

Title (en)
BINARY REFRIGERATION DEVICE

Title (de)
BINÄRE KÜHLVORRICHTUNG

Title (fr)
DISPOSITIF FRIGORIFIQUE BINAIRE

Publication
EP 3617612 A4 20200304 (EN)

Application
EP 17907290 A 20170425

Priority
JP 2017016407 W 20170425

Abstract (en)
[origin: EP3617612A1] A cascade refrigeration system includes a higher-stage refrigeration cycle, a lower-stage refrigeration cycle, and a cascade condenser. In the higher-stage refrigeration cycle, a higher-stage compressor, a higher-stage condenser, a higher-stage expansion valve, and a higher-stage evaporator are sequentially connected by pipes, and a higher-stage refrigerant is circulated. In the lower-stage refrigeration cycle, a lower-stage compressor, a first lower-stage condenser, a second lower-stage condenser, a lower-stage liquid receiver, a first lower-stage expansion valve, and a lower-stage evaporator are sequentially connected by pipes, and a lower-stage refrigerant is circulated. The cascade condenser includes the higher-stage evaporator and the second lower-stage condenser to exchange heat between the higher-stage refrigerant flowing in the higher-stage evaporator and the lower-stage refrigerant flowing in the second lower-stage condenser. The lower-stage refrigeration cycle is provided with a natural circulation circuit having a vapor refrigerant pipe that connects the lower-stage liquid receiver and a position between the first lower-stage condenser and the second lower-stage condenser and that has a check valve provided at a position on the vapor refrigerant pipe.

IPC 8 full level
F25B 7/00 (2006.01); **F25B 1/00** (2006.01); **F25B 6/04** (2006.01); **F25B 40/02** (2006.01); **F25B 41/06** (2006.01)

CPC (source: EP US)
F25B 6/04 (2013.01 - EP US); **F25B 7/00** (2013.01 - EP); **F25B 40/02** (2013.01 - EP); **F25B 41/37** (2021.01 - EP US);
F25B 2400/16 (2013.01 - EP)

Citation (search report)

- [A] WO 2014045400 A1 20140327 - MITSUBISHI ELECTRIC CORP [JP], et al
- [AD] JP 2004190917 A 20040708 - SANYO ELECTRIC CO
- See references of WO 2018198203A1

Cited by
EP4328522A4

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 3617612 A1 20200304; **EP 3617612 A4 20200304**; **EP 3617612 B1 20210901**; JP 6727422 B2 20200722; JP WO2018198203 A1 20191212; WO 2018198203 A1 20181101

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