FIG. 1 100

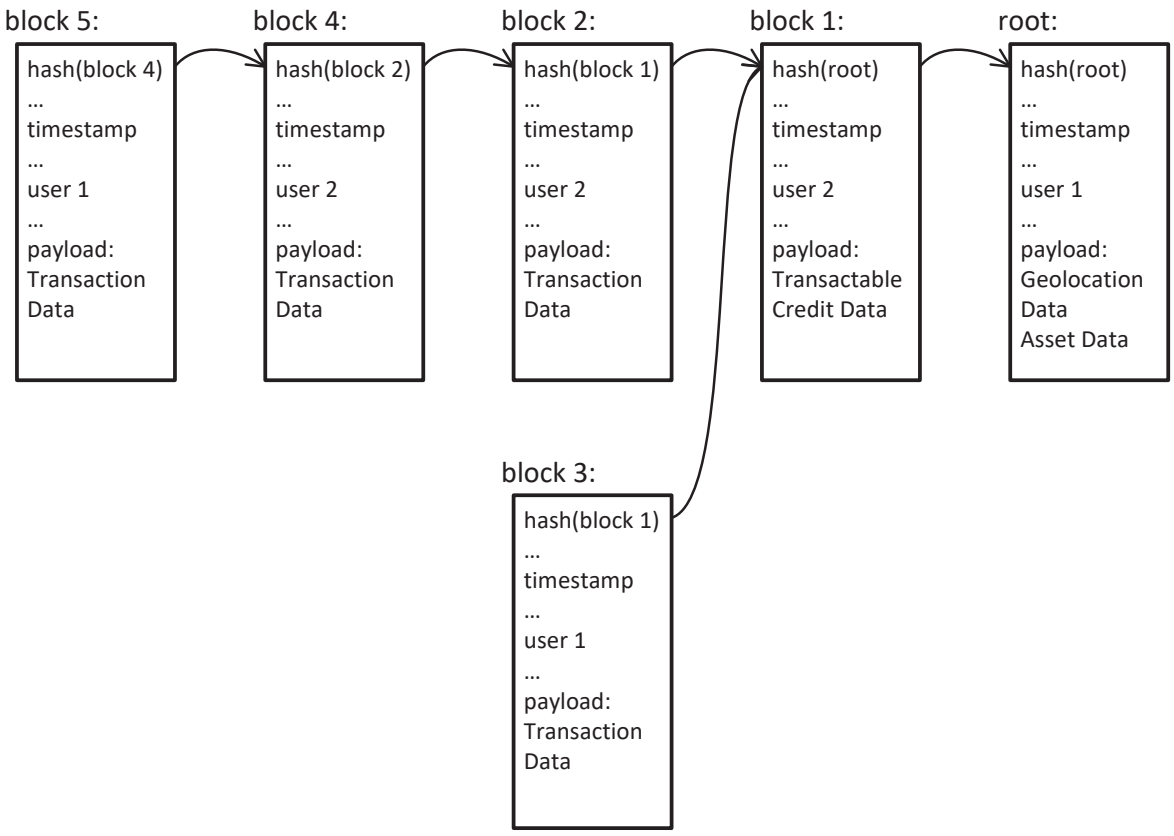

block 5:
hash(block 4)
…
timestamp
…
user 1
…
payload:
Transaction
Data
block 4:
hash(block 2)
…
timestamp
…
user 2
…
payload:
Transaction
Data
block 2:
hash(block 1)
…
timestamp
…
user 2
…
payload:
Transaction
Data
block 1:
hash(root)
…
timestamp
…
user 2
…
payload:
Transactable
Credit Data
root:
hash(root)
…
timestamp
…
user 1
…
payload:
Geolocation
Data
Asset Data
block 3:
hash(block 1)
…
timestamp
…
user 1
…
payload:
Transaction
Data

