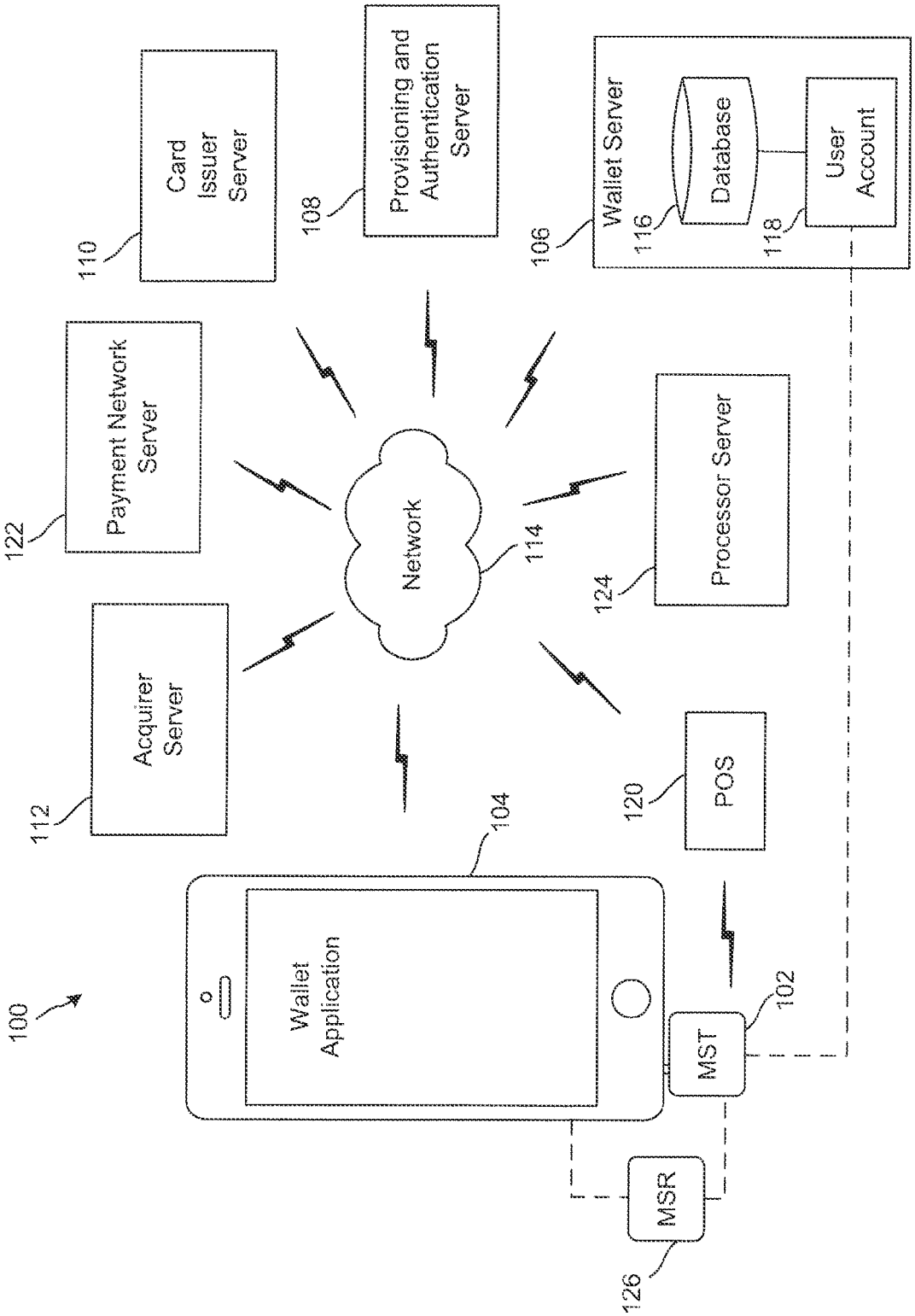

100
Wallet Application
104
MST
102
MSR
126
POS
120
Acquirer Server
112
Payment Network Server
122
Card Issuer Server
110
Provisioning and Authentication Server
108
Network
114
Processor Server
124
Wallet Server
106
Database
116
User Account
118

FIG. 1

FIG. 2

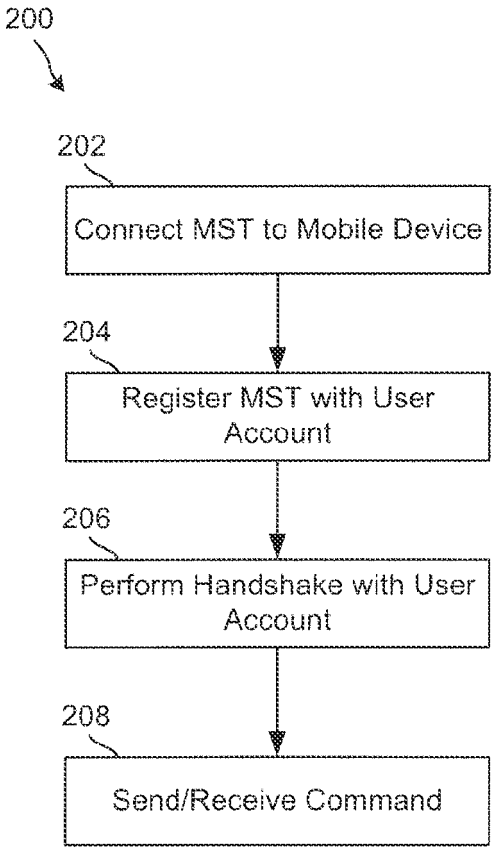

200
202
Connect MST to Mobile Device
204
Register MST with User Account
206
Perform Handshake with User Account
208
Send/Receive Command

