

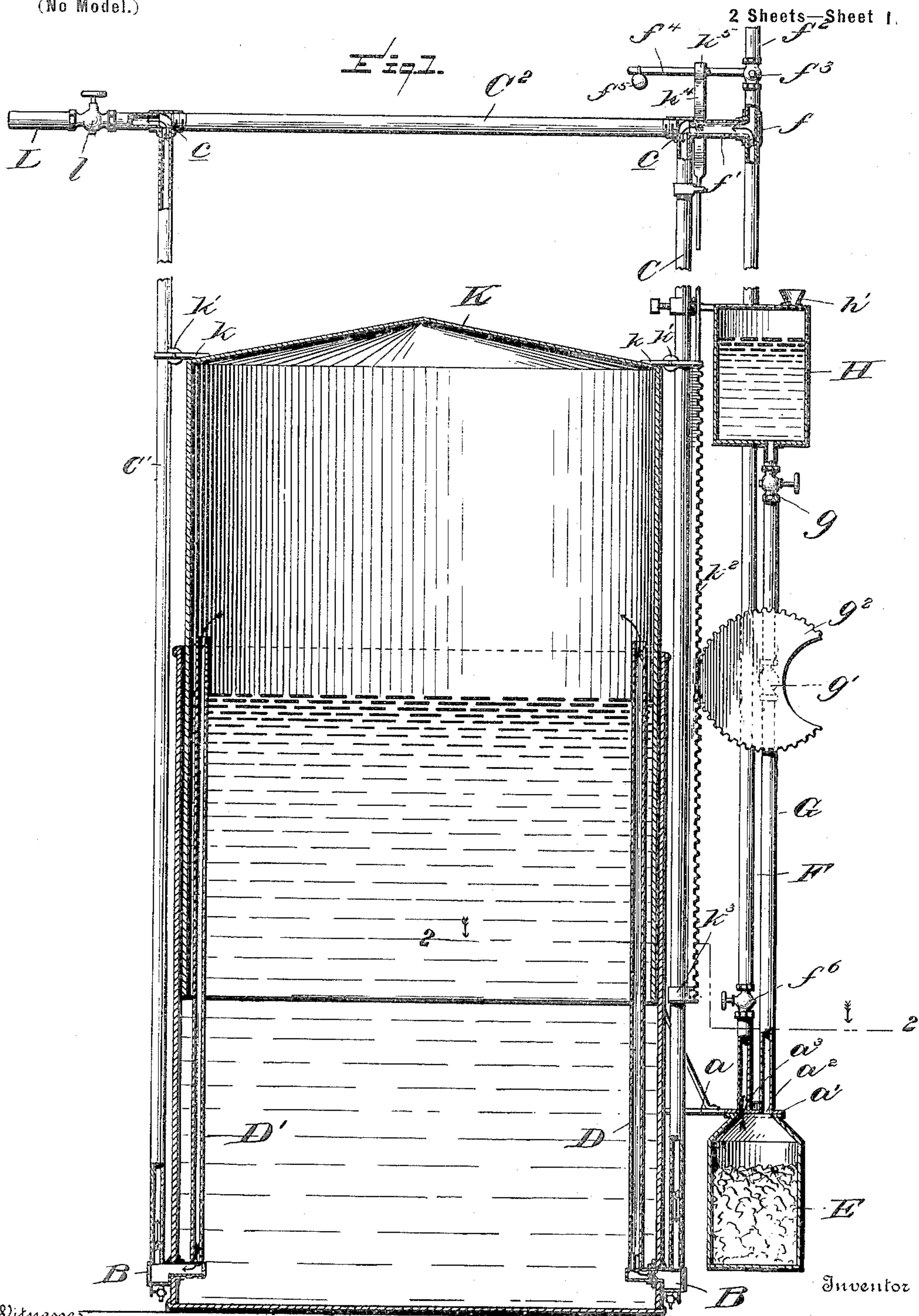
No. 640,521.

Patented Jan. 2, 1900.

L. B. BAILEY.
ACETYLENE GAS APPARATUS.

(Application filed Sept. 9, 1899.)

(No Model.)



