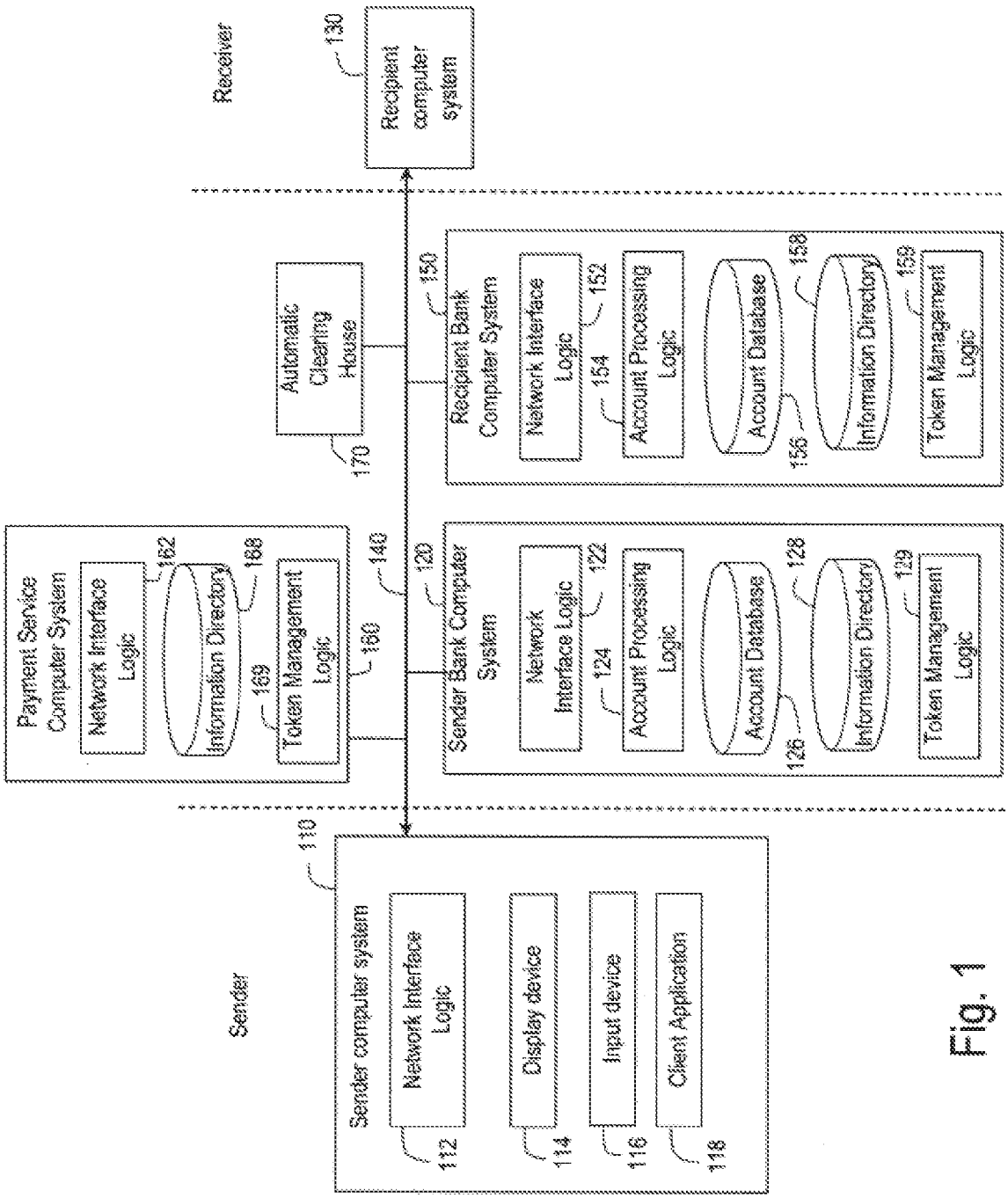

Receiver
130
Recipient computer system
Automatic Clearing House
170
150
Recipient Bank Computer System
Network Interface Logic
152
154
Account Processing Logic
Account Database
156
158
Information Directory
159
Token Management Logic
Payment Service Computer System
Network Interface Logic
162
Information Directory
168
169
Token Management Logic
160
140
120
Sender Bank Computer System
Network Interface Logic
122
124
Account Processing Logic
Account Database
126
128
Information Directory
129
Token Management Logic
Sender
110
Sender computer system
Network Interface Logic
112
Display device
114
Input device
116
Client Application
118

Fig. 1

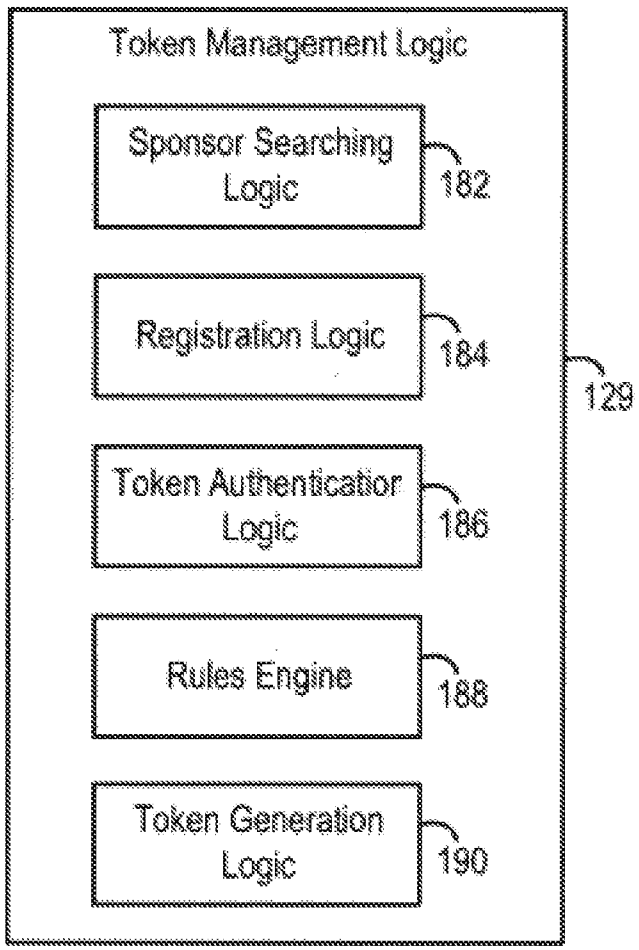

Token Management Logic
Sponsor Searching Logic
182
Registration Logic
184
Token Authentication Logic
186
Rules Engine
188
Token Generation Logic
190
129

Fig. 2

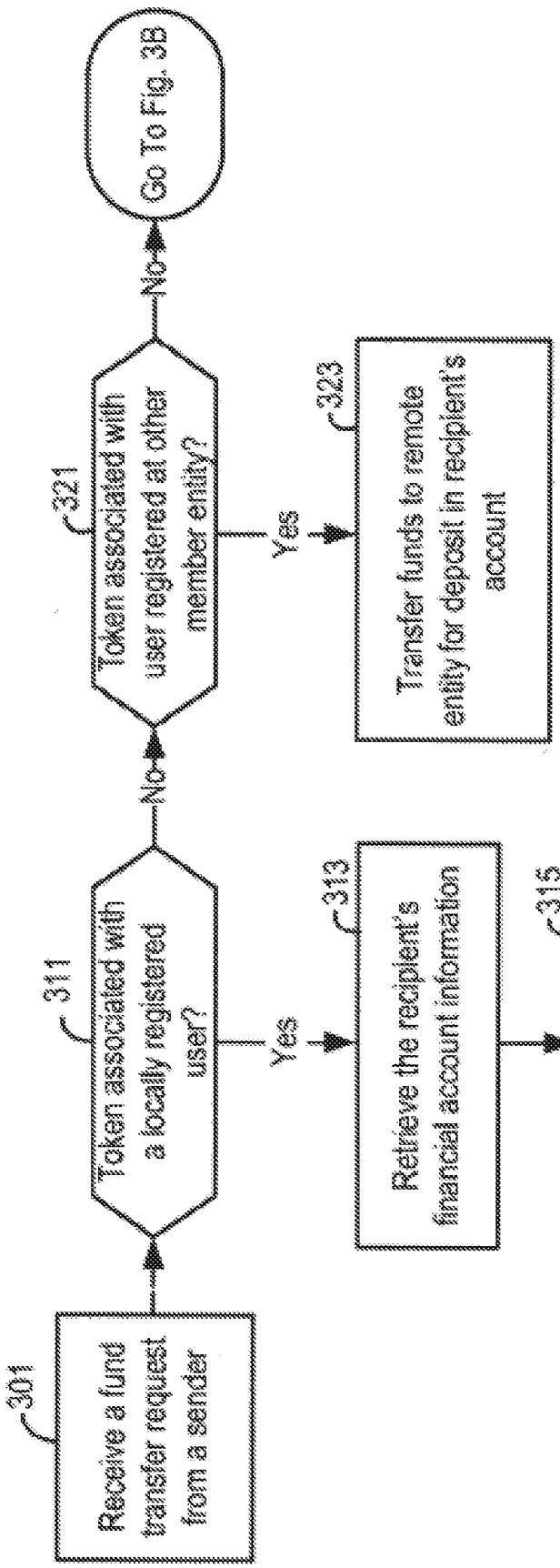

301
Receive a fund transfer request from a sender
311
Token associated with a locally registered user?
Yes
313
Retrieve the recipient's financial account information
315
Transfer funds to the financial account of the recipient
No
321
Token associated with user registered at other member entity?
Yes
323
Transfer funds to remote entity for deposit in recipient's account
No
Go To Fig. 3B

Fig. 3A

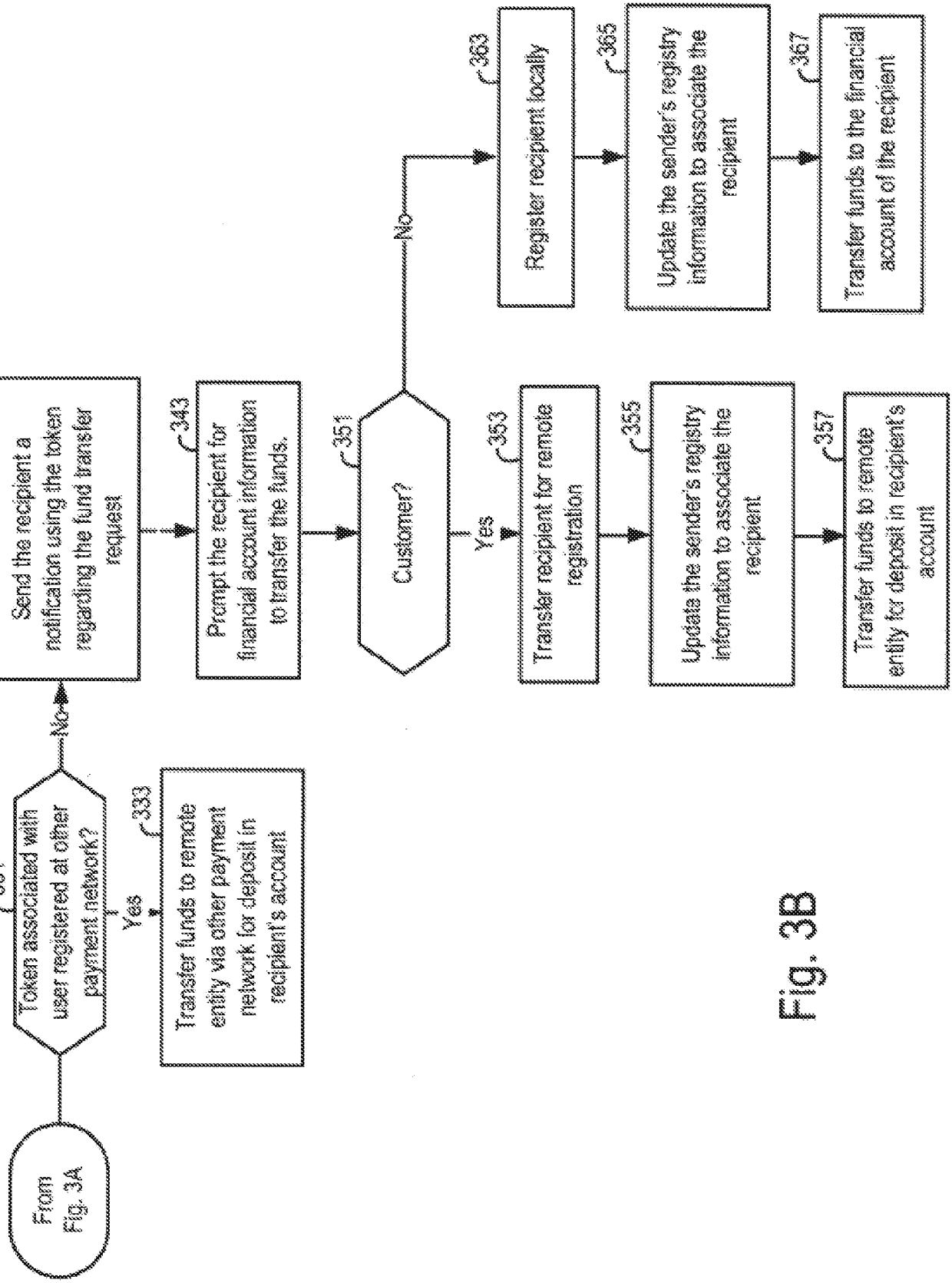

From Fig. 3A
331
Token associated with user registered at other payment network?
Yes
333
Transfer funds to remote entity via other payment network for deposit in recipient's account
No
341
Send the recipient a notification using the token regarding the fund transfer request
343
Prompt the recipient for financial account information to transfer the funds.
351
Customer?
Yes
353
Transfer recipient for remote registration
355
Update the sender's registry information to associate the recipient
357
Transfer funds to remote entity for deposit in recipient's account
No
363
Register recipient locally
365
Update the sender's registry information to associate the recipient
367
Transfer funds to the financial account of the recipient

