IRWIN & SIMMONS.

Carburetor.

No. 47,258. Patented April 11, 1865.

Fig. 1.

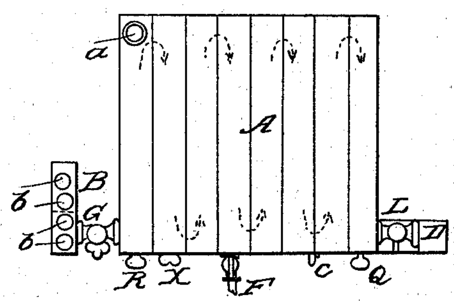


Fig. 2.

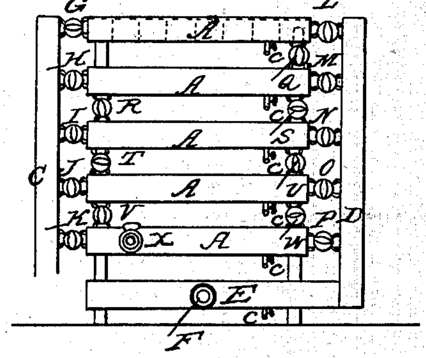


Fig. 4.

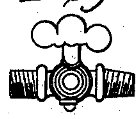
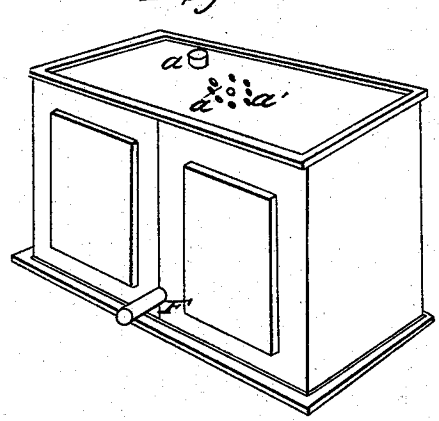


Fig. 3.



Witnesses
Geo A Gerrish
O. M. Hill

Inventor:
John H. Irwin
Isaac Simmons
by Coburn & Mars
attorneys

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

ISAAC SIMMONS AND JOHN H. IRWIN, OF CHICAGO, ILLINOIS.

IMPROVED APPARATUS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. **47,258**, dated April 11, 1865.

To all whom it may concern:

Be it known that we, ISAAC SIMMONS and JOHN H. IRWIN, of the city of Chicago in the county of Cook and State of Illinois, have invented a new and useful Improvement in Apparatus for Carbureting Air; and we 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.

Figure 1 in said drawings represents a plan or top view of our invention; Fig. 2, a front elevation of the same. Fig. 3 is a perspective view of the exterior casing inclosing our apparatus, and Fig. 4 is a detached view of one of the stop-cocks hereinafter described.

Similar letters of reference in the several figures denote the same parts of our invention.

Our said invention relates to that class of gas-generating apparatus in which illuminating-gas is produced by passing atmospheric air over and in contact with naphtha or similar hydrocarbon oils, whereby the air becomes carbureted, and can then be used for illuminating purposes, substantially as ordinary gas is used.

The nature of our invention consists in a novel arrangement of a series of carbureting pans or vessels in connection with a system of stop-cocks or valves, whereby the whole number of pans employed may be used at once, or any number less than the whole, or any one of them, at the pleasure of the owner, and also in an arrangement whereby the several pans composing the apparatus may be detached from each other for repairs, so that while part of the apparatus may be removed for repairing, the remainder may be still used in the process of carbureting the air and producing a supply of gas.

To enable those skilled in the art to understand how to construct and use our invention, we will proceed to describe the same with particularity, having reference in so doing to the aforesaid drawings.

A represents a series of carbureting-pans, arranged one above the other in a vertical column, connected with each other by the pipes and stop-cocks marked Q R S T U V W, substantially as shown. Each of these connecting-pipes project up through the bottom of the pans, about one-half or two-thirds the height of the pan.

