WALL-HANGING DEHUMIDIFIER

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ABSTRACT
A wall-hanging dehumidifier includes a shell in the form of a cabinet, air inlets (1) and air outlets (8) on the shell, and a fan system and a refrigeration system in the shell. The shell comprises a front panel (1) and a rear panel (2). The dehumidifier comprises a wall-hanging assembly. The wall-hanging assembly comprises a hanging board (3) which is fixed on the rear panel (2), and a mounting board (10) which is fixed on the wall (200). The hanging board (3) has hanging holes (31) and the mounting board (10) has hooks (102). The dehumidifier can be mounted on the wall (200) by locking the hooks (102) on the mounting board (10) into the hanging holes (31) on the hanging board (3).
WALL-HANGING DEHUMIDIFIER
CROSS-REFERENCE TO RELATED APPLICATIONS


TECHNICAL FIELD

[0002] The present invention relates to equipment in the technical field of air-conditioning equipment, more particularly, to a wall-hanging dehumidifier.

BACKGROUND OF THE INVENTION

[0003] A dehumidifier is equipment capable of regulating air humidity. In general, the dehumidifier reduces the air humidity in the room by the following means: absorb the moist air in the room; let the moist air go through the heat exchanger which comprises a condenser and an evaporator so as to remove moisture from the air; exhale the dry air processed from the dehumidifier. The dehumidifier is provided with refrigerant pipes. The refrigerant flows circularly in the refrigerant pipes and the heat exchanger. That is to say, the evaporator of the dehumidifier makes the liquid refrigerant vaporize at the evaporator so as to take away heat from the surrounding air. When the liquid refrigerant vaporizes, the temperature of the evaporator falls, and so does the temperature of the air after heat is exchanged between the air and the evaporator. Now the steam in the air condenses to become condensate. The condensate is separated from the air and the air becomes the dry air processed.

[0004] The dehumidifier in the prior art comprises a shell, air inlet grids and air outlet grids in the shell, and a fan system and a refrigeration system in a cavity of the shell. Indoor air is drawn in through the air inlet grids at the back of the dehumidifier. After exchanging heat with the condenser and the evaporator, the air is exhaled through the air outlet grids from the dehumidifier. In the dehumidifier of the prior art, the air inlet grids are disposed in the front side or at the top of the shell. When the dehumidifier is in operation, the dry air, which has exchanged heat with the condenser and the evaporator, blows the users directly and causes the users feel uncomfortable. What’s more, since the air inlet grids are disposed at the back or rear sides of the dehumidifier, when the dehumidifier is installed, enough space must be reserved at the back to ensure the air to go into the wall-hanging dehumidifier easily. The dehumidifier takes too much space and is inconvenient for use.

SUMMARY OF THE INVENTION

[0005] The present invention is aimed at providing a wall-hanging dehumidifier, which can be placed against a wall or even be hung on a wall taking no space on the ground. The wall-hanging dehumidifier is flexible, convenient and will not make the users uncomfortable when in operation.

[0006] The object of the present invention is achieved by the following technical scheme:

[0007] A wall-hanging dehumidifier comprises a shell in the form of a cabinet, air inlets and air outlets in the shell, and a fan system and a refrigeration system in a cavity of the shell; the shell comprises a front panel and a rear panel; the dehumidifier further comprises a wall-hanging assembly; the wall-hanging assembly comprises a hanging board fixed on the rear panel and a mounting board fixed on a wall; the hanging board is provided with hanging holes; the mounting board is provided with hooks; the dehumidifier is fixed on the wall by locking the hooks on the mounting board into the hanging holes in the hanging board.

[0008] In summary, the present invention has following advantages:

[0009] The wall-hanging dehumidifier of the present invention is provided with the wall-hanging assembly which comprises the hanging board fixed on the rear panel and the mounting board fixed on a wall. The hanging board of the rear panel is provided with hanging holes and the mounting board is provided with hooks. The dehumidifier is fixed on the wall by locking the hooks on the mounting board into the hanging holes in the hanging board of the rear board. The dehumidifier takes small space and is convenient for use.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 is a rear view illustrating the wall-hanging dehumidifier of the present invention;

[0011] FIG. 2 is a partial enlargement of rear view illustrating the wall-hanging dehumidifier of the present invention in installed state;

[0012] FIG. 3 is an isometric view illustrating the wall-hanging dehumidifier of the present invention;

[0013] FIG. 4 is a schematic view illustrating the mounting board of the wall-hanging dehumidifier of the present invention;

[0014] FIG. 5 is a schematic view illustrating the mounting holes for the hanging board on the rear panel of the wall-hanging dehumidifier according to the present invention;

