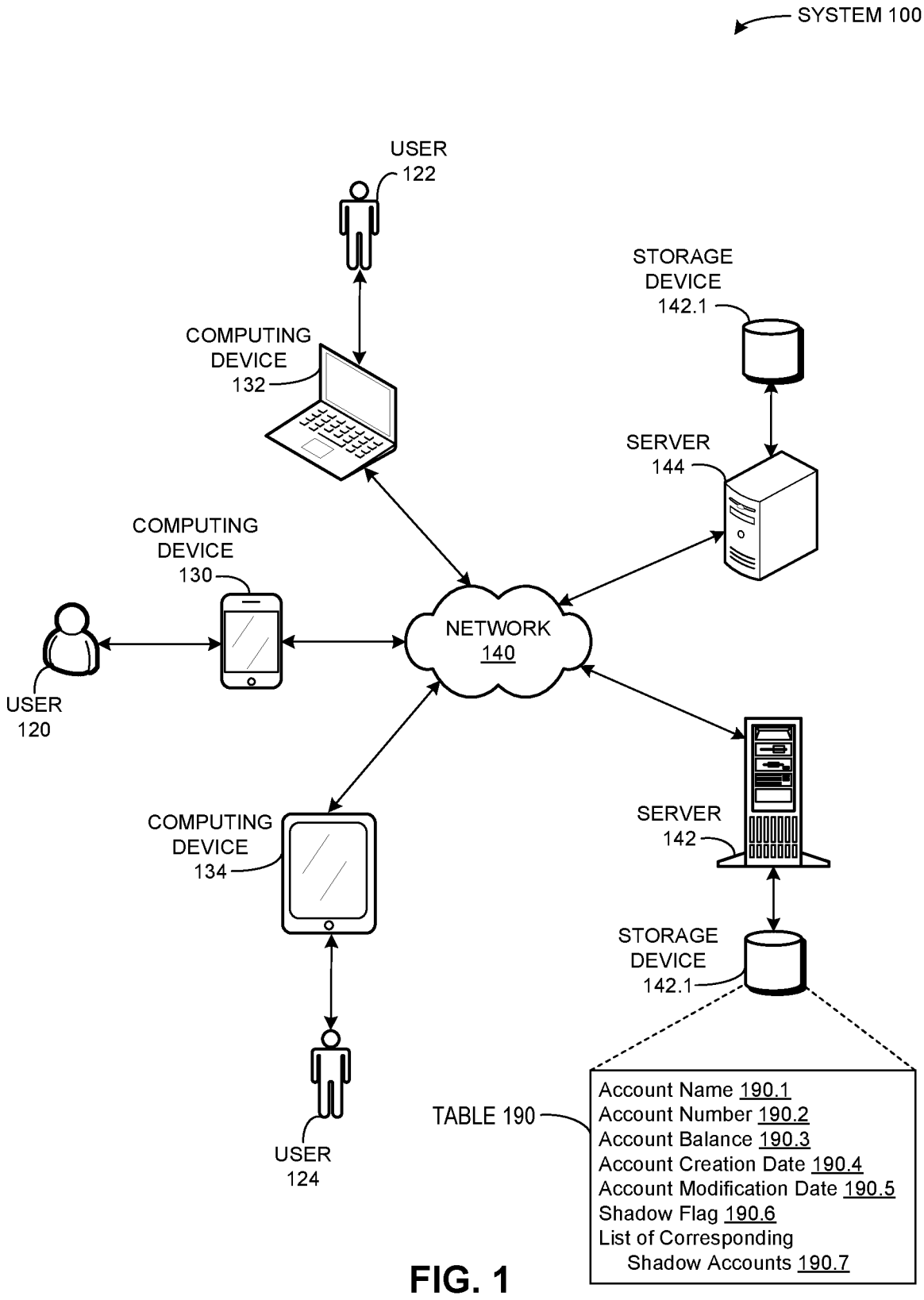

SYSTEM 100
USER
122
STORAGE
DEVICE
142.1
COMPUTING
DEVICE
132
SERVER
144
COMPUTING
DEVICE
130
NETWORK
140
USER
120
COMPUTING
DEVICE
134
SERVER
142
STORAGE
DEVICE
142.1
USER
124
TABLE 190
Account Name 190.1
Account Number 190.2
Account Balance 190.3
Account Creation Date 190.4
Account Modification Date 190.5
Shadow Flag 190.6
List of Corresponding
Shadow Accounts 190.7

