

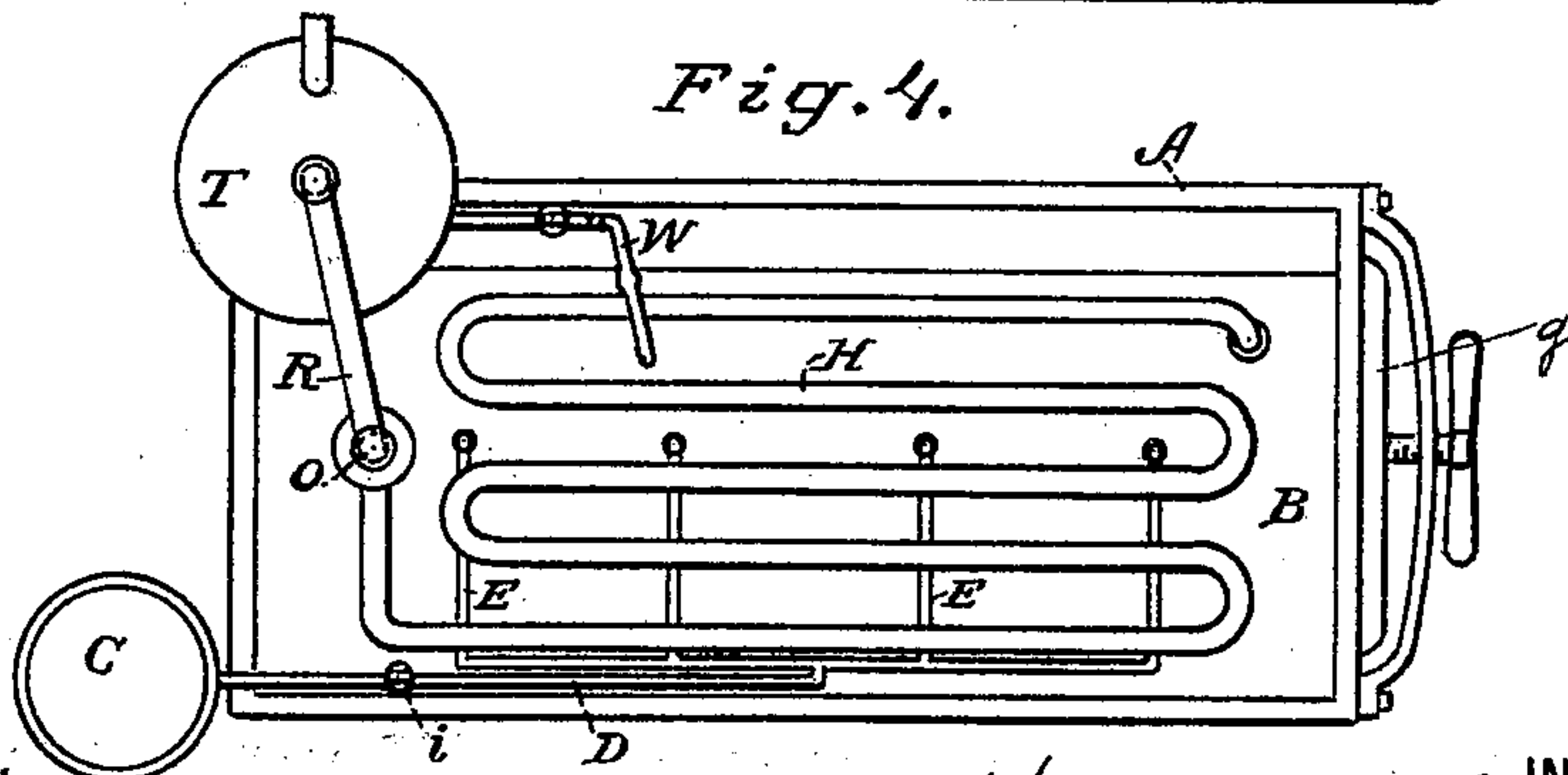
