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(21) International Application Number: PCT/US96/06283 (22) International Filing Date: 3 May 1996 (03.05.96) (30) Priority Data: 08/499,753 7 July 1995 (07.07.95) US 08/604,556 21 February 1996 (21.02.96) US 08/625,833 1 April 1996 (01.04.96) US (71) Applicant: THE PROCTER & GAMBLE COMPANY [US/US]; One Procter & Gamble Plaza, Cincinnati, OH 45202 (US). (72) Inventors: BUSH, Stephan, Gary; 7404 Constitution Drive, Cincinnati, OH 45215 (US). COLLIAS, Dimitris, Ioannis; 4952 Lord Alfred Court, Cincinnati, OH 45241 (US). EVANS, Stephen, Francis; 1890 Madison Road, Cincinnati, OH 45206 (US). (74) Agents: REED, T., David et al.; The Procter & Gamble Company, 5299 Spring Grove Avenue, Cincinnati, OH 45217 (US).			(81) Designated States: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, <u>SG</u> , SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published With international search report.

(54) Title: PUMP SPRAYER FOR VISCOUS OR SOLIDS LADEN LIQUIDS

(57) Abstract

A hand holdable spray delivery system (10) for dispensing a relatively viscous and/or solids laden liquid is provided. This spray delivery system (10) includes a container (30) adapted to house the liquid. A manually actuated pump device (20) is mounted on the container (30). The pump device (20) including an inlet passage (23), a pump chamber (28), and a discharge passage (27) having a distal end connected in liquid communication so that the liquid is pumped from within the container (30), through the inlet passage (23), into the pump chamber (28) and through the discharge passage (27) upon manual actuation of the pump device (20). A slotted spray nozzle (40) including a housing (55) having an inlet side (46) and an exit side (44) is also included. The housing (55) having an internal recess (45) through the inlet side (46) that terminates in an elongated orifice (42) at the exit side (48). The internal recess (45) being attached in liquid communication to the distal end of the discharge passage (27) such that the liquid passing through the discharge passage (27) flows through the slotted spray nozzle (40) and converges toward the elongated orifice (42). The liquid is dispensed therefrom in a dispersed spray. The slotted spray nozzle (40) can be made of a rigid material or an elastomeric material. A fan shaped dispersed spray pattern is generated when the nozzle (40) is made using a rigid material, however, when an elastomeric material is utilized, the nozzle (40) is capable of ejecting particles larger than the smallest dimension of the elongated orifice (42), thereby substantially reducing the likelihood of clogging. Several versions of the spray delivery system (10) are illustrated, including a trigger operated sprayer and a reciprocating finger pump (20).