FIG. 1

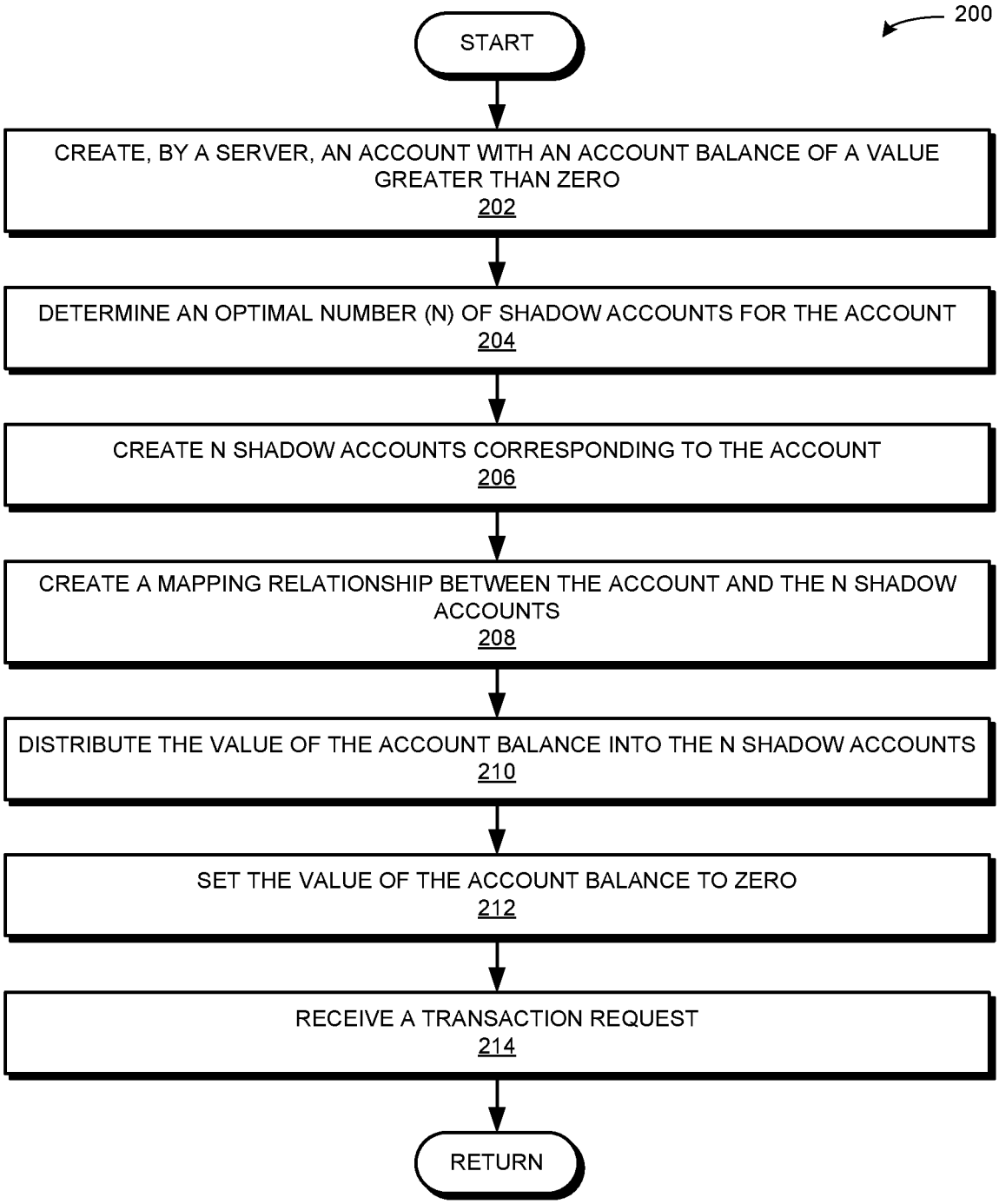

200
START
CREATE, BY A SERVER, AN ACCOUNT WITH AN ACCOUNT BALANCE OF A VALUE GREATER THAN ZERO
202
DETERMINE AN OPTIMAL NUMBER (N) OF SHADOW ACCOUNTS FOR THE ACCOUNT
204
CREATE N SHADOW ACCOUNTS CORRESPONDING TO THE ACCOUNT
206
CREATE A MAPPING RELATIONSHIP BETWEEN THE ACCOUNT AND THE N SHADOW ACCOUNTS
208
DISTRIBUTE THE VALUE OF THE ACCOUNT BALANCE INTO THE N SHADOW ACCOUNTS
210
SET THE VALUE OF THE ACCOUNT BALANCE TO ZERO
212
RECEIVE A TRANSACTION REQUEST
214
RETURN

