Independent Claim 11 (System – Quantum-Resistant OTP DLT for Collateral and Derivatives)
A system for using OTP-secured non-repeatable DLT to support tokenized assets as collateral or in derivative instruments, comprising: IoT-generated non-repeating random sequences for one-time pad encryption of value tokens representing any physical asset, commodity, digital asset, security, contract, or other verifiable Real World Asset (RWA); a distributed ledger that stores the OTP-encrypted digital twins or representations; and functionality on the ledger that executes collateralization, loans, options, forwards, futures, swaps, or other instruments while protected by perfect secrecy and immediate key destruction.

Dependent Claims for Independent Claim 11
The following is a complete set of dependent claims (Claims 2–22) that further specify and narrow the system of Independent Claim 11. Each dependent claim is fully supported by the disclosures in the attached document (Patent Filing Highlights US20210019429A1.docx), including the detailed descriptions of IoT-generated non-repeating random sequences for one-time pad encryption, value tokens representing any physical asset, commodity, digital asset, security, contract, or other verifiable Real World Asset (RWA), distributed ledger storage of OTP-encrypted digital twins or representations, functionality for collateralization/loans/options/forwards/futures/swaps or other instruments, perfect secrecy with immediate key destruction, device/user registration, timestamp-based recording, multi-cloud redundancy, and the overall quantum-resistant OTP-secured non-repeatable DLT architecture as of the January 15, 2018 priority date.

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

1. A system for using OTP-secured non-repeatable DLT to support tokenized assets as collateral or in derivative instruments, comprising: IoT-generated non-repeating random sequences for one-time pad encryption of value tokens representing any physical asset, commodity, digital asset, security, contract, or other verifiable Real World Asset (RWA); a distributed ledger that stores the OTP-encrypted digital twins or representations; and functionality on the ledger that executes collateralization, loans, options, forwards, futures, swaps, or other instruments while protected by perfect secrecy and immediate key destruction.
2. The system of claim 1, wherein the IoT-generated non-repeating random sequences are produced 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 system of claim 1, wherein the IoT-generated non-repeating random sequences are normalized to a system clock at microsecond or finer granularity so that each encryption uses a unique timestamp-aligned one-time pad segment.
4. The system of claim 1, wherein the value tokens represent immutable digital twins or representations of any physical asset, commodity, digital asset, security, contract, 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.

5. The system of claim 1, wherein the distributed ledger registers unique identifiers for IoT sensors, routers, and gateways to cryptographically bind device provenance to the OTP-encrypted value tokens.
6. The system of claim 1, wherein the distributed ledger maintains multiple redundant copies across cloud environments to provide fault tolerance and Byzantine fault tolerance for the OTP-encrypted digital twins or representations and all collateral/derivative records.
7. The system of claim 1, wherein the functionality on the ledger executes collateralization of the OTP-secured value tokens to secure loans or financial arrangements with banks, financial institutions, or other financial services companies.
8. The system of claim 1, wherein the functionality on the ledger executes derivative instruments selected from the group consisting of options, forwards, futures, and swaps tied to the OTP-secured value tokens.
9. The system of claim 1, wherein the functionality on the ledger automatically executes collateralization, loans, options, forwards, futures, swaps, or other instruments in real time or near real time upon satisfaction of contract terms.
10. The system of claim 1, wherein immediate key destruction occurs server-side immediately after each collateralization, loan, option, forward, future, swap, or other instrument execution.
11. The system of claim 1, wherein the system provides information-theoretic perfect secrecy and quantum-resistant security for all collateralized tokens and derivative instruments through the one-time pad encryption and non-repeatable ledger architecture.
12. The system of claim 1, further comprising a native exchange platform built on the distributed ledger that supports market orders, limit orders, and advanced order types including short selling, trailing stop orders, conditional orders, One-Triggers-the-Other (OTO), One-Cancels-the-Other (OCO), and One-Triggers-a-One-Cancels-the-Other (OTOCO) in conjunction with collateralization and derivative execution.
13. The system of claim 1, wherein the native exchange platform applies 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.
14. The system of claim 1, wherein the system records each collateralization, loan, option, forward, future, swap, or other instrument execution as a new cryptographically linked block on the distributed ledger.
15. The system of claim 1, wherein the system operates in a closed-loop automated process from IoT-generated non-repeating random sequences through OTP encryption, ledger minting, collateralization/derivative execution, and immediate key destruction.
16. The system of claim 1, wherein the system eliminates intermediaries by performing end-to-end OTP-secured collateralization and derivative execution directly on the non-repeatable digital ledger technology.
17. The system of claim 1, wherein the non-repeating random number sequences are generated from IoT sensor measurements in a manner that is non-reproducible with earth-bound technology.

18. The system of claim 1, wherein the system supports high-frequency, derivative, and institutional use of OTP-secured tokenized digital twins or representations as collateral or in derivative instruments while maintaining perfect secrecy.
19. The system of claim 1, wherein the functionality on the ledger automatically directs a portion of proceeds from collateralization or derivative executions into reinvestment that expands IoT instrumentation or physical asset infrastructure.
20. The system of claim 1, wherein the system further comprises executing wallet or payment applications within a Trusted Execution Environment (TEE) in connection with collateralization and derivative instrument execution.
21. The system of claim 1, wherein the system provides Encryption as a Service for any RWA data or value token used in collateralization or derivative instruments, enabling real-time OTP encryption and timestamp-based ledger storage.
22. The system of claim 1, wherein the distributed ledger employs the non-repeating one-time pad segments such that no key is ever reused, providing perfect forward secrecy for every collateralized token and derivative instrument.

These claims form a self-contained, commercially robust claim family that directly maps to the system for using OTP-secured non-repeatable DLT to support tokenized assets as collateral or in derivative instruments, including IoT-generated non-repeating sequences, value token minting, ledger functionality for collateralization/loans/derivatives, perfect secrecy, and immediate key destruction 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 1–10) to further strengthen the Parisii patent portfolio for quantum-tolerant Web4 W4S security, tokenized Real World Assets, and blockchain-based RWA/digital twin infrastructure.