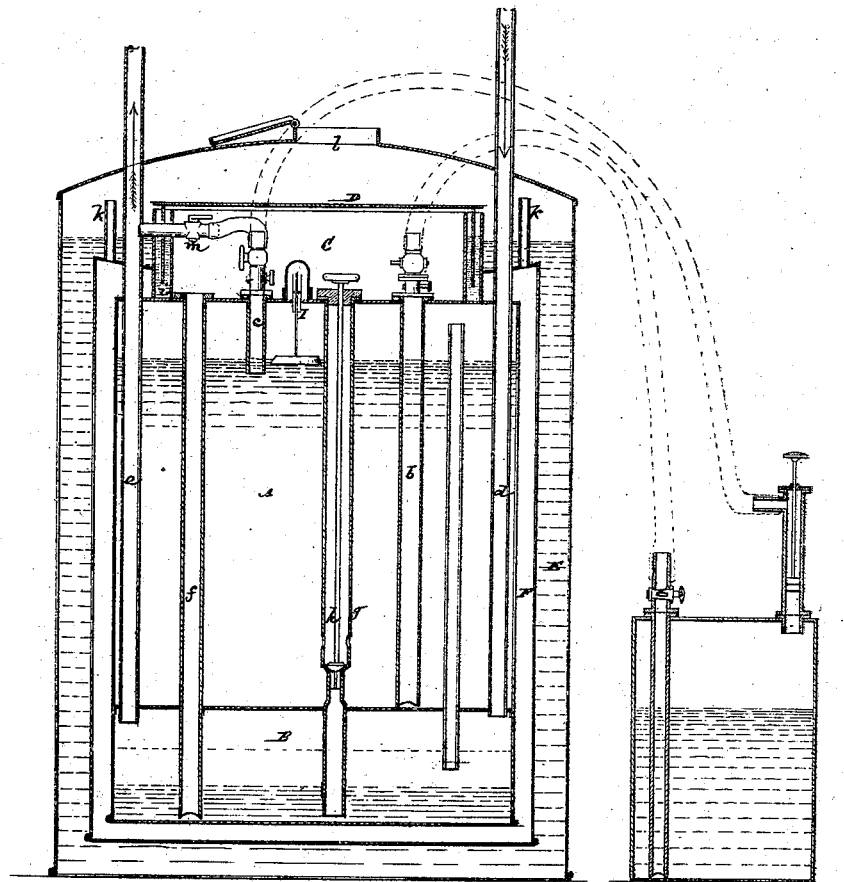


*H. A. Chapin,*

*Carburetor.*

*No. 111,175,*

*Patented Jan. 24. 1871.*



*Henry Albert Chapin*

Witnesses:  
*Fred. Holmes*  
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# United States Patent Office.

HENRY ALBERT CHAPIN, OF NEW YORK, N. Y.

Letters Patent No. 111,175, dated January 24, 1871.

## IMPROVEMENT IN APPARATUS FOR CARBURETING AIR.

The Schedule referred to in these Letters Patent and making part of the same.

### *To all whom it may concern:*

Be it known that I, HENRY ALBERT CHAPIN, of the city, county, and State of New York, have invented a new and useful Improvement in Carbureting Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing forming part of this specification, and which represents a sectional elevation of a carbureting apparatus having my improvement applied to it.

My invention, which is mainly designed for the carbureting of street-gas, consists in a novel construction of the carbureting apparatus, whereby all the tubes or connections for filling and drawing off the carbureting liquid, and other attachments connected with the supply of said liquid from the carbureting reservoir to the carbureting-chamber, but more especially the regulating-valve for controlling the discharge from the reservoir to said chamber, are in communication with and accessible from a chamber arranged above the tank or reservoir, and which is under cover of a sealed lid. This dispenses with all break in the side or through the walls of the apparatus, and reduces the risk of accident by leakage, also retains any escaping vapor within the apparatus proper, and, on removal of the sealed lid, exposes the several connections, hereinbefore referred to, for the purposes of inspection and adjustment or repair as required.

The invention also consists in a combination, with the pipe which carries off the carbureted gas from the apparatus, of a pipe or connection fitted with a cock or valve, and establishing communication between said gas-pipe and an air-escape pipe or opening in the upper portion of the tank, whereby any condensed air and vapor with which it may be charged, produced in filling the tank, may be discharged into the gas-pipe.

