

No. 667,766.

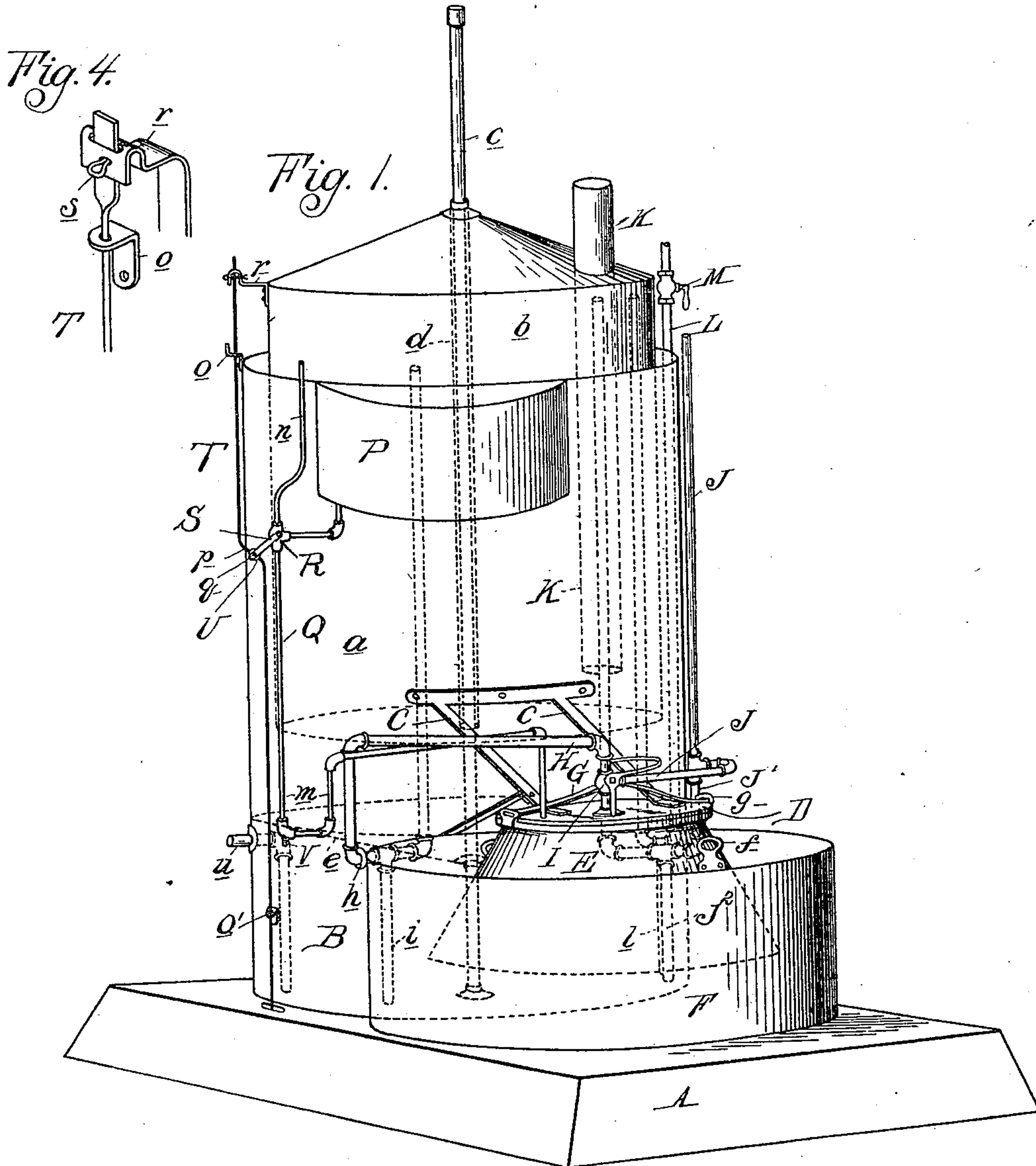
Patented Feb. 12, 1901.

J. C. CHARBENEAU & J. SCHALDENBRAND.
ACETYLENE GAS GENERATOR.

(Application filed Feb. 11, 1899.)

2 Sheets—Sheet 1.

(No Model.)



Witnesses:

V. D. Kinner
H. Ruhlman

Inventors:

John C. Charbeneau,
Joseph Schaldenbrand,

By *Barth & Barth*
Attorneys.

No. 667,766.

Patented Feb. 12, 1901.