FIG. 2

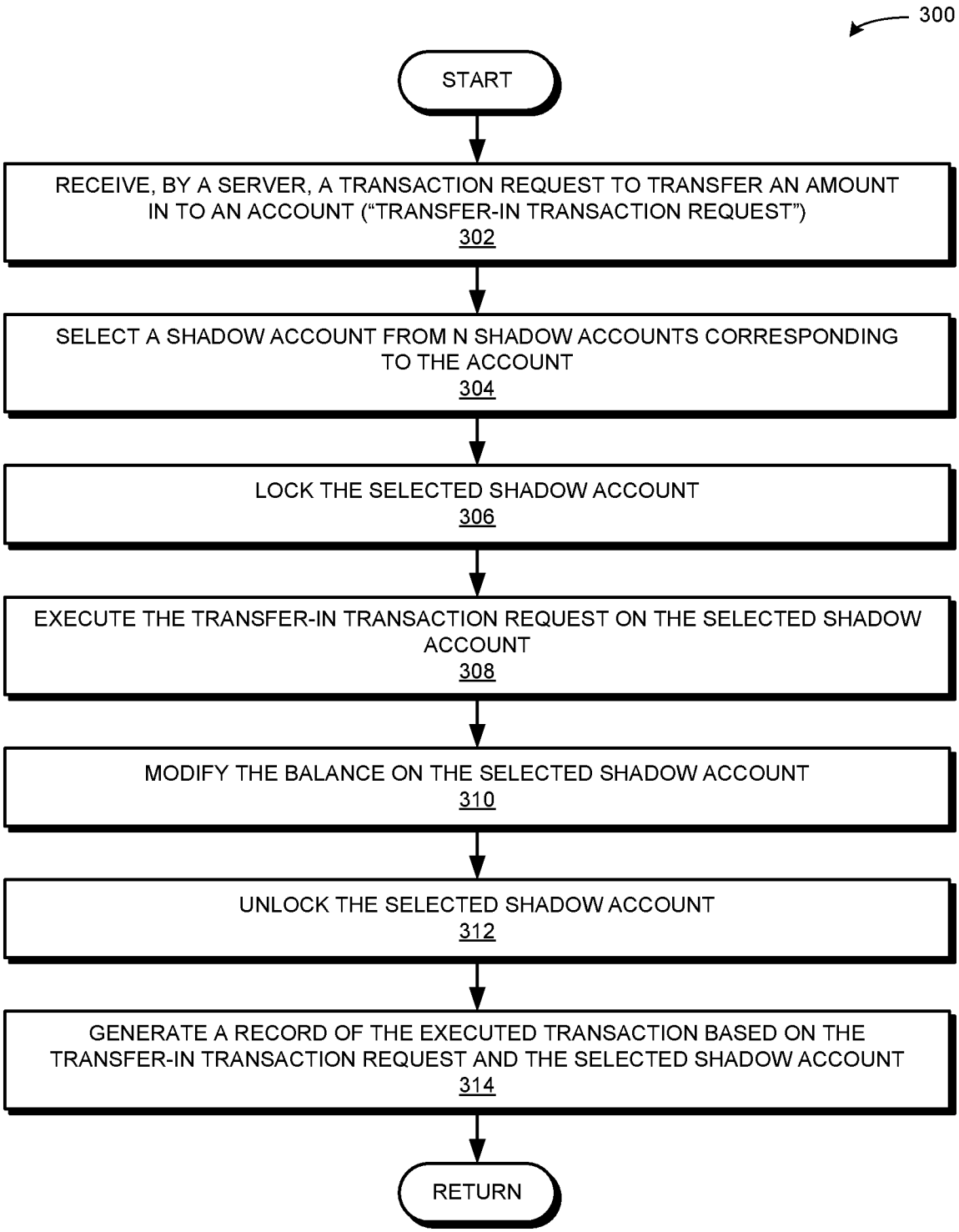

300
START
RECEIVE, BY A SERVER, A TRANSACTION REQUEST TO TRANSFER AN AMOUNT IN TO AN ACCOUNT ("TRANSFER-IN TRANSACTION REQUEST")
302
SELECT A SHADOW ACCOUNT FROM N SHADOW ACCOUNTS CORRESPONDING TO THE ACCOUNT
304
LOCK THE SELECTED SHADOW ACCOUNT
306
EXECUTE THE TRANSFER-IN TRANSACTION REQUEST ON THE SELECTED SHADOW ACCOUNT
308
MODIFY THE BALANCE ON THE SELECTED SHADOW ACCOUNT
310
UNLOCK THE SELECTED SHADOW ACCOUNT
312
GENERATE A RECORD OF THE EXECUTED TRANSACTION BASED ON THE TRANSFER-IN TRANSACTION REQUEST AND THE SELECTED SHADOW ACCOUNT
314
RETURN

