



APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/486,512	01/17/2023	11558344	UNSTP003	7235

21912 7590 12/28/2022
VAN PELT, YI & JAMES LLP
10050 N. FOOTHILL BLVD #200
CUPERTINO, CA 95014

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

INVENTOR(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional inventors):

Braden River Pezeshki, Pullman, WA;
Matthew Everett Gould, Reno, NV;
Bogdan Gusiev, Kyiv, UKRAINE;

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Unstoppable Domains Inc., Las Vegas, NV

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P.O. Box 1450
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By fax, send to: (571)-273-2885

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CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

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CUPERTINO, CA 95014

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/486,512	09/27/2021	Braden River Pezeshki	UNSTP003	7235

TITLE OF INVENTION: RESOLVING BLOCKCHAIN DOMAINS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$600	\$0.00	\$0.00	\$600	12/01/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
ROBINSON, CHRISTOPHER B	2443	709-245000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

1 Van Pelt, Yi & James LLP

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

2

3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

Unstoppable Domains Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Las Vegas, NV

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 50-0685

5. Change in Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Jong Andrew Park/

Date 11/19/2022

Typed or printed name Jong Andrew H. Park

Registration No. 56917

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.:	17/486,512	Examiner:	Christopher B. Robinson
Filed:	September 27, 2021	Art Unit:	2443
Confirmation No.:	7235	Docket No.:	UNSTP003
First Inventor:	Braden River Pezeshki		
Title:	RESOLVING BLOCKCHAIN DOMAINS		

REPLACEMENT DRAWINGS

Mail Stop – Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The attached sheets of drawings replace the original sheets including Figures 1 through 15.

Attachment: Fifteen (15) Replacement Sheets

Respectfully submitted,

Dated: 11/19/2022

/Jong Andrew Park/

Jong Andrew H. Park
Registration No. 56917
408-973-2577

VAN PELT, YI & JAMES LLP
10050 N. Foothill Blvd., Suite 200
Cupertino, CA 95014
Fax 408-973-2595

100 →

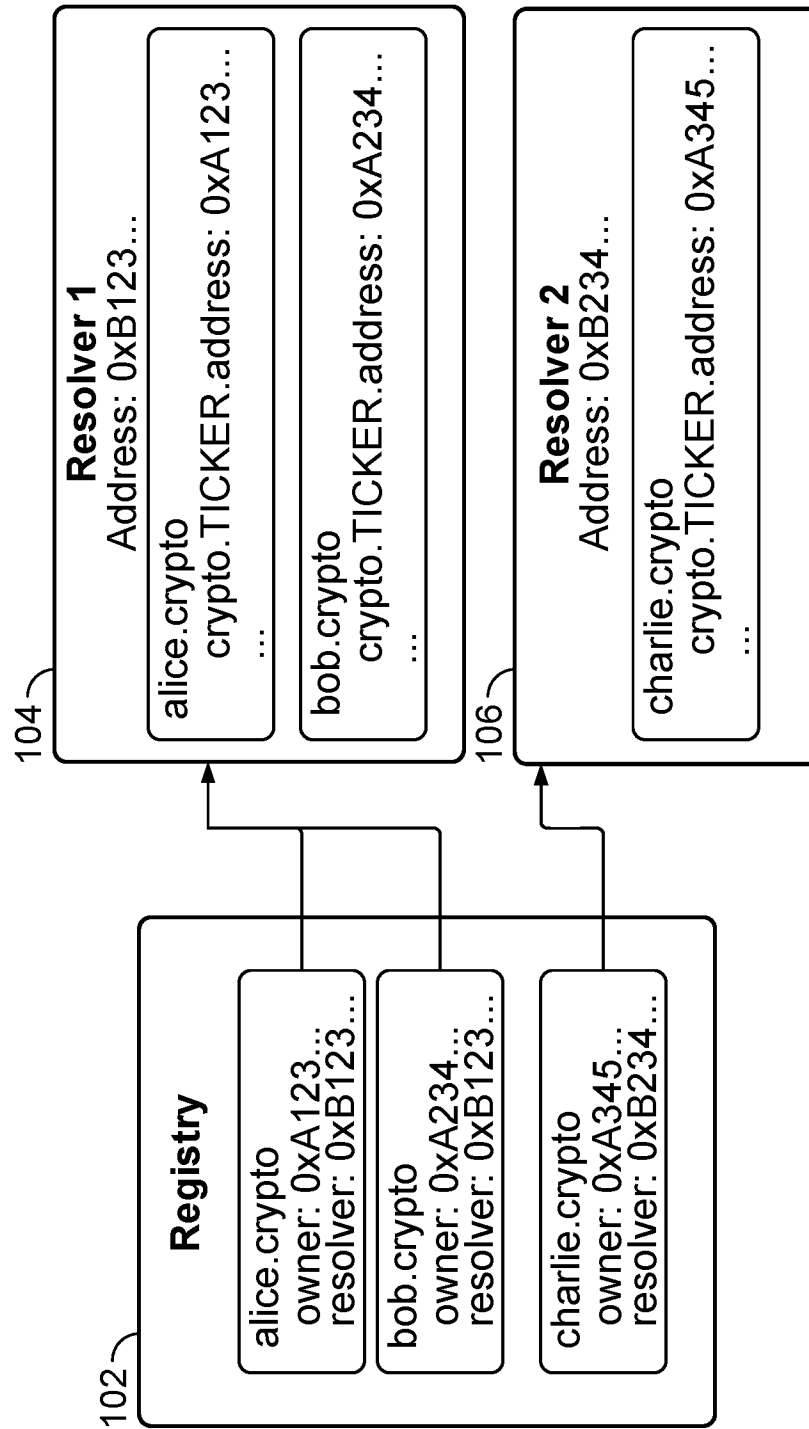


FIG. 1

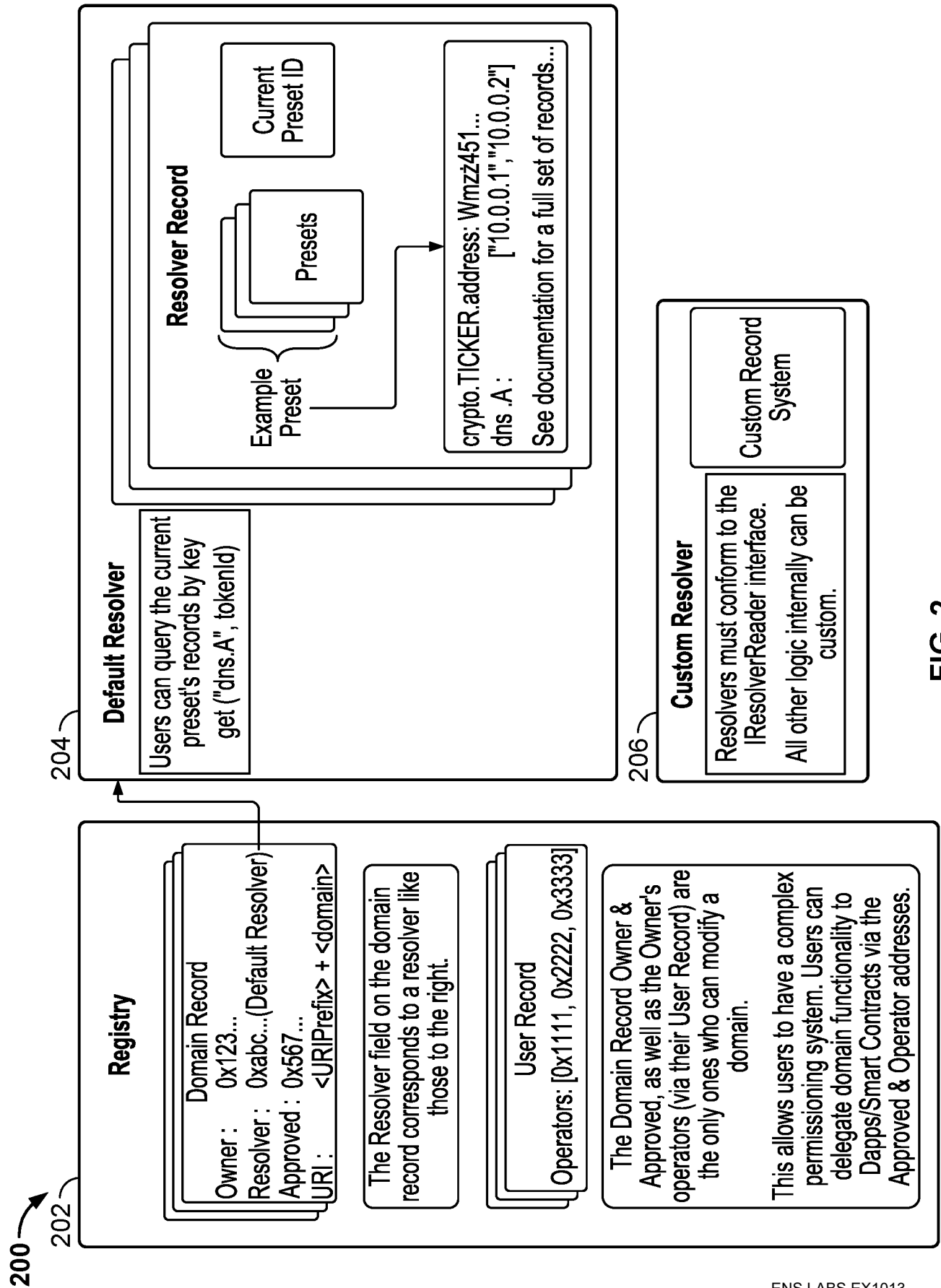


FIG. 2

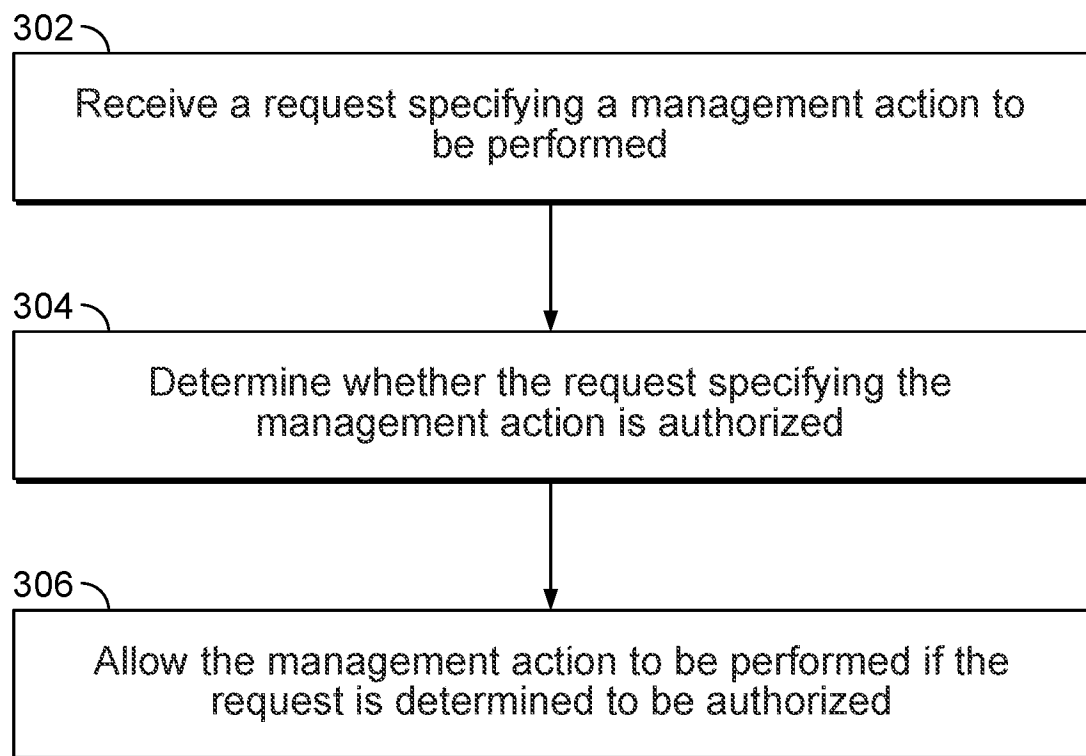


FIG. 3

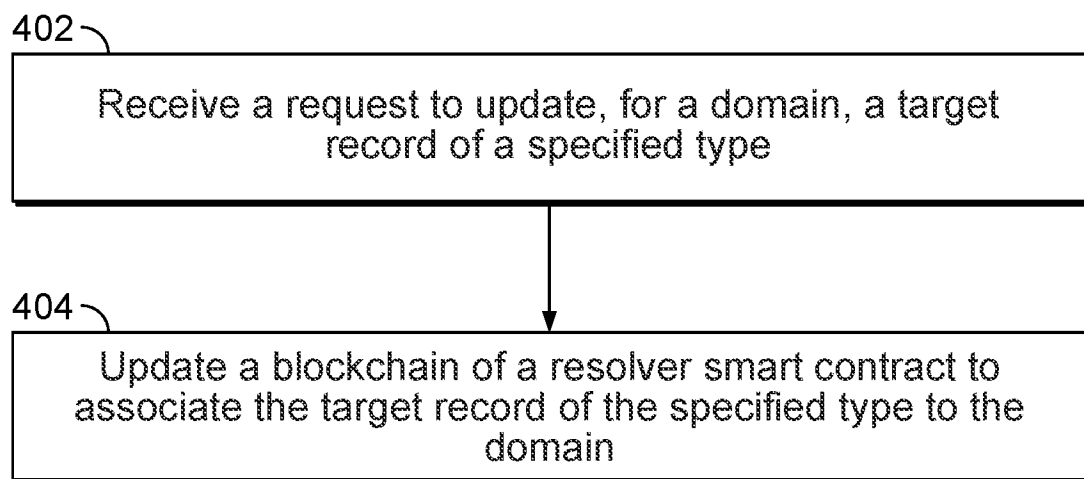


FIG. 4

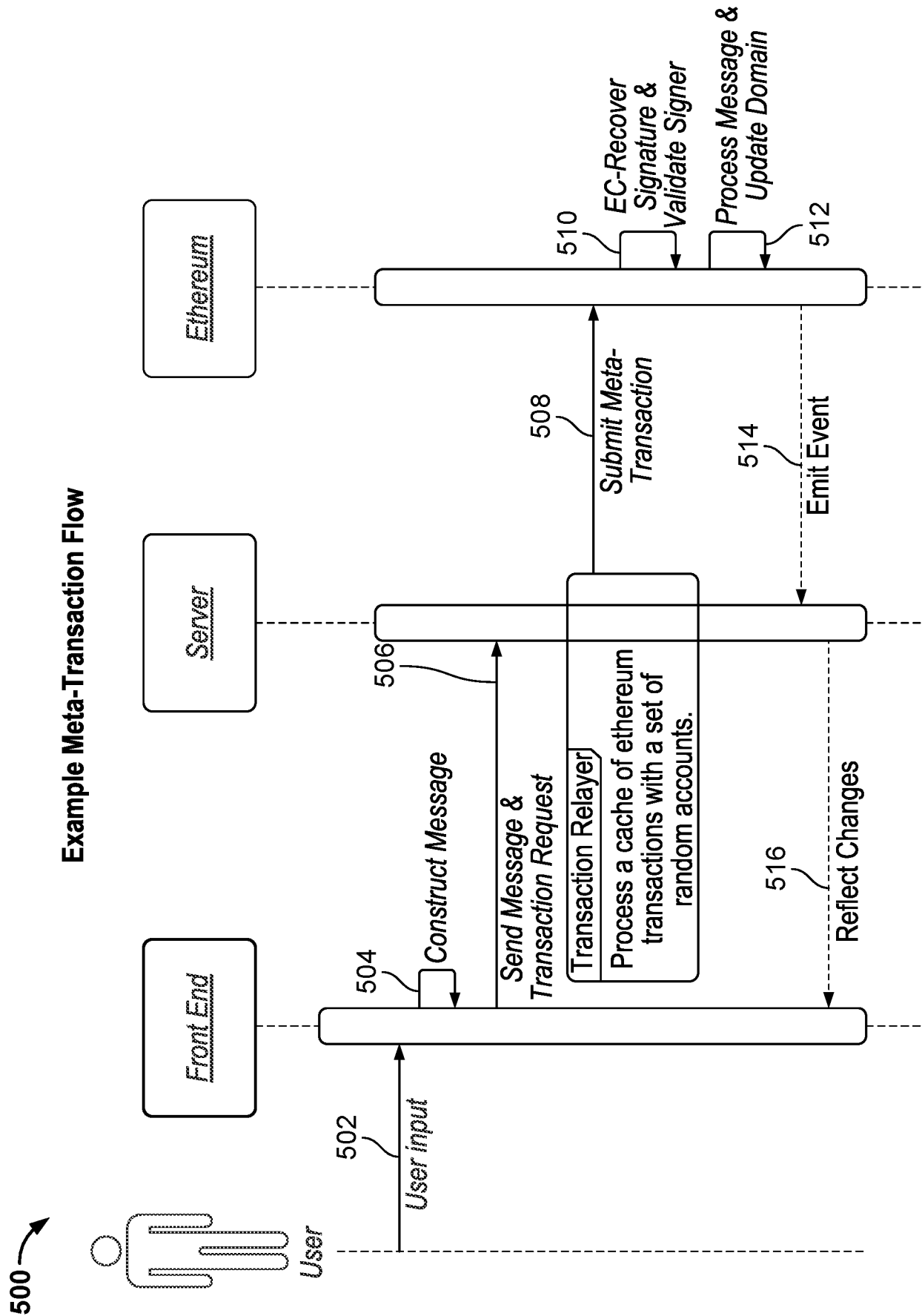


FIG. 5

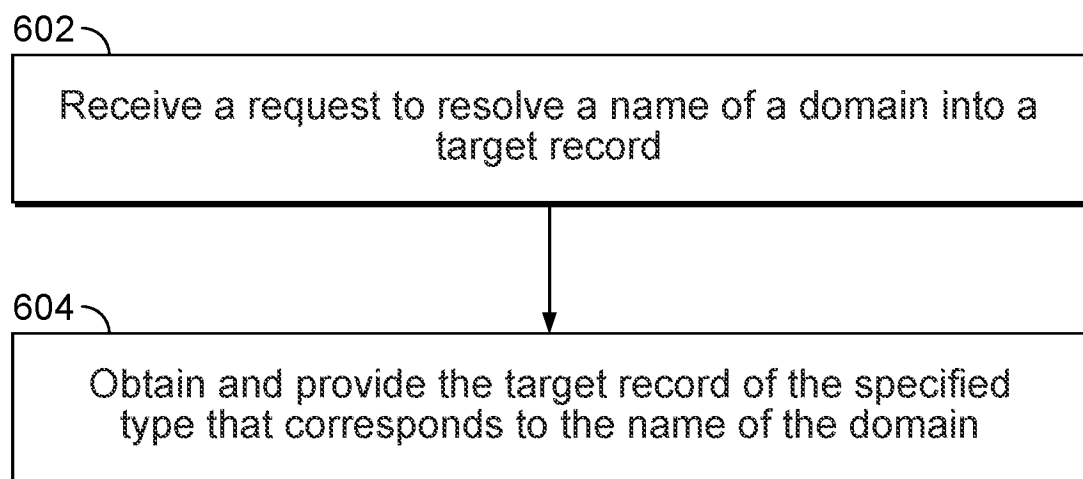


FIG. 6

700

Crypto payments success flow

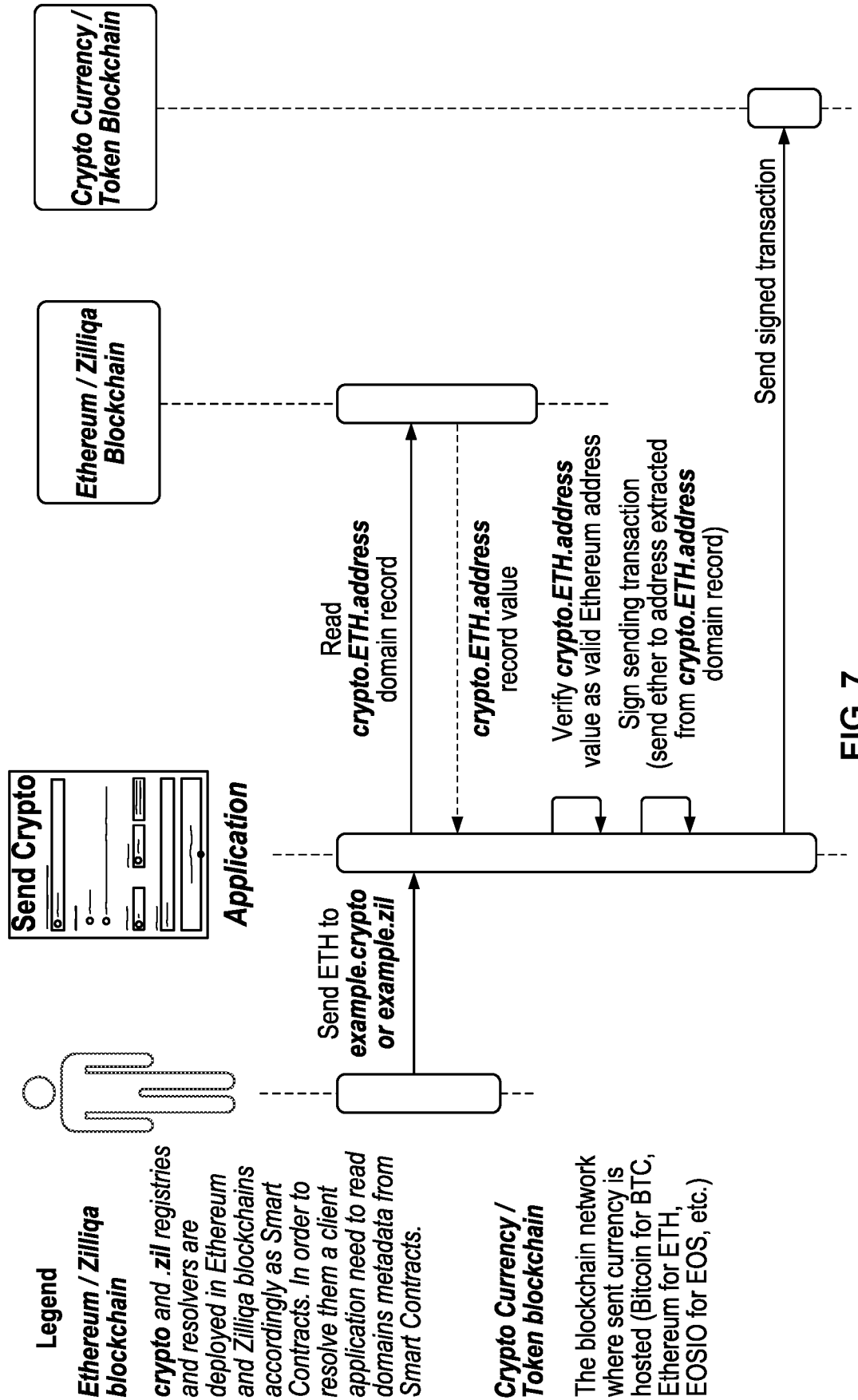


FIG. 7

800

Provide domain records via Proxy Reader Smart Contract

Legend

Registry Smart Contract - Domains registry which stores information about domain's ownership and resolvers

Resolver Smart Contract - Domain records storage. There are multiple resolvers-exists in Ethereum network. Domain can be linked to one Resolver at the same time.

Proxy Reader Smart Contract - Helper for decreasing amount of HTTP calls to Ethereum node.

[HTTP] - Call via network protocols

[EVM] - Local Smart Contract function call

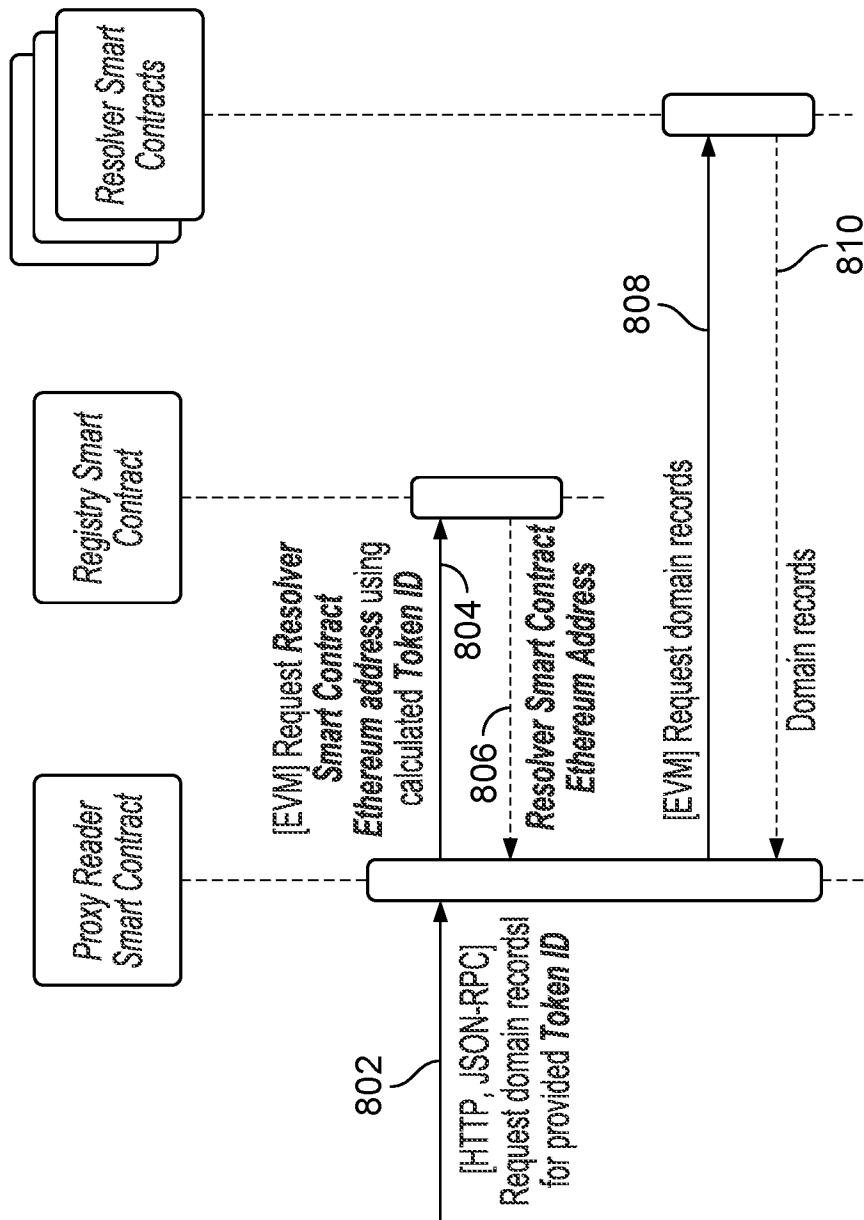


FIG. 8

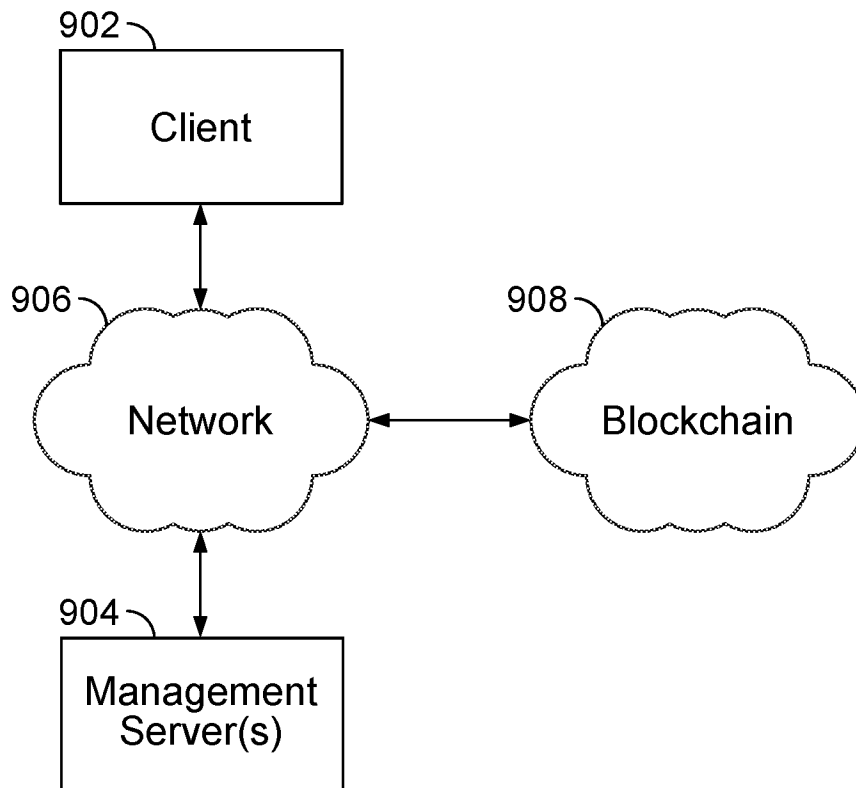


FIG. 9

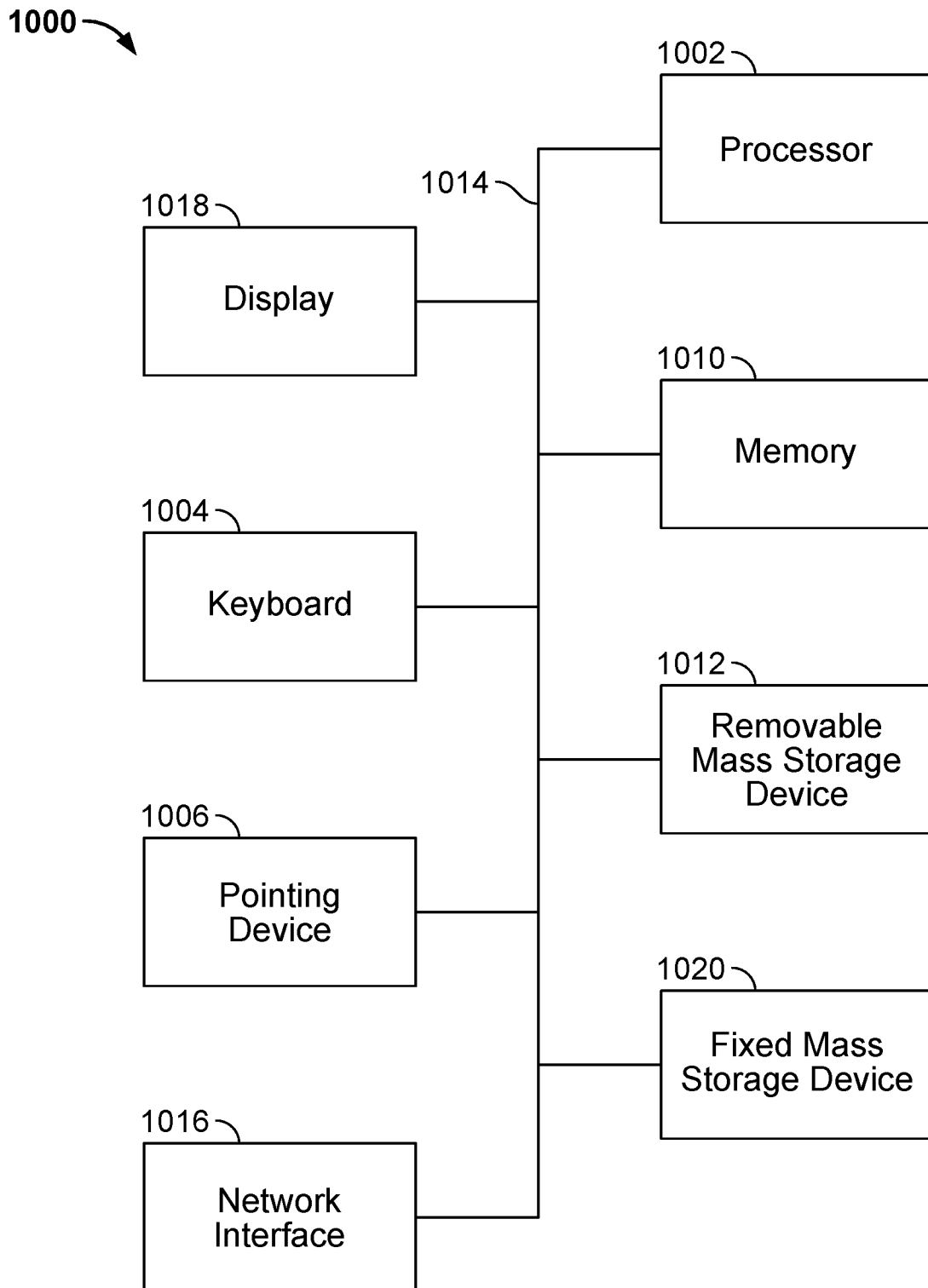


FIG. 10

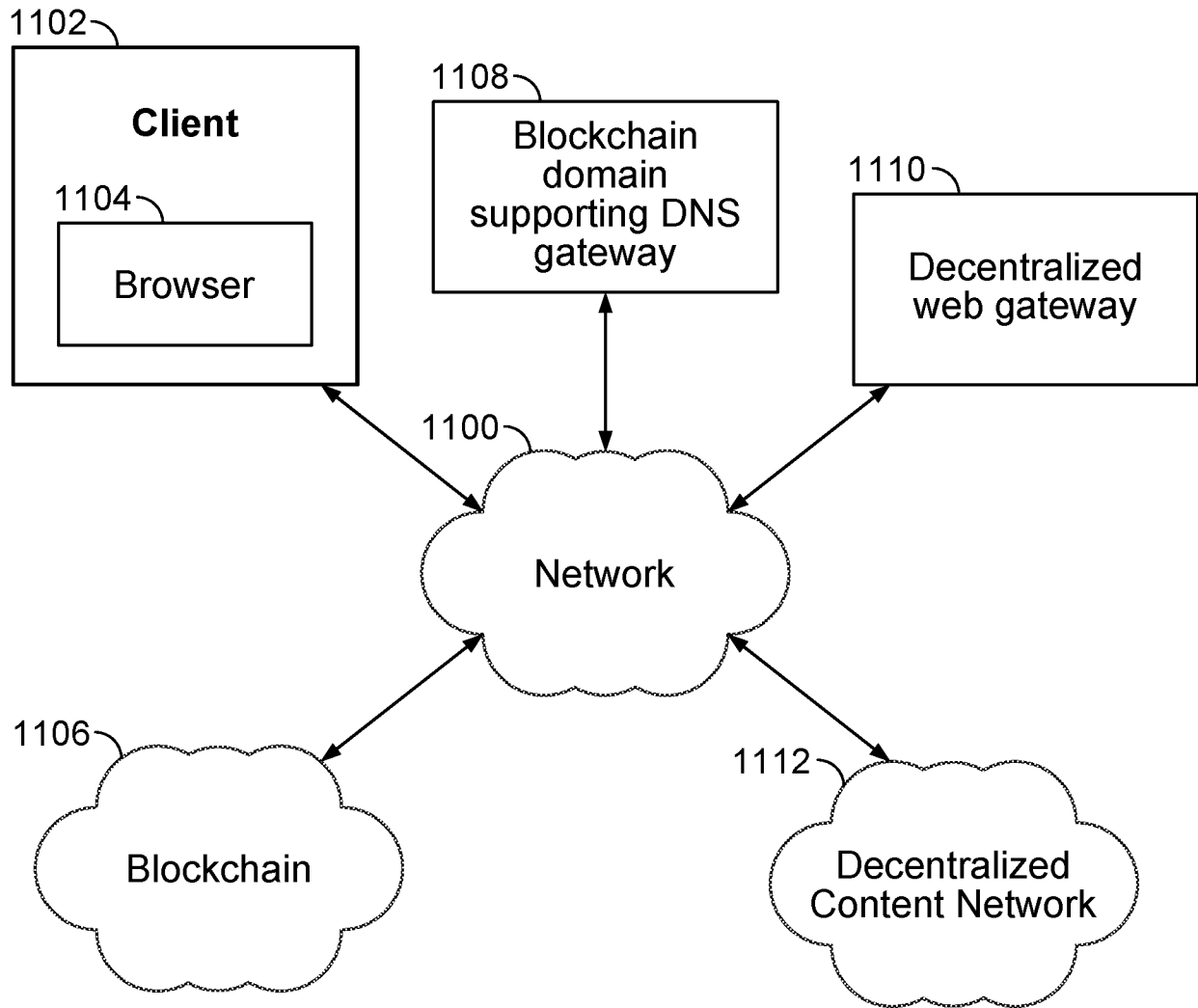


FIG. 11

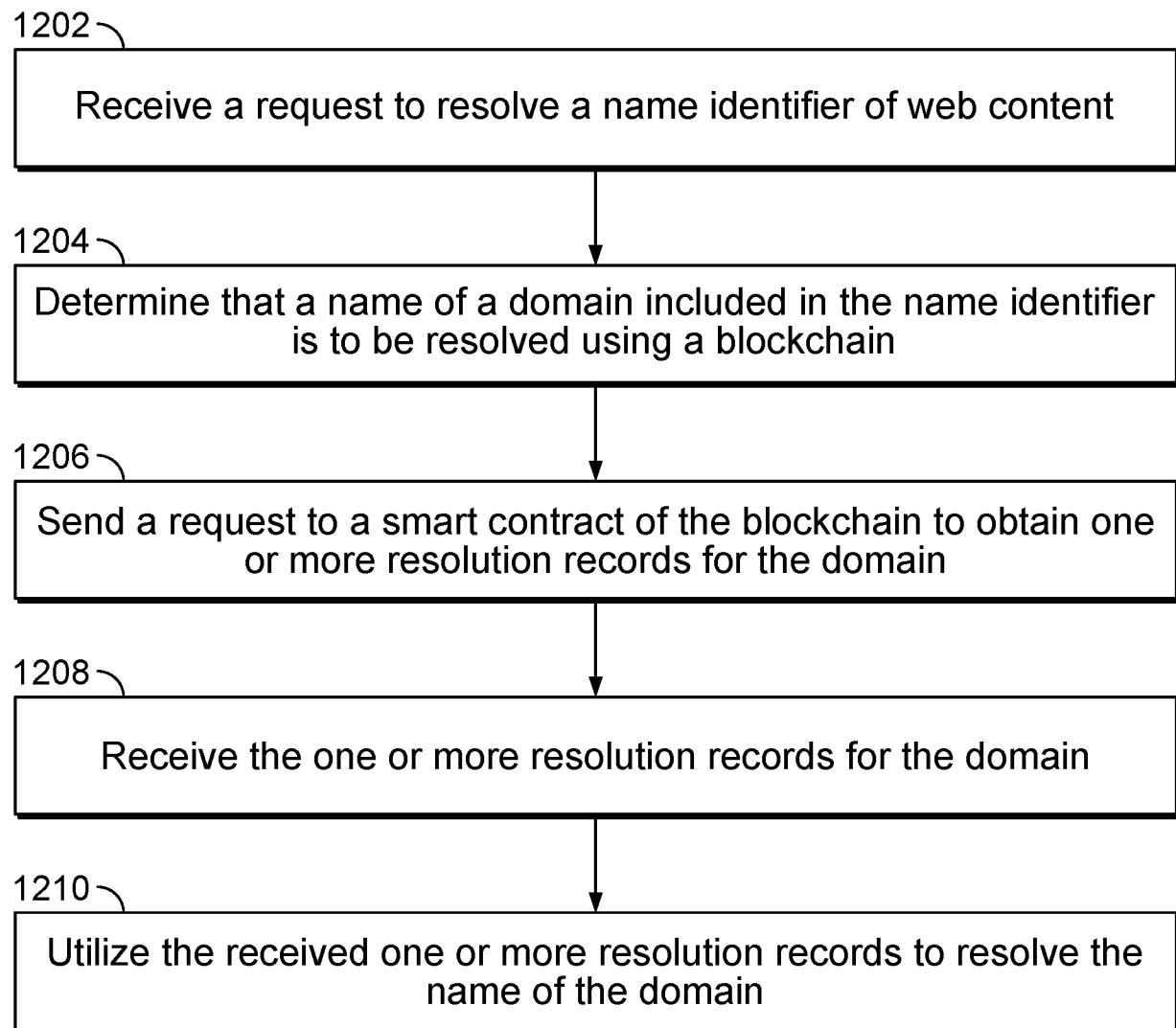


FIG. 12

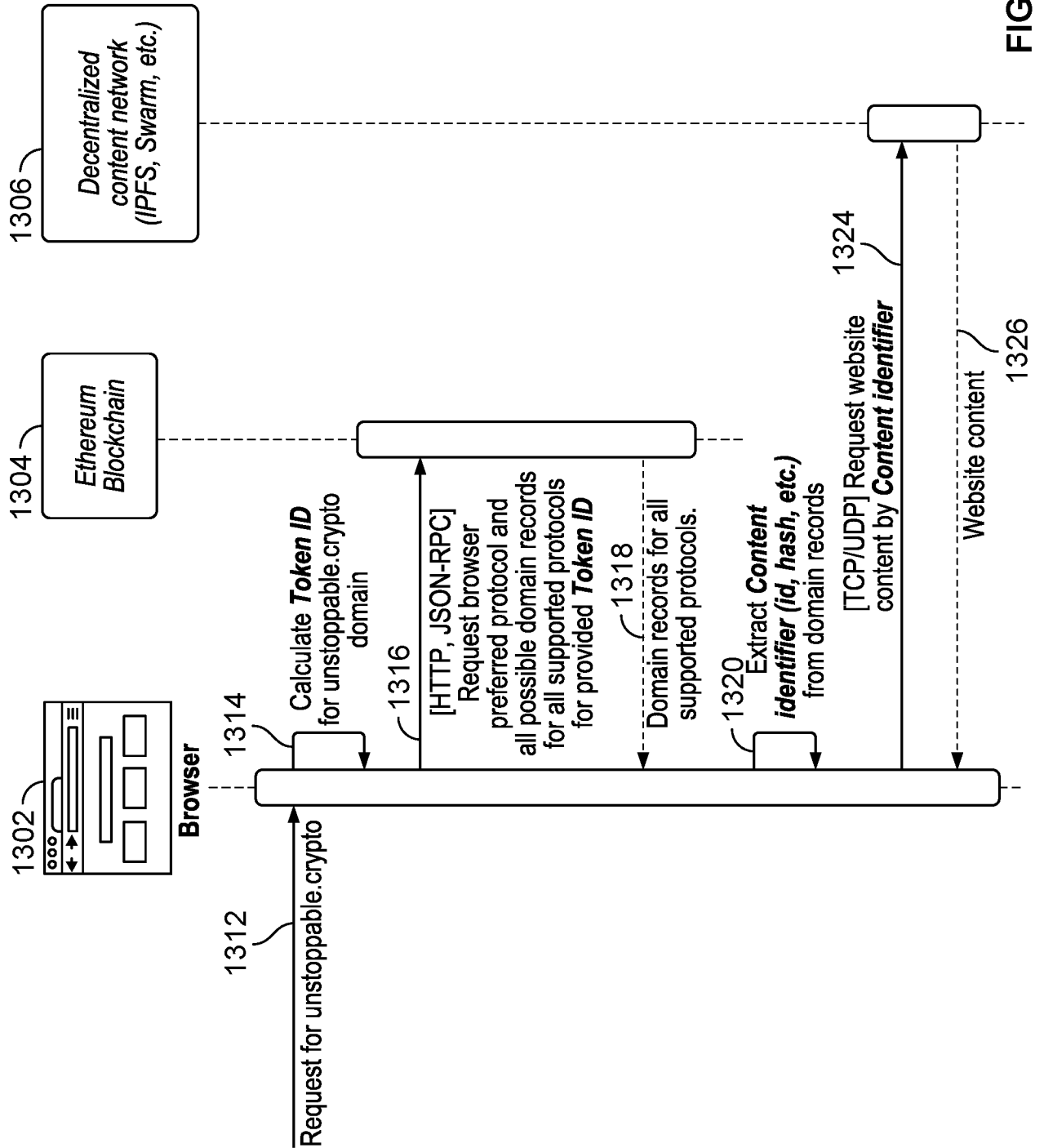


FIG. 13

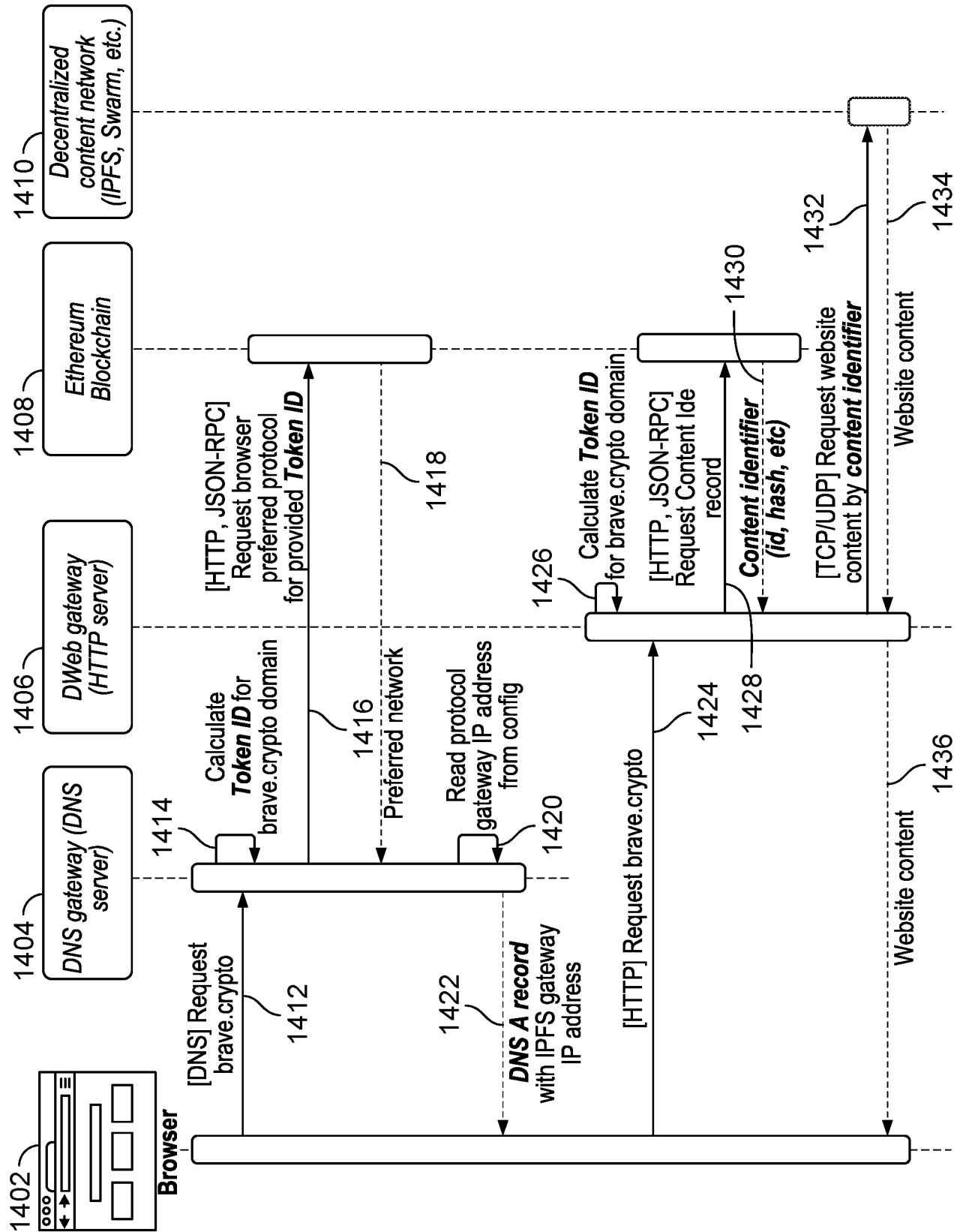


FIG. 14

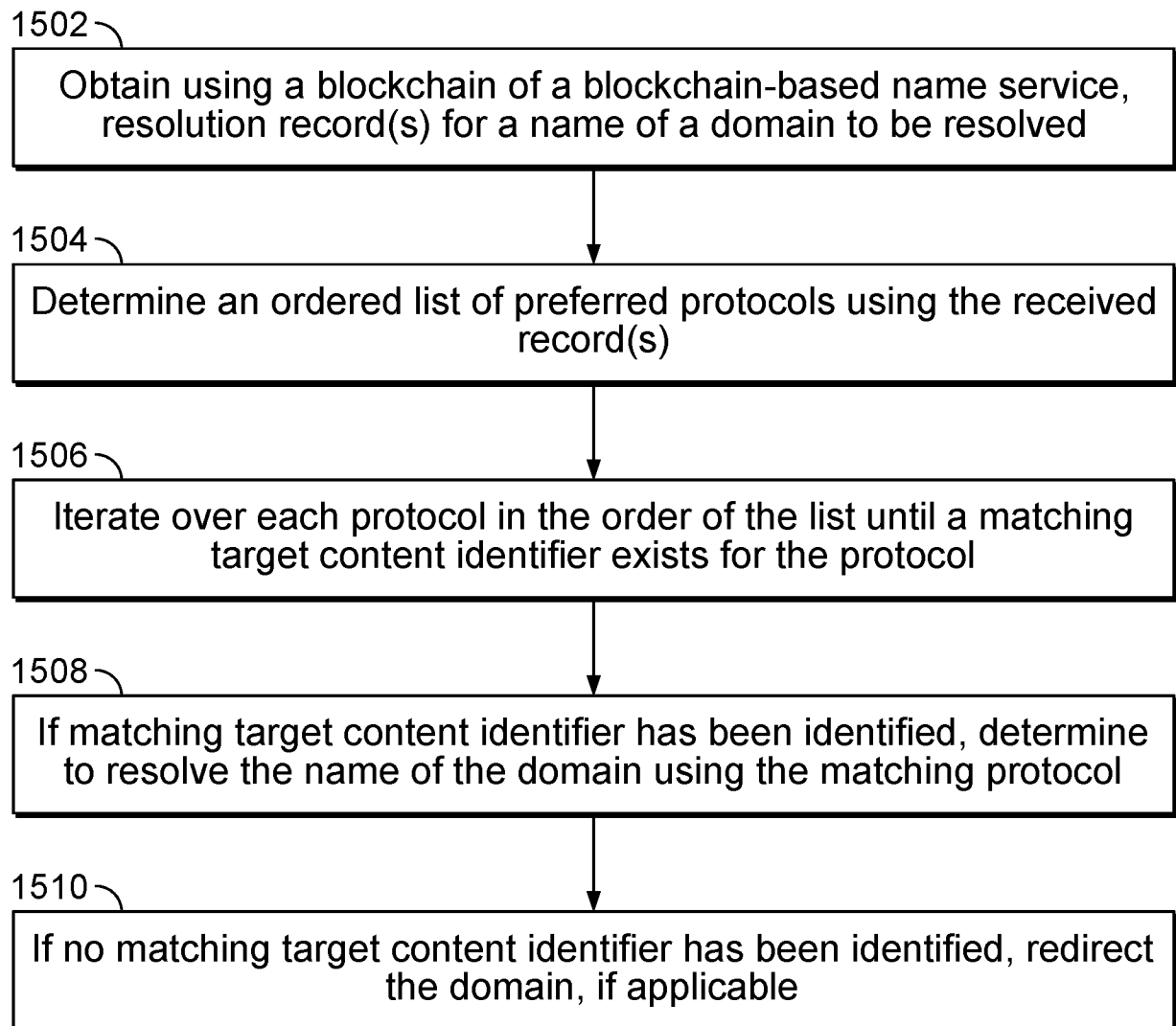


FIG. 15

Electronic Patent Application Fee Transmittal

Application Number:	17486512			
Filing Date:	27-Sep-2021			
Title of Invention:	RESOLVING BLOCKCHAIN DOMAINS			
First Named Inventor/Applicant Name:	Braden River Pezeshki			
Filer:	Jong Andrew Hyuk Park/Chelsea Simmons			
Attorney Docket Number:	UNSTP003			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	2501	1	600	600

