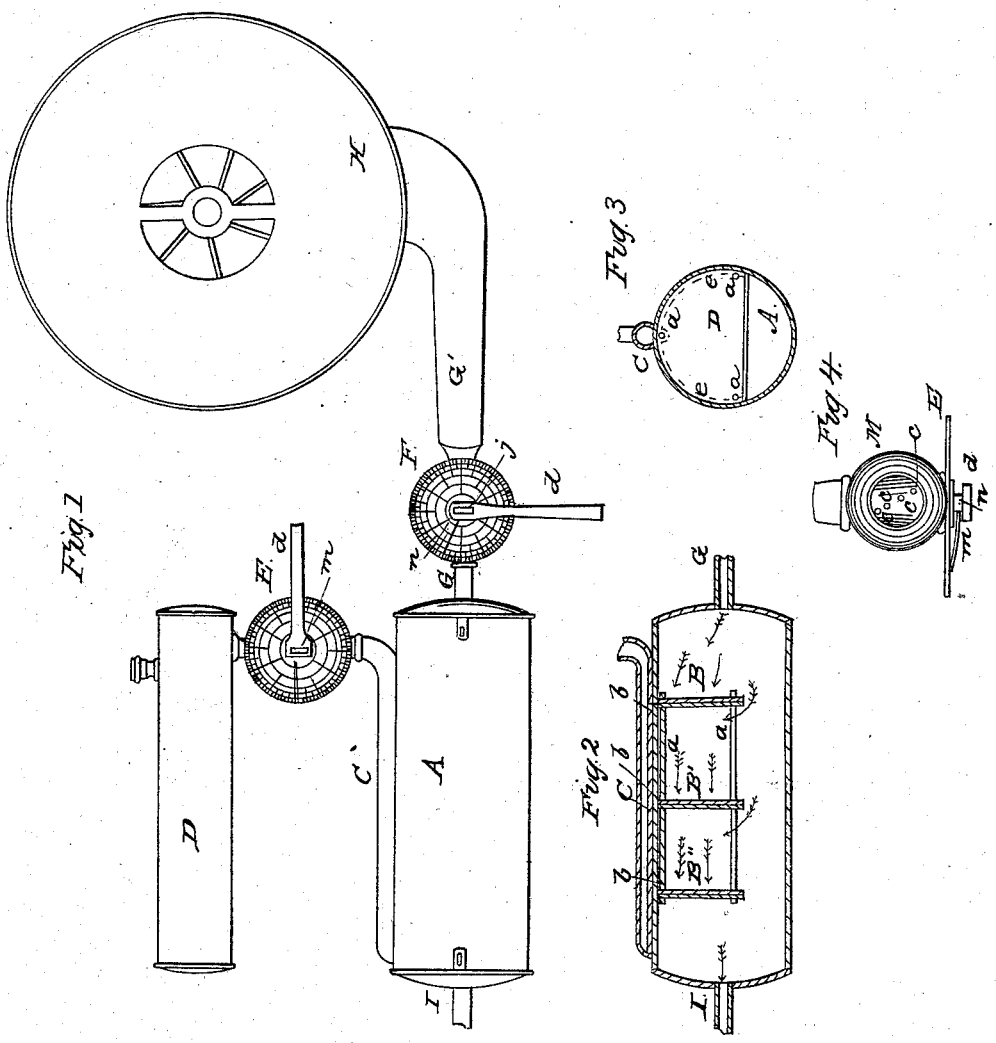
F. HAINSWORTH.

Apparatus for Carbureting Air.

No. 48,391.

Patented June 27, 1865.

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# UNITED STATES PATENT OFFICE.

FREDERICK HAINSWORTH, OF CHICAGO, ILLINOIS.

## IMPROVED APPARATUS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. **48,391**, dated June 27, 1865.

*To all whom it may concern:*

Be it known that I, FREDERICK HAINSWORTH, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Apparatus for Generating Gas; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings and the letters and figures marked thereon, which form part of this specification.

