

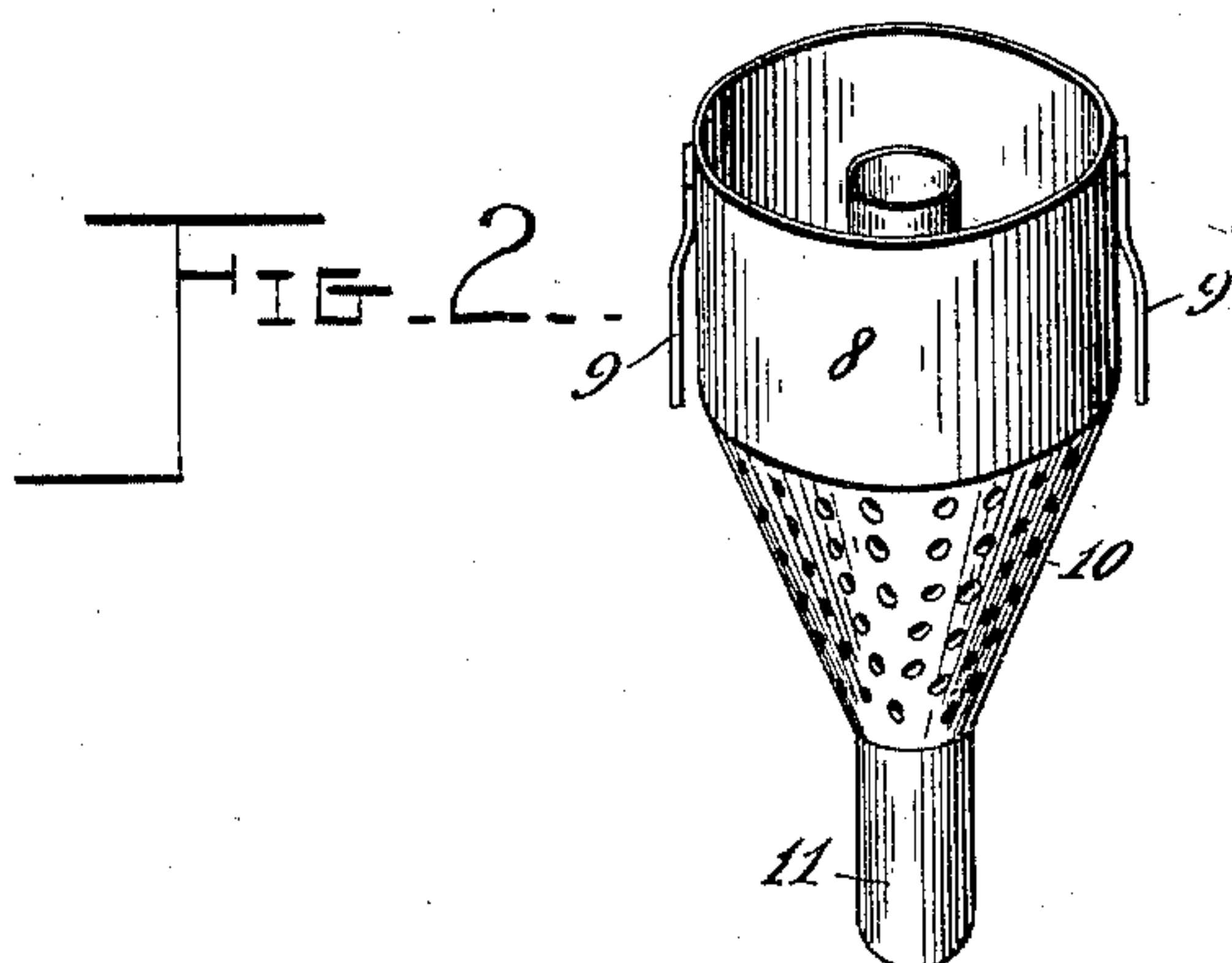
