CLAIMS

1. An air conditioning apparatus in plant cultivation that supplies air whose temperature, humidity, and carbon dioxide concentration are adjusted only to a vicinity of a plant, the air conditioning apparatus comprising:

a carbon dioxide generating unit that generates carbon dioxide whose concentration is adjusted;

an air supply unit that supplies ambient gas or outer air whose temperature and humidity are adjusted;

a mixing unit coupled to the carbon dioxide generating unit through a first duct, coupled to the air supply unit through a second duct, and configured to mix the carbon dioxide generated from the carbon dioxide generating unit and the ambient gas or the outer air supplied from the air supply unit, to form a mixed ambient gas; and

connection pipes coupled to the mixing unit, and having a plurality of outlets that supply the mixed ambient gas to the vicinity of the plant, wherein

the plurality of outlets are arranged on a concentric circle with a center of an outer shape of the plant cultivated in a hole for plant planting provided at a cultivation panel of a plant cultivation apparatus and having the outer shape having a diameter $D_1$=100mm, a diameter $D_2$ of the concentric circle is 100 mm or more and 250 mm or less, and wind velocities of the gas supplied through the outlets are set to 0.5 m/sec immediately after the outlets,

at least the three or more outlets are provided~~included~~ for one hole for plant planting of the cultivation panel of the~~a~~ plant cultivation apparatus, and the outlets are installed so that angles formed by centers of the adjacent outlets and a center of the hole for plant planting are equiangular or less than substantially 180 degrees~~.~~

~~2. The air conditioning apparatus according to claim 1, wherein~~

in a case where as to~~when in angles of a blowing direction of the mixed ambient gas supplied through the outlets,~~ a horizontal angle ~~is~~ $\theta 1$, the horizontal angle $\theta_1$ when the outlet is directed toward the center of the hole for plant planting is 0 degrees with a line connecting the center of the hole for plant planting and the center of the outlet used as a reference, and a clockwise direction of the horizontal angle $\theta_1$ at a time of rotation around the outlet within a plane parallel to the cultivation panel is defined as positive, and where as to a vertical angle ~~is~~ $\theta 2$, the vertical angle $\theta_2$ when the outlet is directed toward the hole for plant planting in a state parallel to the cultivation panel is 0 degrees with a top surface of the outlet used as a reference, and a vertical upward direction of the vertical angle $\theta_2$ is defined as positive,~~and~~

the outlets are each installed so that when the horizontal angle $\theta 1$ is 0 degrees or more and 25 degrees or less, the vertical angle $\theta 2$ becomes 30 degrees or more and

75 degrees or less, when the horizontal angle θ1 is above 25 degrees and 35 degrees or less, the vertical angle θ2 becomes 45 degrees or more and 75 degrees or less, and when the horizontal angle θ1 is above 35 degrees and 45 degrees or less, the vertical angle θ2 becomes 45 degrees or more and 60 degrees or less.

~~3. The air conditioning apparatus according to claim 1 or claim 2, wherein the plurality of outlets are arranged on a concentric circle with a circular shape of the hole for plant planting, and are arranged so that a diameter D2 of the concentric circle is 1.0 time or more and 2.5 times or less as large as a diameter D1 of the plant.~~

2~~4~~. The air conditioning apparatus according to claim 1~~ or claim 2~~, further comprising an exhaust unit that is arranged above the plant cultivation apparatus and performs exhaust.

~~5. The air conditioning apparatus according to claim 3, further comprising an exhaust unit that is arranged above the plant cultivation apparatus and performs exhaust.~~

~~6. The air conditioning apparatus according to claim 1 or claim 2, further comprising a plurality of auxiliary outlets in which a diameter D2 of a concentric circle thereof is larger than a diameter of the hole for plant planting, the auxiliary outlets being arranged within a range of less than 1.0 time as large as a diameter D1 of the plant, and being coupled to the mixing unit through the~~

~~connection pipe to supply the mixed ambient gas to the plant.~~

3~~7~~. The air conditioning apparatus according to claim 1 or 2~~3~~, further comprising a plurality of auxiliary outlets arranged at a location where~~in which~~ the diameter D2 of the concentric circle thereof is larger than a diameter of the hole for plant planting, the auxiliary outlets being arranged within a range of less than 100mm~~1.0 time as large as the diameter D1 of the plant~~, and being coupled to the mixing unit through the connection pipe to supply the mixed ambient gas to the plant.

~~8. The air conditioning apparatus according to claim 4, further comprising a plurality of auxiliary outlets in which a diameter D2 of a concentric circle thereof is larger than a diameter of the hole for plant planting, the auxiliary outlets being arranged within a range of less than 1.0 time as large as a diameter D1 of the plant, and being coupled to the mixing unit through the connection pipe to supply the mixed ambient gas to the plant.~~

~~9. The air conditioning apparatus according to claim 5, further comprising a plurality of auxiliary outlets in which the diameter D2 of the concentric circle thereof is larger than a diameter of the hole for plant planting, the auxiliary outlets being arranged within a range of less than 1.0 time as large as the diameter D1 of the plant, and being coupled to the mixing unit through the connection pipe to supply the mixed ambient gas to the plant.~~