

Title (en)

HEAT EXCHANGER AND REFRIGERATION CYCLE DEVICE

Title (de)

WÄRMETAUSCHER UND KÄLTEKREISLAUFVORRICHTUNG

Title (fr)

ÉCHANGEUR DE CHALEUR ET DISPOSITIF À CYCLE DE RÉFRIGÉRATION

Publication

**EP 4253895 A4 20231227 (EN)**

Application

**EP 20963562 A 20201127**

Priority

JP 2020044333 W 20201127

Abstract (en)

[origin: EP4253895A1] A heat exchanger (HE) includes: a fin (F) extending in a widthwise direction (D1) along an air flow direction (D0) and extending in a longitudinal direction (D2) crossing the air flow direction (D0); and a heat transfer tube (P) passing through the fin (F). The fin (F) has a through hole (TH). The heat transfer tube (P) is inserted into the through hole (TH). Each fin (F) includes a planar portion (SP), and a first protruding portion (MP1) and a second protruding portion (MP2) protruding from the planar portion (SP). The first protruding portion (MP1) is curved along the longitudinal direction (D2). The second protruding portion (MP2) has an extending portion (EP) extending in the longitudinal direction (D2). The extending portion (EP) is located to overlap a center of the through hole (TH) in the widthwise direction (D1).

IPC 8 full level

**F28F 1/32** (2006.01); **F28D 1/047** (2006.01); **F28F 17/00** (2006.01); **F28F 19/00** (2006.01)

CPC (source: EP US)

**F28D 1/0477** (2013.01 - EP US); **F28F 1/32** (2013.01 - EP); **F28F 1/325** (2013.01 - US); **F28F 17/005** (2013.01 - EP); **F28F 19/006** (2013.01 - EP); **F28D 2021/0068** (2013.01 - US); **F28F 2225/06** (2013.01 - EP US)

Citation (search report)

- [XI] JP S5730589 U 19820217
- [XAI] JP S5730591 U 19820217
- [XI] US 2016123681 A1 20160505 - HONMA MASAYA [JP], et al
- [XAI] CN 110726325 A 20200124 - GUANDONG MIDEA HVAC EQUIPMENT, et al
- [XI] JP S61235693 A 19861020 - MATSUSHITA ELECTRIC IND CO LTD, et al
- See references of WO 2022113298A1

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

Designated validation state (EPC)

KH MA MD TN

DOCDB simple family (publication)

**EP 4253895 A1 20231004**; **EP 4253895 A4 20231227**; CN 116438421 A 20230714; JP WO2022113298 A1 20220602; US 2023417495 A1 20231228; WO 2022113298 A1 20220602

DOCDB simple family (application)

**EP 20963562 A 20201127**; CN 202080107267 A 20201127; JP 2020044333 W 20201127; JP 2022564961 A 20201127; US 202018247096 A 20201127