US 20150206106A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2015/0206106 A1**

(43) **Pub. Date: Jul. 23, 2015**

YAGO

(54) **METHOD FOR CREATING, ISSUING AND REDEEMING PAYMENT ASSURED CONTRACTS BASED ON MATHEMEMATICALLY AND OBJECTIVELY VERIFIABLE CRITERIA**

(71) Applicant: **YARON EDAN YAGO**, SAN FRANCISCO, CA (US)

(72) Inventor: **YARON EDAN YAGO**, SAN FRANCISCO, CA (US)

(21) Appl. No.: **14/596,103**

(22) Filed: **Jan. 13, 2015**

Related U.S. Application Data

(60) Provisional application No. 61/926,804, filed on Jan. 13, 2014.

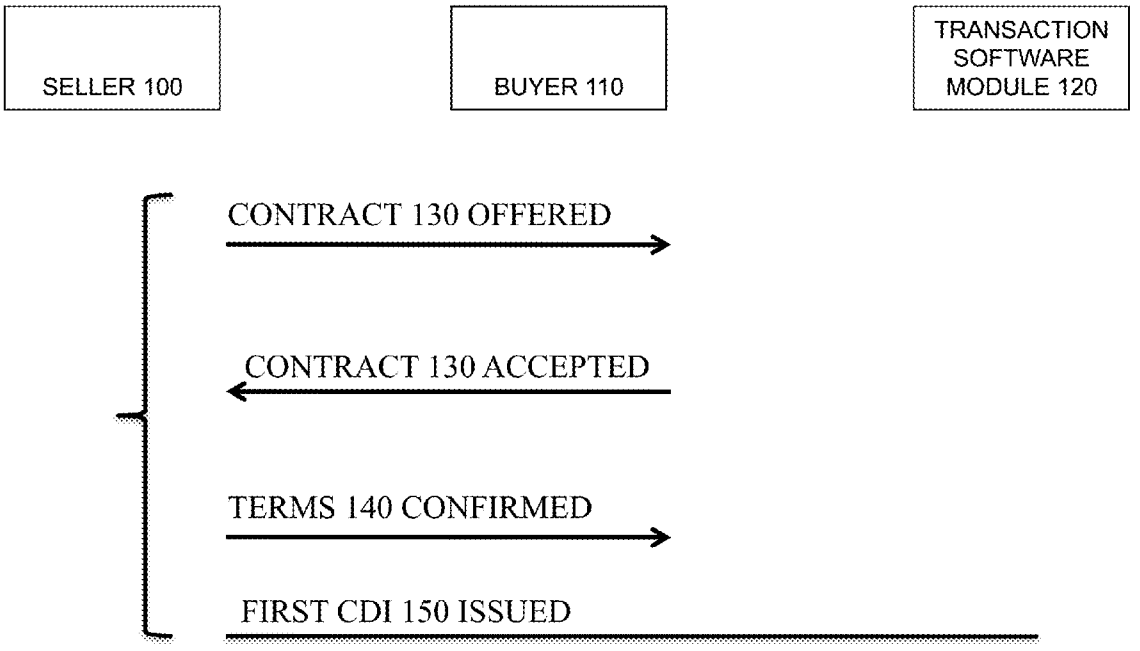
Publication Classification

(51) **Int. Cl.**
G06Q 20/06 (2006.01)

(52) **U.S. Cl.**
CPC ***G06Q 20/0658*** (2013.01); ***G06Q 20/0655*** (2013.01); *G06Q 2220/00* (2013.01)

(57) **ABSTRACT**

A business method and a system are disclosed comprising a software/computer/firmware module that creates contract/credit certificates with verifiable and objective terms based on a trade request between two or more parties. The module of the present invention also monitors crypto-digital instrument networks, including crypto-digital financial networks, to verify performance of the expected terms and notifies a credit issuing party as to the status (complete/not complete) of the relevant contract/credit certificate. The module, by use of encryption techniques or cryptography, ensures that the credit issued is only issued once while verifying credit-certificates. The disclosed business method and system allows for credit issuing bodies to provide payment guarantees that may be claimed only upon meeting objectively and/or mathematically verifiable terms on crypto-digital instrument networks. Lastly, the invention provides a business method for using crypto-digital instrument networks to issue digital credit certificates that cannot be double-spent.



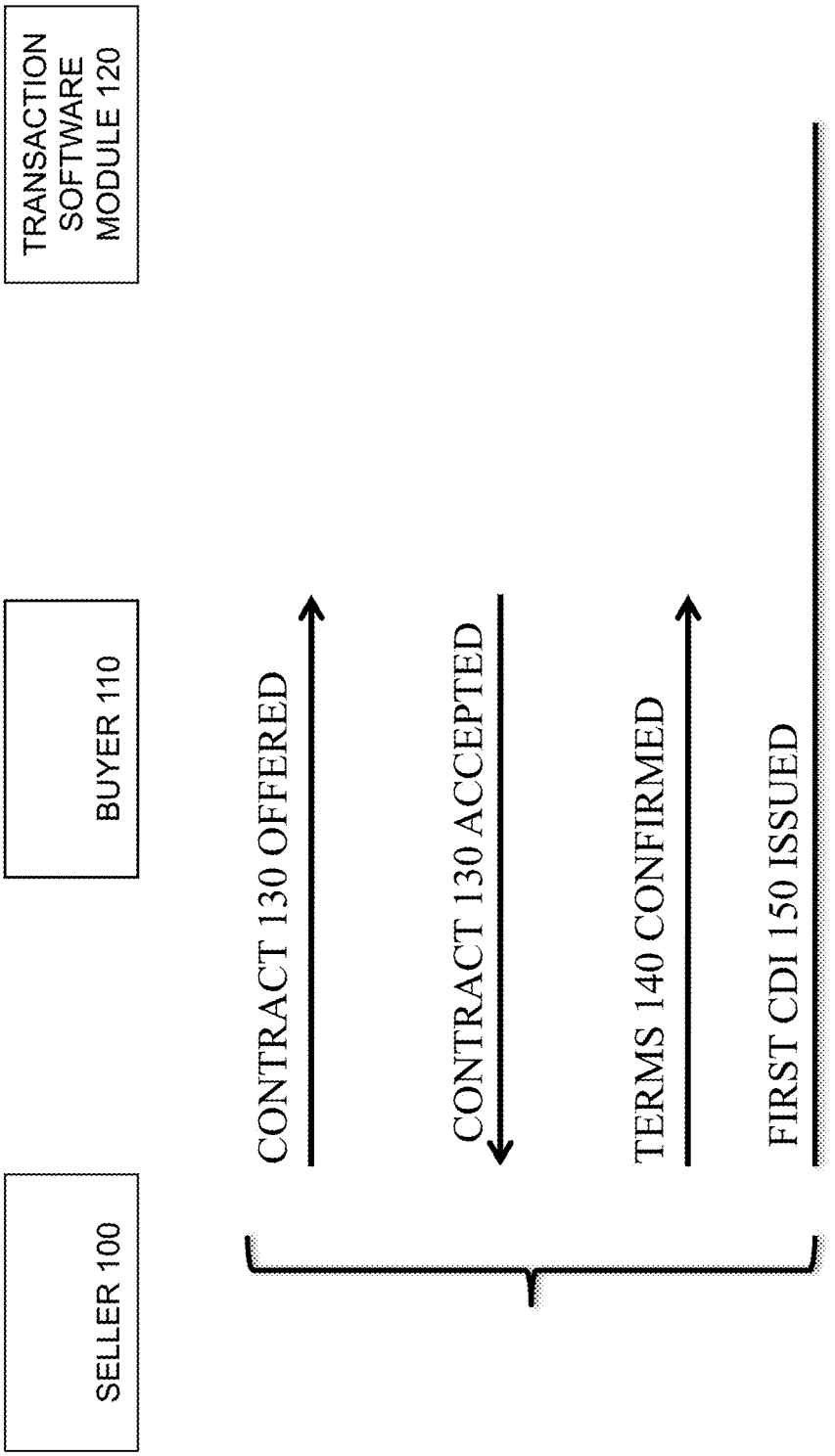

SELLER 100
BUYER 110
TRANSACTION SOFTWARE MODULE 120
CONTRACT 130 OFFERED
CONTRACT 130 ACCEPTED
TERMS 140 CONFIRMED
FIRST CDI 150 ISSUED

FIGURE 1


TRANSACTION SOFTWARE MODULE 120
BUYER 110
SELLER 100
PAYMENT REQUEST 200
TERMS 140 COMPLETION VERIFIED
PAYMENT 202 CONFIRMED
TRANSACTION 204 COMPLETED

FIGURE 2

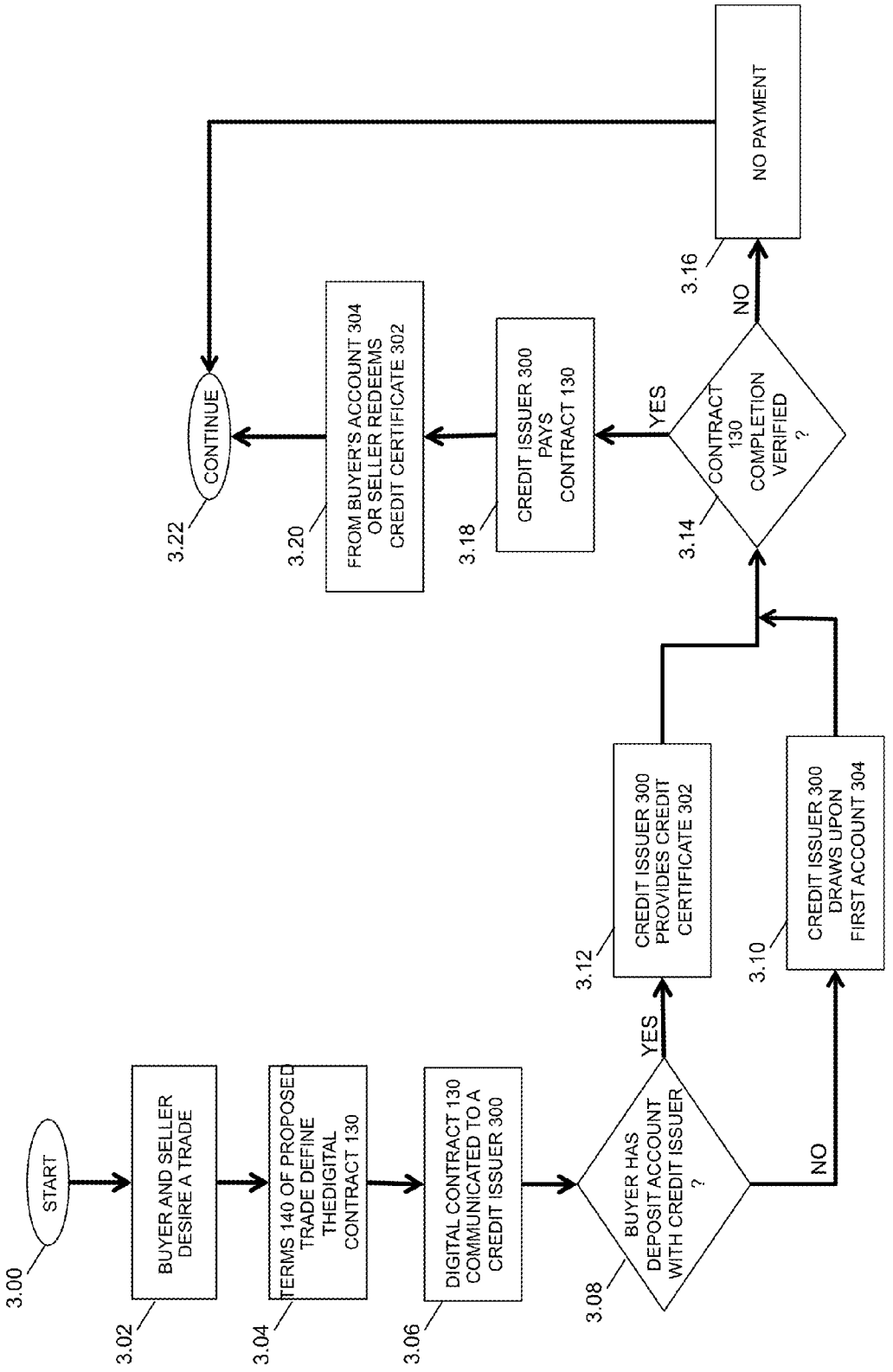

START
3.00
BUYER AND SELLER DESIRE A TRADE
3.02
TERMS 140 OF PROPOSED TRADE DEFINE THEDIGITAL CONTRACT 130
3.04
DIGITAL CONTRACT 130 COMMUNICATED TO A CREDIT ISSUER 300
3.06
BUYER HAS DEPOSIT ACCOUNT WITH CREDIT ISSUER ?
3.08
YES
NO
CREDIT ISSUER 300 PROVIDES CREDIT CERTIFICATE 302
3.12
CREDIT ISSUER 300 DRAWS UPON FIRST ACCOUNT 304
3.10
CONTRACT 130 COMPLETION VERIFIED ?
3.14
YES
NO
CREDIT ISSUER 300 PAYS CONTRACT 130
3.18
FROM BUYER'S ACCOUNT 304 OR SELLER REDEEMS CREDIT CERTIFICATE 302
3.20
NO PAYMENT
3.16
CONTINUE
3.22

FIGURE 3

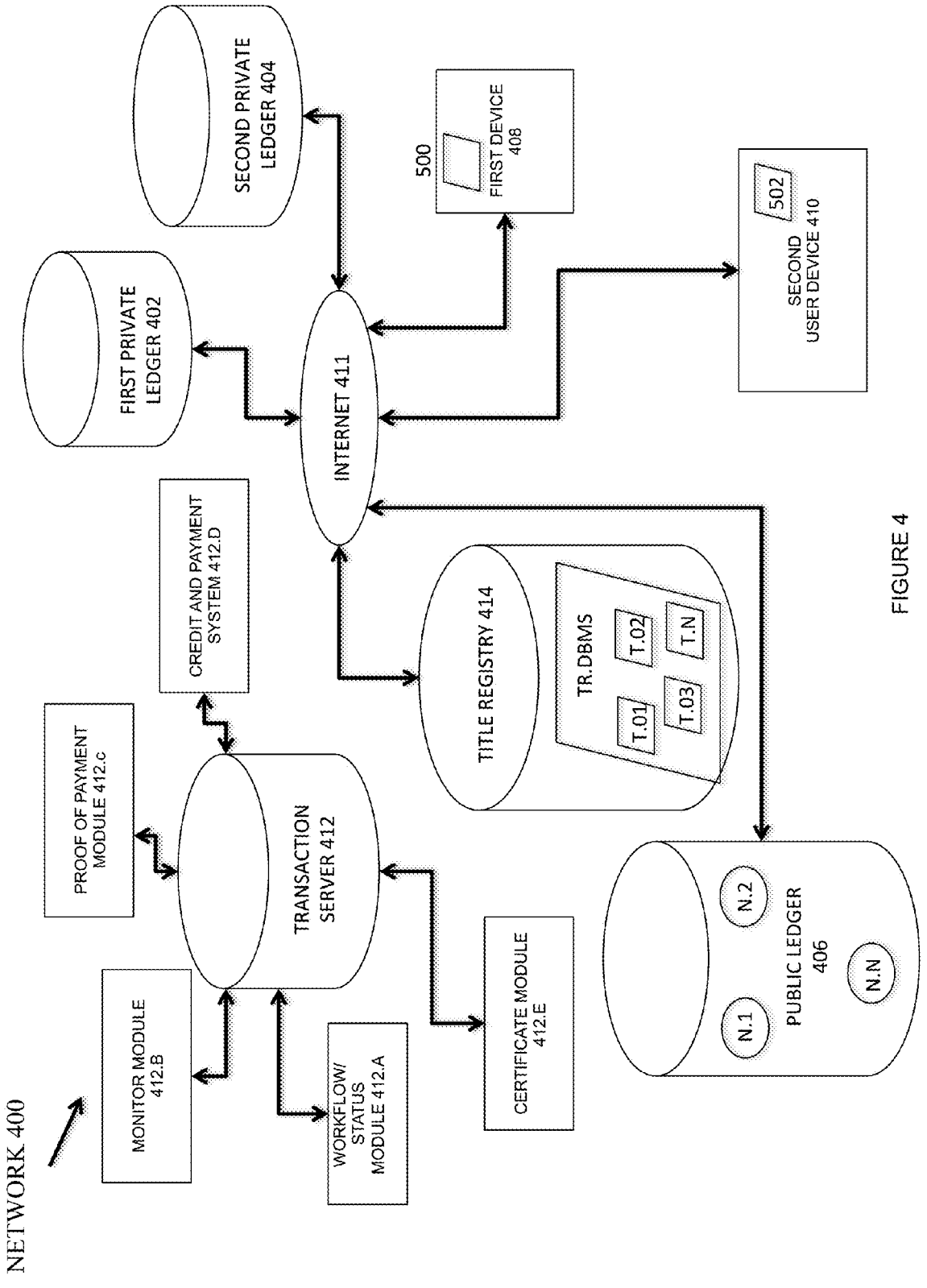

NETWORK 400
MONITOR MODULE 412.B
WORKFLOW/ STATUS MODULE 412.A
PROOF OF PAYMENT MODULE 412.c
CREDIT AND PAYMENT SYSTEM 412.D
TRANSACTION SERVER 412
CERTIFICATE MODULE 412.E
FIRST PRIVATE LEDGER 402
SECOND PRIVATE LEDGER 404
INTERNET 411
500
FIRST DEVICE 408
SECOND USER DEVICE 410
502
TITLE REGISTRY 414
TR.DBMS
T.01
T.02
T.03
T.N
PUBLIC LEDGER 406
N.1
N.2
N.N

