

Title (en)

HEAT EXCHANGER AND REFRIGERATING CYCLE DEVICE PROVIDED WITH SAME

Title (de)

WÄRMETAUSCHER UND KÄLTEKREISLAUFVORRICHTUNG DAMIT

Title (fr)

ÉCHANGEUR DE CHALEUR ET DISPOSITIF À CYCLE DE RÉFRIGÉRATION LE COMPORTANT

Publication

**EP 2256452 B1 20150422 (EN)**

Application

**EP 09726196 A 20090323**

Priority

- JP 2009055585 W 20090323
- JP 2008075816 A 20080324

Abstract (en)

[origin: EP2256452A1] In an outdoor unit in a cold area and an indoor unit of a refrigerating device, a temperature of a heat exchanger functioning as an evaporator is cooled up to an air dew-point temperature or below, and when the temperature is 0°C or below, a frost formation phenomenon occurs on a surface. The frost formation causes increase in air-path resistance and thermal resistance and leads to reduced ability of the device. However, if the frost formation can be delayed, energy saving can be realized. Thus, by providing a plurality of holes, for example, a plurality of holes whose radius is an order of several nanometers on the fin surface of the heat exchanger, generation of condensed water droplets on the fin surface is suppressed. By providing a plurality of holes exerting the Gibbs-Thomson effect so as to lower the freezing point, reduced ability due to the frost formation is delayed.

IPC 8 full level

**F28F 1/32** (2006.01)

CPC (source: EP)

**F25B 39/022** (2013.01); **F25B 47/006** (2013.01); **F28F 1/32** (2013.01); **F28F 13/187** (2013.01); **F25B 2500/01** (2013.01)

Designated contracting state (EPC)

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 SE SI SK TR

DOCDB simple family (publication)

**EP 2256452 A1 20101201**; **EP 2256452 A4 20130731**; **EP 2256452 B1 20150422**; CN 101960247 A 20110126; CN 101960247 B 20120718; JP 5132762 B2 20130130; JP WO2009119474 A1 20110721; MY 160844 A 20170331; WO 2009119474 A1 20091001

DOCDB simple family (application)

**EP 09726196 A 20090323**; CN 200980107327 A 20090323; JP 2009055585 W 20090323; JP 2010505612 A 20090323; MY PI2010003669 A 20090323