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13/104,535 10 May 2011 (10.05.2011) US(71) Applicant (for all designated States except US): **SOFT-LAYER TECHNOLOGIES, INC.** [US/US]; 4849 Alpha Road, Dallas, TX 75244 (US).(72) Inventor: **LEE, Chang**; 924 Sloan Drive, Allen, TX 75013 (US).(74) Agent: **GAMBINO, Darius C.**; DLA Piper LLP (US), One Liberty Place, 1650 Market Street, Suite 4900, Philadelphia, PA 19103 (US).

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— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

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(54) Title: SYSTEM AND METHOD FOR WEB-BASED SECURITY AUTHENTICATION

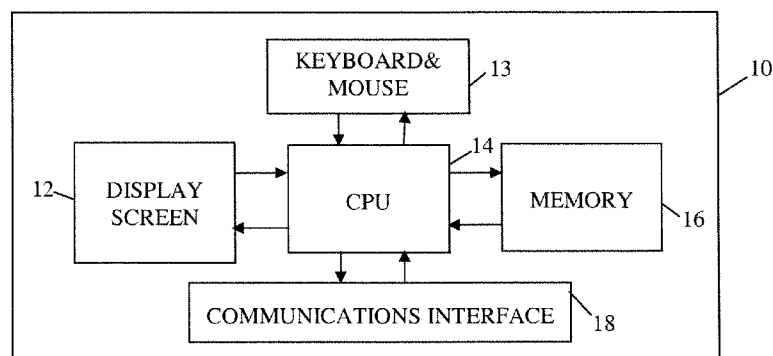


FIG. 1

(57) **Abstract:** A security authentication method comprises establishing a user account associated with a login credential, generating an encryption salt, generating graphical key images of a plurality of sequences of values each beginning at a random point, generating encrypted key values by encrypting each value in the plurality of sequences using the generated encryption salt, incorporating the graphical key images and encrypted key values into a displayable input form, receiving user input including a plurality of encrypted key values, generating decrypted key values by decrypting the encrypted key values of the user input using the encryption salt, and verifying that the decrypted key values match the login credential.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 12/37353

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - H04L 9/08 (2013.01)

USPC - 380/283

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)

USPC: 380/283

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

IPC(8): H04L 9/08 (2013.01)

USPC: 380/277, 278, 283, 255, 258; 700/90; 713/150, 168, 171; 705/1.1, 50, 64, 71

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PatBase; Google Patents; Google Scholar; Search Terms: Encryption, cryptography, hash, salt, random number, authentication, request, CAPTCHA, key, image, symmetric key, decrypt, server, user, password, credentials, login, authorize, URL, identifier, web-based security, representation, graphic, display, input, interface

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- Y	US 2008/0250481 A1 (Beck et al.) 09 October 2008 (09.10.2008) entire document, especially para [0015], [0024]-[0025], [0048], fig. 1 and fig. 6	1-2, 8-9, 13 ----- 3-7, 10-12, 14
Y	US 2009/0319782 A1 (Lee) 24 December 2009 (24.12.2009) para [0105], [0183]	3-4, 10-12, 14
Y	US 2009/0150983 A1 (Saxena et al.) 11 June 2009 (11.06.2009), para [0009], [0021]-[0023], [0029]-[0030]	5-7
Y	US 2009/0271854 A1 (Hazlehurst et al.) 29 October 2009 (29.10.2009), para [0055]	7
A	US 2006/0020815 A1 (Varghese et al.) 26 January 2006 (26.01.2006), entire document, especially para [0057] and fig. 11-12.	1-14
A	US 2008/0263361 A1 (Dutta et al.) 23 October 2008 (23.10.2008) entire document	1-14

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"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

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