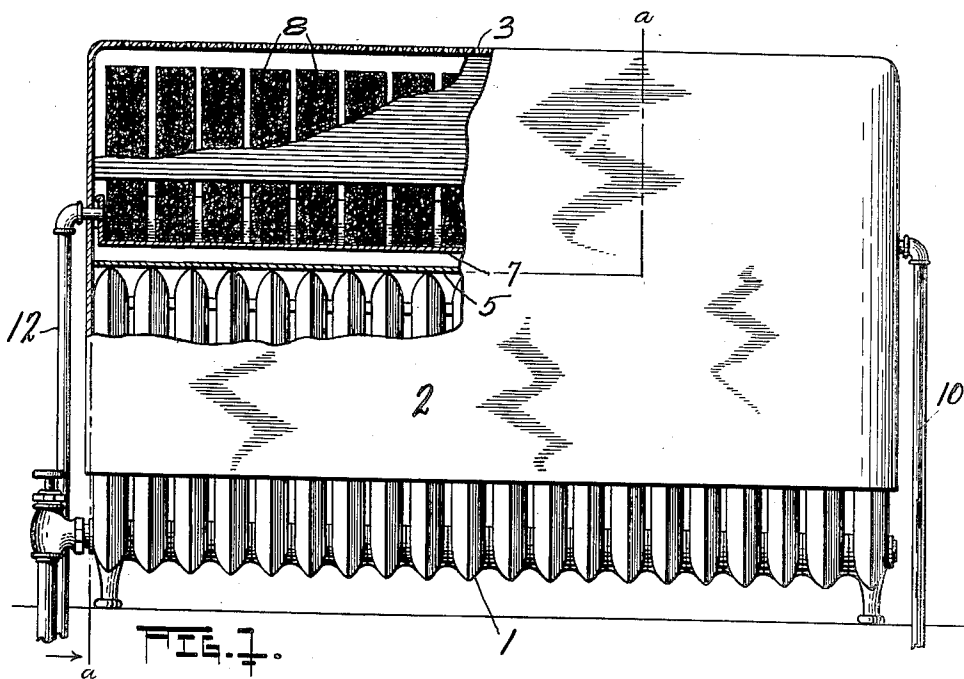
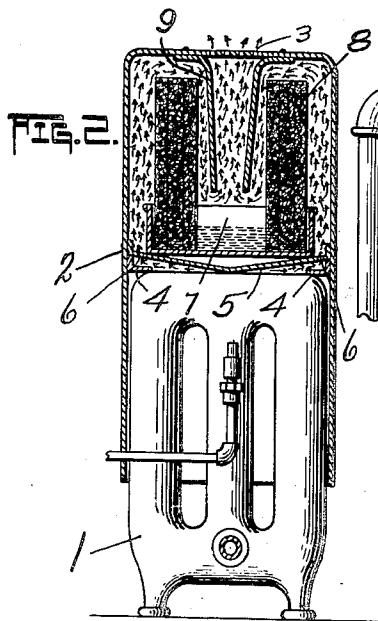
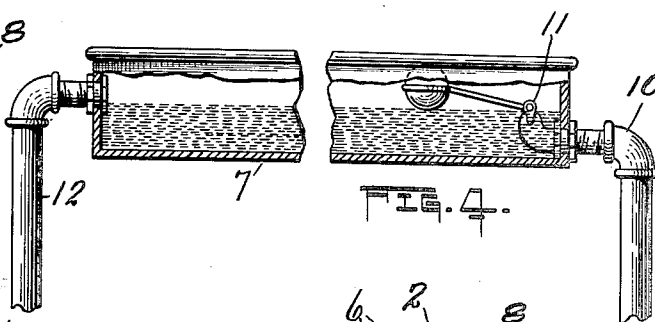
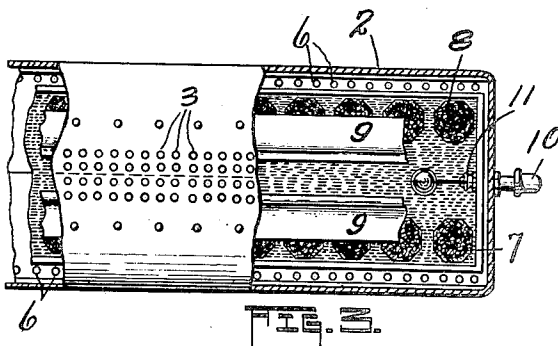


H. B. McCLURE.
HUMIDIFIER.
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1,131,784.

Patented Mar. 16, 1915.



