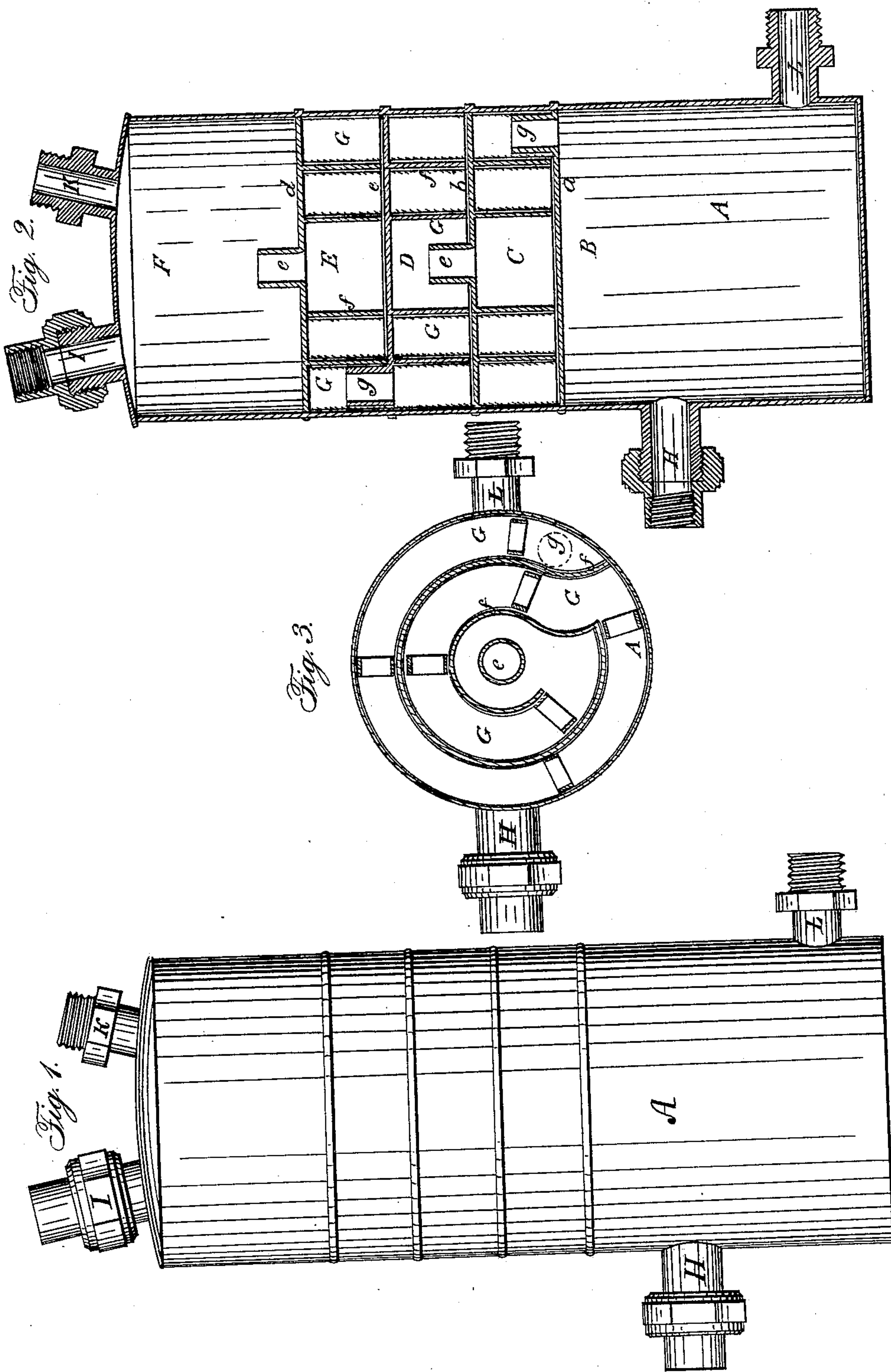


J. ABSTERDAM.

Carbureter.

Patented June 15, 1858.

No. 20,534.



UNITED STATES PATENT OFFICE.

JOHN ABSTERDAM, OF BOSTON, MASSACHUSETTS.

APPARATUS FOR MANUFACTURING GAS.

Specification of Letters Patent No. 20,534, dated June 15, 1858.

To all whom it may concern:

Be it known that I, JOHN ABSTERDAM, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Apparatus for Impregnating Either Air or Gas with the Vapors of a Hydrocarbon Liquid; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, of which—

Figure 1, denotes a side elevation. Fig. 2, a vertical and longitudinal section, and Fig. 3, a horizontal and transverse section.

