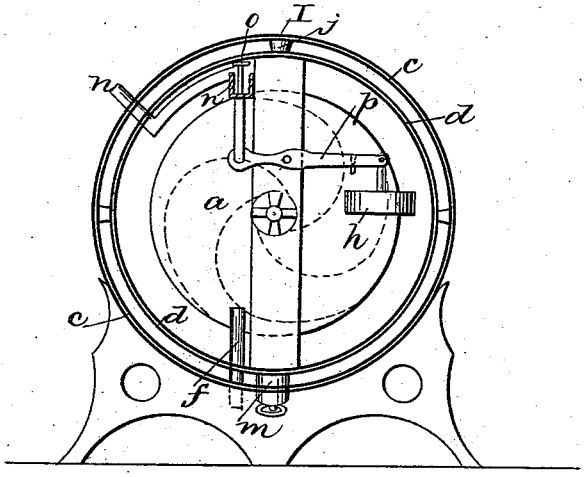
2 Sheets—Sheet 1.

J. H. VAN HOUTEN.

Gas Machine.

No. 109,568. Patented Nov. 22, 1870.

Fig: 2.



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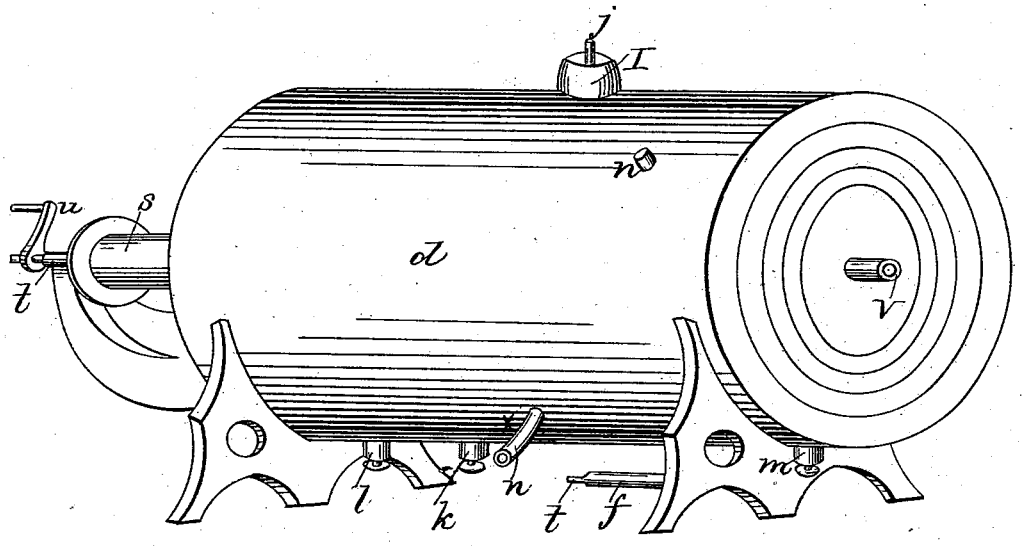

Witnesses.

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A. & H. Johnson

Inventor.

James H. Van Houtens
By his attorneys
Wiedersheim & Norris

2 Sheets—Sheet 2.

J. H. VAN HOUTEN.

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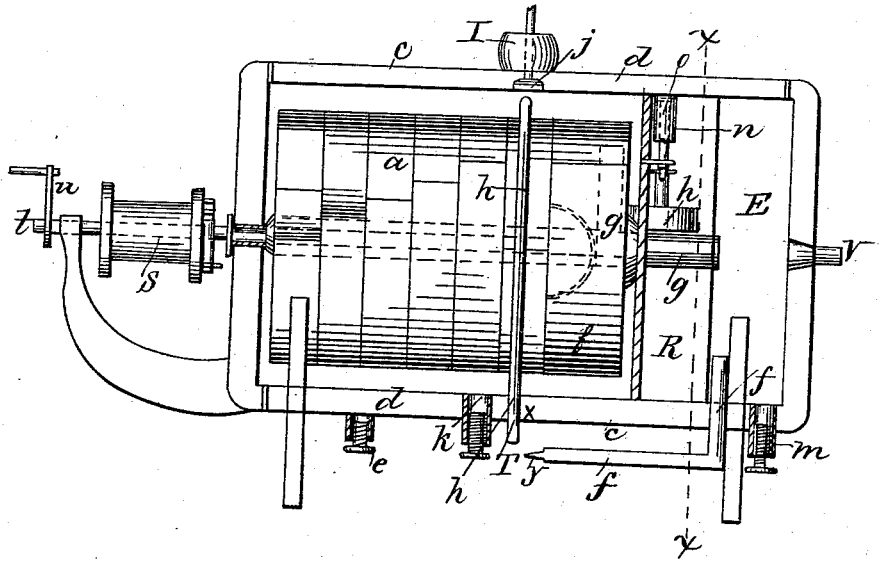
Fig: 4.

