C. L. VASQUEZ.

Carbureters.

No. 146,493. Patented Jan. 13, 1874.

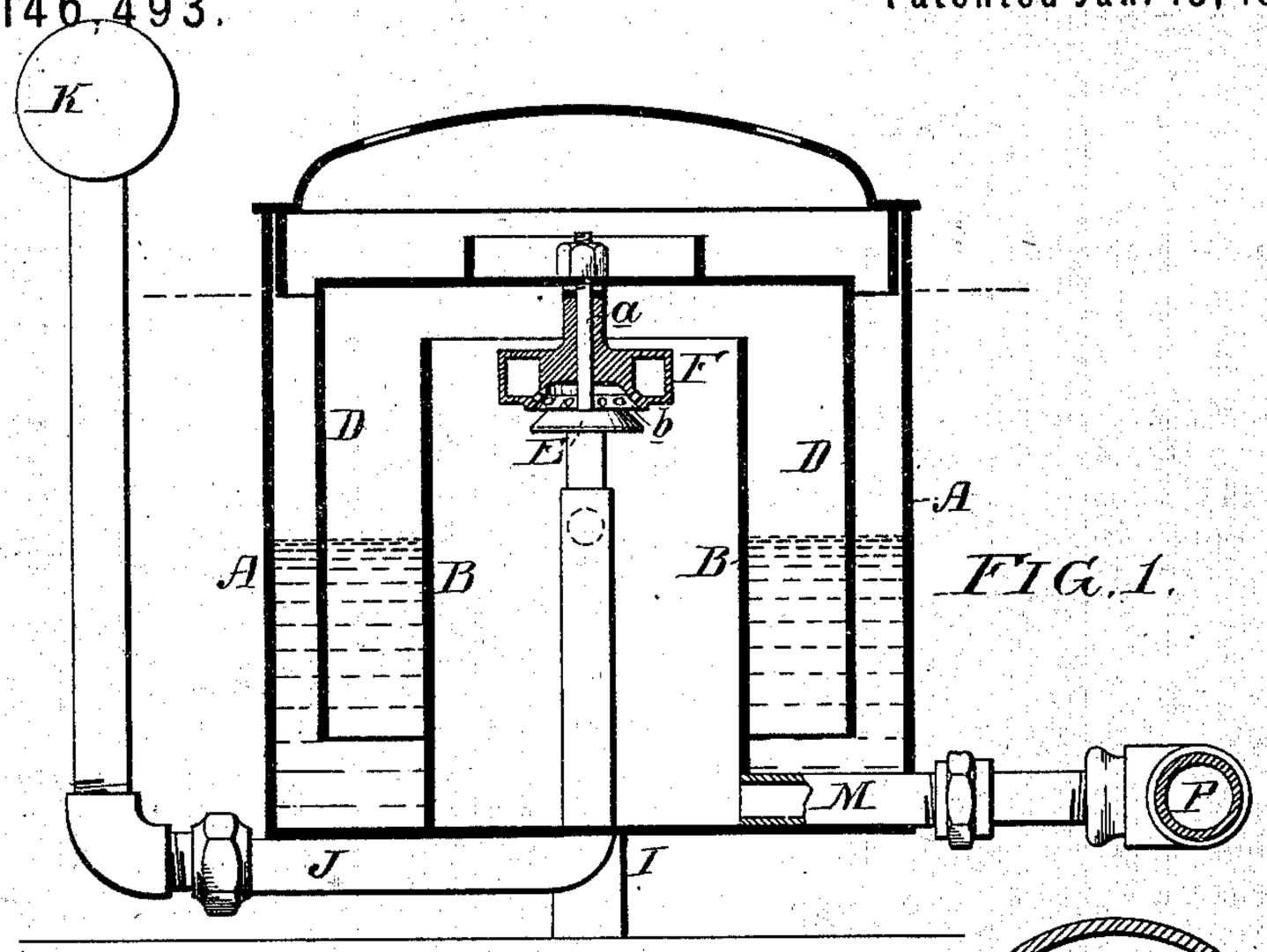


FIG. 1.

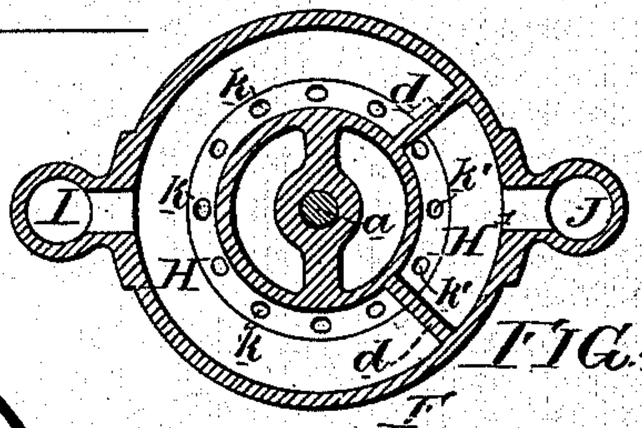
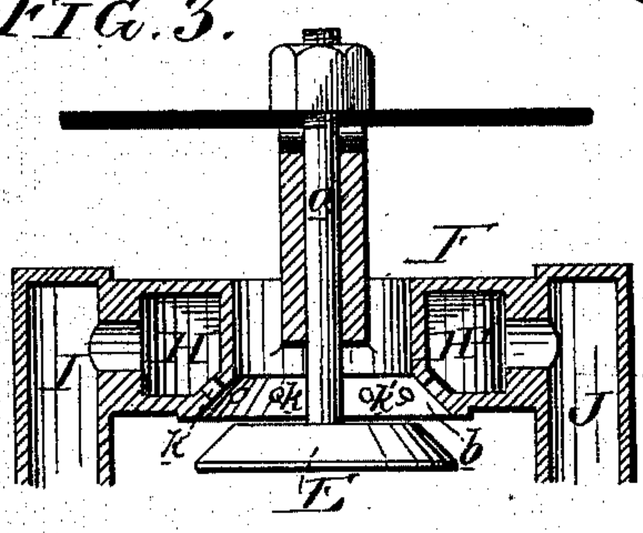


