



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

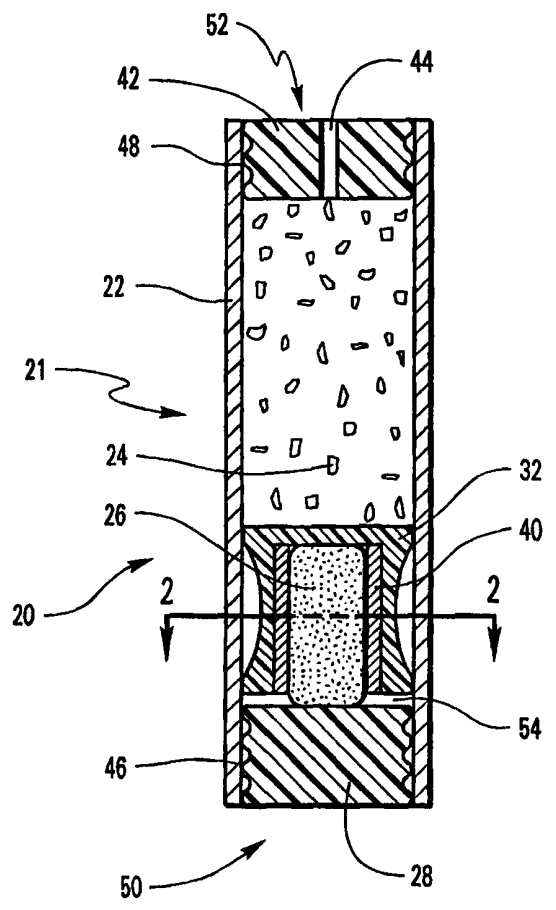
<p>(51) International Patent Classification ⁷ : A61K 9/00</p>	<p>A3</p>	<p>(11) International Publication Number: WO 00/40218 (43) International Publication Date: 13 July 2000 (13.07.00)</p>
--	-----------	---

<p>(21) International Application Number: PCT/US99/30783 (22) International Filing Date: 21 December 1999 (21.12.99) (30) Priority Data: 60/114,548 31 December 1998 (31.12.98) US (71) Applicant: ALZA CORPORATION [US/US]; 1900 Charleston Road, P.O. Box 7210, Mountain View, CA 94039-7210 (US). (72) Inventors: ECKENHOFF, Bonnie, J.; 1080 Autumn Lane, Los Altos, CA 94022 (US). THEEUWES, Felix; 27350 Altamont Road, Los Gatos, CA 94022 (US). ECKENHOFF, James, B. (deceased). (74) Agents: CLARKE, Pauline, Ann et al.; Alza Corporation, 1900 Charleston Road, P.O. Box 7210, Mountain Veiw, CA 94039-7210 (US).</p>	<p>(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, 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, SL, TJ, TM, TR, TT, TZ, 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).</p> <p>Published <i>With international search report.</i></p> <p>(88) Date of publication of the international search report: 9 November 2000 (09.11.00)</p>
--	---

(54) Title: OSMOTIC DELIVERY SYSTEM HAVING SPACE EFFICIENT PISTON

(57) Abstract

An osmotic delivery system having a space efficient piston. The capsule has an interior holding the piston, a beneficial agent, and an osmotic agent. The piston is movable with respect to an interior surface of the capsule, and defines a movable seal with the interior surface of the capsule. The movable seal separates the osmotic agent from the beneficial agent. The piston has a recess that receives at least a portion of the osmotic agent. The osmotic agent imbibes liquid from a surrounding environment through a semipermeable body to cause the piston to move and in turn cause delivery of the beneficial agent from the capsule.



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakistan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/30783

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 A61K9/00		
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) IPC 7 A61K		
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 practical, search terms used) WPI Data, PAJ, EPO-Internal		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 221 278 A (LINKWITZ ET AL.) 22 June 1993 (1993-06-22) column 5, line 12 - line 35 figure 1	1-25
A	----- GB 2 178 659 A (ALZA CORPORATION) 18 February 1987 (1987-02-18) page 4, line 61 - line 79 figure 3 -----	1-25
<input type="checkbox"/> Further documents are listed in the continuation of box C.		
<input checked="" type="checkbox"/> Patent family members are listed in 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 document 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 another 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 <p style="text-align: center; font-weight: bold;">6 July 2000</p>	Date of mailing of the international search report <p style="text-align: center; font-weight: bold;">13/07/2000</p>	
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer <p style="text-align: center; font-weight: bold;">Benz, K</p>	

INTERNATIONAL SEARCH REPORT

...formation on patent family members

Inter nal Application No PCT/US 99/30783
--

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5221278 A	22-06-1993	US 5318558 A	07-06-1994
GB 2178659 A	18-02-1987	US 4624945 A	25-11-1986
		AR 240399 A	30-04-1990
		AU 591511 B	07-12-1989
		AU 6069786 A	12-02-1987
		BE 905249 A	01-12-1986
		BR 8603678 A	10-03-1987
		CA 1278968 A	15-01-1991
		DE 3625915 A	19-02-1987
		ES 556303 D	16-10-1987
		ES 8800042 A	01-01-1988
		FR 2585950 A	13-02-1987
		IT 1195818 B	27-10-1988
		JP 2113257 C	21-11-1996
		JP 8018972 B	28-02-1996
		JP 62039518 A	20-02-1987
		MX 9203783 A	01-09-1992
		NL 8601971 A	02-03-1987
		NZ 216991 A	27-09-1989
		US 4927633 A	22-05-1990
		US 5000957 A	19-03-1991
		US 4717568 A	05-01-1988
		US 4717718 A	05-01-1988
		US 4772474 A	20-09-1988
		US 4729793 A	08-03-1988
		ZA 8605914 A	29-04-1987