Fig: 3.



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Inventor.
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By his attorneys
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United States Patent Office.

JAMES H. VAN HOUTEN, OF NEWARK, NEW JERSEY.

Letters Patent, No. 109,568, dated November 22, 1870.

IMPROVEMENT IN GAS-MACHINES.

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

I, JAMES H. VAN HOUTEN, of the city of Newark, State of New Jersey, have invented certain Improvements in Gas-Machines, of which the following, in connection with the accompanying drawing, is a specification.

Figure 1 represents a gas-machine combining my improvements set up ready for use.

Figure 2 is a view from the end upon the right of fig. 1, with the head removed and showing portions of my improvements.

Figure 3 is a view showing the internal arrangement of various parts of the machine.

Figure 4 is a ratchet and pawl connected with the spool *s* upon the left end of figs. 1 and 3.

a is an air-carbureting wheel having upon one end a drum, *b*. These wheels are made in various ways, and are used in many other machines of a like character.

My machine differs from others in that it has two cylinders, one within the other, as shown in figs. 2 and 3, the lines *c c* being the outside cylinder, and the lines *d d* representing the inside cylinder, which also has a drum marked *e*.

The inside cylinder, *d*, is designed to contain given quantities of water and gasoline, or other carbon fluid, into which the wheel *a* revolves.

The outside cylinder, *c*, is designed to be filled with water, thus completely surrounding the inner chamber *d*, and rendering it fire-proof and non-explosive.

f is a pipe extending from the drum *e* through both cylinders, having on the outside, under the machine, a gas-burner, which, in latitudes where the temperature would make it necessary, may be kept burning for the purpose of heating the liquid contained between the two cylinders *c* and *d*, and also the air-pipe *h*, so that hot-air may be introduced, if required.

h is the air-pipe, which is secured upon the inside of the inner cylinder, beginning at a point near the top of the same and protruding through the bottom, or at a point near the bottom of both cylinders.

Near the end of the pipe *h*, outside of the cylinders, is a cock, *x*, for the purpose of regulating the draught of air in proportion to the number of lights burning.

i is the aperture through which both the cylinders *c* and *d* are filled.

j is the valve which closes the inside cylinder *d*, which, of course, must be removed when it is being filled.

k is the outlet for drawing the fluid from the inside cylinder *d*.

l is an outlet for drawing the water from the outside cylinder *c*.

m is an outlet to the drum *e* for the purpose of drawing off all settlings from condensation.

n is the automatic feed-pipe.

o is the valve.

p is a lever, to which is attached the float *r*, which operates the valve *o*, and, when the fluid rises to a given point, closes it, and stops the flow.

This automatic valve and float are arranged in a space, R, between the carbureting wheel and the gas-chamber *e*, so as not to interfere with the revolution of said wheel.

s is the spool upon which is wound the cord which suspends the weight which drives the wheel *a*.

The spool *s* is loose upon the main shaft *t*, while the ratchet shown in fig. 4 is keyed fast to the same.

The pawl, also shown in the same figure, is fastened to the spool *s*, and when the weight is wound up by means of the crank *u*, the pawl catches in the ratchet and thus turns the wheel *a*.

v is the outlet by which the gas is distributed for use.

One of the advantages in my machine is that the gas is made in the wheel *a* without going into a carbureter, as in other machines, and passes from the wheel *a* into the drum *b*, and from thence through the air-pipe *g* into the drum *e*, and from thence is distributed through the pipe *v* for use, thus entirely dispensing with a carbureter.

Another important advantage is the mixture of water with the carbon fluid, which enables me to get a purer and better light with less smoke and less liability to explode.

I have found that gasoline may be reduced as low as five or six parts water and one part gasoline, and yield a much purer and better light than pure gasoline.

Having thus described my invention,

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

1. The feed-pipe *n*, the automatic valve *o*, and the float *r*, arranged at the end of the air-carbureting wheel, for the purpose described.

2. The induction air-pipe *h*, the gas-pipe *f*, the burner *y*, and the water-inclosing cylinder *c*, arranged in relation to each other so that the water-inclosing cylinder and the induction air-pipe will be heated by one and the same burner, as shown and described.

3. The air-pipe *h*, the gas-burner *y*, the air-wheel *a*, and the gas-supply chamber *e*, arranged in relation to each other that either heated or cold air may be introduced into the carbureting-wheel, as may be desired.

4. The removable valve *j* of the inner fixed cylinder, with its stem projecting through the outer fixed cylinder for the purpose described.

JAMES H. VAN HOUTEN.

Witnesses:

OLIVER DRAKE,

ABRAHAM MANNERS.