FIG. 3

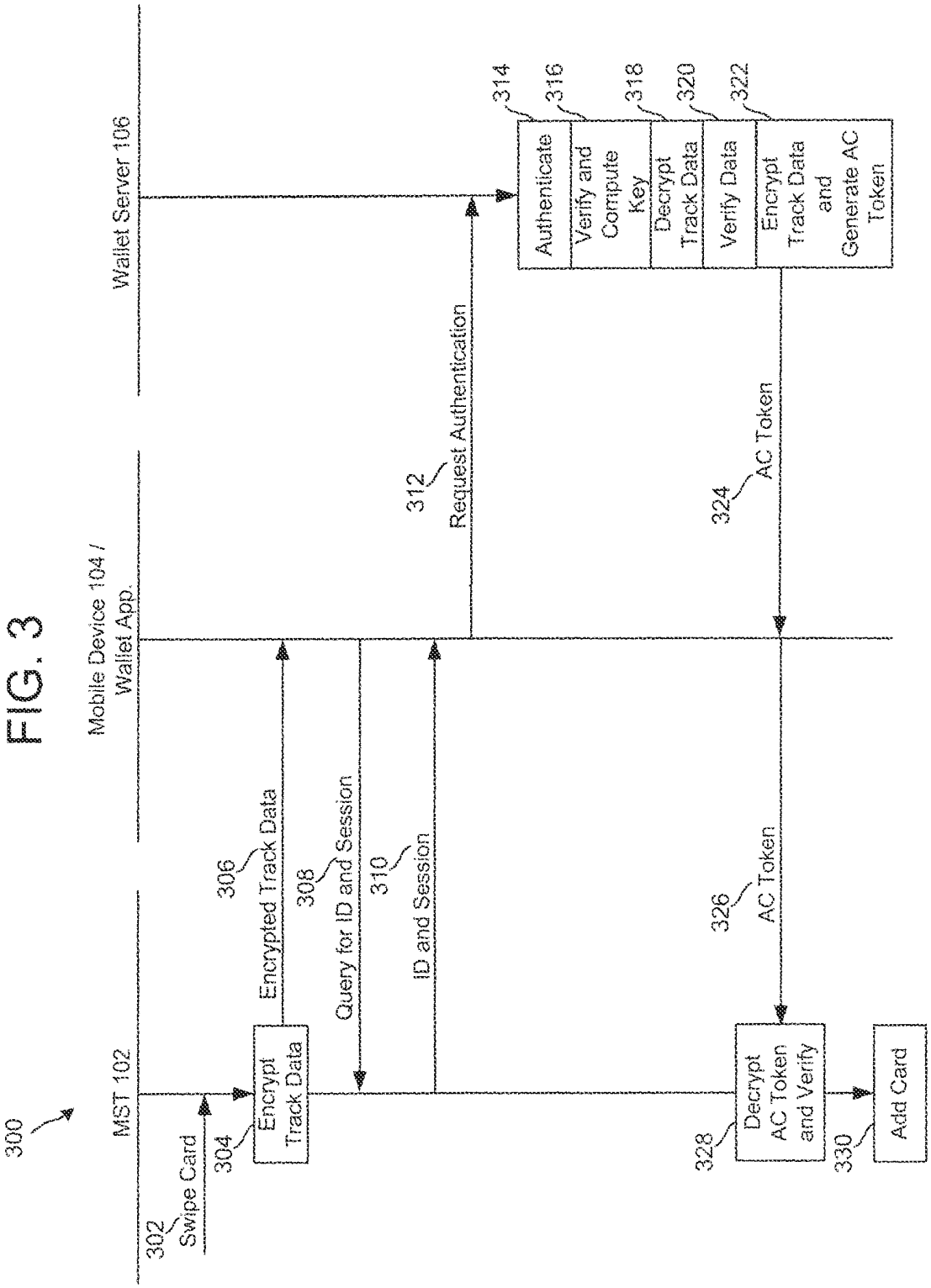

300
MST 102
Mobile Device 104 / Wallet App.
Wallet Server 106
302
Swipe Card
304
Encrypt Track Data
306
Encrypted Track Data
308
Query for ID and Session
310
ID and Session
312
Request Authentication
314
Authenticate
316
Verify and Compute Key
318
Decrypt Track Data
320
Verify Data
322
Encrypt Track Data and Generate AC Token
324
AC Token
326
AC Token
328
Decrypt AC Token and Verify
330
Add Card

