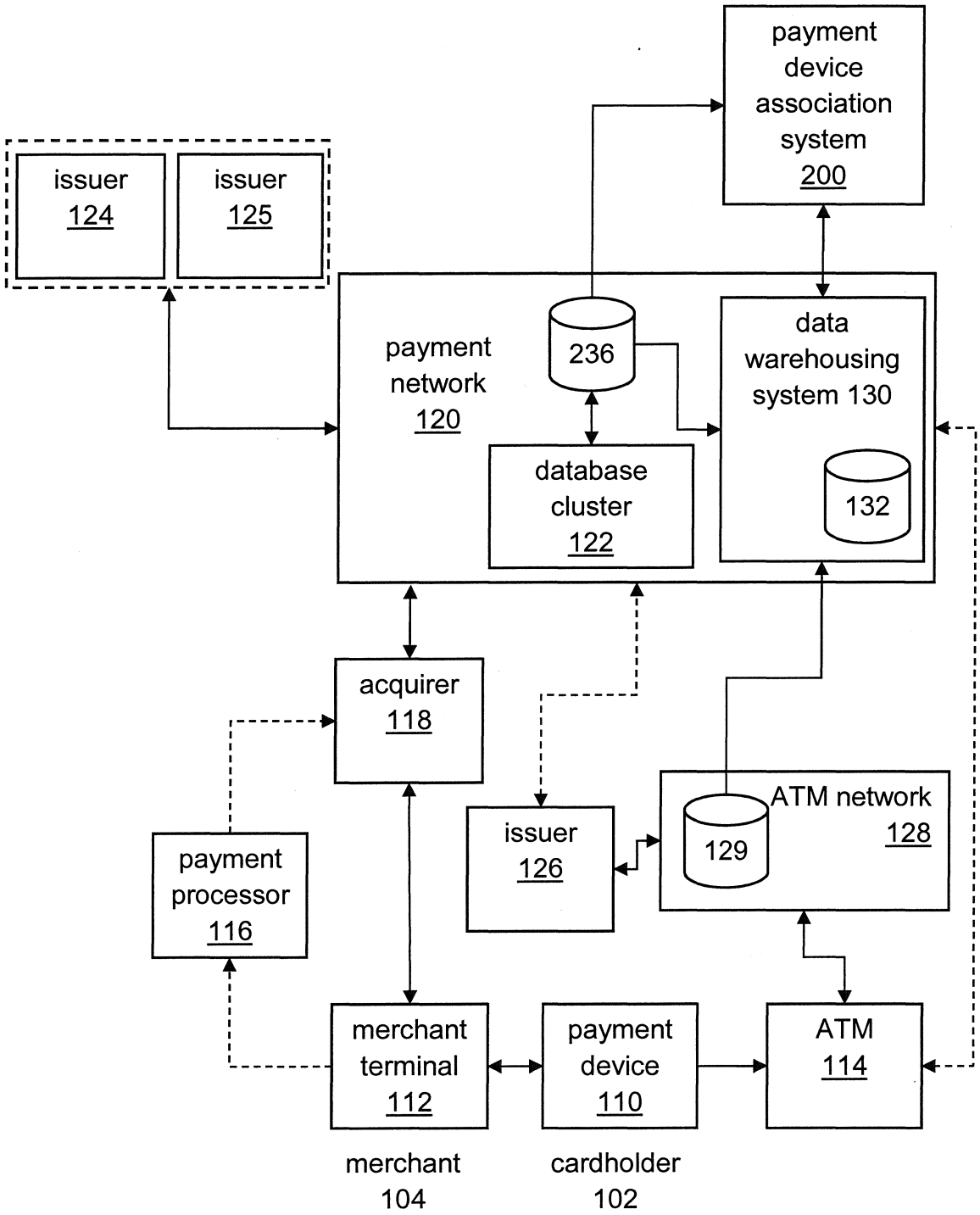

payment device association system 200
issuer 124
issuer 125
payment network 120
236
data warehousing system 130
database cluster 122
132
acquirer 118
payment processor 116
issuer 126
ATM network 128
129
merchant terminal 112
payment device 110
ATM 114
merchant 104
cardholder 102

