

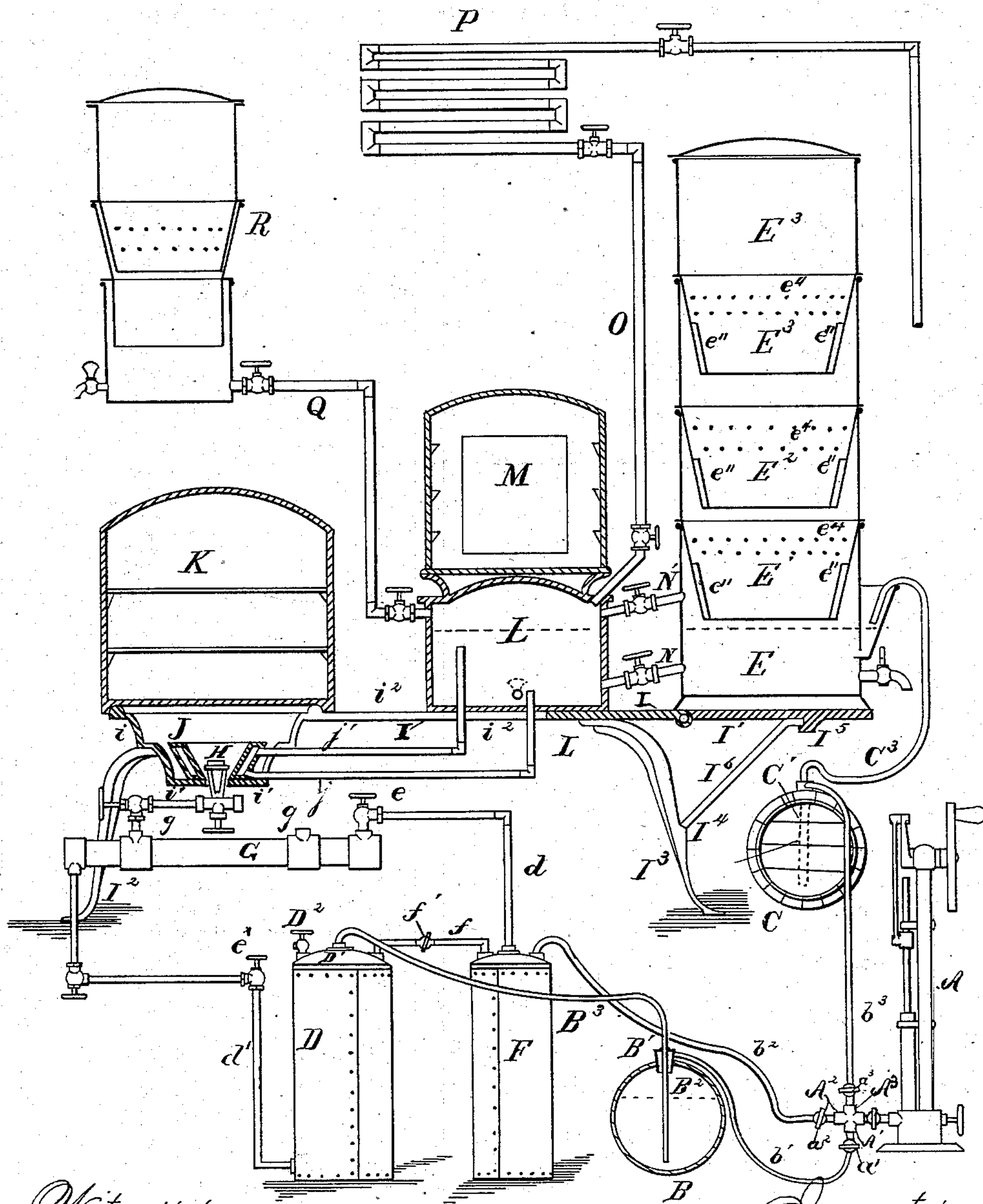
(No Model.)

J. S. HULL.

VAPOR BURNING HEATING AND COOKING APPARATUS.

No. 283,246.

Patented Aug. 14, 1883.



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# UNITED STATES PATENT OFFICE.

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## VAPOR-BURNING HEATING AND COOKING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 283,246, dated August 14, 1883.

