

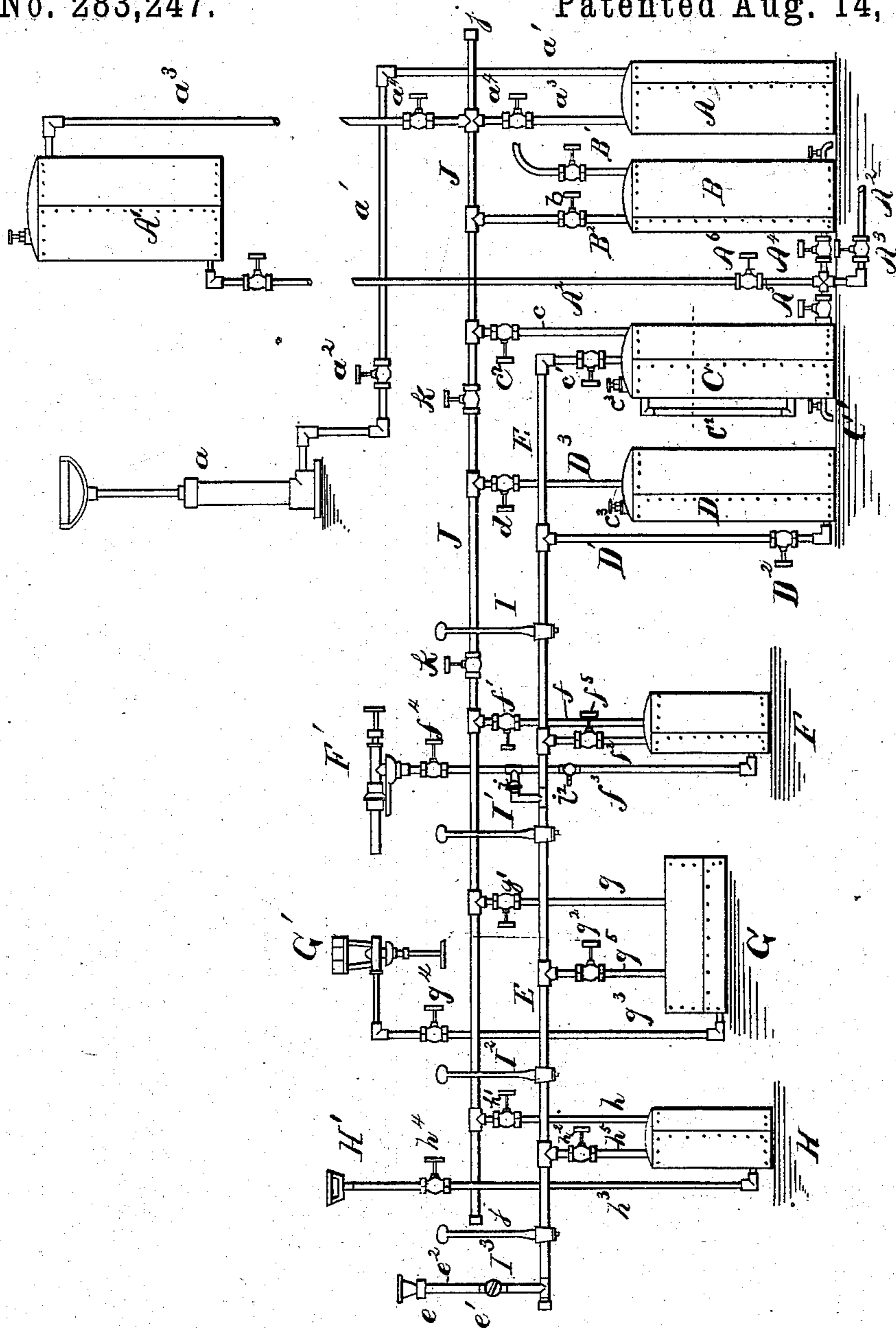
(No Model.)

J. S. HULL.

VAPOR BURNING HEATING AND COOKING APPARATUS.

No. 283,247.

Patented Aug. 14, 1883.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JOHN S. HULL, OF BALTIMORE, MARYLAND.

## VAPOR-BURNING HEATING AND COOKING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 283,247, dated August 14, 1883.

Application filed December 8, 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, which shows my improvements as set up for use.

My invention relates to devices for heating, either for cooking or mechanical purposes, in which vaporized fluid or oil is used as fuel; and it consists in certain improvements therein, as will be first duly described hereinafter, and then particularly pointed out in the claims.

Referring to the drawing by letters, A B C D represent tanks of a large size, while F, G, and H are smaller tanks.

a is an ordinary air-pump, the air from which is forced into the tank A through a pipe,  $a'$ , which is provided with a valve,  $a^2$ .