The invention also comprises, in combination with an outer water or safety-jacket, an interposed air-circulating chamber between said jacket and the carbureter proper, which it incloses, said chamber essentially differing from a confined air-space by being provided with suitable openings or ducts to provide for a free circulation of air through it, and for carrying off as rapidly as formed any vapor leaking into said chamber, or otherwise avoiding any excessive and dangerous accumulation of vapor therein.

Referring to the accompanying drawing—

A represents the tank or reservoir of the apparatus, into which the carbureting liquid is entered and drawn off therefrom, or surplus and refuse removed as required, by means of a tube, *b*, arranged to project through the top of the tank down to nearly the bottom thereof.

To effect the filling of the tank A, an air-escape or vacuum-tube, *c*, may also be used, the same being like-

wise arranged to project through the top of the tank, but only entering to a limited distance down within it.

These tubes *b* and *c* may be provided with suitable cocks or valves on their exterior or upper projecting ends, and be connected, respectively, by supplementary pipes, with a dip-pipe and pump attached to or forming part of a filling-can, so that the pump may first be worked to produce a vacuum within the tank A, and afterward to force the liquid from the can into the tank. This provides for the charging of the tank in a rapid manner, and from a level which is considerably below the tank, also for the drawing off of the liquid or refuse, when required. Any other filling and drawing off means, however, may be employed, and in some cases the tube *c* be dispensed with, or when used, instead of operating as a vacuum-pipe in connection with a pump, it may, under a different mode of filling, be employed as an escape-pipe for condensed air produced in the upper portion of the tank during the process of filling.

In such case I connect such tube *c*, as by a pipe or connection, *m*, fitted with a cock or valve, with the pipe *e* which carries off the carbureted gas into the building. By this connection *m* all condensed air and vapor with which it may be charged is passed off into the pipe *e* for use along with the gas.

B is the carbureting-chamber, and *d* the gas-inlet pipe, which latter, together with the gas-outlet pipe *e*, is likewise preferably disposed to run up through the tank A.

Projecting up said tank are also the draw-off pipe *f*, from the carbureting-chamber B, and the supply-tube *g* thereto, and connection by which the regulating-valve *h* is operated to control the supply of liquid from the tank A to the carbureting-chamber.

I is a float-indicator for ascertaining the level of the liquid in the tank.

Said indicator, like the tubes *b* and *c*, the draw-off pipe *f* from the carbureting-chamber B, and the regulating-valve *h*, which controls the supply to the latter, are all in communication with and accessible from a chamber, C, arranged on top of the tank, and provided with a lid, D, which is sealed, as by a glycerine, mercurial, or other fluid joint, *i*.

The arrangement of the regulating-valve *h* and its connections, all within the carbureter proper, and without making a break in its walls or surrounding chambers to effect the adjustment of the valve from the exterior, is an important feature in this invention, inasmuch as it reduces the liability of leakage, while the connection of the same and of the filling and drawing-off attachments and indicator, all within the chamber C, under cover of the sealed lid, as described, not only retain vapor leaking past said attachments or connections within the carbureter proper, but provide for a

ready accessibility to said connections by simply removing the sealed lid D.

E is a safety water-jacket or chamber surrounding the whole structure, and F an interposed air-circulating chamber or space between said water-jacket and the carbureter proper, to form an additional safe-guard.

This air-chamber insulates, as it were, the carbureter, being arranged around its sides and bottom or bottom and top, and the water-jacket E similarly insulates said air-chamber, which latter is provided with vents or pipes *k k* that, in connection with an opening, *l*, made in the top of the water-case, serve to keep up a circulation of air within the chamber F, which provides for the carrying off of any liquid or vapor that might escape from the carbureter into said chamber, instead of allowing it to accumulate for mixture with a fixed supply of air till a dangerous or explosive condition was reached.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The arrangement, relatively with the tank A, of the chamber C, provided with a sealed lid or cover, as

described, in combination with the valve by which the supply from the tank to the carbureting-chamber is regulated and made capable of operation from within the sealed upper chamber C, substantially as specified.

2. The arrangement, relatively with the sealed upper chamber, of the several pipes or connections by which the liquid is supplied to and drawn from the tank A and carbureting-chamber B, essentially as herein set forth.

3. The combination, with the gas-pipe *e* and air-escape tube *c*, of the connection *m*, substantially as and for the purpose herein described.

4. The combination and arrangement, with the carbureter and with an outer water-case or jacket E, of an air-circulating space or chamber F, provided with vents or ducts, substantially as and for the purpose or purposes specified.

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Witnesses:

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