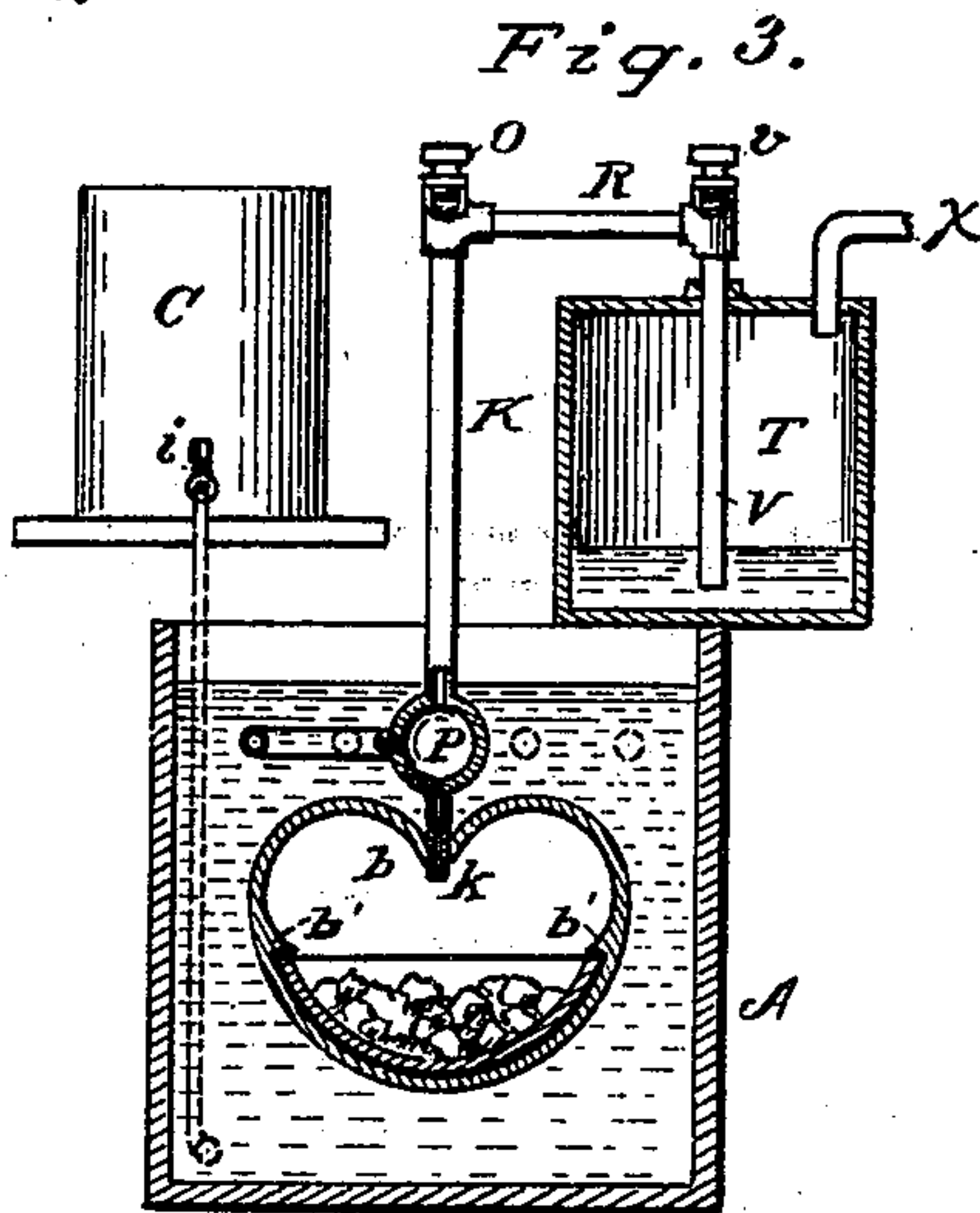