A<sup>2</sup> is a water-main connecting-pipe, (supplied with water under pressure,) which is provided with valves A<sup>3</sup> A<sup>6</sup>, and has short pipes connecting it with tanks B C, each of which connections has a valve marked, respectively, A<sup>4</sup> and A<sup>5</sup>. It (the pipe A<sup>2</sup>) leads to a tank, A', set at a considerable elevation, and which is connected, by means of a pipe,  $a^3$ , having valves  $a^4$ , with the air-tank A. This pipe  $a^3$  communicates, by means of a four-way coupling, with a pipe, J, as shown. This pipe J has connection with each of the tanks A B C D F G H by means of branches marked, respectively,  $a^3$  (just described) B<sup>2</sup> c D<sup>3</sup> f g h, which are provided, respectively, with valves  $a^4$  b c<sup>2</sup> d f' g' h', by means of which the supply of air can be cut off from any or all of the tanks, if desired.

B' is also a water-pipe, connecting with a suitable supply under pressure—as, for instance, the city mains.

C' is a spigot for emptying the tank C, and C<sup>2</sup> is a water-gage attached thereto. The tanks C and D are each provided with a filler-opening having in it a vent-valve,  $c^3$ .

E is a pipe, which may be denominated the "main supply-pipe," connected by branches  $c'$  D' f<sup>2</sup> g<sup>5</sup> h<sup>5</sup> with the tanks C, D, F, G, and H,

respectively. It has also a branch,  $e^2$ , upon which is mounted a burner,  $e$ . There may be as many of such branches and burners connecting directly with the main supply-pipe E as may be desired. The tanks F G H each supply a burner, as F' G' H', by means of branches  $f^3$  g<sup>3</sup> h<sup>3</sup>, each provided with a valve, as  $f^4$  g<sup>4</sup> h<sup>4</sup>, as shown. The main supply-pipe E is supplied with valves I I' I<sup>2</sup> I<sup>3</sup>, whose purpose will be hereinafter explained.

The burners may be of any desired style to be used to heat fire-pots, stoves, &c.

The operation of my device is as follows: Air, being forced into the tank A by the pump a, may be led to all the rest of the tanks, or as many as desired, by a proper manipulation of the valves. This will force the oil contained in the tank D into the smaller tanks F G H, causing them to be filled and the oil in them to be forced by the compressed air to the burners. Each one of these small tanks may be entirely cut off from the others, which will serve a twofold purpose—viz., to enable it to be definitely ascertained how much oil each burner uses, and to allow all the rest of the burners to be used should one of them by accident be broken or injured and require repairing.

A series of burners, as at  $e$ , may also be used, obtaining their supply directly from the tank D through the pipe E.

The branch or connection  $i$  leading from the pipe E to the pipe  $f^3$  may also be used in connection with the pipes g<sup>3</sup> h<sup>3</sup>, and serves, by opening its valve and closing the valve  $i^2$  in the pipe  $f^3$  below the connection, to supply the burners with oil direct from pipe E when, by accident, the tank is out of order.

In cities having a water-supply under pressure it is desirable to utilize such pressure, and this I do by allowing the water to pass from the main through pipe B' into tank B. From thence it may pass into the tank C under the oil therein contained, and the oil, being of less specific gravity than water, will remain above the water and be forced into the main supply-pipe E. The height of water, and consequently the depth of the oil, will be indicated by the gage C<sup>2</sup>. I also allow water to pass from the main through the pipe A<sup>2</sup> to the elevated tank

A', and thus utilize the height of the column of water contained in this supply-pipe A<sup>2</sup> by shutting the valve A<sup>3</sup> and opening the valve A<sup>5</sup>, leading to tank C. The pressure of this column is also supplemented by the pressure of air through the pipe a<sup>3</sup> into said tank A'.

If it is desired to entirely shut off one or more of the burners and its individual supply-tank, this can be done by closing the two valves, as I<sup>2</sup> I', in the pipe E. The action of the other burners will be uninterrupted by this, while repairs may be made on the interrupted burner.

My improvements as hereinbefore described may be employed to supply fluid to tinner's fire-pots, using any approved burner, as at F', or to a series of cooking or heating apparatus of any suitable style, with burners, as at G' H', or for heating in soldering cans, or with can-soldering machines—in fact, with any and all styles of vapor-burners.

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

1. The combination of the air-pipe J, supplied by a suitable air-forcing apparatus with air under pressure, the oil-supply pipe E, a series of individual tanks, F G H, branch pipes from each of said pipes to each of said tanks,

a series of burners connected with and supplied by said tanks, and means, substantially as described, whereby any one or more of said burners and its supply-tank may be cut out from the air and fluid supply at will, as set forth.

2. The combination, with a burner or series of burners, of the pipe E, tanks C and D, water-pipe A<sup>2</sup>, air-pipes c J, and the air-pump, as set forth.

3. The combination, with a burner or series of burners and a suitable supply-tank, as at C, of the air-pipes c J, the air-forcing apparatus, the pipe A<sup>2</sup>, and tank A', placed in an elevated position, as set forth.

4. The combination of the air-pump a, pipe a', air-tank A, pipes a<sup>3</sup> c J, tank C, pipe A<sup>2</sup>, and tank A', whereby the water in the tank C may be forced by the air-pressure back into the tank A' and its weight again utilized, as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN S. HULL.

Witnesses:

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