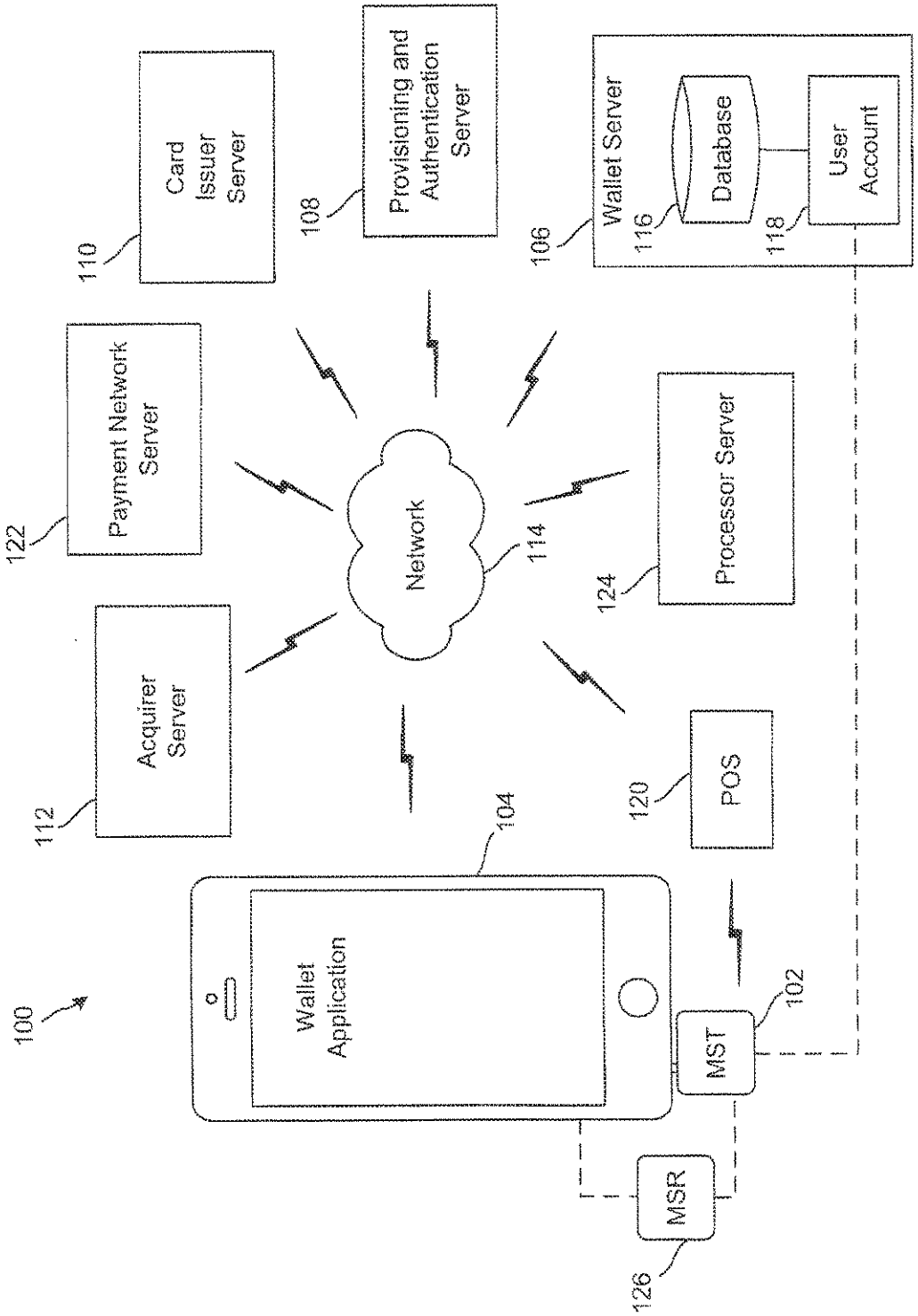

100
Wallet Application
104
MST
102
MSR
126
POS
120
Acquirer Server
112
Payment Network Server
122
Card Issuer Server
110
Provisioning and Authentication Server
108
Network
114
Processor Server
124
Wallet Server
106
Database
116
User Account
118

FIG. 1

FIG. 2

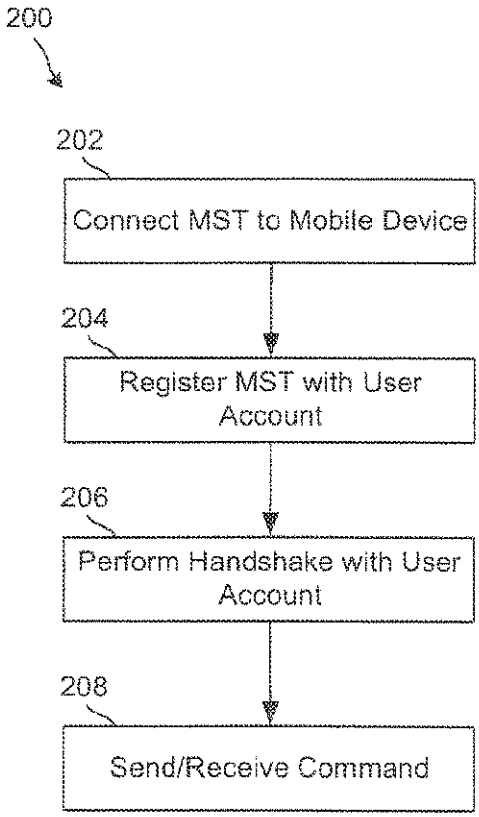

200
202
Connect MST to Mobile Device
204
Register MST with User Account
206
Perform Handshake with User Account
208
Send/Receive Command