In said drawings, Figure 1 represents a side view of my invention. Fig. 2 represents a longitudinal central section of the cylinder A. Fig. 3 is a transverse section of the same, and Fig. 4 is a top view of the cock for admitting naphtha from the reservoir D into said cylinder A.

My invention has reference to that class of gas-producing machines in which the gas is generated by passing atmospheric air in contact with naphthalized surfaces, thereby carbonizing the air and converting the same into an inflammable gas.

My invention consists in a novel mode of letting down the naphtha from the reservoir in which it is contained into the cylinder, when the atmospheric air is brought in contact therewith, and also in a peculiar arrangement of naphthalized surfaces in the carbonizing-cylinder, and also a novel mode of introducing the air into said cylinder.

To enable those skilled in the art to understand and make use of my invention, I will proceed to describe the construction and operation of the same, reference being made to the aforesaid drawings.

A represents the cylinder in which the air is naphthalized.

C represents a tube lying upon said cylinder, through which the naphtha is introduced.

D is a cylindrical reservoir for the naphtha.

H represents a fan which forces the air through the flues or pipes G′ G into the cylinder.

Between the reservoir D and the tube C there is a connecting-pipe, in which is placed a stop-cock, of peculiar construction, for the purpose of regulating exactly the quantity of naphtha which passes down into the tube C. Fig. 4 shows the construction of said stop-cock M, representing the turning-block, which is perforated with a diagonal series of holes, (marked *c c c*,) so that by a proper adjustment of said block M either one, two, three, or more of said holes may be arranged so as to allow the naphtha to pass through, thus regulating nicely the amount of naphtha which passes down to the amount required. In the upper part of the said cylinder A there is arranged a series of partitions, B B′ B″, constructed of thick layers of cotton-flannel or other similar material. These partitions are stretched upon a series of semi-circular hoops, (marked *e*, and shown by dotted lines in Fig. 3,) which are themselves framed with the horizontal rods *a a a*, and are made to fit tightly within the cylinder. The number of these partitions may be varied to suit machines of different capacities. At one side of each of said partitions, as shown, there are the small orifices or holes (marked *b b b*) from the tube C into the cylinder A. Thus the naphtha is allowed to fall in small quantities upon each of the said series of partitions dividing the cylinder into chambers, as shown, thus thoroughly saturating them with naphtha. When the fan H is operated a current of air is generated thereby, which is forced through the flue G′ G into the cylinder. Between the pipe C and the flue G′ there is a stop-cock, whereby the proper amount of air may be admitted into the carbonizer to take up the naphtha admitted, as before described. The air, as it becomes charged with the volatile parts of the naphtha, rises into the top of the first chamber, where it is held in contact with the saturated partitions B until it is forced through said partition or beneath it, to rise in a like manner in the second chamber, and so on until the process is completed, when the gas passes out through the pipe I and is ready for use.

It will be observed that each of the hereindescribed stop-cocks is provided with a dial, while the turning-blocks are provided with a pointer, *m* and *n*, respectively, so that when the cocks are turned by the keys *d* the pointers will indicate upon the dials the required position to allow the desired quantity of naphtha or air to pass.

Having these devices for regulating the amount of air and naphtha admitted into the carbonizer, I am always able to produce any required quantity of gas of the proper illumi-

nating power and to provide against the various contingencies which might injuriously affect the quality of the gas.

Having described my improved apparatus, I will now specify what I claim as new therein and desire to secure by Letters Patent—

1. The combination and arrangement of the regulating-cock M, provided with a diagonal series of perforations, *c*, with the dial and pointer, as and for the purposes herein specified and shown.

2. The peculiar arrangement of the vertical porous partitions B with the ducts *b* leading from the pipe C, operating as specified and described.

3. In combination with the carburetor A, the employment of the fan H and regulating-cock M with the dial and pointer, arranged and operating as described.

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