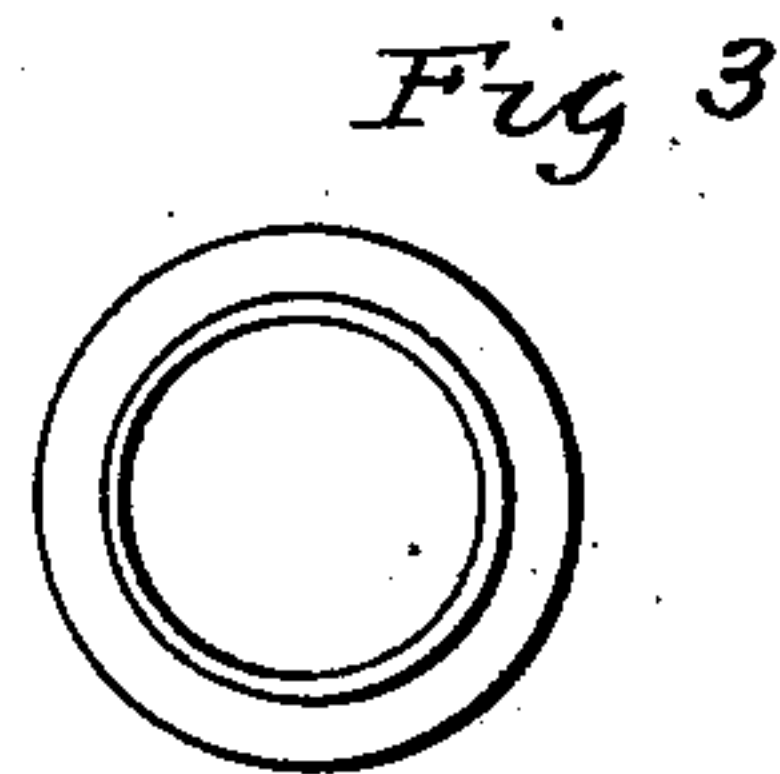
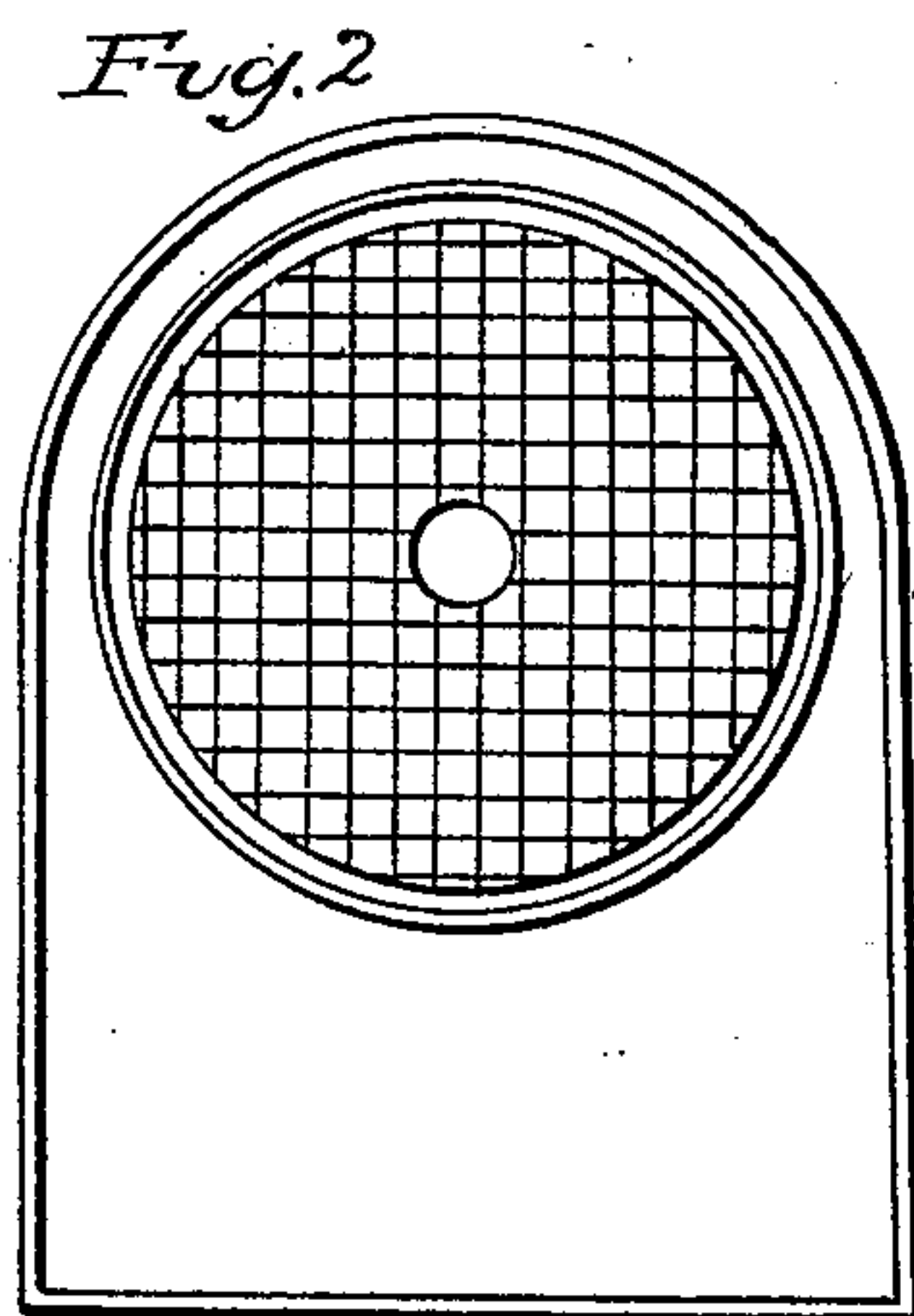
