2 Sheets. Sheet 1.

J. D. Spang,

Carburetor.

No. 109148. Patented Nov. 8. 1870.

Fig. 1.

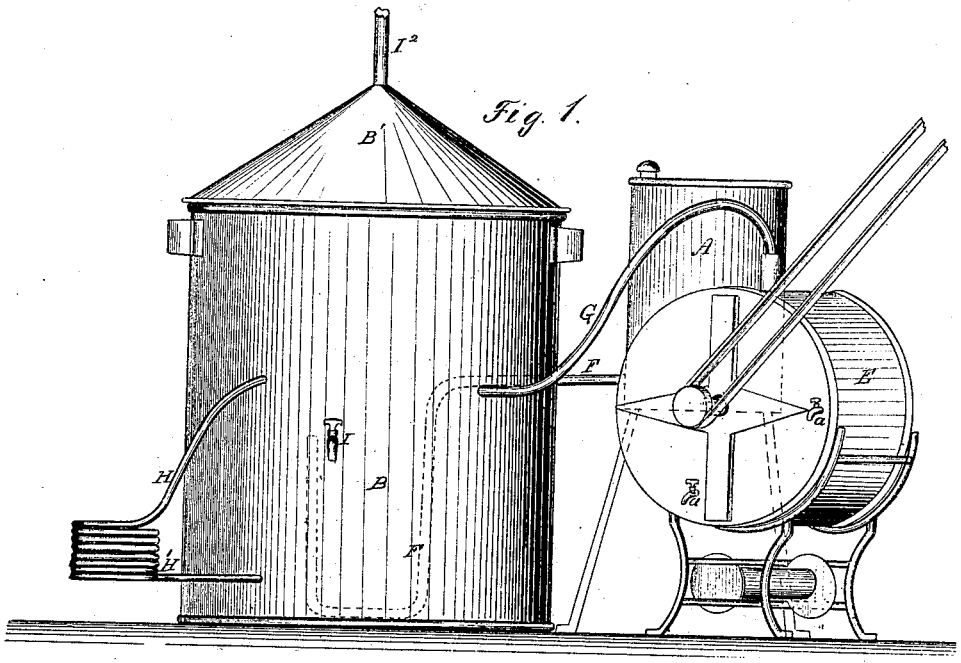
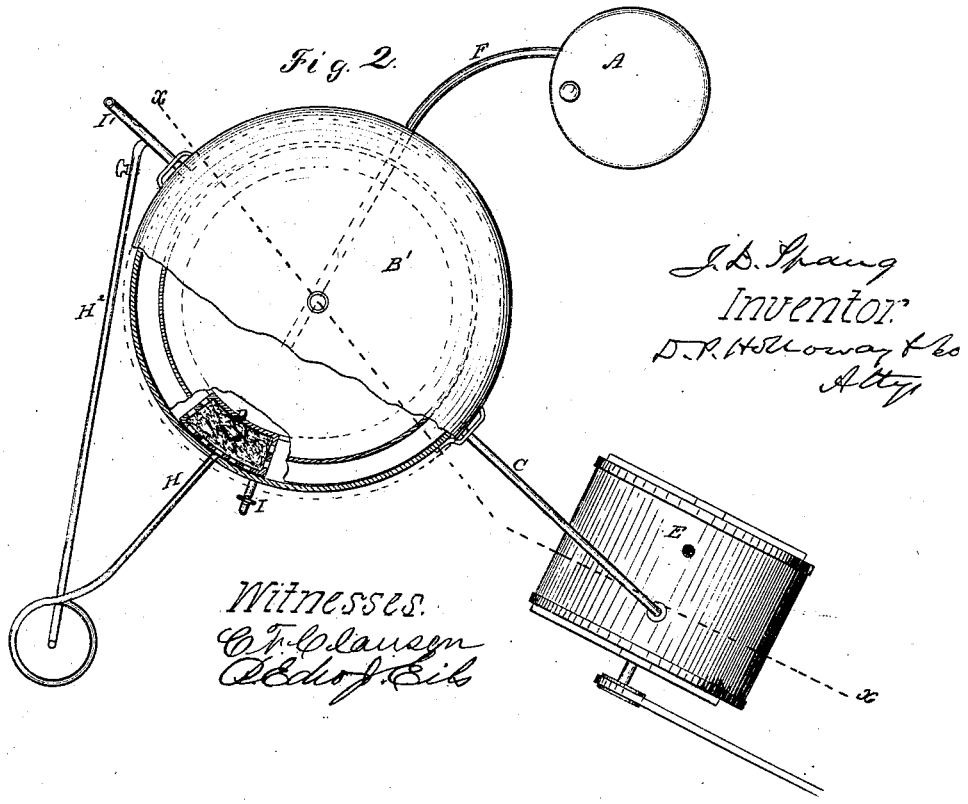


Fig. 2.



