

### **Independent Claim 13 (Business Method – End-to-End OTP-Secured Token Ecosystem)**

A business method for creating and monetizing tokenized digital twins or representations of any physical asset, commodity, digital asset, security, contract, or other verifiable Real World Asset (RWA) on a non-repeatable digital ledger technology, comprising: generating a live non-repeating random number sequence from IoT sensors for one-time pad encryption; issuing OTP-secured value tokens on a timestamp-based ledger; providing Encryption as a Service for any asset tokenization; and operating an integrated exchange for trading, swapping, collateralization, or derivative execution of the tokens with unbreakable OTP perfect secrecy.

### **Dependent Claims for Independent Claim 13**

The following is a complete set of dependent claims (Claims 2–22) that further specify and narrow the business method of Independent Claim 13. Each dependent claim is fully supported by the disclosures in the attached document (Patent Filing Highlights US20210019429A1.docx), including the detailed descriptions of live IoT-generated non-repeating random number sequences for one-time pad encryption, issuance of OTP-secured value tokens on a timestamp-based ledger, Encryption as a Service for any asset tokenization, integrated exchange functionality for trading/swapping/collateralization/derivative execution, owner-provided timestamp + key transfers with automatic ledger update and key destruction, quantum-resistant perfect secrecy, device/user registration, primary-market issuance, automated monetization/reinvestment, and the overall end-to-end business method for creating and monetizing tokenized digital twins or representations of any physical asset, commodity, or verifiable Real World Asset (RWA) on a non-repeatable digital ledger technology as of the January 15, 2018 priority date.

### **Full Claim Set in Formal USPTO-Style Format (Reordered to Start with Claim 1)**

1. A business method for creating and monetizing tokenized digital twins or representations of any physical asset, commodity, digital asset, security, contract, or other verifiable Real World Asset (RWA) on a non-repeatable digital ledger technology, comprising: generating a live non-repeating random number sequence from IoT sensors for one-time pad encryption; issuing OTP-secured value tokens on a timestamp-based ledger; providing Encryption as a Service for any asset tokenization; and operating an integrated exchange for trading, swapping, collateralization, or derivative execution of the tokens with unbreakable OTP perfect secrecy.
2. The business method of claim 1, wherein generating the live non-repeating random number sequence further comprises deriving the sequence from fluctuating physical measurements of IoT sensors, edge routers, and edge gateways including voltage fluctuations from solar panels or electrical grids, electromagnetic fields, thermal events, or barometric pressure.
3. The business method of claim 1, wherein generating the live non-repeating random number sequence further comprises normalizing the sequence to a system clock at microsecond or finer granularity so that each encryption uses a unique timestamp-aligned one-time pad segment.

4. The business method of claim 1, wherein issuing OTP-secured value tokens further comprises collecting real-time data via the IoT sensors, validating the data, and generating a digital RWA certificate prior to minting on the timestamp-based ledger.
5. The business method of claim 1, wherein issuing OTP-secured value tokens is performed as a primary market activity based on the verified digital twins or representations generated from IoT-sourced data.
6. The business method of claim 1, wherein providing Encryption as a Service further comprises receiving RWA data or token records, allocating a unique segment of the live non-repeating random number sequence as a one-time pad key, encrypting the record, and returning the key to the owner while writing the ciphertext to the timestamp-based ledger.
7. The business method of claim 1, wherein operating the integrated exchange further comprises enabling trading, swapping, collateralization, or derivative execution using market orders, limit orders, options, forwards, futures, swaps, or pre-market contracts.
8. The business method of claim 1, wherein operating the integrated exchange further comprises supporting advanced order types selected from the group consisting of short selling, trailing stop orders, conditional orders, One-Triggers-the-Other (OTO) orders, One-Cancels-the-Other (OCO) orders, One-Triggers-a-One-Cancels-the-Other (OTOCO) orders, and combinations thereof.
9. The business method of claim 1, wherein operating the integrated exchange further comprises applying time-in-force rules to orders, the time-in-force rules selected from the group consisting of day orders, good-'til-canceled orders (up to 180 days), fill-or-kill orders, immediate-or-cancel orders, on-the-open orders, on-the-close orders, and combinations thereof.
10. The business method of claim 1, wherein executing transfers, swaps, collateralization, or derivative executions further comprises using owner-provided timestamp and one-time pad key with automatic ledger update and immediate server-side key destruction.
11. The business method of claim 1, wherein the business method provides information-theoretic perfect secrecy and quantum-resistant security for all tokenized digital twins or representations through the one-time pad encryption and non-repeatable ledger architecture.
12. The business method of claim 1, wherein the timestamp-based ledger maintains multiple redundant copies across cloud environments to provide fault tolerance and Byzantine fault tolerance.
13. The business method of claim 1, further comprising registering unique identifiers for IoT sensors, routers, and gateways on the distributed ledger to cryptographically bind device provenance to the OTP-secured tokenized digital twin or representation.
14. The business method of claim 1, wherein the business method operates in real time or near real time to enable continuous generation of the non-repeating sequence, OTP-secured issuance, Encryption as a Service, and integrated exchange operations.
15. The business method of claim 1, wherein the value tokens represent immutable digital twins or representations of any commodity, security, physical asset, financial instrument, or other verifiable Real World Asset that are verifiable and cannot be double-spent due to the one-time pad encryption and non-repeatable ledger architecture.

16. The business method of claim 1, wherein the business method eliminates intermediaries by performing end-to-end creation, monetization, and exchange of tokenized digital twins or representations directly on the non-repeatable digital ledger technology.
17. The business method of claim 1, wherein the non-repeating random number sequence is generated from IoT sensor measurements in a manner that is non-reproducible with earth-bound technology.
18. The business method of claim 1, further comprising automated monetization by transferring funds to the seller upon execution of a winning bid while simultaneously delivering the OTP-secured value token to the buyer.
19. The business method of claim 1, wherein the integrated exchange supports high-frequency, derivative, and institutional trading, swapping, collateralization, or derivative execution of the OTP-secured tokenized digital twins or representations while maintaining unbreakable OTP perfect secrecy.
20. The business method of claim 1, wherein the business method further comprises automatically directing a portion of proceeds from trades, swaps, collateralization, or derivative executions into reinvestment that expands IoT instrumentation or physical asset infrastructure to increase RWA supply and liquidity.
21. The business method of claim 1, wherein the business method further comprises executing wallet or payment applications within a Trusted Execution Environment (TEE) in connection with Encryption as a Service and integrated exchange operations.
22. The business method of claim 1, wherein the business method provides scalable, industrial-scale creation and monetization of tokenized digital twins or representations of any physical asset or commodity by combining IoT-derived OTP encryption, timestamp-based ledger issuance, Encryption as a Service, and integrated exchange functionality.

These claims form a self-contained, commercially robust claim family that directly maps to the business method for creating and monetizing tokenized digital twins or representations of any physical asset, commodity, or verifiable Real World Asset (RWA) on a non-repeatable digital ledger technology using IoT-generated OTP encryption, timestamp-based issuance, Encryption as a Service, and integrated exchange for trading/swapping/collateralization/derivative execution with unbreakable OTP perfect secrecy as described in the January 15, 2018 provisional disclosure. The full set (renumbered to begin with Claim 1) can be incorporated into a non-provisional, continuation, or continuation-in-part application (alone or in combination with the claim families of Independent Claims 1–12) to further strengthen the Parisii patent portfolio for quantum-tolerant Web4 W4S security, tokenized Real World Assets, and blockchain-based RWA/digital twin infrastructure.