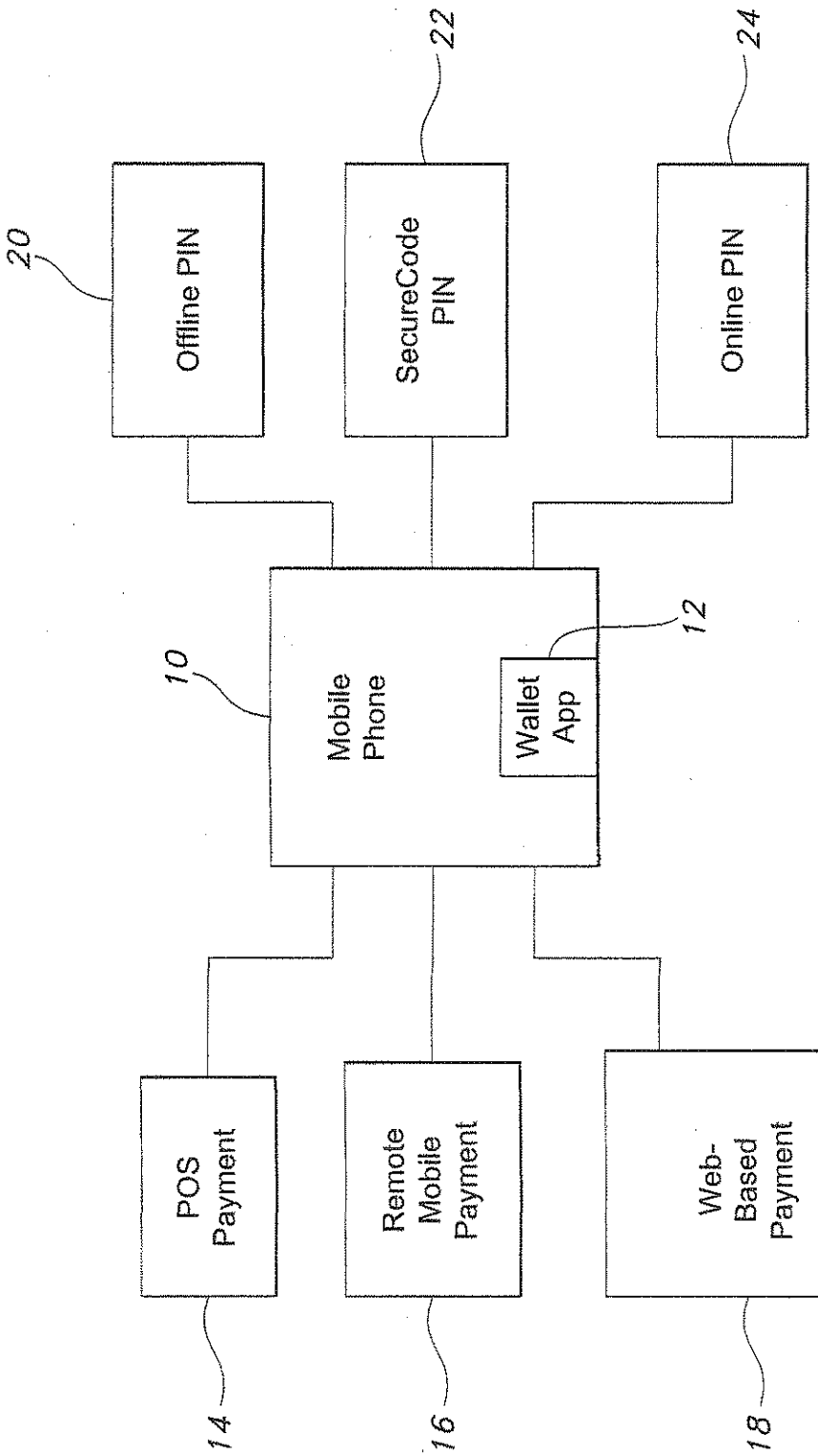

20
Offline PIN
22
SecureCode PIN
24
Online PIN
10
Mobile Phone
12
Wallet App
14
POS Payment
16
Remote Mobile Payment
18
Web-Based Payment