Application filed November 29, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN S. HULL, a citizen of the United States, residing at Baltimore, Maryland, have invented certain new and useful Improvements in Vapor-Burning Heating and Cooking Apparatus, of which the following is a specification, reference being had to the accompanying drawing, forming part hereof, in which is shown a view of said improvements partly in section and partly in elevation.

My invention is designed to adapt the well-known vapor-burners to heating and cooking purposes; and it consists in certain arrangements, constructions, and combinations of devices, as will be first fully described, and then particularly pointed out in the claims, whereby a burner or series of burners of this class may be adapted to do all the cooking which is ordinarily done by a range or stove, and at the same time serve to heat the apartment in which the burners are located, as well as other apartments of the house, if desired.

It consists, also, of improved means for supplying oil to the burners, of clearing the pipes of oil, of filling the oil-tank from a barrel, and filling the steamers with water, all as herein-after set forth.

Referring to the drawing by letter, A is an air-pump, having a cylinder and piston of ordinary construction, the piston being operated by a shaft having a pulley and a crank-handle, whereby it may be operated by hand or power, as may be necessary or desirable. Leading from this pump are three pipes, A', A<sup>2</sup>, and A<sup>3</sup>, which are provided with valves a' a<sup>2</sup> a<sup>3</sup>, and each of which pipes has, as a continuation thereof, a flexible pipe or hose, (marked, respectively, b' b<sup>2</sup> b<sup>3</sup>.) The flexible pipe b' leads to an oil-barrel, B, opening through the shell of a bung, B', into the upper portion, B<sup>2</sup>, of said barrel, above the oil. The flexible pipe b<sup>2</sup> leads to an air-tank, F. The flexible pipe b<sup>3</sup> leads through the shell of a bung, C', of a water-barrel, C, which bung is constructed like the bung B' of the barrel B and operates in a like manner.

Each of the bungs B' and C' is provided with a central tube, reaching nearly to the bottom of the respective barrels B and C, and these tubes are each provided with a flexible pipe or

hose, B<sup>3</sup> and C<sup>3</sup>, the pipe B<sup>3</sup> leading to an oil-tank, D, and the pipe C<sup>3</sup> leading to a steamer, E.

The air-tank F is provided with a pipe, f, having a valve, f', and leading to and opening into the upper part, D', of the tank D. This oil-tank is provided with a vent-valve, D<sup>2</sup>, opening out of its top. The air-tank has a pipe, d, leading from its upper portion to one end of an auxiliary storage-tank, G. There is a pipe, d', leading from near the bottom of the tank D to the opposite end of the auxiliary tank G. These pipes d d' are provided with valves e e'.

Mounted on the upper side of the auxiliary tank is a series of upright pipes, g, upon each of which may be mounted a burner, as at H, of any approved construction.

I is the top or table of a stove, which is formed into a chamber or shell at one end, as at i, which chamber incloses the burner. This chamber has at its lower end, and forming part of it, a ledge or shelf, i', upon which rests a conical water-back, J. The top or table of the stove is formed with a central longitudinal slot, one wall of which is shown at i<sup>2</sup>, and has also a leaf, I', hinged to its opposite end. The table is supported by legs I<sup>2</sup> I<sup>3</sup>, the latter of which is provided with a lug or shoulder, I<sup>4</sup>. On the under side of the hinged leaf I' is formed a lug or shoulder, I<sup>5</sup>. Between the lugs I<sup>4</sup> and I<sup>5</sup> is a prop, I<sup>6</sup>, which supports the table-leaf and is removable to allow the leaf to drop.

I hereby reserve to myself the right to make a separate application for Letters Patent embodying the construction of the improved table above described.

Mounted above the burner and water-back on the table may be any cooking-utensil—as, for instance, the oven shown at K. The water-back is hollow and has attached to it two pipes, j j', one above the other, both communicating with the interior of the water-back and the interior of a steam-tank, L, which rests on the table I, the pipes passing from the water-back to the steam-tank through the longitudinal slot i<sup>2</sup> in the top of the table. Mounted above and resting upon the steam-tank is a warming-oven, M.

N N' are pipes communicating from the steam-tank L with the steamer, each of which



is provided with a union-valve, whereby the tank and steamer may be disconnected and the steamer removed, or communication may be cut off without such removal.

5 The steamer E may have any number of other steamers mounted above it—such as E', E<sup>2</sup>, and E<sup>3</sup>—each of which is provided with half-tubes e'' and perforations e', to provide for free communication of steam with all the series of steamers, and for the return of any water formed by condensation of the steam.