FIG. 2 200

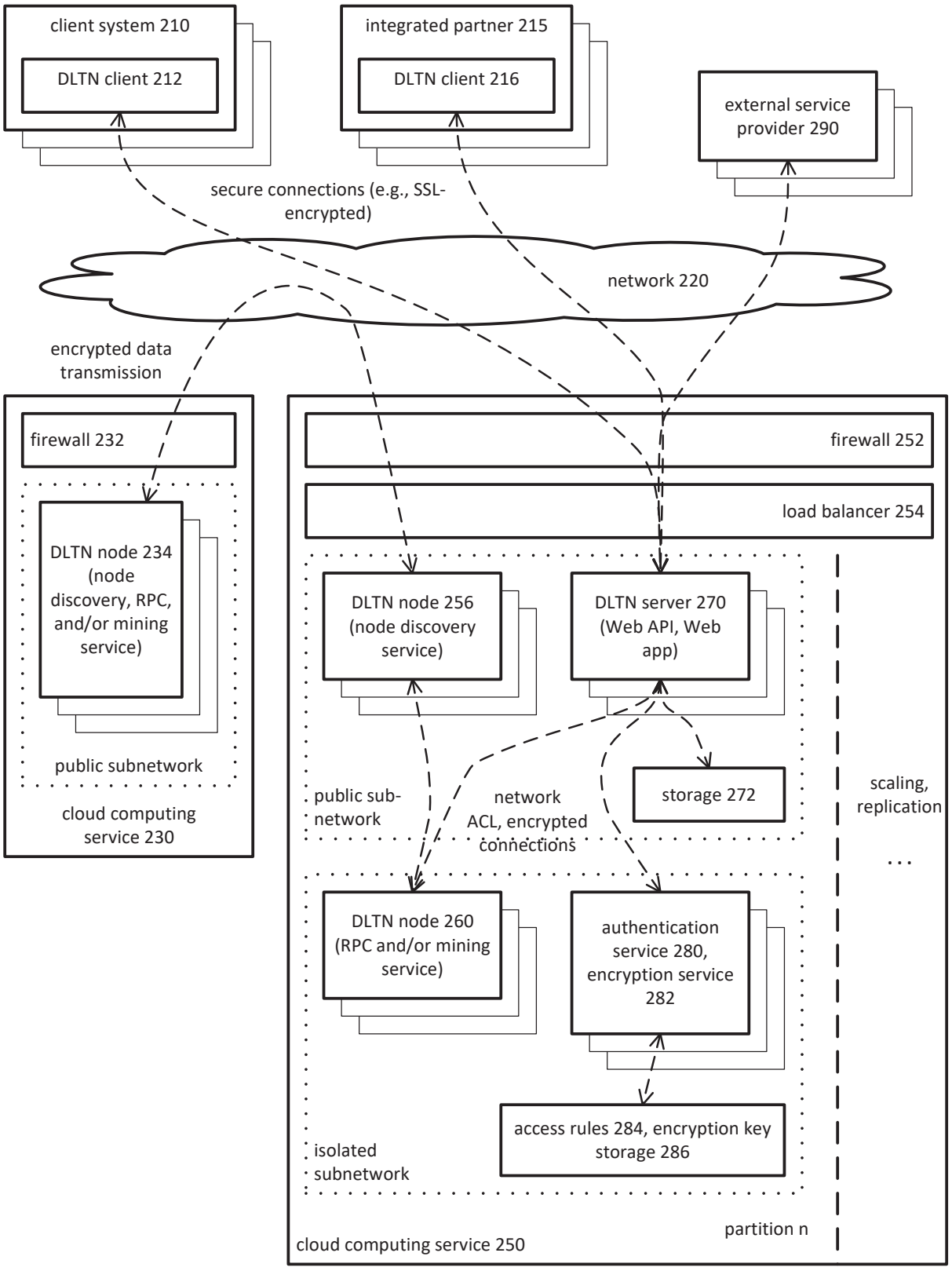

client system 210
DLTN client 212
integrated partner 215
DLTN client 216
external service provider 290
secure connections (e.g., SSL-encrypted)
network 220
encrypted data transmission
firewall 232
DLTN node 234 (node discovery, RPC, and/or mining service)
public subnetwork
cloud computing service 230
firewall 252
load balancer 254
DLTN node 256 (node discovery service)
DLTN server 270 (Web API, Web app)
storage 272
public sub-network
network ACL, encrypted connections
scaling, replication
...
DLTN node 260 (RPC and/or mining service)
authentication service 280, encryption service 282
access rules 284, encryption key storage 286
isolated subnetwork
partition n
cloud computing service 250