FIG. 1

FIG. 2

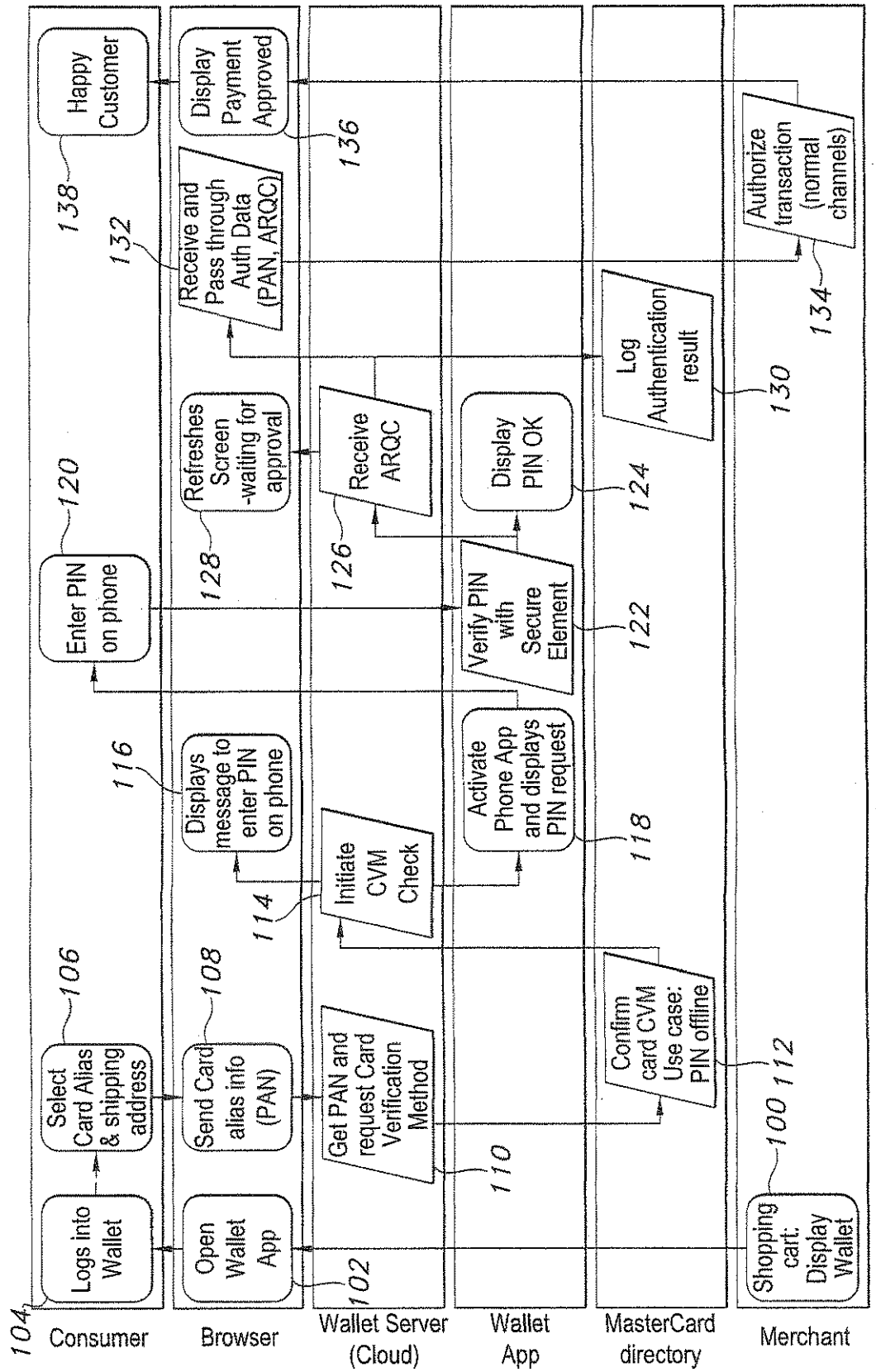

Consumer
Browser
Wallet Server (Cloud)
Wallet App
MasterCard directory
Merchant
Logs into Wallet
Select Card Alias & shipping address
Open Wallet App
Send Card alias info (PAN)
Get PAN and request Card Verification Method
Initiate CVM Check
Displays message to enter PIN on phone
Enter PIN on phone
Activate Phone App and displays PIN request
Verify PIN with Secure Element
Confirm card CVM Use case: PIN offline
Receive ARQC
Refreshes Screen -waiting for approval
Display PIN OK
Log Authentication result
Receive and Pass through Auth Data (PAN, ARQC)
Authorize transaction (normal channels)
Display Payment Approved
Happy Customer
Shopping cart: Display Wallet
104
102
106
108
110
112
114
116
118
120
122
124
126
128
130
132
134
136
138
100

