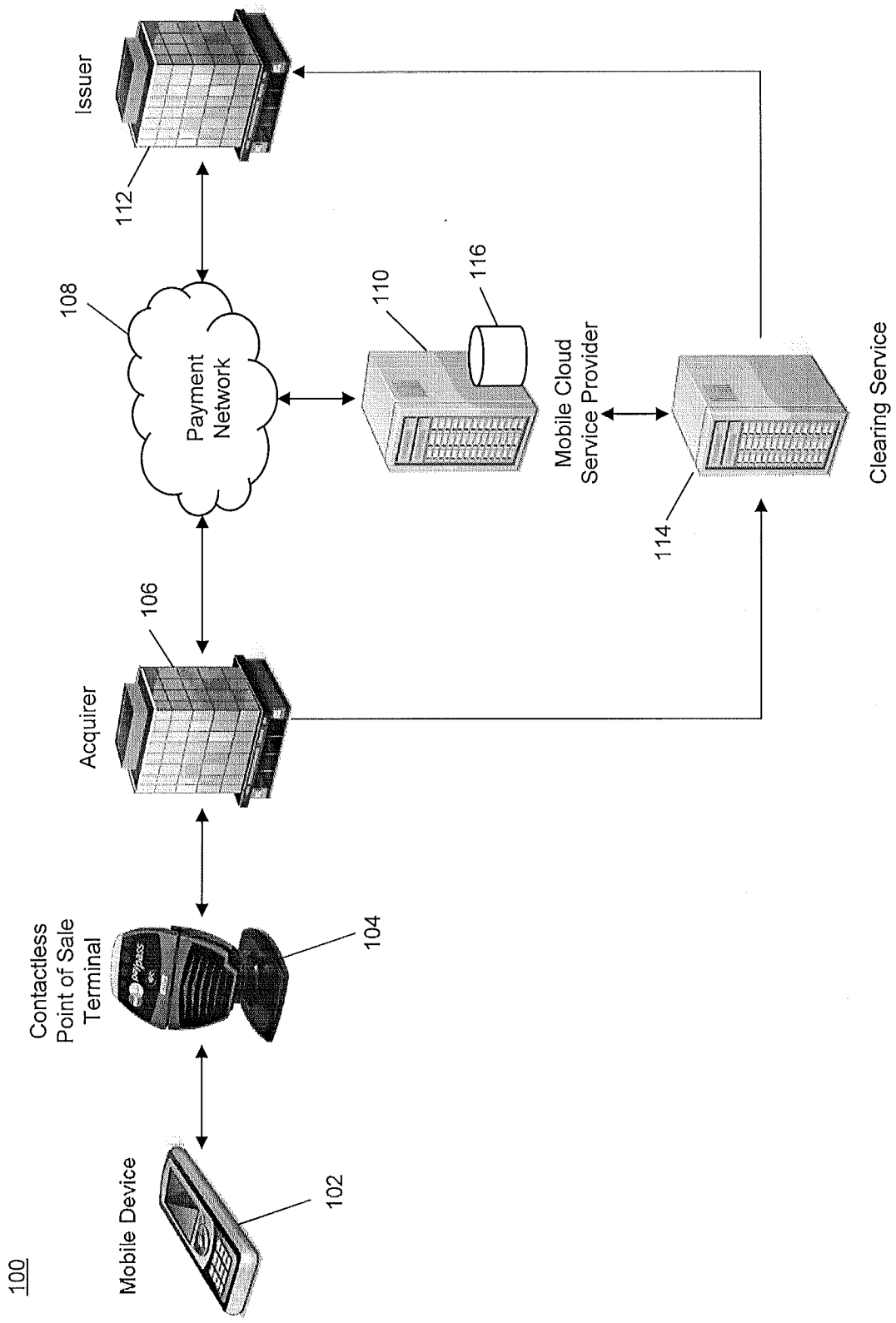

100
Mobile Device
102
Contactless Point of Sale Terminal
104
Acquirer
106
Payment Network
108
Issuer
112
110
116
Mobile Cloud Service Provider
114
Clearing Service

FIG. 1

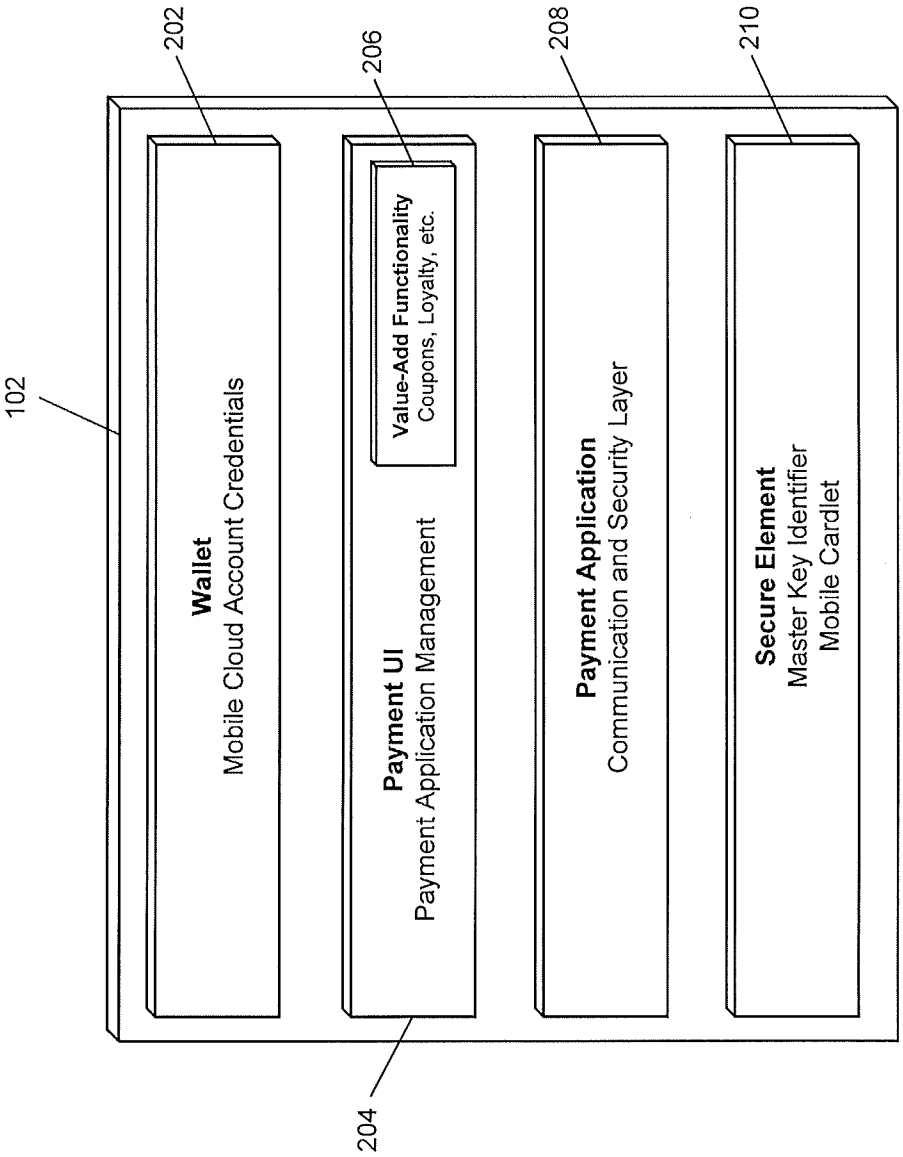

102
202
206
208
210
Wallet
Mobile Cloud Account Credentials
Payment UI
Payment Application Management
Value-Add Functionality
Coupons, Loyalty, etc.
Payment Application
Communication and Security Layer
Secure Element
Master Key Identifier
Mobile Cardlet
204

