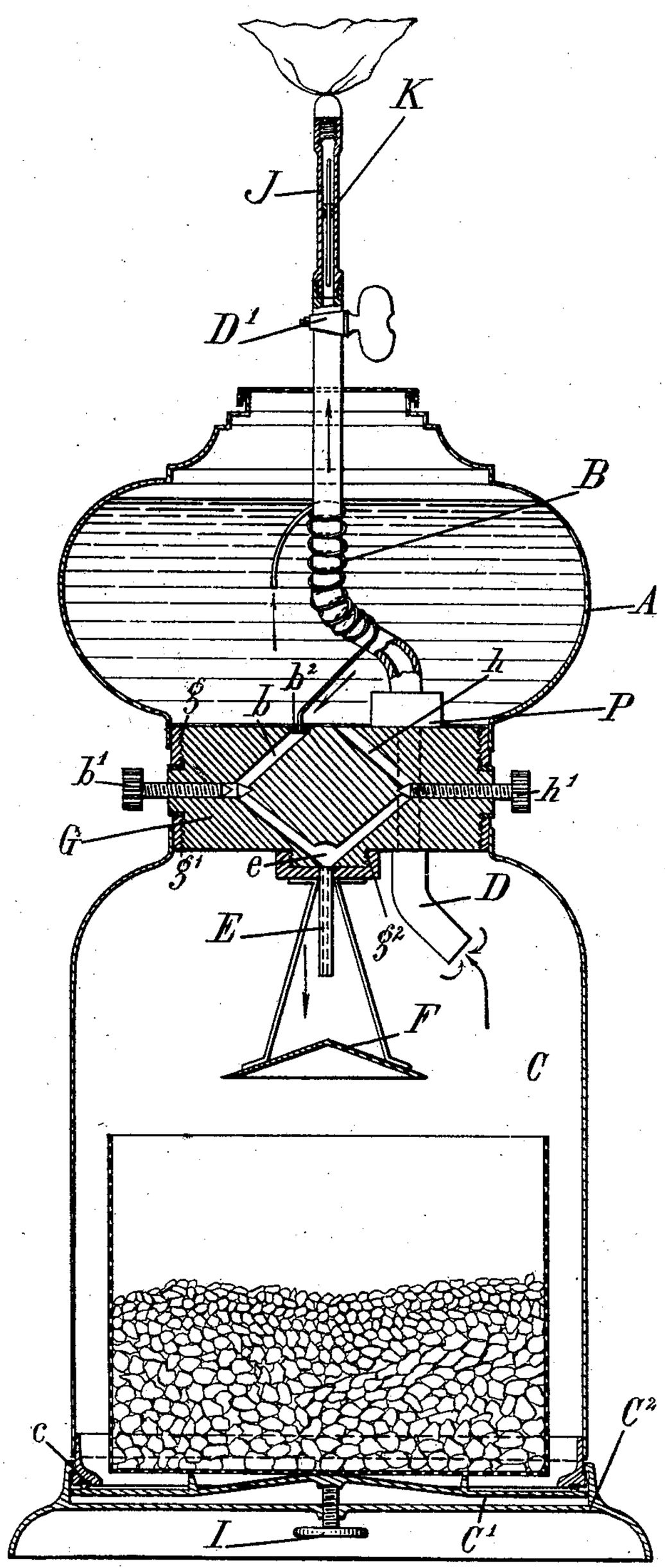
No. 606,861. Patented July 5, 1898.

# E. GOSSART.

## ACETYLENE GAS GENERATOR.

(Application filed Dec. 31, 1897.)

(No Model.)




Witnesses:-
Edward Viesel
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# UNITED STATES PATENT OFFICE.

EMILE GOSSART, OF BORDEAUX, FRANCE.

## ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 606,861, dated July 5, 1898.

Application filed December 31, 1897. Serial No. 665,207. (No model.) Patented in France May 5, 1896, No. 255,978, and in Belgium October 26, 1896, No. 124,199.

*To all whom it may concern:*

Be it known that I, EMILE GOSSART, of 68 Rue Eugène Ténot, at Bordeaux, in the Republic of France, have invented a new and useful Improvement in Capillary Appliances for Regulating the Production of Acetylene Gas, of which the following is a specification, and for which patents have been obtained in France, No. 255,978, dated May 5, 1896, and in Belgium, No. 124,199, dated October 26, 1896.

My invention relates to a capillary appliance for regulating the production of acetylene gas by controlling very simply the falling of water on the carbid of calcium in such a way that acetylene gas and hydrate of lime are formed without any moisture in excess. The result is that as soon as the arrival of water is cut off the production of acetylene gas is interrupted and that there remains in the generator carbid of calcium and monohydrate of lime in a dry state. Accordingly the removal of carbid is very easy and any danger of explosion is removed, since, there being no excess of water, the production of gas cannot continue when the flow of water has ceased.

