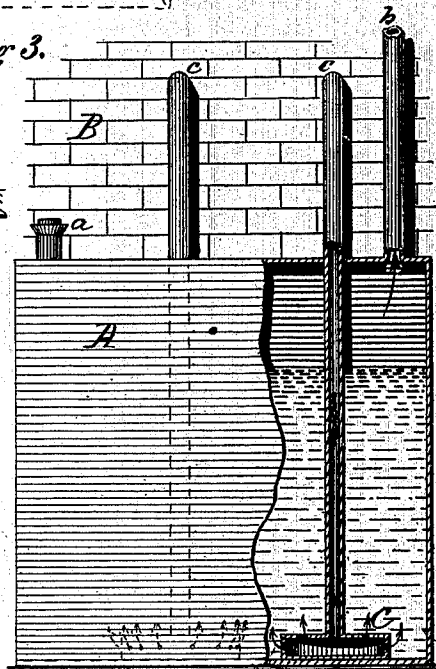
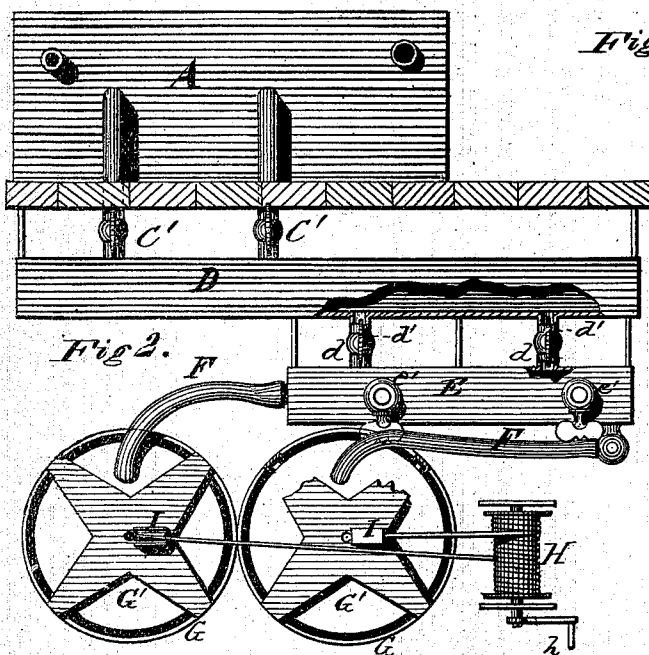
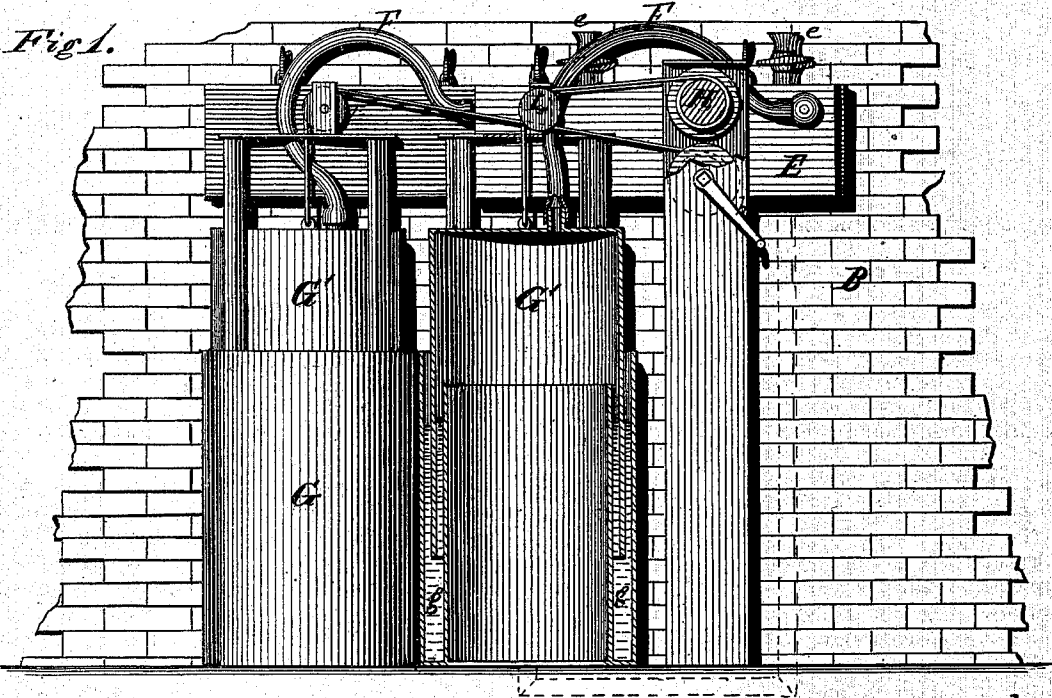


J. B. LYMAN.
Carbureters.

No. 146,082.

Patented Dec. 30, 1873.



Witnesses.

Harry King
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UNITED STATES PATENT OFFICE.

J. BALDWIN LYMAN, OF ROCKFORD, ILLINOIS.

IMPROVEMENT IN CARBURETERS.

Specification forming part of Letters Patent No. **146,082**, dated December 30, 1873; application filed September 15, 1873.

To all whom it may concern:

Be it known that I, J. BALDWIN LYMAN, of Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Improvement in Gas-Machines; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

Figure 1 is a side elevation of my improved apparatus, showing one of the air-tanks in section. Fig. 2 is a plan or top view, and Fig. 3 is a side elevation, partly in section, through the gasoline-tank, and showing the manner in which the air is injected therein.