FIG. 2

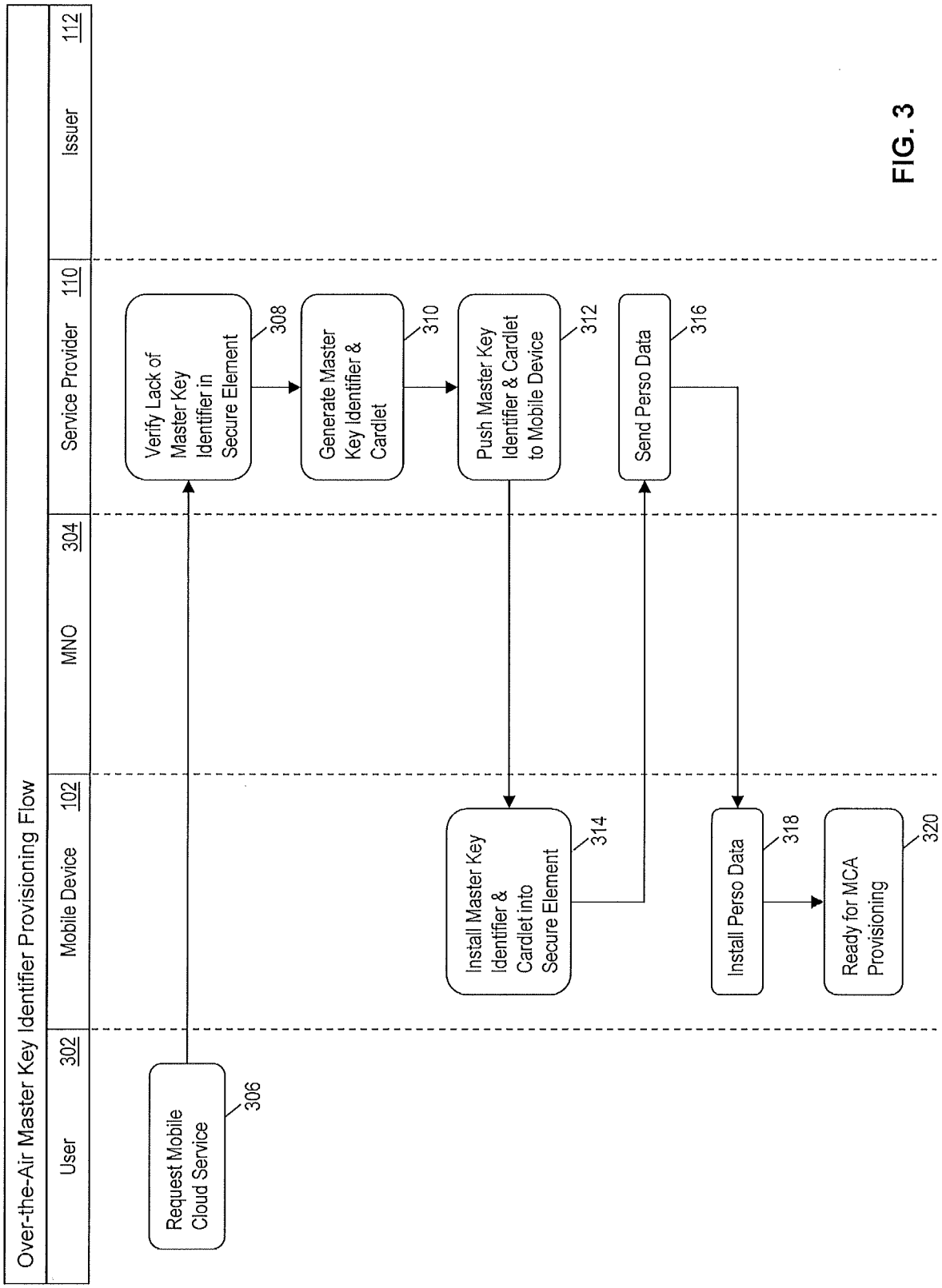

Over-the-Air Master Key Identifier Provisioning Flow
User 302
Mobile Device 102
MNO 304
Service Provider 110
Issuer 112
Request Mobile Cloud Service
306
Verify Lack of Master Key Identifier in Secure Element
308
Generate Master Key Identifier & Cardlet
310
Push Master Key Identifier & Cardlet to Mobile Device
312
Send Perso Data
316
Install Master Key Identifier & Cardlet into Secure Element
314
Install Perso Data
318
Ready for MCA Provisioning
320