Fig. 3B

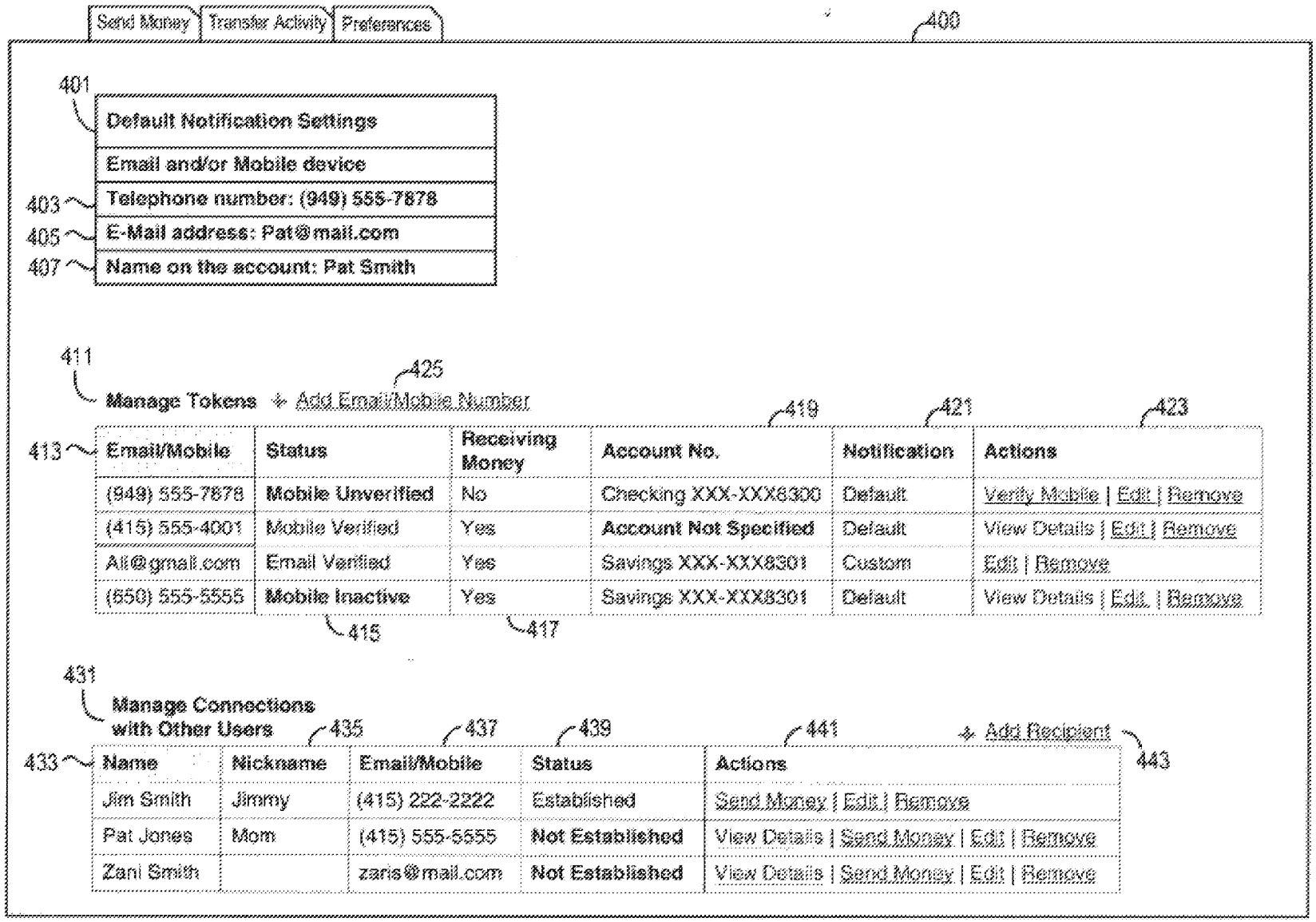

Send Money
Transfer Activity
Preferences
400
401
Default Notification Settings
Email and/or Mobile device
403
Telephone number: (949) 555-7878
405
E-Mail address: Pat@mail.com
407
Name on the account: Pat Smith
411
Manage Tokens
425
Add Email/Mobile Number
419
421
423
413
Email/Mobile
Status
Receiving Money
Account No.
Notification
Actions
(949) 555-7878
Mobile Unverified
No
Checking XXX-XXX6300
Default
Verify Mobile | Edit | Remove
(415) 555-4001
Mobile Verified
Yes
Account Not Specified
Default
View Details | Edit | Remove
All@gmail.com
Email Verified
Yes
Savings XXX-XXX8301
Custom
Edit | Remove
(650) 555-5555
Mobile Inactive
Yes
Savings XXX-XXX8301
Default
View Details | Edit | Remove
415
417
431
Manage Connections with Other Users
435
437
439
441
Add Recipient
443
433
Name
Nickname
Email/Mobile
Status
Actions
Jim Smith
Jimmy
(415) 222-2222
Established
Send Money | Edit | Remove
Pat Jones
Mom
(415) 555-5555
Not Established
View Details | Send Money | Edit | Remove
Zani Smith
zaris@mail.com
Not Established
View Details | Send Money | Edit | Remove

Fig. 4

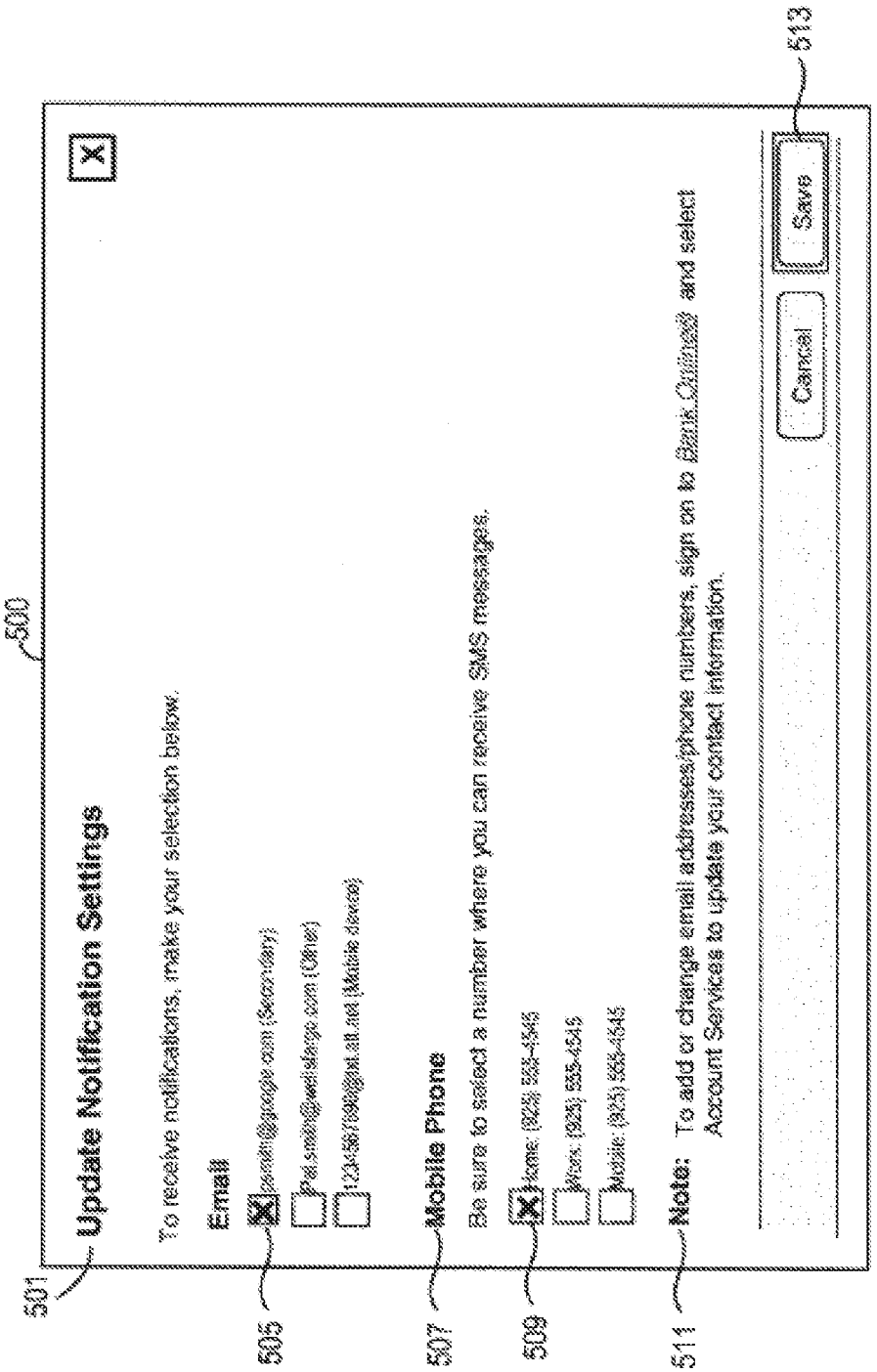

500
501
Update Notification Settings
X
To receive notifications, make your selection below.
Email
505
Mobile Phone
507
Be sure to select a number where you can receive SMS messages.
509
Home: (925) 555-4545
Work: (925) 555-4546
Mobile: (925) 555-4545
511
Note: To add or change email addresses/phone numbers, sign on to Bank Online® and select Account Services to update your contact information.
Cancel
Save
513

