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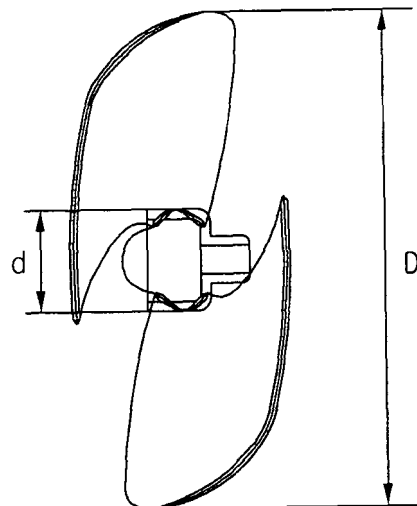
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(54) **Axial flow fan**

(57) Disclosed is a axial flow fan of an outdoor unit of an air conditioner. The axial flow fan comprises a hub connected with a rotational shaft of a motor; and at least one blade contacting the hub, wherein the blade has a part from the hub to a predetermined portion of the blade among a whole part from the hub to an outer end of the blade, and the other part from the predetermined portion of the blade to the outer end of the blade, the part being equally applied at a predetermined rake angle, and the other part being raised in a direction of a pressure surface of the blade, and wherein a ratio of an inner diameter and an outer diameter of the axial flow fan is between about 0.35 and about 0.4.

Fig.6b



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EUROPEAN SEARCH REPORT

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EP 04 07 7405

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
P,X	EP 1 422 425 A (LG ELECTRONICS INC [KR]) 26 May 2004 (2004-05-26) * figure 5 *	1-14	INV. F24F1/00
X	US 6 447 251 B1 (ZENG LING-ZHONG [US]) 10 September 2002 (2002-09-10) * figures 5,6 *	1-4,13, 14	
X	EP 1 298 326 A (SHARP KK [JP]) 2 April 2003 (2003-04-02) * paragraph [0071]; figure 1 *	4-12	
X	US 4 930 990 A (BRACKETT STEPHEN E [CA]) 5 June 1990 (1990-06-05) * figures 2-6 *	1-4,13, 14	
X	US 5 730 583 A (ALIZADEH AHMAD [US]) 24 March 1998 (1998-03-24) * column 2, line 30 - line 45; figure 6 *	1-14	
A	EP 1 087 146 A (MATSUSHITA ELECTRIC IND CO LTD [JP]) 28 March 2001 (2001-03-28) * abstract *	1	
A,D	KR 100 314 960 B1 (NAM IL SUNG) 5 November 2001 (2001-11-05) * figures *	1	F04D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 12 February 2010	Examiner Marangoni, Giovanni
CATEGORY OF CITED DOCUMENTS 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		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	

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

EP 04 07 7405

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  
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12-02-2010

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1422425	A	26-05-2004	ES 2316676 T3	16-04-2009
			JP 2004169682 A	17-06-2004
			KR 20040043623 A	24-05-2004
-----				
US 6447251	B1	10-09-2002	US 2002197162 A1	26-12-2002
-----				
EP 1298326	A	02-04-2003	CN 1388869 A	01-01-2003
			EP 2068001 A1	10-06-2009
			EP 2085621 A1	05-08-2009
			WO 0202950 A1	10-01-2002
			US 2003103846 A1	05-06-2003
-----				
US 4930990	A	05-06-1990	CA 2065445 A1	16-03-1991
			DE 69014646 D1	12-01-1995
			DE 69014646 T2	04-05-1995
			WO 9104419 A1	04-04-1991
			EP 0491816 A1	01-07-1992
			JP 6046039 B	15-06-1994
-----				
US 5730583	A	24-03-1998	US 5582507 A	10-12-1996
-----				
EP 1087146	A	28-03-2001	CN 1289897 A	04-04-2001
			ES 2312316 T3	01-03-2009
			JP 3743222 B2	08-02-2006
			JP 2001090693 A	03-04-2001
-----				
KR 100314960	B1	05-11-2001	NONE	
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