1. A container refrigeration apparatus installed in a container (11) which houses respiring plants (15), the container refrigeration apparatus comprising:

a refrigerant circuit (20) in which a compressor (21), a condenser (22), an expansion mechanism (23), and an evaporator (24) are connected together to perform a refrigeration cycle;

a casing (12) which is provided at an open end of the container (11), and forms an internal storage space (S2) housing the evaporator (24) and communicating with the interior of the container (11); and

an interior fan (26) which is provided in the internal storage space (S2), and circulates air between the interior of the container (11) and the internal storage space (S2), wherein

the container refrigeration apparatus further comprises

an inside air control system (60) which controls the composition of the air in the container (11), the inside air control system (60) including: a gas supply device (30) which supplies nitrogen-enriched air having a higher nitrogen concentration than outside air to the internal storage space (S2); an intake passage (47a) which allows a first space (S21) on the suction side of the interior fan (26) in the internal storage space (S2) to communicate with the exterior of the container (11) so that the outside air is guided into the first space (S21); and an exhaust passage (46a) which allows a second space (S22) on the blowout side of the interior fan (26) in the internal storage space (S2) to communicate with the exterior of the container (11) so that the air in the second space (S22) is guided to the exterior of the container (11), and

a plate member (27c) which forms, in the second space (S22), a region where the flow of the air blown from the interior fan (26) is blocked, and

the exhaust passage (46a) has an inlet at a location where the flow of the air blown from the interior fan (26) is blocked by the plate member (27c).

2. The container refrigeration apparatus of claim 1, wherein

the interior fan (26) includes a rotary vane (27a) which is driven to rotate about a rotation axis, and a fan housing (27c) surrounding the rotary vane (27a), and

the plate member (27c) is comprised of the fan housing (27c).

3. The container refrigeration apparatus of claim 2, wherein

the interior fan (26) is an axial fan.

4. The container refrigeration apparatus of claim 2 or 3, wherein

an inspection door (16A) which is openable and closable is attached to the casing (12) on the side of the interior fan (26), and

the exhaust passage (46a) is formed through the inspection door (16A).

5. The container refrigeration apparatus of claim 4, wherein

the inspection door (16A) faces both of the first and second spaces (S21) and (S22), and

the suction passage (47a) is formed through the inspection door (16A).

6. The container refrigeration apparatus of any one of claims 1–5, wherein

the gas supply device (30) includes a supply passage (44) which supplies the

nitrogen-enriched air to the second space (S22).

7. The container refrigeration apparatus of any one of claims 1–5, wherein

the gas supply device (30) includes a supply passage (44) which supplies the nitrogen-enriched air to the first space (S21).

8. The container refrigeration apparatus of any one of claims 1–7, further comprising:

an oxygen sensor (51) which measures an oxygen concentration of the air in the container (11);

a carbon dioxide sensor (52) which measures a carbon dioxide concentration of the air in the container (11);

an air passage (58) which allows the first and second spaces (S21) and (S22) to communicate with each other so that the air is guided from the second space (S22) to the first space (S21) while the interior fan (26) is rotating, and which is connected to the oxygen sensor (51) and the carbon dioxide sensor (52) to measure the oxygen concentration and the carbon dioxide concentration of the air; and

a blocking member (53) which forms, in the second space (S22), a region where the flow of the air blown from the interior fan (26) is blocked, wherein

the air passage (58) has an inlet (54) at a location where the flow of the air blown from the interior fan (26) is blocked by the blocking member (53).

CLAIMS

1. A container refrigeration apparatus installed in a container (11) which houses respiring plants (15), the container refrigeration apparatus comprising:

a refrigerant circuit (20) in which a compressor (21), a condenser (22), an expansion mechanism (23), and an evaporator (24) are connected together to perform a refrigeration cycle;

a casing (12) which is provided at an open end of the container (11), and forms an internal storage space (S2) housing the evaporator (24) and communicating with the interior of the container (11); and

an interior fan (26) which is provided in the internal storage space (S2), and circulates air between the interior of the container (11) and the internal storage space (S2), wherein

the container refrigeration apparatus further comprises

an inside air control system (60) which controls the composition of the air in the container (11), the inside air control system (60) including: a gas supply device (30) which supplies nitrogen-enriched air having a higher nitrogen concentration than outside air to the internal storage space (S2); an intake passage (47a) which allows a first space (S21) on the suction side of the interior fan (26) in the internal storage space (S2) to communicate with the exterior of the container (11) so that the outside air is guided into the first space (S21); and an exhaust passage (46a) which allows a second space (S22) on the blowout side of the interior fan (26) in the internal storage space (S2) to communicate with the exterior of the container (11) so that the air in the second space (S22) is guided to the exterior of

the container (11),

a plate member (27c) which forms, in the second space (S22), a region where the flow of the air blown from the interior fan (26) is blocked,

an oxygen sensor (51) which measures an oxygen concentration of the air in the container (11);

a carbon dioxide sensor (52) which measures a carbon dioxide concentration of the air in the container (11);

an air passage (58) which allows the first and second spaces (S21) and (S22) to communicate with each other so that the air is guided from the second space (S22) to the first space (S21) while the interior fan (26) is rotating, and which is connected to the oxygen sensor (51) and the carbon dioxide sensor (52) to measure the oxygen concentration and the carbon dioxide concentration of the air; and

a blocking member (53) which forms, in the second space (S22), a region where the flow of the air blown from the interior fan (26) is blocked, wherein

the exhaust passage (46a) has an inlet at a location where the flow of the air blown from the interior fan (26) is blocked by the plate member (27c), and

the air passage (58) has an inlet (54) at a location where the flow of the air blown from the interior fan (26) is blocked by the blocking member (53).

2. The container refrigeration apparatus of claim 1, wherein

the interior fan (26) includes a rotary vane (27a) which is driven to rotate about a rotation axis, and a fan housing (27c) surrounding the rotary vane (27a), and

the plate member (27c) is comprised of the fan housing (27c).

3. The container refrigeration apparatus of claim 2, wherein

the interior fan (26) is an axial fan.

4. The container refrigeration apparatus of claim 2or 3, wherein

an inspection door (16A) which is openable and closable is attached to the casing (12) on the side of the interior fan (26), and

the exhaust passage (46a) is formed through the inspection door (16A).

5. The container refrigeration apparatus of claim 4, wherein

the inspection door (16A) faces both of the first and second spaces (S21) and (S22), and

the suction passage (47a) is formed through the inspection door (16A).

6. The container refrigeration apparatus of any one of claims 1–5, wherein

the gas supply device (30) includes a supply passage (44) which supplies the nitrogen-enriched air to the second space (S22).

7. The container refrigeration apparatus of any one of claims 1–5, wherein

the gas supply device (30) includes a supply passage (44) which supplies the nitrogen-enriched air to the first space (S21).