Fig. 5

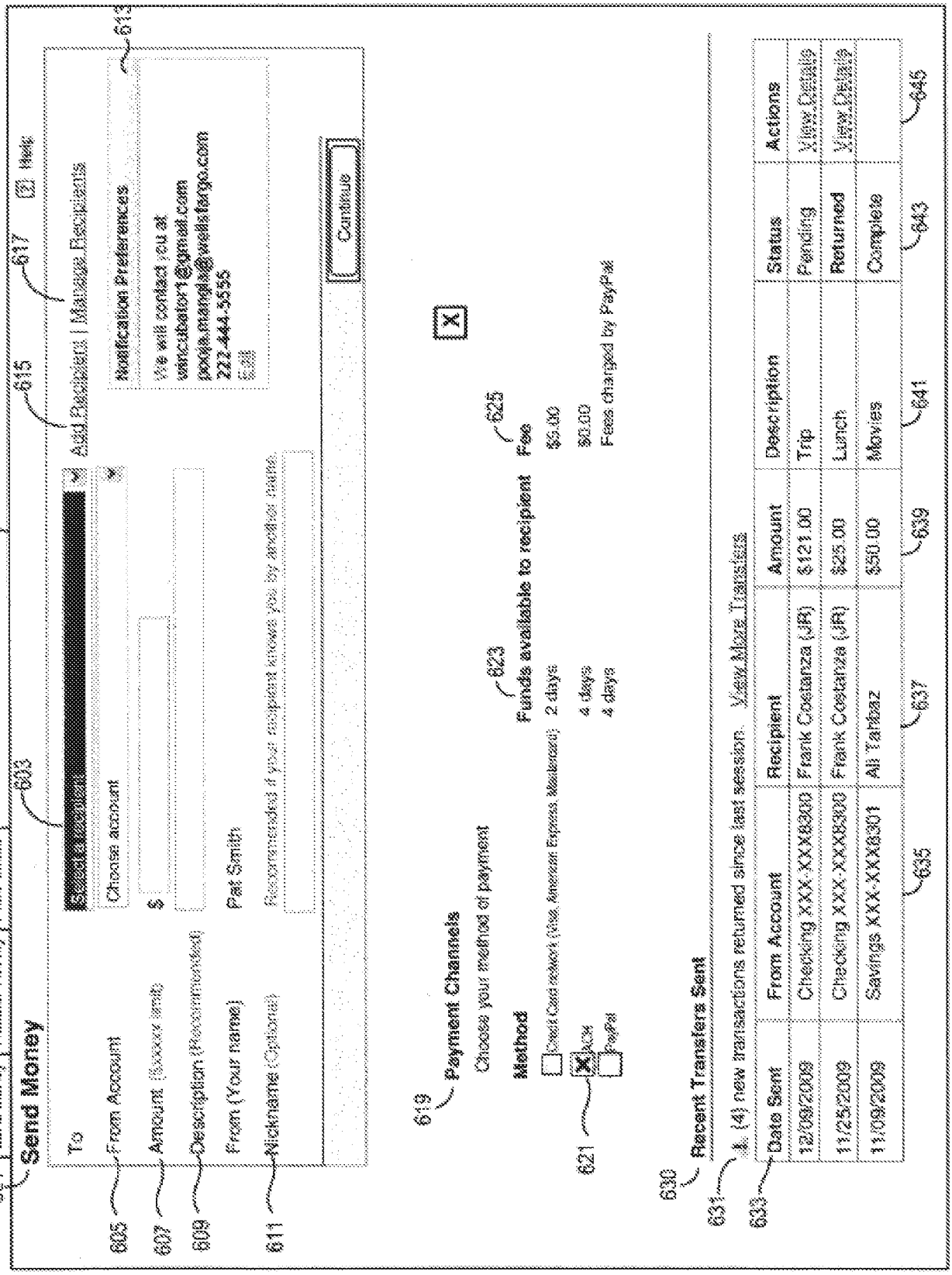

Send Money
Transfer Activity
Preferences
To
Add Recipient | Manage Recipients
From Account
Choose account
Amount (Exceeds limit)
$
Description (Recommended)
From (Your name)
Pat Smith
Nickname (Optional)
Recommended if your recipient knows you by another name.
Notification Preferences
We will contact you at
vmcubator1@gmail.com
pooja.mangla@wellsfargo.com
222-444-5555
Edit
Continue
Payment Channels
Choose your method of payment
Method
Funds available to recipient
Fee
Credit Card issuers (Visa, American Express, Mastercard)
2 days
$5.00
Xpay
4 days
$0.00
PayPal
4 days
Fees charged by PayPal
Recent Transfers Sent
(4) new transactions returned since last session.
View More Transfers
Date Sent
From Account
Recipient
Amount
Description
Status
Actions
12/09/2009
Checking XXX-XXX8300
Frank Costanza (JR)
$121.00
Trip
Pending
View Details
11/25/2009
Checking XXX-XXX8300
Frank Costanza (JR)
$25.00
Lunch
Returned
View Details
11/09/2009
Savings XXX-XXX8301
Ali Tahbaz
$50.00
Movies
Complete
600
601
603
605
607
609
611
613
615
617
619
621
623
625
630
631
633
635
637
639
641
643
645

Fig. 6

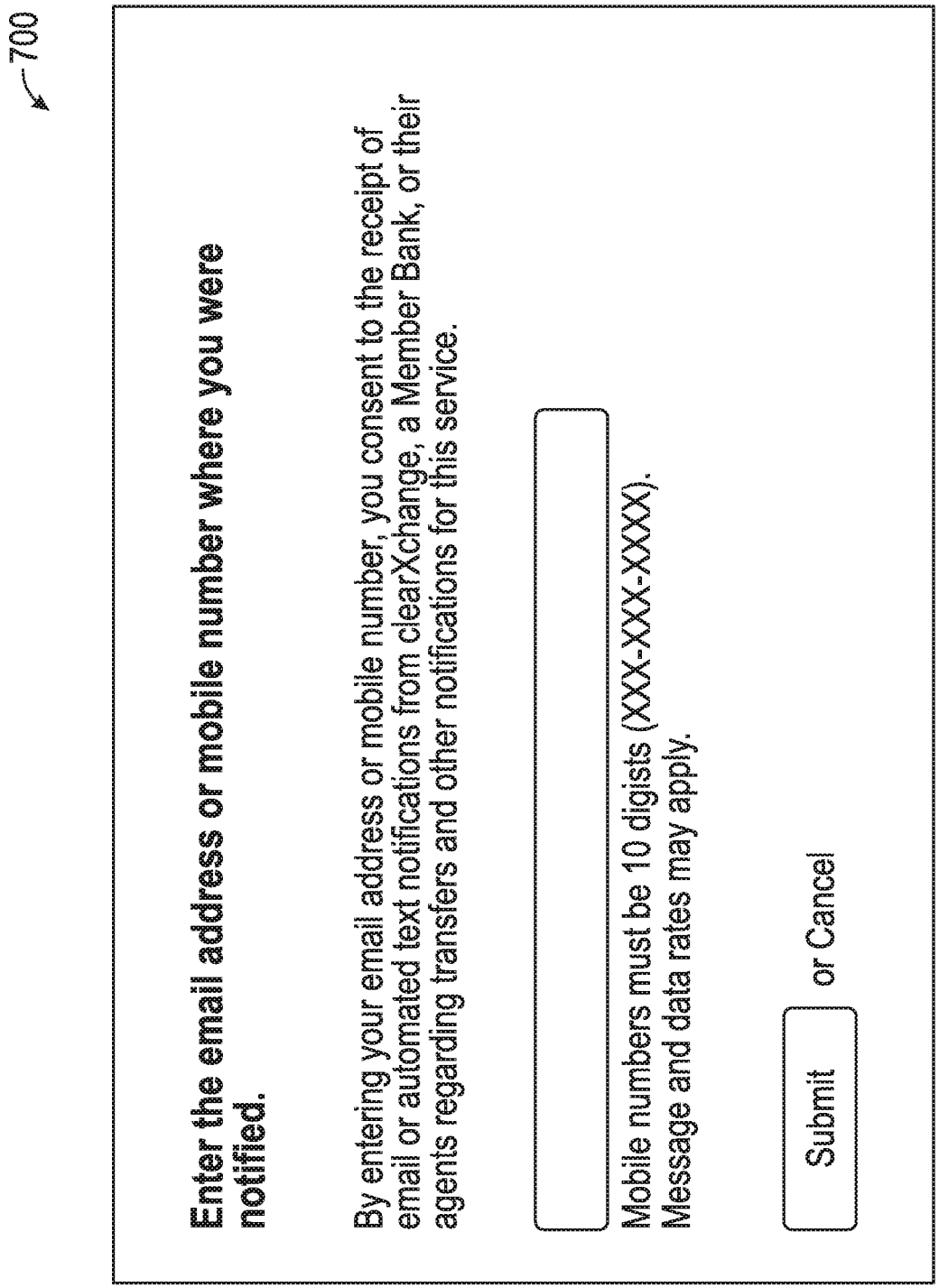

700
Enter the email address or mobile number where you were notified.
By entering your email address or mobile number, you consent to the receipt of email or automated text notifications from clearXchange, a Member Bank, or their agents regarding transfers and other notifications for this service.
Mobile numbers must be 10 digists (XXX-XXX-XXXX).
Message and data rates may apply.
Submit
or Cancel

FIG. 7

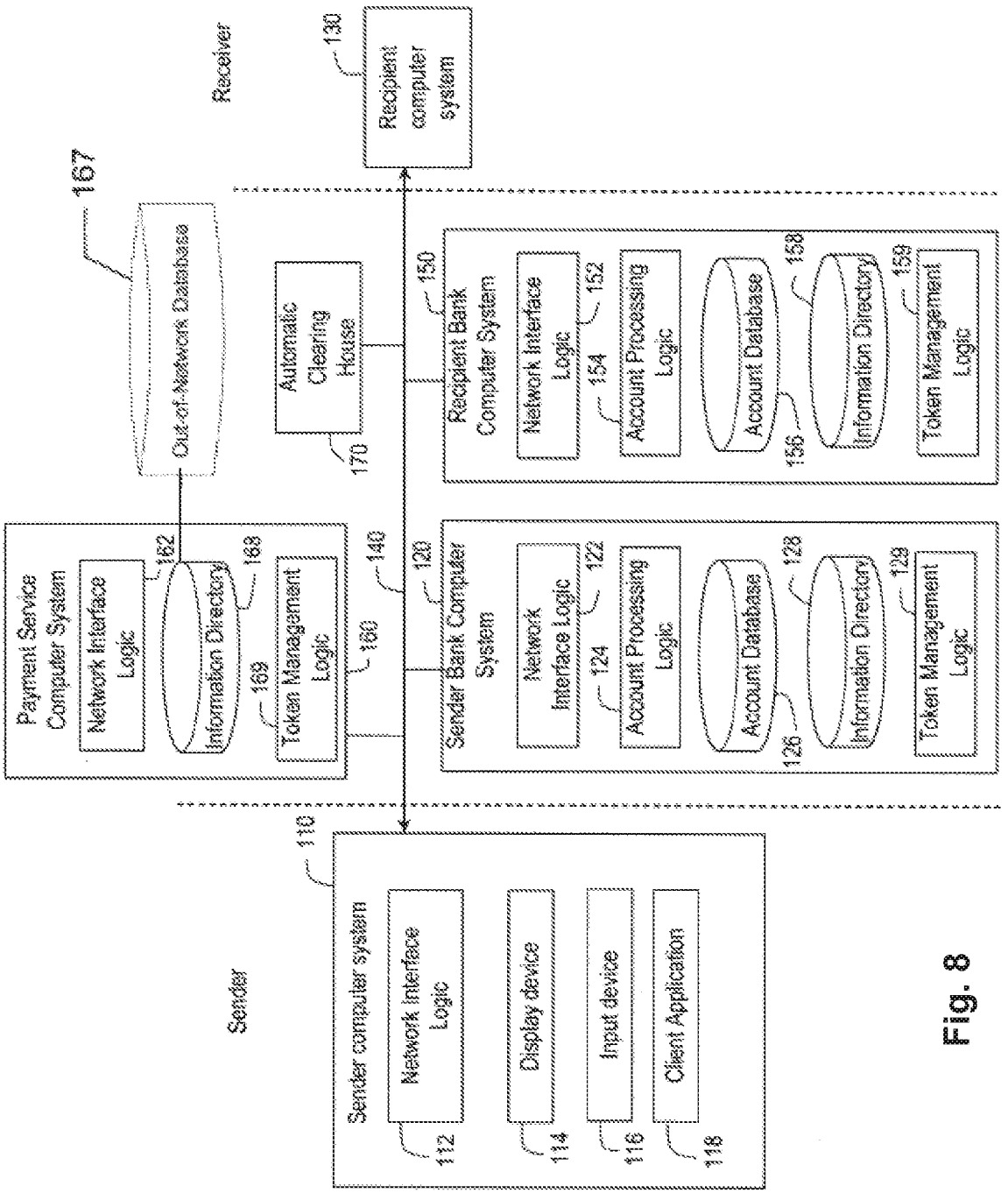

Sender
Receiver
110
Sender computer system
Network Interface Logic
112
Display device
114
Input device
116
Client Application
118
120
Sender Bank Computer System
Network Interface Logic
122
124
Account Processing Logic
Account Database
126
128
Information Directory
129
Token Management Logic
130
Recipient computer system
140
Payment Service Computer System
Network Interface Logic
162
Information Directory
168
169
Token Management Logic
160
150
Recipient Bank Computer System
Network Interface Logic
152
154
Account Processing Logic
Account Database
156
158
Information Directory
159
Token Management Logic
Automatic Clearing House
170
167
Out-of-Network Database

