2 Sheets—Sheet 1.

C. B. LOVELESS.

Apparatus for Carbureting Air.

No. 51,841. Patented Jan'y 2, 1866.

Fig. 1

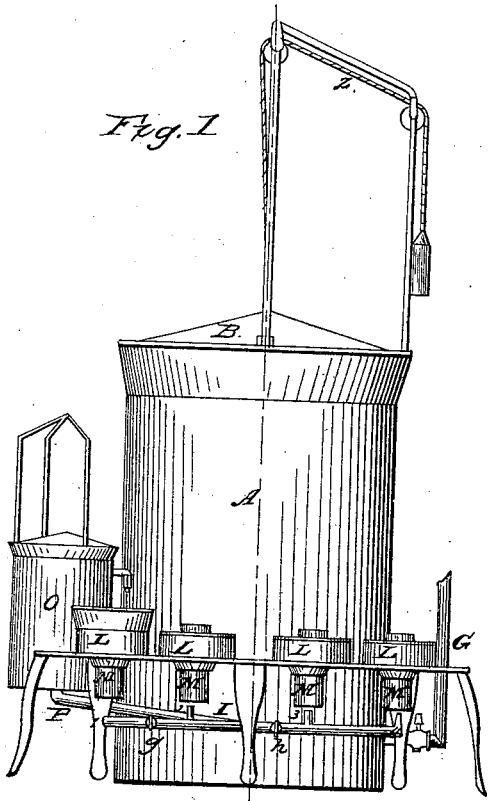
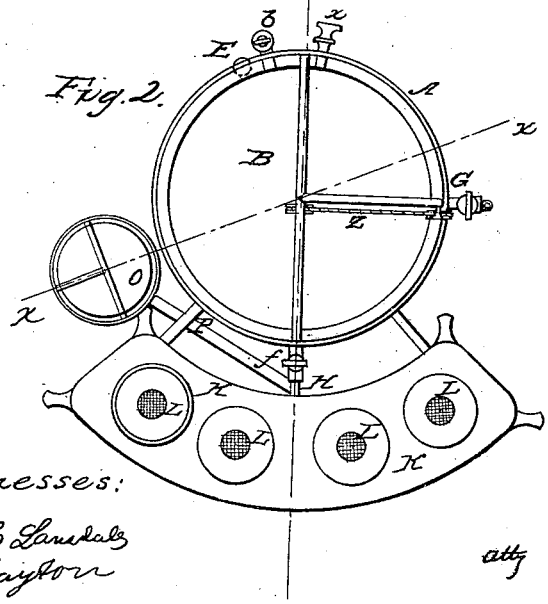


Fig. 2.



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2 Sheets—Sheet 2.

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Fig. 3.

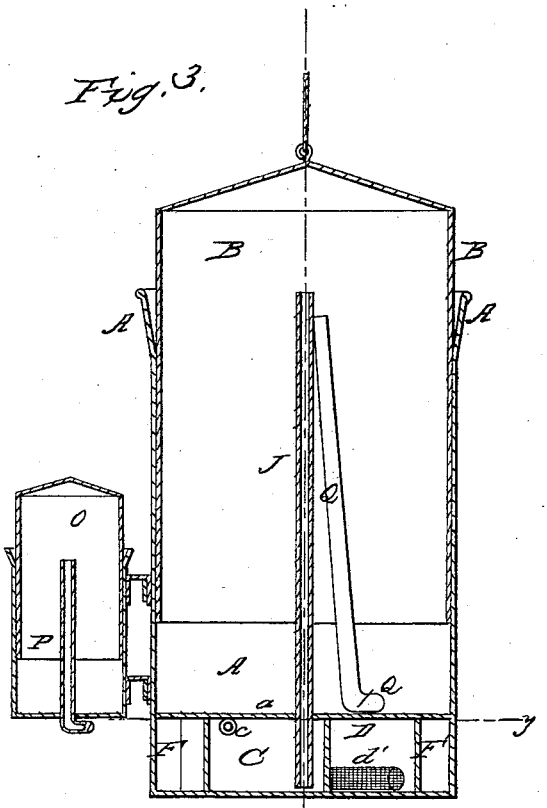
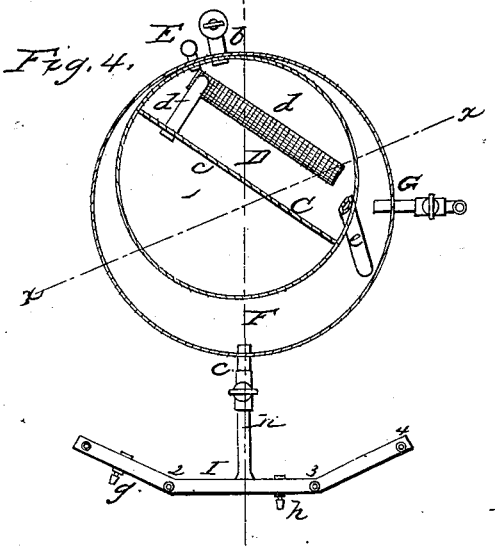