FIG. 3

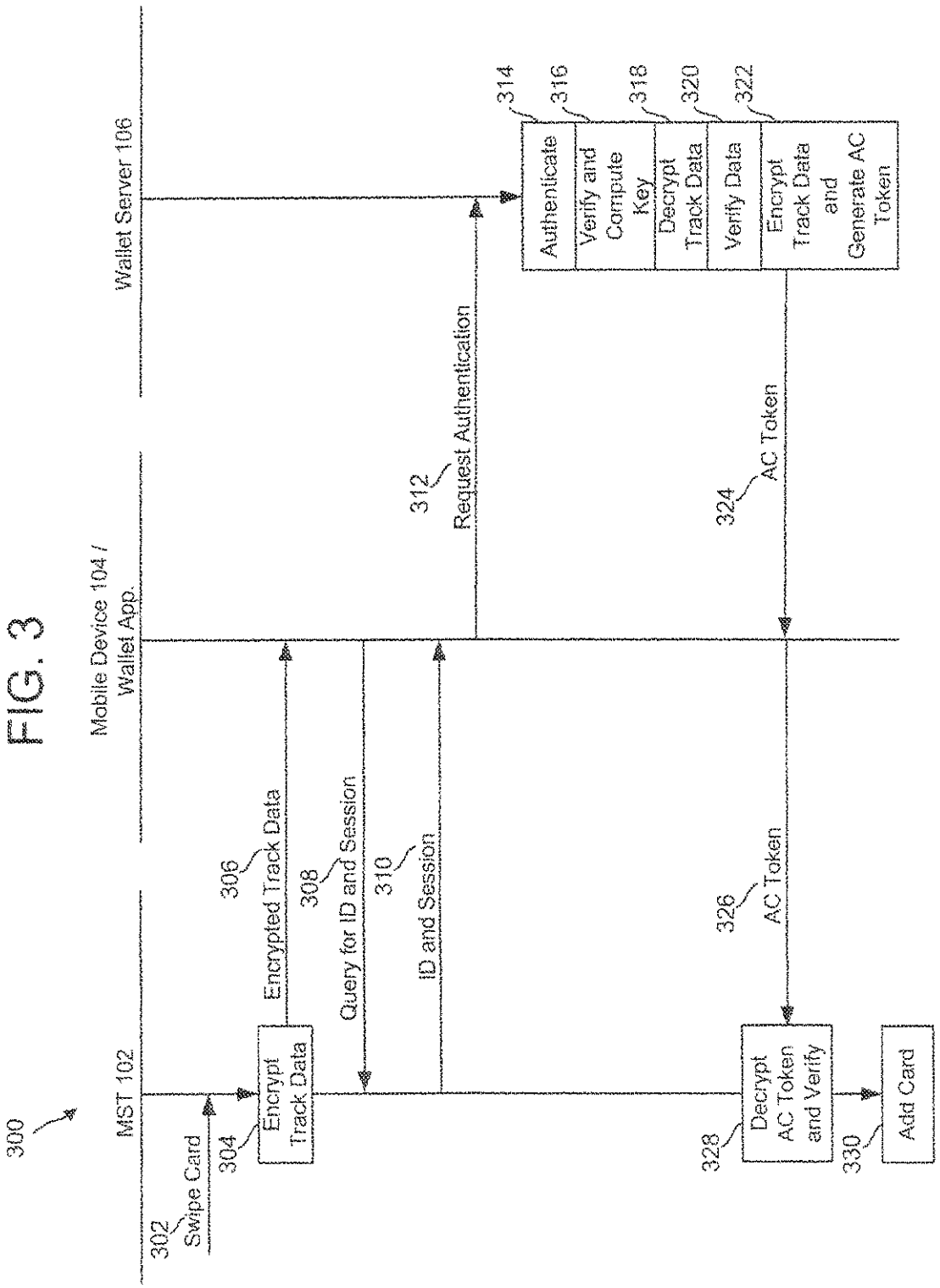

300
MST 102
Mobile Device 104 / Wallet App.
Wallet Server 106
302
Swipe Card
304
Encrypt Track Data
306
Encrypted Track Data
308
Query for ID and Session
310
ID and Session
312
Request Authentication
314
Authenticate
316
Verify and Compute Key
318
Decrypt Track Data
320
Verify Data
322
Encrypt Track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