[0015] FIG. 6 is a schematic view illustrating the installing of the hanging board of the wall-hanging dehumidifier of the present invention;

[0016] FIG. 7 is a schematic view illustrating the assembling of the rear panel and the hanging board of the wall-hanging dehumidifier of the present invention;

[0017] FIG. 8 is a schematic view illustrating the mounting board of the wall-hanging dehumidifier of the present invention, which is fixed on the wall;

[0018] FIG. 9 is a schematic view illustrating the wall-hanging dehumidifier of the present invention before the dehumidifier is hung on the wall;

[0019] FIG. 10 is a schematic view illustrating the wall-hanging dehumidifier of the present invention when the dehumidifier is being hung on the wall;

[0020] FIG. 11 is a schematic view illustrating the installation position of the safety pin of the wall-hanging dehumidifier of the present invention;

[0021] FIG. 12 is a schematic view illustrating the final installation position of the wall-hanging dehumidifier of the present invention;

[0022] in which, the elements are denoted as follows:

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<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>1.</td>
<td>air inlet</td>
<td>2. rear panel</td>
</tr>
<tr>
<td>4.</td>
<td>handle</td>
<td>5. drainage outlet</td>
</tr>
<tr>
<td>7.</td>
<td>rubber pad</td>
<td>8. air outlet</td>
</tr>
<tr>
<td>10.</td>
<td>mounting board</td>
<td>21. upper mounting hole for the hanging board</td>
</tr>
<tr>
<td>22.</td>
<td>lower mounting hole for the hanging board</td>
<td>23. seat for handle</td>
</tr>
<tr>
<td>31.</td>
<td>hanging hole</td>
<td>32. screw</td>
</tr>
<tr>
<td>33A.</td>
<td>hole for the third positioning hook</td>
<td>33. through holes for hooks</td>
</tr>
<tr>
<td>101.</td>
<td>installing hole for safety pin</td>
<td>102. hook</td>
</tr>
<tr>
<td>103.</td>
<td>third positioning hook</td>
<td>104. mounting holes for the mounting board</td>
</tr>
<tr>
<td>200.</td>
<td>wall</td>
<td></td>
</tr>
</tbody>
</table>
As shown in FIGS. 1, 2, 3, and 4, a wall-hanging dehumidifier disclosed in the present invention comprises a shell in the form of a cabinet, air inlets 1 and air outlets 8 in the shell, and a fan system and a refrigeration system in a cavity of the shell. The shell comprises a front panel and a rear panel. 2. The dehumidifier further comprises a wall-hanging assembly. The wall-hanging assembly comprises a hanging board 3 fixed on the rear panel 2 and a mounting board 10 fixed on a wall. The hanging board 3 is provided with hanging holes 31. The mounting board 10 is provided with hooks 102 and third positioning hook 103. The dehumidifier is fixed on the wall by locking the hooks 102 and the third positioning hook 103 on the mounting board into the hanging holes 31, through holes 33 for hooks and a hole 33A for the third positioning hook in the mounting board.

The hanging board 3 is disposed in an upper middle level of the rear panel 2 and provided with two hanging holes 31. The hanging holes 31 which are in the shape of beer bottle are disposed in an upper level of the hanging board. Two J-shaped hooks 102 are disposed on two upper sides of the mounting board 10.

Cross-section of the hanging board 3 is in the shape of arch bridge, namely, there is certain space between the rear panel 2 and a plane in which the hanging holes 31 lie.

A rubber pad 7, which projects over an outer surface of the rear panel 2, is disposed in a lower middle level of the hanging board 3. The rubber pad 7 abuts against the wall when the dehumidifier is hung and locked on the wall. The rubber pad 7 can reduce the vibrations of the dehumidifier when the dehumidifier is in operation.

As shown in FIGS. 1, 5 and 6, a seat 23 for handle conforming to a handle 4 is disposed on top of the rear panel 2. The handle 4 is disposed on top of the dehumidifier. Two upper mounting holes 21 for the hanging board are disposed at intermediate locations of the seat 23 for handle; two lower mounting holes 22 for the hanging board are disposed at intermediate locations of the rear panel 2 and are aligned to the two upper mounting holes 21. The hanging board 3 is fixed on the rear panel 2 with four screws 32.

As shown in FIGS. 2, 4, 10 and 11, two straight through holes 33 for hooks are disposed in the hanging board 3 and over the hanging holes 31. During the dehumidifier is hung and locked on the wall, the hooks 102 go through the hanging holes 31 and get locked in the upper narrow parts of the hanging holes 31, tops of the hooks 102 go out of the through holes 33, and the third positioning hook 103 engages with the hole 33A for the third positioning hook.