FIG. 3

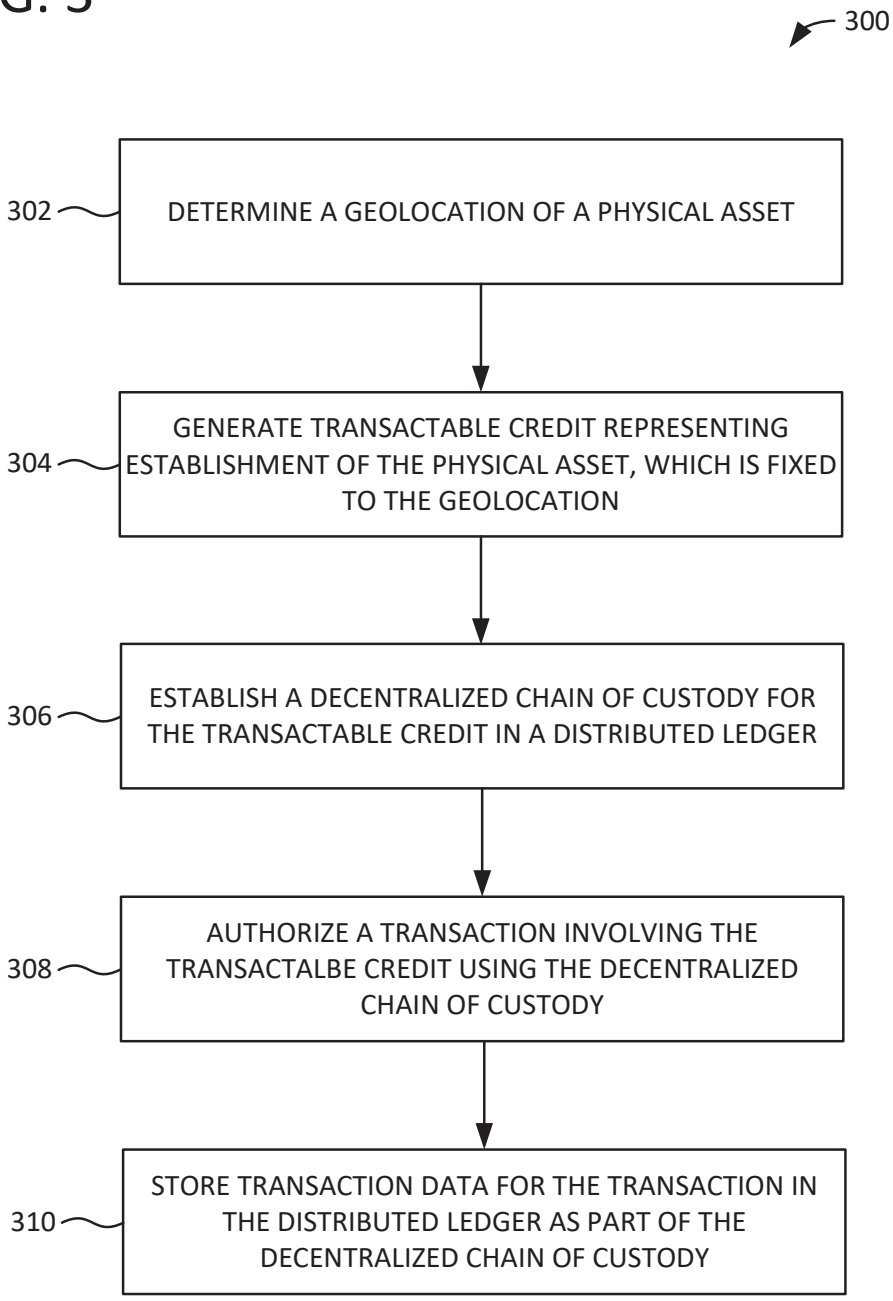

300
302
DETERMINE A GEOLOCATION OF A PHYSICAL ASSET
304
GENERATE TRANSACTABLE CREDIT REPRESENTING ESTABLISHMENT OF THE PHYSICAL ASSET, WHICH IS FIXED TO THE GEOLOCATION
306
ESTABLISH A DECENTRALIZED CHAIN OF CUSTODY FOR THE TRANSACTABLE CREDIT IN A DISTRIBUTED LEDGER
308
AUTHORIZE A TRANSACTION INVOLVING THE TRANSACTALBE CREDIT USING THE DECENTRALIZED CHAIN OF CUSTODY
310
STORE TRANSACTION DATA FOR THE TRANSACTION IN THE DISTRIBUTED LEDGER AS PART OF THE DECENTRALIZED CHAIN OF CUSTODY

