No. 669,317. Patented Mar. 5, 1901.

D. J. BROWN.

CARBURETER.

(Application filed Mar. 9, 1900.)

(No Model.) 3 Sheets—Sheet 1.

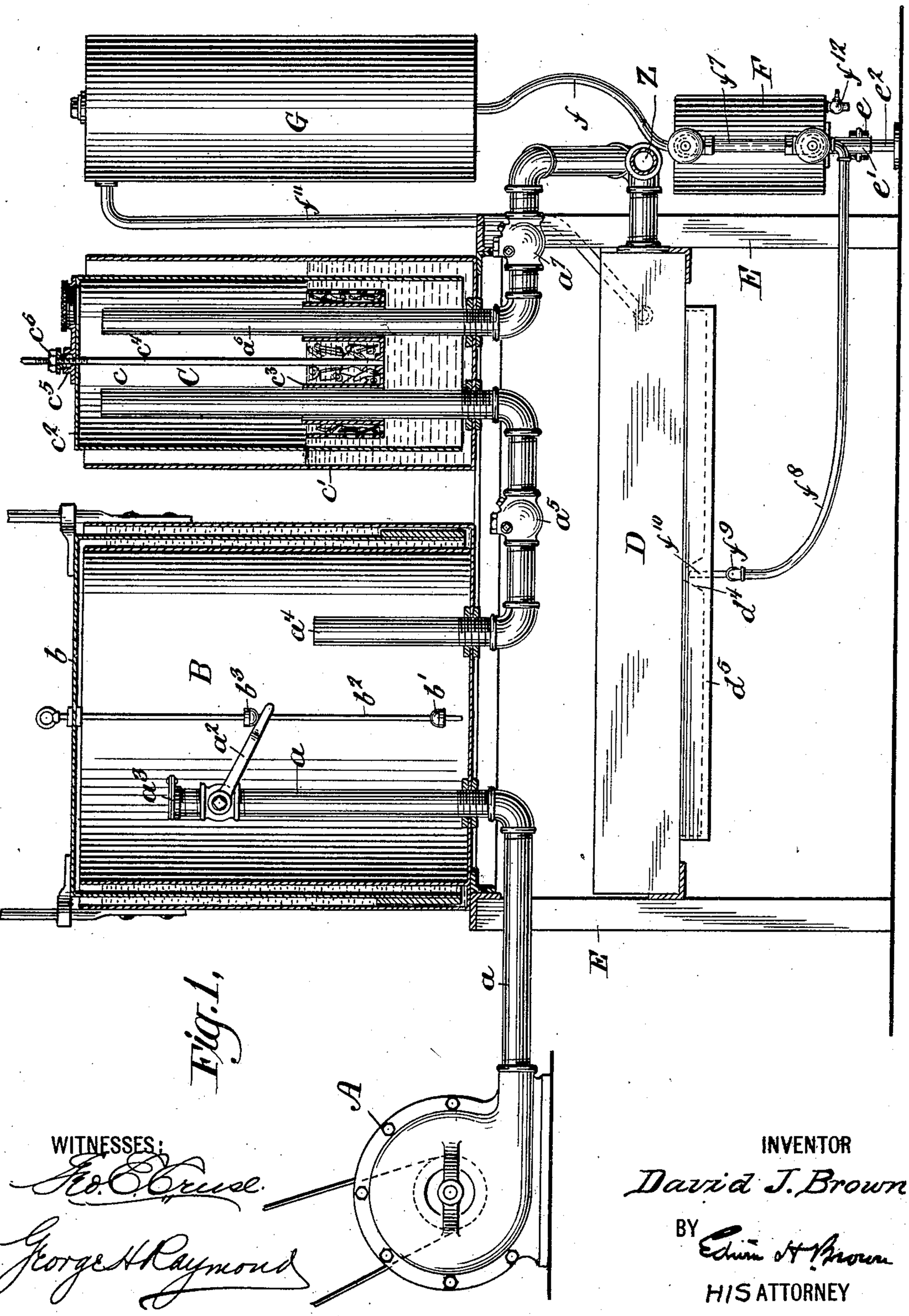

Fig. 1,

WITNESSES:

Geo. C. Crosse.

