

Title (en)
METHOD AND APPARATUS FOR CHILLING AND FREEZING ARTICLES

Publication
EP 0174170 A3 19880608 (EN)

Application
EP 85306182 A 19850830

Priority
• US 64806684 A 19840907
• US 65167484 A 19840918

Abstract (en)
[origin: EP0174170A2] A unit useful for the rapid chilling and/or freezing of small articles, such as beverage cans, other perishable items, other articles desired to be chilled or frozen, and the like products, including an insulated container (40) with a lid (41) therefor, a refrigerator unit (101), heat removing coils (16) disposed within a holding tank for liquid coolant (38); a product chamber (12) above, below or near the coolant holding tank; a pump (18) to move the coolant (38) to or away from the product chamber (12); various means to draw the fluid in or out of the product chamber by means of solenoid valves (44A, 44B) or drain holes (37); a vibrator (22), air blast, rinse cycle to remove undesirable residues; and timer means (5) for controlling the length of time the coolant is within the product and the length of the drain cycle. The method of rapidly chilling or freezing articles comprising the steps of: chilling a liquid (38) substantially below the freezing temperature of water by refrigeration evaporator coils, said liquid having a very low surface tension, and low residue depositing, such as the family of liquid fluorocarbon chemicals, various alcohol and water formulations ranging from 40% to 60% alcohol which has properties similar to the family of liquid fluorocarbons, being non toxic and nearly odorless, immersing the article to be chilled or frozen into the liquid for a desired period of time, and removing said article therefrom; or in the event of other coolants than those mentioned above are used which leave an undesirable residue, incorporating a rinse cycle to wash away the residue.

IPC 1-7
F25D 17/02

IPC 8 full level
F25D 17/02 (2006.01); **F25D 31/00** (2006.01)

CPC (source: EP)
F25D 17/02 (2013.01); **F25D 31/007** (2013.01); **F25D 2400/28** (2013.01); **F25D 2400/30** (2013.01)

Citation (search report)
• [Y] AT 292754 B 19710910 - HAUSER RUDOLF ING
• [Y] US 2655007 A 19531013 - LAZAR JOSEPH H
• [A] GB 1396379 A 19750604 - MK REFRIGERATION LTD
• [A] GB 1481537 A 19770803 - DOUST D
• [A] FR 1381430 A 19641214
• [A] FR 2441345 A1 19800613 - ELECTRICITE DE FRANCE
• [A] GB 1537821 A 19790110 - MK REFRIGERATION LTD
• [A] US 2342706 A 19440229 - TANKERSLEY JAMES O
• [A] US 2427869 A 19470923 - MCMICHAEL FLOYD J
• [A] US 2080103 A 19370511 - ZARSTSCHENZEFF MIKAIL T
• [A] US 2876558 A 19590310 - EDISON LOWE, et al
• [A] US 3888092 A 19750610 - FISHER JAMES I
• [A] US 2496304 A 19500207 - GLENN MUFFLY
• [A] CA 1081486 A 19800715 - PRINCE RUPERT FISHERMEN S CO O
• [A] US 2059970 A 19361103 - ROBILLARD ROBERT E
• [A] US 4245483 A 19810120 - MURAI SUSUMU

Cited by
GB2271416A; US5222367A; FR2657150A1; EP0281232A1; US2012198871A1; US8505329B2; EP0480553A1; US5165256A; EP0410408A1; US5584187A; EP0448292A3; CN105300028A; EP0347286A1; FR2632713A1; CN102455098A; US11619436B2; US8549871B1; US6615592B2; WO03019084A3; WO0214753A3; WO9313372A1; WO9735155A1; WO2013155543A1; US6681581B2; WO2010149402A1; US6656380B2; US9810473B2; US9200831B2; US10174995B2; US10989467B2

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

DOCDB simple family (publication)
EP 0174170 A2 19860312; EP 0174170 A3 19880608; AU 4715585 A 19860313; AU 596950 B2 19900524; BR 8504334 A 19860708; ES 546770 A0 19870501; ES 8705615 A1 19870501

DOCDB simple family (application)
EP 85306182 A 19850830; AU 4715585 A 19850906; BR 8504334 A 19850909; ES 546770 A 19850906