(No Model.)

G. P. WAY.

VAPOR OR GAS BURNER.

No. 457,414. Patented Aug. 11, 1891.

Fig. 1.

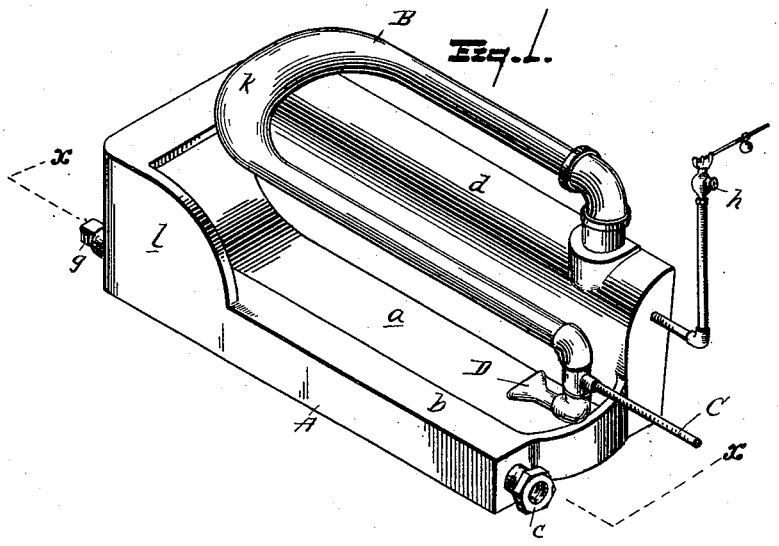
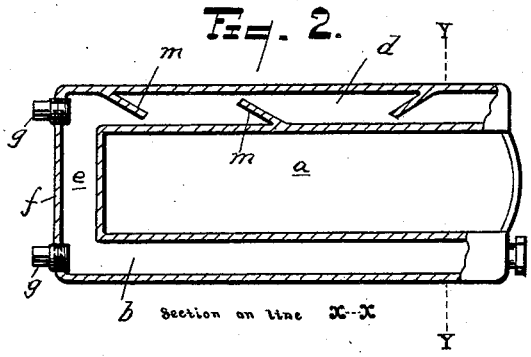
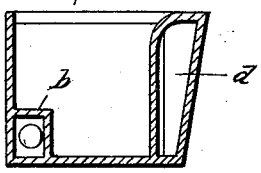


Fig. 2.



Section on line X-X

Fig. 3.



Section on line Y-Y

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VAPOR OR GAS BURNER.

SPECIFICATION forming part of Letters Patent No. 457,414, dated August 11, 1891.

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To all whom it may concern:

Be it known that I, GEORGE PERRIN WAY, a citizen of the United States, residing at Detroit, Michigan, have invented certain new and useful Improvements in Vapor or Gas Burners; and I do 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 appertains to make and use the same.

This invention has relation to a device to be used in connection with any ordinary stove for burning a combined water and oil gas or vapor for heating or lighting purposes; and the novelty will be fully understood from the following description and claims, when taken in connection with the accompanying drawings, in which—

Figure 1 is a perspective view of my improved device removed from the stove. Fig. 2 is a longitudinal sectional view taken in the plane indicated by the dotted line *x x* on Fig. 1. Fig. 3 is a vertical sectional view taken in the plane indicated by the dotted line *y y* on Fig. 2.

Referring by letter to said drawings, A indicates the main frame of my improved device. This frame, which is preferably of cast metal, may be formed from a single piece of material having a depressed upper face, so as to form a pan *a*. This pan *a* is inclosed on one side by a double wall, forming a water-chamber *b*, which is provided at one end with a pipe or tube *c*, carrying a suitable coupling for the attachment of a water-pipe, which may lead from any suitable source of supply. The opposite longitudinal side or back of the frame is formed with a chamber *d*, which communicates at one end with a transverse chamber *e*, and this chamber *e* and the chamber *d* are of a much greater altitude than the chamber *b*, which is parallel with said chamber *d*.

