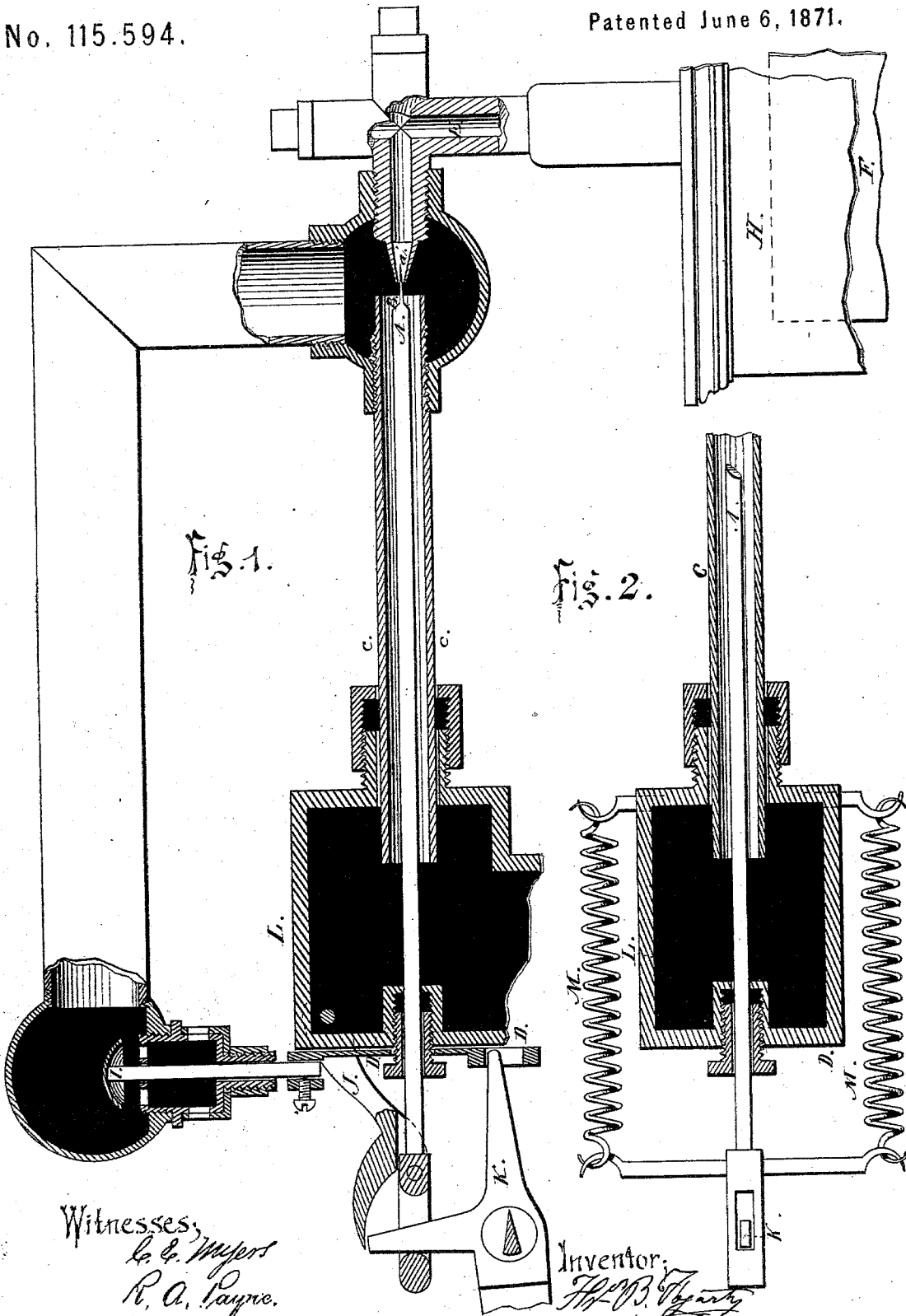


THOMAS B. FOGARTY.

Improvement in Gas-Machines.

No. 115,594.

Patented June 6, 1871.



Witnesses:  
*L. E. Myers*  
*R. A. Payne.*

Inventor:  
*Thos. B. Fogarty*

# UNITED STATES PATENT OFFICE.

THOMAS B. FOGARTY, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN GAS-MACHINES.