George H. Raymond

INVENTOR

David J. Brown

BY Edwin H. Brown

HIS ATTORNEY

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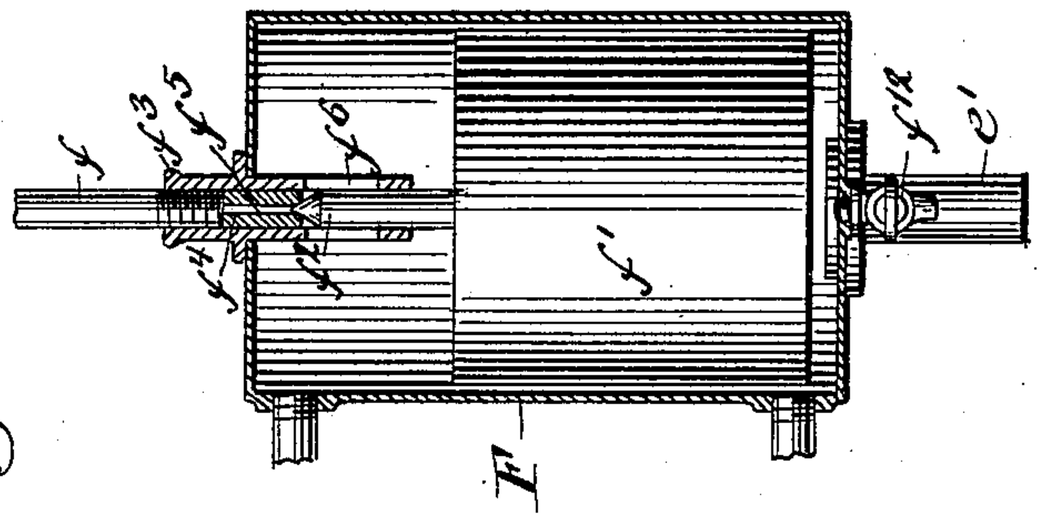

Fig. 3.

