W. S. POTWIN.

Coal-Oil Stoves.

No. 195,950. Patented Oct. 9, 1877.

Fig 1.

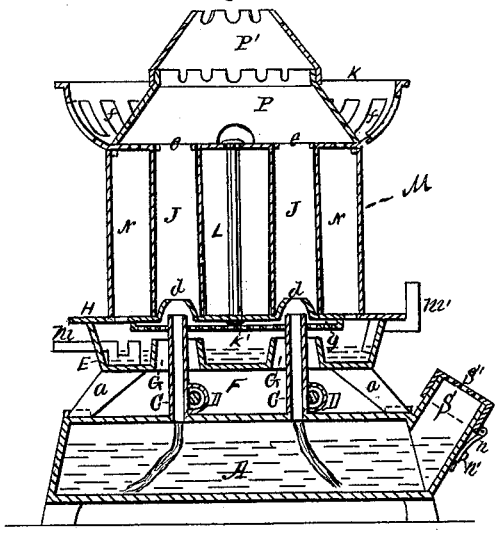


Fig 2.

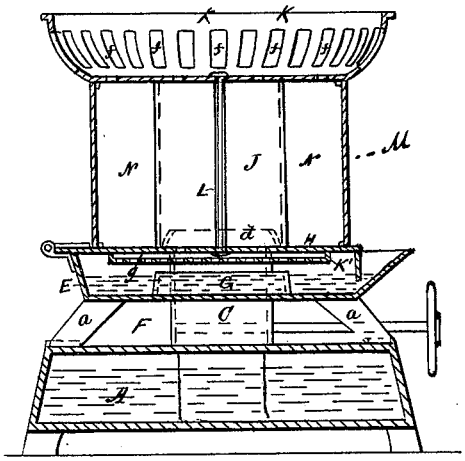


Fig 3.

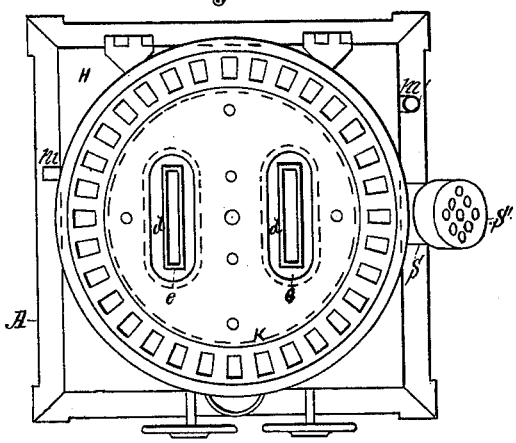
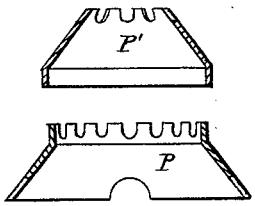


Fig 4.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM S. POTWIN, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN COAL-OIL STOVES.

Specification forming part of Letters Patent No. **195,950,** dated October 9, 1877; application filed June 18, 1877.

To all whom it may concern:

Be it known that I, WILLIAM S. POTWIN, of Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Coal-Oil Stoves; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 represents a vertical transverse central section of a coal-oil stove embodying my invention. Fig. 2 represents a sectional elevation, cutting the same through the center at a right angle to the plane of the section Fig. 1. Fig. 3 represents a general plan or top view of the same; and Fig. 4 represents a vertical central section of the diminishing cones employed to concentrate the heat when small cooking-utensils are used.

Like letters of reference indicate like parts.

My invention relates to that class of coal-oil stoves used for cooking purposes; and the object of my invention is to so construct and arrange the several parts thereof as to produce a more perfect combustion, and to prevent the heat from the flame from being reflected downward to and upon the oil-reservoir.

To that end my invention consists in the employment of a water or steam-generating chamber located between the cone-plate and the oil-reservoir, and provided with vertical flues, through which the wick-tubes pass, and through which flues the air passes to feed the flame; and my invention also consists in the combination of the several parts, as hereinafter more fully described and claimed.

In the drawing, A represents the base or oil-reservoir, which is made preferably of cast metal and in the form shown; but may be made of sheet metal and in any desired form that will receive and support the several parts of the stove.

C C are the wick-tubes, which communicate with the interior of the reservoir A and extend upward therefrom in the usual manner.

D D are the ratchets for adjusting the wicks.

E is a water-reservoir, which is supported upon the standards *a a* attached to each corner thereof, and arranged to rest upon or enter the upper surface of the oil-reservoir, as shown in Figs. 1 and 2, and which standards are of the proper length to elevate the water-chamber above the oil-reservoir, so as to form an air-space, F, between said chamber and reservoir, through which the air can freely circulate.

The water-reservoir E is provided with openings formed through its lower surface, and around which openings are arranged suitable walls, extending upward to a point slightly below the plane of the upper edges of the sides of the reservoir, and so as to form air-flues G G, through which the wick-tubes, respectively, pass.

The horizontal area of the opening in each of said flues is such as to allow the requisite amount of air to feed the flame to pass through.