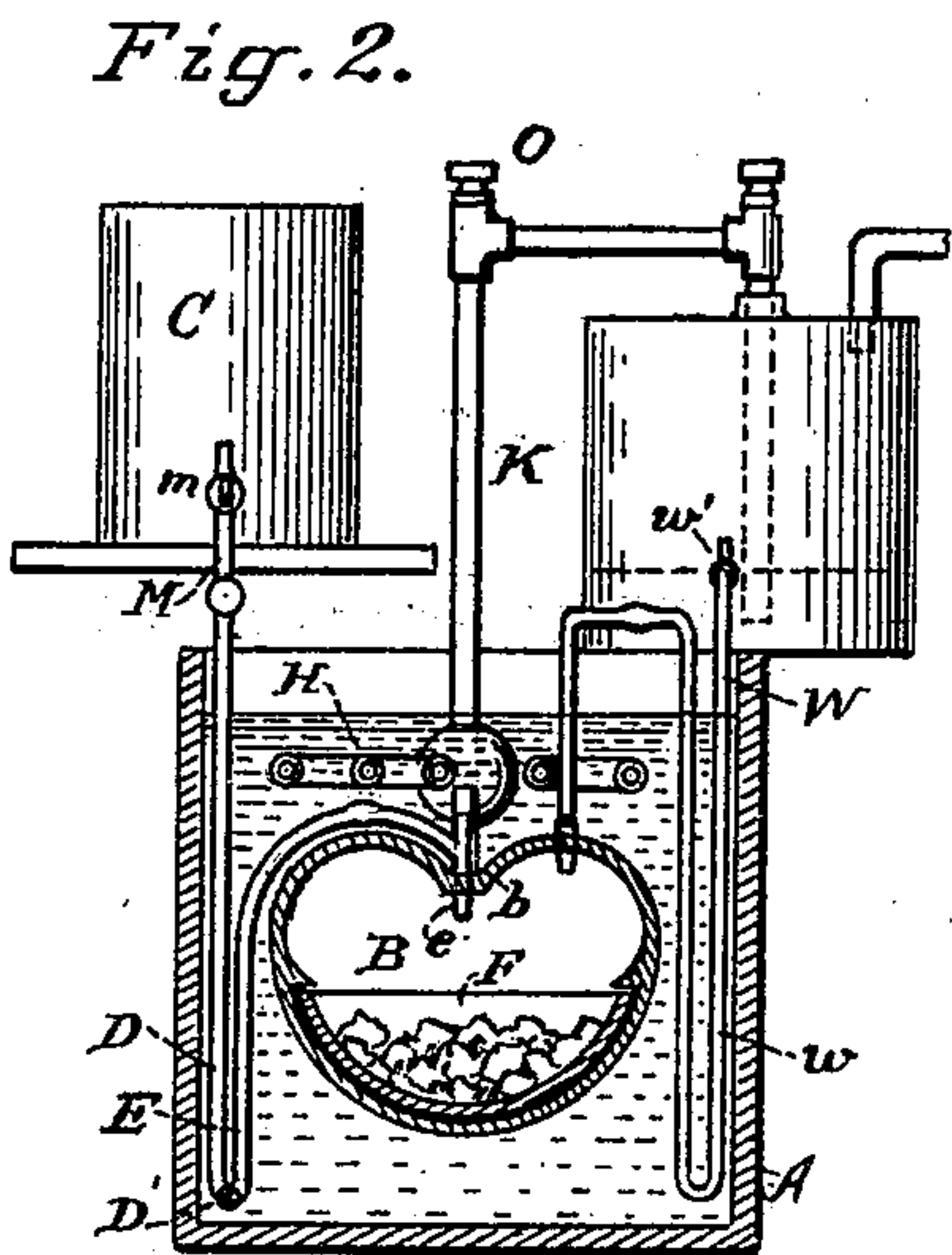