FIG. 4

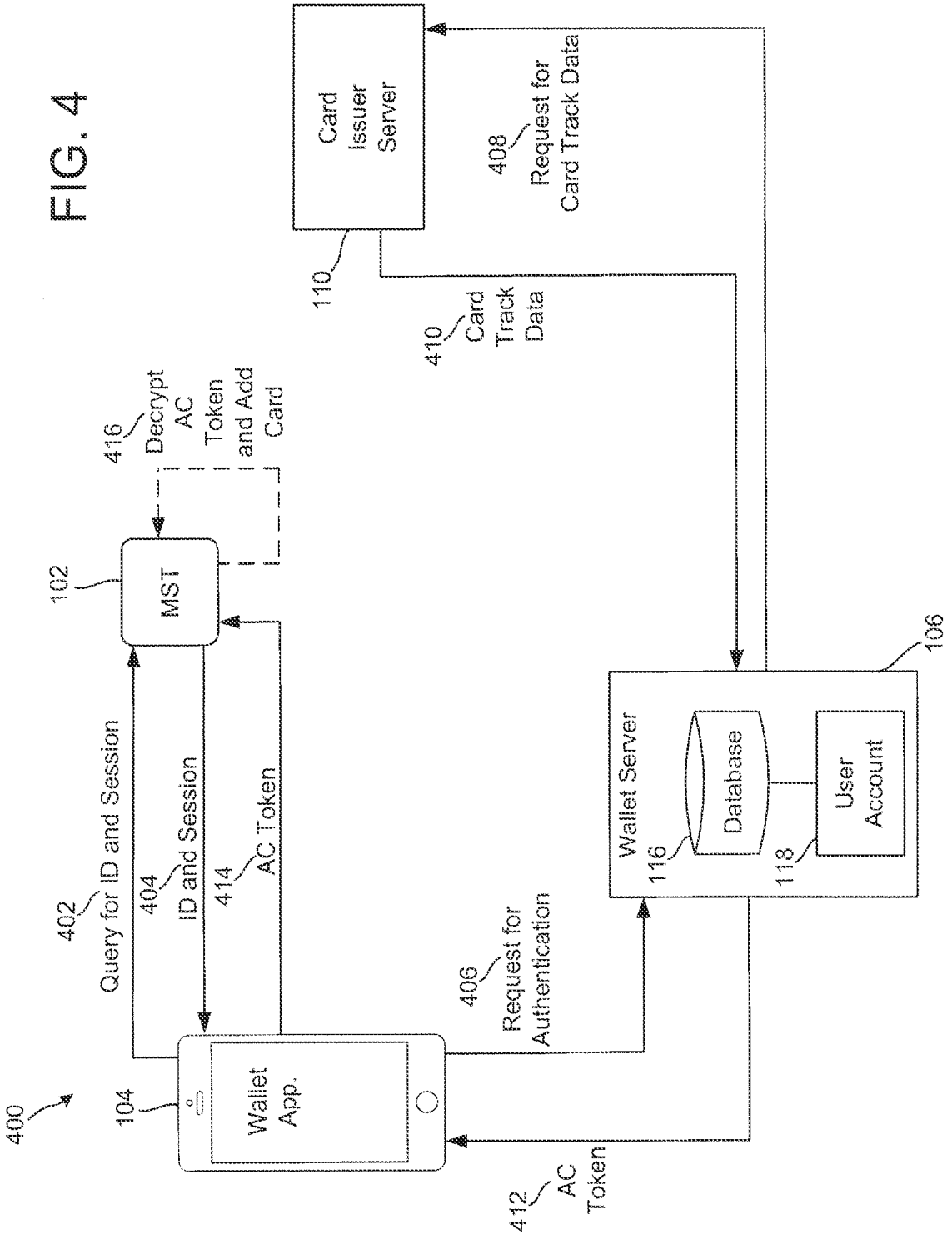

400
104
Wallet App.
102
MST
Card Issuer Server
110
106
Wallet Server
Database
User Account
116
118
402
Query for ID and Session
404
ID and Session
406
Request for Authentication
408
Request for Card Track Data
410
Card Track Data
412
AC Token
414
AC Token
416
Decrypt AC Token and Add Card

FIG. 5

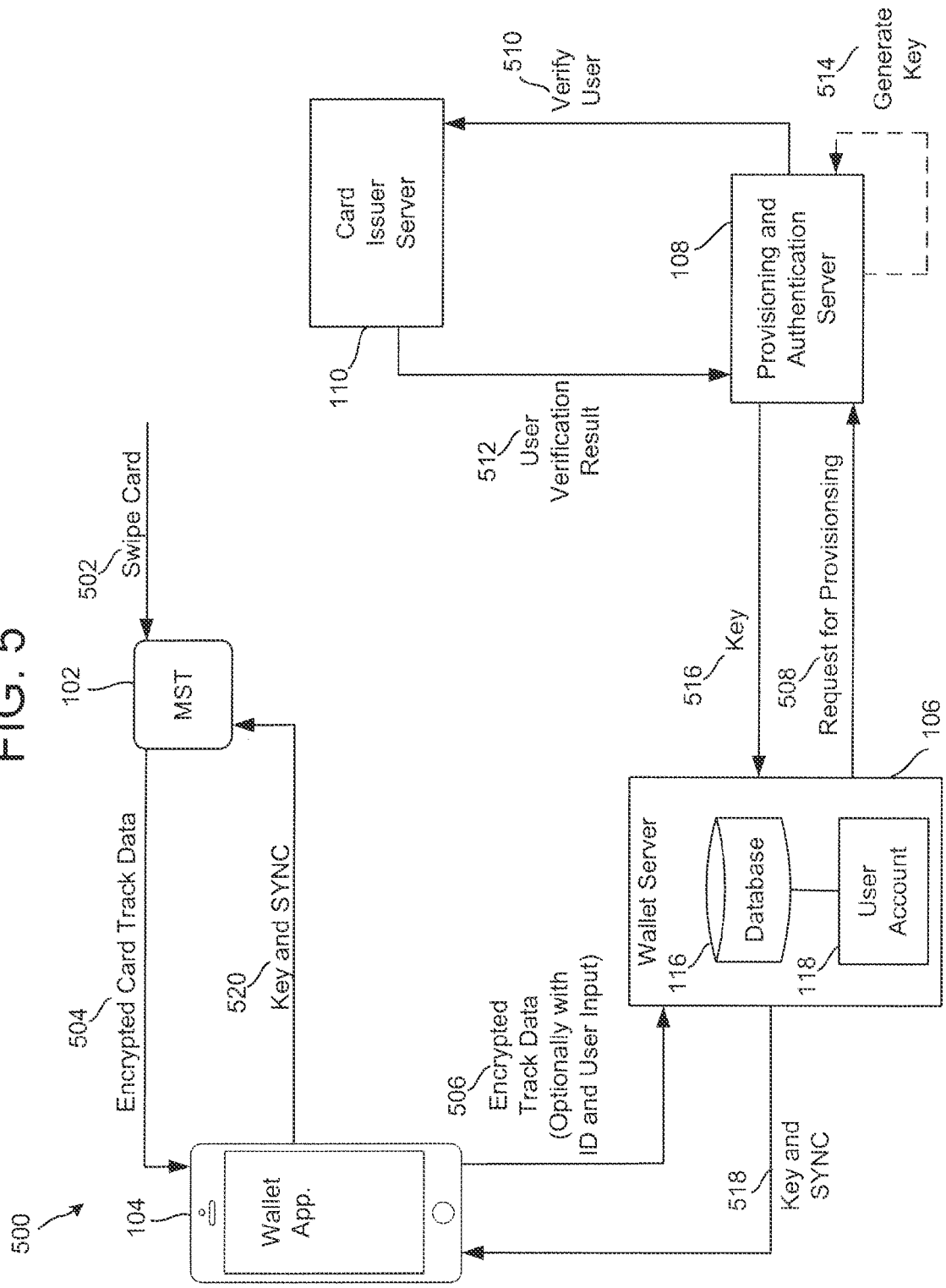

500
104
Wallet App.
102
MST
502
Swipe Card
504
Encrypted Card Track Data
520
Key and SYNC
506
Encrypted Track Data (Optionally with ID and User Input)
518
Key and SYNC
Wallet Server
116
Database
118
User Account
106
516
Key
508
Request for Provisionsing
108
Provisioning and Authentication Server
514
Generate Key
510
Verify User
Card Issuer Server
110
512
User Verification Result

