## (19) World Intellectual Property Organization International Bureau





# (43) International Publication Date 6 January 2000 (06.01.2000)

## **PCT**

# (10) International Publication Number WO 00/00144 A3

(51) International Patent Classification<sup>7</sup>: A61F 13/42

(21) International Application Number: PCT/US99/14661

(22) International Filing Date: 29 June 1999 (29.06.1999)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: 09/106,424 29 June 1998 (29.06.1998) Us

(71) Applicant: THE PROCTER & GAMBLE COMPANY [US/US]; One Procter & Gamble Plaza, Cincinnati, OH 45202 (US).

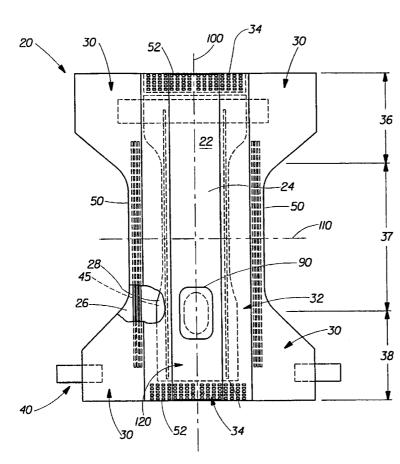
(72) Inventors: ROE, Donald, Carroll; 6324 Emberwood Court, West Chester, OH 45069 (US). ALLEN, Patrick, Jay; 8667 Arcturus Drive, Cincinnati, OH 45249 (US).

EHRNSPERGER, Bruno, Johannes; Westerbachstrasse 89, D-65936 Frankfurt am Main (DE). SCHMIDT, Matias; Altkoenigweg 3, D-65510 Idstein (DE). RONN, Karl, Patrick; 8055 Graves Road, Cincinnati, OH 45243 (US). KRUCHININ, Mikhail; Apartment 320, 11-1 Kupchinskay Avenue, Saint Petersburg, 192284 (RU). LITVIN, Simon, Solomonovich; 4 Kippy Drive, Newton, MA 02468 (US). KHOMJAKOV, Oleg, Nikolaevich; Apartment 27, 50 Zamshina Street, Saint Petersburg, 195271 (RU).

- (74) Agents: REED, T., David et al.; The Procter & Gamble Company, 5299 Spring Grove Avenue, Cincinnati, OH 45217-1087 (US).
- (81) Designated States (national): AE, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), 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,

[Continued on next page]

## (54) Title: DISPOSABLE ABSORBENT ARTICLE HAVING A DISCONTINUOUS RESPONSIVE SYSTEM



(57) Abstract: Disposable articles such as diapers, incontinent briefs, diaper holders and/or inserts, training pants, feminine hygiene garments, tampons, and the like, having a responsive system. The article includes a sensor that detects an input, an actuator that is adapted to perform a responsive function upon the input, and a feedback control loop in which the actuator is adapted to perform the responsive function upon the input in a discontinuous manner. The responsive system may include an open loop or a closed loop system.

WO 00/00144 A3



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.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, 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:

- with international search report
- (88) Date of publication of the international search report: 1 November 2001

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.

## INTERNATIONAL SEARCH REPORT

Int rational Application No Puri/US 99/14661

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 A61F13/42

According to International Patent Classification (IPC) or to both national classification and IPC

#### B. FIELDS SEARCHED

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)

х		
^	US 5 330 459 A (BECK THEODORA ET AL) 19 July 1994 (1994-07-19) cited in the application the whole document	1,2,4,9, 10,13, 14,17
x	WO 94 24974 A (COSTA ROGERIO ;MCNEIL PPC INC (US)) 10 November 1994 (1994-11-10) claims; figures	1,2,4,9, 10,12, 14,17
x	US 4 335 722 A (JACKSON DAVID M) 22 June 1982 (1982-06-22) the whole document	1,12,14, 17

χ Further documents are listed in the continuation of box C.	χ Patent family members are listed in annex.
"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 filling 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 filling date but fater 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	Date of mailing of the international search report
5 November 1999	11/11/1999
Name and mailing address of the ISA	Authorized officer
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	Mirza, A

2

## INTERNATIONAL SEARCH REPORT

International Application No
Pui/US 99/14661

		FC1/US 99/14001
•	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PATENT ABSTRACTS OF JAPAN vol. 014, no. 047 (C-0682), 29 January 1990 (1990-01-29) & JP 01 277558 A (SILVER RIHABIRITEESHIYON KYOKAI;OTHERS: 01), 8 November 1989 (1989-11-08) abstract	8
A	WO 96 20681 A (GERSTENZANG WILLIAM C ;SHUMINOV ASHER (IL)) 11 July 1996 (1996-07-11) abstract	8
P,X	WO 98 29079 A (KIMBERLY CLARK CO) 9 July 1998 (1998-07-09) claims; figures	1,2,14, 17
Ρ,Χ	WO 99 07317 A (KIMBERLY CLARK CO) 18 February 1999 (1999-02-18) claims; figures	1,2,10, 13,14,17

## INTERNATIONAL SEARCH REPORT

nformation on patent family members

International Application No
PUI/US 99/14661

	t document search report		Publication date		atent family member(s)	Publication date
US 53	30459	Α	19-07-1994	AT	161706 T	15-01-1998
				AU	6959094 A	17-01-1995
				CA	2165296 A	05-01-1995
				DE	69407786 D	12-02-1998
				DE	69407786 T	23-04-1998
				DK	705087 T	23-02-1998
				EP	0705087 A	10-04-1996
				ES	2111307 T	01-03-1998
				GR	3026375 T	30-06-1998
				JP	8511704 T	10-12-1996
				WO	9500090 A	05-01-1995
WO 94	24974	A	10-11-1994	BR	9301708 A	08-11-1994
				AU	6941794 A	21-11-1994
US 43	35722	Α	22-06-1982	NONE		
JP 01	.277558	Α	08-11-1989	NONE		
WO 96	20681	 A	11-07-1996	IL	112226 A	26-01-1999
			·•	ĀŪ	4649696 A	24-07-1996
				US	5808554 A	15-09-1998
WO 98	29079	Α	09-07-1998	AU	5729498 A	31 <b>-</b> 07-19 <b>9</b> 8
WO 99	07317	Α	18-02-1999	AU	8602698 A	01-03-1999