Fig. 8

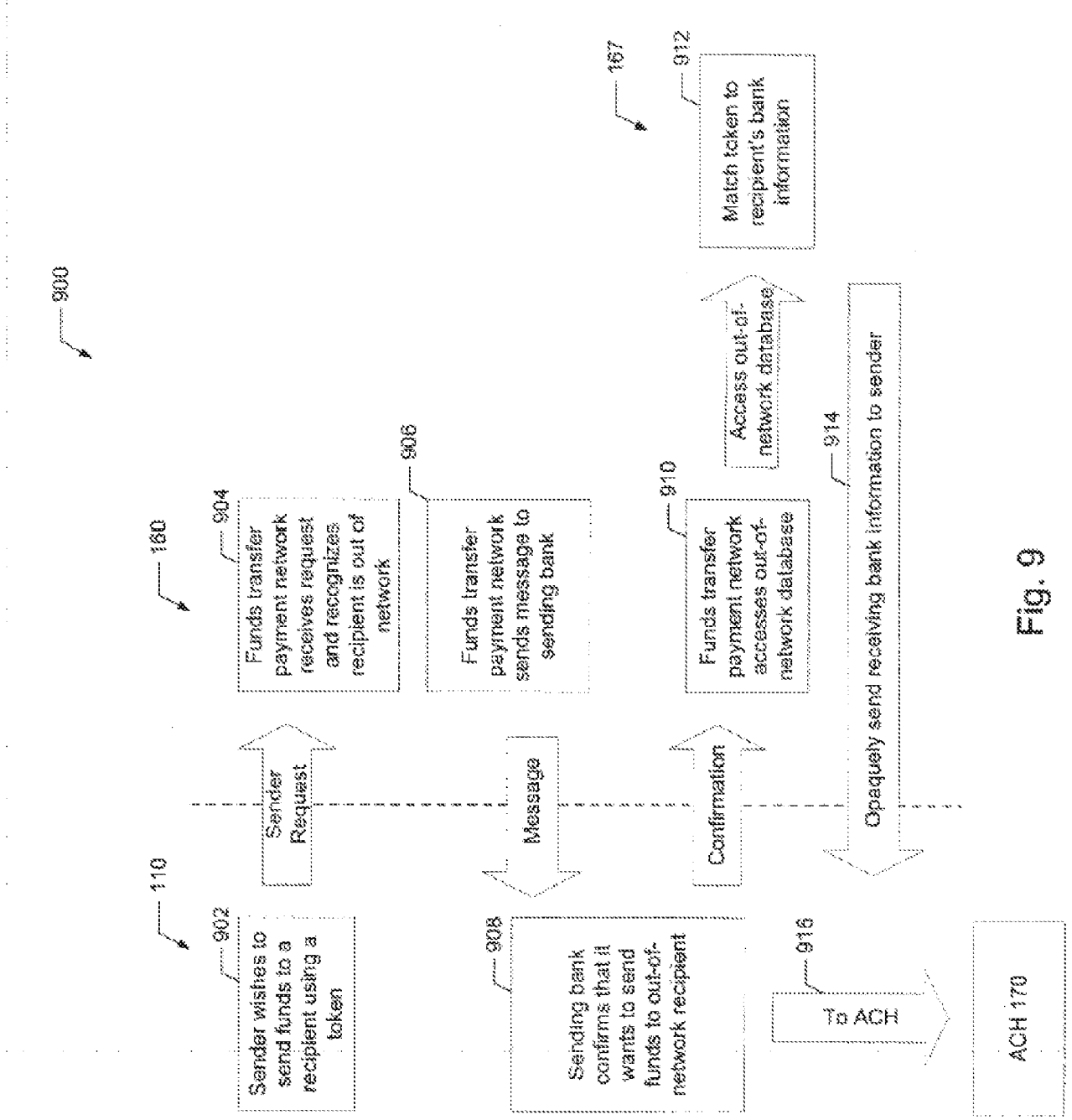

900
110
902
Sender wishes to send funds to a recipient using a token
Sender Request
160
904
Funds transfer payment network receives request and recognizes recipient is out of network
906
Funds transfer payment network sends message to sending bank
Message
908
Sending bank confirms that it wants to send funds to out-of-network recipient
Confirmation
910
Funds transfer payment network accesses out-of-network database
167
912
Match token to recipient's bank information
Access out-of-network database
914
Opaquely send receiving bank information to sender
916
To ACH
ACH 170

Fig. 9

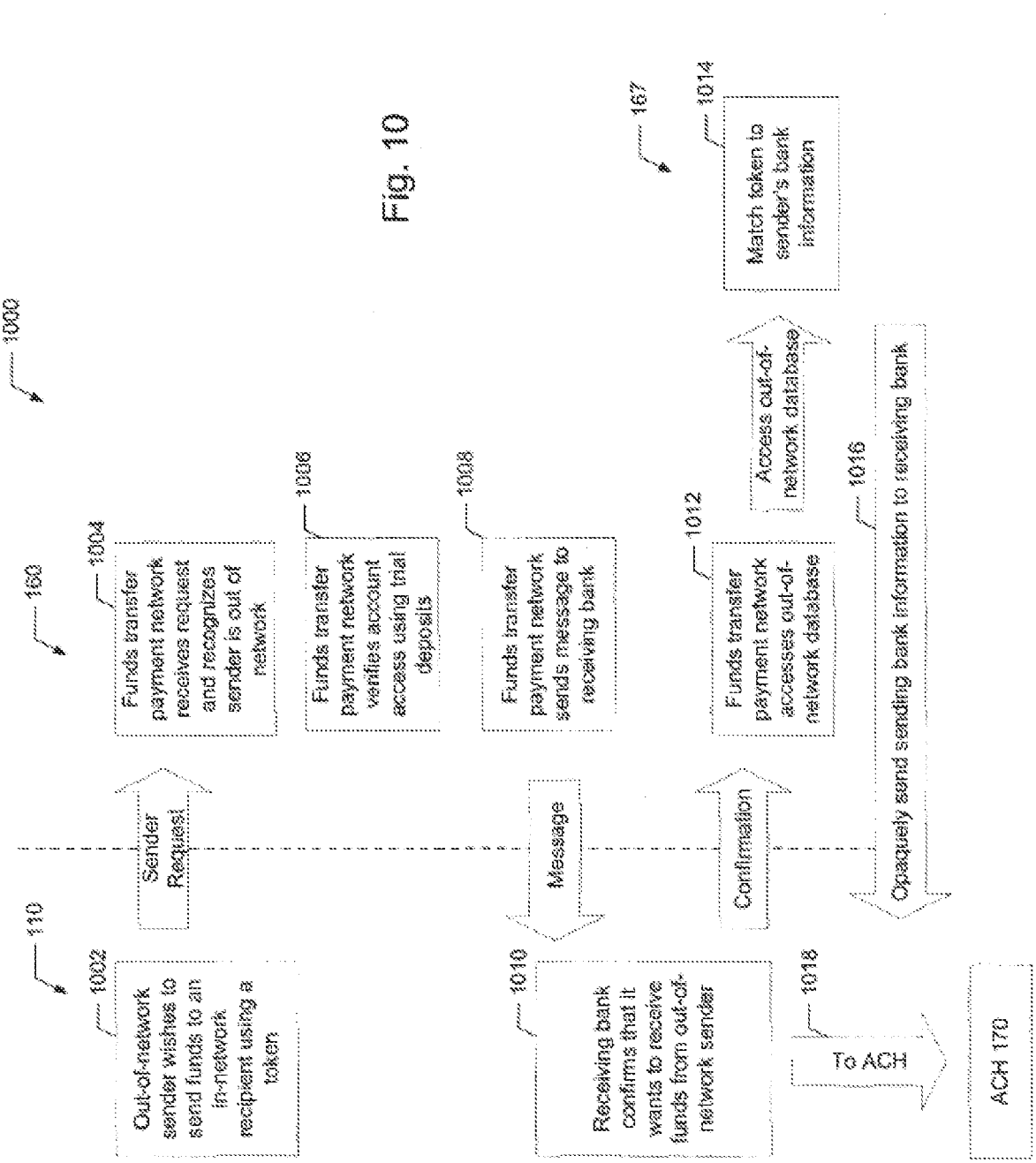

1000
110
1002
Out-of-network sender wishes to send funds to an in-network recipient using a token
Sender Request
160
1004
Funds transfer payment network receives request and recognizes sender is out of network
1006
Funds transfer payment network verifies account access using trial deposits
1008
Funds transfer payment network sends message to receiving bank
Message
1010
Receiving bank confirms that it wants to receive funds from out-of-network sender
Confirmation
1012
Funds transfer payment network accesses out-of-network database
Access out-of-network database
167
1014
Match token to sender's bank information
1016
Opaquely send sending bank information to receiving bank
1018
To ACH
ACH 170

Fig. 10

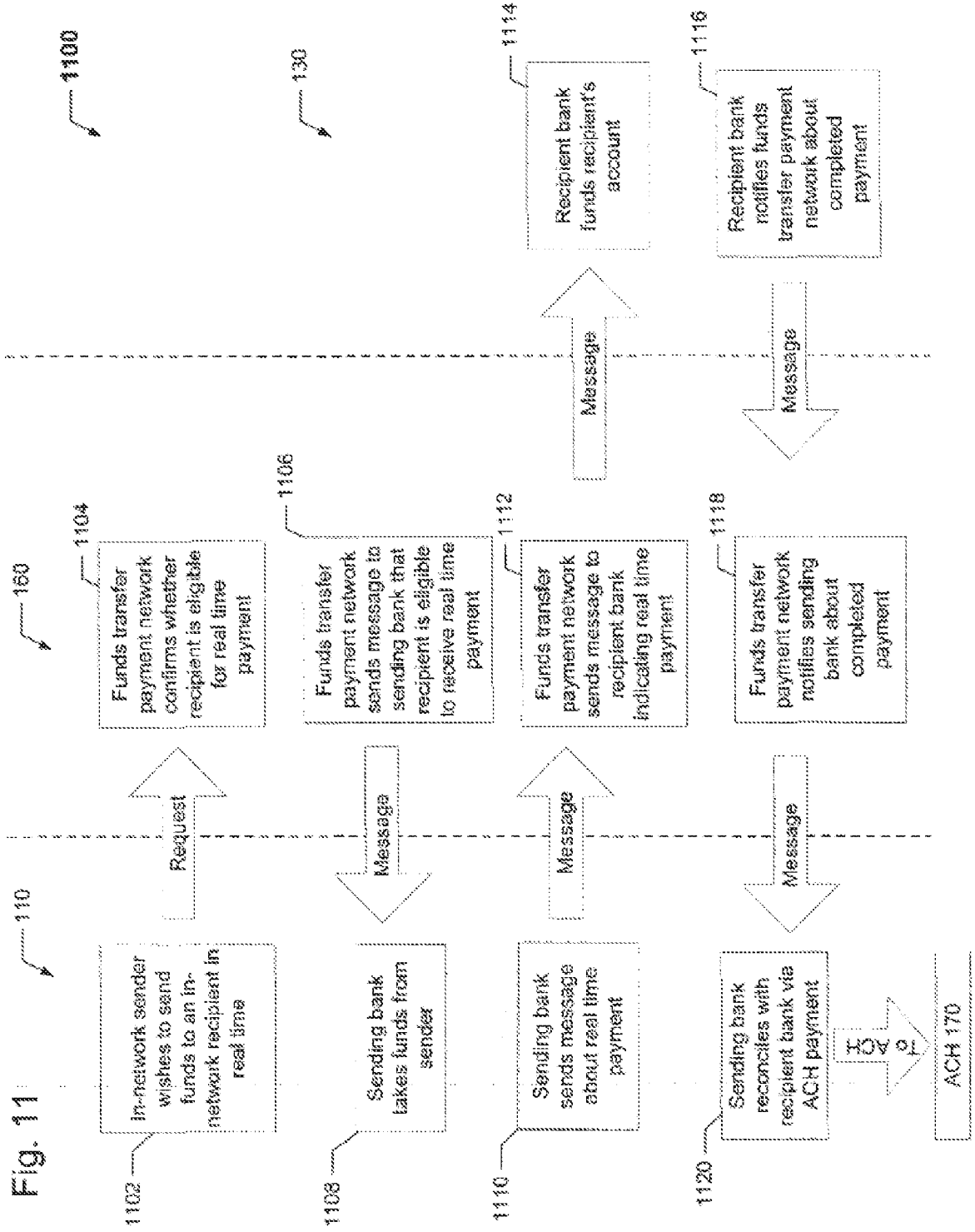

1100
130
160
110
1114
Recipient bank funds recipient's account
1116
Recipient bank notifies funds transfer payment network about completed payment
1104
Funds transfer payment network confirms whether recipient is eligible for real time payment
1106
Funds transfer payment network sends message to sending bank that recipient is eligible to receive real time payment
1112
Funds transfer payment network sends message to recipient bank indicating real time payment
1118
Funds transfer payment network notifies sending bank about completed payment
Request
Message
Message
Message
Message
1102
In-network sender wishes to send funds to an in-network recipient in real time
1108
Sending bank takes funds from sender
1110
Sending bank sends message about real time payment
1120
Sending bank reconciles with recipient bank via ACH payment
ACH 170