FIG. 6

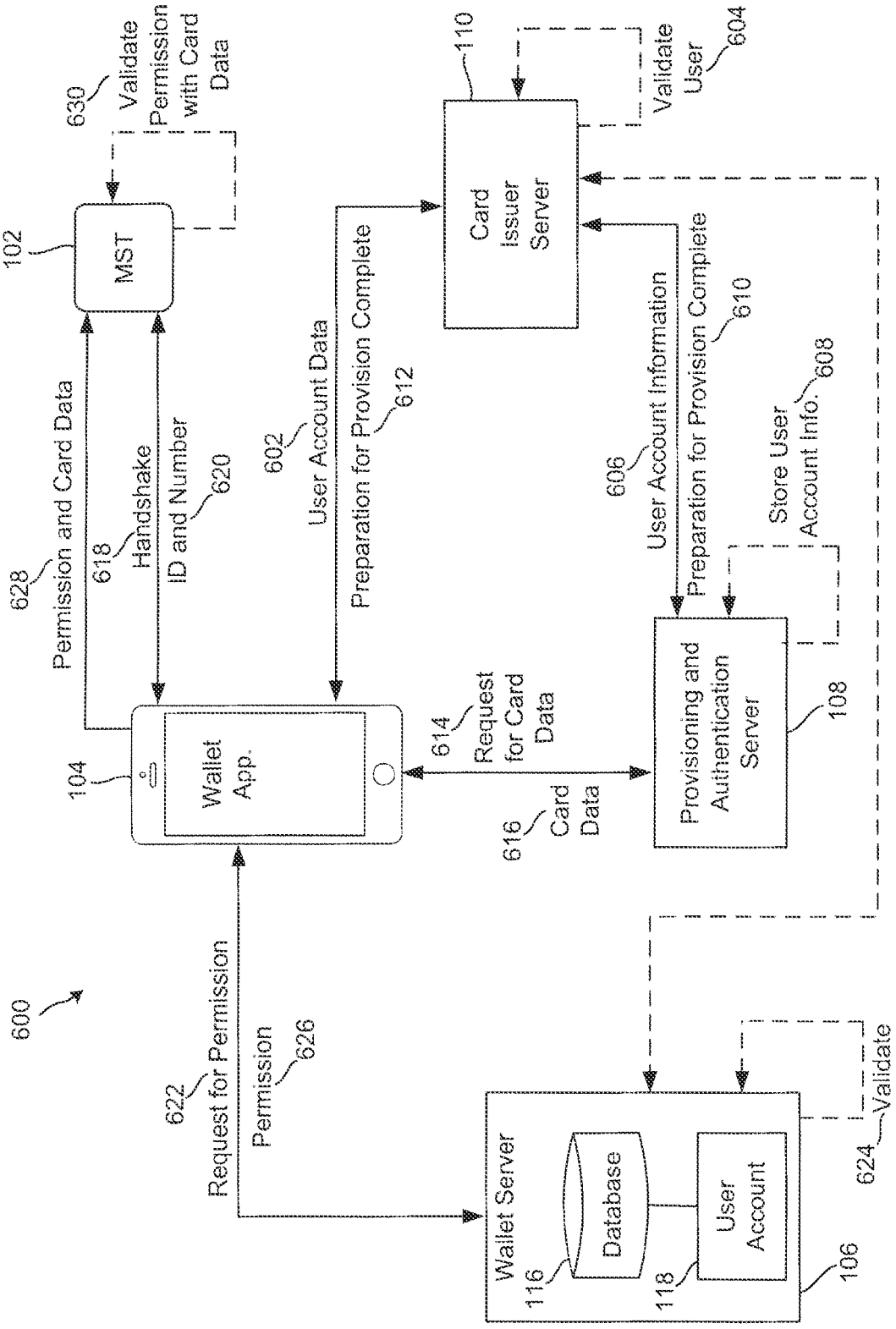

600
102
MST
104
Wallet App.
106
Wallet Server
Database
User Account
108
Provisioning and Authentication Server
110
Card Issuer Server
116
118
602
User Account Data
604
Validate User
606
User Account Information
608
Store User Account Info.
610
Preparation for Provision Complete
612
Preparation for Provision Complete
614
Request for Card Data
616
Card Data
618
Handshake
620
ID and Number
622
Request for Permission
624
Validate
626
Permission
628
Permission and Card Data
630
Validate Permission with Card Data