FIG. 3

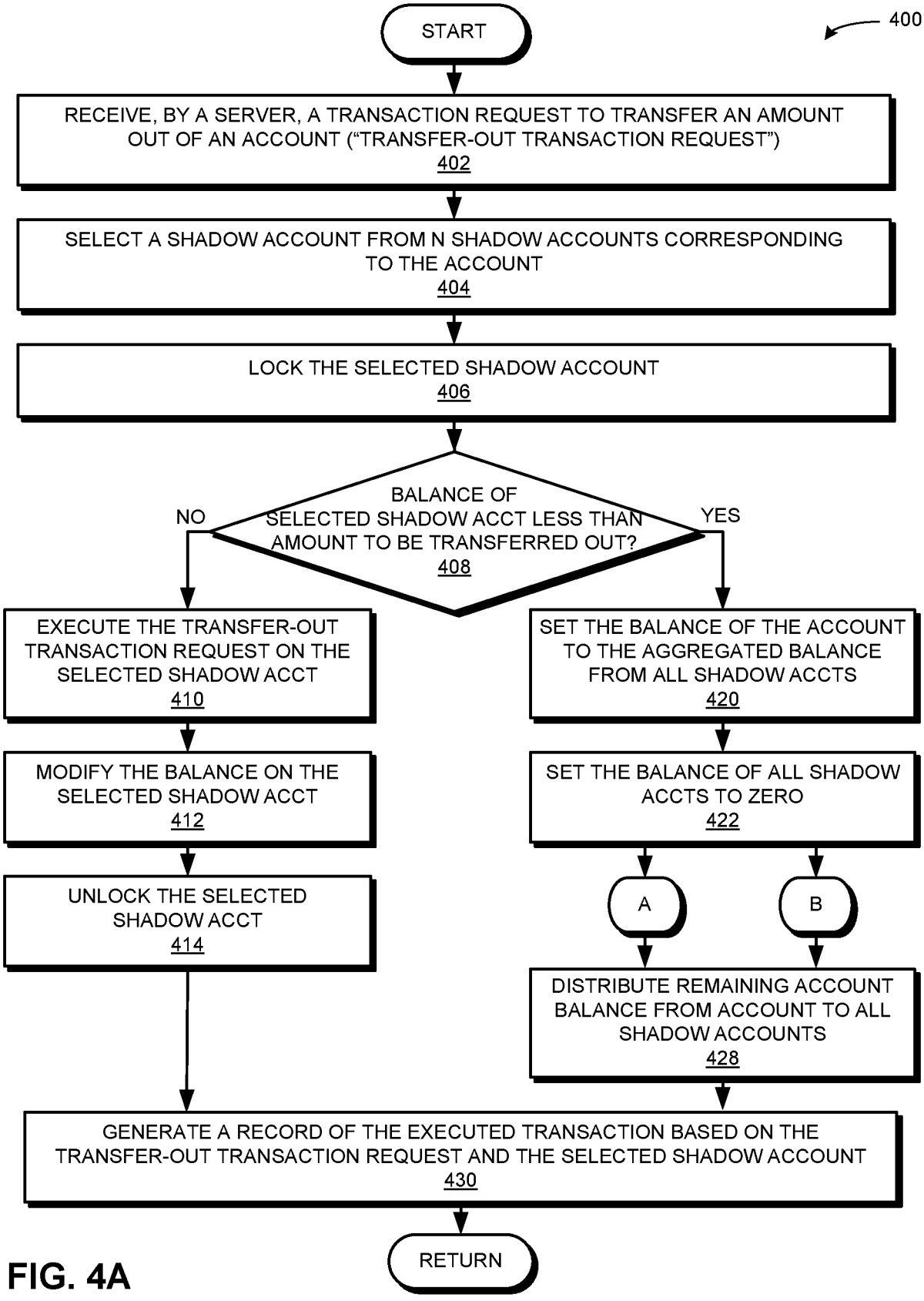

400
START
RECEIVE, BY A SERVER, A TRANSACTION REQUEST TO TRANSFER AN AMOUNT OUT OF AN ACCOUNT ("TRANSFER-OUT TRANSACTION REQUEST")
402
SELECT A SHADOW ACCOUNT FROM N SHADOW ACCOUNTS CORRESPONDING TO THE ACCOUNT
404
LOCK THE SELECTED SHADOW ACCOUNT
406
BALANCE OF SELECTED SHADOW ACCT LESS THAN AMOUNT TO BE TRANSFERRED OUT?
408
NO
YES
EXECUTE THE TRANSFER-OUT TRANSACTION REQUEST ON THE SELECTED SHADOW ACCT
410
MODIFY THE BALANCE ON THE SELECTED SHADOW ACCT
412
UNLOCK THE SELECTED SHADOW ACCT
414
SET THE BALANCE OF THE ACCOUNT TO THE AGGREGATED BALANCE FROM ALL SHADOW ACCTS
420
SET THE BALANCE OF ALL SHADOW ACCTS TO ZERO
422
A
B
DISTRIBUTE REMAINING ACCOUNT BALANCE FROM ACCOUNT TO ALL SHADOW ACCOUNTS
428
GENERATE A RECORD OF THE EXECUTED TRANSACTION BASED ON THE TRANSFER-OUT TRANSACTION REQUEST AND THE SELECTED SHADOW ACCOUNT
430
RETURN

