electrostatic precipitator described in the second invention, a volume resistivity of the resin film is set in a range of 10^{10} Ω·cm to 10^{13} Ω·cm, a thickness thereof is set to about 0.1 mm, and the distance from the ionization unit to the dust collection board of the dust collection unit is set to 100 mm or less.

[0012]

A fourth invention has a configuration in which in the electrostatic precipitator described in the second invention or the third invention, a distance between the plurality of linear conductors forming the high-voltage electrode is set within a range of 40 mm to 100 mm, a distance between the high-voltage electrode formed by the plurality of linear conductors and the dust collection board is set within a range of 10 mm to 80 mm, and a distance from the electrode needle of the ionization unit to the dust collection board of the dust collection unit is set within a range of 30 mm to 100 mm.

[0013]

A fifth invention has a configuration in which in the electrostatic precipitator described in the second invention to the fourth invention, the ionizer is a direct current ionizer that generates ions by applying a direct current voltage, and the voltages applied to the high-voltage electrode and the dust collection board are direct current voltages having opposite polarities.

dust collection unit 4 is a flat plate-shaped conductor disposed in a rear stage of the high-voltage electrode 5, and is connected to the power source 10.

The dust collection board 6 is disposed to be rearward by a predetermined distance from the high-voltage electrode 5 in a state of standing perpendicular to a dust collecting direction (a right direction in Figure 2).

As shown in Figure 2, a distance L1 from the electrode needle 30a of the ionizer 30 to the dust collection board 6 is set within a range of 30 mm to 100 mm, and a distance L2 from the high-voltage electrode 5 to the dust collection board 6 is set within a range of 10 mm to 80 mm.

[0027]

As shown in Figure 3, such a dust collection board 6 is covered with an insulator 61 separate from the insulator 51 of the linear conductor 50.

The insulator 61 is an insulating resin film such as polyethylene terephthalate (PET). A volume resistivity of the insulator 61 is set in a range of 10^{10} Ω·cm to 10^{13} Ω·cm, and a thickness is set to about 0.1 mm.

As the dust collection board 6, a conductor such as metal, such as copper foil or aluminum foil, or carbon can be applied.

[0028]

Accordingly, as shown in Figure 2, an upper end 6a of the dust collection board 6 coated with the insulator 61 is

conductors arranged in parallel at a predetermined interval and each coated with an insulator,

wherein the dust collection board of the dust collection unit is provided with a conductor and an insulating resin film coating the conductor, the dust collection board is a flat plate including a face closed in a dust collecting direction, and

wherein the dust collection board is disposed in such a manner that the face and a longitudinal direction of the linear conductors cross the dust colleting direction.

2. An electrostatic precipitator according to Claim 1,

wherein a volume resistivity of the resin film is set in a range of 10^{10} Ω·cm to 10^{13} Ω·cm, a thickness thereof is set to about 0.1 mm, and the distance from the ionization unit to the dust collection board of the dust collection unit is set to 100 mm or less.

3. An electrostatic precipitator according to Claim 1 or 2,

wherein a distance between the plurality of linear conductors forming the high-voltage electrode is set within a range of 40 mm to 100 mm,

wherein a distance between the high-voltage electrode formed by the plurality of linear conductors and the dust collection board is set within a range of 10 mm to 80 mm, and

wherein a distance from the electrode needle of the ionization unit to the dust collection board of the dust collection unit is set within a range of 30 mm to 100 mm.

4. An electrostatic precipitator according to any one of Claims 1 to 3,

wherein the ionizer is a direct current ionizer that generates ions by applying a direct current voltage, and

wherein the voltages applied to the high-voltage electrode and the dust collection board are direct current voltages having opposite polarities.

5. An electrostatic precipitator according to any one of Claims 1 to 4,

wherein an axial direction of the ionizer coincides with the longitudinal direction of the linear conductors.