FIG. 4

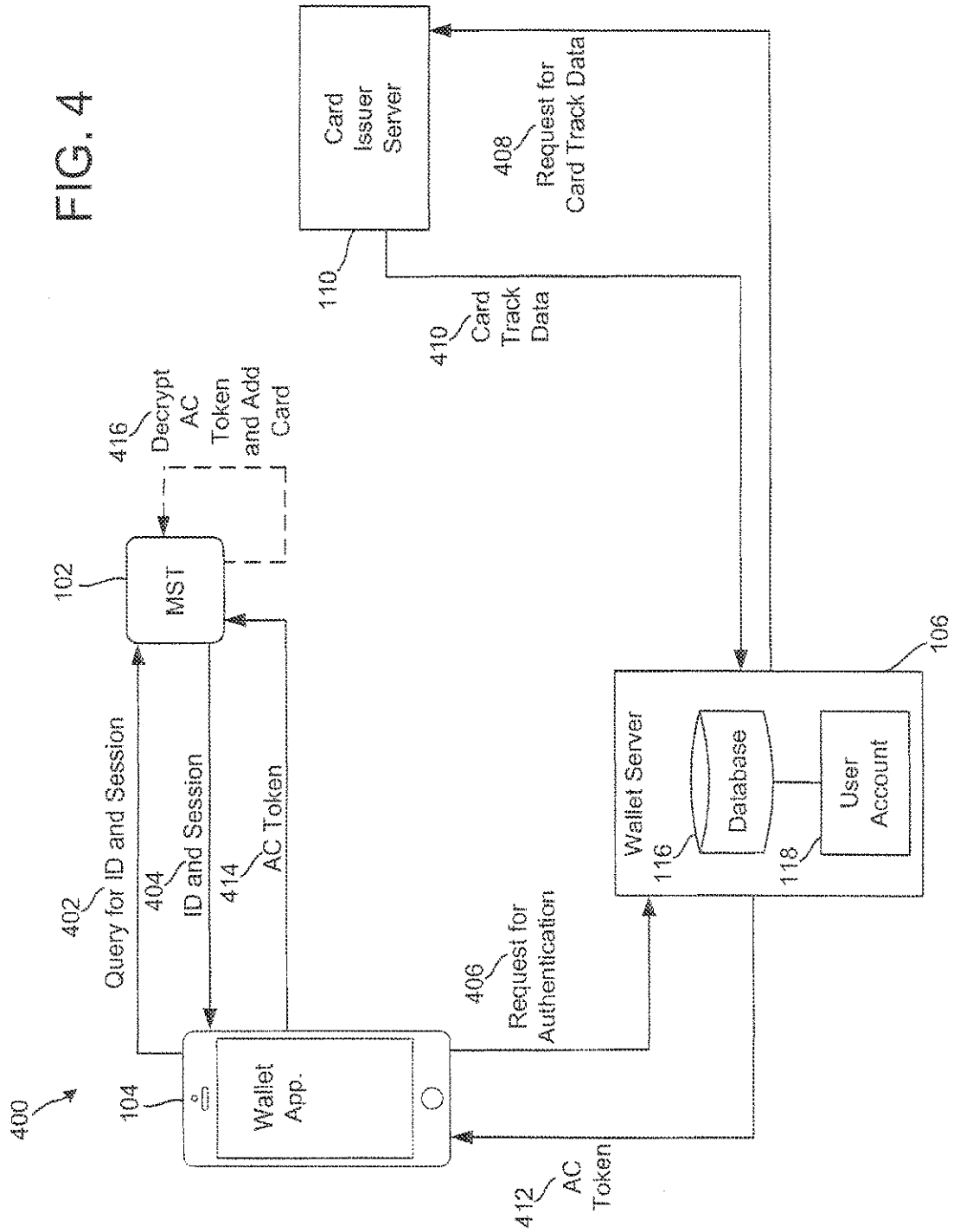

400
104
Wallet App.
102
MST
Card Issuer Server
110
Wallet Server
116
Database
118
User Account
106
402
Query for ID and Session
404
ID and Session
406
Request for Authentication
408
Request for Card Track Data
410
Card Track Data
412
AC Token
414
AC Token
416
Decrypt AC Token and Add Card

