B. B. Douglas.

Carburetor.

No. 104,126. Patented Jun. 14, 1870.

Fig. 3.

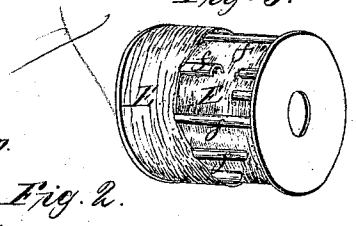


Fig. 4.

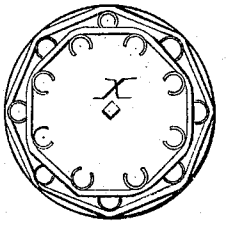


Fig. 2.

Fig. 5.

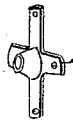


Fig. 1.

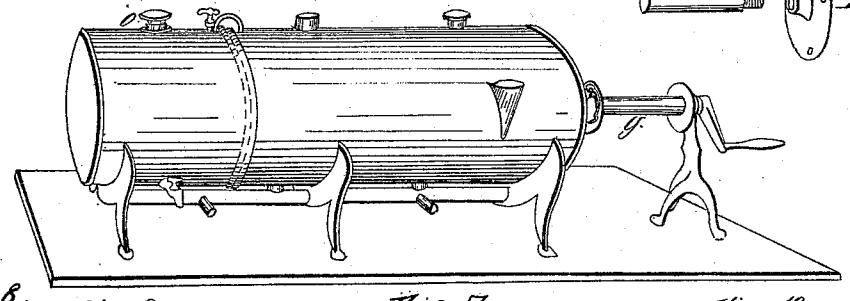


Fig. 6.

Fig. 8.

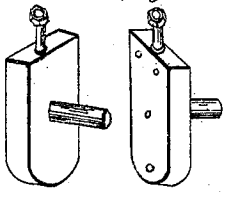


Fig. 9.

Fig. 7.

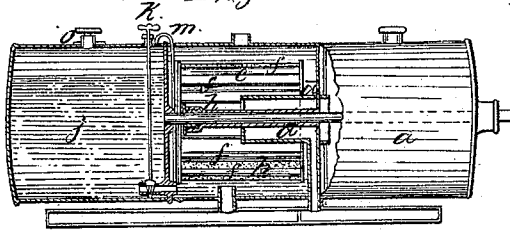
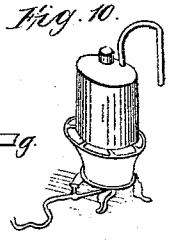


Fig. 10.



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United States Patent Office.

BAILEY B. DOUGLAS, OF NEWARK, NEW JERSEY.

Letters Patent No. 104,126, *dated June* 14, 1870.

IMPROVED HYDROCARBON-VAPOR MACHINE FOR ILLUMINATING PURPOSES.

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, BAILEY B. DOUGLAS, of Newark, county of Essex and State of New Jersey, have invented certain Improvements in Hydrocarbon-vapor Machines for Illuminating and Heating Purposes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

Figure 1 is a perspective view of the machine, having three compartments combined in one cylinder.

Figure 2 is a perspective view of the machine, having the reservoir detached, and showing the automatic feed.

Figure 3 is the carbureting-wheel, showing the buckets partially covered with the absorbents.

Figure 4 is an inside end view of the same wheel.

Figures 5 and 6 are flanges secured to the disks of the air-wheel, in which the main shaft is screwed, thus making it in two sections, and obviating the necessity of its passing through the water, &c.

Figure 7 is a view showing the internal arrangement of the machine represented in fig. 1.

Figure 8 is a perspective view of the air-chamber.

Figure 9 is another view of the same, showing the position of the screws by which it is fastened to the end of the water-tank, as shown also in fig. 2.

Figure 10 is a view of the boiler for generating steam, by means of which the water is kept warm in cold weather, and aiding in the evaporation of the carbon.

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

In the first place I construct a metallic cylinder, of any desired dimensions, divided into three compartments, as shown in figs. 1 and 7.

The first compartment *a* is the water-tank, in which also the air-wheel revolves.

The second or middle compartment, marked *b*, is the carbureting-chamber, in which also the carbureting-wheel *c* revolves, and into which the air is forced through a tube, marked *d*, passing into the center of the carbureting-wheel *b*, and is thus forced through the absorbents *e*, (shown more clearly in fig. 3,) which, being constantly revolved, is kept saturated with the hydrocarbon, which is taken up and discharged by the buckets or troughs *f* attached to the two disks of the carbureting-wheel *c*. Thus the air, being forced into and from the center of the carbureting-wheel, through the absorbents, must of necessity be thoroughly impregnated with the hydrocarbon.