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				600

Electronic Acknowledgement Receipt

EFS ID:	47065010
Application Number:	17486512
International Application Number:	
Confirmation Number:	7235
Title of Invention:	RESOLVING BLOCKCHAIN DOMAINS
First Named Inventor/Applicant Name:	Braden River Pezeshki
Customer Number:	21912
Filer:	Jong Andrew Hyuk Park/Chelsea Simmons
Filer Authorized By:	Jong Andrew Hyuk Park
Attorney Docket Number:	UNSTP003
Receipt Date:	21-NOV-2022
Filing Date:	27-SEP-2021
Time Stamp:	17:21:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$600
RAM confirmation Number	E2022AKH21494019
Deposit Account	500685
Authorized User	Chelsea Simmons

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

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Page 21 of 265

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	UNSTP003_IF_Transmittal.pdf	128667	no	1
			f6f95623fb46e51e93ead59bde281e3db303481a		
Warnings:					
Information:					
2	Drawings-only black and white line drawings	UNSTP003_IF_Replacement_Drawings.pdf	71224	no	1
			e67c763ec24efa0891b37a58a96d09489f1baac8f		
Warnings:					
Information:					
3	Drawings-only black and white line drawings	UNSTP003_IF_Figures.pdf	2736711	no	15
			326b22ccc20d1605911b5b4c755bacf113f0ceaf		
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	38311	no	2
			e15cb03621760d5ff43c809fc00a642a45bdf1f6		
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Total Files Size (in bytes):			2974913		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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NOTICE OF ALLOWANCE AND FEE(S) DUE

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VAN PELT, YI & JAMES LLP
10050 N. FOOTHILL BLVD #200
CUPERTINO, CA 95014

EXAMINER

ROBINSON, CHRISTOPHER B

ART UNIT

PAPER NUMBER

2443

DATE MAILED: 09/01/2022

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/486,512	09/27/2021	Braden River Pezeshki	UNSTP003	7235

TITLE OF INVENTION: RESOLVING BLOCKCHAIN DOMAINS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$600	\$0.00	\$0.00	\$600	12/01/2022

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

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(Signature)
(Date)

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3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

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(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

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Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



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17/486,512	09/27/2021	Braden River Pezeshki	UNSTP003	7235
21912 7590 09/01/2022 VAN PELT, YI & JAMES LLP 10050 N. FOOTHILL BLVD #200 CUPERTINO, CA 95014			EXAMINER ROBINSON, CHRISTOPHER B	
			ART UNIT 2443	PAPER NUMBER
DATE MAILED: 09/01/2022				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

<i>Notice Requiring Inventor's Oath or Declaration</i>	Application No. 17/486,512	Applicant(s) Braden River Pezeshki	
	Examiner ROBINSON, CHRISTOPHER B	Art Unit 2443	

This notice is an attachment to the Notice of Allowability (PTOL-37), or the Notice of Allowability For A Design Application (PTOL-37D).

An inventor's oath or declaration in compliance with 37 CFR 1.63 or 1.64 executed by or with respect to each inventor has not yet been submitted.

An oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each inventor (for any inventor for which a compliant oath, declaration, or substitute statement has not yet been submitted) **MUST** be filed no later than the date on which the issue fee is paid. See 35 U.S.C. 115(f). Failure to timely comply will result in ABANDONMENT of this application.

A properly executed inventor's oath to declaration has not been received for the following inventor(s):

If applicant previously filed one or more oaths, declarations, or substitute statements, applicant may have received an informational notice regarding deficiencies therein.

The following deficiencies are noted:

INFORMAL ACTION PROBLEMS

- A properly executed inventor's oath or declaration has not been received for the following inventor(s): **Braden River Pezeshki, Matthew Everett Gould, and Bogdan Gusiev.**

Applicant may submit the inventor's oath or declaration at any time before the Notice of Allowance and Fee(s) Due, PTOL-85, is mailed.

Questions relating to this Notice should be directed to the Application Assistance Unit at 571-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, local, or tribal law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 17/486,512	Applicant(s) Pezeshki et al.	
	Examiner CHRISTOPHER B ROBINSON	Art Unit 2443	AIA (FITF) Status Yes

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

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 07/11/2022.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ 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.

3. ☒ The allowed claim(s) is/are 1-20. As a result of the allowed claim(s), 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.

4. ☐ 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)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892) 2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____ 3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____ 4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____	5. ☐ Examiner's Amendment/Comment 6. ☒ Examiner's Statement of Reasons for Allowance 7. ☐ Other _____
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/CHRISTOPHER B ROBINSON/
Primary Examiner, Art Unit 2443

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

REASONS FOR ALLOWANCE

2. The following is the Examiner's Statement of Reasons for allowance:

No legally permissible combination of the prior art teaches, suggests or describes the specifically ordered and enumerated features of the independent claims inclusive of:

“receiving a request to resolve a name of a domain of an identifier of web content;

automatically determining that the name of the domain is to be resolved using a blockchain;

determining an identifier of a non-fungible token corresponding to the domain of the identifier of the web content;

sending using the identifier of the non-fungible token to send a request to a smart contract of the blockchain to obtain one or more resolution records for the domain,

wherein the blockchain stores the non-fungible token associating the domain to an account address of an owner of the domain;

receiving the one or more resolution records of the domain; and

utilizing the received one or more resolution records to resolve the name of the domain.”

Xiao (US 2021/0240784 A1) teaches a method for searching blockchain data, comprising: A. receiving a webpage read request sent by a search engine via a hypertext transfer protocol (HTTP) interface, the webpage read request including a first uniform resource locator address and smart contract supporting information; B. obtaining first blockchain data at the first uniform resource locator address; C. obtaining smart contract information associated with the first blockchain data, wherein the smart contract information includes a smart contract address information; D. determining whether there is at least one second uniform resource locator address, wherein second blockchain data at the at least one second uniform resource locator address is associated with the first blockchain data; E. generating a response to the webpage read request according to the first blockchain data, the smart contract information associated with the first blockchain data, and the at least one second uniform resource locator address, in the case where there is the at least one second uniform resource locator address; and F. returning the response to the webpage read request to the search engine via the HTTP interface.

The Examiner agrees with the Applicant's arguments that cited art does not teach or suggest the features of Claim 1, which recite, "determining an identifier of a non-fungible token corresponding to the domain of the identifier of the web content" and "using the identifier of the non-fungible token to send" a request to a smart contract of the block to obtain one or more resolutions records for the domains, in addition to other key features.

The combination of LI-Qiu-Wright-KING-Snow-Mapes-Smith do not teach the enumerated features of Independent Claim 1, and the 35 U.S.C 103 Rejection is hereby withdrawn.

Claim(s) 2-18 depend on Independent Claim 1 and are allowable based on the same reasoning as mentioned above.

Independent Claim(s) 19 & 20 are similar in to Claim 1 and are allowed based on the same reasoning as mentioned above.

There is no reasonable combination of the closest listed prior art made of record here, that discloses matter within the scope of all the limitations of the Independent Claims that includes:

1) requests 2) resolve a name 3) identifiers of web elements 4) a blockchain 5) a non-fungible token 6) a smart contract 7) resolution records 8) account address.

Lastly, as evidenced by the prosecution history (see 07/11/2022 Applicant Arguments/Remarks, 07/14/2022 Examiner Interview Summary Sheet, 04/11/2022 Non-Final Rejection) the Applicant Argument/Remarks, in respect to Claims(s) 1-20 were deemed persuasive and the 35 U.S.C 102/103 Rejection(s) of the above-mentioned claims is hereby withdrawn.

Any comments considered necessary by the applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

3. Claim(s) 1-20 is/are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **CHRISTOPHER B ROBINSON** whose telephone number is **(571)270-0702**. The examiner can normally be reached on **M-F 7:00-3:00 EST**.

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, **Nicholas R Taylor** can be reached on **571-272-3889**. 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 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.

/CHRISTOPHER B ROBINSON/
Primary Examiner, Art Unit 2443

<i>Notice of References Cited</i>	Application/Control No. 17/486,512		Applicant(s)/Patent Under Reexamination Pezeshki et al.	
	Examiner CHRISTOPHER B ROBINSON		Art Unit 2443	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20210240784-A1	08-2021	Xiao; Shiyuan	G06F16/9566	1/1
*	B	US-20190166085-A1	05-2019	LI; Hui	H04L9/0618	1/1
*	C	US-20190043048-A1	02-2019	Wright; Craig Steven	H04L9/3247	1/1
*	D	US-20180115413-A1	04-2018	KING; David J.	H04L9/30	1/1
*	E	US-20200044827-A1	02-2020	Snow; Paul	G06Q20/367	1/1
*	F	US-20190349426-A1	11-2019	Smith; Ned M.	H04L63/123	1/1
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
*	N	WO-2020051160-A1	03-2020	WO	GESELOWITZ L A	
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<i>Search Notes</i> 	Application/Control No. 17/486,512	Applicant(s)/Patent Under Reexamination Pezeshki et al.
	Examiner CHRISTOPHER B ROBINSON	Art Unit 2443

CPC - Searched*		
Symbol	Date	Examiner
H04L61/1511 H04L9/3236 H04L12/66 H04L61/2007 H04L67/02	04/06/2022	CR
H04L61/1511 H04L9/3236 H04L12/66 H04L61/2007 H04L67/02	08/18/2022	CR

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

/CHRISTOPHER B ROBINSON/ Primary Examiner, Art Unit 2443	
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Search Notes 	Application/Control No. 17/486,512	Applicant(s)/Patent Under Reexamination Pezeshki et al.
	Examiner CHRISTOPHER B ROBINSON	Art Unit 2443

Search Notes		
Search Notes	Date	Examiner
H04L61/1511 H04L9/3236 H04L12/66 H04L61/2007 H04L67/02 CPC searched. Text Limited.	04/06/2022	CR
Google Scholar Search conducted, History attached.	04/06/2022	CR
IEEE Search conducted, History attached.	04/06/2022	CR
IP.com Search conducted, History attached.	04/06/2022	CR
Google Patents Search conducted, History attached.	04/06/2022	CR
IDS searched and considered.	04/06/2022	CR
Key Term(s) include: request\$3 resolv\$3 nam\$3 domain\$3 ident\$4 web content\$3 automatic\$4 (block NEAR2 chain) smart contract\$3 resolution\$3 record\$3, ((blockchain) OR (block NEAR2 chain)) domain\$3 resolv\$4 browser\$3 hash\$3 token\$3 (IP NEAR2 address \$3) decentralized protocol\$3 (gateway or server).	04/06/2022	CR
Database search include: USPGPUB, USPAT, USOCR, FIT, FPRS, EPO, JPO, DERWENT, IBM, Google, IEEE, IP.com.	04/06/2022	CR
Updated Google Patents & Scholar Search conducted, History attached.	08/18/2022	CR
Updated IP.com Search conducted, History attached.	08/18/2022	CR
Updated IEEE Search conducted, History attached.	08/18/2022	CR
Interference Search conducted, History attached.	08/18/2022	CR
IEEE, IP.com, USPGPUB, Google, USPAT Databases searched.	08/18/2022	CR
Key Search Term(s) include: (request\$3 OR quer\$4) (resolv\$6 OR resolut\$6) ("ID" OR ident\$6 OR identification) domain\$3 nam\$6 (blockchain\$3 OR (block near2 chain\$3)) token\$3 ((nonfungible) OR (non-fungible) OR (non near2 fungible)) (smart OR intelligen\$4) contract\$3 (record OR history OR archiv\$4) stor\$6 (account OR profile)	08/18/2022	CR

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
H04L	61/4511, 61/5007, 9/3236, 12/66, 67/02.	08/18/2022	CR

/CHRISTOPHER B ROBINSON/ Primary Examiner, Art Unit 2443	
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Issue Classification 	Application/Control No. 17/486,512	Applicant(s)/Patent Under Reexamination Pezeshki et al.	
	Examiner CHRISTOPHER B ROBINSON	Art Unit 2443	

CPC						
Symbol					Type	Version
H04L	/	61	/	4511	F	2022-05-01
H04L	/	9	/	3236	I	2013-01-01
H04L	/	12	/	66	I	2013-01-01
H04L	/	67	/	02	I	2013-01-01
H04L	/	61	/	5007	I	2022-05-01
H04L	/	9	/	50	A	2022-05-01

CPC Combination Sets					
Symbol				Type	Set
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NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 20	
/CHRISTOPHER B ROBINSON/ Primary Examiner, Art Unit 2443 (Primary Examiner) _____ (Date) _____		18 August 2022 O.G. Print Claim(s) 1	O.G. Print Figure 12

Issue Classification 	Application/Control No. 17/486,512	Applicant(s)/Patent Under Reexamination Pezeshki et al.	
	Examiner CHRISTOPHER B ROBINSON	Art Unit 2443	

INTERNATIONAL CLASSIFICATION					
CLAIMED					
G06F	/	16	/	9032	
G06F	/	16	/	9536	
G06Q	/	10	/	02	
H04L	/	29	/	06	
G06F	/	21	/	30	
NON-CLAIMED					
	/		/		

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 20	
/CHRISTOPHER B ROBINSON/ Primary Examiner, Art Unit 2443 (Primary Examiner) _____ (Date) 18 August 2022		O.G. Print Claim(s) 1	O.G. Print Figure 12

<i>Issue Classification</i> 	Application/Control No. 17/486,512	Applicant(s)/Patent Under Reexamination Pezeshki et al.
	Examiner CHRISTOPHER B ROBINSON	Art Unit 2443

☐ Claims renumbered in the same order as presented by applicant
 ☐ CPA
 ☐ T.D.
 ☐ R.1.47

CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	10	19	19										
2	2	11	11	20	20										
3	3	12	12												
4	4	13	13												
5	5	14	14												
6	6	15	15												
7	7	16	16												
8	8	17	17												
9	9	18	18												

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 20	
/CHRISTOPHER B ROBINSON/ Primary Examiner, Art Unit 2443 (Primary Examiner) _____ (Date) 18 August 2022		O.G. Print Claim(s) 1	O.G. Print Figure 12

Technical aspects of **blockchain** and IoT

HF Atiam, GB Willis - *Advances in computers*, 2019 - Elsevier

... **Resolving** these challenges can be done by integrating IoT with **blockchain** technology. To be ... usability from the perspective of the **cryptocurrency domain** should allow users to analyze ...

☆ Save Cite Cited by 106 Related articles All 6 versions

Leopard: Understanding the threat of **blockchain domain** name based malware

Z Huang, J Huang, T Zang - ... Conference on Passive and Active Network ..., 2020 - Springer

... the **domain** names can not be **resolved** by standard DNS servers. We named them **blockchain domain** ... BDNs leverage a new decentralized **domain** name system (DNS) to map **domain** ...

☆ Save Cite Cited by 4 Related articles All 4 versions

Unearthing malicious campaigns and actors from the **blockchain** DNS ecosystem

F Casino, N Lykousas, V Katos, C Patsakis - *Computer Communications*, 2021 - Elsevier

... From that point onward a number of regular reports emerged on specific malware families exploiting the **blockchain** DNS ecosystem. For instance, Fbot botnet used **domains resolved** ...

☆ Save Cite Cited by 4 Related articles All 4 versions

Medshard: Electronic health record sharing using **blockchain** sharding

F Hashim, K Shuaib, F Sailabi - *Sustainability*, 2021 - mdpi.com

... to the literature by **resolving** the scalability issue in healthcare **blockchain** and providing an ... This study applies a sharding technique in the healthcare **blockchain domain** to efficiently ...

☆ Save Cite Cited by 4 Related articles All 8 versions

Blockchain integrated framework for **resolving** privacy issues in smart city

P Bedi, SB Goyal, J Kumar, S Kumar - *Data-Driven Mining, Learning and ...*, 2021 - Springer

... on the **blockchain** so this is one more problem for the working people of the same **domain**. ... To **resolve** these issues, this chapter also proposed architecture and also redirects the ...

☆ Save Cite Cited by 3 Related articles All 3 versions

Demystifying **blockchain**: A critical analysis of challenges, applications and opportunities

N Upadhyay - *International Journal of Information Management*, 2020 - Elsevier

... space), it has potential challenges that need to be **resolved**; opportunities to be explored, and ... made in the **domain** of **blockchain**. To further research on **blockchain** adoption, the paper ...

☆ Save Cite Cited by 104 Related articles All 3 versions

Towards a **blockchain**-based certificate authentication system in Vietnam

BM Nguyen, TC Dao, BL Do - *PeerJ Computer Science*, 2020 - peerj.com

... **blockchain** research and application trends to make out our contributions in this **domain**. ... in Vietnam and the capability of applying **blockchain** to **resolve** it based on its functionalities: anti...

☆ Save Cite Cited by 29 Related articles All 9 versions

Towards a design philosophy for interoperable **blockchain** systems

T Hardjono, A Lipton, A Pentland - *arXiv preprint arXiv:1805.05934*, 2018 - arxiv.org

... **blockchain**: Any external entities seeking to lookup/**resolve** an identifier (eg linked to the asset) must always **resolve** to the correct authoritative **blockchain** ... the crossdomain transaction ...

☆ Save Cite Cited by 63 Related articles All 2 versions

A Review of **Blockchain** in Internet of Things and AI

HF Atiam, MA Azad, AG Alzahrani, G Willis - *Big Data and Cognitive ...*, 2020 - mdpi.com

... **blockchain** by highlighting how **blockchain resolved** issues of IoT, the architecture of IoT with **blockchain**, why **blockchain** ... reality that **blockchain** can be utilized in numerous **domains**. ...

☆ Save Cite Cited by 51 Related articles All 5 versions

Blockchain and Internet of Things: A bibliometric study

M Kamran, HU Khan, W Nisar, M Farooq... - Computers & Electrical ... , 2020 - Elsevier

... **domains** has solved numerous relevant problems, it has potential to **resolve** the issues of privacy and security in the **domain** ... **Blockchain** in the **domain** of IoT gives birth to a new **domain** ...

☆ Save  Cite Cited by 56 Related articles All 4 versions



17486512 IP.com Patents Search History

Report Run Date: 2022-08-18 UTC

Searches: 1

Markers: 0

Search #	Timestamp	Results	Page
1	<u>2022-08-18 19:20 UTC</u>	14,487,656	3



US Patents | US Designs | US Applications | EPO Patents | EPO Applications | China Patents | China Applications | Japan Patents | Japan Applications | Korea Patents | Korea Applications | WIPO Applications | Argentina Patents | Argentina Applications | Brazil Patents | Brazil Applications | Canada Patents | Canada Applications | Chile Patents | Chile Applications | Colombia Applications | Costa Rica Applications | Cuba Patents | Cuba Applications | Dominican Republic Applications | Ecuador Patents | Ecuador Applications | El Salvador Applications | Guatemala Applications | Honduras Applications | Mexico Patents | Mexico Applications | Nicaragua Patents | Panama Applications | Peru Applications | Trinidad & Tobago Patents | Uruguay Applications | Austria Patents | Austria Applications | Belarus Patents | Belgium Patents | Belgium Applications | Bosnia & Herzegovina Patents | Bosnia & Herzegovina Applications | Bulgaria Patents | Bulgaria Applications | Croatia Patents | Croatia Applications | Czech Republic Patents | Czech Republic Applications | Czechoslovakia Patents | Czechoslovakia Applications | Denmark Patents | Denmark Applications | Estonia Patents | Estonia Applications | EUIPO Patents | Finland Patents | Finland Applications | France Patents | France Applications | Germany Patents | Germany Applications | Great Britain Patents | Great Britain Applications | Greece Patents | Greece Applications | Hungary Patents | Hungary Applications | Iceland Patents | Iceland Applications | Ireland Patents | Ireland Applications | Italy Patents | Italy Applications | Latvia Patents | Latvia Applications | Lithuania Patents | Lithuania Applications | Luxembourg Patents | Malta Patents | Monaco Patents | Montenegro Patents | Montenegro Applications | Netherlands Patents | Netherlands Applications | Norway Patents | Norway Applications | Poland Patents | Poland Applications | Portugal Patents | Portugal Applications | Republic of Moldova Patents | Republic of Moldova Applications | Romania Patents | Romania Applications | San Marino Patents | San Marino Applications | Serbia Patents | Serbia Applications | Slovakia Patents | Slovakia Applications | Slovenia Patents | Spain Patents | Spain Applications | Sweden Patents | Sweden Applications | Switzerland Patents | Switzerland Applications | Ukraine Patents | Yugoslavia/Serbia and Montenegro Patents | Yugoslavia/Serbia and Montenegro Applications | Armenia Patents | Australia Patents | Australia Applications | Cyprus Patents | Gulf Cooperation Council Patents | Hong Kong Patents | India Patents | India Applications | Indonesia Patents | Indonesia Applications | Israel Applications | Jordan Patents | Jordan Applications | Kyrgyzstan Patents | Macao Applications | Malaysia Patents | Mongolia Patents | New Zealand Patents | Philippines Patents | Philippines Applications | Saudi Arabia Patents | Saudi Arabia Applications | Singapore Patents | Singapore Applications | Taiwan Patents | Taiwan Applications | Tajikistan Patents | Tajikistan Applications | Thailand Patents | Thailand Applications | Uzbekistan Patents | Vietnam Patents | Algeria Patents | ARIPO Patents | ARIPO Applications | Egypt Patents | Kenya Patents | Malawi Patents | Morocco Patents | Morocco Applications | OAPI Patents | South Africa Patents | Tunisia Applications | Zambia Patents | Zimbabwe Patents | EAPO Patents | EAPO Applications | Georgia Patents | Georgia Applications | Kazakhstan Patents | Kazakhstan Applications | Russia Patents | Russia Applications | Turkey Patents | Turkey Applications

1 2022-08-18 19:20 UTC | 14,487,656 results from

De-Dup: None | Cut-off: None | Sort: Relevance

Main Concept: Text

receiving a request to resolve a name of a domain of an identifier of web content; automatically determining that the name of the domain is to be resolved using a blockchain; determining an identifier of a non-fungible token corresponding to the domain of the identifier of the web content; sending using the identifier of the non-fungible token to send a request to a smart contract of the blockchain to obtain one or more resolution records for the domain, wherein the blockchain stores the non-fungible token associating the domain to an account address of an owner of the domain; receiving the one or more resolution records of the domain; and utilizing the received one or more resolution records to resolve the name of the domain.

Concept Modifiers: None

Filters (1):

Publication Date: From 2001-05-31 To 2020-09-28

Bibliographic Data

Application No: 17/486,512

Foreign Priority claimed: ☐ Yes ☒ No

35 USC 119 (a-d) conditions met: ☐ Yes ☒ No

☐ Met After Allowance

Verified and Acknowledged:

/CHRISTOPHER B
ROBINSON/

Examiner's Signature

Initials

Title:

RESOLVING BLOCKCHAIN DOMAINS

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
09/27/2021	709	2443	UNSTP003
RULE			

APPLICANTS

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Bogdan Gusiev, Kyiv, UKRAINE

CONTINUING DATA

This application has PRO of 63084493 09/28/2020

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

10/06/2021

**** SMALL ENTITY ****

STATE OR COUNTRY

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Domain name management scheme for cross-chain interaction in blockchain systems

WO EP US CN JP KR AU BR CA MX PH RU SG ZA • [CN111334088A](#) • 邱晓华 • 蚂蚁金服技术有限公司

Priority 2018-11-15 • Filed 2018-11-15 • Granted 2022-05-13 • Published 2022-05-13

A computer-implemented method for authenticating a unified blockchain domain name (UBCDN) for a blockchain instance in a domain name management scheme for cross-chain interaction in a blockchain system is disclosed. The method comprises the following steps: the computing system obtains a unified ...

Domain Name Scheme for Cross-Chain Interaction in Blockchain Systems

WO EP US CN JP KR AU BR CA MX PH RU SG • [JP6666233B2](#) • ホンリー・テック・アリババ・グループ・ホールディング・リミテッド • Alibaba Group Holding Limited

Priority 2018-11-15 • Filed 2018-11-15 • Granted 2020-04-28 • Published 2020-04-28

Obtaining a blockchain domain name of a second different blockchain instances by a client node of the first blockchain instance, the method comprising: said blockchain domain name is a unique identifier of a second blockchain instance in an integrated blockchain network comprising a plurality of ...

Domain name resolution system based on block chain

WO US CN • [WO201819188A1](#) • 李峰 • 北京大学深圳研究生院

Priority 2017-04-19 • Filed 2017-04-19 • Published 2018-10-25

The present invention relates to a domain name resolution system based on a block chain. The domain name resolution system uses a hierarchical structure, and comprises a top-level domain name chain network, a second-level domain name chain network, a future network node, and an original DNS system ...

Systems and methods for managing top-level domain names using consortium ...

WO US CN • [US20170205332](#) • Hui Li • Peking University Shenzhen Graduate School

Priority 2017-03-31 • Filed 2018-03-14 • Granted 2019-01-08 • Published 2019-01-08

The present disclosure relates generally to internet technology and more specifically to managing Top-level domain (TLD) name based on blockchain. An example method of managing Top-level domain name comprises the following steps: A. Using TLD nodes to form alliance network in the blockchain, B. ...

Software bot conflict-resolution service agent

US • [US20190113233A1](#) • Thomas D. Erickson • International Business Machines Corporation

Priority 2017-06-01 • Filed 2019-01-18 • Granted 2020-06-23 • Published 2020-06-23

A bot conflict-resolution service agent (BCRSA) for addressing conflicts between bots in a target domain is disclosed. The BCRSA is configured to receive data from a target domain that includes changes made to a content of the target domain, analyze the data to identify a first change made to the ...

Determining consensus in a decentralized domain name system

WO US CN • [US20180233332](#) • Hui Li • Peking University Shenzhen Graduate School

Priority 2017-05-15 • Filed 2018-06-05 • Granted 2019-08-13 • Published 2019-08-13

A method comprising: A. forming a consortium blockchain network using domain network nodes and selecting committee members from top-level domain nodes; B. the committee member who received most votes packs the genesis block and generates a random number, C. the housekeeper having the same number ...

Determining consensus by parallel proof of voting in consortium blockchain

US • [US20200000000A1](#) • Hui Li • Peking University Shenzhen Graduate School

Priority 2017-05-15 • Filed 2019-08-13 • Published 2020-02-20

An example for determining consensus by Parallel Proof of Voting (PPoV) in a consortium blockchain includes causing each bookkeeping node to generate and publish a block to a consortium blockchain network. After collecting all the block generated in the previous step, the consortium node votes ...

Domain name management system, domain name management method and domain name

CN • [CN107613841B](#) • 段海峰 • 中国互联网信息中心

Priority 2017-09-22 • Filed 2017-09-22 • Granted 2020-06-05 • Published 2020-06-05

The invention relates to a domain name management system, a domain name management method and a domain name resolution method based on a block chain. The domain name management system based on the block chain comprises a block chain with a hierarchical structure, wherein the block chain with the ...

Resilient trust network services

US • [US20140222811](#) • Jonathan Paul Hare • Resilient Network Systems, Inc.

Priority 2009-01-02 • Filed 2010-08-11 • Granted 2014-09-23 • Published 2014-09-23

A Resilient Trust Network (RTN) is a set of servers that provide: an application integration platform for developing and publishing services and user interface for services, building derived services, subscribing to services, and embedding services into host applications, and building composite ...

Factom protocol in blockchain environments



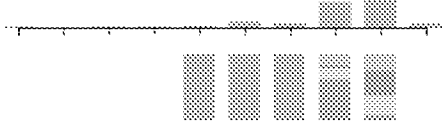
US • 1031120817282 • Paul Snow • Inveniam Capital Partners, Inc.

Priority 2018-08-06 • Filed 2019-03-13 • Granted 2021-12-21 • Published 2021-12-21

A Factom protocol cost effectively separates any blockchain (such as the Bitcoin blockchain) from any cryptocurrency (such as the Bitcoin cryptocurrency). The Factom protocol provides client-defined Chains of Entries, client-side validation of Entries, a distributed consensus algorithm for ...

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Top 1000 results by filing date



Relative count of top 5 values

Assignees	Inventors	CPCs
恩杰系统有限公司		6.5%
Cognitive Scale, Inc.		2.5%
International Business Machines Corporation		2.2%
腾讯科技（深圳）有限公司		1.9%
金溢通有限公司		1.9%
Expand		

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	0	(Unstoppable NEAR4 Domain).as.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 01:59 PM
L2	0	(Unstoppable NEAR4 Domains).as.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 02:00 PM
L3	0	(Pezeshki NEAR2 Braden).inv.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 02:00 PM
L4	83	(Gould NEAR4 Matthew).inv.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU,	AND	ON	ON	2022/04/06 02:00 PM

L5	0	(Gusiev NEAR4 Bogdan).inv.	CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 02:00 PM
L6	626	request\$3 resolv\$3 nam\$3 domain\$3 ident\$4 web content\$3 automatic\$4 (block NEAR2 chain) smart contract\$3 resolution\$3 record\$3	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 02:01 PM
L7	311090	(H04L61/1511 OR H04L9/3236 OR H04L12/66 OR H04L61/2007 OR H04L67/02).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 02:02 PM

L8	77	L7 L6	VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 02:02 PM
L9	1	17/265,576	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 02:02 PM
L10	1	15/768,833	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 02:41 PM
L11	3	15/332,348	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB,	AND	ON	ON	2022/04/06 04:20 PM

L12	3	16/351,597	HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 04:34 PM
L13	4	((US-20210240784-A1 OR US-20190166085-A1 OR US-20180115413-A1 OR US-20200044827-A1).did. AND PGPB.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 07:39 PM
L14	0	L13 (resolv\$4 OR resolut\$4) ("ID" OR identif\$4 OR identifier) decentral\$4 (gateway OR server) DNS (domain OR page OR site)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 07:40 PM

L15	0	L13 (resolv\$4 OR resolut\$4) ("ID" OR identif\$4 OR identifier) decentralized (gateway OR server) DNS (domain OR page OR site)	IBM_TDB) (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 07:40 PM
L16	0	L13 ("ID" OR identif\$4 OR identifier) decentralized (gateway OR server) DNS (domain OR page OR site)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 07:40 PM
L17	1	16/466,978	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 08:13 PM
L18	5	((US-20210240784-A1 OR US-20190166085-A1 OR US-20180115413-A1 OR US-20200044827-A1 OR US-20190349426-A1).did. AND PGPB.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV,	AND	ON	ON	2022/04/06 08:40 PM

L19	5	L18 protocol\$3	MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 08:40 PM
L20	2	16/523,383	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 08:47 PM
L21	0	PCT/US2019/049398	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 09:12 PM
L22	0	PCTUS2019/049398	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06

			USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				09:12 PM
L23	0	PCTUS2019049398	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 09:12 PM
L24	0	WO 2020/051160 A1	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 09:12 PM
L25	2	WO2020051160A1	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL,	AND	ON	ON	2022/04/06 09:13 PM

L26	2	16/078,625	PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 09:27 PM
L27	8	((US-20210240784-A1 OR US-20190166085-A1 OR US-20180115413-A1 OR US-20200044827-A1 OR US-20190349426-A1 OR US-20190043048-A1 OR US-20200034395-A1).did. AND PGPB.dbnm.) OR ((WO-2020051160-A1).did. AND DWPI.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 09:31 PM
L28	2	L27 redirect\$4	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 09:31 PM
L29	7	L27 domain\$3	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY,	AND	ON	ON	2022/04/06 09:39 PM

L30	7	L27 address\$3	CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 09:40 PM
L31	8	((US-20210240784-A1 OR US-20190166085-A1 OR US-20180115413-A1 OR US-20200044827-A1 OR US-20190349426-A1 OR US-20190043048-A1 OR US-20200034395-A1).did. AND PGPB.dbnm.) OR ((WO-2020051160-A1).did. AND DWPI.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 10:16 PM
L32	4	L31 (browser OR enginer OR extension OR plugin)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH,	AND	ON	ON	2022/04/06 10:16 PM

L33	2	16/390,586	TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 10:22 PM
L34	466	((blockchain) OR (block NEAR2 chain)) domain\$3 resolv\$4 browser\$3 hash\$3 token\$3 (IP NEAR2 address\$3) decentralized protocol\$3 (gateway OR server)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 10:37 PM
L35	9	((US-20210240784-A1 OR US-20190166085-A1 OR US-20180115413-A1 OR US-20200044827-A1 OR US-20190349426-A1 OR US-20190043048-A1 OR US-20190253252-A1 OR US-20200034395-A1).did. AND PGPB.dbnm.) OR ((WO-2020051160-A1).did. AND DWPI.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/08/18 03:08 PM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
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N1	21	request\$4 resolv\$6 nam\$3 domain\$4 ident\$6 web content\$4 automatic\$6 (blockchain\$3 OR (block NEAR2 chain\$3)) (non near2 fungible) token\$3 smart contract\$3 resolut\$4 record\$3 account\$3 address\$3	(US-PGPUB; USPAT)	AND	ON	ON	2022/08/18 02:57 PM
N2	79604	(H04L61/4511 OR H04L61/5007 OR H04L9/3236 OR H04L12/66 OR H04L67/02).cpc.	(US-PGPUB; USPAT)	AND	ON	ON	2022/08/18 02:58 PM
N3	1	N1 N2	(US-PGPUB; USPAT)	AND	ON	ON	2022/08/18 02:58 PM
N4	87	(request\$3 OR quer\$4) (resolv\$6 OR resolut\$6) ("ID" OR ident\$6 OR identification) domain\$3 nam\$6 (blockchain\$3 OR (block near2 chain\$3)) token\$3 ((nonfungible) OR (non- fungible) OR (non near2 fungible)) (smart OR intelligen\$4) contract\$3 (record OR history OR archiv\$4) stor\$6 (account OR profile)	(US-PGPUB; USPAT)	AND	ON	ON	2022/08/18 03:02 PM
N5	3	N4 N2	(US-PGPUB; USPAT)	AND	ON	ON	2022/08/18 03:02 PM
N6	73	request resolve name domain identifier web content blockchain fungible token smart contract resolution account address	(US-PGPUB; USPAT)	AND	ON	ON	2022/08/18 03:43 PM
N7	155	request resolve name domain identifier web content block chain fungible token smart contract resolution account address	(US-PGPUB; USPAT)	AND	ON	ON	2022/08/18 03:43 PM
N8	23	N6 N2	(US-PGPUB; USPAT)	AND	ON	ON	2022/08/18 03:43 PM
N9	23	N7 N2	(US-PGPUB; USPAT)	AND	ON	ON	2022/08/18 03:43 PM



17486512 IEEE Search History

Report Run Date: 2022-08-18 UTC

Searches: 1

Markers: 0

Search #	Timestamp	Results	Page
1	<u>2022-08-18 19:25 UTC</u>	4,295,401	3

Content: Non-Patent Literature (23)

IEEE Xplore Publications: IEEE Periodicals | IEEE Xplore Publications: IEEE Conferences | IEEE Xplore Publications: IEEE Standards | IEEE Xplore Publications: IEEE Early Access | IEEE Xplore Publications: SMPTE Periodicals | IEEE Xplore Publications: SMPTE Conferences | IEEE Xplore Publications: SMPTE Standards | IEEE Xplore Publications: MIT Press eBooks | IEEE Xplore Publications: Wiley-IEEE eBooks | IEEE Xplore Publications: IBM Periodicals | IEEE Xplore Publications: URSI Periodicals | IEEE Xplore Publications: VDE Conferences | IEEE Xplore Publications: Periodicals from China | IP.com Prior Art Database: The IP.com Journal | IP.com Prior Art Database: Internet Society RFC | IP.com Prior Art Database: IBM TDB Archive | IP.com Prior Art Database: Legacy Journals | IP.com Prior Art Database: Software Patent Institute | OnePetro.org: Periodicals at OnePetro.org | OnePetro.org: Conferences at OnePetro.org | Other Literature: IBM Redbooks | Other Literature: PubMed Central | Other Literature: arXiv.org

1 2022-08-18 19:25 UTC | 4,295,401 results from 

De-Dup: None | Cut-off: None | Sort: Relevance

Main Concept: Text

receiving a request to resolve a name of a domain of an identifier of web content; automatically determining that the name of the domain is to be resolved using a blockchain; determining an identifier of a non-fungible token corresponding to the domain of the identifier of the web content; sending using the identifier of the non-fungible token to send a request to a smart contract of the blockchain to obtain one or more resolution records for the domain, wherein the blockchain stores the non-fungible token associating the domain to an account address of an owner of the domain; receiving the one or more resolution records of the domain; and utilizing the received one or more resolution records to resolve the name of the domain.

Concept Modifiers: None

Filters: None



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/486,512	09/27/2021	Braden River Pezeshki	UNSTP003	7235
21912	7590	07/14/2022		
VAN PELT, YI & JAMES LLP 10050 N. FOOTHILL BLVD #200 CUPERTINO, CA 95014			EXAMINER ROBINSON, CHRISTOPHER B	
			ART UNIT	PAPER NUMBER
			2443	
			NOTIFICATION DATE	DELIVERY MODE
			07/14/2022	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):

usptocorrespondence@ip-patent.com

<i>Applicant-Initiated Interview Summary</i>	Application No. 17/486,512	Applicant(s) Pezeshki et al.		
	Examiner CHRISTOPHER B ROBINSON	Art Unit 2443	AIA (First Inventor to File) Status Yes	Page 1 of 1

All Participants (applicant, applicants representative, PTO personnel)	Title	Type
CHRISTOPHER B ROBINSON	Primary Examiner	Telephonic
ANDREW PARK	Attorney of Record	

Date of Interview: 08 July 2022

Issues Discussed:

35 U.S.C. 102

Applicant added limitations "determining an identifier of a non-fungible token corresponding to the domain of the identifier of the web content; sending using the identifier of the non-fungible token to send a request to a smart contract of the blockchain to obtain one or more resolution records for the domain, wherein the blockchain stores the non-fungible token associating the domain to an account address of an owner of the domain;". The added limitations overcome the 102 Rejection.

Proposed Amendment(s)

A proposed amendment to claim 1 was discussed. The Examiner agreed that the proposed amendment overcomes the 102 Rejection. (see attachment for the amended claim)

☒ Attachment

/CHRISTOPHER B ROBINSON/ Primary Examiner, Art Unit 2443	
Applicant is reminded that a complete written statement as to the substance of the interview must be made of record in the application file. It is the applicants responsibility to provide the written statement, unless the interview was initiated by the Examiner and the Examiner has indicated that a written summary will be provided. See MPEP 713.04 Please further see: MPEP 713.04 Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews, paragraph (b) 37 CFR § 1.2 Business to be transacted in writing	

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

Robinson, Christopher

From: Andrew Park <apark@ip-patent.com>
Sent: Thursday, July 7, 2022 11:29 PM
To: Robinson, Christopher
Subject: Interview Agenda 17/486,512

CAUTION: This email has originated from a source outside of USPTO. **PLEASE CONSIDER THE SOURCE** before responding, clicking on links, or opening attachments.

Dear Examiner Robinson,

Please find below the proposed amendment for the interview scheduled for tomorrow, Friday, at 1:30pm ET.

1. (Currently Amended) A method, comprising:
 - receiving a request to resolve a name of a domain of an identifier of web content;
 - automatically determining that the name of the domain is to be resolved using a blockchain;
 - determining an identifier of a non-fungible token corresponding to the domain of the identifier of the web content;
 - sending using the identifier of the non-fungible token to send a request to a smart contract of the blockchain to obtain one or more resolution records for the domain, wherein the blockchain stores the non-fungible token associating the domain to an account address of an owner of the domain;
 - receiving the one or more resolution records of the domain; and
 - utilizing the received one or more resolution records to resolve the name of the domain.

Thank you,

Andrew Park
Van Pelt, Yi & James LLP
10050 N. Foothill Blvd., Suite 200
Cupertino, CA 95014
apark@ip-patent.com
408 973 2577 direct
408 973 2595 fax

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Electronic Acknowledgement Receipt

EFS ID:	46157825
Application Number:	17486512
International Application Number:	
Confirmation Number:	7235
Title of Invention:	RESOLVING BLOCKCHAIN DOMAINS
First Named Inventor/Applicant Name:	Braden River Pezeshki
Customer Number:	21912
Filer:	Jong Andrew Hyuk Park/Chelsea Simmons
Filer Authorized By:	Jong Andrew Hyuk Park
Attorney Docket Number:	UNSTP003
Receipt Date:	11-JUL-2022
Filing Date:	27-SEP-2021
Time Stamp:	14:32:43
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Request for Reconsideration-After Non-Final Rejection	UNSTP003_AMD_A.pdf	125017	no	8
			aef2c6914b1173e8ce24c9658d761959da6 9bf23		

Warnings:

ENS LABS EX1013

Page 67 of 265

Information:	
Total Files Size (in bytes):	125017
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.	

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.:	17/486,512	Examiner:	Christopher B. Robinson
Filed:	September 27, 2021	Art Unit:	2443
Confirmation No.:	7235	Docket No.:	UNSTP003
First Inventor:	Braden River Pezeshki		
Title:	RESOLVING BLOCKCHAIN DOMAINS		

AMENDMENT A

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This is in response to the Office Action mailed April 11, 2022. The following amendment and remarks are respectfully submitted.

Applicant(s) believe that no (additional) fees are required beyond any fees submitted herewith. If required fees are missing or any additional fees are required during the pendency of the subject application, please charge such fees or credit any overpayment to Deposit Account No. 50-0685 (UNSTP003).