FIG. 7

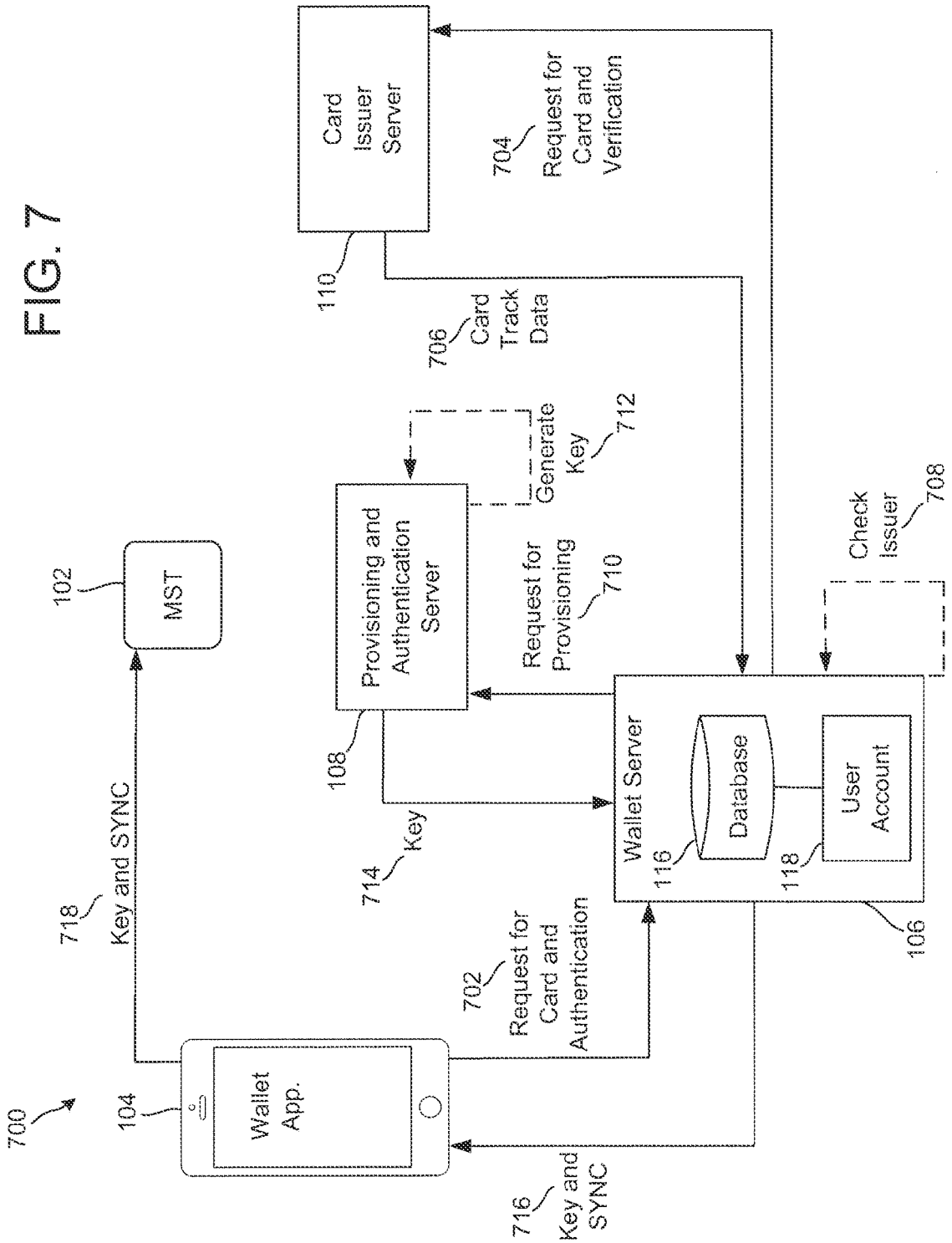

700
104
Wallet App.
102
MST
718
Key and SYNC
108
Provisioning and Authentication Server
714
Key
110
Card Issuer Server
704
Request for Card and Verification
706
Card Track Data
712
Generate Key
710
Request for Provisioning
708
Check Issuer
Wallet Server
116
Database
118
User Account
106
702
Request for Card and Authentication
716
Key and SYNC

