C. B. SHERLOCK.

ACETYLENE GAS APPARATUS.

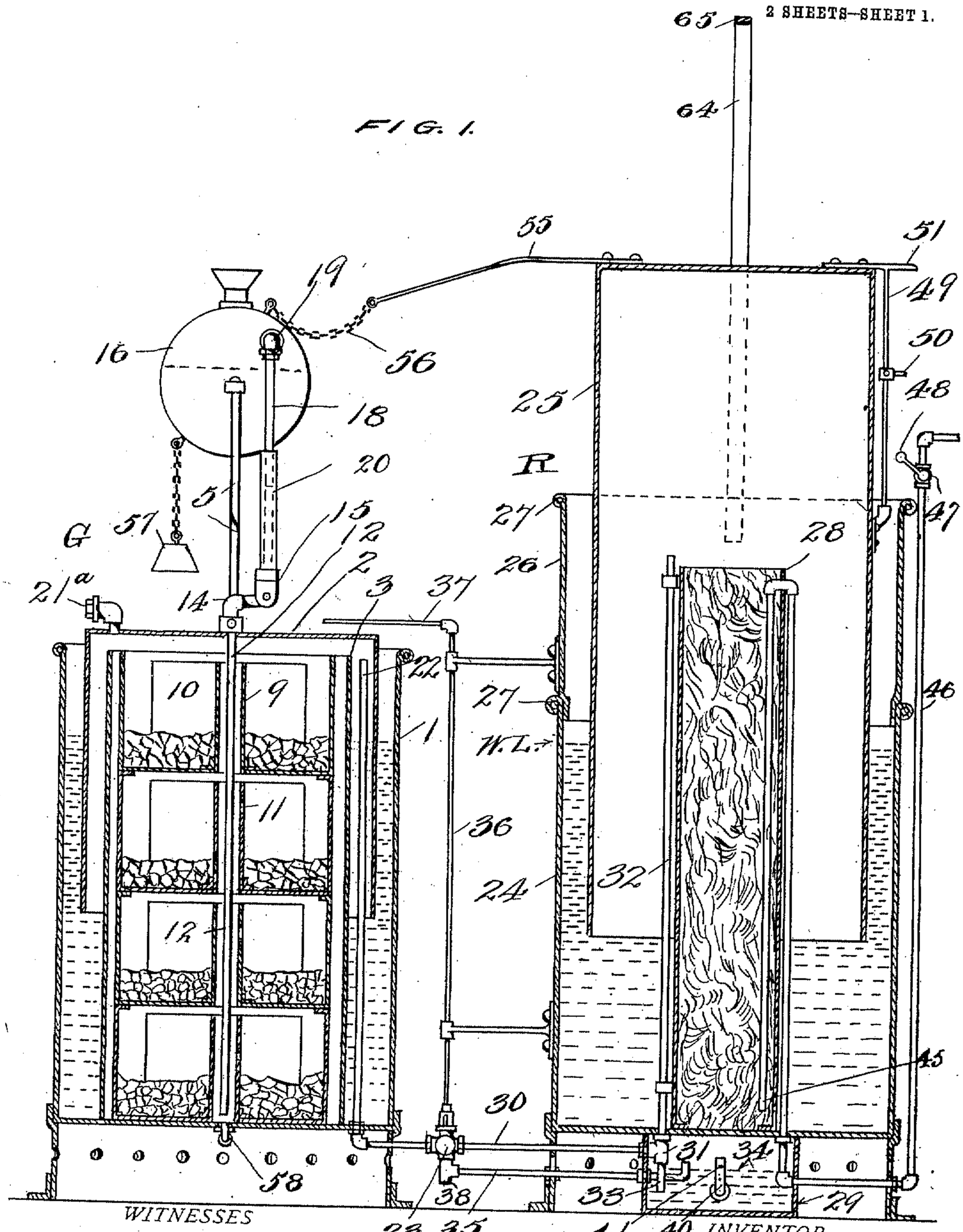
APPLICATION FILED JUNE 5, 1909.

983,863.

Patented Feb. 7, 1911.

2 SHEETS—SHEET 1.

FIG. 1.