FIG. 4

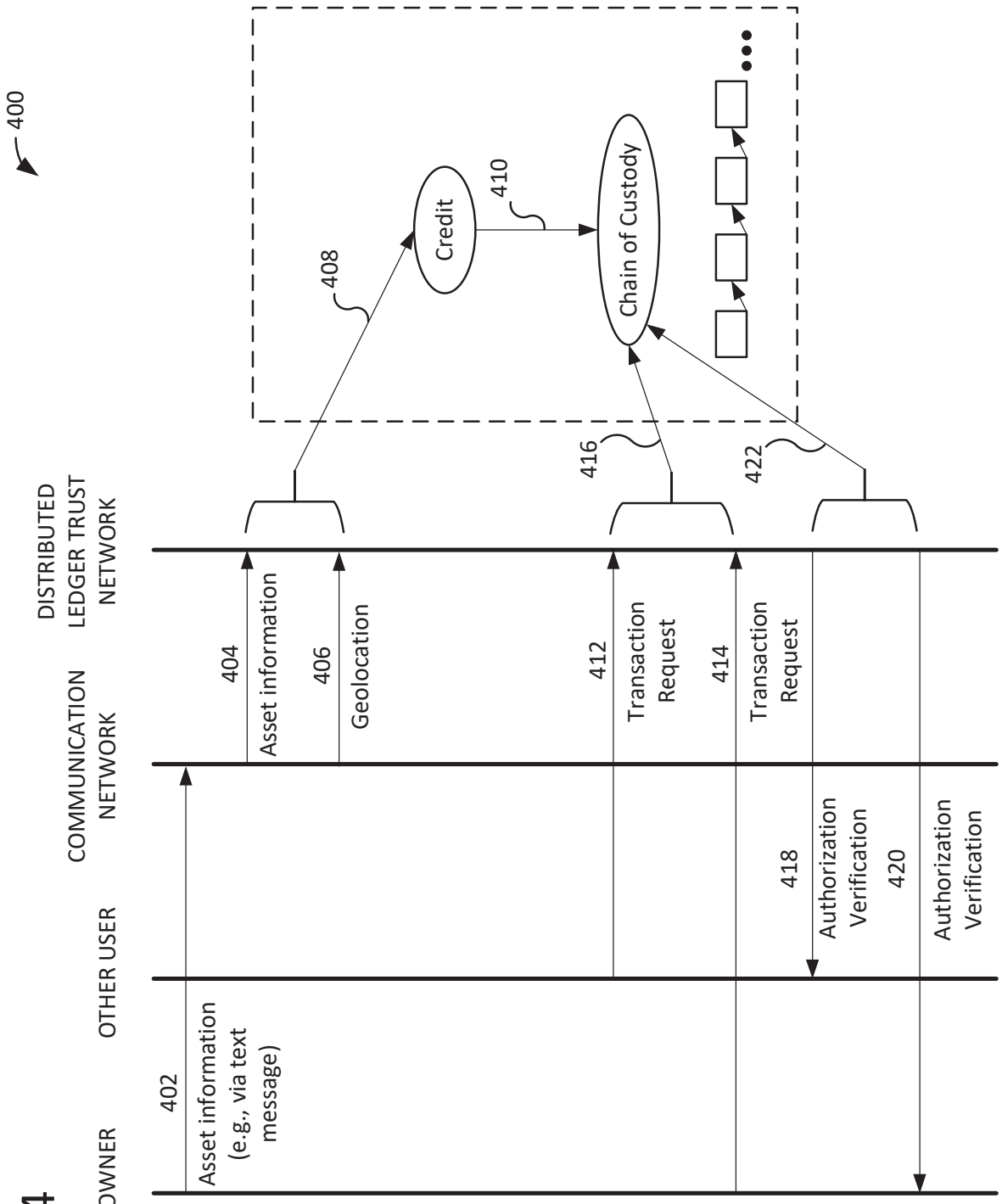

400
ASSET OWNER
OTHER USER
COMMUNICATION NETWORK
DISTRIBUTED LEDGER TRUST NETWORK
402
Asset information (e.g., via text message)
404
Asset information
406
Geolocation
408
Credit
410
Chain of Custody
412
Transaction Request
414
Transaction Request
416
418
Authorization Verification
420
Authorization Verification
422

