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(54) Title: BLOCKCHAIN-BASED TRUSTABLE GUARANTEES

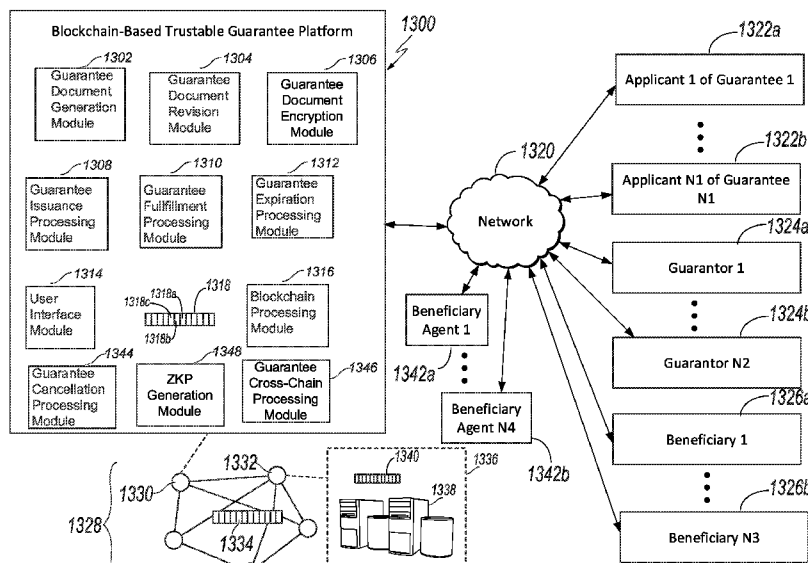


FIG. 13

(57) Abstract: Disclosed herein are methods, systems, and apparatus, including computer programs encoded on computer storage media, for processing blockchain-based guarantee information. One of the methods includes receiving a cyphertext of a digital document specifying a guarantee from a first computing device associated with a first guarantor and one or more zero-knowledge proofs (ZKPs) related to one or more values associated with the guarantee; verifying that the one or more ZKPs are correct; upon verifying that the one or more ZKPs are correct, storing the cyphertext to a blockchain based on performing a consensus algorithm; receiving a first message from a second computing device associated with a beneficiary or a representative of the beneficiary, the first message including an acceptance of the guarantee by the beneficiary; and updating a status of the guarantee to indicate that the guarantee has been accepted by the beneficiary.

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OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

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INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER G06F 21/60(2013.01)i 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) G06F, G06Q Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) CNPAT, CNKI, WPI, EPODOC: authentication, transfer, identify, proof, node, blockchain, guarantee, cyphertext, modify, ZKP		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2019251553 A1 (ALIBABA GROUP HOLDING LTD.) 15 August 2019 (2019-08-15) description, paragraphs [0020]-[0076]	1-13
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A	US 2009271618 A1 (INTERNATIONAL BUSINESS MACHINES CORPORATION) 29 October 2009 (2009-10-29) the whole document	1-13
A	CN 109614820 A (SHANDONG UNIVERSITY) 12 April 2019 (2019-04-12) the whole document	1-13
A	US 2019205898 A1 (CHRONICLED, INC.) 04 July 2019 (2019-07-04) the whole document	1-13
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
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Date of the actual completion of the international search 22 October 2020		Date of mailing of the international search report 17 November 2020
Name and mailing address of the ISA/CN National Intellectual Property Administration, PRC 6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing 100088 China Facsimile No. (86-10)62019451		Authorized officer ZHAO,Xiaomin Telephone No. 86-(10)-53961332

INTERNATIONAL SEARCH REPORT
Information on patent family members

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