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method, comprising:

receiving a request to resolve a name of a domain of an identifier of web content;

automatically determining that the name of the domain is to be resolved using a blockchain;

determining an identifier of a non-fungible token corresponding to the domain of the identifier of the web content;

sending using the identifier of the non-fungible token to send a request to a smart contract of the blockchain to obtain one or more resolution records for the domain, wherein the blockchain stores the non-fungible token associating the domain to an account address of an owner of the domain;

receiving the one or more resolution records of the domain; and

utilizing the received one or more resolution records to resolve the name of the domain.
2. (Original) The method of claim 1, wherein the identifier of the web content includes a Uniform Resource Locator (URL).
3. (Original) The method of claim 1, wherein the request is received at a web browser.
4. (Original) The method of claim 1, wherein the request is received at a Domain Name System (DNS) gateway configured to handle resolution of domains of a blockchain-based name service.
5. (Original) The method of claim 1, wherein determining that the name of the domain is to be resolved using the blockchain includes determining that a top-level domain included in the name of the domain matches an entry in a list of domains to be resolved using the blockchain.

6. (Original) The method of claim 1, wherein the determination that the name of the domain is to be resolved using the blockchain is performed using an extension of a web browser.
7. (Currently Amended) The method of claim 1, wherein the identifier of the non-fungible token is calculated using ~~sending the request to the smart contract includes calculating a token identifier for the name of the domain using a hash function and using the token identifier as an identifier of the domain when sending the request.~~
8. (Original) The method of claim 1, wherein the one or more resolution records include an Internet Protocol (IP) address.
9. (Original) The method of claim 1, wherein the one or more resolution records include a redirect address.
10. (Original) The method of claim 1, wherein the one or more resolution records include a decentralized web content hash identifier.
11. (Original) The method of claim 1, wherein the one or more resolution records include a plurality of target identifiers for different protocols.
12. (Original) The method of claim 11, wherein utilizing the received one or more resolution records to resolve the name of the domain includes selecting one of the plurality of target identifiers based on an ordered list of protocol preferences.
13. (Original) The method of claim 12, wherein the ordered list of protocol preferences is at least in part specified in the one or more resolution records received using the blockchain.
14. (Original) The method of claim 12, wherein selecting the one of the plurality of target identifiers based on the ordered list of protocol preferences includes evaluating each protocol specified in an order of the ordered list to determine whether there exists a specific target record for the protocol.
15. (Original) The method of claim 1, wherein utilizing the received one or more resolution records to resolve the name of the domain includes providing a response including at least a portion of the one or more resolution records to a web browser.

16. (Original) The method of claim 1, wherein utilizing the received one or more resolution records to resolve the name of the domain includes providing an identifier of a decentralized web gateway.
17. (Original) The method of claim 16, wherein in response to a request made to the decentralized web gateway using the provided identifier of the decentralized web gateway, the decentralized web gateway obtains from a decentralized content network, decentralized web content referenced by a decentralized web content hash value included in the one or more resolution records of the domain, and stores and provides the obtained decentralized web content.
18. (Original) The method of claim 17, wherein the decentralized web gateway obtains the content referenced by the decentralized web content hash value using a decentralized web protocol but provides the obtained decentralized web content using a protocol that is not the decentralized web protocol.
19. (Currently Amended) A system, comprising:
a processor configured to:
 receive a request to resolve a name of a domain of an identifier of web content;
 automatically determine that the name of the domain is to be resolved using a blockchain;
 determine an identifier of a non-fungible token corresponding to the domain of the identifier of the web content;
 ~~send~~ use the identifier of the non-fungible token to send a request to a smart contract of the blockchain to obtain one or more resolution records for the domain, wherein the blockchain stores the non-fungible token associating the domain to an account address of an owner of the domain;
 receive the one or more resolution records of the domain; and
 utilize the received one or more resolution records to resolve the name of the domain; and
a memory coupled to the processor and configured to provide the processor with instructions.

20. (Currently Amended) A computer program product embodied in a non-transitory computer readable medium and comprising computer instructions for:

receiving a request to resolve a name of a domain of an identifier of web content;

automatically determining that the name of the domain is to be resolved using a blockchain;

determining an identifier of a non-fungible token corresponding to the domain of the identifier of the web content;

~~sending~~ using the identifier of the non-fungible token to send a request to a smart contract of the blockchain to obtain one or more resolution records for the domain, wherein the blockchain stores the non-fungible token associating the domain to an account address of an owner of the domain;

receiving the one or more resolution records of the domain; and

utilizing the received one or more resolution records to resolve the name of the domain.

INTERVIEW SUMMARY

A telephonic interview in the above-referenced case was conducted on July 8, 2022 between the Examiner and the Applicants' undersigned representative. The Office Action mailed on April 11, 2022 was discussed. Specifically, the rejection of claim 1 in light of Xiao reference and the proposed amendments set forth herein were discussed with the intent to place the claims in better condition for allowance or appeal.

The Applicants thank the Examiner for the interview.

REMARKS

Claims 1, 7, and 19-20 have been amended to clarify the subject matter regarded as the invention. Claims 1-20 are pending.

Claim Rejections – 35 U.S.C. §102 and/or §103

Claims 1-3, 9, 15, and 19-20 stand rejected under 35 U.S.C. §102 as being anticipated by Xiao. The remaining claims stand rejected under 35 U.S.C. §103 based on Xiao as combined with one or more other references.

Xiao does not teach “determining an identifier of a non-fungible token corresponding to the domain of the identifier of the web content” and “using the identifier of the non-fungible token to send” a request to a smart contract of the blockchain to obtain one or more resolution records for the domain, “wherein the blockchain stores the non-fungible token associating the domain to an account address of an owner of the domain” as amended in claim 1. Other independent claims, as amended, are believed to be allowable for similar reasons.

The foregoing amendments are not to be taken as an admission of unpatentability of any of the claims prior to the amendments.

Reconsideration of the application and allowance of all claims are respectfully requested based on the preceding remarks. If at any time the Examiner believes that an interview would be helpful, please contact the undersigned.

Respectfully submitted,

Dated: 7/8/2022

/Jong Andrew Park/

Jong Andrew H. Park

Registration No. 56917

408-973-2577

VAN PELT, YI & JAMES LLP
10050 N. Foothill Blvd., Suite 200
Cupertino, CA 95014
Fax 408-973-2595

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 17/486,512	Filing Date 09/27/2021	☐ To be Mailed
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ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE (\$)	FEE (\$)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 = *		x \$50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 = *		x \$240 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED - PART II

	(Column 1)		(Column 2)	(Column 3)	RATE (\$)	ADDITIONAL FEE (\$)
AMENDMENT	07/11/2022		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	x \$50 = 0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0	x \$240 = 0
	☐ Application Size Fee (37 CFR 1.16(s))					
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
TOTAL ADD'L FEE						0
AMENDMENT			CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	
	Total (37 CFR 1.16(i))	*	Minus	**	=	x \$0 =
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x \$0 =
	☐ Application Size Fee (37 CFR 1.16(s))					
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
TOTAL ADD'L FEE						
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.						HSLIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						/TRACIE V HARGROVE/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".						
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.						

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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USPTO Automated Interview Request (AIR)

Jun 28 2022

This paper requesting to schedule and/or conduct an interview is appropriate because:

This submission is requested to be accepted as an authorization for this interview to communicate via the internet. Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with the undersigned concerning scheduling of the interview via video conference, instant messaging, or electronic mail, and to conduct the interview in accordance with office practice including video conferencing.

Name(s) :
jong andrew park

S-signature:
/jong andrew park/

Registration Number:
56917

U.S. Application Number:
17486512

Confirmation Number:
7235

E-mail Address:
apark@ip-patent.com

Phone Number:
+1 6508046375

Proposed Time of Interview:
7-5-2022 2:00 PM ET

Preferred Interview Type:
Telephonic

I am the applicant or applicant's representative for this application.

Topic for Discussion:
Proposed claim amendment





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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/486,512	09/27/2021	Braden River Pezeshki	UNSTP003	7235
21912	7590	04/11/2022		
VAN PELT, YI & JAMES LLP 10050 N. FOOTHILL BLVD #200 CUPERTINO, CA 95014			EXAMINER ROBINSON, CHRISTOPHER B	
			ART UNIT	PAPER NUMBER
			2443	
			NOTIFICATION DATE	DELIVERY MODE
			04/11/2022	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):

usptocorrespondence@ip-patent.com

Office Action Summary

Application No.

17/486,512

Applicant(s)

Pezeshki et al.

Examiner

CHRISTOPHER B ROBINSON

Art Unit

2443

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 09/27/2021.

☐ 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) 1-20 is/are pending in the application.

5a) Of the above claim(s) ____ is/are withdrawn from consideration.

6) ☐ Claim(s) ____ is/are allowed.

7) ☒ Claim(s) 1-20 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 09/27/2021 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)

3) ☐ Interview Summary (PTO-413)

Paper No(s)/Mail Date ____.

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)

4) ☐ Other: ____.

Paper No(s)/Mail Date 12/07/2021.

DETAILED ACTION

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.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 12/07/2021 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a)(2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.

Claim(s) 1-3, 9, 15, 19-20 is/are rejected under 35 U.S.C. 102 (a) (2) as being anticipated by Xiao (US 2021/0240784 A1).

Re Claim 1, 19-20, **Xiao** teaches a method, comprising:

receiving a request to resolve a name of a domain of an identifier of web content;
(Xiao; FIG. 1-7; ¶ [0047]- [0054], [0095]- [0132]; The embodiment(s) detail receiving a request to identify web pages.)

automatically determining that the name of the domain is to be resolved using a blockchain; (Xiao; FIG. 1-7; ¶ Background, [0047]- [0054], [0095]- [0132]; The system automatically determines names of web pages using a blockchain.)

sending a request to a smart contract of the blockchain to obtain one or more resolution records for the domain; (Xiao; FIG. 1-7; ¶ [0047]- [0082], [0095]- [0132]; Sending a request to a smart contract of the block chain to obtain an address/URL.)

receiving the one or more resolution records of the domain; and (Xiao; FIG. 1-7; ¶ [0047]- [0082]; The system receives the record of the web pages/website.)

utilizing the received one or more resolution records to resolve the name of the domain. (Xiao; FIG. 1-7; ¶ [0047]- [0082], [0095]- [0132]; The records are used to determine the website/web page.)

Re Claim 2, **Xiao** discloses the method of claim 1, wherein the identifier of the web content includes a Uniform Resource Locator (URL). (Xiao; FIG. 1-7; ¶ [0070]- [0078]; A uniform resource locator.)

Re Claim 3, **Xiao** discloses the method of claim 1, wherein the request is received at a web browser. (Xiao; FIG. 1-7; Background, ¶ [0049]; A search engine.)

Re Claim 9, **Xiao** discloses the method of claim 1, wherein the one or more resolution records include a redirect address. (Xiao; FIG. 1; ¶ [0074]- [0078]; The system determines a second address associated with the request in the block chain.)

Re Claim 15, **Xiao** discloses the method of claim 1, wherein utilizing the received one or more resolution records to resolve the name of the domain includes providing a response including at least a portion of the one or more resolution records to a web browser. (Xiao; FIG. 1; Background, ¶ [0049]- [0054]; A search engine employed to resolve domain names and subsequent transmission between.)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim(s) 4-5, 8 is/are rejected under 35 U.S.C. 103 as being unpatentable over Xiao (US 2021/0240784 A1) and further in view of LI et al. (US 2019/0166085 A1).

Re Claim 4, **Xiao** discloses the method of claim 1, yet does not explicitly suggest wherein the request is received at a Domain Name System (DNS) gateway configured to handle resolution of domains of a blockchain-based name service.

However, in analogous art, **LI** teaches wherein the request is received at a Domain Name System (DNS) gateway configured to handle resolution of domains of a blockchain-based name service. (LI; FIG. 1; ¶ [0002]- [0019], [0033]- [0041]; The embodiment(s) detail requests resolved at a DNS server associated with domains and blockchains.)

It would have been obvious to one ordinary skill in the art before the effective filing date of the claimed invention to modify **Xiao** in view of **LI** to utilize a DNS server for the reasons of improve a block chain domain name resolution system that employ layer structure top-level domain name chain networks. (LI Abstract)

Re Claim 5, **Xiao** discloses the method of claim 1, yet does not explicitly suggest wherein determining that the name of the domain is to be resolved using the blockchain includes determining that a top-level domain included in the name of the domain matches an entry in a list of domains to be resolved using the blockchain.

However, in analogous art, **LI** teaches wherein determining that the name of the domain is to be resolved using the blockchain includes determining that a top-level domain included in the name of the domain matches an entry in a list of domains to be resolved using the blockchain. (LI; FIG. 1; Summary, ¶ [0033]- [0056]; The embodiment(s) detail top level domain name resolution.)

It would have been obvious to one ordinary skill in the art before the effective filing date of the claimed invention to modify **Xiao** in view of **LI** to utilize a DNS server for the reasons of improve a block chain domain name resolution system that employ layer structure top-level domain name chain networks. (LI Abstract)

Re Claim 8, **Xiao** discloses the method of claim 1, yet does not explicitly suggest wherein the one or more resolution records include an Internet Protocol (IP) address.

However, in analogous art, **LI** teaches wherein the one or more resolution records include an Internet Protocol (IP) address. (LI; FIG. 1; ¶ [0004]- [0006]; An IP address associated with the resolution.)

It would have been obvious to one ordinary skill in the art before the effective filing date of the claimed invention to modify **Xiao** in view of **LI** to utilize a DNS server for the reasons of improve a block chain domain name resolution system that employ layer structure top-level domain name chain networks. (LI Abstract)

Claim(s) 6 is/are rejected under 35 U.S.C. 103 as being unpatentable over Xiao (US 2021/0240784 A1) and further in view of Qiu (US 2019/0253252 A1).

Re Claim 6, **Xiao** discloses the method of claim 1, yet does not explicitly suggest wherein the determination that the name of the domain is to be resolved using the blockchain is performed using an extension of a web browser.

However, in analogous art, **Qiu** teaches wherein the determination that the name of the domain is to be resolved using the blockchain is performed using an extension of a web browser.

It would have been obvious to one ordinary skill in the art before the effective filing date of the claimed invention to modify **Xiao** in view of **Qiu** to resolve requests for the reasons of implementing block chains. (Qiu Abstract)

Claim(s) 7 is/are rejected under 35 U.S.C. 103 as being unpatentable over Xiao (US 2021/0240784 A1) and further in view of Wright et al. (US 2019/0043048 A1).

Re Claim 7, **Xiao** discloses the method of claim 1, yet does not explicitly suggest wherein sending the request to the smart contract includes calculating a token identifier for the name of the domain using a hash function and using the token identifier as an identifier of the domain when sending the request.

However, in analogous art, **Wright** teaches wherein sending the request to the smart contract includes calculating a token identifier for the name of the domain using a hash function and using the token identifier as an identifier of the domain when sending the request. (Wright; FIG. 1; ¶ [0001]- [0020], [0202]; The embodiment(s) detail block chains, tokens and a hash value associated with requests.)

It would have been obvious to one ordinary skill in the art before the effective filing date of the claimed invention to modify **Xiao** in view of **Wright** to resolve requests for the reasons of creating a system for controlling block chains. (Wright Abstract)

Claim(s) 10 is/are rejected under 35 U.S.C. 103 as being unpatentable over Xiao (US 2021/0240784 A1) and further in view of KING (US 2018/0115413 A1).

Re Claim 10, **Xiao** discloses the method of claim 1, yet does not explicitly suggest wherein the one or more resolution records include a decentralized web content hash identifier.

However, in analogous art, **KING** teaches wherein the one or more resolution records include a decentralized web content hash identifier. (KING; FIG. 1; Background,

Summary, ¶ [0021]- [0028]; The embodiment(s) detail a decentralized web content has identifier.)

It would have been obvious to one ordinary skill in the art before the effective filing date of the claimed invention to modify **Xiao** in view of **KING** to include a has function for the reasons of includer a hash value for fast tracking. (KING Abstract)

Claim(s) 11 is/are rejected under 35 U.S.C. 103 as being unpatentable over Xiao (US 2021/0240784 A1) and further in view of Snow (US 2020/0044827 A1).

Re Claim 11, **Xiao** discloses the method of claim 1, yet does not explicitly suggest wherein the one or more resolution records include a plurality of target identifiers for different protocols.

However, in analogous art, **Snow** teaches wherein the one or more resolution records include a plurality of target identifiers for different protocols. (Snow; FIG. 1, 13, 30-32; ¶ [0043]- [0045], [0120], [0142]- [0147], [0179]- [0181]; The embodiment(s) detail methodology similar in concept and compared to the stated claim limitation that includes various protocol that are use in a process of identifying elements of the block chain.)

It would have been obvious to one ordinary skill in the art before the effective filing date of the claimed invention to modify **Xiao** in view of **Snow** to resolve records for the reasons of employing protocols to effectively separate block chains. (Snow Abstract)

Claim(s) 12-14 is/are rejected under 35 U.S.C. 103 as being unpatentable over Xiao (US 2021/0240784 A1), in view of Snow (US 2020/0044827 A1) and further in view of Mapes (WO 2020/051160 A1).

Re Claim 12, **Xiao-Snow** discloses the method of claim 11, yet does not explicitly suggest wherein utilizing the received one or more resolution records to resolve the name of the domain includes selecting one of the plurality of target identifiers based on an ordered list of protocol preferences.

However, in analogous art, **Mapes** teaches wherein utilizing the received one or more resolution records to resolve the name of the domain includes selecting one of the plurality of target identifiers based on an ordered list of protocol preferences. (Mapes; FIG. 1-8; Page(s) 2, 7, 8-14; The embodiment(s) detail comparable methodology that includes various protocols, domain resolution and various identifiers or block chain data.)

It would have been obvious to one ordinary skill in the art before the effective filing date of the claimed invention to modify **Xiao-Snow** in view of **Mapes** to resolve records for the reasons of including spatial transactions that allow for the improved transition of block chains. (Mapes Abstract)

Re Claim 13, **Xiao-Snow-Mapes** discloses the method of claim 12, wherein the ordered list of protocol preferences is at least in part specified in the one or more resolution records received using the blockchain. (Mapes; FIG. 1-8; Page(s) 2, 7, 8-14; Resolution based on information in the block chain such as domains, identifiers and URLs.)

It would have been obvious to one ordinary skill in the art before the effective filing date of the claimed invention to modify **Xiao-Snow** in view of **Mapes** to resolve

records for the reasons of including spatial transactions that allow for the improved transition of block chains. (Mapes Abstract)

Re Claim 14, **Xiao-Snow-Mapes** discloses the method of claim 12, wherein selecting the one of the plurality of target identifiers based on the ordered list of protocol preferences includes evaluating each protocol specified in an order of the ordered list to determine whether there exists a specific target record for the protocol. (Mapes; FIG. 1-8, Page(s) 2, 7, 8-14; The embodiment(s) detail identifiers, protocols, various user settings.)

It would have been obvious to one ordinary skill in the art before the effective filing date of the claimed invention to modify **Xiao-Snow** in view of **Mapes** to resolve records for the reasons of including spatial transactions that allow for the improved transition of block chains. (Mapes Abstract)

Claim(s) 16-18 is/are rejected under 35 U.S.C. 103 as being unpatentable over Xiao (US 2021/0240784 A1) and further in view of Smith et al. (US 2019/0349426 A1).

Re Claim 16, **Xiao** discloses the method of claim 1, yet does not explicitly suggest wherein utilizing the received one or more resolution records to resolve the name of the domain includes providing an identifier of a decentralized web gateway.

However, in analogous art, **Smith** teaches wherein utilizing the received one or more resolution records to resolve the name of the domain includes providing an

identifier of a decentralized web gateway. (Smith; FIG. 1, 155-156, 180; ¶ [1111]-[1128], [1305]; The embodiment(s) detail the identifying of network elements.)

It would have been obvious to one ordinary skill in the art before the effective filing date of the claimed invention to modify **Xiao** in view of **Smith** to resolve records for the reasons of providing communication to a large number of IoT devices. (Smith Abstract)

Re Claim 17, **Xiao-Smith** discloses the method of claim 16, wherein in response to a request made to the decentralized web gateway using the provided identifier of the decentralized web gateway, (Smith; FIG. 61; ¶ [0338], [1345]- [1354]; Identifiable elements in a decentralized web.)

the decentralized web gateway obtains from a decentralized content network, (Smith; FIG. 1, 155, 233; ¶ [1103], [1345]- [1353]; The embodiment(s) detail a decentralized network with content.)

decentralized web content referenced by a decentralized web content hash value included in the one or more resolution records of the domain, and (Smith; FIG. 1, 233, 244; ¶ [0335], [0461]- [0466], [1654]- [1662], [1700]- [1702]; The embodiment(s) detail decentralized content, hash values and web pages/sites.)

stores and provides the obtained decentralized web content. (Smith; FIG. 1, 155, 191, 233; ¶ [1103], [1345]- [1366]; The embodiment(s) detail a decentralized network with stored content.)

It would have been obvious to one ordinary skill in the art before the effective filing date of the claimed invention to modify **Xiao** in view of **Smith** to resolve records for

the reasons of providing communication to a large number of IoT devices. (Smith
Abstract)

Re Claim 18, **Xiao-Smith** discloses the method of claim 17, wherein the decentralized web gateway obtains the content referenced by the decentralized web content hash value using a decentralized web protocol but provides the obtained decentralized web content using a protocol that is not the decentralized web protocol. (Smith; FIG. 1; ¶ [0287], 0511]- [0513], [0548]- [0564]; Various network protocols in the decentralized network to transmit content.)

It would have been obvious to one ordinary skill in the art before the effective filing date of the claimed invention to modify **Xiao** in view of **Smith** to resolve records for the reasons of providing communication to a large number of IoT devices. (Smith
Abstract)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **CHRISTOPHER B ROBINSON** whose telephone number is **(571)270-0702**. The examiner can normally be reached **M-F 7:00-3:00 EST**.

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, Nicholas R Taylor can be reached on 571-272-3889. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: <https://patentcenter.uspto.gov>. Visit <https://www.uspto.gov/patents/apply/patent-center> for more information about Patent Center and <https://www.uspto.gov/patents/docx> for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/CHRISTOPHER B ROBINSON/
Primary Examiner, Art Unit 2443

<i>Notice of References Cited</i>	Application/Control No. 17/486,512		Applicant(s)/Patent Under Reexamination Pezeshki et al.	
	Examiner CHRISTOPHER B ROBINSON		Art Unit 2443	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20210240784-A1	08-2021	Xiao; Shiyuan	G06F16/258	1/1
*	B	US-20190166085-A1	05-2019	LI; Hui	H04L61/1535	1/1
*	C	US-20190043048-A1	02-2019	Wright; Craig Steven	H04L9/3247	1/1
*	D	US-20180115413-A1	04-2018	KING; David J.	H04L9/30	1/1
*	E	US-20200044827-A1	02-2020	Snow; Paul	D03D1/0088	1/1
*	F	US-20190349426-A1	11-2019	Smith; Ned M.	H04L67/2809	1/1
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N	WO-2020051160-A1	03-2020	WO	GESELOWITZ L A	
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<i>Search Notes</i> 	Application/Control No. 17/486,512	Applicant(s)/Patent Under Reexamination Pezeshki et al.
	Examiner CHRISTOPHER B ROBINSON	Art Unit 2443

CPC - Searched*		
Symbol	Date	Examiner
H04L61/1511 H04L9/3236 H04L12/66 H04L61/2007 H04L67/02	04/06/2022	CR

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

/CHRISTOPHER B ROBINSON/ Primary Examiner, Art Unit 2443	
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<i>Search Notes</i> 	Application/Control No. 17/486,512	Applicant(s)/Patent Under Reexamination Pezeshki et al.
	Examiner CHRISTOPHER B ROBINSON	Art Unit 2443

Search Notes		
Search Notes	Date	Examiner
H04L61/1511 H04L9/3236 H04L12/66 H04L61/2007 H04L67/02 CPC searched. Text Limited.	04/06/2022	CR
Google Scholar Search conducted, History attached.	04/06/2022	CR
IEEE Search conducted, History attached.	04/06/2022	CR
IP.com Search conducted, History attached.	04/06/2022	CR
Google Patents Search conducted, History attached.	04/06/2022	CR
IDS searched and considered.	04/06/2022	CR
Key Term(s) include: request\$3 resolv\$3 nam\$3 domain\$3 ident\$4 web content\$3 automatic\$4 (block NEAR2 chain) smart contract\$3 resolution\$3 record\$3, ((blockchain) OR (block NEAR2 chain)) domain\$3 resolv\$4 browser\$3 hash\$3 token\$3 (IP NEAR2 address \$3) decentralized protocol\$3 (gateway or server).	04/06/2022	CR
Database search include: USPGPUB, USPAT, USOCR, FIT, FPRS, EPO, JPO, DERWENT, IBM, Google, IEEE, IP.com.	04/06/2022	CR

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

/CHRISTOPHER B ROBINSON/ Primary Examiner, Art Unit 2443	
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Doc code: IDS

PTO/SB/08a (02-18)

Doc description: Information Disclosure Statement (IDS) Filed

Approved for use through 11/30/2020. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)

Application Number	17486512
Filing Date	2021-09-27
First Named Inventor	Braden River Pezeshki
Art Unit	17/486,512 - GAU: 2443
Examiner Name	/CHRISTOPHER B ROBINSON/
Attorney Docket Number	UNSTP003

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	17486512
Filing Date	2021-09-27
First Named Inventor	Braden River Pezeshki
Art Unit	17/486,512 - GAU: 2443
Examiner Name	/CHRISTOPHER B ROBINSON/
Attorney Docket Number	UNSTP003

1	Nick Johnson, "EIP-137: Ethereum Domain Name Service - Specification," Ethereum Improvement Proposals, no. 137, April 2016. [Online serial]. Available: https://eips.ethereum.org/EIPS/eip-137 .
2	Phyrex Tsai, Portal Network Team, "EIP-1062: Formalize IPFS hash into ENS(Ethereum NameService) resolver [DRAFT]," Ethereum Improvement Proposals, no. 1062, May 2018. [Online serial]. Available: https://eips.ethereum.org/EIPS/eip-1062 .

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Examiner Signature	/CHRISTOPHER B ROBINSON/	Date Considered	04/06/2022
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(Not for submission under 37 CFR 1.99)

Application Number	17486512
Filing Date	2021-09-27
First Named Inventor	Braden River Pezeshki
Art Unit	
Examiner Name	/CHRISTOPHER B ROBINSON/
Attorney Docket Number	UNSTP003

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Signature	/Jong Andrew Park/	Date (YYYY-MM-DD)	2021-12-06
Name/Print	Jong Andrew H. Park	Registration Number	56917

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A brief review of **blockchain**-based DNS systems

S Al-Mashhadli, S Manickam - International Journal of ..., 2020 - inderscienceonline.com

... DNS by having a resolver to **resolve** the **domain** name and a registry which is ... **blockchain**", which maintain the **domain** registration and life cycle. The **domain** www.ethdns.xyz is **resolved** ...

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IoT root union: a decentralized name **resolving** system for IoT based on **blockchain**

S Su, Z Tian, S Li, J Deng, L Yin, X Du... - Information Processing & ..., 2021 - Elsevier

... Fortunately, a similar problem has already been considered by blockstack, which keeps records of **domain** names and index of zone files on the **blockchain** ledger, and storage zone file ...

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Leopard: Understanding the threat of **blockchain domain** name based malware

Z Huang, J Huang, T Zeng - ... Conference on Passive and Active Network ..., 2020 - Springer

... the **domain** names can not be **resolved** by standard DNS servers. We named them **blockchain domain** ... BDNs leverage a new decentralized **domain** name system (DNS) to map **domain** ...

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Technical aspects of **blockchain** and IoT

HF Atiam, GB Wills - Advances in computers, 2019 - Elsevier

... **Resolving** these challenges can be done by integrating IoT with **blockchain** technology. To be ... usability from the perspective of the **cryptocurrency domain** should allow users to analyze ...

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Demystifying **blockchain**: A critical analysis of challenges, applications and opportunities

N Upadhyay - International Journal of Information Management, 2020 - Elsevier

... space), it has potential challenges that need to be **resolved**; opportunities to be explored, and ... made in the **domain** of **blockchain**. To further research on **blockchain** adoption, the paper ...

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Towards a design philosophy for interoperable **blockchain** systems

T Hardjono, A Lipton, A Pentland - arXiv preprint arXiv:1805.05934, 2018 - arxiv.org

... **blockchain**: Any external entities seeking to lookup/**resolve** an identifier (eg linked to the asset) must always **resolve** to the correct authoritative **blockchain** ... the cross**domain** transaction ...

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Blockchain and Internet of Things: A bibliometric study

M Kamran, HU Khan, W Nisar, M Farooq... - Computers & Electrical ..., 2020 - Elsevier

... **domains** has solved numerous relevant problems, it has potential to **resolve** the issues of privacy and security in the **domain** ... **Blockchain** in the **domain** of IoT gives birth to a new **domain** ...

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Towards a **blockchain**-based certificate authentication system in Vietnam

BM Nguyen, TC Dao, BL Do - PeerJ Computer Science, 2020 - peerj.com

... **blockchain** research and application trends to make out our contributions in this **domain**. ... in Vietnam and the capability of applying **blockchain** to **resolve** it based on its functionalities: anti...

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A Review of **Blockchain** in Internet of Things and AI

HF Atiam, MA Azad, AG Alzahrani, G Wills - Big Data and Cognitive ..., 2020 - mdpi.com

... **blockchain** by highlighting how **blockchain resolved** issues of IoT, the architecture of IoT with **blockchain**, why **blockchain** ... reality that **blockchain** can be utilized in numerous **domains**. ...

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Medshard: Electronic health record sharing using blockchain sharding

F Hashim, K Shuaib, F Sailabi - Sustainability, 2021 - mdpi.com

... to the literature by **resolving** the scalability issue in healthcare **blockchain** and providing an
... This study applies a sharding technique in the healthcare **blockchain domain** to efficiently ...

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Publication Number: WO 2020/051160 A1
PUBLISHED ON: 12-Mar-2020
Application Number: PCT/US2019/049396
FILED ON: 3-Sep-2019

Spatial transaction protocol (English)

Protocole de transaction spatiale (French)

WIPO Inventive Application Publication (English: IP)	
Inventors: MAPES, Dan Raymond RENE, Gabriel Joseph Bradley GESELOWITZ, LEWEY ALEC TREMAYNE, Toby	Classifications: International (2006.01, invention): G06F 17/30 Cooperative (2013.01.01, invention): H04L 67/12 (EP); G06Q 20/00 (EP); G06Q 20/02 (EP); G06Q 20/223 (EP); G06Q 30/08 (EP); H04L 63/123 (EP); H04L 9/3239 (EP); H04L 9/3247 (EP) Cooperative (2013.01.01, additional): G06Q 2220/00 (EP); G06Q 50/28 (EP); H04L 2209/38 (EP)
Applicants: MAPES, Dan Raymond RENE, Gabriel Joseph Bradley GESELOWITZ, LEWEY ALEC TREMAYNE, Toby CYBERLAB LLC (US)	Priority: US 62/726,312 P (3-Sep-2018)
Attorney, Agent or Firm: VOLLRATH, JURGEN KLAUS (US)	
Backward Patent Citations: (Cited by: (EX) = examiner) US 2006/0085477 A1 Techniques for retrieving documents using an image capture device (20-Apr-2006) [(EX)] US 2007/0118542 A1 System, Method and Computer Program for Faceted Classification Synthesis (24-May-2007) [(EX)] US 2012/0047160 A1 Querying sensor data stored as binary decision diagrams (23-Feb-2012) [(EX)]	

Abstract (English)

In a Spatial Transaction Protocol, spatial queries, spatial transactions, and spatial contracts are communicated in a manner suitable for a dynamic mixture of real-time, single-authority and decentralized ledgers. This allows individual spaces and authorities to interactively contract the entry, exit, and movement transactions within their domains; and for these mechanisms to be queried with resolution-appropriate fidelity and bandwidth utilization.

Abstract (French)

Dans un protocole de transaction spatiale, des interrogations spatiales, des transactions spatiales et des contrats spatiaux sont communiqués de manière appropriée pour un mélange dynamique de registres en temps réel, à autorité unique et décentralisés. Ceci permet aux espaces et aux autorités individuels de contracter de manière interactive des transactions d'entrée, de sortie et de mouvement au sein de leurs domaines ; et à ces mécanismes d'être interrogés avec une fidélité et une utilisation de bande passante appropriées en termes de résolution.

Document Description

SPATIAL TRANSACTION PROTOCOL

The present application claims priority from US provisional patent application number 62/726,312 filed Sept 3, 2018 in the name of Gabriel Rene and Toby Tremayne.

Field of the Invention

The invention relates to the field of computer communication protocols and the exchange of spatial content.

Background of the Invention

The challenge in implementing something like industry 4.0, or controlling the movement of goods, people or traffic across land, air or sea, or validating transfer of real estate or other commodities, and documenting these events and transactions between parties, lies in the efficient querying, visualization and transactions over these objects, most vitally including validation of any changes to those objects, their locations, and their ownership.

Traditional digital communication protocols, whether for networking (e.g. TCP/IP, UDP) or transfers of content and information (such as HTTP, FTP or SMTP) typically lack even a single "spatial" dimension. In particular, they do not possess the ability to explicitly describe, query or update the specific location or position of an object within a physical or virtual space, nor include the language that relates those spatial relationships to permissions and trade contracts. The present invention achieves this through, among other things, novel applications of "smart contracting" techniques, such as the use of smart contracts not just to facilitate "commerce" in the conventional sense, but also to serve as a rule-based permissioning and

communications system. Summary of the Invention

The present invention relates generally to providing "spatial" Internet experiences to users and, more specifically, to a protocol that allows human beings and devices (including virtual entities like robots and holographic content) to interact with one another in a manner that takes into account their relative location in physical or virtual space.

Thus, according to the present invention there is provided an STP (Spatial Transaction Protocol), also referred to herein as the Hyperspace Transaction Protocol (HSTP), which can be thought of as an alternative or layer over traditional filename-based HTTP by providing for spatial querying, returning of spatial content and related information about assets, requesting changes to those assets, defining spatial permission contracts for transactions over those assets, and describing how these may be distributed and routed over a network.

The invention, thus defines a protocol enabling a decentralized consensus network for registering and transacting spatial information concerning any physical, digital or hybrid (i.e. "digital twin") asset, comprising inter alia a cluster of graph-like databases consistently expressible in in-memory or distributed ledgers, connected via decentralized resolvers, scalable via spatial routing mechanisms, including smart contract permission standards, and assorted spatial content facilities, all organized and able to communicate via a set of spatial queries, transactions and permissions that factor in: (i) the size and shape of an asset; (ii) its geographic, celestial and/or virtual position (whether on the Earth or in relation to other related objects); (iii) its proper display resolution when reproduced digitally; (iv) any permissions that govern the behavior of the asset; and (v) in certain cases its time and frequency (either wavelength or periodicity).

HSTP uses spatial smart contracts as a versatile tool in order to achieve these tasks. This may include relating asset ownership, spatial occupancy, physical and relative location, permissions and wallet modeling; all in a manner suitable for local and distributed validation and consensus. Cross-asset smart contract side-effects (transactions that are dependant on a primary transaction) are provided as required suggestions to the user during transaction validation, so that clients can choose to apply those changes as part of the primary transaction, creating a valid overall transaction including those side-effect changes. To that end, the invention also "spatializes" contracts, allowing for efficient visual representations of all the interrelationships between contracting parties from a spatial perspective. This allows a smart contract to serve multiple functions beyond the buying/selling goods and services.

The present application defines the grammar for the protocol and the grammar for the contracts.

The HSTP includes spatial range queries that include level-of-detail quantized queries.

Thus, according to one aspect of the invention, there is provided a Spatial Transaction Protocol (Hyperspace Transaction Protocol) (HSTP), which includes packet structures for querying, defining and updating assets within a spatial range, comprising spatial quantized range queries/views defined by a range and a reference space. These packets may be sent to a server or peer-node network.

The spatial quantized range queries allow for the requesting of files in a certain area and at a particular resolution (not just a request for a specific file/asset but all content in a certain area).

HSTP also provides spatial smart contracts, i.e., not just accessing the files but also downloading the associated spatial smart contracts, which define how the assets can move/be modified, and what the permissions are so that when an asset is downloaded you know what you can do with it. Thus, according to the invention, there is provided a Hyperspace transaction protocol (HSTP) for spatial querying, and returning spatial assets and associated content payloads, and for requesting changes to those assets, comprising spatial quantized range queries for requesting files in a certain area, spatial transactions, spatial smart contracts to validate transactions that are downloaded when a file is accessed and to define what may be done with an asset, in a manner suitable for multi-party consensus ledgers.

The smart contract includes an approval expression over a transaction, which defines whether the associated holder of the contract approves of the transaction. Approval is required for transactions on the asset and from its associated owner and space contracts, and consequently approval from the asset must be calculated for transactions on assets which it owns or which are hierarchically within it's space.

The HSTP also operates in a cross-ledger fashion and includes a financial model. The cross-ledger contracting allows ownership and occupancy contracts to control locally and remotely instanced assets (effectively assets have their own permission contract, and reference to two other assets, the owner and space, whose contracts are also required to be validated in a complete solution; this creates a cross ledger permission system). It also provides for self-sovereign identity (user validation via anonymous credentials) and can be implemented on cloud-based and/or blockchain platforms. For example, the requester of the transaction can be confirmed by decrypting the user's credentials or the whole transaction based on a public key of the asset which itself can be on a separate ledger. In one embodiment, a HyperLedger Fabric blockchain is used to store assets and to validate their contract by embedding the HSTP contract evaluation engine in the smart contract; this would actually allow two separate blockchains running equivalent smart contracts to enforce cross-ledger asset requirements. By building in a financial model that enables economic transactions that can be programmatic, automated and spatially bound or oriented, it also allows creators to be compensated for their work and creates a business model for creators and an incentive to create, instead of basing the business model on advertising where only the service provider benefits.

The spatial range queries may include one or more of: asset definitions, spatial location information, spatial content information, spatial view information, and, as mentioned above, can be expressed as level-of-detail quantized queries (zoom level ie. How many pixels to define the data) - hence the use of the term Spatial Quantized Range Queries.

According to the invention there is provided a spatial transaction protocol (STP) for spatial querying, returning spatial content and assets, and for requesting changes to those assets, comprising

spatial quantized range queries for requesting assets in a certain area, spatial transactions over those assets or ranges,

spatial smart contracts to validate transactions and define what may be done with an asset, and

a decentralized identity referencing mechanism to support multi-party consensus ledgers and cross-ledger contracting.

The spatial quantized range queries may include one or more of: asset definitions, spatial location information, spatial resolution information, spatial packing information, and spatial content information.

The STP may further including means for at least one of wallet modeling, and cross-ledger contracting facilitating atomic swaps.

A spatial quantized range query may include a view defined by a range and a basis space and content graph of existing visible features, that is sent to a server or peer node and specifies what a requestor would like to see, and a result (state) of that view, which is sent back by the server or peer node.

The spatial smart contracts may be expressed as an interpretable JSON expression, and provide bounded evaluation time.

Further, according to the invention, there is provided a Spatial Transaction Protocol (STP), which includes:

a spatial quantized range query, comprising

a view defined by a range and a space that is sent to a server or peer node and specifies what a requestor would like to see,

a result of that view, which is sent back to the requester, and

a transaction protocol to change the assets.

The view may include one or more of requestor information, cryptographic signature information, existing requester visible information for view estimation, and location information.

The location information may be defined in various dimensions instead of being hard coded in the STP. The dimensions may include one or more of xyz, longitude/latitude, and time.

The view, may further include a search field, and vector or profile id for prioritizing the results of the view.

The requestor information may include a signature, wherein the signature may comprise a signature by a private key of a requestor that can be validated against a public key.

The requestor information may further include means to notify the requester if the view is modified (subscription mechanism).

The result of the view may include background content, and a list of assets. Each asset may include sufficient values to contractually validate any change. Each asset may include:

An asset ID, with authority information,

an OWNER asset ID for the asset, with authority information, a SPACE asset ID for the asset, with authority information, a location,

contained content, and

a permissible transaction contract

The asset ID may include a public key and one or more consensus authorities. The location may support multiple coordinate systems, expressed as at least one of a point value and a quantized range. The location may further supports providing resolutions for each dimension of the space.

The STP may further include dimensional packing information.

The asset may further include space and time route information, and may include a wallet value of the asset. The asset may be associated with a contract which defines what can be done with the asset and with any content. The asset may further define a default contract associated with the asset, which requires that any change to an asset can only be made if the owner or asset itself is also the requester. The asset may further include a public signing key, which allows an asset to validate transactions as being requested from itself.

Still further, according to the invention, there is provided a method of managing a spatial domain, and actions within that domain, by representing the domain as an asset, wherein the asset information includes at least one of spatial location information, spatial permissioning information, and user validation.

The spatial permissioning information may include governance of permissible transactions on the asset itself, as well as on other assets within its domain. The spatial location information may include at least one coordinate system, a point value, and a range.

The asset may be a physical or virtual asset. Still further, according to the invention, there is provided a method of transmitting and storing spatial information, as interconnected assets, comprising

creating packets that include:

a packet type comprising at least one of query, result, and transaction;

at least one of target asset ID and location,

a set of asset definitions, wherein the asset definitions include at least one of identity, owner, space, location, content, contract, and wallet-value.

The location may support multiple coordinate systems, and may include a range. The location may further supports a resolution for the space.

The asset may further include route information.

Still further, according to the invention, there is provided a method of decentralized routing comprising routing of packets based on at least one of their spatial destinations, relative spatial locations, and spatial permission contract.

Still further, according to the invention, there is provided a spatial domain system (SDS) for real and virtual assets, comprising

an asset ID

an associated authentication key,

an owner ID of the asset,

a space ID of the space that the asset exists within, and a location.

The location may support multiple coordinate systems, each comprising at least one of a point value, and a range. The location may further support a resolution for the space. Still further, according to the invention, there is provided a spatial browser for interacting with a spatial network via requests, comprising

view query code defining a range and a space related to a view query, state code for viewing information received in response to a view query, and a transaction code to create or change assets and their associated attributes.

The requests may include requester information and supporting authentication material.

The location information may be defined in various dimensions and is not hard coded in the view query code.

Still further, according to the invention, there is provided a method of managing inventory tasks, comprising

defining items in inventory as assets, wherein the asset definition includes, spatial information and contracting information, that expresses tasks as permissions within temporal and spatial bounded routes.

The spatial information may further include user validation information.

The method may further comprise generating virtual assets for physical assets. The method may comprise spatially anchoring the virtual assets relative to one or more reference asset locations.

Still further, according to the invention, there is provided a method of validating the movement of goods from one location to another location, comprising

defining at least one of goods and containers housing the goods, as assets,

associating spatial information with each asset, wherein the spatial information includes an asset transaction permission contract.

The spatial transaction permission contract may further include route information. The method may further comprise associating bill of lading information with the spatial information.

The asset may include information about relative location of an asset within another asset.

A valid range of movement of the asset may be visualized as part of a view query, and may be defined in various dimensions, and is not hard coded in the view query.

The dimensions may include at least one of time, temperature, location, and pressure.

The asset may include at least one of a signature, public key, and biometric information.

The signature may include a cryptographic signature of a requester that can be validated against a public key.

Still further, according to the invention, there is provided a method of providing an authenticated checkout for goods sold to purchasers by a store, comprising

defining the goods or groups of goods, purchasers, and the store as assets, and

associating spatial information with each asset, wherein the asset information includes an asset transaction permission contract.

The method may further comprise capturing at least one of user validation information, and payment information, and may comprise generating a view of the assets.

The method may comprise locating the assets relative to one or more references based on the spatial information.

Still further, according to the invention, there is provided a method of managing traffic to enable collaboration between vehicles, comprising

associating spatial information with each vehicle, wherein the vehicles, roads and nearby entities are defined as assets and the spatial information includes a spatial permission contract communicating one vehicle's responses to physical and digital signals from other assets.

The vehicle may be a land, airborne or waterborne vehicle.

The spatial information may further include spatial content information, comprising at least one of visualization models, collision estimation models, and routing models. The spatial information may include one or more coordinate systems, defined and aligned by a scene graph of visual recognition feature points.

The communicated spatial information may vary relative to the resolution of a requesting view query of a particular communication.

Brief Description of the Drawings

Figure 1 is a view of a human body analogy to a network;

Figure 2 shows the concept of nested domains;

Figure 3 is a depiction showing nesting and spatial domain localization;

Figure 4 is a depiction of a graph database as known in the art;

Figures 5A-5C show various view query types;

Figures 6A-6D show implementation examples of visual tracking in accordance with the invention;

Figures 7A-7C depict one implementation of quantized media in accordance with the present invention;

Figure 8 A and 7B depict the handling of bounds and rotations in the prior art; Figure 8C depicts the handling of rotations and bounds in the protocol of the present invention;

Figures 9A-9C shows visual depictions of various contract clauses in accordance with the invention;

Figure 10 shows a flow chart depicting the logic in one embodiment of a transaction generation and validation in accordance with the invention; Figure 11 shows one example of HSTP integration in a warehouse application in accordance with the invention;

Figure 12 visually depicts HSTP host integrations in accordance with one embodiment of the invention;

Figure 13 shows one implementation of HSTP app and SDK layers in accordance with the invention;

Figure 14 is a depiction of one embodiment of HSTP protocol packets in accordance with the present invention;

Figure 15 is a depiction of the primary properties of an asset in accordance with the invention;

Figure 16 examples of different methods of defining location and dimensions;

Figure 17 is a depiction of DIDs in accordance with one embodiment of the invention, compared to URLs;

Figure 18 is a flow diagram of the DID architecture and credential proof flow;

Figure 19 is a depiction of the relationship between transactions, contracts and validation, in accordance with one embodiment of the invention;

Figure 20 is a depiction of contract validation in accordance with one embodiment of the invention;

Figure 21 is a depiction of the handling of the movement of assets in accordance with one embodiment of the invention;

Figure 22 is an overview of one embodiment of an HSTP packet in accordance with the invention;

Figure 23 shows JSON grammar for HSTP in accordance with one embodiment of the invention;

Figure 24 is an example of a data query in accordance with one embodiment of the present invention;

Figure 25 is an example of a data request result in accordance with one embodiment of the present invention, and

Figure 26 is an example of a transaction in accordance with one embodiment of the present invention. Detailed Description of the Invention

The challenge in implementing something like Industry 4.0, or controlling the movement of goods, or managing the flow of land, air or sea traffic, lies in the efficient visualization and spatially defining of objects, and the contractual validation of any changes to the objects, their location, or their ownership.

As mentioned above, the present invention provides a Spatial Transaction Protocol (STP), also referred to herein as Hyperspace Transaction Protocol, or Hyperspace Transfer Protocol (HSTP), providing for spatial querying, the returning of spatial content and information about assets, and requesting changes to those assets, all via the use of spatial contracts.

Further, spatial content may, in the case of moving or frequently-changing assets, include spatial content information, comprising at least one of visualization models, collision estimation models, and spatial routing models. Spatial routing is the approach by which individual communication packets can be routed from source to intended destination through a physical or virtual network using the target physical address rather than the traditional IP address. These spatial routing mechanisms can be significantly more efficient than IP based mechanisms when the map of IPs is not well understood, as happens in dynamic scenarios, and allow each step to be spatially contracted (i. e. a well behaved router can stop a bad actor sending packets to an unauthorized endpoint).

