

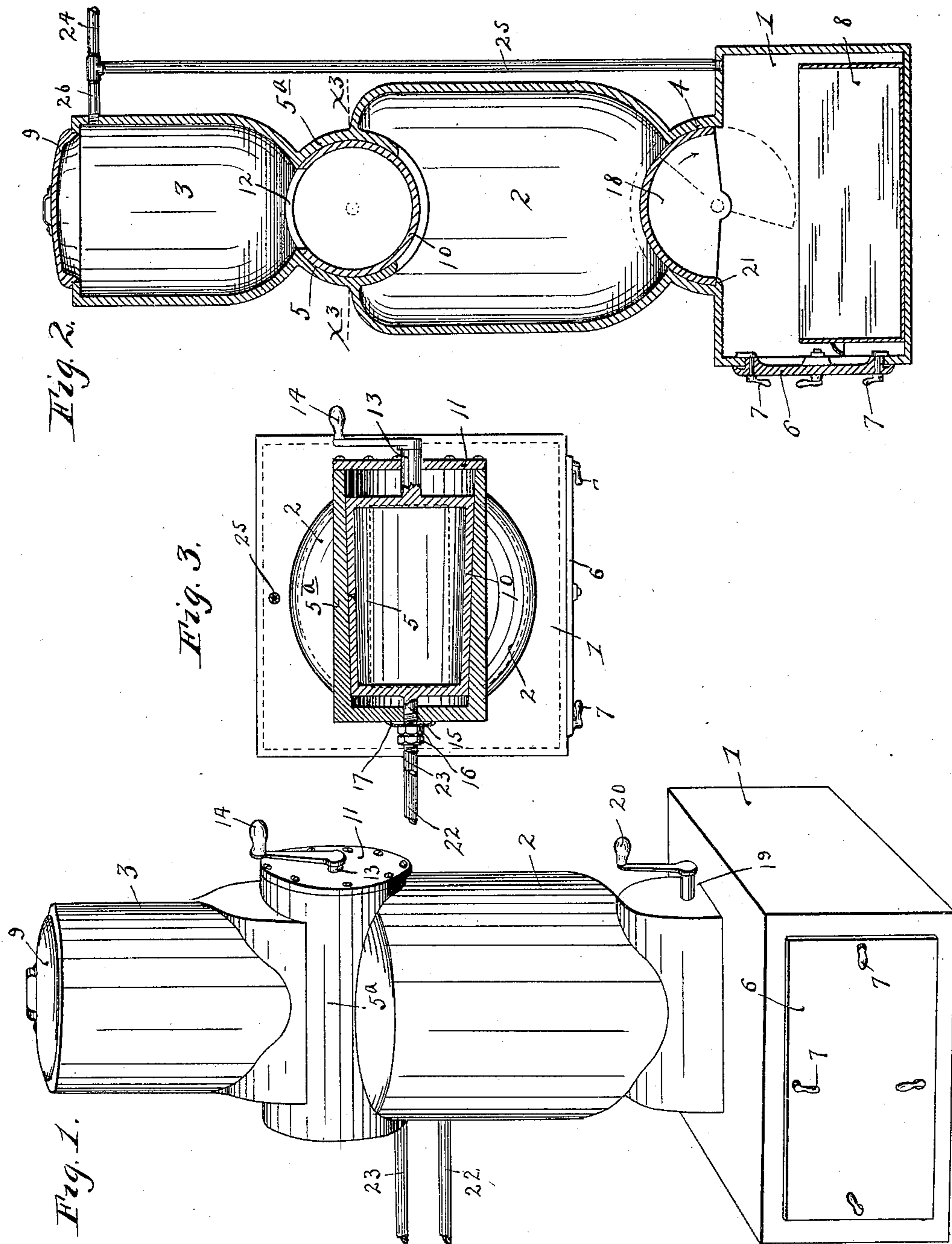
No. 629,720.

Patented July 25, 1899.

J. B. HOLMES.
ACETYLENE GAS GENERATOR.

(Application filed Jan. 20, 1898.)

(No Model.)



Witnesses,

C. F. Kipore

J. D. Merchant

Inventor,
James B. Holmes.

By his Attorney,

Jas. F. Williamson.

UNITED STATES PATENT OFFICE.

JAMES B. HOLMES, OF MINNEAPOLIS, MINNESOTA.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 629,720, dated July 25, 1899.

Application filed January 20, 1898. Serial No. 667,256. (No model.)

To all whom it may concern:

Be it known that I, JAMES B. HOLMES, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, 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.

My present invention relates to acetylene-gas generators, and is particularly directed to means whereby the generating chamber or compartment may be readily charged with carbid and the lime products of the decomposition removed therefrom without permitting the escape of gas.

I attain the objects above indicated in my invention by the novel devices and combinations of devices hereinafter described, and defined in the claims.

My invention is illustrated in the accompanying drawings, wherein like numerals indicate like parts throughout the several views.

Figure 1 is a perspective view of the generator. Fig. 2 is a central vertical section of the same, and Fig. 3 is a horizontal section taken on the line $x^3 x^3$ of Fig. 2.

The generator shown is constructed in three main sections 1, 2, and 3, the sections 1 and 2 being in communication through a cylindrical valve-seat 4 and the sections 2 and 3 being likewise in communication through a cylindrical valve-seat 5. The section 1 constitutes the base of the generator, is provided with a removable door or side 6, securable with a gas-tight joint by means of buttons 7, and is adapted to receive a catch-pan 8. The section 2 constitutes the generating chamber or compartment and is adapted to receive carbid and water in a manner presently to be noted. The section 3 serves as a hopper and, as shown, is provided with a removable cover 9, that fits with a gas-tight joint.