FIGURE 4

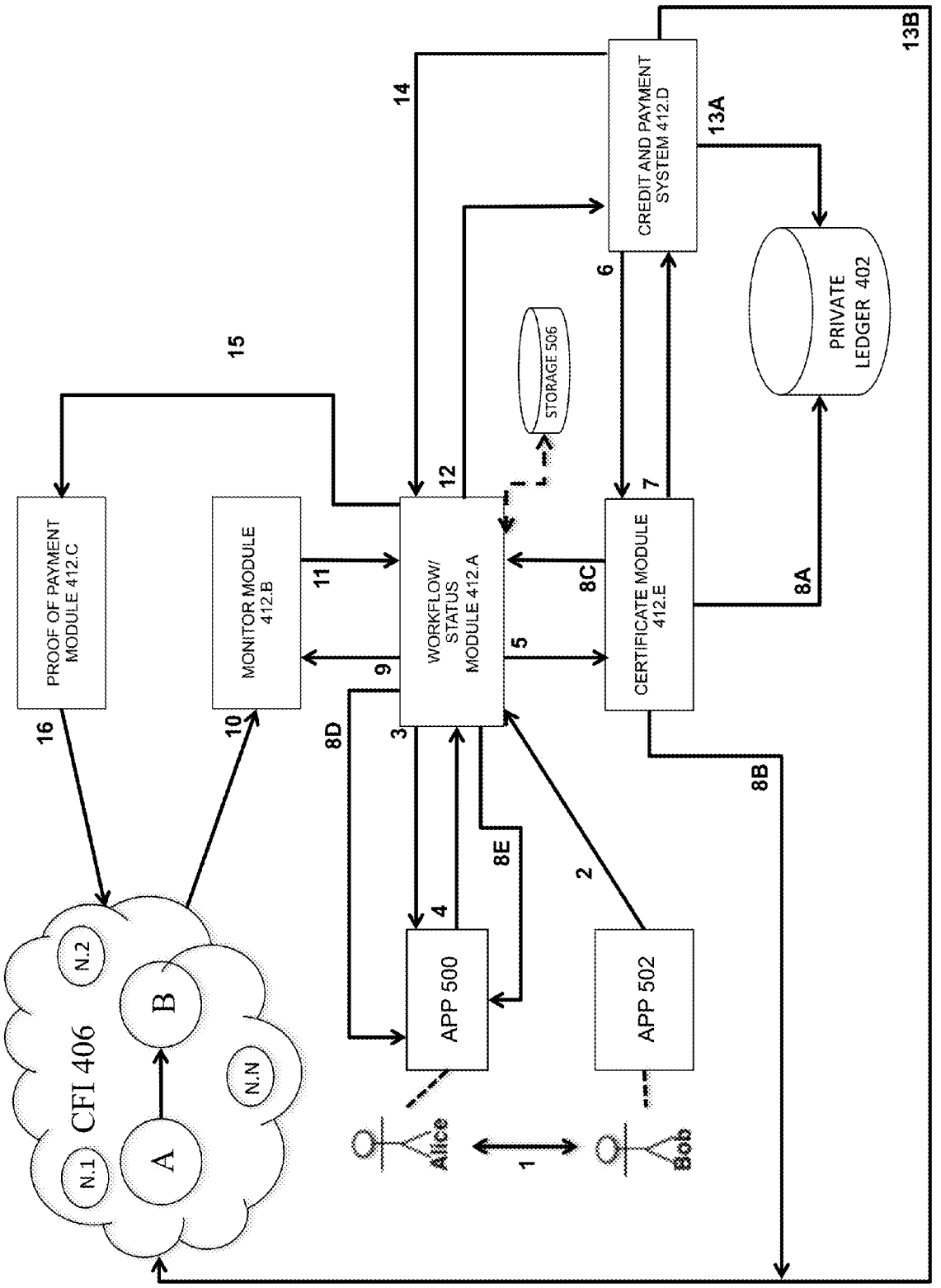

CFI 406
A
B
N.1
N.2
N.N
PROOF OF PAYMENT MODULE 412.C
MONITOR MODULE 412.B
WORKFLOW/ STATUS MODULE 412.A
CERTIFICATE MODULE 412.E
CREDIT AND PAYMENT SYSTEM 412.D
STORAGE 506
PRIVATE LEDGER 402
APP 500
APP 502
Alice
Bob
1
2
3
4
5
6
7
8A
8B
8C
8D
8E
9
10
11
12
13A
13B
14
15
16

FIGURE 5

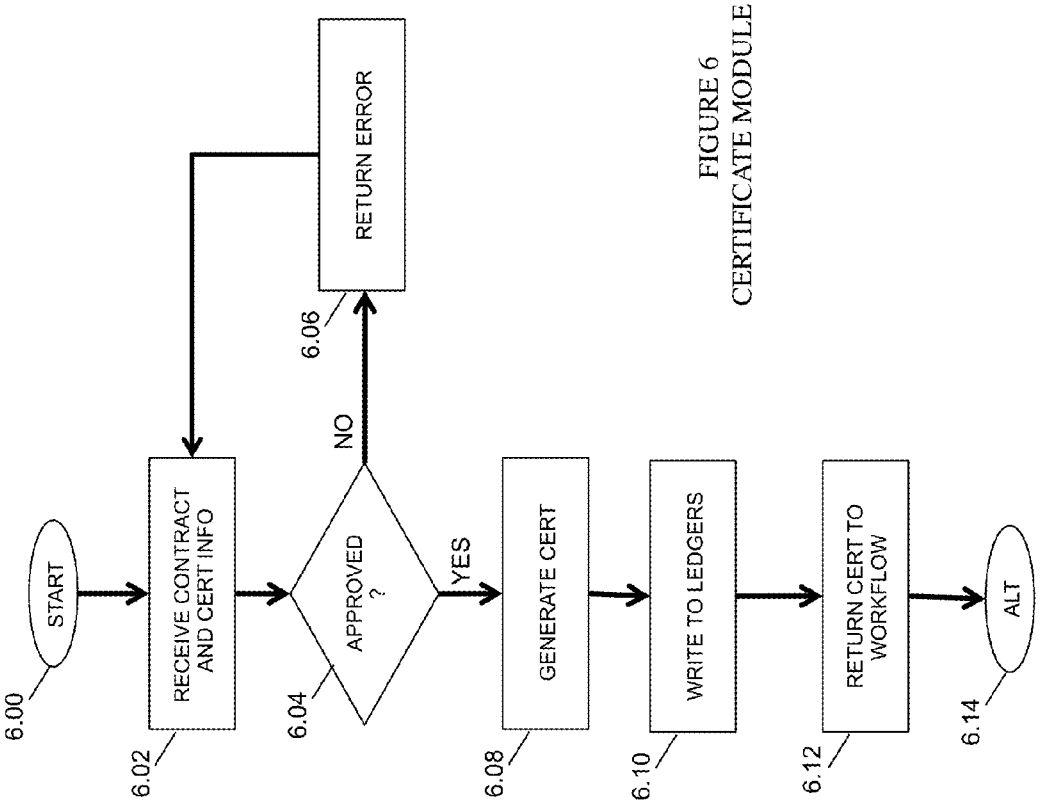


FIGURE 6
CERTIFICATE MODULE 412.E

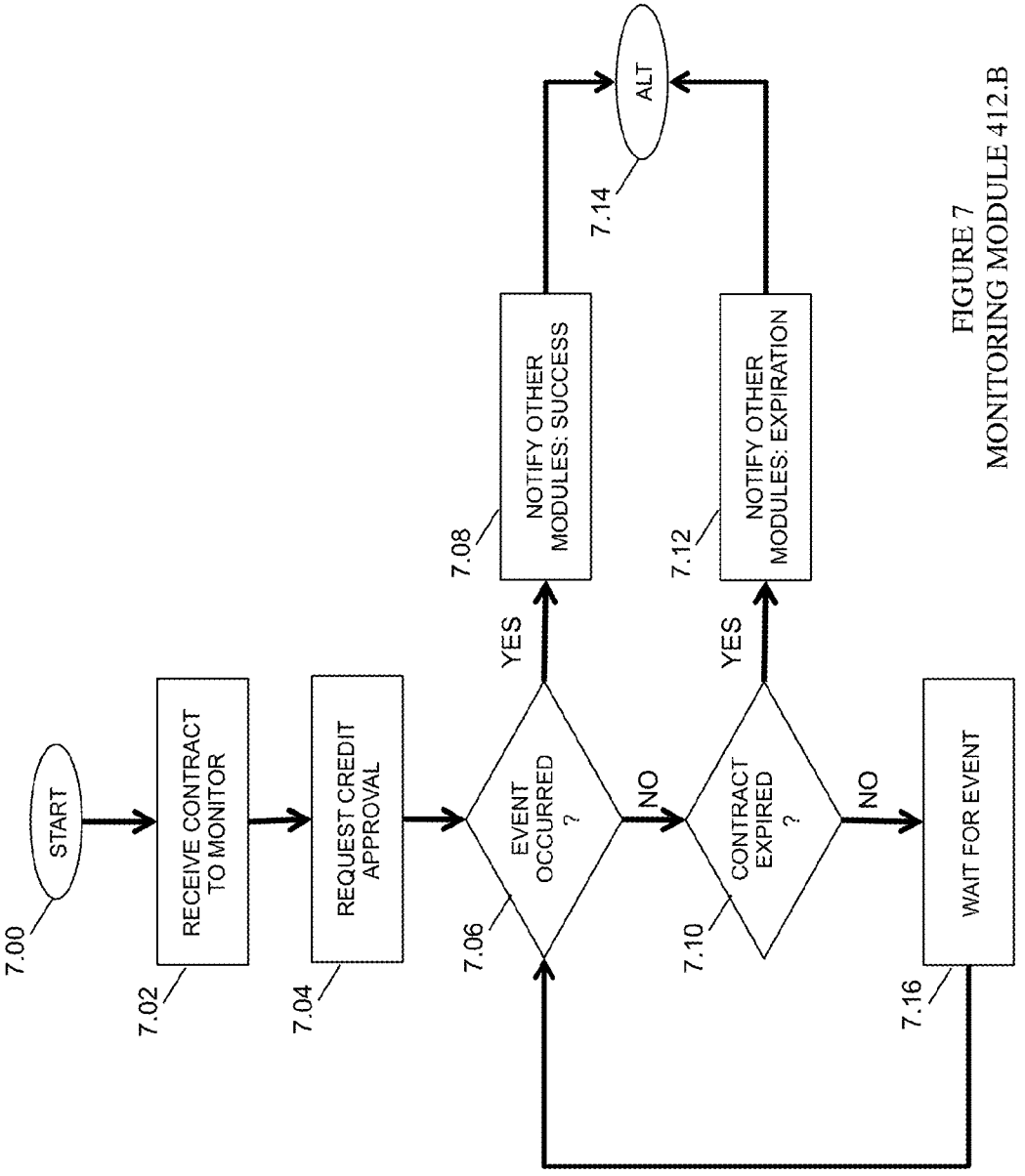


FIGURE 7
MONITORING MODULE 412.B

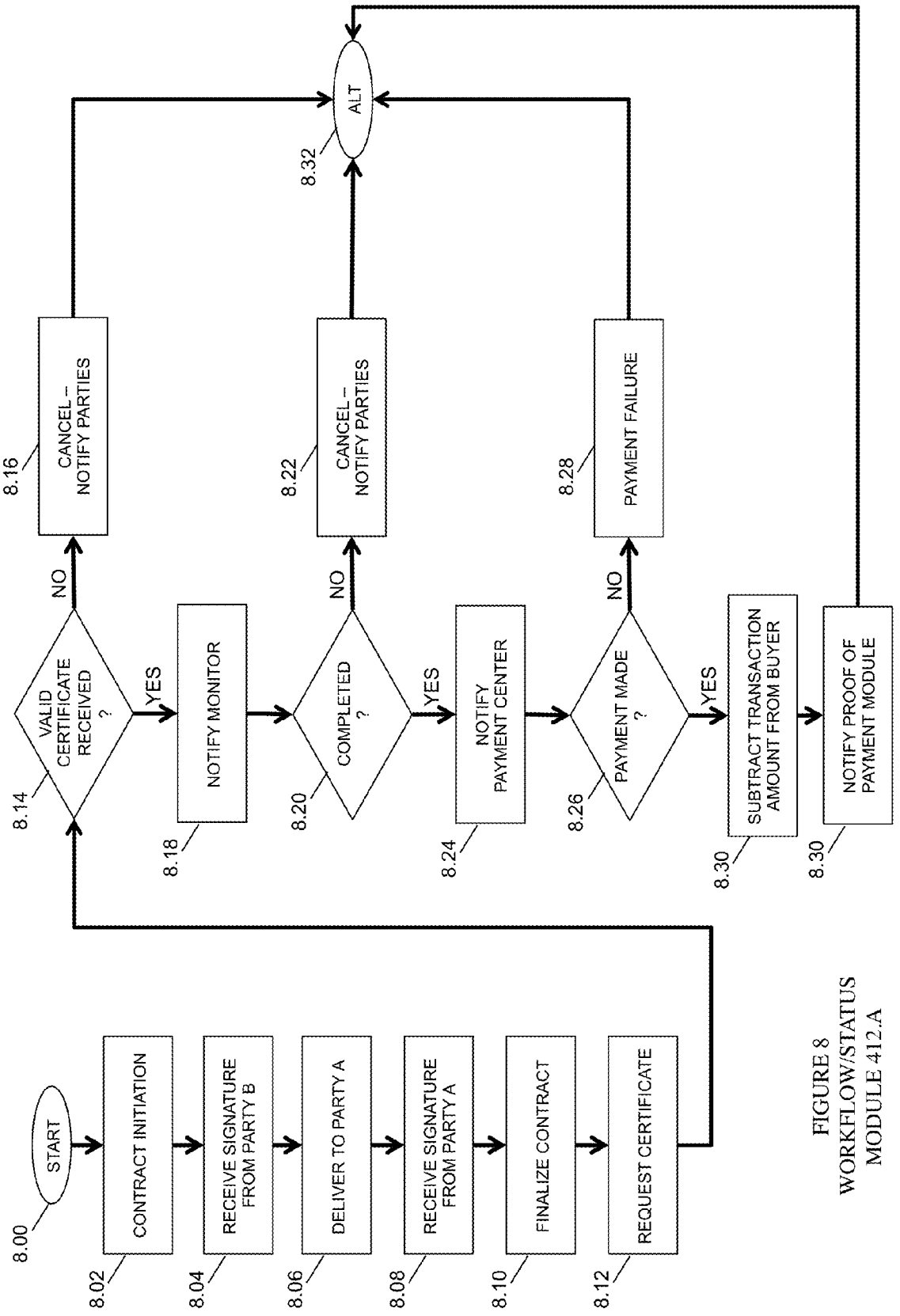


FIGURE 8
WORKFLOW/STATUS
MODULE 412.A

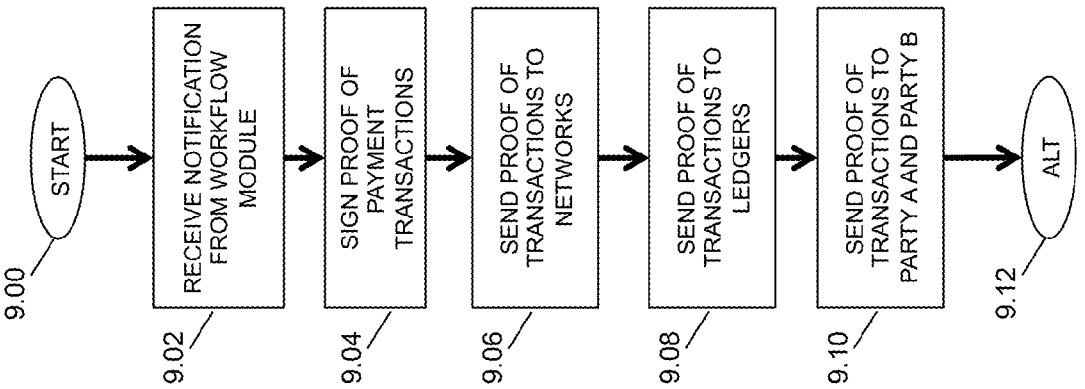


FIGURE 9
PROOF OF PAYMENT MODULE 412.C

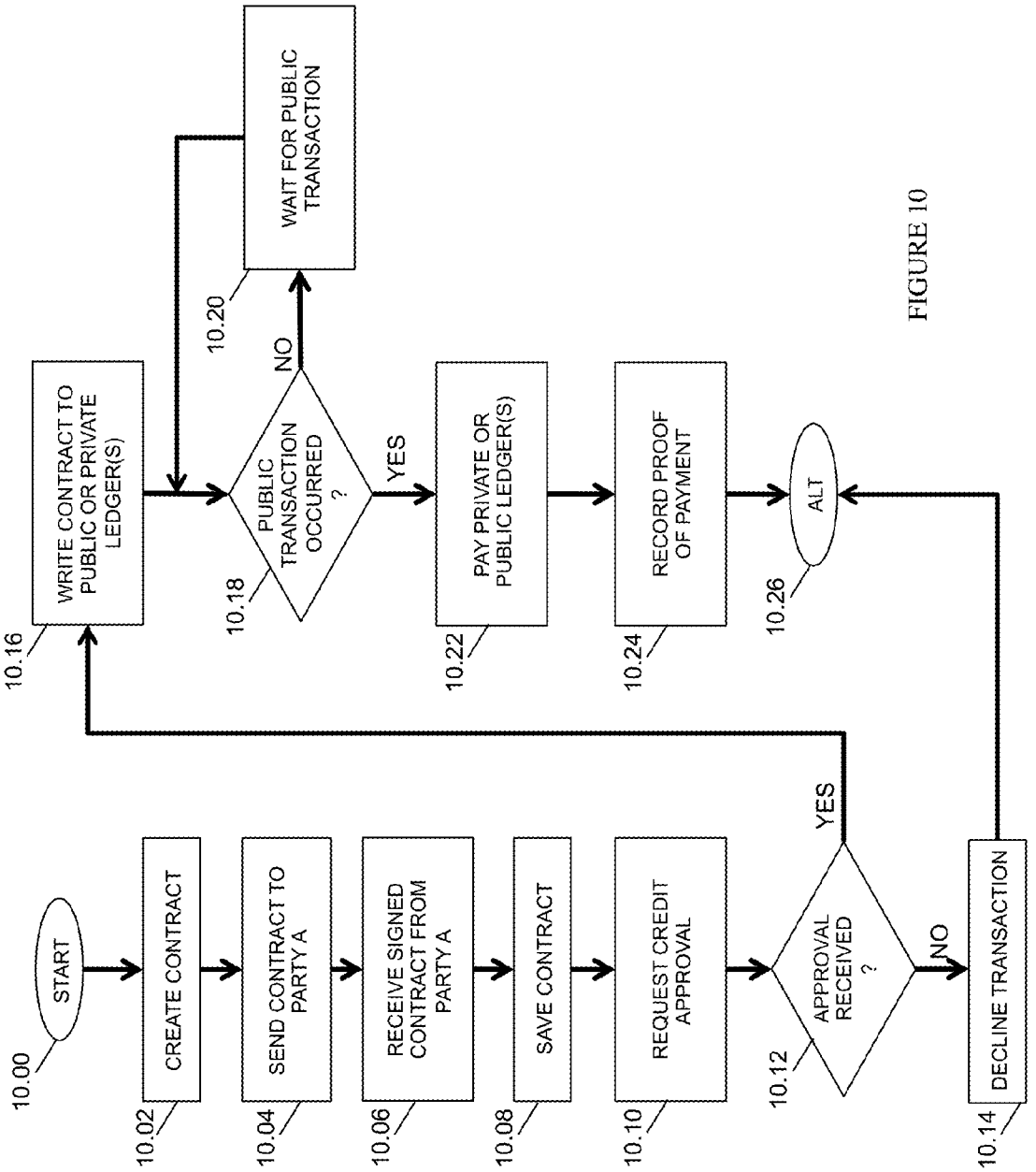

START
10.00
CREATE CONTRACT
10.02
SEND CONTRACT TO PARTY A
10.04
RECEIVE SIGNED CONTRACT FROM PARTY A
10.06
SAVE CONTRACT
10.08
REQUEST CREDIT APPROVAL
10.10
APPROVAL RECEIVED ?
10.12
YES
NO
DECLINE TRANSACTION
10.14
WRITE CONTRACT TO PUBLIC OR PRIVATE LEDGER(S)
10.16
PUBLIC TRANSACTION OCCURRED ?
10.18
NO
WAIT FOR PUBLIC TRANSACTION
10.20
YES
PAY PRIVATE OR PUBLIC LEDGER(S)
10.22
RECORD PROOF OF PAYMENT
10.24
ALT
10.26