FIG. 8

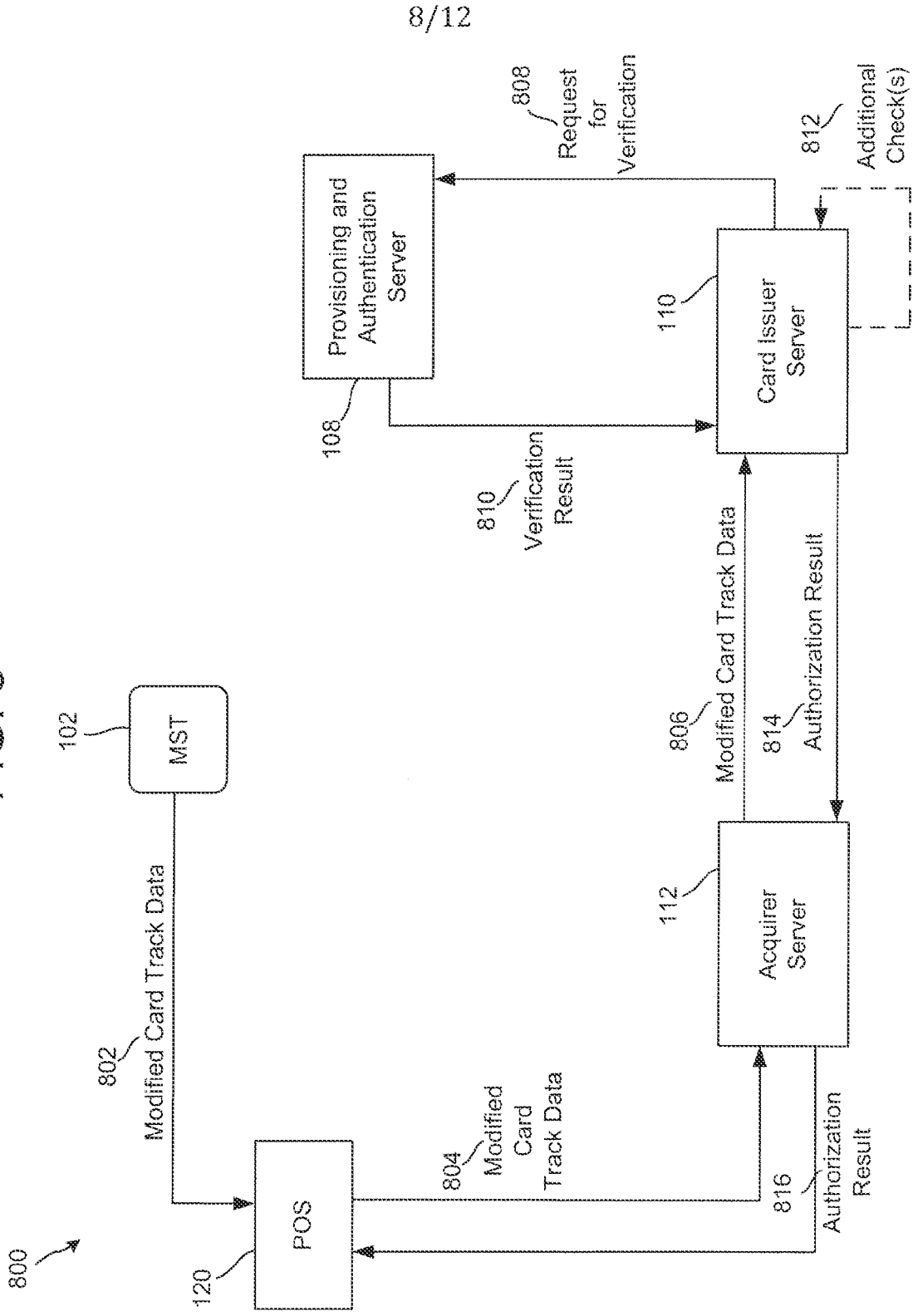

800
MST
102
POS
120
Provisioning and Authentication Server
108
Card Issuer Server
110
Acquirer Server
112
802
Modified Card Track Data
804
Modified Card Track Data
806
Modified Card Track Data
808
Request for Verification
810
Verification Result
812
Additional Check(s)
814
Authorization Result
816
Authorization Result

FIG. 9

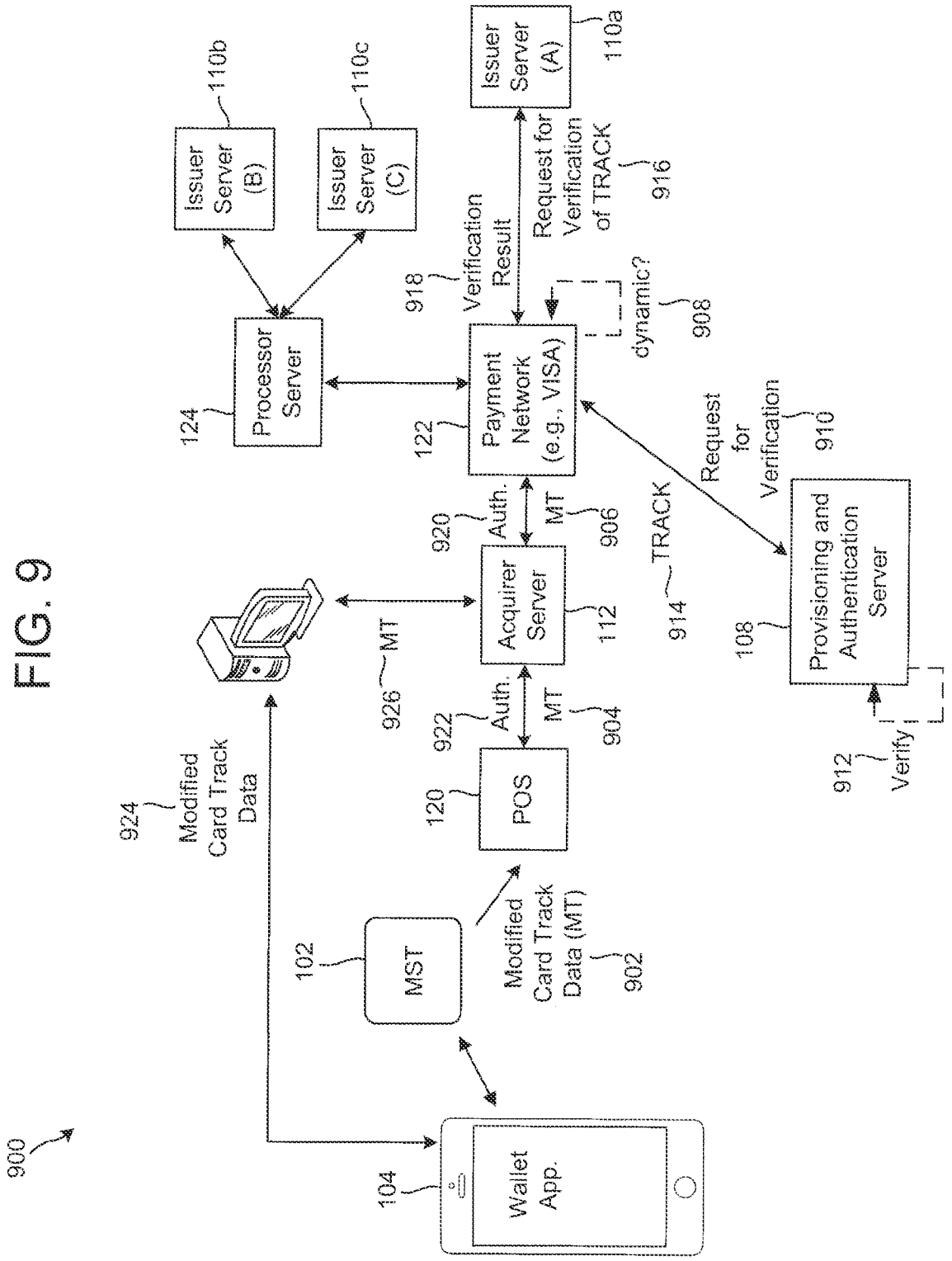

900
Wallet App.
104
MST
102
Modified Card Track Data (MT)
902
POS
120
Auth.
922
MT
904
Acquirer Server
112
Auth.
920
MT
906
Payment Network (e.g., VISA)
122
Processor Server
124
Issuer Server (B)
110b
Issuer Server (C)
110c
Issuer Server (A)
110a
Verification Result
918
Request for Verification of TRACK
916
dynamic?
908
Request for Verification
910
TRACK
914
Provisioning and Authentication Server
108
Verify
912
Modified Card Track Data
924
MT
926

