F. A. & A. B. LYMAN.

GASOLINE-STOVE.

No. 192,589. Patented July 3, 1877.

Fig. 1.

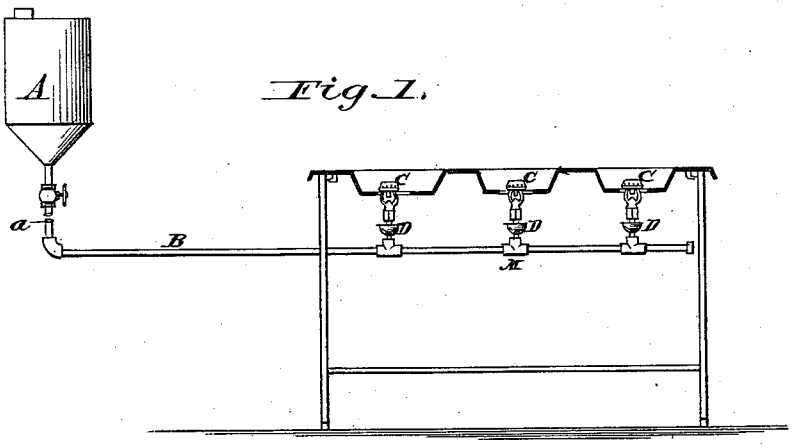
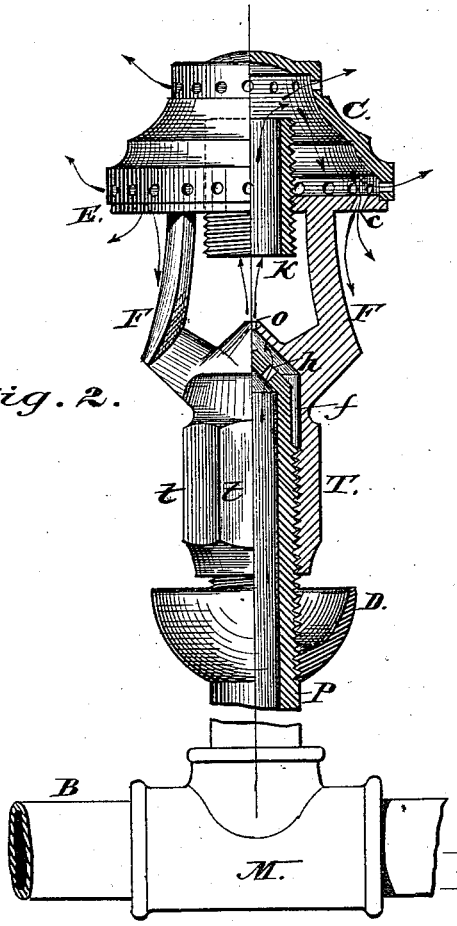


Fig. 2.



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FORDYCE A. LYMAN AND ADELVIN B. LYMAN, OF CLEVELAND, OHIO.

IMPROVEMENT IN GASOLINE-STOVES.

Specification forming part of Letters Patent No. **192,589**, dated July 3, 1877; application filed December 1, 1876.

To all whom it may concern:

Be it known that we, FORDYCE A. LYMAN and ADELVIN B. LYMAN, of Cleveland, county of Cuyahoga, and State of Ohio, have jointly invented certain new and useful Improvements in Gasoline-Stoves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 is an elevation of a stove of the class to which we intend to apply our improved burners, showing the general location of said burners and the elevated oil-reservoir. Fig. 2 is a partial section and elevation of the burner, showing the various parts thereof in detail.

Our invention consists in certain improvements upon the burner, as will be hereinafter fully described, and then pointed out in the claims.

A is the elevated reservoir, designed to contain a supply of hydrocarbon oil for the stove, and to feed it to the same under the requisite amount of pressure, which is proportional to the height of said reservoir. The supply-pipe B is shown broken away at *a*, to indicate that the reservoir may be placed at any desired elevation.

To insure against accidents, we propose to make the reservoir A seamless—that is, so that it shall have no soldered or other joints in the direction of its length, as is commonly the case in this class of oil-containing vessels.

To accomplish this we spin or stamp the metal into the required shape by any of the known processes which are applicable for the purpose. In thus avoiding the use of a seam (soldered or otherwise) we diminish the danger from leakage which frequently engenders explosions; and we remove the grave objections urged against this class of stoves on account of the disagreeable odor constantly emitted from a leaking reservoir. Should the oil which often appears upon the exterior of the can become ignited from any cause, the heat therefrom would, under ordinary circumstances, melt away the solder, (were any used,) and an explosion or conflagration would result. Of course a top is soldered upon the seamless body, and a filling-orifice provided therein.

