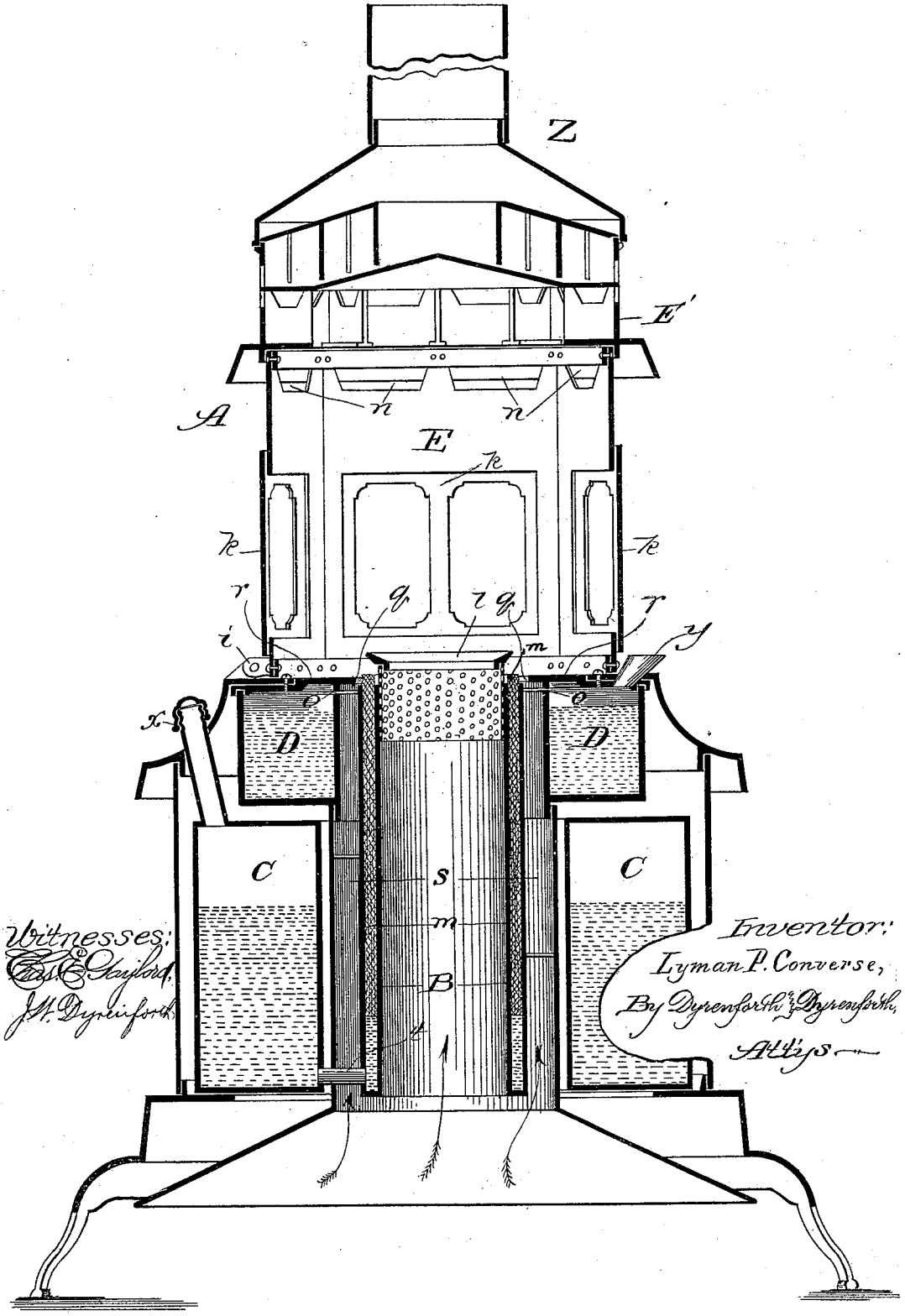
(No Model.)

L. P. CONVERSE.

STOVE.

No. 419,417. Patented Jan. 14, 1890



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UNITED STATES PATENT OFFICE.

LYMAN P. CONVERSE, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO PETER FISH, OF SAME PLACE.

STOVE.

SPECIFICATION forming part of Letters Patent No. 419,417, dated January 14, 1890.

Application filed April 4, 1889. Serial No. 305,972. (No model.)

To all whom it may concern:

Be it known that I, LYMAN P. CONVERSE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Stoves, of which the following is a specification.

My invention relates to an improvement in heating and cooking stoves employing hydrocarbon oil or gas as a fuel; and my object is to provide an improved construction of this kind of stove in which vapor or steam generated in a reservoir by the heat of the flame may be fed to the latter to supply additional hydrogen and oxygen in such a manner and in such quantity as will insure substantially complete combustion of the carbon, to prevent smoking and greatly intensify the heat over that capable of being produced by the hydrocarbon oil or gas alone, and without at the same time increasing the quantity of the latter consumed.

