

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
10 November 2005 (10.11.2005)

PCT

(10) International Publication Number
WO 2005/105630 A3

- (51) International Patent Classification⁷: B65H 1/06, 3/52
(21) International Application Number: PCT/EP2005/004798
(22) International Filing Date: 3 May 2005 (03.05.2005)
(25) Filing Language: English
(26) Publication Language: English
(30) Priority Data: 10/837,903 3 May 2004 (03.05.2004) US
(71) Applicant (for all designated States except US): ZIH CORP.; Pearman Building, 3 Gorham Road, 3rd Floor, Hamilton HM 08 (BM).
(72) Inventors; and
(75) Inventors/Applicants (for US only): PELLETIER, Joel [FR/FR]; 17 Avenue Fond Leger, 49480 Saint Sylvan d'Anjou (FR). ZUMBIHL, Sylvain [FR/FR]; 13 rue de la Penissiere, 85610 Cugand (FR). BOISDON, Olivier [FR/FR]; 6 rue des acacias, 49170 Saint Leger des Bois (FR).
(74) Agents: SOMMERVELL, Thomas, Richard et al.; Marks & Clerk, Alpha Tower, Suffolk Street Queensway, Birmingham B1 1TT (GB).
(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).

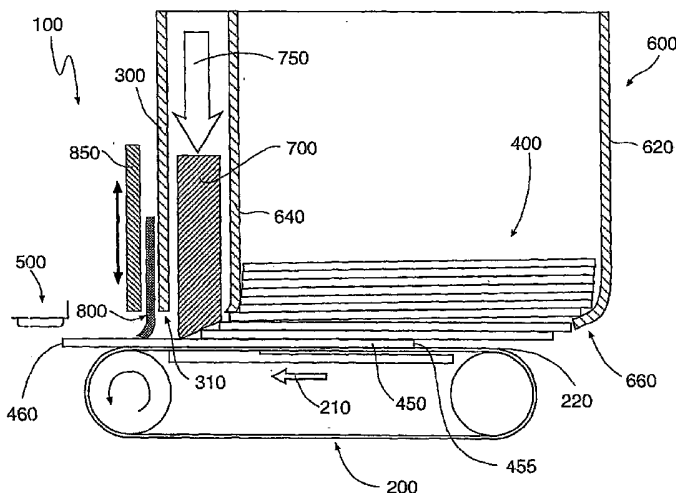
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

- (88) Date of publication of the international search report: 2 February 2006

[Continued on next page]

(54) Title: FEEDER DEVICE HAVING INCREASED MEDIA CAPACITY AND MULTIPLE MEDIA THICKNESS FEED CAPABILITY AND ASSOCIATED METHOD



(57) Abstract: A feeder device (100) is provided, comprising a drive mechanism (200) for driving a media unit in a feed direction, the media unit being provided from a stack (400) of media units by a hopper (600) including upstream and downstream hopper members (620, 640). A directing member (660) associated with the upstream hopper member (620) engages the trailing edge (455) of the media unit to direct the same to the drive mechanism, reduces an adhesive force between the media unit and remaining media units in the stack, and engages the trailing edge (455) of one other media unit to direct the same toward the downstream hopper member (640) and to partially support the weight of the remaining media units. A biased member (700) urges the media unit against the drive mechanism, thereby increasing a driving force on the media unit, and prevents remaining media units from being fed to the receiving apparatus, also reducing the adhesive force. Associated methods are also provided.

WO 2005/105630 A3



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

International Application No

PCT/EP2005/004798

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 B65H1/06 B65H3/52

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 B65H

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)

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 498 123 A (ALICEA ET AL) 12 March 1996 (1996-03-12) column 2, line 44 - line 50 column 6, line 7 - line 17; figures -----	1,2,9, 11-13, 29,30, 33,35
X	US 4 718 809 A (KRASUSKI ET AL) 12 January 1988 (1988-01-12) column 3, line 20 - line 27 column 3, line 40 - line 41 column 4, line 42 - column 5, line 4; figures ----- -/--	1-5,7,8, 10-16, 18,19, 21-32, 34-45

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.
- *Z* document member of the same patent family