Similar letters of reference denote corresponding parts wherever used.

The invention relates to a novel construction of apparatus and arrangement of its parts for forcing atmospheric air into and through gasoline or other volatile oil, and for regulating the pressure and flow of the resultant illuminating-gas to the burners, as hereinafter explained.

For the purpose of holding the gasoline or oil, a suitable tank, A, is prepared and placed outside of the building for the sake of safety, with an opening at *a* for filling, said opening being provided with any suitable cover or stopper. Said tank is also provided with a pipe or pipes, *b*, for conveying the gas to the burner or burners located in the different rooms of the house. There are also other pipes, *c c*, reaching into this reservoir and running to or nearly to the bottom, and provided on their lower ends with enlarged chambers C, preferably made of circular form, as shown. This chamber is provided with numerous small perforations in the top and on its periphery for the purpose of distributing the air through the gasoline, as hereinafter explained. These pipes, one or more in number, reach from the tank to and through the walls B of the house into any suitable room, and inside of said walls and within reach of the operator these continuous pipes are provided with stop-cocks C' for excluding the air when necessary, as hereinafter explained. These pipes lead still farther, after passing the stop-cocks, and end in an air-chamber, D, or reservoir, so arranged that, by its connecting-pipes and stop-cocks,

the amount of air received from the gasometers, as also the amount of air delivered to the gasoline or oil tank, can be regulated at will. Connected with this air-chamber is another chamber or chambers, E, (there being one chamber for each gasometer,) provided with connecting-pipes *d*, and each pipe provided with a stop-cock, *d'*. This second chamber has tubes *e e*, preferably made upright, one or more in number, which are also provided with stop-cocks, for purposes hereinafter explained. In cold weather, if desired, tubes can be provided and connection made with a warm room, thus filling the gasometers with heated air. This chamber E has also (in part) flexible tubes or pipes F leading to the gasometers or air-holders G G', one or more in number. Metal pipes may be used in place of the flexible, if preferred, by passing them outside of the receivers, and causing them to enter at the bottom of the fixed cylinders G. The gasometers or air-receivers can be placed beneath the floors of the house, in the cellars, and out of the way, or can be placed out of doors, wherever desired. Inside of these stationary tanks are movable air-holders G', made similar to the ordinary gasometer, but containing atmospheric air in place of coal-gas. H H are windlasses, operated by means of crank *h*, and provided with cords running over pulleys I on the frame-work of the air-holders, and connected with the movable gasometers or holders G', as shown.

The operation is as follows: When the gas is to be made, after the gasoline-reservoir is filled, and water-packing placed at *g* in the gasometer or air-receivers, the stop-cocks are opened in the secondary reservoir for admitting air, the crank is placed on the windlass, and the movable inside holders G', which are open on the under side, are raised up, forming a vacuum between the head and water, which causes the air to rush in through the opened pipes in the secondary reservoir. While the gasometers are being raised, either the stop-cock C' or the stop-cock *d'* must be closed, otherwise the vapor pressure in the gasoline-tank A might force the fluid gasoline up through the pipes *c c* into the air-chamber D. These cylinders or gasometers can be raised, by any well-known means, to create this vacu-

um. When the air-holder is filled, the supply-cocks *e'* in the secondary reservoir are closed, the air is contained in the receiver, which can be weighted as heavily as required, to obtain sufficient pressure. The stop-cocks *d'* leading to the main reservoir are opened, as well as the stop-cocks *C'* in the pipes running into the gasoline-reservoir. The stop-cock in the pipe *b*, leading to the burners, may be closed until it is necessary to light the gas. When the gas is lighted, or the stop-cock turned at the burner, the pressure on the air-holders *G'* forces the stored-up air through the different connecting-pipes down to the bottom of the gasoline, or other volatile fluid, spreading it through the entire mass of said fluid. The delivery of the air into the gasoline, through the very minute openings in the terminal chamber *C*, also prevents the rising and falling of the fluid in the tube, and insures a steady light, and, in practice, has been found preferable to the said delivery through an open tube.

It is important in the manufacture of gas from gasoline that the supply of air to the gasoline-tank should be easily regulated, so as to secure a steady and uniform light. This object I accomplish by weighting the gasometer, to secure the requisite pressure, and by the use of the stop-cocks connected with the chambers *D* and *E*, and by the delivery of the air into the gasoline through the minute openings in the terminal chamber *C*, before mentioned. No matter what the amount of pressure exerted by the gasometer, the flow of the atmospheric air into and through the gasoline,

and to the burners, may be regulated, through the various stop-cocks, at will, and with the greatest precision.

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

1. The perforated air-chamber *C*, arranged within the tank *A*, as described, in combination with the air-chamber *D*, intermediate between the receiver *G* and chamber *C*, substantially as and for the purpose-described.

2. The secondary or supply chamber *E*, provided with the supply and outlet pipes, as described, in combination with the holder *G G'* for the supply of the air to said holder, and for the transmission of the same to the storing-chamber *D*, as set forth.

3. The combination of the holders *G G'*, supply and storing chambers *D* and *E*, tank *A*, and terminal chambers *C*, all arranged and operating substantially as and for the purpose set forth.

4. The air-chamber *D* in combination with the receivers *G G'*, tank *A*, and connecting and supply pipes and their respective stop-cocks *c c'*, *d d'*, *e e'*, and *F*, arranged and operating substantially as and for the purpose described.

This specification signed and witnessed this 11th day of September, 1873.

J. BALDWIN LYMAN.

Witnesses:

G. W. FORD,
K. L. DRAKE.