WITNESSES

C. K. Davis

L. A. Shannow

INVENTOR

C. B. Sherlock,

by Brock Becker & Smith

Attorney

C. B. SHERLOCK.

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2 SHEETS—SHEET 2.

FIG. 2.

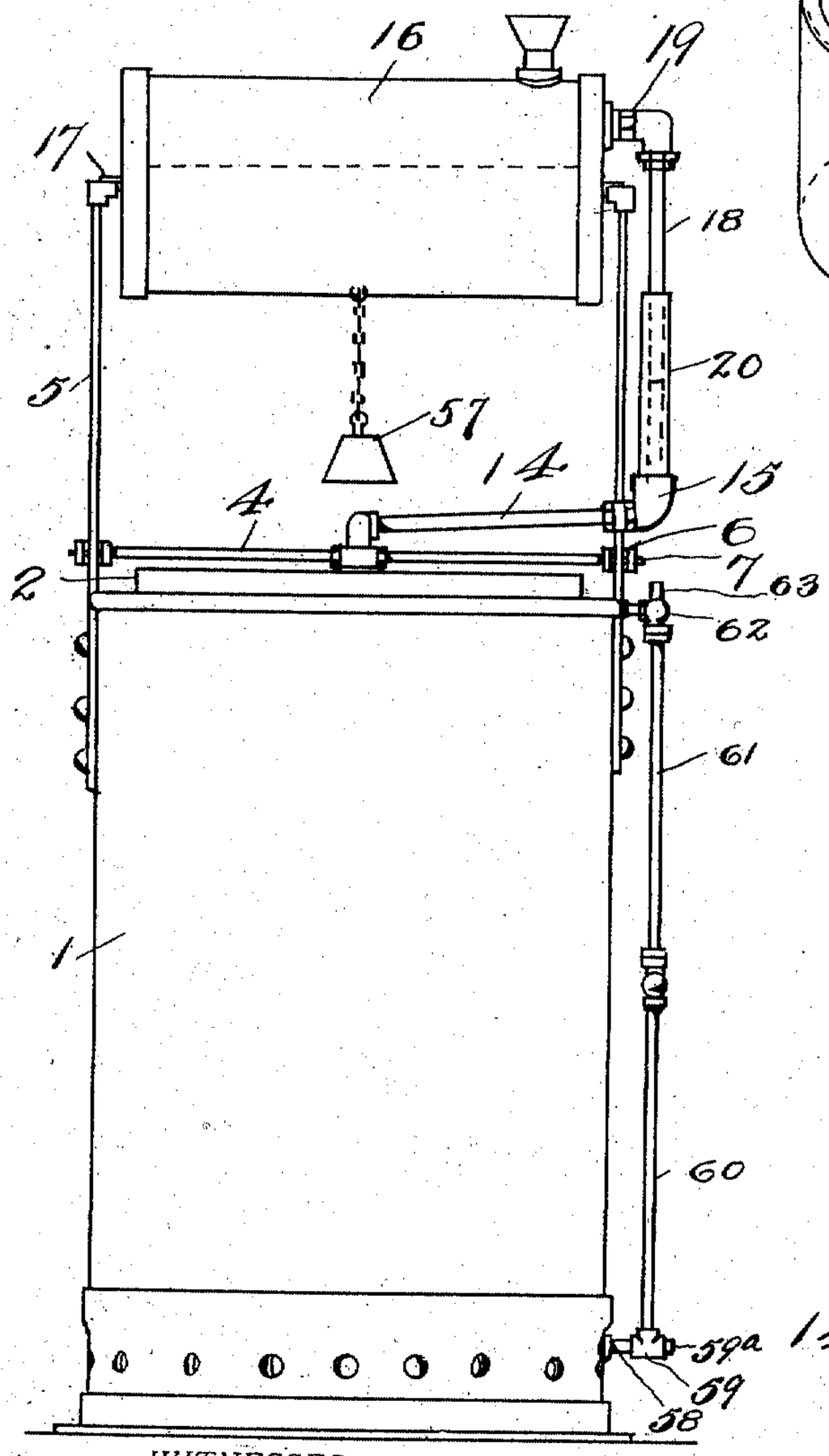


FIG. 3.