FIG. 5

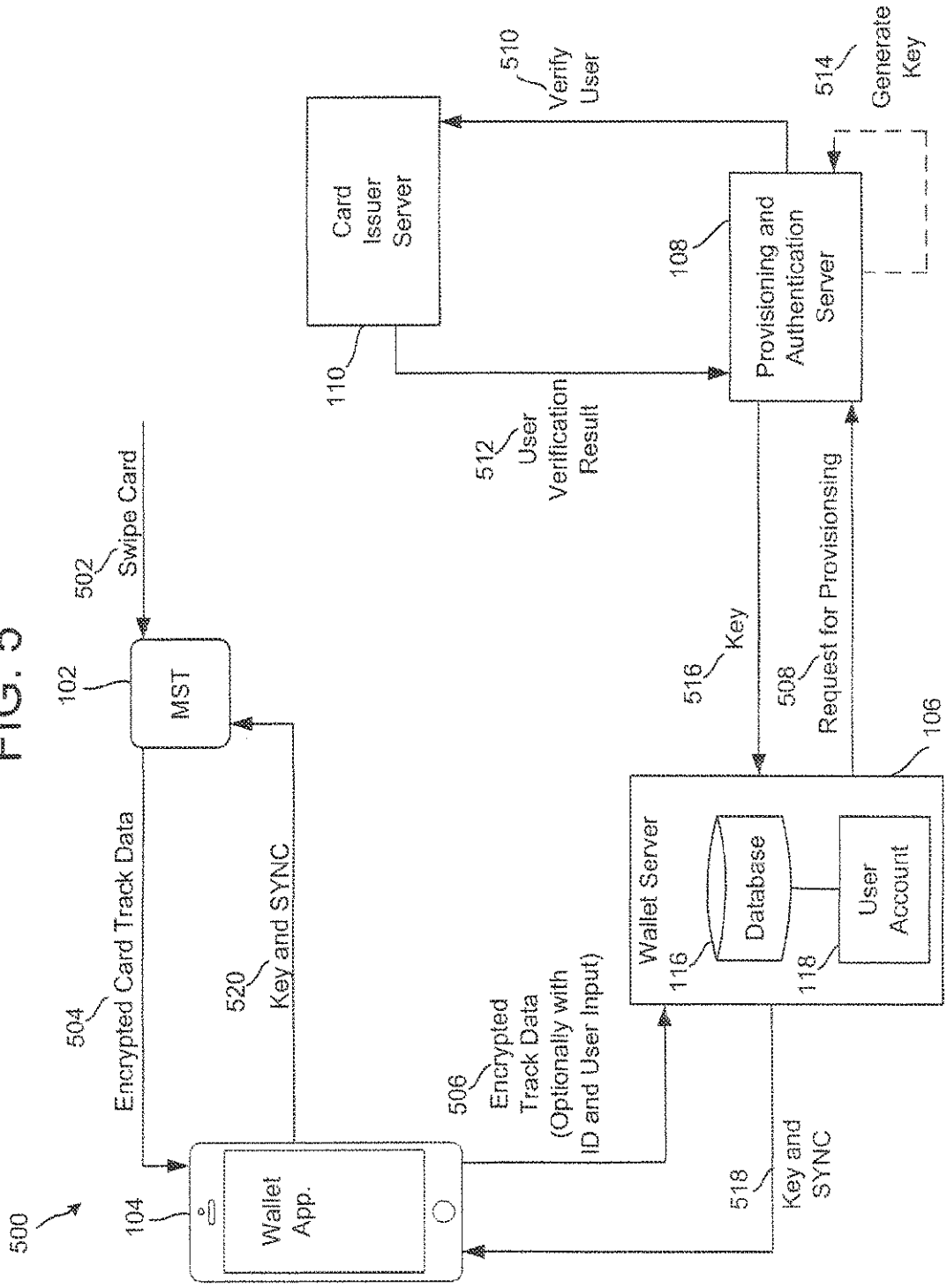

500
104
Wallet App.
102
MST
502
Swipe Card
504
Encrypted Card Track Data
520
Key and SYNC
506
Encrypted Track Data (Optionally with ID and User Input)
518
Key and SYNC
Wallet Server
116
Database
118
User Account
106
516
Key
508
Request for Provisionsing
108
Provisioning and Authentication Server
514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

FIG. 6

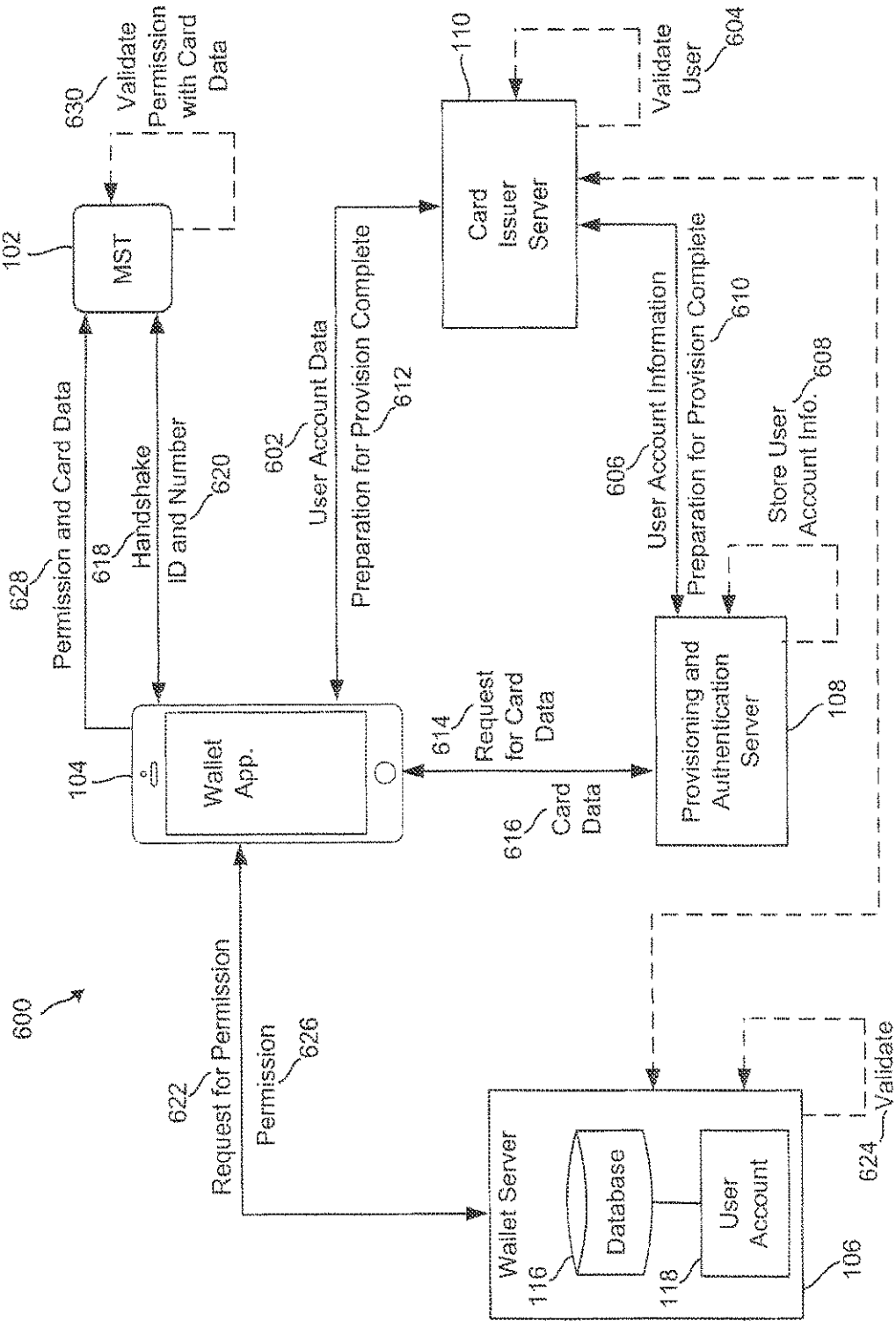

600
102
MST
630
Validate Permission with Card Data
628
Permission and Card Data
618
Handshake
620
ID and Number
602
User Account Data
612
Preparation for Provision Complete
104
Wallet App.
614
Request for Card Data
616
Card Data
110
Card Issuer Server
604
Validate User
606
User Account Information
610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

