J. F. SPENCE.

Apparatus for Carbureting Air.

No. 57,788. Patented Sept. 4, 1866.

Fig. 2.

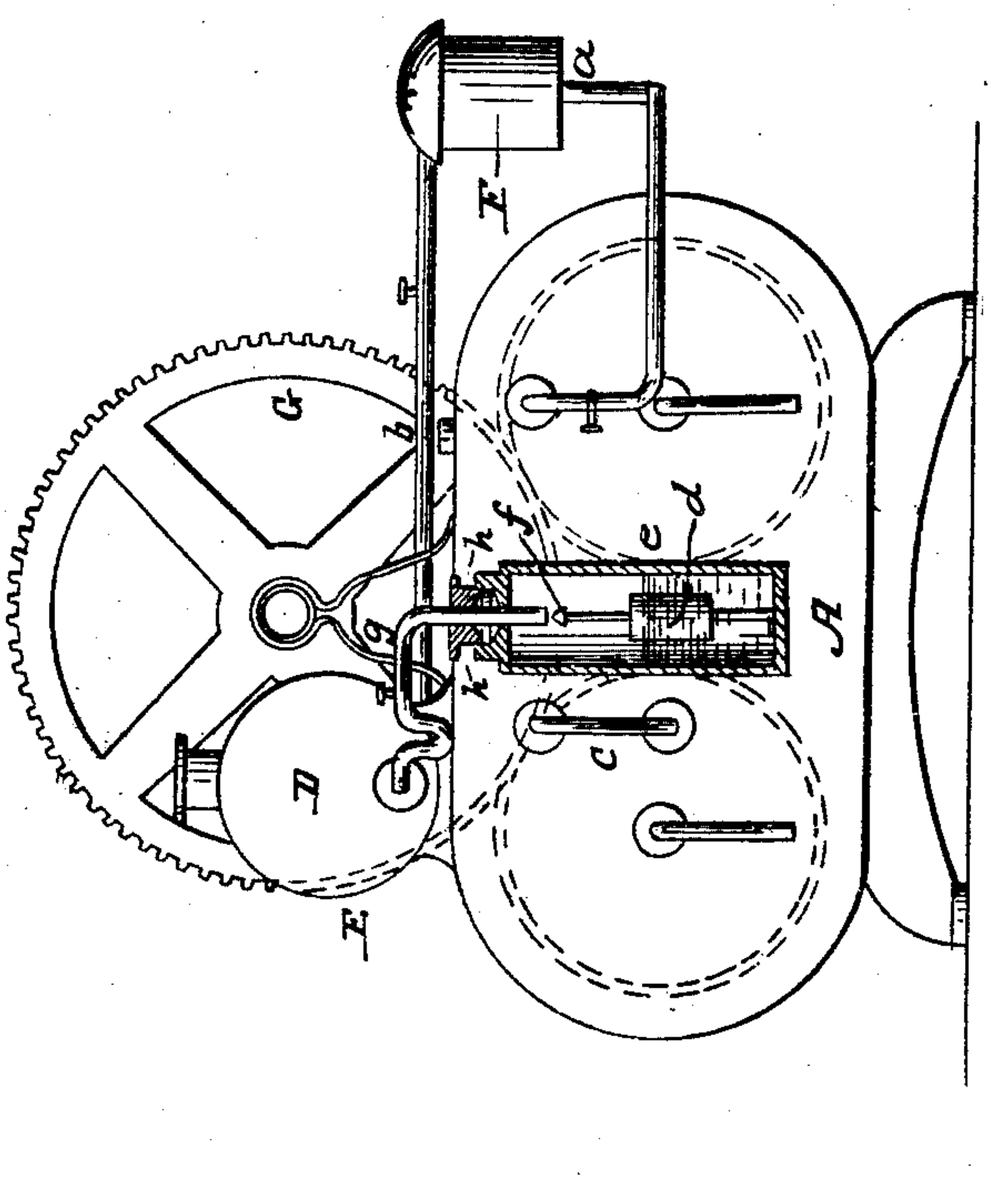
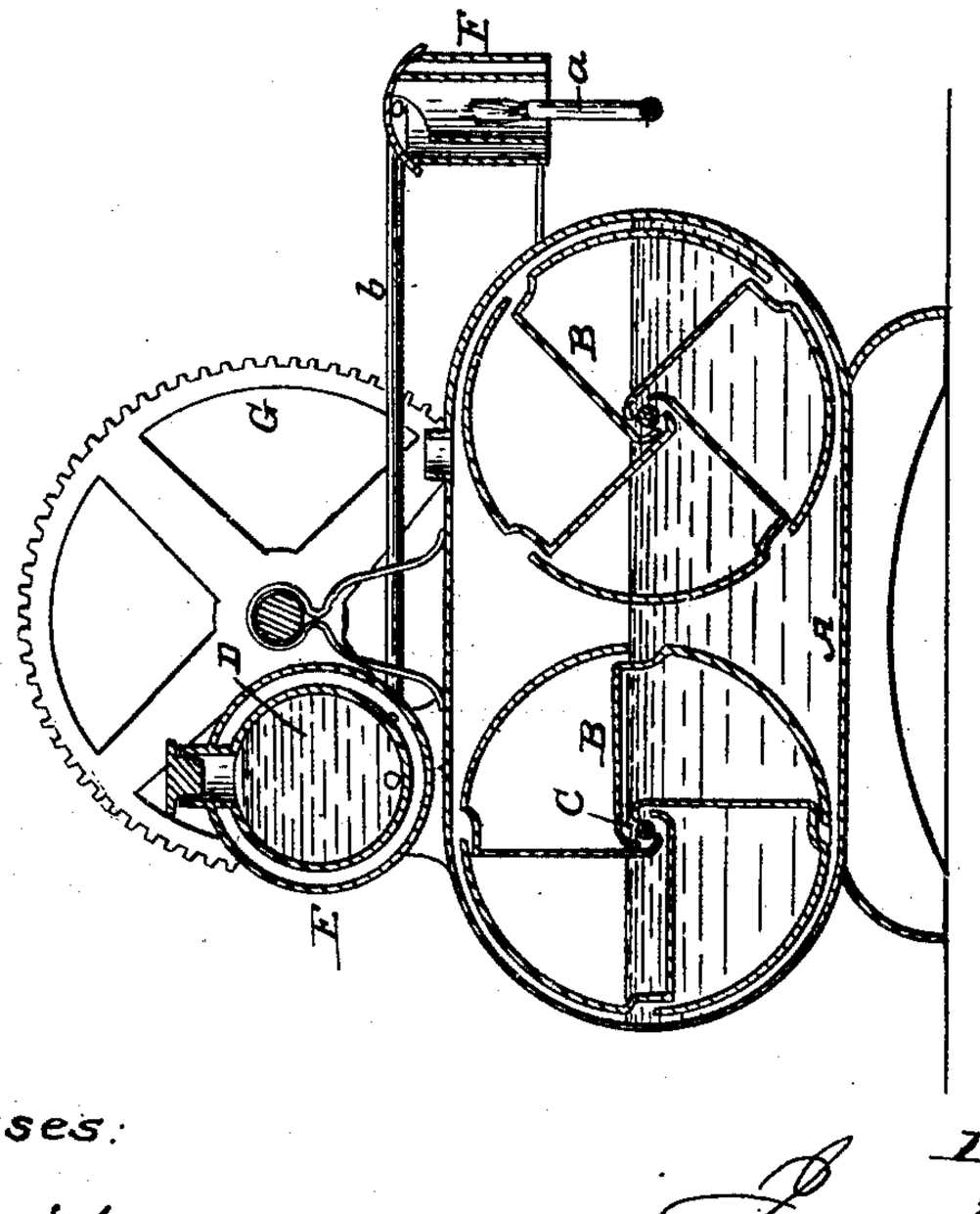