At its heart, the protocol allows for the creation, implementation, and maintenance of a spatial network or spatial web that registers and catalogs various spatial assets in a "spatial index" stored using a combination of traditional and graph databases and/or one or more distributed ledgers (typically blockchain-based). It also includes a set of proprietary commands and procedures for users to create, transfer, manipulate and store various spatial assets. As a simple broad analogy, referring to Figure 1, a network of connected information systems can be depicted by a human body. This includes various information inputs and processing systems, e.g., AI (artificial intelligence) (as depicted by the brain), AR/VR (augmented reality/virtual reality) (as depicted by the eyes), NLP (Natural Language Processor) (as depicted by the mouth), Robotics (as depicted by muscles), Actuators, IoT, etc.. If these define a distributed network of information, then the protocol

of the present invention (HSTP - also referred to in the inset to Figure 1 as VERSES) can be thought of as the signaling interconnect and permissioning system between all of these information inputs. While the Internet is often analogized as the nervous system that connects all communications, it really is limited to the wires and high-level flow of communication data. In contrast, HSTP can be seen as the perceptual groupings (assets) and spatial/dimensional relationships, along with their permissible (expected and reactionary) transactions. In this analogy, the HSTP would be a neural construct analogous to the processing of acetylcholine that is released by nerve cells (nodes in a network) to send signals to other cells under certain multi-dimensional input conditions.

Just as acetylcholine acts as a neurotransmitter or chemical that motor neurons of the nervous system release in order to activate muscles in the human body, so HSTP of the present invention acts as the signaling and logic control that keeps track of assets and relates them spatially to each other, acting as arbiter in allowing or disallowing transactions, such as movement of assets in a new space.

Reality can be viewed as comprising three elemental spaces: spatial, semantic, and ontological. If we want to define and capture assets for querying and

manipulation, we need to define the spatial space (where an asset is located, e.g., in a conference room); the semantic space (which defines the meaning defined by words, e.g., the meaning of "John's laptop", "Our lab", "Building at 236 Greenwood Blvd, Los Angeles, CA"; and ontological space (the relationship between assets, e.g., the space defined by the room, the chairs and table in the room, etc., and the rules defining how the various assets interact or relate to one another, e.g. This is John's chair, which is at the head of the table, in front of the drawing board).

In any spatial transaction we need to know the Who, What, Where, When and How, as is illustrated in Figure 3, and discussed further below. The Who (owners of assets, and requesters), the What (which defines the assets involved in the transaction), and the Where (which defines the spatial space) may be captured in any suitable database, e.g. graph database, which may be centralized or distributed over multiple nodes. The When is a time dimension that can be associated with the assets. The How defines the terms of the transaction and is based on the ontological space.

The protocol of the present invention (HSTP) defines how to bring the various data items together through queries and testing the terms of the transaction against the rules to determine a pass/fail.

In this application, we will also refer to domains, which are spaces that confer rights. Thus, space per se can be thought of simply as a region. Once you add rules that govern that space, e.g., "you may not bring food into a certain room in a building", then the building and the room are considered domains and subdomains, respectively, as depicted in Figure 2.

As shown in Figure 2, in this example, we have a global domain 200 defining the entire building and surrounding parking lot. Within that global domain, we have two sub-domains 202, 204 as defined by the parking lot and the building itself. We could have further sub-domains within sub-domains, e.g., rooms within the building. Thus, this allows a hierarchy of domains to be defined, i.e., domains nested within other domains, each with its own rules. For instance, strangers may park in the parking lot 202 but cannot enter the building 204 without permission. They may be able to take beverages into the building but certain rooms within the building may be off-limits to food and beverages. In the above context, an owner can be an asset and included in a database, just like any other asset (where assets also include domains). Furthermore, ownership can be a parameter associated with an asset, which further defines the asset in ontological space, e.g. a laptop in a particular office may belong to John Smith and may not be removed from the office without John Smith's permission (where John has ownership and is a parameter on the laptop asset).

The aspect of nested spatial references can better be understood by again considering Figure 3

A Spatial Domain may be volumetric and may have geo coordinates expressed as a range. An internal space may use X, Y, Z coordinates, while an exterior space may be defined by a Physical Address. Thus, in this embodiment, the exterior space can be defined by GPS (Global Positioning System) coordinates, while the internal space is Virtually Addressed. We could refer to it as VPS (Virtual Positioning System) (a combination of XYZ coordinates + real-time point coordinates) to determine a point in space in which the Hyperspace Link is anchored, or is anchored to a Smart Asset or object. This is also why Spatial Domains are holonic or nested. It allows an address or link to be associated, for example, with an object spatially inside a vault on the 101st floor of the Empire State building, or allows the object to be placed floating in mid-air 100 ft above the building or anywhere else for that matter.

In one embodiment, this can be implemented by embedding reference locations - or virtual "landmarks" - into the query. By way of example, an asset (e.g. a person) may have sofa 3 feet to the right of where he/she is standing, and a window 2 feet above that sofa. These reference points can then be used to estimate the user's current spatial reference frame, which can then be aligned to other reference frames (e.g. a room can be within a house, but it is also in a city, a country, and on Planet Earth, the Milky Way Galaxy and so on). The

protocol also keeps a reference frames in "alignment" where changes in relative positions can be updated and manipulated across multiple levels simultaneously, just as they are in physical reality. Using the house example above, if a person in the house walks next door to the neighbors' dwelling, he/she is now in a completely different reference frame with respect to the original house, yet the differences in other reference frames (e.g. current city, country and/or planet) likely have not changed all that much. Each would need an incremental change that would be reflected as matters of degree, which the current invention tracks and synchronizes in real-time.

For purposes of this invention, the term "asset" includes both "spaces" (such as rooms in a physical building or a virtual castle in a video game) as well as people, objects and information found within these spaces.

Spatial assets comprise two types:

A "digital twin" of a real-world, physical object, location, or person, such as a virtual representation of a real-life building or "avatar" of a human being. The "digital twin" stays in "sync" between the virtual and real worlds through sensory, manual, simulation or oracle-based input mechanisms.

The second type corresponds to a purely digital object, like those created for video games and movies that do not necessarily have a real-world counterpart.

Furthermore, spatial assets exist within a Spatial Index of assets, and can reference other assets on the same index or on other spatial indices or graph-like databases of spatial assets, thus creating a cross-authority spatial network. Spatial indices range from optimized spatial configurations found in GIS applications, to simple adapters over traditional databases or even in-memory file systems. Well behaved spatial indices, i.e. those adhering to the HSTP protocol and contracting standards, will validate all incoming and out-going transactions and queries to respect the contracts provided on assets. This can also be facilitated via consensus mechanisms. Each asset is given a unique identifier, along with its own specific properties such as location, contract, content, etc. and often provides provenance or historical tracking via blockchain type transaction chain hashing.

In a graph database, as shown in the example of Figure 4, the various nodes 400 define the concepts in the network, e.g. the various people and interests. The edges 402 represent the semantic relationships between the nodes/concepts. In a spatial solution, the assets can form the nodes in the graph database, with their relationships (ontological space) defined by the edges between the nodes. In one embodiment the Neo4j graph database is used to store assets as nodes, with their properties existing as links between the nodes, and when a node asset is queried all related links as expressed as properties in the resulting HSTP asset definition. In another embodiment the spatial index is expressed in a relational database indexed by asset id and with simply a JSON blob as its current state, although this limits efficient indexing. In yet another embodiment the spatial index is stored on an ESRI ArcGIS instance, which include very efficient geo spatial indexing and querying mechanisms. In one embodiment the Spatial Index has the following information for each spatial asset:

ID - asset identifier (DID); including a uniquely identifying string across one or more authorities (with a consensus style being required for multiple authorities, generally ONE/MOST/ALL), as well as public-key encryption information, etc.

SPACE and OWNER - DID's of the asset's SPACE and OWNER, defaults to the asset itself; defines who owns the asset and in which space it exists. Any transactions on an asset will be validated against the contracts of the owner and space. Note that the space and owner may be on separate ledgers in which case the full DID of the asset must be specified.

LOCATION - one or more dimensions, preferably including range and resolution, and optionally with a transform/bounds of any inner content.

Standard supported dimensions include X, Y, Z, LAT, LON, ALT, and TIME, as well as custom dimensions being deeply supported; such as TEMP or PR for temperature and pressure.

CONTRACT - an expression that defines the validity of any transaction within its scope, both spatially and with respect to ownership. See Contracts section below.

WALLETYVALUE - positive scalar value representing the wallet value of this asset, automatically contracted to maintain a total sum across a given ledger. **CONTENT** - optional directory of named content types, usually for application-specific content.

This information is stored in the Spatial Index to serve as a profile for the asset it describes. Together, these characteristics help describe and track the asset's behavior and status over its lifecycle.

Spatial Web Stack

In one embodiment, the spatial web stack includes at least five layers: starting from the bottom with transport layers between spatial endpoints (either client-to-cloud or peer-to-peer connections) upon which distributed identity networks can be built to establish the specific network of spaces and authorities. These are communicated between by means of HSTP messages (queries, results, transactions). These may be organized into scene graphs (as discussed further with respect to Figure 21) and include spatial indices to allow them to be viewed and managed within a spatial browser.

[Image Omitted] [Image Omitted]

In one embodiment, our spatial browser runs on both both smart-phones and wearable-smart- glasses, and includes features for identifying it's current location, searching for nearby spatial content, loading that content, menus for creating or loading remote content, as well as loading specialized content types such as for warehouse operations. This spatial browser is able to create new scenes of content, such as photographs or points of interest, as well as associate spatial contracts (tasks, permission, etc.) to those areas.

Of note that our STP uniquely combines the communications and layout or markup language which are traditionally separated into different protocols such as HTTP and HTML. Traditionally HTTP was used to request and upload files, while HTML was used for layout. Somewhat unexpectedly upon development, because our content is inherently spatial, there is no need for a separate layout system.

Additionally, the concept of scripting, generally associated with yet another language JavaScript, is replaced with our spatial contracting language which covers permissions and thus implicitly allowable and required interactions, removing the need for scripting. In this way HSTP uniquely replaces HTTP, HTML and JavaScript in the browser stack.

Spatial Contract Economy

It is important to note that spatial contracts become a primary means of communication, not just permissioning, again a unique concept. Many existing messages such as "let's meet then", or "deliver this to there", etc. are likely to be expressed as space-time shapes rather than simple text, both for professional contracting but also for casual communications purposes. Furthermore, HSTP explicitly supports "token wallets" on assets, allowing spatial contracts to act as bridges into commercial/cryptographic exchange mechanisms, or more commonly into banking and traditional finance systems.

According to the present invention, the visualization and spatial anchoring of assets and contracts are performed by means of spatial queries. For geo located assets this can be done in standard latitude/longitude space, while for augmented reality assets the anchoring will be with respect to known visible assets, spatializing those assets by relating them to a hierarchical spatial map, and then inferring the viewer position by their relative location to the viewer with respect to the map (in one embodiment, the viewer can see a particular barcode, query where that barcode is on the map, and then infer where they are on the map based on where the barcode is relative to the viewer themselves). The industry standard concept of "scene graphs" is used to enable the expression of assets being placed relative to each other, in such a way that moving the basis or "parent" object automatically moves the related or "child" object. In one embodiment the core SPACE property on each asset defines the spatial basis or "parent" asset, and spatial calculations are made relative to that asset.

If we consider query types, they may take the form of lists of assets, or maps combining raster and vector imaging. These are traditional ways of describing or depicting something. Figure 5A, for instance shows a list of assets, while Figure 5B shows a map scene as is common in map applications such as Google Maps.

However, in order to deal with physical or virtual assets that we wish to interact with, e.g. move from one place to another, we have to define those assets (which may comprise spaces and objects in the spaces) by localizing them in 3D space and with respect to time. This involves localized queries in which a reference scene is provided in the query (such as relative location of one or more barcodes as described above), and then a localized scene is returned which relates the barcodes and the viewer to a known map space, showing all the various spatial assets currently in that selected space. The process is shown in Figure 5C.

In order to visualize the assets, a view of the space and objects is created, such as by using sensors to locate and position the assets in relation to the surroundings as part of a view query. For example, Figure 6 shows how HSTP can be used to query camera images (Fig 6A), receive back quantized pixels from the camera (Fig 6B), run machine vision-based object identification results on those images (Fig 6C), and create asset updates from the object identifications (Fig 6D) as part of separate transactions making up a spatial processing arrangement, which itself can be contractually defined.

Since an important aspect of the present invention is that of multidimensional quantized range queries, it is worth looking at this in more detail and contrast it with the current prior art.

Multidimensional quantized range queries as a basis for the network protocol

If we were to specify the location of a point, we could do so by using a 2D or 3D coordinate system that would exactly define the location of the point. However, when dealing with assets in the form of objects and spaces, the assets occupy an area (i.e. in the case of a human being, the area would be roughly 2-3 feet wide by a foot deep). That occupied area is itself relative to other areas, and the present protocol (HSTP) keeps track of this through the use of ranges. Thus, within HSTP, the "location" of an asset is viewed as a combination of a set of multi-faceted quantized ranges, as well as the spaces within which those values exist. This forms both a "scene-hierarchy," and allows for multiple dimensions to be expressed within those scene elements. The scene-hierarchy can also be used with different coordinate systems (e.g., x,y; longitude/latitude) and also including dynamic coordinate systems in the form of moving scene graphs. The addressability of the location is then expressed in the form of a multidimensional, quantized domain name or Uniform Resource Locator ("URL").

For purposes of HSTP, the term "multi-dimensional" refers to other attributes beyond purely spatial dimensions. Thus, not only x, y but literally any range of data - including time, temperature, light, pressure, dampness, or other dimensional ranges as may be captured by sensors - can be expressed in the form of a searchable spatial domain name.

The term "quantized" is used herein to signify the ability to maintain image integrity as a user zooms in or out. Thus, the number of pixels of an image is adjusted to maintain image integrity, as may be seen through a variety of different devices, including cameras, smartphones, tablets, or even augmented or virtual Reality glasses. Referring to Figure 7A, a scene may be depicted as a pixelated scene or quantized view (pixel/raster quantization) providing for adaptable scene integrity depending on the amount of detail required, e.g., the zoom level. Similarly, assets in the scene may be quantized as shown in Figure 7B to define a scene that is composed of multiple quantized elements. In the present invention, queries include the query range and quantization level (resolution) in the various dimensions, thus defining the quantity and packing of resulting information, as depicted by the representation of Figure 1C. This allows a packet to be "bounded" in terms of size based on the quantization required; the bounded size being a function of the number of quantized units, multiplied by the number of requested dimensions. In one embodiment a 2D map query specifies both a range in latitude and longitude, as well as the pixel counts in each dimension, and the dimensions to be queried (such as color and altitude), the resulting data count is then the product of the number of latitude and longitude pixels with the number of requested dimensions. The packing of these pixels is also defined within the location, for example the image dimensions X and Y common implicitly based on the packing of color data, can be defined explicitly by expressing the "packing" relationship between index and implied location (generally the packing $X = (\text{index} \% \text{width})$, and $Y = \text{floor}(\text{index} / \text{width})$ is assumed for 2D bitmap data). In order to understand the concept of ranges as used in the present protocol, it is important to contrast it with prior art solutions. One commonly-known example would be online maps in 2D, such as those used in Google Maps, which query the range (in latitude/longitude), as well as the pixels/quantization per dimension.

Normally this is organized by "latitude=A, longitude=B, zoom=C". For example, Google Maps' Static API defines map images using URL parameters, which impact the location, size, and resolution of the image, as described below and in the link: [Image Omitted]

Location Parameters

- * center (required if markers not present) defines the center of the map, equidistant from all edges of the map. This parameter takes a location as either a comma-separated (latitude, longitude) pair (e.g. "40.714728,-73.998672") or a string address (e.g. "city hall, new york, ny") identifying a unique location on the face of the earth. For more information,

see Locations below.

- * zoom (required if markers not present) defines the zoom level of the map, which determines the magnification level of the map. This parameter takes a numerical value corresponding to the zoom level of the region desired. Map Parameters

- * size (required) defines the rectangular dimensions of the map image. This parameter takes a string of the

form {horizontal_value} {vertical_value}. For example, 500x400 defines a map 500 pixels wide by 400 pixels high. Maps smaller than 180 pixels in width will display a reduced-size Google logo. This parameter is affected by the scale parameter, described below; the final output size is the product of the size and scale values.

- * scale (optional) affects the number of pixels that are

returned scale-2 returns twice as many pixels as scale-1 while retaining the same coverage area and level of detail (i.e. the contents of the map don't change). This is useful when developing for high-resolution displays, or when generating a map for printing. The default value is 1. Accepted values are 2 and 4.

* format (optional) defines the format of the resulting image. By default, the Maps Static API creates PNG images. There are several possible formats including GIF, JPEG and PNG types. Which format you use depends on how you intend to present the image. JPEG typically provides greater compression, while GIF and PNG provide greater detail.

In Google Maps Static API, properties such as zoom, or range affect a key point representation. In contrast, in the present invention ranges are defined as part of each dimension, such as "latitude = {min/max/count}, longitude = {min/max/count}." Thus, all information about latitude is stored in one place under that dimension's name, while all information about longitude is stored in another. In this way, both the minimum and maximum for each parameter is stored as part of that parameter, boosting efficiency.

For example:

"MIN/MAX" in one embodiment, is defined as "SELECT * FROM Assets WHERE ((lat >= bound.lat.min) && (lat <= bound.lat.max) && (lon >= bound.lon.min) && (lon <= bound.lon.max))".

In the case of large and highly complex dataset charts, such as "heat maps," the present protocol can be used to define a specific domain range, and then break that range up into quantized or discrete sections (or "chunks") for sorting or aggregation. Common quantizations are the pixels in a map request, or the bars in a bar chart. Common aggregations are max, average, or sum; sum is often used to count items in an area, while average is common for demographic information. HSTP Rotated Transforms:

Rotation is often a source of miscommunication between platforms and can greatly complicate intersection and other calculations. Traditionally rotation has been expressed as an independent property next to position. This, however, makes it difficult to include additional dimensions. At a low-level 3D rotation is almost always expressed as a 4x4 matrix for GPU implementation. To avoid these complications and to provide a more efficient mapping to database architectures the present invention uses the linear algebra approach to multi-dimensional matrix rotation, rather than hardcoding a specific number of dimensions as discussed further below with respect to Figures 8A-C.

In traditional linear algebra N*M matrices, either the rows or columns (depending on transposition) define a vector dot product from the input vector to a single output dimension. We separate out these vectors and define them specifically per dimension, which makes the translation of these complex constructs fairly trivial into a SQL SELECT statement as a weighted sum (thus achieving pixel accurate rotated projection of large datasets directly within a traditional querying language) Furthermore, we unify these approaches by defining a perspective-normalization dimension (in one embodiment explicitly named "1") whose inputs are normalized to ensure that it's value is 1, to enable expression of an n-dimensional "perspective" projection, in which nearby objects appear larger than further away objects, common in 3D perspective rendering. In a common example of perspective rendering, the viewer is looking down a long road lined with tall poles. Let us say the top of these poles are at [2,4,6], [2,4,10], [2,4,16], etc. (2 meters to the right, 4 meters up, 6/10/16 meters down the road), we might define a simple perspective such that

{x:{x:1},y:{y:1},"1":{x:0,y:0,z:1}}, which when normalized would put the locations at [2/6, 4/6], [2/10,4/10] and [2/16,4/16] in 2D space once projected, which implies that the further poles would be smaller in 2D space. This perspective-dependant spatial content, where the scene is specifically rendered to match a specific viewpoint, and then streamed as query results, can greatly reduce the processing needed to interpret results on the client-side, putting more detail up close rather than further away, and allowing better "re-projection" or range of movement near the queried view location. This is depicted in Figure 8C, which contrasts the HSTP multi-dimensional matrix notation (with its grouped matrix weights and axis bounds for each dimension), with prior art HTML (Figure 8A), where the axes and bounds are separated, making it difficult to express in a traditional database. Figure 8B shows OpenGL 4x4 matrix notation, which is difficult to extend because it is locked to 3D, and doesn't support additional dimensions.

In the above description, ranges were included in order to define assets and space that have size. However, in the case of queries, range also serves as a filter focusing the query on a certain span of data, e.g., using quantized range queries in charting/bucketing/etc., to select both the time range to be considered, as well as at which scale that range should be bucketed or grouped into say minutes, hours or days. By including the ranges at the protocol level as described in these important use cases, it becomes drastically more efficient to process and route queries to appropriate data and is not locked to specific dimensions as found in numerous GIS and 3D

technologies.

Even though multidimensional queries per se are known in the art, e.g., SQL, GraphQL and many other database technologies, which have range filters and quantization/bucketing mechanics, they don't have a network protocol where network identity is merged with the data range. Instead, those prior art solutions have the data range separate from the network identity.

There are significant advantages to the approach of the present invention. By merging matrix weights and quantized axis bounds with each dimension and using this in the query to request data in a view, we can define the amount of and source of data, because we provide the quantization/bucketing size. This allows us to define the location of an asset in the result, often implicitly, such as within image data where the location information is implicit in the pixel location. In the case of a transaction, it allows us to define both the implicit target identity and the updated state location. According to one aspect of the present invention, the spatial range is included in the packet header. This avoids the need for an explicit id, thus allowing packets to be routed to "where" they need to go, not "who" they need to go to (packets being mostly queries, results, and transactions).

In practice, the various dimensions may be captured in a matrix of rows and columns. Each row can define a separate location, and each column can define a dimension. In keeping with the concept of a range, each cell in the matrix can include a range.

One of the benefits of multi-dimensional quantized range queries is in the bounding of the data to ensure that bandwidth constraints are not exceeded. Thus, in the present invention, spatialization includes not only ASSET/CONTENT

LOCATIONS (output spans, which can be presented in any one of multiple dimensions) but also includes bounded VIEW LOCATIONS (input spans), such as Longitude -180: 180, and Latitude -90:90, or X -1: 1, Y 1:1, or using any other 3D coordinate system with bounded ranges. By providing for ranges, instead of being limited to points, it allows for INSIDE, TOUCHING and OUTSIDE to be evaluated contractually; in much the same way that two bricks are easier to knock together than two pin tips, the ranges simplify the calculation. LOCATIONS which are defined purely as points are either INSIDE or OUTSIDE. This syntax also allows a more flexible mechanism of expressing space in any required number of dimensions. Thus, TIME can also become a ranged dimension.

The benefits of quantized ranges are discussed in more detail below.

Quantized ranges to ensure that network bandwidth is well-bounded in general, the packet size has a memory complexity that is the product of the resolution of each quantized dimension, with the count of explicit axes; stated another way: $\text{max_size} \propto \text{product}(\text{each_quantized_axis's_resolution}) * \text{count_of}(\text{each_explicit_axis})$.

The approach of the present invention allows one to query how many pixels wide and how many pixels high - thus you know the total number of pixels and no more is necessary to send.

For example, in a stereo 3D scenario, such as medical imaging over an MRI, the number of Z layers that you need for best effect could be expressed as the Z resolution, next to the normal X and Y resolution (this way you get a 3d MRI image that is tuned to your device resolution).

The network bandwidth bounding using quantized ranges is implemented on the client side, in one embodiment, by checking how many pixels we need in order to show the data before requesting it, to make sure we optimize for the ideal amount. On the server side, we know how many pixels are to be delivered, and we can divide up the work ahead of time based purely on the query before even touching the backing data.

This allows the estimated bounds to be ascertained ahead of time.

A simple example to explain the benefits of the present invention over the prior art is demonstrated by considering electronic maps, and the process of zooming in and out. In prior art applications, specifically those with hard-coded zoom levels, some of the zooms tend to fade out because they are set to the wrong resolution, even if they are still in range. In contrast, because the present invention supports multi dimensional quantized domain/range queries, we can estimate based on the request (without touching the data), how big the query results should be. The concept of ranges also applies to time. According to the present invention, time is considered just another linear dimension, which is often bounded (this week), and quantized (consider this week as 7 days, or this day as 24 hours).

For example, a meeting on a digital calendar is often shown as a geometric range in time. Some meeting systems will only allow meetings during that range, which can be contractually represented as a geometric range intersection. The property "can meet" being boolean can also be represented as a "0 to 1" range with a quantization of 2. So, the final contract could be either simply:

{INSIDE: {TIME: {MIN: 10am,MAX: 11am} }

Or, it could be seen as

{ROUTE: [

{ TIME: { MAX: 10am } ,C ANMEET: { VALUE: FALSE } }

{TIME: {MIN: 10am,MAX: 11am} ,C ANMEET: {VALUE: TRUE} }

{TIME: { MIN : 11 am } ,C ANMEET : { VALUE: FALSE } }

The next aspect to consider in a practical application is the movement of assets and interaction with those assets. For example, in the case of the movement of vehicles (where the vehicles are defined as assets), it is desirable to avoid collisions between vehicles; collisions being defined as touching or overlapping spatial ranges.

Any interaction with assets can be reduced to a set of transactions, the valid ranges of which make up a spatial contract, used to validate each transaction. The present protocol thus includes spatial constraint clauses, several examples of which are depicted in Figure 9A-9C.

It will be noted that Figure 9C includes an asset's ownership as one of the parameters or dimensions. In this case, there is a change of ownership, which may also entail a change in wallet value. This, therefore, provides a simplistic

visualization of a contract being executed as part of a change of ownership of an asset. Thus, the present HSTP protocol adopts a visual approach to implementing smart contracts, as is discussed in more detail below.

Expression of "Smart contracts" as multi-dimensional geometric operations to define a permission language

In prior art applications, smart contracts are generally expressed in

computational form (ETH, ChainCode, etc.). Thus, geometric permissions (geo fences, trigger volumes, etc.) are often just used as triggers and as part of tests but aren't generalized to encompass a full contracting language.

In one implementation of the present invention, the core contracting language is a series of CSG (Constructive Solid Geometry) operations that create a bounding shape, parts of which must be either full, partly filled, or not at all occupied.

The kernel of the HSTP SDK (Software Development Kit) is really the contract evaluation engine, where every transaction in a contract is validated by all associated contracts. Each contract is a tree of geometric operations, the results of which must be true.

This approach makes for a more concise execution language with bounds on the maximum computation time for the geometric intersection. By way of a simple example: if one were trying to determine whether two objects were touching, one being a cube, and the other a dodecahedron. By knowing how many facets/dimensions each had, without knowing anything more, one could estimate how many math operations at most you'd have to do to tell whether they were touching or not. It, therefore, seeks to optimize the length of time to evaluate a contract.

This approach also allows for visually expressing the bounds. For instance, we could at worst put in a progress bar with a pretty good estimate of how far along we are, and ideally, it's so light that it executes virtually instantly. In contrast, when considering prior art solutions like Ethereum there is no support for these sorts of computational bounds. Thus, it may take such a long time to complete a calculation that it simply "runs out of gas" and the transaction fails. Thus a complex but valid operations may very well fail.

The present approach, on the other hand, is geometrically and mathematically airtight (good for security), and this mathematical simplification makes it easier to express homomorphically (zero-knowledge-proof way, in which you run an algorithm over encrypted data to get an unencrypted result), as discussed below.

Homomorphic Encryption:

The multi-dimensional ranges adopted in the present protocol also provide for another aspect of the present invention: that of using homomorphic encryption to provide spatial proof of being within certain ranges without giving away where in those range the actual value are.

Homomorphic analysis is a recent innovation where an algorithm can be ran over encrypted data and get back an encrypted result (and sometimes an unencrypted result). It was first invented to figure out how email could be stored in encrypted form on the cloud, while still allowing it to be searched.

The present protocol extends this concept to use homomorphic encryption for things like age, to prove that a user is 18 years old, but without letting the prover see how old the user actually is. This is performed by doing range comparisons without giving away the original value. Because we express most things as multi dimensional range comparisons, we can provide spatial proof of being within certain ranges without giving away where in those ranges we are. The Process of Spatial Querying, Visualization and Interaction is shown in Figure 10.

The spatial interaction starts with the collection of visible elements to form a contextual spatial query. This query is then aligned with a spatial domain server, for instance via approximate GPS coordinates, and the client is then sent a response including one or more spatial servers for exact visual alignment, for instance based on computer-vision recognition and alignment of known features. The server generates a scene based on the spatial query, which is sent back to the client and presented to the user. The user then has the option of interacting with the scene via transactions, which are validated locally before being sent back to the authority server for closure.

The visualization of a contract can best be described with respect to a warehouse example. Inventory is converted into spatial assets and the task of picking an item and moving it from point A to point B is a spatial contract. As a first step, traditional data entries, such as tasks in the warehouse, are converted into spatial assets and contracts. In one embodiment the contracts are visualized simply as text diagrams, but is a more important embodiment the contracts are visualized by drawing arrows between where the user is, and where they need to find the item, and then arrows between the item and the box it should be placed in. The items and goal shapes specified in the contract can thus be visualized, converting "put item into box" into highlights around the item and the box, and showing the relationship between them until that relationship is "inside of".

In one embodiment an HSTP adapter assists in the conversion process. The HSTP adapter converts traditional data entries, such as tasks in a warehouse, dynamically into spatial assets and contracts. Specifically, the adapter receives HSTP queries, translates those into database queries, and then translates the results back into HSTP asset representation. This assetization process includes both spatialization (adding spatial information) as well as contracting where the object API is translated into valid asset transactions. In one embodiment this adapter is written as a Node.js instance with both HTTP/HSTP endpoints and database querying functionality. This allows numerous HSTP clients to directly interact with and complete existing workflows.

In Figure 11, a user in a warehouse sees existing tasks as spatial assets and contracts. This involves three main components:

Adapter: Firstly, existing database entries are mapped into general assets that reference the source table, id and authority. This is depicted in Figure 1 as asset information obtained from the Warehouse database, including `ID=Table/ROW_ID`, and `CONTENT=ROW_DATA`.

Spatialization: Secondly the assets are spatialized by relating those assets to a map (as depicted by "map" in this example), but also by allowing users to orient themselves by estimating their view based on visible assets (this view triangulation is a key component to spatialization, especially in high visual redundancy areas such as warehouses).

Contracting: Lastly any existing object methods or API interactions with the data are translated into a set of valid HSTP transactions and then combined into a single contract that specifies all viable interactions. For example, in this case, the task of putting a particular item in a box and putting the box in a truck, is visually presented to the user via virtual reality glasses and spatially mapped into the environment on a 1:1 scale.

In this way the client application is provided with a simple visual menu of actions (step 1 in Figure 11) based on Adapter conversions from database query to view query (step 2 in Figure 11) as is discussed in more detail below with respect to Figure 12, to allow the user to visually be guided to the asset in question (step 3 in Figure 11), allowing validation locally of most of the interactions, and automatic completion of a given task, based on spatial interactions. The automatic completion is in the sense that the user need not press a "task complete" button, but rather could simply place the item into the correct location, and a tertiary camera or other tracking system can register this movement, and make the task as completed.

The three components: Adapter, Spatialization, Contracting are depicted in Figure 12. In the Adapter component, the HSTP Adapter interacts between the HSTP Client and the Host Server/Database to take Spatial View Queries and convert them into Database Queries and converts the resulting DB Objects back into Spatial Assets. During Spatialization, the Asset Location is queried based on the Object ID. Other View IDs and features can also be used to provide for view location triangulation discussed above (also referred to here as VIEW LOCATION).

Finally, during Contracting, Object Methods are translated into permissible transactions that will make up a Contract.

Most HSTP clients or endpoints will follow a fairly common design pattern, that is also found in the present invention's SDKs for JavaScript and Unity, and is depicted in Figure 13.

The application interacts with the SDK by creating "views" (spatial queries), that request assets. In one embodiment, the SDK also supports creating visual elements to match these assets (models, lists, controls, etc.) which the user can then interact with, and which automatically translates task-based database entries into visual operations/transactions for validation and sharing.

Central to the design pattern is the "local ledger" or "Asset Cache" which holds all locally known assets, usually from multiple different ledgers. Contract validation pulls from this cache to get previous asset states, owner states, contracts, etc. and also stored queried assets into this cache for use in later transactions.

Commonly, and in one embodiment the asset cache is entirely in memory, in another embodiment the in-memory cache is also backed up by a local storage mechanism, this pair of solutions is common in web browser which cache images, pages and related media.

Below the asset cache, views often result in external connections to external servers. These connections can be either direct HSTP connections, adapter connections (which include other protocols), or consensus connections that broadcast or query multiple endpoints to form consensus across them. The resulting queried assets are then stored into the asset cache. This achieves cross-ledger 'right to reference' by requiring all changes to be validated by the ASSET, OWNER and SPACE contracts. For instance, moving an object between spaces (changing the "SPACE" property) requires the old space, new space, owner, and asset to all be validated contractually. Thus, there are typically between 3 and 5 contracts evaluated per asset change (the asset itself, old space, old owner, new space, new owner). If the owner/space exists on a separate ledger, a full implementation must request the asset's current state (excluding content, but including location) to define a spatial domain, which is sufficient to ensure that the contract is validated. Local application of changes, which all contracts accept are acceptable, although not authoritative until the asset's ledger has confirmed the change.

Since cross-ledger contracting is another important aspect of the present invention, it is discussed here in more detail.

Cross-ledger contracting

According to one aspect of the present invention, multiple assets (which may include the SPACE and the OWNER) have to sign off on any transaction on a particular asset, and those "remote" assets need not be on the same server as the asset being modified. This act of approval from remote assets can be done using a copy of the remote asset, which includes its CONTRACT or approval expression, by simply evaluating that approval expression over the transaction in question, and thus don't require sending a message to or modifying the remote asset itself. The authoritative server must of course be provided with any transaction on an asset to update the authoritative copy of that asset (by definition), but the approval of a remote controller asset (such an owner or space) would not result in a change to that remote asset and thus is not needed, allowing the transaction be fully validated using only a copy of the remote asset; which facilitates systems such as blockchain where read access is significantly faster than write access. For an example of remote approval, sales regulations in a particular State may define permissible transactions for specific retail operations in that State, but may not require that all such transactions be registered with the government. Specifically, they may restrict who can buy alcohol, even if the government doesn't ever get a record of the transaction; this enables privacy models such as GDPR while still providing a means of validating transactions either for moral or legal auditing reasons. This also allows more efficient validated trading without having to get written approval, yet still be bounded by official regulations; the approval being expressed as a valid range of transactions.

In another example, you may want to put rules into an online profile, such as for a child, that do not allow that profile to accept messages from outside parties.

The same applies to rules of a game. It allows a game to exist on one ledger that considers rules written in the profile of the user on another ledger.

In contrast, while prior art decentralized systems such as W3C DID are designed to support decentralized systems, they don't have a permission model.

Similarly, prior art permission models assume that all actors are on the same backing ledger and don't support cross-ledger contracting. Even some routing engines like Mulesoft, which support a permission model that acts across servers are themselves limited. They don't expose the permission model, thus a client may unsuccessfully attempt a failed transaction.

In HSTP, we expose the permission model so that the client can check for compliance without having to attempt a failed transaction. Also, in the present protocol permissions are themselves expressed as shapes, which is natively capable of defining a geospatial model that can express geospatial transactions.

In order to implement cross-ledger contracting, one embodiment of the present protocol provides that every ID is not only a string but a series of authority endpoints (i.e. official record keepers). Thus, every reference to an asset in this embodiment includes the asset's list of authority endpoints.

This allows for ID comparisons for things like "did the owner request/approve of the change", etc.

Thus, contract evaluation requires both the changes to be made ("TO"), as well as the previous official state of the asset ("FROM", excluding content). Contracts also support the concept of variables, allowing future parties / locations / prices to be validated.

In order to support the movement of assets, e.g., in transportation scenarios, spatialization can include ROUTE, which is a collection of LOCATIONS, often with separate TIMES for each location.

Connections between ledgers should utilize secure signing, assisted by the public key of the asset, to ensure that the "REQUESTER" is actually who they say they are. However, since the HSTP protocol is intended for in-memory, peer-to-peer and cloud scenarios, the actual encryption method is left to the secure transmission layer. Nevertheless, once the requester has been validated, all requests must first pass known asset contracts for the request to be executed, and the format for sending failed contract transactions back to the sender is provided in the above protocol, including missing assets, specific contractual clause failures, suggested or required alterations and side-effects, etc. (see <HSTP_PACKET>.RESULT in Figure 23 of the full schema).

It will be appreciated that each ledger will have its own concept of currency, and every valid transaction will typically not change the total currency in the system. For trades between ledgers, an exchange service must be utilized, that operates assets on both ledgers. Another benefit of the cross-ledger model of the present invention relates to latency. When it comes to distributed consensus mechanisms, their inherent nature requires connecting to and coordinating between multiple points to gain consensus on what could be drawn from a single authority (their strengths being that there isn't a single authority). But they will almost by definition incur deeper latency than other single authority mechanisms. In contrast, by using cross-ledger contracting to keep slow- changing assets/contracts on a distributed server, and faster changing assets on a traditional server, it allows the user to achieve the best of both worlds. One example involves a quickly movable asset updated via peer-to-peer communications, managed by a cloud instance, but bounded by a spatial contract kept on a real-estate blockchain; specifically two people talking (peers), while one is holding a cup owned by the restaurant (represented on the cloud), while they are in the restaurant (whose rules are published on a blockchain). In this example the secondary peer can get the update of the cup moving and validate it, before the official cloud representation of the cup is updated, and can check that their peer is allowed to move the cup as long as it stays within the restaurant, as defined by a rule on the blockchain, all via extremely fast peer to peer communications. This mixture is suitable for common business scenarios while maintaining the most critical assets in a non-single-authority model.

A key feature of HSTP is the ability to both collaborate and exchange on a purely peer-to-peer basis. For this reason the Software Development Kit (SDK) of the present invention includes the ability for any node to itself be a spatial server, capable of answering basic HSTP requests, including simple rendering tasks, allowing local multi-user scenarios to be efficiently created and managed, with clear mechanisms by which to integrate or authorize transactions.

Practical applications of the visualization aspect of the protocol

- Means of visualizing contracts.
- Means of using computer vision to automatically complete contracts. - Means of visualizing large data sets and complex permissions across low bandwidth scenarios.

A contract may include one or more compliance triggers, which can be depicted visually, to limit the movement of goods or people into or out of certain spaces. In one embodiment the visual depiction literally shows the goal bounds, so that users in a warehouse operation know where to get items from, or where to put them in a warehouse.

Another example would involve the movement of people leaving an airport security area. There may be a clearly marked line that can only legally be crossed in one direction, thereby defining one example of a valid range of movement of an asset. This approach provides for visual contract validation, primarily through geometric intersections that allows multidimensional ranges and classes of object properties to be defined, thereby allowing a user to visually see the contract terms and ensure compliance in space-time.

Visualization can also serve as an input method to define the tasks to be performed in a contract. For example, a manager can be presented with a visual depiction of a warehouse on a touch-sensitive screen, which then allows the manager to point and say "move that" (geometry bounded reference) "to there" (geometric bounds). This could generate the contract, which completes when that item is moved to the correct location.

HSTP Protocol

As discussed above, in order to implement the present invention, one aspect includes a Hyperspace Transaction Protocol (HSTP), also referred to herein simply as Spatial Transaction Protocol (STP). This involves the integrating of queries, assets and transactions, as shown in Figure 14.

There are three fundamental and related message types within a spatial communication protocol:

- **VIEW** - a query which defines the requested viewable area as depicted by the first block in Figure 14. This is missing from purely filename-based protocols like HTTP. Hyperspace range queries of the present invention allow the viewer to specify the area and time within which they wish to view assets. Almost all online- mapping systems are based on range queries, albeit not in a standardized nor multi-dimensional manner.
- **RESULT/STATE** - the result of a view or transaction which provides the identity, spatial contents and interaction contracts/permissions of related assets, as depicted by the second block in Figure 14.
- **TRANSACTION** - an expression of an update to the state of one or more assets, in a manner that allows efficient validation against any related contracts, as depicted by the third block in Figure 14. In particular, spatial contracts often include validation of both value-bounds as well as right-to- reference constraints (i.e. permission is only given to move the object within certain spaces, and moving it into another space requires additional permissions).

Thus HSTP Protocol Packets, include Spatial View Queries that define temporal and spatial bounds for the expected results; Spatial Results, which contain individually identifiable assets with their own content payloads, as well as content specific to the query, such as a background map, and Spatial Transactions, which identify assets or areas to be manipulated, and what changes to apply on them. Considering the asset in more detail, the primary asset properties are depicted in Figure 15. These include the location information, which may also include route information, and content information. In order to facilitate economic transactions, a wallet is included.

A Contract in the present context is an expression that defines the validity of any transaction within its scope, both spatially and with respect to ownership. DIDs (Distributed Identities) are provided for the asset itself, as well as for its associated SPACE and OWNER assets, including authority endpoints and public key information for each. (DIDS or Distributed Identities are discussed in greater detail below).

The Wallet-Value is a positive scalar value representing the wallet value of an asset, which is automatically ensured to maintain total sum across a particular ledger.

The Asset depicted in Figure 15, from left to right shows LOCATION: where the asset is; and in some instances includes a ROUTE. It also includes CONTENT (data payload). The CONTRACT is the permissions expression, while the

WALLETVALUE defines the per-authority held currency value. SPACE and OWNER DIDS are references to other assets forming spatial and ownership hierarchy. PUBLIC KEY allows signed messages to be authenticated as originating from the asset itself. CONTENT specifies a directory of named content elements may be included, usually for application-specific content. In one embodiment, in order to identify a Content element, it is provided with a Content ID that is unique within a particular asset, along with one or more of a location for that content element (relative to the asset), visualization information, and external resource indicators such as images or 3d meshes. In one embodiment the content is addressed by the quantization information described in the asset's location (for instance if the content is pixel

data, the location may describe the relative width and height of the image). Asset or Content Location – includes one or more dimensions each with a position, preferably including range and resolution, and optionally with a

transform/bounds of any inner content, quantization (count) and linear result arrangement (packing). Standard supported dimensions include X, Y, Z, LAT

(latitude), LON (longitude), ALT (altitude), and TIME, as well as custom dimensions such as TEMP (temperature) and PR (pressure). Additionally, a transform may be found on each dimension which converts from child coordinates to another dimension for rotation, scaling and general input selection/weighting.

The location comparison is illustrated in Figure 16.

The location comparisons of Figure 16 include 2D and 3D location representations, which are known in the art, and contrasts these with multi dimensional quantized range query approach of the present invention, as depicted in the third block (right-hand block). In systems such as HTML, 2D location often separates the parameters of both dimension and property (x, y, width, height). In common 3D engines the dimensions are grouped but are hardcoded to 3D dimensions, and still separate out resolution, scale, bounds, and other deeply related dimensional properties. In contrast, the multi -dimensional quantized range query approach of the present invention is to index by dimension first and embed key properties therein.

Distributed Identities (DID) are analogous to URLs but include discreetly referenceable elements needed for distributed communications. This is illustrated in Figure 17.

The elements may include:

- Asset ID - identifier of a specific asset on the ledger endpoint;
- EndPoints(s) - i.e., one or more servers which can be used for distributed consensus;
- Cryptographic Keys - for authenticated communication purposes • Service Endpoints - specifying which protocol and/or version to utilize;
- Nonce - a one-time user connection challenge results.

Referring to Figure 17, a standard URL (left side of Figure 17) is contrasted with a DID (right side). In the standard URL will be found the method, a single authority server, and the ID of the specific file on that server. In the DID will be found a similar ID of a specific asset, but critically it allows a plurality of endpoints over which consensus can be formed on the state of that asset. This is a fundamental concept required of decentralized consensus mechanisms such as blockchain, and also allows lightweight local consensus networks to form rapidly. The JSON nature of a DID also allows public keys, service endpoints, and other critical information to be embedded in this DID document.

This allows for semi-autonomous and secure interactions, by allowing users, spaces, assets and IoT devices each to have their own DID. In one embodiment, assets with the same authority endpoints are aggregated into a single connection, to creating a single web call requesting multiple different assets, and reducing communication overhead. In one embodiment, user permission is explicitly requested before establishing the connection, thus reducing the chance of exploitive or tracking assets which can leak user browsing information; much like how many email clients will not automatically download referenced images, as the downloading of those images is used to track when the email is opened, and thus making that step optional increases the privacy controls that the user has available to them.

A Decentralized Identity Systems Architecture (DID architecture) and credential proof flow is shown in Figure 18.

The DID architecture facilitates redundancy, resiliency and privacy in the technology infrastructure and organizational governance models. Multiple standards bodies and "governments" are supported through "stewards" to define and register "schemas" that can be used by "issuers" to provide "claims" to "holders" who can then use these to provide "proofs" to "verifiers".

In a decentralized identity architecture, a network steward defines regulatory standards bodies, a standards body then defines schemas (or tag format) for specific objects (such as license types or location formats), an issuer follows those schemas providing individual credential to holders, who then prove those credentials, including source of issuance to a verifier in response to a challenge/opportunity request.

Since a practical implementation of a protocol such as HSTP entails the manipulation of assets, it is worth looking at the relationship between transactions, contracts and validation. This is illustrated in Figure 19.

HSTP Spatial Contracts are defined as expressions that given a transaction, return whether that transaction is valid or is not, primarily by intersection of the transaction with the valid contracted range. They are specifically designed for ease of visualizing, ease of spatial expression, and most critically for real-time evaluation, where their performance is a function of the number of contract operations, multiplied by the number of related dimensions.

Thus, a Spatial Contract is a multi-dimensional extension of the Smart Contract concept: defining who and in which ways a requester may interact with an asset in space. From a user's perspective, a spatial contract is defined as having geographic, virtual and temporal bounds which are inherently visualizable, and which can include the trade requirements for financial and other economic

transactions. Formally, we can define a spatial contract as a binary expression over a spatial transaction, including the previous and requested state of any referenced assets, that returns true if and only if the transaction is valid relative to these previous and next states. Contracts can be evaluated either with respect to the asset that contains them or with respect to assets which they own, or which are spatially registered within them (i.e. spaces/owners can have contracts that affect all assets which they contain/own). For example, purchasing an item for sale, requires approval from the item, the owner of the item, and the store or space in which it is located.

Each transaction comes in the form of a new asset update wishing to be set, preferably signed or authorized by the private key of that transaction's

"REQUESTER" asset. Each asset update references a "TARGET" asset, and implicitly references the previous and future owner and space assets of that asset (usually three and at most five assets whose contracts must be evaluated for approval of the transaction). All these referenced assets must provide approval for the transaction, either via their own contracts or via a default contract. This cross-validation can be done very quickly, requiring at most five asset contracts as mentioned above, and there are strong halting restrictions (such as no looping or outside calls) imposed on the contract, thus achieving a model that could be used for local simulation with little overhead compared to traditional Turing-complete virtual machine approaches. Once all contracts have been evaluated and assuming all accept the request, the change is written to the ledger.