FIG. 7

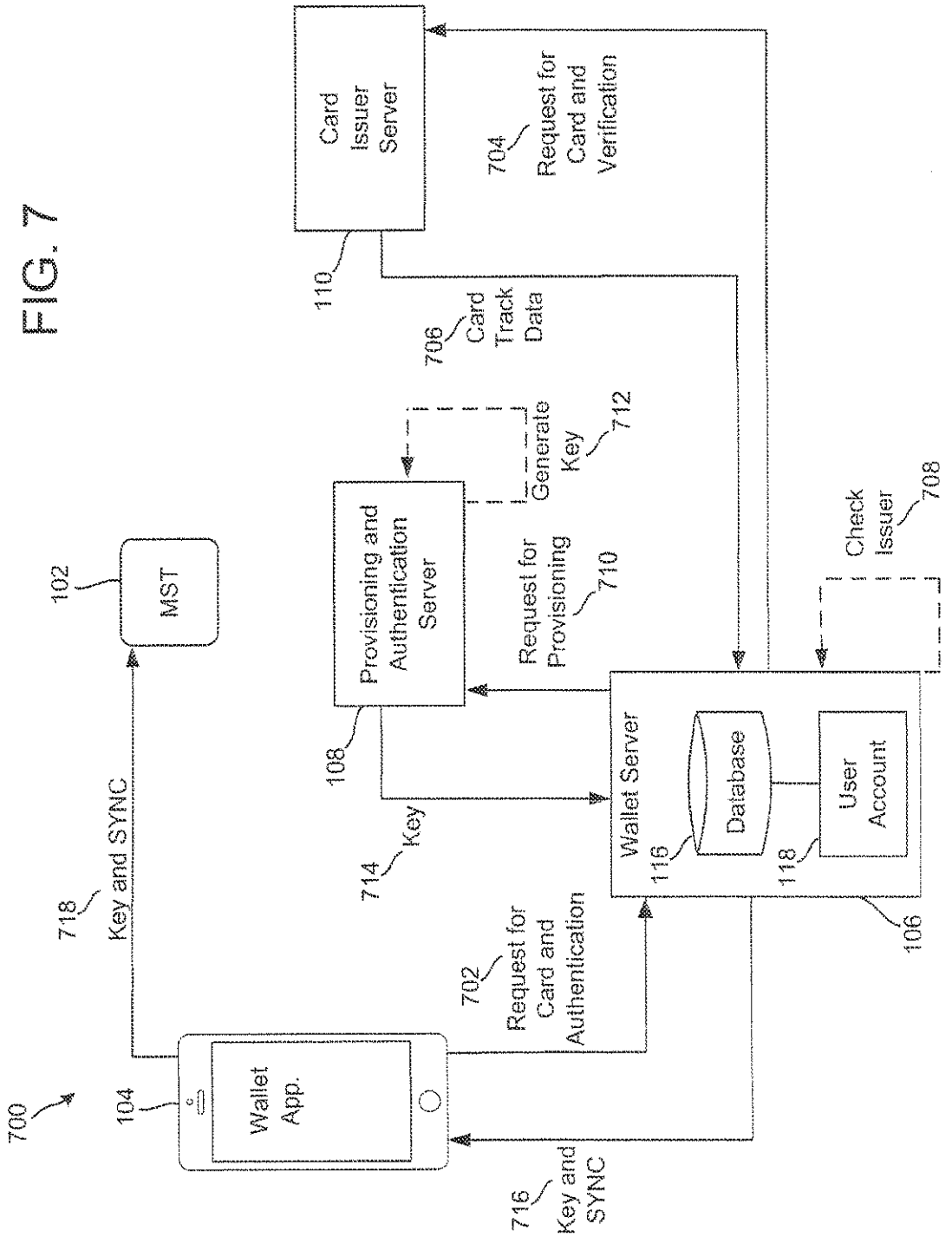

700
104
Wallet App.
102
MST
718
Key and SYNC
716
Key and SYNC
702
Request for Card and Authentication
714
Key
108
Provisioning and Authentication Server
710
Request for Provisioning
712
Generate Key
706
Card Track Data
110
Card Issuer Server
704
Request for Card and Verification
708
Check Issuer
Wallet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

