P. MARTIN.

Stove for Burning Crude Hydrocarbon and other Oils.

No. 204,349. Patented May 28, 1878.

Fig: 1.

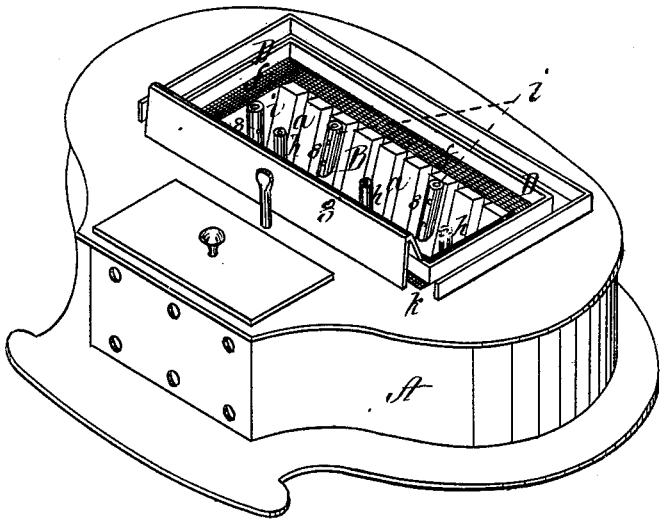


Fig: 2.

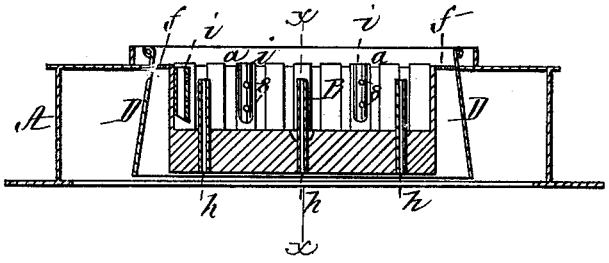
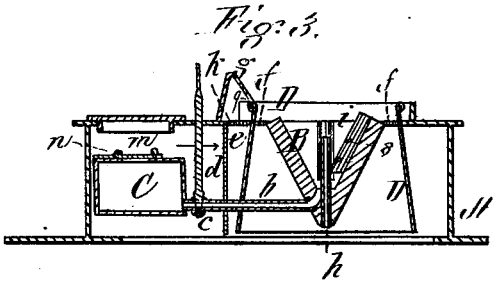


Fig: 3.



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UNITED STATES PATENT OFFICE.

PEARL MARTIN, OF MEDFORD, ASSIGNOR OF ONE-FOURTH HIS RIGHT TO SELWYN Z. BOWMAN, OF SOMERVILLE, MASSACHUSETTS.

IMPROVEMENT IN STOVES FOR BURNING CRUDE HYDROCARBON AND OTHER OILS.

Specification forming part of Letters Patent No. **204,349**, dated May 28, 1878; application filed February 23, 1878.

To all whom it may concern:

Be it known that I, PEARL MARTIN, of Medford, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Stoves for Burning Refined or Unrefined Hydrocarbon and other Oils, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of the base and fire-pot of an oil-stove constructed in accordance with my invention. Fig. 2 is a vertical section through the center of the same. Fig. 3 is a vertical section on the line *x x* of Fig. 2.

This invention relates to certain improvements on the oil-stove for which Letters Patent were granted me on the 22d day of January, 1878; and consists in surrounding the fire-pot with a casing which is open at the top and bottom, and extends above the top of the fire-pot, a space being left between them, through which the upward currents of air are directed upon the flame near the top of the wick or wicks, whereby the combustion is promoted and the heat greatly intensified.

My invention also consists in an inclined plate or deflector arranged along the front edge of the fire-pot, in close proximity thereto, which serves to direct the air which enters the aperture in the front of the stove-casing over the deflector, down toward the center of the fire-pot, which thus still further promotes combustion.

My invention also consists in a series of open perforated tubes secured to the side or sides of the fire-pot, these tubes serving to conduct the heavy gases which collect near the surface of the oil in the fire-pot up into the flame, where they are consumed.