FIG. 4A

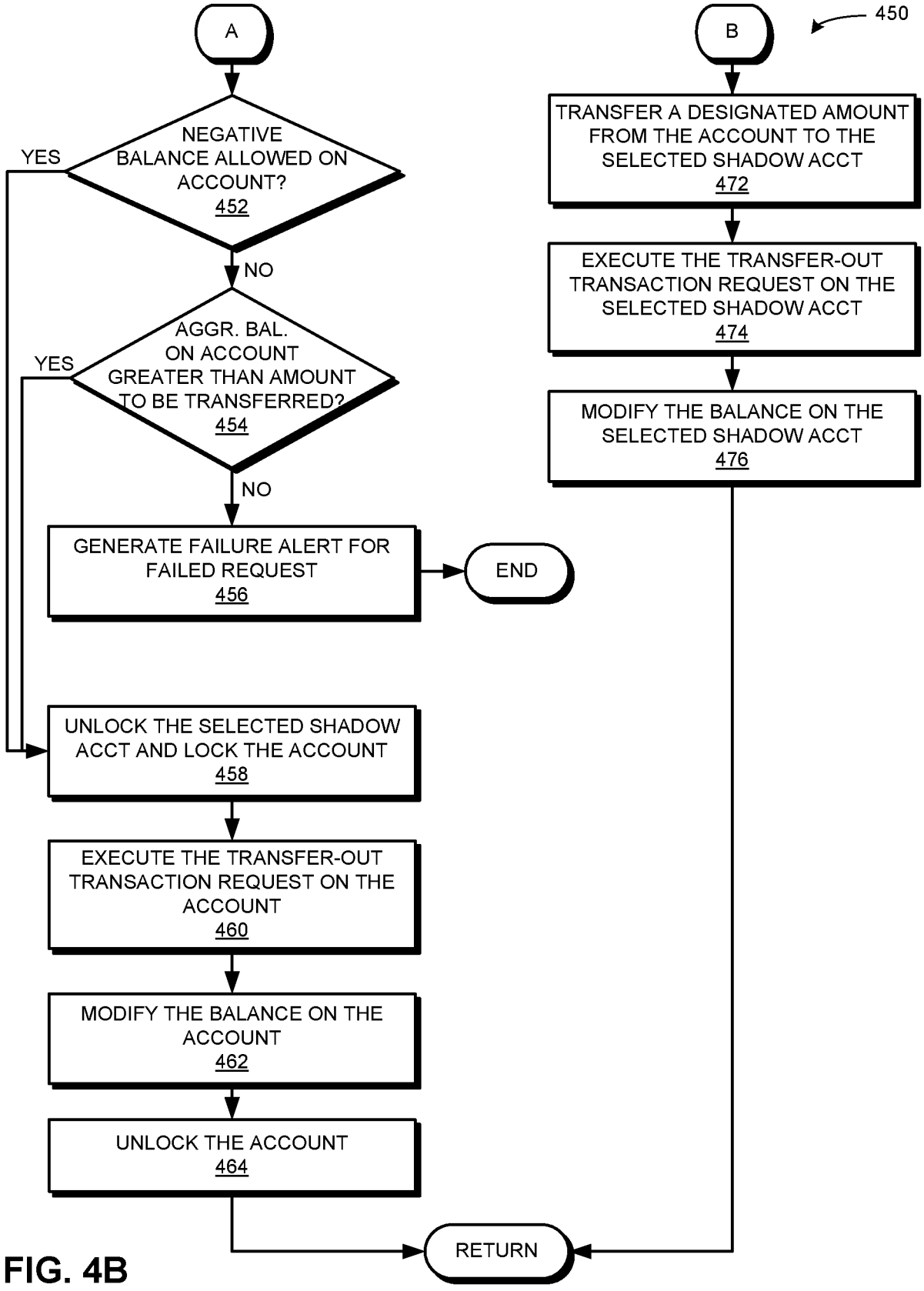

A
NEGATIVE BALANCE ALLOWED ON ACCOUNT? 452
YES
NO
AGGR. BAL. ON ACCOUNT GREATER THAN AMOUNT TO BE TRANSFERRED? 454
YES
NO
GENERATE FAILURE ALERT FOR FAILED REQUEST 456
END
UNLOCK THE SELECTED SHADOW ACCT AND LOCK THE ACCOUNT 458
EXECUTE THE TRANSFER-OUT TRANSACTION REQUEST ON THE ACCOUNT 460
MODIFY THE BALANCE ON THE ACCOUNT 462
UNLOCK THE ACCOUNT 464
RETURN
B
450
TRANSFER A DESIGNATED AMOUNT FROM THE ACCOUNT TO THE SELECTED SHADOW ACCT 472
EXECUTE THE TRANSFER-OUT TRANSACTION REQUEST ON THE SELECTED SHADOW ACCT 474
MODIFY THE BALANCE ON THE SELECTED SHADOW ACCT 476