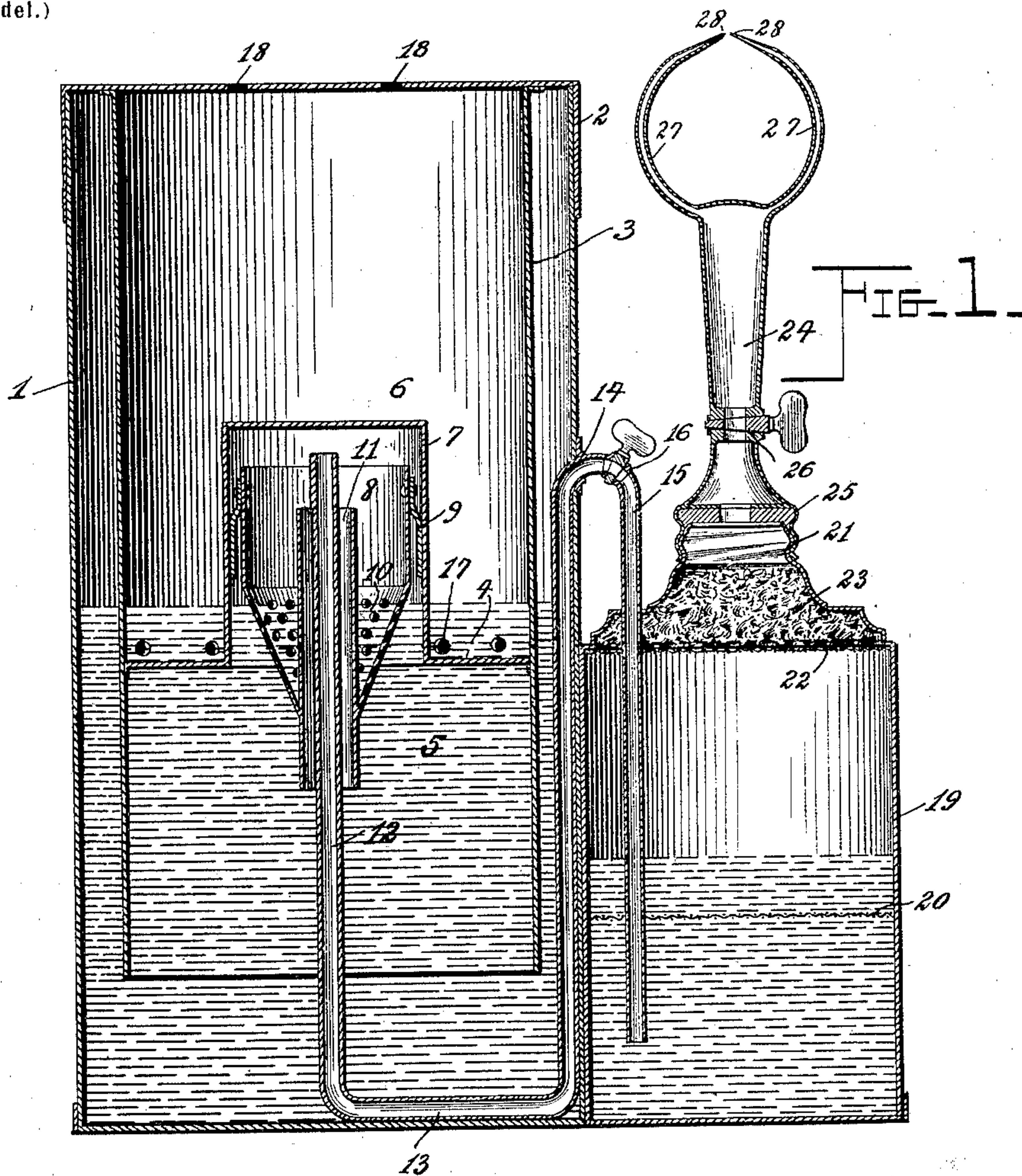
No. 612,841.

