

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
5 April 2001 (05.04.2001)

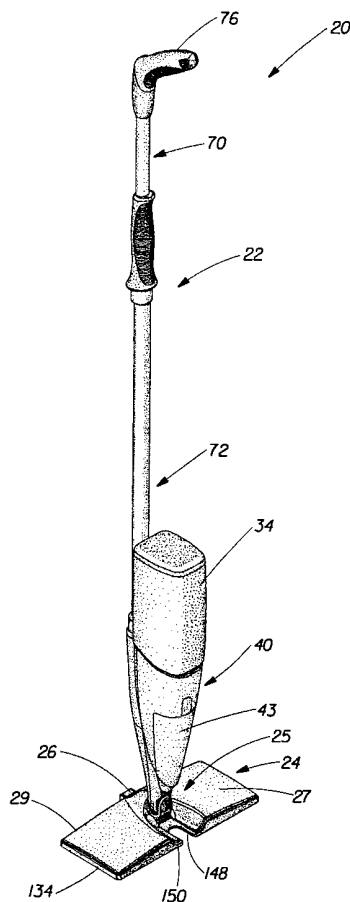
PCT

(10) International Publication Number
WO 01/22861 A3

- (51) International Patent Classification⁷: A47L 13/22, 13/256
- (21) International Application Number: PCT/US00/26384
- (22) International Filing Date:
26 September 2000 (26.09.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/156,289 27 September 1999 (27.09.1999) US
60/156,286 27 September 1999 (27.09.1999) US
60/199,444 25 April 2000 (25.04.2000) US
- (71) Applicant: **THE PROCTER & GAMBLE PLAZA**
[US/US]; One Procter & Gamble Company, Cincinnati, OH 45202 (US).
- (72) Inventors: **KUNKLER, Jeffrey, S.**; 3450 North Lake Shore Drive, Chicago, IL 60613 (US). **BOYER, Christopher, T.**; 211 West Washington Blvd. #3S, Oak Park, IL 60302 (US). **KUEN, Choy, K.**; 7/F, Block F, 36 Tai Yau Street, San Po Kong, Kowloon, Hong Kong (CN). **ZWART, Kevin, J.**; 3645 North Paulina, Chicago, IL 60613 (US). **BENECKE, Arnold, G.**; 4177 Bennett Drive, Indian Springs, OH 45011 (US). **KLEISS, Roderick, E.**; 5828 Buffalo Lane, Shoreview, MN 55126 (US). **CAMPBELL, Kevin, M.**; 6315 N. Spokane Avenue, Chicago, IL 60646 (US). **LESLEY, Paul, M.**; 7355 S. Calumet Avenue, Chicago, IL 60619 (US).
- (74) Agents: **REED, T., David** et al.; The Procter & Gamble Company, 5299 Spring Grove Avenue, Cincinnati, OH 45217-1087 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, BZ, CA.

[Continued on next page]

(54) Title: CLEANING IMPLEMENTS COMPRISING LIQUID DELIVERY SYSTEM



(57) Abstract: A cleaning implement is provided. The cleaning implement (20) includes a liquid delivery system for providing a cleaning liquid (35) to a surface to be cleaned having a canister (34) for storing a liquid (35), an electrical motor (38) driving a pump (36), and a voltage source (42) for energizing the electric motor (38). A support head (24) is pivotally attached to the handle (22) for releasably receiving a cleaning sheet (28). The handle (22) includes a switch (44) and is formed from a plurality of handle sections (70, 72, 74). Each handle section has at least one electrical connector (78, 86) which is electrically connected with an electrical connector of an adjacent handle section so that the switch (44) can activate the electrical motor (38). The support head (24) can be configured to allow visual inspection of the cleaning sheet (28) through the support head during use. The canister (34) is provided with a plurality of side walls (158, 160, 162, 164) and vent valve (60) having a cracking pressure of at least about 0.6 Kpa, wherein the canister is substantially in the form of a parallelogram in a plan view cross section and wherein one or more of the side walls has a plurality of grooves (167).

