



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:  
**09.04.2008 Bulletin 2008/15**

(51) Int Cl.:  
**A47L 11/34** <sup>(2006.01)</sup> **A47L 13/22** <sup>(2006.01)</sup>  
**A47L 13/256** <sup>(2006.01)</sup>

(43) Date of publication A2:  
**13.06.2007 Bulletin 2007/24**

(21) Application number: **06025154.3**

(22) Date of filing: **05.12.2006**

(84) Designated Contracting States:  
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR**  
Designated Extension States:  
**AL BA HR MK RS**

- **Kim, Hyoung Jun**  
**Gangseo-gu**  
**Seoul (KR)**
- **Park, Sung Il**  
**Dongan-gu**  
**Anyang-si**  
**Gyeonggi-do (KR)**
- **Chung, Choon Myun**  
**Gwangmyeong-si**  
**Gyeonggi-do (KR)**

(30) Priority: **06.12.2005 KR 20050117973**

(71) Applicant: **LG ELECTRONICS INC.**  
**Seoul 150-721 (KR)**

(72) Inventors:  
• **Lee, Jeong Ho**  
**Goyang-si**  
**Gyeonggi-do (KR)**

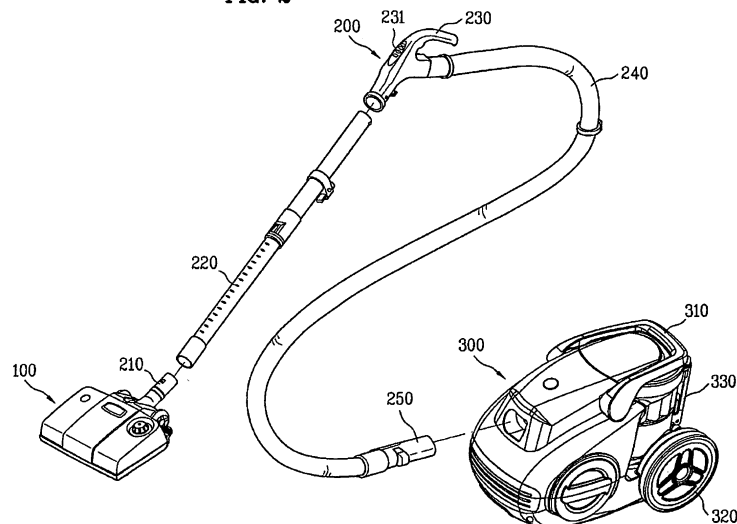
(74) Representative: **Vossius & Partner**  
**Siebertstrasse 4**  
**81675 München (DE)**

(54) **Floor cleaner and method for controlling same**

(57) A cleaner is provided that includes a head (100) having a base, which is configured to face a surface to be cleaned, and an intermediate connector (50) detachably coupled to a bottom of the base at an upper surface of the intermediate connector. Further, the intermediate

connector supports a cleaning member (60) that is detachably coupled to a lower surface of the intermediate connector. Additionally, the cleaner also includes a first coupler (15,55) to detachably couple the intermediate connector to the bottom of the base.

**FIG. 2**





European Patent  
Office

## EUROPEAN SEARCH REPORT

Application Number  
EP 06 02 5154

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 1 027 855 A (DOUSS LINE S R L [IT]) 16 August 2000 (2000-08-16) * paragraphs [0014], [0015]; figures 5-7 *	1,2,5,6,13	INV. A47L11/34 A47L13/22 A47L13/256
Y	-----	3,4	
X	US 2004/168281 A1 (SAKO YUKINOBU [JP] ET AL) 2 September 2004 (2004-09-02) * paragraphs [0029], [0053]; figures 5,7,11 *	1,2	
X	US 3 655 444 A (YOUNG EDWARD G) 11 April 1972 (1972-04-11) * column 2, lines 7-16; figures 1,2 *	1	
Y	US 2004/237240 A1 (POST KENNETH P [US] ET AL) 2 December 2004 (2004-12-02) * paragraphs [0003], [0092] - [0095]; figures 14,15 *	3,4	
A	US 3 253 626 A (STILLWAGON JR GEORGE B ET AL) 31 May 1966 (1966-05-31) * column 2, line 61 - column 3, line 29; figures 1,3,4 *	3,4	TECHNICAL FIELDS SEARCHED (IPC) A47L
-----			
<del>The present search report has been drawn up for all claims</del>			
Place of search Munich		Date of completion of the search 7 December 2007	Examiner PAPADIMITRIOU, S
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			

1  
EPO FORM 1503 03/82 (P04C01)



European Patent  
Office

Application Number  
EP 06 02 5154

### CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

### LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:
- 1, 2, 3, 4, 5, 6, 13
- ☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1,2,3,4,5,6,13

an improved connection between the head and cleaning member  
of a cleaner.

---

2. claims: 1,7-12

a cleaner with steam cleaning capability.

---

3. claims: 1,14

a cleaner with suction cleaning capability.

---

4. claims: 1,15-20

a combined steam and suction cleaner and a method of  
operating same.

---

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

EP 06 02 5154

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.

07-12-2007

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 1027855	A	16-08-2000	IT	F1990022 A1	03-08-2000
US 2004168281	A1	02-09-2004	NONE		
US 3655444	A	11-04-1972	NONE		
US 2004237240	A1	02-12-2004	NONE		
US 3253626	A	31-05-1966	NONE		