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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/078,768	03/23/2016	John Everett Creighton IV	114872-8002.US01	5959
22918	7590	05/23/2019	EXAMINER	
PERKINS COIE LLP - PAO General P.O. BOX 1247 SEATTLE, WA 98111-1247			NORMAN, SAMICA L.	
			ART UNIT	PAPER NUMBER
			3697	
			NOTIFICATION DATE	DELIVERY MODE
			05/23/2019	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentprocurement@perkinscoie.com

Office Action Summary

Application No.

15/078,768

Applicant(s)

Creighton et al.

Examiner

SAMICA L NORMAN

Art Unit

3697

AIA (FITF) Status

Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 07 May 2019.
 A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
- 4) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

- 5) Claim(s) 1-13 and 21-42 is/are pending in the application.
5a) Of the above claim(s) 21-42 is/are withdrawn from consideration.
- 6) Claim(s) 1-4 is/are allowed.
- 7) Claim(s) 5-13 is/are rejected.
- 8) Claim(s) _____ is/are objected to.
- 9) Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) The specification is objected to by the Examiner.
- 11) The drawing(s) filed on 23 March 2016 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) All b) Some** c) None of the:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date _____
- 3) Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 4) Other: _____

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

***NOTE: Please correct the Application No. that is being used in the header of your Remarks.**

Election/Restrictions

Newly submitted claims 21-42 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the claims are directed to nonelected Invention II which are now cancelled.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 21-42 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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Claims 5-13 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. **Claim 5** is directed to a method that is not (1) **tied to another statutory class of invention (such as a particular apparatus)** nor (2) **transforms underlying subject matter (such as an article or materials) to a different state or thing** (see at least *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876)). A method claim that fails to meet one of the above requirements is not in compliance with the statutory requirements of 35 U.S.C. 101 for patent eligible subject matter

Response to Arguments

Applicant's arguments filed 5/7/2019 have been fully considered but they are not persuasive.

Applicant argues “claim 5 has been amended to clarify that the claimed invention is a computer implemented method wherein the various steps are performed by specific components.” Applicant added software to claim 5. Software is not in a statutory class nor does it transform the subject matter to a different state.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached PTO-892 Notice of References cited.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **SAMICA L NORMAN** whose telephone number is (571)270-1371. The examiner can normally be reached on **Mon-Thur 9:30am-8p EST, with Fri off**.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry O'Connor can be reached on (571) 272-6787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SAMICA L. NORMAN
Primary Examiner
Art Unit 3697

/SAMICA L NORMAN/
Primary Examiner, Art Unit 3697

REMARKS

Reconsideration of the present application is respectfully requested.

Summary of Office Action

Elections/Restrictions

Newly submitted claims 21-42 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the claims are directed to nonelected invention II which are now cancelled.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 21-42 are withdrawn from consideration as being directed to a non-elected invention.

Rejections Under 35 U.S.C. §101

Claims 1-13 stand rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Summary of Amendments

Claims 1-13 and 21-42 were pending prior to entering the amendments. Claims 1-4 are allowed. Claims 5-13 stand rejected. Claims 21-42 stand canceled. No new matter has been added. Accordingly, claims 1-13 are pending in the present application.

Discussion of Objections and Rejections

Applicant respectfully traverses the objections and rejections.

Rejections Under 35 U.S.C. §101

Claims 5-13 stand rejected under 35 U.S.C. §101 because, allegedly, the claim is directed to non-statutory subject matter because they do not fall within at least one of the four categories of patent eligible subject matter. Applicant respectfully traverses the

rejection. Applicant submits that claim 5 has been amended to clarify that the claimed invention is a method performed by a processor for implementing an append-only cryptographic ledger and various other components. For at least the reasons provided, Applicant submits that the grounds for the rejections are no longer applicable. Therefore, withdrawal of the rejections is respectfully requested.

Applicant has not necessarily discussed here every reason why every pending independent claim is patentable over the cited art; nonetheless, Applicant is not waiving any argument regarding any such reason or reasons. Applicant reserves the right to raise any such additional argument(s) during the future prosecution of this application.

Dependent Claims

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicant's silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

Reservation of Rights

For the sake of conciseness and clarity, Applicant may not have addressed every assertion or rejection made in the Office Action, particularly where Applicant has presented amendments or arguments that Applicant believes render such assertions/rejections moot. Therefore, Applicant's silence regarding any such assertions or rejections does not constitute an admission or acquiescence regarding such assertions/rejections or a waiver of any argument relating to such assertions/rejections. Applicant reserves the right to challenge at a later time any rejection or any factual or legal assertion made by the Office in relation to the present application. Applicant does not admit that any of the references cited in the Office Action are prior art. Applicant reserves the right to swear behind any cited reference at a later date, to the extent permitted by law.

