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L. H. ROGGE ET AL

HUMIDIFIER

Filed May 6, 1925

FIG. 1.

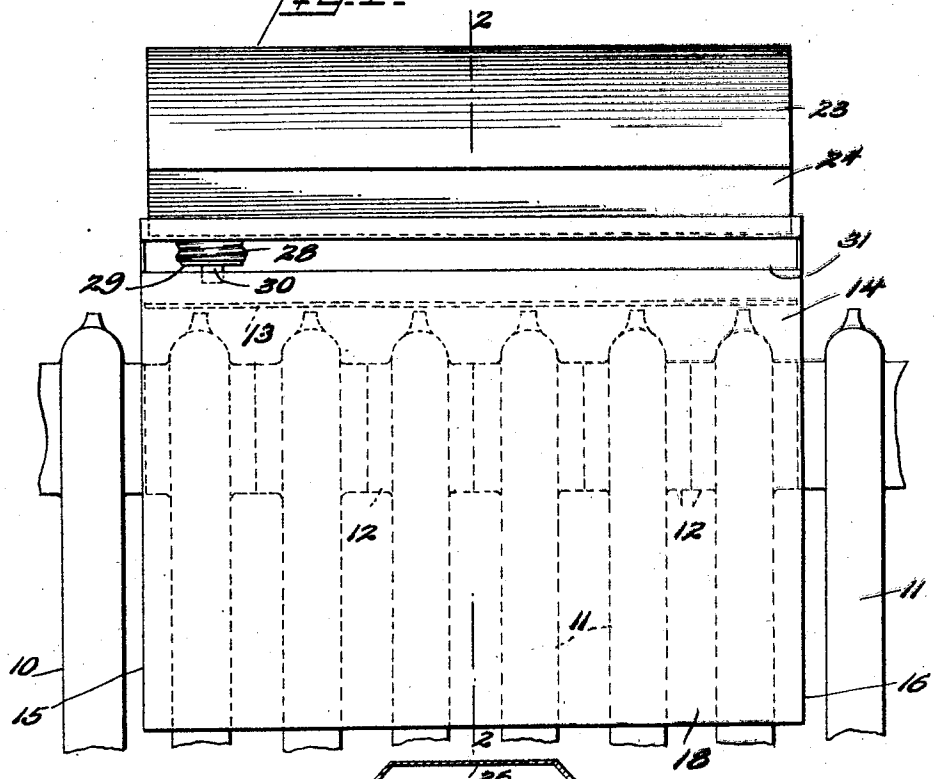
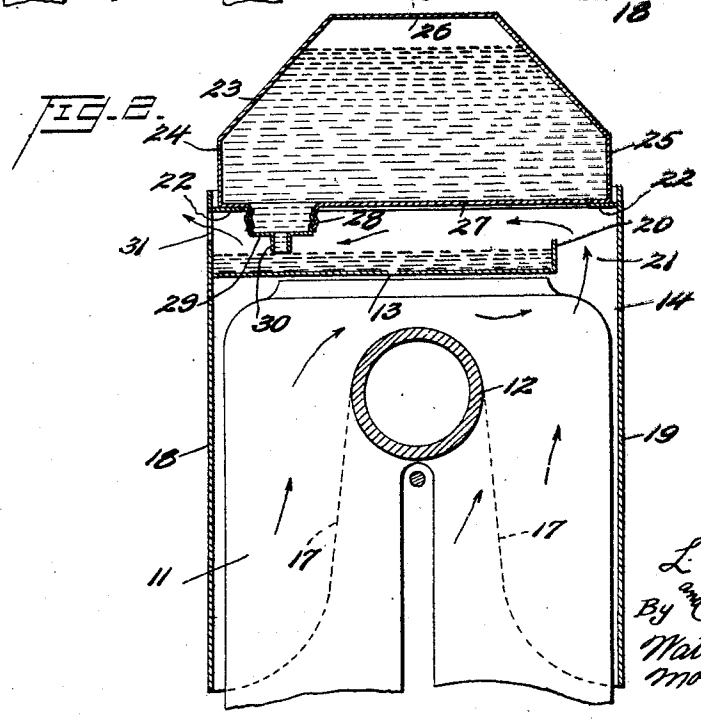


FIG. 2.



