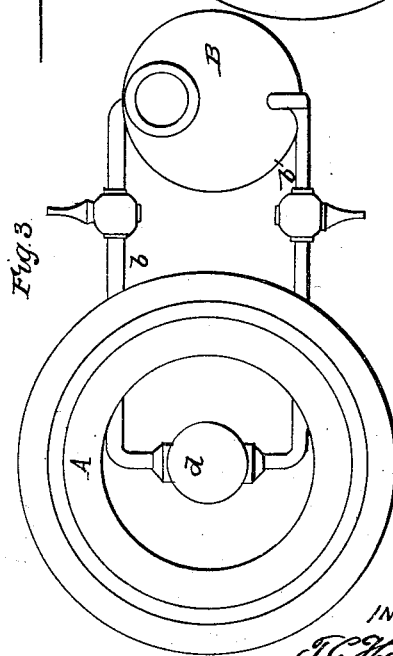
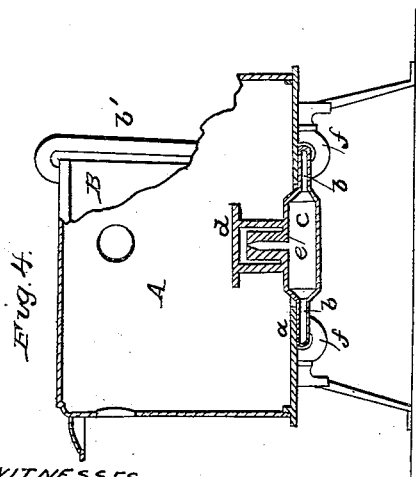
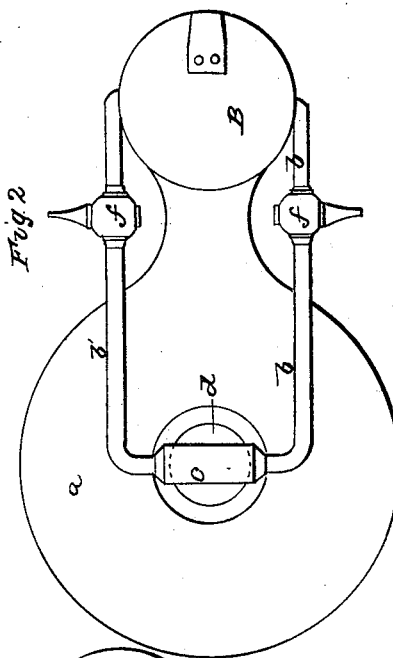
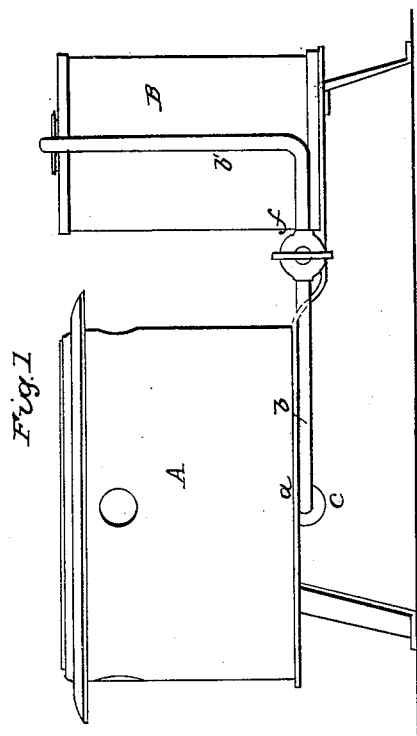


T. C. HARGRAVES.

Petroleum Stove.

No. 50,821.

Patented Nov. 7, 1865.



WITNESSES  
J. S. Newton  
J. G. Vestey

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# UNITED STATES PATENT OFFICE.

THOMAS C. HARGRAVE, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN PETROLEUM-STOVES.

Specification forming part of Letters Patent No. 50,821, dated November 7, 1865.

