

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
17 November 2005 (17.11.2005)

PCT

(10) International Publication Number  
**WO 2005/107720 A3**

(51) International Patent Classification<sup>7</sup>: **A01N 25/34**

(21) International Application Number:  
PCT/US2005/012944

(22) International Filing Date: 14 April 2005 (14.04.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
10/831,381 23 April 2004 (23.04.2004) US

(71) Applicant (for all designated States except US): **MANTA  
PRODUCT DEVELOPMENT, INC.** [US/US]; 265 Third  
Street, Cambridge, MA 02142 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **JONES, Andrew**  
[US/US]; 112 Beech Street, Roslindale, MA 02131 (US).  
**MILLER, Richard, L.** [US/US]; 5 North Hill Avenue,  
Needham, MA 02492 (US).

(74) Agent: **LOREN, Ralph, A.**; Palmer & Dodge LLP, 111  
Huntington Avenue, Boston, MA 02199-7613 (US).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,  
MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM,  
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM,  
SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN,  
YU, 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, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,  
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,  
GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:  
27 April 2006

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: SEALED CAPSULE INCLUDING AND INTEGRATED PUNCTURING MECHANISM

(57) Abstract: A sealed self-piercing capsule for storing and delivering a substance, such as a medicine, comprises one or more barrier layers forming a sealed chamber for containing the substance. An internal puncturing mechanism is disposed within the capsule chamber for puncturing a barrier layer to release the substance from the chamber. The internal puncturing mechanism may comprise a sharpened edge located on a movable tube, which moves relative to a barrier layer forming the sealed chamber to puncture the barrier layer.

WO 2005/107720 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/12944

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A01N 25/34  
 US CL : 424/408

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)  
 U.S. : 424/408

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 practicable, search terms used)  
 EAST - capsule, ((first with second with chamber), barrier, wall, (self with (punctur\$4 pierc\$4))

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4,601,896 (Nugent) 22 July 1986 (22.07.1986), entire patent.	1-40
A	US 2003/0187404 A1 (Waldenburg) 2 October 2003 (02.10.2003), entire patent.	1-40

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"T"
"A" document defining the general state of the art which is not considered to be of particular relevance	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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

22 December 2005 (22.12.2005)

Date of mailing of the international search report

19 JAN 2006

Name and mailing address of the ISA/US  
 Mail Stop PCT, Attn: ISA/US  
 Commissioner for Patents  
 P.O. Box 1450  
 Alexandria, Virginia 22313-1450  
 Facsimile No. (571) 273-8300

Authorized officer

Casey Hagopian

Telephone No. 571-272-6097