

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
16 February 2006 (16.02.2006)

PCT

(10) International Publication Number  
**WO 2006/016114 A1**

(51) International Patent Classification<sup>7</sup>: **G06F 17/30**,  
G07D 7/20

(21) International Application Number:  
PCT/GB2005/003003

(22) International Filing Date: 29 July 2005 (29.07.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0418173.1 13 August 2004 (13.08.2004) GB  
60/601,500 13 August 2004 (13.08.2004) 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, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, 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.

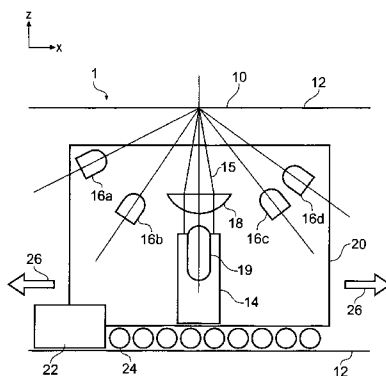
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, 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

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(54) Title: AUTHENTICITY VERIFICATION OF ARTICLES USING A DATABASES



(57) Abstract: A digital signature is obtained by digitising a set of data points obtained by scanning a coherent beam over a paper, cardboard or other article, and measuring the scatter. A thumbnail digital signature is also determined by digitising an amplitude spectrum of a Fourier transform of the set of data points. A database of digital signatures and their thumbnails can thus be built up. The authenticity of an article can later be verified by re-scanning the article to determine its digital signature and thumbnail, and then searching the database for a match. Searching is done on the basis of the Fourier transform thumbnail to improve search speed. Speed is improved, since, in a pseudo-random bit sequence, any bit shift only affects the phase spectrum, and not the amplitude spectrum, of a Fourier transform represented in polar coordinates. The amplitude spectrum stored in the thumbnail can therefore be matched without any knowledge of the unknown bit shift caused by registry errors between the original scan and the re-scan.

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