

How Blockchain Architectures Map to the Rock Innovation Patent Claims

PURPOSE

This guide shows how the claim elements in the Rock Innovation patent family (US 10,192,073; US 10,943,029; US 11,720,711) correspond to common blockchain system architectures. It is intended as a technical reference for engineering and legal teams conducting an internal product coverage assessment. No specific company or product is identified.

CORE CLAIM ARCHITECTURE

Each patent in the family describes a system and method for reconciling or managing blocks on one or more blockchains. The independent claims follow a shared architectural pattern: a network-connected computer establishes blockchain connections, retrieves and analyzes data objects tied to preconfigured interaction objects, applies preconfigured rules, and stores the resulting compilation objects back on-chain. The table below maps each element category to the types of systems that typically perform these functions.

CLAIM ELEMENT	WHAT IT COVERS	BLOCKCHAIN ARCHITECTURES THAT COMMONLY IMPLEMENT THIS
Preamble "block reconciliation" / "block management"	A system that processes, verifies, or organizes blockchain data across chains or layers	Layer 2 rollups (optimistic and ZK), cross-chain bridges, DeFi aggregators, blockchain indexers, multi-chain wallets, enterprise reconciliation platforms
Network Computer 1[a] across all patents	A server or node with memory and a processor executing programmable instructions for blockchain operations	Sequencers, validators, relayers, bridge nodes, oracle nodes, indexer services, any backend server that reads from and writes to blockchains
Blockchain Connection 1[b]-1[c] / 1[b]	Establishing connections to one or more blockchains and to connected devices	RPC endpoints to L1/L2 chains, WebSocket subscriptions, cross-chain messaging protocols, IBC relayers, multi-chain APIs
Criteria Reception 1[e] in '073 and '029	Receiving criteria from a connected device that determine what blockchain data to retrieve	User-submitted transactions, API queries, filter parameters, validator challenge criteria, governance vote parameters, trading pair specifications
Block Retrieval 1[f] / 1[e] / 1[c]	Retrieving blocks from blockchains that correspond to preconfigured interaction objects	Reading transaction batches, retrieving L1 state roots, fetching cross-chain messages, pulling oracle price feeds, indexing smart contract events
Supplemental Analysis 1[g]-1[h] / 1[f]-1[g]	Analyzing interaction objects and requesting additional supplemental data from blockchains	Fraud proof verification, Merkle proof validation, cross-chain receipt confirmation, token metadata enrichment, collateral ratio checks
Flagging Mechanism 1[i] in '073 only	If a required supplemental object is not found, flag the interaction object; otherwise apply replacement or addendum logic	Fraud proof challenge systems, dispute resolution protocols, invalid batch detection, slashing condition triggers, exception handling in cross-chain transfers
Rules + Compilation 1[j]-1[k] / 1[h]-1[i] / 1[d]-1[e]	Applying preconfigured rules to create compilation objects from interaction and supplemental objects	Batch construction, state transition computation, rollup proof generation, aggregated transaction bundles, compiled audit reports, merged cross-chain state
On-Chain Storage 1[l] / 1[j] / 1[f]	Storing the resulting compilation objects on the blockchain(s)	L1 state commitment posting, bridge deposit/withdrawal records, on-chain settlement, proof submission, finalized batch anchoring

Key Takeaway

The '711 patent (Second Continuation) carries the broadest independent claims, with only 7 elements and no flagging requirement, making it applicable to the widest range of blockchain systems. The '029 patent adds criteria-based retrieval. The '073 patent includes the flagging, replacement, and addendum mechanism, which maps directly to systems with dispute resolution or exception handling logic.

INDUSTRY SECTORS WITH TYPICAL COVERAGE

The following sectors operate blockchain systems whose architectures commonly align with one or more patents in the Rock Innovation family. Coverage depends on the specific implementation; the table provides general guidance.

INDUSTRY SECTOR	REPRESENTATIVE SYSTEM TYPES	LIKELY PATENT COVERAGE	KEY CLAIM ELEMENTS IN PLAY
Layer 2 Rollups	Optimistic rollups, ZK rollups, validiums	All three patents	Full pipeline: blockchain connection, batch retrieval, verification, rule application, and state root posting. Fraud proof systems map to '073 flagging element.
Cross-Chain Bridges	Lock-and-mint bridges, liquidity networks, message-passing bridges	All three patents	Multi-chain connections, cross-chain object retrieval, supplemental verification (receipts, proofs), compilation of transfer records stored on-chain
DeFi Protocols	DEX aggregators, lending protocols, yield aggregators, liquid staking	'029 and '711 broadly; '073 where dispute mechanisms exist	Criteria-based data retrieval, supplemental data (price feeds, collateral checks), rule-based compilation, on-chain storage of results
Enterprise Blockchain	Supply chain platforms, trade finance, digital asset custody, tokenization	All three patents	Connected enterprise devices, preconfigured business rules, compilation objects representing reconciled records or audit trails
Blockchain Infrastructure	Indexers, oracles, data availability layers, interoperability protocols	'029 and '711	Blockchain connection, block retrieval, supplemental data aggregation, compiled output stored on-chain
Digital Asset Exchanges	Centralized exchanges with on-chain settlement, hybrid DEX/CEX platforms	'029 and '711	Multi-chain connectivity, transaction reconciliation, rule-based settlement, on-chain record storage

DEPENDENT CLAIMS: ADDITIONAL COVERAGE

The dependent claims across all three patents extend the scope of the independent claims into additional functional areas:

FEATURE	CLAIMS	MAPS TO
Report Generation	Claims 2 and 6 (all patents)	Analytics dashboards, audit logs, compliance reports, transaction summaries, block explorer outputs
External Data Sources	Claims 3 and 7 (all patents)	Oracle feeds, off-chain APIs, external databases, compliance data providers, market data feeds
API Access	Claims 4 and 8 (all patents)	REST/GraphQL APIs, SDK access, third-party integrations, developer tooling, wallet connections
Interaction Object Types	'711 Claims 9 and 11	User objects (wallets, accounts), company objects (DAOs, protocols), device objects (nodes, validators)
Criteria-Based Analysis	'711 Claims 10 and 12	Filtered queries, conditional data analysis, parameter-driven supplemental object association

Next Steps

Download the claim chart template for the relevant patent from our website to begin mapping your product architecture against specific claim elements. For questions about coverage or to discuss licensing, contact us at hello@rockinnovationip.com or visit rockinnovationip.com/licensing.