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(11)

EP 0 961 044 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
10.10.2001 Bulletin 2001/41

(51) Int Cl.7: **F16C 32/04, F16C 39/06**

(43) Date of publication A2:
01.12.1999 Bulletin 1999/48

(21) Application number: **99304103.7**

(22) Date of filing: **26.05.1999**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

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(30) Priority: **27.05.1998 JP 14614198**

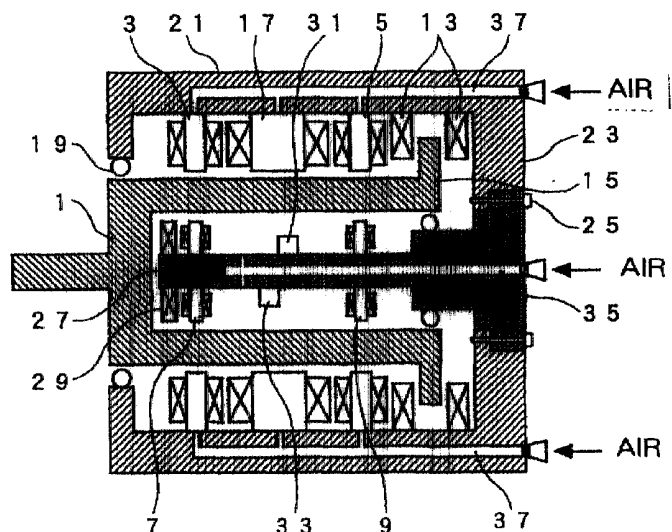
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(54) Magnetic bearing

(57) A magnetic bearing whose axial length is shortened and whose control property is enhanced is provided. A rotor 1 has a hollow structure. A sensor mounting shaft 27 is fixed to a side end face 23 of an outer sleeve 21 by bolts 25. A radial position sensor 7 and a radial position sensor 9 are fixed to the sensor mounting shaft 27 so that their center positions are aligned with the

center positions of a radial position controlling electromagnet 3 and a radial position controlling electromagnet 5, respectively. A metal disc 15 is provided at an end portion of the rotor 1. The metal disc 15 is provided between the two windings of the axial position controlling electromagnet 13 with a predetermined allowance. Also, a communication tube 35 is provided in an interior of the sensor mounting shaft 27.

FIG.1.



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EUROPEAN SEARCH REPORT

Application Number
EP 99 30 4103

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	US 4 023 920 A (BACHLER WERNER ET AL) 17 May 1977 (1977-05-17) * the whole document *	1-6	F16C32/04 F16C39/06
A	US 4 583 794 A (TAKAHARA KENICHI ET AL) 22 April 1986 (1986-04-22) * column 4, line 48 - column 5, line 12 * * column 6, line 4 - column 8, line 42 * * column 10, line 3 - column 11, line 55; figures 1-9 *	1-5,7-9	
A	US 4 583 031 A (BRUNET MAURICE ET AL) 15 April 1986 (1986-04-15) * the whole document *	1-5,7-9	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			F16C H02K
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 17 August 2001	Examiner Geyer, J-L
<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>			

EPO FORM 1503 03/82 (P04C01)

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

EP 99 30 4103

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17-08-2001

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4023920 A	17-05-1977	DE 2349033 A	10-04-1975
		CH 578125 A	30-07-1976
		FR 2246756 A	02-05-1975
		GB 1459884 A	31-12-1976
		JP 1138601 C	11-03-1983
		JP 50077913 A	25-06-1975
		JP 57030998 B	01-07-1982
US 4583794 A	22-04-1986	JP 60164013 A	27-08-1985
		DE 3468494 D	11-02-1988
		EP 0151857 A	21-08-1985
US 4583031 A	15-04-1986	FR 2561730 A	27-09-1985
		CA 1226924 A	15-09-1987
		DE 3565160 D	27-10-1988
		EP 0156730 A	02-10-1985
		JP 1055805 B	27-11-1989
		JP 1572367 C	25-07-1990
		JP 60215119 A	28-10-1985

EPO FORM P0455

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