



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
18.06.2008 Bulletin 2008/25

(51) Int Cl.:
F04C 14/26 ^(2006.01) **F01M 1/16** ^(2006.01)
F04C 14/24 ^(2006.01) **F04C 2/10** ^(2006.01)

(43) Date of publication A2:
02.08.2006 Bulletin 2006/31

(21) Application number: **06001755.5**

(22) Date of filing: **27.01.2006**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK YU

(72) Inventor: **Kato, Hiroshi**
Aisin Seiki K.K.
Kariya-shi
Aichi-ken, 448-8650 (JP)

(74) Representative: **Kramer - Barske - Schmidtchen**
European Patent Attorneys
Landsberger Strasse 300
80687 München (DE)

(30) Priority: **01.02.2005 JP 2005025198**

(71) Applicant: **AISIN SEIKI KABUSHIKI KAISHA**
Kariya-shi, Aichi-ken 448-8650 (JP)

(54) **Oil gear pump**

(57) An oil pump (X, XII, XIII) includes a first control valve (4, 204, 304) including a first valve body (42, 242, 342) provided in a first valve housing (41, 241, 341) for reciprocating therein, the first valve body for controlling discharge pressure of working oil discharged from a pump main body (1), a first valve chamber (43, 243, 343) formed in the first valve housing, the first valve chamber

being applied with the discharge pressure of the working oil from the pump main body, and a second valve chamber (44, 244, 344) formed in the first valve housing, the second valve chamber being supplied with the working oil, and a second control valve (7, 207, 307) activated on the basis of degree of the temperature of the working oil, the second control valve for controlling oil pressure of the working oil flowed into the second valve chamber.

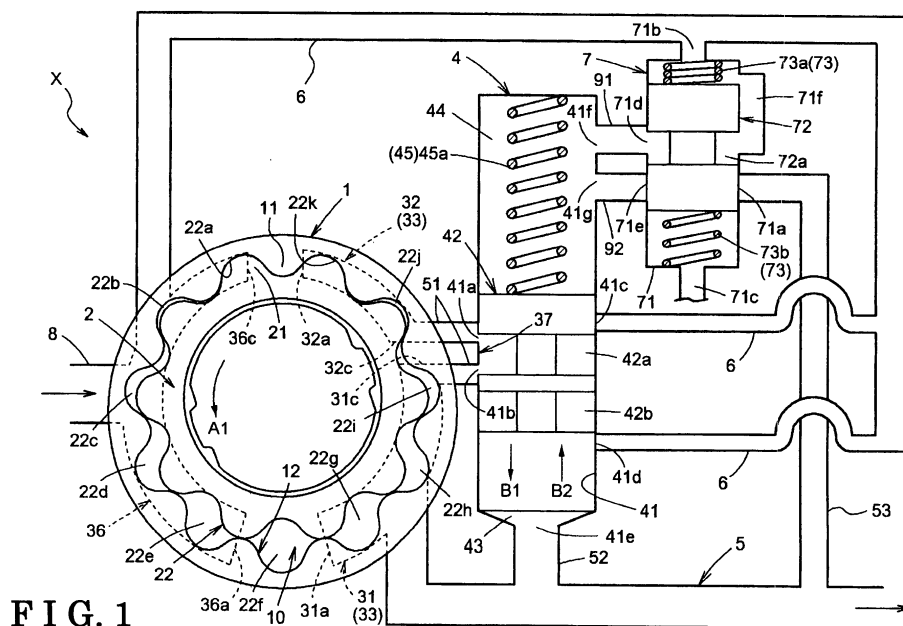


FIG. 1



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 00 1755

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 101 41 786 A1 (PORSCHE AG [DE]) 20 March 2003 (2003-03-20)	1,2	INV. F04C14/26
Y	* figures 1,3 * * paragraph [0001] * * paragraphs [0004] - [0006] * * paragraph [0018] * * paragraph [0021] * * sentence 4, paragraph 22 - sentence 6, paragraph 22 * * sentence 8, paragraph 23 - sentence 9, paragraph 23 * * sentence 4, paragraph 24 *	3-5	F01M1/16 F04C14/24 ADD. F04C2/10
Y	DE 100 51 780 A1 (DAIMLER CHRYSLER AG [DE]) 25 April 2002 (2002-04-25) * figure 1 * * paragraph [0001] * * sentence 3, paragraph 2 * * paragraphs [0004], [0006] * * paragraph [0009] * * paragraph [0012] * * paragraph [0020] * * sentence 6, paragraph 22 - sentence 8, paragraph 22 *	3-5	
			TECHNICAL FIELDS SEARCHED (IPC)
			F04C F01M
A,D	JP 08 114186 A (AISIN SEIKI) 7 May 1996 (1996-05-07) equivalent to document JP3531769B cited by applicant* figures 1,8,9 * * abstract *	1,2	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 14 May 2008	Examiner Sbresny, Heiko
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

8
EPO FORM 1503 03/02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 06 00 1755

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

14-05-2008

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 10141786	A1	20-03-2003	NONE	
DE 10051780	A1	25-04-2002	FR 2815669 A1	26-04-2002
JP 8114186	A	07-05-1996	DE 19531359 A1	29-02-1996
			FR 2723985 A1	01-03-1996
			JP 3531769 B2	31-05-2004
			US 5547349 A	20-08-1996