

Title (en)  
Heat exchanging apparatus

Title (de)  
Wärmeaustauschvorrichtung

Title (fr)  
Dispositif d'échange de chaleur

Publication  
**EP 1519133 A2 20050330 (EN)**

Application  
**EP 04255603 A 20040916**

Priority  
JP 2003337294 A 20030929

Abstract (en)  
In a heat exchanging apparatus (1) disposing two heat exchangers (3,4) in a form of two rows of upstream downstream sides in an air flow direction (2), each heat exchanger (3,4) comprising a pair of header pipes (5a,6a,5b,6b), a plurality of heat transfer tubes (7a,7b) and corrugated-type fins (8a,8b) disposed between respective adjacent heat transfer tubes, an inlet (9) for a heat exchange medium is provided on the heat exchanger of the downstream side, an outlet (10) for the heat exchange medium is provided on the heat exchanger of the upstream side, and a pitch of the fins (8a) of the upstream-side heat exchanger (3) is set larger than a pitch of the fins (8b) of the downstream-side heat exchanger (4). A resistance against air passage as a whole of the apparatus can be reduced, while maintaining a desirable maximum amount of heat exchange as the total of the two rows.

IPC 1-7  
**F28D 1/04**; **F28F 1/12**; **F28D 1/053**

IPC 8 full level  
**F28F 1/30** (2006.01); **F28D 1/04** (2006.01); **F28D 1/053** (2006.01); **F28F 1/12** (2006.01); **F28F 9/02** (2006.01); **F28F 9/26** (2006.01)

CPC (source: EP)  
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Citation (applicant)  
• JP H03371071 A  
• JP H0473599 A 19920309 - SANDEN CORP

Cited by  
CN108679887A; US2011232884A1; EP2824411A3; US2013306272A1; US9671176B2; US2015241142A1; EP3015808A4; EP2908082A1; WO2016036732A1

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**EP 1519133 A2 20050330**; **EP 1519133 A3 20060308**; CN 1629590 A 20050622; JP 2005106328 A 20050421

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