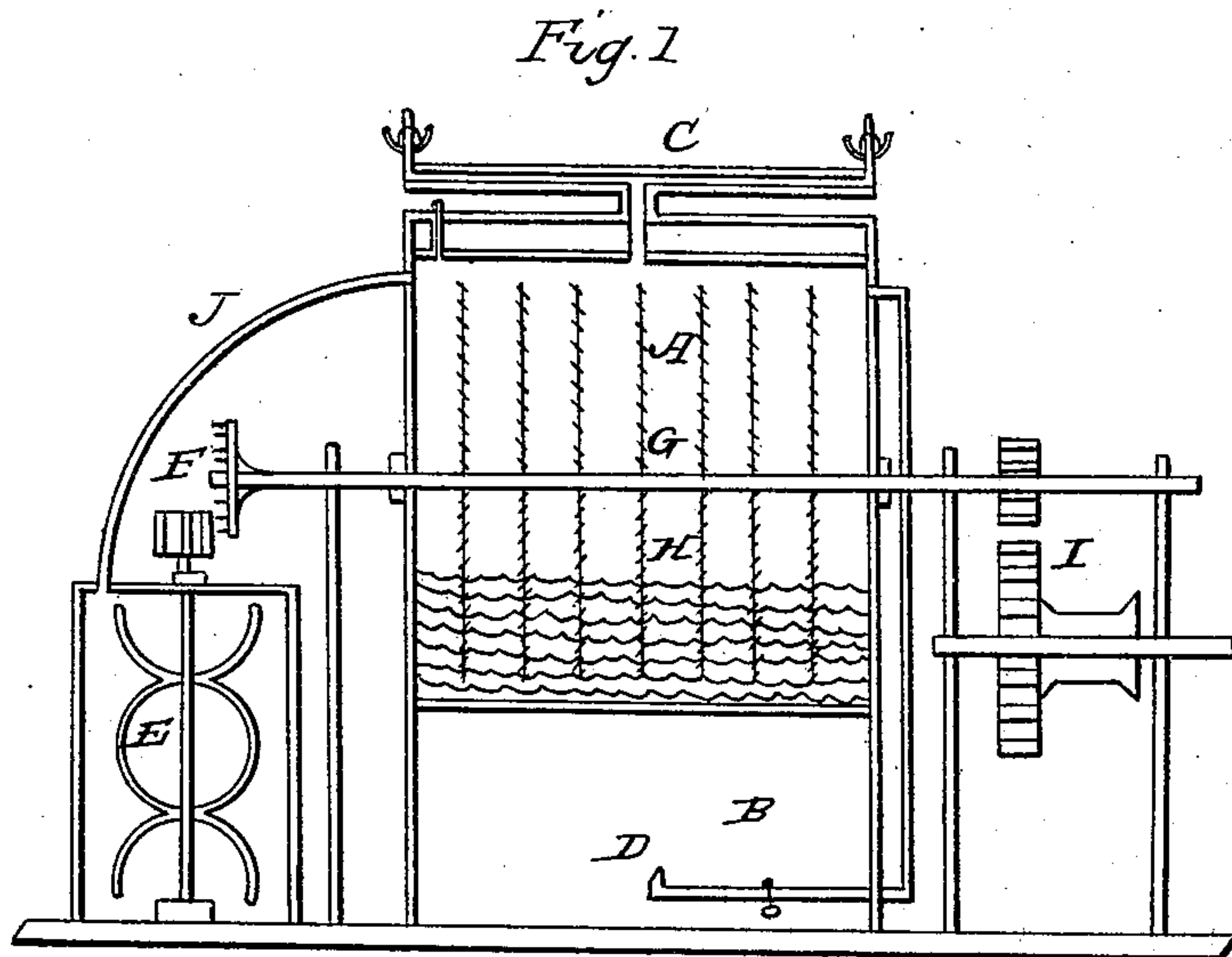