WO 01/22861 A3



CH, CN, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, DZ, EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KR (utility model), KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,

IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

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

10 January 2002

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/26384

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A47L13/22 A47L13/256

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)

IPC 7 A47L B05B B25G 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, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 782 991 A (TE LINDE J L ET AL) 21 July 1998 (1998-07-21) column 2, line 14 - line 22 column 3, line 38 - line 51 figure	1-6, 12
A	---	9
Y	EP 0 621 003 A (ELECTROLUX CORP) 26 October 1994 (1994-10-26) abstract figure 1	1-3
A	---	1-3, 9
	US 5 609 255 A (NICHOLS S S) 11 March 1997 (1997-03-11) abstract figures	

	-/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in 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.
- *G* document member of the same patent family

Date of the actual completion of the international search

29 June 2001

Date of mailing of the international search report

12.07.01

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Cabral Matos, A

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/26384

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 511 269 A (WATSON K F) 30 April 1996 (1996-04-30) abstract figures ---	1-3
A	DE 39 40 123 A (ROCHEX S A) 7 June 1990 (1990-06-07) abstract column 3, line 49 - line 58 figures 1,2,4,5 ---	1,7
A	US 5 933 913 A (SHUMAKER L M ET AL) 10 August 1999 (1999-08-10) abstract figures 1,5 ---	1
Y	US 5 461 749 A (AHLBERG C S ET AL) 31 October 1995 (1995-10-31) figures 7-9,10B,10C ---	4,5
A	FR 1 284 940 A (NICOD M R) 6 July 1962 (1962-07-06) the whole document ---	4,5
Y	US 1 685 731 A (TREVENA C) 25 September 1928 (1928-09-25) page 1, line 57 - line 99 figures ---	6
X	DE 39 05 760 A (HENKEL KGAA) 22 February 1990 (1990-02-22) column 3, line 27 - line 42 figure 4 ---	7
X	US 3 993 250 A (SHURE A H) 23 November 1976 (1976-11-23) column 2, line 23 - line 66 figure 1 ---	10,11
X	EP 0 365 770 A (WUNSCH E) 2 May 1990 (1990-05-02) column 3, line 53 -column 4, line 24 figures 2,3 ---	10,11
A	PATENT ABSTRACTS OF JAPAN vol. 011, no. 348 (M-642), 14 November 1987 (1987-11-14) -& JP 62 129588 A (INOUE JAPAX RES INC), 11 June 1987 (1987-06-11) abstract ---	10
Y	DE 41 33 011 A (ASAHI KOGAKU KOGYO K.K.) 9 April 1992 (1992-04-09) abstract figures 1A,1B ---	12
	-/--	

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/26384

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PATENT ABSTRACTS OF JAPAN vol. 009, no. 263 (E-351), 19 October 1985 (1985-10-19) -& JP 60 109168 A (MATSUSHITA DENKI SANGYO KK), 14 June 1985 (1985-06-14) abstract figures	12
P,A	--- US 5 988 920 A (BENECKE A G ET AL) 23 November 1999 (1999-11-23) abstract column 2, line 48 -column 3, line 20 figures 1A,3A-4C	1-3,9
P,X	--- WO 00 27271 A (JACKSON R ET AL) 18 May 2000 (2000-05-18) page 94, line 18 - line 21 page 102, line 9 -page 103, line 2 figures 8,9	7,10,11
P,X	--- WO 00 32315 A (PROCTER & GAMBLE) 8 June 2000 (2000-06-08) abstract page 4, line 6 -page 6, line 9 figures	10,11
A	-----	12

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 00/26384

Box I Observations where certain claims were found unsearchable (Continuation of item 1 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 II Observations where unity of invention is lacking (Continuation of item 2 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 fee, this Authority did not invite payment of any additional fee.
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.
- ☒ 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: 1-3,9

A cleaning implement comprising a liquid delivery system for providing a cleaning liquid to a surface to be cleaned powered by an electrical motor, a handle having a switch disposed thereon and comprising a plurality of handle sections, each section having at least one electrical connector which is electrically connected to the adjacent handle section so that said switch can activate said electrical motor, and a support head coupled to said handle.

2. Claims: 4,5

A cleaning implement comprising a liquid delivery system for providing a cleaning liquid to a surface to be cleaned, a handle, a support head pivotally attached to said handle for releasably receiving a cleaning sheet, wherein a portion of said head is configured to allow visual inspection of the cleaning sheet through said support head.

3. Claim : 6

A cleaning implement comprising a liquid delivery system for providing a cleaning liquid to a surface to be cleaned powered by an electrical motor, a handle, a support head pivotally attached to said handle for releasably receiving a cleaning sheet, wherein the support head comprises a rigid upper plate and rigid lower plate with a cavity therebetween.

4. Claims: 7,8

A cleaning implement comprising a liquid delivery system for providing a cleaning liquid to a surface to be cleaned, a canister for storing a cleaning liquid having sidewalls and a vent valve having a cracking pressure of at least 0,4Kpa, wherein said canister is in the form of a parallelogram in a plan view cross section and wherein said side walls have a deflection of less than 1,5mm during use, a handle, a support head pivotally attached to said handle for releasably receiving a cleaning sheet.