FIG. 3

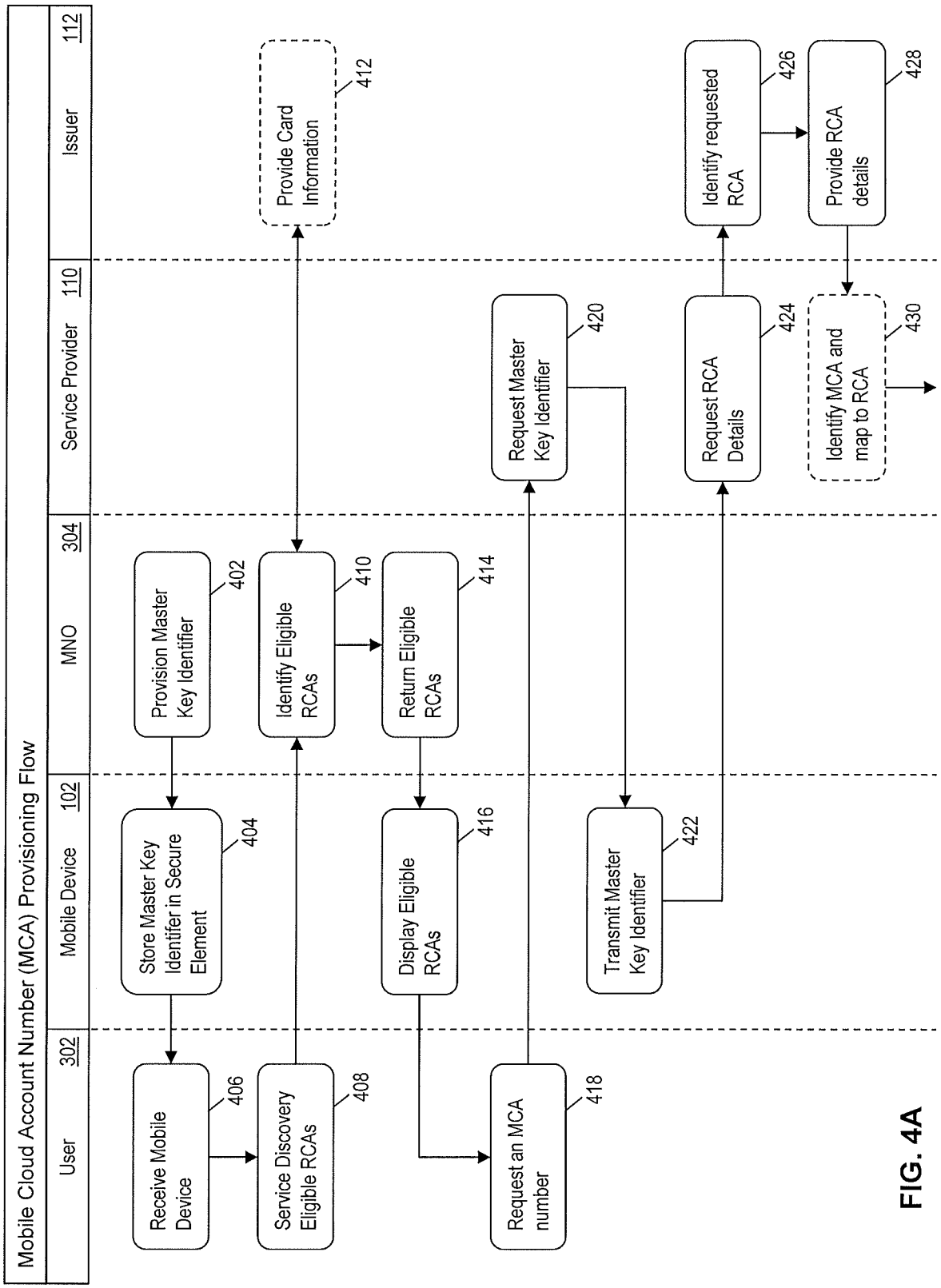

Mobile Cloud Account Number (MCA) Provisioning Flow
User 302
Mobile Device 102
MNO 304
Service Provider 110
Issuer 112
Provision Master Key Identifier 402
Store Master Key Identifer in Secure Element 404
Receive Mobile Device 406
Service Discovery Eligible RCAs 408
Identify Eligible RCAs 410
Provide Card Information 412
Return Eligible RCAs 414
Display Eligible RCAs 416
Request an MCA number 418
Request Master Key Identifier 420
Transmit Master Key Identifier 422
Request RCA Details 424
Identify requested RCA 426
Provide RCA details 428
Identify MCA and map to RCA 430

FIG. 4A

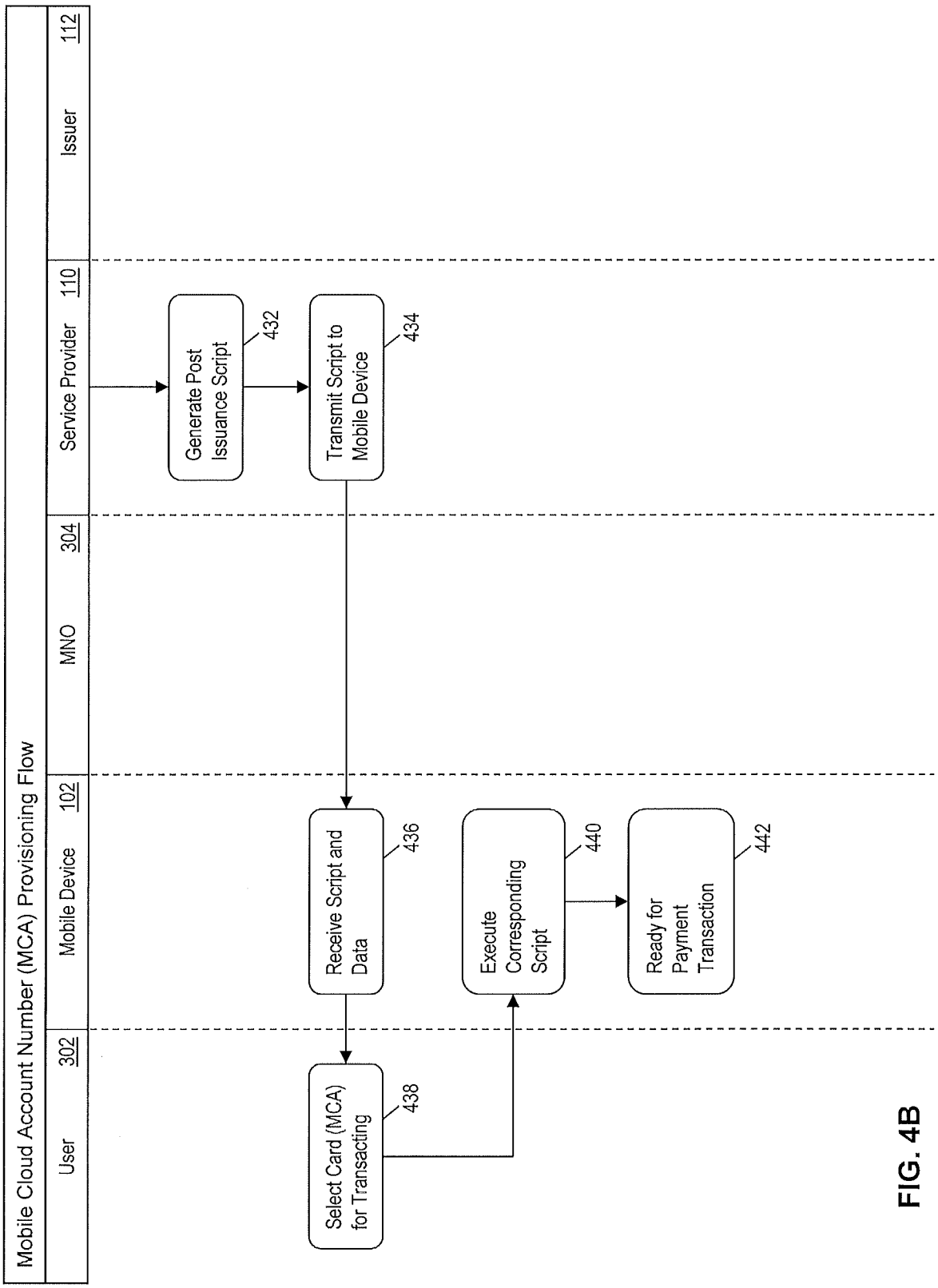

Mobile Cloud Account Number (MCA) Provisioning Flow
User 302
Mobile Device 102
MNO 304
Service Provider 110
Issuer 112
Generate Post Issuance Script
432
Transmit Script to Mobile Device
434
Receive Script and Data
436
Select Card (MCA) for Transacting
438
Execute Corresponding Script
440
Ready for Payment Transaction
442