FIGURE 10

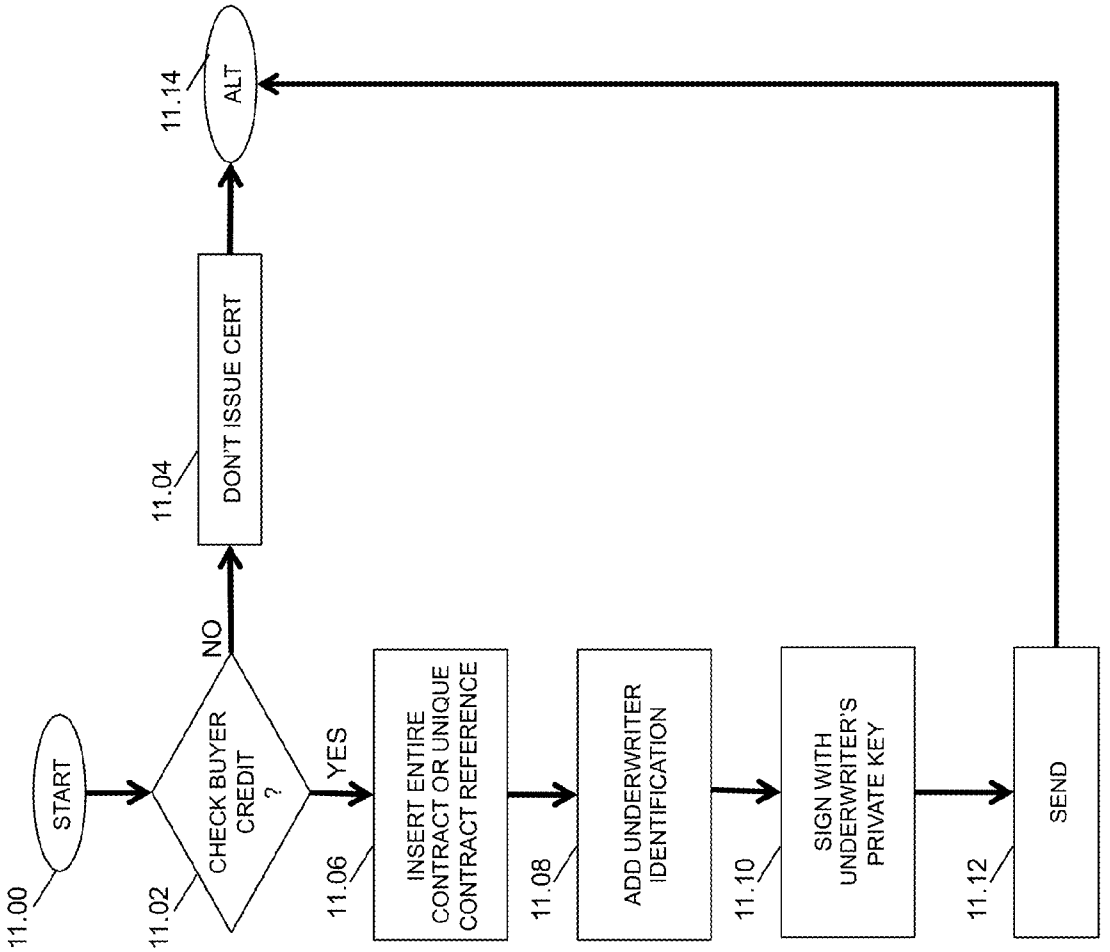


FIGURE 11A
CERTIFICATE CREATION

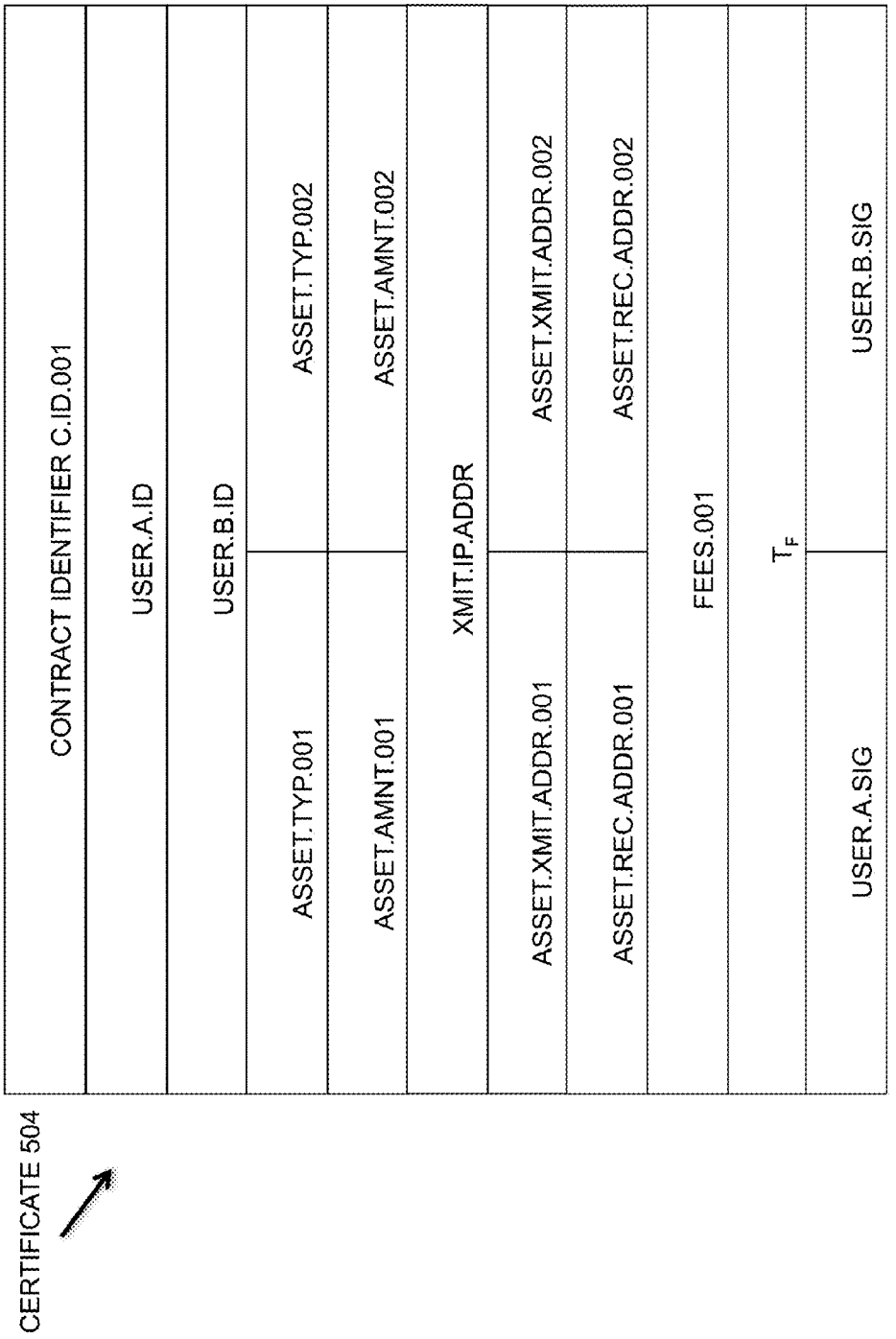

CERTIFICATE 504
CONTRACT IDENTIFIER C.ID.001
USER.A.ID
USER.B.ID
ASSET.TYP.001
ASSET.TYP.002
ASSET.AMNT.001
ASSET.AMNT.002
XMIT.IP.ADDR
ASSET.XMIT.ADDR.001
ASSET.XMIT.ADDR.002
ASSET.REC.ADDR.001
ASSET.REC.ADDR.002
FEES.001
T_F
USER.A.SIG
USER.B.SIG