FIG. 1

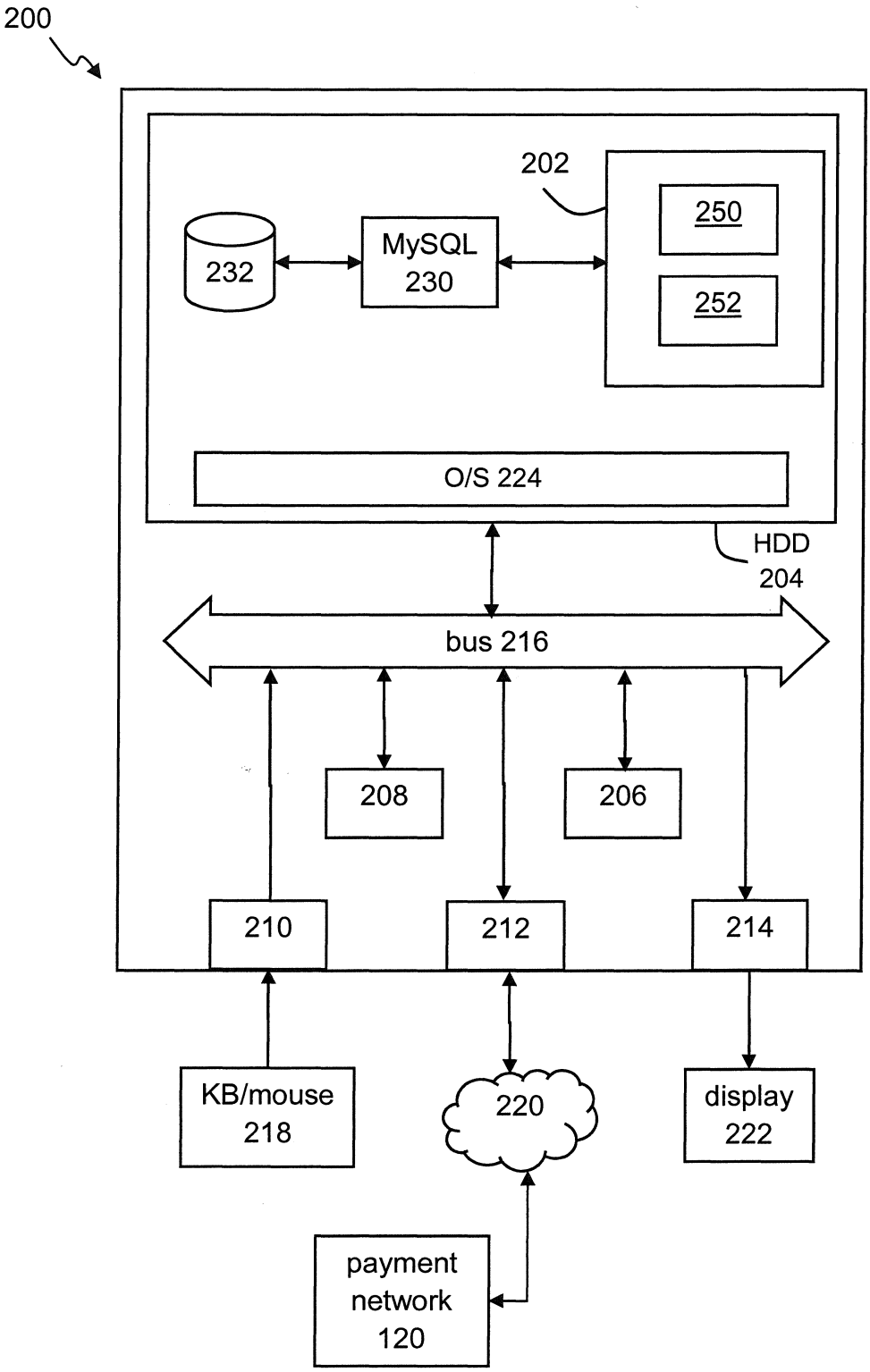

200
202
250
252
232
MySQL
230
O/S 224
HDD
204
bus 216
208
206
210
212
214
KB/mouse
218
220
display
222
payment
network
120

