

Title (en)  
ENGINE WITH AN ACTIVE MONO-ENERGY AND/OR BI-ENERGY CHAMBER WITH COMPRESSED AIR AND/OR ADDITIONAL ENERGY AND THERMODYNAMIC CYCLE THEREOF

Title (de)  
MOTOR MIT EINER AKTIVEN MONO-ENERGIE- UND/ODER BI-ENERGIEKAMMER MIT DRUCKLUFT UND/ODER ZUSÄTZLICHER ENERGIE UND THERMODYNAMISCHER ZYKLUS DAVON

Title (fr)  
MOTEUR A CHAMBRE ACTIVE MONO ET/OU BI ENERGIE A AIR COMPRIME ET/OU ENERGIE ADDITIONNELLE ET SON CYCLE THERMODYNAMIQUE

Publication  
**EP 1702137 B1 20070919 (FR)**

Application  
**EP 04805466 A 20041117**

Priority  
• FR 2004002929 W 20041117  
• FR 0313401 A 20031117

Abstract (en)  
[origin: US2007101712A1] An engine uses a top dead center piston stop device. It is fed by compressed air, via a working capacity, which, in the bi-energy version, includes a device for heating the air supplied by additional energy. The active expansion chamber consists of a variable volume or charge piston sliding in a cylinder, coupled to a space above the engine piston via a passage. When stoped at upper dead center, the pressurized air is admitted into the expansion chamber with the smallest volume thereof and, under the effect of thrust, increases the volume thereof by producing work; the expansion chamber is then kept at a maximum volume during expansion of the engine cylinder driving back the engine piston in its downward stroke, providing work of its own. During exhaust, the two pistons travel in an upward stroke and simultaneously reach top dead center in order to resume a new cycle.

IPC 8 full level  
**F01B 17/02** (2006.01); **F01B 9/02** (2006.01); **F02B 41/00** (2006.01); **F02B 75/32** (2006.01)

CPC (source: EP KR US)  
**F01B 9/02** (2013.01 - KR); **F01B 17/02** (2013.01 - EP US); **F01B 19/02** (2013.01 - KR); **F02B 41/00** (2013.01 - EP US); **F02B 75/32** (2013.01 - EP US)

Cited by  
CN106089424A

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LU MC NL PL PT RO SE SI SK TR

Designated extension state (EPC)  
AL LT LV MK YU

DOCDB simple family (publication)  
**US 2007101712 A1 20070510; US 7469527 B2 20081230**; AP 2006003652 A0 20060630; AT E373769 T1 20071015; AU 2004291704 A1 20050602; AU 2004291704 B2 20110526; BR PI0416222 A 20070102; CN 100439655 C 20081203; CN 1926307 A 20070307; CY 1108097 T1 20140212; DE 602004009104 D1 20071031; DE 602004009104 T2 20080612; DK 1702137 T3 20080128; EA 008067 B1 20070227; EA 200600967 A1 20061027; EC SP066652 A 20070228; EP 1702137 A1 20060920; EP 1702137 B1 20070919; ES 2294572 T3 20080401; FR 2862349 A1 20050520; FR 2862349 B1 20060217; GE P20084479 B 20080910; HK 1103779 A1 20071228; HR P20060223 A2 20070531; HR P20060223 B1 20120531; IL 175697 A0 20080209; IL 175697 A 20101130; JP 2007511697 A 20070510; JP 2011094629 A 20110512; JP 5001421 B2 20120815; KR 101156726 B1 20120614; KR 20060124650 A 20061205; MA 28332 A1 20061201; MX PA06005551 A 20070126; NO 20062827 L 20060817; NO 339215 B1 20161114; NZ 547975 A 20100930; PL 1702137 T3 20080229; PT 1702137 E 20071121; SI 1702137 T1 20080229; TN SN06143 A1 20071115; WO 2005049968 A1 20050602; ZA 200604895 B 20080827

DOCDB simple family (application)  
**US 57954904 A 20041117**; AP 2006003652 A 20041117; AT 04805466 T 20041117; AU 2004291704 A 20041117; BR PI0416222 A 20041117; CN 200480040519 A 20041117; CY 071101531 T 20071203; DE 602004009104 T 20041117; DK 04805466 T 20041117; EA 200600967 A 20041117; EC SP066652 A 20060616; EP 04805466 A 20041117; ES 04805466 T 20041117; FR 0313401 A 20031117; FR 2004002929 W 20041117; GE AP2004009455 A 20041117; HK 07108174 A 20070727; HR P20060223 A 20060616; IL 17569706 A 20060517; JP 2006538902 A 20041117; JP 2010281771 A 20101217; KR 20067011991 A 20041117; MA 29108 A 20060616; MX PA06005551 A 20041117; NO 20062827 A 20060616; NZ 54797504 A 20041117; PL 04805466 T 20041117; PT 04805466 T 20041117; SI 200430546 T 20041117; TN SN06143 A 20060517; ZA 200604895 A 20060613