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

(11) EP 1 152 299 A3

(12) EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
29.12.2004 Bulletin 2004/53

(43) Date of publication A2:
07.11.2001 Bulletin 2001/45

(21) Application number: **00125830.0**

(22) Date of filing: **24.11.2000**

(51) Int Cl.[7]: **G03G 15/01**

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

(30) Priority: **02.05.2000 US 562790**

(71) Applicant: **Hewlett-Packard Company,**
A Delaware Corporation
Palo Alto, CA 94304 (US)

(72) Inventors:
- **Keithley, Douglas G.**
  Boise, ID 83713 (US)
- **Johnson, Laura K.**
  Boise, ID 83706 (US)

(74) Representative: **Schoppe, Fritz, Dipl.-Ing.**
Schoppe, Zimmermann, Stöckeler & Zinkler
Patentanwälte
Postfach 246
82043 Pullach bei München (DE)

(54) Color laser printer apparatus

(57) A method and apparatus for an electrophotographic color printer (200, 300, 400, 500). The method of developing a color image onto a photoconductor (212, 214, 312, 314, 316, 412, 414, 416, 512, 514) includes providing at least two photoconductors (212, 214, 312, 314, 316, 412, 414, 416, 512, 514) and at least three developing stations (231, 232, 233, 331, 332, 333, 334, 431, 432, 433, 434, 435, 436, 531, 532, 533, 534, 535) such that the number of developing (231, 232, 233, 331, 332, 333, 334, 431, 432, 433, 434, 435, 436, 531, 532, 533, 534, 535) stations is greater than the number of photoconductors (212, 214, 312, 314, 316, 412, 414, 416, 512, 514). The method also includes discharging the photoconductors (212, 214, 312, 314, 316, 412, 414, 416, 512, 514) so as to produce at least two patterns on at least one photoconductor and at least one pattern on at least one photoconductor, then developing each pattern with a respective toner and combining the patterns to form a multi-color finished image.

The invention further includes an apparatus (500) for performing four-color laser printing, including dot-on-dot printing, using five developing stations (535, 532, 533, 534, 535) and only two photoconductors (512, 514). The apparatus (500) includes at least two photoconductors (512, 514), and at least three developing stations (531, 532, 533, 534, 535), such that at least one photoconductor has at least two developing stations associated therewith. The invention also includes an apparatus (400) which produces color images of increased quality by using six toners, including light and dark tints of two colors, and no more than three photoconductors (412, 414, 416).

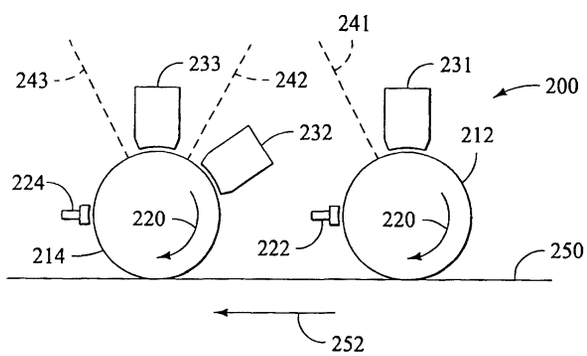


FIG.5

EP 1 152 299 A3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 12 5830

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	US 6 013 403 A (ICHIKAWA JUNICHI) 11 January 2000 (2000-01-11) * column 5, line 19 - column 6, line 67; figures 2,11 * * column 11, line 19 - column 12, line 43 * -----	1-10	G03G15/01 G03G15/01 G03G13/09 H04N1/40 G03G13/01
A	EP 0 798 608 A (KONISHIROKU PHOTO IND) 1 October 1997 (1997-10-01) * column 3, line 43 - column 12, line 40; figures 1,4,11-13 * -----	1,7	
A	PATENT ABSTRACTS OF JAPAN vol. 0173, no. 23 (P-1559), 18 June 1993 (1993-06-18) & JP 5 035038 A (CANON INC), 12 February 1993 (1993-02-12) * abstract; figure 1 * -----	1,7	
A	PATENT ABSTRACTS OF JAPAN vol. 0112, no. 98 (P-620), 26 September 1987 (1987-09-26) & JP 62 090679 A (RICOH CO LTD), 25 April 1987 (1987-04-25) * abstract * -----	1,7	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

G03G
H04N

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	10 November 2004	Borowski, M

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 00 12 5830

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.

10-11-2004

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6013403 A	11-01-2000	JP 11084764 A	30-03-1999
EP 0798608 A	01-10-1997	EP 0798608 A2	01-10-1997
		JP 9319167 A	12-12-1997
		US 5761573 A	02-06-1998
JP 5035038 A	12-02-1993	NONE	
JP 62090679 A	25-04-1987	NONE	

EPO FORM P0459

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