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2 Sheets, Sheet 2.

Carburetor.

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Fig. 3.

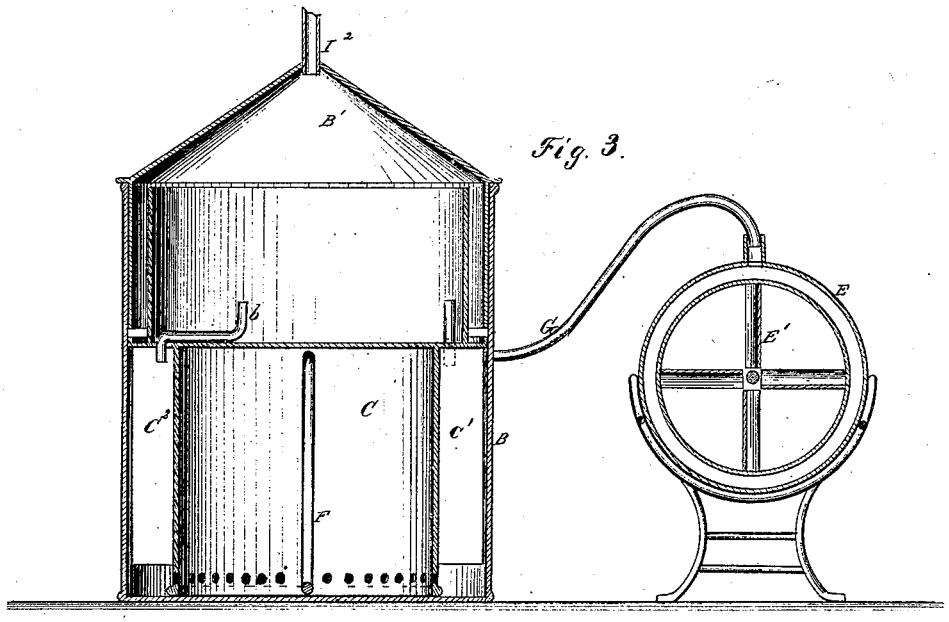


Fig. 4.

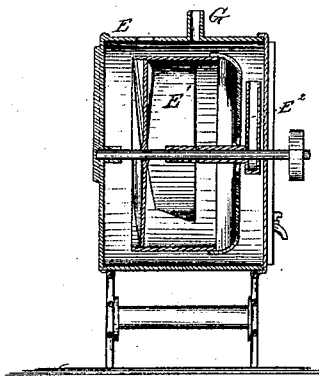


Fig. 6.

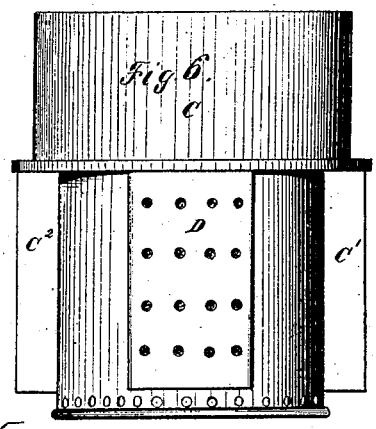
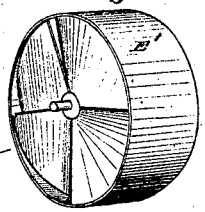


Fig. 5.



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United States Patent Office.

JACOB D. SPANG, OF DAYTON, OHIO.

Letters Patent No. 109,148, dated November 8, 1870.

IMPROVEMENT IN APPARATUS FOR CARBURETING AIR.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JACOB D. SPANG, of Dayton, in the county of Montgomery, and in the State of Ohio, have invented some new and useful Improvements in Contrivances for Generating Gas; and I do hereby declare the following to be a full, clear, and exact description of the same, references being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is an elevation of my improved contrivance, showing the tank which contains the material to be converted into gas, and in which the gas is purified, the coil of pipe in which the material is heated, the tank for containing the supply of oil, the fan or pump for supplying the air, and the pipes for connecting the parts to each other.

Figure 2 is a plan view, with a portion of the cone broken away, so as to show the arrangement of the sponge-chamber.

Figure 3 is a sectional elevation on line X X of fig. 2.

Figure 4 is a sectional elevation of the fan or pump for supplying air, showing its interior arrangements.

Figure 5 is a perspective view of the rotating portion of the fan or pump.

Figure 6 is an elevation of the vessel, which is placed inside of the gasometer, and which contains the sponge-chamber and gas-reservoir.

Corresponding letters refer to corresponding parts in the several figures.

