



(51) International Patent Classification:

B05B 7/02 (2006.01) **B05B 15/00** (2006.01)
B05B 7/24 (2006.01)

(21) International Application Number:

PCT/US2009/006682

(22) International Filing Date:

22 December 2009 (22.12.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

12/346,579 30 December 2008 (30.12.2008) US

(71) Applicant (for all designated States except US): **GRACO MINNESOTA INC.** [US/US]; 88 11th Avenue NE, Minneapolis, Minnesota 55413 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **OLSON, Diane, L.** [US/US]; 10240 299th Avenue, Princeton, Minnesota 55371 (US). **JOHNSON, Daniel, R.** [US/US]; 9524 Able Street NE, Blaine, Minnesota 55434 (US). **MUETZEL, Pamela, J.** [US/US]; 14994 77th Lane, Otsego, Minnesota 55330 (US).

(74) Agents: **KOMAREC, Stephen M.** et al.; Kinney & Lange, P.A., The Kinney & Lange Building, 312 South Third Street, Minneapolis, Minnesota 55415 (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, 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).

Published:

- with international search report (Art. 21(3))
- 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:

30 September 2010

(54) Title: INTEGRATED FLOW CONTROL ASSEMBLY FOR AIR-ASSISTED SPRAY GUN

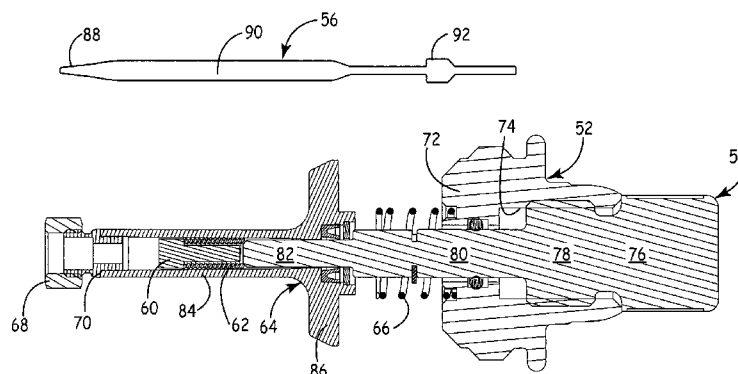


FIG. 3

(57) Abstract: An air-assisted sprayer comprises a platform, an air reservoir, a fluid reservoir, a spray cap and a dual flow valve. The air reservoir extends through the platform and is configured to receive a source of pressurized air. The fluid reservoir extends through the platform to intersect the air reservoir, and is configured to receive a source of pressurized fluid. The spray cap is configured to receive pressurized air from the air reservoir and pressurized fluid from the fluid reservoir to discharge a stream of atomized fluid from the platform. The dual flow valve is positioned within the platform to intersect the air reservoir and the fluid reservoir to simultaneously vary volumetric flow rates of the pressurized air and the pressurized fluid over a range.

A. CLASSIFICATION OF SUBJECT MATTER***B05B 7/02(2006.01)i, B05B 7/24(2006.01)i, B05B 15/00(2006.01)i***

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 7/02; A01G 23/10; B05B 5/02; B05B 7/06; B05B 7/08; B05B 7/12; B05B 7/30; B05B 9/01

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: air, sprayer, vary, flow rate,

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2007-0267523 A1 (GEORGIO ROUMANIS) 22 November 2007 See paragraphs [0005] - [0007]	1-20
A	US 3873023 A1 (MOSS ALBERT H. et al.) 25 March 1975 See column 6, line 18 - column 7, line 50	1-20
A	JP 2008-012404 A (ASAHI SUNAC CORP) 24 January 2008 See abstract	1-20
A	JP 2001-129444 A (ASAHI SUNAC CORP et al.) 15 May 2001 See abstract	1-20
A	US 2007-0164129 A1 (DONER et al.) 19 July 2007 See paragraphs [0042] - [0043]	1-20



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 application or patent 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 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

29 JULY 2010 (29.07.2010)

Date of mailing of the international search report

29 JULY 2010 (29.07.2010)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
Government Complex-Daejeon, 139 Seonsa-ro, Seo-
gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

JANG, Sung Won

Telephone No. 82-42-481-8717



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/006682

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2007-0267523 A1	22.11.2007	None	
US 3873023 A1	25.03.1975	None	
JP 2008-012404 A	24.01.2008	None	
JP 2001-129444 A	15.05.2001	JP 3401216 B2	28.04.2003
US 2007-0164129 A1	19.07.2007	None	