W. C. FISCHER.

GAS HEATER.

APPLICATION FILED JAN. 19, 1916.

1,226,964. Patented May 22, 1917.

Fig. 1.

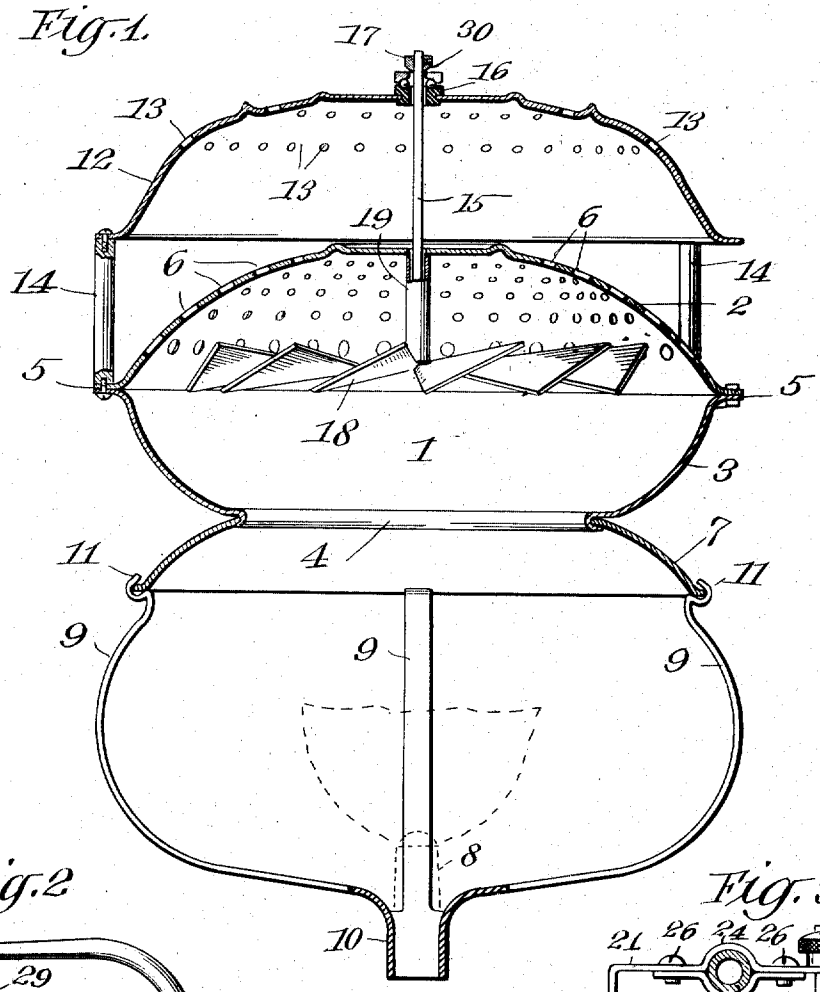


Fig. 2.

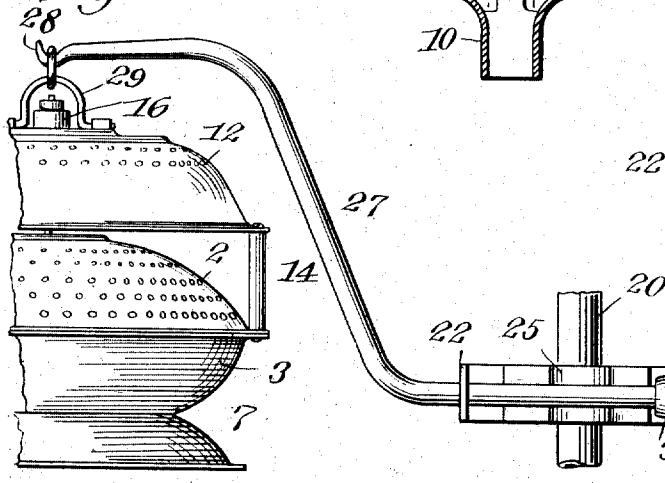
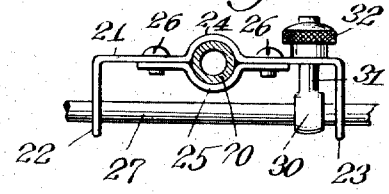


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM C. FISCHER, OF NEW YORK, N. Y., ASSIGNOR TO THE COMPOUND HEATER MFG. COMPANY, INC., A CORPORATION OF NEW YORK.