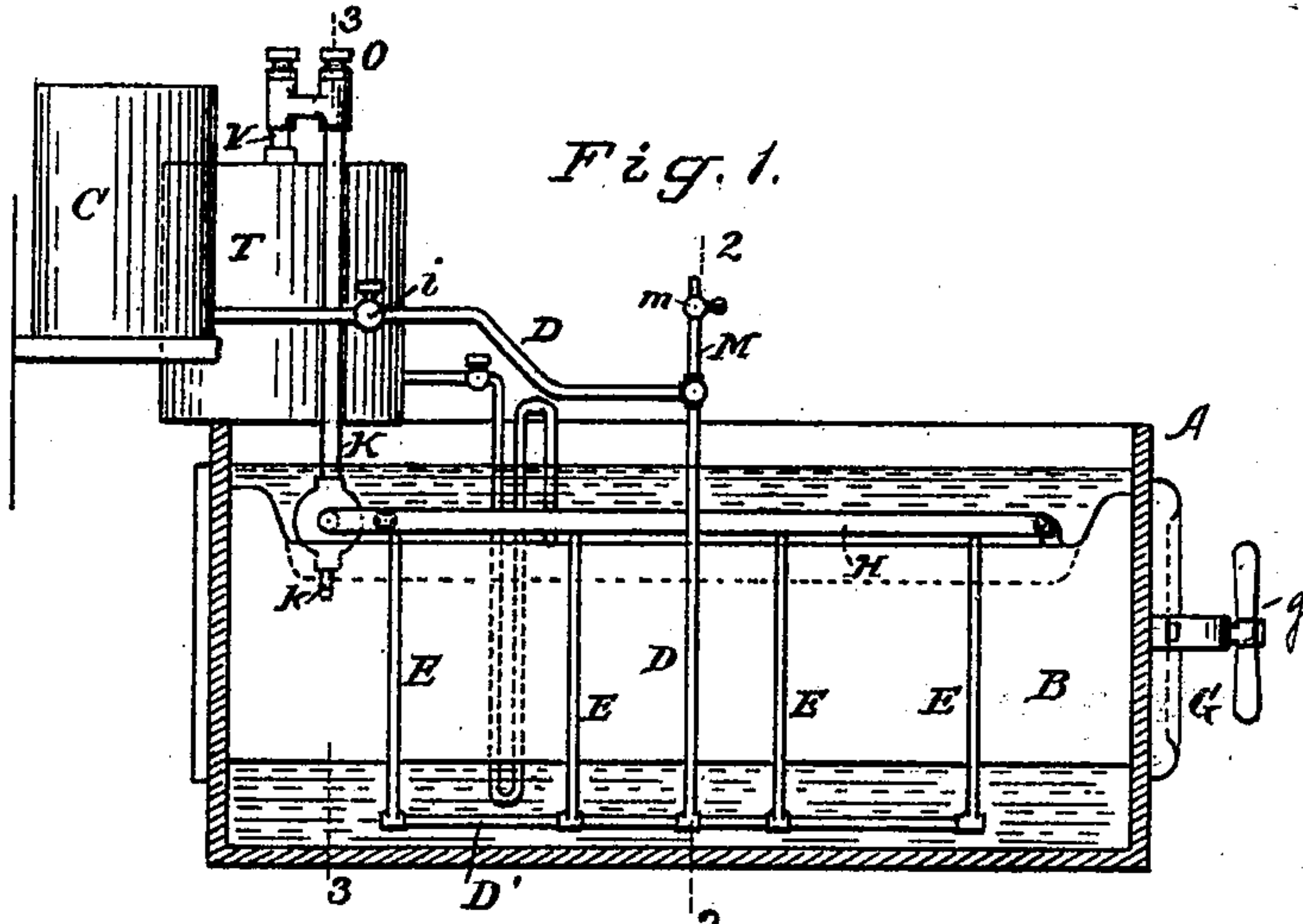
No. 619,509.