Fig. 11

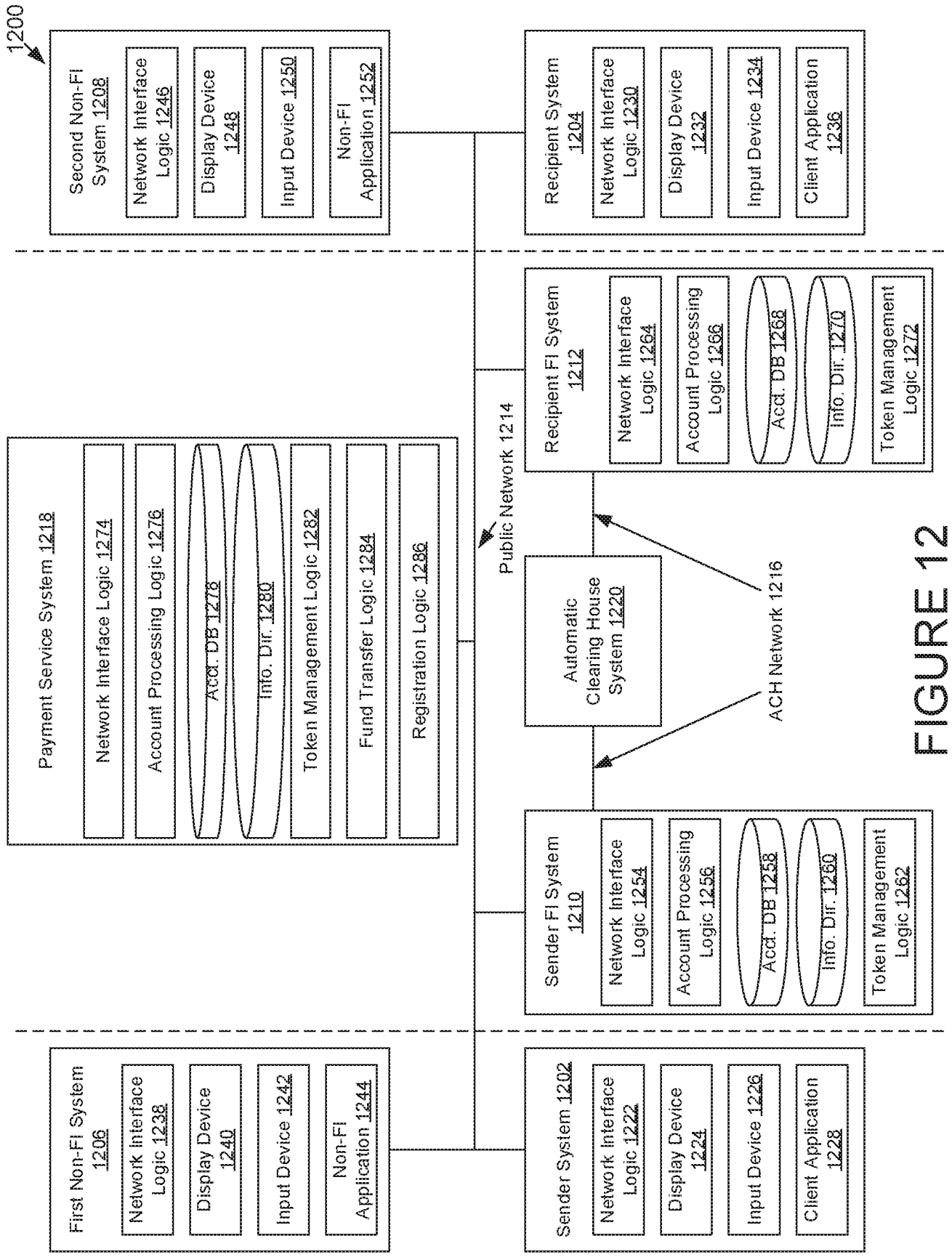

1200
Second Non-FI System 1208
Network Interface Logic 1246
Display Device 1248
Input Device 1250
Non-FI Application 1252
Recipient System 1204
Network Interface Logic 1230
Display Device 1232
Input Device 1234
Client Application 1236
Payment Service System 1218
Network Interface Logic 1274
Account Processing Logic 1276
Acct. DB 1278
Info. Dir. 1280
Token Management Logic 1282
Fund Transfer Logic 1284
Registration Logic 1286
Public Network 1214
Recipient FI System 1212
Network Interface Logic 1264
Account Processing Logic 1266
Acct. DB 1268
Info. Dir. 1270
Token Management Logic 1272
Automatic Clearing House System 1220
ACH Network 1216
Sender FI System 1210
Network Interface Logic 1254
Account Processing Logic 1256
Acct. DB 1258
Info. Dir. 1260
Token Management Logic 1262
First Non-FI System 1206
Network Interface Logic 1238
Display Device 1240
Input Device 1242
Non-FI Application 1244
Sender System 1202
Network Interface Logic 1222
Display Device 1224
Input Device 1226
Client Application 1228

FIGURE 12

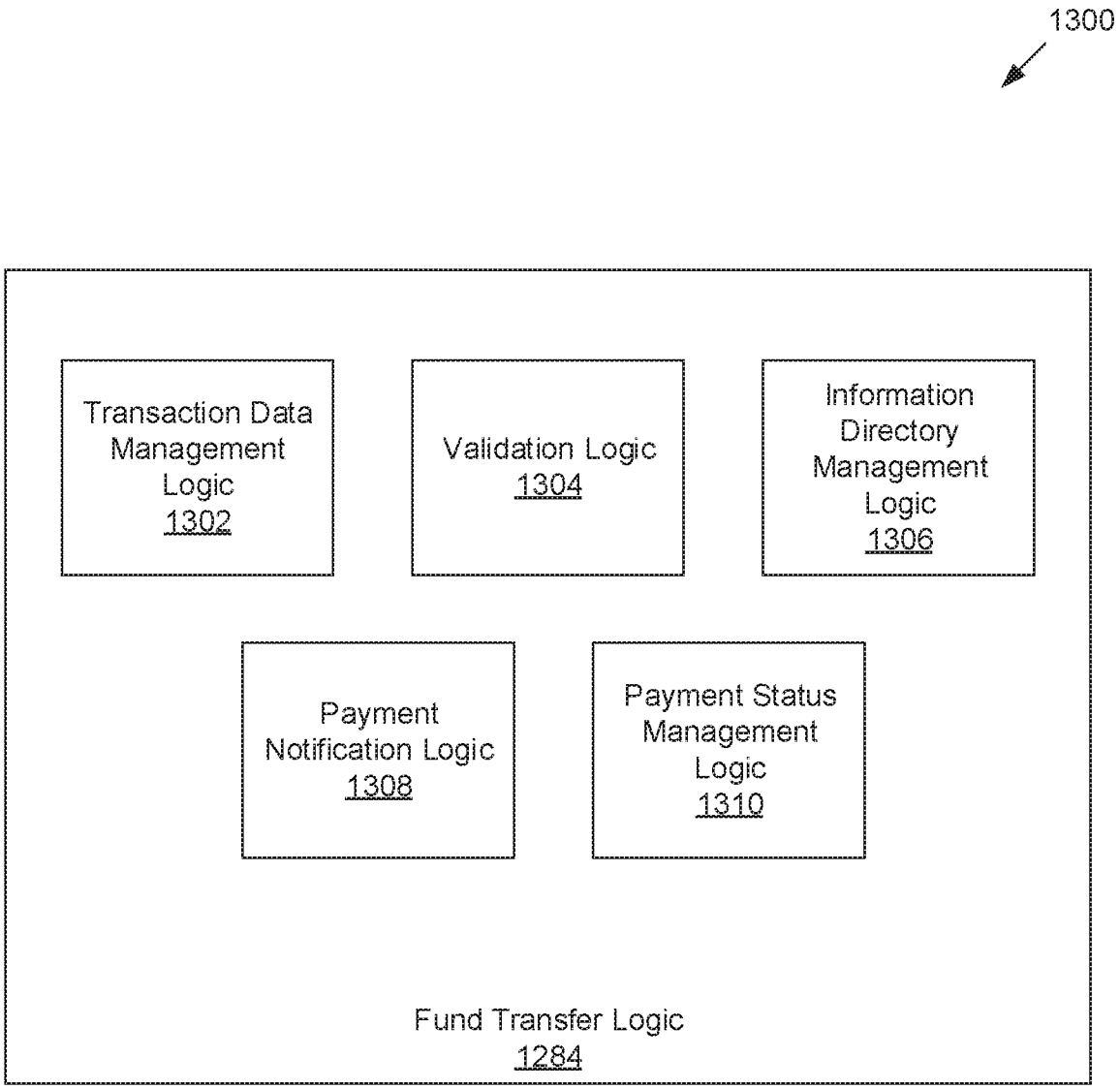

1300
Transaction Data Management Logic 1302
Validation Logic 1304
Information Directory Management Logic 1306
Payment Notification Logic 1308
Payment Status Management Logic 1310
Fund Transfer Logic 1284

FIGURE 13

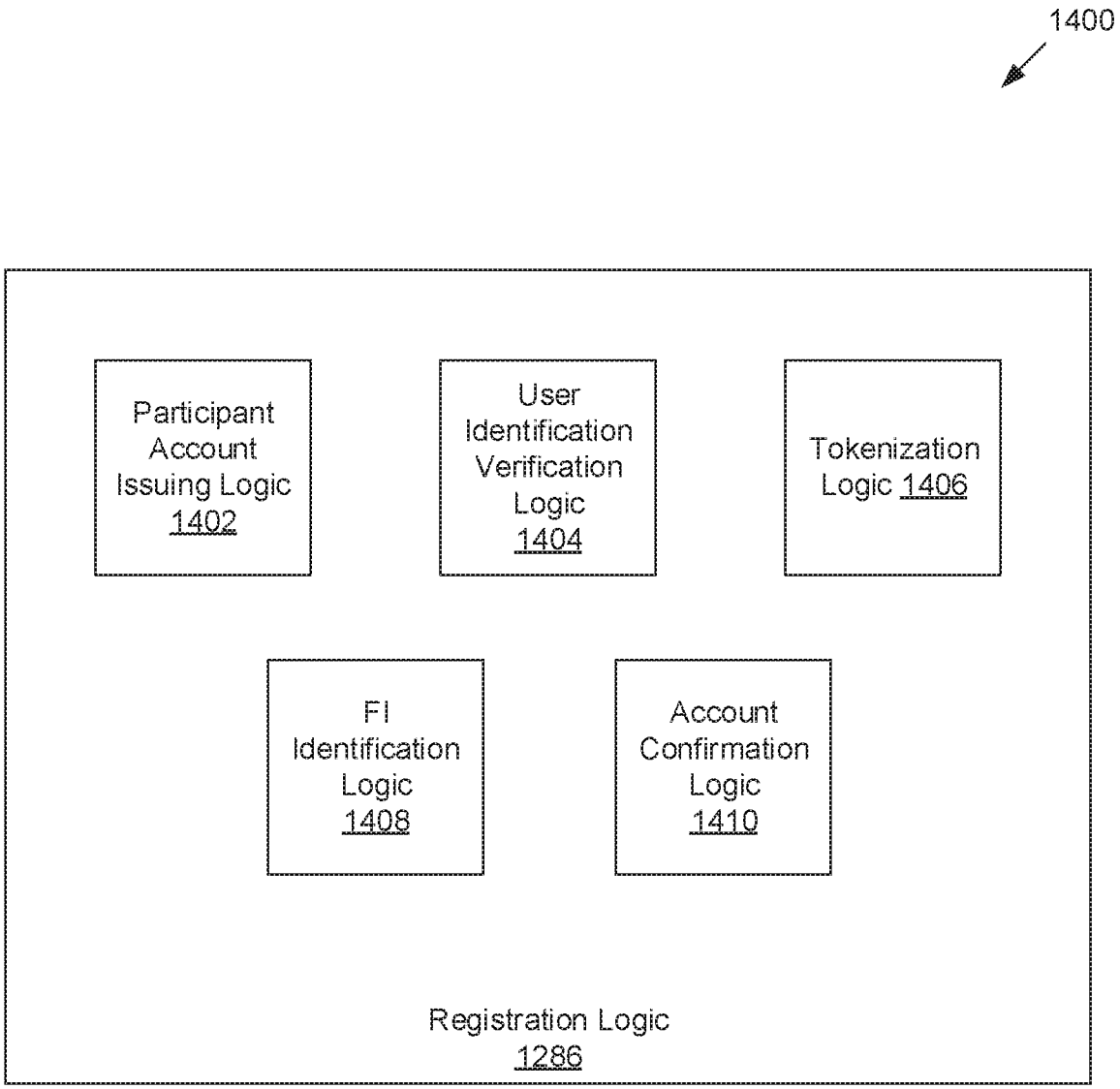

1400
Participant Account Issuing Logic 1402
User Identification Verification Logic 1404
Tokenization Logic 1406
FI Identification Logic 1408
Account Confirmation Logic 1410
Registration Logic 1286