FIG. 4B

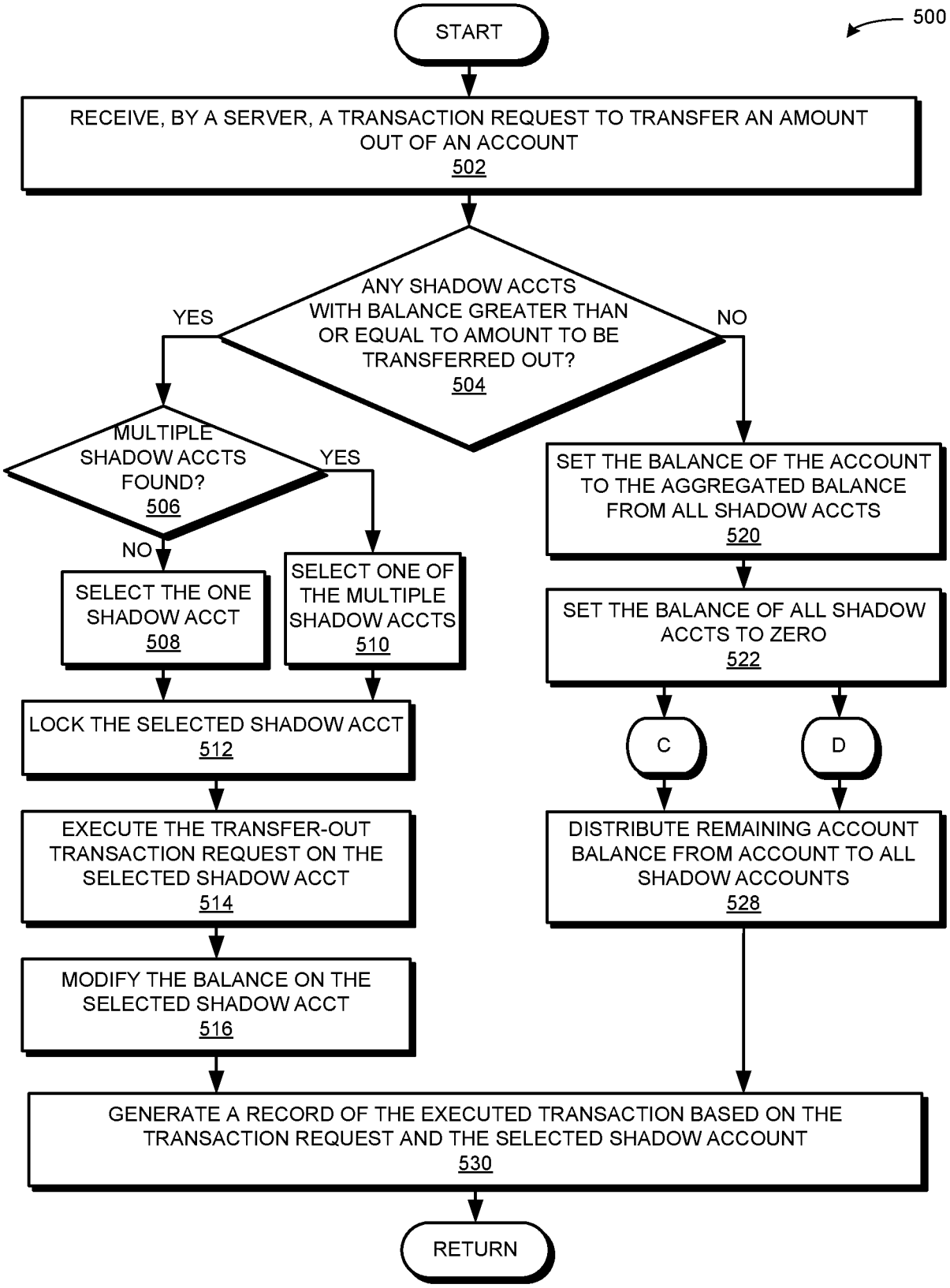

500
START
RECEIVE, BY A SERVER, A TRANSACTION REQUEST TO TRANSFER AN AMOUNT OUT OF AN ACCOUNT
502
ANY SHADOW ACCTS WITH BALANCE GREATER THAN OR EQUAL TO AMOUNT TO BE TRANSFERRED OUT?
504
YES
NO
MULTIPLE SHADOW ACCTS FOUND?
506
YES
NO
SELECT THE ONE SHADOW ACCT
508
SELECT ONE OF THE MULTIPLE SHADOW ACCTS
510
LOCK THE SELECTED SHADOW ACCT
512
EXECUTE THE TRANSFER-OUT TRANSACTION REQUEST ON THE SELECTED SHADOW ACCT
514
MODIFY THE BALANCE ON THE SELECTED SHADOW ACCT
516
SET THE BALANCE OF THE ACCOUNT TO THE AGGREGATED BALANCE FROM ALL SHADOW ACCTS
520
SET THE BALANCE OF ALL SHADOW ACCTS TO ZERO
522
C
D
DISTRIBUTE REMAINING ACCOUNT BALANCE FROM ACCOUNT TO ALL SHADOW ACCOUNTS
528
GENERATE A RECORD OF THE EXECUTED TRANSACTION BASED ON THE TRANSACTION REQUEST AND THE SELECTED SHADOW ACCOUNT
530
RETURN

