A. B. HUTCHINS.

HYDROCARBON STOVES.

No. 194,242. Patented Aug. 14, 1877.

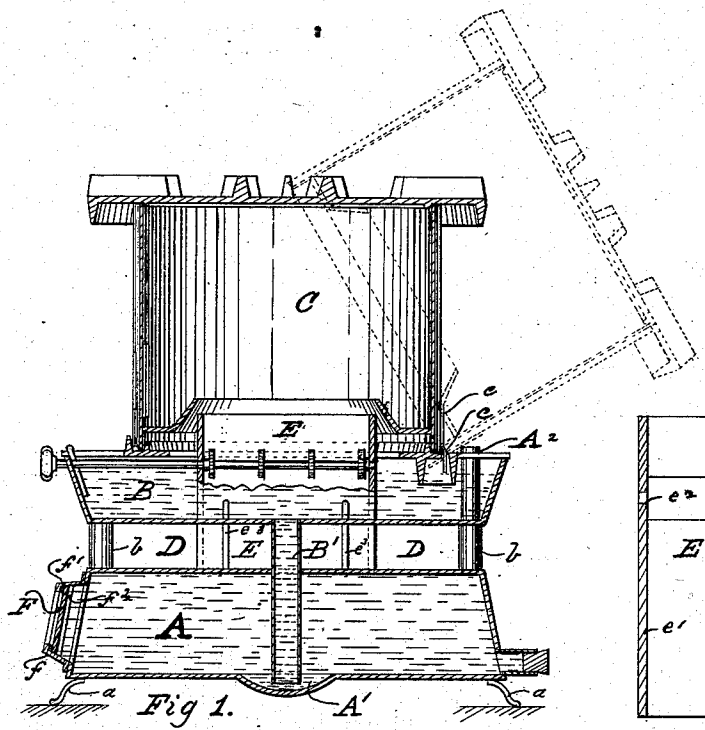


Fig 1.

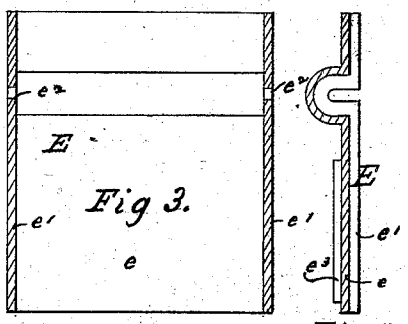


Fig 3.

Fig 5.

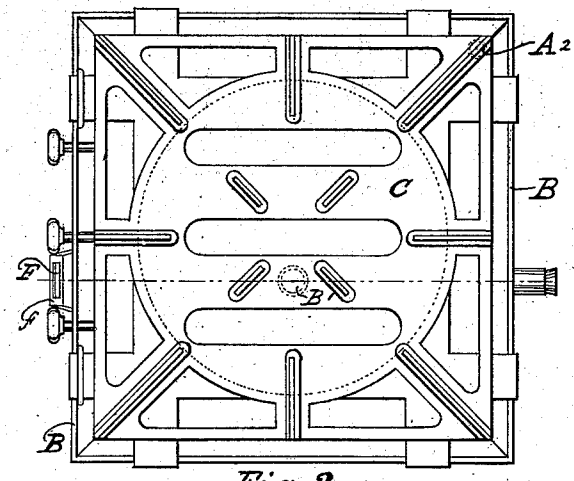


Fig 2.

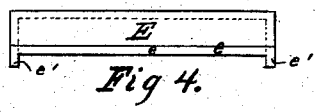


Fig 4.

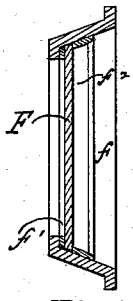


Fig 6.

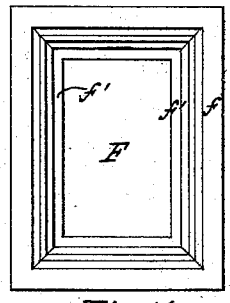


Fig 7.

Witnesses.

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ABNER B. HUTCHINS, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN HYDROCARBON-STOVES.

Specification forming part of Letters Patent No. 194,242, dated August 14, 1877; application filed March 8, 1877.

To all whom it may concern:

Be it known that I, ABNER B. HUTCHINS, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Hydrocarbon-Stoves; and I hereby declare the following to be a full and clear description of the same.

This invention relates to a hydrostatic water-pressure exerted upon the hydrocarbon fluid, so as to keep it raised up to an altitude at least equal to the height of the surface of the water in water-tank, which is usually interposed between the top of the oil-reservoir and the burners that heat the stove.

The invention also relates to certain details of construction, which will be hereinafter more fully described, and the whole will be readily understood by reference to the accompanying drawings, of which—

Figure 1 is a sectional elevation of the improved stove, showing in full lines the completed stove and its appurtenances as in use, and in dotted lines the top part of the stove tipped back on its peculiar hinge, in such position as to render the top parts of the wicks accessible for trimming or lighting. Fig. 2 is a general plan of the stove. Fig. 3 is an elevation of one side of the cast-metal part of the wick-tube. Fig. 4 is a plan of the same. Fig. 5 is a central sectional elevation of it. Fig. 6 is a detail sectional elevation of the window-light that provides for observation of the state of the oil in the reservoir. Fig. 7 is an inside elevational view of the said window-light removed from the stove.