FIG. 3

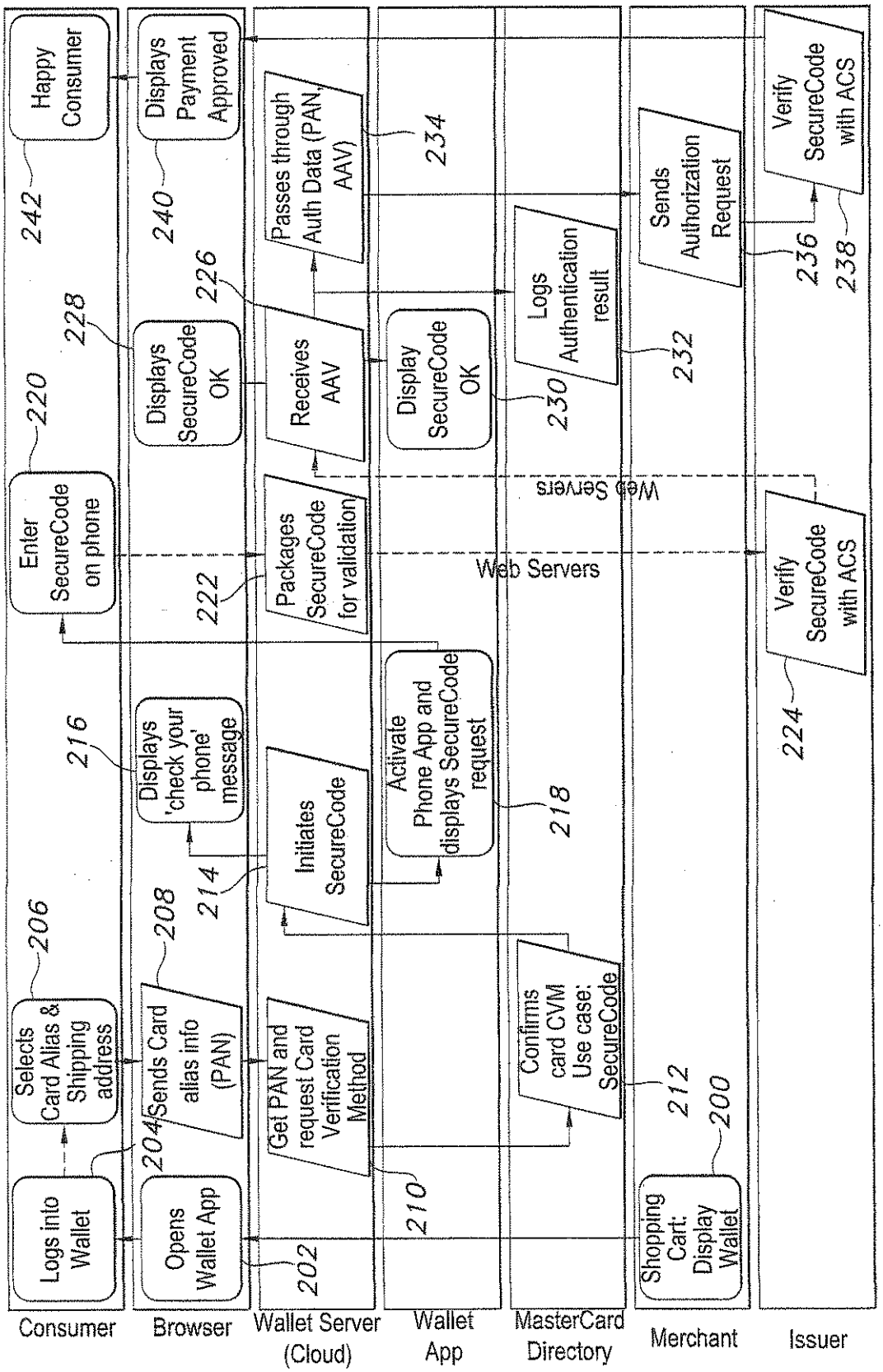

Consumer
Browser
Wallet Server (Cloud)
Wallet App
MasterCard Directory
Merchant
Issuer
Logs into Wallet
Selects Card Alias & Shipping address
Opens Wallet App
Sends Card alias info (PAN)
Get PAN and request Card Verification Method
Displays 'check your phone' message
Initiates SecureCode
Activate Phone App and displays SecureCode request
Enter SecureCode on phone
Packages SecureCode for validation
Receives AAV
Displays SecureCode OK
Display SecureCode OK
Confirms card CVM Use case: SecureCode
Logs Authentication result
Passes through Auth Data (PAN, AAV)
Shopping Cart: Display Wallet
Sends Authorization Request
Verify SecureCode with ACS
Verify SecureCode with ACS
Displays Payment Approved
Happy Consumer
Web Servers
Web Servers
206
208
204
210
202
214
216
218
220
222
224
226
228
230
232
234
236
238
240
242
212
200