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HUMIDIFIER.

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This invention relates to humidifiers of that type adapted to be used in conjunction with radiators associated with hot water or steam heating systems.

It is a general object of the present invention to provide a novel and improved form of humidifier.

More particularly it is an object of this invention to provide a humidifier having a large water reservoir so arranged as to maintain a constant level of water in the evaporating pan.

Another object of the present invention consists in the provision of a humidifier of the type described, in which heated air rising from the radiator coils is directed beneath and over the top of an evaporating pan in order, first, that the water therein be heated and, second, that the dry air be brought in contact with its upper surface to absorb the vapors arising therefrom and carry them into the room.

A further object of the present invention consists in the provision in a humidifier of a removable reservoir provided with means to maintain a constant level of water within the evaporating pan and having a surface which forms a baffle to cause the heated air rising from the radiator coils to pass entirely across the surface of the water contained in the evaporating pan.

In the accompanying drawings and following specification there is disclosed a single illustrative embodiment of the present invention with the understanding, however, that various changes or modifications may be made therein by those skilled in the art, in the size, shape, arrangement and proportion of the various parts without departing from the spirit or scope of the present invention as set forth in the appended claims.

In said drawings, Fig. 1 is an elevation showing a humidifier, constructed according to the present invention, in position on a radiator, and,

Fig. 2 is a transverse vertical section on line 2—2 of Fig. 1.

The advantages attendant upon the use of humidifiers in dwellings and public buildings heated by steam, hot water or similar heating systems are too well known to be discussed here. There are, however, a number of disadvantages to the present types of humidifiers and the inconveniences arising from their use have resulted in a large measure in preventing their popularity. The present invention has for its object, therefore, to provide a simplified and improved type of humidifier which overcomes the present disadvantages and provides additional convenience in that it need not be filled so often, and when such filling becomes necessary, is more readily done without the danger of spilling water upon the floor or wall-paper.

In the drawings, 10 indicates a conventional form of radiator such as is used in connection with hot water, steam and similar heating systems, and comprises the so-called vertical coils 11 connected together at the top by the abutting bosses 12 cast integral with the coil sections and pressed over tapered thimbles, not shown. The heating medium flowing thru these coils causes them to assume a high temperature, and the surrounding air is heated and caused to ascend in the vicinity of these coils. In order that this air, which is normally in a dry condition, can be properly humidified, there is provided the evaporating pan 13, adapted to contain water to be evaporated by this heated air passing under and over it. The evaporating pan 13 may be conveniently supported closely adjacent the tops of the coils 11 by having its front edge and ends secured within the hollow box-like casing 14, which is rectangular in plan and is supported from the radiator by having its end members 15 and 16 cut away as shown at 17 in Fig. 2 to fit over the bosses 12 and between pairs of adjacent coils. The front and rear plates 18 and 19 of this casing are spaced apart only a sufficient distance to have an easy fit over the coils of the radiator and thus prevent any possible rotation of the casing about the axis of the bosses 12, and thus serve to retain the casing firmly in position on a radiator. It will be apparent that the length and width of the device may be varied within wide limits to suit different forms and sizes of radiators.

The bottom of the evaporating pan 13, as previously mentioned, is secured to the front and end plates of the casing 14 in a water tight manner and a rear wall 20 is provided on the evaporating pan spaced a material distance forward of the rear plate 19 of the casing in order to provide a passage way 21 for the heated air to pass by and above the evaporating pan. The plates of the casing 14 extend a considerable distance above the top of the evapo-

rating pan and are provided just below their top edges with the inwardly extending flanges 22 which are adapted to support the water reservoir 23. This reservoir may be made of any convenient shape but preferably has a base, rectangular in plan, to fit loosely within the walls of the casing 14 and rest upon the flanges 22 and be supported thereby. As shown in the drawings, the front and rear walls 24 and 25 of this reservoir are vertical for a short distance and are then inclined toward each other and connected together by the flat top portion 26. The ends may be vertical or inclined as desired, since the particular shape of this reservoir is of no importance as long as its bottom 27 serves to close the top of the casing 14.

