

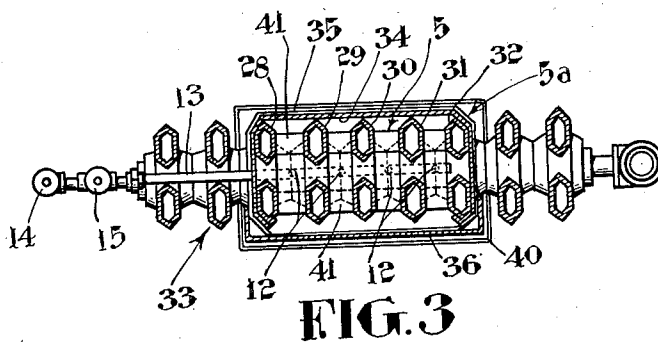
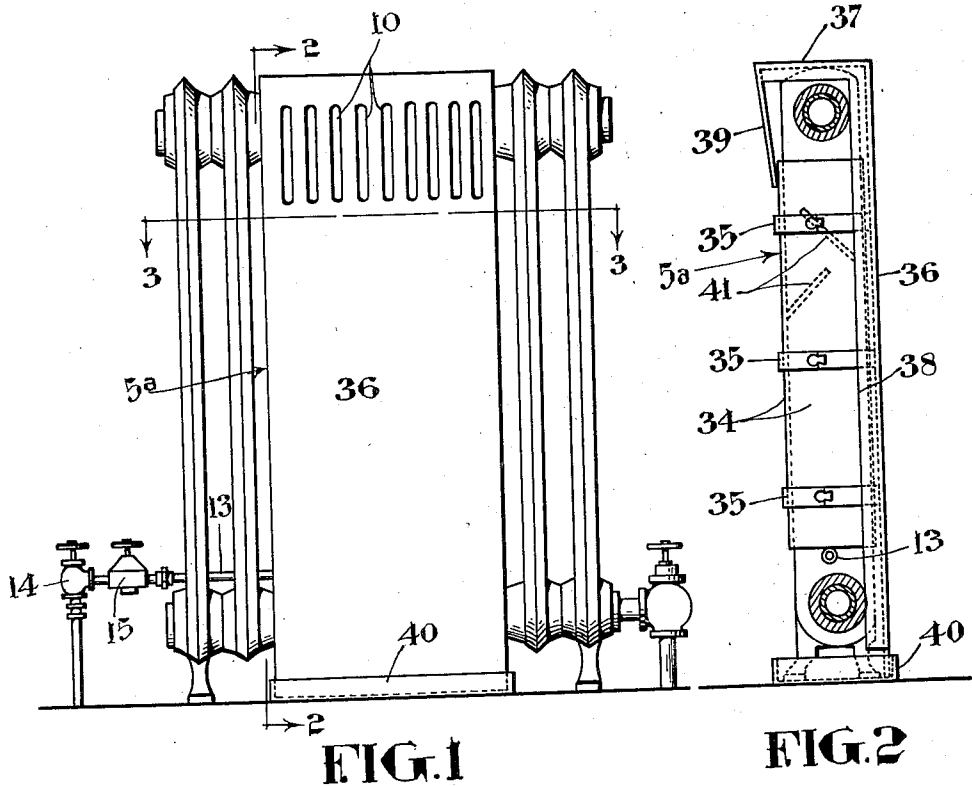
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2,065,707

HUMIDIFYING APPARATUS

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## UNITED STATES PATENT OFFICE

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## HUMIDIFYING APPARATUS

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8 Claims. (Cl. 237-78)

This invention relates to humidifying apparatus and comprises a simple, inexpensive and highly efficient apparatus in which the water to be evaporated is sprayed into a heated duct so that the spray, in addition to wetting inner surfaces of the duct, induces a rapid flow of air therethrough so that a high degree of humidity is obtained.

A particular feature of this apparatus is that the amount of water evaporated is variable within wide limits by regulating the pressure of the spray which controls the air flow, as well as the volume of water supplied to the inner heated surfaces of the duct. The pressure of the spray is conveniently controlled by a suitable reducing valve located in the supply line leading to the spray nozzle or nozzles.

Another feature is the provision of suitable baffles for preventing escape of the spray particles from the duct, said baffles being located between the spray nozzle or nozzles and the air outlet of the duct.

The foregoing and other features of the invention will be more readily understood from the following detailed description and accompanying drawing, in which—

Fig. 1 is a front view of a combined radiator and humidifying apparatus constructed in accordance with the present invention.

Fig. 2 is a sectional view along the line 2-2 of Fig. 1.

Fig. 3 is a transverse sectional view along the line 3-3 of Fig. 1.

