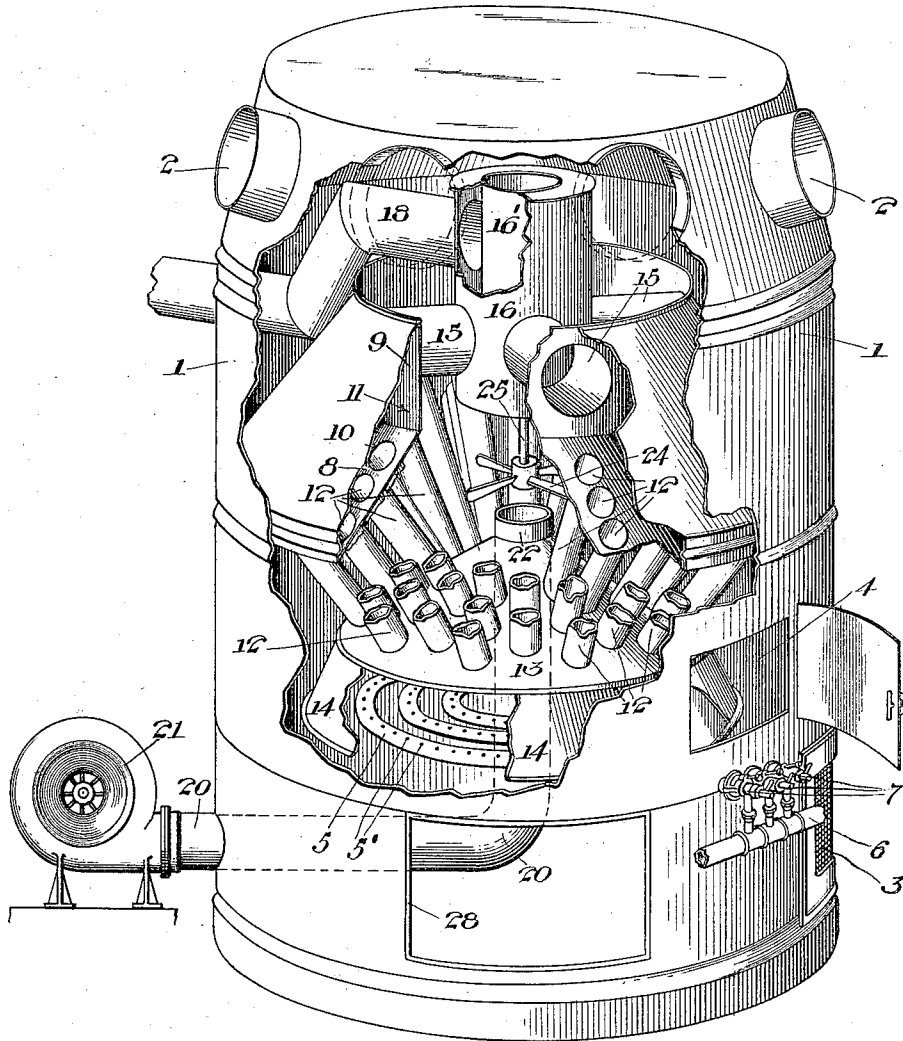


L. JACOBSON.
GAS FURNACE.
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1,063,264.

Patented June 3, 1913.



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UNITED STATES PATENT OFFICE.

LOUIS JACOBSON, OF LOS ANGELES, CALIFORNIA.

GAS-FURNACE.

1,063,264.

Specification of Letters Patent.

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To all whom it may concern:

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

This invention relates to heating furnaces employing gas as a heating medium, and the main object of the invention is to provide for more effective heating of the air by the gas.

A further object of the invention is to provide for a more uniform distribution of the heat of the gas over the heating members.

Other objects of the invention will appear hereinafter.

The accompanying drawing is a perspective view, partly broken away, of a furnace embodying the invention.

The furnace comprises a shell or casing 1 which may be of any suitable form, for example, round, oblong or square in cross section, and it is provided at its upper portion with outlet pipes or connections 2 for receiving the air pipes for conducting the heated air to different parts of the building to be heated, and is provided at its lower portion with an air inlet 3 protected, preferably by a wire screen as shown. An opening 4 is provided in the side of the casing 1 for permitting access to the burner, said opening 4 having a door for normally closing the same. The burner 5 which may be of the annular type, comprising a series of rings having perforations 5' for escape of gas, is connected to the gas supply pipe 6 having valves 7, said burner being located in the lower part of the shell or casing 1, about on the level with the top of the air inlet 3. A deflector 8 is mounted in the shell or casing 1, the lower rim or edge of said deflector being attached to said shell and said deflector extending upwardly and inwardly toward the center of the casing in form of a frusto conical wall member terminating in a vertical wall 9. Between the upper end of wall 9 and casing 1 extends another frusto conical member or wall 10 and joined at its outer edge to the shell 1 directly above the outer edge of the member 8, so as to inclose between the members 8, 9 and 10 an annular chamber 11. Pipes or tubes 12 extending obliquely inward and downward from the frusto conical member 8 are connected at their lower ends to a deflector cone

13, the said pipes or tubes being open at their lower ends into the space below the cone 13 and being open at their upper ends into chamber 11 aforesaid, so as to conduct the hot gases or products of combustion from the burner 5 through said pipes 12 upwardly into the chamber 11. An apron 14 depends from the lower edge of the cone 13 and extends downwardly therefrom to deflect the products of combustion from the burner into the cone 13. Pipes 15 extend radially inward from the vertical walls 9 aforesaid to a drum 16 located centrally within shell 1 and communicating at its upper end with an outlet pipe or flue 18 extending through the wall of shell or casing 1 to the chimney or stack from the furnace. An air tube 16' extends through drum 16.