FIG. 5

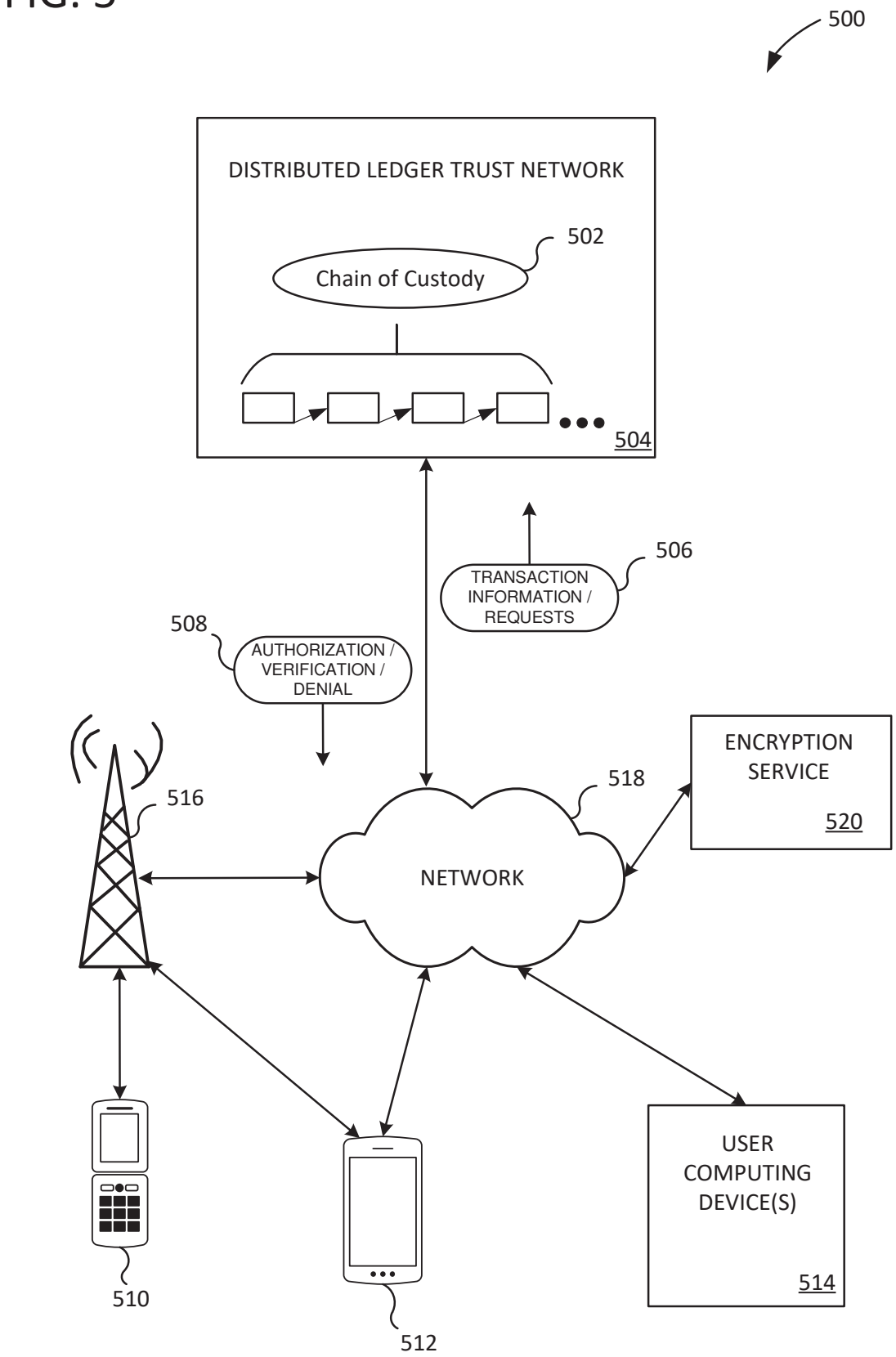

500
DISTRIBUTED LEDGER TRUST NETWORK
502
Chain of Custody
504
506
TRANSACTION INFORMATION / REQUESTS
508
AUTHORIZATION / VERIFICATION / DENIAL
516
518
NETWORK
ENCRYPTION SERVICE
520
USER COMPUTING DEVICE(S)
514
510
512

