

(11) **EP 3 524 819 A3**

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3: 28.08.2019 Bulletin 2019/35

(43) Date of publication A2: 14.08.2019 Bulletin 2019/33

(21) Application number: 19154627.4

(22) Date of filing: 30.01.2019

(51) Int Cl.: **F04C 23/00** (2006.01) **F04C 29/12** (2006.01)

F04C 29/02 (2006.01) F04C 18/02 (2006.01)

(84) Designated Contracting States:

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated Extension States:

BA ME

Designated Validation States:

KH MA MD TN

(30) Priority: 13.02.2018 JP 2018022976

(71) Applicant: MITSUBISHI HEAVY INDUSTRIES THERMAL SYSTEMS, LTD. 108-8215 Tokyo (JP)

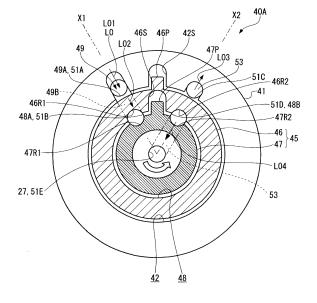
(72) Inventors:

- OKADA, Yoshiyuki Tokyo, 100-8332 (JP)
- YAMASHITA, Takuma Tokyo, 100-8332 (JP)
- WATANABE, Takashi Tokyo, 100-8332 (JP)
- SATO, Hajime Tokyo, 108-8215 (JP)
- TATEISHI, Taichi Tokyo, 100-8332 (JP)
- (74) Representative: Henkel, Breuer & Partner Patentanwälte
 Maximiliansplatz 21
 80333 München (DE)

(54) COMPRESSOR WITH A POSITIVE DISPLACEMENT OIL SUPPLY PUMP

(57)A compressor is provided capable of ensuring an opening area of a suction port in an oil supply pump even when a lubricant flows in a thickness direction of a pump rotor. An oil supply pump (40A) of a scroll compressor (1) includes: a first suction port (51A) through which a lubricant flows into a first oil suction chamber (42A); a second suction port (51B) through which the lubricant flows into a second oil suction chamber (48A); a first discharge port (51C) through which the lubricant flows from a first oil discharge chamber (42B); a second discharge port (51D) through which the lubricant flows from a second oil discharge chamber (48B); oil introducing channels (46R1, 47R1) provided correspondingly to the second suction port (51B) by concaving peripheral edge surfaces of an outer rotor (46) and an inner rotor (47); and oil lead-out channels (46R2, 47R2) provided correspondingly to the second discharge port (51D) by concaving peripheral edge surfaces of the outer rotor (46) and the inner rotor (47).

FIG. 3



EP 3 524 819 A3



EUROPEAN SEARCH REPORT

DOCUMENTS CONSIDERED TO BE RELEVANT

Application Number

EP 19 15 4627

10	

Category	Citation of document with inc of relevant passa		Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)		
X Y	JP 2003 184776 A (M. LTD) 3 July 2003 (20 * abstract * * figures 1,2,3,6-9	903-07-03)	1,2,4-6, 8 3,7	INV. F04C23/00 F04C29/02 F04C29/12 F04C18/02		
X Y	JP 3 274900 B2 (TOSE 15 April 2002 (2002) * abstract * * figure 5 *	HIBA CORP) -04-15)	1,2,4-6, 8 3,7			
X Y	JP H09 42181 A (MITS 10 February 1997 (19 * abstract * * figures 1,4,5 *	SUBISHI HEAVY IND LTD) 997-02-10)	1,2,4-6, 8 3,7			
X Y	US 5 375 986 A (UKA 27 December 1994 (19 * the whole document * figures 1-4 * * column 6, line 45	t *	1,2,4-6, 8 3,7			
X Y	US 2011/280749 A1 (1 17 November 2011 (20 * the whole document * figures 2-5 *	 HAHN GREGORY W [US]) D11-11-17)	1,2,4-6, 8 3,7	TECHNICAL FIELDS SEARCHED (IPC) F04C		
Y,D A	JP H09 264281 A (SAI 7 October 1997 (1997 * abstract * * figures 2-7 *		3,7 1,2,4-6, 8			
	The present search report has being place of search Munich	een drawn up for all claims Date of completion of the search 18 July 2019	Sbr	Examiner esny, Heiko		
CATEGORY OF CITED DOCUMENTS T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filling date Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document CATEGORY OF CITED DOCUMENTS T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filling date D: document often in the application L: document cited for other reasons CATEGORY OF CITED DOCUMENTS E: earlier patent document, but published on, or after the filling date D: document often in the application C: member of the same patent family, corresponding document						

EP 3 524 819 A3

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

EP 19 15 4627

5

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.

18-07-2019

10	Patent document cited in search report		Publication date	Patent family member(s)	Publication date
	JP 2003184776	Α	03-07-2003	NONE	
15	JP 3274900	В2	15-04-2002	JP 3274900 B2 JP H06272683 A	15-04-2002 27-09-1994
	JP H0942181	Α	10-02-1997	NONE	
20	US 5375986	A	27-12-1994	CN 1100183 A JP 3089140 B2 JP H0771383 A US 5375986 A	15-03-1995 18-09-2000 14-03-1995 27-12-1994
25	US 2011280749	A1	17-11-2011	CN 102242715 A DE 102011016737 A1 US 2011280749 A1	16-11-2011 01-12-2011 17-11-2011
	JP H09264281	Α	07-10-1997	NONE	
30					
35					
40					
45					
50					
55	FOHM PORSS				

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82