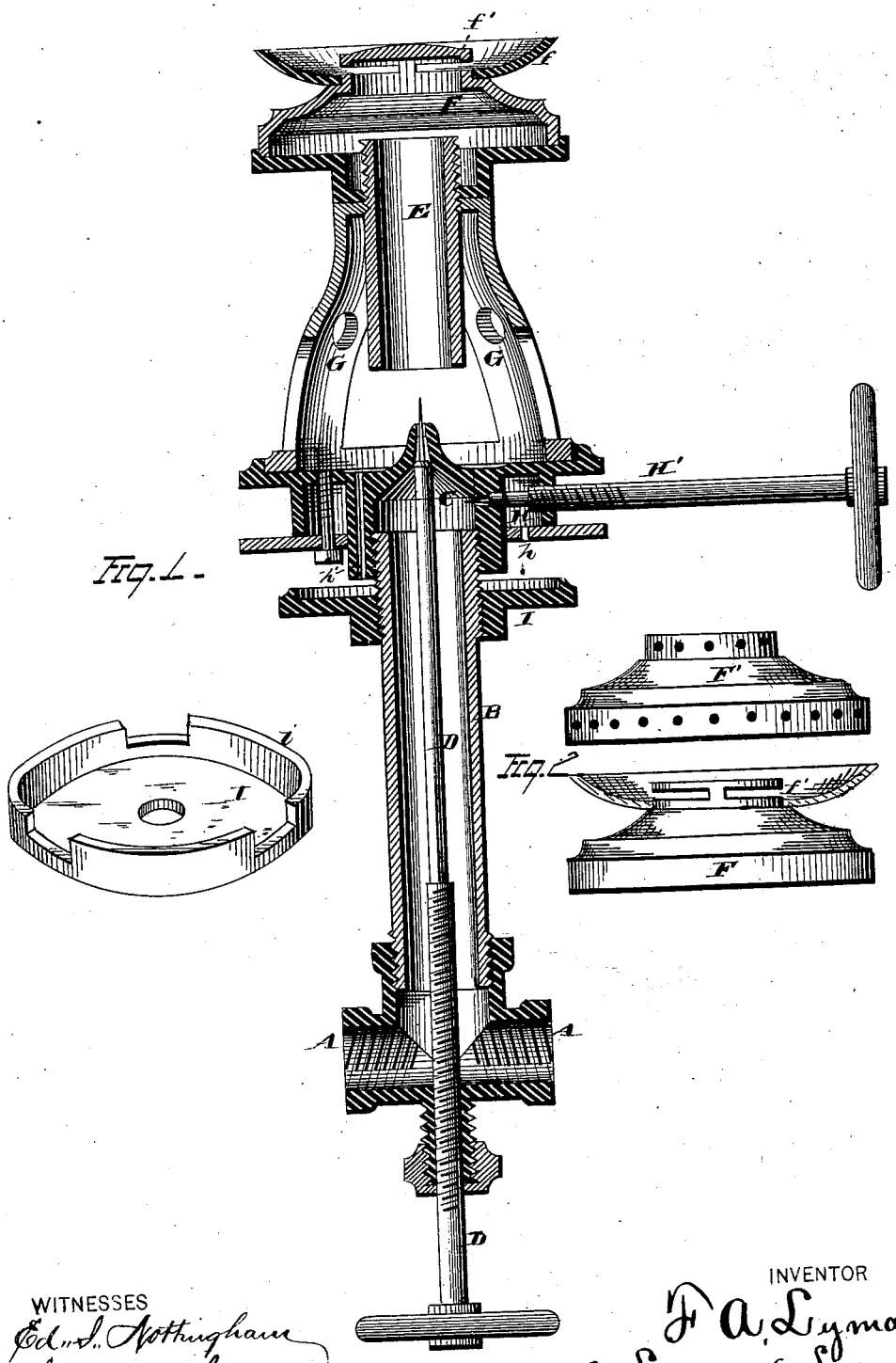
F. A. LYMAN.
Gasoline-Burner.

No. 200,464. Patented Feb. 19, 1878.



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UNITED STATES PATENT OFFICE.

FORDYCE A. LYMAN, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF HIS RIGHT TO SOLOMON H. SCHMUCK, OF SAME PLACE.

IMPROVEMENT IN GASOLINE-BURNERS.

Specification forming part of Letters Patent No. **200,464,** dated February 19, 1878; application filed January 8, 1878.

To all whom it may concern:

Be it known that I, FORDYCE A. LYMAN, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Gasoline-Burner; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improved burner for gasoline, for employment in gasoline cooking-stoves; and consists in the combination of devices and appliances herein set forth and claimed.

In the drawing, Figure 1 is a longitudinal central section of a device embodying my invention. Fig. 2 represents separate views of perforated and slotted bell-crowns.

A is a pipe, through which gasoline is conveyed to the burner. B is a tube situated beneath the vapor-jet and contiguous thereto, and which, with the jet-chamber C, constitutes the vaporizing-chamber, within which the gasoline is converted to vapor. D is a needle or point passing through the vapor-jet orifice, and governs the flow of vapor to the burner proper. E is a tube located above the vapor-jet, and leading to the bell-crown or burner proper F. G are arms, which support the burner and the tube E above the jet.