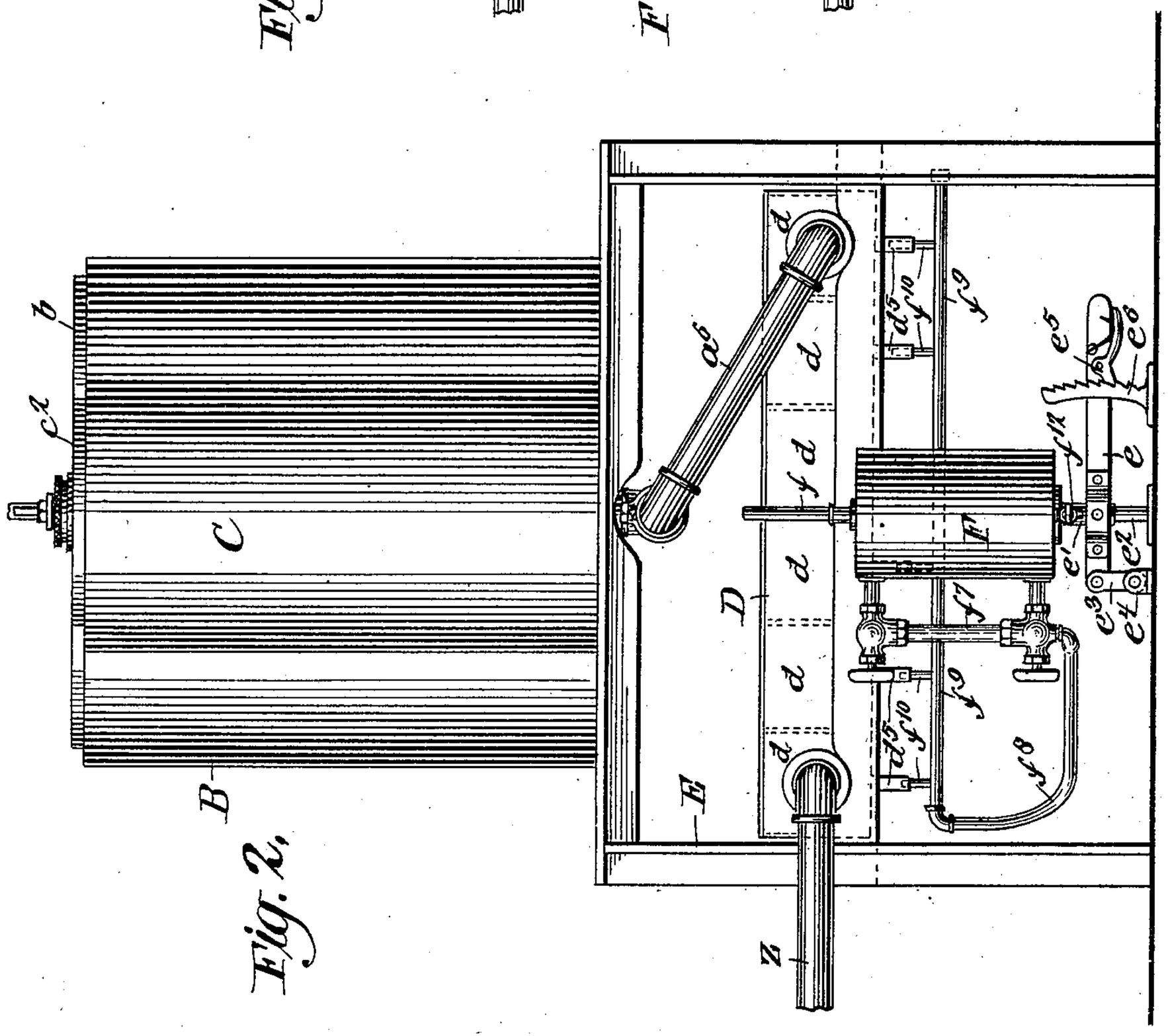

Fig. 2.

WITNESSES:

Geo. C. Crosse.

George H. Raymond

INVENTOR

David J. Brown.