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES B. LOVELESS, OF SYRACUSE, NEW YORK.

IMPROVED APPARATUS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. **51,841**, dated January 2, 1866.

To all whom it may concern:

Be it known that I, CHARLES B. LOVELESS, of Syracuse, Onondaga county, in the State of New York, have invented a new and useful Stove and Gas-Generator; 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 thereon marked.

In the drawings, Figure 1 is a side elevation. Fig. 2 is a plan view of the gasometer, and shows a plan view of the stove arrangement. Fig. 3 is a vertical section on the line *x x*. Fig. 4 is a cross-section on the line *y y*.

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

My invention relates to that class in which a current of atmospheric air is forced into intimate contact with a hydrocarbon volatile oil, (such as naphtha and the lighter grades of petroleum,) so as to form a gas suitable for illumination or cooking.

The nature of my invention principally consists in feeding and forcing the air into contact with the oil and through the pipes to the burners by means of the weight of a descending gas-holder or gasometer similar to that in use for forcing common illuminating coal-gas through the pipes; also, in the arrangement of the oil and gas chambers immediately under the gas-holder or air-chamber, so as to keep the at a low and even temperature; also, in the air-tube for introducing air into the air-chamber; also, in the use of the indicator for showing the quantity of oil in the oil-chambers; also, in the manner of conducting the gas from one oil-chamber through the perforated pipe into the other oil-chamber, and then into the gas-chamber; also, in the arrangement for using the gas for illumination and cooking; also, in the use of a smaller gasometer for furnishing gas to the burners while the large gasometer is being filled with air; also, in the manner of operating the smaller gasometer, all of which will more fully hereinafter appear.

I make a sheet-metal cylindrical tank, A, (for ordinary use about the size of a barrel,) having a water-tight bottom at *a*. Immediately under this tank, of the same diameter, (or in continuation of it,) and some six to ten inches deep, are the oil and gas chambers.

B is the air-holder, and is an inverted cylinder, open only at the bottom, and rises and falls in the tank A in the same manner as does the common gas-holder or gasometer used for forcing coal-gas through the mains; Q, the pipe for admitting air to air-chamber.

C and D are the oil-chambers, the oil being fed into them through the pipe *b*. The chambers C D together are of circular shape, and each is semicircular, being separated by a partition, *c*, which has a hole, *c'*, in it at the bottom, so that the oil in both chambers has the same level. It is understood that the bottom *a* of the tank forms the top of the oil and gas chambers, so as to cut them off from each other.

d is a bent pipe, its upper end opening through the top edge of the partition *c* into the chamber C, while its lower end is connected with a perforated pipe, *d'*, lying on or near the bottom of the second oil-chamber, D.