Date of the actual completion of the international search

2 November 2005

Date of mailing of the international search report

24. 11. 05

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

Lemmen, R

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2005/004798

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 578 313 A (ROLF H. EPPINGER) 11 May 1971 (1971-05-11) column 1, line 17 - line 24 column 1, line 75 - column 2, line 12	1, 2, 29, 30, 45
Y	column 2, line 35 - line 46; figures -----	3, 6
Y	US 5 769 408 A (SELAKE ET AL) 23 June 1998 (1998-06-23)	3, 6
X	column 6, line 66 - column 7, line 8; figures -----	15-19, 21, 22, 36-39, 43, 44
X	US 4 653 742 A (SASAKI ET AL) 31 March 1987 (1987-03-31) figures -----	1, 15, 29, 36, 43-45
X	EP 1 179 496 A (PFANKUCH MASCHINEN GMBH) 13 February 2002 (2002-02-13) the whole document -----	1-7, 9, 11-13, 29-33, 35, 45
X	EP 0 200 922 A (MITSUBISHI JUKOGYO KABUSHIKI KAISHA) 12 November 1986 (1986-11-12) the whole document -----	1, 2, 11-13, 29, 30, 35
X	US 1 394 613 A (DRURY FREDERICK A) 25 October 1921 (1921-10-25) figures -----	1, 29
X	US 3 748 937 A (LONG J, CA) 31 July 1973 (1973-07-31) figures -----	1, 29
A	US 4 021 032 A (GROSS ET AL) 3 May 1977 (1977-05-03) figures -----	1, 29
X	EP 1 306 328 A (RICOH COMPANY, LTD) 2 May 2003 (2003-05-02) figures -----	15, 36, 43, 44
X	GB 2 032 397 A (NCR CORP) 8 May 1980 (1980-05-08) the whole document -----	15-19, 21, 22, 36-39, 43, 44
X	EP 0 543 559 A (NCR INTERNATIONAL INC; AT&T GLOBAL INFORMATION SOLUTIONS INTERNATIONAL) 26 May 1993 (1993-05-26) column 3, line 6 - line 13 column 5, line 42 - line 48; figures -----	15-22, 36-39, 43, 44
	----- -/--	

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2005/004798

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 714 841 A (ENGELMANN, MAURICE) 5 June 1996 (1996-06-05) figures	15-22, 28, 36-39, 43,44
X	DE 23 54 107 A1 (LICENTIA PATENT-VERWALTUNGS-GMBH) 7 May 1975 (1975-05-07) page 5; figure 1	15-22, 36-39, 43,44
X	US 1 637 833 A (MUELLER EMIL L) 2 August 1927 (1927-08-02) the whole document	15,36, 43,44
X	PATENT ABSTRACTS OF JAPAN vol. 009, no. 231 (M-414), 18 September 1985 (1985-09-18) & JP 60 087135 A (CANON KK; others: 01), 16 May 1985 (1985-05-16) abstract	15,36, 43,44
X	US 5 601 282 A (MILO ET AL) 11 February 1997 (1997-02-11) figures	15,36, 43,44
X	US 6 244 587 B1 (HERMANDER GOERAN) 12 June 2001 (2001-06-12) figures	15,36, 43,44

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2005/004798

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-14,29-35,45

Media unit feeder device with drive mechanism and a media unit hopper having opposing upstream and downstream hopper members wherein a directing member is operably engaged with the upstream hopper member

2. claims: 15-28,36-42,43,44

Media unit feeder device with a drive mechanism and a biased member disposed adjacent to the drive mechanism

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2005/004798

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5498123	A	12-03-1996	NONE	
US 4718809	A	12-01-1988	DE 3660537 D1 EP 0195348 A1 FR 2578808 A1	22-09-1988 24-09-1986 19-09-1986
US 3578313	A	11-05-1971	BE 746433 A1 CA 919719 A1 DE 2008236 A1 FR 2032644 A5 GB 1291044 A JP 51006559 B	31-07-1970 23-01-1973 03-09-1970 27-11-1970 27-09-1972 28-02-1976
US 5769408	A	23-06-1998	NONE	
US 4653742	A	31-03-1987	KR 8900910 B1	13-04-1989
EP 1179496	A	13-02-2002	DE 20009086 U1 US 6416047 B1	27-09-2001 09-07-2002
EP 0200922	A	12-11-1986	DE 3664310 D1 JP 61168036 U	17-08-1989 18-10-1986
US 1394613	A	25-10-1921	NONE	
US 3748937	A	31-07-1973	DE 2232169 A1 GB 1365112 A	18-01-1973 29-08-1974
US 4021032	A	03-05-1977	NONE	
EP 1306328	A	02-05-2003	US 2003085508 A1	08-05-2003
GB 2032397	A	08-05-1980	DE 2840430 A1	27-03-1980
EP 0543559	A	26-05-1993	DE 69201855 D1 DE 69201855 T2 JP 5306028 A	04-05-1995 23-11-1995 19-11-1993
EP 0714841	A	05-06-1996	AT 178557 T DE 69417752 D1 DE 69417752 T2	15-04-1999 12-05-1999 11-11-1999
DE 2354107	A1	07-05-1975	NONE	
US 1637833	A	02-08-1927	NONE	
JP 60087135	A	16-05-1985	JP 1802661 C JP 5012253 B	26-11-1993 17-02-1993
US 5601282	A	11-02-1997	NONE	
US 6244587	B1	12-06-2001	DE 69719226 D1 EP 1009700 A1 SE 507979 C2 SE 9604388 A WO 9823512 A1	27-03-2003 21-06-2000 03-08-1998 29-05-1998 04-06-1998