

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : B65D 47/20, 35/50	A1	(11) International Publication Number: WO 98/14387 (43) International Publication Date: 9 April 1998 (09.04.98)
---	-----------	---

(21) International Application Number: PCT/US97/17881

(22) International Filing Date: 3 October 1997 (03.10.97)

(30) Priority Data:
08/724,975 3 October 1996 (03.10.96) US

(71) Applicant (for all designated States except US): THE WATER-FALL COMPANY [US/US]; Suite #202, 1350 41st Avenue, Capitola, CA 95010 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): GERBER, Bernard, R. [US/US]; 583 Mello Lane, Santa Cruz, CA 65062-2707 (US).

(74) Agents: HETHERINGTON, Michael et al.; Morrison & Foerster LLP, 755 Page Mill Road, Palo Alto, CA 94304-1018 (US).

(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), 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.**Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.*

(54) Title: CONTAMINATION-SAFE MULTIPLE-DOSE DISPENSING CARTRIDGE FOR FLOWABLE MATERIALS

(57) Abstract

A dispensing cartridge (10) is designed to dispense multiple doses of a flowable material from a collapsible container (14), i.e., from a container (14) of the type which does not produce an internal vacuum as the flowable material is dispensed. The cartridge (10) has a housing (12) for protecting a delivery block (30) enveloped by an elastic sheath (44). The delivery block (30) receives the flowable material from the collapsible container (14) through an input port (32) and delivers it through an internal channel (34) with branches to at least one output port (36, 38). Sleeve valves (46, 48) are created at the output port or ports (36, 38) by the sheath (44). In a preferred embodiment an end of the sheath (44) forms an outlet valve (56) downstream of the sleeve valves (46, 48). The cartridge (10) prevents external contaminants such as air and its constituents, oxygen, nitrogen, water vapor and other atmospheric gases as well as other air-borne contaminants including smoke, dust, pollen and microorganisms from entering the container and can be mounted on tubes, bags, infusion containers, syringes, pouches, collapsible reservoirs, bellows-type containers and the like. In a particularly advantageous embodiment the dispensing cartridge (10) is permanently bonded to the container (14) to produce an integrated dispensing system.