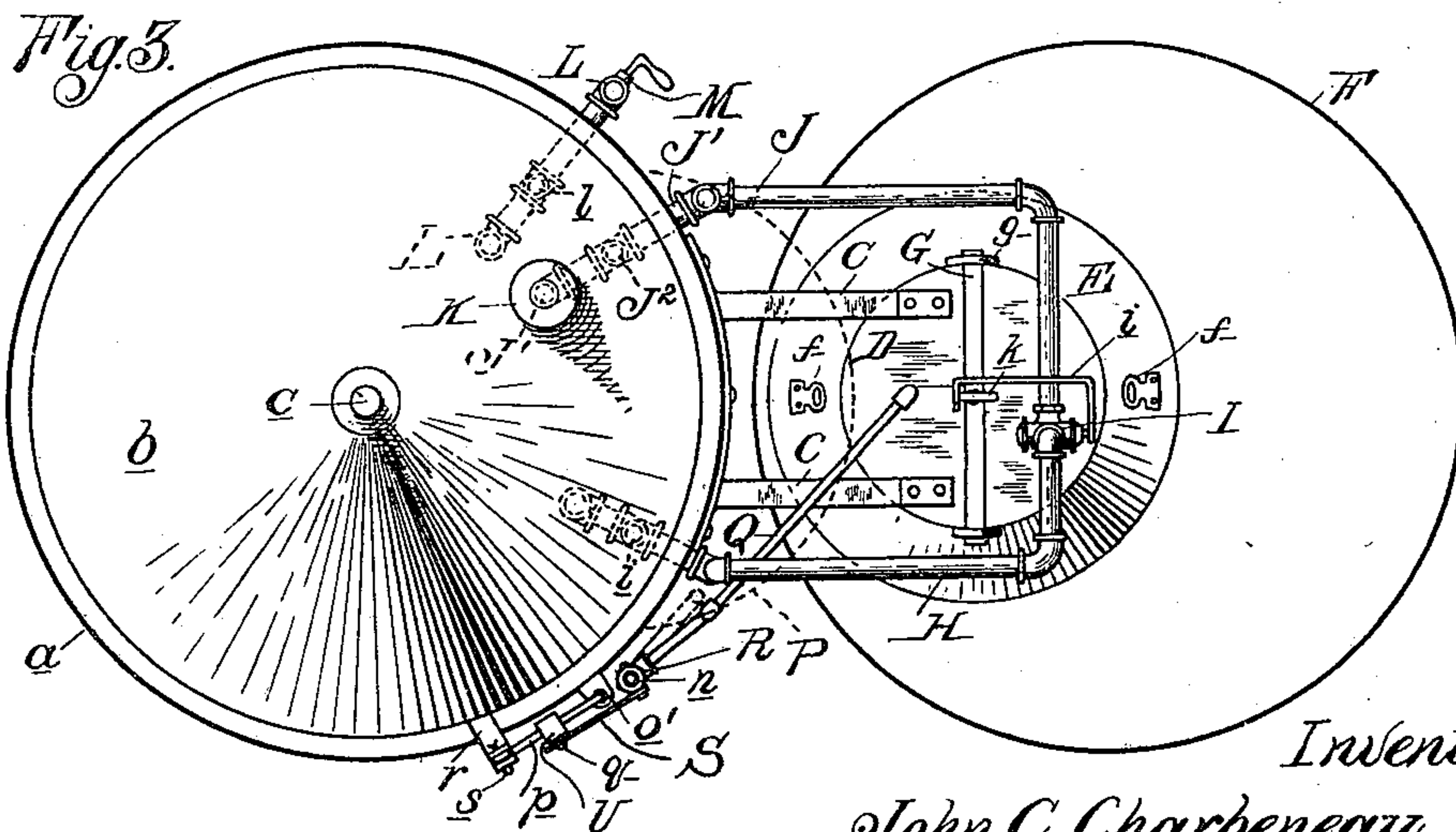
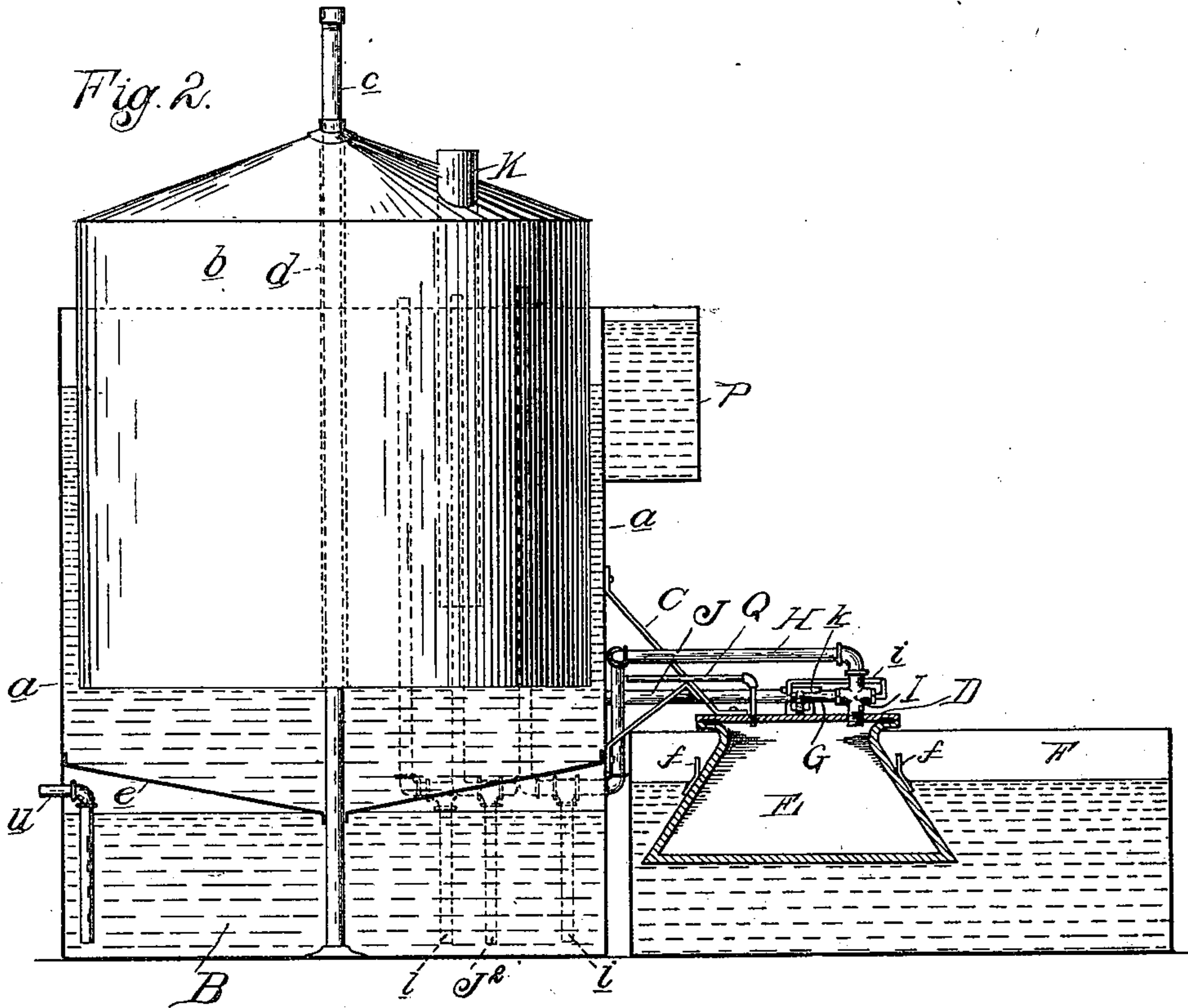
J. C. CHARBENEAU & J. SCHALDENBRAND.

