CLAIMS

[Claim 1]

An air-conditioning fan unit that is attached to and applied to an air-conditioning clothing in order to air-condition an inner space existing between a wearer and the air-conditioning clothing when worn by the wearer, comprising:

an air-conditioning fan unit that has an air intake inlet portion for taking in outside air from outside the air-conditioning clothing, and has an exhaust outlet portion for exhausting airflow into an inside of the air-conditioning clothing;

a first cylindrical portion that has one end and the other end located between the air intake inlet portion and the exhaust outlet portion;

a second cylindrical portion that has one end and the other end located between the air intake inlet portion and the exhaust outlet portion; and

a fan unit that is housed in a space surrounded by the first cylindrical portion and the second cylindrical portion, the fan unit having a plurality of fins provided to generate airflow from the air intake inlet portion toward the exhaust outlet portion by rotating around a rotation center line,

wherein the first cylindrical portion has a first fixing mechanism provided on a side surface of the first cylindrical portion,

wherein the second cylindrical portion includes: a flange provided to surround a side surface of the second cylindrical portion; and a second fixing mechanism provided on a side surface of the second cylindrical portion between the flange and the other end of the second cylindrical portion, and

wherein, in a state where the other end of the second cylindrical portion is inserted from the other end of the first cylindrical portion into the inside of the first cylindrical portion to a preset insertion position, the first fixing mechanism and the second fixing mechanism is fixed, whereby the first cylindrical portion and the second cylindrical portion are fixed, and the air-conditioning fan unit is attached to the attachment portion of the air-conditioning clothing by sandwiching the attachment portion of the air-conditioning clothing between the other end of the first cylindrical portion and the flange of the second cylindrical portion.

[Claim 2]

The air-conditioning fan unit according to claim 1, wherein, in a direction of the rotation center line of the second cylindrical portion, a length from the flange to the other end of the second cylindrical portion is greater than or equal to a predefined setting value.

[Claim 3]

The air-conditioning fan unit according to claim 2, wherein the set value is 5 mm.

[Claim 4]

The air-conditioning fan unit according to claim 1,

wherein the first fixing mechanism is provided on the inner surface of the first cylindrical portion,

wherein the flange is provided so as to surround the outer surface of the second cylindrical portion, and

wherein the second fixing mechanism is provided on the outer surface of the second cylindrical portion so as to be located between the flange and the other end of the second cylindrical

portion.

[Claim 5]

The air-conditioning fan unit according to claim 4,

wherein the one end of the first cylindrical portion is connected to the air intake inlet portion, and the other end of the first cylindrical portion is open, and

wherein the one end of the second cylindrical portion is connected to the exhaust outlet portion, and the other end of the second cylindrical portion is open.

[Claim 6]

The air-conditioning fan unit according to claim 5, further comprising;

an intake casing that includes the air intake inlet portion and the first cylindrical portion as an intake cylindrical portion and is attached to the outside of the air-conditioning clothing; and

an exhaust casing that includes the exhaust outlet portion and the second cylindrical portion as an exhaust cylindrical portion and is attached to the inside of the air-conditioning clothing.

[Claim 7]

The air-conditioning fan unit according to claim 6,

wherein, the first fixing mechanism and the second fixing mechanism are fixed by rotating the intake casing relative to the exhaust casing, whereby the intake casing and the exhaust casing are fixed, and the fan unit is housed in a space surrounded by the intake casing and the exhaust casing.

[Claim 8]

The air-conditioning fan unit according to claim 7,

wherein the first fixing mechanism is a first screw thread provided on the inner surface of the intake cylindrical portion, and

wherein the second fixing mechanism is a second screw thread provided on the outer surface of the exhaust cylindrical portion so as to be located between the flange and the other end of the exhaust cylindrical portion.

[Claim 9]

The air-conditioning fan unit according to claim 8,

wherein, in a state where the intake casing and the exhaust casing are fixed, the intake cylindrical portion and the exhaust cylindrical portion are arranged to extend around the rotation center line.

