

Nov. 4, 1969

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3,476,365

AIR HUMIDIFIER

Filed May 10, 1967

FIG. 2.

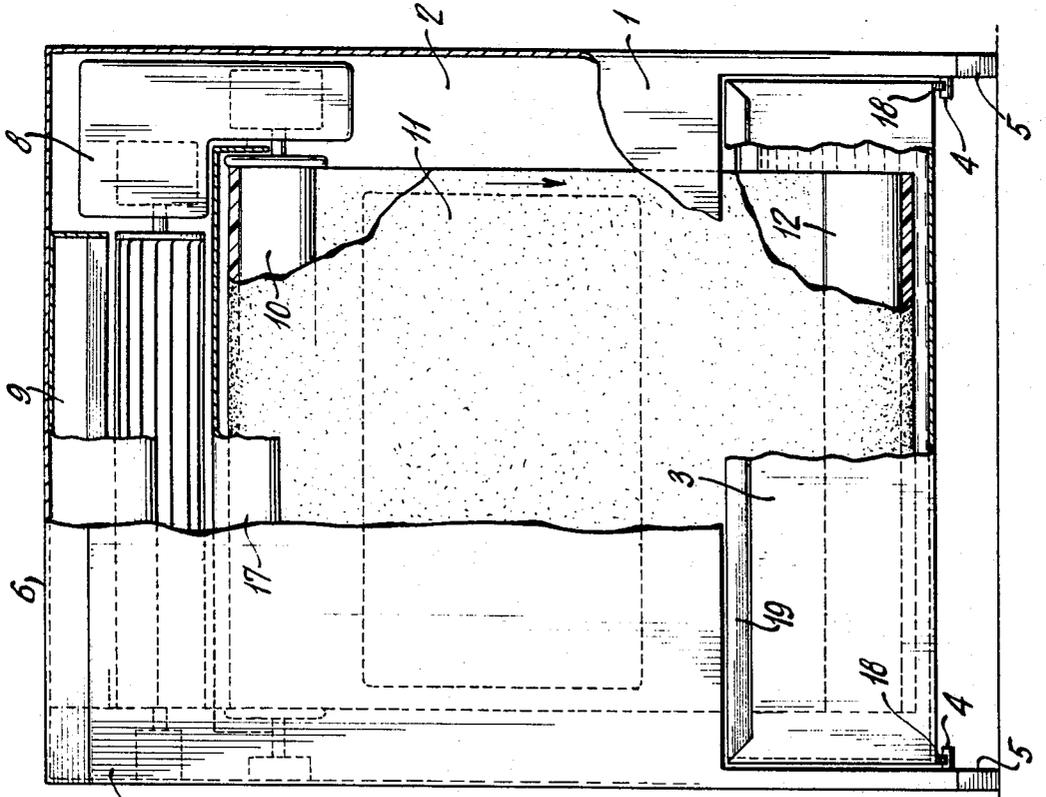
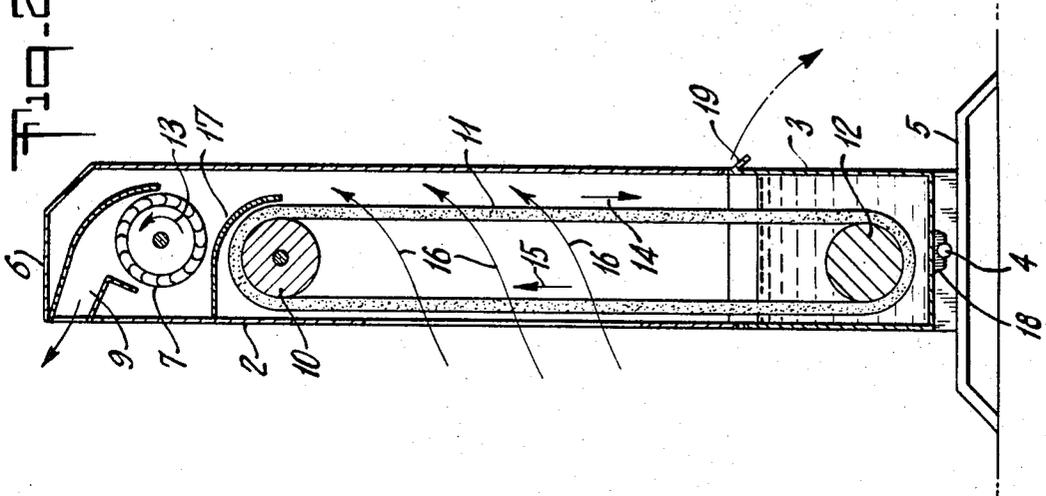