This invention is intended as an important improvement upon the gas-machines patented to Andrew R. Spang and Daniel F Sheaf, September 21st, 1869, and that of Daniel F. Sheaf, of January 7th, 1868; and

It consists in a pump for forcing air into the generator, and in the combination and arrangement of some of the parts of which the contrivance is composed, as will be more fully explained hereinafter.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A in the drawing refers to a tank, which is to contain gasoline, or other hydrocarbon oils. It may be of any desired size, and is to be so placed that its contents will flow into the oil-reservoir in the gasometer B, through a pipe arranged for that purpose, said gasometer consisting of a cylindrical vessel, of any suitable diameter or length, it being provided with the usual movable cone B', as shown in fig. 3, said cone being arranged in the usual manner, so as to admit of increasing and decreasing the capacity of the gas-reservoir at will.

C refers to a vessel which is placed in the vessel B, it consisting of an upper compartment for containing gas, a lower one for oil, and around or upon its lower portion chambers, C^1, C^2, and D, the two first for containing and giving direction to the gas, and the last for containing sponge, for aiding the vaporization of the oil.

All of the above-named parts are similar in their construction and arrangement to those in the parts above referred to, except that the lower portion of vessel C is provided with a series of perforations around its lower end, for the passage of the gasoline from its interior to the chambers upon its sides, and, as this feature is the only one claimed in this case, it is not regarded as necessary to give a more minute description of them here.

E in the drawing refers to an air-pump of novel construction, and which forms a portion of my invention.

It consists of a cylindrical vessel, of the required length and diameter, it being supplied with heads, fitting air and water-tight to its ends.

One of the heads of this cylinder is supplied with two try-cocks, *a a*, placed at different heights, for the purpose of determining the height of the water in the case.

Within this case is placed a revolving hollow cylinder, one end of which is provided with a head, which is divided into four or more parts, one portion of each of the sections being bent inward, so as to give somewhat the appearance of a propelling-wheel, or so as to leave passages of the air to the interior of the cylinder, as shown in fig. 5.

This other end of this cylinder is provided with a tight head, except that it has an aperture at its center for the escape of the air, which is drawn in at its opposite end. This cylinder is supplied with a shaft, which has its bearings in the heads of the outer cylinder or casing, said shaft being provided with a pulley, over which a belt passes, for the purpose of rotating it.

In order that the outer case may be partially filled with water, for the purpose of being converted into spray, to be mingled with the air before such air is impregnated with the vapor of the gasoline or oil, there is placed around the shaft of the air pump a socket, E^2, as shown in fig. 4, it having upon its outer end a reservoir or chamber, which rises above the water, and, being made water-tight, prevents any water from entering the interior of vessel or cylinder F.

The operation of this part of the pump is as follows:

The cylinder E^1 being rapidly rotated by means of the belt passing over a pulley upon the outer end of its shaft, air is driven in through an opening in the outer case, which, owing to the form of the open head of the cylinder enters it, and is expelled through the space around the socket E^2, from whence it passes out of the outer case through a pipe, G, through which

it is conveyed to the oil-reservoir, it having been charged with the vapor of the water in the case E of the pump.

H refers to a pipe which enters the chamber D, which contains the sponge, at a point just below where the flange upon vessel C divides the oil from the gas-chamber, from which point it extends outward and downward, as shown in fig. 1, to a point near the lower end of the gasoline-chamber, where it is formed into a coil, and from which it is carried back to, and made to enter the oil-chamber near its bottom, the object of this particular arrangement of the pipe being that the heavy portions of the gasoline or oil shall enter the pipe first, and thus be converted into gas, for which purpose there is provided a pipe, H^2, which leads from the outlet-pipe for gas, which extends to and has a burner in its outer end and directly under the coil, so that the heat arising from the gas burned at that point shall vaporize the material in the coil, and cause such vapor to pass into one of the chambers C^1, where it mingles with the air and vapor of water, from which point it passes up through pipes *b* into the gas-reservoir, from whence it may be taken for use through pipe I^2, or it may be caused to pass down through pipe C into contact with the oil in the reservoir, and out through pipe I or I^1 for use.

Having thus described my invention,

What I claim, and desire to secure by Letters Patent, is—

1. The within-described pump for forcing air, which has been impregnated with the vapor of water, into the oil or gasoline-chamber of a gas-generating contrivance, substantially as and for the purpose set forth.

2. The perforations in the lower portion of the gasoline or oil-chamber, substantially as and for the purpose set forth.

3. The arrangement of the pump E, the oil-reservoir A, and oil-chamber C, it being such that the oil is delivered to the interior of the reservoir at the same time that air is being delivered to the chamber C upon its outer surface, substantially in the manner shown.

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

JACOB D. SPANG.

Witnesses:

THEO. CURNICK,

ROBERT MCREYNOLDS.