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A Packaged Air Conditioner Indoor Unit Adjustable Humidity using Condensing Water

Field of Invention

This invention relates to packaged air conditioner, in particular, to a packaged air conditioner indoor unit adjustable humidity using condensing water.

Background of the Invention

It is common to drain condensate (condensing water) produced by the indoor unit heat exchange to outdoor when the air conditioner is operated in cooling mode, the result should be not only to waste water but also decrease the indoor humility continuously and cause people uncomfortable.

Summary of the Invention

It is therefore an object of the present invention to avoid draining condensate to outdoor directly and causing water loss when the unit is placed in a cooling mode.

It is a further object of the present invention to provide an adjustable humidity system using condensing water for controlling indoor humidity, e.g. humidification or dehumidification, or keeping constant humidity.

These objects of the current invention are attained in a packaged air conditioner indoor unit that contains water collector, water pipe, water tank, mini DC motor, water pump, output pipe, mist spout, water inlet and outlet, the condensate in the evaporator drop to said water tank through said water collector and said water pipe when the indoor unit is working. In damp weather, the indoor unit is placed in dehumidification mode, the normally closed switch in said water outlet is turned on and the water is drained out from the water tank. Normally, the indoor unit is working in cooling mode and the normally closed switch in water outlet turn

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off, when the water level inside the water tank is higher than the maximum level line, the mist spout system composing mini DC motor, water pump, output pipe, mist spout is working soon and the mist is spraying out from the spout that is placed in the air outlet of the indoor unit, when the water level inside the water tank is lower than the minimum level line, the mist spout system stop working until the water level is higher than the maximum level line, so the indoor humidity keep constant. In dry weather, it is necessary to increase the indoor humidity, the indoor unit work in cooling mode, and fill enough water to the water tank through the water inlet, so that the mist spout system keep working until the indoor humidity is as require.

The present invention provide a mist spout system in a packaged air conditioner indoor unit, which can adjust the indoor temperature and humidity, and make a comfort environment.

Brief Description of the Drawings

For a better understanding of these objects of the invention, reference will be made to the following detailed description of the invention which is to be read in association with the accompanying drawing.

FIG.1 is a side schematic illustration of structure of a packaged air conditioner indoor unit that embodies the present invention.

Listing of all figures

1 is the mist spout;
2 is the metal conduit;
3 is the mini DC motor;
4 is the sleeve connecting 3 and 6;
5 is the shaft of 6;
6 is the water pump inside water;
7 is the evaporator of the indoor unit;

8 is the water collector under 7;

9 is the water pipe;

10 is the water inlet in 11;

11 is the water tank;

12 is the water outlet in 11;

13 is the water output pipe from 6;

14 is the air outlet of the indoor unit;

Detailed Description of the Invention

Referring to the FIG.1, there is illustrated a packaged air conditioner indoor unit adjustable humidity using condensing water, which consist of water collector (8), water pipe (9), water tank (11), mini DC motor (3), water pump (6), output pipe (13), mist spout (1), water inlet (10) and water outlet (12). There is a water pipe (9) connecting the water collector (8) and the water tank (11), the mini DC motor (3) is placed on the lid of the water tank (11), the water pump (6) is placed under water inside the water tank (11), the shaft (5) of said mini DC motor (3) and said water pump (6) is connected each other through the sleeve (4), the output pipe (13) from said water pump (6) connect to the end of metal conduit (2) through the lid of the water tank (11), the other end of metal conduit (2) is connected to the mist spout (1) placed in the air outlet (14) of the indoor unit. The water outlet (12) is in down side of said water tank (11) on rear of the indoor unit, the water inlet (10) is in up side of the water tank (11) on rear of the indoor unit.

The condensate in the evaporator (7) drop to the water tank (11) through water collector (8) and water pipe (9) when the indoor unit is working. In damp weather, the indoor unit is placed in dehumidification mode, the normally closed switch in said water outlet (12) is turned on and drain out water from the water tank (11). Normally, the indoor unit is working in cooling mode and the normally closed switch in water outlet (12) turn off, when the water level inside the water tank (11) is higher than the maximum level line, the mini DC motor (3) and the water pump (6) is working soon, the water of being pressed is squeezed to the mist

spout (1) through the water pipe (13) and the metal conduit (2), the water become the mist and is spraying out from the spout (1) as the vortical structure and oriented channel inside the spout (1), when the water level inside the water tank (11) is lower than the minimum level line, the mini DC motor (3) and the water pump (6) stop working until the water level is higher than the maximum level line, so the indoor humidity keep constant. In dry weather, it is necessary to increase the indoor humidity, the indoor unit work in cooling mode, and fill enough water to the water tank (11) through the water inlet (10), so that the mist spout system keep working until the indoor humidity is as require.

While this invention has been explained with reference to the structure disclosed herein, it is not confined to the details set forth and this invention is intended to cover any modifications and changes as may come within the scope of the following claims.

Claims

1. A packaged air conditioner indoor unit adjustable humidity using condensing water consist of water collector, water pipe, water tank, mini DC motor, water pump, output pipe, mist spout, water inlet and outlet, characterized in that said water collector and water pipe and water tank is installed under the evaporator, the mist spouting system including mini DC motor, water pump, output pipe and mist spout is installed in the water tank with water inlet and outlet.

2. A packaged air conditioner indoor unit according to claim 1, characterized in that said water outlet is in down side of said water tank on rear of the air conditioner indoor unit, and said water outlet have a normally closed switch.

3. A packaged air conditioner indoor unit according to claim 1, characterized in that said water inlet is in up side of said water tank on rear of the air conditioner indoor unit.

4. A packaged air conditioner indoor unit according to claim 1, characterized in that said mini DC motor is installed above the lid of said water tank, said water pump is placed below the lid of said water tank and is inside water, said mini DC motor connect directly to central shaft of water pump via the adapter sleeve.

5. A packaged air conditioner indoor unit according to claim 1, characterized in that said water output pipe from water pump connect to the metal conduit through the lid of said water tank, the other end of the metal conduit connect to said mist spout.

6. A packaged air conditioner indoor unit according to claim 1, characterized in that said mist spout is installed in the air outlet of the air conditioner indoor unit.