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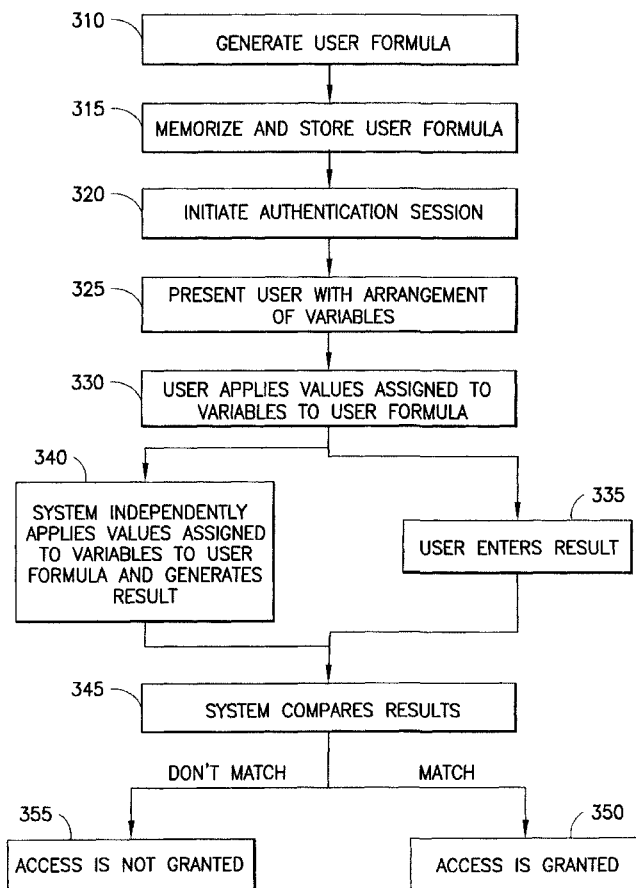
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[Continued on next page]

(54) **Title:** USER AUTHENTICATION SYSTEM AND METHOD



(57) **Abstract:** A method of authenticating a user for access includes creating an authentication key in the form of a user formula selected from a set of variables and operations provided by the authentication system, storing the user formula in the authentication system, utilizing a display to present the user with an arrangement of variables generated by the authentication system including the variables of the user formula, each assigned a value, applying the assigned values to matching variables in the user formula and calculating a first result, interspersing one or more additional characters among the characters of the first result, and conveying the first result with the additional characters to the authentication system. The authentication system authenticates the user if the number of additional characters conveyed with the first result is below a predetermined threshold and the first result matches a second result of a separate and independent calculation of the user formula by the authentication system.

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**A CLASSIFICATION OF SUBJECT MATTER**  
 IPC(8) - G06F 17/30 (2008.04)  
 USPC - 726/2  
 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 726/2

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
 USPC 380/44,46,277, 708/131.135,139, 709/227,229, 713/155,159,168,172,182,184, 726/2,3,4,5,7,19,21

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
 Electronic Databases Searched USPTO WEST (PGPUB.USPAT.USOCR.EPAB.JPAB), GOOGLE Patents, DIALOG PRO  
 Search Terms Used user/resource authentication formula, 2fa/tfa/two/multi factor authentication, strong authentication, decoy/dummy character/digit pin/password/passphrase input GUI, network authentication token, etc

**C DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X	US 2005/01 14675 A 1 (GINZBURG) 26 May 2005 (26 05 2005) abstract, para [0002]-[0014],[0024]-[0083]	1-39
A	US 2005/0246138 A 1 (PARK) 03 November 2005 (03 11 2005) Entire Document	1-39
A	US 6,990,586 B 1 (TRESSER et al) 24 January 2006 (24 01 2006) Entire Document	1-39

1 Further documents are listed in the continuation of Box C 1

- \* Special categories of cited documents
- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on novelty claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
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- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "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
- "&" document member of the same patent family

Date of the actual completion of the international search 27 May 2008 (27 05 2008)	Date of mailing of the international search report <b>05 JUN 2008</b>
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