FIG. 4

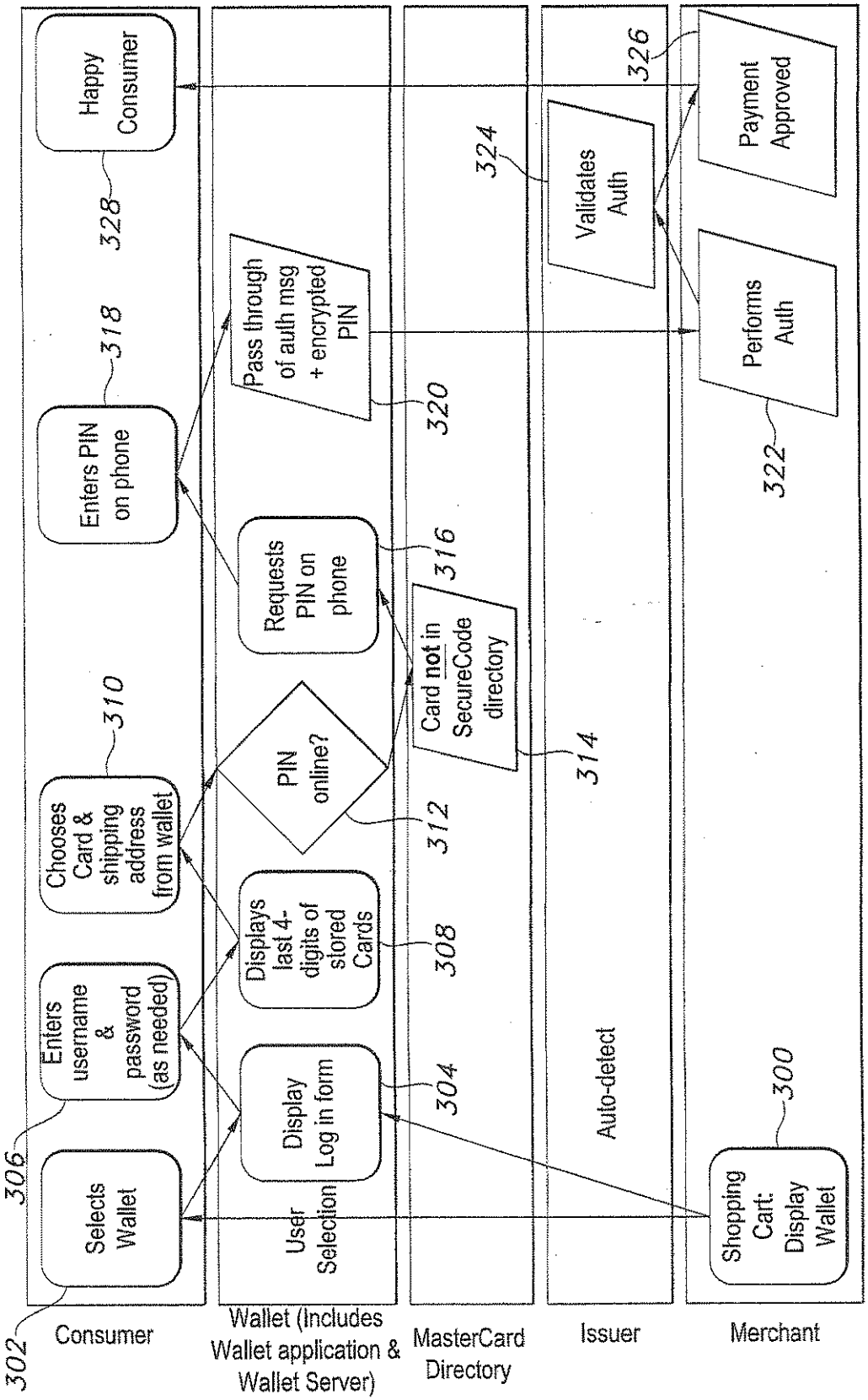