ACETYLENE GAS GENERATOR.

(Application filed Feb. 11, 1899.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:

V. D. Kinner
F. Ruhlman

Inventors:

John C. Charbeneau,
Joseph Schaldenbrand,
By *Barth & Barth*

Attorneys.

UNITED STATES PATENT OFFICE.

JOHN C. CHARBENEAU AND JOSEPH SCHALDENBRAND, OF MOUNT CLEMENS, MICHIGAN.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 667,766, dated February 12, 1901.

Application filed February 11, 1899. Serial No. 705,255. (No model.)

To all whom it may concern:

Be it known that we, JOHN C. CHARBENEAU and JOSEPH SCHALDENBRAND, citizens of the United States of America, residing at Mount Clemens, in the county of Macomb and State of Michigan, have invented certain new and useful Improvements in Acetylene-Gas Generators, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to new and useful improvements in acetylene-gas machines, and has for its object to produce a machine that is simple to construct and at the same time is safe and reliable in its operation; and the invention more particularly consists in the peculiar manner of constructing the generator and supporting the cover and the pipes leading therefrom by means of brackets secured to the gasometer, whereby the generator is removably suspended from said cover in a tank of water or other cooling agent in front of the gas-holder.

The invention further consists in the means employed for hermetically securing the generator to the stationary cover and in the peculiar construction of the water-feed regulator and of the gas-shut-off valve, whereby the gas-shut-off valve must be operated before the generator can be detached.