FIG. 4B

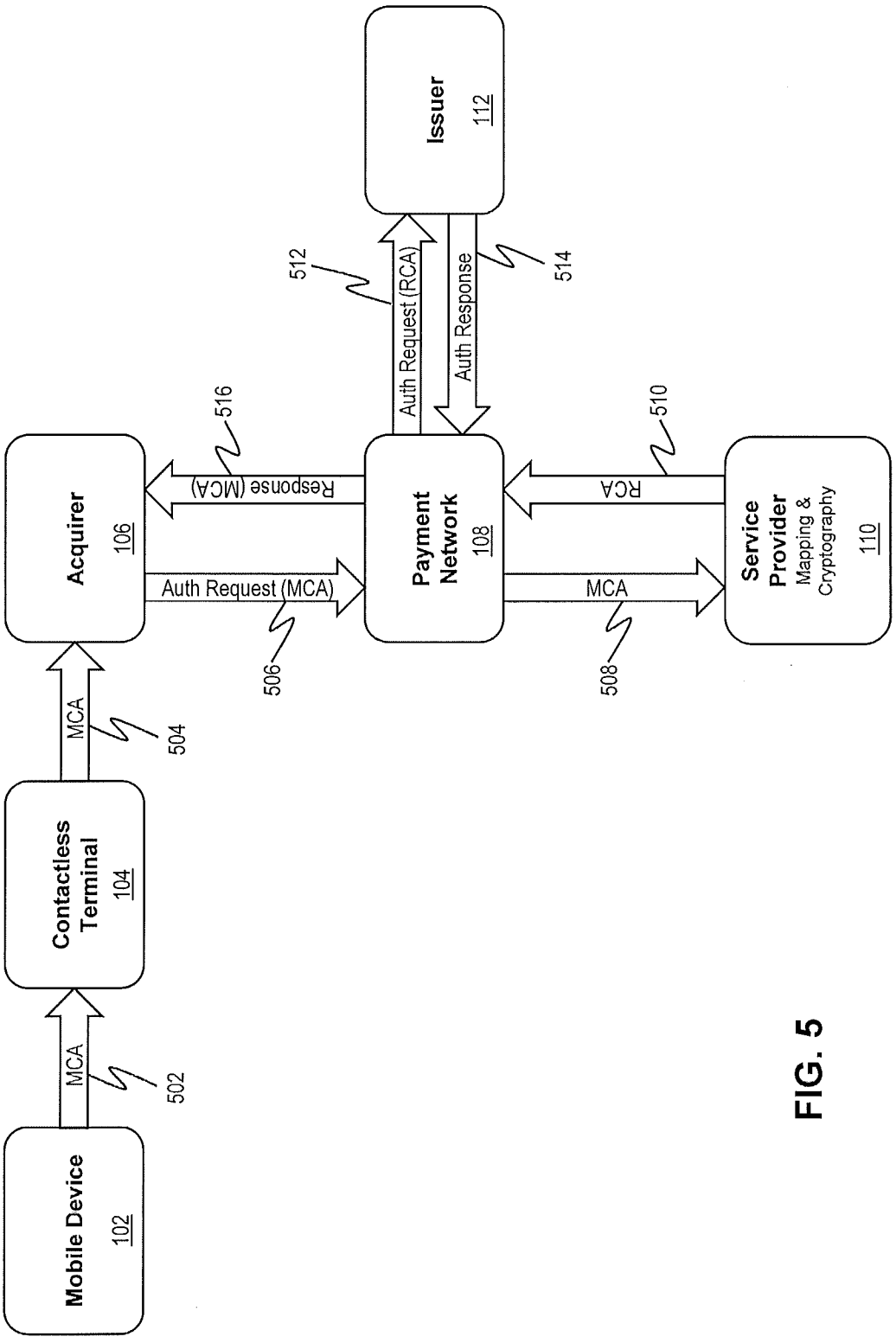

Mobile Device
102
Contactless Terminal
104
Acquirer
106
Payment Network
108
Service Provider
Mapping & Cryptography
110
Issuer
112
MCA
502
MCA
504
Auth Request (MCA)
506
MCA
508
RCA
510
Response (MCA)
516
Auth Request (RCA)
512
Auth Response
514

FIG. 5

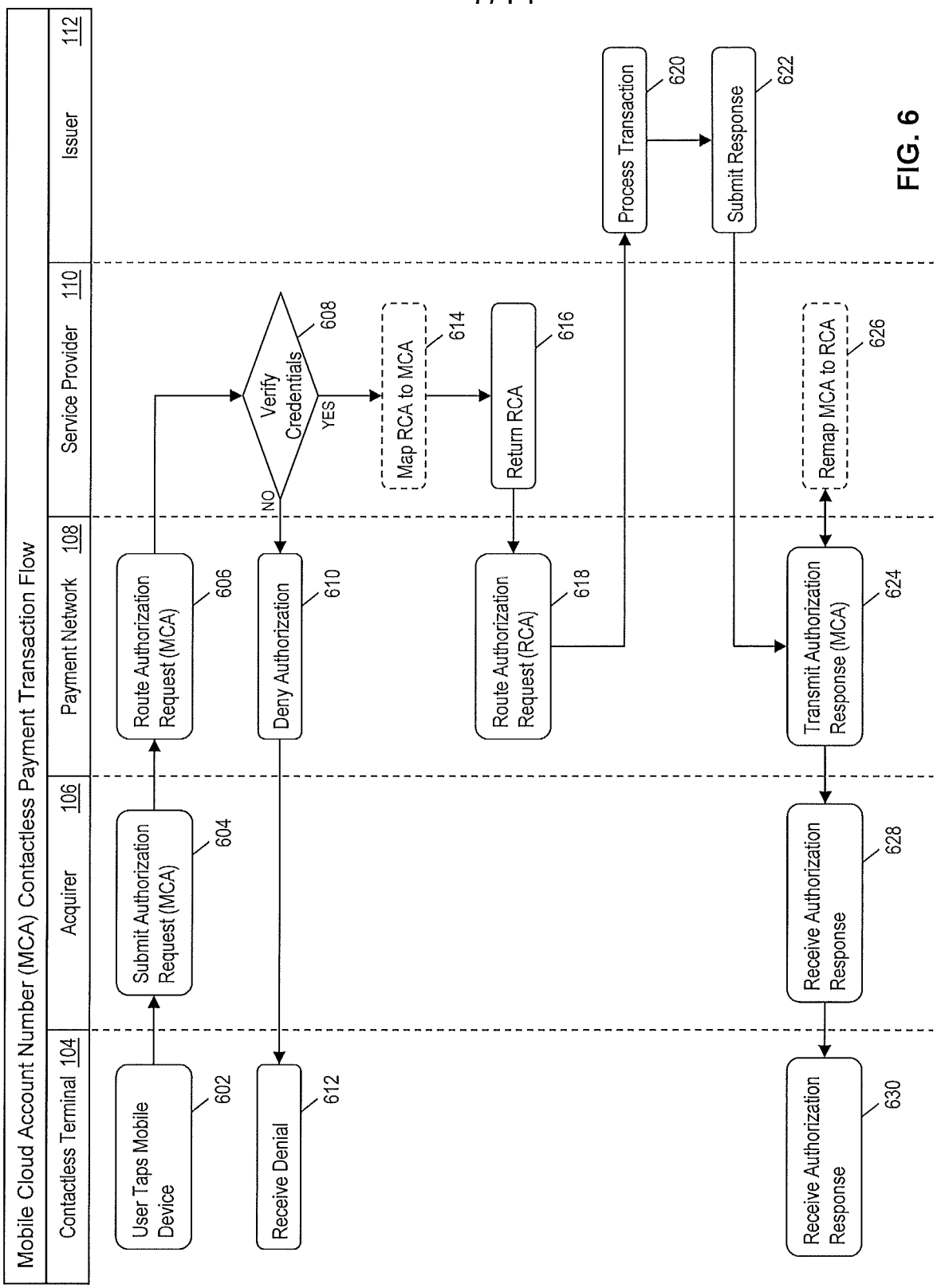

Mobile Cloud Account Number (MCA) Contactless Payment Transaction Flow
Contactless Terminal 104
Acquirer 106
Payment Network 108
Service Provider 110
Issuer 112
User Taps Mobile Device
602
Submit Authorization Request (MCA)
604
Route Authorization Request (MCA)
606
Verify Credentials
608
NO
YES
Deny Authorization
610
Receive Denial
612
Map RCA to MCA
614
Return RCA
616
Route Authorization Request (RCA)
618
Process Transaction
620
Submit Response
622
Transmit Authorization Response (MCA)
624
Remap MCA to RCA
626
Receive Authorization Response
628
Receive Authorization Response
630