FIG. 1.

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**AIR HUMIDIFIER**

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Filed May 10, 1967, Ser. No. 637,417

Claims priority application Denmark, May 11, 1966, 2,414/66

Int. Cl. B01d 1/00

U.S. Cl. 261—24

4 Claims

**ABSTRACT OF THE DISCLOSURE**

An air humidifier is provided having a water container in the lower portion thereof which is pivotally arranged about and removable from an axis at the bottom of the humidifier housing. A ventilator is also provided for producing a continuous stream of air which passes through the housing and through an endless band of porous material which absorbs the water from the water container, the ventilator and endless band being driven by a single motor means.

The invention relates to an air humidifier comprising a suspended porous band, a water container, means to transfer water from the water container to the porous band, a ventilator producing a stream of air to pick up moisture from the porous band, and a housing with an inlet aperture and an outlet aperture. An air humidifier of this type may profitably comprise an endless porous band, preferably consisting of foam plastic with open cells, said band being moved by two rollers, one of which being driven by a motor by means of a suitable transmission and being arranged in such a manner that its lower portion is submerged in a water container whereby it becomes moist. Instead of such an endless band it is possible to use a fixedly suspended band that is maintained constantly moist by means of a pump driven by a motor.

In connection with air humidifiers of the type indicated it is usual to arrange a so-called axial ventilator opposite the middle of the band and cause said ventilator to blow the stream of air through the band. However, this arrangement is quite voluminous and therefore often entails that it is not possible in practice to install the air humidifier in the most suitable location in the room in which it is to be used.

The object of the invention is to devise an air humidifier of the type indicated which may be constructed with a flat housing so that it for instance may be installed in front of a radiator whereby the most advantageous combination of heating and moistening of the air is obtained.

According to the invention this is obtained by arranging the ventilator above the band. The dimension of the housing in a direction at right angles to the vertical sections of the band will hereby substantially be determined by the size of the ventilator or possibly the water container arranged below said band, and the housing may therefore be constructed with a relatively small dimension in this direction.

The inlet aperture may, according to the invention, be arranged at the back of the housing. This is particularly advantageous when the air humidifier is located in front of a radiator as air that has been somewhat heated will be sucked into the housing, said air having a capacity to pick up a relatively large amount of water.

The outlet aperture may, according to the invention, be arranged at the back of the housing. The moistened air expelled from the housing will therefore be mixed with warm air so that the danger of damp-spots on the walls or moisture damages to the furniture is avoided.

The arrangement of the air humidifier in front of a

radiator furthermore prevents unpleasant draft-like conditions which may occur in connection with conventional air humidifiers as the air is cooled when it is moistened and because the outlet aperture normally is arranged at the front of the housing so that the moistened air is expelled into the room.

The ventilator may, according to the invention, consist of a so-called tangential ventilator i.e. a fan picking up and discharging the air tangentially, said ventilator being arranged with its axis parallel with the longitudinal direction of the housing. Hereby there is obtained a particularly practical construction where it is possible to concentrate all the electrical components in one single casing.

In the accompanying drawings an embodiment of an air humidifier according to the invention is illustrated,

FIG. 1 showing a front view of the air humidifier with a portion of the front side removed, and

FIG. 2 showing a vertical section of the air humidifier.

The shown air humidifier has a housing with a front wall 1 and a rear wall 2. The housing is terminated below by a water container 3 whose walls are arranged in the same plane as the walls 1 and 2, said container 3 being arranged forwardly pivotable about an axis 4. The air humidifier is supported by a base 5. The housing is terminated above by a top wall 6.

