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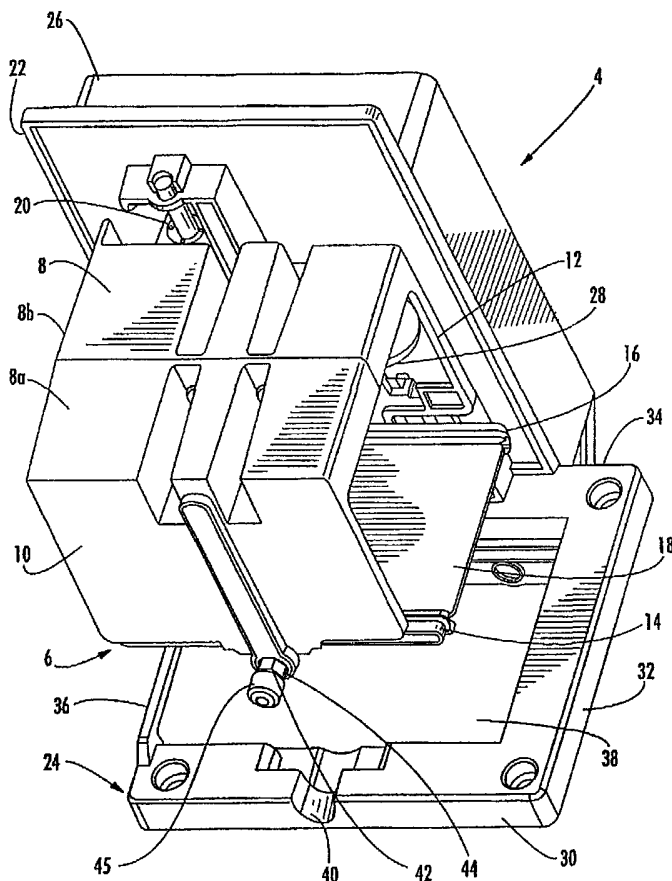
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10/807,657 24 March 2004 (24.03.2004) US
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- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, 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, 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, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: CARD-FLIPPING DEVICE FOR USE IN CARD PRINTERS



(57) Abstract: A card-flipping device (4) for a card printing apparatus is provided. The card-flipping device comprises a card-carrier unit (6) for transporting the card (18) in a vertical direction, a motor drive means (21) for moving the unit in the vertical direction, and an actuator assembly (28) including a rotatable cam arm (46) for flipping the card over. The card-flipping device is particularly suitable for use in thermal dye printers that print images on card substrates such as driver's licenses, employee badges, student cards, and the like. After one surface of the card has been printed, the card is conveyed to the card-flipping device, where the card is flipped over so that the reverse, unprinted side of the card can be printed thereon.

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**INTERNATIONAL SEARCH REPORT**

International Application No  
PCT/US2004/027279

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC 7 B41J13/12 B65H15/00 B41J11/00

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 B41J 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
A	US 5 966 160 A (NARDONE EDWARD A ET AL) 12 October 1999 (1999-10-12) cited in the application column 10, line 17 - column 11, line 40; figures 17-20	1-33
A	US 6 105 493 A (FLITSCH TIMOTHY J ET AL) 22 August 2000 (2000-08-22) column 4, line 30 - line 53; figure 2	1-33
A	US 5 771 058 A (KOBAYASHI TAKEHITO) 23 June 1998 (1998-06-23) cited in the application	1-33
X	abstract; figures 3,7A-7C column 5, line 10 - line 18	34
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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	*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
*E* earlier document but 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  16 March 2005	Date of mailing of the international search report  15. 04. 2005
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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  Urbaniec, T
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## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US2004/027279

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
A	US 6 279 901 B1 (FULMER GARY B) 28 August 2001 (2001-08-28) cited in the application	1-33
X	the whole document column 3, line 42 - line 44 -----	34
X	PATENT ABSTRACTS OF JAPAN vol. 0060, no. 46 (P-107), 24 March 1982 (1982-03-24) & JP 56 162185 A (FUJITSU LTD), 12 December 1981 (1981-12-12)	32-34
A	abstract -----	35-37
X	PATENT ABSTRACTS OF JAPAN vol. 017, no. 696 (P-1664), 20 December 1993 (1993-12-20) & JP 05 233891 A (ZEXEL CORP), 10 September 1993 (1993-09-10)	34
A	abstract -----	35-37

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2004/027279

## 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: 1-33

A device and a method for flipping the media in a printer  
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2. claims: 34-37

A carrier for holding and transporting a card  
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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No  
PCT/US2004/027279

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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