J. H. IRWIN.

Carburetor.

No. 47,257. Patented April 11, 1865.

Fig. 1

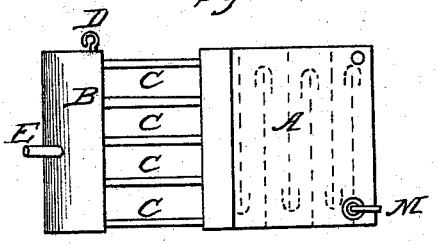


Fig. 3.

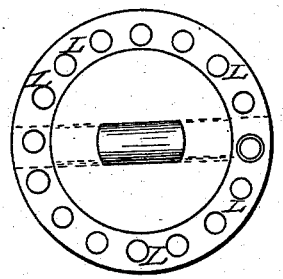


Fig. 4.

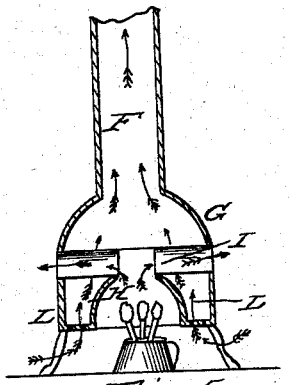


Fig. 5.

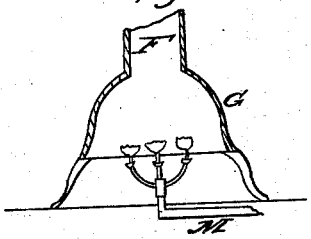
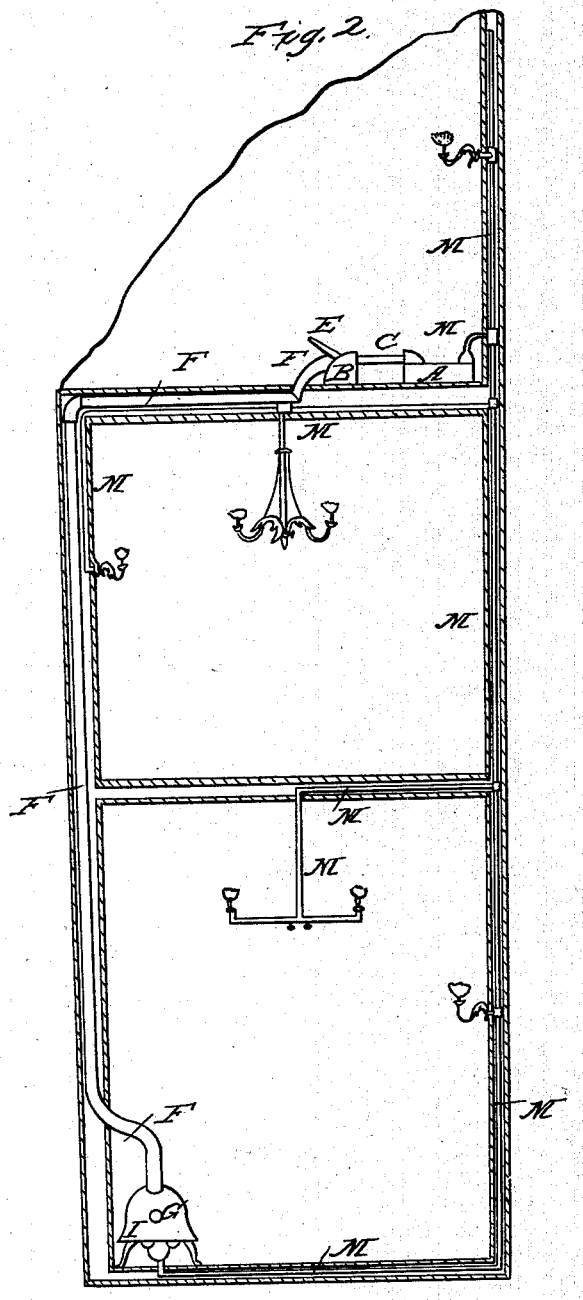


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN H. IRWIN, OF CHICAGO, ILLINOIS.

IMPROVED PROCESS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. **47,257**, dated April 11, 1865.

To all whom it may concern:

Be it known that I, 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 Generating Illuminating-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.