FIG. 6

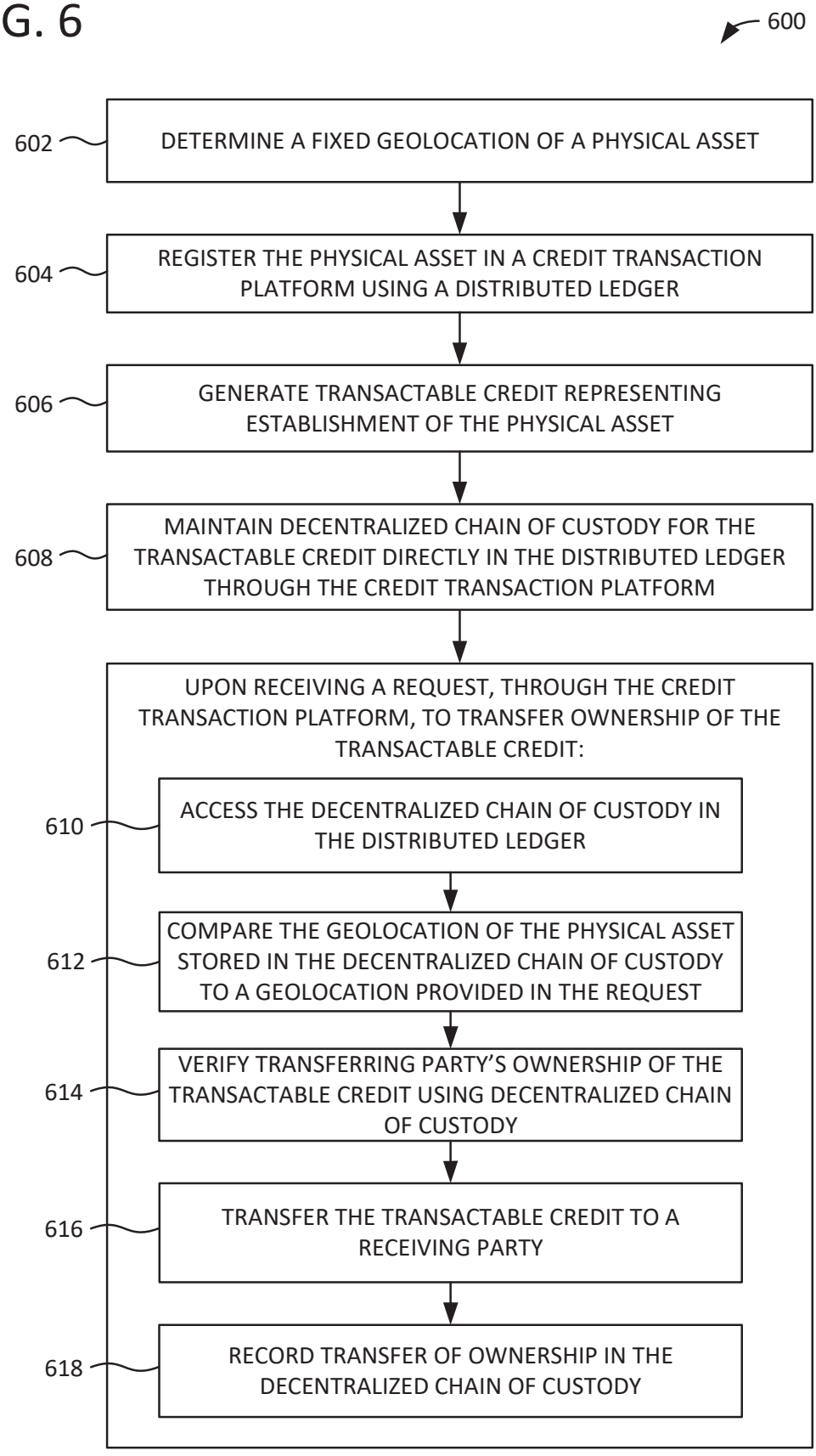

600
602
DETERMINE A FIXED GEOLOCATION OF A PHYSICAL ASSET
604
REGISTER THE PHYSICAL ASSET IN A CREDIT TRANSACTION PLATFORM USING A DISTRIBUTED LEDGER
606
GENERATE TRANSACTABLE CREDIT REPRESENTING ESTABLISHMENT OF THE PHYSICAL ASSET
608
MAINTAIN DECENTRALIZED CHAIN OF CUSTODY FOR THE TRANSACTABLE CREDIT DIRECTLY IN THE DISTRIBUTED LEDGER THROUGH THE CREDIT TRANSACTION PLATFORM
UPON RECEIVING A REQUEST, THROUGH THE CREDIT TRANSACTION PLATFORM, TO TRANSFER OWNERSHIP OF THE TRANSACTABLE CREDIT:
