

Title (en)
FREEZER AND AIR CONDITIONER

Title (de)
GEFRIERVORRICHTUNG UND KLIMAANLAGE

Title (fr)
REFROIDISSEUR ET CLIMATISEUR

Publication
EP 1780479 A1 20070502 (EN)

Application
EP 05765416 A 20050629

Priority
• JP 2005011930 W 20050629
• JP 2004195228 A 20040701

Abstract (en)
The control width can be expanded when the evaporating ability of the evaporator is controlled by the expansion valve in a refrigerating apparatus and air conditioner provided with a refrigerant circuit that has an evaporator configured so that refrigerant flows in from below and flows out from above. The air conditioner (1) has a refrigerant circuit (12) and a first oil returning circuit (101). The refrigerant circuit (12) has a structure in which a plurality of utilization refrigerant circuits (12a, 12b, 12c) configured by the interconnection of a utilization heat exchanger and a utilization expansion valve are connected to a heat source refrigerant circuit (12d) configured by the interconnection of a compression mechanism (21), a heat source heat exchanger (23) configured so that refrigerant flows in from below and flows out from above when the heat source heat exchanger functions as an evaporator, and a heat source expansion valve (24); and uses a combination of refrigerating machine oil and refrigerant that does not separate into two layers in a temperature range of 30 °C or below. The first oil returning circuit (101) is connected to a lower portion of the heat source heat exchanger (23) and returns the refrigerating machine oil accumulated inside the heat source heat exchanger (23) to the compression mechanism (21) together with the refrigerant.

IPC 8 full level
F25B 1/00 (2006.01); **F25B 31/00** (2006.01); **F25B 39/02** (2006.01)

CPC (source: EP US)
F24F 3/06 (2013.01 - EP US); **F25B 31/004** (2013.01 - EP US); **F25B 39/02** (2013.01 - EP US); **F28D 9/00** (2013.01 - EP US); **F25B 2341/0016** (2013.01 - EP US)

Cited by
EP2924360A4; DE102007041281A1; EP1775527A4; US8281614B2; US7876050B2; US7934969B2; US8584484B2; WO2009030448A1

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)
EP 1780479 A1 20070502; **EP 1780479 A4 20131211**; AU 2005258567 A1 20060112; AU 2005258567 B2 20080703; CN 1981165 A 20070613; JP 4475278 B2 20100609; JP WO2006003925 A1 20080417; US 2007245752 A1 20071025; WO 2006003925 A1 20060112

DOCDB simple family (application)
EP 05765416 A 20050629; AU 2005258567 A 20050629; CN 200580022344 A 20050629; JP 2005011930 W 20050629; JP 2006528741 A 20050629; US 63010405 A 20050629