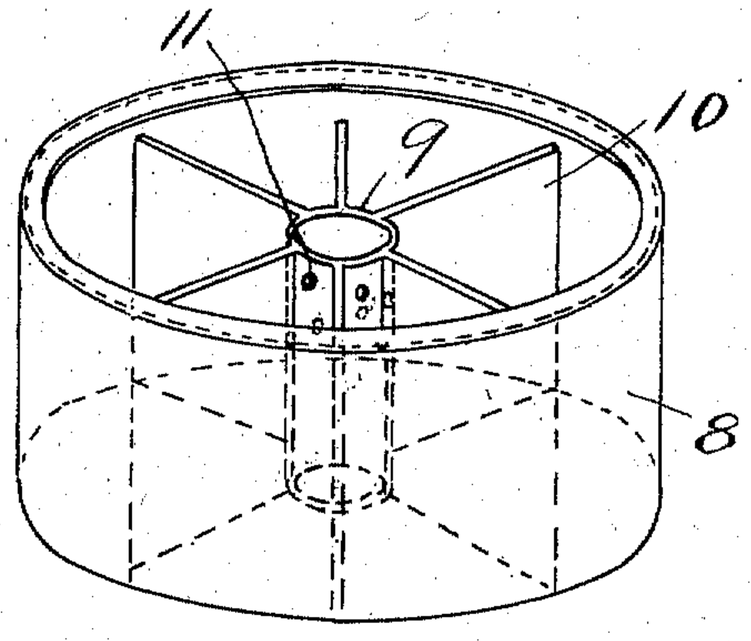
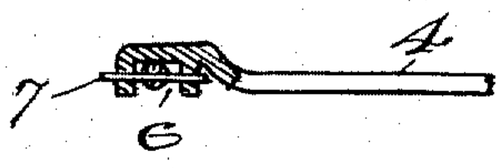


FIG. 4.



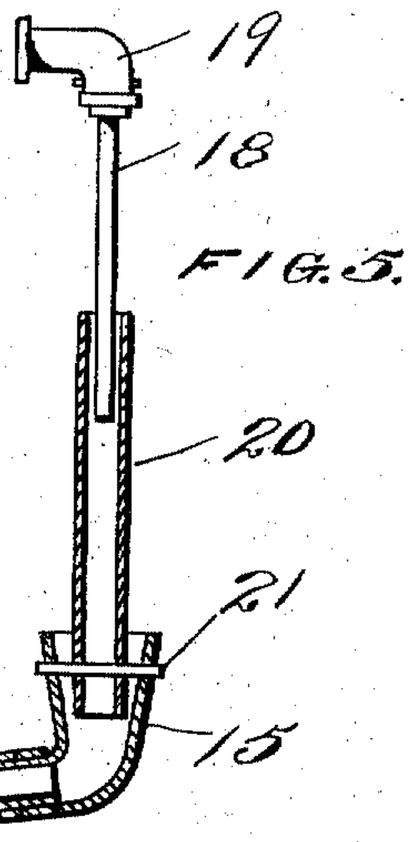


FIG. 5.

WITNESSES

C. K. Davis,

L. A. Shannon.

INVENTOR

C. B. Sherlock

by Brock, Beeken & Smith

Attorney

UNITED STATES PATENT OFFICE.

CHARLES B. SHERLOCK, OF ST. JOSEPH, MISSOURI.

ACETYLENE-GAS APPARATUS.

983,863. Specification of Letters Patent. **Patented Feb. 7, 1911.**

Application filed June 5, 1909. Serial No. 500,293.

To all whom it may concern:

Be it known that I, CHARLES B. SHERLOCK, a citizen of the United States, and resident of St. Joseph, in the county of Buchanan and State of Missouri, have invented a certain new and useful Improvement in Acetylene-Gas Apparatus, of which the following is a specification.

My invention relates to generating and storing apparatus for acetylene gas.

Exemplifying structures embodying the invention will be described and the purposes and advantages of the invention pointed out in connection therewith.

