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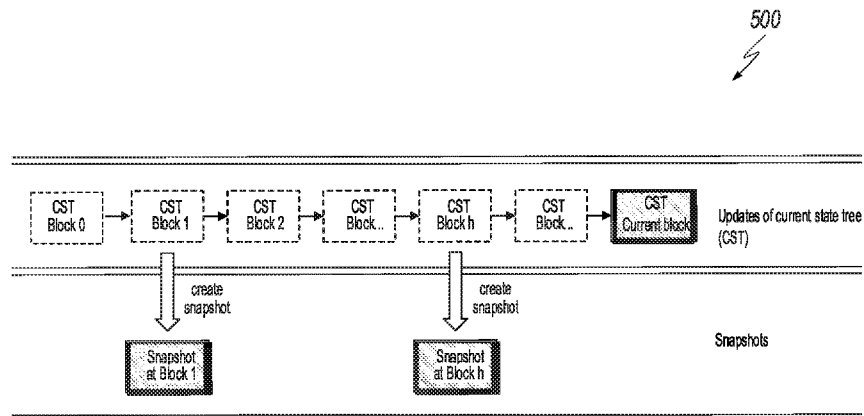


FIG. 5

(57) Abstract: Disclosed herein are methods, systems, and apparatus, including computer programs encoded on computer storage media, for blockchain data storage. One of the methods includes generating a snapshot of a current state tree associated with a fixed depth Merkle tree (FDMT) during creation of a block of a blockchain, wherein the current state tree stores state information corresponding to a newest block of the blockchain, and storing the snapshot of the current state tree.



## INTERNATIONAL SEARCH REPORT

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<b>A. CLASSIFICATION OF SUBJECT MATTER</b> G06F 11/14(2006.01)i  According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) G06F  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) WPI;EPODOC;CNPAT;CNKI;IEEE:blockchain,data,storage,snapshot,current,state, fix,depth,tree,merkle,creation,newest,block,FDMT,MPT		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2018089041 A1 (MCAFEE, INC.) 29 March 2018 (2018-03-29) description, paragraphs 0013-0080	1-12
A	EP 3518459 A1 (HEWLETT PACKARD ENTERPRISE DEVELOPMENT LP) 31 July 2019 (2019-07-31) the whole document	1-12
A	US 2019220603 A1 (INTEL CORPORATION) 18 July 2019 (2019-07-18) the whole document	1-12
A	US 2019363874 A1 (DAPPER LABS INC.) 28 November 2019 (2019-11-28) the whole document	1-12
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
<p>* Special categories of cited documents:</p> <p>“A” document defining the general state of the art which is not considered to be of particular relevance</p> <p>“E” earlier application or patent but published on or after the international filing date</p> <p>“L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>“O” document referring to an oral disclosure, use, exhibition or other means</p> <p>“P” document published prior to the international filing date but later than the priority date claimed</p> <p>“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</p> <p>“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</p> <p>“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</p> <p>“&amp;” document member of the same patent family</p>		
Date of the actual completion of the international search <b>15 August 2020</b>		Date of mailing of the international search report <b>01 September 2020</b>
Name and mailing address of the ISA/CN <b>National Intellectual Property Administration, PRC 6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing 100088 China</b> Facsimile No. (86-10)62019451		Authorized officer <b>LI,Meng</b>  Telephone No. 86-(10)-53961536

**INTERNATIONAL SEARCH REPORT**  
**Information on patent family members**

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US	2019363874	A1	28 November 2019	None			
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