ABSTRACT

IDENTIFY PERMISSIONING BLOCKCHAIN SYSTEMS AND METHODS

An improved electronic system implements and applies different types of Fitness Gradient Consensus methodologies, including hash distance and bucket consensus variations within a digital blockchain by calculating the highest fitness value among competing blocks or blockchain segments in order to resolve conflicts and allocate the rewards associated with building new blocks. The improved consensus system applies conflict resolution formulas to incentivize every block-building node in a blockchain network to share every block it generates, as soon as it completes construction, in order to improve chances of a reward, resulting in enhanced blockchain speed and security.

The hash distance consensus utilizes a hash distance scalar value as part of its fitness metric, and the bucket consensus assigns tokens to buckets and calculates an aggregate value of the assigned tokens as part of the consensus. A trust-but-verify variant increases transactional throughput and reduces linearity and other computational constraints.

The system also utilizes novel record types, such as token genesis, transfer, transaction, trade order, settlement, proposition, determination, and pattern linkage records to facilitate the automation of financial, commercial and legal processes.

FIG. 5