10 Passing from the steam-tank is a pipe, O, having suitable valves and connecting with a heating-coil, P, which may be located in any part of the building for heating purposes. There is also leading from the steam-tank a pipe, Q, which supplies steam to a steamer, R. The steam-tank L and steamers E and R are each provided with a valve by which they may at any time be emptied.

20 The operation of my apparatus is as follows: The pump being operated forces the air into the air-tank through the flexible pipe b<sup>2</sup>, compressing the air in the tank, it being understood that at this time the valves a', a<sup>3</sup>, f', and e are closed. The valve f' may now be opened, allowing the compressed air to expand through the pipe f into the upper portion of the oil-tank, causing the oil to rush through the pipe d' into the auxiliary storage-tank G, thus supplying the burners. The water-back becoming heated, the water with which it is filled rushes through the pipe j' into the tank L, its place being filled by the water rushing through the pipe j from the steam-tank to the water-back. A continuous circulation is thus established, and the water in the steam-tank is quickly turned into steam. The same circulation is established when the union-valves are open between the steam-tank and the steamer E, through the pipes N N'. The steam from the tank L is also forced into the coil P or the steamer R through the pipes O and Q, respectively.

45 When desired, the steamers E, E', E<sup>2</sup>, and E<sup>3</sup> can be disconnected and removed from the tank by unscrewing the connecting-pipes. When it is desired to fill the oil-tank D, the valves a<sup>2</sup> and a<sup>3</sup> are closed and air forced into the barrel, B, of oil through the bung B', causing the fluid to rush through the pipe B<sup>3</sup> into the tank D. An operation of the same kind forces the water from the barrel C into the steamer E. When the steamers E, E', E<sup>2</sup>, and E<sup>3</sup> have been removed, the prop I<sup>6</sup> may be removed, allowing the leaf I' to drop to a perpendicular position.

60 When it is desired to use the stove without any steam-fixtures, the tank L, pipes j j', and water-back are lifted off; the pipes j j' passing through the slot i<sup>2</sup>.

When it is desired to clear the auxiliary

storage-tank and its connecting-pipes of oil, the valve f' is closed and the vent D<sup>2</sup> opened, when the compressed air in the air-tank F will rush through pipe d and force the oil out of the auxiliary tank through the pipe d' into the oil-tank D.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination, with a vapor-burning stove, of the auxiliary oil-reservoir, the oil-tank, the air-tank, the main oil-reservoir, and the air-forcing apparatus, and suitable direct tubular connections from the air-forcing apparatus to the main oil-reservoir and to the air-tank, from the main oil-reservoir to the oil-tank, from the air-tank to the oil-tank and to the auxiliary oil-reservoir, and from the oil-tank to the auxiliary oil-reservoir at the opposite end thereof from the connection to the air-tank, said tubular connections, excepting that from the main oil-reservoir to the oil-tank, being provided with valves, substantially as and for the purposes set forth.

2. The combination, with a vapor-burning stove provided with a steamer, of the auxiliary oil-reservoir, the oil-tank, the air-tank, the main oil-reservoir, the water-tank, and the air-forcing apparatus, and suitable direct tubular connections from the air-forcing apparatus to the water-tank and thence to the steamer, from the air-forcing apparatus to the main oil-reservoir and to the air-tank, from the main oil-reservoir to the oil-tank, from the air-tank to the oil-tank and to the auxiliary oil-reservoir, and from the oil-tank to the auxiliary oil-reservoir at the opposite end thereof from the connection to the air-tank, said tubular connections, excepting that from the main oil-reservoir to the oil-tank, being provided with valves, substantially as and for the purposes set forth.

3. The combination of the burner H, the slotted table, the water-back J, pipes j j', arranged one above the other, and the steam-tank L, whereby the water-back and steam-tank may be removed without disconnecting them, as set forth.

4. The combination of the burner, the water-back, the pipes j and j', the steam-tank, the stove-top, slotted as described, and the warming-oven m, as set forth.

5. The combination, with the pump having three outlet-pipes with valves, of the barrels B C, having bungs B' C', the air-tank, the oil-tank, and the steamer E, as set forth.

In witness whereof I have hereunto set my name in presence of two subscribing witnesses.

JOHN S. HULL.

Witnesses:

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JNO. T. MADDOX.