

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 4130634 A4 20230510 (EN)**

Application

**EP 20928270 A 20200330**

Priority

JP 2020014479 W 20200330

Abstract (en)

[origin: EP4130634A1] A heat exchanger includes a plurality of fins being spaced apart from one another in a first direction and a plurality of heat transfer tubes penetrating through the plurality of fins. The plurality of heat transfer tubes are spaced apart from one another in a second direction crossing the first direction. Each of the plurality of fins includes a fin base surface being flat and a fin projection provided between two adjacent heat transfer tubes of the plurality of heat transfer tubes. The fin projection projects from the fin base surface in the first direction. The fin projection includes a main part and an uprise portion surrounding the main part and connecting between the main part and the fin base surface. A relationship between angle  $\theta_a$  and angle  $\theta_b$ ,  $\theta_a > \theta_b$  is established where  $\theta_a$  is an angle of the uprise portion against the fin base surface, and  $\theta_b$  is an angle of the main part against the fin base surface.

IPC 8 full level

**F28F 1/32** (2006.01)

CPC (source: EP)

**F28F 1/32** (2013.01); **F28F 13/12** (2013.01); **F28D 1/0477** (2013.01)

Citation (search report)

- [AD] WO 2007108386 A1 20070927 - MATSUSHITA ELECTRIC IND CO LTD [JP], et al & EP 2006629 A2 20081224 - PANASONIC CORP [JP]
- [A] WO 2011096124 A1 20110811 - SUMITOMO LIGHT METAL IND [JP], et al
- [A] JP S5787979 U 19820531
- [A] US 2009133863 A1 20090528 - OGAWA OSAMU [JP], et al
- See references of WO 2021199121A1

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 4130634 A1 20230208**; **EP 4130634 A4 20230510**; **EP 4130634 B1 20240619**; JP 7309041 B2 20230714; JP WO2021199121 A1 20211007; WO 2021199121 A1 20211007

DOCDB simple family (application)

**EP 20928270 A 20200330**; JP 2020014479 W 20200330; JP 2022512516 A 20200330