Referring more particularly to the drawing, 5 designates a heated duct bounded by a casing 5a which is arranged to enclose five sections 28, 29, 30, 31 and 32 of a conventional radiator 33. The rear wall of this casing is formed by a felt strip 34 which is stretched across the spaces between the radiator sections 28 to 32 inclusive and is then carried forwardly along the outer sides of the sections 28 and 32 to the front edges thereof. This felt strip is fastened in place by any suitable arrangement of fastening straps indicated at 35. The front wall of the casing is formed by a sheet metal plate 36 having a top flange 37 overlying the radiator sections 28 to 32 inclusive and side flanges 38 engaging the side portions of the felt strip 34. The top flange 37 of the front plate terminates in a depending rear flange 39 which bears resiliently against the rear portion of the enclosed radiator sections to hold the front plate close to the front edges of said sections, the lower edges of said front plate being fitted in a drip pan 40. In

this case a series of spray nozzles 12 are located in the spaces between the radiator sections 28, 29, 30, 31 and 32 to deliver sprays of water against the heated surfaces of said sections, escape of spray particles from the duct 5 being prevented by a staggered arrangement of baffles carried between the radiator sections as indicated at 41. The nozzles 12 are supplied with water through a supply pipe 13 equipped with a shut off valve 14 and a pressure reducing valve 15.

When the shut off valve 14 is opened sprays of water are projected upwardly from the nozzles 12 against the inner wall surfaces of the casing 5a and against the heated surfaces of the radiator sections enclosed by said casing. In addition to wetting the casing and radiator sections these sprays serve to induce a rapid flow of air through the duct 5 toward the air discharge openings 10 formed in the upper portion of the front casing plate 36, the air passing through these openings into the room or other enclosure in which the humidifier is installed. Spray particles which tend to pass outwardly through the openings 10 are intercepted by the baffles 41.

The induced air current flowing through the duct 5 serves two purposes. It increases the rate of evaporation of the water deposited on the casing walls and on the enclosed radiator sections and it also serves to effect a rapid distribution of the humidified air throughout the room or enclosure in which the apparatus is installed. It will thus be seen that the amount of water evaporated by this apparatus is largely predetermined by the air flowing through the duct 5 which, in turn, is dependent upon the pressure at which the water is sprayed through the spray nozzles 12. Thus, by operating the pressure reducing valve 15, it becomes possible to regulate both the air flow and the volume of water supplied to the evaporating surfaces so that any desired degree of humidity may be obtained within the capacity of the apparatus.

Having thus described my invention, what I claim is:—

1. Humidifying apparatus comprising a radiator, a casing presenting front, rear, and side walls enclosing a plurality of the radiator sections to form a vertical duct having air inlet and outlet openings at or adjacent its opposite ends, the rear wall of said casing comprising a sheet of felt stretched across the spaces between the enclosed radiator sections at one side of the radiator and the front wall of said casing comprising a metal plate bridging the spaces be-

- tween the enclosed radiator sections at the opposite side of the radiator, and a spray nozzle located in the lower portion of the duct to direct the spray upwardly against heated surfaces of the enclosed radiator sections.
- 5 2. Humidifying apparatus as claimed in claim 1 in which the side portions of the felt sheet are extended forwardly over the outer sides of adjacent radiator sections to form the side walls
- 10 of the casing.
3. Humidifying apparatus as claimed in claim 1 including straps encircling the felt sheet and the enclosed radiator sections to secure said sheet in place.
- 15 4. Humidifying apparatus comprising a radiator, a casing enclosing a plurality of the radiator sections to form a vertical duct having air inlet and outlet openings at or adjacent its opposite
- 20 ends, the rear and side walls of the casing being formed by a felt strip stretched across the spaces between the enclosed radiator sections and extended forwardly along the outer sides of adjacent radiator sections to the front edges thereof,
- 25 the front wall of said casing being formed by a sheet metal plate having a top flange overlying said enclosed radiator sections, and means located in the lower portion of said duct for directing one or more sprays of water upwardly against heated surfaces of the enclosed radiator sections.
- 30 5. Humidifying apparatus as claimed in claim 4 in which the sheet metal plate forming the front wall of the casing is provided with side flanges overlying and engaging the forwardly extending side portions of the felt strip.
- 35 6. Humidifying apparatus as claimed in claim 4 in which the top flange of the sheet metal plate forming the front wall of said casing terminates

in a depending rear flange which bears resiliently against the rear portion of the enclosed radiator sections to hold the front plate close to the front edges of said sections.

7. Humidifying apparatus comprising, in combination, a standard radiator, a casing enclosing a plurality of the radiator sections, said casing having three sides of felt and a fourth side of metal and forming a vertical duct with air inlet and outlet openings at or adjacent opposite ends, 10 a spray pipe passing through central openings of the radiator coils and provided with one or more sprayers within said duct and being so located as to induce a rapid current of air and as to wet the sides of said duct and radiator for humidifying purposes, baffles in said duct between the 15 spray pipe and outlet, and straps arranged to hold the felt in place.

8. Humidifying apparatus comprising, in combination, a standard radiator, a casing presenting walls enclosing a plurality of the radiator 20 sections and forming a vertical duct having inlet and outlet openings at or adjacent its opposite ends, at least certain of said walls being composed of a sheet of absorbing material such as felt stretched tightly around the enclosed radiator sections, and a sprayer located within the 25 duct to direct a spray of water toward the outlet opening, the location of the sprayer being such that the spray serves to induce a rapid current of air toward the outlet of the duct in addition 30 to wetting the absorbent walls of the duct and radiator for humidifying purposes and means for holding the duct forming walls of the casing in place around the enclosed radiator sections. 35

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