

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
9 December 2010 (09.12.2010)

(10) International Publication Number
WO 2010/141087 A3

- (51) **International Patent Classification:**
E03D 9/00 (2006.01) H01M 2/10 (2006.01)
E03D 9/03 (2006.01)
- (21) **International Application Number:**
PCT/US2010/001616
- (22) **International Filing Date:**
3 June 2010 (03.06.2010)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
12/479,149 5 June 2009 (05.06.2009) US
- (71) **Applicant (for all designated States except US):** S. C. JOHNSON & SON, INC. [US/US]; 1525 Howe Street, Racine, Wisconsin 53403 (US).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** SAWALSKI, Michael, M. [US/US]; 1233 Silent Sunday Court, Racine, Wisconsin 53402 (US). ADAIR, Joel, E. [US/US]; 3056 North Main Street, Racine, Wisconsin 53402 (US). SCHMIDT, Ronald, J. [US/US]; 35041

North Linden Avenue, Grayslake, Illinois 60030 (US). **KISSNER, William, R.** [US/US]; W207 S6722 High Bluff Drive, Muskego, Wisconsin 53150 (US). **HARWIG, Jeffrey, L.** [US/US]; 5407 West Highlands Court, Franklin, Wisconsin 53132 (US).

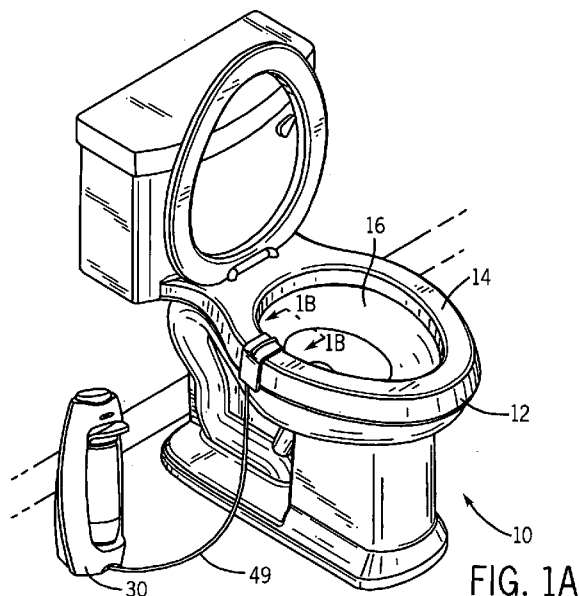
(74) **Agent:** CHOL, Jane, J.; S. C. JOHNSON & SON, INC., 1525 Howe Street, Racine, Wisconsin 53403 (US).

(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, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, 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,

[Continued on next page]

(54) **Title:** TOILET BOWL CLEANING AND/OR DEODORIZING DEVICE



(57) **Abstract:** A device for spraying an inner surface of a toilet bowl with a cleaning and/or deodorizing chemical is disclosed. The device includes a container for the chemical, a spray nozzle through which the chemical can be sprayed laterally around a perimeter of the nozzle, a conduit in fluid communication with the container and the spray nozzle, fluid delivery means for delivering chemical from the container through the conduit and to the spray nozzle, and means for attaching the spray nozzle near a rim of the toilet bowl. The spray nozzle of the automatic or manual toilet bowl cleaning device can operate such that the chemical is applied to the entire circumference of the inner surface of the toilet bowl whereby the entire toilet bowl is cleaned around the inner circumference of the toilet bowl.

WO 2010/141087 A3



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).

