

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
11 February 2010 (11.02.2010)

(10) International Publication Number
WO 2010/016902 A3

- (51) International Patent Classification:
B05B 9/08 (2006.01) *B05B 11/00* (2006.01)
- (21) International Application Number:
PCT/US2009/004488
- (22) International Filing Date:
6 August 2009 (06.08.2009)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
12/188,960 8 August 2008 (08.08.2008) US
- (71) Applicant (for all designated States except US): **S. C. JOHNSON & SON, INC.** [US/US]; 1525 Howe Street, Racine, WI 53403 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **HORNSBY, James, Russell** [US/US]; 2 Ballantrae Court, St. Louis, MO 63131 (US). **BENSON, Marcellus, Rambo** [US/US]; 15058 Manor Creek Drive, Chesterfield, MO 63017 (US).

KEEFE, James, Augustus [US/US]; 52 Pensacola Court, O'Fallon, MO 63366 (US). **MCGOWAN, Joseph, Lee** [US/US]; 1533 Heritage Manor Circle, St. Charles, MO 63303 (US).

(74) Agent: **NGUYEN, Peter, T.**; S. C. Johnson & Son, Inc., 1525 Howe Street, Racine, WI 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, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,

[Continued on next page]

(54) Title: POWER SPRAYER

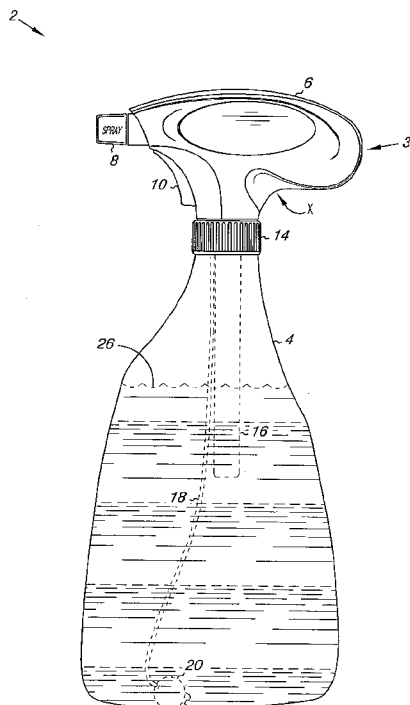


Fig. 1

(57) Abstract: A dispenser (2) adapted to be coupled to a fluid container (4). The dispenser (2) comprises a dispensing head (3), an energy source (16), and a fluid pathway. The dispensing head includes a fluid pump, a motor adapted to power the pump, a trigger adapted to control the motor, and a nozzle orifice in fluid communication with a discharge end of the pump. The fluid pathway has one portion in fluid communication with an intake end of the pump and another portion inside the container (4). In one embodiment, the fluid pump is a peristaltic pump. The present invention may further include a valve having a membrane for controlling flow through the valve, the membrane having open and closed positions; and an element urges the membrane to the closed position, and a vacuum pressure at one end of the valve may overcome the urging of the element, thereby moving the membrane to the open position.



WO 2010/016902 A3



ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (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:
2 December 2010

Published:

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

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2009/004488

A. CLASSIFICATION OF SUBJECT MATTER INV. B05B9/08 B05B11/00 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) B05B		
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	US 7 036 751 B1 (LUND BRUCE D [US] ET AL) 2 May 2006 (2006-05-02)	1,5,6
Y	column 1, line 51 - column 2, line 20; figure 1	12
X	EP 0 949 006 A (PROCTER & GAMBLE [US]) 13 October 1999 (1999-10-13)	1,7,9
Y	paragraph [0012] - paragraph [0013]; figure 1	12
X	WO 2006/064190 A (SATA LTD [GB]; PEPPER STEWART [GB]; OZAKI-OWEN EDDIE [GB]) 22 June 2006 (2006-06-22)	1,6
Y	* abstract; figure 1	12
Y	WO 98/01385 A1 (VERNAY LABORATORIES [US]) 15 January 1998 (1998-01-15) page 2, line 12 - page 3, line 17	12
<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 "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 <p style="text-align: center; font-weight: bold;">15 October 2010</p>	Date of mailing of the international search report <p style="text-align: center; font-weight: bold;">21/10/2010</p>	
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 <p style="text-align: center; font-weight: bold;">Eberwein, Michael</p>	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/004488

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-11

A dispenser adapted to be coupled to a container to dispense a substance in the container, the dispenser comprising: a dispensing head including a peristaltic pump, a motor and gear assembly adapted to power the peristaltic pump, a trigger adapted to actuate the motor, a conduit having a first end in fluid communication with a nozzle orifice and a second end in fluid communication with the container; and an energy source electrically connected to the motor; wherein the energy source is isolated from the peristaltic pump, motor, trigger, and nozzle orifice.

2. claims: 12-20

A dispenser adapted to be coupled to a container to dispense a substance in the container, the dispenser comprising: a dispensing head including a peristaltic pump, a motor and gear assembly adapted to power the peristaltic pump, a trigger adapted to actuate the motor, a conduit having a first end in fluid communication with a nozzle orifice and a second end in fluid communication with the container; and a valve assembly in the dispensing head and operably connected to the container, the valve assembly allowing air flow into the container, wherein a valve membrane in the valve assembly is opened by the creation of a vacuum in the container.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2009/004488

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 7036751	B1	02-05-2006	NONE
<hr/>			
EP 0949006	A	13-10-1999	AU 746785 B2 02-05-2002
			AU 3548899 A 25-10-1999
			CA 2295477 A1 14-10-1999
			CA 2302863 A1 14-10-1999
			CA 2302975 A1 14-10-1999
			CA 2363594 A1 14-10-1999
			CN 1295883 A 23-05-2001
			CN 1295884 A 23-05-2001
			CN 1272807 A 08-11-2000
			DE 69903605 D1 28-11-2002
			DE 69903605 T2 12-06-2003
			EP 1004264 A2 31-05-2000
			EP 1010389 A2 21-06-2000
			EP 0999896 A1 17-05-2000
			HU 0003607 A2 28-02-2001
			NO 20001349 A 15-03-2000
			NO 20011247 A 15-03-2000
			NO 20011248 A 15-03-2000
			SK 5192000 A3 11-12-2000
			TR 200000554 T1 21-11-2000
			TR 200001826 T1 21-06-2001
			TR 200001827 T1 21-12-2000
			TW 452505 B 01-09-2001
			TW 464539 B 21-11-2001
			WO 9951354 A1 14-10-1999
			US 6595437 B1 22-07-2003
			US 6578224 B1 17-06-2003
			US 6560806 B1 13-05-2003
			US 2004011886 A1 22-01-2004
<hr/>			
WO 2006064190	A	22-06-2006	CN 101116122 A 30-01-2008
			EP 1831851 A1 12-09-2007
			JP 2008523522 T 03-07-2008
			US 2009273464 A1 05-11-2009
<hr/>			
WO 9801385	A1	15-01-1998	AU 713609 B2 09-12-1999
			AU 3583897 A 02-02-1998
			BR 9710148 A 10-08-1999
			CA 2259649 A1 15-01-1998
			EP 0948454 A1 13-10-1999
			JP 2000514759 T 07-11-2000
			KR 20000023592 A 25-04-2000
			NZ 333304 A 23-06-2000
			US 5769275 A 23-06-1998