

Title (en)
HEAT EXCHANGER AND AIR CONDITIONER

Title (de)
WÄRMETAUSCHER UND KLIMAAANLAGE

Title (fr)
ÉCHANGEUR DE CHALEUR ET CLIMATISEUR

Publication
EP 2667139 A1 20131127 (EN)

Application
EP 12736904 A 20120123

Priority
• JP 2011011195 A 20110121
• JP 2012000370 W 20120123

Abstract (en)
Each of a plurality of heat-transfer portions (37) has a plurality of protrusions (51, 52, 53) which are protruded toward an air passage (38) and extend in a direction intersecting with an airflow direction. The protrusions (51, 52, 53) are arranged in the airflow direction.

IPC 8 full level
F28F 1/32 (2006.01)

CPC (source: EP KR US)
F28F 1/12 (2013.01 - US); **F28F 1/128** (2013.01 - EP US); **F28F 1/30** (2013.01 - KR); **F28F 1/32** (2013.01 - KR); **F28F 1/325** (2013.01 - EP US); **F28F 17/005** (2013.01 - EP US); **F28D 1/053** (2013.01 - EP US); **F28F 1/022** (2013.01 - EP US); **F28F 2215/12** (2013.01 - EP US)

Cited by
JP2012032111A; EP3078930A4; EP3508807A1; US10393452B2; KR20170137883A; CN107614998A; EP3306251A4; AU2015396674B2

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

DOCDB simple family (publication)
EP 2667139 A1 20131127; AU 2012208120 A1 20130801; BR 112013018043 A2 20190924; CN 103314269 A 20130918; CN 103314269 B 20140618; JP 2012163317 A 20120830; JP 5177306 B2 20130403; KR 101313347 B1 20131001; KR 20130099254 A 20130905; US 2013299153 A1 20131114; WO 2012098914 A1 20120726

DOCDB simple family (application)
EP 12736904 A 20120123; AU 2012208120 A 20120123; BR 112013018043 A 20120123; CN 201280005238 A 20120123; JP 2012000370 W 20120123; JP 2012010570 A 20120123; KR 20137021756 A 20120123; US 201213980588 A 20120123