FIG. 5A

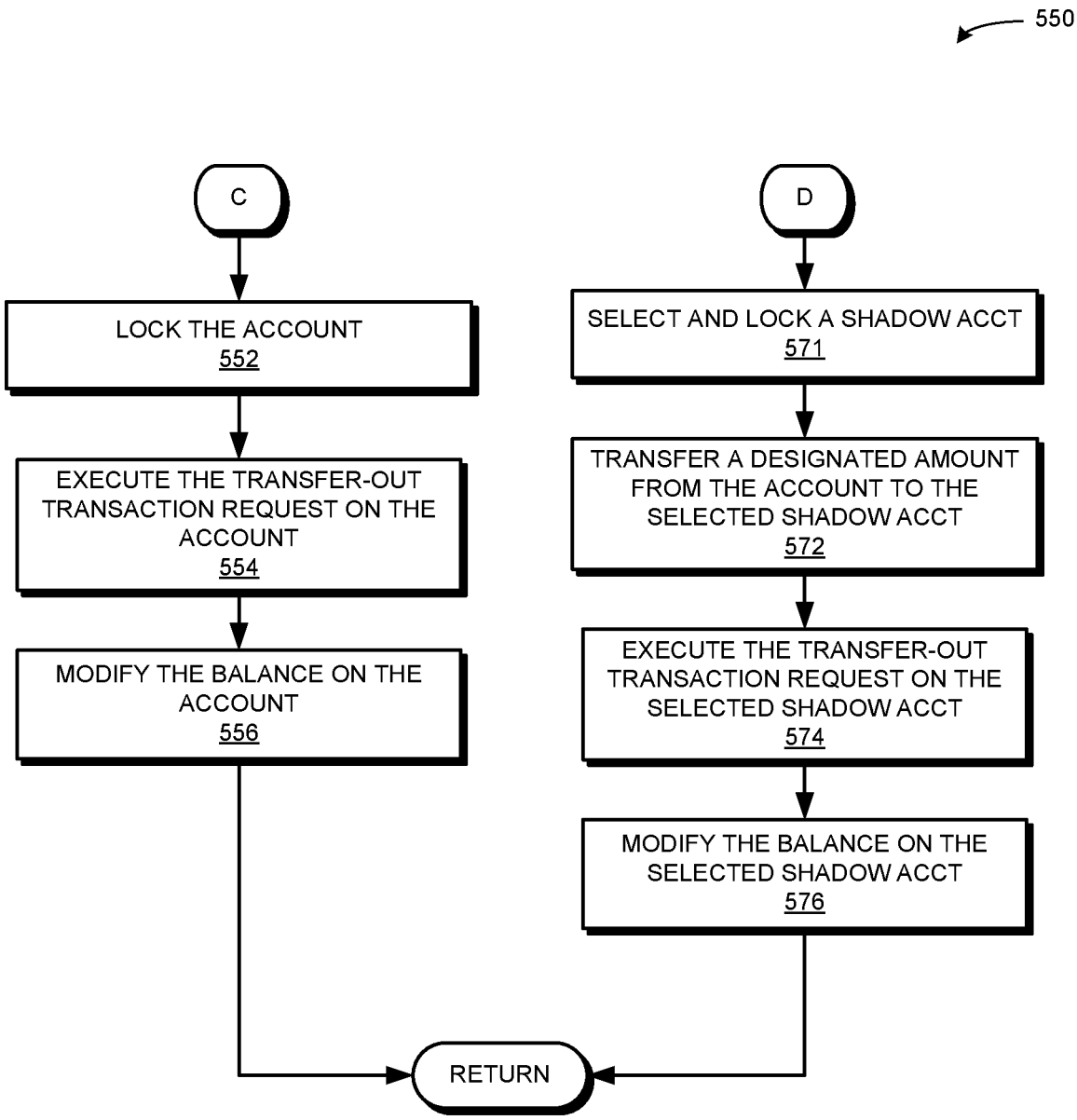

550
C
LOCK THE ACCOUNT
552
EXECUTE THE TRANSFER-OUT TRANSACTION REQUEST ON THE ACCOUNT
554
MODIFY THE BALANCE ON THE ACCOUNT
556
D
SELECT AND LOCK A SHADOW ACCT
571
TRANSFER A DESIGNATED AMOUNT FROM THE ACCOUNT TO THE SELECTED SHADOW ACCT
572
EXECUTE THE TRANSFER-OUT TRANSACTION REQUEST ON THE SELECTED SHADOW ACCT
574
MODIFY THE BALANCE ON THE SELECTED SHADOW ACCT
576
RETURN

FIG. 5B

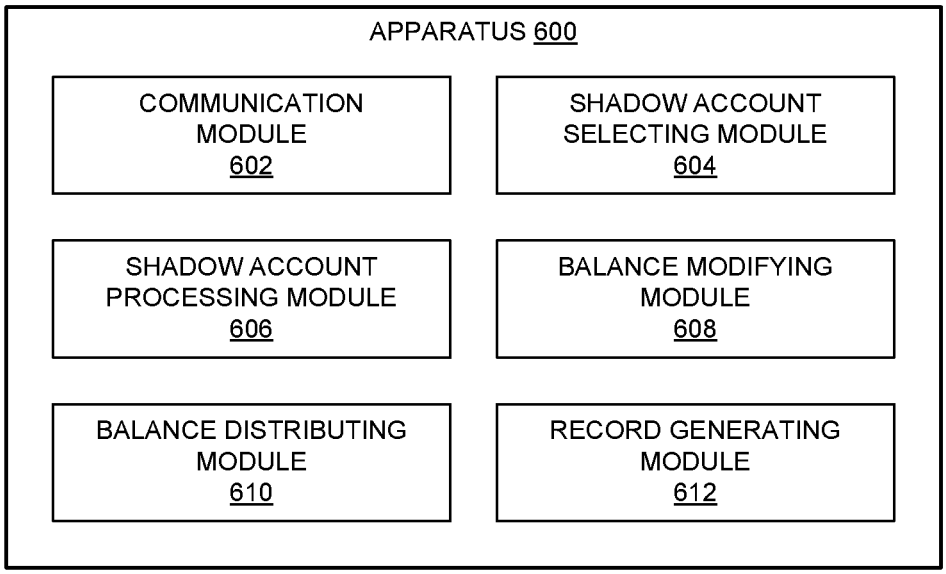

APPARATUS 600
COMMUNICATION MODULE 602
SHADOW ACCOUNT SELECTING MODULE 604
SHADOW ACCOUNT PROCESSING MODULE 606
BALANCE MODIFYING MODULE 608
BALANCE DISTRIBUTING MODULE 610
RECORD GENERATING MODULE 612

