

Title (en)  
JOULE-THOMSON COOLING DEVICE

Publication  
**EP 0373445 B1 19921104 (DE)**

Application  
**EP 89122190 A 19891201**

Priority  
DE 3841635 A 19881210

Abstract (en)  
[origin: US4993230A] A cooling apparatus utilizing the Joule-Thomson effect contains a lead conduit including an inlet end connectable to a source of pressurized gas, and an outlet end, a relief nozzle provided at the outlet end of the lead conduit whereby pressurized gas inflowing through the lead conduit is depressurized at the relief nozzle with cooling, a return for the cooled and depressurized gas, and a countercurrent heat exchanger by which the pressurized gas inflowing through the lead conduit is in heat conductive contact with the cooled and depressurized gas outflowing through the return. Peltier elements serve for additional cooling of the inlet end of the lead conduit and have cold sides which are in immediate contact with the inlet end of the lead conduit. A heat exchanger is provided at the warm sides of the Peltier elements and is throughflowed by the gas from the return.

IPC 1-7  
**F25B 9/02**; **F25B 25/00**

IPC 8 full level  
**F25B 9/02** (2006.01); **F25B 21/02** (2006.01); **F25B 25/00** (2006.01)

CPC (source: EP US)  
**F25B 9/02** (2013.01 - EP US); **F25B 21/02** (2013.01 - EP US); **F25B 25/00** (2013.01 - EP US)

Cited by  
FR2734942A1; FR2725779A1; EP0561114A1; US5465581A; WO2010037364A1

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DE FR GB

DOCDB simple family (publication)  
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