Witnesses

L. C. Hills.
J. D. Kingsbury

By

Luther B. Bailey
Whitaker & Wood Attorneys.

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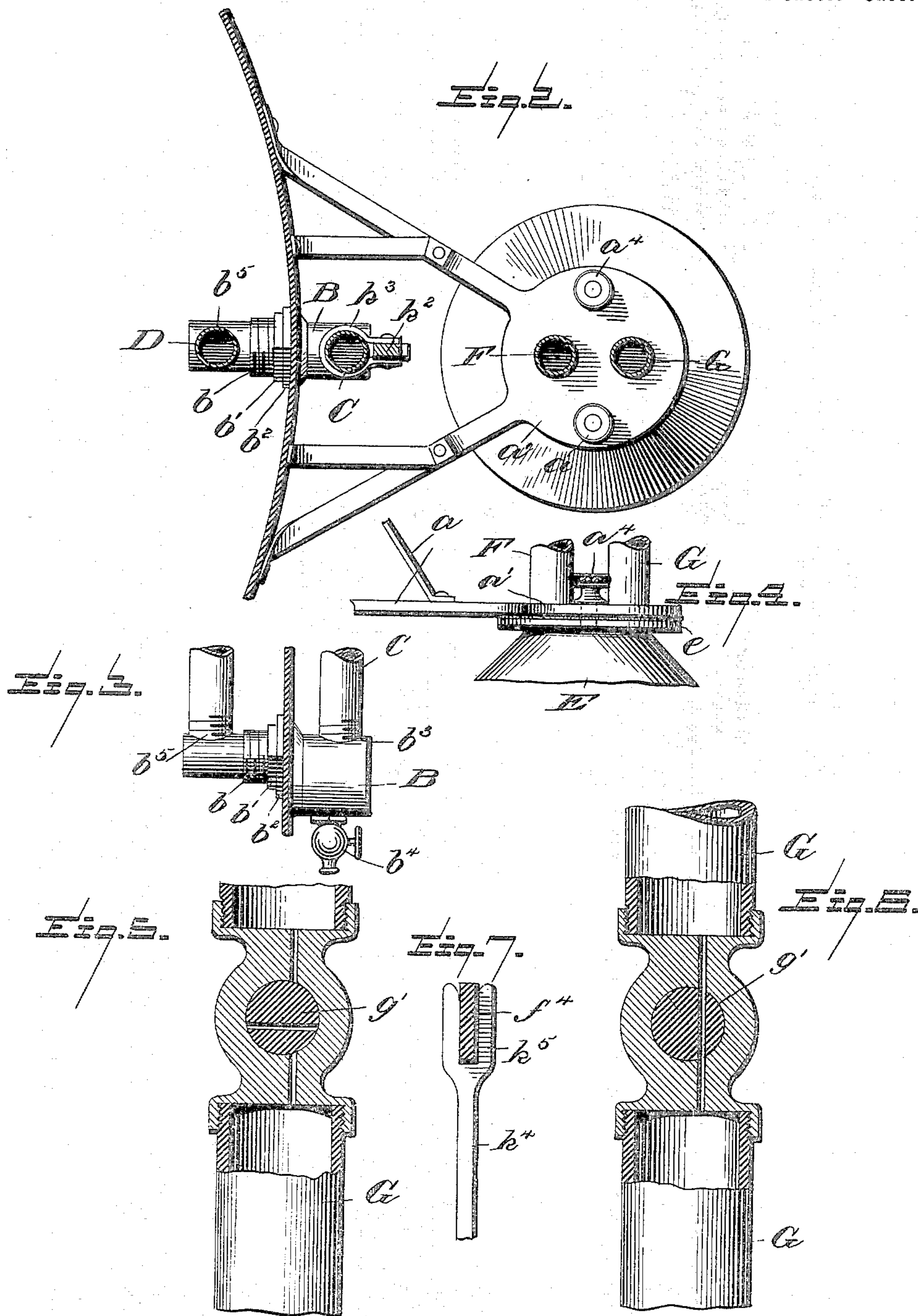
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

LUTHER B. BAILEY, OF ADRIAN, MICHIGAN.

ACETYLENE-GAS APPARATUS.

