DESCRIPTION

AIR-CONDITIONING INDOOR UNIT

TECHNICAL FIELD

The present invention relates to an air-conditioning indoor unit.

BACKGROUND ART

Recently there has been investigation of air conditioners that use the Coanda effect to bring the blown air to a predetermined zone. For example, the air conditioner disclosed in Patent Literature 1 (Japanese Laid-open Patent Application Publication No. 2003-232531) is configured with a horizontal louver disposed in the front surface of a blow-out port and in the path of blown air. The blown air is an upward Coanda airflow along the horizontal louver due to the Coanda effect.

SUMMARY OF THE INVENTION

<Technical Problem>

The upward Coanda airflow is a cause of so-called short circuits drawn into an intake port along a casing front surface, and it is therefore necessary in this air conditioner for the Coanda airflow to be corrected to an upward incline by an airflow guide plate.

Therefore, there is demand for a configuration that creates a Coanda airflow which avoids short circuits even without such an airflow guide plate.

Embodiments of the present invention provide an air conditioner that can create a Coanda airflow in a direction that avoids short circuits even without a conventional airflow guide plate.

<Solution to Problem>

According to an aspect of the present invention, there is provided an air-conditioning indoor unit having a Coanda effect use mode in which a flow of blown air blown out from a blow-out port is diverted in a predetermined direction via the Coanda effect, the air-conditioning indoor unit comprising ~~a Coanda vane and a controller. The Coanda vane, which is provided in proximity to the blow-out port, makes the blown air into a Coanda airflow along a bottom surface thereof during the Coanda effect use mode. The controller controls the orientation of the Coanda vane. A curved surface curved into a convex shape is formed in the bottom surface of the Coanda vane. The controller adjusts the orientation of the Coanda vane away from a casing front surface as the Coanda vane separates from the blow-out port during the Coanda effect use mode~~ : a Coanda vane being provided in proximity to the blow-out port, the Coanda vane having a bottom surface and being configured to cause the flow of blown air to be attracted toward said bottom surface via the Coanda effect, thereby making the blown air into a Coanda airflow along said bottom surface during the Coanda effect use mode; a controller configured to control an orientation of the Coanda vane; and a curved surface curved into a convex shape being formed in the bottom surface of the Coanda vane; wherein, during the Coanda effect use mode, the controller is configured to adjust the orientation of the Coanda vane away from a casing front surface as the Coanda vane separates from the blow-out port.

In this air-conditioning indoor unit, because the orientation of the Coanda vane is such that the Coanda vane separates from the casing front surface as the Coanda vane

CLAIMS

1. An air-conditioning indoor unit ~~(10)~~ having a Coanda effect use mode in which a flow of blown air blown out from a blow-out port ~~(15)~~ is diverted in a predetermined direction via the Coanda effect, the air-conditioning indoor unit comprising:

a Coanda vane ~~(32)~~ being provided in proximity to the blow-out port ~~(15)~~, the Coanda vane having a bottom surface and being configured to cause the flow of blown air to be attracted toward said bottom surface via the Coanda effect, thereby ~~for~~ making the blown air into a Coanda airflow along ~~a~~ said bottom surface ~~(32a)~~ ~~thereof~~ during the Coanda effect use mode; ~~and~~

a controller ~~(40)~~ ~~for~~ configured to control~~ling~~ an orientation of the Coanda vane ~~(32)~~; and

a curved surface ~~(320)~~ curved into a convex shape being formed in the bottom surface ~~(32a)~~ of the Coanda vane ~~(32)~~; ~~and~~

wherein, during the Coanda effect use mode, the controller ~~(40)~~ is configured to adjust~~ing~~ the orientation of the Coanda vane ~~(32)~~ away from a casing front surface as the Coanda vane separates from the blow-out port ~~(15)~~ ~~during the Coanda effect use mode~~.

2. The air-conditioning indoor unit ~~(10)~~ according to claim 1, further comprising a scroll ~~(17)~~ for leading conditioned air to the blow-out port ~~(15)~~; wherein

a tangent to a final end of the scroll ~~(17)~~ is oriented downward; and

the controller ~~(40)~~ adjusts the orientation of the Coanda vane ~~(32)~~ so that a distal end of the Coanda vane ~~(32)~~ is oriented upward during the Coanda effect use mode.

3. The air-conditioning indoor unit ~~(10)~~ according to claim 1, wherein

the controller ~~(40)~~ adjusts the orientation of the Coanda vane ~~(32)~~ so that a distal end of the Coanda vane ~~(32)~~ is oriented toward a ceiling during the Coanda effect use mode.

4. The air-conditioning indoor unit ~~(10)~~ according to claim 3, wherein

when the distal end of the Coanda vane ~~(32)~~ is oriented toward the ceiling, the controller ~~(40)~~ adjusts the orientation of the Coanda vane ~~(32)~~ so that the distal end of the Coanda vane ~~(32)~~ is positioned higher than a top wall of the blow-out port ~~(15)~~.

5. The air-conditioning indoor unit ~~(10)~~ according to claim 1 which has a normal mode in which the Coanda vane ~~(32)~~ does not create the Coanda airflow; wherein

an accommodation part (~~130~~) for accommodating the Coanda vane (~~32~~) is formed in the casing front surface; and

in the normal mode, the Coanda vane (~~32~~) is accommodated in the accommodation part (~~130~~) and the casing front surface and the curved surface (~~320~~) of the Coanda vane (~~32~~) is curved so as to be aligned in a single continuous imaginary curved plane.

6. The air-conditioning indoor unit (~~10~~) according to claim 1, wherein

the curved surface (~~320~~) of the Coanda vane (~~32~~) is formed from a plurality of curved surfaces having different degrees of curvature.

7. The air-conditioning indoor unit (~~10~~) according to claim 1, further comprising:

a movable airflow direction adjustment vane (~~31~~) for varying a vertical direction of the blown air; wherein

the controller (~~40~~) controls an orientation of the airflow direction adjustment vane (~~31~~) and the orientation of the Coanda vane (~~32~~) when the orientation of the Coanda airflow is varied.

8. The air-conditioning indoor unit (~~10~~) according to claim 1, wherein

the controller (~~40~~) adjusts the orientation of the Coanda vane (~~32~~) during the Coanda effect use mode so that a rear end of the Coanda vane (~~32~~) is oriented downward and a distal end of the Coanda vane (~~32~~) is oriented upward.

9. The air-conditioning indoor unit (~~10~~) according to any of claims 1 through 8, wherein

a radius of the curved surface (~~320~~) of the Coanda vane (~~32~~) is 50 to 300 mm.