FIGURE 14

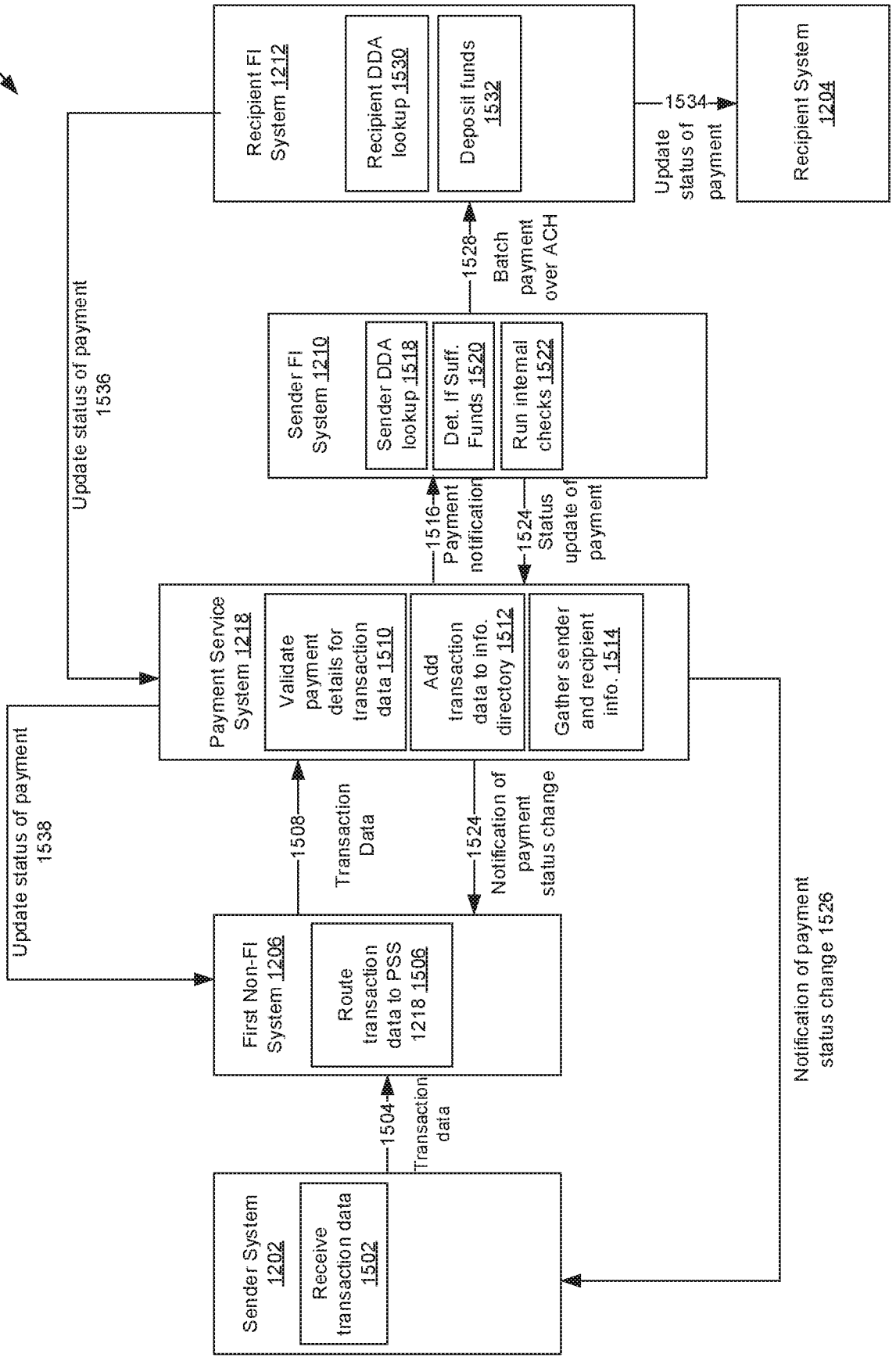

1500
Sender System 1202
Receive transaction data 1502
1504 Transaction data
First Non-FI System 1206
Route transaction data to PSS 1218 1506
1508 Transaction Data
Payment Service System 1218
Validate payment details for transaction data 1510
Add transaction data to info. directory 1512
Gather sender and recipient info. 1514
1516 Payment notification
Sender FI System 1210
Sender DDA lookup 1518
Det. If Suff. Funds 1520
Run internal checks 1522
1524 Status update of payment
1524 Notification of payment status change
1528 Batch payment over ACH
Recipient FI System 1212
Recipient DDA lookup 1530
Deposit funds 1532
1534 Update status of payment
Recipient System 1204
Update status of payment 1536
Update status of payment 1538
Notification of payment status change 1526

FIGURE 15

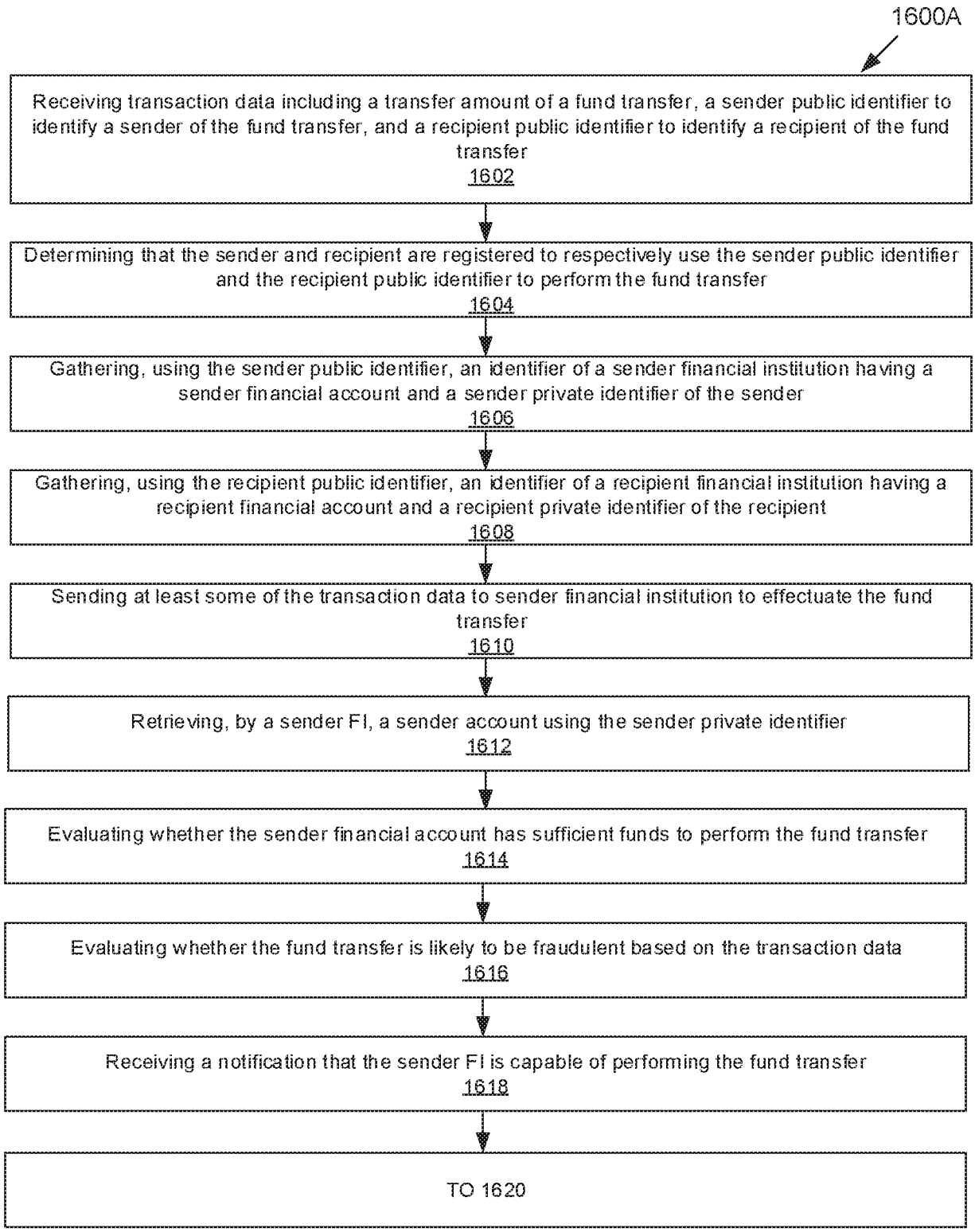

1600A
Receiving transaction data including a transfer amount of a fund transfer, a sender public identifier to identify a sender of the fund transfer, and a recipient public identifier to identify a recipient of the fund transfer
1602
Determining that the sender and recipient are registered to respectively use the sender public identifier and the recipient public identifier to perform the fund transfer
1604
Gathering, using the sender public identifier, an identifier of a sender financial institution having a sender financial account and a sender private identifier of the sender
1606
Gathering, using the recipient public identifier, an identifier of a recipient financial institution having a recipient financial account and a recipient private identifier of the recipient
1608
Sending at least some of the transaction data to sender financial institution to effectuate the fund transfer
1610
Retrieving, by a sender FI, a sender account using the sender private identifier
1612
Evaluating whether the sender financial account has sufficient funds to perform the fund transfer
1614
Evaluating whether the fund transfer is likely to be fraudulent based on the transaction data
1616
Receiving a notification that the sender FI is capable of performing the fund transfer
1618
TO 1620

FIGURE 16A

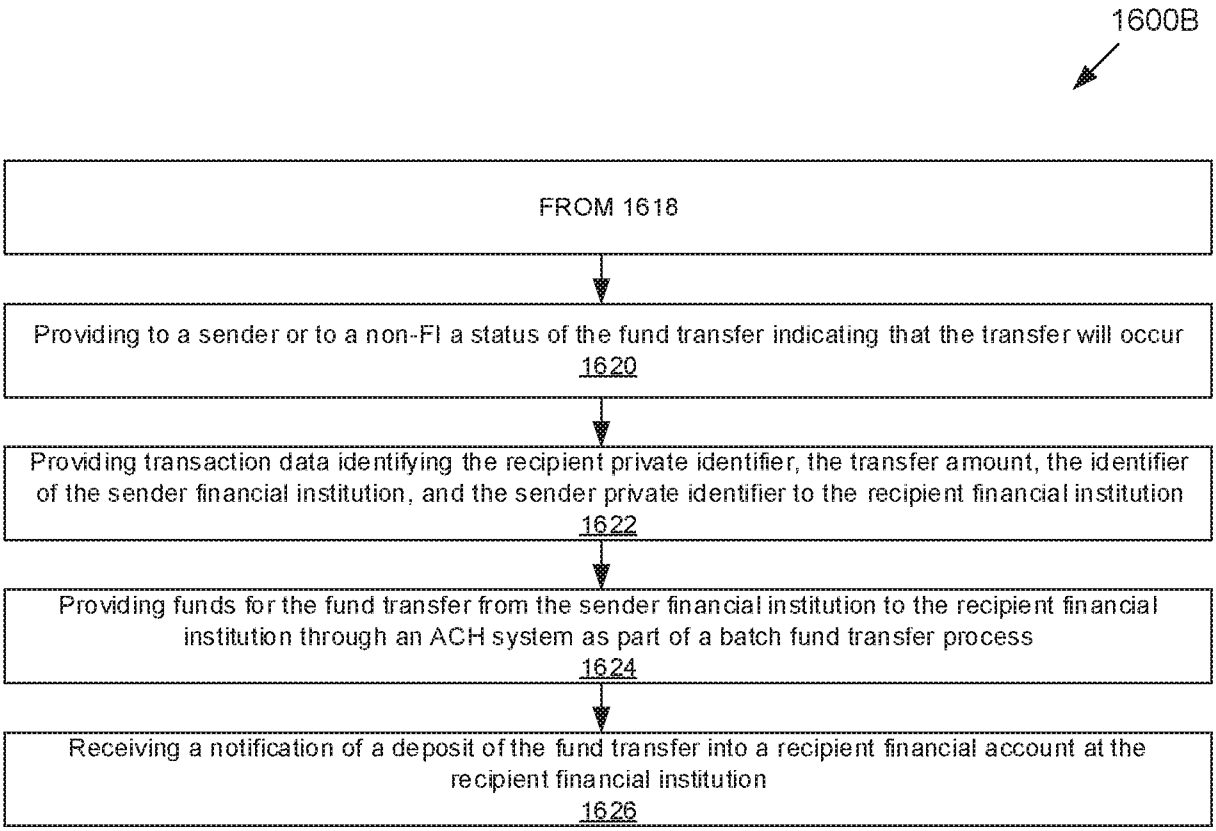

1600B
FROM 1618
Providing to a sender or to a non-FI a status of the fund transfer indicating that the transfer will occur
1620
Providing transaction data identifying the recipient private identifier, the transfer amount, the identifier of the sender financial institution, and the sender private identifier to the recipient financial institution
1622
Providing funds for the fund transfer from the sender financial institution to the recipient financial institution through an ACH system as part of a batch fund transfer process
1624
Receiving a notification of a deposit of the fund transfer into a recipient financial account at the recipient financial institution
1626