FIG. 6

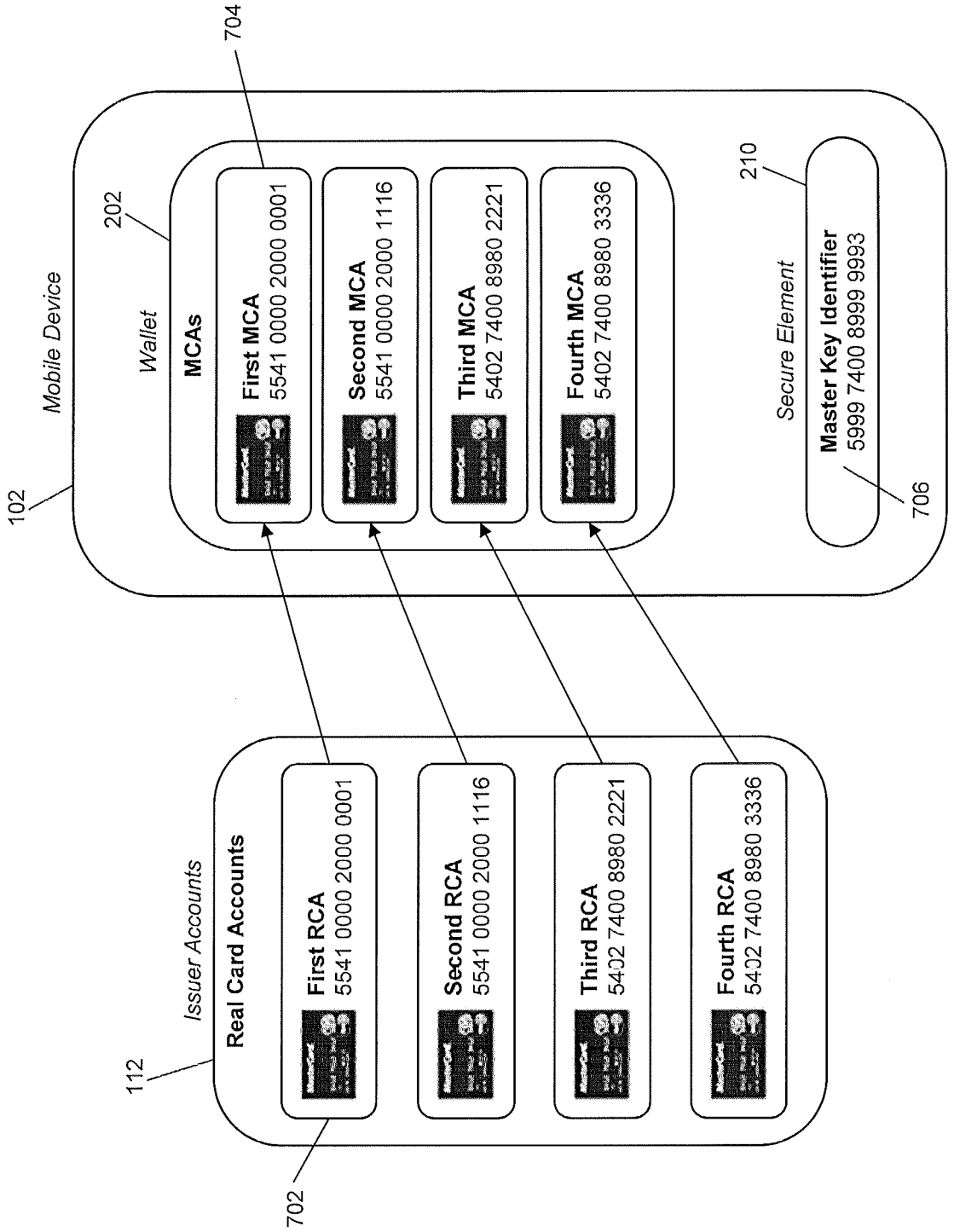

Mobile Device
102
Wallet
202
MCAs
First MCA
5541 0000 2000 0001
Second MCA
5541 0000 2000 1116
Third MCA
5402 7400 8980 2221
Fourth MCA
5402 7400 8980 3336
704
Secure Element
210
Master Key Identifier
5999 7400 8999 9993
706
Issuer Accounts
112
Real Card Accounts
First RCA
5541 0000 2000 0001
Second RCA
5541 0000 2000 1116
Third RCA
5402 7400 8980 2221
Fourth RCA
5402 7400 8980 3336
702

FIG. 7

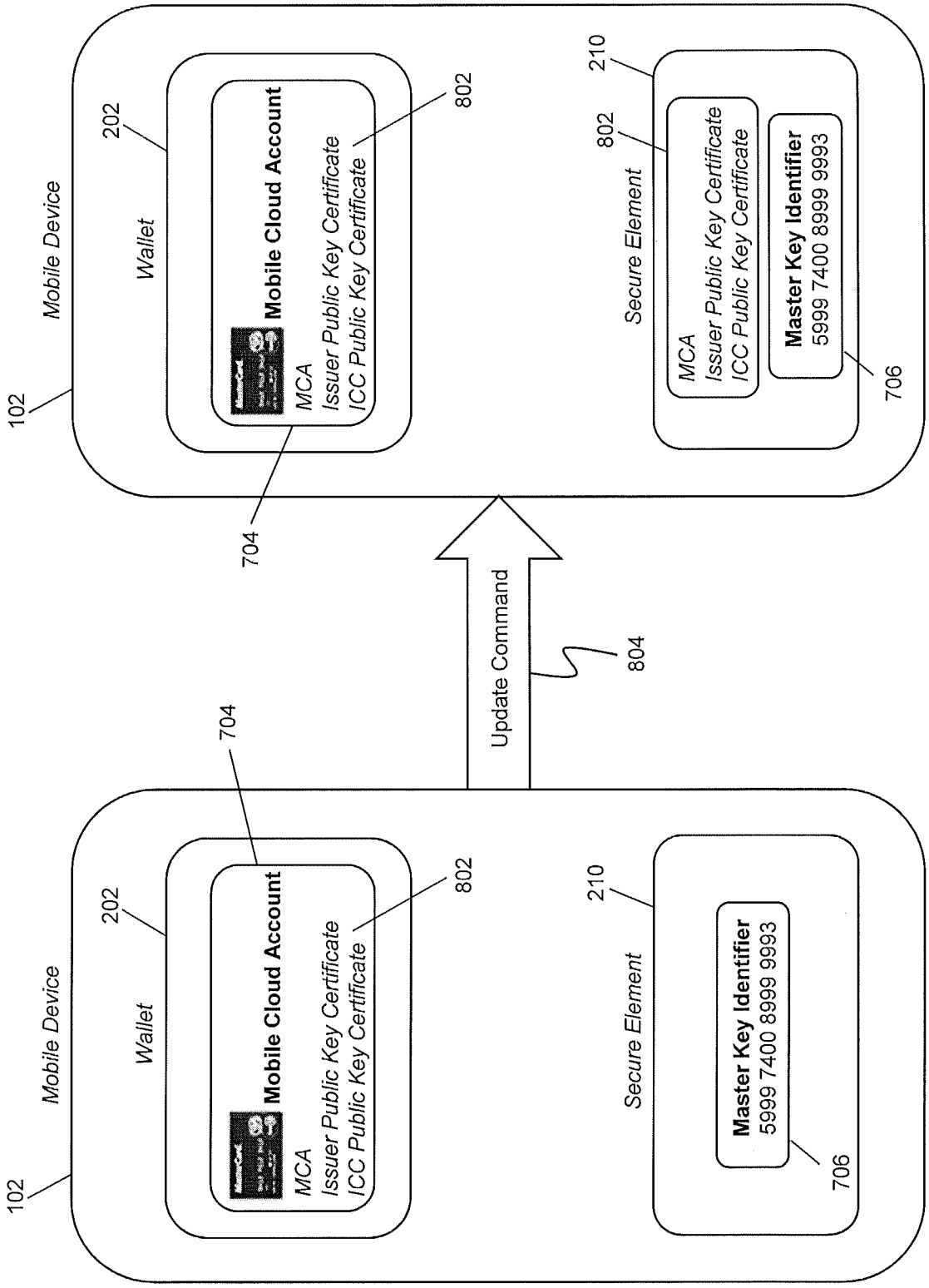

Mobile Device
102
Wallet
202
Mobile Cloud Account
MCA
Issuer Public Key Certificate
ICC Public Key Certificate
802
704
Secure Element
210
MCA
Issuer Public Key Certificate
ICC Public Key Certificate
802
Master Key Identifier
5999 7400 8999 9993
706
Update Command
804
Mobile Device
102
Wallet
202
Mobile Cloud Account
MCA
Issuer Public Key Certificate
ICC Public Key Certificate
802
704
Secure Element
210
Master Key Identifier
5999 7400 8999 9993
706