FIG. 6

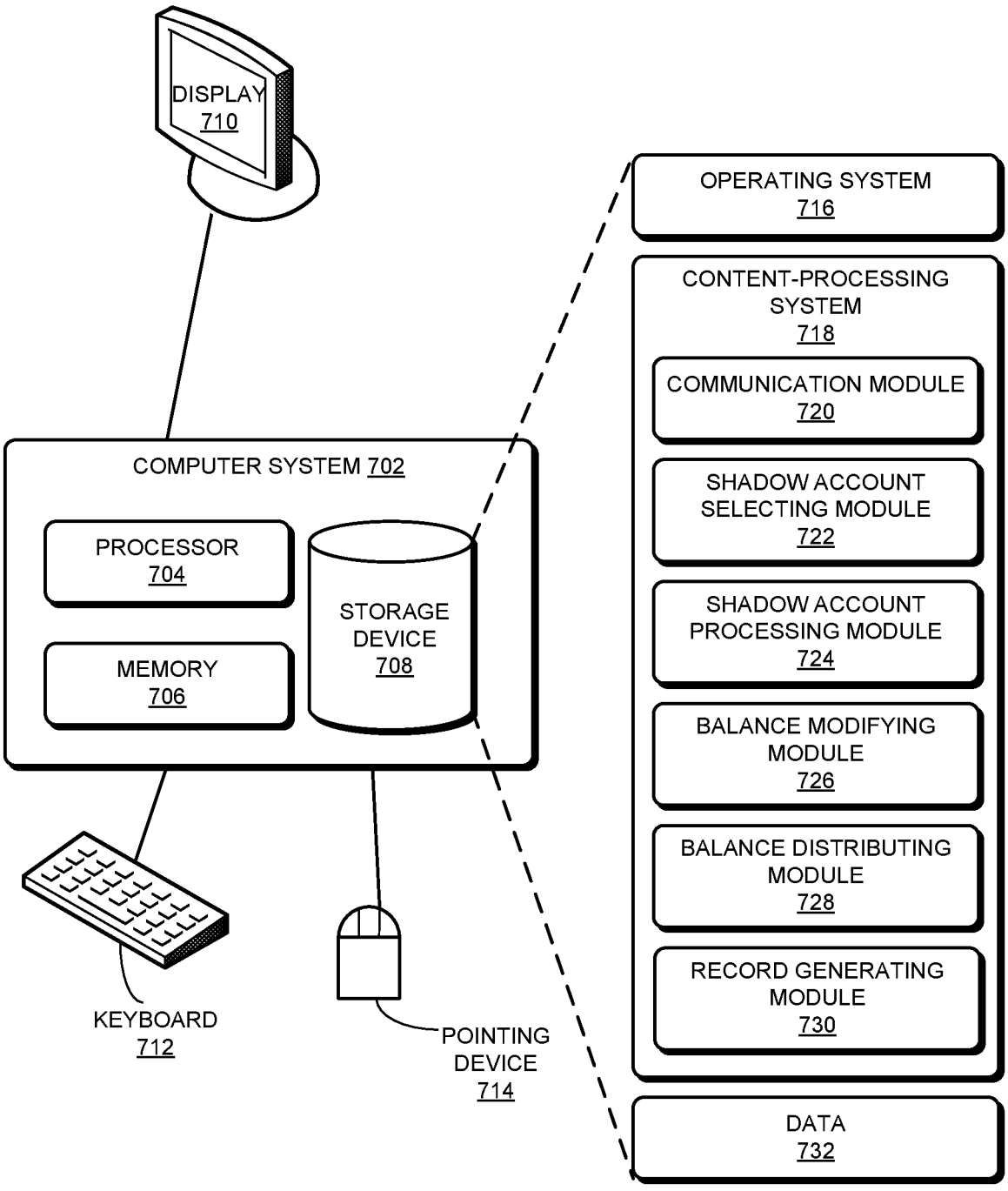

DISPLAY
710
COMPUTER SYSTEM 702
PROCESSOR
704
MEMORY
706
STORAGE
DEVICE
708
KEYBOARD
712
POINTING
DEVICE
714
OPERATING SYSTEM
716
CONTENT-PROCESSING
SYSTEM
718
COMMUNICATION MODULE
720
SHADOW ACCOUNT
SELECTING MODULE
722
SHADOW ACCOUNT
PROCESSING MODULE
724
BALANCE MODIFYING
MODULE
726
BALANCE DISTRIBUTING
MODULE
728
RECORD GENERATING
MODULE
730
DATA
732

FIG. 7