In the upper region of the housing there is arranged a tangential fan 7 driven by a gear motor 8, said fan being connected with an outlet channel 9 that opens into an aperture in the upper portion of the wall 2.

Below the fan 7 there is arranged a roller 10 that may be driven by the gear motor 8 over a transmission mechanism, said roller possibly being driven by a separate motor. On the roller 10 there is placed an endless porous band 11, e.g. consisting of foam plastic, and below said roller 10 a roller 12 is suspended in the band 11. A large aperture is arranged in the wall 2 opposite the rear portion of the endless band. Between the roller 10 and the fan 7 there is arranged a partition 17 to ensure that the air is forced through the band 11.

When operating the air humidifier the tangential fan 7 is caused to rotate in the direction indicated by the arrow 13, and the roller 10 is caused to rotate in such a direction that the endless band moves in the manner indicated by the arrows 14 and 15. The band 11 will therefore pick up water from the container 3, and the tangential fan will cause an air stream flowing in the directions indicated by arrows 16. The air thus passing through the vertical stretches of the endless band 11 will thereby be moistened and be blown out through the channel 9.

The air humidifier is flat and is therefore well-suited for arrangement alongside a radiator. Hereby it is achieved that the air sucked in through the rear wall 2 is somewhat heated so that it can pick up relatively large amounts of water, and furthermore it is obtained that the air expelled through the channel 9 will be mixed with the ascending warm air from the radiator.

The water container 3 can be swung forward so that it is easy to ascertain whether it contains a sufficient amount of water and it is therefore easy to fill it with water or exchange the water or clean the container. Container 3 has two ring segments 18 which are pivotally mounted on the housing journals 4. Since the roller 12 is not mounted but is suspended by its own weight in the band 11 the water container can be rotated frontwardly by simply pulling on the water container flap 19 and since the ring segments 18 do not surround the journals 4 this container can be completely detached from the housing 1.

The shown and described embodiment is only to be considered by way of example as several variations are conceivable within the scope of the invention. The air

humidifier and the radiator may thus constitute a unit with the radiator, the fan, the band and the water container arranged in a single housing. In this manner the entire unit may be made more compact than the device consisting of a separate radiator and a separate air humidifier.

I claim:

1. An air humidifier comprising a flat rectangular stationary housing having inlet and outlet apertures arranged in a vertical wall thereof, the lower portion of said housing comprising a water container arranged pivotably about and removable from an axis at the bottom of said housing, a ventilator arranged inside said housing, a roller with horizontal axis arranged with its axis parallel to said vertical wall, a motor directly connected with the axle of said ventilator and connected with the axle of the roller through a reduction mechanism, an endless band of porous material suspended on said roller, a second roller suspended in said band directly beneath said first roller in the lowermost region of the housing and at least partly submerged in the water of the water container, said band having two vertical stretches extending between the two rollers and across the lowermost of said two apertures.

2. An air humidifier comprising a housing having a substantially vertically extending back wall, said wall having therein an inlet aperture and an outlet aperture, said outlet aperture being substantially vertically above said inlet aperture, having therein suspended a porous band, a water container, said container arranged pivotably about and removable from an axis at the bottom of said housing, means for transferring water from said container to said band and means for producing a stream of air which enters said housing at said intake aperture, passes past said porous band, and exits said outlet aperture.

3. An air humidifier as defined in claim 2, wherein said air stream producing means is a tangential fan arranged with its axis parallel to the longitudinal direction of the housing.

4. An air humidifier comprising a housing having inlet and outlet apertures, the lower portion of said housing comprising a water container arranged pivotably about and removable from an axis at the bottom of said housing, a roller with horizontal axis, an endless band of porous material suspended on said roller, a second roller suspended in said band in the lowermost region of the housing and at least partly submerged in the water of the water container.

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TIM R. MILES, Primary Examiner

U.S. Cl. X.R.

237—78; 261—72, 80