FIG. 8

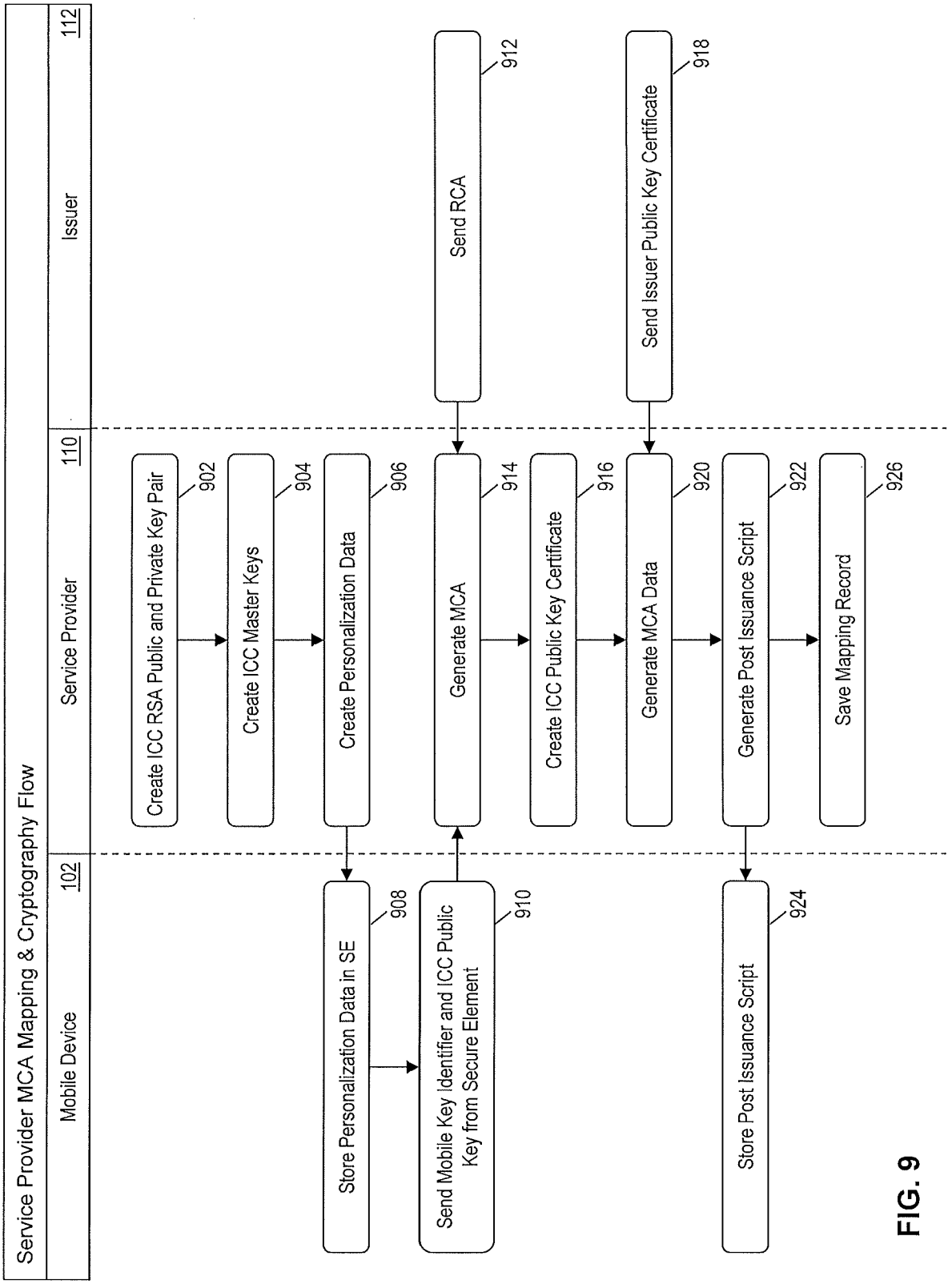

Service Provider MCA Mapping & Cryptography Flow
Mobile Device 102
Service Provider 110
Issuer 112
Create ICC RSA Public and Private Key Pair
902
Create ICC Master Keys
904
Create Personalization Data
906
Store Personalization Data in SE
908
Send Mobile Key Identifier and ICC Public Key from Secure Element
910
Send RCA
912
Generate MCA
914
Create ICC Public Key Certificate
916
Send Issuer Public Key Certificate
918
Generate MCA Data
920
Generate Post Issuance Script
922
Store Post Issuance Script
924
Save Mapping Record
926

