

(19) World Intellectual Property Organization
International Bureau



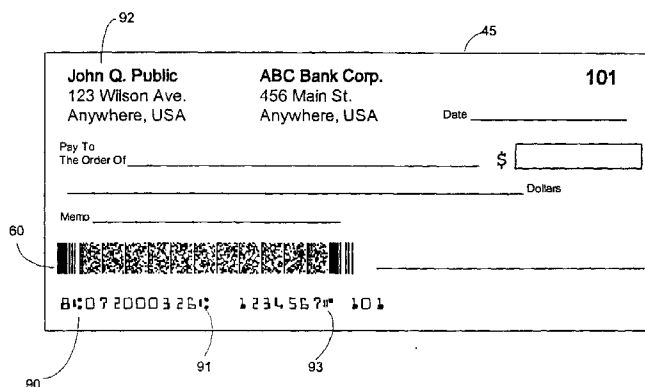
(43) International Publication Date
16 May 2002 (16.05.2002)

PCT

(10) International Publication Number
WO 02/039653 A3

- (51) International Patent Classification⁷: **G07D 7/00** (74) Agents: **STARR, Mark, T.** et al.; Unisys Corporation, Township Line & Union Meeting Roads, P.O. Box 500, Blue Bell, PA 19424-0001 (US).
- (21) International Application Number: PCT/US01/45604
- (22) International Filing Date: 2 November 2001 (02.11.2001) (81) Designated States (*national*): AU, BR, CA, CN, JP, SG.
- (25) Filing Language: English (84) Designated States (*regional*): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).
- (26) Publication Language: English
- (30) Priority Data: 09/707,433 7 November 2000 (07.11.2000) US Published: — with international search report
- (71) Applicant: **UNISYS COPORATION** [US/US]; Township Line and Union Meeting Roads, P.O. Box 500, Blue Bell, PA 19424-0001 (US). (88) Date of publication of the international search report: 17 April 2003
- (72) Inventors: **GEIST, Bruce, K.**; 42184 Willsharon Street, Sterling Heights, MI 43814 (US). **HAYOSH, Thomas, D.**; 2508 Aspen Lane, Bloomfield Hills, MI 48302 (US). 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.

(54) Title: SELF-AUTHENTICATION OF VALUE DOCUMENTS USING DIGITAL SIGNATURES



(57) Abstract: An encryption-free technique for enabling the self-authentication of value documents (including personal and commercial checks) presented at a point of purchase or financial institution. Certain data contained on the value document may be signed with a first digital signature and authenticated with a public key certificate issued from a trusted certificate authority. The signed data and public key certificate are stored on the value document, preferably in a two-dimensional bar code data format. In the case of certain personal value documents (such as checks, credit cards, passports, birth certificates, Social Security cards, etc.), a unique personal identification number (PIN) also may be included in the document data that is signed by a second digital signature. At a point of purchase, a merchant or teller can scan and read the data stored in the two-dimensional bar code and other magnetically recorded information, and together with the PIN the customer provides, can authenticate the value document thus presented using the second digital signature. Alternatively, if the customer is not present, if the personal value document contains the second digital signature, the document may be verified using a PIN-generating algorithm or other method that generates all permutations of PINs. The first digital signature alone may be used to authenticate selected data within the personal value document even when the PIN is not available. Similarly, in the case of a commercial value documents, authentication of pre-printed data may be based entirely upon only the first digital signature.