

Title (en)  
HEAT ENGINE

Title (de)  
WÄRMEKRAFTMASCHINE

Title (fr)  
MACHINE THERMODYNAMIQUE

Publication  
**EP 2179141 B1 20200617 (DE)**

Application  
**EP 08801569 A 20080813**

Priority  

- EP 2008006665 W 20080813
- EP 07114230 A 20070813
- EP 08801569 A 20080813

Abstract (en)  
[origin: WO2009021729A2] The invention relates to a propellant gas generating device for generating a propellant gas under pressure to perform mechanical work. The invention also relates to a method for generating a propellant gas under pressure to perform mechanical work using a propellant gas generating device having a propellant gas pressure vessel, having a combustion chamber which is connected to the propellant gas pressure vessel, and having a secondary propellant supply for introducing secondary propellant into the propellant gas pressure vessel. The invention also relates to an expansion machine for converting the energy contained in the pressurized propellant gas into a mechanical movement, in particular a rotational movement, having a first expansion part arrangement, and to a method for operating an expansion machine. The invention likewise relates to a heat engine for generating a mechanical movement using a fuel, using a compressor for compressing a process gas, in particular air, and using a vapour generator for generating water vapour from water.

IPC 8 full level  
**F23D 11/24** (2006.01); **F01B 9/04** (2006.01); **F01K 21/04** (2006.01); **F22B 1/18** (2006.01); **F23C 6/04** (2006.01); **F23D 14/22** (2006.01);  
**F23D 14/34** (2006.01); **F23D 99/00** (2010.01); **F23L 7/00** (2006.01)

CPC (source: EP)  
**F01B 9/047** (2013.01); **F01K 21/04** (2013.01); **F22B 1/1853** (2013.01); **F23C 6/045** (2013.01); **F23D 11/24** (2013.01); **F23D 14/22** (2013.01);  
**F23D 14/34** (2013.01); **F23D 91/02** (2015.07); **F23L 7/002** (2013.01); **F23C 2900/03005** (2013.01)

Citation (examination)  

- WO 0011323 A1 20000302 - ALLIED SIGNAL INC [US]
- CH 457973 A 19680615 - SULZER AG [CH]
- FR 2183023 A1 19731214 - GEN ELECTRIC [US]
- EP 0079736 A1 19830525 - WATANABE KENJI [JP], et al

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

DOCDB simple family (publication)  
**WO 2009021729 A2 20090219; WO 2009021729 A3 20101021; WO 2009021729 A9 20090730;** EP 2179141 A2 20100428;  
EP 2179141 B1 20200617

DOCDB simple family (application)  
**EP 2008006665 W 20080813;** EP 08801569 A 20080813