FIGURE 11B

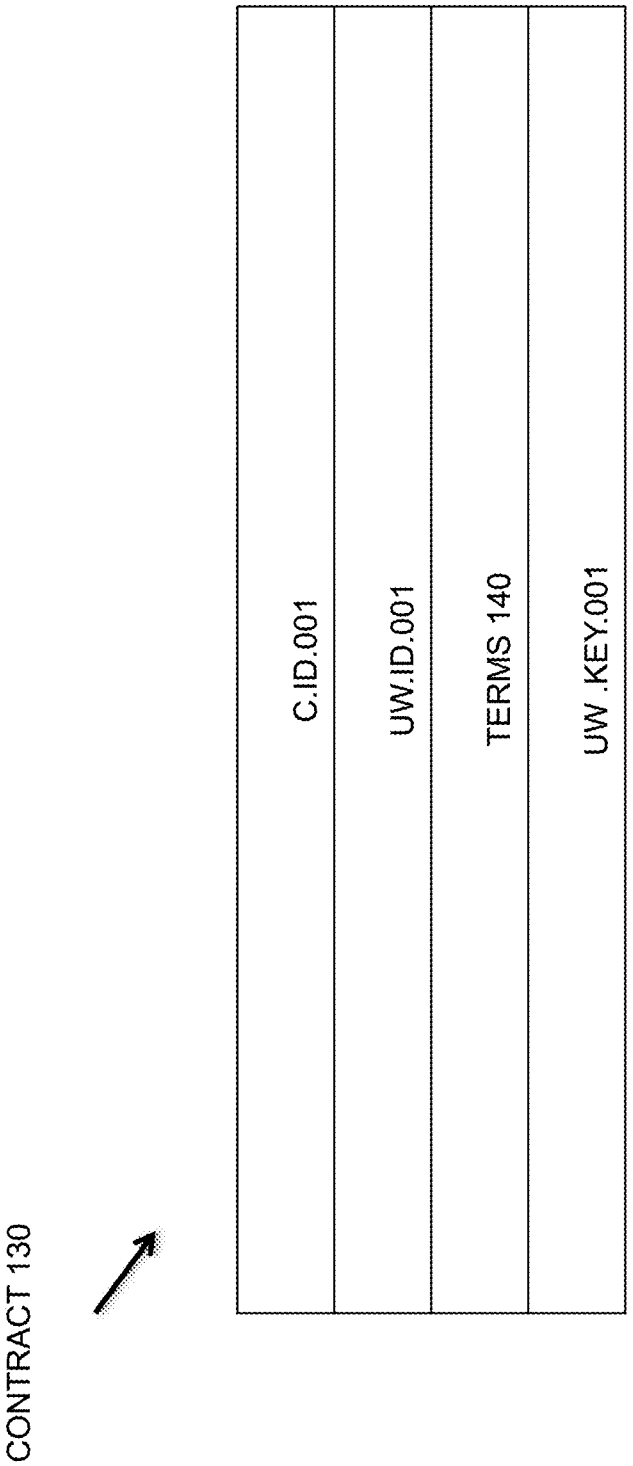


FIGURE 11C

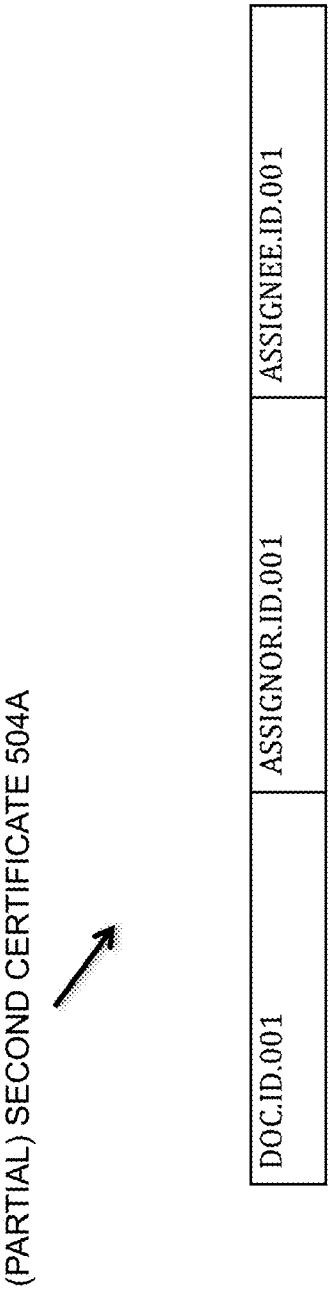

(PARTIAL) SECOND CERTIFICATE 504A
DOC.ID.001
ASSIGNOR.ID.001
ASSIGNEE.ID.001

FIGURE 11D

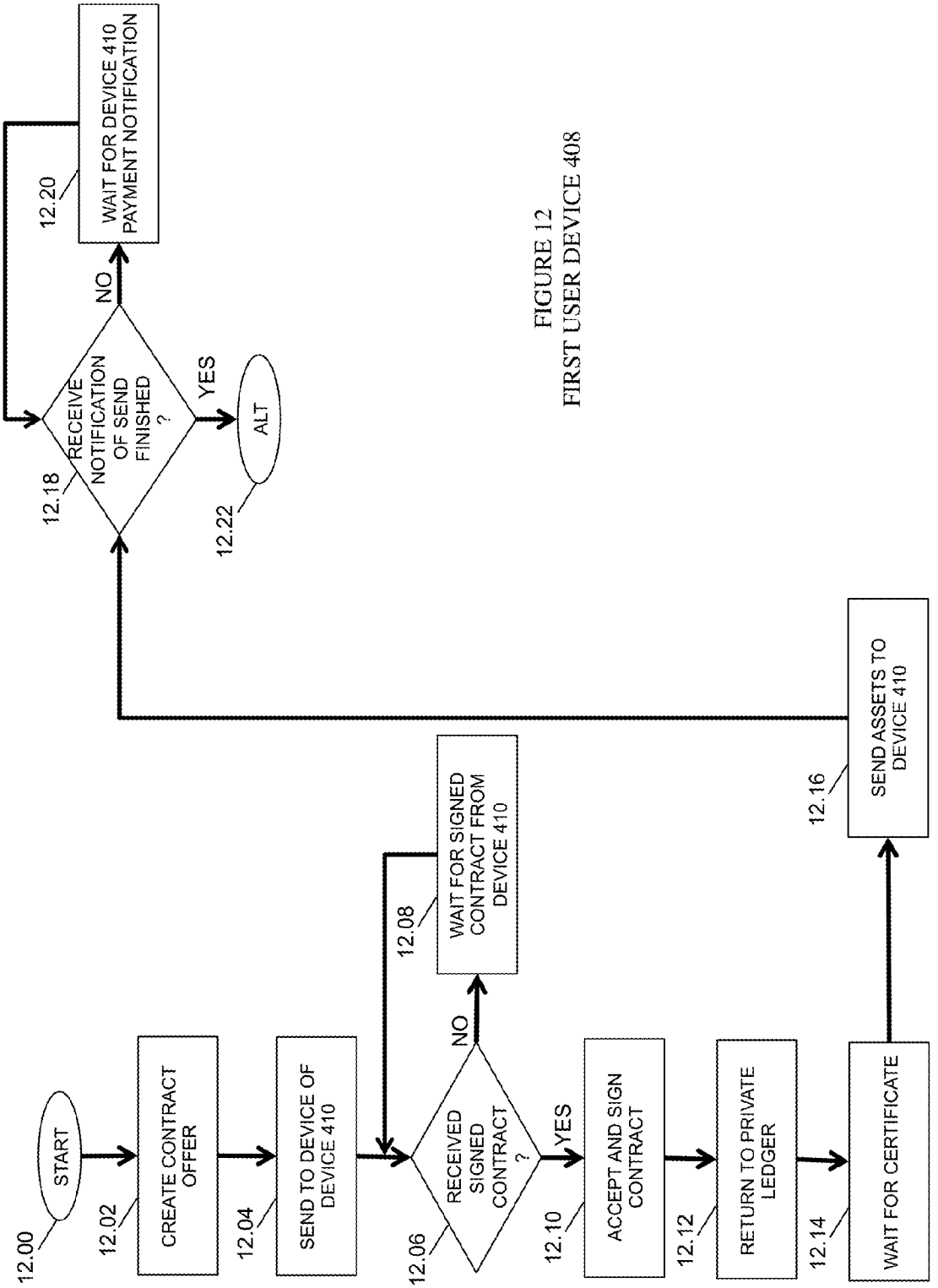


FIGURE 12
FIRST USER DEVICE 408

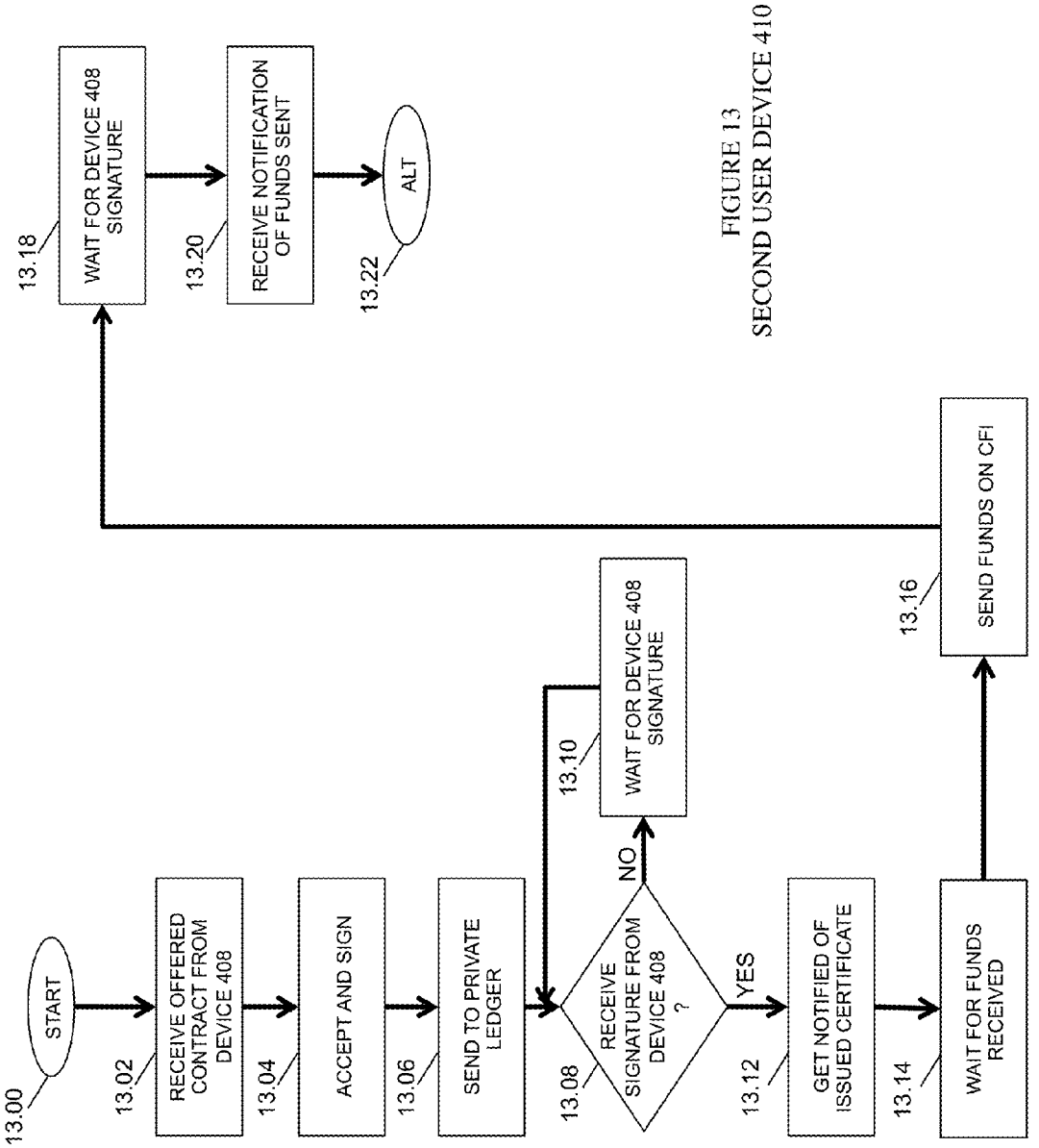


FIGURE 13
SECOND USER DEVICE 410

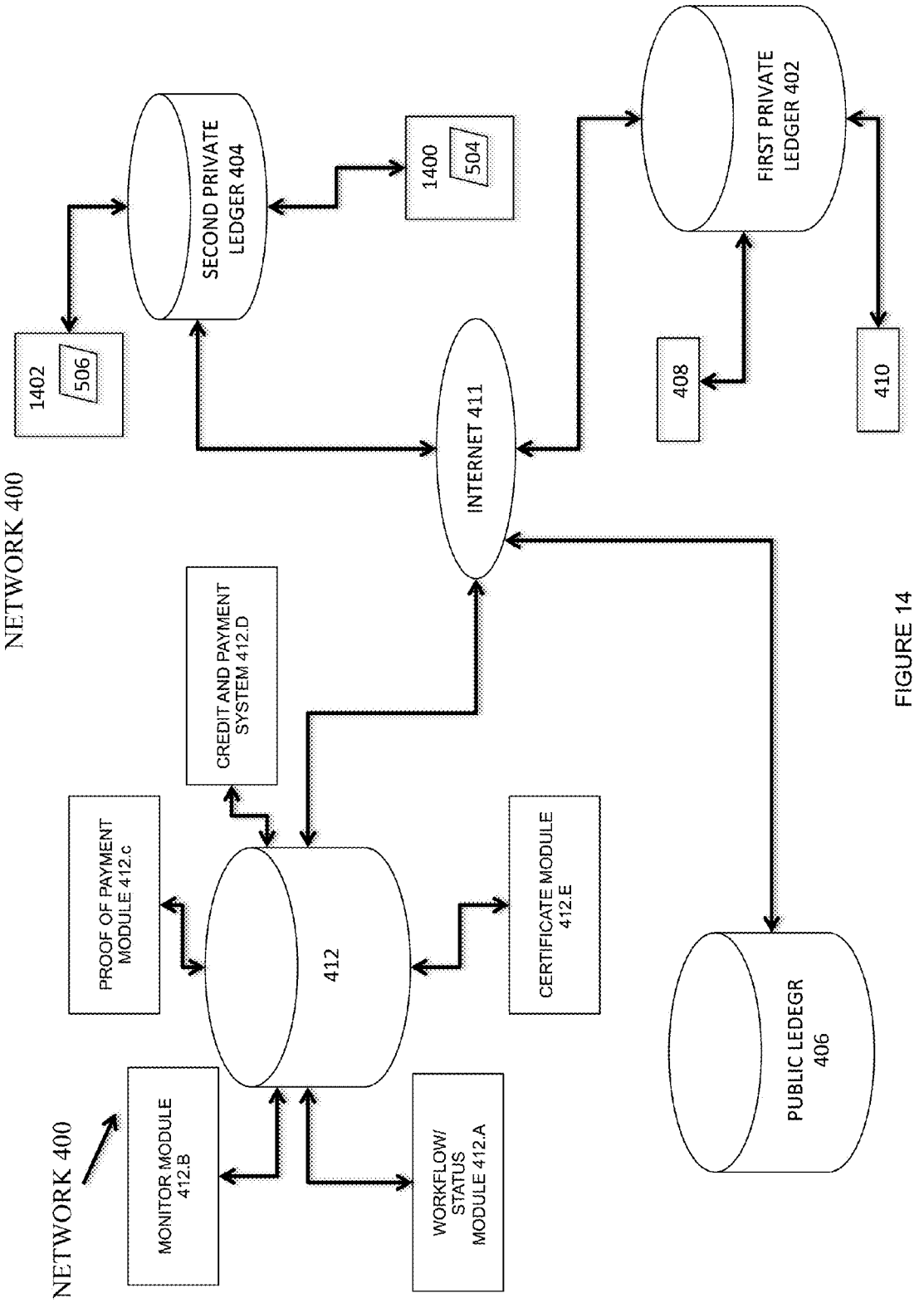

NETWORK 400
1402
506
SECOND PRIVATE LEDGER 404
1400
504
FIRST PRIVATE LEDGER 402
INTERNET 411
408
410
CREDIT AND PAYMENT SYSTEM 412.D
PROOF OF PAYMENT MODULE 412.c
412
CERTIFICATE MODULE 412.E
PUBLIC LEDEGR 406
NETWORK 400
MONITOR MODULE 412.B
WORKFLOW/ STATUS MODULE 412.A

FIGURE 14

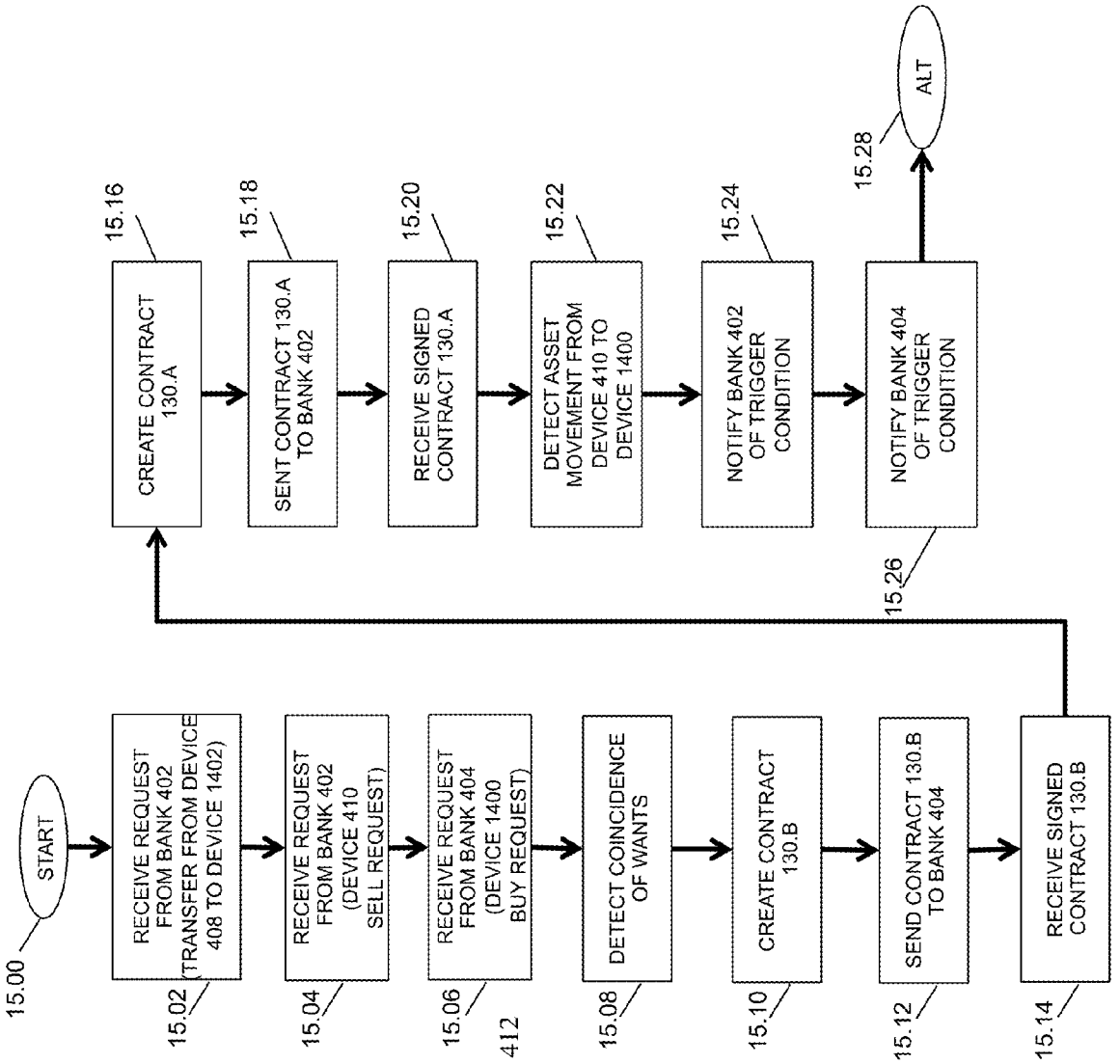


FIGURE 15
TRANSACTION SYSTEM 412
IN Z TRANSACTION

FIRST PRIVATE LEDGER SYSTEM 402 IN Z TRANSACTION

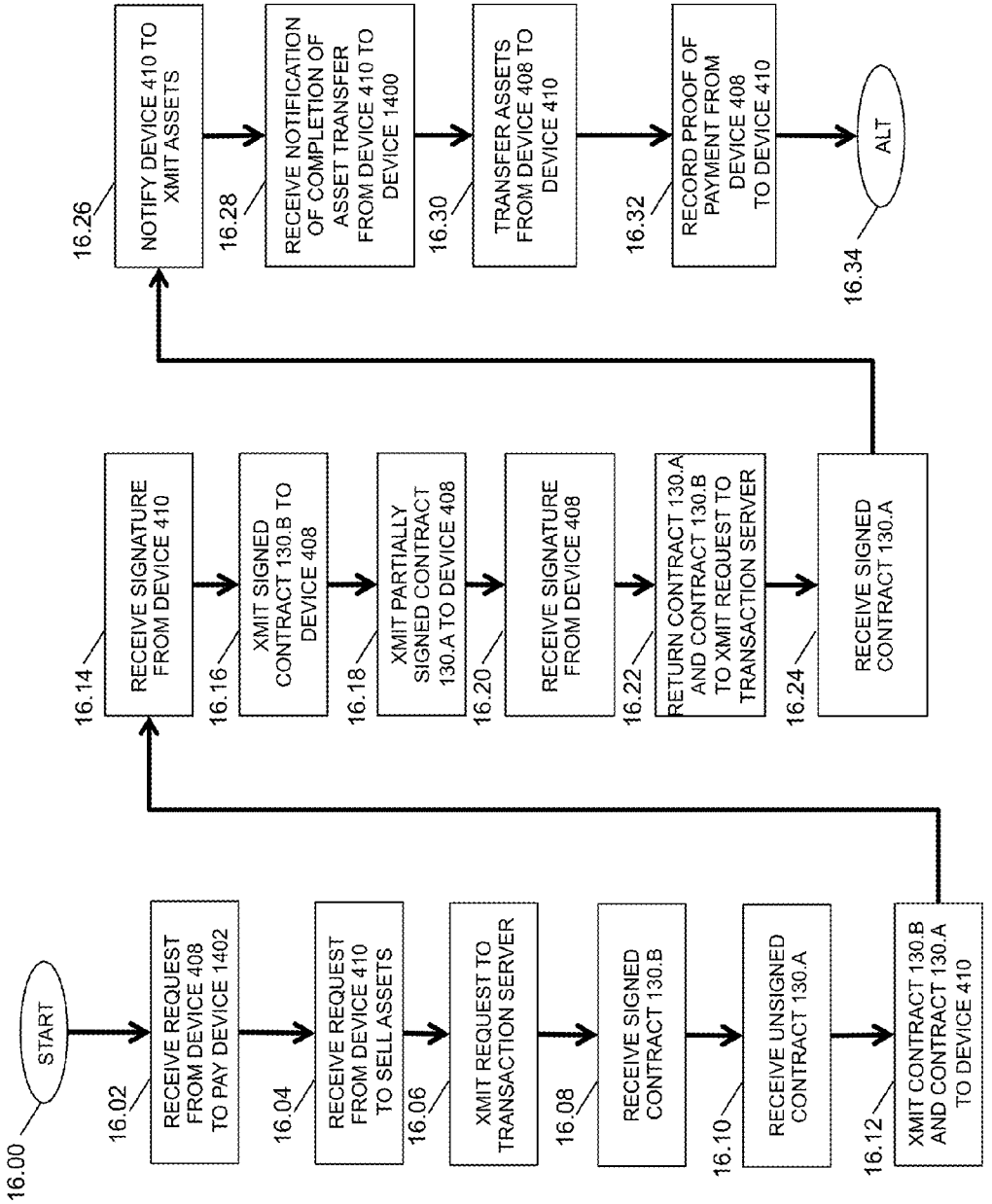


FIGURE 16

SECOND PRIVATE LEDGER SYSTEM 404
IN Z TRANSACTION

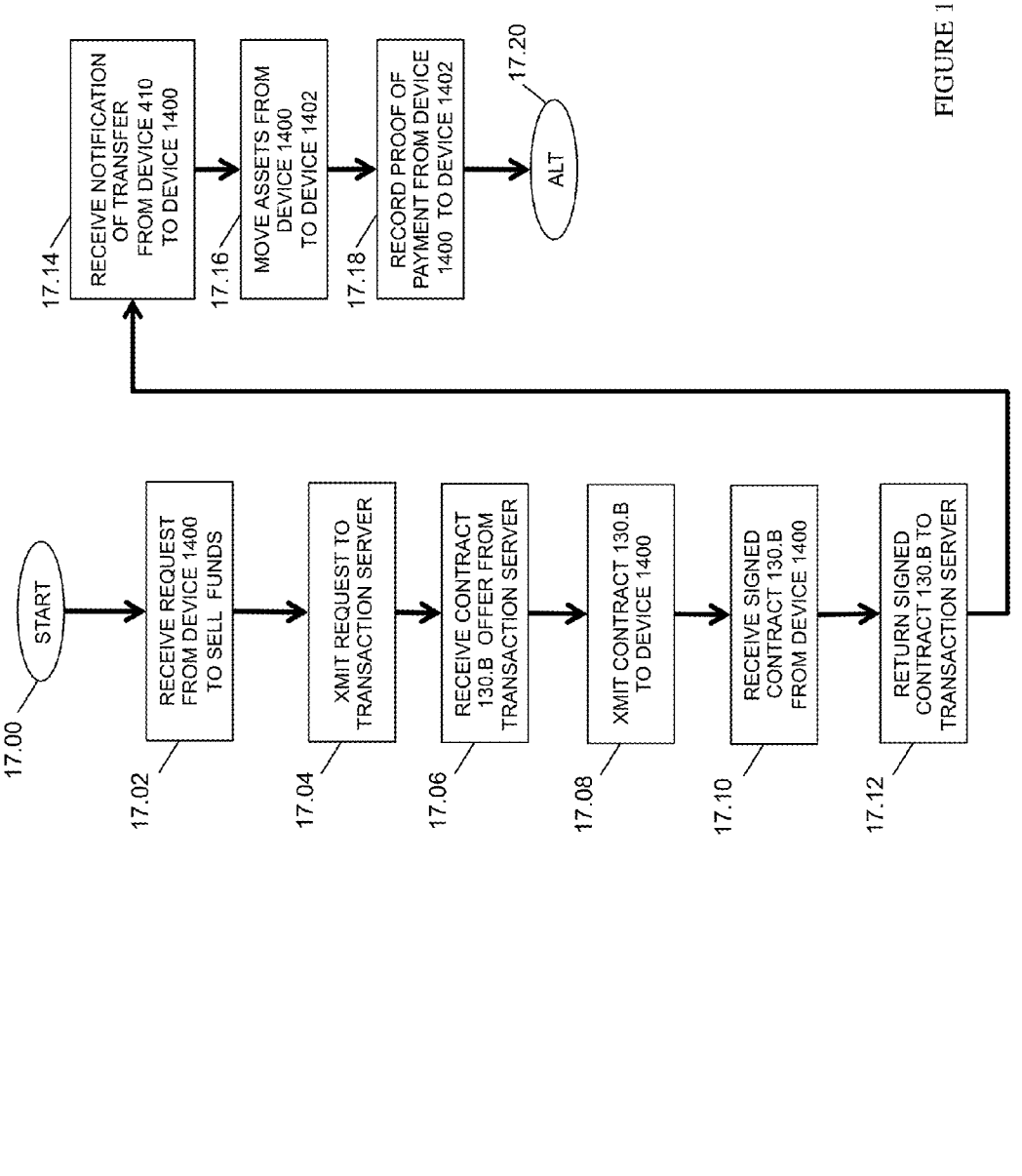


FIGURE 17

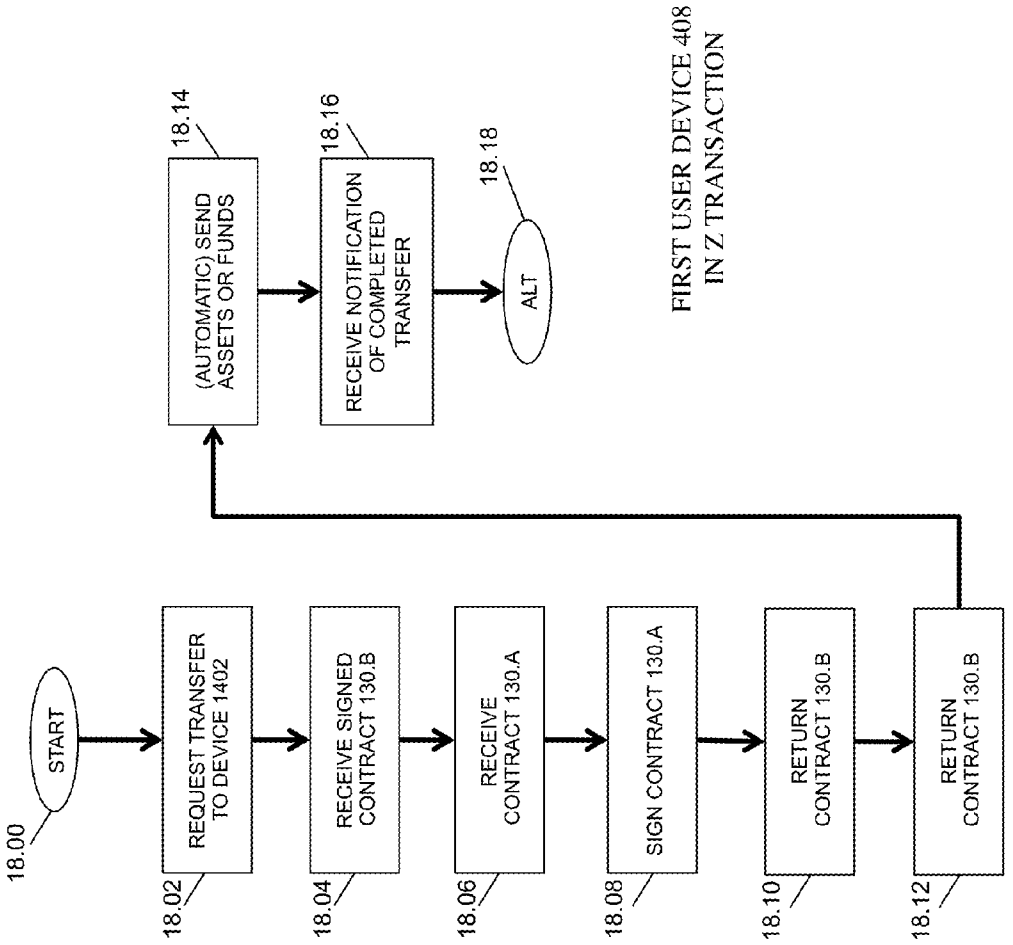

FIRST USER DEVICE 408
IN Z TRANSACTION
18.00
START
18.02
REQUEST TRANSFER TO DEVICE 1402
18.04
RECEIVE SIGNED CONTRACT 130.B
18.06
RECEIVE CONTRACT 130.A
18.08
SIGN CONTRACT 130.A
18.10
RETURN CONTRACT 130.B
18.12
RETURN CONTRACT 130.B
18.14
(AUTOMATIC) SEND ASSETS OR FUNDS
18.16
RECEIVE NOTIFICATION OF COMPLETED TRANSFER
18.18
ALT