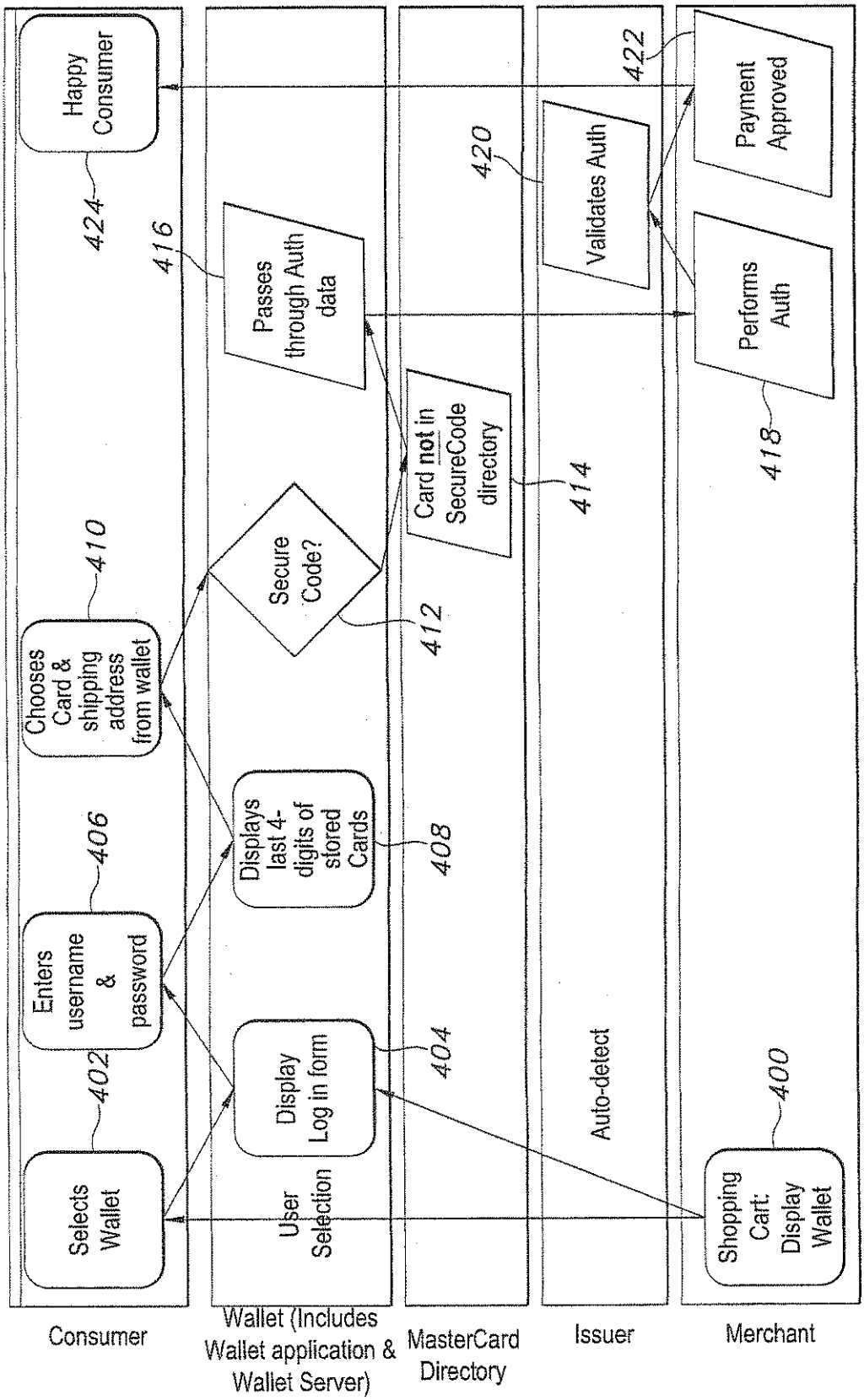
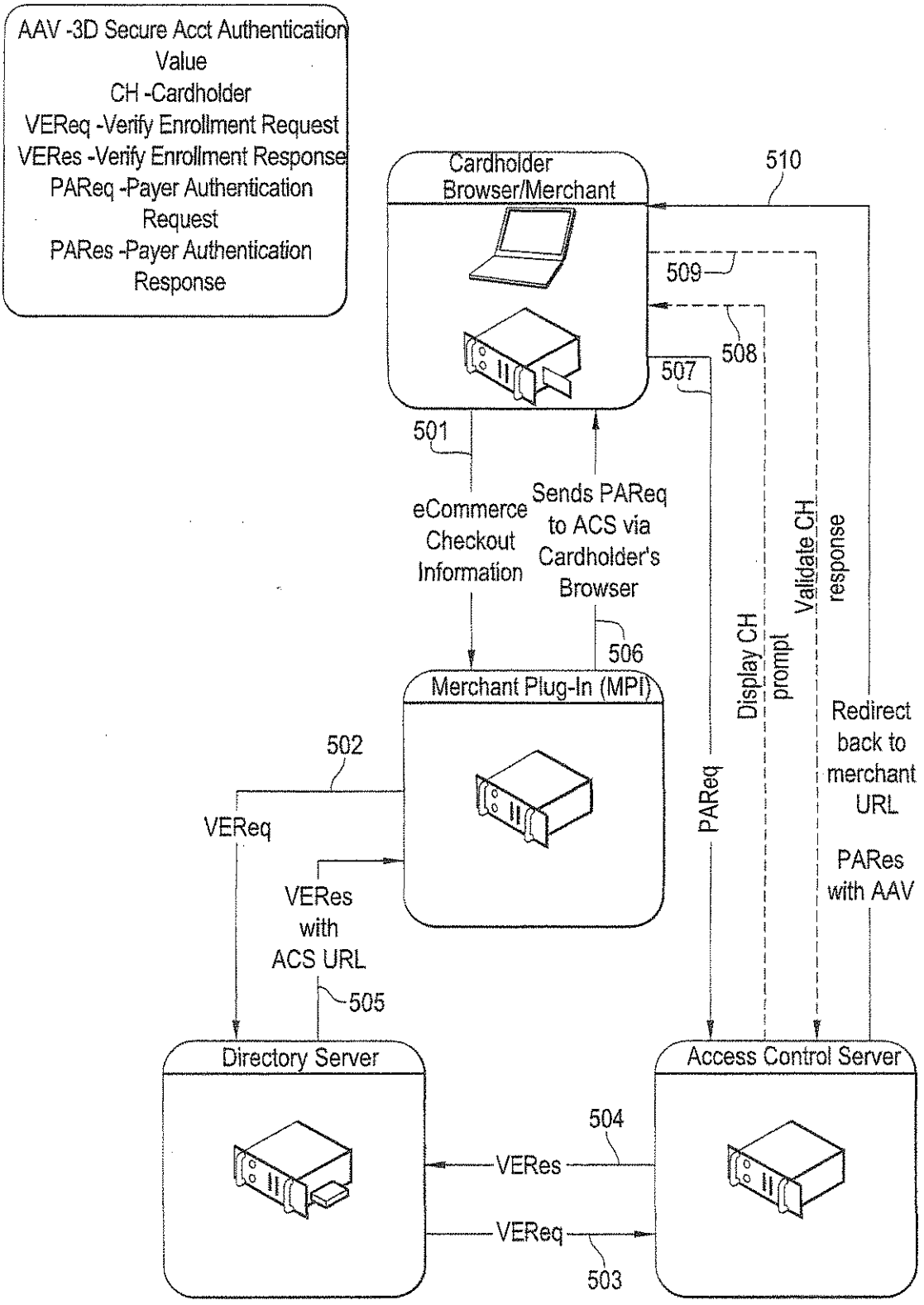