5. Claims: 10,11

A spray appliance comprising an electrical motor having a shaft and a casing, a gear pump coupled directly to said casing of said electrical motor, wherein the combination of gear pump and electrical motor has an efficiency of at least 5% and wherein said gear pump is compatible with a liquid

FURTHER INFORMATION CONTINUED FROM PCT/SA/ 210

having a pH of between 2 and 14.

6. Claim : 12

A spray appliance comprising a pump, an electrical motor driving said pump, at least one battery disposed in a battery cradle for energizing said electrical motor, a pair of prongs attached to said battery cradle, wherein a portion of the positive terminal of said battery passes between said prongs to engage the electrical pick up when said battery is placed in the cradle in a first correct position, and said prongs prevent contact between the negative terminal of said battery and the electrical pickup when said battery is placed in the cradle in a second wrong position.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/26384

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 5782991	A	21-07-1998	CA	2195045 A	14-08-1997
			EP	0790286 A	20-08-1997
EP 0621003	A	26-10-1994	US	5389004 A	14-02-1995
			CA	2121210 A,C	24-10-1994
			CA	2158010 A	24-10-1994
			CA	2158011 A,C	24-10-1994
			EP	0733336 A	25-09-1996
			JP	6343588 A	20-12-1994
			JP	10043103 A	17-02-1998
			JP	10043104 A	17-02-1998
			US	5551731 A	03-09-1996
			US	5472346 A	05-12-1995
US 5609255	A	11-03-1997	NONE		
US 5511269	A	30-04-1996	NONE		
DE 3940123	A	07-06-1990	FR	2639818 A	08-06-1990
US 5933913	A	10-08-1999	US	6065182 A	23-05-2000
			AU	4925797 A	02-07-1998
			BR	9706506 A	27-04-1999
			CA	2225303 A	30-06-1998
			EP	0850589 A	01-07-1998
			JP	10276951 A	20-10-1998
			US	5983448 A	16-11-1999
			US	5924167 A	20-07-1999
			US	5968281 A	19-10-1999
			US	6000088 A	14-12-1999
			WO	9829020 A	09-07-1998
			US	6101671 A	15-08-2000
			US	5911261 A	15-06-1999
US 5461749	A	31-10-1995	AU	2469095 A	21-12-1995
			BR	9507798 A	05-08-1997
			CA	2189433 A	07-12-1995
			CN	1149245 A	07-05-1997
			EP	0762845 A	19-03-1997
			JP	10500881 T	27-01-1998
			WO	9532661 A	07-12-1995
FR 1284940	A	06-07-1962	NONE		
US 1685731	A	25-09-1928	NONE		
DE 3905760	A	22-02-1990	WO	9001888 A	08-03-1990
			WO	9001889 A	08-03-1990
			DE	8904881 U	13-07-1989
			EP	0357538 A	07-03-1990
			EP	0358594 A	14-03-1990
			JP	6503632 T	21-04-1994
			US	4983060 A	08-01-1991
US 3993250	A	23-11-1976	NONE		
EP 0365770	A	02-05-1990	DE	3836290 A	26-04-1990
			DE	3916021 A	22-11-1990

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/26384

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0365770 A		AT 88662 T	15-05-1993
		DE 58904200 D	03-06-1993
		ES 2040946 T	01-11-1993
		HK 116294 A	04-11-1994
		JP 2198656 A	07-08-1990
		US 5014884 A	14-05-1991
JP 62129588 A	11-06-1987	NONE	
DE 4133011 A	09-04-1992	US 5194340 A	16-03-1993
JP 60109168 A	14-06-1985	NONE	
US 5988920 A	23-11-1999	AU 2154600 A	19-06-2000
		WO 0032083 A	08-06-2000
WO 0027271 A	18-05-2000	US 6206058 B	27-03-2001
		US 6142750 A	07-11-2000
		AU 1710800 A	29-05-2000
		AU 1816200 A	29-05-2000
		WO 0027746 A	18-05-2000
		AU 2346600 A	19-06-2000
		WO 0032315 A	08-06-2000
		WO 0122861 A	05-04-2001
		WO 0123510 A	05-04-2001
		WO 0122860 A	05-04-2001
WO 0032315 A	08-06-2000	US 6142750 A	07-11-2000
		AU 1816200 A	29-05-2000
		AU 2346600 A	19-06-2000
		WO 0027271 A	18-05-2000