Patented Oct. 25, 1898.

A. M. GRIFFIN.
ACETYLENE GAS GENERATOR.

(Application filed June 10, 1897.)

(No Model.)



Inventor

Abrah M. Griffin.

Witnesses

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UNITED STATES PATENT OFFICE.

ALVAH M. GRIFFIN, OF VINING, KANSAS, ASSIGNOR TO THE GRIFFIN GAS COMPANY, OF MARYSVILLE, KANSAS.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 612,841, dated October 25, 1898.

Application filed June 10, 1897. Serial No. 640,228. (No model.)

To all whom it may concern:

Be it known that I, ALVAH M. GRIFFIN, a citizen of the United States, residing at Vining, in the county of Clay and State of Kansas, have invented a new and useful Acetylene-Gas Generator, of which the following is a specification.

This invention relates to acetylene-gas generators; and it has for its object to provide a new and useful generator of this character especially adapted for use in connection with a condenser and burner to provide a complete gas producing and burning apparatus well adapted for common house use and also for street-lighting purposes.

The invention also contemplates an acetylene-gas generator constructed and arranged to automatically regulate the generation of the gas according to the amount consumed and to maintain a uniform pressure.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the drawings, Figure 1 is a vertical sectional view of an acetylene-gas generating apparatus constructed in accordance with this invention. Fig. 2 is a detail in perspective of the removable chemical or carbid holding cage.

Referring to the accompanying drawings, the numeral 1 designates an upright water-tank adapted to hold a sufficient quantity of water and made cylindrical or in other convenient shapes, as may be desired. The upright water-tank 1 is closed at its lower end and is provided with an open upper end inclosed by a removable lid or cover 2, to the under side of which is fastened the inner gas-holder 3. The inner gas-holder 3 is suitably fastened at its upper end to the under side of the lid or cover 2, so as to be removable therewith, and said holder 3 is smaller in diameter or width than the tank 1, so as to leave an annular space between the holder and the tank, which annular space communicates with the lower open end of the holder 3, that extends to a point near the bottom of the tank 1.

The inner gas-holder 3 has fitted therein at

a point intermediate its ends a horizontal partition-plate 4, which separates the interior of the holder into a lower gas-compartment 5 and an upper water-vent chamber 6, and the said partition-plate 4 is fitted with an upwardly-disposed cylindrical gas-chamber 7, open at its lower end to communicate with the compartment 5 and closed at the top, so as to have no communication with the compartment 6, into which it projects. The said upwardly-projecting gas-chamber 7 is designed to removably receive therein a separate chemical-holding cage 8, which is designed to have a tight registering fit within the chamber 7, preferably through the medium of retaining spring-plates 9, secured to the exterior sides of the cage 8 and bearing against the adjacent sides of the chamber 7, as clearly illustrated in Fig. 1 of the drawings; but these springs may be substituted by other means for accomplishing the same results—namely, the removable support of the chemical-cage within the offset of the gas-chamber. The chemical-cage 8, which is designed to hold the calcium carbid, is provided with a cylindrical body portion open at the top and having a perforate conical bottom 10, in the apex of which is fitted a centrally-arranged pipe-receiving tube 11, extending longitudinally of the cage centrally within the same, so as to receive therein the upper inlet portion 12 of the gas-delivery pipe 13. The inlet portion or limb 12 of the pipe 13 is extended upwardly in a vertical plane centrally from the bottom of the tank 1, so as to project through the tube 11 of the chemical-cage and into the offset gas-chamber 7, so as to receive in its upper end the supply of acetylene gas which is evolved in the chemical-cage and accumulates within the upper portion of the chamber 7. The pipe 13 lies entirely within the tank 1 on the bottom thereof and is of a substantial U shape, having one side portion fitted against one side of the tank 1 and extended through the tank at a point intermediate of the top and bottom thereof, as at 14, at which point the delivery-pipe is extended into a downwardly-disposed discharge-limb 15, having fitted therein a cock or valve 16 for controlling the flow of gas through the pipe.

In the operation of generating gas it is necessary to provide a proper vent for the water, and to make such provision the inner gas-holder 3 is provided at a point immediately
 5 above the plane of the partition 4 with an annular series of water-circulating openings 17, and the inclosing top of the inner gas-holder, formed by the lid or cover 2, is provided therein with air-inlet openings 18, communi-
 10 cating with the compartment 6 of the holder. Now it will be understood, with the parts of the generator properly assembled in the manner described, with the proper amount of water in the tank and the proper amount of
 15 calcium carbid in the cage 8, the water freely circulates through the perforate conical bottom 10 of the cage and the usual chemical reaction sets in, causing a generation of acetylene gas. This gas accumulates in the gas-
 20 chamber 7, and as it increases in volume forces the water within the gas-compartment 5 downward and out of contact with the chemical until the supply of gas becomes diminished. As the water is forced downward
 25 under the pressure of the accumulated gas the same rises in the space between the holder and the tank and passes through the openings 17 into the upper compartment 6 of the gas-holder, thereby offering no material re-
 30 sistance to the gas; but when the supply of gas diminishes by being drawn off through the pipe 13 the water again rises in the lower part of the gas-holder until it reaches the chemical or calcium carbid and produces
 35 more gas, this operation being repeated over and over again while the generator is in use until the water and calcium carbid have to be replenished.

