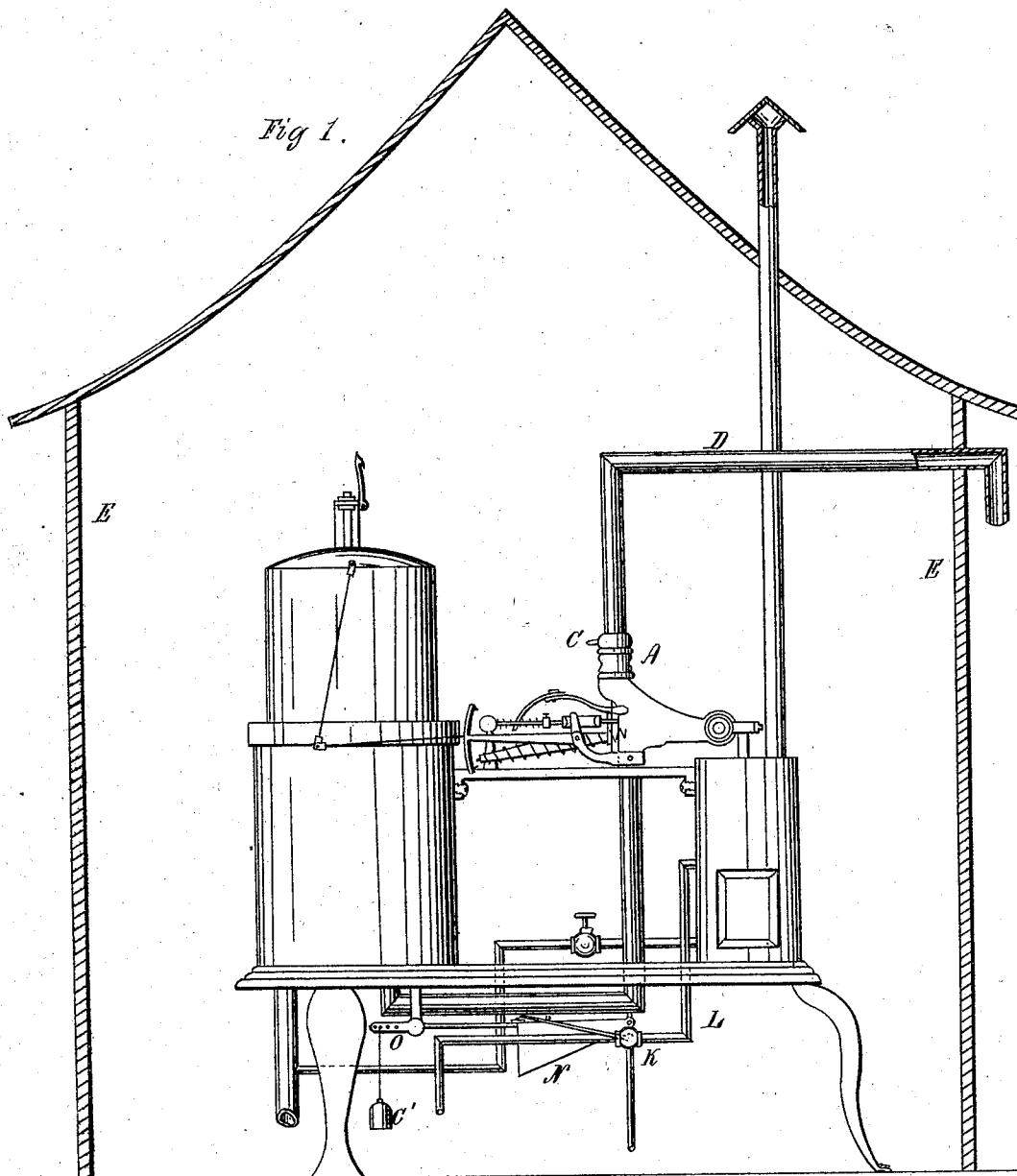


T. B. FOGARTY.

Gas-Machines.

No. 135,980.

Patented Feb. 18, 1873.



Witnesses.

J. B. A. Lepp.
W. H. Fairbank.

Inventor.