610
ACCESS THE DECENTRALIZED CHAIN OF CUSTODY IN THE DISTRIBUTED LEDGER
612
COMPARE THE GEOLOCATION OF THE PHYSICAL ASSET STORED IN THE DECENTRALIZED CHAIN OF CUSTODY TO A GEOLOCATION PROVIDED IN THE REQUEST
614
VERIFY TRANSFERRING PARTY'S OWNERSHIP OF THE TRANSACTABLE CREDIT USING DECENTRALIZED CHAIN OF CUSTODY
616
TRANSFER THE TRANSACTABLE CREDIT TO A RECEIVING PARTY
618
RECORD TRANSFER OF OWNERSHIP IN THE DECENTRALIZED CHAIN OF CUSTODY

FIG. 7

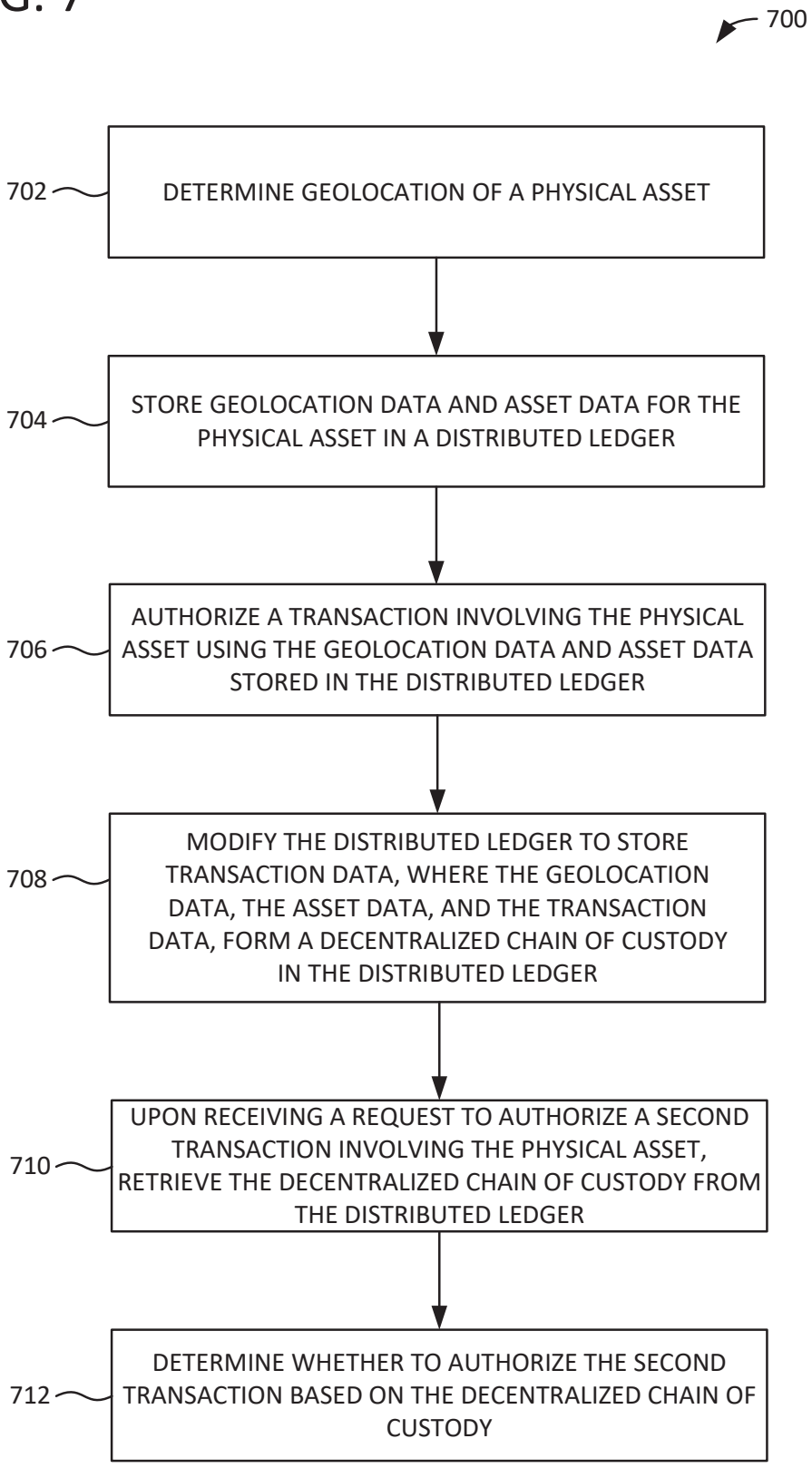
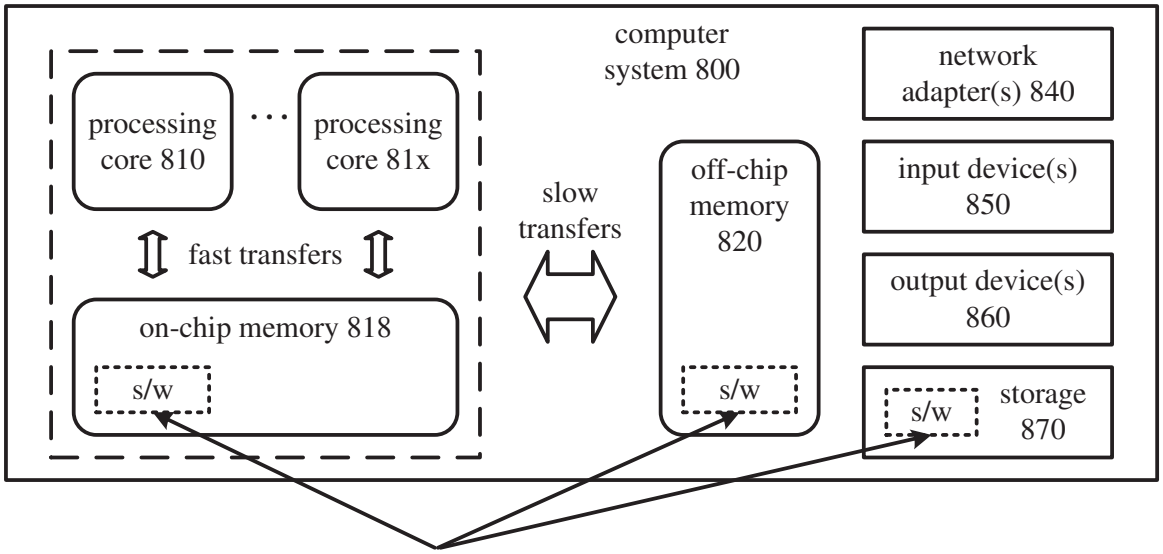