BY Edwin H. Brown

HIS ATTORNEY

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Fig. 5,

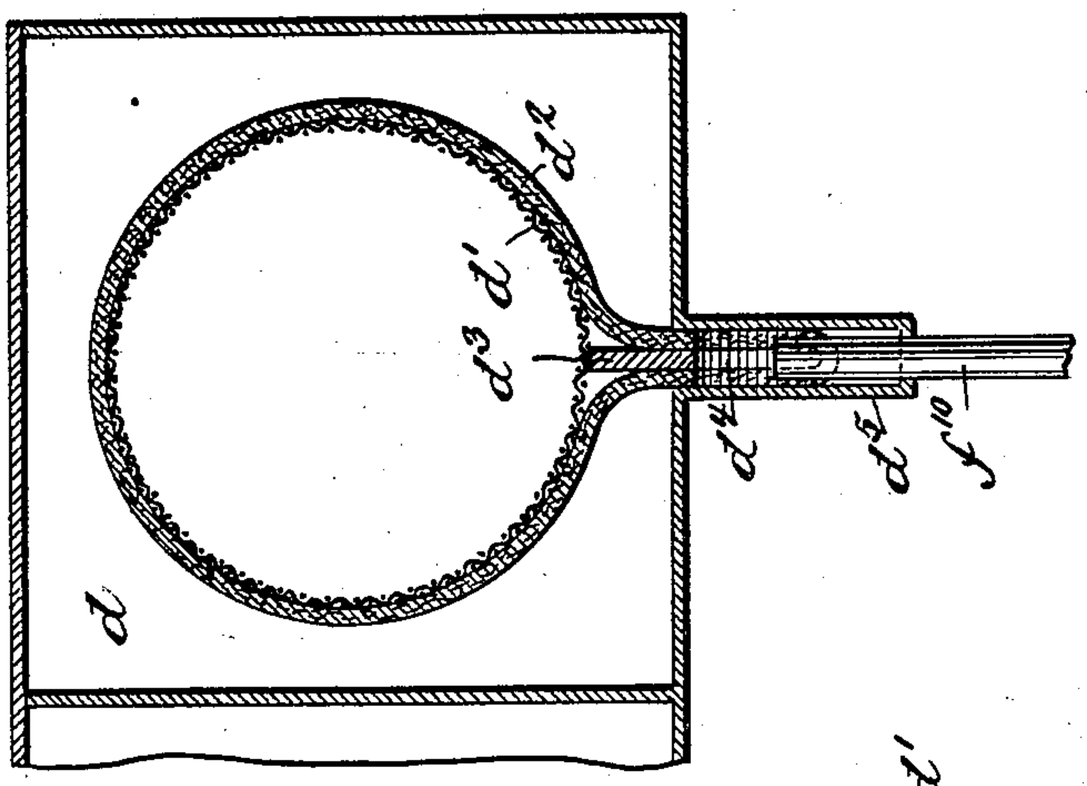
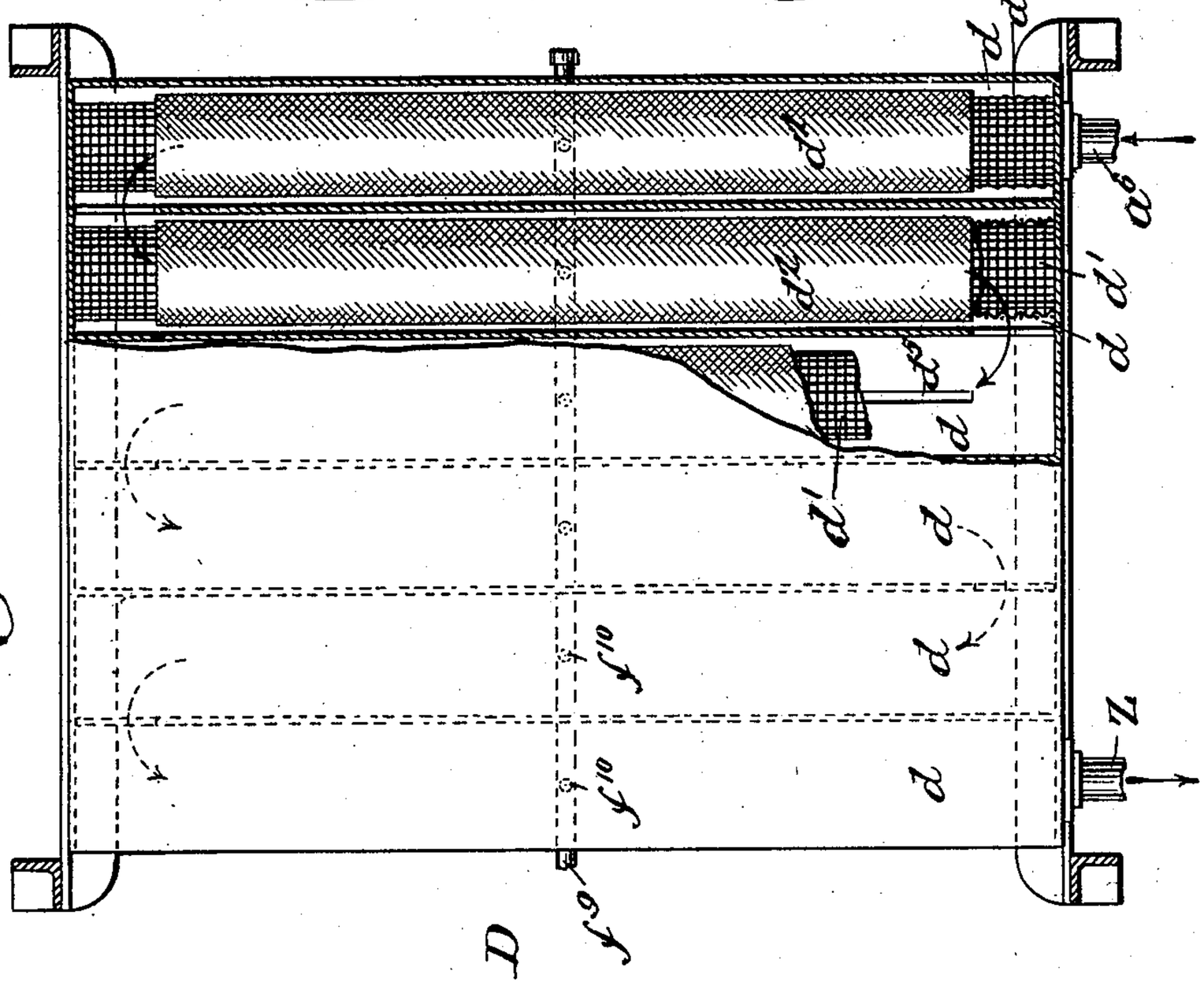


Fig. 4,



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George H. Raymond

INVENTOR

David J. Brown

BY Edwin H. Brown

HIS ATTORNEY

UNITED STATES PATENT OFFICE.

DAVID J. BROWN, OF BROOKLYN, NEW YORK.

CARBURETER.

SPECIFICATION forming part of Letters Patent No. 669,317, dated March 5, 1901.

Application filed March 9, 1900. Serial No. 8,004. (No model)

To all whom it may concern:

Be it known that I, DAVID J. BROWN, a citizen of the United States, residing in the borough of Brooklyn, city of New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Gas-Generating Apparatus, of which the following is a specification.

My invention relates to gas-generating apparatus, and particularly to the carbureter employed therein.

I will describe a gas-generating apparatus and a carbureter which embodies my invention and then point out the novel features thereof in the claims.