This idea of having separate contract evaluations is illustrated in Figure 20, which shows an asset contract, owner contract and space contract, each of which needs to be evaluated in this example.

Transactions are validated by both the ASSET as well as the asset's OWNER and SPACE. This mechanism lends itself well to modelling real world contract evaluation, being affected by both product, seller and the legal jurisdiction within which the transaction occurred. Note that all contracts are evaluated with respect to which asset owns them, and can tell between a transaction modifying themselves or simply an asset referencing them. This also allows "right to reference" as assets can now allow or refuse others to reference them as either owner or space. One example of a contract may entail the movement of an asset. Certain rules have therefore been included to handle the movement of assets within assets and overlapping assets, as shown in Figure 21.

The scene graphs of Figure 21 illustrate the use of a 'transform parent' or context SPACE. By moving the parent space, the children implicitly move with that parent space. Any spatial operations such as intersection will be achieved by establishing a common space, projecting both assets into that space, and then calculating the intersection.

Quantization was discussed above with respect to resolution. However, it also applies in the context of time. In the case of real-time communications, such as Media Streaming, it is important to support high-speed, low-latency and non-reliable transactions, such as UDP (as opposed to TCP). In one embodiment, HSTP supports these transmissions by:

- Marking the transactions as non-reliable, allowing the lower level transport layers to exclude packet ordering, etc. and send as fast as possible;
- The "time" and "resolution" properties in a spatial query can be used to adjust the quantization and thus the quantity of data being requested, both in the spatial and temporal domains.

For example, in spatial audio streaming, a user could adjust both the spatial quantization of an environment to increase detail as they approach, as well as increase the temporal resolution or frequency for more fluid movements.

HSTP is illustrated by the overview shown in Figures 22, and in more detail in the HSTP grammar of Figures 23. In broad terms, as shown in the overview of Figure 22, an HSTP packet includes a query with a VIEW and a RESULT defining an asset visually, and a TRANSACTION forming part of a visual smart contract involving the asset.

The HSTP grammar shown in Figures 23 can be expressed as JSON data - i.e., expressed as objects that can be sent over digital communication channels.

The VIEW may include a REQUESTER (the person requesting to see something), a VIEWOF (what they are looking at), and a LOCATION (which may be in various dimensions e.g. xyz, longitude/latitude, time etc, each one of which is respected as a dimension to be queried). Dimension names are not hardcoded, thereby providing greater flexibility: open in time and space.

The VIEW may further include a SEARCH that allows a requester to prioritize the results they get back from a server, e.g. by distance, price, route etc.

The REQUESTOR may include a signature - signed by a private key of the requestor and validated against a public key.

The REQUESTOR may further include LISTENON in a request, to notify the requester if a view is modified.

The STATE sent back by a server includes CONTENT (eg background) and a list of ASSETS (each asset has enough values associated with it to contractually validate any change)

The ASSET may include:

an ID,

an OWNER (who owns it),

a SPACE with an ID and Ledger String, and a LOCATION (where does it exist in space - which supports any coordinate system, and also supports a point (value) and a range (min and max), and resolution for the SPACE.

The LOCATION can have multiple dimensions with bounded ranges.

The ASSET, typically also includes a ROUTE. Thus, LOCATION specifies where an asset currently is, while ROUTE defines where the asset wants to go, which is valuable for example in shipping, e.g., can use ROUTE to verify that asset is on the route and once validated, the LOCATION is allowed to change.

By defining both the space and the owner as part of the HSTP, it allows them to exist on separate ledgers (separate from the asset itself). Thus, the SPACE can for instance be on a blockchain and verified by the blockchain, while the OWNER can be verified by biometric validation, and the asset respects both instances but exists on a separate platform e.g. cloud-based for real-time interaction.

The ASSET may further include a WALLETVALUE, and the ASSET may be associated with a CONTRACT which defines what can be done with an asset and with any CONTENT.

The ASSET may include a default CONTRACT that is associated with it, e.g., "If I am not the owner the change can be made, but if I am the owner it can be made only if I'm also the REQUESTER."

For example, an ASSET may comprise a spatial region on a map defined as being owned by a particular party. The CONTENT may be a spatially anchored 3D model or photograph, e.g., a floating text, logo or website over the space. The ASSET may include a PUBLICSIGNINGKEY which allows an asset to act for itself - so it may validate that a change came from the asset itself. This is common in HTTPS web authentication where a private key is kept by the server, and used to sign packets as coming from them during the initial connection handshake. Also, the ASSET may include a DISPLAY name, in different languages, useful in describing what the asset represents to human users.

As discussed above, TRANSACTIONS allow a REQUESTER to make changes to ASSETS. Each transactional change can include multiple steps that may have different REQUESTERS - but they can be stored in one block and processed as one block. Thus, a TRANSACTION would be a block requesting the changes within that block.

To make a change to an asset, that asset, the space, and the owner all have to agree. This achieves a right to reference. In a simple example: I cannot put a for sale sign on your property even though I own the sign (the asset). So, in this example, even though ASSET and OWNER agree, they cannot perform the change since they don't control the SPACE.

A detailed overview of the major components within a full ledger implementation are shown below:

- Application/Host

- o User/System Interfaces

- Configures Views / Auto-Registers Assets Presents Assets

- Interacts with Assets

- Configures External Connections

- o Local Ledger (SDK) Functionality

- View Management Requester Identification

- Retrieves Assets

- Core Properties

- Contents

- Data payload

- UI Elements

- Transaction Helper APIs

- Known Asset Cache

- Indexed by ID, LEDGER/AUTH and VIEW

- Asset Version and View Subscription Tracking Local/Temp Asset Tag Management

- View-based Reference Counting

- Contract Validation Kernel

- Collects Referenced Assets (must be Cached) Contract Expression Evaluation

- Can Apply Transactions Once Validated

- Connections

- External Services/Endpoints

- Identity Validation (via Asset Cache Public-Keys) Data Adaptation when required

- Consensus Mechanics

- Encryption Tools

Hashing and Signing with Private Keys

Verification of Public Key Signatures/Hashes Nonce/Key-Pair Generation

Offer/Claim/Schema/Credential Processing

In support of the HSTP, the present invention provides a Java Script software development kit (SDK) which includes spatial calculations, ledger interfaces, and contract validation. An example of an SDK for a data query in JavaScript is shown in Figure 24.

In this example, the lat/lon (latitude and longitude), range and quantization is specified, along with the selected map and water-depth data dimensions being requested.

An example of a data query result is shown in Figure 25. In this example, a very small 3x3 packed background map content element is returned, along with two assets on that map representing a large rock and small boat in integer range.

Figure 26 shows an example of a transaction in which a requester "MyCaptain" is updating the location of "MyBoat". Note that authentication of this requester is outside of the scope of this packet and presumed to be via HTTPS or via an encrypted HSTPS packet (HSTP being HSTP Secured, which is a binary encrypted wrapping of an HSTP packet, see HSTPS_BUFFER in Figure 23, the full schema definition).

Contract Grammar:

The TRANSACTION can have a graph-oriented layout (graph database) or a relational table layout.

Thus, the contract grammar can be done in JavaScript, but in a preferred embodiment, a graph-oriented back-end is used, with JSON for transmission. This allows for easy visualization of the transaction by having CONTRACT,

EXPRESSION, LOCATION, PROPERTY.

In another embodiment a relational database table structure is used for storing ASSET states, to store ASSETS, LOCATIONS, CONTENTS, TRANSFORMS, and DISPLAYS, each with ID and Ledger value. As mentioned above, ranges provided for in HSTP, allow for the location to be specified: INSIDE, OUTSIDE, TOUCHING (e.g., you are allowed to move an asset even if you don't own it as long as you move it only INSIDE a space).

By specifying the details of a contract and a wallet, a buyer can execute the contract without re-validation by a seller provided the transaction is in conformity with the contract terms. For example, there might be an item of a certain price owned by a certain owner, that is on a ledger. Similarly, there might be another asset: a wallet, with an owner (requester), and a wallet value, also on a ledger. No changes are allowed between the two assets since they define two assets in the transaction.

In the present application, the core protocol is independent of server implementation. This is a critical topic for the ecosystem, and conceptually ensures efficient computation and through connected implementations across in-memory, peer-2-peer, cloud, and distributed consensus networks.

Spatial Domain Server

A top-level domain system, such as the Internet's DNS .com/etc. system for string-based names is deeply valuable as a starting point for spatial browsing and can act as a trusted source for fundamental spatial ownership, which is an important topic in political sovereignty.

One aspect of the present invention is a "Spatial Domain Server" to provide location-based looking up of spatial asset and ownership information in this regard, which is critical to both spatial content retrieval, but also spatial transaction validation, whereby the rules for particular areas can be described as spatial permissions in their associated assets. Laws, codes of conduct and economic opportunities can thus be digitally expressed and enforced. Spatial assets, which typically are either virtual or have a geographic location, are usually organized into spatial domains that serve as resource-locator function in much the same way as relative file paths do on an intranet (e.g.

\\CompanyServer\HumanResources\EmployeePerformanceReviews) or domain names do (e.g., http://www.myDomain.com) in the Internet's HTTP-based DNS (domain name system). The present Spatial Domain Service helps resolve spatial locations against one or more smart

asset domains on a centrally managed Spatial Index. Content can then be accessed by inputting these "spatial domains" into a "spatial browser" that could serve as the primary user interface for most human users, in much the same way that IP addresses provided by the DNS server can be used to query individual pages. Machines (e.g. intelligent agents) can also use spatial domains to locate content in a similar manner.

Within the protocol, spatial assets can even conduct business with one another. Specifically, "spatial contracts" can be created and implemented between any two or more entities within the ecosystem, be they human or machine-based.

The spatial contract model is based on an extension of the smart contract concept typically associated with cryptocurrencies (most notably Ethereum), namely as sets of permission expressions, which may be backed by a blockchain ledger and/or internal testability systems that compartmentalize sets of behaviors within each Space or Asset and allows them to interact with other spaces or assets.

To illustrate, in one embodiment, each transaction comes in the form of a new asset update to be applied, preferably signed or authorized by the private key of a known spatial asset in order to provide authentication. This update request to an asset includes a reference to the asset to be changed, along with information concerning the future authority and space for that asset if appropriate. It can be combined with a copy of the asset's previous state, with references to its previous authority and space. All referenced assets, such as owners and spaces, are then cached along with their respective contracts, which are then asked to validate the request. In one embodiment, this cross-validation can be done very quickly, as the architecture only allows at most five (5) possible contracts to be validated per asset transaction (the asset, its former and next space, and its former and next owner), along with strong halting restrictions (i.e. no looping or outside function calls), thus achieving a model with little overhead compared to non-validated updates, while still benefiting from increased security. Once all changes and related contracts on the proposed transactions have been evaluated and approved, the changes are recorded on one or more ledgers used by the system. In summary, transactions express changes to assets, while contracts express the validation of those changes; once all validations have been acquired, a ledger is authorized to officially apply those changes.

The Spatial Domain Service may also include a protocol native token (VSS), which is associated with this common spatial domain server, thereby facilitating a new generation of spatial contracting and trade mechanisms.

The indexing of assets based on location rather than filename was discussed above. The core of any spatial server is the ability not only to return assets based on identifiers, but more importantly to efficiently find and prioritize assets which fit within a specific spatial query, which is referred to herein as a "spatial index". This may be implemented using numerous mechanisms, from simple SQL indexes to graph-based databases, as well as interfaces to widely adopted and standard spatial indexing services such as ESRI's ArcGIS Cloud and Open Street Maps which deliver enterprise quality spatial indexing.

When it comes to traditional content that needs to be transmitted, the assets themselves may either include relatively small pieces of content or more usually URL references to external content. For purposes of the present application, the standards for this content generally follow MIME guidelines, while making use of spatial transforms to place these pieces of content into appropriate locations (when in 3D viewers). The following formats are supported in our current spatial browser implementation, but could be extended in future:

- Image: JPEG, PNG, GIF - displayed in local coordinates to the asset and using a spatial unit plane, with option to face the viewer.
- Video: MP4, AVI, HLS, H.264, H.265. Video format support will depend on partner platform choices.
- Text: Plain-Text, Embedded HTML, URL-Link: Generally shown as a string, with or without basic formatting, or as an optional link for a user to go further.
- 3D File Formats: OBJ(+ mtl), GLTF (OpenGL Transport Format), USDZ (Apple/Pixar), Three.js JSON scene format. It will be appreciated that support may be extended to other formats.
- GIS Formats: GEOJson, KML, Shapefile. It will be appreciated that others can be supported if need be, but these should be supported across browsers, and have natural world coordinates for spatialization.

The final result of a quantized range query over a scene graph is commonly in the form of one or more rendered samples, often visual images, but also sometimes as collision/sensor data (such as an IoT (Internet of Things) device asking for a spatial model of its surroundings). For this reason, the query protocol is effectively equivalent to a rendering query where the final image/volumetric resolution and even temporal resolution can be specified.

End-users may access the system in a number of ways, including: smart phones, tablets, goggles, such as those used in virtual reality applications like the Oculus Rift or HTC Vive; smart glasses, heads-up-displays such as Google's "Glass", etc. Within the wearable unit, a "Spatial Operating System" ("Reality OS") centered around the aforementioned "spatial browser" will display both real and virtual smart assets according to their respective scenegraphs and the user's current viewing preferences. In one embodiment, users can then view, edit, download and upload information and multimedia content within any space using the virtual (or augmented) reality style graphical user interface that serves as their "window" to the integrated physical and virtual world. Smart contract capabilities will then be integrated into the system, allowing for spatial assets to be the subject of rule-based commercial activity (i.e. smart contracts) whether involving the exchange of money, goods, services or information.

Potential applications for the invented protocol will be readily apparent to those reasonably skilled in the art. For example, a "spatial web-enabled" supply chain could be represented in systems and/or geographically to view the movement of people and assets through "smart spaces," creating a linked chain of transactions that can be tracked according to their specific positions, without requiring explicit paperwork, as visually tracked assets and automatically complete their required transactions.

The entire workflow can be run as a simulation showing the estimated pools, gates, sinks (i.e. areas for potential efficiency gains) and other efficiency/throughput impacting mechanisms in the supply economy, and allowing the user to adjust tunable settings and amounts to visualize the results across the entire chain. In fact, entire business processes and workflows can be viewed using the Spatial Index, allowing for the tracking of objects, information, people and virtually any other workflow element across any given geographic, celestial and/or virtual area. One example would be in the visualizing and handling of real-estate transactions.

In alternative embodiments, the protocol also factors in temporal and frequency dimensions (e.g. wavelength or periodicity) of spatial assets. It should be noted that both the foregoing embodiment and any other listed embodiments are intended for illustration purposes only. They should not be deemed exclusive of any additional modes of use known or to be developed in the future.

Document Claims

Language: (English)

CLAIMS What is claimed is:

1. A spatial transaction protocol (STP) for spatial querying, returning spatial content and assets, and for requesting changes to those assets, comprising spatial quantized range queries for requesting assets in a certain area, spatial transactions over those assets or ranges, spatial smart contracts to validate transactions and define what may be done with an asset, and a decentralized identity referencing mechanism to support multi-party consensus ledgers and cross-ledger contracting.
2. An STP of claim 1, wherein spatial quantized range queries include one or more of: asset definitions, spatial location information, spatial resolution information, spatial packing information, and spatial content information.
3. An STP of claim 1, further including means for at least one of wallet modeling, and cross-ledger contracting facilitating atomic swaps.
4. An STP of claim 1, wherein a spatial quantized range query includes a view defined by a range and a basis space and content graph of existing visible features, that is sent to a server or peer node and specifies what a requestor would like to see, and a result (state) of that view, which is sent back by the server or peer node.
5. An STP of claim 1, wherein the spatial smart contracts are expressed as an interpretable JSON expression, and provide bounded evaluation time.
6. A Spatial Transaction Protocol (STP), which includes:
a spatial quantized range query, comprising
a view defined by a range and a space that is sent to a server or peer node and specifies what a requestor would like to see,
a result of that view, which is sent back to the requester, and a transaction protocol to change the assets.
7. An STP of claim 6, wherein the view includes one or more of requestor information, cryptographic signature information, existing requester visible information for view estimation, and location information.
8. An STP of claim 7, wherein the location information is defined in various dimensions and is not hard coded in the STP.
9. An STP of claim 8, wherein the dimensions include one or more of xyz, longitude/latitude, and time.
10. An STP of claim 9, wherein the view, further includes a search field, and vector or profile id for prioritizing the results of the view.
11. An STP of Claim 7, wherein the requestor information includes a signature.
12. An STP of claim 11, wherein the signature comprises a signature by a private key of a requestor that can be validated against a public key.
13. An STP of claim 7, wherein the requestor information further includes means to notify the requester if the view is modified (subscription mechanism).
14. An STP of claim 10, wherein the result of the view includes:
background content, and a list of assets.

15. An STP of claim 14, wherein each asset includes sufficient values to contractually validate any change.
16. An STP of claim 15, wherein the asset may include
- An asset ID, with authority information,
- an OWNER asset ID for the asset, with authority information,
- a SPACE asset ID for the asset, with authority information,
- a location,
- contained content, and
- a permissible transaction contract
17. An STP of claim 16, wherein the asset ID includes a public key and one or more consensus authorities.
18. An STP of claim 16, wherein the location supports multiple coordinate systems, expressed as at least one of a point value and a quantized range.
19. An STP of claim 18, wherein the location further supports providing resolutions for each dimension of the space.
20. An STP of claim 7, where the STP further includes dimensional packing information.
21. An STP of Claim 16, wherein the asset further includes space and time route information.
22. An STP of Claim 16, wherein the asset further includes a wallet value of the asset.
23. An STP of Claim 16, wherein the asset is associated with a contract which defines what can be done with the asset and with any content.
24. An STP of Claim 23, wherein the asset further defines a default contract associated with the asset, which requires that any change to an asset can only be made if the owner or asset itself is also the requester.
25. An STP of Claim 16, wherein the ASSET further includes a public signing key, which allows an asset to validate transactions as being requested from itself.
26. A method of managing a spatial domain, and actions within that domain, by representing the domain as an asset, wherein the asset information includes at least one of spatial location information, spatial permissioning information, and user validation.
27. A method of claim 26, wherein spatial permissioning information includes governance of permissible transactions on the asset itself, as well as on other assets within its domain.
28. A method of claim 26, wherein the spatial location information includes at least one coordinate system, a point value, and a range.
29. A method of claim 26, wherein the asset is a physical or virtual asset.
30. A method of transmitting and storing spatial information, as interconnected assets, comprising creating packets that include:
- a packet type comprising at least one of query, result, and transaction;

at least one of target asset ID and location,

a set of asset definitions, wherein the asset definitions include at least one of identity, owner, space, location, content, contract, and wallet-value.

31. A method of claim 30, wherein the location supports multiple coordinate systems.

32. A method of claim 31, wherein location includes a range.

33. A method of claim 32, wherein the location further supports a resolution for the space.

34. A method of Claim 33, wherein the asset further includes route information.

35. A method of decentralized routing comprising routing of packets based on at least one of their spatial destinations, relative spatial locations, and spatial permission contract.

36. A spatial domain system (SDS) for real and virtual assets, comprising

an asset ID

an associated authentication key,

an owner ID of the asset,

a space ID of the space that the asset exists within, and

a location.

37. An SDS of claim 36, wherein the location supports multiple coordinate systems, each comprising at least one of a point value, and a range.

38. An SDS of claim 36, wherein the location further supports a resolution for the space.

39. A spatial browser for interacting with a spatial network via requests,

comprising

view query code defining a range and a space related to a view query,

state code for viewing information received in response to a view query, and a transaction code to create or change assets and their associated attributes.

40. A spatial browser of claim 39, wherein the requests include requester information and supporting authentication material.

41. A spatial browser of claim 40, wherein the location information is defined in various dimensions and is not hard coded in the view query code.

42. A method of managing inventory tasks, comprising

defining items in inventory as assets, wherein the asset definition includes, spatial information and contracting information, that expresses tasks as permissions within temporal and spatial bounded routes.

43. A method of claim 42, wherein the spatial information further includes user validation information.

44. A method of claim 43, further comprising generating virtual assets for physical assets.

45. A method of claim 44, comprising spatially anchoring the virtual assets relative to one or more reference asset locations.
46. A method of validating the movement of goods from one location to another location, comprising
defining at least one of goods and containers housing the goods, as assets,
associating spatial information with each asset, wherein the spatial information includes an asset transaction permission contract.
47. A method of Claim 46, wherein spatial transaction permission contract further includes route information.
48. A method of claim 46, further comprising associating bill of lading
information with the spatial information.
49. A method of claim 46, wherein the asset includes information about relative location of an asset within another asset.
50. A method of claim 46, wherein a valid range of movement of the asset is visualized as part of a view query, and may be defined in various dimensions, and is not hard coded in the view query.
51. A method of claim 50, wherein the dimensions include at least one of time, temperature, location, and pressure.
52. A method of claim 46, wherein the asset includes at least one of a signature, public key, and biometric information.
53. A method of claim 52, wherein the signature includes a cryptographic
signature of a requester that can be validated against a public key.
54. A method of providing an authenticated checkout for goods sold to
purchasers by a store, comprising
defining the goods or groups of goods, purchasers, and the store as assets, and associating spatial information with each asset, wherein the asset information includes an asset transaction permission contract.
55. A method of claim 54, further comprising capturing at least one of user validation information, and payment information.
56. A method of claim 54, further comprising generating a view of the assets.
57. A method of claim 56, comprising locating the assets relative to one or more references based on the spatial information.
58. A method of managing traffic to enable collaboration between vehicles, comprising
associating spatial information with each vehicle, wherein the vehicles, roads and nearby entities are defined as assets and the spatial information includes a spatial permission contract communicating one vehicle's responses to physical and digital signals from other assets.
59. A method of claim 58, wherein the vehicle is a land, airborne or waterborne vehicle.
60. A method of claim 58, wherein the spatial information, further includes spatial content information, comprising at least one of visualization models, collision estimation models, and routing models.
61. A method of claim 60, wherein the spatial information includes one or more coordinate systems, defined and aligned by a scene graph of visual recognition feature points.
62. A method of claim 58, wherein the communicated spatial information varies relative to the resolution of a requesting view query of a particular communication.



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Cross-chain interaction using domain name scheme in blockchain system



WO EP US CN JP KR AU BR CA MX PH RU SG ZA · JP20200523583A · ホンリン・チウ・アリババ・グループ・ホールディング・リミテッド Alibaba Group Holding Limited

Priority 2018-11-16 · Filed 2018-11-16 · Published 2020-01-30

The present invention relates to cross-chain interactions using a domain name scheme within a blockchain system. Distributed ledger systems (DLS), which may also be referred to as consensus networks and / or blockchain networks, allow participating entities to store data securely and immutably.

Domain Name Scheme for Cross-Chain Interaction in Blockchain Systems

WO EP US CN JP KR AU BR CA MX PH RU SG · JP20200523583A · ホンリン・チウ・アリババ・グループ・ホールディング・リミテッド Alibaba Group Holding Limited

Priority 2018-11-16 · Filed 2018-11-16 · Granted 2020-04-28 · Published 2020-04-28

Obtaining a blockchain domain name of a second different blockchain instance by a client node of the first blockchain instance, the method comprising: Said blockchain domain name is a unique identifier of a second blockchain instance in an integrated blockchain network comprising a plurality of ...

Domain name resolution system based on block chain



WO US CN · WO2018101882A1 · 李輝 · 北京大学深圳研究生院

Priority 2017-04-19 · Filed 2017-04-19 · Published 2018-10-25

The present invention relates to a domain name resolution system based on a block chain. The domain name resolution system uses a hierarchical structure, and comprises a top-level domain name chain network, a second-level domain name chain network, a future network node, and an original DNS system ...

Systems and methods for managing top-level domain names using consortium ...



WO US CN · US20180306282 · Hui Li · Peking University Shenzhen Graduate School

Priority 2017-03-31 · Filed 2018-03-14 · Granted 2019-01-08 · Published 2019-01-08

The present disclosure relates generally to internet technology and more specifically to managing Top-level domain (TLD) name based on blockchain. An example method of managing Top-level domain name comprises the following steps: A. Using TLD nodes to form alliance network in the blockchain; B. ...

Determining consensus in a decentralized domain name system



WO US CN · US20180306282 · Hui Li · Peking University Shenzhen Graduate School

Priority 2017-03-31 · Filed 2018-03-14 · Granted 2019-01-08 · Published 2019-01-08

A method comprising: A. forming a consortium blockchain network using domain network nodes and selecting committee members from top-level domain nodes; B. the committee member who received most votes packs the genesis block and generates a random number; C. the housekeeper having the same number ...

Domain name management system, domain name management method and domain name ...

CN · CN107261381B · 孙伟 · 中国互联网络信息中心

Priority 2017-09-22 · Filed 2017-09-22 · Granted 2020-06-05 · Published 2020-06-05

The invention relates to a domain name management system, a domain name management method and a domain name resolution method based on a block chain. The domain name management system based on the block chain comprises a block chain with a hierarchical structure, wherein the block chain with the ...

Resilient trust network services



US · US20140306282 · Jonathan Paul Hare · Resilient Network Systems, Inc.

Priority 2009-01-02 · Filed 2010-08-11 · Granted 2014-09-23 · Published 2014-09-23

A Resilient Trust Network (RTN) is a set of servers that provide: an application integration platform for developing and publishing services and user interface for services, building derived services, subscribing to services, and embedding services into host applications, and building composite ...

Factom protocol in blockchain environments



US · US20180306282 · Paul Snow · Inventium Capital Partners, Inc.

Priority 2018-08-06 · Filed 2019-03-13 · Granted 2021-12-21 · Published 2021-12-21

A Factom protocol cost effectively separates any blockchain (such as the Bitcoin blockchain) from any cryptocurrency (such as the Bitcoin cryptocurrency). The Factom protocol provides client-defined Chains of Entries, client-side validation of Entries, a distributed consensus algorithm for ...

Data storage state detection method and device and computer readable storage ...

CN · CN107261381B · 孙伟 · 中国互联网络信息中心

Priority 2017-07-06 · Filed 2017-07-06 · Granted 2021-02-09 · Published 2021-02-09

The invention discloses a data storage state detection method, a data storage state detection device and a computer readable storage medium, wherein the data storage state detection method comprises the following steps: acquiring

interface information, and acquiring an original hash value of . .

Privacy-preserving distributed visual data processing

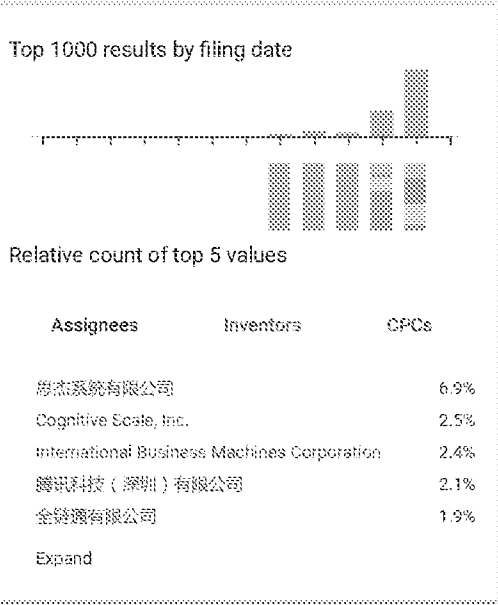


US • US10607468B2 • Shao-Wen Yang • Intel Corporation

Priority 2017-12-28 • Filed 2017-12-29 • Granted 2020-03-31 • Published 2020-03-31

This disclosure presents embodiments for performing privacy-preserving distributed computing. For example, a workload that includes a plurality of tasks may be identified, and a workload graph may be generated to represent the workload. In addition, a device connectivity graph with connectivity ...

Next > >> About 25,870 results



Bibliographic Data

Application No: 17/486,512

Foreign Priority claimed: ☐ Yes ☒ No

35 USC 119 (a-d) conditions met: ☐ Yes ☒ No

☐ Met After Allowance

Verified and Acknowledged:

/CHRISTOPHER B
ROBINSON/

Examiner's Signature

Initials

Title:

RESOLVING BLOCKCHAIN DOMAINS

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
09/27/2021	709	2443	UNSTP003
RULE			

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CONTINUING DATA

This application has PRO of 63084493 09/28/2020

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

10/06/2021

**** SMALL ENTITY ****

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PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	0	(Unstoppable NEAR4 Domain).as.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 01:59 PM
L2	0	(Unstoppable NEAR4 Domains).as.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 02:00 PM
L3	0	(Pezeshki NEAR2 Braden).inv.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 02:00 PM
L4	83	(Gould NEAR4 Matthew).inv.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU,	AND	ON	ON	2022/04/06 02:00 PM

L5	0	(Gusiev NEAR4 Bogdan).inv.	CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 02:00 PM
L6	626	request\$3 resolv\$3 nam\$3 domain\$3 ident\$4 web content\$3 automatic\$4 (block NEAR2 chain) smart contract\$3 resolution\$3 record\$3	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 02:01 PM
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L8	77	L7 L6	VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 02:02 PM
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L12	3	16/351,597	HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 04:34 PM
L13	4	((US-20210240784-A1 OR US-20190166085-A1 OR US-20180115413-A1 OR US-20200044827-A1).did. AND PGPB.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 07:39 PM
L14	0	L13 (resolv\$4 OR resolut\$4) ("ID" OR identif\$4 OR identifier) decentral\$4 (gateway OR server) DNS (domain OR page OR site)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 07:40 PM

L15	0	L13 (resolv\$4 OR resolut\$4) ("ID" OR identif\$4 OR identifier) decentralized (gateway OR server) DNS (domain OR page OR site)	IBM_TDB) (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 07:40 PM
L16	0	L13 ("ID" OR identif\$4 OR identifier) decentralized (gateway OR server) DNS (domain OR page OR site)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 07:40 PM
L17	1	16/466,978	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 08:13 PM
L18	5	((US-20210240784-A1 OR US-20190166085-A1 OR US-20180115413-A1 OR US-20200044827-A1 OR US-20190349426-A1).did. AND PGPB.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV,	AND	ON	ON	2022/04/06 08:40 PM

L19	5	L18 protocol\$3	MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 08:40 PM
L20	2	16/523,383	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 08:47 PM
L21	0	PCT/US2019/049398	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 09:12 PM
L22	0	PCTUS2019/049398	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06

			USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				09:12 PM
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L24	0	WO 2020/051160 A1	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 09:12 PM
L25	2	WO2020051160A1	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL,	AND	ON	ON	2022/04/06 09:13 PM

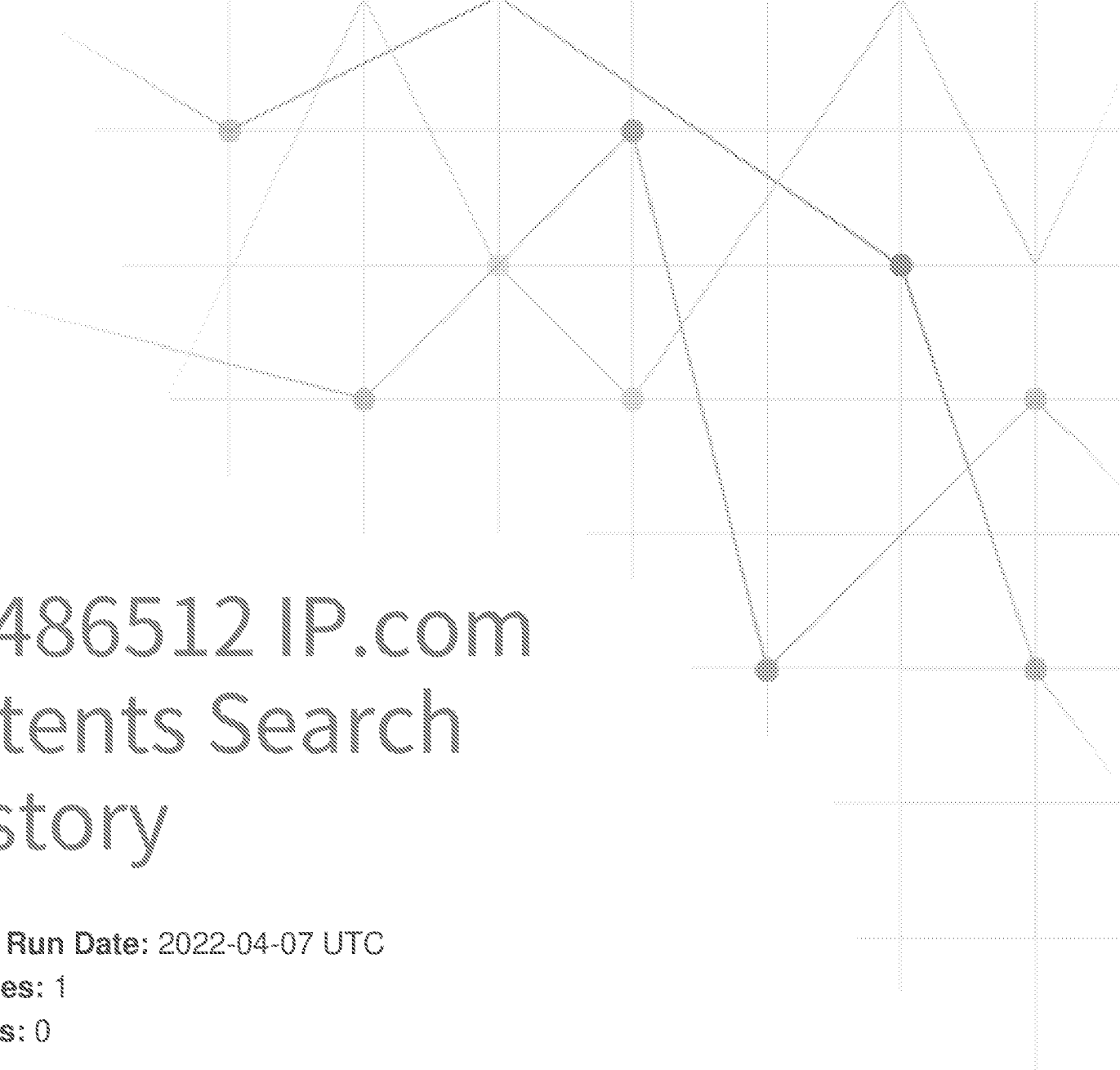
L26	2	16/078,625	PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 09:27 PM
L27	8	((US-20210240784-A1 OR US-20190166085-A1 OR US-20180115413-A1 OR US-20200044827-A1 OR US-20190349426-A1 OR US-20190043048-A1 OR US-20200034395-A1).did. AND PGPB.dbnm.) OR ((WO-2020051160-A1).did. AND DWPI.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 09:31 PM
L28	2	L27 redirect\$4	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 09:31 PM
L29	7	L27 domain\$3	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY,	AND	ON	ON	2022/04/06 09:39 PM

L30	7	L27 address\$3	CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 09:40 PM
L31	8	((US-20210240784-A1 OR US-20190166085-A1 OR US-20180115413-A1 OR US-20200044827-A1 OR US-20190349426-A1 OR US-20190043048-A1 OR US-20200034395-A1).did. AND PGPB.dbnm.) OR ((WO-2020051160-A1).did. AND DWPI.dbnm.)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 10:16 PM
L32	4	L31 (browser OR enginer OR extension OR plugin)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH,	AND	ON	ON	2022/04/06 10:16 PM

L33	2	16/390,586	TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 10:22 PM
L34	466	((blockchain) OR (block NEAR2 chain)) domain\$3 resolv\$4 browser\$3 hash\$3 token\$3 (IP NEAR2 address\$3) decentralized protocol\$3 (gateway OR server)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2022/04/06 10:37 PM

PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.



17486512 IP.com Patents Search History

Report Run Date: 2022-04-07 UTC

Searches: 1

Markers: 0

Search #	Timestamp	Results	Page
1	<u>2022-04-07 02:27 UTC</u>	10,257,113	3



Content: Patent Publications (164)

US Patents | US Designs | US Applications | EPO Patents | EPO Applications | China Patents | China Applications | Japan Patents | Japan Applications | Korea Patents | Korea Applications | WIPO Applications | Argentina Patents | Argentina Applications | Brazil Patents | Brazil Applications | Canada Patents | Canada Applications | Chile Patents | Chile Applications | Colombia Applications | Costa Rica Applications | Cuba Patents | Cuba Applications | Dominican Republic Applications | Ecuador Patents | Ecuador Applications | El Salvador Applications | Guatemala Applications | Honduras Applications | Mexico Patents | Mexico Applications | Nicaragua Patents | Panama Applications | Peru Applications | Trinidad & Tobago Patents | Uruguay Applications | Austria Patents | Austria Applications | Belarus Patents | Belgium Patents | Belgium Applications | Bosnia & Herzegovina Patents | Bosnia & Herzegovina Applications | Bulgaria Patents | Bulgaria Applications | Croatia Patents | Croatia Applications | Czech Republic Patents | Czech Republic Applications | Czechoslovakia Patents | Czechoslovakia Applications | Denmark Patents | Denmark Applications | Estonia Patents | Estonia Applications | EUIPO Patents | Finland Patents | Finland Applications | France Patents | France Applications | Germany Patents | Germany Applications | Great Britain Patents | Great Britain Applications | Greece Patents | Greece Applications | Hungary Patents | Hungary Applications | Iceland Patents | Iceland Applications | Ireland Patents | Ireland Applications | Italy Patents | Italy Applications | Latvia Patents | Latvia Applications | Lithuania Patents | Lithuania Applications | Luxembourg Patents | Malta Patents | Monaco Patents | Montenegro Patents | Montenegro Applications | Netherlands Patents | Netherlands Applications | Norway Patents | Norway Applications | Poland Patents | Poland Applications | Portugal Patents | Portugal Applications | Republic of Moldova Patents | Republic of Moldova Applications | Romania Patents | Romania Applications | San Marino Patents | San Marino Applications | Serbia Patents | Serbia Applications | Slovakia Patents | Slovakia Applications | Slovenia Patents | Spain Patents | Spain Applications | Sweden Patents | Sweden Applications | Switzerland Patents | Switzerland Applications | Ukraine Patents | Yugoslavia/Serbia and Montenegro Patents | Yugoslavia/Serbia and Montenegro Applications | Armenia Patents | Australia Patents | Australia Applications | Cyprus Patents | Gulf Cooperation Council Patents | Hong Kong Patents | India Patents | India Applications | Indonesia Patents | Indonesia Applications | Israel Applications | Jordan Patents | Kyrgyzstan Patents | Macao Applications | Malaysia Patents | Mongolia Patents | New Zealand Patents | Philippines Patents | Philippines Applications | Saudi Arabia Patents | Singapore Patents | Singapore Applications | Taiwan Patents | Taiwan Applications | Tajikistan Patents | Tajikistan Applications | Thailand Applications | Uzbekistan Patents | Vietnam Patents | Algeria Patents | ARIPO Patents | ARIPO Applications | Egypt Patents | Kenya Patents | Malawi Patents | Morocco Patents | Morocco Applications | OAPI Patents | South Africa Patents | Tunisia Applications | Zambia Patents | Zimbabwe Patents | EAPO Patents | EAPO Applications | Georgia Patents | Georgia Applications | Kazakhstan Patents | Kazakhstan Applications | Russia Patents | Russia Applications | Turkey Patents | Turkey Applications

1 2022-04-07 02:27 UTC | 10,257,113 results from

De-Dup: None | Cut-off: None | Sort: Relevance

Main Concept: Text

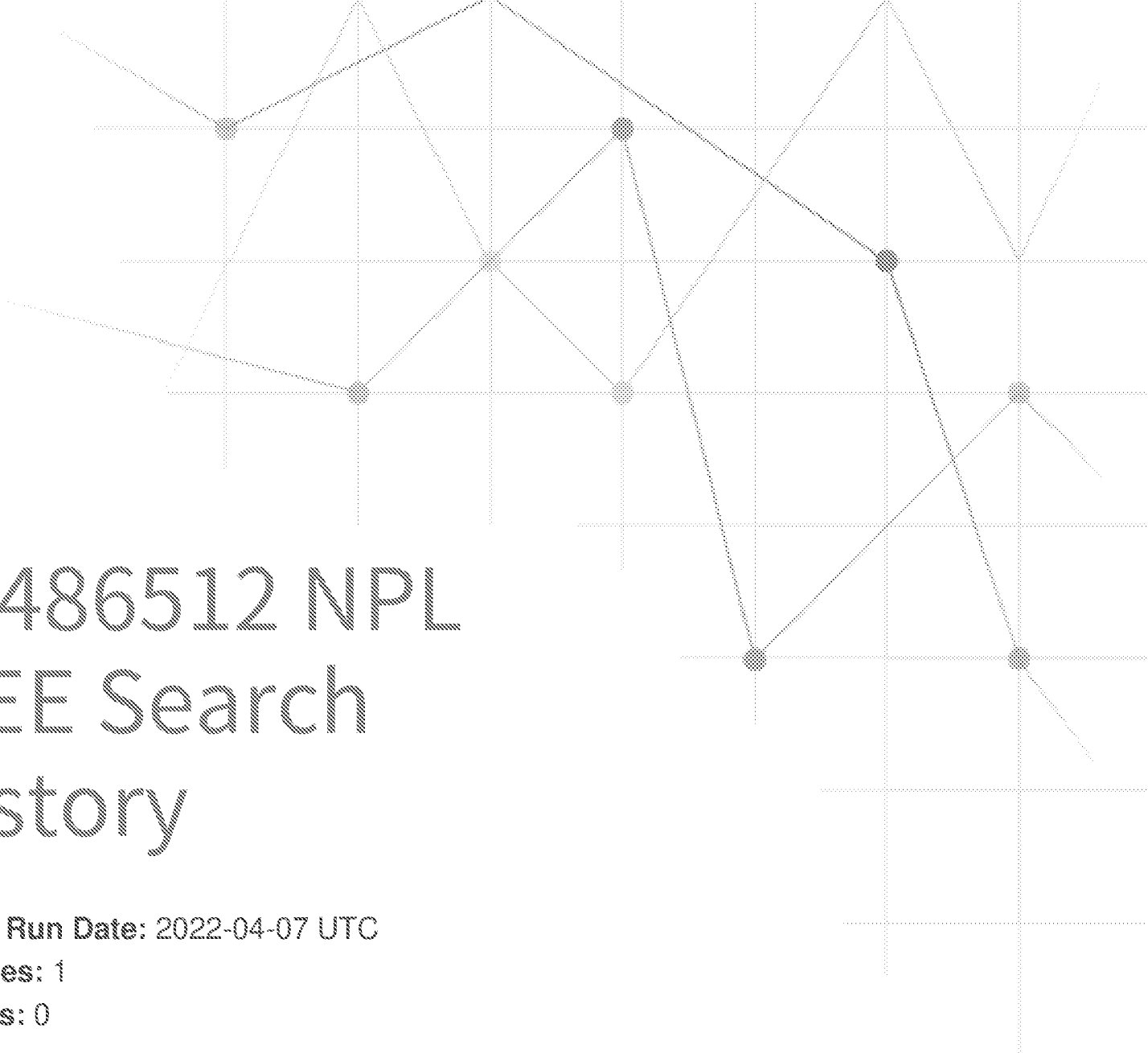
receiving a request to resolve a name of a domain of an identifier of web content; automatically determining that the name of the domain is to be resolved using a s blockchain; sending a request to a smart contract of the blockchain to obtain one or more resolution records for the domain; receiving the one or more resolution records of the domain; and utilizing the received one or more resolution records to resolve the name of the domain.

Concept Modifiers (1):

1. More Like Text: block chain

Filters (1):

Publication Date: From 2000-11-06 To 2020-09-27



17486512 NPL IEEE Search History

Report Run Date: 2022-04-07 UTC

Searches: 1

Markers: 0

Search #	Timestamp	Results	Page
1	2022-04-07 02:27 UTC	1,636,367	3

Content: Non-Patent Literature (23)

IEEE Xplore Publications: IEEE Periodicals | IEEE Xplore Publications: IEEE Conferences | IEEE Xplore Publications: IEEE Standards | IEEE Xplore Publications: IEEE Early Access | IEEE Xplore Publications: SMPTE Periodicals | IEEE Xplore Publications: SMPTE Conferences | IEEE Xplore Publications: SMPTE Standards | IEEE Xplore Publications: MIT Press eBooks | IEEE Xplore Publications: Wiley-IEEE eBooks | IEEE Xplore Publications: IBM Periodicals | IEEE Xplore Publications: URSI Periodicals | IEEE Xplore Publications: VDE Conferences | IEEE Xplore Publications: Periodicals from China | IP.com Prior Art Database: The IP.com Journal | IP.com Prior Art Database: Internet Society RFC | IP.com Prior Art Database: IBM TDB Archive | IP.com Prior Art Database: Legacy Journals | IP.com Prior Art Database: Software Patent Institute | OnePetro.org: Periodicals at OnePetro.org | OnePetro.org: Conferences at OnePetro.org | Other Literature: IBM Redbooks | Other Literature: PubMed Central | Other Literature: arXiv.org

1 2022-04-07 02:27 UTC | 1,636,367 results from 

De-Dup: None | Cut-off: None | Sort: Relevance

Main Concept: Text

receiving a request to resolve a name of a domain of an identifier of web content; automatically determining that the name of the domain is to be resolved using a s blockchain; sending a request to a smart contract of the blockchain to obtain one or more resolution records for the domain; receiving the one or more resolution records of the domain; and utilizing the received one or more resolution records to resolve the name of the domain.