The burner F may be of the usual form of perforated crown, as shown in Fig. 2; or it may be in the form of a bell or crown, slotted about its upper end, through which the flame is emitted. If slotted, as last described, there may or may not be employed an annular ring surrounding the burner just below the slot, for the purpose of spreading the flame, and causing it to burn more quietly.

The slotted crown is shown at F, and its upwardly-flaring ring at *f*, and the slot at *f'*. F' is the ordinary perforated-crown burner. H is a chamber surrounding the vapor-jet, and formed preferably in a single casting therewith. H' is a screw-shaft, passing through its side and entering the vapor-jet chamber C. The bottom of the chamber H is provided with one or more perforations, *h*, preferably a number of perforations surrounding the jet-orifice, and there are also one or more openings, *h'*, leading from the upper side of the chamber H down through the chamber through its lower portion. I is a plate or cup for catching the liquid gasoline and furnishing the initial heat.

The operation of this device is, briefly, as follows: When it is desired to start the flame the shaft D is run down, so as to open the jet-orifice, permitting the liquid gasoline to overflow upon the top surface of the chamber H. This gasoline flows down through the orifice *h'* onto the plate I beneath. It is then lighted, and communicates heat to the chamber H surrounding the jet-chamber, and also communicates heat directly to the jet-chamber C and the adjacent pipe B, converting the gasoline therein to vapor. The shaft D is then again loosened, so as to open the jet-orifice, and the jet, ascending through the tube above, draws air with it into the tube, and the same is mixed in the burner F above, and may be lighted at the perforations or at the slot *f'*. The shaft H is now loosened, so that vapor may pass into the chamber H and down through the orifice *h*, causing a slight flame to be maintained beneath the chamber H between the chamber and the plate or cup I. This flame maintains a strong heat surrounding and in immediate proximity with the vaporizing-chamber, and is entirely independent of the flame above.

The lower flame may be increased or diminished at, pleasure, by opening or closing its feed-orifice by the feed-shaft H'. Moreover, the feed-shaft D may be run up, so as to shut off the main flame at the burner proper; but the lower flame, being permitted to burn slightly, will maintain a vapor within the vaporizing-chamber, so that at any moment the upper flame may be lighted without again going to the trouble of producing an initial heat, which is always disagreeble in the odor produced and the smoke and soot generated.

If at any time while the upper flame is burning it is found that the flame is yellow at places, indicating that the gasoline is not sufficiently vaporized before escaping from the jet, and consequently producing imperfect com-

bustion, the defect can be immediately remedied by increasing the flame on the plate I.

After the upper or main burner has been extinguished and the flame permitted to die down on the plate I, the upper burner may at any time be ignited by simply turning on the vapor-jet by the shaft D, and then cause a sudden enlargement of the flame on the plate I by permitting more gasoline to be fed to it. The flame in rising will ignite the gasoline at the main burner above.

I propose generally to make, in connection with the plate I, upturning flanges or ribs *i*, the object being to prevent any sudden blast of air from extinguishing the flame on the plate I, the said ribs or flanges serving as a wind-guard or shield.

My invention will admit of various modifications without departing from its principle. Thus the chamber H and the plate I might be made in a single piece. So, also, the burner F above and the tube leading to it might be entirely disconnected from the other mechanism and be supported by the frame-work of the stove, or be connected in any other manner. I would have it understood, however, that the plate I may be made with or without the wind-guards.

So, also, I may or may not employ the perforated burner; and if I employ the slotted burner I may or may not employ the plate *f*, so as to cause the flame emitted from the slot *f'* to spread out beneath the cooking utensil, for my invention is equally well adapted for use with any of the well-known bell-crowns.

What I claim is—

1. The combination, with the vaporizing-chamber and heating-chamber surrounding the same, and formed with passages *h* and *h'*, of the burning-plate I, substantially as set forth.

2. The combination, with the vaporizing-chamber, provided with suitable valve mechanism, and the heating-chamber, which surrounds it and is formed with the passages *h* and *h'*, of the valve H' and the horizontal burning-plate I, provided with or without wind-guards *i*, substantially as set forth.

3. The combination, with the vaporizing-chamber and the annular heating-chamber, of the burner proper, the intermediate vertical tube, and the standards or open support upon which said tube and burner are raised independently above the vapor-jet orifice, substantially as set forth.

4. The combination, with the burner F, formed with slot *f'*, of the annular upwardly-flaring plate *f*, formed on the top thereof below said slot, substantially as set forth.

5. The combination, with the vaporizing-chamber, of the surrounding chamber H, provided with burning-jets *h* and valve H', for supplying gasoline or vapor to the said jets, substantially as described.

6. The combination, with the main vapor-jet, of the chamber H, plate I, and orifices *h'*, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FORDYCE A. LYMAN.

Witnesses:

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W. E. DONNELLY.