

Title (en)  
AIR CONDITIONER

Title (de)  
KLIMAANLAGE

Title (fr)  
CONDITIONNEUR D'AIR

Publication  
**EP 3978831 A1 20220406 (EN)**

Application  
**EP 20822547 A 20200610**

Priority  
• JP 2019109592 A 20190612  
• JP 2020022922 W 20200610

Abstract (en)  
A refrigerant cycle system (100) includes a primary-side cycle (20) that circulates a first refrigerant, a secondary-side cycle (40) that the second refrigerant, and a cascade heat exchanger (35) that exchanges heat between the first refrigerant and the second refrigerant. The primary-side cycle (20) includes a primary-side connection pipe. The secondary-side cycle (40) includes a secondary-side connection pipe. The primary-side connection pipe includes a primary-side gas connection pipe (22) and a primary-side liquid connection pipe (21). The secondary-side connection pipe includes a secondary-side gas connection pipe (42) and a secondary-side liquid connection pipe (41). The pipe diameter of the secondary-side gas connection pipe (42) is smaller than the pipe diameter of the primary-side gas connection pipe (22), or the pipe diameter of the secondary-side liquid connection pipe (41) is smaller than the pipe diameter of the primary-side liquid connection pipe (21).

IPC 8 full level  
**F25B 7/00** (2006.01); **F25B 1/00** (2006.01); **F25B 41/00** (2021.01)

CPC (source: CN EP US)  
**F25B 7/00** (2013.01 - CN EP); **F25B 9/008** (2013.01 - EP US); **F25B 9/10** (2013.01 - US); **F25B 13/00** (2013.01 - CN EP); **F25B 31/004** (2013.01 - US); **F25B 41/40** (2021.01 - EP US); **F25B 41/42** (2021.01 - CN); **F25B 2400/13** (2013.01 - EP); **F25B 2500/01** (2013.01 - EP); **F25B 2500/16** (2013.01 - EP US)

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)  
BA ME

DOCDB simple family (publication)  
**EP 3978831 A1 20220406**; **EP 3978831 A4 20220803**; **EP 3978831 B1 20230809**; CN 113950602 A 20220118; CN 113950602 B 20230804; ES 2961904 T3 20240314; JP 2020201011 A 20201217; PL 3978831 T3 20240408; US 2022316767 A1 20221006; WO 2020250952 A1 20201217

DOCDB simple family (application)  
**EP 20822547 A 20200610**; CN 202080042764 A 20200610; ES 20822547 T 20200610; JP 2019109592 A 20190612; JP 2020022922 W 20200610; PL 20822547 T 20200610; US 202017618075 A 20200610