700
702
DETERMINE GEOLOCATION OF A PHYSICAL ASSET
704
STORE GEOLOCATION DATA AND ASSET DATA FOR THE PHYSICAL ASSET IN A DISTRIBUTED LEDGER
706
AUTHORIZE A TRANSACTION INVOLVING THE PHYSICAL ASSET USING THE GEOLOCATION DATA AND ASSET DATA STORED IN THE DISTRIBUTED LEDGER
708
MODIFY THE DISTRIBUTED LEDGER TO STORE TRANSACTION DATA, WHERE THE GEOLOCATION DATA, THE ASSET DATA, AND THE TRANSACTION DATA, FORM A DECENTRALIZED CHAIN OF CUSTODY IN THE DISTRIBUTED LEDGER
710
UPON RECEIVING A REQUEST TO AUTHORIZE A SECOND TRANSACTION INVOLVING THE PHYSICAL ASSET, RETRIEVE THE DECENTRALIZED CHAIN OF CUSTODY FROM THE DISTRIBUTED LEDGER
712
DETERMINE WHETHER TO AUTHORIZE THE SECOND TRANSACTION BASED ON THE DECENTRALIZED CHAIN OF CUSTODY

FIG. 8


computer system 800
processing core 810
processing core 81x
fast transfers
on-chip memory 818
s/w
slow transfers
off-chip memory 820
s/w
network adapter(s) 840
input device(s) 850
output device(s) 860
s/w
storage 870
software 880 implementing tools for one or more innovations for a distributed ledger trust network ("DLTN")