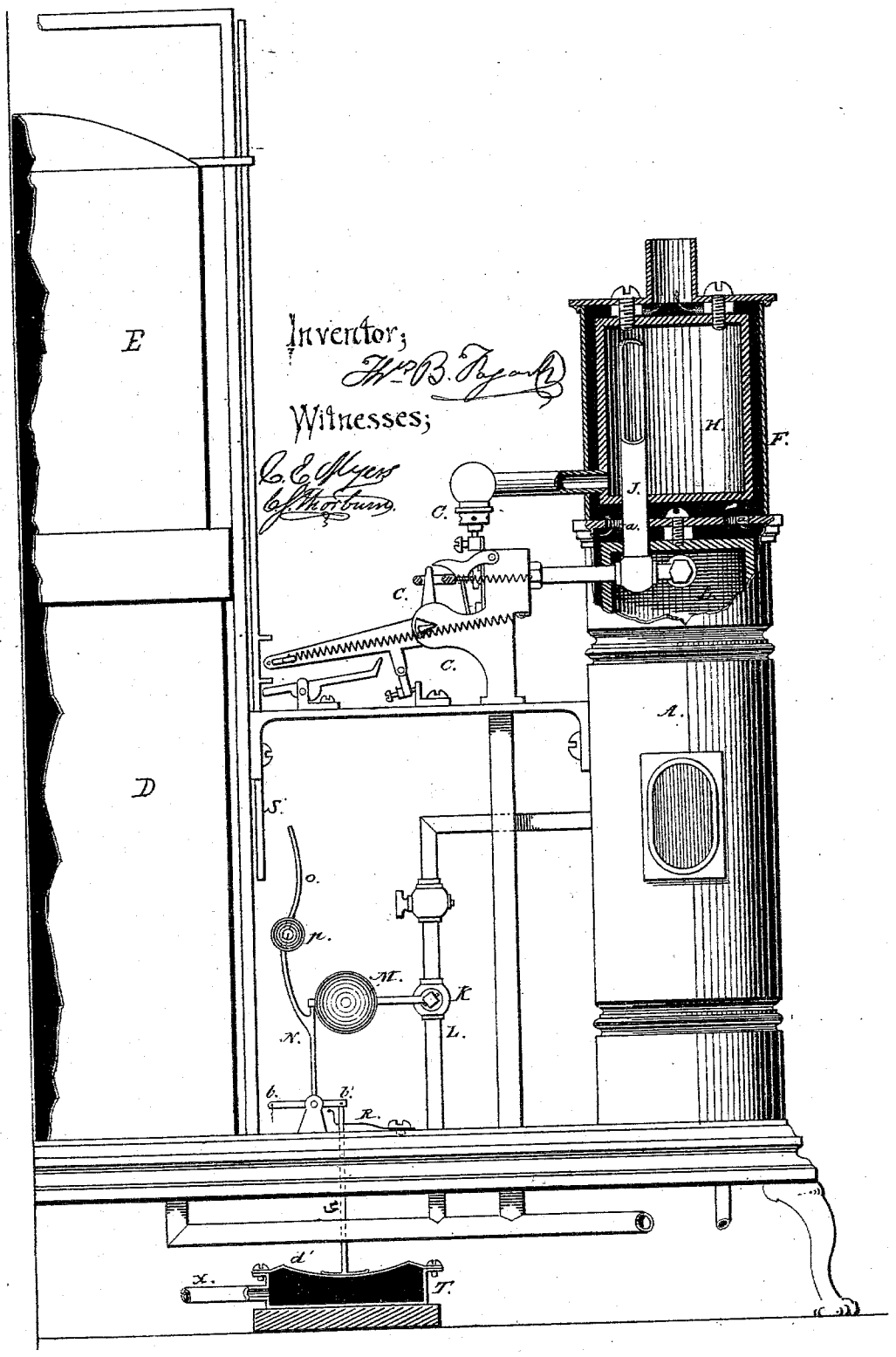
THOMAS B. FOGARTY.

Improvement in Gas-Machines.

No. 115,596. Patented June 6, 1871.



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UNITED STATES PATENT OFFICE.

THOMAS B. FOGARTY, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN GAS-MACHINES.

Specification forming part of Letters Patent No. 115,596, dated June 6, 1871.

I, THOMAS B. FOGARTY, of Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Gas-Machines, of which the following is a specification:

Nature and Objects of the Invention.

