CLAIMS

[Claim 1]

A dust collecting device comprising:

a plurality of collecting plates spaced apart in an air passage, the plurality of collecting plates being arranged in a direction intersecting with an air passing direction in which air passes, the plurality of collecting plates being electrically charged by friction; and

a plurality of brushes fitted in spaces, through which the air passes, between the plurality of collecting plates, the plurality of brushes being rubbed against surfaces of the plurality of collecting plates and removing dust collected by the plurality of collecting plates,

wherein the plurality of brushes are arranged in a posture at a rotation angle about an axis extending in the direction in which the plurality of collecting plates are spaced apart and the rotation angle is in a range of -45 degrees to +45 degrees relative to the air passing direction being 0 degrees and are fitted in the spaces between the plurality of collecting plates.

[Claim 2]

The dust collecting device of claim 1, further comprising:

a first baffle plate and a second baffle plate facing each other such that the plurality of collecting plates are interposed between the first and second baffle plates, the first and second baffle plates regulating the air in the air passage such that the air passes through the plurality of collecting plates.

[Claim 3]

The dust collecting device of claim 1 or 2, further comprising:

an air filter disposed downstream of the plurality of collecting plates in the air passing direction.

[Claim 4]

The dust collecting device of any one of claims 1 to 3, further comprising:

a motor rotating the plurality of collecting plates to cause friction between the plurality of collecting plates and the plurality of brushes; and

a drive control unit controlling the motor to rotate the plurality of collecting plates,

wherein the drive control unit causes the plurality of collecting plates to rotate such that the plurality of collecting plates are triboelectrically charged to attract and collect dust contained in the air.

[Claim 5]

The dust collecting device of claim 4, wherein the drive control unit performs a cleaning and charging operation in which the plurality of collecting plates are rotated to remove the dust deposited on the plurality of collecting plates by friction between the plurality of collecting plates and the plurality of brushes and electrically charge the surfaces of the plurality of collecting plates, and after that, the plurality of collecting plates are rotated backward to remove the dust in the spaces between the plurality of collecting plates.

[Claim 6]

The dust collecting device of claim 5, further comprising:

a timer outputting a signal upon a passage of a predetermined period of time,

wherein the drive control unit performs the cleaning and charging operation in response to outputting the signal by the timer.

[Claim 7]

The dust collecting device of claim 5 or 6, further comprising:

a load sensor measuring a load on the motor,

wherein, in a case where the load measured by the load sensor is a predetermined load or more, the drive control unit performs an operation that differs from the cleaning and charging operation and in which the plurality of collecting plates are caused to perform an operation of eliminating accumulation of the dust between the plurality of collecting plates and the plurality of brushes.

[Claim 8]

The dust collecting device of claim 7, wherein the load sensor is a current measuring element measuring a current flowing through the motor or a torque sensor detecting a torque of the motor.

[Claim 9]

An air-conditioning apparatus including the dust collecting device of any one of claims 1 to 8.