B represents a chamber into which the air is admitted through the apertures *b b*, said chamber opening into the vertical flue or chamber C, which connects with each of said carbureting-pans by means of the pipes and stop-cocks G H I J K, as shown. Upon the opposite side of the pans is a similar flue or chamber, D, into which the carbureted air enters from the pans through the series of pipes and stop-cocks L M N O P.

E represents a chamber or reservoir into which the carbureted air is received from the flue D, and whence it is conveyed to the burners through the pipe F.

c represents a series of small cocks to draw off the residuum in the carbureting-pans and the gas which condenses in the said reservoir E.

Each of the connecting-pipes connecting the pans with the air and gas chambers C D are provided with a right and left screw, as shown in Fig. 4, so that any or all of them may be readily removed to enable the various parts of the apparatus to be taken apart when desired.

Having described the construction of our invention, we will now describe its operation: The apparatus is inclosed, or may be inclosed, in some suitable cupboard, as shown in Fig. 3, where the naphtha is introduced into the same through the inlet *a*, which is provided with a removable stopper, all the stop-cocks connecting the pans with each other being opened. The naphtha fills the upper pan up to the upper end of the pipe connecting said pan with the one immediately below, when the naphtha flows down into said pan, and so on, until the whole series are filled to the proper height, which is indicated by the escape of the naphtha at the gage-cock X. The air is forced or induced in any suitable manner through the openings *a'*, or their equivalent, into the chamber B C. By closing all the cocks Q R S T U V W and opening the cocks G H I J K L M N O P the air passes from the aforesaid chamber C through each of the pans A in appropriate sinuous passages, and thence into the chamber D and gas-reservoir E. By closing the cocks H I J K and L M N O and S T W the air would pass through the entire series of pans before entering the chamber D;

or by opening the stop-cock N and closing the stop-cock U the air would pass through the three upper pans, and then enter the chamber D, the pans below not being in use.

Thus it is readily seen that by any desired manipulation of the stop-cocks the apparatus is under the perfect control of the manager, he being enabled thereby to make use of any one of the pans, or any part of them, or all of them, and direct the current of air through one, any, or all of them when operating at the same time, and can thus regulate the quantity of gas produced to correspond with the amount required, and can also regulate the richness of the carbureted air by holding it in contact with the naphtha for a longer or shorter time, as may be desired. Furthermore, by having the various connecting-pipes furnished with a right and left hand screw, and entered into corresponding female screws in the parts to be united, the various parts may he detached from each other, and one part may be repaired while the rest of the apparatus continues in operation.

Instead of having the air and gas flues C and D arranged at the sides of the apparatus, they may be brought directly in front of the same, so that the air, in passing into the apparatus, may enter directly into the passages, instead of at right angles to the same, and pass out into D, in a similar manner, and thus avoid the checking of the current of air in its ingress and egress from the apparatus.

Instead of connecting the pans together in the manner shown, the same may be brought nearer together, and have the pipes connect at the sides of the pans above the level of the naphtha, being then bent so as to adapt them to this arrangement or construction.

Instead of stop-cocks, any kind of valve or device may be used which will operate substantially in the same manner and produce the same results.

Instead of arranging the pans in a vertical pile, as shown, they may be arranged in any way, provided the connections and operations are substantially the same.

Having described our improved apparatus, we will now specify what we claim and desire to secure by Letters Patent—

1. So arranging a series of carbureting-pans, A, with the chambers C D and connecting-pipes provided with stop-cocks, or their equivalent, that the apparatus may be regulated, controlled, and operated substantially as and for the purposes set forth and shown.

2. The combination of a series of carbureting-pans with the chambers C and D and the two series of connecting-pipes G and L, provided with stop-cocks, or their equivalent, operating substantially as and for the purposes specified and shown.

3. The combination of a series of carbureting-pans with the chambers C and D and the three series of connecting-pipes G, L, and Q, substantially as and for the purposes specified.

4. In combination with the series of pans A and the chambers C D, the employment of a condensing-chamber, E, as and for the purposes set forth.

5. Connecting the said pans and chambers A C D by removable or detachable pipes, substantially as and for the purposes specified.

ISAAC SIMMONS.
JOHN H. IRWIN.

Witnessess:
W. E. MARRS,
R. I. ROBESON.