This stove consists of three general parts—viz., the base or oil-reservoir A, the upper or water reservoir B, and the general stove-top C. The reservoirs A and B are rectangular in form, preferably, and the lower one, A, is supported on short feet *a*, while short posts *b* separate these two reservoirs, so as to form an air-passage, D, between them. The posts *b* should be secured to the top of vessel A and the bottom of vessel B, so as to hold them firmly together. The vessel A should be formed with a well, A^1, at its bottom, the size of which well should be, say, two inches in diameter, more or less, and about a half an inch deep. A tube, B′, will lead from the bottom of the reservoir B to near the bottom of the before-mentioned well in the bottom of A, thus passing through the top plate of the vessel A, to which it will be securely soldered, as well as to the bottom plate of B. A feeding-tube, A^2, which is to be used to pour the fluid through into the chamber A, may be most conveniently extended down through the chamber B, being, of course, thoroughly soldered to the walls of said reservoir, through which it passes. An easily removable cap will be provided to cover and protect the top end of the tube A^2. A similar feeding-tube will be provided to supply the chamber B, except, of course, that it will only pass through and be soldered to the top plate of the reservoir B.

The wick-tubes E, the construction of which will be hereinafter more fully described, also pass completely through the top reservoir B and the air-space D, and these tubes will be thoroughly soldered to the walls of the reservoirs, through which they pass.

The top part of the stove C presents no new features, except in regard to the short foot-piece *c*, which is riveted to one side of the casing of C, near its bottom, and arranged to extend below the bottom of C, and down into a mortise or slot in the top plate of reservoir B, on which said top plate—the top part of the stove C—rests. This foot-piece *c* being straight, the top part of stove may be easily set down upon its seat on top of B, and thus the parts of the stove may be readily assembled together, or taken apart when required, and the foot-piece will hold the top part of the stove and its base together, as by a hinge, when the top part of the stove is tipped back, as shown by the dotted lines of Fig. 1.

There will be a window, F, placed in the side of the lower or oil reservoir, for the purpose of disclosing to the operator the quantity of oil in the said reservoir. This window and its fixtures will consist of a small frame, *f*, which is to be soldered, or otherwise permanently fixed, to the side of the reservoir A, a rubber or other suitable packing, f^1, interposed between the said frame and the glass F, and an inside stop, f^2, arranged in some suitable manner, so as to hold the glass firmly against its packing-strip f^1. The object of this window, as has been stated, is to enable the attendant to observe at all times the exact

amount of oil in the reservoir, and its use becomes a necessity in view of the fact that the said reservoir is always full, partly of water and partly of oil, and without the aid of the window it would be impossible to tell just how much of the contents of the said chamber was oil and how much was water.

The wick-tubes E are constructed with one side, *e*, and the two edges e^1 of the tube formed of cast metal, and made solid, in one piece. The object of this is to have the inside of the tube straight and true, and the seats e^2 for the ratchet rod or shaft that elevates the wick formed in the cast metal, and, consequently, more perfectly formed than they could be in sheet metal, as has been the custom. The remaining side of the wick-tube is to be made of sheet metal, which will be soldered to the two edge flanges of the plate E. The sheet-metal side of the tube may be turned over the edges of the flanges e^1.

The stove constructed as above described, the lower vessel or reservoir A will be filled, or partly filled, with some suitable hydrocarbon, and the upper vessel or reservoir B will be filled, or partly filled, with water, which will descend through the tube B′ into the well A^1, and as the water is of a greater specific gravity than the hydrocarbon, the water will always remain at the bottom in the vessel A, and force the hydrocarbon into the top part of the reservoir A; but it cannot escape upward through the tube B′ into the reservoir B, because it cannot gain access to the bottom end of the said tube, the said bottom end of the tube being submerged in the water in the well A^1.

The hydrostatic pressure of the water will habitually force the hydrocarbon up into the wick-tubes as high as the top of the water in the vessel or reservoir B, and capillary attraction will, of course, cause it to rise some higher, thus securing the presence of the oil high up on the wicks, in close proximity to the burners, while the reservoir of oil is far below, and separated from the influence of the flame by the interposed water and air spaces.

There are lugs e^3 formed on the side of the cast part of the wick-tubes, which serve as stops and guides, to strike the top plate of A when the parts are assembled, and thus regulate the heights of the said tubes, and also thereby place the seats e^2 in line.

Having described my invention, I claim—

1. The oil-reservoir A, the water-reservoir B, and the connecting-tube B′, arranged as described, to permit the water to descend through the said tube to the bottom of the oil-chamber, and press the oil up to the top part of its chamber, and also up into the wick-tubes as high as the top of the water in the reservoir B, while the lower end of the tube B′ is submerged in the water in the well A^1, so as to seal it against the entrance of oil, substantially as described and set forth.

2. The wick-tubes E, formed partly of one solid cast piece, $e\ e^1\ e^1$, having seats e^2 formed therein for the shaft of the wick-elevator, and a sheet-metal front plate soldered to the sides e^1, substantially as and for the purpose set forth.

3. The foot-piece *c*, attached to the side of the top of stove C near its base, and arranged to fall into a slot or mortise in the top plate of reservoir B, on which the said top part C rests, to assemble the parts together, and also to act as a hinge or coupling when the top part of the stove is tipped over into a convenient position for lighting, substantially as described and set forth.

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Witnesses:
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