FIG. 8

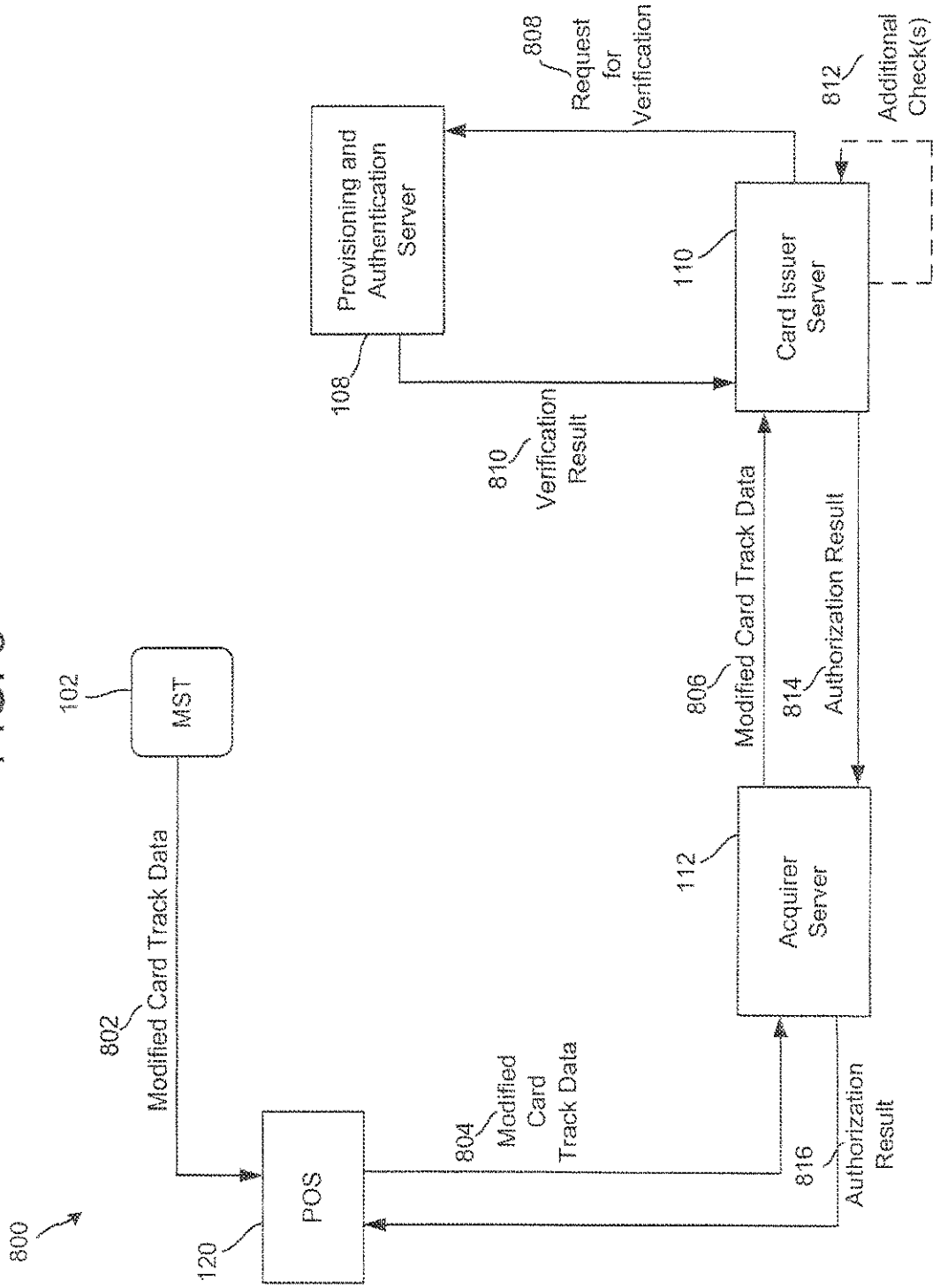

800
MST
102
Modified Card Track Data
802
POS
120
Modified Card Track Data
804
Acquirer Server
112
Modified Card Track Data
806
Authorization Result
816
Authorization Result
814
Card Issuer Server
110
Verification Result
810
Provisioning and Authentication Server
108
Request for Verification
808
Additional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

FIG. 9

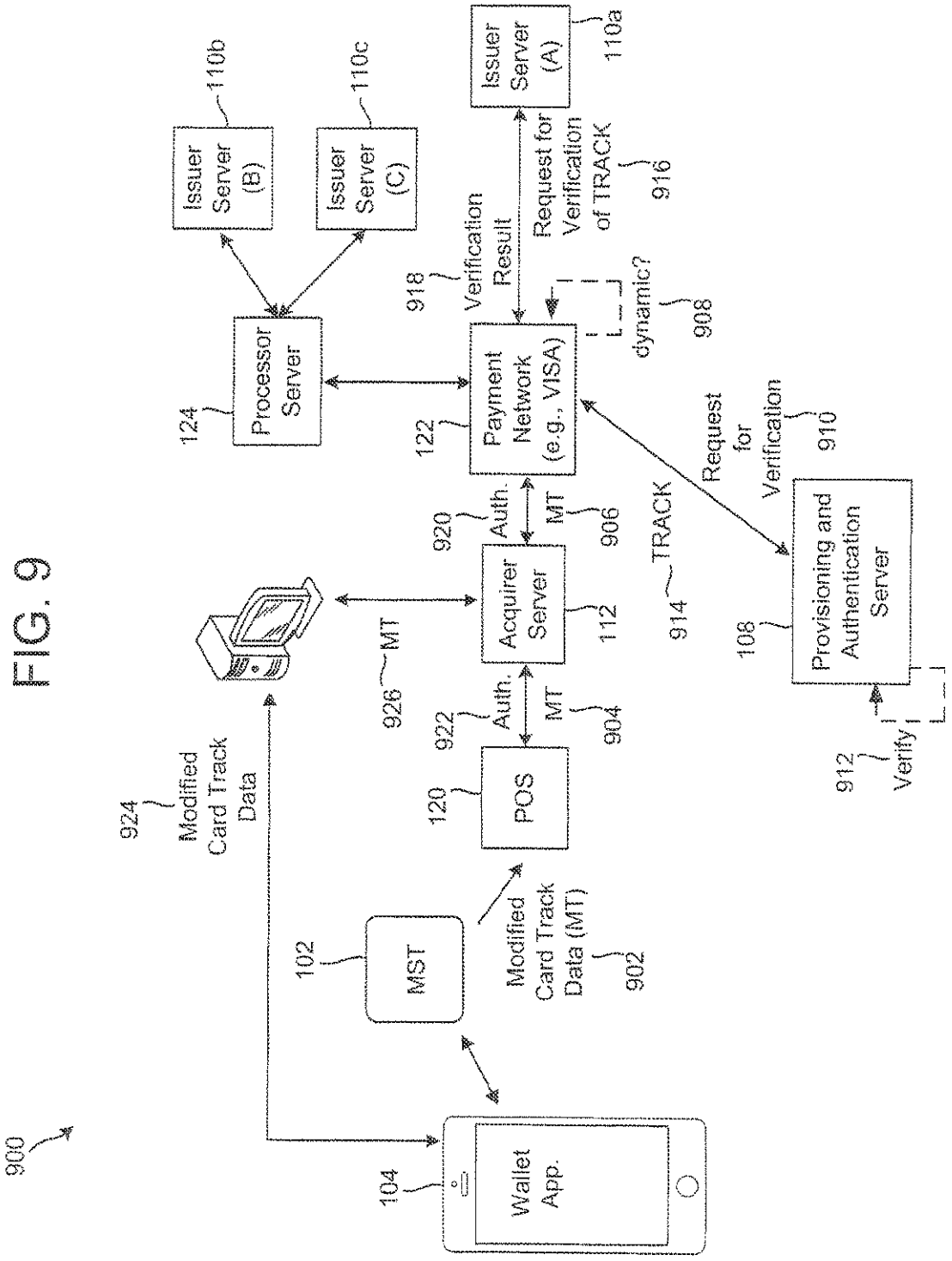

900
104
Wallet App.
102
MST
Modified Card Track Data (MT)
902
120
POS
922
Auth.
MT
904
926
MT
924
Modified Card Track Data
Acquirer Server
112
920
Auth.
MT
906
124
Processor Server
122
Payment Network (e.g., VISA)
Issuer Server (B)
110b
Issuer Server (C)
110c
Issuer Server (A)
110a
918
Verification Result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