FIGURE 18

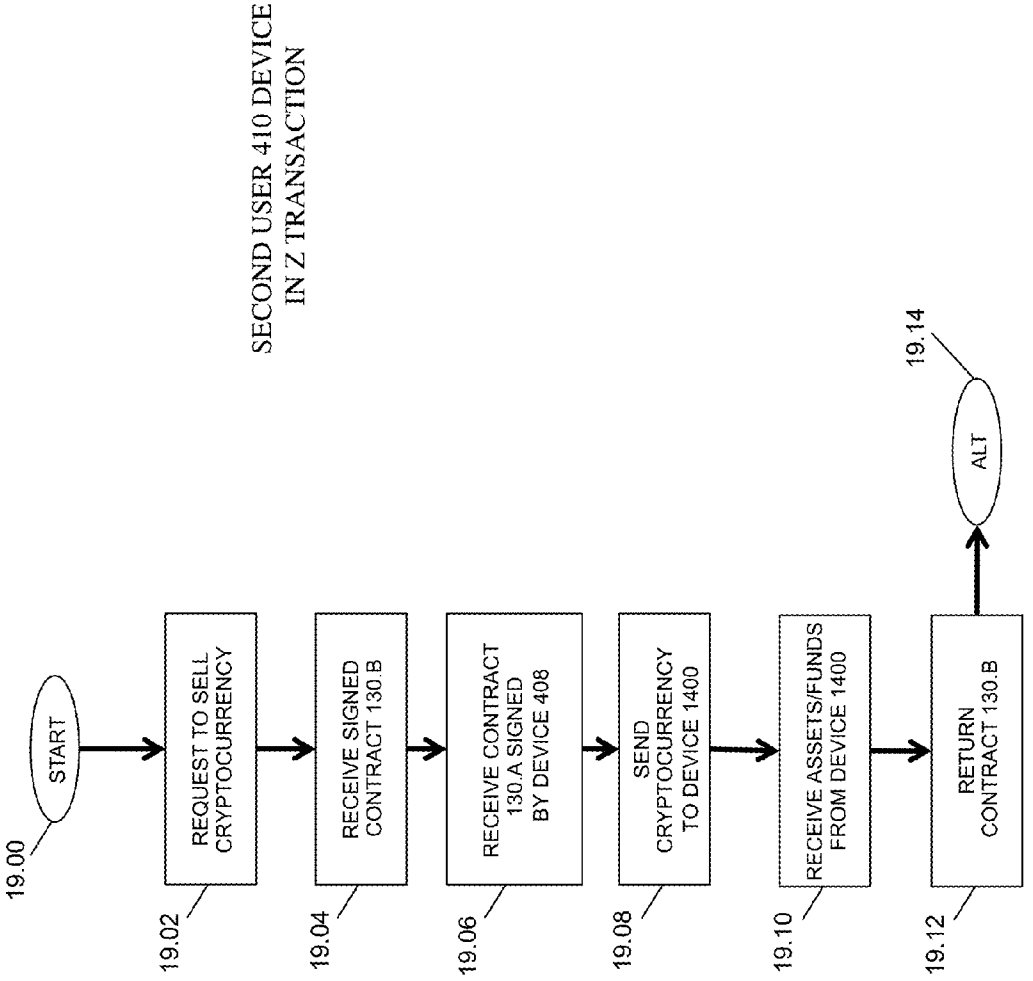

SECOND USER 410 DEVICE
IN Z TRANSACTION
START
19.00
REQUEST TO SELL CRYPTOCURRENCY
19.02
RECEIVE SIGNED CONTRACT 130.B
19.04
RECEIVE CONTRACT 130.A SIGNED BY DEVICE 408
19.06
SEND CRYPTOCURRENCY TO DEVICE 1400
19.08
RECEIVE ASSETS/FUNDS FROM DEVICE 1400
19.10
RETURN CONTRACT 130.B
19.12
ALT
19.14

FIGURE 19

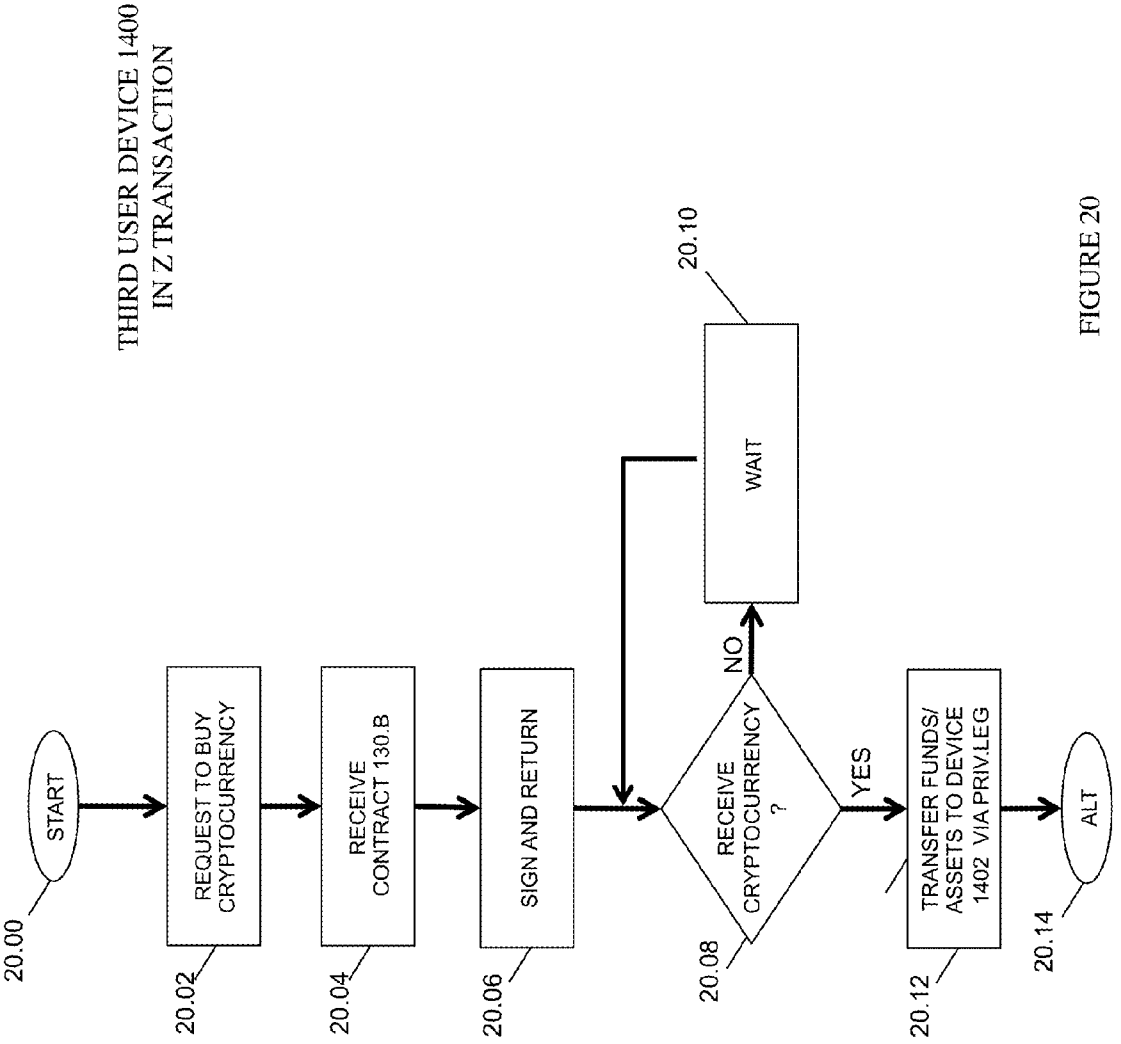

THIRD USER DEVICE 1400
IN Z TRANSACTION
START
20.00
REQUEST TO BUY CRYPTOCURRENCY
20.02
RECEIVE CONTRACT 130.B
20.04
SIGN AND RETURN
20.06
RECEIVE CRYPTOCURRENCY ?
20.08
NO
WAIT
20.10
YES
TRANSFER FUNDS/ ASSETS TO DEVICE 1402 VIA PRIV.LEG
20.12
ALT
20.14

FIGURE 20

FOURTH USER DEVICE 1402
IN Z TRANSACTION

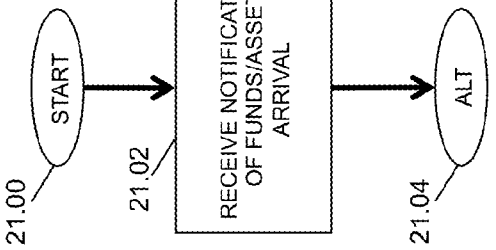


FIGURE 21

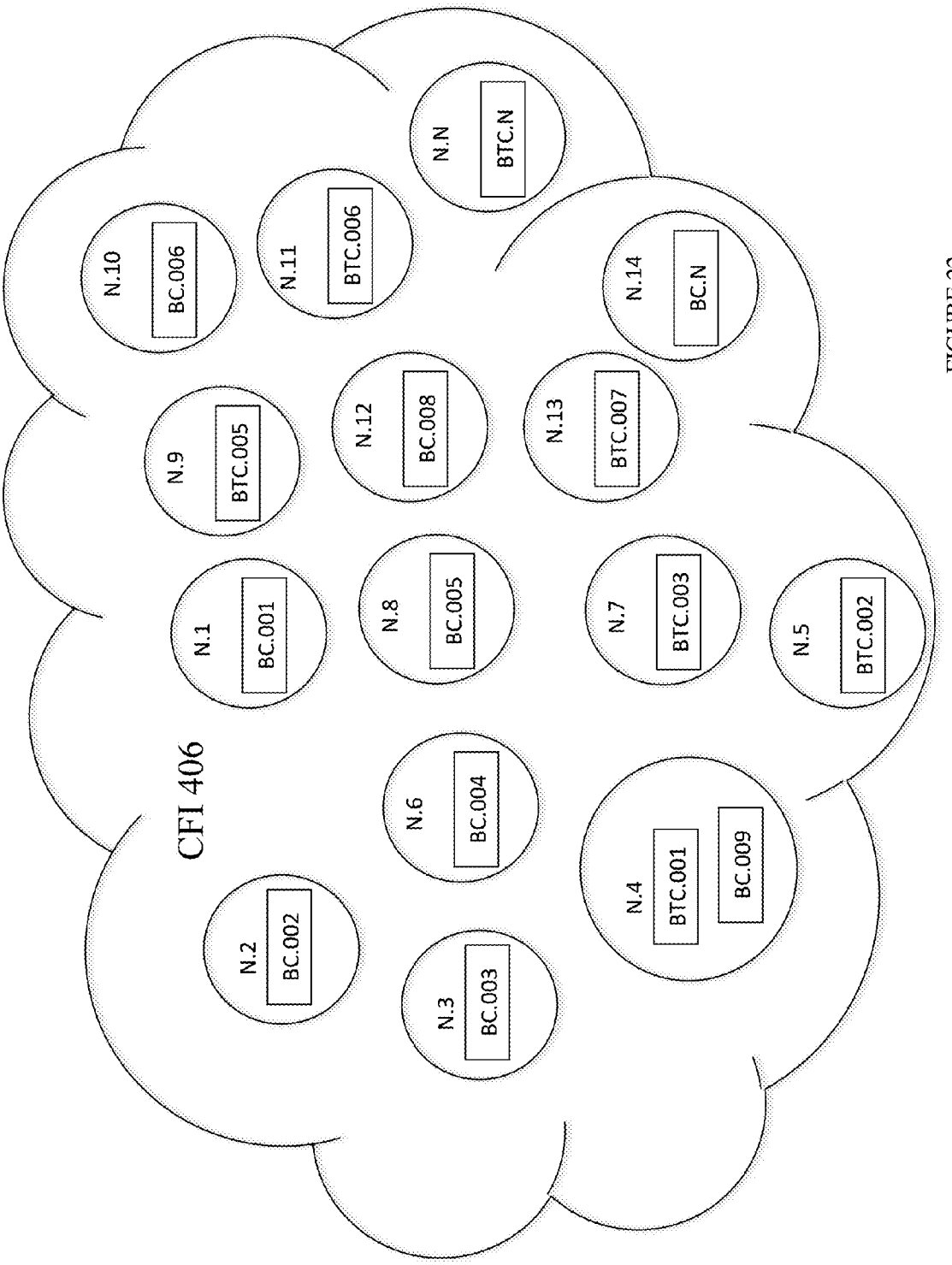

CFI 406
N.1
BC.001
N.2
BC.002
N.3
BC.003
N.4
BTC.001
BC.009
N.5
BTC.002
N.6
BC.004
N.7
BTC.003
N.8
BC.005
N.9
BTC.005
N.10
BC.006
N.11
BTC.006
N.12
BC.008
N.13
BTC.007
N.14
BC.N
N.N
BTC.N

FIGURE 22

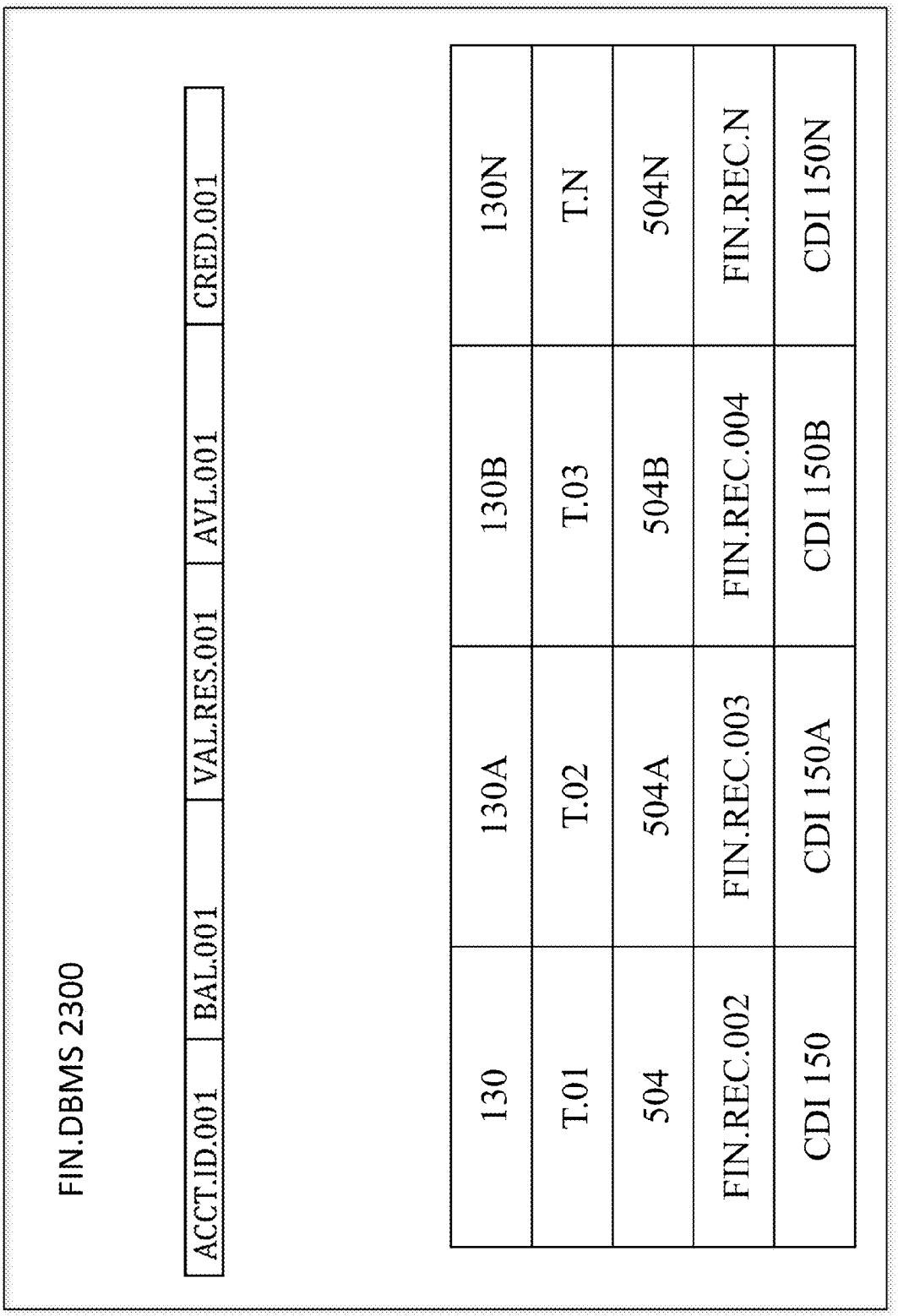

FIN.DBMS 2300
ACCT.ID.001
BAL.001
VAL.RES.001
AVL.001
CRED.001
130
130A
130B
130N
T.01
T.02
T.03
T.N
504
504A
504B
504N
FIN.REC.002
FIN.REC.003
FIN.REC.004
FIN.REC.N
CDI 150
CDI 150A
CDI 150B
CDI 150N

FIGURE 23

METHOD FOR CREATING, ISSUING AND REDEEMING PAYMENT ASSURED CONTRACTS BASED ON MATHEMEMATICALLY AND OBJECTIVELY VERIFIABLE CRITERIA

CONTINUATION-IN-PART APPLICATION

[0001] The present application is a Continuation-in-Part Application of U.S. Provisional Patent Application Ser. No. 61/926,804 filed by Inventor Yaron Edan Yago on Jan. 13, 2014 and titled METHODS FOR CREATING, ISSUING AND REDEEMING PAYMENT ASSURED CONTRACTS BASED ON MATHEMATICALLY AND OBJECTIVELY VERIFIABLE CRITERIA, wherein the present Application claims benefit of the priority date of the filing of said U.S. Provisional Patent Application Ser. No. 61/926,804 filed on Jan. 13, 2014. Furthermore, said U.S. Provisional Patent Application Ser. No. 61/926,804 filed on Jan. 13, 2014 is hereby incorporated within the present Application in its entirety for all purposes.

FIELD OF THE INVENTION

[0002] The present invention relates to the enabling transaction of one or more digital or hard copy private ledger systems in view of confirmable recordations of one or more of a plurality or multiplicity of nodes of a public ledger, wherein the public ledger is accessible by means of an electronics communications network

BACKGROUND OF THE INVENTION

[0003] The subject matter discussed in the background section should not be assumed to be prior art merely as a result of its mention in the background section. Similarly, a problem mentioned in the background section or associated with the subject matter of the background section should not be assumed to have been previously recognized in the prior art. The subject matter in the background section merely represents different approaches, which in and of themselves may also be inventions.