H is the cone-plate, which is hinged at one side to the water-reservoir E, and so as to form a cover to said reservoir, and is so arranged as to admit of being opened or closed at will, and is provided with deflecting-cones *d d*, arranged immediately over the wick-tubes, as shown in Fig. 1.

J J are the chimneys, which are made in the usual shape, and are fitted at their lower ends around the cones *d d*, respectively, in the ordinary manner.

K is a cast-metal rim, upon which the cooking-utensils are supported, and is provided with openings *e e*, formed through the same immediately over the chimneys, and through which the products of combustion from the flame pass.

L is a vertical bolt passing through the cone-plate and rim centrally between the chimneys, by which means the said rim and plate are connected together so as to hold the chimneys in a fixed position between them.

M is a sheet-metal jacket, arranged between the cone-plate and rim around the chimneys, and so as to form an air-chamber, N, as shown in Figs. 1 and 2.

The rim K is provided with a series of openings, *f*, formed through the same, as shown in Fig. 2, the object being to admit of a free circulation of air through them when the cooking-utensil is resting upon the rim, and there-

by allow the products of combustion to ascend through the chimneys to and in contact with the cooking-utensil.

K′ is a perforated diaphragm, arranged between the upper ends of the flues G G and the lower surface of the cone-plate H, so as to form an air-space, *g*, between its upper surface and the said plate, into which space the air to feed the flame passes from the water-reservoir.

The wick-tubes extend upward through mortises formed in said diaphragm and into the deflecting-cones, as shown in Fig. 1. The diaphragm K′ may be permanently attached to the cone-plate, so as to be removed from off the wick-tubes, when the cone-plate is raised to ignite the wicks, or it may be detached from the cone-plate and supported by the wick-tubes, so as to allow the cone-plate to be removed or elevated independent of the diaphragm.

The water-reservoir is provided with inlet and outlet tubes *m m′*, arranged on opposite sides of the same, and communicating with the interior thereof, as shown in Fig. 1, the object being to admit of passing a current of cold or hot water through the reservoir, as may be desired.

S is an induction-tube, which is attached to the wall of an oil-reservoir, A, and communicates with the interior thereof, and through which tube the oil is passed into the reservoir.

The tube S is open at both ends, and is provided at its outer end with a perforated cap, S′, loosely fitted thereon, as shown in Fig. 1. The cap S′ is hinged to a pintle, *n*, which is secured to the wall of the tube by a clasp, *n′*, so as to allow the pintle to be moved in the direction of its length when necessary to remove the cap from the tube.

The cap S′ is perforated for the purpose of allowing any gas which may be generated in the oil-chamber to escape, and thereby prevent explosion, and said cap, by being connected to the pintle, as described, prevents it from being lost, and at the same time admits of the cap being readily and freely removed from the tube.

P is a conical-shaped rim, which is of the proper size at its lower end, to rest upon the base of the rim K around the openings in the upper ends of the chimneys, or it may rest upon the upper edge of the rim K; and P′ is a like conical-shaped rim, which is of the proper size at its lower end to fit around the upper end of the rim P, as shown in Fig. 1, and each is so arranged as to admit of being removed at will. The object of said rims P and P′ is to provide a means of concentrating the products of combustion against the bottom of cooking-utensils of different sizes, when they are too small to cover the openings in the upper ends of the chimneys.

Each of said rims is provided with a series of ventilating-openings in its upper edge, through which the heated air can pass when the cooking-utensil is resting upon the edge of the rim.

The operation of my said improved coal-oil stove is as follows: The water-reservoir E being partly filled with water, and the wicks ignited, the air feeding the flame passes between the water-reservoir and the oil-reservoir upward through the flues G G around the wick-tubes and into the water-reservoir, when it mingles with the steam generated in the water-reservoir, and passes from thence upward through the perforated diaphragm K′ into the air-space *g*, and from thence upward into the respective deflecting-cones *d d*, and in contact with the flame. The heat generated by the flame then passes upward through the chimneys to and in contact with the cooking-utensil resting upon the rim.

It will readily be seen that by arranging the air-flues in the water-reservoir, so that the wick-tubes pass through them, and by arranging the cone-plate so as to tightly close the water-reservoir, all the air feeding the flame must pass immediately over the oil-reservoir and upward through the flues, around and in contact with the wick-tubes, thereby keeping the wick-tubes cool, and at the same time causing the heated air, which is radiated from the flame downward through the flues, to ascend with the current of cool air, and preventing the oil-reservoir from becoming unduly heated.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The water-reservoir E, located between the cone-plate H and oil-reservoir A, and provided with the air-flues G G, and arranged to form the air-space F between the water and oil reservoirs, substantially as and for the purpose described.

2. The combination, with the water-reservoir E, provided with the air-flues G G, through which the wick-tubes pass, of the cone-plate H and perforated diaphragm K′, arranged to form the air-space *g* between the plate and reservoir, substantially as shown and described.

3. The combination, with the water-reservoir E, of the inlet-tube *m* and outlet-tube *m′*, substantially as and for the purpose specified.

4. The combination, with the cap or rim K in a coal-oil stove, of one or more removable conical-shaped rims, P and P′, provided with ventilating-openings, substantially as and for the purpose specified.

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Witnesses:

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