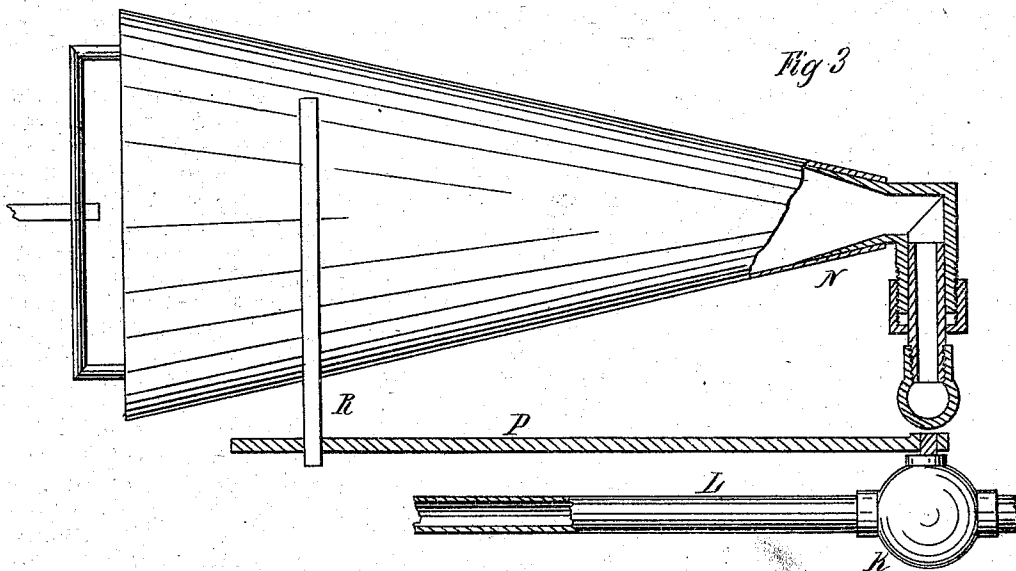
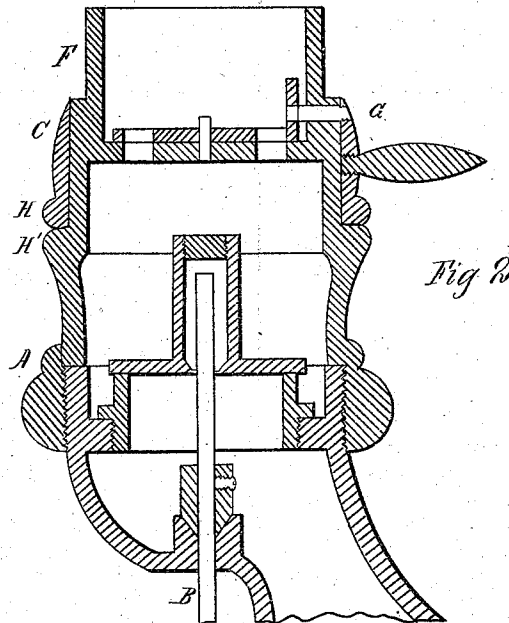
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UNITED STATES PATENT OFFICE.

THOMAS B. FOGARTY, OF WARREN, MASSACHUSETTS.

IMPROVEMENT IN GAS-MACHINES.

Specification forming part of Letters Patent No. 135,980, dated February 18, 1873.

To all whom it may concern:

Be it known that I, THOMAS B. FOGARTY, of Warren, in the county of Worcester and State of Massachusetts, have invented certain Improvements in Gas-Machines, of which the following is a specification:

My invention relates principally to automatic gas-machines in which the manufacture and supply of gas are automatically regulated by the rising and falling of a gas-holder sealed in a vessel of water or other suitable liquid, or its equivalent, a flexible diaphragm; but it refers more particularly to machines of the above class, in which a proper and equable admixture of air and vapor or gas is effected by vaporizing hydrocarbon liquid under pressure, either hydrostatic or pneumatic, in a suitable retort, and causing the vapor so formed to be blown with a high velocity through a small jet across an intervening body of air and into the mouth of the larger pipe, so as to induce and carry along with it a large body of air.

The first part of my invention relates to a new and improved air-valve, and to supplying the air thereto through a pipe leading to the outside of the gas-house; the object of this part of my invention being to make a tighter and more perfect air-valve, and to prevent danger of fire from any accident to or disarrangement of the same.

The second part of my invention relates to a new and improved application of the automatic drip N, already described in my patent of September 26, 1871, No. 119,227; the object of this part of my invention being to render the said drip more definite and positive in its action.

Figure 1 is a view, partly section and partly elevation, of the gas-house and gas-machine. Fig. 2 is a section of my improved air-valve. Fig. 3 is a view, partly section and partly elevation, of the automatic drip to which the second part of my invention relates.

Upon both sheets of drawing and in all the figures the same letters refer to the same parts; and where reference is made to the drawings of other patents the parts referred to are particularized by the same letters as upon the drawings themselves, and the letters of reference upon these drawings and upon those attached to the present specification are, as far as possible, made to correspond.

In the specification of my patent of June 6, 1871, No. 115,593, I described and claimed an air-injector or back-pressure valve A, for carbureters or gas-machines, moved mechanically, &c. In practice I have found great difficulty in making this valve seat itself so as to make a gas-tight joint; because, as will be seen on reference to the drawings of my above-mentioned patent No. 115,593, the valve is constructed so that it and its stem are made in one piece, or are united, so that practically they are one. The effect of this construction is, that if the valve-stem should by any chance be bent or thrown out of a line perpendicular to the valve-seat, the valve itself, being rigidly connected to the stem, would be prevented from seating itself by the bent shape or deviation from the perpendicular of its stem, and there would necessarily be an escape of gas. It is to remedy this defect that I have devised the valve shown at A, Figs. 1 and 2 of the drawing accompanying this specification.