[0004] A major innovation in transaction and financial technology is the development of Crypto-Digital Financial Instruments (hereinafter referred to as "CDFI). These are currencies, assets, commodities, derivatives or debts, etc., which are secured and verifiable utilizing various encryption schemes, primarily public/private encryption. Many of these systems make use of recent software innovations, including decentralized, networked or public ledgers, open source protocols and automated contracts. Most famous of these asset protocols is "Bitcoin", however many others exist. These developments have, on the one hand, created transaction types that traditional payment methods are not well suited for and on the other hand, have created an opportunity for innovation in the payment and transaction industry.

[0005] More particularly, there is a need for a monetary system that solves for providing a method of settlement as between buyers and sellers of CDFI. Specifically, reducing counter-party risk involved in performing CDFI transactions where, for example, one transaction type may be irreversible and the other is reversible. Also, providing for the transaction to be (near) instant and secure while simultaneously having the settlement to be delayed, thereby solving the problem of transactions using payment methods which by way of example only, operates at different time scales.

[0006] Furthermore, a method is needed which allows for these new types of credit-based payments to be tied to mathematically verifiable events, wherein said events are a form of completion criteria. This allows for automated and scalable settlement protocols, which require no arbitrary judgments. Lastly, there is a need for a method that describes automatically issued digital contracts that may be automatically enforced, resulting in reduced fraud and counter-party risk when dealing with all different types of CDFI.

SUMMARY AND OBJECTS OF THE INVENTION

[0007] Towards these objects and other objects that are made obvious in light of the present disclosure, an invented method and invented system are provided comprising an invented software/computer/firmware module that creates and applies contract/credit certificates with verifiable and objective terms based on a trade request between two or more parties. The invented module of the of the method of the present invention (hereinafter, "the invented method") may be further adapted to monitor crypto-digital instrument networks, to verify performance of the expected terms and/or notify a credit issuing party as to the status, e.g., a complete/not complete status, of a contract, credit certificate, or other electronic document.

[0008] It is further that within the present disclosure the range of meaning of the term crypto-digital instrument (hereinafter, "CDI") may comprise one or more crypto-digital instruments (hereinafter, "CDFI" in the singular) or other crypto-digital electronic documents. It is further understood that the range of meaning of the term CDFI as meant within the present disclosure includes crypto-currency types such as BITCOIN.

[0009] The module, by use of encryption techniques or cryptography, ensures that the credit issued is only issued once while verifying credit-certificates. The disclosed business method and system allows for credit issuing bodies to provide payment guarantees that may be claimed only upon meeting objectively/mathematically verifiable terms on CDFI networks. Lastly, the invention provides a business method for using CDFI networks to issue digital credit certificates that cannot be double-spent.

[0010] In one optional aspect of the invented method, mismatches in transaction timing and/or reversibility of transactions of public ledgers and private ledgers are addressed.

[0011] In another optional aspect of the invented method, transactions of two or more private ledgers may be conditioned upon confirmation of one or more transaction as recorded on a public ledger.

[0012] In yet another optional aspect of the invented method, executions and documentation of assignment and/or change of ownership of one or more private ledgers maintaining a register of ownership of commodities, financial securities, physical goods, digital assets and/or other electronic documents, to include CDI's, may be conditioned upon confirmation of one or more transaction as recorded on a public ledger.

[0013] In a still other optional aspect of the invented method, the operation of a private ledger may be coordinated with the operation of a public ledger, e.g., a blockchain or the BITCOIN BLOCKCHAIN, such that the operator of the private ledger may legally reduce or avoid taxes and/or avoid or reduce other regulatory barriers, legally imposed burdens and/or liabilities.

[0014] This Summary is provided to introduce a selection of concepts in a simplified form that are further described below in the Detailed Description. This Summary is not intended to identify key features or essential features of the claimed subject matter, nor is it intended to be used to limit the scope of the claimed subject matter.

BRIEF DESCRIPTION OF THE FIGURES

[0015] These, and further features of the invention, may be better understood with reference to the accompanying specification and drawings depicting the preferred embodiment, in which:

[0016] FIG. **1** is a process diagram of an overview of an aspect of the invented method;

[0017] FIG. **2** is a process diagram of an overview of an additional aspect of the invented method;

[0018] FIG. **3** is a flowchart of an exemplary implementation of the invented method;

[0019] FIG. **4** is a network diagram of an electronic communications network, comprising a private ledger, a first user, a second user, a public ledger, and a transaction system comprising modules, bi-directionally connected by means of the Internet;

[0020] FIG. **5** is a process chart of a preferred implementation of the invented method;

[0021] FIG. **6** is a flowchart of an aspect of the invented method whereby a certificate module receives certificate information and generates a certificate;

[0022] FIG. **7** is a flowchart of a further aspect of the invented method whereby a monitoring module monitors the status of a contract;

[0023] FIG. **8** is a flowchart of a yet further aspect of the invented method whereby a workflow/status module directs and facilitates contract execution;

[0024] FIG. **9** is a flowchart of an additional aspect of the invented method whereby a proof of payment module facilitates movement of information concerning a designated transaction;

[0025] FIG. **10** is a flowchart of a yet additional aspect of the invented method whereby a dash procedure is performed;

[0026] FIG. **11**A is a flowchart of an aspect of the invented method whereby a first certificate is generated;

[0027] FIG. **11**B is a block diagram of an exemplary first contract;

[0028] FIG. **11**C is a block diagram of an exemplary first certificate that is applicable to a fiat currency transaction;

[0029] FIG. **11**D is a block diagram of an exemplary second certificate that is applicable to a title transaction, wherein the referenced title may be instrument that documents an assignment of a financial security, a non-financial instrument, a CDI, title to a physical object and/or an ownership right over a measure of a commodity, a crypto-digital instrument, a fiat currency instrument, a digital asset, or real property;

[0030] FIG. **12** is a flowchart of an aspect of the invented method whereby a first user device executes a sale;

[0031] FIG. **13** is a flowchart of an aspect of the invented method whereby a second user device executes a transaction;

[0032] FIG. **14** is a network diagram of an electronic communications network comprising a transaction system comprising modules, a second private ledger with which a third and fourth user device may communicate, a first private ledger with which a first and second user device may communicate, and a public ledger;

[0033] FIG. **15** is a flowchart of an aspect of the invented method whereby and Epiphyte server takes part in a transaction

[0034] FIG. **16** is a flowchart of an additional aspect of the invented method whereby the first private ledger takes part in a transaction

[0035] FIG. **17** is a flowchart of a further aspect of the invented method whereby the second private ledger takes part in a transaction

[0036] FIG. **18** is a flowchart of an aspect of the invented method whereby a first user device takes part in a transaction;

[0037] FIG. **19** is a flowchart of a further aspect of the invented method whereby a second user device takes part in a transaction;

[0038] FIG. **20** is a flowchart of a yet further aspect of the invented method whereby a third user device takes part in a transaction;

[0039] FIG. **21** is a flowchart of an aspect of the invented method whereby a fourth user device takes part in a transaction;

[0040] FIG. **22** is a block diagram of the CDI network of FIG. **4** comprising a plurality of nodes, each node preferably have an instance of either a BITCOIN BLOCHAIN and/or another suitable blockchain known in the art; and

[0041] FIG. **23** is a block diagram of a plurality of financial account records maintained in a financial database management system of the first private ledger and/or the second private ledger of FIG. **4**.

DETAILED DESCRIPTION

[0042] As a new method of business, a credit issuer could issue a credit certificate that is redeemable upon verified completion of certain terms. Typically, these terms require a seller to prove that they have performed the duties under an underlying contract (e.g., sale of goods contract). More specifically, the invention takes advantage of actions performed by using a CDI network (e.g., Bitcoin, Mastercoin, Ripple, etc.) By issuing such credit certificates, credit issuers could facilitate trade of CDIs in return for traditional assets and payments.

[0043] Currently, such trade is marked by inefficiency and risk wherein a buyer needs to either send a payment in advance of receiving CDI' S, including CDI's, or else convince a buyer to send CDIs before receiving payment, creating high counter party risk. CDI transfers are typically irreversible, whereas traditional payment forms are typically reversible, introducing additional risk for CDI sellers. Simple CDI transactions are instant but may take a great deal of time to verify with certainty adding additional time-related trading frictions.

[0044] Counter-parties to a trade often wish to maintain confidentiality in their trading activity. Maintaining privacy typically requires additional middle men and adds additional counter-party risk all of which is solved and/or eliminated in accordance with the present invention. Additionally, maintaining confidentiality on CDI networks typically requires use of various transaction-masking procedures which may add additional time to for each transaction. It is well known that time is a major barrier in these transactions as traders wish to agree on a price in volatile markets requiring rapid response on behalf of the trader. However, the time effects involved in waiting for the various payment methods may cause deals to be cancelled if market conditions move against one of the participants.

[0045] Referring now generally to the Figures, and particularly to FIG. **1** and FIG. **2**, the invention disclosed herein is shown to utilize a method that separates the time of agreement and initial performance of a given trade, from the time of settlement, thereby allowing trading parties to overcome the above problems. At the same time, this method of trading allows parties to transact with the guarantee of settlement upon completion of all elements for that trade.

[0046] Referring now generally to the Figures, and particularly to FIG. **3**, in one preferred embodiment, the service would operate as follows: buyers and sellers desire to perform a trade. The terms of their agreed trade define the criteria for a contract (which could be an automatically created digital contract). The contract is communicated to a credit issuer. The credit issuer draws upon securities deposited by the buyer, or in some other way provides the buyer with credit, against which a credit certificate would be issued. This credit certificate would be redeemable by the seller upon verified complete performance of the contracts terms.

[0047] A payment issuer will be able to objectively (and automatically), confirm performance by the seller, by either directly monitoring the CDI network or receiving a data feed from a trusted third-party. (All elements of the sale and completion of all obligations will be objectively verifiable, obviating the need for arbitrary assessment of the seller's performance or receipt of goods by the buyer.) The payment issuer honors the credit certificate providing payment to the holder. The trade is settled.

[0048] Credit certificates may be issued for any fractional amount of the total credit the credit issuers are willing to provide to the buyer. As credits are redeemed, the credit issuer subtracts the amount from the credit allowed to the buyer. Therefore, the buyer's credit changes dynamically, in real time, to changes in the credit amount allowed by the credit-issuer.

[0049] In another preferred embodiment, the system may take advantage of UCP **600** (the ICC Uniform Customs and Practice for Documentary Credits) or similar type of credit systems, treating the credit issued as a documentary credit. Thus the objective criteria, upon which payment is conditional, may be monitored. Proof of completion, as provided by this method, would be considered documentation sufficient for determining completion of contractual terms in accordance with UCP **600**. In this way, no centralized authority is required for the documentation. Only objectively verifiable events on the public CDI ledgers are required. In such a way, the system could become a new form of letter-of-credit, issuable by financial bodies

[0050] In yet still another preferred embodiment, the method of the present invention is designed to allow the credit issuing body to also be the provider of the payment upon completion of the contract terms. Alternatively, payment may be provided by a different party, who would settle with the credit issuer or the buyer at a later date. Finally, the payment may be provided directly from the buyer, with the credit certificate acting as a guarantee for the seller. Lastly, software systems may be developed to support the described service. The first module of this software would create (digital) trade contracts that would include the verifiable terms upon which payment would be contingent after verification.

[0051] It is envisioned that this or a similar software module would create the credit-certificate based on the agreed upon trade or the trade contract. Such contracts and certificates could be developed to be automatically machine-readable, with standardized templates. A second software module would monitor CDI networks, e.g., a network having a plurality or multiplicity of nodes maintaining the BITCOIN BLOCKCHAIN, for the purpose of determining if contingent terms had been met. Examples of data that this module might monitor include required transaction amount, publicly time-stamped deadlines and cryptographically verifiable identities as well as more sophisticated data that will become available as such CDI systems evolve over time. Also, a third software module may be provided that would indicate to participants in the trade as to the status of when or how much of the terms in a contract are being fulfilled. This may be done as either an active "push" notification, or based on user-initiated query from the relevant party.

[0052] In still yet another preferred embodiment, a fourth software module may be provided that would allow for transmitting proof of payment for a given certificate. Proof of payment could be provided to any or all of the interested parties or to any third party. Proof of payment could be delivered over internal systems or on the public ledgers of CDI systems as either a message or a contract. Allowing for such proof of payment to be sent or broadcast would prevent credit certificate holders from "double spending" and would allow all parties to audit the transaction during performance of the terms. To allow for secure transmission, each payment party could cryptographically sign the transaction with a publicly knowable signature. Additionally, the payment could be withheld until counter-signed by the payment recipient. These signatures could be added to the credit certificate itself, in digital form, as well as to the digital contract.

[0053] It should be noted that both the contract and the certificate may be issued in three separate ways as follows: first, the contacts and certificates may be issued on a centralized, proprietary system, which the involved parties would have access to as users. An example of this would be an exchange, dark pool or clearinghouse, that the parties utilized to find trading partners on.

[0054] Secondly, the contracts and certificates may be issued on the public ledgers of the CDI systems, either as messages or as transactions, either digitally or in hard copy. To maintain the confidentiality using this method of issuance, these messages or transactions could be encrypted such that only authorized parties (the parties involved) would be able to decrypt and read the data. Third and lastly, a hybrid of these two systems may be utilized, where a pointer to the contract or certificate could be issued on the public ledgers. This could be publicly readable. However, the pointer message would direct users to a centrally held proprietary system, where only authorized users would have access to contract/certificate details.

[0055] Referring now generally to the Figures and particularly to FIG. **1**, FIG. **1** is a process chart describing an outline of an aspect of the invented method involving interactions between a seller **100**, a buyer **110**, and a transaction software module **120**. In the first interaction, an exemplary first digital contract **130** is offered by the seller **100** to the buyer **110**, by means of the transaction software module **120**. In the next interaction, the buyer **110** accepts the exemplary first contract **130** (hereinafter, "first contract **130**") from the seller **100**. In the third interaction, one or more terms **140** of the exemplary first contract **130** are confirmed by means of bidirectional interaction between the seller **100** and the buyer **110**. In the final interaction, a first CDI **150** is issued, according to the terms of the exemplary first contract **130**.

[0056] Referring now generally to the Figures, and particularly to FIG. **2**, FIG. **2** is a process chart describing an additional outline of an aspect of the invented method involving interactions between a seller **100**, a buyer **110**, and a transaction software module **120**. In the first interaction, the seller **100** communicates a payment request **200** to the buyer **110** by means of the transaction software module **120**. In the second interaction, a verification of completed terms **140** is communicated to the seller **100** from the buyer **110**. In the third interaction, an exemplary payment **202** according to the completed terms **140** is confirmed between the seller **100** and the buyer **110**. Finally, a first exemplary transaction **204** is completed.

[0057] Referring now generally to the Figures, and particularly to FIG. **3**, FIG. **3** is a flowchart of an exemplary implementation of an aspect of the invented method whereby a desired transaction is executed between a buyer **110** and a seller **100**. In step **3**.**02** the buyer **110** and the seller **100** communicate between themselves that an exemplary first trade is desired. In step **3**.**04** the buyer **110** and the seller **100** define in the digitized contract **130** the desired terms **140** of the proposed trade. In step **3**.**06** the terms **140** of the digital contract **130** are communicated to a credit issuer **300**. In step **3**.**08** it is determined whether the buyer **110** has a credit account **302** with the designated credit issuer **300** to which the terms **140** of the digital contract **130** were communicated. When the determination in step **3**.**08** is negative, the credit issuer **300** draws upon the account of the buyer **110** for the amount of the proposed trade. Alternatively, when the determination in step **3**.**08** is positive, the credit issuer **300** provides a credit certificate **304** for the amount of the proposed trade. Upon execution of either step **3**.**10** or step **3**.**12**, it is determined whether the completion of the contract **130** is verified. When the determination in step **3**.**14** is negative, no payment is issued in step **3**.**16**. In the alternative, when the determination in step **3**.**14** is positive, the credit issuer **300** pays the contract **130** in step **3**.**18**. In step **3**.**20** the credit issuer **300** chooses the source of the funds for payment of the contract **130**. The process is subsequently terminated in step **3**.**22**.

[0058] Referring now generally to the Figures, and particularly to FIG. **4**, FIG. **4** is a network diagram of an electronic communications network **400** (hereinafter, "the network" **400**), comprising a first private ledger **402**, a second private ledger **404**, a public ledger system **406**, an exemplary first user device **408**, an exemplary second user device **410**, the Internet **411**, a transaction system **412** comprising a plurality of modules **412**.A-**412**.E, and a title registry server **414**. The first private ledger **402** may be any type of private ledger known in the art, including, but not limited to a financial institution such as a bank, a credit union or a securities brokerage, a domain name registrar, and/or a holder of a portfolio of mortgages or other financial securities. The public ledger **406** is preferably a CFI network, and may be or comprise a plurality or multiplicity of nodes N.**1**-N.N. that each preferably maintain and dynamically update copies of a same public ledger, e.g., an accessible Blockchain BC.**01**-BC.N or the BITCOIN BLOCKCHAIN BTC.**01**-BTC.N.

[0059] The plurality of modules **412**.A-**412**.E further comprises a workflow status module **412**.A, a monitor module **412**.B, a proof of payment module **412**.C, a credit and payment system **412**.D, and a certificate module **412**.E.

[0060] A financial database management system FIN.DBMS of the (a.) first private ledger **402**, (b.**0** the second private ledger **404**, (c.) the public ledger **406**, (d.) the transaction system **412**, and/or (e.) a title registry server **414**, or a database management system of (a.) the first user device **408** (b.) the second user device **410**,a and/or (c.) one or more nodes N.**1**-N.N of the public ledger **406** may be or comprise an object oriented database management system ("OODBMS") and/or a relational database management system ("RDBMS"). More particularly, first private ledger **402**, the second private ledger **404**, the public ledger **406**, the first user device **408**, the second user device **410**, the public ledger **406**, and/or the transaction system **412**, and/or a title registry database TR.DBMS of the title registry server **414** may comprise one or more prior art database management systems including, but not limited to, an ORACLE DATABASE™ database management system marketed by Oracle Corporation, of Redwood City, Calif.; a Database 2™, also known as DB2™, relational database management system as marketed by IBM Corporation of Armonk, N.Y.; a Microsoft SQL Server™ relational database management system as marketed by Microsoft Corporation of Redmond, Wash.; MySQL™ as marketed by Oracle Corporation of Redwood City, Calif.; and a MONGODB™ as marketed by MongoDB, Inc. of New York City, USA; and the POSTGRESQL™ open source object-relational database management system.

[0061] It is understood that the first private ledger **402**, the second private ledger **404**, the public ledger **406**, the first user device **408**, the second user device **410**, one or more nodes N.**1**-N.N of the public ledger **406**, and/or the transaction system **412**, and/or the title registry server **414** may be a bundled computer hardware and software product such as (a.) a network-communications enabled THINKPAD WORKSTATION™ notebook computer marketed by Lenovo, Inc. of Morrisville, N.C.; (b.) a NIVEUS **5200** computer workstation marketed by Penguin Computing of Fremont, Calif. and running a LINUX™ operating system or a UNIX™ operating system; (c.) a network-communications enabled personal computer configured for running WINDOWS SERVER™ or WINDOWS 8™ operating system marketed by Microsoft Corporation of Redmond, Wash.; (d.) a MACBOOK PRO™ personal computer as marketed by Apple, Inc. of Cupertino, Calif.; or (e.) other suitable computational system or electronic communications device known in the art capable of providing or enabling a web service known in the art.