Consumer
Wallet (Includes Wallet application & Wallet Server)
MasterCard Directory
Issuer
Merchant
302
306
Selects Wallet
Enters username & password (as needed)
310
Chooses Card & shipping address from wallet
318
Enters PIN on phone
328
Happy Consumer
User Selection
Display Log in form
304
Displays last 4-digits of stored Cards
308
PIN online?
312
Requests PIN on phone
316
Pass through of auth msg + encrypted PIN
320
Card not in SecureCode directory
314
Auto-detect
324
Validates Auth
326
Payment Approved
322
Performs Auth
300
Shopping Cart: Display Wallet

FIG. 5

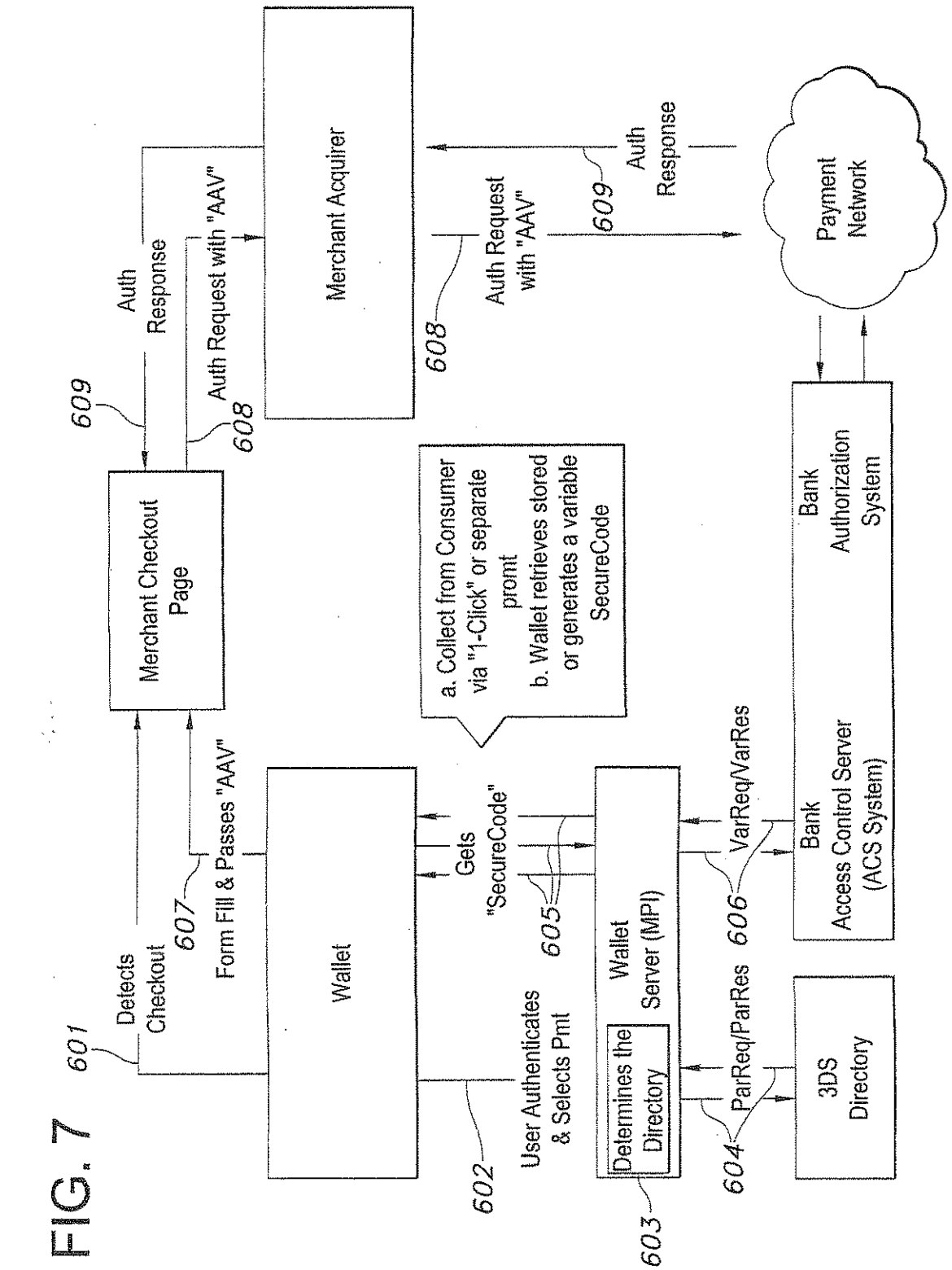

Consumer
Wallet (Includes Wallet application & Wallet Server)
MasterCard Directory
Issuer
Merchant
Selects Wallet
402
Enters username & password
406
Chooses Card & shipping address from wallet
410
Happy Consumer
424
User Selection
Display Log in form
404
Displays last 4-digits of stored Cards
408
Secure Code?
412
Passes through Auth data
416
Card not in SecureCode directory
414
Auto-detect
420
Validates Auth
422
Shopping Cart: Display Wallet
400
Performs Auth
418
Payment Approved

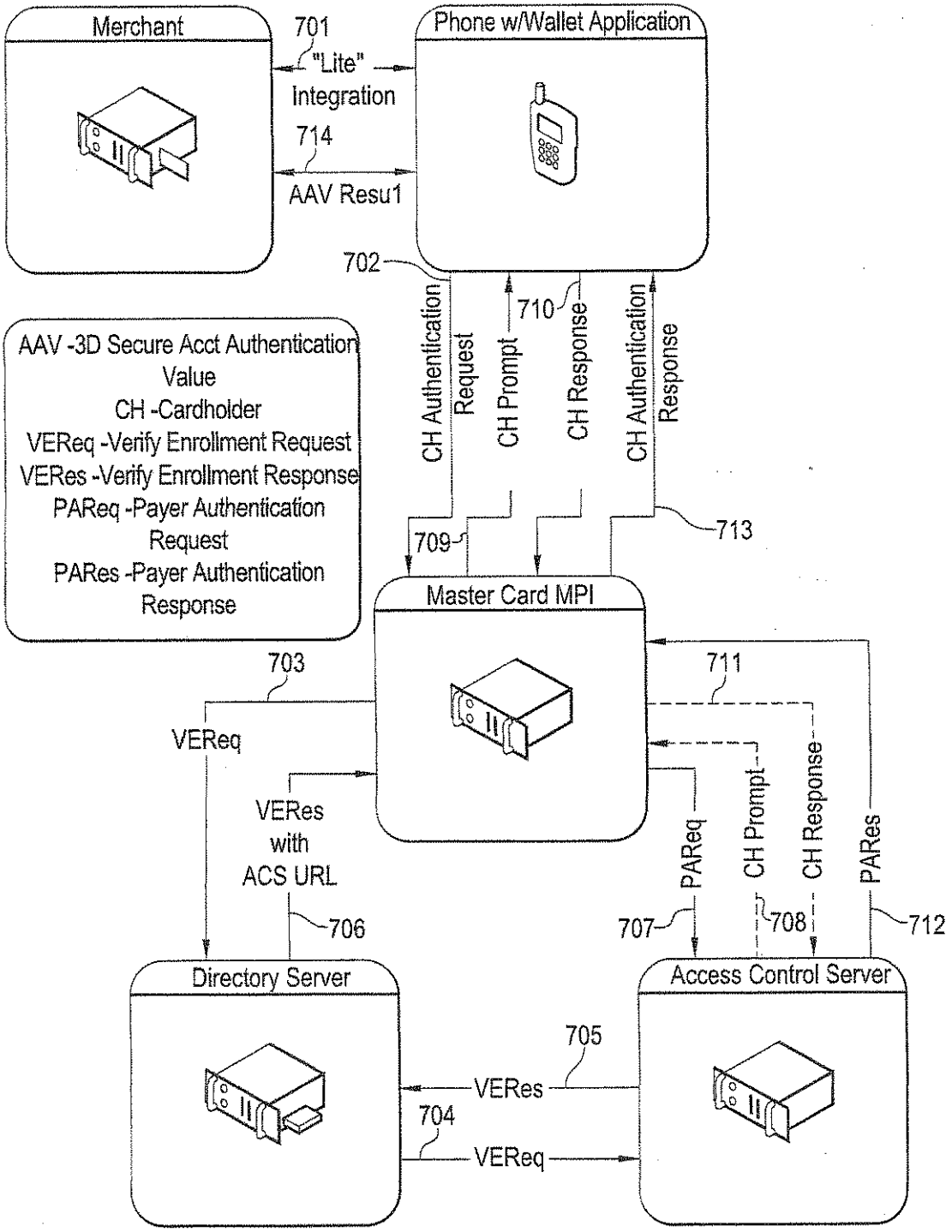


Existing 3D Secure Implementation

FIG. 6

FIG. 7


601
Detects Checkout
Merchant Checkout Page
607
Form Fill & Passes "AAV"
Wallet
602
User Authenticates & Selects Pmt
Gets "SecureCode"
605
a. Collect from Consumer via "1-Click" or separate promt
b. Wallet retrieves stored or generates a variable SecureCode
Wallet Server (MPI)
Determines the Directory
603
604
ParReq/ParRes
3DS Directory
606
VarReq/VarRes
Bank Access Control Server (ACS System)
Bank Authorization System
Payment Network
608
Auth Request with "AAV"
Merchant Acquirer
609
Auth Response
608
Auth Request with "AAV"
609
Auth Response