FIG. 10

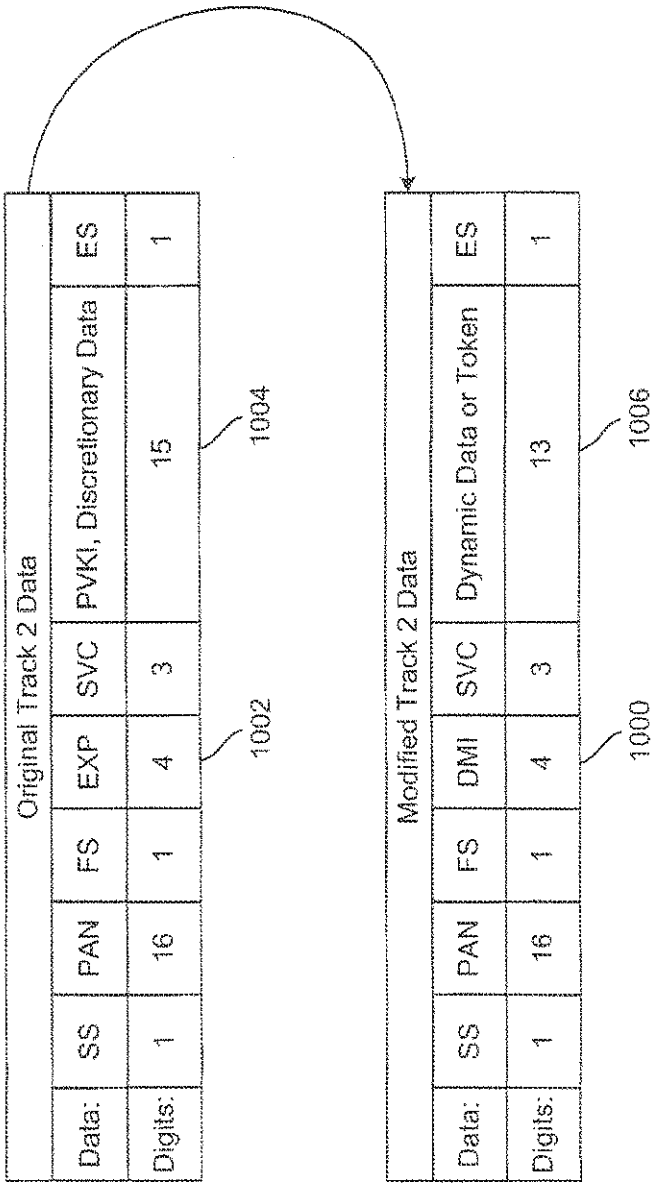

Original Track 2 Data
Data:
SS
PAN
FS
EXP
SVC
PVKI, Discretionary Data
ES
Digits:
1
16
1
4
3
15
1
1002
1004
Modified Track 2 Data
Data:
SS
PAN
FS
DMI
SVC
Dynamic Data or Token
ES
Digits:
1
16
1
4
3
13
1
1000
1006