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

Heretofore in all apparatus of this class cold air has been employed, and the current of air requisite to produce the gas and give the proper amount of pressure at the burners has been obtained by the employment of a fan or bellows, or some other equivalent blowing apparatus, in connection with the carburetor; but my invention consists not in the employment of heated air broadly, but in producing the aforesaid current of air through the carburetor and the proper pressure at the burners by introducing a column of heated air, generated below the carbureting apparatus, so that the natural upward tendency of the said heated air creates the requisite current through the carburetor, and forces the carbureted air with a uniform and continuous pressure to the burners, as hereinafter described; or the air may be heated at any point in relation to the carburetor, provided that a current of air is produced through the carburetor, by the upward tendency of heated air or its expansive properties. Moreover, by the employment of heated air the process of carbureting is much more rapid than when cold air is used, and will absorb all or nearly all of the naphtha, which is not the case with cold air.

To enable those skilled in the art to understand how to construct and use my invention, I will proceed to describe the same with particularity, making reference in so doing to the aforesaid drawings, in which—

Figure 1 represents a plan or top view of the carbureting apparatus. Fig. 2 is a side view of my invention. Fig. 3 represents a bottom view of the furnace or heater. Fig. 4 a vertical section of the same at the line *x* in Fig. 2, and Fig. 5 represents another form of heater which may be used when gas is burned in the same.

Similar letters of reference in the several drawings denote the same parts of my invention.

A represents the carbureting apparatus, and consists of a close metallic vessel provided with a series of vertical partitions extending from the top to the bottom and arranged as shown, so as to cause the current of air to pass back and forth across the apparatus through the passages formed by said partitions, as indicated by the arrows.

B represents a chamber or reservoir, into which the ascending column of hot air enters, as hereinafter described, before entering the carburetor, being connected therewith by the pipes or tubes C, D representing the handle of a slide or valve, whereby the tubes C may be closed so as to cut off all communication with the carbureting apparatus.

E represents an air-tube entering the chamber B above the pipes C, to prevent the carbureted air from flowing down the hot-air pipe, as hereinafter more fully described.

F represents the pipe through which the hot air ascends into the carburetor from the furnace, which I will now describe, and which is designed to be placed in the basement, the carburetor being placed in the attic or upper part of the house, as the carbureted air or gas is heavier than atmospheric air, and in that case the pressure at the burners is the combined result of the pressure of the hot-air column and the weight of the column of gas, although burners may be placed above the carburetor where there will be a diminished pressure.

The heating apparatus consists of an inverted bell-shaped metallic inclosure terminating at the top in the pipe F, and having an inner wall, (marked H,) which is closed at the top, the connection between the lower edge of said interior wall and the exterior inclosure

being perforated for the admission of air, which has free ascent into the pipe F, as shown by the arrows. The space inside of the interior wall is provided at the top with two outlets, (marked I I,) through which the exhausted air or smoke occasioned by the combustion within may escape. Beneath this central inclosure burners are placed, connected with the gas-pipes leading down from the carburetor, as shown, which, being ignited, heats the air in the space inclosed by the outer wall, causing it to rise in the pipe F, while fresh air rushes in through the perforations.

When gas is used to heat the air, there being no smoke produced, the above described arrangements is unnecessary, and the simple inverted bell shown in Fig. 5 may be used under which to heat the air.

The operation of my invention is as follows: When the heated air ascends and is forced through the carbureting apparatus by the continuous upward pressure of the ascending column of heated air, it becomes carbureted and passes into the gas-pipe M, leading from the apparatus to the various burners, the heat still acting upon the same, and keeping up the desired pressure at the burners, in connection with the specific gravity of the carbureted air, and also at points above the carburetor, though the pressure at such points must obviously be less than at points below where the weight of the gas assists the pressure of the hot air.

I do not limit myself to the use of any particular form of carbureting apparatus, nor any particular kind of apparatus for heating the air, but can make use of any now in use.

Having described my improvement and its operation, I will now specify what I claim and desire to secure by Letters Patent.

I claim—

Producing a current of air through a carbureting apparatus and a pressure at the burners by the action of heated air, substantially as and for the purposes herein specified and shown.

JOHN H. IRWIN.

Witnesses:
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