is stored in the second power storage unit 12. The DC power is stored in the second power storage unit 12 is only in a period in which the potential of the terminal L is higher than the potential of the terminal N. Therefore, a rectifying operation by the second rectifying unit 11 and the first rectifying unit 5 is half-wave rectification.

[0037] When the DC power is stored in the second power storage unit 12, at step S102, the control unit 13 starts an operation using the DC power stored in the second power storage unit 12. Note that, at this point, DC power is not stored in the first power storage unit 7.

[0038] At step S104, the control unit 13 controls the charging switch unit 211 to the ON state. Consequently, an electric current flows through a route that passes through the terminal L, the charging switch unit 211, the charging resistor 212, the diode 213, the first power storage unit 7, and the terminal N. Electric power is stored in the first power storage unit 7.

[0039] When the electric power is stored in the first power storage unit 7, the first power storage unit 7 can feed power to the second power storage unit 12 through the diode 9.

[0040] At step S106, the control unit 13 controls the switch unit 41 to the ON state. At this point, the control unit 13 controls the charging switch unit 211 to the OFF state. Consequently, electric power is supplied to the first power storage unit 7 through a route that passes through the noise filter 42, the first rectifying unit 5, and a power-factor improving unit 6. Consequently, suppression of a leak of high-frequency noise by the noise filter 42, improvement of a power factor by ON or OFF control of the semiconductor switch element 62, and boosting of a DC voltage are performed.

the diode 53D are connected in common and connected to the one end of the second charging resistor 141.

[0081] Note that, in the power supply device 1C, unlike the power supply device 1A according to the second embodiment, the one end of the second charging resistor 141 is not connected to the terminal L.

[0082] FIG. 8 is a flowchart for explaining the operation of the air conditioner according to the third embodiment.

[0083] When AC power is supplied to the air conditioner 30, because a current route for storing DC power in the first power storage unit 7 and the second power storage unit 12 is not formed, DC power is not stored in the first power storage unit 7 and the second power storage unit 12. Because electric power is not supplied to the control unit 13, the control unit 13 does not start an operation. Therefore, the other end of the second charging switch unit 142 stays in an initial state in which the other end is connected to the terminal B on the second charging resistor 141 side. On the other hand, electric power is supplied to the indoor unit 31A via the terminals S1 and S2 and electric power is supplied to the indoor unit 31B via the terminals S4 and S5.

[0084] When the air conditioner 30 starts the operation, at step S300, the indoor unit 31A performs control for short-circuiting the terminal S1 and the terminal S3 in the indoor-unit connecting unit 33 by connecting contacts included in the inside of the indoor unit 31A. Alternatively, at step S300, the indoor unit 31B performs control for short-circuiting the terminal S4 and the terminal S6 in the indoor-unit connecting unit 33 by connecting contacts included in the inside of the indoor unit 31B.

CLAIMS

1. A power supply device comprising:

an input circuit to which AC power is input from an AC power supply;

a first rectifier that converts the AC power passed through the input circuit into DC power;

a power-factor improvement circuit that improves a power factor of the DC power output from the first rectifier;

a first electric accumulator that stores the DC power passed through the power-factor improvement circuit and supplies the stored DC power to a load side;

a second rectifier connected to a portion where the input circuit is connected to the AC power supply, the second rectifier converting the AC power into the DC power;

a second electric accumulator that stores the DC power passed through the second rectifier, the second electric accumulator being connected to the power-factor improvement circuit in parallel to the first electric accumulator; and

a controller that operates using the electric power stored in the second electric accumulator and, when a short-circuit failure occurs in the power-factor improvement circuit, performs control for interrupting the input circuit to interrupt a route that leads to the input circuit passing through the second rectifier, the second electric accumulator, the power-factor improvement circuit, and the first rectifier in order from the input circuit.

2. The power supply device according to claim 1, wherein the input circuit includes:

a switcher, one end of which is connected to one end of the AC power supply, the switcher being controlled to an ON state and an OFF state by the controller; and

a noise filter connected to another end of the switch unit and another end of the AC power supply.

3. The power supply device according to claim 1, further comprising a charging resistor connected to the second rectifier in series when an electric current flows, the charging resistor suppressing a peak value of the electric current.

4. The power supply device according to claim 3, further comprising a charging switcher controlled by the controller to switch a route of an electric current flowing to the second rectifier to a route that passes through the charging resistor or a route that does not pass through the charging resistor, wherein

after starting an operation using the DC power stored in the second electric accumulator, the controller performs control for switching the charging switcher to switch the route of an electric current flowing to the second rectifier to the route that does not pass through the charging resistor.

5. An air conditioner comprising a power supply device and an indoor processor, wherein

the power supply device includes:

an input circuit to which AC power is input from an AC power supply;

a first rectifier that converts the AC power passed through the input circuit into DC power;

a power-factor improvement circuit that improves a power factor of the DC power output from the first rectifier;

a first electric accumulator that stores the DC power passed through the power-factor improvement circuit and supplies the stored DC power to a load side;

a charging resistor that suppresses a peak value of an electric current;

a second rectifier that converts the AC power into the DC power;

a charging switcher that connects the charging resistor and the second rectifier or a portion where the input circuit is connected to the AC power supply and the second rectifier;

a second electric accumulator that stores the DC power passed through the second rectifier, the second electric accumulator being connected to the power-factor improvement circuit in parallel to the first electric accumulator; and

a controller that operates using the electric power stored in the second electric accumulator and, when a short-circuit failure occurs in the power-factor improvement circuit, performs control for interrupting the input circuit to interrupt a route that leads to the input circuit passing through the second rectifier, the second electric accumulator, the power-factor improvement circuit, and the first rectifier in order from the input circuit, and

the indoor processor performs control for feeding an electric current to the charging resistor when starting operation.

6. The air conditioner according to claim 5, wherein the charging switcher connects a communication circuit, which communicates with the indoor processor, and the second rectifier when the controller does not operate.

7. The air conditioner according to claim 5, wherein, after starting an operation using the DC power stored in the second electric accumulator, controller performs control for switching the charging switcher to connect a portion where the input circuit is connected to the AC power supply and the second rectifier.