My capillary appliances consist, chiefly, of an upper receiver containing the water and connected with the chamber or space containing the carbid by means of one or more regulating capillary tubes, the number and size of which are calculated according to the power of the generating apparatus. Said tubes distribute the water only drop after drop. Besides the flow of water through these tubes is regulated automatically, according to the pressure in the carbid-chamber, and stops as soon as the gas-pressure in said chamber balances the head which determines the flow of water or as soon as the equilibrium is established between the hydrostatic and capillary pressure. It will be easily understood that this arrangement dispenses with any complicated mechanism which could give only a much less delicate autoregulation.

It is to be mentioned also that the same capillary tubes can serve as safety-valves in case of an accidental too large production of gas. The gas under pressure would then press the water back in the capillary tubes and escape through the water in the receiver.

It is to be understood that my capillary appliances can be established of any size, movable or not, and fitted to any kind of acetylene-gas-generating apparatus, large generators with gas-holders, as well as small lamps, &c.

In the annexed drawing I have represented in vertical section a capillary appliance comprising only one capillary tube and adapted to a portable lamp.

A indicates the water-receiver; B, the bent capillary regulation-tube, which distributes the water in drops on the carbid.

C is the carbid receiver or generator proper.

D is the tube through which the generated gas escapes in order to pass to the burner. This tube traverses, preferably, the water-receiver, which serves thus as a refrigerator.

The water-receiver A, containing the capillary regulation-tube, is screwed at $g$ on a plug G, on which is screwed at $g'$ the carbid-receiver C, which may be of any shape, and contains the perforated basket for the carbid. The said plug G is provided with two passages $b$ $h$, opening in a recess $e$ of the plug. Said recess is formed in a threaded projection $g^2$, on which is screwed the water-escape tube E. The open lower end of the capillary regulation tube B is fitted tightly into an opening in a small plate $b^2$, by which the upper end of the passage $b$ is closed except to the said tube B. The water falls on a dividing-cap F, and thence on the carbid.

The passages $b$ and $h$ can be closed by means of pointed screws $b'$ and $h'$. The passage $b$ receives the water from the capillary tube for the feeding of the generator when working. The passage $h$ connects directly the water-receiver A and the carbid-receiver C. It is open only when starting the apparatus in order to let pass at once several drops, so as to generate an amount of acetylene gas which will expel the air from the lamp.

The water-escape tube E, screwed on the threading $g^2$ of the water-recess $e$, can be simple or multiple, according to the amount of water to supply. Its outside diameter is, say, three millimeters and its inside diameter, say,

one millimeter, so as to supply large drops on which the gas-pressure acts more efficiently to regulate their falling, according to the want. Moreover, the capillary tube is better protected against stopping.

The bottom or base of the generator is closed by means of a plate C′, which bears the carbid-basket. Said plate is provided with a flange fitted into a groove *c* lined with india-rubber and is pressed against the receiver-wall by means of retaining-clamps and a screw I or otherwise.

Above the gas-cock D′ of the lamp is a socket J for the burner, which incloses a capillary tube of, say, three to five centimeters long and one-half millimeter in diameter maintained by a small india-rubber ring K. This improves very much the flame obtained by means of the usual "Manchester" burner. Besides, a small box P, screwed on the plug G, contains some glass-wool, which purifies and dries the gas and improves the flame.

As aforesaid, my capillary autoregulator is available for any kind of acetylene-generators—as, for instance, large apparatuses with a gas-holder, small lamps for bicycles and other sporting purposes, mines, &c.

The water-receiver can be placed anywhere, provided it is connected with the capillary regulation-tube. There may be several escape-tubes E for the water coming from the capillary regulation-tubes.

I claim as my invention—

1. The combination of an upper water-receiver, a carbid-receiver, one or more bent capillary regulation-tubes connecting both receivers, and larger passages which can be stopped at will forming extensions of the capillary tubes so as to let fall larger drops substantially as and for the purpose set forth.

2. The combination of an upper water-receiver, a carbid-receiver, one or more bent capillary regulation-tubes connecting both receivers, larger passages forming extensions of the capillary tubes, a water-collecting recess and an escape directing the water on the cap from which it falls on the carbid substantially as and for the purpose set forth.

3. The combination of an upper water-receiver, a carbid-receiver, one or more bent capillary regulation-tubes connecting both receivers, and an auxiliary passage which can be closed at will and which allows direct admission of water on the carbid when starting the apparatus substantially as and for the purpose set forth.

4. The combination of an upper water-receiver, a carbid-receiver with a movable bottom, one or more bent capillary regulation-tubes, a plug bearing both receivers and the capillary regulation tube or tubes, the auxiliary passages for collecting water and starting the apparatus, the water-escape tube, the dividing-cap, and the gas-escape tube, substantially as and for the purpose set forth.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EMILE GOSSART.

Witnesses:

FRANÇOIS GOUTTES,

HENRY CHEVALLIER.