SPECIFICATION forming part of Letters Patent No. 640,521, dated January 2, 1900.

Application filed September 9, 1899. Serial No. 729,982. (No model.)

To all whom it may concern:

Be it known that I, LUTHER B. BAILEY, a citizen of the United States, residing at Adrian, in the county of Lenawee and State of Michigan, have invented certain new and useful Improvements in Acetylene-Gas Apparatus; 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 invention consists in the novel features hereinafter described, reference being had to the accompanying drawings, which illustrate one form in which I have contemplated embodying my invention; and said invention is fully disclosed in the following description and claims.

Referring to the said drawings, Figure 1 represents a vertical sectional view of my improved apparatus. Fig. 2 represents a horizontal section on line 2 2 of Fig. 1, drawn to a larger scale. Fig. 3 is a detail view of one of the condensing-chambers. Fig. 4 is a detail view of the top portion of the carbide-holder and its supporting-bracket. Figs. 5 and 6 are detail sectional views of the water-controlling valve. Fig. 7 is a detail view of the trip-rod for the blow-off valve, showing the valve-lever in section.

A represents the water-tank of the gas-holder, which is open at the top and is provided, preferably at opposite points near the bottom, with apertures to receive the condensing-chambers B B, one of which is illustrated in detail, enlarged, in Fig. 3. Each of these chambers is provided with an extension b, adapted to pass through one of said apertures in the water-tank, said extension being threaded adjacent to the wall of the tank A to receive a nut b', and a packing-washer b² is interposed between the said nut and the wall of the tank, so that when the nut is screwed up tight a water-tight connection is made. The chamber B is provided on its upper side with a threaded aperture b³ and on its lower side with a drip-cock b⁴, and the extension b is provided on its upper side with a threaded aperture b⁵. When the said chambers B B are clamped in position by the nuts b² b², vertical pipes C C' are screwed into the apertures b³ thereof and extend upwardly above the top of

the tank, where they are preferably provided with T-couplings c c. These couplings are connected by a cross bar or brace C², thereby forming a frame which serves to guide the gas-holder in its vertical movements. The cross-bar C² may be a solid rod or a pipe; but if a pipe is used it will preferably be plugged at each end to prevent the gas from entering it.

Inside the tank A vertical pipes D D' are screwed into the apertures b⁵ b⁵ of the extensions of the condensing-chambers, which pipes extend upwardly above the water-line and are open at their upper ends.

The lower part of tank A is provided with a bracket a, carrying a supporting-plate a', provided with two threaded apertures a² a³.

E represents the carbide-holder or generating-chamber, which is adapted to be detachably secured to said supporting-plate a' and has its top provided with two holes to register with the apertures a² a³. The chamber E is preferably secured to the supporting-plate by two (or more) set-screws a⁴ a⁴, passing down through the plate a' and screwing into threaded apertures in the top of chamber E, a sheet of packing e, provided with holes to register with apertures a² a³, being preferably interposed between plate a' and the top of chamber E to insure a tight connection.

F represents a gas-pipe which is screwed into the aperture a³ in plate a' and extends upwardly to a point adjacent to the top of the pipe C, where it is provided with a T-coupling f, a lateral branch of which is connected by a short pipe f' with the T-coupling c at the top of pipe C. The other branch of the T-coupling f is connected with a blow-off pipe f², provided with a normally-closed valve f³, having a handle or operating-lever f⁴, the weight of which may be sufficient to hold the valve f³ in closed position. The lever f⁴ may, however, be provided with a sliding weight f⁵, as shown, if desired. Pipe F is also provided with a cut-off valve f⁶ adjacent to the carbide-holder or generating-chamber E.

G represents a water-supply pipe which is screwed into the aperture a² in the plate a' and extends upwardly to and is connected with a water reservoir or holder H, supported in any desired way—for instance, by a bracket h from the pipe C. This water-holder is provided with a filling-orifice h', and pipe G is

provided with a cut-off valve g adjacent to the water-reservoir. The pipe G is also provided with a cut-off valve g' , (shown in detail in Figs. 5 and 6,) which is controlled by the movements of the gas-holder, said valve being mounted to rotate in its casing and provided with a gear-segment g^2 . I prefer to employ a valve constructed as shown in the drawings, having a small aperture adapted to be brought into alinement with passages in the valve-casing only when the valve is rotated to one position. To this end the rotating valve is provided with an aperture at one side of its center, as shown.

