ultraviolet lamp in order to irradiate a wide area of the vaporization filter with ultraviolet light. For this reason, it is difficult to reduce the output of the ultraviolet lamp.

SOLUTION TO THE PROBLEM

[0005]

An aspect of the present disclosure is directed to a humidifier. The humidifier includes a housing formed with an air passage through which air passes and a water storage tank configured to store water; a humidifying rotor extending over the air passage and the water storage tank and configured to rotate so that a portion of the humidifying rotor having absorbed moisture from the water storage tank moves to the air passage and releases the moisture; and an irradiator configured to irradiate part of the humidifying rotor with ultraviolet light, wherein the humidifying rotor is formed in a disc shape, and a rotation axis, which is a center axis of the humidifying rotor, extends along an air flow direction in the air passage, the irradiator emits ultraviolet light toward an end surface of the humidifying rotor in the air flow direction in the air passage, a portion of the humidifying rotor positioned in the air passage includes a region irradiated with the ultraviolet light and a region not irradiated with the ultraviolet light, and an irradiation area to which the irradiator emits the ultraviolet light extends in a direction perpendicular to the rotation axis so that an entire area of the humidifying rotor is irradiated with the ultraviolet light by one rotation of the humidifying rotor.

[0006]

In the above aspect, the humidifying rotor is irradiated with ultraviolet light, and thus microorganisms adhering to the humidifying rotor can be sterilized or inactivated. Thus, microbial growth in the humidifying rotor can be reduced.

[0007]

In addition, in the above aspect, part of the humidifying rotor can be irradiated with

ultraviolet light while the humidifying rotor is rotated. With this configuration, a wide area of the humidifying rotor can be irradiated with ultraviolet light. Thus, the output of the irradiator can be reduced in comparison with the case where a wide area of the humidifying rotor is irradiated with ultraviolet light without the humidifying rotor being rotated.

[0008]

In an embodiment of the above aspect, the humidifier further includes a controller configured to perform first control. In the first control, the controller controls the humidifying rotor and the irradiator so that the irradiator emits ultraviolet light when the humidifying rotor is rotated.

[0009]

In the above embodiment, by performing the first control, part of the humidifying rotor can be irradiated with ultraviolet light while the humidifying rotor is rotated. With this configuration, a wide area of the humidifying rotor can be irradiated with ultraviolet light. Thus, the output of the irradiator can be reduced in comparison with the case where a wide area of the humidifying rotor is irradiated with ultraviolet light without the humidifying rotor being rotated.

[0010]

In an embodiment of the above aspect, if the first control is started when humidifying operation where the humidifying rotor is rotated is in progress, the controller controls the humidifying rotor and the irradiator so that the humidifying rotor keeps rotating and the irradiator starts emitting ultraviolet light.

[0011]

In the above embodiment, the first control can be performed when the humidifying operation is in progress.

[0012]

In an embodiment of the above aspect, if the first control is started when the

humidifying operation where the humidifying rotor is rotated is not in progress, the controller controls the humidifying rotor and the irradiator so that the humidifying rotor starts rotating and the irradiator starts emitting ultraviolet light.

[0013]

In the above embodiment, the first control can be performed when the humidifying operation is not in progress.

[0014]

In an embodiment of the above aspect, the number of rotations of the humidifying rotor in the first control performed when the humidifying operation is not in progress is less than the number of rotations of the humidifying rotor in the first control performed when the humidifying operation is in progress.

[0015]

In the above embodiment, when the humidifying operation is not in progress, the amount of ultraviolet irradiation (product of the illuminance and the irradiation time) of the humidifying rotor during one rotation of the humidifying rotor can be increased. Thus, when the humidifying operation is not in progress, it is possible to improve a sterilization effect (effect of sterilizing the humidifying rotor with ultraviolet light) during one rotation of the humidifying rotor.

[0016]

In an embodiment of the above aspect, the controller performs the first control every time a predetermined time elapses.

[0017]

In the above embodiment, the first control can be automatically performed every predetermined time. Thus, the first control can be periodically performed.

[0018]

In an embodiment of the above aspect, the predetermined time is settable.

[0019]

In the above embodiment, the cycle of the first control can be changed.

[0020]

In an embodiment of the above aspect, the controller controls timing of executing the first control according to an environmental condition around the humidifier.

[0021]

In the above embodiment, the timing of executing the first control can be controlled according to the environmental condition around the humidifier, which is correlated with the ease of microbial growth in the humidifying rotor. Thus, microbial growth in the humidifying rotor can be reduced properly.

[0022]

In an embodiment of the above aspect, the controller controls the illuminance or irradiation time of ultraviolet light from the irradiator in the first control according to the environmental condition around the humidifier.

[0023]

In the above embodiment, the amount of ultraviolet irradiation by the irradiator (product of the illuminance and the irradiation time) in the first control can be controlled according to the environmental condition around the humidifier, which is correlated with the ease of microbial growth in the humidifying rotor. Thus, microbial growth in the humidifying rotor can be reduced properly.

[0024]

In an embodiment of the above aspect, the number of rotations of the humidifying rotor is variable, and in the first control, the controller controls the illuminance of ultraviolet light from the irradiator according to the number of rotations of the humidifying rotor.

[0025]

In the above embodiment, it is possible to properly control the amount of ultraviolet irradiation (product of the illuminance and the irradiation time) of the humidifying rotor.

[0026]

In an embodiment of the above aspect, the controller controls the number of rotations of the humidifying rotor according to a humidification load in the humidifying operation where the humidifying rotor is rotated.

[0027]

In the above embodiment, the humidifying rotor can promote humidification of air in the air passage according to the humidification load, and thus humidification can be properly performed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0028]

FIG. 1 is a schematic view illustrating an example configuration of a humidifier.

FIG. 2 is a block diagram illustrating the example configuration of the humidifier.

FIG. 3 is a schematic view illustrating an example of the area of ultraviolet irradiation by an irradiator.

FIG. 4 is a flowchart for describing first control.

DESCRIPTION OF EMBODIMENTS