FIGURE 16B

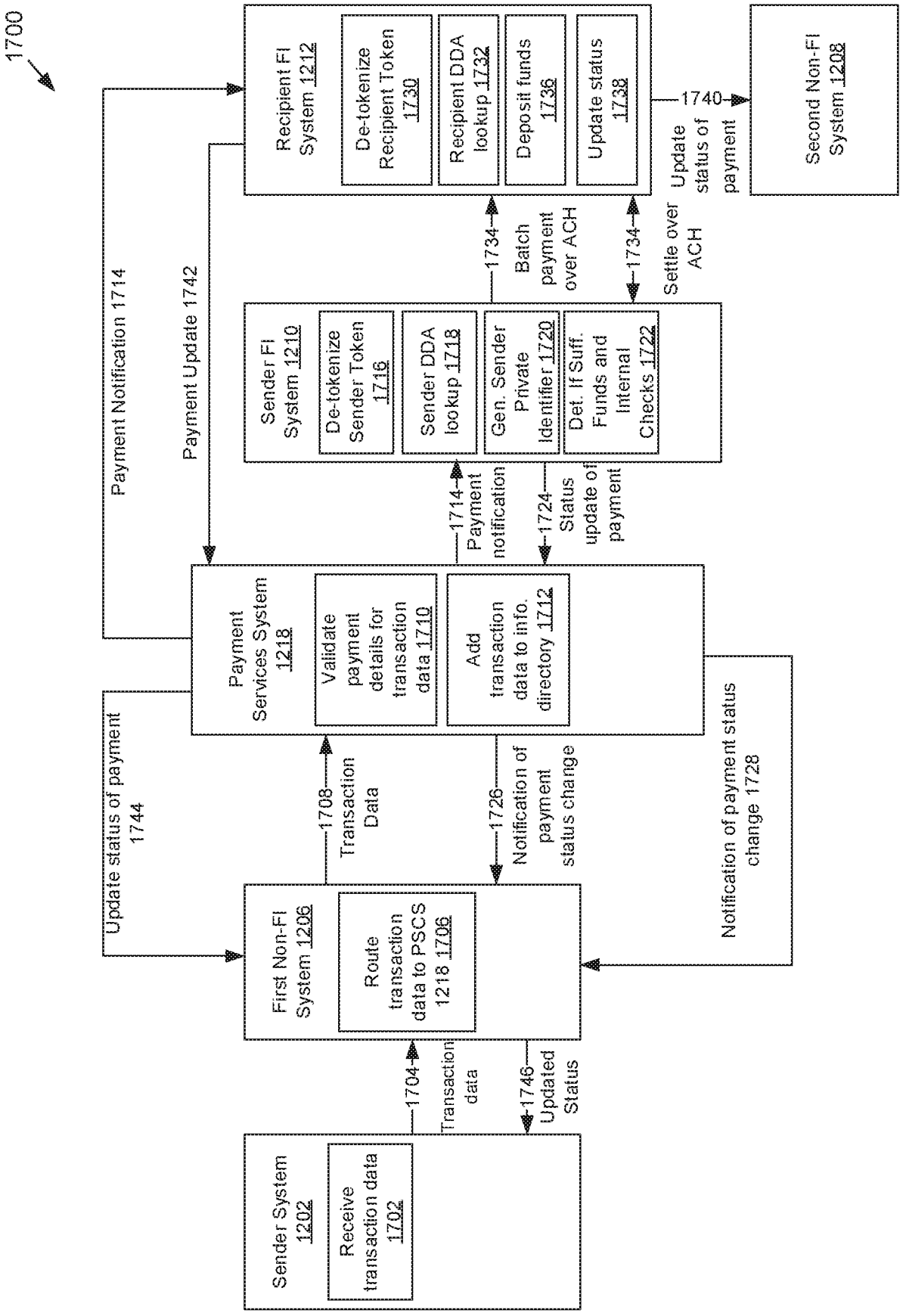

1700
Sender System 1202
Receive transaction data 1702
1704 Transaction data
First Non-FI System 1206
Route transaction data to PSCS 1218 1706
1708 Transaction Data
Payment Services System 1218
Validate payment details for transaction data 1710
Add transaction data to info. directory 1712
1714 Payment notification
Sender FI System 1210
De-tokenize Sender Token 1716
Sender DDA lookup 1718
Gen. Sender Private Identifier 1720
Det. If Suff. Funds and Internal Checks 1722
1724 Status update of payment
1726 Notification of payment status change
1734 Batch payment over ACH
Recipient FI System 1212
De-tokenize Recipient Token 1730
Recipient DDA lookup 1732
Deposit funds 1736
Update status 1738
Settle over ACH
1740 Update status of payment
Second Non-FI System 1208
Payment Notification 1714
Payment Update 1742
Update status of payment 1744
1746 Updated Status
Notification of payment status change 1728

FIGURE 17

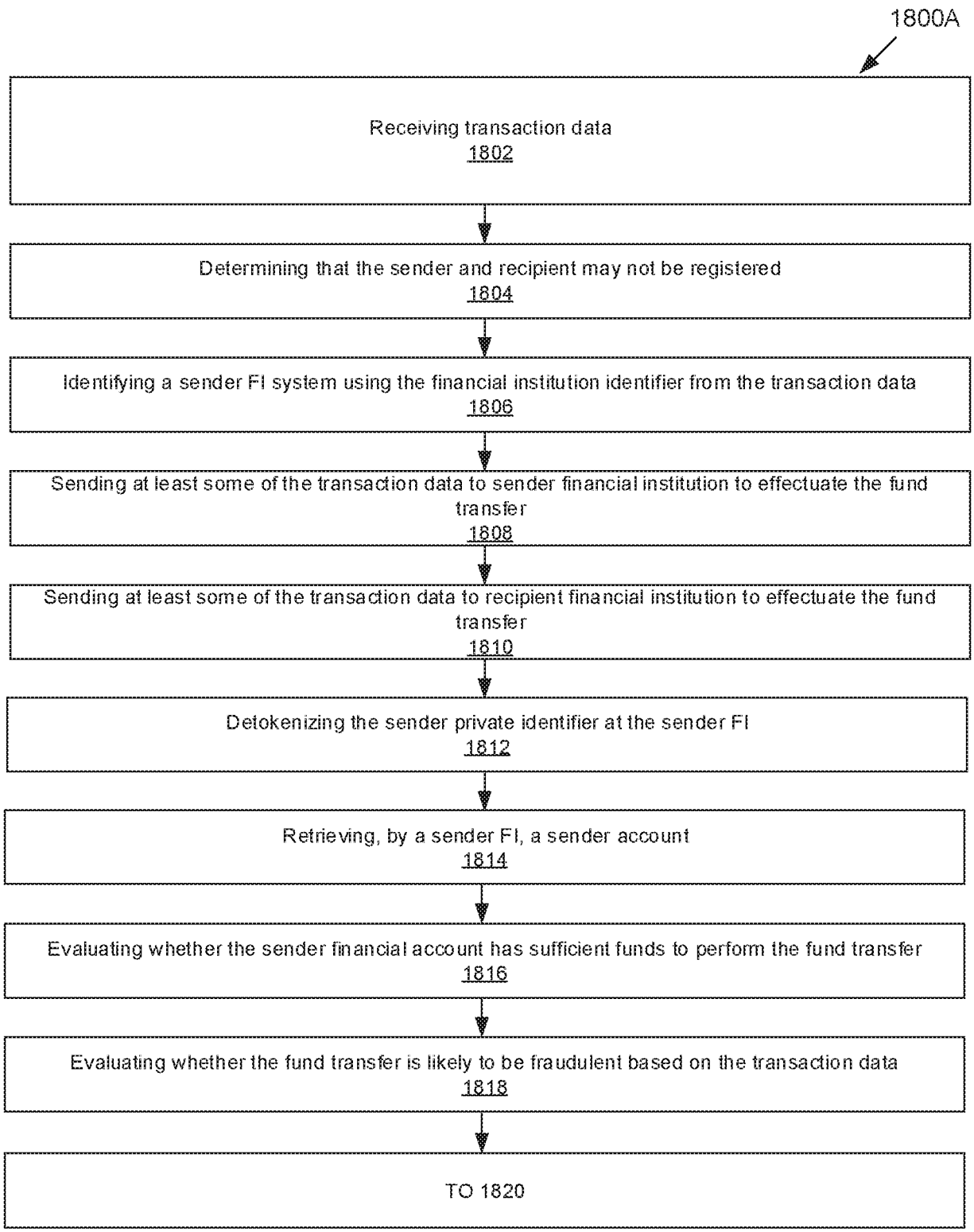

1800A
Receiving transaction data
1802
Determining that the sender and recipient may not be registered
1804
Identifying a sender FI system using the financial institution identifier from the transaction data
1806
Sending at least some of the transaction data to sender financial institution to effectuate the fund transfer
1808
Sending at least some of the transaction data to recipient financial institution to effectuate the fund transfer
1810
Detokenizing the sender private identifier at the sender FI
1812
Retrieving, by a sender FI, a sender account
1814
Evaluating whether the sender financial account has sufficient funds to perform the fund transfer
1816
Evaluating whether the fund transfer is likely to be fraudulent based on the transaction data
1818
TO 1820

FIGURE 18A

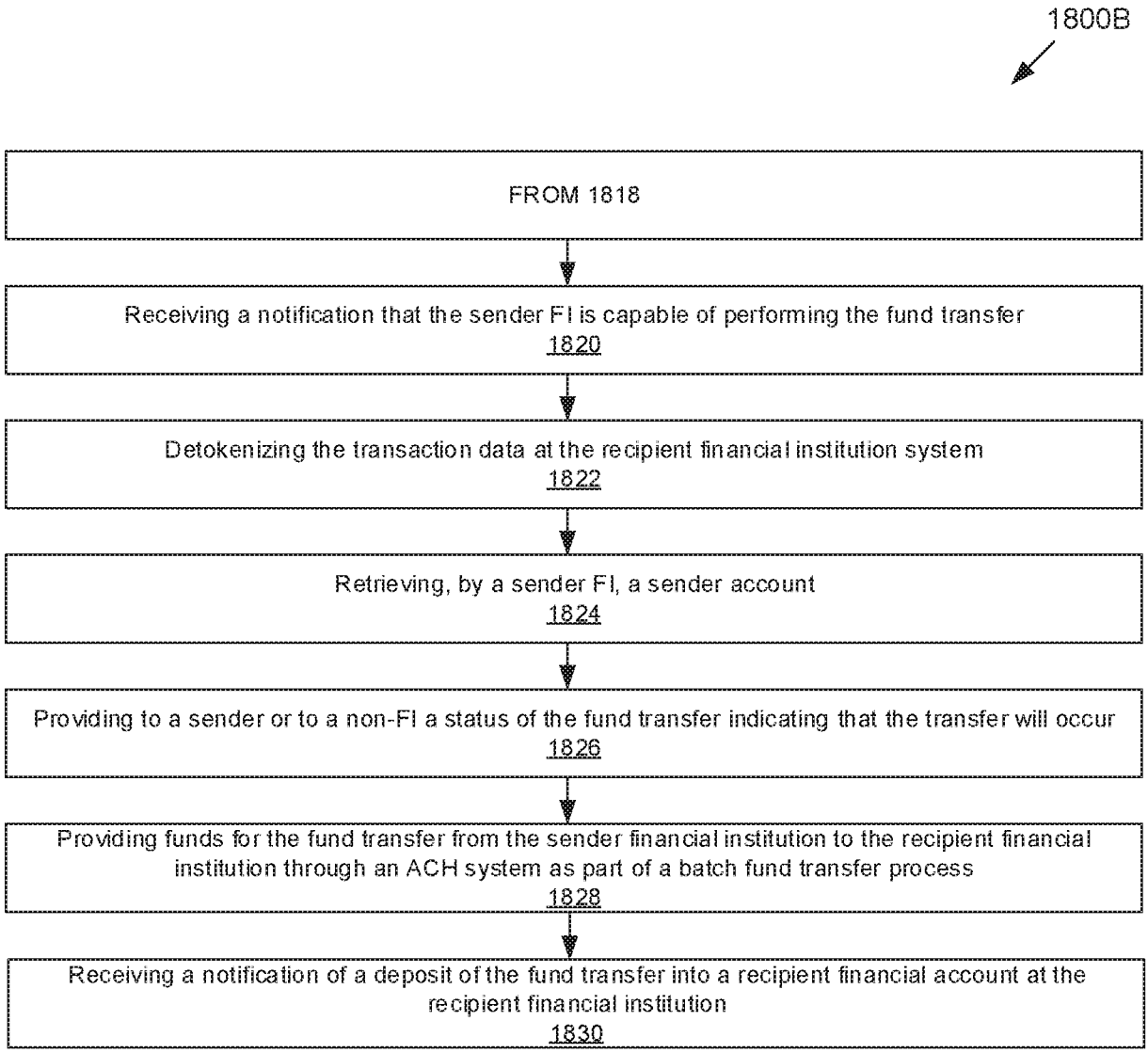

1800B
FROM 1818
Receiving a notification that the sender FI is capable of performing the fund transfer
1820
Detokenizing the transaction data at the recipient financial institution system
1822
Retrieving, by a sender FI, a sender account
1824
Providing to a sender or to a non-FI a status of the fund transfer indicating that the transfer will occur
1826
Providing funds for the fund transfer from the sender financial institution to the recipient financial institution through an ACH system as part of a batch fund transfer process
1828
Receiving a notification of a deposit of the fund transfer into a recipient financial account at the recipient financial institution
1830

