

Title (en)
APPARATUS USING HEAT PUMP

Title (de)
VORRICHTUNG MIT WÄRMEPUMPE

Title (fr)
APPAREIL UTILISANT UNE POMPE À CHALEUR

Publication
EP 3591312 A4 20200304 (EN)

Application
EP 17899065 A 20170228

Priority
JP 2017008001 W 20170228

Abstract (en)
[origin: EP3591312A1] A heat-pump using apparatus includes a refrigerant circuit, a heat medium circuit, and a heat exchanger which causes heat exchange to be performed between refrigerant and a heat medium. A main circuit of the heat medium circuit includes a branching part and a joining part. To the main circuit, a pressure protection device and a refrigerant leakage detecting device are connected. The pressure protection device is connected to a connection part located between the heat exchanger and one of the branching part and the joining part in the main circuit. The refrigerant circuit includes a first blocking device and a second blocking device between which the heat exchanger is located.

IPC 8 full level
F25B 1/00 (2006.01); **F24H 9/16** (2006.01); **F25B 49/00** (2006.01); **F25B 49/02** (2006.01); **F25D 17/02** (2006.01)

CPC (source: EP US)
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Citation (search report)

- [Y] JP 2013167395 A 20130829 - MITSUBISHI ELECTRIC CORP
- [Y] JP 2016095130 A 20160526 - MITSUBISHI ELECTRIC CORP
- [YA] CN 104807251 A 20150729 - GUANGDONG CHIGO HEATING & VENTILATION EQUIPMENT CO LTD
- [YA] CN 203704480 U 20140709 - GUANDONG MIDEA HVAC EQUIPMENT, et al
- [YA] CN 104132492 A 20141105 - GUANGDONG CHIGO HEATING & VENTILATION EQUIPMENT CO LTD
- [Y] EP 2759787 A1 20140730 - MITSUBISHI ELECTRIC CORP [JP]
- See references of WO 2018158860A1

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 3591312 A1 20200108; EP 3591312 A4 20200304; EP 3591312 B1 20220629; CN 110337571 A 20191015; JP 6818865 B2 20210120; JP WO2018158860 A1 20191107; US 2019390884 A1 20191226; WO 2018158860 A1 20180907

DOCDB simple family (application)
EP 17899065 A 20170228; CN 201780087175 A 20170228; JP 2017008001 W 20170228; JP 2019502346 A 20170228; US 201716469229 A 20170228