Concept Modifiers (1):

1. More Like Text: block chain

Filters: None

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT7088487

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
BRADEN RIVER PEZESHKI	12/21/2021
MATTHEW EVERETT GOULD	11/23/2021
BOGDAN GUSIEV	11/24/2021
RECEIVING PARTY DATA	
Name:	UNSTOPPABLE DOMAINS INC.
Street Address:	8465 W SAHARA AVE., STE. 111, UNIT #1017
City:	LAS VEGAS
State/Country:	NEVADA
Postal Code:	89117
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	17486512
CORRESPONDENCE DATA	
Fax Number:	(408)973-2585
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
Phone:	4089732595
Email:	csimmons@ip-patent.com
Correspondent Name:	VAN PELT, YI & JAMES LLP
Address Line 1:	10050 N. FOOTHILL BLVD.
Address Line 2:	SUITE 200
Address Line 4:	CUPERTINO, CALIFORNIA 95014
ATTORNEY DOCKET NUMBER:	UNSTP003
NAME OF SUBMITTER:	JONG ANDREW H. PARK
SIGNATURE:	/Jong Andrew Park/
DATE SIGNED:	12/22/2021
This document serves as an Oath/Declaration (37 CFR 1.63).	
Total Attachments: 3	
source=UNSTP003_Executed_Assignment_and_Dec#page1.tif	
source=UNSTP003_Executed_Assignment_and_Dec#page2.tif	

COMBINED ASSIGNMENT/DECLARATION OF PATENT APPLICATION**ASSIGNMENT**

Whereas I/we the undersigned inventor(s) have invented certain new and useful improvements as set forth in the patent application entitled:

RESOLVING BLOCKCHAIN DOMAINS

for which I (we) have executed an application for a United States Letters Patent which was filed in the U.S. Patent and Trademark Office on September 27, 2021, and which bears the Application No. 17/486,512 (the "APPLICATION");

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I/we the undersigned inventor(s) hereby:

- 1) Sell, assign, and transfer to Unstoppable Domains Inc., a Delaware corporation having a place of business at 8465 W Sahara Ave., Ste. 111, Unit #1017, Las Vegas, NV 89117, United States of America, (hereinafter referred to as "ASSIGNEE"), the entire worldwide right, title and interest in and to: (a) the APPLICATION; (b) any application to which the APPLICATION claims priority and any application at least in part based upon the APPLICATION; (c) all provisional, utility, divisional, continuation, continuation-in-part, substitute, renewal, reissue, and other applications related thereto which have been or may be filed in the United States or elsewhere in the world; (d) all patents (including reissues and re-examinations) which may be granted on the applications set forth in (a), (b), and (c) above; (e) any and all improvements and inventions disclosed in (a), (b), (c), and (d) above; (f) all rights of priority in the APPLICATION and in any underlying provisional or foreign application, together with all rights to recover damages for infringement of any provisional rights; and (g) all claims for past, present and future infringement of any patent in (d) above, including all rights to sue for and to receive and recover for the ASSIGNEE's own use all past, present, and future lost profits, royalties, and damages of whatever nature recoverable from an infringement of any patent in (d) above.
- 2) Authorize and request the issuance of any and all patent(s) resulting from any of said applications or any division(s), continuation(s), continuation-in-part(s), substitutes(s), reissue(s), or other related application(s) thereof, which have been or may be filed in the United States or elsewhere in the world, to the ASSIGNEE.
- 3) Agree to execute all papers and documents and, entirely at the ASSIGNEE's expense, perform any acts which are reasonably necessary in connection with the prosecution of said APPLICATION, as well as any derivative applications thereof, foreign applications based thereon, and/or the enforcement of patents resulting from such applications. Such acts shall include (a) executing all oaths, assignments, powers of attorney, applications, and other papers necessary or desirable to fully secure to the ASSIGNEE the rights, titles and interests herein conveyed; (b) communicating to the ASSIGNEE all known facts relating to any subject matter disclosed in the APPLICATION or any application or patent related to the APPLICATION; and (c) generally doing all lawful acts that the ASSIGNEE shall consider desirable for securing, maintaining, and enforcing worldwide patent protection and for vesting in the ASSIGNEE the rights, titles, and interests herein conveyed.

- 4) Agree that the terms, covenants and conditions of this Assignment shall inure to the benefit of the ASSIGNEE, its successors, assigns and other legal representative, and shall be binding upon the inventor(s), as well as the inventor's heirs, legal representatives and assigns.
- 5) Warrant and represent that I/we have the rights, titles, and interests to convey as set forth herein, and have not entered, and will not enter into any assignment, grant, mortgage, license, contract, agreement, or understanding that conflicts with this Assignment.
- 6) Grant any attorney or agent of Van Pelt, Yi & James LLP, or any attorney or agent of record, the power to insert or complete in this document any information or identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document, including without the limitation by entering the application number and/or filing date, if required, in the space provided in the following parentheses (Application No. _____; Filed on _____).

DECLARATION (37 CFR § 1.63)

As a below-named inventor, I declare that:

The APPLICATION was made or authorized to be made by me;

I believe that I am the original inventor or an original joint inventor of a claimed invention in the APPLICATION;

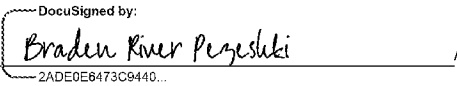
I have reviewed and understand the contents of the APPLICATION, including the claims;

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 CFR § 1.56, which for a continuation-in-part includes information known to me to be material to patentability as defined in 37 CFR § 1.56 that became available between the filing date of the prior patent application and the National or PCT filing date of the continuation-in-part application; and

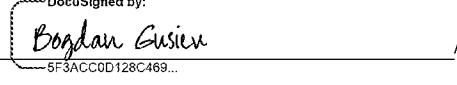
I hereby acknowledge that any willful false statement made in this Declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

This Assignment and Declaration may be executed in one or more counterparts, each of which shall be deemed an original and all of which may be taken together as one and the same instrument. Signed on the date(s) indicated beside my (our) signature(s).

Signed on the date(s) indicated beside my (our) signature(s).

Full name of inventor	Braden River Pezeshki	
Signature of inventor	/  / 2ADE0E6473C9440...	Date: December 21, 2021

Full name of inventor	Matthew Everett Gould	
Signature of inventor	/  / 150C9FF94D0149A...	Date: November 23, 2021

Full name of inventor	Bogdan Gusiev	
Signature of inventor	/  / 5F3ACC0D128C469...	Date: November 24, 2021

COMBINED ASSIGNMENT/DECLARATION OF PATENT APPLICATION**ASSIGNMENT**

Whereas I/we the undersigned inventor(s) have invented certain new and useful improvements as set forth in the patent application entitled:

RESOLVING BLOCKCHAIN DOMAINS

for which I (we) have executed an application for a United States Letters Patent which was filed in the U.S. Patent and Trademark Office on September 27, 2021, and which bears the Application No. 17/486,512 (the "APPLICATION");

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I/we the undersigned inventor(s) hereby:

- 1) Sell, assign, and transfer to Unstoppable Domains Inc., a Delaware corporation having a place of business at 8465 W Sahara Ave., Ste. 111, Unit #1017, Las Vegas, NV 89117, United States of America, (hereinafter referred to as "ASSIGNEE"), the entire worldwide right, title and interest in and to: (a) the APPLICATION; (b) any application to which the APPLICATION claims priority and any application at least in part based upon the APPLICATION; (c) all provisional, utility, divisional, continuation, continuation-in-part, substitute, renewal, reissue, and other applications related thereto which have been or may be filed in the United States or elsewhere in the world; (d) all patents (including reissues and re-examinations) which may be granted on the applications set forth in (a), (b), and (c) above; (e) any and all improvements and inventions disclosed in (a), (b), (c), and (d) above; (f) all rights of priority in the APPLICATION and in any underlying provisional or foreign application, together with all rights to recover damages for infringement of any provisional rights; and (g) all claims for past, present and future infringement of any patent in (d) above, including all rights to sue for and to receive and recover for the ASSIGNEE's own use all past, present, and future lost profits, royalties, and damages of whatever nature recoverable from an infringement of any patent in (d) above.
- 2) Authorize and request the issuance of any and all patent(s) resulting from any of said applications or any division(s), continuation(s), continuation-in-part(s), substitutes(s), reissue(s), or other related application(s) thereof, which have been or may be filed in the United States or elsewhere in the world, to the ASSIGNEE.
- 3) Agree to execute all papers and documents and, entirely at the ASSIGNEE's expense, perform any acts which are reasonably necessary in connection with the prosecution of said APPLICATION, as well as any derivative applications thereof, foreign applications based thereon, and/or the enforcement of patents resulting from such applications. Such acts shall include (a) executing all oaths, assignments, powers of attorney, applications, and other papers necessary or desirable to fully secure to the ASSIGNEE the rights, titles and interests herein conveyed; (b) communicating to the ASSIGNEE all known facts relating to any subject matter disclosed in the APPLICATION or any application or patent related to the APPLICATION; and (c) generally doing all lawful acts that the ASSIGNEE shall consider desirable for securing, maintaining, and enforcing worldwide patent protection and for vesting in the ASSIGNEE the rights, titles, and interests herein conveyed.

- 4) Agree that the terms, covenants and conditions of this Assignment shall inure to the benefit of the ASSIGNEE, its successors, assigns and other legal representative, and shall be binding upon the inventor(s), as well as the inventor's heirs, legal representatives and assigns.
- 5) Warrant and represent that I/we have the rights, titles, and interests to convey as set forth herein, and have not entered, and will not enter into any assignment, grant, mortgage, license, contract, agreement, or understanding that conflicts with this Assignment.
- 6) Grant any attorney or agent of Van Pelt, Yi & James LLP, or any attorney or agent of record, the power to insert or complete in this document any information or identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document, including without the limitation by entering the application number and/or filing date, if required, in the space provided in the following parentheses (Application No. _____; Filed on _____).

DECLARATION (37 CFR § 1.63)

As a below-named inventor, I declare that:

The APPLICATION was made or authorized to be made by me;

I believe that I am the original inventor or an original joint inventor of a claimed invention in the APPLICATION;

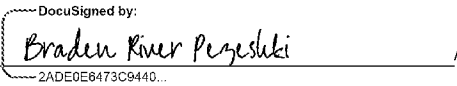
I have reviewed and understand the contents of the APPLICATION, including the claims;

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 CFR § 1.56, which for a continuation-in-part includes information known to me to be material to patentability as defined in 37 CFR § 1.56 that became available between the filing date of the prior patent application and the National or PCT filing date of the continuation-in-part application; and

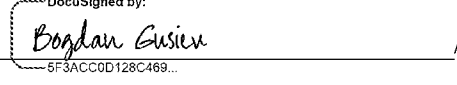
I hereby acknowledge that any willful false statement made in this Declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

This Assignment and Declaration may be executed in one or more counterparts, each of which shall be deemed an original and all of which may be taken together as one and the same instrument. Signed on the date(s) indicated beside my (our) signature(s).

Signed on the date(s) indicated beside my (our) signature(s).

Full name of inventor	Braden River Pezeshki	
Signature of inventor	/  / 2ADE0E8473C9440...	Date: December 21, 2021

Full name of inventor	Matthew Everett Gould	
Signature of inventor	/  / 150C9FF94D0149A...	Date: November 23, 2021

Full name of inventor	Bogdan Gusiev	
Signature of inventor	/  / 5F3ACC0D128C469...	Date: November 24, 2021

Electronic Acknowledgement Receipt

EFS ID:	44586035
Application Number:	17486512
International Application Number:	
Confirmation Number:	7235
Title of Invention:	RESOLVING BLOCKCHAIN DOMAINS
First Named Inventor/Applicant Name:	Braden River Pezeshki
Customer Number:	21912
Filer:	Jong Andrew Hyuk Park/Chelsea Simmons
Filer Authorized By:	Jong Andrew Hyuk Park
Attorney Docket Number:	UNSTP003
Receipt Date:	22-DEC-2021
Filing Date:	27-SEP-2021
Time Stamp:	11:36:38
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Oath or Declaration filed	UNSTP003_Executed_Assignment_and_Dec.pdf	247576 e29cad415d71754283381f68872c5a7ba5814fab	no	3

Warnings:

ENS LABS EX1013

Page 160 of 265

The PDF file has been signed with a digital signature and the legal effect of the document will be based on the contents of the file not the digital signature.

Information:

Total Files Size (in bytes):

247576

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/486,512	09/27/2021	Braden River Pezeshki	UNSTP003

CONFIRMATION NO. 7235

21912
VAN PELT, YI & JAMES LLP
10050 N. FOOTHILL BLVD #200
CUPERTINO, CA 95014

INFORMAL NOTICE



Date Mailed: 12/09/2021

INFORMATIONAL NOTICE TO APPLICANT

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
Braden River Pezeshki
Matthew Everett Gould
Bogdan Gusiev

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/zabaha/

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 17/486,512				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)			
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	80		N/A				
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	350		N/A				
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	400		N/A				
TOTAL CLAIMS (37 CFR 1.16(j))	20	minus 20 = *	x 50 =	0.00	OR					
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	minus 3 = *	x 240 =	0.00						
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00						
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00						
			TOTAL	830		TOTAL				
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.										



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
17/486,512	09/27/2021		910	UNSTP003	20	3

21912
VAN PELT, YI & JAMES LLP
10050 N. FOOTHILL BLVD #200
CUPERTINO, CA 95014

CONFIRMATION NO. 7235
UPDATED FILING RECEIPT



Date Mailed: 12/09/2021

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Braden River Pezeshki, Pullman, WA;
Matthew Everett Gould, Reno, NV;
Bogdan Gusiev, Kyiv, UKRAINE;

Applicant(s)

Unstoppable Domains Inc., Las Vegas, NV

Power of Attorney: The patent practitioners associated with Customer Number 21912

Domestic Priority data as claimed by applicant

This appln claims benefit of 63/084,493 09/28/2020

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 10/06/2021

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/486,512**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No

**** SMALL ENTITY ****

Title

RESOLVING BLOCKCHAIN DOMAINS

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/486,512	09/27/2021	Braden River Pezeshki	UNSTP003

CONFIRMATION NO. 7235

POA ACCEPTANCE LETTER



21912
VAN PELT, YI & JAMES LLP
10050 N. FOOTHILL BLVD #200
CUPERTINO, CA 95014

Date Mailed: 12/09/2021

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 12/07/2021.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/zabaha/

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☒ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above:

21912

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☒ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone			Email		

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Unstoppable Domains Inc.

- ☐ Inventor or Joint Inventor (title not required below)
- ☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- ☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
- ☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature / Matthew Eventt Gould / Date (Optional) July 23, 2021

Name Matthew Gould

Title President & CEO

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☒ Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

ENS LABS EX1013

Page 168 of 265

Electronic Patent Application Fee Transmittal

Application Number:	17486512			
Filing Date:	27-Sep-2021			
Title of Invention:	RESOLVING BLOCKCHAIN DOMAINS			
First Named Inventor/Applicant Name:	Braden River Pezeshki			
Filer:	Jong Andrew Hyuk Park/Chelsea Simmons			
Attorney Docket Number:	UNSTP003			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	80	80
UTILITY SEARCH FEE	2111	1	350	350
UTILITY EXAMINATION FEE	2311	1	400	400
Pages:				
Claims:				
Miscellaneous-Filing:				
LATE FILING FEE FOR OATH OR DECLARATION	2051	1	80	80
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				910

Electronic Acknowledgement Receipt

EFS ID:	44452288
Application Number:	17486512
International Application Number:	
Confirmation Number:	7235
Title of Invention:	RESOLVING BLOCKCHAIN DOMAINS
First Named Inventor/Applicant Name:	Braden River Pezeshki
Customer Number:	21912
Filer:	Jong Andrew Hyuk Park/Chelsea Simmons
Filer Authorized By:	Jong Andrew Hyuk Park
Attorney Docket Number:	UNSTP003
Receipt Date:	07-DEC-2021
Filing Date:	27-SEP-2021
Time Stamp:	13:14:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$910
RAM confirmation Number	E2021B7D15082676
Deposit Account	500685
Authorized User	Chelsea Simmons

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

ENS LABS EX1013

Page 171 of 265

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant Response to Pre-Exam Formalities Notice	UNSTP003_MP.pdf	105521	no	2
			20546933e302d9cda40d6131f5271e29d9b6f93a		

Warnings:

Information:

2	Information Disclosure Statement (IDS) Form (SB08)	UNSTP003_IDS.pdf	1052896	no	4
			7b1f6127adc83b6ecc007f20f3b17b1dda4ac30		

Warnings:

Information:

A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.

3	Non Patent Literature	UNSTP003_Ref_EIP137.pdf	143316	no	12
			3af0f38248da5539708efbb45f4b8ebbc065d1eb		

Warnings:

Information:

4	Non Patent Literature	UNSTP003_Ref_EIP1062.pdf	100731	no	4
			b2ecb62e7b07b24024e64e9f30085642b27d7b5c		

Warnings:

Information:

5	Power of Attorney	UNSTP003_POA_Transmittal.pdf	155234	no	1
			6d0cf8d291c08f6dfe8d1cfba126465f88e2712		

Warnings:

Information:

6	Power of Attorney	UNST_Executed_POA_AIA82B.pdf	289004 c66074a7f9bdd59425a0f101bf52af971c8593b2	no	1
Warnings:					
Information:					
7	Fee Worksheet (SB06)	fee-info.pdf	46975 3af492d7457fe754efdd197d43a255244735b86a	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			1893677		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	17/486,512
Filing Date	September 27, 2021
First Named Inventor	Braden River Pezeshki
Title	RESOLVING BLOCKCHAIN DOMAINS
Art Unit	Not Assigned
Examiner Name	Not Assigned
Attorney Docket Number	UNSTP003

SIGNATURE of Applicant or Patent Practitioner

Signature	/Jong Andrew Park/	Date (Optional)	
Name	Jong Andrew H. Park	Registration Number	56917
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

*Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.:	17/486,512	Examiner:	Not Assigned
Filed:	September 27, 2021	Art Unit:	Not Assigned
Confirmation No.:	7235	Docket No.:	UNSTP003
First Inventor:	Braden River Pezeshki		
Title:	RESOLVING BLOCKCHAIN DOMAINS		

RESPONSE TO NOTICE TO FILE MISSING PARTS

Mail Stop Missing Parts
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, VA 22313-1450

Sir:

This is a Response to the Notice to File Missing Parts mailed October 07, 2021.

Application Elements:

- ☐ Declaration
- ☐ Newly executed (original or copy)
- ☐ Copy from a prior application (37 CFR 1.63(d) for a continuation or divisional).
 The entire disclosure of the prior application from which a copy of the declaration is herein supplied is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
- ☐ Deletion of inventors Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).

Accompanying Application Parts:

- ☒ Information Disclosure Statement with Form PTO/SB/08 ☒ Copies of IDS Citations
- ☐ Preliminary Amendment *(New claims numbered after highest original claim in prior application.)*
- ☒ Power of Attorney with ☒ Transmittal ☐ Statement Under 37 CFR 3.73
- ☐ Other:

Amendments

- ☐ Cancel in this application original claims _____ of the prior application before calculating the filing fee. *(At least one original independent claim must be retained.)*

Fee Calculation (37 CFR § 1.16)

				Small Entity			Large Entity	
				Rate	Fee		Rate	Fee
Filing Fees				x \$80=\$	80	OR	x \$320=\$	
Search Fees				x \$350=\$	350	OR	x \$700=\$	
Examination Fees				x \$400=\$	400	OR	x \$800=\$	
CLAIMS	Filed		Extra					
Total	20	Less 20	0	X \$50=\$	0	OR	x \$100=\$	
Independent	3	Less 3	0	x \$240=\$	0	OR	x \$480=\$	
Multiple Dependent Claims			-0-	x \$430=\$	0	OR	x \$860=\$	
Declaration and Surcharge Fee				x \$80=\$	80	OR	x \$160=\$	
Processing fee under Rule 1.17(i) to correct inventorship				x \$70=\$	0	OR	x \$140=\$	
				TOTAL FILING FEE \$	910		TOTAL FILING FEE \$	

☐ Applicants petition for an extension of time to respond under 37 CFR § 1.136(a) as follows:

	SMALL ENTITY			LARGE ENTITY	
	Rate	Add'l Fee		Rate	Add'l Fee
☐ Extension for Response within FIRST month	x \$110=\$		OR	x \$220=\$	
☐ Extension for Response within SECOND month	x \$320=\$		OR	x \$640=\$	
☐ Extension for Response within THIRD month	x \$740=\$		OR	x \$1480=\$	
☐ Extension for Response within FOURTH month	x \$1160=\$		OR	x \$2320=\$	
☐ Extension for Response within FIFTH month	x \$1580=\$		OR	x \$3160=\$	

☒ Please charge Deposit Account No. 50-0685 (UNSTP003) in the amount of \$910.00 to cover the filing fees, the additional claim fee, if any, and/or extension of time fees.

General Authorizations

☒ Applicants hereby make and generally authorize any Petitions for Extensions of Time as needed for this or any subsequent filings. The Commissioner is also authorized to charge any extension fees under 37 CFR §1.17 as needed to Deposit Account No. 50-0685 (Order No. UNSTP003).

☒ The Commissioner is given general authorization to charge any fees or to credit any overpayment during the pendency of this application to Deposit Account No. 50-0685 (Order No. UNSTP003).

☒ Please send correspondence to the following address:

Customer No. 21912
 VAN PELT, YI & JAMES LLP
 10050 N. Foothill Blvd., Suite 200
 Cupertino, CA 95014

Dated: 12/6/2021

/Jong Andrew Park/
 Jong Andrew H. Park
 Registration No. 56917

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		17486512
	Filing Date		2021-09-27
	First Named Inventor	Braden River Pezeshki	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	UNSTP003	

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	1					

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NON-PATENT LITERATURE DOCUMENTS			Remove
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		17486512
Filing Date		2021-09-27
First Named Inventor	Braden River Pezeshki	
Art Unit		
Examiner Name		
Attorney Docket Number	UNSTP003	

1	Nick Johnson, "EIP-137: Ethereum Domain Name Service - Specification," Ethereum Improvement Proposals, no. 137, April 2016. [Online serial]. Available: https://eips.ethereum.org/EIPS/eip-137 .
2	Phyrex Tsai, Portal Network Team, "EIP-1062: Formalize IPFS hash into ENS(Ethereum NameService) resolver [DRAFT]," Ethereum Improvement Proposals, no. 1062, May 2018. [Online serial]. Available: https://eips.ethereum.org/EIPS/eip-1062 .

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	17486512
Filing Date	2021-09-27
First Named Inventor	Braden River Pezeshki
Art Unit	
Examiner Name	
Attorney Docket Number	UNSTP003

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jong Andrew Park/	Date (YYYY-MM-DD)	2021-12-06
Name/Print	Jong Andrew H. Park	Registration Number	56917

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
17/486,512	09/27/2021		0.00	UNSTP003	20	3

21912
VAN PELT, YI & JAMES LLP
10050 N. FOOTHILL BLVD #200
CUPERTINO, CA 95014

CONFIRMATION NO. 7235
CORRECTED FILING RECEIPT



Date Mailed: 11/23/2021

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Braden River Pezeshki, Pullman, WA;
Matthew Everett Gould, Reno, NV;
Bogdan Gusiev, Kyiv, UKRAINE;

Applicant(s)

Unstoppable Domains Inc., Las Vegas, NV

Power of Attorney: None

Domestic Priority data as claimed by applicant

This appln claims benefit of 63/084,493 09/28/2020

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 10/06/2021

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/486,512**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No

**** SMALL ENTITY ****

Title

RESOLVING BLOCKCHAIN DOMAINS

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.:	17/486,512	Examiner:	Not Assigned
Filed:	September 27, 2021	Art Unit:	
Confirmation No.:	7235	Docket No.:	UNSTP003
First Inventor:	Braden River Pezeshki		
Title:	RESOLVING BLOCKCHAIN DOMAINS		

REQUEST FOR A CORRECTED FILING RECEIPT

Mail Stop Missing Parts
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Please make the following corrections and reprint a Corrected Filing Receipt for the above-identified patent application and forward it to the undersigned at the address set out below.

Please update the domestic priority data as claimed by applicant to read:
“This application claims priority to 63/084,493 09/28/2020”

A marked-up Application Data Sheet is enclosed.

If any additional fees are due in connection with this request, the Commissioner is hereby authorized to charge such fees to Deposit Account No. 50-0685 (UNSTP003).

Respectfully submitted,

Dated: 11/19/2021

/Jong Andrew Park/
Jong Andrew H. Park
Registration No. 56917
408-973-2577

VAN PELT, YI & JAMES LLP
10050 N. Foothill Blvd., Suite 200
Cupertino, CA 95014
Fax 408-973-2595

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	UNSTP003
		Application Number	
Title of Invention	RESOLVING BLOCKCHAIN DOMAINS		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

☐	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--------------------------	---

Inventor Information:

Inventor 1					Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Braden	River	Pezeshki			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						
City	Pullman	State/Province	WA	Country of Residence	US	
Mailing Address of Inventor:						
Address 1		8465 W Sahara Ave., Ste. 111, Unit #1017				
Address 2						
City	Las Vegas		State/Province	NV		
Postal Code	89117		Country	US		
Inventor 2					Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Matthew	Everett	Gould			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						
City	Reno	State/Province	NV	Country of Residence	US	
Mailing Address of Inventor:						
Address 1		8465 W Sahara Ave., Ste. 111, Unit #1017				
Address 2						
City	Las Vegas		State/Province	NV		
Postal Code	89117		Country	US		
Inventor 3					Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Bogdan		Gusiev			
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service						

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	UNSTP003
		Application Number	
Title of Invention	RESOLVING BLOCKCHAIN DOMAINS		

City	Kyiv	Country of Residence ⁱ	UA
------	------	-----------------------------------	----

Mailing Address of Inventor:

Address 1	8465 W Sahara Ave., Ste. 111, Unit #1017		
Address 2			
City	Las Vegas	State/Province	NV
Postal Code	89117	Country ⁱ	US
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. Add			

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
☐ An Address is being provided for the correspondence Information of this application.	
Customer Number	21912
Email Address	Add Email Remove Email

Application Information:

Title of the Invention	RESOLVING BLOCKCHAIN DOMAINS		
Attorney Docket Number	UNSTP003	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	15	Suggested Figure for Publication (if any)	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country ⁱ

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	UNSTP003
		Application Number	
Title of Invention	RESOLVING BLOCKCHAIN DOMAINS		

Publication Information:
☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☒ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	21912		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending	Remove	
Application Number	Continuity Type Claims benefit of	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	~~Continuation of~~ Provisional	63084493	2020-09-28
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	UNSTP003
		Application Number	
Title of Invention	RESOLVING BLOCKCHAIN DOMAINS		

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Remove Access Code ⁱ (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013. NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	UNSTP003
	Application Number	
Title of Invention	RESOLVING BLOCKCHAIN DOMAINS	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	UNSTP003
		Application Number	
Title of Invention	RESOLVING BLOCKCHAIN DOMAINS		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.			
Applicant 1			
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.			
Clear			
☐ Assignee		☐ Legal Representative under 35 U.S.C. 117	
		☐ Joint Inventor	
☒ Person to whom the inventor is obligated to assign.		☐ Person who shows sufficient proprietary interest	
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:			
Name of the Deceased or Legally Incapacitated Inventor:			
If the Applicant is an Organization check here. ☒			
Organization Name	Unstoppable Domains Inc.		
Mailing Address Information For Applicant:			
Address 1	8465 W Sahara Ave., Ste. 111, Unit #1017		
Address 2			
City	Las Vegas	State/Province	NV
Country	US	Postal Code	89117
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button.			

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	UNSTP003
		Application Number	
Title of Invention	RESOLVING BLOCKCHAIN DOMAINS		

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	Given Name	Middle Name	Family Name	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1				
Address 2				
City			State/Province	
Country ⁱ			Postal Code	
Phone Number			Fax Number	
Email Address				

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the **INITIAL** filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Jong Andrew Park/			Date (YYYY-MM-DD)	2021-11-19
First Name	Jong Andrew	Last Name	Park	Registration Number	56917

Additional Signature may be generated within this form by selecting the Add button.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	UNSTP003
		Application Number	
Title of Invention	RESOLVING BLOCKCHAIN DOMAINS		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

- 1 The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
- 2 A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
- 3 A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
- 4 A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
- 5 A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
- 6 A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
- 7 A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
- 8 A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
- 9 A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	44333087
Application Number:	17486512
International Application Number:	
Confirmation Number:	7235
Title of Invention:	RESOLVING BLOCKCHAIN DOMAINS
First Named Inventor/Applicant Name:	Braden River Pezeshki
Customer Number:	21912
Filer:	Jong Andrew Hyuk Park/Chelsea Simmons
Filer Authorized By:	Jong Andrew Hyuk Park
Attorney Docket Number:	UNSTP003
Receipt Date:	19-NOV-2021
Filing Date:	27-SEP-2021
Time Stamp:	18:21:47
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Corrected Filing Receipt	UNSTP003_Request_CFR.pdf	72896	no	1
			7585640395889f9d6b576bc58c6b797ed411152b		

Warnings:

ENS LABS EX1013

Page 194 of 265

Information:					
2	Application Data Sheet	UNSTP003_ADS_02.pdf	149290	no	9
			a552931f2b2a4fc25ef9a3ad3b10c2fb7e91d604		
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
Total Files Size (in bytes):				222186	
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number
17/486,512

APPLICATION AS FILED - PART I

(Column 1)

(Column 2)

SMALL ENTITY

OR

OTHER THAN SMALL ENTITY

FOR	NUMBER FILED	NUMBER EXTRA
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).	
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))		

RATE(\$)	FEE(\$)
N/A	80
N/A	350
N/A	400
x 50 =	0.00
x 240 =	0.00
	0.00
	0.00
TOTAL	830

RATE(\$)	FEE(\$)
N/A	
N/A	
N/A	
TOTAL	

* If the difference in column 1 is less than zero, enter "0" in column 2.

APPLICATION AS AMENDED - PART II

(Column 1)

(Column 2)

(Column 3)

SMALL ENTITY

OR

OTHER THAN SMALL ENTITY

AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total (37 CFR 1.16(i))	*	Minus	**	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=
	Application Size Fee (37 CFR 1.16(s))				
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))				

RATE(\$)	ADDITIONAL FEE(\$)
x =	
x =	
TOTAL ADD'L FEE	

RATE(\$)	ADDITIONAL FEE(\$)
x =	
x =	
TOTAL ADD'L FEE	

(Column 1)

(Column 2)

(Column 3)

AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total (37 CFR 1.16(i))	*	Minus	**	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=
	Application Size Fee (37 CFR 1.16(s))				
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))				

RATE(\$)	ADDITIONAL FEE(\$)
x =	
x =	
TOTAL ADD'L FEE	

RATE(\$)	ADDITIONAL FEE(\$)
x =	
x =	
TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/486,512	09/27/2021	Braden River Pezeshki	UNSTP003

CONFIRMATION NO. 7235

FORMALITIES LETTER



OC000000128927975

21912
VAN PELT, YI & JAMES LLP
10050 N. FOOTHILL BLVD #200
CUPERTINO, CA 95014

Date Mailed: 10/07/2021

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
- The application search fee must be submitted.
- The application examination fee must be submitted.
- Surcharge as set forth in 37 CFR 1.16(f) must be submitted.

The surcharge is due for any one of:

- late submission of the basic filing fee, search fee, or examination fee,
- late submission of inventor's oath or declaration,
- filing an application that does not contain at least one claim on filing, or
- submission of an application filed by reference to a previously filed application.

SUMMARY OF FEES DUE:

The fee(s) required within **TWO MONTHS** from the date of this Notice to avoid abandonment is/are itemized below. Small entity discount is in effect. If applicant is qualified for micro entity status, an acceptable Certification of Micro Entity Status must be submitted to establish micro entity status. (See 37 CFR 1.29 and forms PTO/SB/15A and 15B.)

- \$ 80 basic filing fee.
- \$ 80 surcharge.
- \$ 350 search fee.
- \$ 400 examination fee.
- \$(0) previous unapplied payment amount.
- \$ 910 TOTAL FEE BALANCE DUE.

Items Required To Avoid Processing Delays:

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's

oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
Braden River Pezeshki
Matthew Everett Gould
Bogdan Gusiev

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice".
<https://portal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at
(571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/tlulu/



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
17/486,512	09/27/2021		0.00	UNSTP003	20	3

CONFIRMATION NO. 7235

FILING RECEIPT

21912
VAN PELT, YI & JAMES LLP
10050 N. FOOTHILL BLVD #200
CUPERTINO, CA 95014



Date Mailed: 10/07/2021

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Braden River Pezeshki, Pullman, WA;
Matthew Everett Gould, Reno, NV;
Bogdan Gusiev, Kyiv, UKRAINE;

Applicant(s)

Unstoppable Domains Inc., Las Vegas, NV

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 63/084,493 09/28/2020

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 10/06/2021

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/486,512**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No

**** SMALL ENTITY ****

Title

RESOLVING BLOCKCHAIN DOMAINS

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	UNSTP003
		Application Number	
Title of Invention	RESOLVING BLOCKCHAIN DOMAINS		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

☐	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--------------------------	---

Inventor Information:

Inventor	1				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Braden	River	Pezeshki		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	Pullman	State/Province	WA	Country of Residence	US

Mailing Address of Inventor:

Address 1	3465 W Sahara Ave., Ste. 111, Unit #1017				
Address 2					
City	Las Vegas	State/Province	NV		
Postal Code	89117	Country	US		

Inventor	2				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Matthew	Everett	Gould		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	Reno	State/Province	NV	Country of Residence	US

Mailing Address of Inventor:

Address 1	3465 W Sahara Ave., Ste. 111, Unit #1017				
Address 2					
City	Las Vegas	State/Province	NV		
Postal Code	89117	Country	US		

Inventor	3				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Bogdan		Gusiev		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					

FNS1 ABS FX1013

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	UNSTP003
		Application Number	
Title of Invention	RESOLVING BLOCKCHAIN DOMAINS		

City	Kyiv	Country of Residence ⁱ	UA
------	------	-----------------------------------	----

Mailing Address of Inventor:

Address 1	8465 W Sahara Ave., Ste. 111, Unit #1017		
Address 2			
City	Las Vegas	State/Province	NV
Postal Code	89117	Country ⁱ	US
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.			

Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
☐ An Address is being provided for the correspondence information of this application.	
Customer Number	21912
Email Address	

Add Email

Remove Email

Application Information:

Title of the Invention	RESOLVING BLOCKCHAIN DOMAINS		
Attorney Docket Number	UNSTP003	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	15	Suggested Figure for Publication (if any)	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country ⁱ

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	UNSTP003
		Application Number	
Title of Invention	RESOLVING BLOCKCHAIN DOMAINS		

Publication Information:

☐	Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☒	Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.			
Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	21912		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78. When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending	Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	63084493	2020-09-28
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	UNSTP003
		Application Number	
Title of Invention	RESOLVING BLOCKCHAIN DOMAINS		

			Remove
Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ^j (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013. NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	UNSTP003
		Application Number	
Title of Invention	RESOLVING BLOCKCHAIN DOMAINS		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	UNSTP003
		Application Number	
Title of Invention	RESOLVING BLOCKCHAIN DOMAINS		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant	1	Remove
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section. Clear		
Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
☐ Person to whom the inventor is obligated to assign.		☐ Person who shows sufficient proprietary interest
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:		
Name of the Deceased or Legally Incapacitated Inventor:		
If the Applicant is an Organization check here. ☒		
Organization Name	Unstoppable Domains Inc.	
Mailing Address Information For Applicant:		
Address 1	3465 W Sahara Ave., Ste. 111, Unit #1017	
Address 2		
City	Las Vegas	State/Province NV
Country	US	Postal Code 89117
Phone Number		Fax Number
Email Address		
Additional Applicant Data may be generated within this form by selecting the Add button. Add		

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	UNSTP003
		Application Number	
Title of Invention	RESOLVING BLOCKCHAIN DOMAINS		

Assignee	1			
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
Remove				
If the Assignee or Non-Applicant Assignee is an Organization check here. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1				
Address 2				
City		State/Province		
Country ⁱ		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add				

Signature:[Remove](#)

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the **INITIAL** filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Jong Andrew Park/		Date (YYYY-MM-DD)	2021-09-27
First Name	Jong Andrew	Last Name	Park	Registration Number
				56917
Additional Signature may be generated within this form by selecting the Add button. Add				

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	UNSTP003
		Application Number	
Title of Invention	RESOLVING BLOCKCHAIN DOMAINS		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

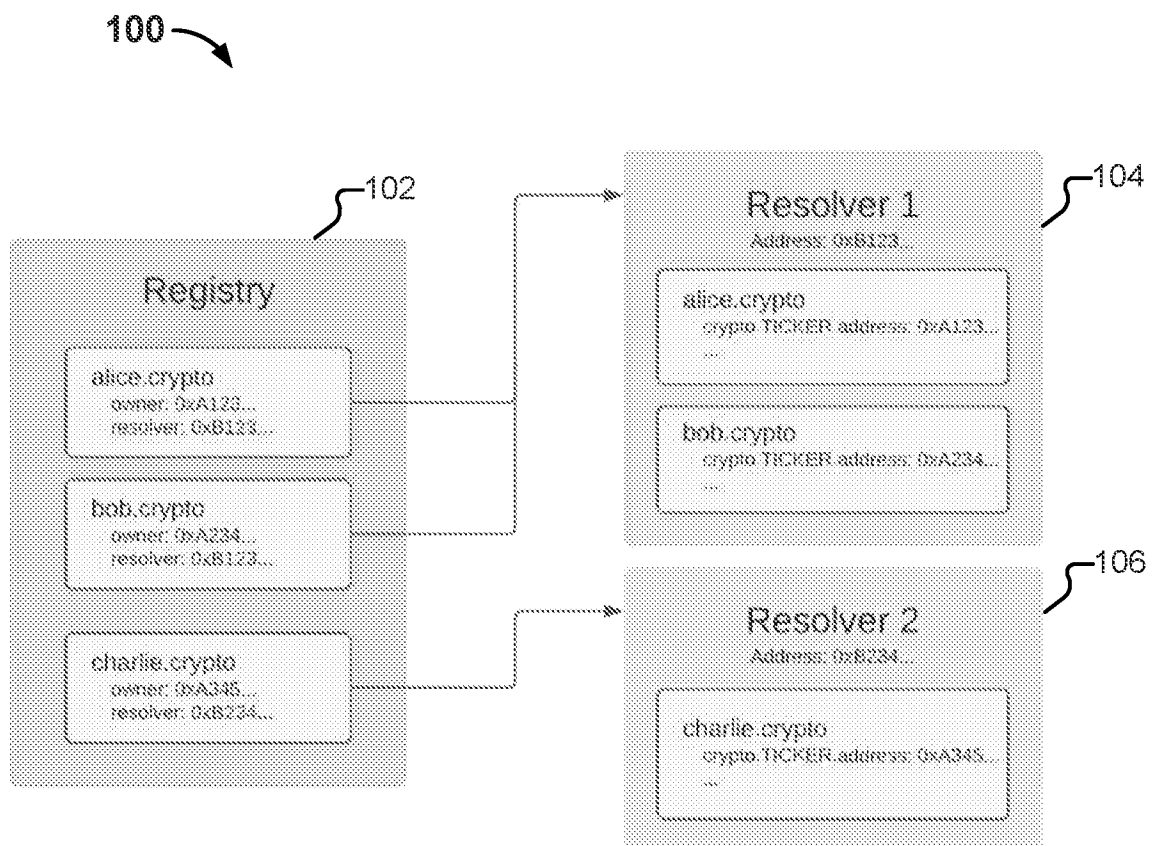
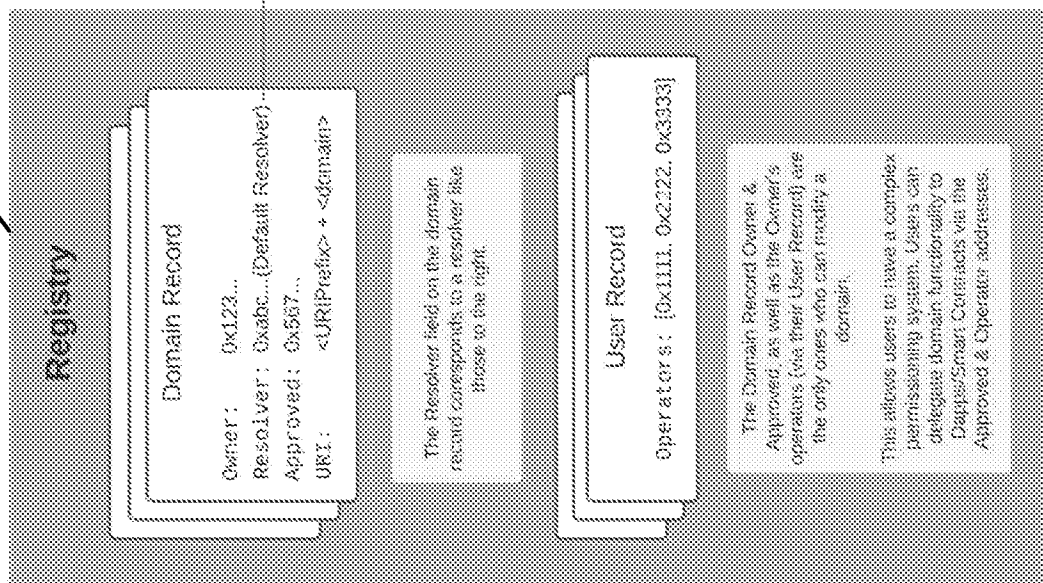
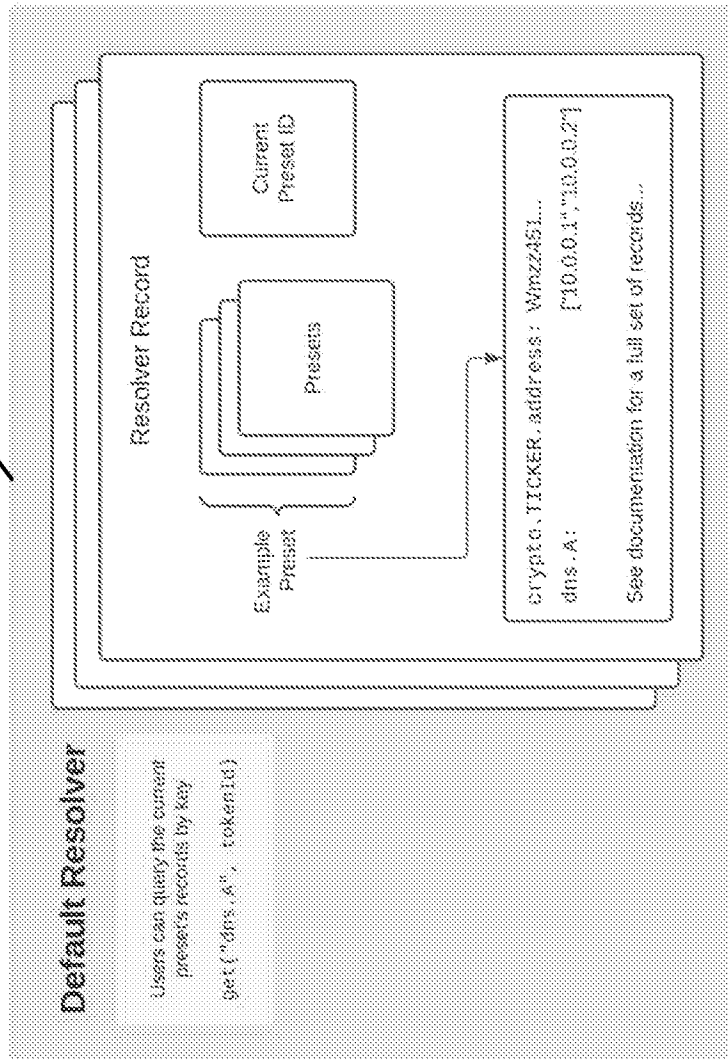


