

No. 713,658.

Patented Nov. 18, 1902.

C. W. MACKENZIE.
ACETYLENE GAS GENERATOR.

(Application filed May 17, 1902.)

(No Model.)

Fig. 1.

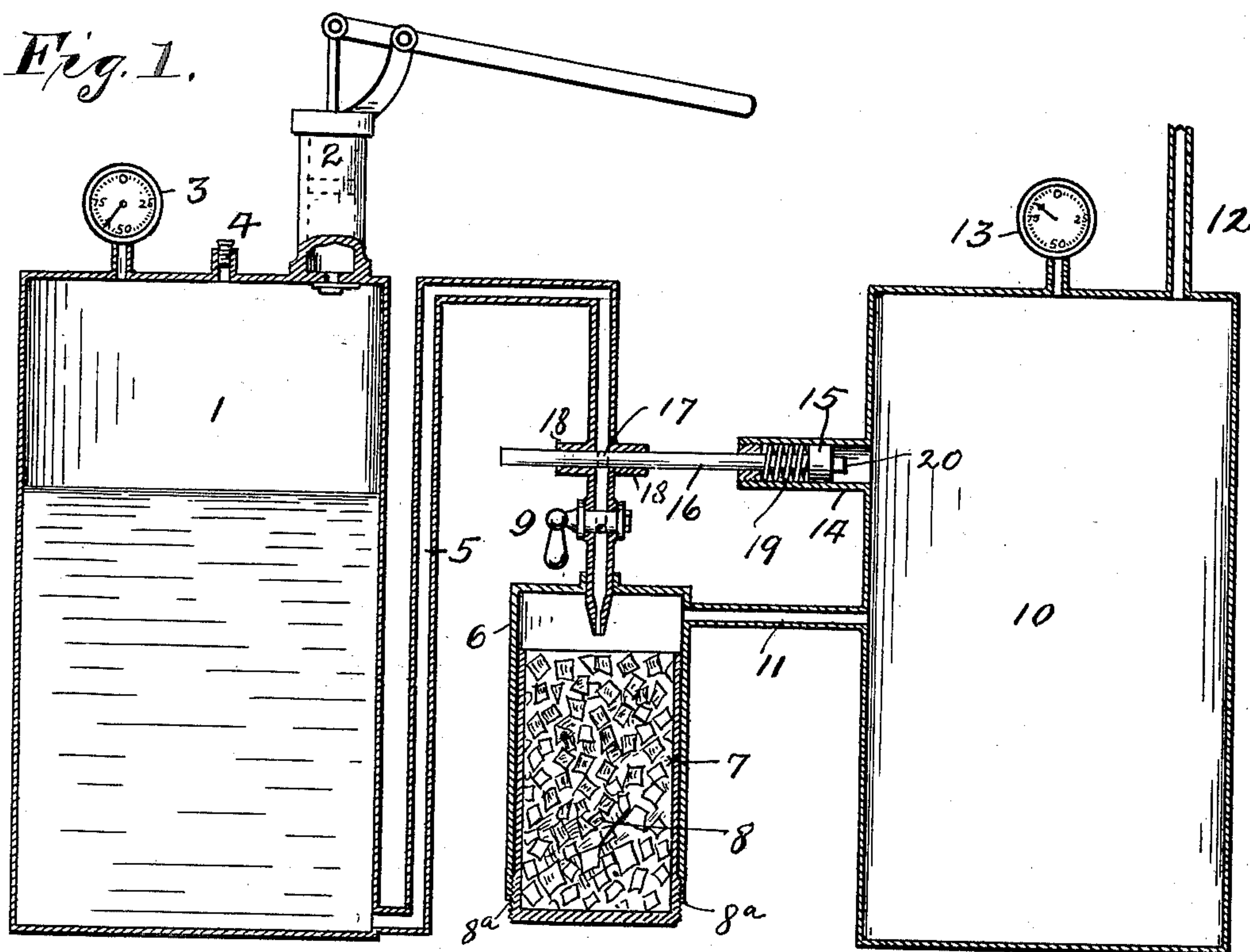
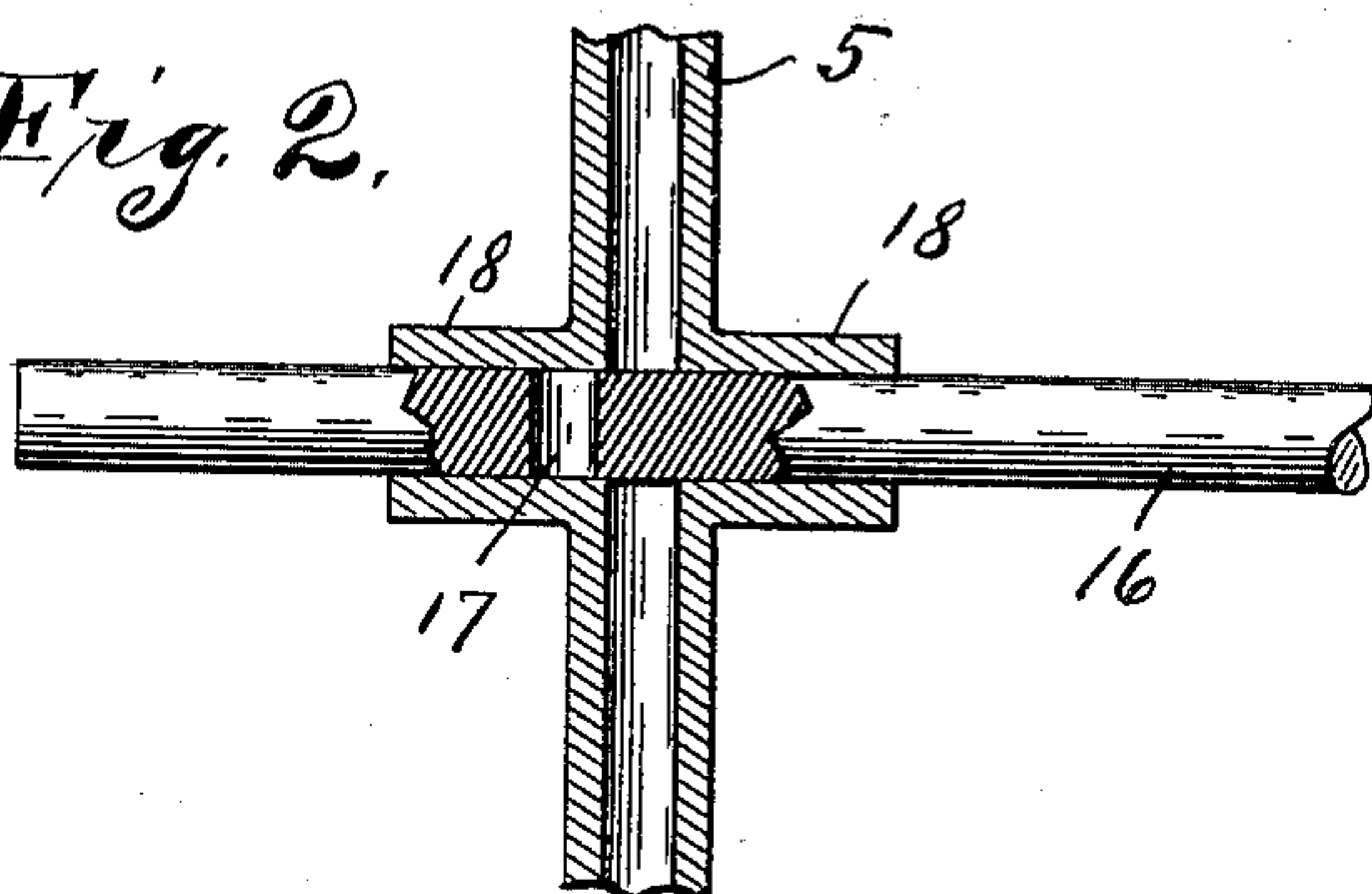


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

CYRUS W. MACKENZIE, OF WAVERLY, INDIANA.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 713,658, dated November 18, 1902.

