

D. McDONALD.

Apparatus for Carbureting Air.

No. 57,442.

Patented Aug. 21, 1866.

Fig 1.

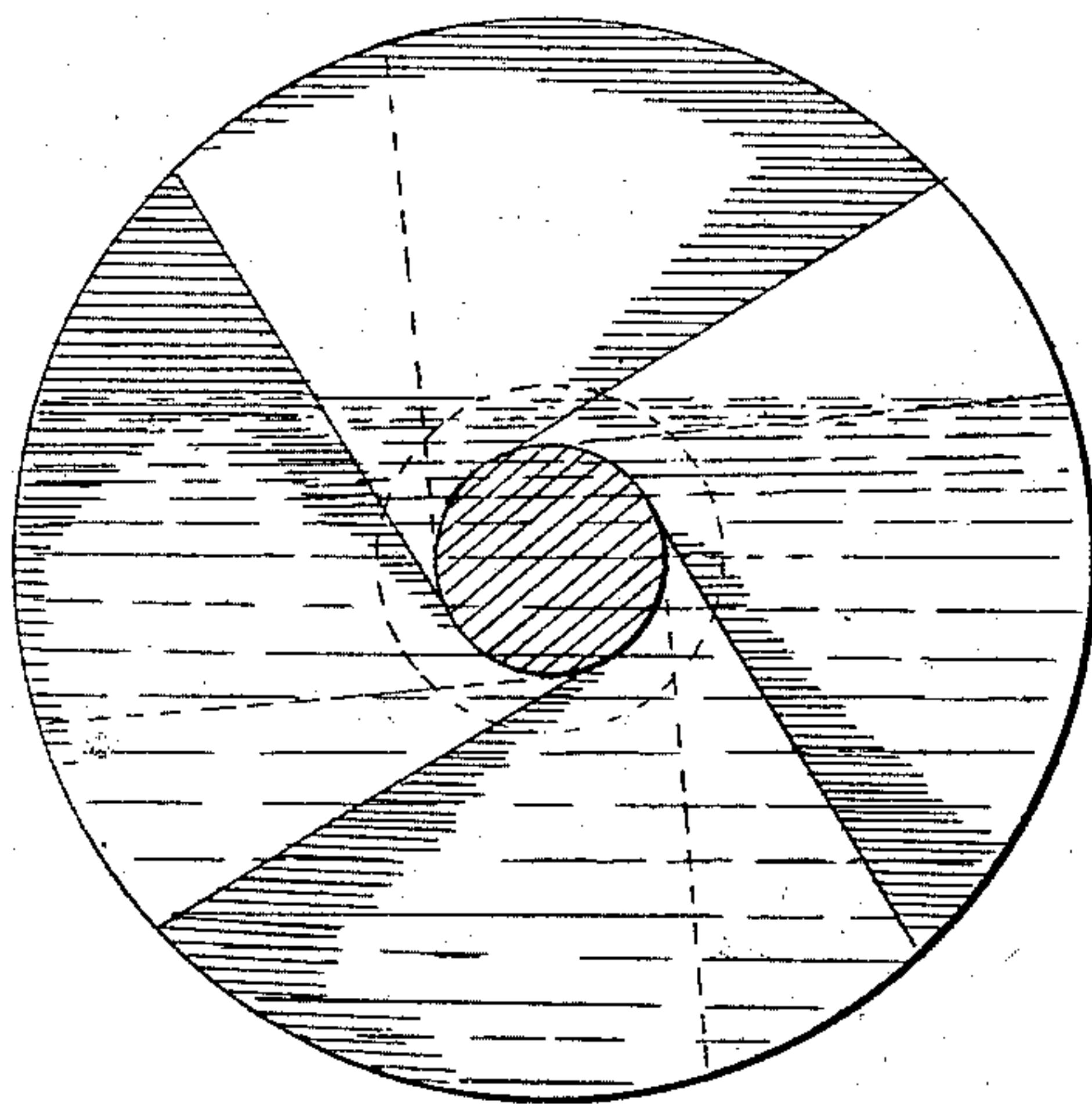
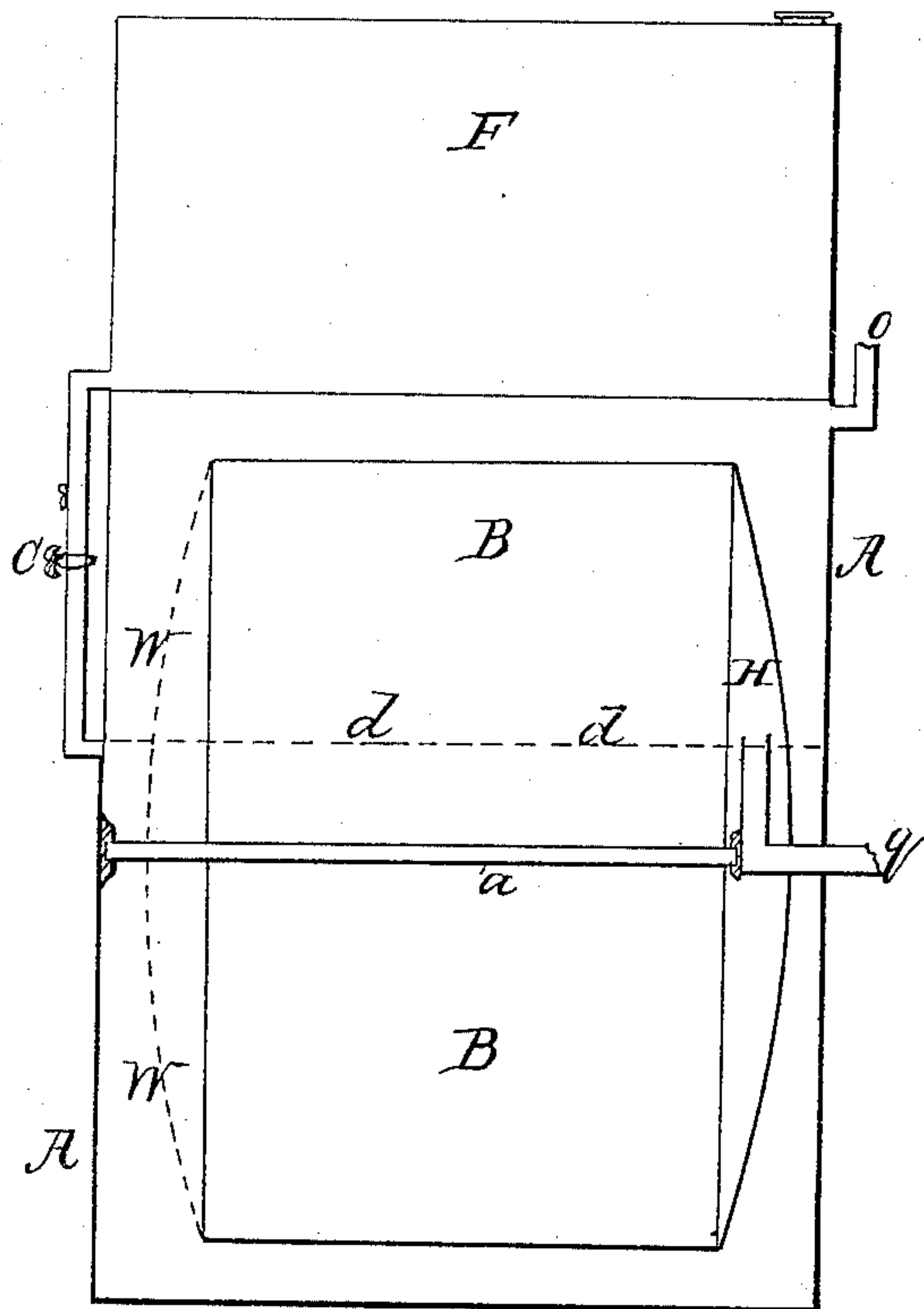