Fig. 1.



Witnesses:

J. W. B. Langston

Jas. A. Lewis.

Inventor:

James F. Spence

Per Munn & Co

Attorneys

UNITED STATES PATENT OFFICE.

JAMES F. SPENCE, OF WILLIAMSBURG, NEW YORK.

IMPROVED APPARATUS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. **57,788**, dated September 4, 1866.

To all whom it may concern:

Be it known that I, JAMES F. SPENCE, of Williamsburg, in the county of Kings and State of New York, have invented a new and Improved Hydrocarbon-Vapor Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a longitudinal section of this invention. Fig. 2 is a front view of the same.

Similar letters of reference indicate like parts.

This invention relates to a hydrocarbon-vapor apparatus in which two air-wheels are used, working in one and the same case, and operating, in combination with said case, in such a manner that a steady light is produced without the aid of a gas reservoir or holder.

The supply oil-vessel is provided with a jacket to receive steam or hot air in such a manner that the oil is heated before it is admitted to the machine, and the formation of the illuminating mixture is considerably facilitated. The hot air is generated in a chamber attached to the machine, and heated by a burner supplied with gas from the machine. The quantity of oil contained in the machine is regulated automatically by a float carrying a stop-valve, which closes the mouth of the feed-pipe as soon as the liquid in the machine has reached the desired height.

A represents a case, made of sheet metal or other suitable material, made in the form of an oblong or flattened cylinder, and capable to receive the two wheels B B, which are mounted on hollow axles C C. These wheels are constructed like the wheels of ordinary gas-meters, and they are supplied with air, hot or cold, or with steam, through their hollow axles. The case A is supplied with hydrocarbon liquid from a supply-tank, D, which is surrounded by a jacket, E, so that by admitting steam or hot air to said jacket the hydrocarbon liquid is heated before it is admitted to the case, so as to facilitate the formation of the illuminating mixture.

In order to simplify and cheapen the apparatus, I have connected with the case a hot-air chamber, F, composed of an inner cylinder surmounted by an air-jacket and heated by a burner, *a*, which is supplied with gas from the machine. The air thus heated in the air-chamber F is conducted to the jacket E through a pipe, *b*.

The oil or liquid in the case A is permitted to rise to a suitable height above the axles of the wheels B B, as indicated in Fig. 1, and a glass gage, *c*, enables the operator to observe the level of the liquid from the outside.

The supply of liquid to the case is regulated automatically by a float, *d*, which is inclosed in the cylinder *e*, and from which rises a valve, *f*, that is intended to close the mouth of the supply-pipe *g* whenever the liquid in the case has reached the desired level. The supply-pipe *g* enters the cylinder *e* through a stuffing-box, *h*, and it is so arranged that it can be raised or depressed, so that the level of the liquid in the case A can be adjusted according to the nature of the hydrocarbon used.

The wheels B B are set in motion by the action of a large driving-wheel, G, which gears in two cog-wheels mounted on the axles of the wheels B B, and said wheels are so arranged that if the bucket of one just rises from the liquid the corresponding bucket of the other is already half-way out, or, in other words, they are placed at an angle of forty-five degrees toward each other, and thereby the current of gas produced by the machine is rendered perfectly uniform, and a steady light is obtained without the use of a gas holder or regulator.

If only one wheel is used, the current of gas produced by the machine becomes unsteady and the light flickers.

If desired, one of the wheels B may be supplied with air and the other with steam, or both may be supplied with air, either hot or cold.

By these means a simple and compact apparatus is obtained, which can be used with great advantage in dwelling-houses or in public buildings, and the illuminating mixture produced by the same is much cheaper than common street-gas.

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

1. The case A, provided with two or more

air or steam wheels, B B, working in the liquid in conjunction with each other, substantially as and for the purpose set forth.

2. Heating the oil before it enters the machine by the jacket E, surrounding the supply-tank D, in combination with a hot-air or steam pipe, *b*, or any other suitable means, substantially as and for the purpose described.

3. The hot-air chamber F, in combination with the burner *a*, case A, and jacket E, constructed and operating substantially as and for the purpose set forth.

4. The float *d*, provided with a valve, *f*, in combination with the liquid-supply pipe *g* and case A, constructed and operating substantially as and for the purpose described.

The above specification of my invention signed by me this 19th day of May, 1866.

JAMES F. SPENCE.

Witnesses:
WM. F. MCNAMARA,
W. HAUFF.