My invention also consists in providing the casing with an aperture covered with wire-gauze, located between the oil-reservoir and the fire-pot, and in close proximity to the upper edge of the latter, said aperture communicating with a chamber over the oil-reservoir, and allowing the passage into the flame or up the chimney of any gas which may escape from the reservoir; and my invention also consists in interposing between the oil-reservoir and fire-pot a perforated plate, through which currents of cold air pass, and thus prevent the oil-reservoir from becoming heated.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A represents the casing or lower portion of the stove, within which is located the fire-pot B, the side or sides of which are inclined and provided with a series of grooves, *a*, for the reception of wicks. (Not shown.) C is an oil-reservoir, located within the casing A, in front of the fire-pot B, and communicating therewith by means of a pipe, *b*, provided with a stop-cock, *c*, the spindle of which extends up into an accessible position, a space, *d*, intervening between the reservoir and fire-pot. Through this space *d* extends longitudinally a perforated plate, *e*, through which pass, in the direction of the arrow, currents of cold air, which prevent the oil-reservoir from becoming heated by the radiation from the fire-pot. The fire-pot is surrounded on all sides by a casing, D, preferably made to converge slightly on all sides from the bottom to the top, a space, *f*, (covered with wire-gauze to prevent the downward passage of flame,) being left entirely around between the fire-pot and its casing D, the top of the latter extending above the upper edge of the fire-pot, and serving to direct the upward currents of air passing through the space *f* upon the flame at or near the top of the wick or wicks, the oxygen thus supplied promoting combustion, and thus greatly intensifying the heat. I also employ an inclined plate or deflector, *g*, which extends along the front edge of the fire-pot B, in close proximity thereto, and directs the air which enters the aperture (not shown) in the front of the upper portion of the stove-casing over the deflector, down toward the center of the fire-pot, the oxygen thus supplied still further promoting combustion.

Through the bottom of the fire-pot B extends a series of open tubes, *h*, the lower ends of which are in communication with the external air, while the upper ends rise above the level at which the oil is intended to stand in the fire.

pot, and through these tubes a supply of oxygen is conducted to the center of the body of flame, which would not otherwise be readily reached by currents of air from the outside, and by this means the heat is still further intensified.

Within the fire-pot B, and secured to its side or sides, is a series of tubes, *i*, open at the top and bottom, and provided with apertures 8 in the side, facing the interior of the fire-pot. These tubes *i* serve as conductors to lead the heavy gases which collect at or near the surface of the oil in the fire-pot to the body of flame above, where they are consumed as desired. In case the level of the oil in the fire-pot should be above the lower ends of the tubes *i*, the gas would enter the tubes through the apertures 8.

The casing A is provided with a long narrow aperture, *k*, covered with wire-gauze to prevent any liability of the flame from the fire-pot passing down through it, this aperture being located immediately under the hollow deflector *g*, and communicating with the chamber *m* over the oil-reservoir C, by which construction any gas which may escape from this reservoir through the inlet-aperture in its top, covered by the hinged plate *n*, is conducted by currents of air passing over the top of the reservoir, up through the aperture *k*, into the hollow deflector *g*, from which it is discharged through a longitudinal aperture, 9, or a series of holes, into the flame, where it is consumed. When the deflector *g* is not employed, the gas, as it issues from the aperture *k*, passes directly into the flame along the front edge of the fire-pot.

In the event of any pressure of gas within the reservoir C, it will raise the hinged plate *n* and escape through the aperture covered thereby into the chamber *m*, and thence pass through the aperture *k*, as before described.

What I claim as my invention, and desire to secure by Letters Patent as an improvement in oil-stoves, is—

1. In a hydrocarbon-stove, the inclined casing D, open at its top and bottom, in combination with the fire-pot B, around and above the top of which it extends, and so constructed as to form a space, *f*, for the upward passage of currents of air between them, substantially as and for the purpose set forth.

2. The inclined plate or deflector *g*, in combination with and arranged along the front edge of the fire-pot B, for directing the air which enters the aperture in the front of the stove-casing over the deflector down toward the center of the fire-pot, substantially as described.

3. A series of open perforated tubes, *i*, in combination with and applied to the side or sides of the fire-pot B, substantially as and for the purpose set forth.

4. The casing A, with its longitudinal aperture *k* covered with wire-gauze, and located in close proximity to the upper edge of the front of the fire-pot, in combination with the oil-reservoir C, and communicating with the chamber *m* thereover, substantially as and for the purpose set forth.

5. The casing A, with its longitudinal aperture *k* covered with wire-gauze near the upper edge of the front of the fire-pot, and the oil-reservoir C, in combination with chamber *m* and vertical perforated plate *e*, all constructed, arranged, and operated as and for the purpose set forth.

Witness my hand this 18th day of January, A. D. 1878.

PEARL MARTIN.

In presence of—
N. W. STEARNS,
P. E. TESCHEMACHER.