The drawing illustrates in sectional elevation a heating-stove of my improved construction for burning hydrocarbon oil.

A is the stove, provided with an Argand burner B, which communicates by a pipe *t* with an annular oil-reservoir C, having a controllable feed-opening *x*. Above the reservoir C is an annular receptacle or chamber D for water, provided with an inlet-opening *y*, which may be closed by any suitable means. The oil-reservoir and water-chamber encircle the burner B, but are out of contact with the latter, whereby an annular space *s* is formed for the passage of air; and the top plate *r* of the water-chamber, which is about on a level with the upper end of the annular space for the wick, projects part way across the air-space *s*, to afford a narrow annular outlet *q*, thereby to increase the force of the draft where it strikes the flame. Toward the upper extremity of the inner face of the water-chamber and adjacent to the outlet *q* is a narrow horizontal annular opening *o*, which may be continuous or a line of perforations.

E is the combustion-chamber, provided toward its upper extremity with openings *n* and surmounted by a ribbed or grated section E′.

In operation the wick *m* is fed with oil from the reservoir C through the pipe *t* in the usual manner. The chamber D is filled with water nearly to the level of the opening *o*, and when the wick *m* is ignited the flame is caused to spread over the top plate *r* of the water-chamber by means of a deflecting-ring *l*, which surmounts the burner B, as shown. As the top plate *r* becomes heated it heats the water in the reservoir and in a comparatively-short time generates steam therein, the only avenue of escape for which is through the narrow annular opening *o*, the reservoir at all other points being steam-tight and the filling-opening *y* closed. The flame creates a strong draft of air through the space *s*, and the steam which enters through the opening *o* mingles with the air-current and is carried through the outlet *q*, striking the deflected flame at substantially a right angle. The narrowness of the opening *o* permits no more steam to be carried to the flame than may be readily decomposed by the heat thereof, so that substantially perfect combustion of the carbon is maintained and the heat of the flame greatly augmented by the hydrogen thus fed to it. The grated section E′ affords an open top for the combustion-chamber, through which the hot products of combustion may escape. Instead of the grated section E′ or surmounting the latter, a close cover may be provided, in which case the hot products of combustion will escape through the openings *n*. In the drawing I have shown upon the part E′ an air-heating device Z of the improved construction for which Letters Patent of the United States No. 383,171 were granted me on the 22d day of May, 1888, and which therefore requires no detailed description in the present connection. The effect of the heater Z is greatly to increase the heating-power of the stove, and I prefer to adjust it loosely in operative position, whereby it may be readily removed when it is desired to tilt the part E, as and for the purpose hereinafter described, or when it is desired to use the stove for cooking purposes.

In outward appearance the stove may be made highly ornamental, as by the employment of the usual nickle-plate trimmings and by providing mica doors *k* in the part E, as shown. I prefer to secure the chamber E

upon the lower part of the stove by means of a hinge *i*, in order that when it is desired to have access to the burner for the purpose of inserting or trimming the wick, or cleaning the internal parts of the stove, the part E may be tilted out of the way.

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

1. In a stove, the combination of an Argand burner B, an annular flaring deflector *l* upon the burner, a water-chamber D, surrounding the burner toward the upper end of the latter, an annular air-space *s* being formed between the burner and water-chamber, a cover *r* on the water-chamber, projecting part way across the annular space *s* to afford a narrow annular passage *q* from the said annular space around the upper end of the burner, and an annular outlet-opening *o* from the water-chamber to the air-space *s* near the cover *r*, whereby the flame is deflected over the cover *r*, to heat water in the chamber D, and the steam thus produced enters the space *s* through the opening *o* to mix with the air and be carried by the current through the narrow opening *q* to the flame, substantially as and for the purpose set forth.

2. In a stove employing hydrocarbon oil as the fuel, the combination of an Argand burner B, an annular flaring deflector *l* upon the burner, an oil-reservoir C, surrounding the burner, a water-chamber D above the oil-reservoir and surrounding the burner toward the upper end of the latter, an annular air-space *s*, separating the burner from the oil-reservoir and water-chamber, a cover *r* on the water-chamber, projecting part way across the annular space *s* to afford a narrow annular passage *q* from the said annular space around the upper end of the burner, and an annular outlet-opening *o* from the water-chamber to the air-space *s* near the cover *r*, whereby the flame is deflected over the cover *r* to heat water in the chamber D, and the steam thus produced enters the space *s* through the opening *o* to mix with the air and be carried by the current through the narrow opening *q* to the flame, substantially as and for the purpose set forth.

LYMAN P. CONVERSE.

In presence of—
J. W. DYRENFORTH,
M. J. BOWERS.