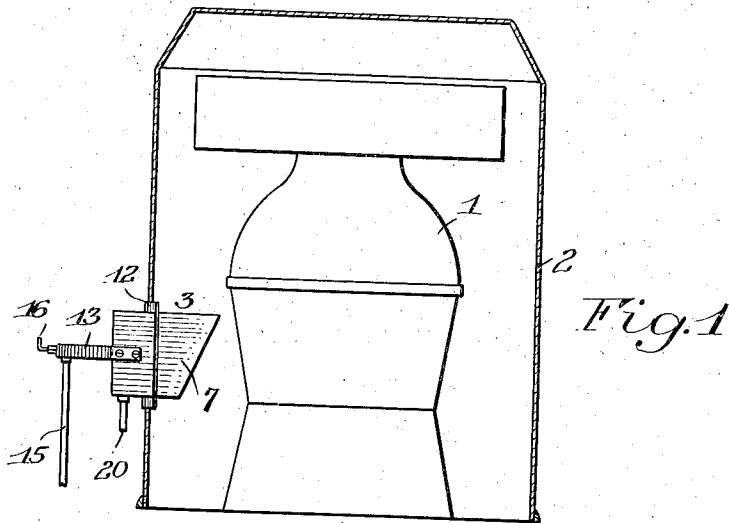
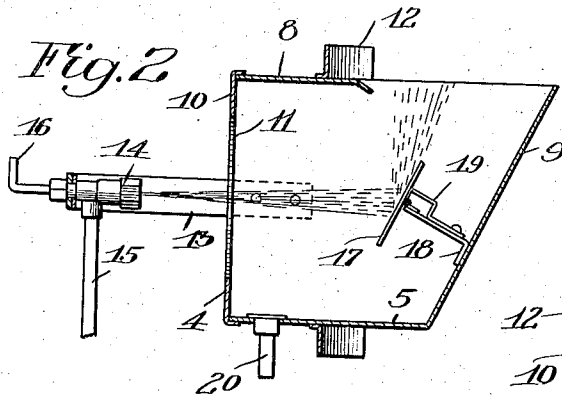
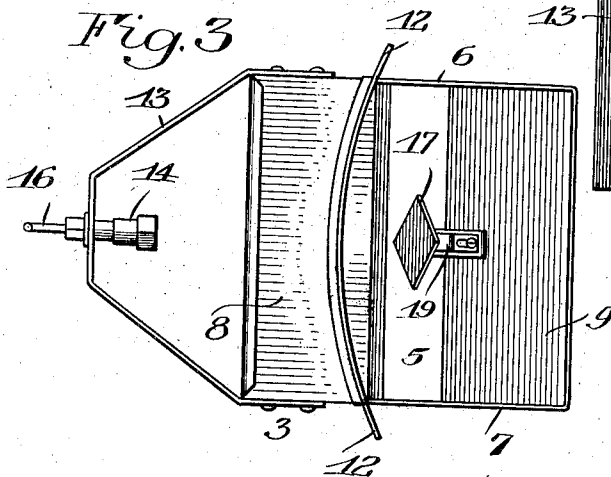
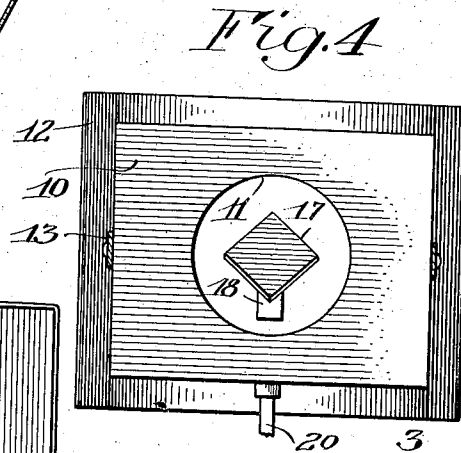


March 2, 1926.

F. W. ARMBRUSTER, JR., ET AL
HUMIDIFIER FOR HOT AIR FURNACES

1,574,856

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UNITED STATES PATENT OFFICE.

FREDERICK W. ARMBRUSTER, JR., AND GERARD C. BETLEM, OF ROCHESTER, NEW YORK.

HUMIDIFIER FOR HOT-AIR FURNACES.

Application filed February 19, 1924. Serial No. 693,915.

To all whom it may concern:

Be it known that we, FREDERICK W. ARMBRUSTER, JR., and GERARD C. BETLEM, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Humidifiers for Hot-Air Furnaces; and we do declare the following to be a full, clear, and exact description of the same, taken in connection with the accompanying drawings, forming a part of this specification.

The object of our invention is to provide a humidifier of this kind which is simple in construction, economical to make, and more efficient in use than humidifiers heretofore proposed. More specifically the object of our invention is to provide a humidifier of this kind comprising a housing adapted to project into the heating chamber of the furnace and provided with means for atomizing a continuous stream of water or other liquid which is quickly vaporized when it comes into contact with the hot air in the heating chamber. A further object of our invention is to provide improved atomizing means comprising an adjustable baffle plate whereby the amount of atomization can be controlled to meet the requirements of atmospheric conditions. To these and other ends our invention resides in certain combinations and arrangement of parts as hereinafter more fully described and particularly pointed out in the claims at the end of this specification.