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, Applicant is not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. Applicant reserves the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that Applicants have made any disclaimers or disavowals of any subject matter supported by the present application.

CONCLUSION

If Examiner Norman believes that a conference would be of value in expediting prosecution of the present application, she is invited to contact the undersigned counsel to arrange for such a conference.

Applicants believe no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 50-0665 under Order No. 114872-8002.US01.

Dated: August 13, 2019

Respectfully submitted,

By: /BL/

Ben Liu

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Attorney for Applicant

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. (Previously Presented) A system for processing securities transactions, the system comprising:
 - a processor for implementing an append-only cryptographic ledger;
 - a signature verifier operating in parallel with other signature verifiers that receives transaction records for the append-only cryptographic ledger, each transaction record including transaction data, a public key, and a signature key where the public and signature keys are cryptographically related and the signature verifier verifies the a cryptographic relationship between the public key and the signature key;
 - a transaction batcher that receives verified transactions from the signature verifier and compresses and batches a number of verified transactions;
 - a transaction block maker operating in parallel with other transaction block makers which each generate transaction blocks identified by hash values which are the a Merkle root of batched verified transactions for appending to the append-only cryptographic ledger and the hash value of a previous metadata block; and
 - a metadata block maker which generates metadata blocks identified by hash values, the hash value includes the Merkle root of the hash values of a most recent set of transaction blocks.

2. (Previously Presented) The system of claim 1, wherein the transaction batcher is triggered to compress and batch verified transactions once a predetermined number of verified transactions are received thereto.

3. (Previously Presented) The system of claim 1, wherein the transaction batcher is triggered to compress and batch verified transactions once a predetermined time has elapsed.

4. (Previously Presented) The system of claim 1, the transaction block makers and the metadata block maker alternate operations so blocks appended to the append-only cryptographic ledger alternate between a metadata block, and a plurality of transaction blocks.

5. (Currently Amended) A ~~computer-implemented~~ method of operating a distributed system architecture that processes securities transactions efficiently across a plurality of computer systems onto an append-only cryptographic ledger, the method comprising:

receiving, at a signature verifier executed by a processor, transaction data from system clients including a public key a signature key, and transaction data;

verifying, at the signature verifier executed by the processor, that the public key and the signature key have a cryptographic relationship;

batching, at a transaction batcher executed by the processor, a number of verified transactions into data compressed verified transaction groups;

hashing, at a transaction block maker executed by the processor, a number of verified transaction groups with a hash value for a previous metadata block in order to create a transaction block;

appending, at the transaction block maker executed by the processor, the transaction block to an append-only cryptographic ledger after the previous metadata block;

hashing, at a metadata block maker executed by the processor, the transaction block which follow the previous metadata block on the append-only cryptographic ledger to generate a current metadata block; and

appending, at the metadata block maker executed by the processor, the current metadata block to the append-only cryptographic ledger after the transaction block.

6. (Previously Presented) The method of claim 5, wherein verification of cryptographic relationships between public keys and signature keys are performed in parallel.

7. (Original) The method of claim 5, wherein said batching is performed upon receipt of a predetermined number of verified transactions.

8. (Previously Presented) The method of claim 5, wherein said batching is performed after a predetermined amount of time.

9. (Previously Presented) The method of claim 5, wherein said hashing a number of verified transaction groups occurs across multiple computer systems in parallel by dividing up the total input transactions during a period of time, each parallel instance generating a single transaction block.

10. (Previously Presented) The method of claim 9, wherein the method is a repeating cycled process that perpetuates as long as a receipt of transaction data occurs.

11. (Previously Presented) The method of claim 10, wherein said hashing the transaction block occurs faster than said hashing a number of verified transaction groups, such that delay between repeated cycles of said hashing a number of verified transaction groups is limited by a fast operation.

12. (Previously Presented) The method of claim 10, wherein blocks appended to the append-only cryptographic ledger are ordered and alternate between a metadata block and a plurality of parallel transaction blocks.

13. (Previously Presented) The method of claim 12, wherein there are a number of append-only cryptographic ledgers which are organized in tiers wherein each tier receives a certain percentage of an incoming transaction data where a highest tier receives all the transaction data and a lowest tier receives the smallest percentage of the incoming transaction data.

14. - 42. (Canceled)