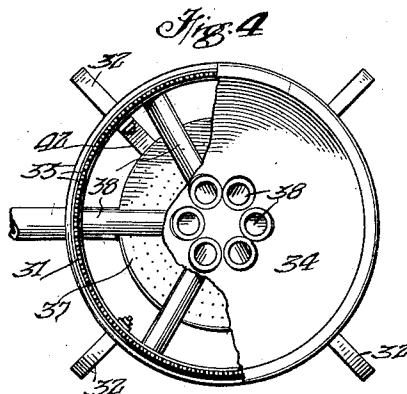
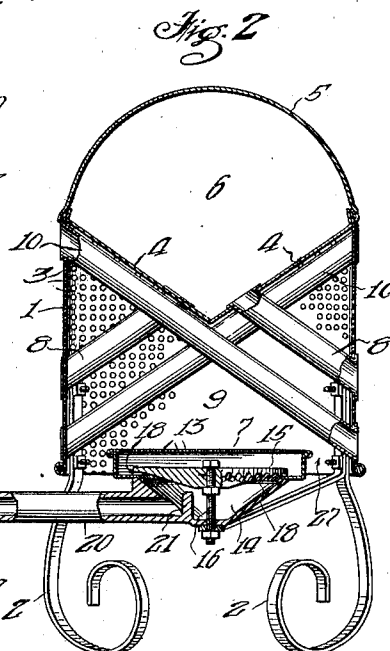


APPLICATION FILED JAN. 31, 1911.

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Inventor,
Louis Jacobson;
by *W*
Journard & Aubrey,
his attys.

UNITED STATES PATENT OFFICE.

LOUIS JACOBSON, OF LOS ANGELES, CALIFORNIA.

HEATER.

1,002,519.

Specification of Letters Patent.

Patented Sept. 5, 1911.

Application filed January 31, 1911. Serial No. 605,776.

To all whom it may concern:

Be it known that I, LOUIS JACOBSON, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Heater, of which the following is a specification.

This invention relates to a gas heater and the main object of the invention is to provide a gas heater with means whereby the heated air and products from the heater are distributed laterally into the surrounding room or space.

Another object of the invention is to provide for maximum expanding and circulating effect on the air.

Another object of the invention is to provide a gas heater in which the burner serves as a partial closure for the bottom of the heater, and provides for deflecting the air in contact with the walls and heating tubes of the heater.

Another object of the invention is to provide means for supplying air to the burner from an outside source without drawing on the air of the room in which the heater is located.

The accompanying drawings illustrate the invention, and referring thereto:

Figure 1 is a partly sectional side elevation of the heater. Fig. 2 is a section on line x^2-x^2 in Fig. 1. Fig. 3 is a vertical section, partly in elevation, of a round form of the heater. Fig. 4 is a section on line x^4-x^4 in Fig. 3.

The heater comprises a body or shell 1, preferably of sheet metal, supported on legs 2, said shell being of any suitable shape, for example, rectangular, as shown in Fig. 1, and being open at the bottom and perforated at the sides, for example, as indicated at 3, for admission of air thereinto. Said shell is closed at the top by a trough-shaped plate 4 of sheet metal extending obliquely downward from each side toward the center and a top member 5 may be provided extending from the sides of this plate 4 over the top thereof forming an intervening chamber 6

which is open at each end for passage of air therethrough. The burner indicated at 7 is located at the lower part of the chamber formed within the shell 1. Pipes 8 extend obliquely within the chamber 9 within the shell 1, said pipes 8 opening at their outer ends at the outside of the side walls of the shell 1 and opening at their inner and upper ends into the chamber or space 6 above the plate 4. Oblique pipes 10 are also provided extending obliquely within the space or chamber 9 and opening at their lower ends at the outside of one side wall of the shell 1 and opening at their upper ends at the outside of the other side wall of the shell 1. The pipes or tubes 8 thus extend from each side of the shell toward the other side across one another and are arranged alternately as shown, so as to extend most effectively in the path of the currents of air ascending from the burner.

While any form of burner may be used in connection with the heater, I prefer to use the form shown, comprising a burner head 7 formed as a flat shallow box having its top perforated as indicated at 13, said head being formed of sheet metal and having a central opening in its bottom, the edge of said opening being clamped between a conical chamber 14 and a cap member 15 clamped to the chamber 14 by a bolt 16, said cap 15 being provided with ridges or projections between which the gas or mixture may escape from the chamber 14 into the burner head proper 13. The mixture or supply tube 20 communicates with the chamber 16, a deflector 21 being provided at its inner end to spread and mix the air and gas, and said supply tube 20 is provided at its outer end with a gas supply connection 23 and air supply connection 24. The gas supply connection is controlled by the usual regulating means and the air supply connection is controlled by a valve 25 and may extend by a hose connection 26 to the outside of the room in which the heater is located.