[0062] It is further understood that the first user device **408** and/or the second user device **410** may be or comprise a bundled portable software and computer hardware product such as an IPHONE 6™ cellular smartphone as marketed by Apple, Inc. of Cupertino, Calif. or other suitable portable electronic communications device known in the art.

[0063] It is understood that the operating system by which the first private ledger **402**, the second private ledger **404**, the public ledger **406**, the first user device **408**, the second user device **410**, one or more nodes N.**1**-N.N of the public ledger **406**, and/or the transaction system **412**, and/or a title registry server **414** operate may be selected from freely available, open source and/or commercially available operating system software, to include but not limited to a LINUX ™ or UNIX™ or derivative operating system, such as the DEBIAN™ operating system software as provided by Software in the Public Interest, Inc. of Indianapolis, Ind.; WINDOWS VISTA™ WINDOWS 7™, or WINDOWS 8™ operating system as marketed by Microsoft Corporation of Redmond, Wash.; or the MAC OS X™ operating system or IPHONE 6 OS™ as marketed by Apple, Inc. of Cupertino, Calif..

[0064] Referring now generally to the Figures, and particularly to FIG. **5**, FIG. **5** is a process chart describing a preferred implementation of the invented method. The process chart describes a process by which one or more (in this instance, two) individuals may exchange a cryptocurrency for fiat currency, which process may be facilitated by a private ledger **402**, in this instance, a bank. In the first step, a first user Alice of the first user device **408** applies a first applications software **500** (hereinafter "first user app" **500**) and a second user Bob of the second user device **410** applies a second applications software **502** (hereinafter "second user app" **502**) to mutually agree upon and enable execution of a transfer of assets for funds.

[0065] In step **2**, the second user device **410** transmits a signed digital contract **130** to the workflow/status module **412**.A by means of an electronic communications device, as outlined in the description accompanying FIG. **4**. The signature of the second user device **410** is preferably enacted by means of a system of public and private cytological keys; the second user device **410** may "sign" the contract through use of a mathematical "hash" of the second user device **410**'s private key. The transmission of the digital contract by the second user device **410** to the workflow/status module **412**.A initiates an automatic process within the workflow/status module **412**.A wherein the proposed digital contract **130**, containing the signature of the second user device **410** is transmitted to the electronic device of first user device **408**, which process is contained within step **3**. In step **4**, the first user device **408** signs the digital contract **130**, using the same means as the second user device **410**, and returns the digital contract to the workflow/status module **412**.A. The workflow/status module **412**.A subsequently transmits the digital contract **130** to a certificate module **412**.E, and requests that an exemplary first digital certificate **504** be transmitted back to the workflow/status module **412**.A. The specifications of the exemplary first digital certificate **504** may found in FIG. **11**B and accompanying text. It is understood that the workflow/status module **412**.A is bidirectionally communicatively coupled within DBMS that maintains electronic documents such as digital certificates **504** & **504**.A-**504**.N, contracts **130** & **130**.A-**130**.N and user accounts in a storage module **506**.

[0066] The workflow/status module **412**.A subsequently, in step **6**, requests payment approval from the credit and payment system **412**.D. The credit and payment systems **412**.D accepts or rejects the payment approval in step **7**, and returns a certificate (in the case of approval), or an error message (in the case of rejection) in step **8**. In this step, the credit and payment system **412**.D places a hold on the designated monetary transaction amount in the account of the second user device **410**. In an optional step **8***a*, the workflow/status module **412**.A writes the digital certificate **504** to the first private ledger **402**. In a further optional step **8***b*, the digital certificate **504** is transferred to a CDI public ledger **406**. In step **8***c* the workflow/status module **412**.A notifies the monitor module **412**.B to monitor the public ledger **406** for the transactions specified in the digital certificate **504** and/or the digital contract **130**. When the monitor module **412**.B returns a transaction specified in the digital certificate **504** and/or the digital contract **130**, the monitor module **412**.B transmits the results to the workflow/status module **412**.A, and the workflow/status module **412**.A notifies the first user device **408** in step **8***d*, and the second user device **410** in step **8***e*. Upon notification, the first user device **408** transfers assets such as cryptocurrency to the second user device **410** in a public ledger **406** transaction in step **9**. The monitor module **412**.B detects the transfer of assets from the first user DEVICE **408** to the second user device **410** in step **10***a*, and the monitor module **412**.B notifies the workflow/status module **412**.A of the completion of the public ledger **406** transaction in step **10***b*. In step **11** the workflow/status module WRFK.**001** notifies the credit and payment system **412**.D that the public ledger **406** asset transaction has been completed, and that the first private ledger **402** transaction may now occur. In step **12**, the credit and payment system **412**.D allows the funds put on hold from the account of the second user device **410** to transfer to either the public ledger **406** account or the first private ledger **402** of the first user device **408**.

[0067] In step **14** the credit and payment system **412**.D notifies the workflow/status module **412**.A module that the payment has been completed. In step **15** the workflow/status module **412**.A notifies the proof of payment module **412.0** to record the transaction. In step **16**, the proof of payment module **412.0** records the completion of the transaction onto the public ledger **406**.

[0068] Referring now generally to the Figures, and particularly to FIG. **6**, FIG. **6** is a flowchart of an aspect of the invented method whereby a certificate module **412**.E receives certificate information and generates a first digital certificate **504**. In step **6.02** the certificate module **412**.E receives information relevant to the exemplary first contract **130**, and the first certificate **504** from the workflow/status module **412**.A. The information received may include, but is not limited to, information about the first user device **408** and the second user device **410** and USER.B entering into the proposed first contract **130**, information concerning the quantity of assets entering into the transaction, and/or information concerning the beginning and destination addresses of the assets engaged in the transaction. In step **6.04** the certificate module **412**.E determines whether, based upon the received information, a certificate **504** will be approved. When the determination in step **6.04** is negative, the certificate module **412**.E proceeds to step **6.06**, wherein the certificate module **412**.E returns an error message to the workflow module **412**.A. The certificate module **412**.E subsequently proceeds to step **6.02**, wherein new information related to the contract **130** and/or the certificate **504** is received. In the alternative, when the determination in step **6.04** is positive, the certificate module **412**.E advances to step **6.08**, wherein the certificate module **412**.E generates the first certificate **504**. Subsequent to generation of the first certificate **504**, the certificate module **412**.E advances to step **6.10**, wherein the certificate module **412**.E writes the first certificate **504** to the public ledger **406**, and to the first private ledger **402**. In step **6.12** the certificate module **412**.E returns the certificate **504** to the workflow/status module **412**.A. In step **6.14** the certificate module **412**.E executes alternate processes.

[0069] Referring now generally to the Figures, and particularly to FIG. **7**, FIG. **7** is a flowchart of a further aspect of the invented method whereby the monitoring module **412**.B tracks the status of a contract **130**. In step **7.02** the monitoring module **412**.B receives a contract **130** and specific tracking instructions from the workflow/status module **412**.A. The purpose of the monitoring module is to survey the public ledger **406** for the purpose of determining whether a word, key or other type of digital identifier becomes present which may match an event meeting the specifications laid out in the received contract **130** has occurred. Events for which the monitoring module **412**.B may monitor the public ledger **406**

include, but are not limited to, specific asset transfer types, specific asset transfer amounts, and/or weather events. In step **7.04** the monitoring module **412**.B requests proof of credit approval from the workflow/status module **412**.A. In step **7.06** the monitoring module **412**.B determines whether a word, key, or other identifier is present matching the event for which the monitoring module **412**.B was surveying the public ledger **406** is present. When the determination in step **7.06** is positive, the monitoring module **412**.B advances to step **7.08**, wherein the monitoring module **412**.B transmits a notification to the other modules **412**.A, **412**.C, $12.D & **412**.E comprising the transaction system **412** of the occurrence of the event. Subsequent to step **7.08**, the monitoring module **412**.B proceeds to step **7.14**, wherein alternate processes are executed.

[0070] Alternatively, when the determination in step **7.06** is negative, the monitoring module **412**.B determines in step **7.10** whether the designated contract **130** has expired. When the determination in step **7.10** is positive, the monitoring module **412**.B transmits a notification to the other modules comprising the transaction system **412** of the expiration of the contract **130**. The monitoring module **412**.B subsequently executes alternate processes in step **7.14**. In the alternative, when the monitoring module **412**.B determines in step **7.10** that the designated contract **130** has not expired, the monitoring module **412**.B proceeds to step **7.16**, wherein the monitoring module **412**.B waits for the designated event to occur. The monitoring module **412**.B subsequently returns to step **7.06**, repeats the loop of steps **7.06** through **7.16** as necessary.

[0071] Referring now generally to the Figures and particularly to FIG. **8**, FIG. **8** is a flowchart of a yet further aspect of the invented method whereby a workflow/status module **412**.A directs and facilitates execution of a contract **130** and a transaction. In step **8.02** the workflow/status module **412**. Agenerates an outline for the exemplary first contact **130**. In step **8.04** the workflow/status module **412**.A receives the first contract **130** with an electronic, cryptographic signature from the electronic device second user device **410**. In step **8.06** the workflow/status module **412**.A delivers the first contract **130** to the first user device **408**. The workflow/status module **412**.A in receives in step **8.08** the first contract **130** with an electronic, cryptographic signature from the electronic device of the first user device **408**. In step **8.10** the workflow/status module **412**.A finalizes the first contract **130**. In step **8.12** the workflow/status module **412**.A requests a certificate **504** from the certificate module **412**.E.

[0072] In step **8.14** the workflow/status module **412**.A determines whether a valid certificate **504** has been received from the certificate module **412**.E. When the determination in step **8.14** is negative, a no valid certificate **504** has been received, the **412**.A cancels the process, and notifies the first user device **408** and the second user device **410** of the cancellation. The workflow/status module **412**.A subsequently advances to step **8.34**, wherein the workflow/status module **412**.A executes alternate processes. In the alternative, when the determination in step **8.14** is positive, the workflow/status module **412**.A advances to step **8.18** wherein the workflow/status module **412**.A notifies the monitor module **412**.B of the valid certificate **504**. In step **8.20** the workflow/status module **412**.A determines whether the monitor module **412**.D has returned an instance of a designated event, which instance determines the completion of a certificate **504**. When the determination in step **8.20** is negative, the workflow/status module **412**.A cancels the process, and notifies the first user device **408** and the second user device **410** of the cancellation. The workflow/status module **412**.A subsequently advances to step **8.34**, wherein the process is terminated. Alternatively, when the determination in step **8.20** is positive, the workflow/status module **412**.A determines in step **8.26** whether assets have been transferred from the second user device **410** to the first user device **408**. When the determination in step **8.26** is negative, the workflow/status module **412**.A notifies the first user device **408** and the second user device **410** of the payment failure, and advances to step **8.34**, wherein the workflow/status module **412**.A executes alternate processes. When the determination in step **8.26** is positive, the workflow/status module **412**.A subtracts the agreed-upon amount from the account of the first user device **408** in either the first private ledger **402** or in the public ledger **406**. In step **8.32** the workflow/status module **412**.A notifies the proof of payment module **412.0** of the completed transaction, and advances to step **8.34**, wherein the workflow/status module **412**.A executes alternate processes.

[0073] Referring now generally to the Figures and particularly to FIG. **9**, FIG. **9** is a flowchart of an aspect of the invented method whereby the proof of payment module **412.0** participates in a transaction. In step **9.02** the proof of payment module **412.0** receives a notification of a successfully executed contract from the workflow/status module **412**.A. In step **9.04** the proof of payment module **412.0** affixes an electronic signature to the proof of payment transactions. In step **9.06** the proof of payment module **412.0** transmits the proof of transactions to the other modules on within the transaction system **412**. In step **9.08** the proof of payment module **412.0** transmits the proof of transactions to the first private ledger **402** and to the public ledger **406**. In step **9.10** the proof of payment module **412.0** transmits the proof of transactions to the first user DEVICE **408** and the second user device **410**. In step **9.12** the proof of payment module **412.0** executes alternate processes.

[0074] Referring now generally to the Figures, and particularly to FIG. **10**, FIG. **10** is a flowchart of a yet additional aspect of the invented method whereby a procedure is performed within a funds transfer, or "bank dash" **1000**, within the first private ledger **402**. In one preferred embodiment of the invented method the first private ledger **402** is maintained by a financial institution, such as a bank. In step **10.02** a first contract **130** is created. In step **10.04** the first contract **130** is transmitted to the electronic device of the first user device **408**. In step **10.06** of the first private ledger **402** may receive the first contract **130** with the signature of the first user device **408** affixed thereto. In step **10.08** the first private ledger **402** saves the contract to local storage. In step **10.10** the first private ledger **402** requests credit approval from the credit and payment system **412**.D for the desired transaction. In step **10.12** the first private ledger **402** determines whether approval has been received from the credit and payment system **412**.D. When the determination in step **10.12** is negative, the transaction is declined, and t the first private ledger **402** advances to step **10.26**, wherein the bank dash **1000** executes alternate processes.

[0075] Alternatively, when the determination in step **10.12** is positive, the first private ledger **402** writes the first contract **130** to itself, the second private ledger **404** and/or to the public ledger **406** in step **10.16**. In step **10.18** the first private ledger **402** determines whether a public transaction, or an event related to a public transaction has appeared in the public ledger **406**. When the determination in step **10.18** is negative,

the first private ledger **402** proceeds to step **10**.**20** and waits for a public transaction to appear. In the alternative, when the determination in step **10**.**18** is positive, the first private ledger **402** advances to step **10**.**22**, wherein the first private ledger **402** pays the accounts held in either the public ledger **406**, the second private ledger **404** or the first private ledger **402**. In step **10**.**24** the first private ledger **402** records the proof of payment from the proof of payment module **412**.C. In step **10**.**26** the first private ledger **402** executes alternate processes.

[0076] Referring now generally to the Figures and particularly to FIG. **11**A, FIG. **11**A is a flowchart of an aspect of the invented method whereby a first certificate **504** is generated. In step **11**.**02** the certificate module **412**.E determines whether to check the credit of the user USER.A or USER.B attempting to participate in a transaction. When the determination in step **11**.**02** is negative, the certificate module **412**.E does not issue a certificate **504**. Upon execution of step **11**.**04**, the certificate module **412**.E executes alternate processes in step **11**.**14**. In the alternative, when the determination in step **11**.**02** is positive, the certificate module **412**.E inserts either the entire received contract **130**, or a unique identifier C.ID.**001** to the received contract **130** in step **11**.**06**. In step **11**.**08** the certificate module **412**.E adds an underwriter identification UUW.ID.**001**; the underwriter may be, for example, a bank. In step **11**.**10** the certificate module **412**.E signs the certificate **504** with the private cryptologic key UW.KEY.**001** of the underwriter. In step **11**.**12** the certificate module **412**.E transmits the certificate **504** to the workflow/status module **412**.A. The certificate module **412**.E subsequently returns to step **11**.**14**, wherein the certificate module **412**.E executes alternate processes.

[0077] Referring now generally to the Figures, and particularly to FIG. **11**B, FIG. **11**B is a block diagram of the exemplary first certificate **504**. The exemplary first certificate **504** comprises: (a.) a reference to the exemplary first contract CONT.ID.**001**; (b.) a first user identification USER.A.ID; (c.) a second user identification USER.B.ID; (d.) a first asset type ASSET.TYPE.**001**; (e.) a first asset amount ASSET.AMNT.**001**; (f.) a second asset type ASSET.TYPE.**002**; (g.) a second asset amount ASSET.AMNT.**002**; (h.) an I.P. address from which the assets may be transmitted XMIT.IP.ADDR; (i.) an address from which the first asset may be transmitted ASSET.XMIT.ADDR.**001**; (j.) an address from with the first asset may be received ASSET.REC.ADDR.**001**; (k.) an address from which the second asset may be transmitted ASSET.XMIT.ADDR.**002**; (l.) an address from which the second asset may be received ASSET.REC.ADDR.**002**; (m.) any requisite transaction fees FEES.**001**; (n.) a final time at which the first certificate **504** may expire at an expiration time T_F; (o.) the signature of the first user device **408**.SIG; and (p.) the signature of the second user device **410**.SIG.

[0078] Referring now generally to the Figures, and particularly to FIG. **11**C, FIG. **11**C is a block diagram of an exemplary first contract **130**. The exemplary first contract **130** comprises: (a.) a unique contract identifier C.ID.**001**; (b.) a unique identifier for the underwriter of the first contract UW.ID.**001**; (c.) the terms of the contract terms **140**; and (d.) an encrypted key signature of the underwriter of the first contract UW.KEY.**001**.

[0079] FIG. **11**D is a partial block diagram of an exemplary second certificate **504**A that is applicable to a title transaction of an exemplary first title record T.**01** of a plurality of title records T.**01**-T.N stored within a title registry database management system TR.DBNS. The referenced first title record T.**01** may be an electronic document that registers an assignment of a CDI **150** -**150**N, a financial security, title to a physical object and/or an ownership right over a measure of a commodity, a crypto-digital instrument, a fiat currency instrument, a digital asset, or real property. The second certificate **504**A includes an exemplary title document identifier DOC.ID.**001**, an exemplary first assignor identifier ASSIGNOR.ID.**001** and an exemplary first assignee identifier ASSIGNEE.ID.**001**. When received by the title registry server **414**, the second certificate **504**.A directs and authorizes the title registry server **414** to record in the first title record T.**01** an assignment of ownership from the indicated first assignor identifier ASSIGNOR.ID.**001** to the first assignee identifier ASSIGNEE.ID.**001** of the first title record T.**01** uniquely associated with the title document identifier DOC.ID.**001**.

[0080] Referring now generally to the Figures, and particularly to FIG. **12**, FIG. **12** is a flowchart of an aspect of the invented method describing the role of the device of the first user device **408** in a transaction. In step **12**.**02** the first user's device **408** creates a contract **130** for transmission to, and approval from, the second user device **410**. In step **12**.**04** the first user's device **408** transmits the contract **130** to the second user device **410**. In step **12**.**06** the first user's device **408** determines whether the contract **130** with the second user device **410**'s affixed electronic signature has been received from the second user device **410**. When the determination in step **12**.**06** is negative, the first user's device **408** proceeds to step **12**.**08**, wherein the first user's device **408** waits for the signed contract **130** from the second user device **410** for a designated period of time. The first user's device **408** subsequently returns to step **12**.**06** and repeats the loop of steps **12**.**06** through **12**.**08** as necessary. In the alternative, when the determination in step **12**.**06** is positive, the first user's device **408** accepts the returned contract **130** and affixes the first user device's **408** electronic signature thereto in step **12**.**10**. In step **12**.**12** the first user's device **408** subsequently returns the signed contract **130** to the first private ledger **402**. In step **12**.**14** the first user's device **408** waits for a certificate **504** to be returned from the certificate module **412**.E via the workflow/status module **412**.A. When the first user's device **408** receives the certificate **504**, the first user's device **408** sends the agreed-upon assets to the second user device **410** in step **12**.**16**.