In these drawings, A, exhibits a cylindrical case divided horizontally by four or any other suitable number of plates or partitions *a, b, c, d*, arranged with respect to one another as shown in Fig. 2, such partitions serving to divide the cylindrical case into several separate chambers, B, C, D, E, and F. From the middle of the partitions *b, d*, or every other partition of the series, a tube, *e*, rises up into the chambers directly over the said partition and forms a communication between the chamber in which it is situated and that immediately below it, the tube being made to open through the partition on which it rests and to extend up into a circulating groove, serpentine or spiral passage, G, arranged against the under side of the partition immediately above the tube. Each of these spiral or serpentine passages is formed by a partition, *f*, curved and extended down from each partition as shown in Figs. 2 and 3. Each tube, *e*, opens out of one extremity of one of the said passages while the other extremity of the said passage has another tube, *g*, leading from it through the partition *a* or *c*, immediately below it. The side or portions of either one or both sides of each serpentine or spiral passage are to be made of cloth or other equivalent material in which a liquid will rise by absorption and capillary action. The metal or other material in which the apparatus is made, is only a skeleton to sustain the passages or tubes made of cloth which form the said spiral or serpentine passages. The cloth of the lower part of these passages may be dispensed with. These passages of cloth being so arranged that there may be a clear and unobstructed space about them for the movement of gas or air through the circulating passage.

The lower chamber B, has a tube H, lead-

ing into it, such tube being for the admission of either gas or air into the said chamber. A discharging pipe I, leads out of the chamber F, such chamber being also provided with a pipe K, through which naphtha or other liquid volatile hydrocarbon may be introduced into the chamber, F. Furthermore the lower chamber B, is furnished with a discharging pipe L. Each of the pipes K and L, may be supplied with a screw cap or other suitable means by which it may be opened or closed as circumstances may require.

In preparing this apparatus for the purpose of naphthalizing a combustible gas, the liquid naphtha is to be poured into it through the pipe K. This fluid will rise in the chamber F, to the top of the pipe *e*, thereof and flow down the said pipe into the chamber E. The naphtha will rise in the said chamber E, to the level of the top of the pipe *g*, the surplus flowing down the pipe *g*, into the chamber D. In this way the naphtha will continue to flow from chamber to chamber until it runs out of the pipe L, the cloth passages at the same time absorbing more or less of the naphtha and raising it by capillary attraction. After closing the pipes K and L, if we suffer common olefiant gas to pass through the pipe H into the chamber, B, it will flow upward through the pipe, *g*, and into the chamber C, or the spiral passage G, contained in the said apartment or reservoir as it may be termed. The gas will circulate through the said passage, and against the surfaces of the fluid in the reservoir and that taken up in the cloth by capillary attraction, the same causing more or less evaporation of the naphtha and the absorption of its vapor by the gas. After having performed its circuit in one chamber the gas will flow into the next chamber above and there perform a similar circuit, but in a reverse direction, finally escaping out of that chamber and into the next one, and there being still further impregnated with vapor. Finally, the gas will pass into the upper chamber F, and having been naphthalized will escape from the said chamber F, through the pipe I, through one or more burners connected with said pipe.

It is well known that the illuminating power of common coal gas during combustion of it is greatly enhanced by mixing with it, the vapor of naphtha, or other hy-

drocarbon liquid and that this process is now extensively adopted in Europe and of late has been introduced to some extent into this country.

5 I do not claim the naphthalizing boxes or contrivances made as described on pages 145 and 146 of Parnell's applied chemistry, or any other contrivance similar to them, my invention being different from such contrivances, as I employ for the passage of gas, 10 spiral or serpentine unobstructed passages made of cloth or any other fibrous or porous material connected with shallow chambers or reservoirs or their equivalents.

15 In carrying out my invention, I do not employ a capillary material, which shall so fill the channel or gas passage as to materially obstruct the flow of gas, through the same, and furthermore by my arrangement 20 of the gas passage with reference to each chamber and its leading pipes I effect such an extended circuit of the gas in contact with the vaporizing surfaces as to enable me to bring the whole apparatus into a very 25 small compass in comparison with others in

use and having the same amount of naphthalizing power.

Also I do not claim the apparatus made of metal or other suitable material merely, as such solid apparatus is merely the skeleton 30 to sustain the passages or tubes made of cloth which line such solid chambers accurately forming a tubular passage of cloth through which the gas, air, or saturated vapor is driven, but 35

What I do claim is—

The arranging of tubular passages made of cloth or other similar porous fabric which elevate by capillary action the fluid in the chamber allowing space sufficient for the 40 passage of the aeriform fluid and allowing complete saturation of the latter in the manner and for the purpose specified.

In testimony whereof I have hereunto set my signature.

JOHN ABSTERDAM.

Witnesses:

R. H. EDDY,
F. P. HALE, Jr.