I prefer to provide means for forcing air through the furnace in addition to the natural draft therethrough, where necessary, said means comprising a pipe 20 extending from a blower or fan 21 through the side of shell or casing 1, and then upwardly as shown at 22 through the cone 13 and opening into the space over said cone so as to produce an upward forced draft and increase the amount of air passing through the furnace. A fan 24 is mounted on a vertical shaft 25 directly over the outlet of the pipe 22 so as to be rotated by the natural draft of the air or by the forced draft from pipe 22 to distribute the air outwardly and upwardly, thereby more effectively mixing the air and bringing it in more effective contact with the pipes 12.

The operation is as follows: Gas being turned on and ignited at the burner 5, the resulting hot products of combustion are directed by the cone 13 and its apron 14 so that they pass upwardly through the tubes 12 into the annular chamber 11 and from this chamber they pass through the pipes 15 and drum 16 to the outlet or flue 18. Air entering at inlet 3 passes upwardly outside of the apron 14 and between the pipes 12 and through the space between the wall 9 and the drum 16 and out through the outlets 2 to the distributing pipes, the air being heated by contact with the cone 13, tubes 12 and the walls of the annular chamber 11, pipes 15 and drum 16, so that substantially all of the heat is withdrawn from the products of combustion before they reach the outlet flue 18. In case the furnace is not being used for heating purposes the same

pipes used for heating in cold weather can be used for ventilation, blower 21 serving to force the air through the system of piping when the gas is not burning. A cold air duct 5 28 may be provided at the lower part of shell 1 for supplying cold air to be heated by the furnace.

What I claim is:

1. A gas furnace comprising a casing, an outlet flue for products of combustion extending within the casing, walls extending inwardly and upwardly from the sides of the casing, a vertically extending wall connecting the inner ends of the aforesaid walls 15 and forming therewith a chamber, pipes establishing communication from said chamber to said outlet flue, a deflector cone in the casing below the aforesaid chamber, tubes extending from said deflector cone obliquely upward and outward to said chamber, and opening at their lower ends into the space below said cone, and at their upper ends into said chamber, and a burner located beneath said cone, said casing being 20 provided with air inlet means below said cone and with air outlet means above said chamber.

2. A gas burner comprising a casing, walls extending inwardly and upwardly from said casing, and forming therewith an annular chamber, pipes extending inwardly from said chamber, a drum communicating with said pipes, an outlet flue communicating with said drum, a deflector cone below 35 said chamber, tubes opening at their lower ends into the space below said cone and extending upwardly and outwardly and opening at their upper ends into said chamber, a burner beneath said cone, said casing having an air inlet opening at the lower portion thereof, and air outlet means at the upper portions thereof. 40

3. A gas furnace comprising a casing, an outlet flue for products of combustion, extending within the casing, walls extending inwardly and upwardly from the sides of the casing a vertically extending wall con-

necting the inner ends of the aforesaid walls and forming therewith a chamber, pipes establishing communication from said chamber to said outlet flue, a deflector cone in the casing below the aforesaid chamber, tubes extending from said deflector cone obliquely upward and outward to said chamber, and opening at their lower ends into the space 55 below said cone, and at their upper ends into said chamber, a burner located beneath said cone, said casing having an air inlet at the lower portion thereof, and air outlet means at the upper portion thereof, and a fan rotatably mounted on a vertical axis in said casing, above said cone. 60

4. A gas furnace comprising a casing, an outlet flue for products of combustion, extending within the casing, walls extending inwardly and upwardly from the sides of the casing a vertically extending wall connecting the inner ends of the aforesaid walls and forming therewith a chamber, pipes establishing communication from said chamber to said outlet flue, a deflector cone in the casing below the aforesaid chamber, tubes extending from said deflector cone obliquely upward and outward to said chamber, and opening at their lower ends into the space below said cone, and at their upper ends into said chamber, a burner located beneath said cone, said casing having an air inlet at the lower portion thereof, air outlet means at the upper portion thereof, a fan 80 rotatably mounted on a vertical axis in said casing, above said cone, a pipe extending through the casing, and upwardly through said cone and below said fan, and a blower connected to said pipe to force air there- 85 through.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 27th day of January, 1913.

LOUIS JACOBSON.

In presence of—

I. A. CRANDALL,
MARTHA M. LANGE.