E is a glass indicator on the outside of chamber D, its lower end being in communication with the oil-chamber. The object of this is to enable me to ascertain the depth of oil in the chamber. The feed-pipe *b* is at the side of the indicator. The cylindrical oil-chambers are so arranged within the cylinder A' below the tank A as to form therein a crescent-shaped gas-chamber, F.

e is the pipe at the upper edge of the oil-chamber D, for leading the gas therefrom into the gas-chamber F.

G is the gas-pipe for conducting the gas to the illuminating-burners.

H is the pipe for conveying the gas to the stove-burners.

J is the pipe through which the air is forced into the oil.

I is the bent branch pipe provided with four burners for the stove. The middle of this pipe is fast with the outer end of pipe H.

f is the main stop-cock in pipe H, for letting the gas off or onto the stove-burners.

g h are the regulating stop-cocks in pipe, for regulating the stove-burners 1, 2, 3, and 4.

K is the stove, and it consists simply of a curved platform some sixteen inches high, resting upon suitable legs and steadied by hooks taking in eyes on the outside of the tank.

L are the pot-stands upon which the pots, pan, &c., are placed in cooking. Each of the

stands L is provided with an air-mixing chamber, M.

O is the small gasometer, and consists of a water-tank and gasometer.

P is the bent pipe, which passes up through the water-tank, through the water, up into the gasometer. The lower end of the pipe is connected with the gas-chamber F.

The operation of my invention is as follows: The naphtha or oil is fed into the oil-chambers C D through the pipe *b*, the oil first entering chamber D, passing through hole *c'* into chamber C. The oil in these chambers is of course at the same level and of such a height as to leave a chamber of a few inches between the surface of the oil and the bottom *a* of the tank. The screw-plug *x* at the bottom end of air-pipe Q is removed, and by pulling upon the weighted cord *z* the air-holder B is raised up to its greatest height, so that its lower edge shall just be under the surface of the water, which nearly fills the tank A. The air soon rushes up through the pipe Q (which passes up above the water) and fills the holder B, when the plug *x* is replaced. As the air-holder B descends of its own weight (extra weights may be added) it forces the air contained in it through the only outlet-pipe, J, the lower end of which is open near the bottom of oil-chamber C, into and through oil, which bubbles up so as to bring the oil and air into intimate communion, forming a gas upon the surface of the oil in chamber. This gas then passes through bent pipe *d* down into the perforated pipe *d'*, which lies at the bottom of chamber D under the oil. As the gas is forced through the perforations it absorbs a large portion of the hydrogen and carbon of the oil, and thence passes through the pipe *e* into the gas-chamber F. From the gas-chamber it is conducted, as desired, to the illuminating or stove burners.

The stop-cocks *f g h* are so arranged that gas can be admitted to either one, two, three, or four of the stove-burners. If I wish to use one burner only I open only the cock *f*. If I use two burners I open cocks *f* and *g*. If I use three burners I open cocks *f* and *h*, and if I use all four of the burners I open the three cocks *f g h*.

The tank of the small gasometer O is filled with water, and the gasometer is raised and filled with gas from the gas-chamber F. The object of this small gasometer is to furnish sufficient gas to keep the stoves in operation while the large air-holder is being filled.

The general construction and operation of the stove and air-mixing chamber M is similar to that used in the petroleum stove heretofore patented to me.

The cheap, simple, and effective operation of my invention is so evident as to need no elaborate description.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The small or supplemental gasometer, in combination with the tank A and air-holder B, substantially in the manner and for the purposes described.

2. The (separate or combined) construction and arrangement of the chambers C, D, and F, substantially as described.

3. Conducting the air as it becomes gas through pipes Q, J, *d*, *d'*, and *e* into the gas-chamber.

4. The arrangement, substantially as described, of the stop-cocks *f*, *g*, and *h*.

5. The stove K, as described, in combination with the air-mixing chambers M and pot-stands L.

In testimony that I claim the above I have hereunto set my hand this 3d day of July, 1865.

C. B. LOVELESS.

In presence of—

J. HUNT,

CHAS. H. PERRY.