FIG. 10

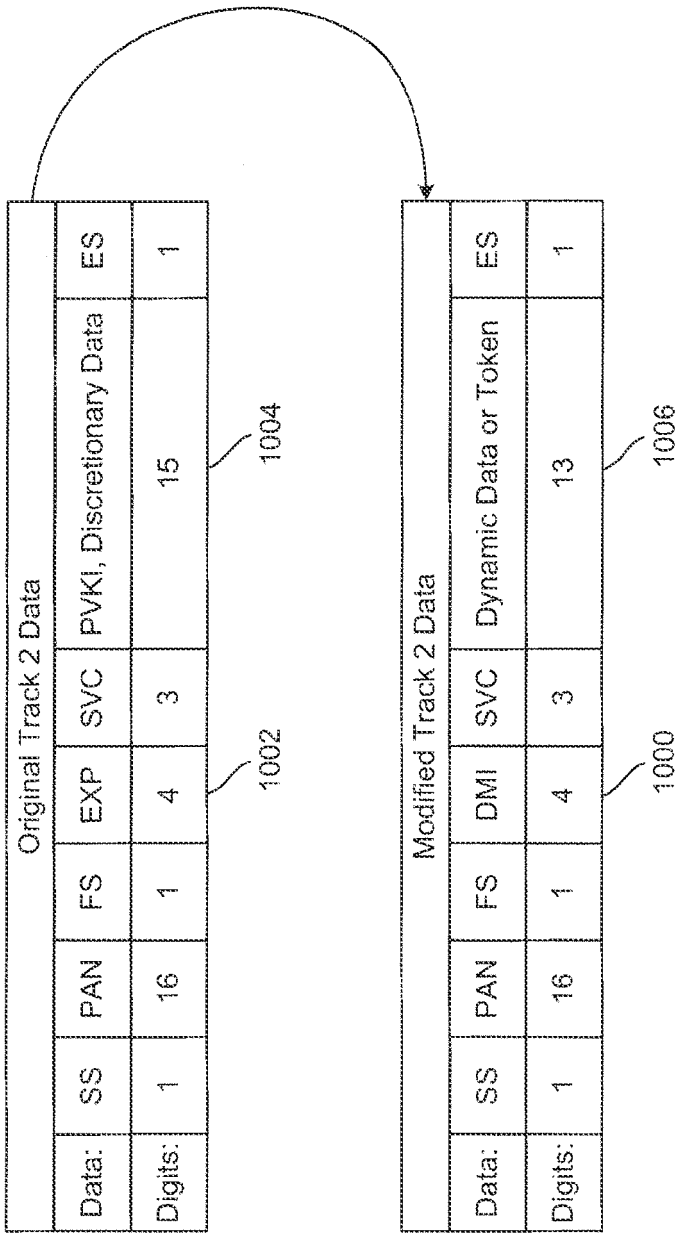

Original Track 2 Data
Data:
SS
PAN
FS
EXP
SVC
PVKI, Discretionary Data
ES
Digits:
1
16
1
4
3
15
1
1002
1004
Modified Track 2 Data
Data:
SS
PAN
FS
DMI
SVC
Dynamic Data or Token
ES
Digits:
1
16
1
4
3
13
1
1000
1006

