

Title (en)
HEAT EXCHANGER AND AIR CONDITIONER

Title (de)
WÄRMETAUSCHER UND KLIMAANLAGE

Title (fr)
ÉCHANGEUR DE CHALEUR ET CLIMATISEUR

Publication
EP 3276289 B1 20240306 (EN)

Application
EP 16786110 A 20160408

Priority
• JP 2015089967 A 20150427
• JP 2016001959 W 20160408

Abstract (en)
[origin: EP3276289A1] Disclosed herein is a heat exchanger including: a plurality of banks (30, 40), each of which includes a plurality of flat tubes (31, 41), arranged in an air flow direction. The refrigerants in the plurality of banks (30, 40) flow in parallel with each other, and each of the flat tubes (31, 41) in the plurality of banks (30, 40) has one or more bent portions (33a, 33b, 33c) which are bent in a width direction of the flat tubes (31, 41) such that the flat tubes (31, 41) of a pair of the banks (30, 40) adjacent to each other in the air flow direction extend along with each other.

IPC 8 full level
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CPC (source: EP US)
F24F 5/00 (2013.01 - EP US); **F25B 13/00** (2013.01 - US); **F25B 39/00** (2013.01 - EP US); **F28D 1/0435** (2013.01 - EP US); **F28D 1/047** (2013.01 - US); **F28D 1/0471** (2013.01 - EP US); **F28D 1/05391** (2013.01 - EP US); **F28F 1/02** (2013.01 - US); **F28F 1/32** (2013.01 - US); **F28F 9/02** (2013.01 - US); **F28F 9/0202** (2013.01 - EP US); **F28F 9/0275** (2013.01 - EP US); **F28F 9/26** (2013.01 - US); **F25B 39/02** (2013.01 - US); **F25B 39/04** (2013.01 - US); **F28D 2021/0068** (2013.01 - EP US); **F28F 1/022** (2013.01 - EP US); **F28F 1/325** (2013.01 - EP US); **F28F 2215/12** (2013.01 - EP US)

Citation (examination)
• US 2015075213 A1 20150319 - ISHIBASHI AKIRA [JP], et al
• US 2014196874 A1 20140717 - MIYAKE NOBUAKI [JP], et al
• WO 2014091782 A1 20140619 - MITSUBISHI ELECTRIC CORP [JP]
• WO 2011005986 A2 20110113 - JOHNSON CONTROLS TECH CO [US], et al
• US 6021846 A 20000208 - SASAKI HIRONAKA [JP], et al

Cited by
US11415371B2; EP3859265A4

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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)
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