Referring to the drawing: Figure 1 is a vertical diagrammatic sectional view of apparatus embodying my invention. Fig. 2 is a side elevation of the generator and water reservoir. Fig. 3 is a perspective view of one of the carbid trays. Fig. 4 is a detail view of the fastening for the generator bell and Fig. 5 is an enlarged sectional view of the connections between the water reservoir and the generator supply pipe.

Reference character G designates the generator as a whole and R designates the receiver.

The generator will first be described.

The generator comprises a tank 1 provided with the usual inverted bell 2. Within the tank is a tray holder 3. The bell 2 floats on a water seal between the tank and the tray holder. A bar 4 passes across the top of the bell and is secured to uprights 5 which support the water reservoir by means of notches 6 formed in the bar and pins 7 passing through the bar and perforations in the uprights. The bar limits the upward movement of the bell. Within the tray holder are stacked the trays 8 each of which is provided with a tubular center 9 and partitions 10 separating the tray into a plurality of compartments. The tubular center 9 is provided with perforations 11 one communicating with each of the compartments and these perforations are arranged in spiral form so that water when it rises within the tubes 9 will first enter one compartment of each tray and then will enter the succeeding compartments in pre-determined order. The water supply pipe 12 passes through the tubular centers of the trays to the bottom of the tray holder 3. The supply pipe passes through the top of the bell 2 and is provided with an L 14 terminating in socket 15.

The water reservoir 16 is supported by trunnions 17 resting on the uprights 5 above the generator. A pipe 18 is connected with the interior of the reservoir by a swivel joint 19. The end of pipe 18 rests within a larger pipe 20 which terminates within the socket 15 to which it is pivoted on a pin 21. The reservoir is alternately oscillated, as will later be described, to bring the swivel 19 above and below the water line in the reservoir. This oscillating movement of the reservoir is permitted by the swivel 19 and the loose connection of pipe 18 with the pipe 20 and by the pivotal connection of pipe 20 with socket 15. The generator bell may be provided with a relief valve 21ª for use in emergencies. The gas generated within the bell 2 passes through pipe 22 which leads down through the water seal to cool the gas, to a three-way valve 23.

The receiver comprises a tank 24 within which is the bell 25 surrounded by the usual water seal. The tank is provided with an upper extension 26, the lower end of which is arranged to telescope within the upper end of the main tank. The upper edges of the main tank and extension are wired as shown at 27. Within the tank and bell is the purifying can 28 which is filled with any suitable drying material such as excelsior. Below the tank 24 is a trap 29. The main pipe 30 leads from three-way valve 23 to a T connection 31 within the trap and a pipe 32 leads up from the T to a point within the bell and another pipe 33 descends to a point considerably below the level 34 of the water seal within the trap. Another pipe 35 leads from the three-way valve to the trap above the water level therein. The third branch of the three-way valve discharges to blow-off T 38. The three-way valve is provided with a vertical stem 36 and handle 37 conveniently placed for manipulation by the operator.

When the three-way valve is in proper position gas passes from the generator through pipe 30 to T 31, and thence upward through pipe 32 to the receiver bell. If at any time pressure within the bell becomes excessive, for instance when the bell rises to its limit of height, gas blows off through pipe 33 of the water seal and is discharged from the trap 39 through pipe 35 and blow-off T 38. Gas may be discharged from the bell by turning handle 37 and adjusting the three-way valve so that the gas passes

through blow-off 38. By properly adjusting the valve gas may be discharged to atmosphere as it issues from the generator. The water level in the trap may be maintained by an elbowed pipe 40 which terminates or is provided exteriorily of the trap with a perforation 41 at the proper water level. Gas passes from the bell 25 through the washer and enters the terminal end 45 of the service pipe located near the bottom of the washer.

The service pipe 46 is provided with a cut-off valve 47 having an arm 48. On the receiver bell is a vertical rod 49 on which is adjustably mounted a tappet 50 adapted to engage arm 48 of valve 47. The bell also carries a fixed tappet 51 adapted to engage the arm 48 of the valve. When the bell descends as gas is exhausted from it, either tappet 50 or 51 will strike the arm 48 of valve 47 and cut off gas from the service pipe. If generation of the gas is then recommenced danger to occupants of the building is prevented as gas cannot pass through the service pipe to unlighted burners. The adjustable tappet 50 may be adjusted to close valve 47 at different points in the travel of the bell, but the fixed tappet 51 serves to positively cut off the supply of gas if the receiver bell falls to its lowest position indicating entire stoppage of generation.

