

Title (en)  
Internal combustion piston engine.

Title (de)  
Kolbenbrennkraftmaschine.

Title (fr)  
Moteur à pistons à combustion interne.

Publication  
**EP 0451466 B1 19940119 (DE)**

Application  
**EP 91102426 A 19910220**

Priority  
DE 4011862 A 19900412

Abstract (en)  
[origin: EP0451466A1] The internal combustion piston engine for operation with gaseous or liquid fuels is equipped with a fuel metering system for compression of the fuel, which for each working cylinder (11, 11') has a piston compressor (20, 20') assigned to this on the cylinder head side with a compressor cylinder and a stepped piston (22, 22') axially movable inside this. The larger surface of the stepped piston (22, 22') is acted upon by the pressure of the combustion chamber of the assigned working cylinder (11, 11'), whilst the smaller surface of the stepped piston (22, 22') compresses the fuel when the pressure increases in the combustion chamber of the working cylinder. At least one overflow duct, which has an outlet into the combustion chamber lying in the slideway of the stepped piston and can be shut off or opened by a control edge of this piston, extends in each case between a compression chamber of the piston compressor (20, 20') and the combustion chamber of the assigned working cylinder. In each case two working cylinders (11, 11') with working pistons movable in opposition are assigned to one another and the stepped pistons of the piston compressors (20, 20') are positively coupled in opposition. <IMAGE>

IPC 1-7  
**F02B 33/08**; **F02B 75/28**

IPC 8 full level  
**F02B 13/00** (2006.01); **F02B 33/08** (2006.01); **F02B 75/28** (2006.01); **F02M 49/02** (2006.01); **F02B 3/06** (2006.01); **F02F 7/00** (2006.01)

CPC (source: EP US)  
**F02B 33/08** (2013.01 - EP US); **F02B 75/28** (2013.01 - EP US); **F02M 49/02** (2013.01 - EP US); **F02B 3/06** (2013.01 - EP US); **F02F 7/006** (2013.01 - EP US)

Cited by  
CN106285934A; CN106285783A; EP0666410A1; US5477835A; CN1061411C

Designated contracting state (EPC)  
ES FR GB IT

DOCDB simple family (publication)  
**EP 0451466 A1 19911016**; **EP 0451466 B1 19940119**; DE 4011862 A1 19911017; DE 4011862 C2 19950427; ES 2049054 T3 19940401; JP H04228871 A 19920818; RU 1838642 C 19930830; UA 13128 A 19970228; US 5136995 A 19920811

DOCDB simple family (application)  
**EP 91102426 A 19910220**; DE 4011862 A 19900412; ES 91102426 T 19910220; JP 7901191 A 19910411; SU 4895014 A 19910411; UA 4895014 A 19910411; US 68388291 A 19910411