FIG. 4.

FIG. 2.

FIG. 3.



Witnesses,
Harry Smith
Thomas McIlvain

Chas. L. Vasquez
by his attys
Howson and Son.

UNITED STATES PATENT OFFICE.

CHARLES L. VASQUEZ, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND SAMUEL CROWTHER, OF SAME PLACE.

IMPROVEMENT IN CARBURETERS.

Specification forming part of Letters Patent No. **146,493**, dated January 13, 1874; application filed December 5, 1873.

To all whom it may concern:

Be it known that I, CHARLES L. VASQUEZ, of the city and county of Philadelphia, State of Pennsylvania, have invented an Improved Gas-Machine, of which the following is a specification:

My invention relates to apparatus in which illuminating-gas is produced by mixing atmospheric air and hydrocarbon vapor; and the objects of my invention are, to supply air and hydrocarbon to the apparatus in the proper relative proportions; to render the supply of both commensurate, at all times, with the demand; and to provide a cheap and efficient carbureter; which objects I attain by constructing the apparatus in the manner fully described hereafter, and as illustrated by the sectional elevation, Figure 1, sectional plan, Fig. 2, and enlarged sectional views, Figs. 3 and 4, of the accompanying drawing.

The annular space between the outer casing A of the apparatus and the inner casing B is partly filled with water, in which is immersed the lower edge of a gasometer, D, the latter being connected, by a rod, *a*, to a valve, E, the seat *b* of which is formed on the under side of an annular chest, F. The interior of this chest is separated into two segmental chambers, H and H′, Fig. 4, by partitions *d d*, and with the former of these chambers communicates the air-supply pipe I, and with the latter the hydrocarbon-supply pipe J.

Air at a uniform pressure is forced into and through the pipe I by the ordinary gas-machine pump operated by weights; and the hydrocarbon is also supplied under pressure from an elevated reservoir, K.

I have found that the proper relative proportions of air and liquid hydrocarbon for the production of good illuminating-gas are about three parts of the former to one of the latter; hence I have made the air-chamber H of about three times the capacity of the hydrocarbon-chamber H′; and the former chamber is provided with three times as many outlet-apertures *k* as the chamber H′ has outlets *k′*. The whole of these outlet-apertures for both chambers are arranged in a circle directly opposite the valve-seat *b*, so that all may be opened and closed simultaneously by the valve E, the movement of which, and consequently the regulation of the supply of air and hydrocarbon to the inner casing B, and thence, through a pipe, M, to the carbureter P and gas-pipes beyond, is entirely dependent upon the pressure within the gasometer D, an increase of pressure within the latter raising it and closing the valve and cutting off the supply, while a decrease of pressure, owing to an increased demand for gas, lowers the said gasometer and opens the valve.

The proportioning of the supplies of air and hydrocarbon to the apparatus is one of the most important features of my invention, and can be regulated to a nicety by closing some of the apertures *k*, or by forming additional apertures *k′*, if it be found that the supply of air is in excess, or by reversing this operation if too much hydrocarbon is supplied. The controlling of the whole number of outlets by a single valve, E, and the automatic regulation of the latter, are also important features, as by these means the air and hydrocarbon are supplied in proper relative proportions, whether the valve be opened slightly or to its full extent, and the total supply is always commensurate with the demand.

The hydrocarbon, in a liquid form, falls to the bottom of the casing B, and passes thence, through the pipe M, to the carbureter P, in which it is absorbed by sponge or other porous substance, *s*, and the air is carbureted in passing through said saturated substance, as in ordinary gas apparatus of this class.

The carbureter P consists of a series of pipes, *t*, screwed at their opposite ends into elbows *u*, so as to form a continuous coil, which is of great strength, can be readily taken apart to obtain access to its interior, and can be readily increased in capacity by adding additional sections.

I claim as my invention—

1. A gas apparatus provided with chambers H H′, communicating with air and hydrocar-

bon inlet tubes, and having outlets proportioned to the relative quantities of oil and air to be discharged, substantially as set forth.

2. The combination of the chambers H H′, having separate outlet-apertures *k k′*, and a valve, E, by which all the apertures can be opened or closed simultaneously.

3. The combination of the chambers H and H′, the regulating-valve E, and the gasometer D, by which the said valve is operated, as set forth.

4. A carbureter in which the pipes *t*, filled with porous material, are connected by detachable elbows *u*, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

C. L. VASQUEZ.

Witnesses:
WM. A. STEEL,
HARRY SMITH.