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UNITED STATES PATENT OFFICE.

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HUMIDIFIER.

1,131,784.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HERBERT B. McCLURE, a citizen of the United States, residing at Dubuque, in the county of Dubuque and State of Iowa, have invented certain new and useful Improvements in Humidifiers, of which the following is a specification.

This invention has reference more particularly to devices for moistening air which is used for heating purposes.

The object of my invention is to provide a device for moistening air which may be readily applied to all heating devices used at present.

A further object is the provision of means for passing the heated air in direct contact with a large wet surface for the purpose of thoroughly moistening the heated air.

A further object is the provision of means for automatically supplying water to the moistening elements, so that they are constantly thoroughly moistened.

This invention also embraces other novel features which will be apparent from the following description and which are particularly pointed out in the claims.

In the accompanying drawings which illustrate my invention, Figure 1 is a side view of an ordinary radiator with the humidifier attached, portions of the humidifier being broken away to disclose details of construction; Fig. 2 is a vertical sectional view of the humidifier on the line *a-a* of Fig. 1, and shows an end view of the radiator on which it is mounted; Fig. 3 is a top view of a portion of the humidifier, part of the casing being broken away to show details of construction; and Fig. 4 is a side view of the tank which supports the humidifiers, the lower portion of the tank being shown in longitudinal section.

1 is a radiator of the ordinary construction such as is used for heating buildings and 2 is a casing, the lower portion of which incloses a considerable portion of the radiator as shown, for the purpose of supporting the humidifier and also for the purpose of confining the heat from the radiator and causing it to pass upwardly in contact with the air moistening devices. The casing 2 which extends somewhat above the top of the radiator is closed at the top and provided with a number of apertures 3 centrally arranged in the top and extending from end to end thereof for purposes which will hereafter appear.

4 are angle irons which extend lengthwise of the casing 2 and are secured to the side walls thereof on the inner side so as to engage the top of the radiator 1 and support the humidifier thereon. Immediately above the angle iron supports 4 is a deflector plate 5 which extends the entire length of the casing 2 and is secured to the sides thereof, and this deflector plate is inclined downwardly as shown in Fig. 2, from each side wall to the center so as to direct the heated air from the radiator to the sides of the casing 2 where it passes upwardly through apertures 6 to the air moistening compartment above.

Immediately above the deflector plate 5 is a pan 7 which is somewhat narrower than the casing 2 so as to leave a passage way at each side thereof, and this pan which may be supported directly upon the deflector plate 5, extends the entire length of the casing 2 so that the air which passes through the apertures 6 is required to pass between the side wall of the pan 7 and the side walls of the casing 2.

Within the pan and arranged in close relation at each side thereof, are a number of vertical air moisteners 8 which are composed of a porous absorbent material and are saturated by capillary attraction. These air moisteners extend almost to the top of the casing 2 and on the inner sides thereof are the deflector plates 9 which are secured to the top of the casing 2, one at each side of the apertures 3, and extend downwardly between the humidors 8 to within a short distance of the pan 7 so that the air which passes upwardly in contact with the outer walls of the air moisteners, is directed downwardly by the deflector plates 9 in contact with the inner walls thereof, and escapes through the passage way formed between the deflector plates 9 and the apertures 3 at the top of the casing 2. Connected at one end of the pan 7, is an inlet pipe 10 which communicates, within the pan 7 through a float valve 11 which is adapted to automatically supply water to the pan as it is consumed and regulate the depth of the water therein. At the opposite end of the pan is an overflow pipe 12, the lower edge of which is arranged approximately in line with the surface of the water in the pan so that in case of accident to the valve 11 the level of the water within the pan will be maintained.