FIG. 9

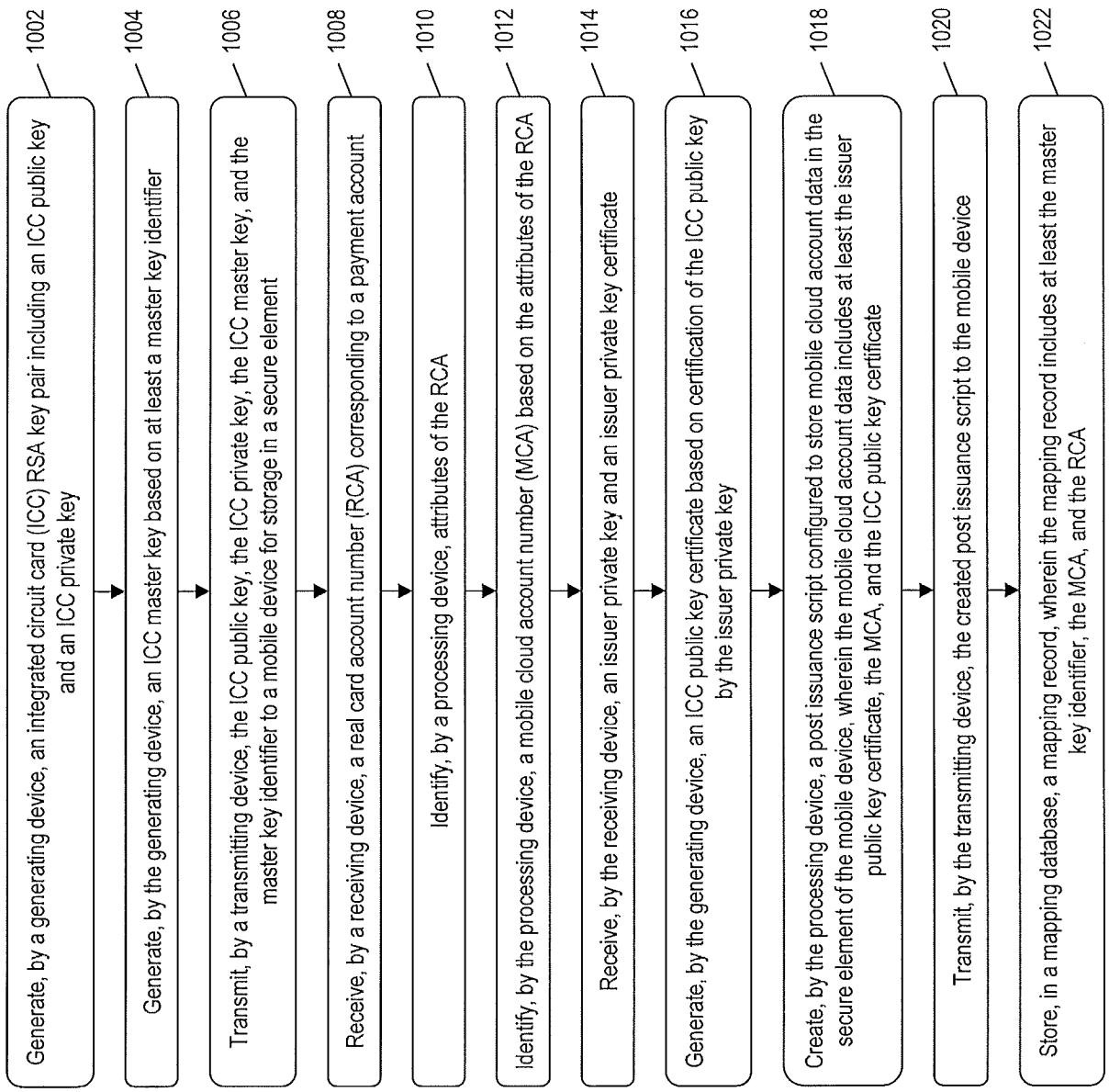

1000
1002
Generate, by a generating device, an integrated circuit card (ICC) RSA key pair including an ICC public key and an ICC private key
1004
Generate, by the generating device, an ICC master key based on at least a master key identifier
1006
Transmit, by a transmitting device, the ICC public key, the ICC private key, the ICC master key, and the master key identifier to a mobile device for storage in a secure element
1008
Receive, by a receiving device, a real card account number (RCA) corresponding to a payment account
1010
Identify, by a processing device, attributes of the RCA
1012
Identify, by the processing device, a mobile cloud account number (MCA) based on the attributes of the RCA
1014
Receive, by the receiving device, an issuer private key and an issuer private key certificate
1016
Generate, by the generating device, an ICC public key certificate based on certification of the ICC public key by the issuer private key
1018
Create, by the processing device, a post issuance script configured to store mobile cloud account data in the secure element of the mobile device, wherein the mobile cloud account data includes at least the issuer public key certificate, the MCA, and the ICC public key certificate
1020
Transmit, by the transmitting device, the created post issuance script to the mobile device
1022
Store, in a mapping database, a mapping record, wherein the mapping record includes at least the master key identifier, the MCA, and the RCA

FIG. 10

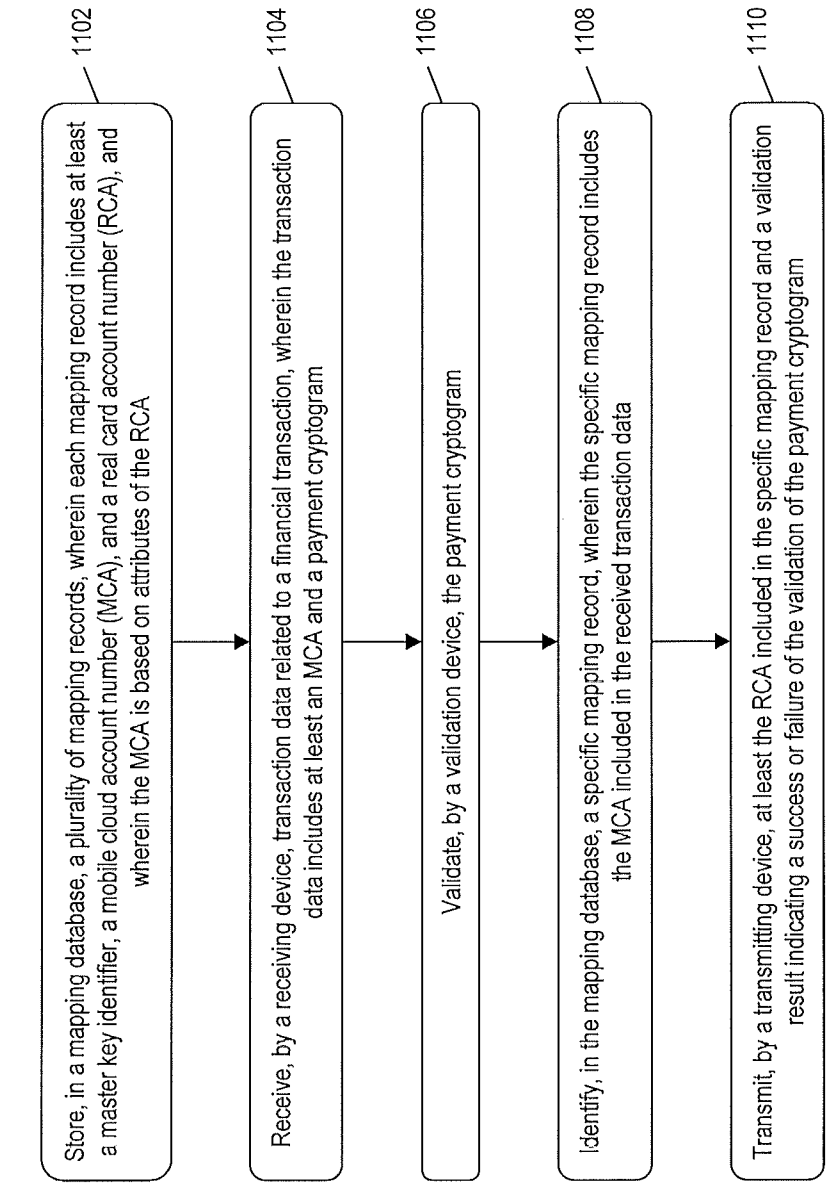

1100
1102
Store, in a mapping database, a plurality of mapping records, wherein each mapping record includes at least a master key identifier, a mobile cloud account number (MCA), and a real card account number (RCA), and wherein the MCA is based on attributes of the RCA
1104
Receive, by a receiving device, transaction data related to a financial transaction, wherein the transaction data includes at least an MCA and a payment cryptogram
1106
Validate, by a validation device, the payment cryptogram
1108
Identify, in the mapping database, a specific mapping record, wherein the specific mapping record includes the MCA included in the received transaction data
1110
Transmit, by a transmitting device, at least the RCA included in the specific mapping record and a validation result indicating a success or failure of the validation of the payment cryptogram