FIGURE 18B

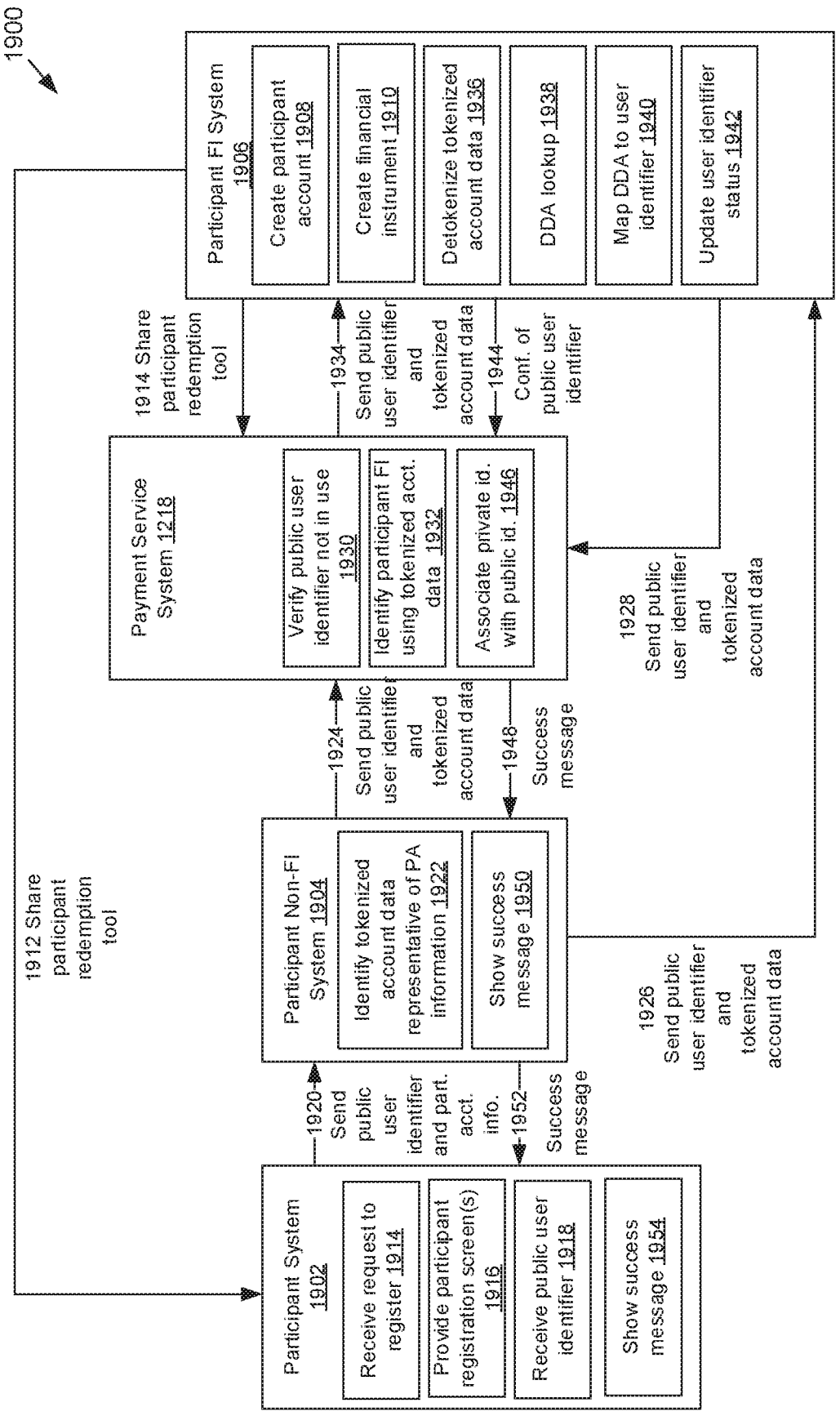

1900
Participant System 1902
Receive request to register 1914
Provide participant registration screen(s) 1916
Receive public user identifier 1918
Show success message 1954
Participant Non-FI System 1904
Identify tokenized account data representative of PA information 1922
Show success message 1950
Payment Service System 1218
Verify public user identifier not in use 1930
Identify participant FI using tokenized acct. data 1932
Associate private id. with public id. 1946
Participant FI System 1906
Create participant account 1908
Create financial instrument 1910
Detokenize tokenized account data 1936
DDA lookup 1938
Map DDA to user identifier 1940
Update user identifier status 1942
1912 Share participant redemption tool
1914 Share participant redemption tool
1920 Send public user identifier and part. acct. info.
1924 Send public user identifier and tokenized account data
1926 Send public user identifier and tokenized account data
1928 Send public user identifier and tokenized account data
1934 Send public user identifier and tokenized account data
1944 Conf. of public user identifier
1948 Success message
1952 Success message

FIGURE 19

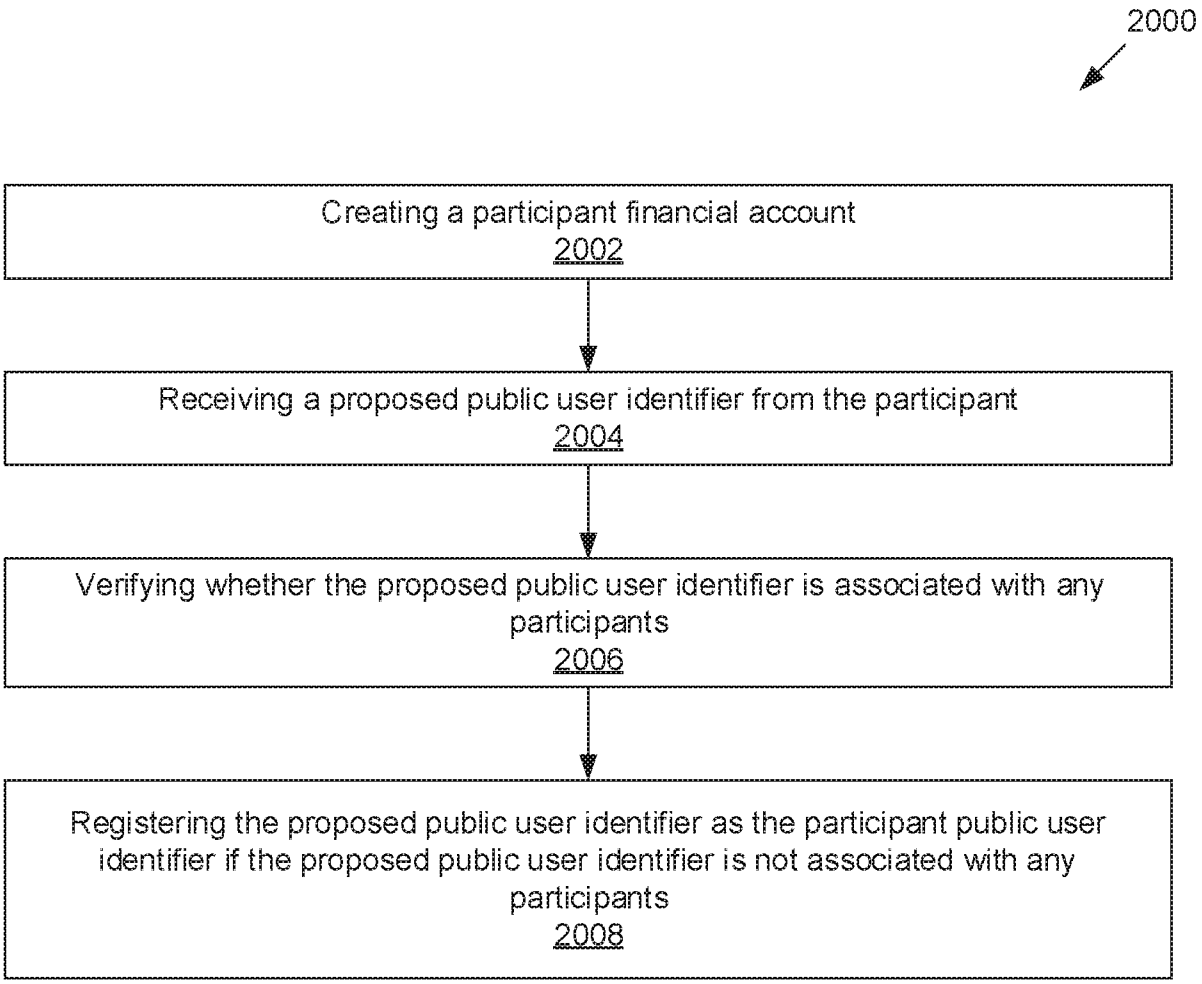

2000
Creating a participant financial account
2002
Receiving a proposed public user identifier from the participant
2004
Verifying whether the proposed public user identifier is associated with any participants
2006
Registering the proposed public user identifier as the participant public user identifier if the proposed public user identifier is not associated with any participants
2008

FIGURE 20

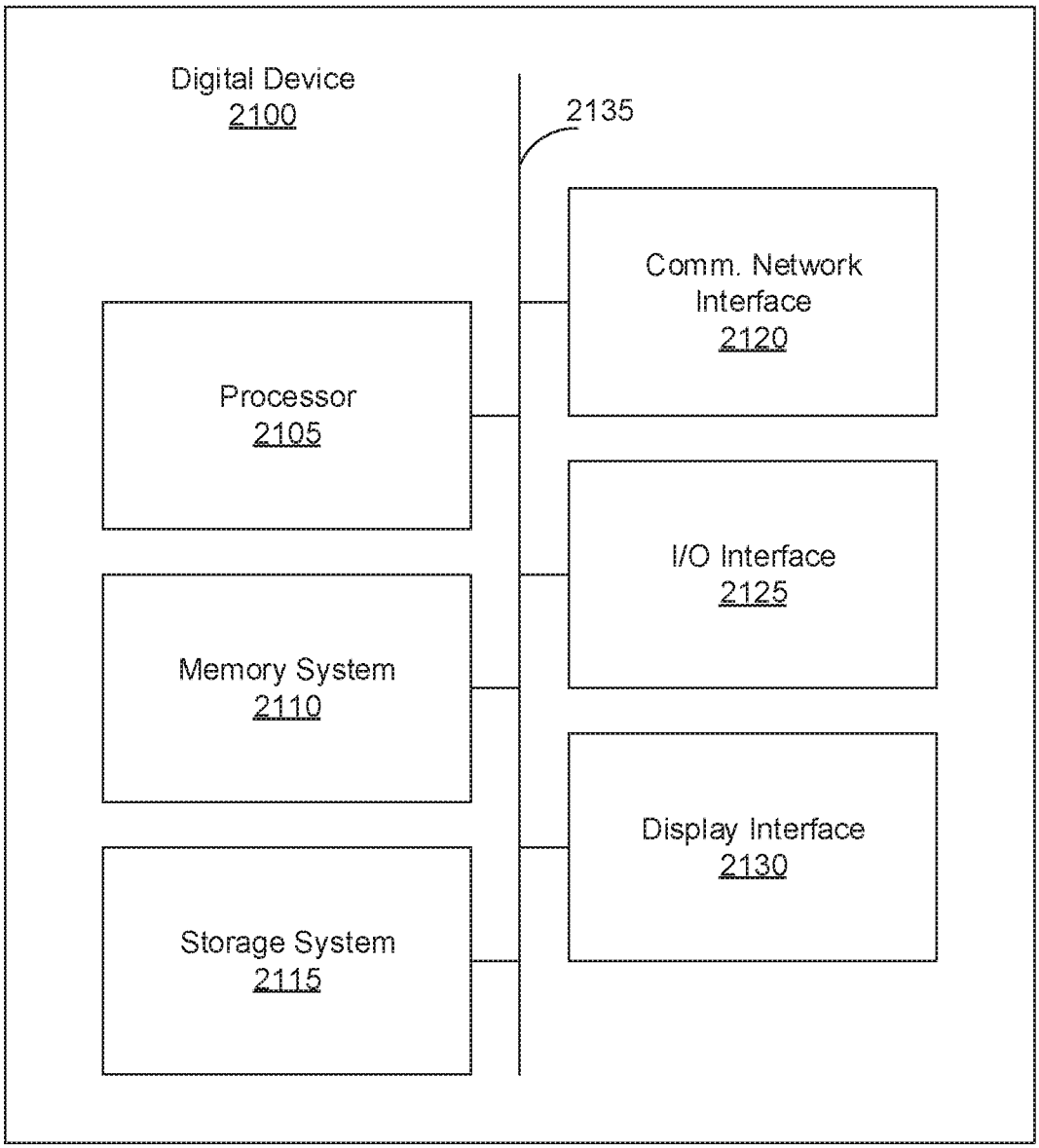

Digital Device
2100
2135
Comm. Network
Interface
2120
Processor
2105
I/O Interface
2125
Memory System
2110
Display Interface
2130
Storage System
2115

FIGURE 21