

Title (en)  
HEAT PUMP

Publication  
**EP 0322705 A3 19910731 (EN)**

Application  
**EP 88121257 A 19840831**

Priority  
• EP 84305987 A 19840831  
• US 63195284 A 19840717

Abstract (en)  
[origin: EP0316966A2] A heat pump system has a refrigerant circulation system that is cooled by passing through a thermal storage heat exchanger. The heat exchanger is supplied by ice from an ice maker and can store heat energy by accumulation of ice in the heat exchanger. The ice is generated by cooling a secondary refrigerant, typically brine, at the wall of a ice making machine and scouring the wall prior to crystallisation of the brine mixture to disperse the super cooled liquid adjacent the wall into the body of the secondary refrigerant. Crystallisation is then promoted in the body of the liquid. The ice generator in a preferred form comprises a series of flat plates having primary refrigerant passing between the flat plates and secondary refrigerant passing over the surface of the flat plates. A series of scrapers rotate about an axis normal to the plane of the plates to disperse super cooled secondary refrigerants throughout the body of the secondary refrigerant in the ice generator.

IPC 1-7  
**F25B 29/00**; **F25C 1/00**; **F25D 17/02**

IPC 8 full level  
**F25D 16/00** (2006.01); **F28F 19/00** (2006.01)

CPC (source: EP)  
**F25D 16/00** (2013.01); **F28F 19/008** (2013.01)

Citation (search report)  
• [E] US 4509344 A 19850409 - LUDWIGSEN JOHN S [US], et al  
• [X] FR 754096 A 19331030  
• [X] US 2101953 A 19371214 - ERIK OMAN  
• [Y] GB 668001 A 19520312 - SABROE & CO AS THOMAS THS  
• [Y] DE 1451094 B1 19701015 - MILCHWERKE BIELEFELD HERFORD E  
• [A] GB 736186 A 19550907 - OHIO COMMW ENG CO  
• [A] US 4334412 A 19820615 - WILDFEUER ROBERT  
• [A] DE 599649 C 19340706 - SIEMENS AG  
• [A] FR 2491607 A1 19820409 - ALFA LAVAL CIE AGRI COOL [FR]  
• [A] DE 2900372 A1 19790712 - SIMON LASZLO

Cited by  
US5473907A; CN100354584C; US7741828B2; WO2005119275A1; US9267741B2; US9995521B2; JP2012167922A

Designated contracting state (EPC)  
AT BE CH DE FR GB IT LI LU NL SE

DOCDB simple family (publication)  
**EP 0316966 A2 19890524**; **EP 0316966 A3 19910731**; **EP 0316966 B1 19950308**; AT E63158 T1 19910515; EP 0322705 A2 19890705; EP 0322705 A3 19910731; EP 0322705 B1 19950308

DOCDB simple family (application)  
**EP 88121258 A 19840831**; AT 84305987 T 19840831; EP 88121257 A 19840831