Patented Feb. 14, 1899.

H. C. SERGEANT.
ACETYLENE GAS GENERATOR.

(Application filed Jan. 11, 1898.)

(No Model.)



WITNESSES:

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[Signature]

INVENTOR

Henry C. Sergeant
BY *[Signature]*
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UNITED STATES PATENT OFFICE.

HENRY C. SERGEANT, OF WESTFIELD, NEW JERSEY.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 619,509, dated February 14, 1899.

Application filed January 11, 1898. Serial No. 666,302. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. SERGEANT, a citizen of the United States, residing at Westfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Acetylene-Generators, of which the following is a specification.

This invention relates to improvements in acetylene-generators, and particularly to improvements in the generator covered by Patent No. 576,826, granted to me February 9, 1897, such improvements relating to means for cleaning the apparatus and for washing the gas, whereby the generator is rendered more efficient and satisfactory in operation.

Referring to the accompanying drawings, which form a part of this specification, Figure 1 is a longitudinal vertical section of the apparatus constituting my improved acetylene-generator. Figs. 2 and 3 are transverse sections, respectively, on the lines 2 2 and 3 3 in Fig. 1. Fig. 4 is a plan view of the apparatus.

A represents a tank surrounding the generating retort or cylinder B and containing water or other cooling liquid, in which said retort is immersed. A tank C is supported at a point higher than the retort B, so that water placed in tank C will pass through a connection, consisting of pipes D E, into the retort B. In order to form a trap to prevent backflow of gas from said retort, the aforesaid connection first descends through pipe D to the lower part of tank A, and then passing by junction-pipe D' to the several pipes E it ascends by these pipes and passes down through the top of the retort B. The top of the retort B has preferably a central longitudinal depression *b*, and the nozzles *e* of the several parts E may enter it in the line of this depression. A pan F, sliding in the bottom of retort B and conforming to the sides thereof, is used to hold the calcium carbide, and when said pan has been charged and inserted in the retort the latter is closed by a door or cover G with screw-clamp *g*.

H is a coil of pipe passing from top of retort B back and forth through the liquid, finally passing out through pipe K, and at or about the point where pipe H makes a junction

with pipe K it is provided with a drip connection *k*, which carries condensed moisture from the gas back into the retort B.

b' are lips along the inside of retort B, which shed condensed moisture back into the pan F.

The apparatus as above described embodies the same principles of construction and operation as my prior patent aforesaid; but I have applied thereto certain improvements for facilitating the cleaning of the apparatus, for washing the gas, and for removing entrained moisture from the gas.

I have found that in practice the violent action which takes place when the water flows onto the carbide has the effect of throwing off or projecting small particles of carbide lime and moisture into the open retort-space and against the top of the retort. This not only results in considerable moisture being taken up or entrained by the rapidly-outflowing gas, but it has the objectionable effect of clogging up the nozzles of the water-supply pipes.

I provide a means for cleaning all of the nozzles at once in an extremely rapid and efficacious manner, the same consisting of a blow-tube M, connected to pipe D and having a cock *m*, whereby this blow-tube may be kept closed in the ordinary operation of the apparatus. When it is desired to clean the water-supply nozzles, the cock or valve *i* in pipe D is closed, the cock or valve *m* is opened, and by blowing through the blow-tube M air is forced through pipes D and E and nozzles *e*, it being understood that cock *i* is between blow-tube M and tank C, so that said cock being closed the air cannot pass back to tank C.

To enable cleaning of the drip connection *k*, I prefer to provide at the top of pipe K, which rises therefrom, a removable screw-cap O. Upon removal of this cap a wire may be passed down through connection *k* to clean it. To more thoroughly release or discharge the entrained water from the gas at this point, I prefer to form an enlargement or bulb P at said point of junction of pipes H and K, the drip connection *k* being taken from this bulb. The retarding of velocity of the outflowing gas in passing through this bulb causes it to drop a large part of its moisture.

From pipe K a connecting-pipe R leads to

the washer, the same consisting of a can T, partly filled with water, beneath the surface of which water dips the end of the vertical pipe V, connected to pipe R. This pipe V may also have a removable screw-cap *v* for cleaning it. A pipe or connection W enters can T at the side and passes, with a downward bend *w*, forming a trap or water seal, into the top of retort B. When the can T has been filled to the level of this outlet-pipe W, any additional water placed therein will simply run off through this pipe, so that water carried over by the gas into the washer will not fill the washer any fuller, the surplus water simply running back into the retort. A cock *w'* may be used in this connection, but is not necessary. It will be seen that the washer consisting of pipe V, dipping below the surface of the water in can or closed vessel T, constitutes also a trap or water seal, preventing return or backflow of gas or air from the outlet X, leading to the gas-holder, into the gas-pipes R K and the generator-retort B.