In the drawings:

Figure 1 is a side elevation of a hot air furnace a portion of the heating chamber being sectioned away to show one form of our invention applied thereto.

Figure 2 is a vertical section of the humidifier detached,

Figure 3 is a plan view, and,

Figure 4 is a front elevation of the same.

Similar reference numerals refer to the same parts in all the figures of the drawings.

Referring to the drawings, the furnace 1 is inclosed in a heating chamber 2, constructed of sheet material, and provided with the usual cold-air inlet near its base and hot-air outlet at its top. Seated in an opening in the wall of the heating chamber, in any suitable or preferred position with respect to the furnace, is shown our im-

proved humidifier, generally referred to by the reference numeral 3.

The humidifier comprises a housing 4 constructed of sheet material and having the horizontal bottom wall 5, and the vertical side walls 6 and 7. The walls 5, 6 and 7 extend through or project through an opening provided therefor in the heating chamber. The housing of the humidifier is open at its top within the heating chamber but, outside the chamber, is closed by the wall 8 which connects the walls 6 and 7. The rear, or inner end of the housing, is closed by the wall 9, which extends inwardly and upwardly from the bottom wall 5. The front, or outer end of the housing, is closed by the vertical wall 10, which is provided with a central opening 11. The housing 4 is provided with an outwardly projecting flange 12, which engages the wall 2 and serves to seal the opening in the chamber and to provide means for securing the humidifier in place in the heating chamber.

A bracket 13, secured in any suitable manner as to the housing 4, supports a valve having a nozzle 14 in front of the opening 11 in the wall 10. Connected with the nozzle 14 is a conductor 15 leading to any suitable source of water supply under pressure. Means, controlled by the valve stem 16, are provided for regulating the discharge from the nozzle 14.

The jet of water, delivered by the nozzle 14, enters the housing through the opening 11 in its front wall and strikes against the baffle 17 arranged in its path and supported in any suitable manner. As shown, the baffle 17 is mounted on a bracket 18 secured to the inner wall 9. We have provided means for permitting adjustment of plane or face of the baffle relatively to the axis of the jet in order to control or vary the amount of atomization taking place. For this purpose, the baffle 17 is pivotally mounted to swing on its bracket and is adapted to be held in any position of adjustment by means of a brace 19 adjustable on the bracket 18.

Only a fractional part of the water of the jet is atomized, the remainder flows off the baffle and falls to the bottom of the housing 5, which is provided with an opening through which it may escape from the hous-

ing to the pipe 20 through which it may be led to a drain or other suitable place.

In operation, the jet from the nozzle 14 is forced against the baffle 17, where a portion of it is atomized and rises through the top of the housing where it comes in contact with the rising heated air in the heating chamber and is converted into vapor. As such it is carried with the air to the living rooms or other apartments to be heated. The amount of atomization can be readily varied or controlled to meet any ordinary requirements.

It will also be noted that our invention provides means for breaking up the water into very small particles, in which form it can readily absorb the heat required for vaporization, and that the small particles or mist is delivered to the heated part of the furnace by means of the air current, induced by the difference in pressure between the air in the heating chamber and the air outside the chamber, through the housing 4, when the furnace is in operation.

While we have shown our invention applied to a hot-air furnace, it will be understood that it can readily be used with any form of heater such as, gas-fired furnaces, electric heaters, steam or hot water radiators, etc., without departing from the spirit or scope of our invention.

Having described our invention what we claim and desire to secure by Letters Patent is:

1. A humidifier for hot-air furnaces comprising a housing adapted to project into the heating chamber of the furnace and having an opening communicating with the chamber, means for projecting a jet of water into the housing, a baffle in said housing for

atomizing the jet and adjustable to vary the amount of atomization, and means for securing the baffle in adjusted position.

2. A humidifier for hot-air furnaces comprising a housing adapted to project into the heating chamber of the furnace and having an opening communicating with said chamber, a nozzle adapted to project a jet of water through an opening in the front wall of the housing, a baffle in said housing for atomizing the jet and directing the atomized water to the heating chamber through the opening in said housing, and means for controlling the amount of atomization.

3. A humidifier for hot-air furnaces comprising a housing adapted to project into the heating chamber of the furnace and having an opening communicating with said chamber, a nozzle adapted to project a jet of water through an opening in the front wall of the housing, a baffle in said housing for atomizing the spray and adjustable to vary the degree of atomization said baffle being also adapted to direct the atomized jet to the heating chamber, and means for draining said housing.

4. A humidifier for hot air furnaces comprising a housing adapted to project into the heating chamber of the furnace and having an opening communicating with said chamber, a nozzle adapted to project a jet of water through an opening in a wall of the housing, a baffle in said housing for atomizing the spray and so positioned relatively to the jet of water as to direct the atomized spray to the heating chamber, and means for draining the housing.

FREDERICK W. ARMBRUSTER, Jr.
GERARD C. BETLEM.