GAS-HEATER.

1,226,964. Specification of Letters Patent. Patented May 22, 1917.

Application filed January 19, 1916. Serial No. 72,902.

To all whom it may concern:

Be it known that I, WILLIAM C. FISCHER, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Gas-Heaters, of which the following is a specification.

My invention relates to the construction and operation of gas-heaters of that type in which a heat-radiating drum or chamber is supported above a gas flame and adapted to receive the heat therefrom.

The object of the invention is to increase the efficiency of gas-heaters of this type and to secure a more thorough distribution of the heated air. By a construction according to this invention the heated air is more effectively scattered or thrown around the room in which the heater is located than is true in the case of the ordinary construction in which the air in a hollow drum or chamber is merely heated as so much dead air.

The invention consists in the improved construction of gas-heater hereinafter more particularly described and then specified in the claims.

In the accompanying drawings, Figure 1 is a vertical central cross-section through a gas-heater constructed in accordance with this invention, parts being shown in elevation.

Fig. 2 is a side elevation of the gas-heater (partly broken away) showing an alternative manner of supporting the same.

Fig. 3 is a plan view of the adjustable supporting clamp shown in Fig. 2.

1 indicates a hollow, circular heat-radiating chamber suitably supported above a gas jet in any desired manner; the chamber comprising preferably an upper dome-shaped metal plate 2 and a lower reversely arranged dome-shaped part 3 having a central opening 4 which is centrally located over the gas jet. The parts 2 and 3 are formed of thin sheet metal and joined together around their meeting edges 5 in any desired manner. The upper plate 2 is provided with a plurality of perforations 6. The part 3 is provided with an annular outwardly flaring skirt 7 depending around the opening 4. The skirt 7 serves to collect the heat from the gas flame and direct it toward the interior of the chamber 1.

In the arrangement shown in Fig. 1 the chamber is supported at some distance above the gas jet 8 (shown in dotted lines) by spider-like arms 9 radiating from a thimble or sleeve 10 adapted to fit snugly around the gas jet. The ends of the arms 9 terminate in claws 11 which engage and grip the free edge of the flaring skirt 7.

12 indicates a second heat-radiating metal plate preferably approximately concentric in shape with the dome-shaped upper part 2 of the chamber 1. The plate 12 is provided with perforations 13 distributed about its surface and smaller in diameter than the perforations 6 in the chamber. The plate 12 is supported at some distance above the chamber by posts 14 secured to the outer edge of the chamber as shown.

15 indicates a vertical shaft or spindle centrally arranged with respect to the chamber 1 and loosely passing through openings in the plates 12 and 2 so that said shaft may freely swivel or swing. The shaft 15 is freely suspended on a ball-race 16 secured to the upper surface of the plate 12 by a collar 17 fixed to the shaft. The collar 17 has a chamfered or beveled under surface indicated at 30 upon which the shaft may rock or swivel to allow for any inaccuracy in mounting the heater. The lower end of the shaft projects into the space within the chamber 1 and this end is provided with a fan 18 of any suitable type, the one shown being horizontally arranged and provided with the usual blades radiating from the hub which is fixed to the shaft 15. The fan 18 comes directly over the flame of the gas jet 8 and the currents of heated air from the flame rotate the fan which throws the heated air against the walls of the chamber 1 and through the perforations 6. The heated air is thus distributed about the room and some of it goes up against and through the plate 12 which itself then becomes a source of radiating heat.

By having the chamber supported some distance from the gas flame the fan secures the full benefit of the force of the heated air and rotates easily and quietly owing to its free suspension on the ball-race 16 and at the same time the illuminating effect of the flame is maintained.