[0081] In step **12**.**18** the first user's device **408** determines whether a notification of completed transfer has been received. When the determination in step **12**.**18** is negative, the first user's device **408** waits for the notification of a completed transfer in step **12**.**20**, and subsequently returns to step **12**.**18**, and repeats the loop of steps **12**.**18** through **12**.**20** as necessary. Alternatively, when the determination in step **12**.**20** is positive, the first user's device **408** executes alternate processes in step **12**.**22**.

[0082] Referring now generally to the Figures and particularly to FIG. **13**, FIG. **13** is a flowchart of a further aspect of the invented method whereby second user device **410** takes part in a transaction. In step **13**.**02** the second user device **410** receives an offered contract **130** from the first user DEVICE **408**. In step **13**.**04** the second user device **410** accepts the offered contract **130** and affixes the second user device **410**'s electronic signature thereto. In step **13**.**06** the second user device **410** transmits the contract **130** to the first private ledger **402**. In step **13**.**08** the second user device **410** determines whether the contract **130** with a signature has been received

from the first user DEVICE **408**. When the determination in step **13.08** is negative, the second user device **410** proceeds to step **13.10**, wherein the second user device **410** waits for the signed contract from the first user DEVICE **408**. The second user device **410** subsequently returns to step **13.08** and re-executes the loop of steps **13.08** through **13.10** as necessary. Alternatively, when the determination in step **13.08** is positive, the second user device **410** receives notification from the workflow/status module **412**.A of an issued certificate **504** in step **13.12**. In step **13.14** the second user device **410** waits for assets to be transmitted from the first user's device **408**. In step **13.16** the second user device **410** transmits funds to the first user DEVICE **408** via the public ledger **406**. In step **13.18** the second user device **410** receives notification of the transmitted funds. In step **13.20** the second user device **410** executes alternate processes.

[0083] Referring now to the Figures and particularly to FIG. **14**, FIG. **14** is an additional network diagram of the network **400** further comprising a third user device **1400** and a fourth user device **1402**. may be a bundled computer hardware and software product such as (a.) a network-communications enabled THINKPAD WORKSTATION™ notebook computer marketed by Lenovo, Inc. of Morrisville, N.C.; (b.) a NIVEUS **5200** computer workstation marketed by Penguin Computing of Fremont, Calif. and running a LINUX™ operating system or a UNIX™ operating system; (c.) a network-communications enabled personal computer configured for running WINDOWS SERVER™ or WINDOWS 8™ operating system marketed by Microsoft Corporation of Redmond, Wash.; (d.) a MACBOOK PRO™ personal computer as marketed by Apple, Inc. of Cupertino, Calif.; (e.) an IPHONE 6™ cellular smartphone as marketed by Apple, Inc. of Cupertino, Calif.; or (f.) other suitable computational system or electronic communications device known in the art capable of providing or enabling a web service known in the art.

[0084] The first private ledger **402** serves as an intermediary between an exemplary first user device **408**, the second user **410**, and the network **400**. Similarly the second private ledger **404** serves as an intermediary between the third user device **1400**, the fourth user device, **1402** and the network **400**. A third human user Carol of the third user device **1400** applies a third applications software **504** (hereinafter "third user app" **504**) and a fourth human user Dave of the fourth user device **410** applies a fourth applications software **506** (hereinafter "fourth user app" **502**) to mutually agree upon and enable execution of a transfer of assets for funds.

[0085] Referring now generally to the Figures, and particularly to FIG. **15**, FIG. **15** is a flowchart of an aspect of the invented method whereby the first private ledger **402**, the second transaction server **410** and the transaction server **412** takes part in a "Z" transaction, which transaction includes the above-listed first private ledger **402**, second private ledger **404**, the public ledger **406**, the first user device **408**, the second user device **410**, the third user device **1400** and the fourth user device **1402**. The Z transaction further includes a second exemplary contract **130**.A and a third exemplary contract **130**.B, associated with the first private ledger **402** and the second private ledger **404**, respectively.

[0086] In step **15.02** the Transaction server **412** receives a request from the first private ledger **402** to execute a transfer from the first user device **408**, associated with the first private ledger **402**, to the fourth user device **1402**, associated with the second private ledger **404**. In step **15.04** the Transaction server **412** receives a second request from the first private ledger **402**, indicating that the second user device **410** desires a sale of cryptocurrency. In step **15.06** the Transaction server **412** receives a request from the second private ledger **404**, indicating that the third user device **1400** wishes to buy cryptocurrency. In step **15.08** the Transaction server **412** detects the coincidence of wants between the first user device **408**, the second user device **410**, and the third user device **1400**. In step **15.10** the Transaction server **412** creates the third contract **130**.B, and transmits the third contract **130**.B to the second private ledger **404** in step **15.12**. In step **15.14** the Transaction server **412** receives the third contract **130**.B from the second private ledger **404**, with the affixed electronic signatures of the designated users. In step **15.16** the Transaction server **412** creates the second contract **130**.A, and transmits the second contract **130**.A to the first private ledger **402**. The Transaction server **412** subsequently receives the second contract **130**.A from the first private ledger **402**, with affixed electronic signatures from the designated users in step **15.20**. The Transaction server **412** may then detect asset movement from the second user device **410** to the third user device **1400**, which transfer may act as a trigger condition for additional transfers of funds and assets in step **15.22**. In step **15.24** the Transaction server **412** notifies the first private ledger **402** of the transfer from the second user device **410** to the third user device **1400**. In step **15.26** the Transaction server **412** notifies the second private ledger **404** of the transfer from the second user device **410** to the third user device **1400**. The Transaction server **412** then proceeds to step **15.28**, wherein the Transaction server **412** executes alternate processes.

[0087] Referring now generally to the Figures, and particularly to FIG. **16**, FIG. **16** is a flowchart depicting an aspect of the invented method whereby the first private ledger **402** takes part in a "Z" transaction. In step **16.02** the first private ledger **402** receives a request from the first user device **408** to transfer funds to the fourth user device **1402**, wherein the fourth user device **1402** is associated with the second private ledger **404**. In step **16.04** the first private ledger **402** receives a request from the second user device **410** to sell designated assets. In step **16.06** the first private ledger **402** transmits the requests of the first user device **408** and the second user device **410** to the Transaction server **412**. In step **16.08** the first private ledger **402** receives the third contract **130**.B from the Transaction server **412**, with designated electronic signatures attached. In step **16.10** the first private ledger **402** receives the unsigned second contract **130**.A from the Transaction server **412**. In step **16.12** the first private ledger **402** transmits the second contract **130**.A and the third contract **130**.B to the second user device **410**. In step **16.14** the first private ledger **402** receives the second contract **130**.A and the third contract **130**.B from the second user device **410** with the second user device **410**'s affixed electronic signature. In step **16.18** the first private ledger **402** transmits the third contract **130**.B with digital signatures affixed to the first user device **408**. In step **16.20** the first private ledger **402** transmits the partially signed second contract **130**.A to the first user device **408**. In step **16.20** the first private ledger **402** receives the second contract **130**.A from first user device **408** with digital signature affixed. In step **16.22** the first private ledger **402** transmits the second contract **130**.A and the third contract **130**.B to the transaction server **412**. In step **16.24** the first private ledger **402** receives the fully signed second contract **130**.A from the transaction server **412**. In step **16.26** the first private ledger **402** notifies the second user device **410** to transmit assets to the third user device **1400**. In step **16.28** the first private ledger

402 receives a notification of the completion of the asset transfer from the second user device 410 to the third user device 1400. In step 16.30 the first private ledger 402 transfers assets from the first user device 408 to the second user device 410. In step 16.32 the first private ledger 402 records proof of the payment from the first user device 408 to the second user device 410. The first private ledger 402 subsequently executes alternate processes.

[0088] Referring now generally to the Figures, and particularly to FIG. 17, FIG. 17 is a flowchart describing an aspect of the invented method whereby the second private ledger 404 participates in a "Z" transaction. In step 17.02 the second private ledger 404 receives a request from the third user device 1400 to sell a designated amount of funds in exchange for a designated amount of cryptocurrency. In step 17.04 the second private ledger 404 transmits the third user device 1400's request to the transaction server 412. In step 17.06 the second private ledger 404 receives a third contract 130.B offer from the transaction server 412. Upon approval of the third contract 130.B offer, the second private ledger 404 transmits the third contract 130.B to the third user device 1400 in step 17.08. In step 17.10 the second private ledger 404 receives third contract 130.B from the third user device 1400 with an affixed digital signature. In step 17.12 the second private ledger 404 returns the third contract 130.B with the third user device 1400's affixed digital signature to the transaction server 412. In step 17.14 the second private ledger 404 receives notification of the transfer of assets from the second user device 410 to the third user device 1400. In step 17.16 the second private ledger 404 moves assets from the third user device 1400 to the fourth user device 1402. The second private ledger 404 in step 17.18 records proof of payment from the third user device 1400 to the fourth user device 1402. The second private ledger 404 subsequently executes alternate processes.

[0089] Referring now generally to the Figures, and particularly to FIG. 18, FIG. 18 is a flowchart of an aspect of the invented method whereby the first user device 408's device 500 participates in a "Z" transaction. In step 18.02 the first user's device 408 requests a transfer of funds to the fourth user device 1402. In step 18.04 the first user's device 500 receives the third contract 130.B from the Transaction server 412 with the affixed digital signatures of designated users. In step 18.06 the first user's device 500 receives the second contract 130.B. In step 18.08 the first user's device 500 affixes the digital signature of the first user device 408 to the second contract 130.B. In step 18.10 the first user's device 500 returns the third contract 130.B to the Transaction server 412. In step 18.12 the first user's device 500 returns the second contract 130.A to the Transaction server 412. The assets or funds are subsequently automatically transferred from the account of the first user device 408 in step 18.14. In step 18.16 the first user's device 500 receives notification of the completed transfer of funds. In step 18.18 the first user's device 500 proceeds to alternate processes.

[0090] Referring now generally to the Figures and particularly to FIG. 19, FIG. 19 is a flowchart of an aspect of the invented method whereby the second user device 410's device 502 takes part in a "Z" transaction. In step 19.02 the second user's device 502 transmits a request to sell a designated amount of a designated asset; in one preferred embodiment of the invented method, the designated asset is cryptocurrency. In step 19.04 the second user's device 502 receives a signed second contract CONT.001 from the workflow/status module 412.A. In step 19.06 the second user's device 502 receives the second contract 130.A signed by the first user device 408. Upon reception of the signed second contract 130.A, the second user's device 502 transmits the designated amount of cryptocurrency to the third user device 1400 in step 19.08. In step 19.10 the second user's device 502 receives assets and/or funds from the third user device 1400. In step 19.12 the second user's device 502 returns the signed third contract 130.B to the Transaction server 412. In step 19.14 the second user's device 502 proceeds to alternate processes.

[0091] Referring now generally to the Figures and particularly to FIG. 20, FIG. 20 is a flowchart of an aspect of the invented method whereby the third user device 1400's device 504 takes part in a "Z" transaction. In step 20.02 the third user's device 504 transmits a request to purchase a designated amount of cryptocurrency. In step 20.04 the third user's device 504 receives a third contract 130.B from the Transaction server 412. In step 20.06 the third user's device 504 affixes the third user device 1400's electronic signature to the third contract 130.B, and returns the third contract 130.B to the Transaction server 412. In step 20.08 the third user's device 504 determines whether the requested cryptocurrency has been received from the second user device 410. When the determination in step 20.08 is negative, the third user's device 504 proceeds to step 20.10, wherein the third user's device 504 waits for delivery of the requested cryptocurrency from the second user device 410. The third user's device 504 subsequently repeats the loop of steps 20.08 through 20.10 as necessary. Alternatively, when the determination in step 20.08 is positive the third user's device 504 proceeds to step 20.12, wherein the third user's device 504 transfers funds and/or assets to the fourth user device 1402 via the first private ledger 402 and the second private ledger 404. In step 20.14 the third user's device 504 executes alternate processes.

[0092] Referring now generally to the Figures and particularly to FIG. 21, FIG. 21 is a flowchart of a yet further aspect of the invented method in which the fourth user device 1402's device 506 takes part in a "Z" transaction. In step 21.02 the fourth user's device 506 receives notification of the arrival of funds and/or assets from the workflow/status module 412.A. In step 21.04 the fourth user's device 506 executes alternate processes.

[0093] FIG. 22 is a block diagram of the CDI network 406 of FIG. 4 comprising the plurality of nodes N.1-N.N, each node N.1-N.N preferably have an instance of either a BITCOIN BLOCHAIN BTC.001-BTC.N and/or another suitable blockchain BC.001-BC.N known in the art.

[0094] FIG. 23 is a block diagram of a plurality of financial account records FIN.REC.001-FIN.REC.N maintained in a financial database management system FIN.DBMS of the storage module 506 of the transaction server 412, the first private ledger 402 and/or the second private ledger 404. It is noted that a plurality of CDI 150-150N, a plurality title records T.01-T.N, the plurality of contracts 130-130N and the plurality of certificates 504-504N may also be maintained within the financial database management system FIN.DBMS 2300. An exemplary first financial account record FIN.REC.001 that includes an exemplary first account identifier ACCT.ID.001, an exemplary first account currency balance BAL.001, an exemplary first reserved currency value VAL.RES.001, an exemplary first available account currency balance AVL.001, and an exemplary first credit balance CRED.001. The first reserved currency value VAL.RES.001 is a

currency value that is associated with comprising valid certificate **504-504**N, and made available for transactions based upon the comprising valid certificate **504-504**N, until the expiration time Tf of the certificate **504-504**N has occurred or passed.

[0095] According to the method of FIG. **3**, the first reserved currency value VAL.RES.**001** is either deducted from the first account currency balance BAL.**001** in step **3.12** or provided as transfer from the first credit balance CRED.**001** in step **3.10** for summation in the first reserved currency value VAL.RES.**001**. The first reserved currency value VAL.RES.**001** is subsequently either (a.) transferred to the first account currency balance BAL.**001** in step **3.16** if no payment is made, or (b.) deducted and transferred to another financial account in step **3.18** as payment on a contract **130-130**N.

[0096] According to the method of FIG. **10**, the first reserved currency value VAL.RES.**001** is in step **10.16** either (a.) deducted and transferred from the first account currency balance BAL.**001** or (b.) provided as a transfer from the first credit balance CRED.**001**. According to the method of FIG. **8**, the first reserved currency value VAL.RES.**001** is subsequently either (a.) transferred to the first account currency balance BAL.**001** in step **8.22** if no payment is made, or (b.) deducted and transferred to another financial account in step **8.30** as payment on a contract **130-130**N.

[0097] The foregoing description of the embodiments of the invention has been presented for the purpose of illustration; it is not intended to be exhaustive or to limit the invention to the precise forms disclosed. Persons skilled in the relevant art can appreciate that many modifications and variations are possible in light of the above disclosure.

[0098] Some portions of this description describe the embodiments of the invention in terms of algorithms and symbolic representations of operations on information. These algorithmic descriptions and representations are commonly used by those skilled in the data processing arts to convey the substance of their work effectively to others skilled in the art. These operations, while described functionally, computationally, or logically, are understood to be implemented by computer programs or equivalent electrical circuits, microcode, or the like. Furthermore, it has also proven convenient at times, to refer to these arrangements of operations as modules, without loss of generality. The described operations and their associated modules may be embodied in software, firmware, hardware, or any combinations thereof.

[0099] Any of the steps, operations, or processes described herein may be performed or implemented with one or more hardware or software modules, alone or in combination with other devices. In one embodiment, a software module is implemented with a computer program product comprising a non-transitory computer-readable medium containing computer program code, which can be executed by a computer processor for performing any or all of the steps, operations, or processes described.

[0100] Embodiments of the invention may also relate to an apparatus for performing the operations herein. This apparatus may be specially constructed for the required purposes, and/or it may comprise a general-purpose computing device selectively activated or reconfigured by a computer program stored in the computer. Such a computer program may be stored in a non-transitory, tangible computer readable storage medium, or any type of media suitable for storing electronic instructions, which may be coupled to a computer system bus. Furthermore, any computing systems referred to in the specification may include a single processor or may be architectures employing multiple processor designs for increased computing capability.

[0101] Embodiments of the invention may also relate to a product that is produced by a computing process described herein. Such a product may comprise information resulting from a computing process, where the information is stored on a non-transitory, tangible computer readable storage medium and may include any embodiment of a computer program product or other data combination described herein.

[0102] Finally, the language used in the specification has been principally selected for readability and instructional purposes, and it may not have been selected to delineate or circumscribe the inventive subject matter. It is therefore intended that the scope of the invention be limited not by this detailed description, but rather by any claims that issue on an application based herein. Accordingly, the disclosure of the embodiments of the invention is intended to be illustrative, but not limiting, of the scope of the invention, which is set forth in the following claims.

I claim:

1. In a communications network comprising a public ledger network and at least one private ledger system, a method comprising:

a. Associating a first proposed transaction ("the public ledger transaction") of the public ledger network with a second proposed private ledger transaction ("the private ledger transaction") of the at least one private ledger system;

b. Attesting that a value required to fulfill for the private ledger transaction is reserved;

c. Receiving notice that the public ledger transaction is fulfilled; and

d. Executing the private ledger transaction.

2. The method of claim **1**, wherein the value ceases to be reserved after a set time period.

3. The method of claim **1**, wherein the execution of the private ledger transaction is automated and no additional user action is required after receipt of the notice that the public ledger transaction is fulfilled.

4. The method of claim **1**, wherein the value is expressed in fiat currency.

5. The method of claim **1**, wherein the value is reserved within a financial account.

6. The method of claim **1**, wherein the value is provided as a credit to a first party, the first party initiating private ledger transaction.

7. The method of claim **6**, wherein the value is denominated in fiat currency.

8. The method of claim **1**, wherein the value is recorded within a public ledger prior to an initiation of the public ledger transaction.

9. The method of claim **1**, wherein the private ledger transaction comprises an electronic funds transfer of the value.

10. The method of claim **1**, wherein the private ledger transaction is an assignment of ownership of a financial instrument or a nonfinancial instrument.

11. The method of claim **1**, wherein the private ledger transaction is an assignment of ownership of a CDI.

12. The method of claim **1**, wherein the private ledger transaction is an assignment of ownership of an amount of a commodity.

13. The method of claim **1**, wherein the public ledger transaction comprises a recordation within the public ledger network related to a crypto-digital instrument.

14. The method of claim **1**, wherein the execution of the public ledger transaction is recorded on a public ledger stored by a plurality of nodes of the public ledger network.

15. The method of claim **1**, wherein the public ledger network comprises a blockchain.

16. The method of claim **1**, wherein the public ledger transaction is recorded on a blockchain.

17. The method of claim **1**, wherein the public ledger transaction is recorded on a bitcoin blockchain.

18. The method of claim **1**, wherein the public ledger transaction is fulfilled via recordation on a blockchain.

19. The method of claim **18**, wherein the public ledger transaction is recorded on a bitcoin blockchain.

20. A system comprising:

a. Means to associate a proposed transaction of a public ledger network ("the public ledger transaction") with a proposed private ledger transaction ("the private ledger transaction") of a private ledger;

b. Means to attest that a value required to fulfill for the private ledger is reserved;

c. Means to receive notice that the public ledger transaction is fulfilled; and

d. Means to automatically execute the private ledger transaction upon a determination that the public ledger transaction has been performed.

* * * * *