In the accompanying drawings, Figure 1 is a view, partly in vertical section and partly in elevation, of a gas-generating apparatus including a carbureter embodying my invention. Fig. 2 is an end view of the apparatus shown in Fig. 1. Fig. 3 is a detail sectional view of a part of the apparatus. Fig. 4 is a detail top view, partly in horizontal section, of a carbureter embodied in the apparatus. Fig. 5 is a detail sectional view. Figs. 3 and 5 are drawn to a larger scale than Figs. 1, 2, and 4.

Similar letters of reference designate corresponding parts in all of the figures.

A represents a fan or other blower for supplying air; B, an aerometer; C, a hydrogen-generating device, and D a carbureter. The aerometer B, hydrogen device C, and carbureter D are supported by and arranged on a suitable framework E. The arrangement of the several parts may be as desired, and they may have individual supports. The aerometer B and hydrogen device C may be of any desired construction. I prefer, however, to employ the constructions hereinafter described, and shown in the drawings.

The fan or blower A is of any desired construction and is for the purpose of supplying air through a pipe a to the aerometer B. The aerometer is of a construction similar to that of a gasometer. As air enters it the inverted bell b is raised, and as it rises to a desired height a stop b' on a rod b^2, carried by the bell, engages the arm a^2 of a cock provided in the pipe a to close the same and prevent additional air entering the bell after the bell has reached a certain height. When the bell falls, a stop b^3 on the rod b^2 engages the arm a^2 to again open the cock in the pipe a. The stops b' and b^3 are adjustably secured on the rod b^2. A flap or other form of check-valve a^3 is provided for the exit end of the pipe a to prevent air returning through the pipe a. Air escapes from the bell of the aerometer through a pipe a^4, past a check-valve a^5 therein, into the movable bell c of a hydrogen-generating device C. This device preferably comprises a receptacle c', containing dilute sulfuric acid, an inverted bell c^2, vertically movable in said receptacle, and a basket c^3, connected by a rod c^4 with the bell c. The sulfuric acid serves as a seal against the escape of hydrogen gas. The rod c^4 passes through a stuffing-box c^5, so that it can be raised and lowered independently of the bell c, and the rod is provided with means c^6 by which the basket may be suspended from the top of the bell at different heights. The basket is adapted to contain zinc, which when it comes into contact with the sulfuric acid causes hydrogen to be generated. Perforations are provided in the basket to allow the acid to drain off the zinc when the basket is raised out of the acid. The air, with hydrogen commingled therewith, then passes from the device C, through a pipe a^6, past a check-valve a^7 in said pipe to the carbureter D. The carbureter-casing is divided into a number of compartments d, which communicate with each other at alternate ends, thereby causing the air and hydrogen to pass through the entire length of each compartment before passing into the next. (See Fig. 4.) A pipe Z, leading to the burners, is connected with the last compartment. Each compartment contains a cylinder d', of foraminous material, around which wicking d^2 preferably is placed. The wicking does not cover the cylinder entirely, exposed places being left at the ends, so that the air can pass through the cylinder as well as around it. Each compartment d is also provided with an extension d^5, forming a recess, into which the wicking of each compartment also extends. The wicking is held in this recess by a plate d^3, which is suitably supported. Each wicking and plate is also provided with a V-shaped cut d^4, (see Fig. 1,) for a purpose to be hereinafter described.

G represents a hydrocarbon-oil reservoir, and F a tank connected therewith for supplying oil to the carbureter. It will be noted that the pipe *f*, forming the connection between the reservoir G and tank F, leads from the bottom of the reservoir G. In this way the heaviest of the oil in the reservoir is always being used. The pipe *f* is preferably a flexible one, so as to permit of the adjustment of the tank F. Provided within the tank F is a float f', which is provided at its upper end with a valve f^2 for controlling the supply of oil through the pipe *f*. To accomplish this, the end of the pipe *f* is held in one end of a socket f^3, and below the end of the pipe and within the socket is a Babbitt collar f^4, having a longitudinal opening f^5, which is opened and closed by the valve f^2.

f^6 represents a number of openings provided in the lower portion of the socket f^3, through which openings oil escapes into the tank F.

f^{11} represents a pipe extending between the carbureter and oil-reservoir. This pipe is for the purpose of preserving an air balance.

