loss of sealing performance.

[0008]

Embodiments of the present disclosure reduce air leakage at an outer circumferential portion of a rotor which serves as an air conditioning rotating body.

SOLUTION TO THE PROBLEM

[0009]

According to a first aspect of the present disclosure, there is provided an air conditioning rotating body having a rotor in a cylindrical shape, the rotor being housed in a casing so as to be freely rotatable, the air conditioning rotating body being configured to treat air passing through the rotor in an axial direction, wherein a labyrinth seal structure is provided between an outer circumferential portion of the rotor and the casing, the labyrinth seal structure includes a first protrusion protruding in the axial direction from the rotor toward the casing, and a second protrusion protruding in the axial direction from the casing toward the rotor, the first protrusion is provided at a side surface on an outer circumference of the rotor, the casing includes an upper plate and lower plate, which face each other in the axial direction of the rotor with the air conditioning rotating body interposed therebetween, and the labyrinth seal structure is provided on each of the upper plate and the lower plate.

[0010]

According to the first aspect, the labyrinth seal structure provided at the outer circumferential portion of the rotor can reduce both of the air leakage from the center toward the outer circumference of the rotor and the air leakage from the outer circumference toward the center of the rotor. Further, the labyrinth seal structure is configured by the engagement between the protrusions and protruding in the rotor axial direction. This configuration makes it easier to maintain sealing performance even if the outer circumferential portion of the rotor fluctuates in the axial direction due to displacement of the shaft, for example.

CLAIMS

1. An air conditioning rotating body having a rotor in a cylindrical shape, the rotor being housed in a casing so as to be freely rotatable, the air conditioning rotating body being configured to treat air passing through the rotor in an axial direction, wherein

a labyrinth seal structure is provided between an outer circumferential portion of the rotor and the casing,

the labyrinth seal structure includes a first protrusion protruding in the axial direction from the rotor toward the casing, and a second protrusion protruding in the axial direction from the casing toward the rotor,

the first protrusion is provided at a side surface on an outer circumference of the rotor,

the casing includes an upper plate and lower plate, which face each other in the axial direction of the rotor with the air conditioning rotating body interposed therebetween, and

the labyrinth seal structure is provided on each of the upper plate and the lower plate.

2. The air conditioning rotating body of claim 1, wherein

at least one of the first protrusion or the second protrusion is an elastic element.

3. The air conditioning rotating body of claim 2, wherein

the labyrinth seal structure includes a plurality of engagement structures, and

the plurality of engagement structures includes a plurality of the elastic elements inclined at different angles to the axial direction.

4. The air conditioning rotating body of claim 3, wherein

the plurality of engagement structures includes a plurality of the elastic elements further apart from each other toward ends of the elastic elements.

5. The air conditioning rotating body of any one of claims 2 to 4, wherein

the first protrusion is an inelastic element, and

the second protrusion is an elastic element.

6. An air treatment device comprising the air conditioning rotating body of any one of claims 1 to 5.