The reservoir 23 is formed of sheet metal and must be air and water tight, and is provided in its bottom 27 with the screw threaded aperture 28 adapted to receive the filler cap 29, which is removable for the purpose of filling the reservoir. This cap 29 is hollow and is provided with the depending tube 30, which is open at its lower end and forms the only means of egress from the reservoir 23.

The tube 30 is of such a length and the reservoir 23 is supported at such a distance above the evaporating pan 13 that water flows from the reservoir and fills the pan to a suitable level at which time it closes the entrance to the tube 30, prevents the entrance of air into the reservoir and thus stops the flow of water from it, according to well-known principles. When, however, a sufficient quantity of water has been evaporated from the pan 13, the mouth of the tube 30 is uncovered and water flows from the reservoir to replenish the supply in the pan, thus maintaining it at a substantially constant level.

The front plate 18 of the casing 14 is provided, throughout its full length, with the slot or aperture 31 just above the maximum level of the water in the evaporating pan to allow the air which has passed over the surface of the water to escape into the room.

The direction of movement of the heated air is indicated by the arrows in Fig. 2 and it will be noted that it flows directly upward along the surfaces of and around the coils 11 and against the bottom of the evaporating pan. This directs it into the passageway 21 at the rear of the pan, through which it passes upwardly and then forwardly under the reservoir entirely across the surface of the water within the evaporating pan, and the air finally passes out thru the slot or opening 31 in the front plate of the casing. The air thus first passes beneath and heats the water in the evaporating pan and then passes over the water to evaporate it and absorb the vapor arising from it, and finally passes into the room and is directed toward the center thereof and away from the walls, so that there is no danger of damaging the wallpaper or of having the heated, moist air cooled by contact with the colder outer walls of the house or building.

It has long been recognized that the most satisfactory operation of a device of this character can be obtained by having a large surface of water exposed to the air and arranged in a shallow pan in order that it can readily be heated and evaporated. This resulted in the constant necessity of filling, which has been overcome in the present invention by the provision of the large reservoir and the means for maintaining a constant level of water in the evaporating pan. The reservoir, being of a large capacity, need only be filled occasionally and, when this must be done, the reservoir can be lifted from the casing, inverted, the cap 29 removed and water poured in, in a convenient manner, after which the reservoir can be turned back to its original position and replaced on the flanges 22. It will be observed that the top of the reservoir can be made in any shape and serves the purpose of providing an ornamental cover for the radiator, such as is often done to hide its not particularly decorative features.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a humidifier, in combination, an open top casing adapted to be supported from a radiator, an evaporating pan therein, a water reservoir closing the open top of said casing and supported above said pan and means to supply water from said reservoir to said pan, said pan being positioned to direct the rising heated air between said pan and said reservoir, said casing having an outlet for said heated air beneath said reservoir.

2. The combination with a heating radiator, of a humidifier supported thereon and including a casing, rectangular in plan and open at the top and the bottom, an evaporating pan abutting three sides of said casing, a water reservoir closing the top of said casing and spaced above said pan, said casing having a slot between said pan and reservoir opposite the side of said pan which does not abut the casing and means to supply water from the reservoir to the pan.

3. The combination with a heating radiator, of a humidifier supported thereon and including a casing rectangular in plan and open at the top and the bottom, an evaporating pan secured to three sides thereof and spaced from the fourth side, and a closed water reservoir removably supported on and closing the top of said casing and spaced

above said pan, said reservoir having a filler cap in the bottom and a tube projecting thru said cap and into said pan to provide a constant level of water in said pan, said casing having an outlet for said heated air beneath said reservoir.

4. The combination with a heating radiator having vertical coils provided with abutting bosses, of a humidifier including a casing rectangular in plan and open at the top and the bottom, said casing having end walls cut away to fit over said bosses and between the coils of said radiator and side walls covering the upper portions of said coils, a plate forming with the end walls and one of said side walls an evaporating pan spaced from the other side wall, a removable closed water reservoir having a base thereon supported by and closing the top of said casing and spaced above said pan, said casing having a slot in the side which forms part of the pan above the water level in said evaporating pan, for the egress of air, and means on said reservoir to maintain a constant level of water in said pan.

In testimony whereof we hereunto affix our signatures.

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