FIG. 1

200



204



206

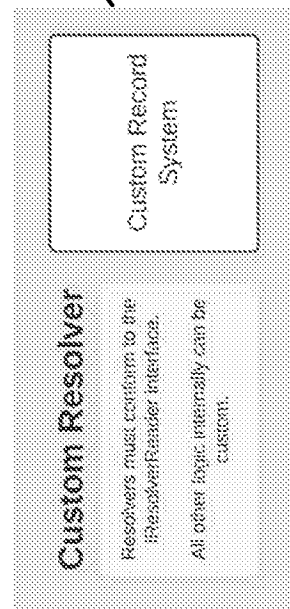


FIG. 2

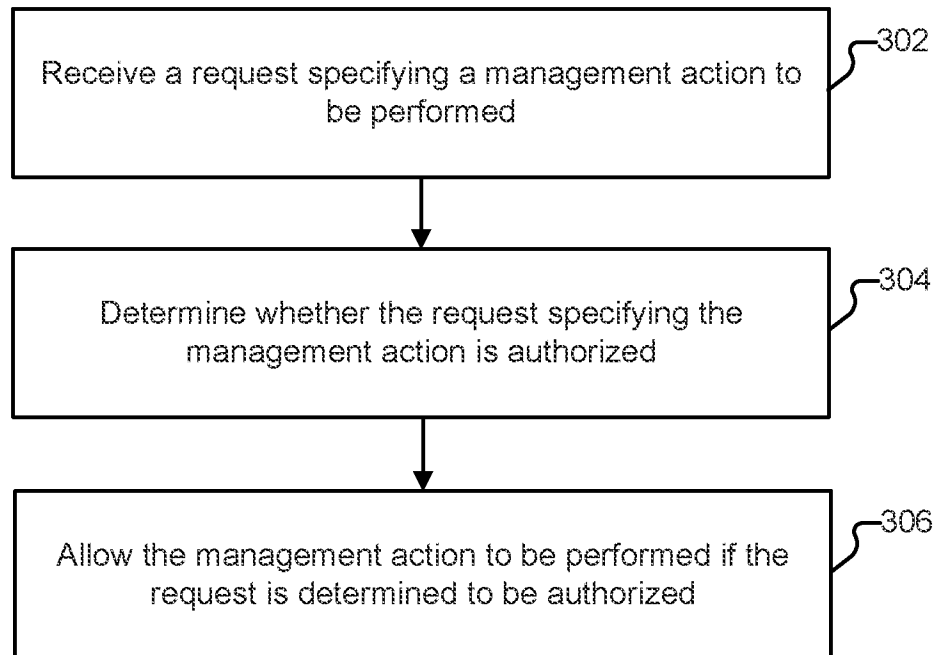


FIG. 3

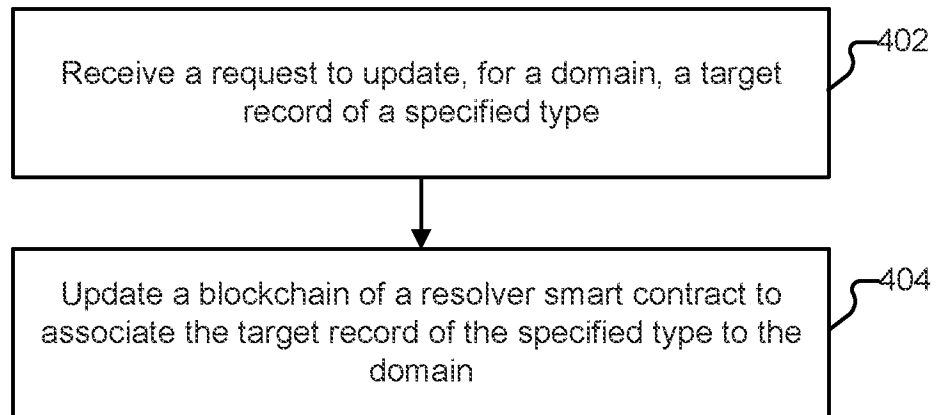


FIG. 4

500 →

Example Meta-Transaction Flow

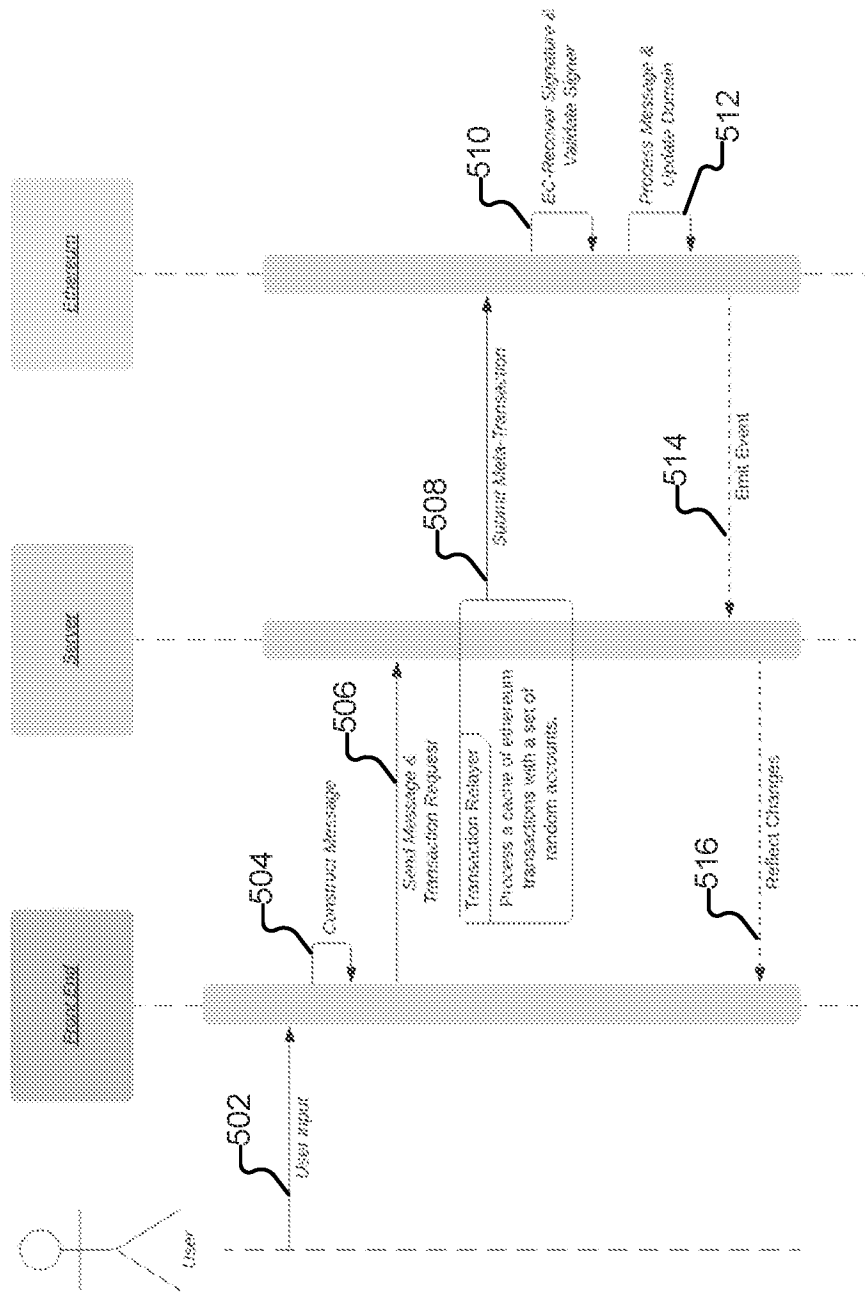


FIG. 5

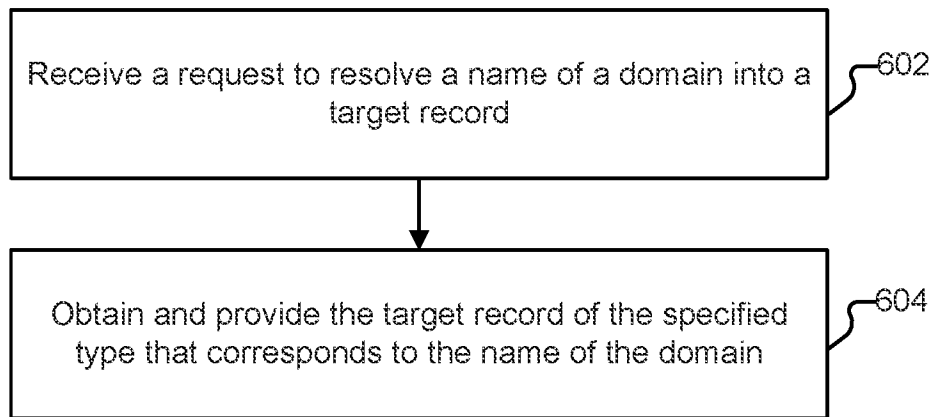


FIG. 6

700 →

Crypto payments success flow

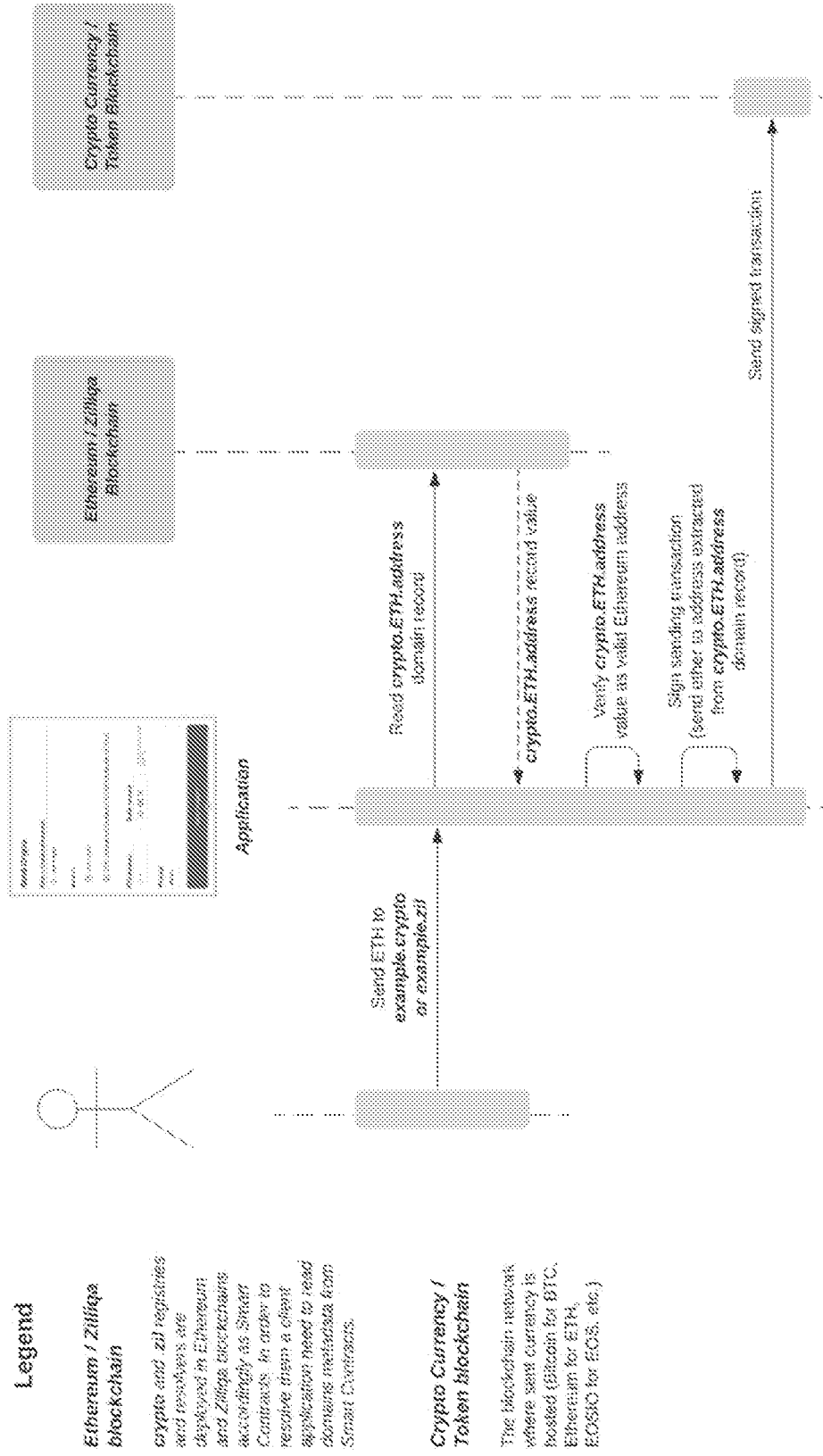


FIG. 7

800

Provide domain records via Proxy Reader Smart Contract

Legend

Registry Smart Contract - Domains registry which stores information about domains ownership and resolvers

Resolver Smart Contract - Domain records storage. There are multiple resolvers - exists in Ethereum network. Domain can be linked to one Resolver at the same time.

Proxy Reader Smart Contract - Helper for decreasing amount of HTTP calls to Ethereum node.

[HTTP] - Call via network protocols

[EVM] - Local Smart Contract function call

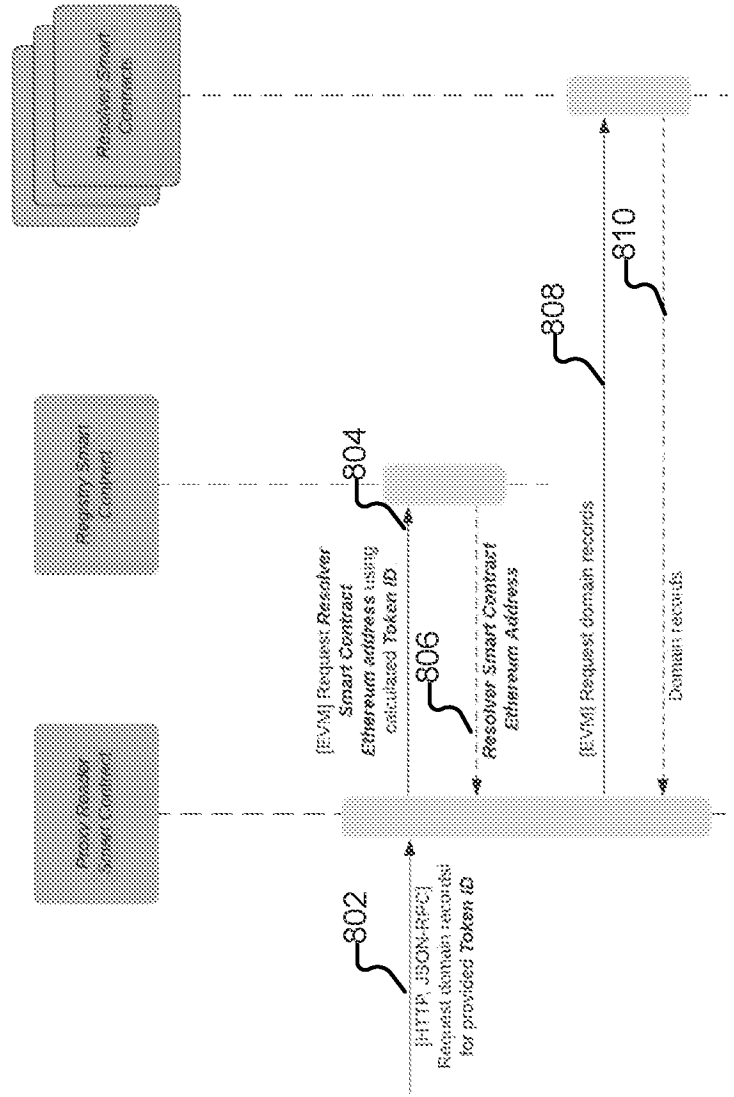


FIG. 8

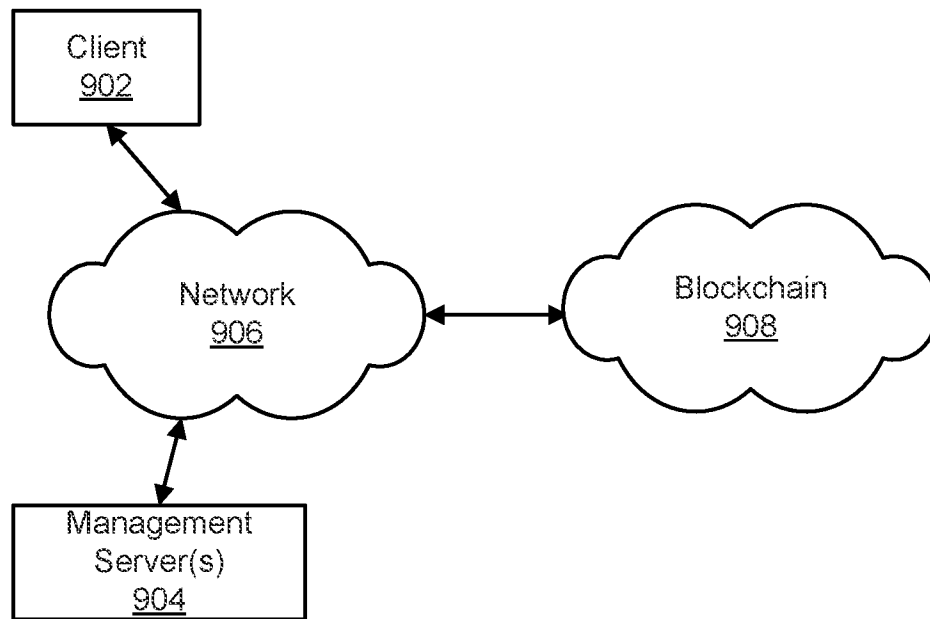


FIG. 9

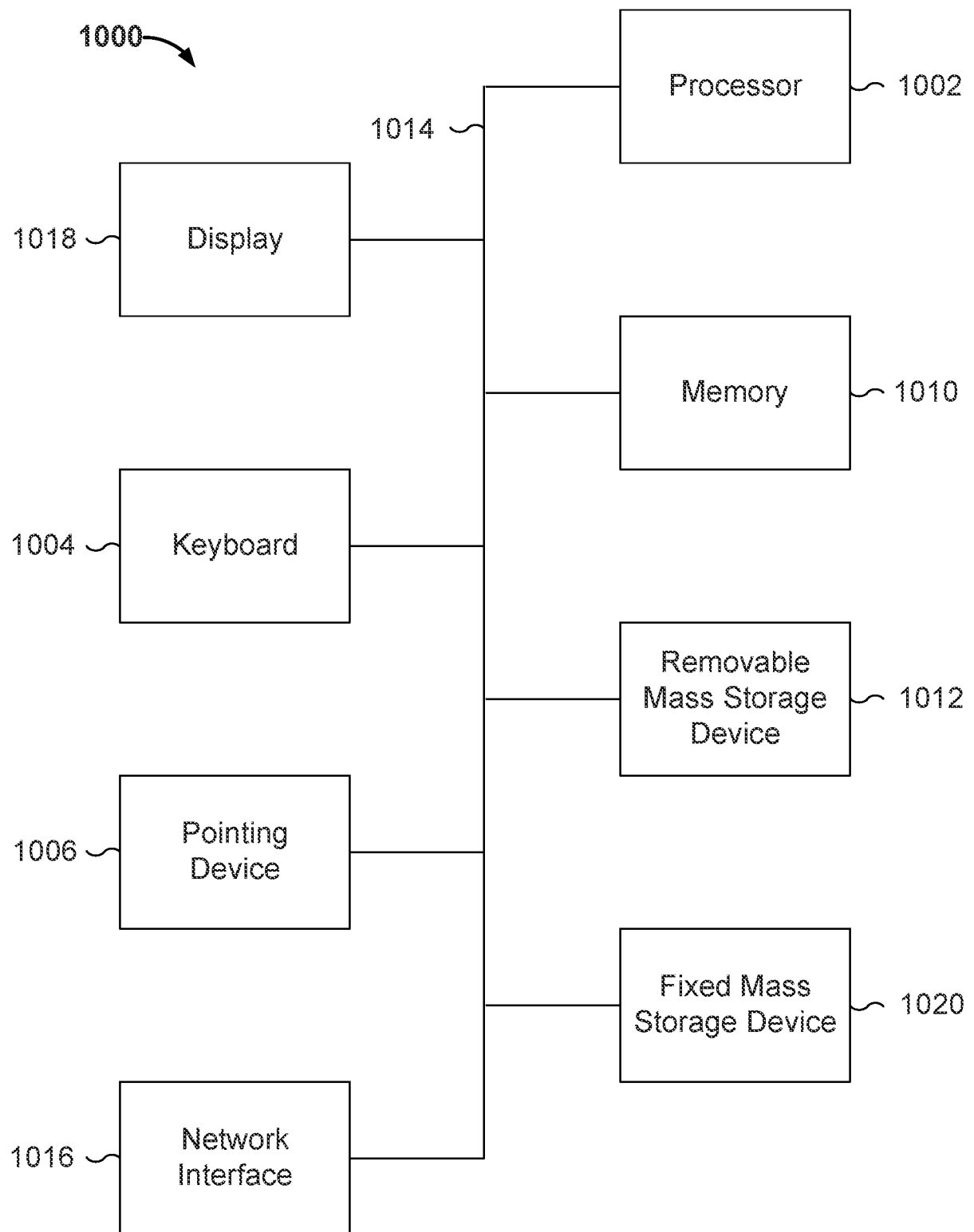


FIG. 10

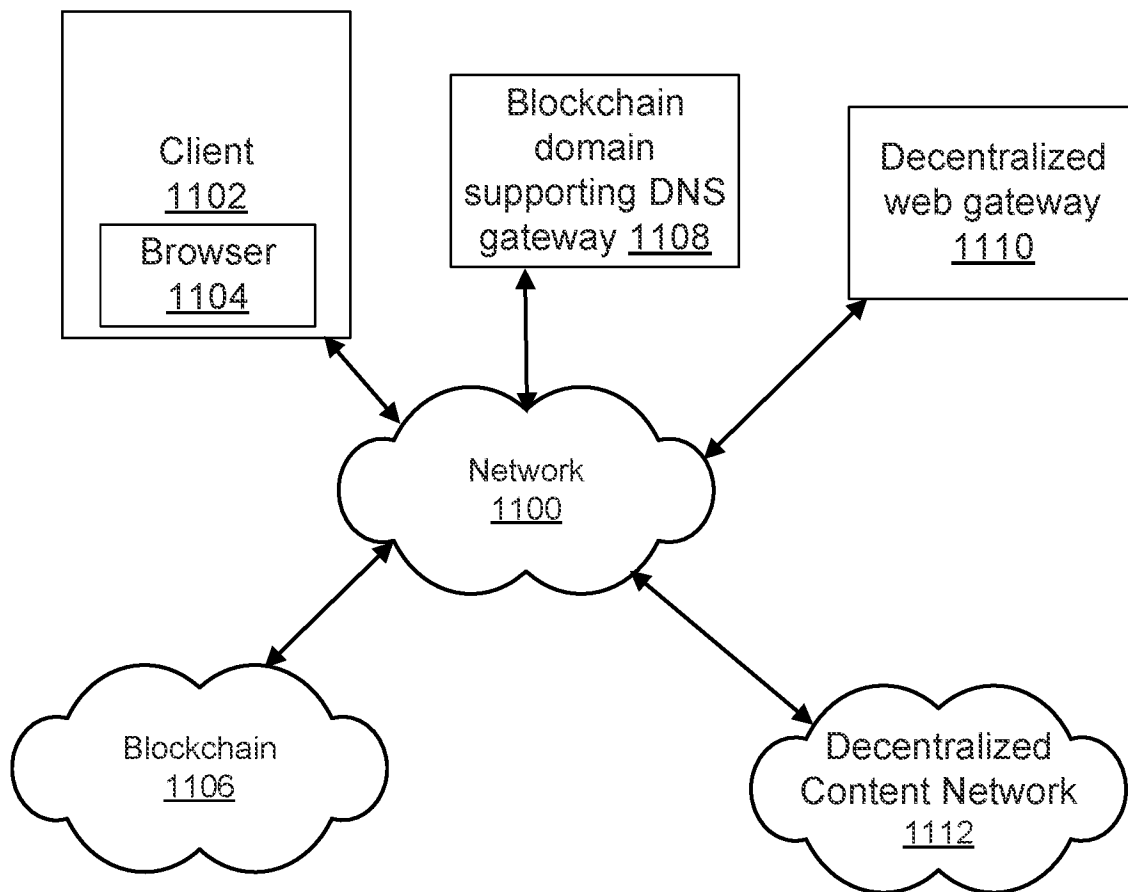


FIG. 11

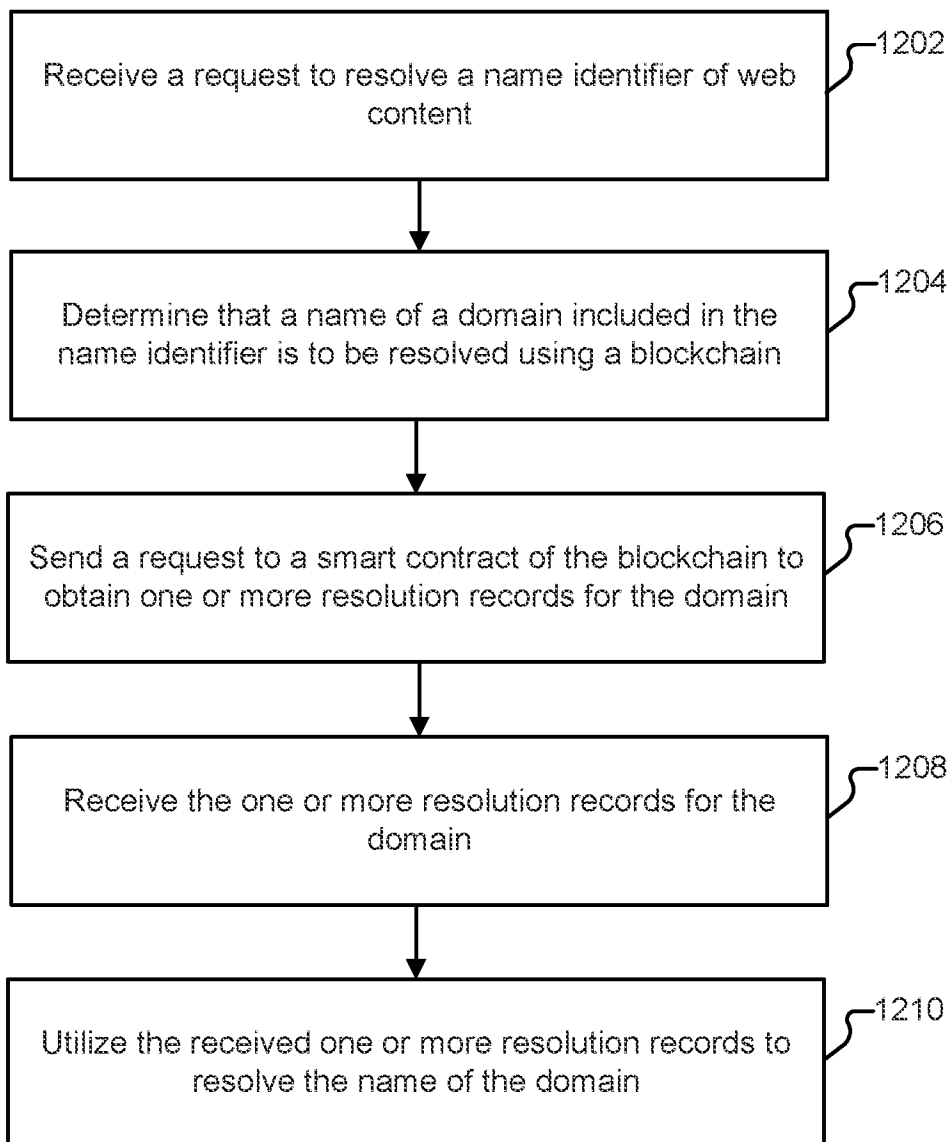


FIG. 12

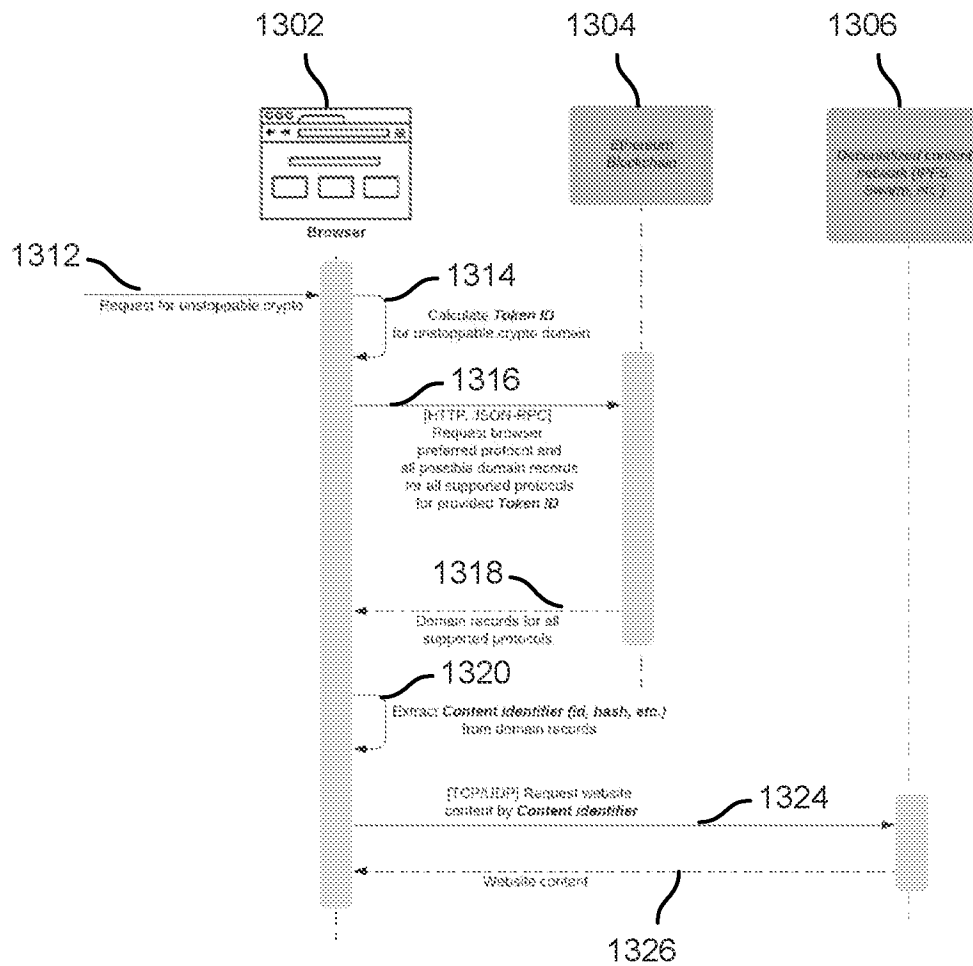


FIG. 13

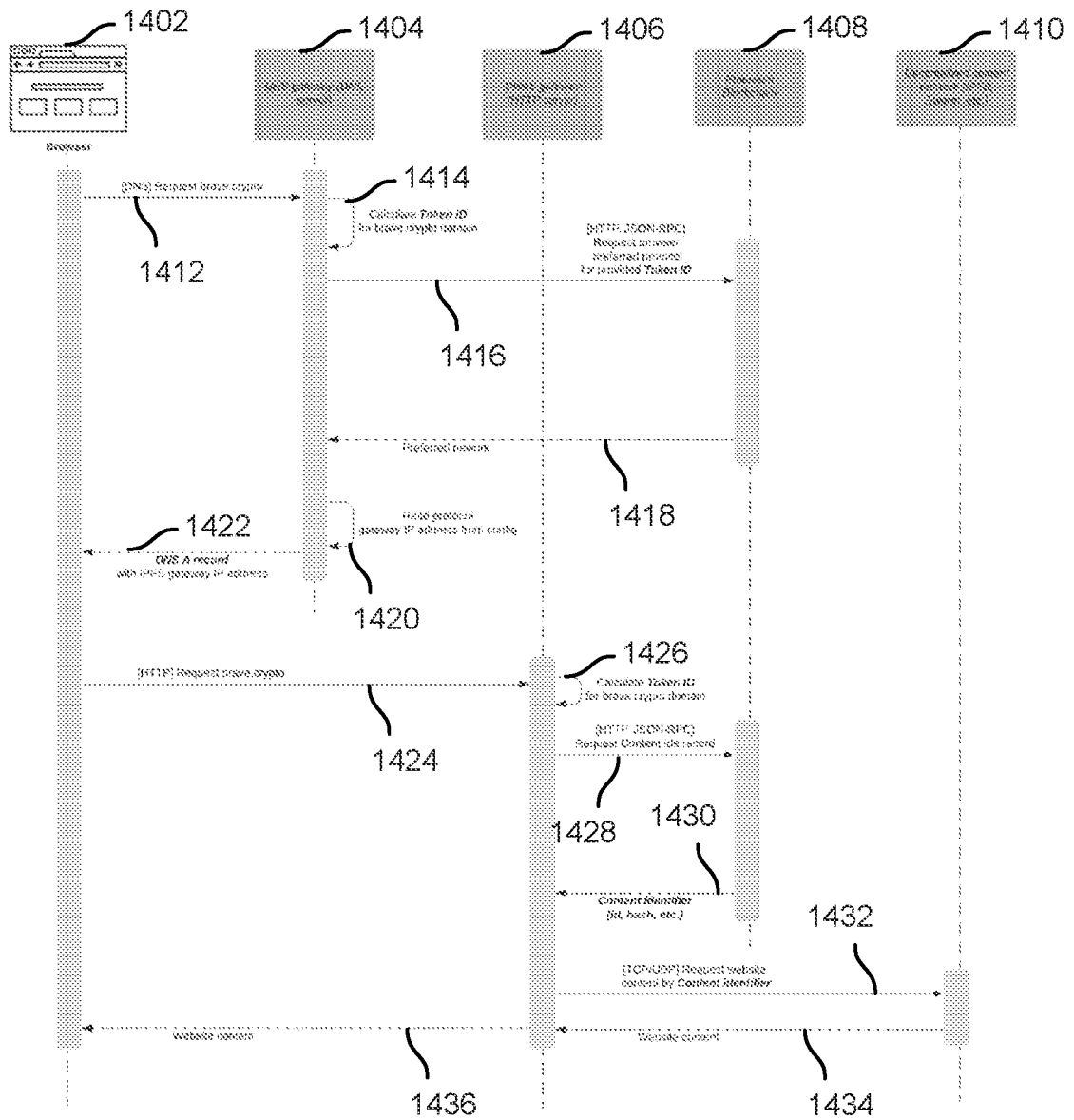


FIG. 14

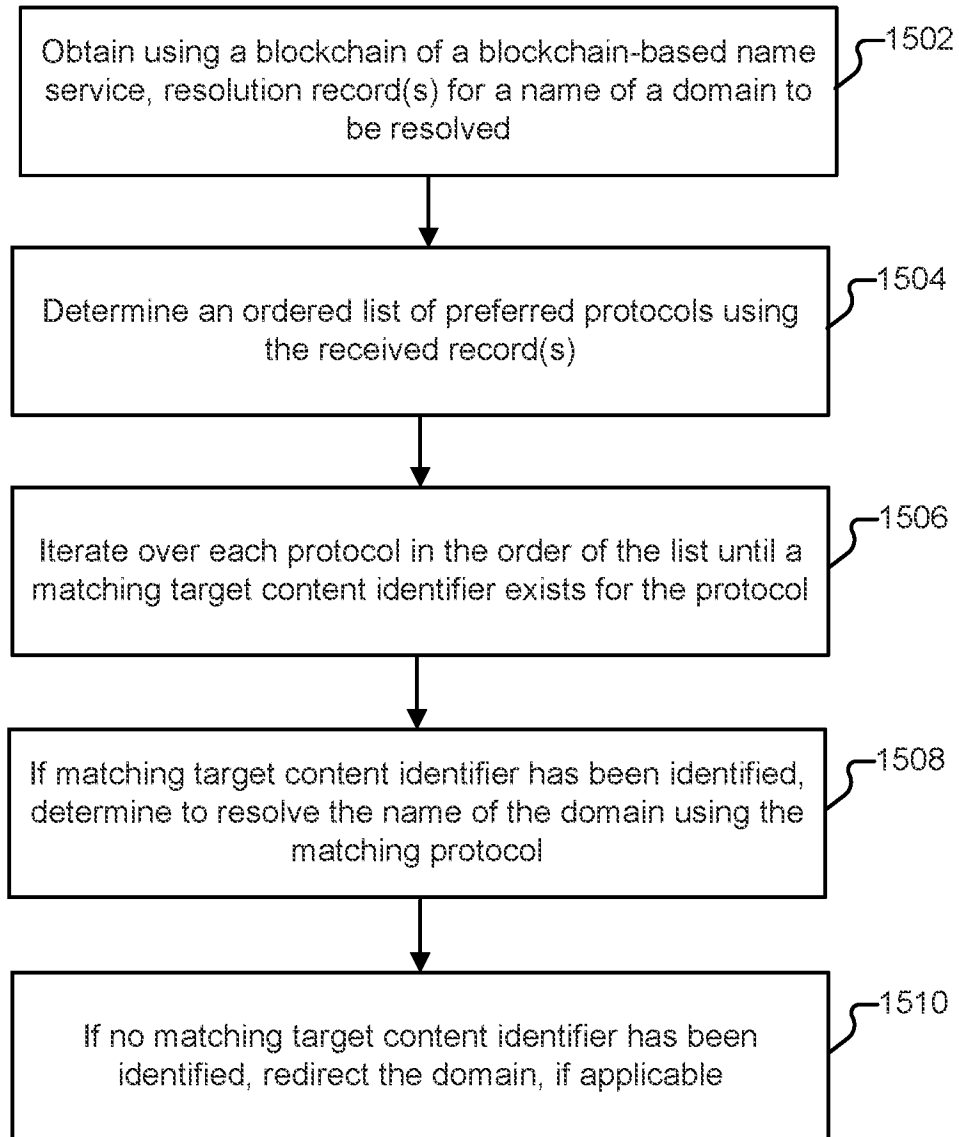


FIG. 15

Electronic Acknowledgement Receipt

EFS ID:	43873577
Application Number:	17486512
International Application Number:	
Confirmation Number:	7235
Title of Invention:	RESOLVING BLOCKCHAIN DOMAINS
First Named Inventor/Applicant Name:	Braden River Pezeshki
Customer Number:	21912
Filer:	Jong Andrew Hyuk Park/Chelsea Simmons
Filer Authorized By:	Jong Andrew Hyuk Park
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Receipt Date:	27-SEP-2021
Filing Date:	
Time Stamp:	17:52:54
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	UNSTP003_ADS.pdf	1793364	no	9
			e9232ab97793acbdcc64b340d36c0aec8374f2ab4		

Warnings:

ENS LABS EX1013

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Information:					
2	Specification	UNSTP003_APP.pdf	235140	no	37
			f84af41ecb0ba50d68d8b77357bc8247f8406833		
Warnings:					
Information:					
3	Drawings-only black and white line drawings	UNSTP003_APP_Figures.pdf	1318513	no	15
			d4ab1ba12d076787e359e14ead6a10491aff e92fc		
Warnings:					
Information:					
Total Files Size (in bytes):			3347017		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

APPLICATION FOR UNITED STATES PATENT

RESOLVING BLOCKCHAIN DOMAINS

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RESOLVING BLOCKCHAIN DOMAINS

CROSS REFERENCE TO OTHER APPLICATIONS

[0001] This application claims priority to U.S. Provisional Patent Application No. 63/084,493 entitled BLOCKCHAIN DOMAINS filed September 28, 2020 which is incorporated herein by reference for all purposes.

BACKGROUND OF THE INVENTION

[0002] Domain name system (DNS) is a naming system for computer resources connected to a network. It allows a user to refer to the resource using a human-friendly identifier that is easy to understand and remember rather than requiring the user to use a native functional identifier that is often unintuitive and difficult to remember. For example, the domain name system allows a user to reference a website by its human-friendly hostname/URL (Uniform Resource Locator) rather than using its IP (Internet Protocol) address. Typically a domain name registrar acts as a centralized entity that manages registration, record updating, transfer, and hosting of a domain name system. However, this centralized management and execution of the domain name system concentrates power and innovation in a central entity that may not be able to fulfill its duty in the best interest of the community. For example, the central entity may become a central point of failure, stifle innovation, or unjustly institute policies that prevent flow of information. Often users utilize a web browser to access web resources identified using a domain name. If a new mechanism to resolve domains is to be implemented, there exists a need for a way to enable the web browser to resolve these domains using the new mechanism.

BRIEF DESCRIPTION OF THE DRAWINGS

[0003] Various embodiments of the invention are disclosed in the following detailed description and the accompanying drawings.

[0004] Figure 1 is a block diagram illustrating an embodiment of blockchain smart contracts utilized to implement a name service on a blockchain.

[0005] Figure 2 is a block diagram illustrating additional details of an embodiment of an implementation of blockchain smart contracts of a decentralized name service.

[0006] Figure 3 is a flowchart illustrating an embodiment of a process for managing a domain of a blockchain-based name service.

[0007] Figure 4 is a flowchart illustrating an embodiment of a process for updating target records of a domain managed using a blockchain-based name service.

[0008] Figure 5 is a flow diagram illustrating an embodiment of performing a meta-transaction for a domain managed using a blockchain-based name service.

[0009] Figure 6 is a flowchart illustrating an embodiment of a process for resolving a domain managed using a blockchain-based name service.

[0010] Figure 7 is a flow diagram illustrating an embodiment of resolving a name identifier using a blockchain-based name service for a cryptocurrency transaction.

[0011] Figure 8 is a flow diagram illustrating an embodiment of using a proxy reader smart contract to resolve a target record of a domain managed using a blockchain-based name service.

[0012] Figure 9 is a block diagram illustrating an embodiment of a blockchain-based name service environment.

[0013] Figure 10 is a functional diagram illustrating a programmed computer system for using, managing, or executing a blockchain-based name service in accordance with some embodiments.

[0014] Figure 11 is a block diagram illustrating an embodiment of a system for resolving a name of a domain of a decentralized blockchain-based name service.

[0015] Figure 12 is a flowchart illustrating an embodiment of a process for resolving a name identifier.

[0016] Figure 13 is a flow diagram illustrating an embodiment of a process for requesting and receiving decentralized web (dWeb) content.

[0017] Figure 14 is a flow diagram illustrating an embodiment of a process for requesting and receiving decentralized web content via remote gateways.

[0018] Figure 15 is a flowchart illustrating an embodiment for handling protocol priority when performing domain resolution for a domain resolved using a blockchain of a blockchain-based name service.

DETAILED DESCRIPTION

[0019] The invention can be implemented in numerous ways, including as a process; an apparatus; a system; a composition of matter; a computer program product embodied on a computer readable storage medium; and/or a processor, such as a processor configured to execute instructions stored on and/or provided by a memory coupled to the processor. In this specification, these implementations, or any other form that the invention may take, may be referred to as techniques. In general, the order of the steps of disclosed processes may be altered within the scope of the invention. Unless stated otherwise, a component such as a processor or a memory described as being configured to perform a task may be implemented as a general component that is temporarily configured to perform the task at a given time or a specific component that is manufactured to perform the task. As used herein, the term ‘processor’ refers to one or more devices, circuits, and/or processing cores configured to process data, such as computer program instructions.

[0020] A detailed description of one or more embodiments of the invention is provided below along with accompanying figures that illustrate the principles of the invention. The invention is described in connection with such embodiments, but the invention is not limited to any embodiment. The scope of the invention is limited only by the claims and the invention encompasses numerous alternatives, modifications and equivalents. Numerous specific details are set forth in the following description in order to provide a thorough understanding of the invention. These details are provided for the purpose of example and the invention may be practiced according to the claims without some or all of these specific details. For the purpose of clarity, technical material that is known in the technical fields related to the invention has not been described in detail so that the invention is not unnecessarily obscured.

[0021] A decentralized name service based on blockchain technology is disclosed. In some embodiments, the name service is based on a set of smart contracts on the crypto blockchain (e.g., Ethereum blockchain) that govern how domains are created and used. Although it can serve a similar *purpose* as a traditional DNS system, a decentralized name service has architectural differences that change the interaction model. For example, decentralized name service domains can be owned irrevocably. In some embodiments, they do not need to be

renewed and cannot be reclaimed by a central authority. For example, once claimed, users have complete control of their domains. The blockchain is a decentralized and distributed computer ledger that records transactions that are publicly viewable and verifiable. The transactions can be audited to ensure an object tracked on the blockchain has been transferred only once between each party in each transaction without being reproduced to be double spent. By tracking ownership of a domain on the name service blockchain, public, secure, and verifiable ownership of a domain is ensured.

[0022] The decentralized name service is deployed using smart contracts. A smart contract includes self-executing code that functions to implement an agreement deployed to store state and execute code on the blockchain. This allows an agreed upon contract code to execute in a distributed and verifiable manner. The smart contracts of the decentralized name service govern how domains are created, managed, and utilized. For example, every domain is issued a non-fungible token on the blockchain that is owned by an owner (e.g., irrevocably - cannot be reclaimed by a central authority and does not need to be renewed). The owner can transfer ownership of the token to transfer ownership of the domain to another user via a compatible wallet, exchange, or marketplace rather than only from a single central authority.

[0023] In various embodiments, use of a domain of the decentralized blockchain-based name service to reference web content is supported directly by a web browser, via an intermediary gateway/server, and/or via a browser plugin/extension. In some embodiments, in response to a request received to resolve a name identifier of a web content, it is automatically determined that the domain of the name identifier is to be resolved using a blockchain. For example, a user inputs a Uniform Resource Locator (URL) of a webpage that the user desires to view on a web browser, and because the top level domain of the URL is determined to be associated with a decentralized name service it is automatically determined that the domain of the name identifier is to be resolved using a blockchain of the decentralized name service. A request is sent to a smart contract of the blockchain to obtain one or more resolution records for the domain of the name identifier and these one or more records are received. The received one or more resolution records are used to resolve the domain of the name identifier. For example, the one or more resolution records specify configurations and/or a target destination location/address for the domain of the name identifier and these record(s) are used to resolve the

domain to a specified IP address, and redirect to an alternate address, a decentralized web (DWeb) content hash identifier, and/or any other information that can be used to obtain web content referenced by the name identifier.

[0024] Figure 1 is a block diagram illustrating an embodiment of blockchain smart contracts utilized to implement a name service on a blockchain. In some embodiments, the shown blockchain smart contracts are executed by one or more networked computers implementing a distributed blockchain (e.g., one or more computers of blockchain 908 of Figure 9). Two different types of smart contracts utilized for the name service include a registry smart contract and a resolver smart contract. These smart contracts may be deployed on the Ethereum open-source blockchain but may be deployed in other blockchains in various different embodiments. The registry smart contract can function to map each registered domain to an owner account address and a specific corresponding resolver smart contract that can be used to resolve a name identifier of the domain to a target record (e.g., IP address, cryptocurrency address, etc.). By separating the registry functionality and resolution functionality into different smart contracts, different types of resolver contracts can be linked to a domain, allowing an owner to either use a standard resolver smart contract or a custom resolver smart contract. Multiple different domains of the registry smart contract can point to the same resolver smart contract.

[0025] In the example diagram 100 shown in Figure 1, registry smart contract 102 stores entries associated with three domains. Each of these domains is associated with a non-fungible token stored on a blockchain and associate together a name identifier of each domain to an owner account address and an address of a resolver smart contract that is to be used to resolve the name identifier of the domain. First, two domains of registry smart contract 102 reference the same standard resolver contract 104 that can resolve name identifiers of a plurality of different domains. The third shown domain of registry smart contract 102 references a different custom resolver contract 106 that may function differently from resolver contract 104 in resolving its associated domain(s). Each resolver smart contract includes records for one or more different domains and specifies how and what the name identifier of each domain is to be resolved to corresponding target identifier(s). A single name identifier of one domain may map to a plurality of different target identifiers that are of different types. For example, “alice.crypto” name

identifier may resolve to an IP address when requested via a web browser and may resolve to a cryptocurrency address when used as a payment target.

[0026] Figure 2 is a block diagram illustrating additional details of an embodiment of an implementation of blockchain smart contracts of a decentralized name service. In some embodiments, the shown blockchain smart contracts are executed by one or more networked computers implementing a distributed blockchain (e.g., one or more computers of blockchain 908 of Figure 9). As shown in diagram 200, registry smart contract 202 defines and manages ownership of domains on the blockchain. For example, it defines ownership rules, how new domains are created and transferred, manages the non-fungible token (e.g., ERC-721 token) representing each domain, and stores metadata of domains on the blockchain. Each domain created and managed via registry smart contract 202 is associated with its unique non-fungible token and domain record. In some embodiments, the domain record for a domain stores an account address of the owner of the domain (e.g., user account address), an identifier (e.g., address) of a resolver smart contract assigned to resolve the domain, an optional address of another approved user allowed to manage the specific domain on behalf of the owner, and an identifier of the domain (e.g., hashed version of the name of the domain allowing users to reference the domain record by hashing the name of the domain to obtain the hash that can be used as an identifier of the name of the domain). Users can invoke a program function of registry smart contract 202 to read, modify, and/or manage a domain record of registry smart contract 202.

[0027] In the event an owner desires to allow another account to manage every domain owned by the user (e.g., instead of just individual domains), the owner is able to add the account address of another user as an operator in a user record of the owner stored by registry smart contract 202. The added user now becomes that operator for the owner and is able to access and manage every domain of the owner. More than one authorized operator user can be added to the user record of a particular owner. The owner, the approved user, and the authorized operator user of a domain are able to invoke a management function call of registry smart contract 202 to transfer domain ownership, set a new associated resolver smart contract, mint a new subdomain,

or destroy the domain. Only the owner account is able to invoke a program function of registry smart contract 202 to add or remove the approved user and the authorized operator.

[0028] Each domain of the registry smart contract identifies a corresponding associated resolver smart contract that is used for resolving domains and storing domain records. Using this separate resolver smart contract, domain owners and authorized users can store target records for the name identifier of a domain for resolution (e.g., cryptocurrency addresses, chat IDs, and IPFS hashes for decentralized web webpages, etc.). For example, the resolver smart contract stores in a blockchain the target records of one or more domains and a program function of the registry smart contract is able to be invoked to update a target record or obtain a target record for a domain. Thus, a user is able to use registry smart contract 202 to look up an address of a resolver smart contract for a name of a domain and request to this resolver smart contract a resolution of the name of the domain. A domain of registry smart contract 202 is able to point to any resolver smart contract whether it be a standard/default resolver smart contract (e.g., smart contract 204) that is available to use as a default or a custom resolver smart contract (e.g., smart contract 206) that a user is able to customize and deploy to perform any custom functionality as desired. For example, a smart contract can be programmed to even invoke another smart contract.