This apparatus is designed to be placed in the fire-box of a cook-stove or heating-stove, and the double-walled chamber *d* is designed to form the rear wall of the fire-chamber, and the double-walled chamber *e* may form one of the end walls of the fire-chamber or lining thereof. The outer wall *f*, forming one of the walls of the chamber *e*, is provided with two apertures, as shown, which are normally closed by removable brass plugs *g*, so that the boiler or water-chamber may be removed of its sediment and cleaned out by removing said plugs. In one of the end walls of the combined water and steam chamber *d*, I arrange a blow-off cock *h*, which will act as a safety in case too much water is turned into the boiler.

B indicates a superheating-pipe. This pipe is connected at one end by means of an elbow and coupling, as shown, with the top wall or roof of the chamber *d*, and preferably near one end thereof, and the opposite end of said superheater is connected by means of an elbow and coupling with an oil or gas supply-pipe C. A discharge D for the oil and mingled steam is also provided at this end of the superheater B, and said discharge is arranged over the pan *a* and near one end thereof. This superheater, which is of a loop form and is arranged directly above the boiler and pan, has its bent portion *k* of an increased diameter, so as to present a much larger surface above the flame at this point. It will be observed that I also form a short wall *l*, rising between the chamber *e* and the chamber *b*, near one end of the latter, so as to confine the flame at this point and direct as much as possible against the increased portion of the superheater B.

A pipe may lead to the coupling at the tube *c* from any suitable water-supply, and such pipe should be provided with a valve to control and open and close the flow, and the oil or vapor pipe C, which also leads to a suitable supply, should have a valve for regulating the flow.

By reference to Fig. 2 of the drawings it will be seen that I provide the combined water and steam chamber *d* of the boiler or apparatus with deflecting plates or flanges *m*, which are arranged in an overlapping position at intervals, so as to retard the flow in said chamber and take off the pulsation caused by the changing of the water into steam.

In operation I first open the valve in the oil-supply pipe, so as to let a little oil in the pan *a*. I then ignite the oil thus introduced into the pan, after which I turn on the water-supply, which first enters one end of the chamber *b*, and, passing entirely through this chamber, enters the chamber *e*, and from thence

into the chamber *d*, where it is converted into vapor or steam, and such steam being carried off from the chamber *d* through the loop-pipe or superheater is again heated from the flame below and highly heated before it enters the discharge D, where it is mingled with the inflowing oil.

With a device of this character I can attain a very high heat with a small amount of fuel without in any manner producing the offensive smoke which follows in apparatus of this character. The device is very simple in construction, effective in operation, and may be manufactured at a very small expense.

While I have referred to my improvements as being arranged in the fire-box of a stove for cooking purposes, yet it is obvious that it may serve as an efficient illuminating device, and in such cases it would not be inclosed by a fire-box, but left exposed to view.

Having described my invention, what I claim is—

1. An oil-pan having a boiler formed around three of its walls and having two of said walls of an increased height, so as to form a steam-chamber, in combination with a loop-pipe arranged above the pan so as to form a superheater and connected at one end with one of the boilers and its opposite end arranged to discharge above the pan, and a pipe for supplying oil, connected with the discharge end of the superheater, substantially as specified.

2. An oil-pan for oil and vapor burners, having a partially-surrounded boiler, said boiler being of an increased height on one side of the pan, so as to form a steam-chamber, and also provided with deflecting plates or flanges, in combination with a looped pipe forming a superheater, said superheater being arranged above the pan with one end discharging therein and the opposite end connected with the boiler, substantially as specified.

3. The pan *a*, adapted to be placed in the fire-box of a stove and having a water-chamber *b*, forming one of the walls of the pan, a water-chamber *e*, forming one of the end walls of the pan, and a water-chamber *d*, forming the opposite side wall of the pan, the chambers *e* and *d* being of a greater height than the chamber *b*, so as to form a steam-chamber, said chamber *e* having openings and plugs for closing the same, in combination with the looped superheater arranged above the pan, with one end connected with the chamber *d* and the opposite end adapted to discharge into the pan, and pipes for supplying water and oil, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE PERRIN WAY.

Witnesses:
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