a jointed bar connected to said crank-arm and the dome of the gasometer, a lock for holding the two parts of the jointed bar rigid, a cover for the carbid-holder, a locking-lever for said cover, a crank connected to said locking-lever, and a connection between said crank and the means for locking the jointed bar, whereby when said locking-lever is moved to release the cover from the carbid-holder, the locking means will unlock and break the jointed bar and permit of the closing of the valve by the further movement of the locking-lever, substantially as set forth.

5. In an acetylene-gas generator, the combination with the generating-tank, of a carbid-holder communicating therewith, a valve for controlling the communication between the two and provided with a crank-arm, a gasometer, a jointed bar connected to said crank-arm and the dome of the gasometer, a stud projecting from one member or part of the jointed bar into and adapted to cooperate with a recess or notch in the edge of the other member, a hook carried by the notched or recessed member and adapted to engage said stud and lock the two members rigidly together, a cover for the carbid-holder, a locking-lever for said cover, a crank secured to said locking-lever, and a connection between said crank and the said hook for releasing said hook from said stud when said locking-lever is swung to a position to permit of the removal of said cover, substantially as set forth.

6. In an acetylene-gas generator, the combination with the generating-tank thereof provided with a vent-pipe, a valve located therein, a draw-off cock located at the bottom of the tank and provided with a handle, a lever for operating the valve, a filling-pipe leading into the tank and provided with a valve, a bar connected to said valves and projecting downward into the path of move-

ment of the handle of the draw-off cock to
form an interference for said handle while
the valve of the vent-pipe is closed and thus
permit of the opening of the draw-off cock,
5 and the valve in the filling-pipe only when
the valve in the vent-pipe is open, substan-
tially as set forth.

In testimony whereof we have hereunto set

our hands in presence of two subscribing wit-
nesses.

JOHN D. BUCKLEY.
EDWARD H. PHINNEY.

Witnesses:

HARRY L. STIMPSON,
CLARENCE E. SAWYER.