Fig: 2.



Witnesses
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IMPROVED APPARATUS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. 57,442, dated August 21, 1896.

To all whom it may concern:

Be it known that I, DONALD McDONALD, of Albany, in the county of Albany and State of New York, have invented a new and useful Improvement in Apparatus for Carbureting Gas and Air for purposes of heating and illumination; and I do hereby declare that the same is described and represented in the following specification and drawings.

The machines in ordinary use for carbureting gas and air for purposes of heating and illumination aim at accomplishing that object either by causing the gas or air to pass over or through porous cloth, charcoal, &c., saturated with gasoline, benzine, &c., by means of capillary attraction; or the carbureting-liquid is raised by buckets and thrown upon the cloth through which the air is forced to pass; or wicking stretched upon a frame is caused to revolve in the chamber containing the air or gas to be carbureted and partly filled with gasoline or benzine, &c. In all these methods, it will be readily seen, only part of the air is brought into actual contact with the liquid, and therefore the carbureting process must be imperfect. The machines used also are complicated and too expensive for general use.

To overcome the above difficulties I have contrived an apparatus the construction and use of which I will now proceed to describe, in order to enable others skilled in the art to make and use the same.

My improvement consists in causing the air or gas to be carbureted to pass through fine wire-gauze or other like substance while the said wire-gauze is revolving in a close vessel or case having an inlet and outlet, and partly filled with benzine, gasoline, or other such volatile liquids, through which the gauze in revolving must pass. The most convenient apparatus for the above purpose known to me is a cylinder constructed like the drum of a wet gas-meter, where the inlet-openings of the interior chambers are on the one end (instead of the rim) of the said drum and the outlet-openings are on the opposite end. By simply covering the said outlets with fine wire-gauze and suspending the cylinder on an axis in a close vessel with a feed-pipe, through which air or gas can be forced to enter into the chambers of the said cylinder, and thus cause it to

revolve on its axis when the outlet from the said vessel containing the said cylinder is opened, it will be evident that all the air or gas fed into the drum must pass through the surface of the wire-gauze above the line of the liquid in the vessel containing the said cylinder, and can only do so while said wire-gauze is revolving and its meshes or fine open spaces are filled with the liquid taken up.

I say the above apparatus is, in my judgment, the most advantageous means of applying my improvement for carbureting air or gas, and therefore, for purposes of illustration, I will describe such an apparatus; but a cylinder or other construction of wire-gauze arranged so that the fluid to be carbureted must pass through the meshes of the gauze while revolving in a vessel containing the carbureting-liquid will answer the purpose where means other than the motion of the fluid to be carbureted are relied on to cause the gauze to revolve.

In the drawings referred to the same letters indicate like parts in each of the figures.

Figure 1 is an end view of the cylinder of my apparatus, the broad dark lines representing the outlet ends of the interior chambers of same overlapping each other, and the dotted lines the inlet-openings in the opposite end of the said cylinder. I will not attempt to illustrate the form or construction of the interior chambers of this cylinder, as it is very difficult to do so, and is not necessary, the said chambers being constructed and arranged in all respects like those of the drum of a wet gas-meter, which is a familiar and well-known device. Fig. 2 is a longitudinal section of the cylinder or drum of my apparatus in its case, showing the inlet and outlet pipes on the one end of the said drum and the wire-gauze covering the outlet-openings on the other end of the said drum. In this figure, connected with the case of the apparatus, is seen a bird-fountain, to make the apparatus self-regulating in supplying itself with liquid.

In Fig. 2, A A is the case of the apparatus; B B, the drum; H, the hood of drum; I, the inlet-pipe; *a*, the axis of drum; *d d*, the line showing the proper height of the liquid in the case of the apparatus; W W, the wire-gauze covering over outlet-openings in end of drum;

F, a bird-fountain or self-regulating reservoir, connected with the case of the apparatus by the pipe *f*, (in which is a stop-cock, *c*,) to keep the liquid in the said case at a uniform depth, and also supply it in fresh and small quantities from time to time, as use requires it; and O is the outlet from the case of the apparatus, through which the carbureted gas or air is conducted to the burners when it is to be consumed.

The apparatus being constructed as above and duly supplied with gasoline or other such liquid, the air or gas to be carbureted is caused (by any proper means not necessary to describe, or when gas is conducted into the machine from the mains of a gas company by the pressure on the said mains) to enter into the chambers of the drum B through the pipe I, as soon as and whenever the outlet from the case of the apparatus is open to permit it to do so, and causes the said drum to revolve and pass through the liquid in which it is partly immersed. The wire gauze attached to the end of said drum is thus caused to take up and fill its meshes with the liquid through which it passes every time it revolves, and through this thin sheet of liquid all the air escaping from the chambers of the drum must pass, thus insuring its becoming effectually carbureted.

As the above process of vaporization takes

up the liquid the proper quantity is restored to the apparatus by the automatic action of the reservoir F, above described.

The advantages of my improvement are evident. When used in the manner I have described it does not reduce the pressure of the gas or air entering the apparatus to any material extent, which for gas is of great importance. It also is a very simple device, and of small cost. Again, it is self-regulating, the quantity of air or gas carbureted depending on the number of revolutions of the drum, which again depends on the number of lights supplied. Finally, it presents the liquid to the air or gas in the most advantageous manner to permit of its being vaporized, and in quantities depending on the demand, and no faster.

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

The combination of a cylinder or drum constructed like the drum of a wet gas-meter with fine wire-gauze, or its equivalent, attached to said drum and covering the outlet-openings of its measuring-chambers, substantially as above described, and for the purpose above set forth.

DONALD McDONALD.

Witnesses:

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