In connection with the generator just de-
 40 scribed there is preferably employed a condenser-tank 19, which may be conveniently arranged directly against the generator at one side thereof. The said condenser-tank 19 is adapted to be partially filled with water
 45 and receives in the top portion thereof the depending discharge-limb 15 of the gas-delivery pipe 13, said discharge-limb 15 extending downward within the tank 19 to a point
 50 below a screen-diaphragm 20, fitted horizontally within the tank 19 at an intermediate point and below the level of the water therein. The tank 19 is provided at the top with a discharge-neck 21, immediately below which
 55 is arranged a horizontal screen 22, forming within the top portion of the condenser-tank a basket for holding a packing 23, of cotton or other analogous filtering material, which will serve the purpose of thoroughly drying
 60 and filtering the gas before it passes into the burner-tube 24.

The burner-tube 24 is illustrated as being adapted for use directly in connection with the condenser-tank and for this purpose is provided at its lower end with a screw-cap
 65 portion 25, detachably fitting the discharge-neck 21 of the condenser-tank. The said

burner-tube 24 is fitted intermediate its ends with an ordinary gas cock or valve 26 for controlling the flow of gas, and is provided at its upper end, opposite the cap portion 25, with
 70 a pair of inturned reversely-bowed jet-arms 27, lying opposite each other and having their contiguous extremities formed with contracted jet-orifices 28 and brought into close proximity, so that the gas which escapes from
 75 both arms 27 mingles together and is burned at a common point to produce a strong bright flame.

The water in the condenser-tank in connection with the filtering material at the upper
 80 end thereof serves to entirely relieve the gas of all impurities and to thoroughly dry and filter the same before it is delivered to the burner.

Changes in the form, proportion, and the
 85 minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what
 90 is claimed, and desired to be secured by Letters Patent, is—

1. In an acetylene-gas generator, a water-tank, a gas-holder arranged within the tank and provided with an interior upwardly-dis-
 95 posed gas-chamber closed at the top and communicating with the lower open portion of the holder therebelow, a chemical-holding cage removably fitting inside of said gas-chamber and having a perforate bottom, and
 100 a gas-delivery pipe having an inlet-limb extended upwardly within the tank and projecting centrally through said cage into the upper closed end portion of said gas-chamber, substantially as set forth.

2. In an acetylene-gas generator, a water-tank, a gas-holder arranged within the tank and provided with a lower open end and an intermediate partition, said holder being fur-
 105 ther provided above the plane of its partition with an annular series of water-circulating openings, and in its top with air-vent openings, a suitably-arranged chemical-holding cage, and a gas-delivery pipe, substantially as set forth.

3. In an acetylene-gas generator, a water-tank, a gas-holder arranged in a stationary position within the tank and provided with a lower open end and an intermediate partition having an upwardly-disposed gas-chamber
 110 communicating with the lower open portion of the holder, said holder being further provided immediately above the plane of the partition with an annular series of water-circulating openings, and in its top with air-vent
 115 openings, a chemical-cage fitted in said gas-chamber, and a gas-delivery pipe extended upwardly into said chamber, substantially as set forth.

4. In an acetylene-gas generator, a water-
 120 tank, a gas-holder arranged within the tank and provided with a lower open end and a

partition having an upwardly-disposed gas-chamber communicating with the lower open portion of the holder, a chemical-holding cage removably fitted in said gas-chamber and
5 comprising a cylindrical body portion open at the top and having a perforate conical bottom, and a centrally-arranged pipe-receiving tube, and a gas-delivery pipe arranged within the tank and having a central vertical inlet-
10 limb extended upwardly through the pipe-re-

ceiving tube of the cage into said gas-chamber, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ALVAH M. GRIFFIN.

Witnesses:

CHESTER E. SHULER,
D. C. TYLER.