The invention further consists in providing a drip-chamber in the tank of the gas-holder arranged to collect the drip from all the gas-pipes, and, further, in the construction, arrangement, and combination of the various parts, all as more fully hereinafter shown and described in the accompanying drawings, in which—

Figure 1 is a perspective view of our improved gas-machine. Fig. 2 is a sectional side elevation thereof. Fig. 3 is a top plan view. Fig. 4 is a perspective view of the upper end of the guide-rod for operating the water-feed regulator.

A is a suitable base upon which is mounted the gas-holder, comprising a tank *a* and the bell *b*, which is vertically guided by a standard *c*, axially secured in the tank and passing through an open-ended tubular guide-bearing *d*, secured in the axis of the bell. The tank has a false bottom *e*, which forms

a separate compartment or drip-chamber B in the bottom of the tank.

C C are brackets fastened to the side wall of the tank, and projecting forwardly in front have secured to them the cover D of the generator E, said generator being removably clamped to the under side of the cover and held suspended therefrom in a tank of water F in front of the gas-holder. The generator E is substantially of the form of a truncated cone and is provided with suitable handles *ff*.

g g are perforated ears projecting above the mouth of the generator, and *G* is a curved cross-bar engaging into said ears and having near its middle a T-shaped clamping-screw *h*, whereby the generator is adapted to be firmly clamped on the cover, a suitable gasket being interposed between the cover and generator to form a hermetic closure.

H is the gas-supply pipe, which leads from the cover of the generator, first upwardly, thence laterally and downwardly, and thence at a point *h* just below the false bottom *e* it passes through the wall of the tank into the drip-chamber B, and thence through the false bottom upwardly into the bell, into which it opens. To that portion of this pipe which passes through the drip-chamber is connected by a T-coupling a drip-pipe *i*, which extends down to near the bottom of the drip-chamber and opens into the same.

I is a two-way valve in the gas-supply pipe, and J is a branch leading from said valve laterally and thence upwardly and opens into the atmosphere either directly or indirectly through a flue or chimney. The vertical portion of this branch or vent pipe J has a downward continuation J', which extends laterally through the walls of the tank into the drip-chamber at a point just below the false bottom, and thence upwardly through said false bottom into the gas-holder, where it enters the open end of a larger tube K, which is secured in vertical position within the bell, and extends out through the top of the same with its closed upper end. This extension J' constitutes the blow-off and its horizontal portion within the drip-chamber is provided with a drip-pipe J², extending down to near the bottom of the drip-chamber and opening into it. The two-way valve I is adapted to

connect in one position the generator with the gas-holder, and in its other position it connects the generator with the vent-pipe J. This valve has a handle *i*, which has a U-shaped or other suitable extension, by means of which it extends over the clamping-screw *k* in such manner as to prevent its being unscrewed, while the valve I is in the position in which it connects the generator with the gas-holder, while in the other position of the valve I it does not interfere with the operation of the clamping-screw K.

L is the service-pipe, which conducts the gas from the holder to the burners. It extends down within the gas-holder, and thence through the false bottom of the tank into the drip-chamber, from which it passes out laterally through the wall of the tank, and thence upwardly on the outside of the tank to the burners. It is provided within suitable reach with the shut-off cock M. This service-pipe is also provided with a drip-pipe *l*, which is connected to that portion which passes through the drip-chamber in like manner as the supply and blow-off pipes. The drip-chamber is partly filled with water to seal the drip-pipes therein, and it is also provided with an overflow-pipe *u*, which extends to near the bottom of the drip-chamber and is adapted to maintain the water at a fixed height therein.

P is a feed-water tank secured to the upper portion of the tank *a* of the gas-holder, and connected to its bottom is the downwardly-extending water-feed pipe Q, having a regulating-valve R and leading to the generator, said pipe having the usual U-shaped bend *m*, adapted to form a water seal, and the upwardly-extending vent-pipe *n*, with which the feed-pipe is adapted to communicate whenever the valve R is closed. The water-regulating valve R is provided with a suitable handle S, adapted to be operated by the movement of the bell, as will be more fully hereinafter described.

T is a guide-rod passing through vertical guide-bearings *o* and *o'* on the tank and having a bent portion *p* near its middle, upon which is slidingly sleeved the wrist U, which is formed with a wrist-pin *q*, loosely swiveled in the end of the handle S of the valve. The upper end of the guide-rod is flattened and passes through a guide-bearing formed in the end of the guide-bracket *r*, which is secured to the bell, and a cotter-key *s*, passing through the flattened end of the guide-rod and through the bracket, secures the parts together, free to be disconnected at will, and all so arranged that when the guide-rod is connected to the bell it will by its movement regulate the admission of water to the calcium carbide in the generator, and thus automatically control the generation of gas according to consumption.