— *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:
17 February 2011

Published:

— *with international search report (Art. 21(3))*

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2010/001616

A. CLASSIFICATION OF SUBJECT MATTER

INV. E03D9/00 E03D9/03 H01M2/10
 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)

E03D H01M

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 practical, 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	DE 10 2007 040327 A1 (HENKEL AG & CO KGAA [DE]) 26 February 2009 (2009-02-26)	1-3, 6, 7, 9, 11, 13-15
Y	paragraphs [0058], [0059], [0067], [0128], [0143], [0144], [0159], [0164], [0166]; claim 1; figures 15, 24	4, 5, 10, 20
X	US 2007/136937 A1 (SAWALSKI MICHAEL M [US] ET AL) 21 June 2007 (2007-06-21)	1-5
Y	paragraphs [0014] - [0016], [0024],	10
A	[0025], [0026], [0032], [0161], [0193], [0194], [0210]; figures 24a-e	6-9, 11-15
X	WO 2009/034330 A1 (RECKITT BENCKISER INC [US]; BURT DIANA JOYCE [US]; JIN WU [GB]; KING C) 19 March 2009 (2009-03-19)	6, 7, 9-14
Y	page 79, lines 11-31; claim 1; figures	4, 5
A	1a, 1c, 25c	1-3
	----- -/--	

 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 document 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 another 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

9 December 2010

Date of mailing of the international search report

23/12/2010

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

Leher, Valentina

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2010/001616

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.:

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.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2010/001616

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	US 2010/031982 A1 (HORNSBY JAMES RUSSELL [US] ET AL) 11 February 2010 (2010-02-11) paragraphs [0061], [0062]; figures 5,7 -----	1-4,6-10
X	DE 12 20 503 B (BOSCH ELEKTRONIK GMBH; PHOTOKINO GES MIT BESCHRAENKTE) 7 July 1966 (1966-07-07) the whole document	16,17,19
Y		20
A		18
X	JP 2001 084975 A (OLYMPUS OPTICAL CO) 30 March 2001 (2001-03-30) * abstract; figures 2-7 -----	16,18,19
A	DE 42 34 962 A1 (LEICA CAMERA GMBH [DE]) 21 April 1994 (1994-04-21) figures 1-4 -----	16
A	EP 0 716 461 A1 (NEC CORP [JP]) 12 June 1996 (1996-06-12) -----	16
A	WO 2008/129805 A1 (PANASONIC CORP [JP]; OOYAMA KAZUHIKO) 30 October 2008 (2008-10-30) * abstract; figures 1-3 -----	16

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2010/001616

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 102007040327 A1	26-02-2009	EP 2179100 A1 WO 2009027115 A1 US 2010205731 A1	28-04-2010 05-03-2009 19-08-2010
US 2007136937 A1	21-06-2007	AU 2006331713 A1 CA 2634418 A1 CN 101360866 A EP 1963591 A2 JP 2009520896 T US 2010011492 A1 US 2007234470 A1 WO 2007075819 A2	05-07-2007 05-07-2007 04-02-2009 03-09-2008 28-05-2009 21-01-2010 11-10-2007 05-07-2007
WO 2009034330 A1	19-03-2009	AU 2008299626 A1 CA 2668568 A1 EP 2188457 A1 ZA 200902857 A	19-03-2009 19-03-2009 26-05-2010 30-06-2010
US 2010031982 A1	11-02-2010	WO 2010016909 A1	11-02-2010
DE 1220503 B	07-07-1966	NONE	
JP 2001084975 A	30-03-2001	NONE	
DE 4234962 A1	21-04-1994	JP 6193332 A	12-07-1994
EP 0716461 A1	12-06-1996	AU 700510 B2 AU 3914195 A CA 2163604 A1 DE 69501774 D1 DE 69501774 T2 JP 2674537 B2 JP 8162079 A US 5793619 A	07-01-1999 06-06-1996 31-05-1996 16-04-1998 09-07-1998 12-11-1997 21-06-1996 11-08-1998
WO 2008129805 A1	30-10-2008	CN 101652879 A EP 2133938 A1 JP 2008251426 A US 2010062324 A1	17-02-2010 16-12-2009 16-10-2008 11-03-2010

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-15

A device for spraying an inner surface of an enclosure with a fluid

1.1. claims: 6-10

A device for spraying an inner surface of a toilet bowl of a toilet with a fluid

1.2. claims: 11-15

A device for spraying an inner surface of an enclosure with a fluid

2. claims: 16-20

An electrical device
