



(51) International Patent Classification:

F24F 11/02 (2006.01) F24F 1/00 (2011.01)
F24F 3/16 (2006.01)

(21) International Application Number:

PCT/KR2010/005627

(22) International Filing Date:

24 August 2010 (24.08.2010)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

10-2009-0084081

7 September 2009 (07.09.2009)

KR

10-2009-0085374

10 September 2009 (10.09.2009)

KR

(71) Applicant (for all designated States except US): **LG ELECTRONICS INC.** [KR/KR]; 20 Yeouido-dong, Yeongdeungpo-gu, Seoul 150-721 (KR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **LEE, Dong Won** [KR/KR]; LG Electronics Inc., IP Group, 391-2 Gaeumjeong-dong, Changwon-si, Gyeongsangnam-do 641-711

(KR). **PARK, Sung Kwan** [KR/KR]; LG Electronics Inc., IP Group, 391-2 Gaeumjeong-dong, Changwon-si, Gyeongsangnam-do 641-711 (KR). **KIM, Jae Hong** [KR/KR]; LG Electronics Inc., IP Group, 391-2 Gaeumjeong-dong, Changwon-si, Gyeongsangnam-do 641-711 (KR). **KIM, Jeong Young** [KR/KR]; LG Electronics Inc., IP Group, 391-2 Gaeumjeong-dong, Changwon-si, Gyeongsangnam-do 641-711 (KR). **KIM, Ill Uk** [KR/KR]; LG Electronics Inc., IP Group, 391-2 Gaeumjeong-dong, Changwon-si, Gyeongsangnam-do 641-711 (KR). **PARK, Kwa Jin** [KR/KR]; LG Electronics Inc., IP Group, 391-2 Gaeumjeong-dong, Changwon-si, Gyeongsangnam-do 641-711 (KR).

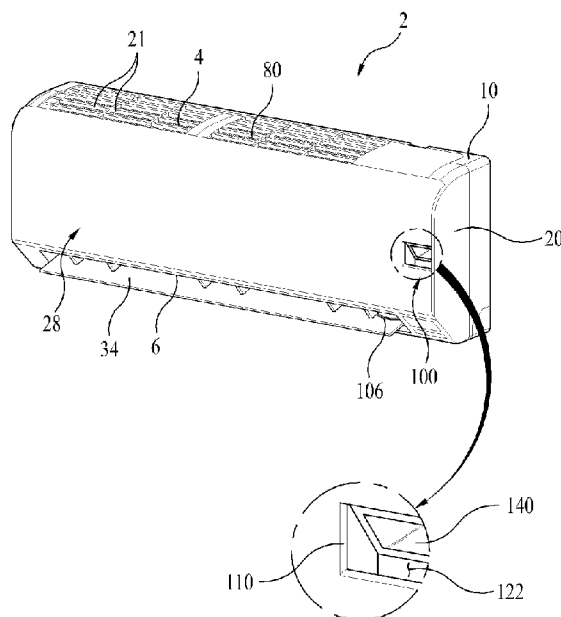
(74) Agents: **KIM, Yong In** et al.; KKBK & Associates, 7th Floor, Hyundai Building, 175-9 Jamsil-dong, Songpa-ku, Seoul 138-861 (KR).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO,

[Continued on next page]

(54) Title: AIR CONDITIONER

[Fig. 1]



(57) Abstract: An air conditioner is disclosed. Herein, the air conditioner can maintain the ambient air of a specific space (or area) to a pleasant state by adequately adjusting the temperature, humidity, and air current distribution within the corresponding space to allow people to pleasantly carry out their everyday activities. Since unwanted insects can be repelled or eliminated by using ultrasonic waves that do not contaminate the indoor air, the air conditioner can protect the human body from unwanted insects or pests while maintaining the air within the indoor space to a clean state. Also, by selectively hiding the ultrasonic generator, a reflection panel, which forms the exterior of the main body, may prevent the ultrasonic generator from being damaged by external impurities. Furthermore, since the reflection panel reflects the ultrasonic waves being generated from the ultrasonic generator to diverse directions, unwanted insects may be efficiently repelled or exterminated.



NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) Designated States** (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:

14 July 2011

A. CLASSIFICATION OF SUBJECT MATTER***F24F 11/02(2006.01)i, F24F 3/16(2006.01)i, F24F 1/00(2011.01)i***

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F24F 11/02; G10K 11/00; F24F 1/04; F24F 1/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: air-conditioner, ultrasonic, reflection

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KR 10-2008-0055450 A (LG ELECTRONICS LTD.) 19 June 2008 See Abstract, Claim 11	1, 7, 8-10, 13-14, 16-18
A	See Claim 4	3-5, 8-10, 16-18
X	EP 1496315 A1 (DAIKIN INDUSTRIES, LTD.) 12 January 2005 See Abstract, Claims 1, 7	1, 7, 8-10, 13-14, 16-18
A	KR 10-2003-0029013 A (KIM SUNJA) 11 April 2003 See Claims 36-37	1-18



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

20 MAY 2011 (20.05.2011)

Date of mailing of the international search report

23 MAY 2011 (23.05.2011)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
Government Complex-Daejeon, 189 Cheongsa-ro,
Seo-gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

JANG, GI JEONG

Telephone No. 82-42-481-5498



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR2010/005627

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
KR 10-2008-0055450 A	19.06.2008	None	
EP 1496315 A1	12.01.2005	AU 2003-211281 A1	08.10.2003
		AU 2003-211281 B2	05.01.2006
		CN 1329698 C0	01.08.2007
		CN 1639518 A	13.07.2005
		CN 1639518 C0	01.08.2007
		EP 1496315 A4	23.01.2008
		JP 03-823895 B2	20.09.2006
		JP 2004-003791 A	08.01.2004
		KR 10-0651572 B1	29.11.2006
		WO 03-081139 A1	02.10.2003
		WO 0308-1139A1	02.10.2003
KR 10-2003-0029013 A	11.04.2003	KR 10-2003-0029007 A	11.04.2003
		KR 10-2003-0029011 A	11.04.2003