The carbureting-wheel is constructed by having two metallic disks connected, by means of a series of buckets or troughs, arranged in two tiers, one within the other, each tier being covered with felt or other absorbent, as is clearly shown in figs. 3 and 4. The center of this wheel may also be packed with sponge or other absorbent.

This wheel is made to revolve by means of the main shaft *g*, which passes through the wheel, and is secured to its outside disk at *x*, and shown at center of fig. 4. The air-tube passes into the center of this wheel, through its opposite disk, and forms the axis upon which the wheel revolves, as shown in figs. 3 and 7.

Through the center of the air-tube and of the wheel passes a sleeve, on one end of which is a packing-box, to prevent any water from passing into the carbureting-chamber, which may accidentally get into the sleeve from the water-tank, and also as a further preventive.

The lower section of the air-tube, inside of the carbureting-chamber, is closed, and an escape is provided through which the water may pass out at the bottom of the cylinder, as shown at *d* and *i*, in fig. 7.

The third compartment, marked *j*, is the reservoir for the hydrocarbon fluid, and should be air-tight, as should also the whole cylinder.

Connected with and to this reservoir is an automatic or self-acting feed, which is constructed in the following manner:

Near the bottom of the chamber *j* is placed a pipe, *l*, horizontally, and leading into the carbureting-chamber *b*, which allows the fluid to pass into the chamber *b* until the end of the vent-pipe *n* is covered, thus keeping the chamber *b* filled to a uniform height, and supplying the fluid as fast as it is absorbed, and no faster.

In order to secure this most important result, I insert the vent-pipe *n* in the top of the chamber *j*, at *m*, and, turning it, pass it down inside of the chamber *b*, and terminating it at a point above or near the feed-pipe *l*, where it is desired to have the carbon rise to in the carbureting-chamber.

To provide for filling the fluid-chamber *j*, an aperture is made in the top of the chamber, at *o*, and is stopped by a screw-plug, or its equivalent.

While the reservoir *j* is being filled, the feed-pipe *l* should be stopped, which is provided for by the stop-cock *k*.

The air-chamber is made a suitable shape and size, and is secured to the inside of the chamber *a* by means of adjustable screws, or their equivalent, as is clearly shown in figs. 2 and 9. This mode of securing the air-chamber to the water-tank I consider important, as it obviates the necessity of soldering, and affords greater facilities for detaching the air-chamber, and other parts of the machine, when necessary so to do for repairs or other purposes.

Thus far my descriptions have been confined mainly to the machine as represented by figs. 1 and 7. I will now endeavor to describe more particularly the construction and arrangement of the machine as represented by fig. 2.

a is the water-tank, which is made of metal, in the form indicated in the drawing, having a flat top, firmly secured, upon which rests horizontally the carbureting-chamber *b*, and is connected with the air-chamber by means of a pipe, *u*.

The carbon-fluid chamber *j* may be made any shape and size which may be desired, and may be placed at any distance from the water-tank and carbureter, either in the building or out of it, under or on top of the ground, on a level with the carbureting-chamber *b*, or at any desired angle above it.

The automatic feed is arranged substantially as above described, and as indicated in fig. 2, except that the vent-pipe *n* leads down outside of the reservoir, and along the feed-pipe *l*, and, turning upward, enters the chamber *b* at a point just below the air-tube *u*, and terminating at the required point, as hereinbefore described, or the vent-pipe may enter the chamber *b* at another point, and at any given angle from it, and above it.

By this arrangement the objections which may be urged by insurance companies and others, on account of danger, are entirely overcome, and thus making, as I believe, the most perfect and reliable hydrocarbon-vapor machine ever yet invented.

I disclaim the Letters Patent granted to R. H. Plass, September 15, 1868, and those to Foster & Ganster, March 31 and December 15, 1868.

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

1. The carbureting-wheel, consisting of two or more tiers of transverse troughs, arranged alternately to each other, and open inwardly, and provided with suitable fibrous material, and operating as set forth.

2. The tube *d*, constructed as described, and projecting into the carbureting-wheel, to operate substantially as and for the purpose described.

3. The mode of attaching the main shaft *g* to the air-wheel, by means of the two flanges shown in figs. 5 and 6, substantially as and for the purposes herein set forth.

4. The mode and manner of attaching the air-chamber to the inside of the water-tank *a*, as shown by figs. 2 and 9, substantially as and for the purposes herein set forth.

5. The whole combination and arrangement, substantially as and for the purposes herein set forth.

BAILEY B. DOUGLAS.

Witnesses:

JULIUS VAN WAGENEN,

OLIVER DRAKE.