The water-supply can C, having a cock *i* in the connection between it and the supply-pipe E, constitutes a water-measurer, whereby a certain definite amount of water, proportionate to the amount of carbid held by the pan F, may be measured out by merely closing the cock aforesaid and about filling the can and then opening the cock to allow the water to flow to the carbid-chamber, the trap formed in the water-supply pipes preventing the gas from packing back through said pipes.

The retort or generator chamber B being immersed or submerged in the body of water in chamber or tank A and the condenser-pipe H being immersed in this same body of water, the maximum cooling effect on the gas is effected with the simplest possible construction.

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

1. In an acetylene-generator, the combination of a retort adapted to contain calcium carbid, a water-supply pipe leading through the top of said retort, and having a valve whereby its connection to the water-supply may be cut off, and a blow-tube having a valve and connected to said supply-pipe to enable air to be blown through same to clean it.

2. In an acetylene-generator, the combination of a retort adapted to contain calcium carbid, a plurality of nozzles leading into top of same, a connection leading from said nozzles to a source of water-supply, a valve in said connection, and a blow-tube provided with a valve and connected to said water-supply connection at a point between the valve therein and the connection of same to the nozzles, whereby, on closing the water-supply valve and opening the blow-tube valve, air may be blown through the nozzles to clean them.

3. In an acetylene-generator, the combination with a tank containing a cooling liquid, a retort placed in said tank, means for introducing calcium carbid into said retort from the outside, means for supplying water to said retort, a gas-outlet pipe, passing through the cooling liquid, a bulb connected to said pipe, a drip connection from said bulb back into the retort, and a pipe rising from said bulb for conveying away the gas.

4. In an acetylene-generator, the combination with a tank containing a cooling liquid, a retort placed in said tank, means for introducing calcium carbid into said retort from the outside, means for supplying water to said retort, a gas-outlet pipe, passing through the cooling liquid, a bulb connected to said pipe, a drip connection from said bulb back into the retort, and a pipe rising from said bulb for conveying away the gas, said pipe having a removable cap at its top to enable access to the drip connection.

5. In an acetylene-generator, the combination with the retort adapted to contain calcium carbid, and means for supplying water to said retort, of a washer consisting of a vessel partly filled with water, a pipe dipping below the surface of the water in said vessel and connected to the retort, and an overflow connection to the retort leading from said vessel and drawing therefrom at a level above the end of the gas-inlet pipe so as to maintain the water therein at such level, and to return to the retort any surplus water carried over with the gas.

6. In an acetylene-generator, the combination with the retort adapted to contain calcium carbid, and means for supplying water to said retort, of a washer consisting of a vessel partly filled with water, a pipe dipping below the surface of the water in said vessel and connected to the retort, and an overflow connection to the retort leading from said vessel and drawing therefrom at a level above the end of the gas-inlet pipe so as to maintain the water therein at such level, and to return to the retort any surplus water carried over with the gas, said overflow connection having a trap or water seal formed therein.

7. In an acetylene-generator, the combination of the water-measurer, the tank connected thereto, the retort submerged in said tank, the condenser connected to said retort, a gas-washer, a connection for leading the gas from the condenser to the gas-washer, and a trapped water-return connection from said washer back to the retort, substantially as shown and described.

8. The combination of a carbid-retort provided with lips at the side for shedding water, a receptacle adapted to be placed in the retort and to extend under said lips, said receptacle being adapted to contain a definite amount of carbid, means for closing the retort, a pipe connection from said retort to draw off the gas therefrom, said connection

including a trapped washer, means for return-
ing the water condensed in said pipe connec-
tion, and from said trapped washer back to
the retort, a vessel adapted to contain and
5 measure a definite quantity of water, corre-
sponding to the quantity of carbid contained
in the aforesaid receptacle, a connection from

said vessel to said retort and a valve in such
connection.

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Witnesses:

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