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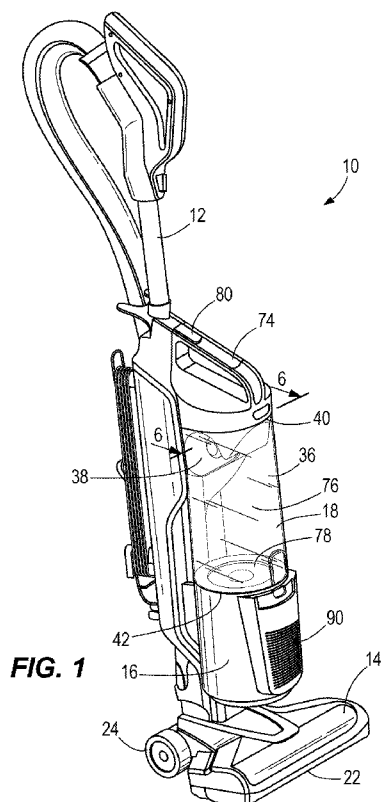
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HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR,
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[Continued on next page]

(54) Title: VACUUM CLEANER HAVING CYCLONIC SEPARATOR



(57) Abstract: A vacuum cleaner including a debris separator that includes a housing, a cyclonic separator including a cylindrical wall having a first end and a second end. The cylindrical wall is located in within the housing and the cyclonic separator further includes a dirty air inlet, a clean air outlet, a debris outlet adjacent the second end, and a longitudinal axis surrounded by the cylindrical wall and the longitudinal axis of the cyclonic separator extends in generally a horizontal orientation. The debris separator further includes a lid coupled to the housing and the cyclonic separator is coupled to the lid such that the cyclonic separator is removable from the housing with the lid. A debris collection chamber is located within the housing and in fluid communication with the debris outlet of the cyclonic separator.



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INTERNATIONAL SEARCH REPORT

International application No PCT/US2015/056918

A. CLASSIFICATION OF SUBJECT MATTER INV. A47L9/16 ADD.		
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) A47L		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 438 489 A (SAMSUNG KWANGJU ELECTRONICS CO [KR]) 28 November 2007 (2007-11-28)	1-5
A	page 7, line 9 - page 8, line 29; figures 5-7	6

X	JP 2004 033661 A (HITACHI HOME & LIFE SOLUTIONS) 5 February 2004 (2004-02-05)	1-5
A	abstract; figure 4	6

A	US 2009/305862 A1 (YOO DONG-HUN [KR]) 10 December 2009 (2009-12-10) paragraph [0024] - paragraph [0052]; figures 2,5	1-6

<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> 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	"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	
"E" earlier application or patent but published on or after the international filing date	"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	
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"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	
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	
"P" document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search	Date of mailing of the international search report	
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Blumenberg, Claus	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2015/056918

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-6

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-6

Directed to a vacuum cleaner including a cyclonic separator arranged in horizontal orientation in a housing. The separator additional including a cylindrical wall located within the housing, having a first and a second end wall. A dirt air inlet and a clean air outlet extends trough the first end wall and a debris outlet is adjacent the second end wall.

2. claims: 7-24

Directed to a vacuum cleaner including a cyclonic separator arranged in horizontal orientation in a housing. The separator additional including a cylindrical wall located within the housing, having a first and a second end wall. A dirt air inlet and a clean air outlet extends trough the first end wall and a debris outlet is adjacent the second end wall.

Additionally a lid is coupled to the housing, the separator is coupled to the lid such that the separator is removable form the housing with the lid.

3. claims: 25-28

Directed to a vacuum cleaner including a cyclonic separator arranged in horizontal orientation in a housing. The separator additional including a cylindrical wall located within the housing, having a first and a second end wall. A dirt air inlet and a clean air outlet extends trough the first end wall and a debris outlet is adjacent the second end wall.

Additionally a lid is coupled to the housing, the separator is coupled to the lid such that the separator is removable form the housing with the lid.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2015/056918

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
GB 2438489	A	28-11-2007	GB 2438489 A	28-11-2007
			US 2007271725 A1	29-11-2007

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US 2009305862	A1	10-12-2009	AU 2009202040 A1	24-12-2009
			GB 2460736 A	16-12-2009
			KR 20090128261 A	15-12-2009
			US 2009305862 A1	10-12-2009