The operation is as follows: When the gas is turned on and lighted and the air is

admitted by valve 25, the mixture enters chamber 14 and passes through openings 18 into the burner head 7 and thence through perforations 13 where it burns in a large number of small flames distributed throughout the bottom of the heating chamber 9. The air passes upwardly in the space 27 between the burner head and the walls of the shell 1 and passes out through the perforations in the upper part of the side walls of the shell 1. The air passing in this manner heats the plate 4 at the top of the shell 1, as well as the side walls of said shell and also heats the tubes or pipes 8 and 10, causing the air to be heated and expanded within said tubes or pipes and to circulate through said pipes or tubes, the air passing from the lower end of each pipe 8 upwardly through said pipe into the chamber 6 above the plate 4, whence it passes out endwise into the room and the air passing from the lower end of each tube 10 passes upwardly through the heating chamber and out at the upper end of said tube at the other side of the heater, so that currents of air are provided from the heater passing in all directions. The effect of the above described operation is to deliver the heated air in form of lateral currents extending from the heater outwardly at each side from the tubes 10, and outwardly at each end from the space 6, so that the heat is carried outwardly to a considerable distance from the heater in each direction, and the expanding effect produced on the surrounding air by these outward currents also assists in setting up the circulation tending to force the air into the channel or space 27 at the lower portion of the heater.

In the form of the invention shown in Figs. 3 and 4, the shell 31 is of rounded form and is provided with legs 32 and with perforations 33 near its upper end. The conical top member 34 is provided for the shell 1 and a burner 37 is located in the lower part of the shell, being supported on a strap 42. Tubes or pipes 38 extend obliquely upward from the outside wall of the shell 31 to the space above the top plate 34, said tubes being open at their lower and upper ends for passage of air therethrough.

The operation of this form of the invention is similar to that above described, except in so far as it lacks the function of the cross tubes or pipes 10 and the covering for the air chamber above the top of the heater.

In each of the above described forms of the invention, the burner head, (the member 7 in Figs. 1 and 2 and 37 in Figs. 3 and 4) is of considerable area and occupies the greater portion of the space at the bottom of the heater shell and operates as a distributing member, in such manner that the air entering at the bottom of said shell is distributed around the interior of the shell, adja-

cent to the walls thereof, and in contact with the oblique tubes within the shell.

What I claim is:—

1. A heater comprising a shell open at the bottom and having a top member extending obliquely downward from the side of the shell toward the center of the heater, the side walls of said shell being perforate, and tubes extending obliquely within said shell and through said side walls and top member of the shell, said tubes being open at their lower and upper ends for passage of air from the outside of the shell into the space above the said top member.

2. A heater comprising a shell open at the bottom and having a top member extending obliquely downward from the side of the shell toward the center of the heater, the side walls of said shell being perforate, tubes extending obliquely within said shell and through said side walls and top member of the shell, said tubes being open at their lower and upper ends for passage of air from the outside of the shell into the space above the said top member, and tubes extending obliquely across the chamber within said shell from one side wall of said shell to the other, said tubes being open at their upper and lower ends for passage of air therethrough.

3. A heater comprising a shell open at the bottom and having a top member extending obliquely downward from the side of the shell toward the center of the heater, the side walls of said shell being perforate, tubes extending obliquely within said shell and through said side walls and top member of the shell, said tubes being open at their lower and upper ends for passage of air from the outside of the shell into the space above the said top member, tubes extending obliquely across the chamber within said shell from one side wall of said shell to the other, said tubes being open at their upper and lower ends for passage of air therethrough, said top member of the shell being trough-shaped, and a covering member extending over said top member forming an intervening air space open at each end.

4. A heater comprising a shell open at the bottom and having a top member extending obliquely downward from the side of the shell toward the center of the heater, the side walls of said shell being perforate, and tubes extending obliquely within said shell and through said side walls and top member of the shell, said tubes being open at their lower and upper ends for passage of air from the outside of the shell into the space above the said top member, in combination with a burner having a perforated distributing member at its top, extending at the bottom of the shell and occupying the greater portion of the space at said bottom, leaving a passage surrounding the burner,

between the distributing member and the shell, said burner being provided with means for supplying gas and air thereto, and having a perforated top for distributing the mixture of gas and air in jets over the greater part of the lower portion of the shell.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 23rd day of January 1911.

LOUIS JACOBSON.

In presence of—

ARTHUR P. KNIGHT,
F. A. CRANDALL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."