Preferably a plug or drip cock *v* is placed in the feed-pipe for convenience in clearing it.

In the operation of our device it will be seen that the generator by being immersed in a large tub of water is prevented from

heating, and thus the gas carries off but little moisture and whatever should condense within the pipe H is discharged into the drip-chamber B. In the same manner, whatever condensation might collect in either the blow-off or vent or service pipe is conducted into the drip-chamber. In this manner the trouble arising from water of condensation in the pipes is entirely avoided, while at the same time there is no smell from any contamination of water or escape of gas, as all pipes are securely sealed. Before the generator can be recharged the valve I has to be operated so as to release the screw *k* for operation, and in thus operating it the generator is placed in communication with the vent-pipe, which permits the gas remaining in the generator to escape into the atmosphere.

By removing the cotter-key after charging the generator the water-regulator may be operated by hand, and thus an initial supply of water may be admitted.

The flaring shape of the generator by forming an extended bottom is more effective for cooling than other forms.

Our machine after being started is entirely automatic in its operation. It is of simple construction and is absolutely safe, as it provides for all contingencies which may happen in its operation.

What we claim as our invention is—

1. In an acetylene-gas apparatus, the combination of the gas-holder, the feed-water-supply tank, the generator, the feed-water pipe leading from the feed-water tank into said generator, a vent-pipe connected with the feed-pipe, a valve at the junction of said vent and feed pipes, adapted to connect the feed-pipe with the vent-pipe or the feed-water tank with the generator, as and for the purpose described.

2. In an acetylene-gas apparatus, the combination of the gas-holder, the elevated feed-water-supply tank, the generator, a gas-supply pipe leading from said generator to the gas-holder, the feed-water pipe leading from the feed-water tank to said generator, a vent-pipe connected with the feed-pipe, a valve at the junction of said vent and feed pipes and controlling communication therebetween, to connect the feed-pipe with the vent-pipe or the feed-water tank with the generator and a water seal formed in the lower end of said feed-pipe.

3. In an acetylene-gas apparatus, the combination of the gas-holder, the elevated feed-water-supply tank, the generator, the feed-water pipe leading from the feed-water tank into said generator, a vent-pipe forming a continuation of said feed-pipe, the regulating-valve at the junction of said vent and feed-water pipes, the handle on said valve, the wrist swiveled in said handle, the guide-rod having the inclined or bent portion with which the wrist slidingly engages, the guide-bearings through which the guide-rod loosely passes and the detachable connection be-

tween the guide-rod and the bell of the gas-holder.

4. In an acetylene-gas apparatus, a water-tank and a gas-bell, a feed-water tank and a generator, a gas-supply pipe leading from said generator to the gas-holder, a feed-pipe leading from the water-tank to the generator, a valve located in said feed-pipe, a rod carried by the bell and detachably connected thereto, guide-bearings on the water-tank through which the rod is free to slide, and an arm on the valve having a wrist-pin swiveled therein slidably engaging the rod and adapted to swing said arm by a bent portion of said rod, to regulate the water-supply, substantially as described.

5. In an acetylene-gas apparatus, a water-tank and a gas-bell, a feed-water tank and generator, a gas-supply pipe leading from said generator to the gas-holder, a feed-pipe leading from the feed-water tank to the generator, a vent-pipe connected with the feed-pipe, a valve at the junction of said vent-pipe with the feed-pipe controlling communication therebetween and adapted to connect the feed-pipe with the vent-pipe or the feed-water tank with the generator, a rod carried by the bell, guides on the water-tank through which the rod is free to slide, and an arm on the valve

slidably engaging the rod adapted to be swung by a bent portion of said rod, substantially as described.

6. In an acetylene-gas apparatus, a water-tank and gas-bell, a feed-water tank and generator, a gas-supply pipe leading from the generator to the gas-holder, a feed-pipe leading from the feed-water tank to the generator, a water seal formed near the lower end of said pipe, a vent-pipe connected with the feed-pipe near its upper end, a valve at the junction of said vent-pipe with the feed-pipe and adapted to connect said feed-pipe with the vent-pipe or the feed-water tank with the generator, a bracket on the bell, a rod having its flattened end removably secured in said bracket, guides on the water-tank through which said rod is free to slide, an arm on the valve slidably engaging the rod and adapted to be swung by a bent portion of said rod, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN C. CHARBENEAU.
JOSEPH SCHALDENBRAND.

Witnesses:

OTTO F. BARTHEL,
V. D. KINNER.