[Claim 10]

The air-conditioning fan unit according to claim 9,

wherein, in a state where the intake casing and the exhaust casing are fixed, the air-conditioning fan unit is attached to the attachment portion of the air-conditioning clothing, by sandwiching the attachment portion of the air-conditioning clothing between the other end of the intake cylindrical portion of the intake casing and the flange of the exhaust cylindrical portion of the exhaust casing.

[Claim 11]

The air-conditioning fan unit according to claim 10,

wherein, in a state where the other end of the exhaust cylindrical portion is inserted from the other end of the intake cylindrical portion to the inside of the intake cylindrical portion to the insertion position, the intake casing and the exhaust casing ar

e screwed together by the first screw thread and the second scr ew thread meshing with each other, by rotating the intake casin g relative to the exhaust casing.

[Claim 12]

The air-conditioning fan unit according to claim 11,

wherein, in a state where the other end of the exhaust cyl indrical portion is inserted from the other end of the intake cylin drical portion to the inside of the intake cylindrical portion to th e insertion position, the intake casing and the exhaust casing ar e screwed together by the first screw thread and the second scr ew thread meshing with each other, by rotating the intake casin g relative to the exhaust casing at a screw rotation angle of one rotation or less.

[Claim 13]

The air-conditioning fan unit according to claim 11,

wherein the first thread is provided on the inner surface o f the intake cylindrical portion so as to spirally extend from the other end toward the one end of the intake cylindrical portion,

wherein the second thread is provided on the outer surfac e of the exhaust cylindrical portion so as to spirally extend from the other end of the exhaust cylindrical portion toward the flang e,

wherein, in the state where the intake casing and the exh aust casing are screwed together, the first thread is located bet ween the flange and the second thread, and the first thread and the second thread are in contact with each other, and the first t hread and the second thread are engaged.

[Claim 14]

The air-conditioning fan unit according to claim 13,

wherein, in the vicinity of the other end of the inner surface of the intake cylindrical portion, the first thread is inclined so as to bend toward the other end of the intake cylindrical portion, or

wherein, in the vicinity of the other end of the outer surface of the exhaust cylindrical portion, the second thread is inclined so as to bend toward the other end of the exhaust cylindrical portion.

[Claim 15]

An air-conditioning clothing for air-conditioning an inner space that exists between a wearer and the air-conditioning clothing is worn by the wearer, comprising:

a clothing body that can be worn by the wearer;

an attaching portion provided on the clothing body and capable of attaching and detaching the air-conditioning fan unit; and

an air-conditioning fan unit having an air intake inlet portion for taking in outside air from the outside of the air-conditioning clothing and an exhaust outlet portion for exhausting airflow into the inside of the air-conditioning clothing,

wherein the air-conditioning fan unit, comprising:

an air-conditioning fan unit that has an air intake inlet portion for taking in outside air from outside the air-conditioning clothing, and has an exhaust outlet portion for exhausting airflow into an inside of the air-conditioning clothing;

a first cylindrical portion that has one end and the other end located between the air intake inlet portion and the exhaust

outlet portion;

a second cylindrical portion that has one end and the other end located between the air intake inlet portion and the exhaust outlet portion; and

a fan unit that is housed in a space surrounded by the first cylindrical portion and the second cylindrical portion, the fan unit having a plurality of fins provided to generate airflow from the air intake inlet portion toward the exhaust outlet portion by rotating around a rotation center line,

wherein the first cylindrical portion has a first fixing mechanism provided on a side surface of the first cylindrical portion,

wherein the second cylindrical portion includes: a flange provided to surround a side surface of the second cylindrical portion; and a second fixing mechanism provided on a side surface of the second cylindrical portion between the flange and the other end of the second cylindrical portion, and

wherein, in a state where the other end of the second cylindrical portion is inserted from the other end of the first cylindrical portion into the inside of the first cylindrical portion to a preset insertion position, the first fixing mechanism and the second fixing mechanism is fixed, whereby the first cylindrical portion and the second cylindrical portion are fixed, and the air-conditioning fan unit is attached to the attachment portion of the air-conditioning clothing by sandwiching the attachment portion of the air-conditioning clothing between the other end of the first cylindrical portion and the flange of the second cylindrical portion.