Specification forming part of Letters Patent No. 115,594, 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 that class of gas-machines in which volatile hydrocarbon liquid is vaporized under pressure by the application of external heat, and in which a proper supply and admixture of air are induced and maintained by the escaping force of the gas or vapor itself, the manufacture of gas and the supply thereof to the burners being regulated and controlled automatically by the rising and falling of a holder or flexible diaphragm, as already explained in the specifications of Maxim and Redley, and Manssard, and in my own specifications (cases 1 and 2) filed May 1, 1871; but it refers more particularly to the valves by which the supply of hydrocarbon vapor is regulated and controlled, and to the peculiar mode of constructing and operating the same, and its combinations with other parts, to be hereafter described or referred to. The object of my invention is to simplify the action of vapor-valves of gas-machines, such as I have described, to render them more definite and positive in their action, and to do away with the necessity of the double-seated valve described by Maxim, the use of which is attended with so much inconvenience and difficulty, or the equally complex and uncertain arrangement claimed by Strong and Reid in their patent No. 112,981, dated March 21, 1871. In both these cases the valve-stem or the actuating rock-shaft, as the case may be, before being connected with the actuating devices, is passed through a plate, or partition, or suitable bearing arranged therein, exposed to the full pressure of the vapor in the tank, often twenty-five or thirty pounds to the inch, which makes it extremely difficult to make a tight joint without creating too much friction.

On reference to Strong and Reid's drawing it will be seen that the device which they use for making a tight joint consists of placing upon the rock-shaft a valve, which is held against its seat by a spring. This creates a great deal of friction, especially when the ma-

chine has been in use for some time and the face and seat of the valve have become gummed up and perhaps incrustated with carbon. Besides, the parts are usually very hot and the spring loses its temper, so that, being loosened from its seat, the valve leaks.

Maxim uses a double-seated valve, but even with this it has been found necessary to fit the valve-stem snugly in its bearing, or a large quantity of pure vapor will escape through the joint into the machine every time the valve is opened or closed; also, the least quantity of rust, or gum, or carbon will make the stem stick fast in its bearing and stop the machine.

The object of my invention is to obviate the difficulties above described, and for this purpose I pass my valve-stem directly through the blow-pipe and connect it with the actuating devices through an ordinary stuffing-box placed directly opposite the mouth of the blow-pipe, where the pressure on the joint will not at any time exceed that of the holder, usually about one ounce to the inch. In cases where the valve-gear is placed within the holder or diaphragm I connect the valve-stem and its actuating devices directly with the holder or diaphragm, without the intervention even of a stuffing-box or of anything more than an ordinary guide post or frame. On the point of the valve, and extending from it through the jet and into the vapor-tube, I place a needle-shaped guide, the only object of which is that it may guide the valve to its seat with certainty. This needle-guide is not by any means the same as the conical double-seated valve described and claimed by Strong and Reid in the specification of their patent before referred to, for theirs is a conical valve working within the vapor-tube, regulated by the pressure at the outlet, and working continuously in the same manner as an ordinary gas-governor, to which its action is perfectly analogous, while my needle-joint merely serves as a guide to a valve working intermittently and opening or closing entirely as the holder or diaphragm rises or falls, as has been already described by me in my specifications (cases 1 and 2) before referred to.

### *Description of the Drawing.*

A, Fig. 1, is the vapor-valve furnished with the needle-guide *a'*, passing through the jet B,

against which the shoulder of A seats itself when the valve is closed. The stem of A passes entirely through the blow-pipe C and through the partition D opposite the mouth of C. E is the pipe leading from the retort to the jet. F is part of the retort, and H of the stove, both of which are so well known as not to need description. I is the air-valve and appendages already described by me in specification No. 3, filed May 3, 1871. J is the clutch, and K the lever already described in specification of case No. 4, filed May 5, 1871. L is the chamber into which the mixed gases and air are thrown, and from which they pass to the holder. Fig. 2 shows the connection of the valve-stem A, blow-pipe C, springs M, partition D, chamber L, and lever K, as already described. The retort and stove, Fig. 1, are cut off so as to show but a corner of each.

The same letters refer to the same parts in both figures.

*Claims.*

I claim—

1. A valve, A, with its needle-guide *a'* passing through the vapor-jet and working intermittently, having its stem passing directly through the blow-pipe C, and connected with the actuating devices either directly or through the partition D opposite the mouth of C, substantially as set forth.

2. The subject-matter of the first claim, in combination with the lever K, clutch J, and air-valve I, substantially as and for the purposes set forth.

Witnesses: THOS. B. FOGARTY,

C. E. MYERS,

JOS. T. K. PLANT.