

Title (en)  
COLD-GAS SUPPLY DEVICE FOR A NMR-APPLIANCE

Title (de)  
VORRICHTUNG ZUR KALTGASEINSPEISUNG EINER NMR-ANLAGE

Title (fr)  
DISPOSITIF D'ALIMENTATION EN GAZ FROIDS POUR UNE INSTALLATION RMN

Publication  
**EP 2584294 B1 20170322 (FR)**

Application  
**EP 12306262 A 20121012**

Priority  
FR 1159356 A 20111017

Abstract (en)  
[origin: EP2584294A1] The device (1) has an insulated tank (4) containing liquid gas (5) at a boiling point and arranged exchangers (6, 6', 6'') through gas streams to be cooled with exchangers that are connected with transfer lines (7, 7', 7''). An additional exchanger (8) ensures the pre-cooling of cold gas designed to cool a sample that is supplied with gaseous vapor (5') produced by the boiling of the liquid gas. Additional exchangers (8', 8'') ensure the pre-cooling of the cold gases to ensure the lift and rotation of the samples supplied by the gases that are evacuated.

IPC 8 full level  
**F25D 3/10** (2006.01); **F17C 9/02** (2006.01)

CPC (source: EP US)  
**F17C 9/02** (2013.01 - US); **F25D 3/10** (2013.01 - EP US); **F17C 9/04** (2013.01 - US); **F17C 13/007** (2013.01 - US);  
**F17C 2227/0339** (2013.01 - US); **F17C 2227/0372** (2013.01 - US); **F17C 2227/0374** (2013.01 - US)

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

DOCDB simple family (publication)  
**EP 2584294 A1 20130424**; **EP 2584294 B1 20170322**; FR 2981442 A1 20130419; JP 2013088433 A 20130513; JP 5978092 B2 20160824;  
US 10041629 B2 20180807; US 2013091870 A1 20130418

DOCDB simple family (application)  
**EP 12306262 A 20121012**; FR 1159356 A 20111017; JP 2012229022 A 20121016; US 201213653591 A 20121017