The receiver bell is provided with an arm 55 connected to the water reservoir by a link or chain 56. The reservoir is provided with a weight 57 or other suitable device which tends to return the reservoir to the position shown in the drawing. When the receiver bell descends as the gas is exhausted from it, by means of arm 55 and chain 56, the water reservoir is rotated to supply water to the generator and as the receiver bell rises the reservoir is permitted to return to its normal position under influence of weight 57 and supply of water to the generator is discontinued.

The generator is provided with a gage described below to show the level of water in the carbid trays. As shown in Figs. 1 and 2, the bottom of the tray holder is connected by pipe 58 with the vertical pipe 60 through a T 59. The connection 59 is provided with a plug 59[a] which may be removed to drain water from the tray holder. A vertical pipe 60 rises from the T 59 and carries a gage glass 61 supported at the top by socket 62. The socket is provided with a vent 63. When the generator is in operation water rises in pipe 60 and gage glass 61 and when the water level approaches the top of the tray holder 3, this can be detected by observing the gage glass. An upright 64 is secured to the tank 24. An arm 65 extends horizontally from the upright in such a manner as to engage the top of the receiver bell when it reaches a certain point, thus limiting the upward movement of the bell.

Various changes in the structure described may be made within the spirit of my invention.

I claim:

1. In acetylene gas apparatus, the combination of a generator tank and bell, a cylindrical water tank supported to rotate on its axis, and a water conduit connecting the water tank with the generator bell comprising a portion pivoted to the water tank at one end and a portion pivotally connected to the bell, the said portions having a movable telescope connection.

2. In acetylene gas apparatus, the combination of a generator comprising a tank and bell, a receiver comprising a tank and bell, a cylindrical water reservoir mounted to rotate on its axis, a counterweight connected to the reservoir, a water connection between the reservoir and generator bell constructed and arranged to permit relative movements of the reservoir and bell, said connection having a pivotal attachment to the end of the reservoir and a connection between the receiver bell and the reservoir.

3. In acetylene gas apparatus, the combination of a generator tank, a bell therein, standards carried by the tank, a water reservoir rotatably mounted on the standards, a water connection between the reservoir and the bell constructed and arranged to permit relative movements thereof, said connection having a pivotal attachment to the end of the reservoir and a cross bar removably secured to the standards serving to limit the rise of the bell.

4. In acetylene gas apparatus, the combination of a generator tank, a bell therein, standards carried by the tank, a water reservoir rotatably mounted on the standards, a water connection between the reservoir and the bell constructed and arranged to permit relative movements thereof, said connection having a pivotal attachment to the end of the reservoir and a cross bar adjustably secured to the standards serving to limit the rise of the bell.

5. In acetylene gas apparatus, the combination with a generator tank and a relatively movable bell therein, a water reservoir supported on the tank and journaled to rotate on a horizontal axis, a pipe section having swiveled connection with the end of the reservoir and having entry to the reservoir at a point above the normal water level therein, a pipe section having swiveled connection with the bell, said two pipe sections having a sliding connection with each other, and means for oscillating the reservoir to bring the swiveled connection in the end thereof below the level of the water in the reservoir.

6. In acetylene gas apparatus, the combination with a generator tank and a relatively movable bell therein, a water reservoir supported on the tank and journaled to rotate on a horizontal axis, a pipe section having swiveled connection with the end of the reservoir and having entry to the reservoir at a point above the normal water level therein, a pipe section having swiveled connection with the bell, said two pipe sections having a sliding connection with each other, a receiver comprising a tank and bell, and a connection between the receiver bell and the reservoir, whereby as the receiver bell is lowered, the reservoir will be oscillated to bring the swiveled connection in the end thereof, below the level of the water in the reservoir.

CHARLES B. SHERLOCK.

Witnesses:
F. J. RINGEL,
L. A. SCHAEFER.