K represents the vertically-movable gas-holder, of usual form, extending into the water-tank A outside of the pipes D D' and provided at its upper end with brackets k , carrying grooved guiding-rollers engaging the vertical pipes C C' . The bracket k adjacent to pipe C is provided with a rack k^2 , extending downward therefrom and provided at its lower end with a guiding clip or collar k^3 , engaging the pipe C . The teeth of this rack engage those of the segment g^2 , and the parts are so arranged that when the gas-holder moves downward to a certain point the valve g' will have been turned by the rack and segment into open position, when the water can flow from the reservoir H into the carbide-holder or generating-chamber, and thus cause the acetylene gas to be generated. The gas will flow from the generator up through pipe F , thence through pipe f' to pipe C , thence down to the condensing-chamber B , and thence upward through pipe D into the gas-holder. The upward movement of the gas-holder caused by the generation of gas will cause the valve g' to close, owing to the operation of rack k^2 and segment g^2 , thus cutting off the water, and the gas-holder will continue to rise so long as gas is generated.

The rack k^2 is provided with an upwardly-extending trip rod or extension k^4 , provided at its upper end with a fork or yoke k^5 in line with and adapted to engage the lever f^4 of the blow-off valve. If the ebullition of gas should be greater than the quantity intended to be held by the gas-holder, the said trip-arm will be forced into engagement with the lever f^4 by the upward movement of the gas-holder and will open the blow-off valve, thus permitting the surplus gas to escape through the blow-off pipe f^2 , which will preferably be arranged to conduct it out of the building in which the apparatus is located.

The gas will pass from the gas-holder down the pipe D' to the condensing-chamber B , thence up pipe C' to the T-coupling c at the top thereof, and thence through a pipe L to the points where it is consumed. The pipe L is also provided with a cut-off valve l , adjacent to the T-coupling c , as shown, for cutting off the gas-supply when desired.

It will be noted that the gas is freed from moisture before entering and after leaving the gas-holder, and the moisture condensing in the chambers B or in the pipes communicating therewith and running into said chambers may be drawn off from time to time by opening cocks b^4 .

When it becomes necessary to renew the carbide, the cocks f^6 and g will preferably be closed, emptied, refilled, and replaced without disturbing the flow of gas from the gas-holder and without the escape of gas therefrom.

What I claim, and desire to secure by Letters Patent, is—

1. In an acetylene-gas apparatus, the combination with the water-tank provided with an aperture adjacent to the bottom of the same, and the gas-holder within said tank, of a condensing-chamber provided with a drip-cock, and having a threaded extension projecting through the aperture in said tank, said chamber and extension being each provided on the upper side with a threaded aperture, a packing-ring and clamping-nut on said extension within said tank, a vertical pipe screwed into the aperture in said chamber, a generating-chamber connected with said pipe, a vertical pipe screwed into said aperture in said extension, within the tank and communicating with the gas-holder, and a discharge-pipe communicating with the gas-holder, substantially as described.

2. In an acetylene-gas apparatus, the combination with the tank, and the gas-holder within the same, of the condensing-chambers each provided with a drip-cock and having a threaded extension projecting into the said tank, clamping-nuts within said tank engaging said extensions of the condensing-chambers, two vertical pipes connected at their lower ends with said condensing-chambers, a brace-bar connecting the upper ends of said pipes, guides on said gas-holder engaging said pipes, a generating-chamber secured to said tank, a pipe connected therewith and communicating with one of said vertical pipes, a blow-off pipe provided with a blow-off valve, a water-reservoir connected with said chamber, a water-controlling valve, a gear-segment connected therewith, a rack carried by the gas-holder, engaging said segment, and a trip-rod carried by said gas-holder and forming an extension of said rack, for engaging a part connected with the blow-off valve and opening the same, substantially as described.

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

LUTHER B. BAILEY.

Witnesses:

A. E. BARAGAR,
THOMAS E. GAHAGAN.