C, Fig. 2, is the burner-cap, provided with a double row of perforations or jet-orifices for the emission of the gas, in the usual manner. It is mounted upon a base, E, which, in turn, is supported by the arms F F, projecting upwardly from the tube T, which latter carries the valve-seat. Through the base E are two perforations, *c*, inclined toward the arms F, for the purpose of directing a flame thereon, the heat from which is conducted to the chamber *f*, where it converts the oil into gas, as required. By reason of the pressure thereon, the gas is forced through the perforation *o* in the tip of the gas-generating chamber *f*, and from thence passes up through the tube K into the mixing-chamber formed by the cap C and its base E, carrying with it the requisite amount of air. The gas and air are thoroughly mingled in the aforesaid chamber, and in this condition flow through the perforations in the cap C, where they are ignited and supply the heating-flame.

The tube K is screw-threaded upon its exterior, and is received by a corresponding screw-thread in the base E, by reason of which it may be adjusted up or down, as desired. This construction is adopted for three reasons: first, to afford a means of elevating or depressing said tube at will, by which adjustment the amount of air forced into the mixing-chamber may be properly controlled to produce the requisite and most economical consumption of liquid fuel; second, to avoid the use of brazed or soldered parts, which would be almost worthless in a burner of this class, wherein such intense heat is generated; and, third, to simplify and cheapen the construction of the combined base and tube, said tube projecting both above and below the base.

A series of common elbow-joints, as at M, are attached to the supply-tube B at the points over which it may be desired to place the burners, and from these project the tubes P, screw-threaded, as shown, to receive the burner-supporting tubes T.

The upper portion of the tube P is made conical in shape, in order that it may form a

valve, which, in connection with its seat, furnishes a means of regulating the flow of oil.

Heretofore these oil-regulating valves have been made in the form of needles, which rendered them expensive to manufacture, and it has been found that they jam into their seats (which are at the same time the gas-orifices) in such a manner as to enlarge the same and destroy their continuity as well as the effectiveness of the regulating contrivance.

To obviate these objections, and to improve and simplify the construction, the hollow valve-tube P is perforated, as at *h*, through which perforations the oil flows into the mixing-chamber *f*, and the valve-seat is formed in the upper portion of the tube T, which is adjustable up and down upon the hollow valve.

From the construction indicated, it is obvious that the opening *h* may be closed by simply turning the burner, the effect of which will be to bring the valve-seat down upon the valve; and it is further obvious that the amount of oil allowed to flow through said perforation is easily regulated by simply revolving the burner, so that the gas-generating chamber shall be more or less contracted.

The burner may be turned as desired by simply inserting a convenient implement between the arms F; or the tube T may be cut angularly in cross section, as indicated at *t t*, and a forked bar or wrench applied thereto.

The screw-threaded tube P also receives and holds the drip-cup D, which is correspondingly threaded.

In order to start the burner, a little oil is poured in the drip-cup, where it is ignited. The flame from this gives heat sufficient to generate the requisite initiatory amount of gas in the chamber *f*, after which the combined air and gas is ignited at the burner-cap.

The packing usually employed in this class of burners is, of course, supplied.

When constructed in accordance with the above-mentioned improvements, the burner is found to operate in a superior manner. Its several parts are easily and cheaply made, and the simplicity of the oil-regulating device, which is a prominent feature of the invention, strongly recommends the burner, both on account of the ease with which it is manipulated and its non-liability to become damaged or get out of repair.

We do not desire to be understood as broadly claiming perforations in a mixing-chamber, through which jets of gas are directed upon the metal which connects with the gas-generating chamber; but,

Having now fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In combination with the base E of the mixing-chamber, the screw-threaded tube K, operating through said base, as and for the purposes explained.

2. In combination with the curved arms F, the base E, provided with inclined perforations *c*, adapted to direct a jet of gas against the sides of said arms, as and for the purpose explained.

3. In a gasoline-stove, the combination, with a vertically-adjustable burner, of an oil-pipe leading thereto, the two forming a gas-generating chamber, which may be enlarged or contracted, accordingly as said burner is elevated or depressed, substantially as and for the purposes explained.

4. In combination with the burner-carrying tube T, perforated, as at *o*, and screw-threaded, as shown, the correspondingly-threaded tube P, having oil-orifices *h*, the whole arranged and operating as set forth.

In testimony that we claim the foregoing we have hereunto set our hands in the presence of two witnesses.

F. A. LYMAN.
A. B. LYMAN.

Witnesses:
F. BUEHNE,
ALLAN T. BRINSMEDE.