[0029] A single resolver smart contract may be able to manage and handle resolution of multiple different domains. Default resolver smart contract 204 includes a different preset for different domains and each preset holds records for the domain. For example, the records inside the resolver smart contract are stored as a nested mapping from `Domain Token ID -> Preset ID -> Key -> Value`. This nested structure allows users to configure domains on the un-enumerable Ethereum mappings (e.g., it is expensive and unreliable to store an enumerable data structure on Ethereum). This allows an authorized user to change the preset associated with a domain to link an entirely different set of records to the domain.

[0030] The same name of a domain is able to be resolved into multiple different target records of different types. For example, a request to resolve a name of a domain identifies a desired target identifier or action type and the resolver smart contract looks up and returns a target identifier/action of a particular type among many different types stored by the resolver smart contract for the same domain. Thus resolver smart contract 204 stores in its records for a

particular domain, key-value pairs of target identifier/action type keys and target identifier values, allowing the resolver smart contract to effectively map a domain (e.g., hash of a name of the domain) to key-value dictionaries of records.

[0031] An example of a list of record types able to be stored and returned/performed by a resolver smart contract includes: a cryptocurrency account address, a preferred browser protocol, a browser redirect URL (e.g., allowing redirection at the name service level), a decentralized web record, an IPFS network content hash, a swarm network content hash, a web Domain Name System (DNS) record, a default DNS time-to-live (TTL) setting, a DNS Canonical Name (CNAME), an IP address, a deprecated record, an account username, a chat user identifier, a social network user identifier, or any communication user identifier.

[0032] In some embodiments, the name service does not prohibit an authorized user from assigning any record of a domain to any value. However, a list of known standard records is defined to allow standard interpretation by clients. In some embodiments, standard record types include:

- `crypto.*` — Records related to crypto payments
- `dns.*` — DNS resolution records
- `dweb.*` — Resolution records related to distributed content network protocols
- `browser.*` — Resolution configuration/preference records for web browser

The name service allows a human-readable name to be used instead of a destination address for a cryptocurrency payment. Cryptocurrency wallets that use this feature can resolve a domain to an underlying cryptocurrency address in the same way a browser resolves a domain to an IP address. Cryptocurrency addresses are stored in the resolver smart contract within the `crypto.*` standard namespace of the domain. Each currency address is stored as a “`crypto.<TICKER>.address`” record. For example, a Bitcoin address is stored in “`crypto.BTC.address`.” Addresses are stored in plain text format according to an address space standard established by each currency. The currency's namespace can contain additional currency-specific attributes to facilitate payment delivery.

[0033] Figure 3 is a flowchart illustrating an embodiment of a process for managing a domain of a blockchain-based name service. In some embodiments, at least a portion of the

process of Figure 3 is implemented on management server(s) (e.g., one or more servers of server(s) 904 of Figure 9) providing a service to manage blockchain-based name service executing on distributed computers of a blockchain. In some embodiments, at least a portion of the process of Figure 3 is implemented on one or more networked computers implementing a distributed blockchain (e.g., one or more computers of blockchain 908 of Figure 9). An example of a smart contract that is used to execute the process of Figure 3 is registry smart contract 102 and/or 202 of Figures 1 and 2.

[0034] At 302, a request specifying a management action to be performed is received. In some embodiments, the request is made to a registry smart contract by a requester by performing a program function call to an address of the registry smart contract on a blockchain. The management action may be one or more of the following: transfer a domain to a new owner, set a resolver contract for a domain, create a new subdomain for the domain, remove/burn a domain, add or remove an approved account that can control the domain, or add or remove an operator account for an owner that can control every domain owned by the owner (e.g., the request is for an owner account rather than only for a specific domain). The request identifies the domain via a hash identifier (e.g., serves as the identifier of the non-fungible token representing the domain). The hash identifier is a more storage efficient representation of the name of the domain and the name of the domain can be easily converted to a hash identifier using a hash function.

[0035] At 304, it is determined whether the request specifying the management action is authorized. The request is authorized to be provided by an owner of a domain, an approved alternative account specified for the domain (e.g., specified using the registry smart contract), or an operator account specified (e.g., using the registry smart contract) to be allowed to control every domain owned by the owner. In order to prove that the user account that provided the request is authentic, the user account can sign the request using a private cryptographic key of the user account and this signature is verified using a public key of the user account to authenticate the user account. If the authenticated user account is an owner, an approved account, or an operator of the domain according to the blockchain record of the registry smart contract, it is determined that the request is authorized. If the account that provided the request cannot be

authenticated or the authenticated user account is not authorized for the domain, the request is not authorized.

[0036] In some embodiments, an authorized account is able to provide temporary authorization on a per management action transaction level by signing a request message for another account that can provide the request message for later execution when presented. For example, to grant temporary management authority on a per request level via a meta-transaction, an owner, an approved account, or an operator for a domain is able to sign a request using its private cryptographic key and provide it to another user/account that will issue the request for execution when desired. This allows the authorized management of the meta-transaction to be asynchronously executed when desired by the other user/account. In the event the received request is specified as a meta-transaction, the request includes the signature of the authorized account of the domain of the request (different from the account that provided the request) and this signature is verified to ensure it is authentic. If it is authentic and the account that signed it is an owner, an approved account, or an operator for the domain, it is determined that the request is authorized. Otherwise, the meta-transaction request is not authorized. Additional details on meta-transactions are discussed later in the specification in conjunction with Figure 5.

[0037] At 306, the management action is allowed to be performed if the request is determined to be authorized. For example, the domain of the request is transferred to a new owner, a resolver contract is set for the domain, a subdomain is created for the domain, the domain is deleted/burned, an approved account that can control the domain is added or removed, or an operator account for an owner that can control every domain owned by the owner is added or removed.

[0038] Figure 4 is a flowchart illustrating an embodiment of a process for updating target records of a domain managed using a blockchain-based name service. In some embodiments, at least a portion of the process of Figure 4 is implemented on one or more networked computers implementing a distributed blockchain (e.g., one or more computers of blockchain 908 of Figure 9). In some embodiments, at least a portion of the process of Figure 4 is implemented on management server(s) (e.g., one or more servers of server(s) 904 of Figure 9) providing a service to manage blockchain-based name service executing on distributed computers of a blockchain.

An example of a smart contract that is used to execute the process of Figure 4 is resolver smart contract 104 and/or 204 of Figures 1 and 2.

[0039] At 402, a request to update for a domain, a target record of a specified type is received. In some embodiments, the request is made to a resolver smart contract of the domain by a requester by performing a program function call to an address of the resolver smart contract on a blockchain. In some embodiments, the resolver smart contract for the domain is identified by requesting an address of the resolver smart contract of the domain to a registry smart contract. The request to update a target record identifies the domain via a hash identifier of the name of the domain (e.g., serves as the identifier of the non-fungible token representing the domain).

[0040] The same name of a domain is able to be resolved into multiple different target records of different types. For example, a request to resolve a name of a domain identifies a desired target identifier or action type and the resolver smart contract is to look up and return a target identifier/action of a particular type among many different types stored by the resolver smart contract for the same domain. Thus the resolver smart contract is able to store in its records for the particular domain, key-value pairs of target record type keys and target identifier values, allowing the resolver smart contract to effectively map the domain (e.g., hash of a name of the domain) to key-value dictionaries of records. The received request may specify a command to add, modify, or delete the target record of the domain using a target record type (e.g., key) and/or a corresponding data/identifier (e.g., value) specified in the request.

[0041] In response to the request, it is determined whether the request is authorized. The request is authorized to be provided by an owner of a domain, an approved alternative account specified for the domain (e.g., specified using the registry smart contract), or an operator account specified (e.g., using the registry smart contract) to be allowed to control every domain owned by the owner. In order to prove that the user account that provided the request is authentic, the user account can authenticate the request using a private cryptographic key of the user account and this signature is verified using a public key of the user account to authenticate the user account. In some embodiments, because the authorized account information is stored in the separate registry smart contract, the registry smart contract is consulted to determine if the authenticated user account is an owner, an approved account, or an operator of the domain according to the

blockchain record of the registry smart contract. If the authenticated user account is an authorized user account, it is determined that the request is authorized. If the account that provided the request cannot be authenticated or the authenticated user account is not authorized for the domain, the request is not authorized and the request is rejected.

[0042] In some embodiments, the received request is specified as a meta-transaction and the request includes the signature of the authorized account of the domain of the request (different from the account that provided the request) and this signature is verified to ensure it is authentic. If it is authentic and the account that signed it is an owner, an approved account, or an operator for the domain, it is determined that the request is authorized. Otherwise, the meta-transaction request is not authorized. Additional details on meta-transactions are discussed later in the specification in conjunction with Figure 5.

[0043] At 404, a blockchain of a resolver smart contract is updated to associate the target record of the specified type to the domain. A single resolver smart contract may be able to manage and handle resolution of multiple different domains and the resolver smart contract includes a different preset for different domains and each preset holds records for the domain. For example, the records inside the resolver smart contract are stored as a nested mapping from Domain Token ID -> Preset ID -> Key -> Value. This nested structure allows users to configure domains on the un-enumerable Ethereum mappings (e.g., it is expensive and unreliable to store an enumerable data structure on Ethereum), allowing an authorized user to change the preset associated with a domain to link an entirely different set of records to the domain. Using the token identifier of the domain included in a request, the resolver smart contract identifies the corresponding preset and the type and value of the target record (e.g., key/value pair) are updated (e.g., added, removed, or modified) under the identified preset.

[0044] An example of a list of record types able to be updated by the resolver smart contract is as follows: a cryptocurrency account address, a preferred browser protocol, a browser redirect URL (e.g., allowing redirection at the name service level), a decentralized web record, an IPFS network content hash, a swarm network content hash, a web DNS record, a default TTL

setting, a DNS CNAME, an IP address, a deprecated record, an account username, a chat user identifier, a social network user identifier, or any communication user identifier.

[0045] Figure 5 is a flow diagram illustrating an embodiment of performing a meta-transaction for a domain managed using a blockchain-based name service. Examples of the meta-transaction include the request to the registry smart contract in 302 specifying a management action to be performed and the request to the resolver smart contract in 402 to update for the domain, a target record of a specified type.

[0046] In some embodiments, an authorized account for a domain is able to provide authorization on a per management transaction level by signing the request that can be invoked by another account when desired. For example, to grant temporary management authority on a per request level via a meta-transaction, an owner, an approved account, or an operator for a domain is able to sign a request using its private cryptographic key and provide to another user/account that will provide the request for execution when desired. This allows the authorized management of the meta-transaction to be asynchronously executed when desired by the other user/account. In the event the received request is specified as a meta-transaction, the request includes the signature of the authorized account of the domain of the request (different from the account that provided the request) and this signature can be verified to ensure it is authentic. If it is authentic and the account that signed it is an owner, an approved account, or an operator for the domain, it is determined that the request is authorized. Otherwise, the meta-transaction request is not authorized.

[0047] In some embodiments, the registry smart contract and/or the resolver smart contract includes special program functions that can be called to indicate that the requested transaction is a meta-transaction. For example, each management function of the smart contracts has a corresponding meta-transaction version that allows as an argument/input to provide a message signed by an authorized account of the domain. This allows a third party to submit transactions on behalf of an authorized account while still allowing the authorized account to still manage its domain in a self-custodial capacity

[0048] In transaction flow diagram 500 shown in Figure 5, an authorized account uses the front end (e.g., client 902 of Figure 9) to indicate, via user input 502 for a domain, a

transaction desired to be executed on behalf of the user. In step 504, the front end generates the message specifying and authorizing the meta-transaction. The message identifies the desired action/function desired to be executed by the meta-transaction as well as its parameters. The message is signed using the cryptographic key (e.g., private key) of the authorized account to prove its authenticity.

[0049] The message may include a domain based meta-transaction nonce to prevent the message from being replayed (e.g., prevent it from being used more than once). The nonce includes a transaction counter specifically tracked for each domain/token. This prevents replay attacks where a transfer of a token can be replayed over and over to continually revert the state of the name back to a previous state. The nonce counter is incremented by one each time a state transition happens to a token. Domain token-based nonces can be also used to prevent mis-ordering of transactions. For example, this prevents front running non-fungible assets and enables secure transaction batching.

[0050] The generated message is included in a transaction request and sent in 506 to the server (e.g., management server(s) 904 of Figure 9) of the third-party that will be submitting the meta-transaction on behalf of the authorized account of the domain. The server can hold this meta-transaction until later when it desires to execute the transaction by submitting to the appropriate blockchain (e.g., blockchain 908 of Figure 9) smart contract in 508. This request by the server includes the message signed by the authorized account of the domain and is also signed by the third-party requester submitting the meta-transaction using its cryptographic key to generate its classical signature typically submitted to the blockchain to prove its authenticity.

[0051] The blockchain smart contract then checks the authorization to execute the meta-transaction in 510 by verifying that the included message signature purported to be signed by the authorized account (e.g., not the signature of the submitter of the request in 508) was actually signed by an authorized account identified in the record of the registry smart contract for the domain of the request. Once the message signature is verified, the requested transaction is executed in 512 and a confirmation of the execution is passed back in 514 and 516.

[0052] Figure 6 is a flowchart illustrating an embodiment of a process for resolving a domain managed using a blockchain-based name service. In some embodiments, at least a

portion of the process of Figure 6 is implemented on one or more networked computers implementing a distributed blockchain (e.g., one or more computers of blockchain 908 of Figure 9). In some embodiments, at least a portion of the process of Figure 6 is implemented on management server(s) (e.g., one or more servers of server(s) 904 of Figure 9) providing a service to manage blockchain-based name service executing on distributed computers of a blockchain. An example of a smart contract that is used to execute the process of Figure 6 is resolver smart contract 104 and/or 204 of Figures 1 and 2.

[0053] At 602, a request to resolve a name of a domain into a target record is received. In some embodiments, the request is made to a resolver smart contract of the domain by a requester by performing a program function call to an address of the resolver smart contract on a blockchain. In some embodiments, the resolver smart contract for the domain is identified by requesting an address of the resolver smart contract of the domain to a registry smart contract. The request may identify the name of the domain via a hash identifier determined by hashing the name using a hash function. The request may also identify the type of target record desired to be obtained. For example, the same name of a domain is able to be resolved into multiple different target records of different types, and the request identifies one of these types desired to be obtained.

[0054] At 604, the requested target record is obtained and returned in response to the request. For example, the resolver smart contract obtains the target record of a specified type for the domain from its blockchain storage and returns the target record.

[0055] In some embodiments, because a single resolver smart contract may be able to manage and handle resolution of multiple different domains, the resolver smart contract includes a different preset for different domains and each preset holds records for the domain. For example, the records inside the resolver smart contract are stored as a nested mapping from Domain Token ID -> Preset ID -> Key -> Value. This nested structure allows users to configure domains on the un-enumerable Ethereum mappings (e.g., it is expensive and unreliable to store an enumerable data structure on Ethereum), allowing an authorized user to change the preset associated with a domain to link an entirely different set of records to the domain. Using the token identifier of the domain included in a request, the resolver smart contract identifies the

corresponding preset of the domain, obtains the target record of the type (e.g., key of the record) specified by the request, and returns the value of the record. Examples of the return target record returned include: a cryptocurrency account address, a preferred browser protocol, a browser redirect URL (e.g., allowing redirection at the name service level), a decentralized web record, an IPFS network content hash, a swarm network content hash, a web DNS record, a default TTL setting, a DNS CNAME, an IP address, a deprecated record, an account username, a chat user identifier, a social network user identifier, or any communication user identifier.

[0056] Figure 7 is a flow diagram illustrating an embodiment of resolving a name identifier using a blockchain-based name service for a cryptocurrency transaction. An example of a smart contract that is used to execute the flow of Figure 7 is resolver smart contract 104 and/or 204 of Figures 1 and 2.

[0057] One way to integrate with the name service is through resolution of the name of the domain into a cryptocurrency address. This process converts a human-readable name like “brad.crypto” to the cryptocurrency addresses that the name service stores in its blockchain. For example, a user can send a bitcoin to “brad.crypto” and it will go to Brad's bitcoin address. A user can also send an Ethereum coin to “brad.crypto” and it will go to Brad's Ethereum address.

[0058] In the example shown in diagram 700, the application retrieves a domain's records through a resolver smart contract deployed on the blockchain (e.g., via the Ethereum or Zilliqa blockchains). In the shown diagram, an ETH cryptocurrency token is being sent to “example.crypto.” The application sends those two parameters to the resolver smart contract on the Ethereum blockchain and it returns the record stored under “crypto.ETH.address” for that domain. This address can be used to complete the ETH cryptocurrency token transfer.

[0059] Figure 8 is a flow diagram illustrating an embodiment of using a proxy reader smart contract to resolve a target record of a domain managed using a blockchain-based name service. In some embodiments, at least a portion of the process of Figure 8 is implemented on one or more networked computers implementing a distributed blockchain (e.g., one or more computers of blockchain 908 of Figure 9). In the previously described examples of the registry smart contract (e.g., registry smart contract 102 and/or 202 of Figures 1 and 2) and the resolver smart contract (e.g., resolver smart contract 104 and/or 204 of Figures 1 and 2), an

application/user desiring to resolve a name of the domain made a first program function call to the registry smart contract to obtain the address of the resolver smart contract for the domain and then made a second function call to the resolver smart contract to obtain the target domain record. However, making two different function calls to two different smart contracts adds complexity to the name service that is undesirable for many users. In order to simplify the resolution of the domain, a proxy reader smart contract that enables a single function call to handle this complexity for the user is shown in diagram 800.

[0060] The proxy reader smart contract receives request 802 to resolve a name of a domain into a target record (e.g., the request received in 502 of Figure 5). Request 802 may include a hash of the name of the domain (e.g., Token ID) and an identifier of a type of target record desired to be obtained. The proxy reader smart contract acts as a proxy to make the appropriate calls to both the registry smart contract and the corresponding resolver smart contract, allowing the requester to make a single call that returns the desired domain record. The proxy reader smart contract makes call 804 to the registry smart contract to request the address of the resolver smart contract corresponding to the domain (e.g., corresponding to the Token ID of the domain). The registry smart contract returns response 806 providing the corresponding resolver smart contract address. The proxy reader smart contract makes call 808 to the obtained resolver smart contract address to request the desired record of the domain. The resolver smart contract returns response 810 that provides the desired record. This obtained record is then able to be provided by the proxy reader smart contract to the requester in response to request 802.

[0061] Figure 9 is a block diagram illustrating an embodiment of a blockchain-based name service environment. Client 902 includes any computer using the blockchain-based name service. For example, client 902 requests resolution of a name of a domain of the blockchain-based name service to a target record, updates a target record for a name of a domain of the blockchain-based name service, and/or performs any management action associated with a domain of the blockchain-based name service. Any number of client 902 may exist. A request sent by client 902 is provided to management server(s) 904 and/or blockchain 908 via computer network 906. Management server(s) 904 includes one or more servers providing a service to manage the blockchain-based name service executing on blockchain 908. For example, rather than directly managing the blockchain-based name service on blockchain 908, an owner of a

domain uses a service provided by management server(s) 904 to assist the owner by performing management actions on blockchain 908 for the owner. The owner may grant management server(s) 904 authorization to manage its domain(s) (e.g., via as an approved user, as an operator, or per management action meta-transaction). This allows a management action request received at management server(s) 904 from client 904 to be initiated by management server(s) 904 on blockchain 908. Blockchain 908 includes one or more distributed network(s) of servers and computers implementing a crypto blockchain (e.g., Ethereum blockchain) that enable smart contracts of the blockchain-based name service to be executed.

[0062] Figure 10 is a functional diagram illustrating a programmed computer system for using, managing, or executing a blockchain-based name service in accordance with some embodiments. As will be apparent, other computer system architectures and configurations can be used to use, manage, or execute the blockchain-based name service. Examples of computer system 1000 includes client 902, one or more computers included in management server(s) 904, or one or more computers included in blockchain 908 of Figure 9. Computer system 1000, which includes various subsystems as described below, includes at least one microprocessor subsystem (also referred to as a processor or a central processing unit (CPU)) 1002. For example, processor 1002 can be implemented by a single-chip processor or by multiple processors. In some embodiments, processor 1002 is a general purpose digital processor that controls the operation of the computer system 1000. Using instructions retrieved from memory 1010, the processor 1002 controls the reception and manipulation of input data, and the output and display of data on output devices (e.g., display 1018).

[0063] Processor 1002 is coupled bi-directionally with memory 1010, which can include a first primary storage, typically a random access memory (RAM), and a second primary storage area, typically a read-only memory (ROM). As is well known in the art, primary storage can be used as a general storage area and as scratch-pad memory, and can also be used to store input data and processed data. Primary storage can also store programming instructions and data, in the form of data objects and text objects, in addition to other data and instructions for processes operating on processor 1002. Also as is well known in the art, primary storage typically includes basic operating instructions, program code, data and objects used by the processor 1002 to perform its functions (e.g., programmed instructions). For example, memory 1010 can include

any suitable computer-readable storage media, described below, depending on whether, for example, data access needs to be bi-directional or unidirectional. For example, processor 1002 can also directly and very rapidly retrieve and store frequently needed data in a cache memory (not shown).

[0064] A removable mass storage device 1012 provides additional data storage capacity for the computer system 1000, and is coupled either bi-directionally (read/write) or unidirectionally (read only) to processor 1002. For example, storage 1012 can also include computer-readable media such as magnetic tape, flash memory, PC-CARDS, portable mass storage devices, holographic storage devices, and other storage devices. A fixed mass storage 1020 can also, for example, provide additional data storage capacity. The most common example of mass storage 1020 is a hard disk drive. Mass storage 1012, 1020 generally store additional programming instructions, data, and the like that typically are not in active use by the processor 1002. It will be appreciated that the information retained within mass storage 1012 and 1020 can be incorporated, if needed, in standard fashion as part of memory 1010 (e.g., RAM) as virtual memory.

[0065] In addition to providing processor 1002 access to storage subsystems, bus 1014 can also be used to provide access to other subsystems and devices. As shown, these can include a display monitor 1018, a network interface 1016, a keyboard 1004, and a pointing device 1006, as well as an auxiliary input/output device interface, a sound card, speakers, and other subsystems as needed. For example, the pointing device 1006 can be a mouse, stylus, track ball, or tablet, and is useful for interacting with a graphical user interface.

[0066] The network interface 1016 allows processor 1002 to be coupled to another computer, computer network, or telecommunications network using a network connection as shown. For example, through the network interface 1016, the processor 1002 can receive information (e.g., data objects or program instructions) from another network or output information to another network in the course of performing method/process steps. Information, often represented as a sequence of instructions to be executed on a processor, can be received from and outputted to another network. An interface card or similar device and appropriate software implemented by (e.g., executed/performed on) processor 1002 can be used to connect

the computer system 1000 to an external network and transfer data according to standard protocols. For example, various process embodiments disclosed herein can be executed on processor 1002, or can be performed across a network such as the Internet, intranet networks, or local area networks, in conjunction with a remote processor that shares a portion of the processing. Additional mass storage devices (not shown) can also be connected to processor 1002 through network interface 1016.

[0067] An auxiliary I/O device interface (not shown) can be used in conjunction with computer system 1000. The auxiliary I/O device interface can include general and customized interfaces that allow the processor 1002 to send and, more typically, receive data from other devices such as microphones, touch-sensitive displays, transducer card readers, tape readers, voice or handwriting recognizers, biometrics readers, cameras, portable mass storage devices, and other computers.

[0068] In addition, various embodiments disclosed herein further relate to computer storage products with a computer readable medium that includes program code for performing various computer-implemented operations. The computer-readable medium is any data storage device that can store data which can thereafter be read by a computer system. Examples of computer-readable media include, but are not limited to, all the media mentioned above: magnetic media such as hard disks, floppy disks, and magnetic tape; optical media such as CD-ROM disks; magneto-optical media such as optical disks; and specially configured hardware devices such as application-specific integrated circuits (ASICs), programmable logic devices (PLDs), and ROM and RAM devices. Examples of program code include both machine code, as produced, for example, by a compiler, or files containing higher level code (e.g., script) that can be executed using an interpreter.

[0069] The computer system shown in Figure 10 is but an example of a computer system suitable for use with the various embodiments disclosed herein. Other computer systems suitable for such use can include additional or fewer subsystems. In addition, bus 1014 is illustrative of

any interconnection scheme serving to link the subsystems. Other computer architectures having different configurations of subsystems can also be utilized.

[0070] Figure 11 is a block diagram illustrating an embodiment of a system for resolving a name of a domain of a decentralized blockchain-based name service. Client 1102 includes web browser 1104. A user uses web browser 1104 executing on client 1102 (e.g., computer, mobile device, etc.) to request content referenced by a name identifier including a domain name. For example, the name identifier includes a human-friendly hostname/URL (Uniform Resource Locator) that is to be resolved to obtain a target identifier (e.g., IP address) that is to be used to request the desired content. Traditional domains that are not blockchain based are typically resolved by web browser 1104 by contacting a Domain Name System (DNS) server to obtain a DNS record corresponding to a domain name. However in various embodiments, a name of a domain of a blockchain-based name service is to be resolved by a lookup of a corresponding record on a blockchain. For example, the process of Figure 6 is used to request and obtain target records for a domain of a blockchain-based name service.

[0071] In some embodiments, web browser 1104 has been specifically configured to natively handle resolution of a name of a domain of a blockchain-based name service by natively performing a lookup of a corresponding record managed on a blockchain. For example, when web browser 1104 detects that a provided content location identifier (e.g., URL) for a requested content includes a name of a domain of a blockchain-based name service, web browser 1104 contacts blockchain 1106 of the blockchain-based name service (e.g., via a smart contract) via network 1100 to obtain one or more records corresponding to the domain of the provided content location identifier. In various embodiments, the record(s) provide configuration information (e.g., preferred protocol), DNS record(s), target IP address, redirection information, or any other stored information that can be used to obtain content referenced using the domain of the blockchain-based name service. Figure 2 and related descriptions detail an embodiment of an implementation of blockchain smart contracts of a decentralized blockchain-based name service.

[0072] In some embodiments, web browser 1104 is unable to natively handle resolution of a name of a domain of a blockchain-based name service and a browser extension or a browser plugin that has been installed on web browser 1104 is utilized to handle the resolution of the

name of the domain of the blockchain-based name service. For example, when the plugin detects that a provided content location identifier for a requested content includes a name of a domain of a blockchain-based name service, the plugin of web browser 1104 contacts blockchain 1106 of the blockchain-based name service (e.g., via a smart contract) via network 1100 to obtain one or more records corresponding to the domain of the provided content location identifier. In various embodiments, the record(s) provide configuration information (e.g., preferred protocol), DNS record(s), target IP address, redirection information, or any other stored information that can be used to obtain content referenced using the domain of the blockchain-based name service. Figure 2 and related descriptions detail an embodiment of an implementation of blockchain smart contracts of a decentralized blockchain-based name service.

[0073] In some embodiments, rather than requiring native handling, browser extension, or a plugin-based resolution of a name of a domain of a blockchain-based name service, the resolution is performed via a remote server/gateway. For example, regardless of whether a domain to be resolved is a traditional DNS domain or a domain of a blockchain-based name service, attempts to perform resolution of a name of a domain of a blockchain-based name service are performed by contacting a remote gateway/server that will perform the resolution for the web browser. For example, browser 1104 contacts blockchain domain supporting DNS gateway 1108 to resolve a name of a domain included in a content location identifier (e.g., URL). DNS gateway 1108 supports resolutions of both traditional DNS domains and domains of a blockchain-based name service, and it is configured to determine whether a name of the domain to be resolved is a domain of a blockchain-based name service (e.g., based on a top level domain identifier of the domain to be resolved). For example, the DNS gateway is configured to access records managed on blockchain 1106 for the domain and provide resolution records. Even if the domain to be resolved is a blockchain-based domain, the records may be provided in conformance with the traditional DNS standard protocol to the web browser that only understands traditional DNS responses. For example, from the perspective of a web browser, DNS gateway 1108 functions as a traditional DNS gateway/server despite it being extended to support blockchain-based domains. In the event the domain is a domain of a blockchain-based name service, DNS gateway 1108 contacts blockchain 1106 of the blockchain-based name service (e.g., via a smart contract) via network 1100 to obtain one or more records corresponding to the domain to be resolved. In various embodiments, the record(s) provide configuration

information (e.g., preferred protocol), DNS record, target IP address, redirection information, or any other stored information that can be used to obtain content referenced using the domain of the blockchain-based name service. The resolution response is returned to browser 1104 by DNS gateway 1108 based on the obtained record(s) from the blockchain. If it is determined that the domain is not a domain of a blockchain-based name service but a standard domain (e.g., managed by ICANN) that is not a blockchain-based domain, DNS gateway 1108 performs the resolution as would be performed by a typical DNS server/gateway without using a blockchain.

[0074] In some embodiments, one or more of the record(s) obtained from the blockchain for domain resolution specify a decentralized web content identifier that can be used to obtain content from decentralized content network 1112. For example, one of the record(s) obtained from the blockchain includes an InterPlanetary File System (IPFS) content hash identifier. Decentralized content network 1112 includes one or more servers and/or devices that function as peer-to-peer networks to provide content in a distributed manner. In some embodiments, one or more of the record(s) obtained from the blockchain for domain resolution include an address of a gateway/server (e.g., decentralized web gateway 1110) that functions as a proxy to obtain and provide requested decentralized web content for a requester that does not directly support a decentralized web protocol. For example, web browser 1104 may not support a decentralized web content protocol such as IPFS, and the web browser is provided in a record returned from resolving a domain referencing decentralized web content, a redirect address to decentralized web gateway 1110. When decentralized web gateway 1110 is contacted via the redirect address, decentralized web gateway 1110 can function as a proxy to contact decentralized content network 1112 to obtain and provide the content referenced by a decentralized web content hash identifier included in a record obtained from the blockchain for the domain. In effect, decentralized web gateway 1110 functions as a middle proxy server that allows decentralized web content to be requested and received by a requester utilizing traditional requests/responses (e.g., HTTP requests/responses) not utilizing a decentralized web protocol.

[0075] Blockchain 1106 includes a network of computers, servers, or other devices that maintain a blockchain ledger and execute smart contracts that maintain and execute the blockchain-based name service. For example, Blockchain 1106 includes devices that maintain

and execute the Ethereum blockchain. Examples of use and management of the blockchain have been described previously in the specification.

[0076] Figure 12 is a flowchart illustrating an embodiment of a process for resolving a name identifier. In some embodiments, at least a portion of the process of Figure 12 is performed by web browser 1104 of Figure 11. In some embodiments, at least a portion of the process of Figure 12 is performed by a browser plugin and/or browser extension of web browser 1104 of Figure 11. In some embodiments, at least a portion of the process of Figure 12 is performed by DNS gateway 1108 of Figure 11.

[0077] At 1202, a request to resolve a name identifier of web content is received. For example, a user inputs the name identifier into an address bar of a web browser. In another example, the name identifier is referenced by web content or another program for retrieval of the web resource referenced by the name identifier. In some embodiments, the request is received by the native component of the web browser and/or a plugin/extension of the web browser. In some embodiments, the request is provided by a web browser and received at a domain name resolution server/gateway (e.g., DNS gateway 1108). Examples of the web content include a webpage, an image, program code, content referenced by a webpage, or any other content able to be referenced and obtained via the internet.

[0078] At 1204, it is determined that a name of a domain included in the name identifier is to be resolved using a blockchain. While existing traditional DNS domains are to be resolved using traditional DNS servers, certain domains are to be resolved using the blockchain of a blockchain-based name service. In some embodiments, the determination on whether to resolve the name of the domain using a blockchain is performed automatically based on a programmatic analysis of its domain extension or top-level domain (e.g., letters at end of domain name after dot). In some embodiments, there exists a predetermined list of one or more specific domain extensions/top-level domains to be resolved using a blockchain, and if the extension/top-level domain of the name of the domain to be resolved matches an entry on this list, it is determined that the name of the domain included in the name identifier is to be resolved using a blockchain. For example, extensions/top-level domains “.crypto” and “.zil”, etc. are included in the list and if the domain of the name identifier includes any of these top-level domains, it is automatically

determined to resolve it using a blockchain. If the domain of the name identifier does not include any of these top-level domains, it is automatically determined to resolve it using traditional non-blockchain based resolution (e.g., via traditional DNS resolution).

[0079] At 1206, a request is made to a smart contract of the blockchain for one or more resolution records for the domain, and at 1208, the requested record(s) are received. For example a call is made to a function of the smart contract to request resolution records of a specified domain. Examples of the smart contract are shown in Figures 1 and 2. In some embodiments, the request is made using the process of Figure 6. The smart contract includes self-executing code that functions to implement an agreement deployed to store state and execute code on the blockchain. This allows an agreed upon contract code to execute in a distributed and verifiable manner. The smart contracts of the decentralized blockchain-based name service govern how domains are created, managed, and utilized. For example, the smart contract can be invoked to obtain one or more records that can be used to resolve the domain of the name identifier to obtain the corresponding web resource. In some embodiments, when the request is made to the smart contract of the blockchain, the smart contract returns the one or more resolution records managed in the blockchain for the domain of the name identifier to be resolved.

[0080] Examples of the resolution records include any traditional DNS record (e.g., redirect address/URL of a redirect record, IP address of a dns.A record, or any other record supported by the DNS protocol), any decentralized web record (e.g., hash value of any supported decentralized web protocol), and configuration record(s) (e.g., record specifying a list of preferred protocols in a preferred order such that if multiple protocols are supported by the destination of the resolved domain, the protocol to be utilized is selected based on the order of the list).

[0081] At 1210, the received one or more records are used to resolve the name of the domain of the name identifier and obtain the referenced web content. In some embodiments, the names of the domain in the name identifier are replaced with an IP address included in the record(s) and used to request and obtain the web resource via the Internet. In some embodiments, a redirect address included in the received record(s) is used to perform a DNS redirection by requesting content of the redirect address instead. In some embodiments, a decentralized web

content hash identifier included in the received record(s) is used to request and obtain decentralized web content from a distributed content network. Preferences and configurations for requesting and obtaining the referenced web content may be specified in the received one or more records.

[0082] Figure 13 is a flow diagram illustrating an embodiment of a process for requesting and receiving decentralized web (dWeb) content. An example of web browser 1302 is web browser 1104 of Figure 11. An example of blockchain 1304 is blockchain 1106 of Figure 11. An example of decentralized content network 1306 is decentralized content network 1112 of Figure 11.

[0083] In the example flow diagram shown, at 1312, a user requests content referenced by a provided name identifier “unstoppable.crypto.” This provided name identifier may have been provided as a user input into the address bar of a web browser. A native component or a plugin/extension component of the web browser is configured to detect that the “.crypto” portion of the name of the domain of the provided name identifier is to be resolved using a blockchain of a blockchain-based name service.

[0084] At 1314, a token version of the name of the domain of the provided name identifier is calculated. For example, rather than using the text version of the domain, a hash identifier is calculated by hashing the text of the domain. The hash identifier serves as the identifier of the non-fungible token representing the domain and is a more storage efficient representation of the name of the domain and the name of the domain can be easily converted to a hash identifier using a hash function.

[0085] At 1316, target records for the domain (identified by the calculated hash) are requested from blockchain 1304 (e.g., blockchain of a blockchain-based name service able to resolve the top-level domain of the domain). For example, a request is sent to a smart contract of

the blockchain requesting resolution records associated with resolving and accessing content associated with the domain of the name identifier.

[0086] At 1318, the requested records are received. The received records may include configuration record(s) as well as target location/content records of the domain for any supported protocol.

[0087] At 1320, the decentralized web content identifier is extracted from the received records. For example, a decentralized web content hash identifier for a decentralized web protocol identified as supported from the received records is obtained from the received records.

[0088] At 1324, decentralized web content identified by the extracted decentralized web target content identifier is requested from decentralized content network 1306. At 1326, the requested decentralized web content is received from decentralized content network 1306.

[0089] Figure 14 is a flow diagram illustrating an embodiment of a process for requesting and receiving decentralized web content via remote gateways. An example of web browser 1402 is web browser 1104 of Figure 11. An example of DNS gateway 1404 is DNS gateway 1108 of Figure 11. An example of decentralized web gateway 1406 is decentralized web gateway 1110 of Figure 11. An example of blockchain 1408 is blockchain 1106 of Figure 11. An example of decentralized content network 1410 is decentralized content network 1112 of Figure 11.

[0090] At 1412, browser 1402 requests DNS resolution of a domain of a provided name identifier to DNS gateway 1404. For example, when a user requests content referenced by a provided name identifier “brave.crypto,” the name of the domain included in the provided name identifier is to be resolved. Web browser 1402 has not been configured to directly handle blockchain-based domains and simply relies on its traditional DNS resolution flow by requesting its resolution to DNS gateway 1404.

[0091] DNS gateway 1404 is configured to detect that the “.crypto” portion of the domain of the provided name identifier is to be resolved using a blockchain of a blockchain-based name service. At 1414, a token version of the name of the domain of the provided name identifier is calculated. For example, rather than using the text version of the name of the domain, a hash identifier is calculated by hashing the text of the name of the domain. The hash

identifier serves as the identifier of the non-fungible token representing the domain and is a more storage efficient representation of the name of the domain and the name of the domain can be easily converted to a hash identifier using a hash function.

[0092] At 1416, target records for the domain (identified by the calculated hash) are requested from blockchain 1408 (e.g., blockchain of a blockchain-based name service able to resolve the top-level domain of the name identifier). For example, a request is sent to a smart contract of the blockchain requesting a list of records associated with resolving and accessing content associated with the domain of the name identifier (e.g., domain records).

[0093] At 1418, the requested records are received. The received records may include configuration record(s) (e.g., including preferred decentralized web protocol) and may also include target location/content records of the domain for any supported protocol. The received records indicate that a decentralized web content is referenced by the domain.

[0094] In some embodiments, it is determined whether the browser that requested the resolution of the domain is able to directly handle/access decentralized web content. If it is determined that browser 1402 is unable to directly handle/access decentralized web content, at 1420, a decentralized web gateway IP address and decentralized web configurations are obtained from the received records to allow the web browser to access decentralized web content via decentralized web gateway 1406. If it is determined that the browser is able to directly handle/access decentralized web content, a decentralized web content hash identifier included in the received records may be returned directly to the browser to allow it to directly contact an appropriate decentralized content network to obtain the decentralized web content.

[0095] At 1422, a DNS response including an “A” response record with an IP address of the decentralized web gateway is provided in response to the request of 1412. In some

embodiments, the provided response also indicates a decentralized content hash identifier extracted from the received records.

[0096] At 1424, web browser 1402 contacts decentralized web gateway 1406 using the received IP address to request content referenced by the name identifier.

[0097] At 1426, a token version of the domain of the provided name identifier is calculated. At 1428, target records for the domain (identified by the calculated hash) are requested from blockchain 1408 (e.g., blockchain of a blockchain-based name service able to resolve the top-level domain of the domain of the name identifier). For example, a request is sent to a smart contract of the blockchain requesting a list of records associated with resolving and accessing content associated with the domain of the name identifier (e.g., resolution records for the domain). At 1430, the requested records are received. The received records include a decentralized web content hash identifier. In an alternative embodiment, rather than performing 1426-1430, the decentralized web target content identifier received in 1422 and provided in association with the request of 1424 is utilized.

[0098] At 1432, decentralized web content identified by the extracted decentralized web target content identifier is requested to decentralized content network 1410. At 1434, the requested decentralized web content is received at decentralized web gateway 1406 from decentralized content network 1410. This decentralized web content is stored at gateway 1406 and at 1436 provided to browser 1402 via a traditional Hypertext Transfer Protocol (HTTP) as a response to the request of 1424.

[0099] Figure 15 is a flowchart illustrating an embodiment for handling protocol priority when performing domain resolution for a domain resolved using a blockchain of a blockchain-based name service. In some embodiments, at least a portion of the process of Figure 15 is performed by browser 1104 and/or DNS gateway 1108 of Figure 11. A name of the domain can be resolved into any one of different targets for different protocols that are supported. For example, the domain can be resolved into an IP address if HTTP protocol is to be utilized or the domain can be resolved into a decentralized web content hash identifier if the decentralized web

protocol (e.g., IPFS) is to be utilized. In some embodiments, the process of Figure 15 can be utilized to select among different domain resolution options.

[0100] At 1502, resolution record(s) for a name of a domain to be resolved are obtained using a blockchain of a blockchain-based name service. In some embodiments, the resolution records include records received in 1208 of Figure 12, 1318 of Figure 13, 1418 of Figure 14, and/or 1430 of Figure 14. For example, the resolution records include records managed on the blockchain for the specified domain for use when resolving to a target identifier. The received resolution record(s) may include configurations, preferences, and/or one or more target records for one or more different protocols.

[0101] At 1504, an ordered list of preferred protocols is determined using the received records. If the domain has been specified in the blockchain records to support multiple protocols, one of the protocols is to be selected for use. The resolved target identifier for the domain will be the target identifier specified for that protocol among the different target identifiers specified for the different supported protocols. One of the received configuration records may specify an ordering of protocol preference such that the selected protocol is the one with the highest preference (e.g., appears in the list before another valid option) among protocols in the list that have been configured to be supported for the domain. In some embodiments, if the received records do not specify a preferred ordering of protocol or specifies an incomplete list, a default or modified preference ordering is utilized. For example, if a preferred order is not specified, the preferred order is ["bzz," "ipfs," "https," "http," "ftp"]. In some embodiments, one or more protocols associated with decentralized web protocols but not specified in a specified preference are added to the beginning (higher priority) of a partially provided list or at the end of other specified decentralized web protocols in the partially provided list. In some embodiments, "http" protocol is added to the end (lower priority) of the partially provided list.

[0102] At 1506, each of the protocols in the ordered list is iterated in the order of the list until a matching target identifier is found. For example, there exists a different target identifier record for each of any supported protocol of the domain, and it is determined whether there exists a target identifier record for the protocol in the list being iterated. If a target identifier record has been defined for the protocol according to a record in the received record(s) for the

domain, it is determined that the matching target identifier has been found. If a target identifier record has not been defined for the protocol in the received record(s), the iteration proceeds to the next protocol in the order of the list.

[0103] At 1508, if a matching target content identifier has been identified, it is determined to resolve the name of the domain using the matching protocol. The matching target content identifier is then returned for use in resolving and obtaining reference content of the domain.

[0104] At 1510, if no matching target content identifier has been identified after iterating through the entire ordered list of protocols, the domain is redirected, if applicable. For example, one of the received records may specify a redirect address/identifier for the domain, and if the redirect address/identifier exists, the domain is redirected by returning the redirect address/identifier to allow a recipient to contact the redirect address/identifier instead.

[0105] Although the foregoing embodiments have been described in some detail for purposes of clarity of understanding, the invention is not limited to the details provided. There are many alternative ways of implementing the invention. The disclosed embodiments are illustrative and not restrictive.

[0106] WHAT IS CLAIMED IS:

CLAIMS

1. A method, comprising:
 - receiving a request to resolve a name of a domain of an identifier of web content;
 - automatically determining that the name of the domain is to be resolved using a
 - 5 blockchain;
 - sending a request to a smart contract of the blockchain to obtain one or more resolution records for the domain;
 - receiving the one or more resolution records of the domain; and
 - utilizing the received one or more resolution records to resolve the name of the domain.
- 10 2. The method of claim 1, wherein the identifier of the web content includes a Uniform Resource Locator (URL).
3. The method of claim 1, wherein the request is received at a web browser.
4. The method of claim 1, wherein the request is received at a Domain Name System (DNS) gateway configured to handle resolution of domains of a blockchain-based name service.
- 15 5. The method of claim 1, wherein determining that the name of the domain is to be resolved using the blockchain includes determining that a top-level domain included in the name of the domain matches an entry in a list of domains to be resolved using the blockchain.
6. The method of claim 1, wherein the determination that the name of the domain is to be resolved using the blockchain is performed using an extension of a web browser.
- 20 7. The method of claim 1, wherein sending the request to the smart contract includes calculating a token identifier for the name of the domain using a hash function and using the token identifier as an identifier of the domain when sending the request.
8. The method of claim 1, wherein the one or more resolution records include an Internet Protocol (IP) address.
- 25 9. The method of claim 1, wherein the one or more resolution records include a redirect address.

10. The method of claim 1, wherein the one or more resolution records include a decentralized web content hash identifier.

11. The method of claim 1, wherein the one or more resolution records include a plurality of target identifiers for different protocols.

5 12. The method of claim 11, wherein utilizing the received one or more resolution records to resolve the name of the domain includes selecting one of the plurality of target identifiers based on an ordered list of protocol preferences.

13. The method of claim 12, wherein the ordered list of protocol preferences is at least in part specified in the one or more resolution records received using the blockchain.

10 14. The method of claim 12, wherein selecting the one of the plurality of target identifiers based on the ordered list of protocol preferences includes evaluating each protocol specified in an order of the ordered list to determine whether there exists a specific target record for the protocol.

15 15. The method of claim 1, wherein utilizing the received one or more resolution records to resolve the name of the domain includes providing a response including at least a portion of the one or more resolution records to a web browser.

16. The method of claim 1, wherein utilizing the received one or more resolution records to resolve the name of the domain includes providing an identifier of a decentralized web gateway.

17. The method of claim 16, wherein in response to a request made to the decentralized web gateway using the provided identifier of the decentralized web gateway, the decentralized web gateway obtains from a decentralized content network, decentralized web content referenced by a decentralized web content hash value included in the one or more resolution records of the domain, and stores and provides the obtained decentralized web content.

18. The method of claim 17, wherein the decentralized web gateway obtains the content referenced by the decentralized web content hash value using a decentralized web protocol but provides the obtained decentralized web content using a protocol that is not the decentralized web protocol.

19. A system, comprising:
a processor configured to:

receive a request to resolve a name of a domain of an identifier of web content;
automatically determine that the name of the domain is to be resolved using a
blockchain;

send a request to a smart contract of the blockchain to obtain one or more
5 resolution records for the domain;

receive the one or more resolution records of the domain; and

utilize the received one or more resolution records to resolve the name of the
domain; and

a memory coupled to the processor and configured to provide the processor with
10 instructions.

20. A computer program product embodied in a non-transitory computer readable medium
and comprising computer instructions for:

receiving a request to resolve a name of a domain of an identifier of web content;

15 automatically determining that the name of the domain is to be resolved using a
blockchain;

sending a request to a smart contract of the blockchain to obtain one or more resolution
records for the domain;

receiving the one or more resolution records of the domain; and

utilizing the received one or more resolution records to resolve the name of the domain.

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ABSTRACT OF THE DISCLOSURE

A request to resolve a name of a domain of an identifier of web content is received. It is automatically determined that the name of the domain is to be resolved using a blockchain. A request is sent to a smart contract of the blockchain to obtain one or more resolution records for the domain. The one or more resolution records of the domain are received. The received one or more resolution records are utilized to resolve the name of the domain.

SCORE Placeholder Sheet for IFW Content

Application Number: 17486512

Document Date: 09/27/2021

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

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