

(19) World Intellectual Property Organization
International Bureau



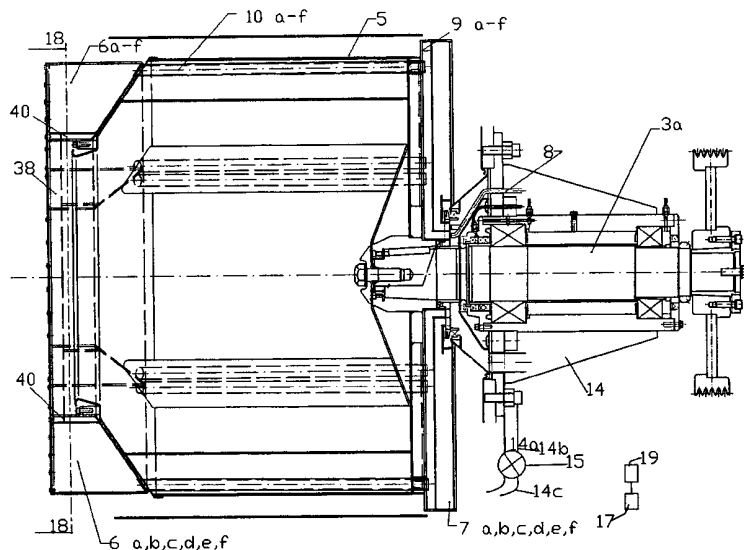
(43) International Publication Date
26 April 2001 (26.04.2001)

PCT

(10) International Publication Number
WO 01/29304 A3

- (51) International Patent Classification⁷: **D06F 37/22**
- (21) International Application Number: PCT/EP00/10429
- (22) International Filing Date: 20 October 2000 (20.10.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
9924832.0 21 October 1999 (21.10.1999) GB
00104591.3 15 March 2000 (15.03.2000) EP
- (71) Applicant (for all designated States except US): **PRIMUS N.V.** [BE/BE]; Heulestraat 51, B-8560 Gullegem (BE).
- (72) Inventor; and
(75) Inventor/Applicant (for US only): **HOORNAERT, Sigvard** [BE/BE]; Schansstraat 56, B-8930 Menen (BE).
- (74) Agents: **BIRD, Ariane** et al.; Bird Goën & Co., Vilvoordsebaan 92, B-3020 Winksele (BE).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, 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, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, 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).
- Published:
— with international search report
- (88) Date of publication of the international search report:
13 September 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.

(54) Title: SYSTEMS AND METHODS FOR BALANCING AN OBJECT ROTATING ABOUT AN AXIS



(57) Abstract: A machine is described which includes a rotating container (5), e.g. a washing machine. To balance the rotating container one or more chambers (6a to f) may be located on the outer rim of the container. These chambers may be filled with water to provide compensation for any out-of-balance forces. At least a portion of the water which is used for balancing is removed from the balancing chambers when the container no longer rotates and is stored (14) ready for use in the next operation cycle of the machine. Balancing chambers may be placed in two separate planes or in a single plane. To achieve this, each plane of balancing chambers has a separate water feed (8). The two planes of chambers may also have separate water extraction systems (9a to f). Injection of water can be triggered by the out-of-balance movement or out-of-balance forces exerted by the rotating container.



WO 01/29304 A3

INTERNATIONAL SEARCH REPORT

Intern. Patent Application No

PCT/EP 00/10429

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 D06F37/22

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 D06F

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2 791 917 A (F.J. KAHN) 14 May 1957 (1957-05-14) the whole document	1-6, 8-13, 15-20, 22
A	FR 986 259 A (L.M. KAHN) 30 July 1951 (1951-07-30) page 4, column 2, line 36 -page 5, column 1, line 13 page 14, column 1, line 37 - line 50 claims; figures	1-4, 7-11, 14, 25
A	US 5 280 660 A (PELLERIN MILNOR CORPORATION) 25 January 1994 (1994-01-25) cited in the application abstract; figures	1-4, 8-11
	-/--	

Further documents are listed in the continuation of box C.

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

9 April 2001

Date of mailing of the international search report

18/04/2001

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

Fairbanks, S

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 00/10429

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 856 604 A (FAGOR, S. COOP) 5 August 1998 (1998-08-05) cited in the application abstract; figures ---	1-4,8-11
A	WO 89 12132 A (AKTIEBOLAGET ELECTROLUX) 14 December 1989 (1989-12-14) cited in the application abstract; figures -----	1-4,8-11

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 00/10429

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2791917 A	14-05-1957	NONE	
FR 986259 A	30-07-1951	NONE	
US 5280660 A	25-01-1994	BE 1007939 A DE 4313819 A GB 2271172 A,B IT 1262320 B JP 2036098 C JP 6134205 A JP 7057284 B SE 9300471 A	21-11-1995 07-04-1994 06-04-1994 19-06-1996 28-03-1996 17-05-1994 21-06-1995 06-04-1994
EP 856604 A	05-08-1998	ES 2151332 A	16-12-2000
WO 8912132 A	14-12-1989	SE 461279 B AU 607338 B AU 3684889 A CA 1311934 A DE 68907322 D DE 68907322 T EP 0371116 A JP 2504483 T SE 8802011 A US 4991247 A	29-01-1990 28-02-1991 05-01-1990 29-12-1992 29-07-1993 20-01-1994 06-06-1990 20-12-1990 01-12-1989 12-02-1991