

**972,882.**

Fig. 1.

Fig. 2.

Fig. 4.

Fig. 5.

**Fig. 3.**

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# UNITED STATES PATENT OFFICE.

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## BURNER FOR GAS-STOVES.

972,882.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ROBERT M. LOVELL, of the city of Baltimore and State of Maryland, have invented certain Improvements in Burners for Gas-Stoves, of which the following is a specification.

This invention relates to that class of burners for gas stoves in which a pilot flame is always maintained while the stove is in use, and the said flame increased in size so as to be effective as a heater when a cooking vessel, or a sad iron, is placed upon the stove and directly over the burner; and it consists in a peculiar construction of the valve and its connections which regulate the flow of gas to a mixing chamber in which the gas commingles with air and thereby becomes adapted as a heating medium when ignited, as will hereinafter fully appear.

In the further description of the said invention which follows, reference is made to the accompanying drawing forming a part hereof, and in which,—

Figure 1 is a longitudinal central section of the improved burner, together with a part of the stove which is directly over the burner, and upon which articles to be heated are placed. Figs. 2, 3, 4 and 5 are views of detached parts of the burner.

Referring now to the drawing, A represents a part of the upper plate of a stove, below which is situated the burner now to be described.

1 is an annular chamber which contains gas after its mixture with air in a manner hereinafter described. This chamber is covered by a plate 2 having apertures *a* from which flames project.

Screwed into the nozzle *b* situated at one side of the annular chamber 1 is a pipe 3 which supplies the said chamber with gas after the same has been combined with air in a manner hereinafter described.

4 is the gas supply pipe to which is applied the mixing chamber 5, and over its inner end is screwed the valve shell 7. The said valve shell, a longitudinal section, and an end view of which is well shown in Fig. 2, is provided with a conical valve chamber *c* in communication with the gas supply pipe 4 by means of the inlet port *d*. The outlet port *e* in the wall of the shell 7 is larger than the inlet port *d* and is outwardly flared to admit of the rapid lateral spread-

ing of the gas as it issues from the shell 7, and its thorough incorporation with the air in the mixing chamber 5.

9 is a conical puppet valve, see Fig. 5, having a small transverse duct *f* which duct when the valve is seated in its chamber, is in central alinement with the ports *d* and *e*, and admits sufficient gas to the mixing chamber to maintain minute flames at the apertures *a* in the covering plate 2. Should the valve 9 be lifted the gas will not only pass through the duct *f* but also around the valve, and the flames will be increased and made available for heating purposes.

By reference to Figs. 1 and 2 of the drawing it will be seen that the entrance end of the duct *f* is flared. By this means I am enabled to use a duct of minute size and yet provide against the same being cut off in the lifting of the valve after the duct is out of alinement with the inlet port *d*. In other words the said duct is at all times open to the port *d* without respect to the degree of movement of the valve within reasonable limits. This arrangement and construction has been found to entirely prevent what is termed "flare back," that is to say the ignition of gas at the port *e* instead of at the apertures *a* in the covering plate 2, and also the explosion of gas incorporated with air in the mixing chamber.

In order that the mixing chamber will be well adapted for the purpose for which it is intended, it is provided with a permanent opening *g* for the admission of air; and a similar opening *h* the size of which is regulated by a sliding cap 10 held in place by the screw *i* which passes loosely through a slot *j* and is screwed into the wall of the said chamber, as shown in Fig. 1.

The means whereby the puppet valve is lifted and a full flow of combined gas and air admitted to the apertures *a* in the covering plate 2 upon the placing of any article to be heated on plate A of the stove, a portion of which plate is shown in Fig. 1, I employ a lever 13 which is fulcrumed at *k* to the band 15 on the pipe 3, one end of which lever extends through the circular opening *m* on the stove plate A to a position above the upper surface of the same when the valve 9 is seated in its chamber. The other end of the said lever is connected by a link 17 shown detached in Fig. 3, to a second lever 20 illus-

trated in Fig. 4, which is pivoted to the valve shell 7 at *n* and hinged to the upper end of the valve 9 as shown in Fig. 1.

When an article to be heated is placed on the stove plate A, the outer end of the lever 13 is depressed, which causes the valve 9 to be fully opened and a full flow of mixed air and gas admitted to the mixing chamber which produces full sized flames at the apertures *a* in the covering plate 2.

Upon the removal of the heated article from the stove plate, the valve 9 drops and the volume of gas passing to the mixing chamber is reduced and the flames resulting therefrom diminished in size.

I claim as my invention:—

1. In a burner adapted for application to a gas stove, an aerated-gas chamber having a covering plate provided with exit apertures, an air and gas mixing chamber in communication with the aerated-gas chamber, a gas supply pipe which enters the mixing chamber, a valve shell which is screwed on to the end of the gas supply pipe, having a conical valve chamber the wall of which is provided with an inlet and an outlet port the same being of unequal sizes, the latter being larger than the former, combined with a conical puppet valve having a transverse duct of smaller size than the inlet port and a lever one end of which is situated above the said

covering plate, and the other end indirectly connected to the puppet valve, whereby upon the depression of the outer end of the lever, the said puppet valve is lifted, substantially as specified.

2. In a burner adapted for application to a gas stove, an aerated-gas chamber having a covering plate provided with exit apertures, an air and gas mixing chamber in communication with the aerated-gas chamber, a gas supply pipe which enters the mixing chamber, a valve shell which is screwed on to the end of the gas supply pipe, having a conical valve chamber the wall of which is provided with an inlet and outlet port the same being of unequal sizes, the latter being larger than the former, combined with a conical puppet valve having a transverse duct of smaller size than the inlet port and which is flared at its entrance end, and a lever one end of which is situated above the said covering plate, and the other end indirectly connected to a puppet valve, whereby upon the depression of the outer end of the lever, the said puppet valve is lifted, substantially as specified.

ROBERT M. LOVELL.

Witnesses:

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WM. T. HOWARD.