(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 983 855 A3

(12) EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
02.08.2000 Bulletin 2000/31

(43) Date of publication A2:
08.03.2000 Bulletin 2000/10

(21) Application number: **99306367.6**

(22) Date of filing: **12.08.1999**

(51) Int Cl.[7]: **B41J 2/165**, B41J 2/21

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **31.08.1998 US 144577**

(71) Applicant: **Hewlett-Packard Company**
Palo Alto, California 94304 (US)

(72) Inventor: **Eckard, Bruce Michael**
Cardiff, CA 92007 (US)

(74) Representative: **Colgan, Stephen James et al**
CARPMAELS & RANSFORD
43 Bloomsbury Square
London WC1A 2RA (GB)

(54) Dot substitution to compensate for failed ink jet nozzles

(57) An ink jet printer and a method of operating an ink jet printer wherein inoperative true black printing nozzles are detected, and substitute dots formed of non-black are printed at pixel locations that normally would be printed with the inoperative true black printing nozzles if such nozzles were operative. Each substitute dot comprises one or more constituent non-black dots, and in accordance with one implementation, each substituted dot comprises a composite or process black dot formed of two or three of cyan, magenta or yellow inks.

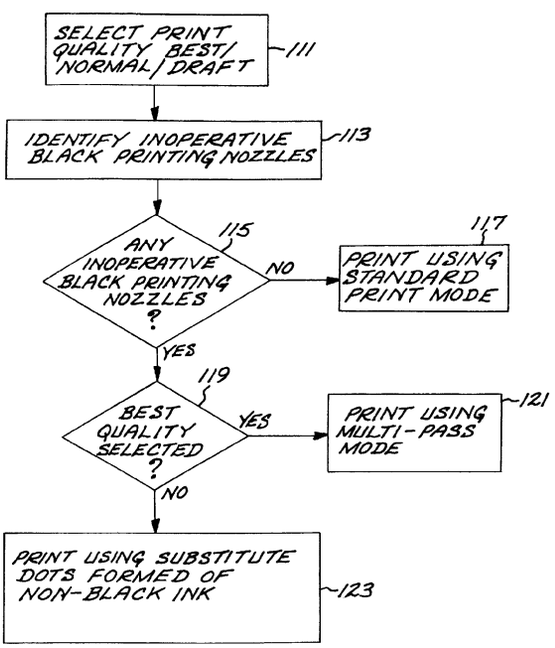


FIG. 8

EP 0 983 855 A3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 99 30 6367

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X Y	US 5 581 284 A (HERMANSON HERMAN A) 3 December 1996 (1996-12-03) * column 2, line 52 - column 6, line 49; figures *	1-13 14-18	B41J2/165 B41J2/21
Y	EP 0 694 396 A (CANON KK) 31 January 1996 (1996-01-31) * column 8, line 4 - column 27, line 10; figures 1-13 *	14-18	
A	US 5 124 720 A (SCHANTZ CHRISTOPHER A) 23 June 1992 (1992-06-23) * column 3, line 10 - column 7, line 34 *	1,14	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

B41J

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	13 June 2000	De Groot, R

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 99 30 6367

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

13-06-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5581284 A	03-12-1996	JP 8207321 A	13-08-1996
EP 0694396 A	31-01-1996	JP 8025700 A	30-01-1996
		CA 2154208 A	22-01-1996
		CN 1121000 A	24-04-1996
		KR 161791 B	30-03-1999
		SG 35001 A	01-02-1997
US 5124720 A	23-06-1992	JP 4226772 A	17-08-1992

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82