*To all whom it may concern:*

Be it known that I, THOMAS C. HARGRAVE, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new Improvement in Petroleum or Vapor Stoves; and I 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 marked thereon, making a part of this specification, of which—

Figure 1 is a side view of the vapor-stove, showing the position of the stove and the reservoir containing the material generating the vapor or gas. Fig. 2 is a bottom view of the same. Fig. 3 is a top view of the same; and Fig. 4 is a section of the heating-chamber, the vaporizer, the jet-tube, a part of the supply and pressure pipes, and also a part of the reservoir.

A represents the heating or cooking chamber; *a*, the floor or base of the heating chamber A; B, the Napha reservoir; *b* *b'*, the supply and pressure pipes; *c*, the vaporizer; *e*, its jet-tube; *d*, the air-mixer or blast-plate; *f f*, cocks in the pipes *b b'*.

Now, in order that others may better understand the nature and use of my invention and be enabled to construct the same, I will proceed to explain it.

In petroleum or vapor stoves the reservoir or can which holds the liquid which is to be generated into vapor or gas is placed at a considerable height above the stove, or a little on one side, and is connected with the vaporizer by a bent tube, which also supports the reservoir or can. Now, this reservoir is placed thus high—about four feet—chiefly in order that there may be a sufficient pressure of the liquid to force the jet of vapor or gas generated in the vaporizer in a steady flow into the flame through the jet-tube; and this tube, moreover, is the only support of the reservoir. Now, then, I propose to do away with this unsightly, precarious, and often very inconvenient mode of perching a reservoir upon a long tube, and I do it in this way:

By referring to Fig. 1 it will be perceived that the bottom of the reservoir or can B, containing the liquid to be generated into vapor or gas, is on a level or little lower than the heating-chamber *a*, so that the supply-pipe *b*, issuing from the bottom of the reservoir, is on a level with the vaporizer. This reservoir is also supported by a leg, as seen in said figure. I therefore place the reservoir right behind the stove, where it is neither unsightly nor in the

way, nor liable to have its connecting-tube bent or otherwise injured.

In order to compensate the pressure which the height of the ordinary reservoir gives, I have constructed a pressure-pipe. (Marked *b'* in the accompanying drawings.) This pressure-pipe enters the vaporizer opposite and on a level with, and in precisely the same manner as the supply-pipe *b* does, which is clearly seen in Fig. 3. It also extends to and enters the top of the reservoir, having a stop-cock, *f*, between the reservoir and the stove. The supply-pipe *b* issues from the bottom of the reservoir, and is connected with the vaporizer, in the manner seen in Fig. 3, having the supply-pipe *b*, through which the liquid flows from the reservoir to the vaporizer.

I will explain how my pressure-pipe *b'* operates and takes the place of the downward pressure obtained in the old way by placing the reservoir high on a tube.

I heat the vaporizer in the usual way, and then by turning the cock in the supply-pipe the liquid flows into the vaporizer. This is instantly converted into vapor or gas, and the vapor pressing in all directions, and the jet-tube being very small, only a very small portion of the vapor formed would be forced through it into the flame. There being no escape, the vapor would be forced back into the supply-pipe, and thus prevent the liquid from flowing into the vaporizer. To overcome this back-pressure of the vapor in the old way it was found necessary to elevate the reservoir about four feet, as before stated; but my pressure-pipe exactly meets this difficulty. The surplus vapor, escaping through the pressure-pipe and pressing equally in all directions, flows into the top of the reservoir, when it is absorbed in the liquid, and the liquid, of its own motion, flows down toward the vaporizer, the amount of which is regulated by the stop-cock in the supply-pipe, the vapor also being regulated by the stop-cock in the pressure-pipe.

A piece of soapstone or other non-conductor may be placed between the stove and reservoir, if necessary.

What I claim as my invention, and desire to secure by Letters Patent, is—

The pressure-pipe *b'*, connecting the reservoir with the vaporizer, substantially as and for the purpose above set forth.

Witnesses: T. C. HARGRAVE.

J. L. NEWTON,  
G. L. VESTY.