In operation the heated air from the ra-

diator is confined within the lower portion of the casing 2 and directed upwardly by means of the deflector plate 5 through the aperture 6 at each side thereof. The air then passes upwardly in direct contact with the humidors 8 which are constantly saturated by their capillary attraction of water from the pan 7. The air moisteners are spaced a slight distance apart so that a part of the air passes therebetween and is thus moistened, while the greater part of the air is required to pass upward in contact with one side of the humidor and downward in contact with the opposite side so as to accumulate considerable moisture before it is discharged into the room.

What I claim is:

1. In a device of the class described, the combination of a casing through which heated air is adapted to pass, an air moistener in the casing and spaced from one of the walls thereof to provide an upward passageway for the air at one side of the moistener, and a deflector in the casing adjacent the other side of the moistener to deflect downwardly the air rising through the upward passageway.

2. In a device of the class described, the combination of a casing through which heated air is adapted to pass, rows of air moisteners in the casing, each row being disposed in spaced relation to one of the walls of the casing to provide upward passageways for the heated air at the outer side of each row of moisteners, and spaced deflectors in the casing for directing downwardly at the inner sides of the moisteners the air passing through the upward passageways, said deflectors being so arranged as to form with each other an upward passageway for the air.

3. A device of the character described comprising a casing open at the bottom to envelop a radiator and having an outlet in the top for the escape of heated air, a water receptacle within said casing supported above the radiator, air moistening devices in said receptacle and projecting above the same in spaced relation to the walls of the casing to permit the upward flow of air between the walls and the outer sides of said air moistening devices, and spaced deflector plates depending from the top of the casing on opposite sides of the outlet to deflect the air downwardly over the opposite sides of the moistening devices before escaping.

4. A device of the character described comprising a casing having outlet openings in its upper wall to permit a current of air to pass therethrough, means to support said casing over a heating element, a water receptacle within the casing and supported above the heating element, a plurality of air mois-

tening devices within the water receptacle and projecting above the same in spaced relation to each other and to the walls of the casing to permit upward flow of air between said walls and the outer sides of said moisteners, and deflector plates depending from the upper wall on each side of the outlet openings nearly to the water receptacle and spaced from each other and from the moistening devices to direct the flow of air at first downwardly against the inner sides of the said moistening devices and then upwardly to the outlets.

5. A device of the character described comprising a casing having outlet openings in its upper wall, a horizontally disposed deflector plate within the casing inclined upwardly from the center to the side walls and provided with inlet openings adjacent said walls, a water receptacle above the deflector plate and supported thereon, air moistening devices arranged in two rows projecting from said water receptacle nearly to the top of the casing and spaced from the side walls of the same for the flow of the air entering the inlets, and deflectors fixed to the upper wall on opposite sides of the outlet openings and depending downwardly between the rows of moistening devices and spaced therefrom to direct the air downwardly along the inner sides of the rows of moisteners, said deflectors being spaced from each other to provide an upward passageway to the outlet openings in the upper wall of the casing.

6. In a device of the class described, the combination of a casing having openings to permit a current of air to pass therethrough, an air moistener in said casing spaced from a side wall to provide an air passage, and a deflector depending from the top of the casing to direct the flowing air over the other side of the air moistener before passing from the casing.

7. In a device of the class described, the combination of a casing having openings to permit a current of air to pass therethrough, deflectors depending from the top of the casing on opposite sides of the exit openings, an air moistener in said casing on each side of a deflector and spaced therefrom and from the side walls of the casing to provide passageways for the heated air to pass over both sides of the air moistener and between the deflectors, and means for maintaining said moistener in a saturated condition.

In testimony whereof I affix my signature in presence of two witnesses.

HERBERT B. McCLURE.

Witnesses:

DAN L. LENEHAN,
JOSEPH E. McCLURE.