f^7 represents a gage connected with the tank F for indicating the height of oil in the tank. Connected with the bottom of the gage is one end of a flexible pipe f^8, the other end of which is connected with a pipe f^9. The pipe f^9 is horizontally arranged beneath the carbureter D and carries a number of supply-jets f^{10}, which extend into the recesses provided in the compartments *d*. As shown, these also extend into the V-shaped recesses provided in the wicks. The purpose of this is that the oil flowing out of the jets will not come directly into contact with the wick, but will flow over the jet and along the bottom of the recesses, and then engage all parts of the wick after it has reached a certain height in the recess. Thus the full benefit of all the oil in each recess is obtained and a complete and thorough saturation of all parts of the wick effected. The air and hydrogen coming into contact with the wick can then absorb all the hydrocarbon. The jets are also of different lengths in order that their discharge ends in the recesses will be at different altitudes, and by adjusting the height of the tank F any number of the recesses may be filled with oil. In this manner I am enabled to completely regulate the amount of hydrocarbon that will be supplied to the air. Any desired means may be employed for adjusting the tank F vertically to regulate the flow of oil from the several jets. In the drawings I have shown a lever *e* connected to a collar e', which collar is fast to the tank F and moves on a stem e^2. One end of the lever is hinged to a link e^3, and the link e^3 is hinged to a support e^4. The other end of the lever is provided with a handle and a pawl e^5, which engages with a ratchet-segment e^6.

f^{12} represents a petcock for the tank F.

The operation of the apparatus is as follows: The fan A is started to supply air to the aerometer. As the bell rises the cock in the air-supply pipe is closed. As the air escapes into the hydrogen device the bell falls to again open the cock. The basket containing the zinc in the hydrogen device is normally in the sulfuric acid, so that hydrogen will be generated, and when too much hydrogen has been generated or there is too much air in the inverted bell of the hydrogen device the bell is raised to lift the basket out of the sulfuric acid. The commingled air and hydrogen then escape to the carbureter. The tank F is previously vertically adjusted according to how many of the compartments are to be used for supplying hydrocarbon. If only one compartment is to be used, which is the first, the tank F is adjusted to have the level of the oil in it to a little above the top of the jet in the first chamber. With this level only the first compartment will be supplied with oil. In case two chambers are to be used the vertical adjustment of the tank is changed to have its liquid-level a little above the height of the jet in the second chamber. In any case the height of the oil in the supply-tank F will remain the same at all times, for as soon as oil is drawn off the float in the tank drops and opens the valve to let in oil from the reservoir G. As soon as oil enters the tank F the float rises to again close the valve.

From the above arrangement of apparatus for a carbureter it will be seen that I am enabled to regulate the amount of carbon that is to be supplied to the air and hydrogen and with the least expenditure of oil.

What I claim as my invention is—

1. In a gas-generating apparatus, a carbureter comprising a plurality of compartments which are in communication with each other, an extension for each compartment forming a recess, a wicking suitably supported in each compartment and extending into the recess, a supply-jet for each recess and a hydrocarbon-oil-supply tank connected with said jets.

2. In a gas-generating apparatus, a carbureter comprising a plurality of compartments in communication with each other, and each compartment having a recess into which a wick having a cut-out portion extends, the wick having a cut-out portion, a jet extending into each recess and the cut-out portion of the wick, and an oil-supply tank for said jets.

3. The combination in a carbureter of a plurality of compartments communicating with each other, a supply-jet for each compartment, said jets being so arranged as to have their discharge ends at different altitudes, an oil-supply tank connected with the said jets and means for changing the level of the oil relatively to the discharge ends of said jets whereby all or less than all of said jets will discharge oil.

4. The combination in a carbureter of a plurality of compartments connecting with each other, a supply-jet for each compartment, said jets being arranged so as to have their dis-

charge ends at different altitudes, an oil-supply tank connected with said jets and having a float-valve, means for changing the altitude of the said supply-tank relatively to the discharge ends of the said jets, and a reservoir connected with said tank.

5. The combination in a carbureter of a plurality of compartments connected with each other, a supply-jet for each compartment, said jets being arranged so as to have their discharge ends at different altitudes, an oil-tank having a float and connected with said jets, means for changing the altitude of the tank relatively to the discharge ends of said jets, a reservoir connected with said tank, a connection leading from the bottom of the said reservoir to said tank and a valve operated by the float for controlling the said connection.

6. In a carbureter the combination of a compartment provided in said carbureter and having a recess, a wicking having a loop portion within said compartment and having a portion extending into said recess, a supply-jet discharging into said recess and a hydrocarbon-oil tank connected with said supply-jet.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DAVID J. BROWN.

Witnesses:
GEO. E. CRUSE,
D. A. DAVIES.