FIG. 11

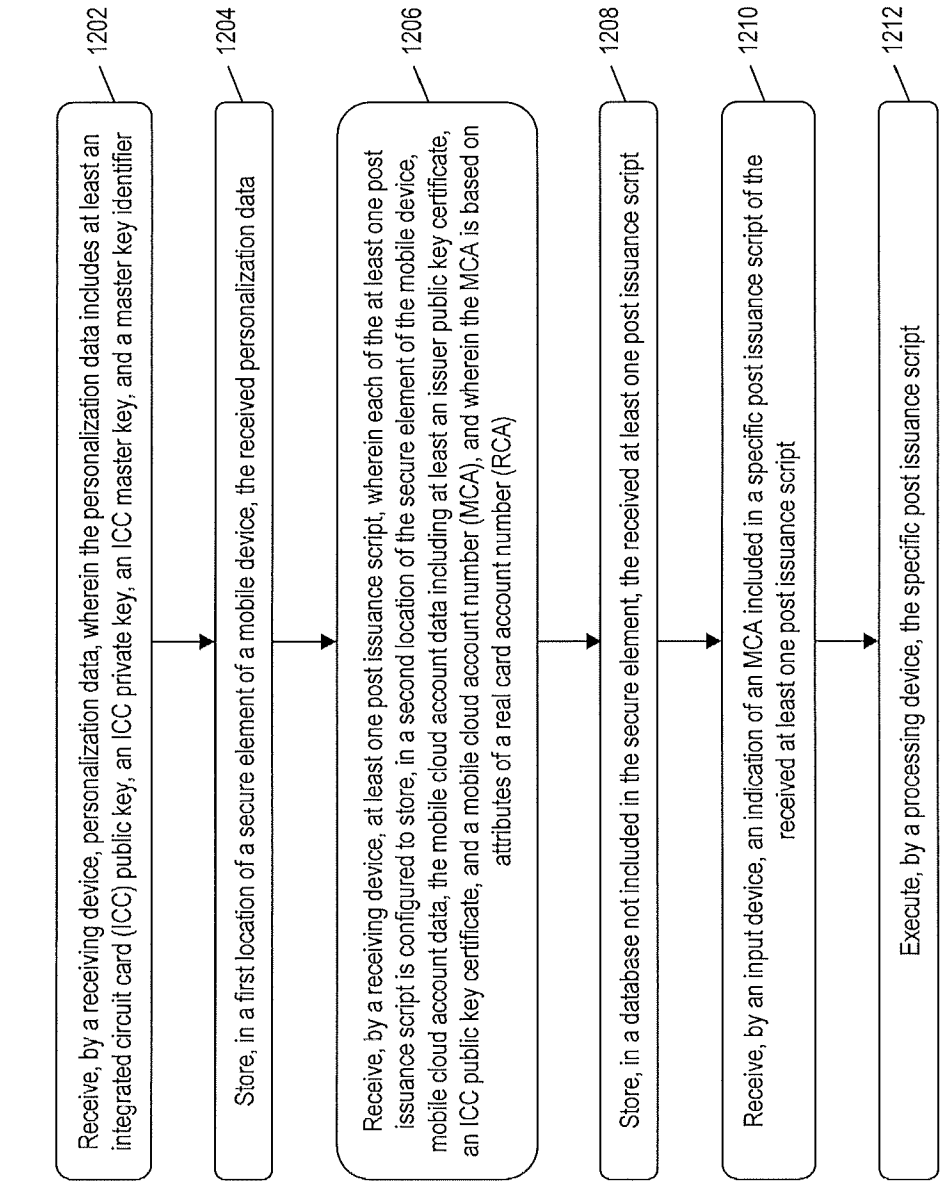

1200
1202
Receive, by a receiving device, personalization data, wherein the personalization data includes at least an integrated circuit card (ICC) public key, an ICC private key, an ICC master key, and a master key identifier
1204
Store, in a first location of a secure element of a mobile device, the received personalization data
1206
Receive, by a receiving device, at least one post issuance script, wherein each of the at least one post issuance script is configured to store, in a second location of the secure element of the mobile device, mobile cloud account data, the mobile cloud account data including at least an issuer public key certificate, an ICC public key certificate, and a mobile cloud account number (MCA), and wherein the MCA is based on attributes of a real card account number (RCA)
1208
Store, in a database not included in the secure element, the received at least one post issuance script
1210
Receive, by an input device, an indication of an MCA included in a specific post issuance script of the received at least one post issuance script
1212
Execute, by a processing device, the specific post issuance script

FIG. 12

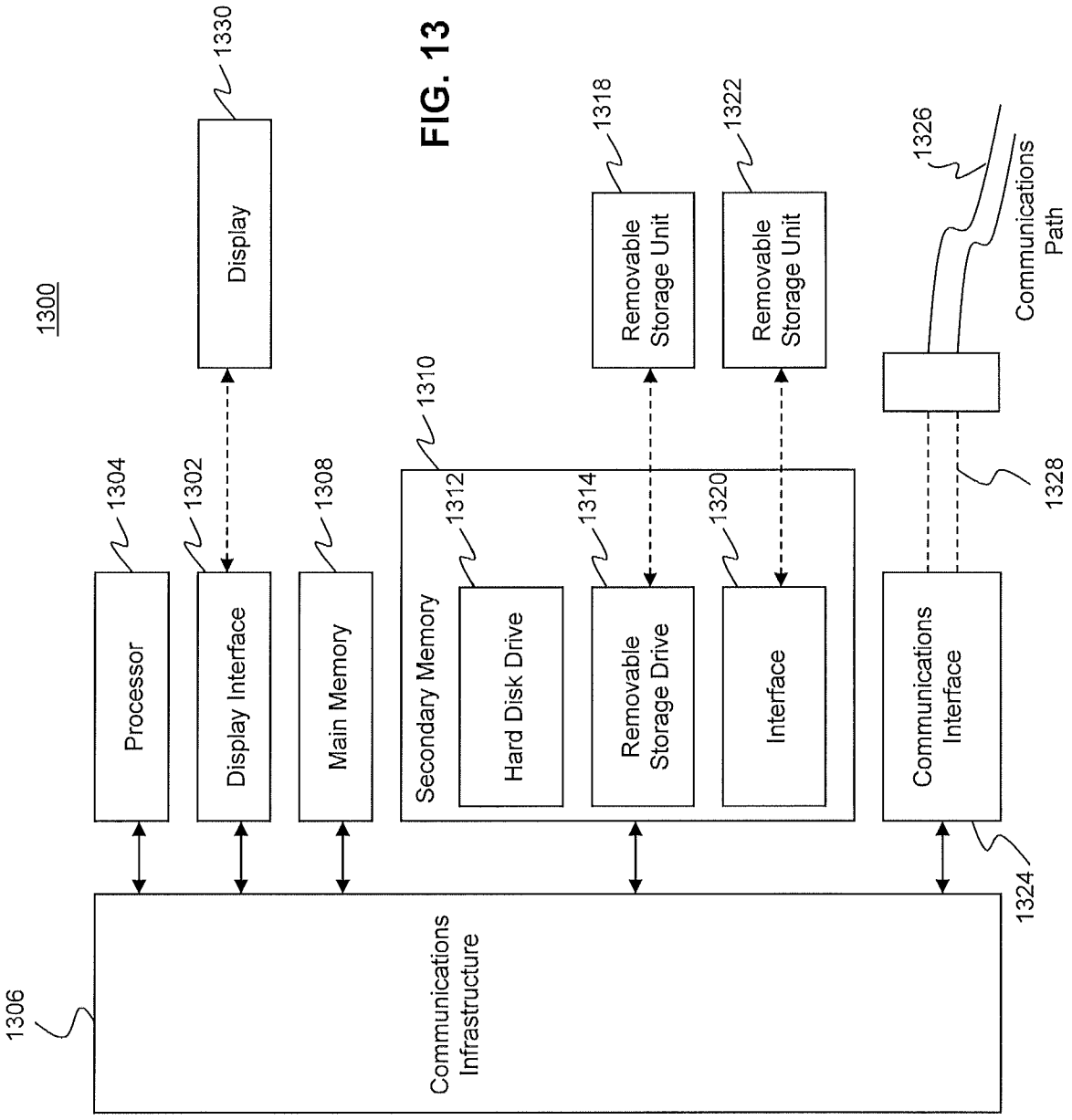

1300
1330
Display
1318
Removable Storage Unit
1322
Removable Storage Unit
1326
Communications Path
1310
1304
1302
1308
1312
1314
1320
1328
Processor
Display Interface
Main Memory
Secondary Memory
Hard Disk Drive
Removable Storage Drive
Interface
Communications Interface
1306
Communications Infrastructure
1324

FIG. 13