Application filed May 17, 1902. Serial No. 107,818. (No model.)

To all whom it may concern:

Be it known that I, CYRUS W. MACKENZIE, a citizen of the United States, residing at Waverly, in the county of Morgan and State of Indiana, have invented certain new and useful Improvements in Acetylene-Gas Generators, of which the following is a specification.

This invention relates to improvements in apparatus for generating acetylene gas from calcium carbide; and the object of the invention is to provide an automatic regulation whereby the generation of gas will cease when the pressure in the gas-holder has reached a predetermined amount in order to reduce to a minimum the danger of explosion.

The object also is to provide an apparatus that will be inexpensive to construct, simple in its operation, and durable.

I accomplish the objects of the invention by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical sectional view of my complete apparatus, and Fig. 2 a detail in partial vertical section of the valve regulating the water-supply to the carbide-holder.

Like figures of reference indicate like parts throughout both views of the drawings.

1 is a reservoir partially filled with water, and 2 a pump by which a sufficient pressure of air can be secured in the reservoir to force the water therefrom. 3 is a gage by which the amount of pressure in the reservoir will be indicated. The water is introduced through the plugged opening 4. A pipe 5 leads from the bottom of the reservoir 1 to the carbide-holder and gas-generator. This holder and generator comprises a vessel 6, which is closed at top and sides, but is open at the bottom, and a vessel 7, open at the top, in which the calcium carbide 8 is placed. The vessel 7 makes a close sliding fit in the vessel 6 and is retained by the screw-threads 8^a. This construction permits of the removal of the vessel 7 for cleaning and filling. The pipe 5 from reservoir 1 enters the top of vessel 6 and drops water in regulated quantities upon the calcium carbide below, the quantity of moisture admitted being regulated by the stop-cock 9.

10 is the holder in which the gas is stored as it is generated. It is connected by pipe 11 with the top of the generator, and the gas is conveyed through pipe 12 to the points of

consumption. (Not shown.) The pressure of gas in the reservoir 10 is indicated by the gage 13.

Communicating with the holder 10 is a cylinder 14, in which is the piston 15. This piston 15 carries a rod 16, which intersects the pipe 5 and closes the opening in said pipe, except when the transverse opening 17 is in line with the pipe-opening. The extensions 18 form a water-tight seat for the rod. The piston is held in a normal position by the spring 19. The normal position is with the hole 17 of the piston-rod in line with the interior opening of the pipe 5, as shown in Fig. 1; but when the gas-pressure in the holder 10 exceeds the tension of the spring the piston will be forced out, and the rod 16 will be moved longitudinally to partially and finally completely close the pipe 5, as shown in Fig. 2. This shuts off the supply of water to the calcium carbide and stops the generation of gas until the pressure in the holder is reduced by the use of gas therefrom to below the tension of the spring 19. Then the spring will return the piston to a normal position, in which the pipe 5 will be open.

Having thus fully described my invention, what I claim as new, and wish to secure by Letters Patent, is—

In an acetylene-gas generator, a closed water-tank having a pressure-gage connected with its upper interior and a force-pump to compress air within the tank, a carbide-holder comprising an inverted vessel and a vessel inserted in the open lower end of the inverted vessel and making a gas-tight joint therewith, a pipe connecting the carbide-holder with the water-tank said pipe having a stop-cock, a gas-holder, a pipe connecting the carbide-holder and gas-holder, a pressure-gage on the gas-holder, a cylinder taking from the gas-holder and communicating with its interior, a valve in the water-pipe from the water-tank, a piston in the cylinder connected with the said valve and a spring to press the piston inwardly toward the gas-holder.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 28th day of April, A. D. 1902.

CYRUS W. MACKENZIE. [L. S.]

Witnesses:

FRANK H. BLACKLEDGE,
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