To prevent the fan 18 rising vertically in shipment or manipulation or due to too great a force of heat whereby the balls in the ball-race 16 might become lost or the

parts damaged, I provide a stop preferably in the form of a collar or sleeve 19 preferably loosely surrounding the shaft 15 and occupying the space between the hub of the fan and the under surface of the plate 2 around the shaft opening.

Referring to Figs. 2 and 3, means for supporting the heater whereby its position above the flame may be adjusted as well as to locate it centrally over the flame are shown. 20 indicates the gas pipe to which the gas jet is secured. This pipe may be vertical or horizontal or of any other disposition, the adjustable clamp shown operating the same irrespective of the position of the pipe. In the arrangement shown it is assumed to be vertical for the purpose of illustration.

21 indicates a metal strip having each end bent laterally in the same direction to form ears 22 and 23. A portion 24 of the strip between the ears 22 and 23 is concaved to fit approximately one-half the total periphery of the pipe 20. A concave cap 25 fits the opposite surface of the pipe and clamps the pipe to the strip by screws 26.

The ears 22 and 23 are each provided with a round hole alined with each other and through which a rod 27 loosely passes. The rod 27 may run straight from the pipe 20 or be bent in any desired manner and is provided on one end with a hook 28 which engages an eye 29 secured to the plate 12 of the heater and by which the heater is suspended. The rod 27 is secured in adjusted position to the plate by an eye 30 encircling the rod and provided with a threaded shank 31 passing through a hole in the strip 21. The outer end of the shank is provided with a nut 32 which bears against the surface of the strip 21 and draws the rod 27 tight against the walls of the holes in the ears 22 and 23 thus locking the rod in place. By this arrangement any adjustment of the position of the heater may be made and it can be supported from vertical, horizontal or any other line of pipe.

It will be understood that my invention is not limited to the details of construction or arrangement of parts as herein shown and described except as may be specified in the appended claims.

It will be understood that the term "gas flame" is used broadly to include any lighting flame derived from any of the well known sources such as gas, oil, gasolene, &c.

What I claim as my invention is:—

1. A gas heater comprising a perforated heat radiating chamber, a fan freely suspended in said chamber from an overhead support and adapted to be rotated by the ascending currents of heated air and thereby throw the heated air against the walls of said chamber and through the perforations thereof, a perforated dome-shaped radiating plate supported above said chamber and a flaring skirt depending from said chamber to collect the heated currents of air and direct them to said fan.

2. A gas-heater comprising a perforated heat-radiating chamber, a heat-radiating plate concentric with the upper surface of said chamber and supported thereby, a fan within said chamber adapted to be rotated by the currents of heated air, a shaft suspended from the upper heat-radiating plate and to which said fan is secured, a sleeve on said shaft adapted to prevent vertical movement of said fan and a skirt depending from the bottom of said chamber to collect the heated air and direct it to said fan.

3. A gas heater comprising a perforated chamber having an opening in the bottom, an outwardly flaring skirt depending from said opening, a dome-shaped radiating plate spaced above the said chamber, posts rising from said chamber and supporting said plate, a freely mounted shaft suspended from said dome-shaped plate and projecting into said chamber, a fan secured to said shaft within said chamber and adapted to be rotated by currents of heated air and means on said shaft to prevent said fan rising vertically.

4. A gas-heater comprising a perforated chamber having an opening in the bottom and adapted to be supported above a gas flame, a dome-shaped radiating plate supported above the top of said chamber, a freely mounted shaft suspended from said dome-shaped radiating plate and projecting into said chamber, a fan secured to the end of said shaft within said chamber and adapted to be rotated by currents of heated air from the gas flame, a ball-race on which said shaft is supported and a sleeve or collar on said shaft to prevent said fan rising vertically.

Signed at New York, in the county of New York and State of New York, this 13th day of January, A. D. 1916.

WILLIAM C. FISCHER.

Witnesses:
LILLIE VREELAND,
F. B. TOWNSEND.

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