Each hook 102 is provided with an installing hole 101 for safety pin on the top. The wall-hanging assembly further comprises two safety pins 9. During the dehumidifier is hung and locked on the wall, the safety pins 9 are plugged into the installing holes 101 for safety pins to lock the dehumidifier.

The air inlets 1 are disposed at two sides of the rear panel 2. A tank 6 is disposed on a lower right corner of the rear panel 2. A drainage outlet 5 is disposed above the tank 6.

The mounting board 10 is provided with several mounting holes 104 for the mounting board. The mounting board 10 is fixed on the wall with screws.

The air outlets 8 are disposed at two sides of the front board.

As shown in FIGS. 5 to 12, the dehumidifier is hung on the wall according to steps as follows:

1. Fix the hanging board 3 on the rear panel 2 with four screws 32;
2. Install the rubber pad 7 on the lower middle level of the hanging board 3;
3. Let the hooks 102 go through the hanging holes 31 and get locked in the upper narrow parts of the hanging holes 31, and let the tops of the hooks 102 go out of the through holes 33;
4. Plug the two safety pins 9 into the installing holes 101 for safety pins.

The preferred embodiments described above are not restricted. It will be understood by those skilled in the art that various modifications and changes may be made therein without departing from the scope of the invention.

1. A wall-hanging dehumidifier, comprising a shell in the form of a cabinet, air inlets (1) and air outlets (8) in the shell, and a fan system and a refrigeration system in a cavity of the shell; the shell comprises a front panel and a rear panel (2); the dehumidifier further comprises a wall-hanging assembly, wherein: the wall-hanging assembly comprises a hanging board (3) fixed on the rear panel (2) and a mounting board (10) fixed on a wall; the hanging board (3) is provided with hanging holes (31); the mounting board (10) is provided with hooks (102); the dehumidifier is fixed on the wall by locking the hooks (102) on the mounting board into the hanging holes (31) in the hanging board (3); a rubber pad (7), which projects over an outer surface of the rear panel (2), is disposed in a lower middle level of the hanging board (3); a third positioning hook (103) is disposed in a lower middle level of the mounting board (10); and the rubber pad (7) abuts against the wall when the dehumidifier is hung and locked on the wall.
2. The wall-hanging dehumidifier according to claim 1, wherein: the hanging board (3) is disposed in an upper middle level of the rear panel (2) and provided with two hanging holes (31); the hanging holes (31) which are in the shape of beer bottle are disposed in an upper level of the hanging board (3); and two J-shaped hooks (102) are disposed on two upper sides of the mounting board (10).
3. The wall-hanging dehumidifier according to claim 2, wherein, cross-section of the hanging board (3) is in the shape of arch bridge, namely, there is certain space between the rear panel (2) and a plane in which the hanging holes (31) lie.
4. (canceled)
5. The wall-hanging dehumidifier according to claim 3, wherein: a seat (23) for handle conforming to a handle (4) is disposed on top of the rear panel (2); the handle (4) is disposed on top of the dehumidifier; two upper mounting holes (21) for the hanging board are disposed at intermediate locations of the seat (23) for handle; two lower mounting holes (22) for the hanging board are disposed at intermediate locations of the rear panel (2) and are aligned to the two upper mounting holes (21). The hanging board (3) is fixed on the rear panel (2) with four screws (32).
6. The wall-hanging dehumidifier according to claim 3, wherein, two straight through holes (33) are disposed in the hanging board (3) and over the hanging holes (31); the dehumidifier is hung and locked on the wall, the hooks (102) go through the hanging holes (31) and get locked in the upper narrow parts of the hanging holes (31); the dehumidifier is hung and locked on the wall, the hooks (102) go through the hanging holes (31) and get locked in the upper narrow parts of the hanging holes (31); and the third positioning hook (103) engages with a hole (33A) for the third positioning hook.
7. The wall-hanging dehumidifier according to claim 5, wherein: Each hook (102) is provided with an installing hole (101) for safety pin on the top; the wall-hanging assembly further comprises two safety pins (9); and during the dehu-
The wall-hanging dehumidifier is hung and locked on the wall, the safety pins (9) are plugged into the installing holes (101) for safety pins to lock the dehumidifier.

8. The wall-hanging dehumidifier according to claim 3, wherein: the mounting board (10) is provided with several mounting holes (104) for the mounting board; and the mounting board (10) is fixed on the wall with screws.

9. The wall-hanging dehumidifier according to claim 3, wherein: the air outlets (8) are disposed at two sides of the front board.

10. The wall-hanging dehumidifier according to claim 3, wherein the air outlets (8) are disposed at two sides of the front board.

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