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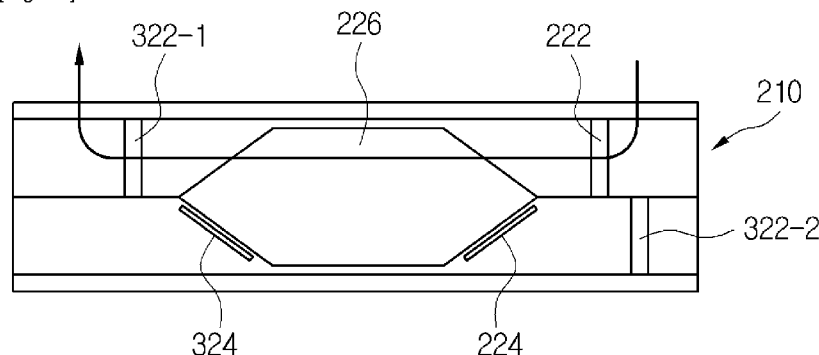
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(54) Title: VENTILATION DEVICE FOR WINDOWS WITH AIR PURIFYING FUNCTION

[Fig. 1a]



(57) Abstract: Disclosed is a ventilation device for windows with an air purifying function, which has a heat exchange unit for discharging indoor air to an outdoor space and introducing outdoor air into an indoor space and also has the air purifying function. The ventilation device for windows includes a heat exchange unit which is installed at a window and door frame so as to perform heat exchange between outdoor air and indoor air; and an air purification part which is provided in the heat exchange unit so as to purify the indoor air.

A. CLASSIFICATION OF SUBJECT MATTER**F24F 7/013(2006.01)i, E06B 7/02(2006.01)i, F24F 7/08(2006.01)i, F25B 21/02(2006.01)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)

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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: ventilation, window, frame, heat exchanger

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	KR 10-0476156 B1 (LIDARTECH CO., LTD) 15 March 2005 See page 3, line 28 - page 5, line 18, and figures 8, 9, 15.	1-6,9,10 7,8,11-14
Y A	KR 10-0705670 B1 (DAEWOO ELECTRONICS CORPORATION) 09 April 2007 See page 4 lines 4 - 38, and figures 2 - 4.	7,8,11-14 1-6,9,10
A	US 2007-0157585 A1 (BYUNG-SU LEE) 12 July 2007 See claims 1 - 4, and figures 3, 4.	1-14
A	KR 10-2008-0026423 A (KANG BOK OH.et al.) 25 March 2008 See page 6, paragraphs [0049] - [0056], and figures 2, 3.	1-14



Further documents are listed in the continuation of Box C.



See patent family annex.

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INTERNATIONAL SEARCH REPORT

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
KR 10-0476156 B1	15.03.2005	CN 100338329 C0	19.09.2007
		CN 1573007 A	02.02.2005
		EP 1486637 A2	15.12.2004
		EP 1486637 A3	16.02.2005
		EP 1486637 B1	05.08.2009
		EP 1795691 A1	13.06.2007
		EP 1795691 B1	31.08.2011
		JP 2005-003348 A	06.01.2005
		KR 20-0331905 Y1	30.10.2003
		US 2004-0253917 A1	16.12.2004
		US 2006-0270334 A1	30.11.2006
		US 7083110 B2	01.08.2006
		US 7270600 B2	18.09.2007
KR 10-0705670 B1	09.04.2007	None	
US 2007-0157585 A1	12.07.2007	CN 100593069 C	03.03.2010
		CN 1871407 A	29.11.2006
		CN 1871407 C0	29.11.2006
		JP 2007-509266 A	12.04.2007
		JP 4369480 B2	18.11.2009
		KR 10-0519544 B1	10.10.2005
		KR20050040613A	03.05.2005
		WO 2005-040540 A1	06.05.2005
KR 10-2008-0026423 A	25.03.2008		
		None	