S. T. McDOUGALL.  
Hydrocarbon Vapor Apparatus.

No. 13,010.

Patented June 5, 1855.



# UNITED STATES PATENT OFFICE.

SAMUEL T. McDOUGALL, OF BROOKLYN, NEW YORK.

## HYDROCARBON-VAPOR APPARATUS.

Specification of Letters Patent No. 13,010, dated June 5, 1855.

*To all whom it may concern:*

Be it known that I, SAMUEL T. McDOUGALL, of the city of Brooklyn, Kings county, State of New York, have invented certain  
5 new and useful Improvements in Machinery for Generating Gas for Purposes of Illuminating; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.  
10

The nature of my invention consists in constructing the gas generator with an air chamber around it, said air chamber, connecting at the top with a pipe surrounding the gas pipe and extending as far as the gas pipes are exposed to the action of cold.  
15 The object of this pipe, is to convey a current of hot air around the gas pipes to prevent condensing. The hot air is obtained from the air chamber which surrounds the generator, in the bottom of which is placed the burner for raising the temperature of the liquor.  
20

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

I construct the gas generator, with a plain cylinder, with a shaft running  
30 through the center, on which is placed disks of wire cloth or perforated metal. Around the cylinder I construct an air chamber, in the bottom of which is placed the burner for warming the liquor. The heat from the burner after warming the generator, passes off around the gas pipes as shown at C, being a casing around the main gas pipe, forming a double gas pipe as shown at Figure 3. On one end of the shaft is placed a  
40 gearing for driving the shaft, either by spring or weight. On the opposite end is

placed a spiral fan, either on the main shaft or by a gearing as shown at E, said fan revolving in a close cylinder and forcing air into the generator.

The manner of operating the machine, is to wind up the weight or spring, on the gearing shown at I, having your liquor in the generator, and lighting the burner D in the air chamber, gas is immediately generated suitable for burning.  
50

I do not limit myself to the power here represented, but shall use any other at hand. I shall also use steam for heating the generator and pipes when it is convenient. The liquor naphtha, and other hydrocarbons, of like nature are used for the purpose here described.  
55

Fig. 1 shows the interior arrangement of the machine; A, gas generator; B, air chamber; C, double gas pipe; D, burner in the air chamber; E, spiral air fan; F, bevel gearing; G, main shaft; H, disks on ditto; I, weight or spring gearing; J, pipe from air fan to generator.  
60  
65

Fig. 2, is an end view showing the generator, with the air chamber around it, and disks of wire cloth inside.

Fig. 3 is an end view of the double gas pipe.  
70

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

The double gas pipe C, for conveying hot air or steam around the pipes to prevent condensing, or any other substantially the same, and which will produce the intended effect.  
75

SAMUEL T. McDOUGALL.

Witnesses:

JNO. M. OAKLEY,  
JNO. KEATING.