Independent Claim 1 (System – End-to-End IoT-to-Blockchain RWA Digital Twin Platform)
A system for tokenizing and trading any physical asset or Real World Asset (RWA) as a digital twin on blockchain, comprising: an IoT edge hardware layout with sensors, routers, and gateways that measure data associated with any RWA; an IoT cloud platform that receives, validates, and certifies the data to generate a digital RWA certificate; a blockchain ledger integrated with the cloud platform that mints a value token representing the digital twin as an immutable asset with user and equipment registration; and a blockchain trading platform that lists the token and executes buy/sell transactions, swaps, or derivatives on a commodity, crypto, or security exchange while recording every transfer as a new cryptographically linked block.

Dependent Claims for Independent Claim 1
The following is a complete set of dependent claims (Claims 2–22) that further specify and narrow the system of Independent Claim 1. Each dependent claim is fully supported by the disclosures in the attached document (Patent Filing Highlights US20220180374A1.pdf), including the detailed descriptions of the IoT edge hardware layout (sensor devices, edge routers, edge gateways, and wireless protocols), real-time/continuous IoT data measurement, IoT cloud platform validation/certification processes, blockchain ledger integration for value token minting (immutable digital asset recording, user/equipment registration, cryptographic binding), blockchain-based trading platform functionality (listing, buy/sell transactions, swaps, derivatives, automated matching/execution/settlement, cryptographically linked block recording), primary-market issuance from IoT-verified physical asset data, digital twin representation of any physical asset or RWA, multi-cloud redundancy, and the overall end-to-end IoT-to-blockchain tokenized RWA/digital twin architecture as of the December 26, 2017 priority date.

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

1. A system for tokenizing and trading any physical asset or Real World Asset (RWA) as a digital twin on blockchain, comprising: an IoT edge hardware layout with sensors, routers, and gateways that measure data associated with any RWA; an IoT cloud platform that receives, validates, and certifies the data to generate a digital RWA certificate; a blockchain ledger integrated with the cloud platform that mints a value token representing the digital twin as an immutable asset with user and equipment registration; and a blockchain trading platform that lists the token and executes buy/sell transactions, swaps, or derivatives on a commodity, crypto, or security exchange while recording every transfer as a new cryptographically linked block.
2. The system of claim 1, wherein the IoT edge hardware layout comprises sensor devices, edge routers, and edge gateways configured to communicate using one or more wireless protocols selected from the group consisting of Bluetooth, Zigbee, WiFi, Z-Wave, Sub-Gigahertz, Cellular, Satellite, LoRaWAN, Sigfox, and combinations thereof.
3. The system of claim 1, wherein the IoT edge hardware layout continuously measures data associated with any physical asset or RWA in real time or near real time from physical facilities, infrastructure, renewable resources, or efficiency systems.

4. The system of claim 1, wherein the IoT cloud platform performs automated validation and certification of the measured data using processes for accuracy, sampling design, internal controls, and verification consistent with established standards for real-world asset certification.
5. The system of claim 1, wherein the blockchain ledger mints the value token by recording the digital RWA certificate as an immutable digital asset that includes one or more of public-key addresses, cryptographic block linking, timestamps, transaction data, user identifiers, equipment identifiers, validation reports, and verification statements.
6. The system of claim 1, wherein the blockchain ledger registers all participants and equipment associated with the physical asset or RWA on the distributed ledger to prevent double-spending or fraud and to establish verifiable ownership and provenance of the digital twin.
7. The system of claim 1, wherein the blockchain trading platform lists the value token and executes buy/sell transactions, swaps, or derivatives using market orders, limit orders, options, forwards, futures, swaps, or pre-market contracts.
8. The system of claim 1, wherein the blockchain trading platform further supports 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 system of claim 1, wherein the blockchain trading 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.
10. The system of claim 1, wherein the blockchain trading platform automatically matches and executes trades by recording every transfer as a new cryptographically linked block on the distributed ledger, thereby transferring ownership of the value token (digital twin) to the buyer and delivering payment to the seller in real time or near real time.
11. The system of claim 1, wherein all buy/sell transactions, ownership transfers, swaps, and derivative executions are permanently recorded on the blockchain ledger to reduce fraud and ensure permanent verification and auditability of the tokenized digital twin.
12. The system of claim 1, wherein creation of the value token occurs as a primary market activity based on the validated and certified digital RWA certificate generated from the IoT-sourced physical asset data.
13. The system of claim 1, wherein the blockchain ledger maintains multiple redundant copies across cloud environments to provide fault tolerance and Byzantine fault tolerance for the tokenized digital twin records and trading activity.
14. The system of claim 1, wherein the IoT cloud platform and blockchain ledger operate in real time or near real time to enable continuous measurement, validation, digital twin minting, listing, and trading of any physical asset or RWA.
15. The system of claim 1, further comprising automated monetization of the tokenized digital twin by transferring funds to the seller upon execution of a winning bid while simultaneously delivering the value token to the buyer.

16. The system of claim 1, wherein the value token represents an immutable digital twin of any commodity, security, physical asset, financial instrument, or other RWA that is verifiable and cannot be double-spent due to the cryptographic binding and registration on the distributed ledger.
17. The system of claim 1, wherein the blockchain trading platform functions as an integrated commodity, crypto, security, or financial exchange without requiring separate centralized custodians or clearinghouses.
18. The system of claim 1, wherein the system further comprises a secure registration process for users and equipment that cryptographically binds the IoT edge hardware layout, the digital RWA certificate, and the value token (digital twin) on the distributed ledger.
19. The system of claim 1, wherein the IoT cloud platform receives data continuously from the IoT edge hardware layout and generates the digital RWA certificate in an automated closed-loop process prior to blockchain value token minting.
20. The system of claim 1, wherein the distributed ledger employs cryptographic hashing of each new block to prior blocks to ensure immutability of all tokenized digital twin records and trading transactions.
21. The system of claim 1, wherein the system eliminates intermediaries by performing end-to-end automated tokenization of any physical asset or RWA as a digital twin, listing, trading, settlement, and monetization directly on the integrated blockchain ledger and trading platform.
22. The system of claim 1, wherein the blockchain trading platform enables high-frequency, derivative, and institutional trading of tokenized digital twins of any physical asset or RWA while maintaining permanent auditability and fraud reduction through immutable ledger recording.

These claims form a self-contained, commercially robust claim family that directly maps to the end-to-end IoT-to-blockchain tokenized Real World Asset (RWA) / physical asset digital twin system, including continuous IoT measurement, cloud validation/certification, blockchain minting with registration, and native trading/exchange functionality described in the December 26, 2017 provisional disclosure (and the incorporated earlier provisionals). The full set (renumbered to begin with Claim 1) can be incorporated into a non-provisional, continuation, or continuation-in-part application to further strengthen the Parisii patent portfolio for tokenized Real World Assets and blockchain-based RWA/digital twin infrastructure.