FIG. 11

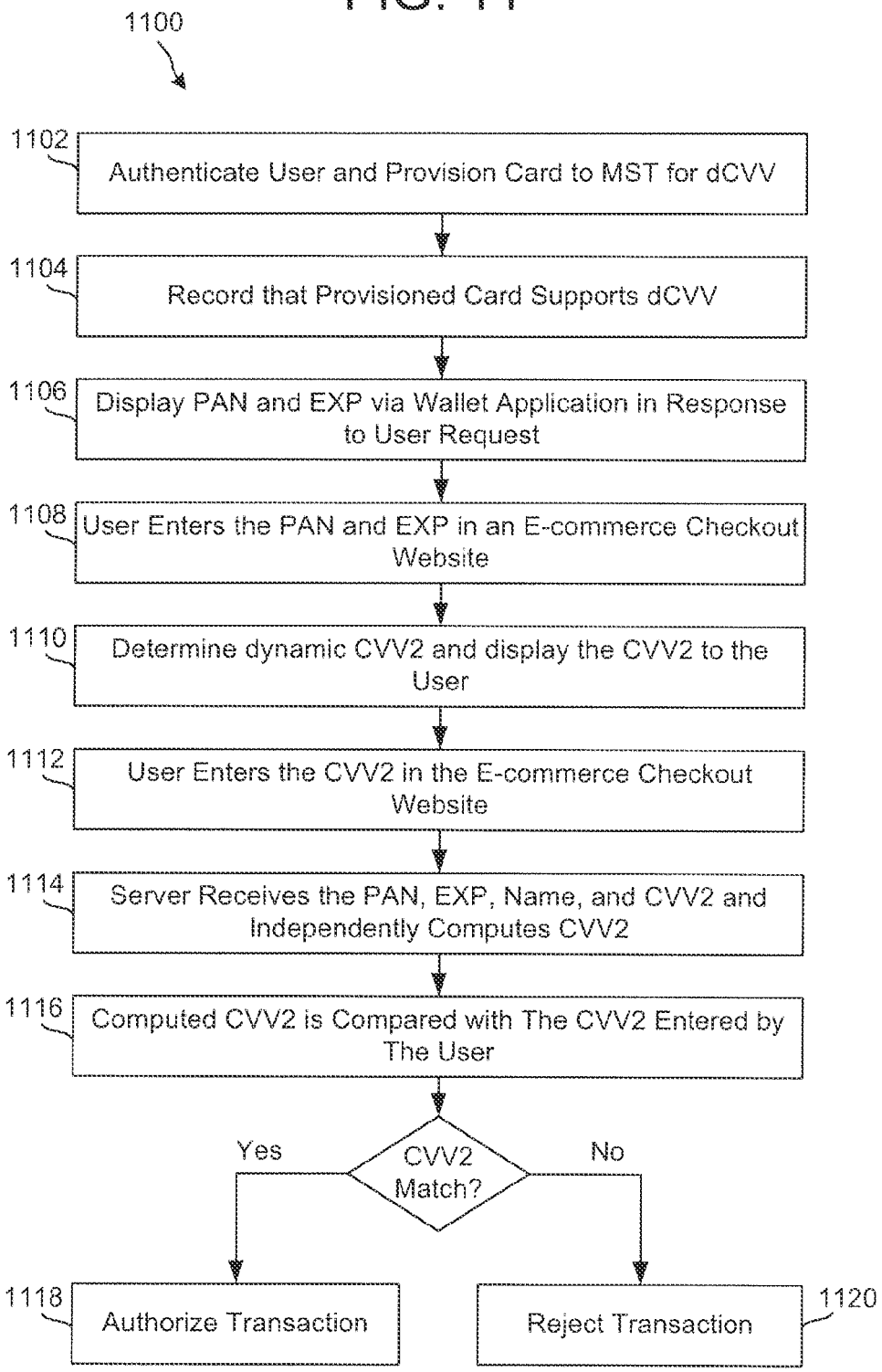
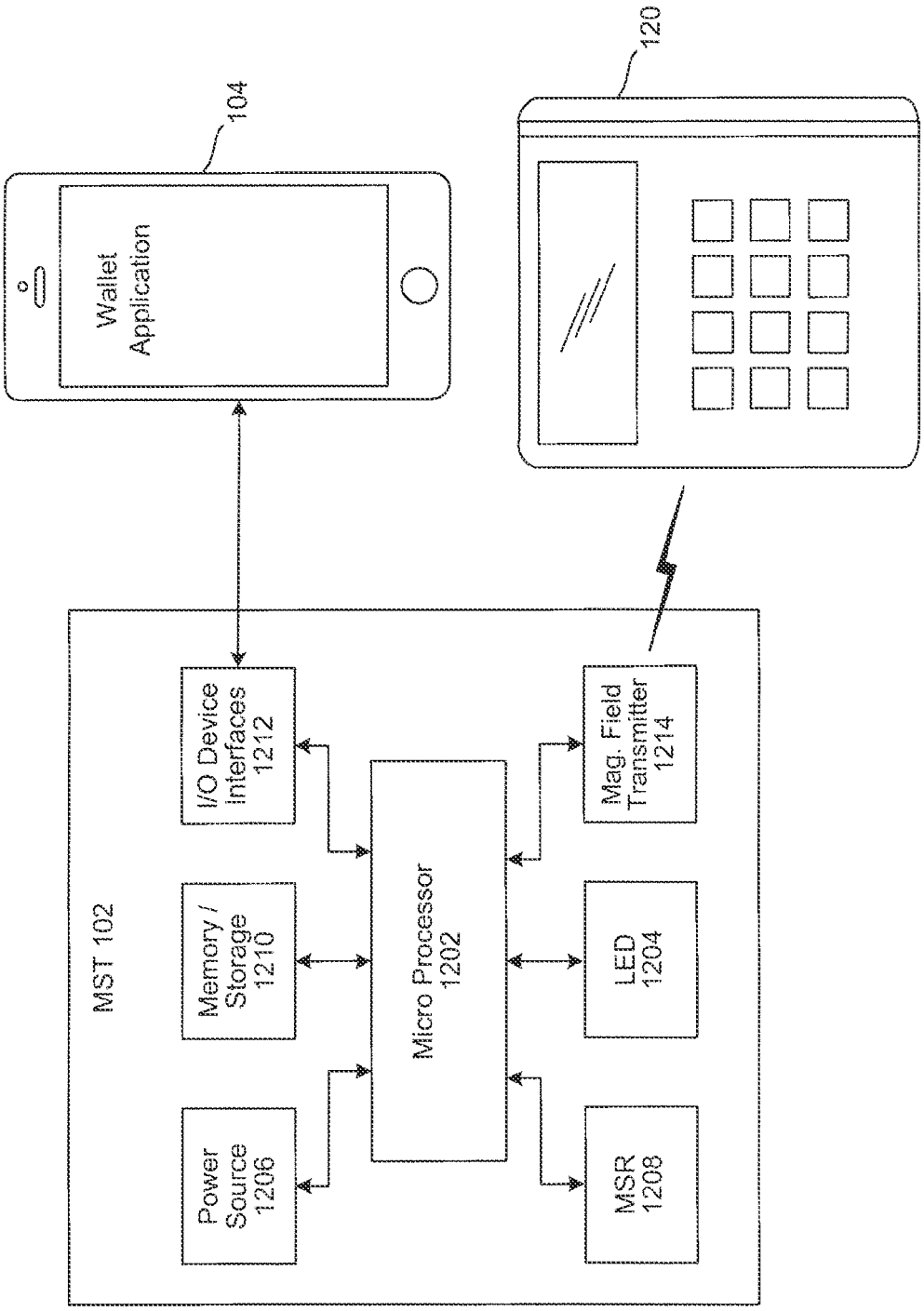

1100
1102
Authenticate User and Provision Card to MST for dCVV
1104
Record that Provisioned Card Supports dCVV
1106
Display PAN and EXP via Wallet Application in Response to User Request
1108
User Enters the PAN and EXP in an E-commerce Checkout Website
1110
Determine dynamic CVV2 and display the CVV2 to the User
1112
User Enters the CVV2 in the E-commerce Checkout Website
1114
Server Receives the PAN, EXP, Name, and CVV2 and Independently Computes CVV2
1116
Computed CVV2 is Compared with The CVV2 Entered by The User
CVV2 Match?
Yes
No
1118
Authorize Transaction
1120
Reject Transaction

FIG. 12


104
Wallet Application
120
MST 102
I/O Device Interfaces 1212
Memory / Storage 1210
Power Source 1206
Micro Processor 1202
Mag. Field Transmitter 1214
LED 1204
MSR 1208