

Title (en)  
AIR CONDITIONER

Title (de)  
KLIMAANLAGE

Title (fr)  
CLIMATISEUR

Publication  
**EP 3951303 A4 20221214 (EN)**

Application  
**EP 20777690 A 20200131**

Priority  
• JP 2019058395 A 20190326  
• JP 2020003638 W 20200131

Abstract (en)  
[origin: EP3951303A1] A heat exchanger (31) includes a plurality of flat tubes (40), a fin (50) that includes a plurality of notch portions (51) arranged side by side in a vertical direction, to which the plurality of flat tubes (40) are inserted, and includes intermediate regions (52) each formed between two of the notch portions (51) adjacent to each other in a vertical direction, and a connection region (53) connecting the intermediate regions (52) to each other, first bulging portions (54) at least partly positioned on the intermediate regions (52), and a second bulging portion (55) provided on the connection region (53) and blocking a gap (S) between the flat tubes (40) and the first bulging portions (54), wherein each first bulging portion (54) and the second bulging portion (55) are arranged to cause an air flow to pass through at least one of these portions in a ventilation direction.

IPC 8 full level  
**F24F 1/0067** (2019.01); **F28D 1/053** (2006.01); **F28F 1/02** (2006.01); **F28F 1/32** (2006.01)

CPC (source: EP US)  
**F24F 1/0067** (2019.01 - EP US); **F28D 1/0426** (2013.01 - EP); **F28D 1/0535** (2013.01 - US); **F28D 1/05383** (2013.01 - EP); **F28F 1/02** (2013.01 - US); **F28F 1/022** (2013.01 - EP); **F28F 1/32** (2013.01 - EP US); **F28F 1/325** (2013.01 - EP); **F28F 13/04** (2013.01 - EP); **F28F 13/06** (2013.01 - EP); **F28F 17/005** (2013.01 - EP); **F28F 2215/12** (2013.01 - EP)

Citation (search report)  
• [XII] WO 2017175702 A1 20171012 - DAIKIN IND LTD [JP]  
• [XI] WO 2017208493 A1 20171207 - HITACHI-JOHNSON CONTROLS AIR CONDITIONING INC [JP]  
• [A] EP 3447430 A1 20190227 - DAIKIN IND LTD [JP]  
• [A] CN 106370045 A 20170201 - SANHUA (HANGZHOU) MICRO CHANNEL HEAT EXCHANGER CO LTD  
• See references of WO 2020195153A1

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 3951303 A1 20220209; EP 3951303 A4 20221214**; AU 2020245687 A1 20210916; CN 113498471 A 20211012; JP 2020159616 A 20201001; US 2022120451 A1 20220421; WO 2020195153 A1 20201001

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**EP 20777690 A 20200131**; AU 2020245687 A 20200131; CN 202080017287 A 20200131; JP 2019058395 A 20190326; JP 2020003638 W 20200131; US 202017432824 A 20200131