My invention relates to automatic gas-machines, in which illuminating gas is produced by generating hydrocarbon vapor under pressure in a suitable retort by the application of external heat, and afterward mixing the vapor so generated with atmospheric air; and its objects are, in the first place, to effect a more thorough union of the vapor and air; and, in the second, to enable the person in charge of the machine to stop its operation without being under the necessity of going to the building containing it for that purpose; and these objects I effect in the following manner: The first object I effect by attaching to the stove containing the retort a chamber or vessel containing a suitable heating-chamber, through which I cause the air to pass before it comes in contact with the hydrocarbon vapor or mixes with it, and where it becomes heated by the waste heat from the stove, and by this means I predispose the air to enter into a more intimate union with the vapor. I do not claim as new or make any claim to the use of heated air in making air-gas, for this has been done heretofore, and has been often described in connection with air-gas machines in which the gas is produced by forcing air over or through volatile hydrocarbon liquid, or through some porous or fibrous substance impregnated with it; but in these cases the air has been used both as a vaporizer and a diluent and vehicle of the hydrocarbon vapor; and it has been heated only as a vaporizer, and for the purpose of restoring to the hydrocarbon liquid the caloric lost by evaporation. I use the air only as a vehicle and diluent of the vapor, and I heat it only to produce a more intimate and complete union between them; but, even so, I do not claim the use of heated air in a gas-machine, although its use for the purpose specified is new. I merely claim the device for heating the air, consisting of a heating-chamber attached to the stove containing the retort of a gas-machine, in which vapor is formed under pressure by the application of external heat, and arranged so that the waste heat from the stove will heat the air passing through said chamber. The second object of my invention, namely, enabling the person in charge of the machine to stop its operation without being under the necessity of entering the building containing it, I effect as follows: Upon the pipe by which gas is conveyed to the burner under the retort I place a suitable cock, to the plug or stop of which I attach a key or lever, weighted so that it will close the cock by its own gravity. When the machine is in operation and the cock open this weighted key occupies a horizontal position, and is supported by a suitable lever capable of being withdrawn from it, so as to release it, by any suitably-arranged wire or cord or their equivalent. I do not claim as new this mode of extinguishing a gas flame, for it has been often practiced and described; but I claim that the application of such an apparatus to an air-gas machine, generating vapor under pressure by the application to a retort of heat derived from the combustion of a portion of the gas manufactured by itself, is new; and its utility consists in this, that machines of this class are usually placed at a distance from the dwelling. Many men who own such machines prefer to manage them themselves. This they are enabled to do by my device without being under the necessity of personally visiting the place where the gas-machine is located.

Explanation of the Drawing.

The drawing explains itself.

A is the stove; B, the retort; C, the valve-gear; D, the holder-tank; and E, the holder, such as are well known, and as have been described by me in my four previous specifications, filed May 1, 3, and 5, 1871, for which reason they need no present description, and are introduced merely to show the connection and general arrangement of the parts. F is the chamber attached to the retort-stove, and containing the heater H, into which the air enters at bottom through the pipe I, and which it leaves at top through the pipe J. As shown by the arrows, the heated products of combustion escape from the stove through the top openings *a a*, and, after passing around the heater, escape by the chimney K, as shown.

I do not, however, confine myself to this particular form or arrangement of heater, for it may be made of any other form equally well, even as a coil; or it may be placed at one side, or even separate from the stove, if convenient; or it may be filled internally with scraps or turnings of iron or some other good conductor of heat, or it may not; or it may be furnished upon the inside with conducting or radiating points. L is the pipe conveying gas to the retort-burner; K, a cock provided with the weighted key or lever M; and N, the lever by which M is supported in a horizontal position. As now shown the cock is represented open, and it is evident that, if the arm *b* of N be drawn down by a suitably-attached cord or wire, or *b'* be elevated by any suitable contrivance, the weight M will fall and close the cock K. I also provide N with an arm, O, and either weight this arm, as shown at *p*, or apply a spring to *b'*, as shown; the effect of which will be that the pressure of M may be adjusted so as to be sufficient to hold N in its position; but as soon as it is released from M the weight *p* or spring R will throw the end of the lever O under that of the rod S, and, by preventing it from falling, effectually lock the machine and prevent the vapor-valve from opening, so that no liquid can escape or accident happen. So I not only turn off the gas, but I also lock the machine, which, of itself, is a novel application of the device. All that is required to start the machine again is to replace N under M and light the burner, when everything will go on as before. T is an air-vessel, covered with an air-tight flexible diaphragm, *d'*, and communicating with the dwelling by the air-tube *x*, and shows another method of releasing M and stopping the machine, for by blowing into the air-tube *x* the diaphragm *d'* will be thrown up, and, by forcing the rod *y* against the arm *b'* of N, will release M and stop the machine.

In this device for operating the lever there is nothing new, for it has been described and claimed by Williams in his English patent No. 1,021, 1862; but it is claimed that its application to an automatic air-gas machine, generating vapor under pressure by the application to a retort of heat derived from the combustion of a portion of the gas manufactured by itself, is new, as well as its combination with the devices heretofore described, namely, weighted key M, lever N, arm O, and rod S.

Claims.

I claim—

1. The combination of the chamber F and heater H with the retort-stove A, constructed and operated substantially as and for the purpose set forth.

2. The cock K and lever N, constructed and operated substantially as described, and for the purposes set forth.

3. The combination of the air-chamber T and its diaphragm *d'*, air-tube *x*, and rod *y* with the lever N and cock K, constructed and operated as and for the purposes set forth.

THOS. B. FOGARTY.

Witnesses:
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JOS. T. K. PLANT.