MasterCard MPI Concept

FIG. 8

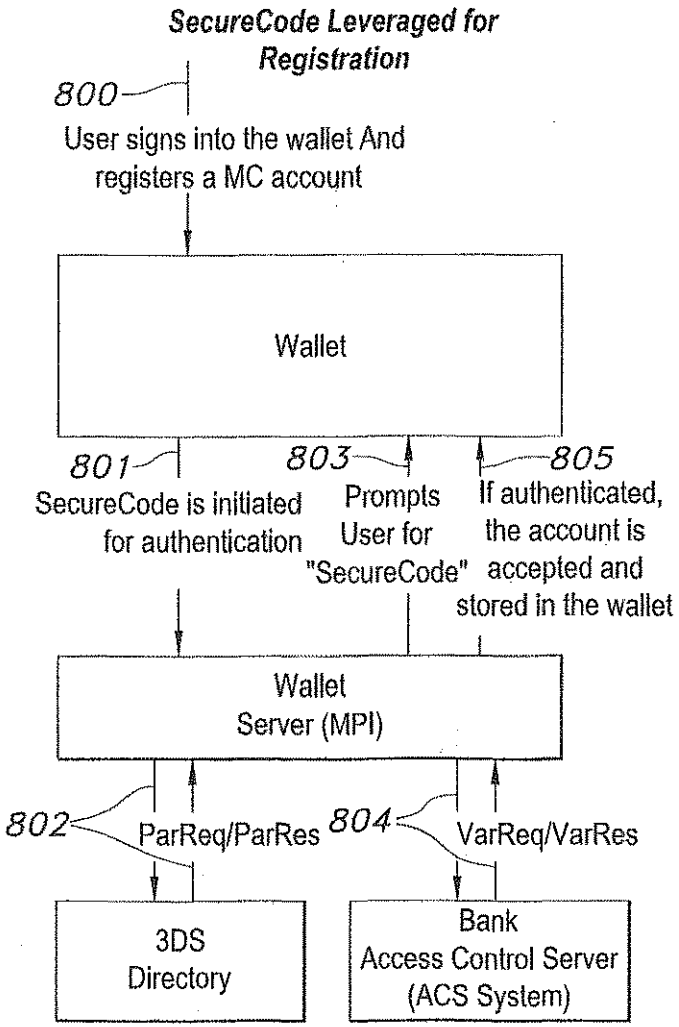

SecureCode Leveraged for Registration
800
User signs into the wallet And registers a MC account
Wallet
801
SecureCode is initiated for authentication
803
Prompts User for "SecureCode"
805
If authenticated, the account is accepted and stored in the wallet
Wallet Server (MPI)
802
ParReq/ParRes
804
VarReq/VarRes
3DS Directory
Bank Access Control Server (ACS System)

