



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : B05B 9/08	A1	(11) International Publication Number: WO 00/32315 (43) International Publication Date: 8 June 2000 (08.06.00)
(21) International Application Number: PCT/US99/27687 (22) International Filing Date: 22 November 1999 (22.11.99) (30) Priority Data: 09/201,618 30 November 1998 (30.11.98) US (71) Applicant: THE PROCTER & GAMBLE COMPANY [US/US]; One Procter & Gamble Plaza, Cincinnati, OH 45202 (US). (72) Inventor: BENECKE, Arnold, George; 4177 Bennett Drive, Indian Springs, OH 45011 (US). (74) Agents: REED, T., David. et al.; The Procter & Gamble Company, 5299 Spring Grove Avenue, Cincinnati, OH 45217-1087 (US).		(81) Designated States: AE, AL, AM, AT, AT (Utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), DM, 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, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, 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 <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

(54) Title: A GEAR PUMP AND REPLACEABLE RESERVOIR FOR A FLUID SPRAYER**(57) Abstract**

A gear pump and reservoir device for a fluid sprayer comprises a pump housing (12) having a recessed portion for receiving and sealing thereto a fluid reservoir and a cavity for locating a drive motor (56) and gears (62, 64) therein. The recessed portion has a rigid conical projection (18) centered therein which has an orifice (20) extending into a pump inlet (22). The gear pump further includes a fluid container (36) mounted above the recessed portion of the pump housing to form a fluid reservoir. The fluid reservoir has a discharge valve (52) that is opened by engagement with the conical projection within the recessed portion to provide fluid communication to the pump inlet. A static head in the fluid reservoir maintains the gear pump in a primed state. A fluid line (30) leading from the gear pump to a sprayer head has a discharge check valve (34) located therein. The check valve has a cracking pressure higher than the static head of fluid so that fluid passes to the sprayer head only when the gear pump operates to increase pressure in the fluid line above the cracking pressure. There is also means for powering and operating the motor such that the gear pump provides a continuous flow of fluid to the sprayer head upon demand by a user.

