

Title (en)
Fuel supply apparatus

Title (de)
Kraftstoffzufuhrvorrichtung

Title (fr)
Appareil d'alimentation en carburant

Publication
EP 1484504 A1 20041208 (EN)

Application
EP 04013169 A 20040603

Priority
• JP 2003159280 A 20030604
• JP 2004125490 A 20040421

Abstract (en)
A fuel supply pump comprising a rotary feed pump according to the present invention improves its pump performance by making smaller side clearances in an axial direction at both sides of a pump element PE. <??>Multiple through-holes (22a and 23a) passing through in an axial direction are respectively formed at top portions of cogs of the outer rotor (22) and the inner rotor (23), which form a pump element (PE) of a feed pump (3). Accordingly, pressures in the thrust direction at both axial sides of the rotors (22 and 23) can be equalized, since the side clearance formed at both axial sides of the rotors (22 and 23) are communicated with each other. As a result, since the rotors (22 and 23) can be floated, without contacting with the pump cover (19) and the pump plate (20), the abnormal wear and seizures can be suppressed, even when side clearance between the pump cover (19) and the pump element (PE) is made smaller. <IMAGE>

IPC 1-7
F04C 2/10; **F04B 23/10**; **F04C 11/00**; **F04C 2/344**; **F04C 2/08**; **F04C 15/00**

IPC 8 full level
F02M 37/06 (2006.01); **F04B 23/10** (2006.01); **F04C 2/08** (2006.01); **F04C 2/10** (2006.01); **F04C 2/344** (2006.01); **F04C 11/00** (2006.01); **F04C 15/00** (2006.01)

CPC (source: EP US)
F04B 23/103 (2013.01 - EP US); **F04B 23/12** (2013.01 - EP US); **F04C 2/084** (2013.01 - EP US); **F04C 2/102** (2013.01 - EP US); **F04C 2/344** (2013.01 - EP US); **F04C 11/006** (2013.01 - EP US); **F04C 15/0042** (2013.01 - EP US); **F04C 2230/602** (2013.01 - EP US)

Citation (applicant)
US 2003044288 A1 20030306 - UTSUMI YASUTAKA [JP]

Citation (search report)
• [XY] FR 606708 A 19260618
• [Y] US 2001015200 A1 20010823 - MORI KATSUMI [JP]
• [X] DE 19630975 A1 19971120 - VOULGARIS ANDREAS [DE], et al
• [XA] GB 2111127 A 19830629 - TEVES GMBH ALFRED
• [X] DE 8516658 U1 19861127
• [X] US 3416460 A 19681217 - KARL EICKMANN
• [XAY] PATENT ABSTRACTS OF JAPAN vol. 1996, no. 02 29 February 1996 (1996-02-29)

Cited by
CN102678541A

Designated contracting state (EPC)
DE FR GB

DOCDB simple family (publication)
EP 1484504 A1 20041208; **EP 1484504 B1 20120404**; CN 100374723 C 20080312; CN 1573110 A 20050202; JP 2005016514 A 20050120; US 2004247464 A1 20041209

DOCDB simple family (application)
EP 04013169 A 20040603; CN 200410046300 A 20040603; JP 2004125490 A 20040421; US 85679204 A 20040601