A hollow cylindrical valve 10 is rotatively mounted in the seat 5, and to permit the introduction of this valve said seat is provided with a removable end or head 11. Said valve 10 is hollow and is provided with a peripheral opening 12, that extends from end to end of the same in a longitudinal direction and in

a circumferential direction is something less in extent than the side 5^a of said valve-seat 5. From one end or head of the valve 10 a trunnion 13 projects axially through the removable head 11 and is provided with a hand-crank 14, while from the other end or head of said valve a trunnion 15 projects axially through the rigid head of said valve-seat 5 and is provided on its screw-threaded outer end with a pair of jam-nuts 16, by means of which said valve may be drawn into its seat or given the proper adjustment. Preferably a spring-washer 17 is placed between the inner jam-nut 16 and the head of the valve-seat 5. Right here it is important to note that the cooperating surfaces of the valve 10 and its seat 5 are slightly tapered and grow smaller in the direction of the jam-nut 16 and screw-threaded trunnion 15. The valve is preferably seated with a ground joint, and it is obvious that in the construction shown said valve will always be kept tightly seated, so as to form a gas-tight joint with its seat.

A semicylindrical valve 18 is rotatively mounted in the seat 4 at the bottom of the generating-chamber 2 in a manner very similar to that just described in connection with the valve 10 and seat 5. This valve 18 normally closes with a gas-tight joint the passage between the generating-chamber 2 and the base 1, and one of its trunnions 19 is provided with a hand-crank 20, by means of which said valve may be rotatively moved from its closed to its open position, and vice versa. A projecting stop or lug 21 on the base 1 prevents the valve 18 from being moved from its normal position in more than one direction.

22 indicates a water-conveying pipe which opens into the generating-chamber 2 and is adapted to conduct the water necessary to keep up the generating action to the carbid contained in said generating-chamber.

23 indicates a gas-conveying pipe which opens from the upper portion of the generating-chamber 2 and is adapted to conduct off the generated gas.

The means for controlling the supply of water to the carbid contained within the generating-chamber is entirely independent in my present invention; but it is of course probable that this generator would be used in

connection with an expansible storage-gas-ometer arranged to automatically control the generation of gas according to the demands of the service.

5 24 indicates a vent-pipe which leads to some suitable point of exhaust exterior of the room containing the generator and is provided with branches 25 and 26, that open, respectively, from the hollow base 1 and hopper-section 3.

10 Directing attention again to the construction of the valve 10 and its seat 5, it will be remembered that it was stated that the side 5^a extends over a greater arc than does the opening 12 of said valve. The same is also
15 true of the other side of the valve-seat; but it is only necessary that one side should be so related to said opening 12. In virtue of this construction said opening 12 will be closed by the side 5^a until the valve has been
20 moved far enough to cut off the opening in the bottom of the hopper 3, and hence it becomes obvious that by the movement of the valve 10 communication is never established between the generating-chamber 2 and the hopper 3,
25 or, in other words, that the valve-seat passage is always closed by said valve at one point or another. The normal position of the valve is indicated in Fig. 2, in which position the valve-opening 12 registers with the bottom of
30 the hopper 3. In this position, as is evident, carbid thrown into the hopper 3 will fall into and fill the valve. Now by turning the valve by means of its crank 14 so that its opening 12 is turned downward, in which position it
35 opens into the generating-chamber 2, the carbid contained in said valve will be dumped into said generating-chamber and will fall onto the valve 18.

The lime products from the decomposition
40 of the carbid will be supported by the valve 18 as long as the valve remains in the position shown in Fig. 2. However, by turning said valve into the position indicated by dotted lines these lime products will be dropped
45 into the catch-pan 8, or if any of said lime products happen to be caught within the concavity of said valve they will be dumped into said catch-pan as soon as the valve is returned to its normal position.

50 It has now been shown how the generating-chamber may be charged and recharged with carbid and also how the lime products or residue may be removed from said chamber.

With the construction shown in the drawings for charging the generator no gas can escape 55 while the valve is in its dumping position; but with the construction shown for discharging the lime products the gas does find an escape into the bottom 1. For this reason the former construction is considered prefer- 60 able, and it is obvious that I may place this preferred construction also in the bottom of the generating-chamber.

It is obvious that the valve 10 will become filled with gas while in its dumping position, 65 and hence will carry a small amount of gas into the hopper 3. Any and all gas which by the means above noted may escape into the base 1 and hopper 3 will be carried off by the vent-pipe 24 and its branches 25 and 26. 70

The two forms of valves are, from a broad point of view, generic one to the other. It is therefore obvious that the construction of these valves and their arrangements are capable of a very large range of variation within 75 the scope of my invention. Both of the valves shown are cylindrical within the scope of the expression as used in the specification and in the claims.

What I claim, and desire to secure by Letters Patent of the United States, is as follows: 80

1. In an acetylene-gas generator, or similar apparatus, the combination with a generating-chamber, of a segmental rotary discharge-valve, constituting the bottom of said gener- 85 ating-chamber, and normally serving to support the residue and pivotally movable to discharge said residue through the bottom of said chamber, substantially as described.

2. The combination with the integrally- 90 formed casting consisting of the hollow base-section 1, the generating-chamber 2, and the hopper-section 3, which parts are in communication through the cylindrical valve seats or throats 4, and 5, of the valve 10, 12, rota- 95 tively mounted in said seat 5 and provided with a hand-crank 14 and the valve 18 rotatively mounted in said seat 4 and provided with the hand-crank 20, said parts operating substantially as described. 100

In testimony whereof I affix my signature in presence of two witnesses.

JAMES B. HOLMES.

Witnesses:

HARRY KILGORE,
F. D. MERCHANT.