FIG. 11

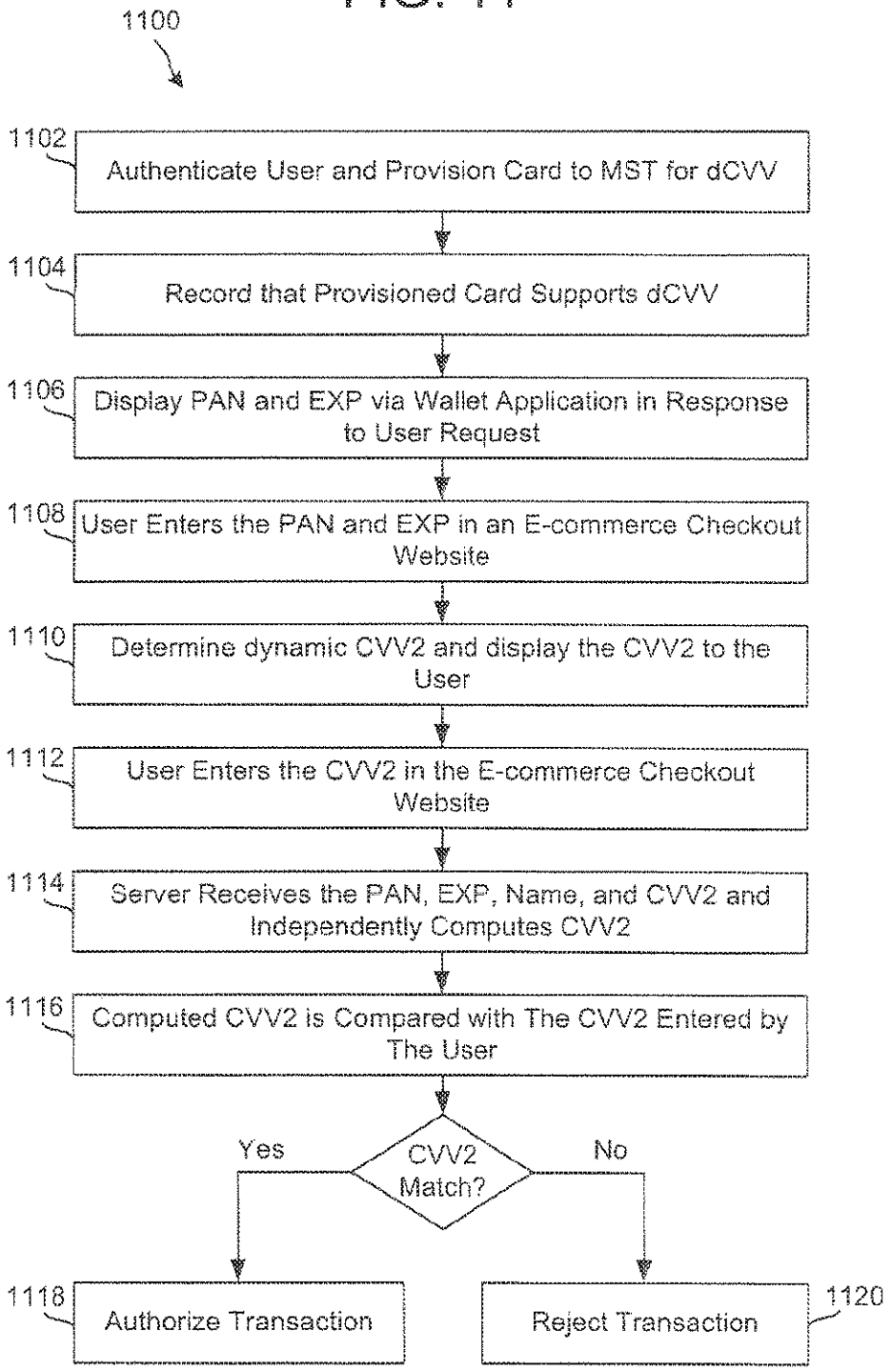
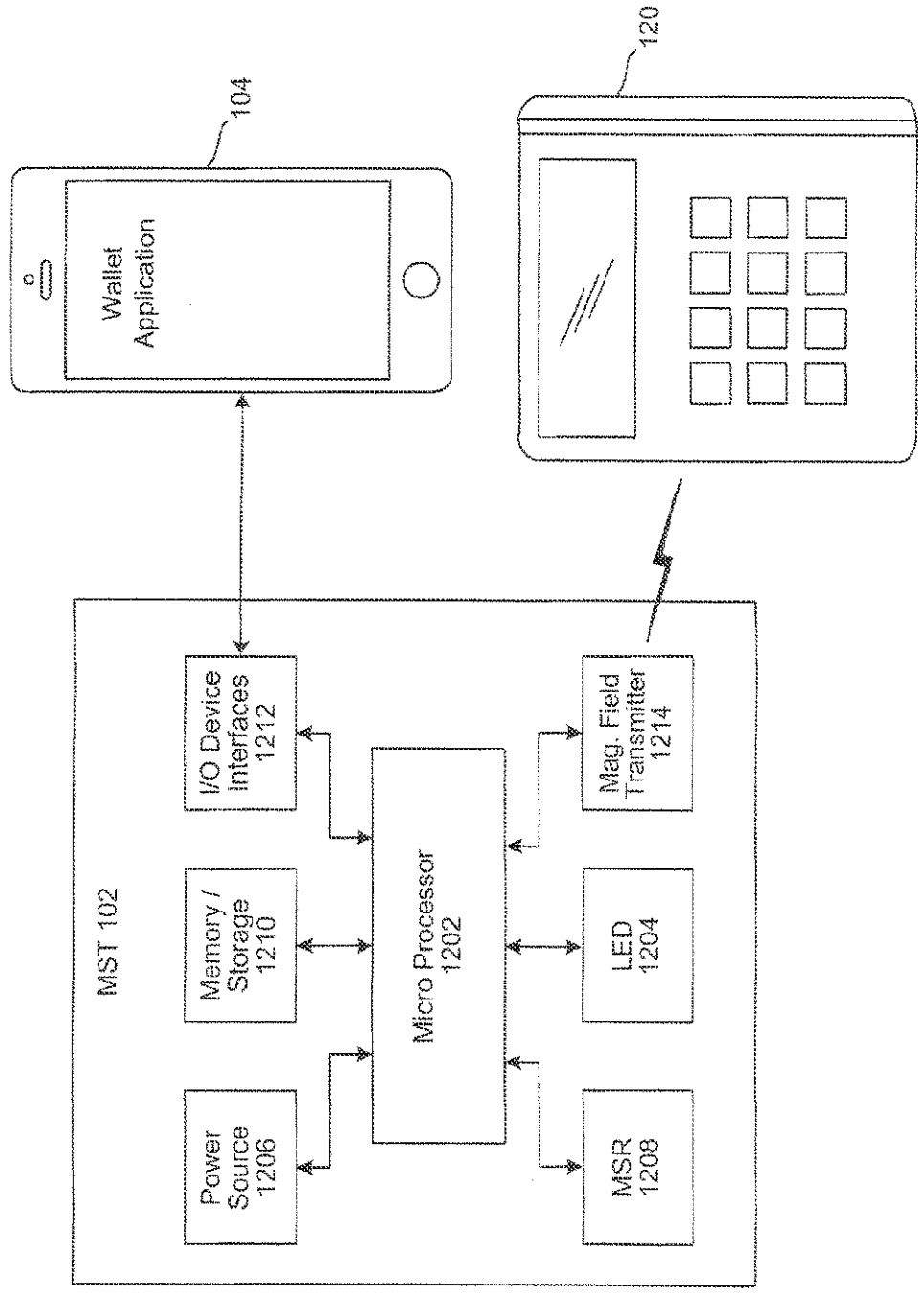

1100
1102
Authenticate User and Provision Card to MST for dCVV
1104
Record that Provisioned Card Supports dCVV
1106
Display PAN and EXP via Wallet Application in Response to User Request
1108
User Enters the PAN and EXP in an E-commerce Checkout Website
1110
Determine dynamic CVV2 and display the CVV2 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
Reject Transaction
1120

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