FIG. 9A

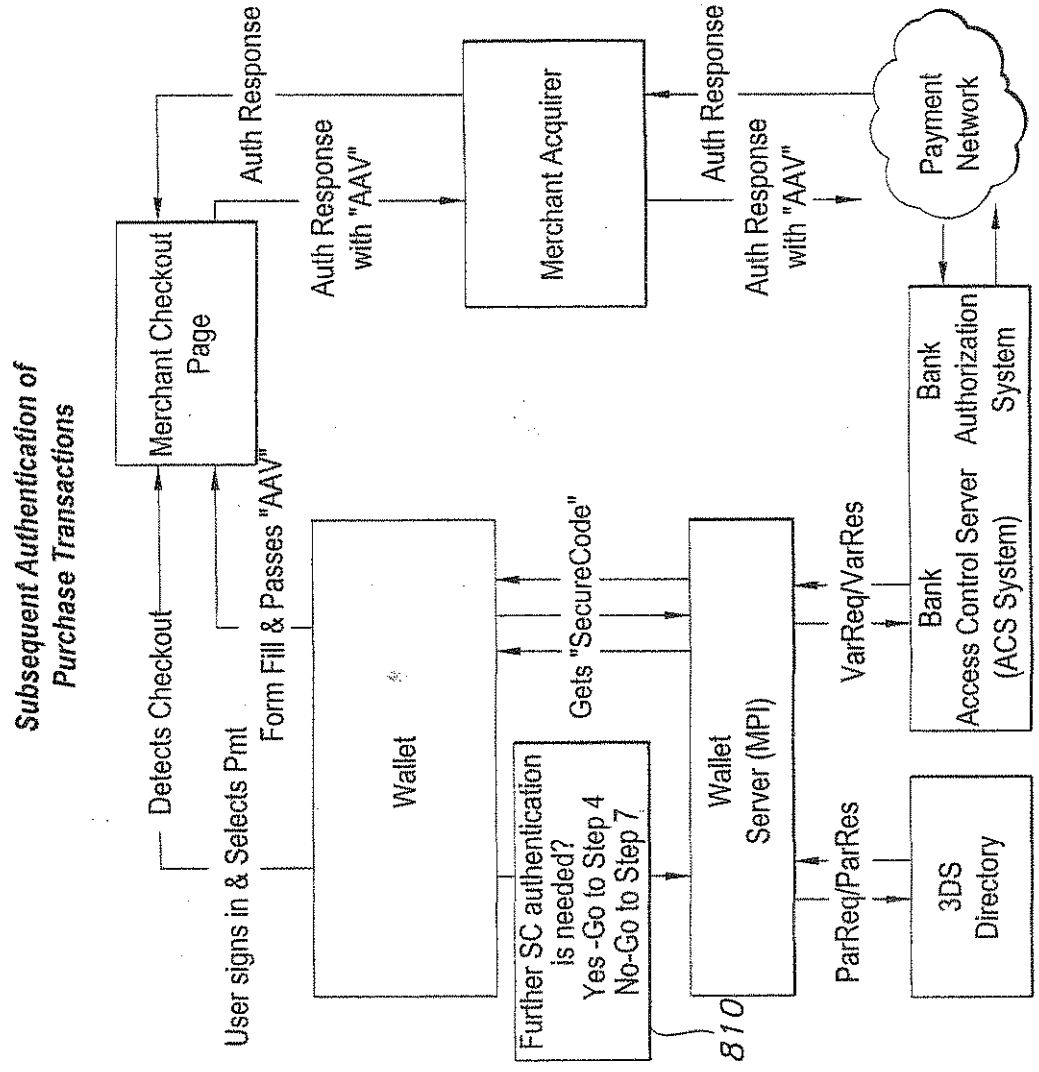

Subsequent Authentication of Purchase Transactions
Detects Checkout
User signs in & Selects Pmt
Form Fill & Passes "AAV"
Merchant Checkout Page
Auth Response
Auth Response with "AAV"
Merchant Acquirer
Auth Response
Auth Response with "AAV"
Payment Network
Wallet
Further SC authentication is needed?
Yes -Go to Step 4
No-Go to Step 7
Gets "SecureCode"
Wallet Server (MPI)
VarReq/VarRes
ParReq/ParRes
Bank Access Control Server (ACS System)
Bank Authorization System
3DS Directory
810

FIG. 9B

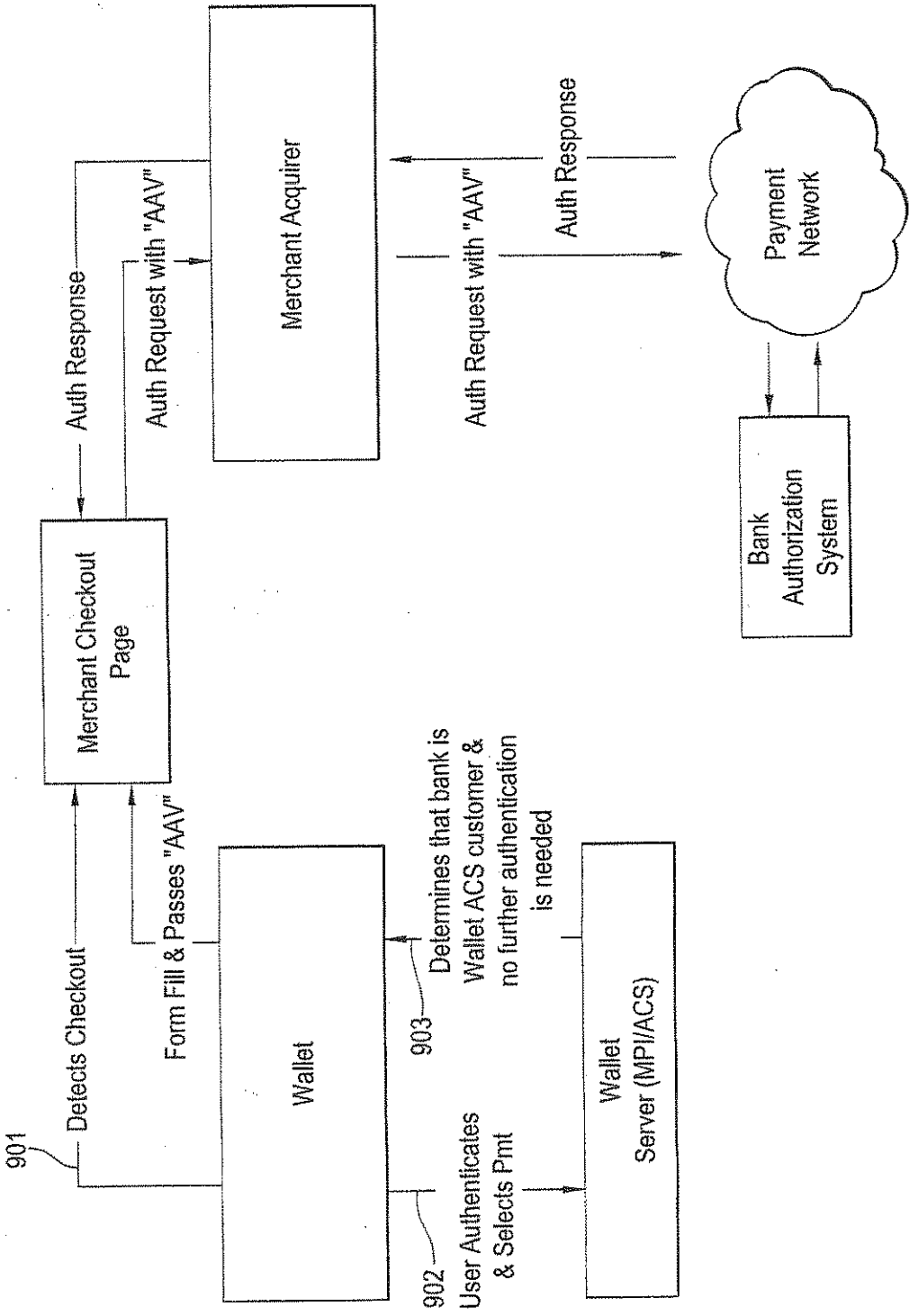

Merchant Acquirer
Auth Response
Auth Request with "AAV"
Merchant Checkout Page
Auth Request with "AAV"
Auth Response
Payment Network
Bank Authorization System
Detects Checkout
Form Fill & Passes "AAV"
Wallet
903
Determines that bank is Wallet ACS customer & no further authentication is needed
901
902
User Authenticates & Selects Pmt
Wallet Server (MPI/ACS)

FIG. 10