On reference to the above figures it will be seen that this valve A is completely separate and distinct from its stem, and rests squarely upon its seat without any reference to the position of the stem, which passes loosely through its face into an enlarged and elongated opening within it. Now, as soon as the stem B is thrown upward by the action of an actuating-lever, as described and shown in my before-mentioned patent No. 115,593, it strikes against the upper side of the elongated opening in which it rests, and lifting the valve raises it until it (the stem) is caught and held in its position by a wire, described in my patent of June 6, 1871, No. 115,597, and designated upon the drawings attached to said patent by the letter J. The stem B, being thus held in position, supports the valve until the wire J, before referred to, releases it, in the manner described in the specification of my patent No. 115,597, before referred to; when the support of the stem is suddenly withdrawn from under A, either by its own weight or by the action of a lever, as shown in my patent No. 115,593, when, in consequence of its support being withdrawn, the valve A falls to its seat, to which it is left free to accommodate itself by its loose fit upon its stem, as well as the enlarged shape of the elongated opening within it which receives the stem.

I do not claim any novelty in the mode of lifting or operating the valve A, for this has been already described and claimed by me in the specification of my patent No. 115,593, before referred to; but what I do claim is the novel and improved construction of said valve, whereby I am able to insure its perfect adjustment to its seat independently of any irregularity in the form of the stem by which it is actuated, the essential difference between the valve described in my former patent No. 115,593 and this being, that in the former the valve was held rigidly to its stem, and thereby was frequently prevented from adjusting itself to its seat, while the valve A described in my present specification is entirely disconnected from its stem, and is at liberty to adjust itself perfectly to its seat independently of the stem.

In using automatically-operating air-gas machines circumstances may arise under which the valve A will necessarily remain open and allow gas to escape into the gas-house, and when this occurs the volume of escaping vapor is certain to take fire from the burner under the retort.

To remedy this defect, and thereby remove all danger from this source, I have devised the air-register C and air-pipe D, as shown in the drawing attached to this specification.

The air-pipe D, extending from the valve A to the outside of the gas-house, explains itself, for it evidently cuts off all communication between this valve and the interior of the gas-house, and removes all danger of vapor escaping from this valve taking fire from the burner under the retort, as this pipe will be certain to remove it out of the building and out of reach of the fire.

I claim that the combination of the pipe D, air-register C, and valve A is new and has not been heretofore applied to automatically-operating air-gas machines; but I do not confine myself to the application of a simple pipe for this purpose, for it is evident that any other chamber or passage-way cutting off communication between the interior of the gas-house and the valve A, and at the same time forming a communication between this valve and the outside of the gas-house, will answer the same purpose.

In order to regulate the quantity of air drawn into the machine through A, and at the same time leave no permeable communication between it and the interior of the gas-house, I have devised the air-register C, Fig. 2. It will be seen that this register is furnished with an external ring, fitting upon the cap F and communicating with the air-register C within the cap by means of the pin G working horizontally through a slot in the side of F, thus affording a means of operating the air-register without removing or otherwise interfering with the pipe D, or in any other manner making an outlet through which vapor might escape into the gas-house. The contiguous parts of this ring and of F may

be marked, one with a scale and the other with an index-mark of any sort, so that the extent to which the register, which is concealed from view within F, is open may be ascertained by the position of the index relatively to the scale.

I do not claim that there is any novelty in a register by which the quantity of air induced and the consequent quality of the gas may be regulated; but I do claim as new the combination of an internal register with an external ring, as set forth.

In the specification of my patent of September 26, 1871, No. 119,227, I described and claimed a device for closing the vapor-valves of automatically-working gas-machines whenever liquid escapes through said vapor-valves instead of vapor. In said patent I described a means of effecting this by means of a lever, M, operated by a drip, N, whenever the weight of the liquid in N would be sufficient to overcome the resistance of the weight C', so as to cause N to fall, and in falling act upon M, and through it close the vapor-valve. (See drawing, No. 119,227.)

The second part of my invention consists of a device for an improved application of the drip N. This application will be readily understood by reference to Figs. 1 and 3 of the drawing attached to this specification.

In Fig. 1 is shown the drip N supported by the lever O and balanced by the weight C', as before described in my patent No. 119,227; but instead of causing it to act upon and operate the lever M, as described in said patent, I cause it to act directly upon a cock or valve, K, in the gasoline-supply pipe L, so as to close this cock by means of the arm R pressing upon the lever P, (see drawing attached to this specification,) so as to close the cock and cut off the supply of gasoline whenever the weight of liquid in N makes it sufficiently heavy to overcome the resistance of C' and release itself.

I do not claim the drip N or the weight C' as new, for both these have been described in my patent No. 119,227; but I do claim as new the combination of these devices with a valve, K, as set forth.

I claim—

1. The air-injector or back-pressure valve A of carbureters or gas-machines, constructed and operated substantially as set forth.
2. The air-register C of carbureters or gas-machines, constructed and operated substantially as set forth.
3. An air-pipe, D, communicating between the outside of the gas-house and the air-injector or back-pressure valve of a portable gas-machine, substantially as set forth.
4. The combination of a drip, N, cock K, and lever P, constructed and operated substantially as described.

THOS. B. FOGARTY.

Witnesses:

W. H. FAIRBANK,
B. A. TRIPP.