FIG. 2

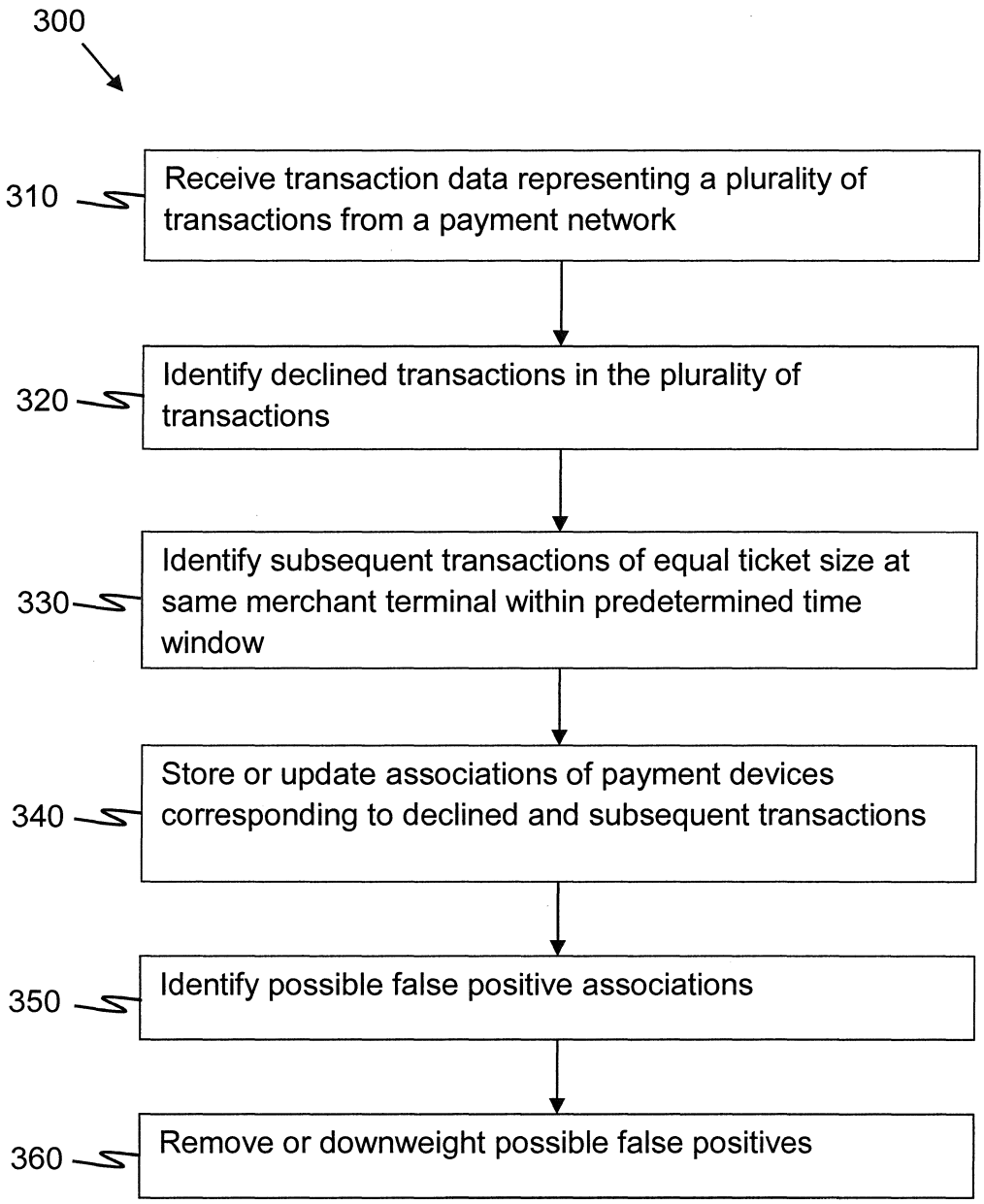

300
310
Receive transaction data representing a plurality of transactions from a payment network
320
Identify declined transactions in the plurality of transactions
330
Identify subsequent transactions of equal ticket size at same merchant terminal within predetermined time window
340
Store or update associations of payment devices corresponding to declined and subsequent transactions
350
Identify possible false positive associations
360
Remove or downweight possible false positives

FIG. 3

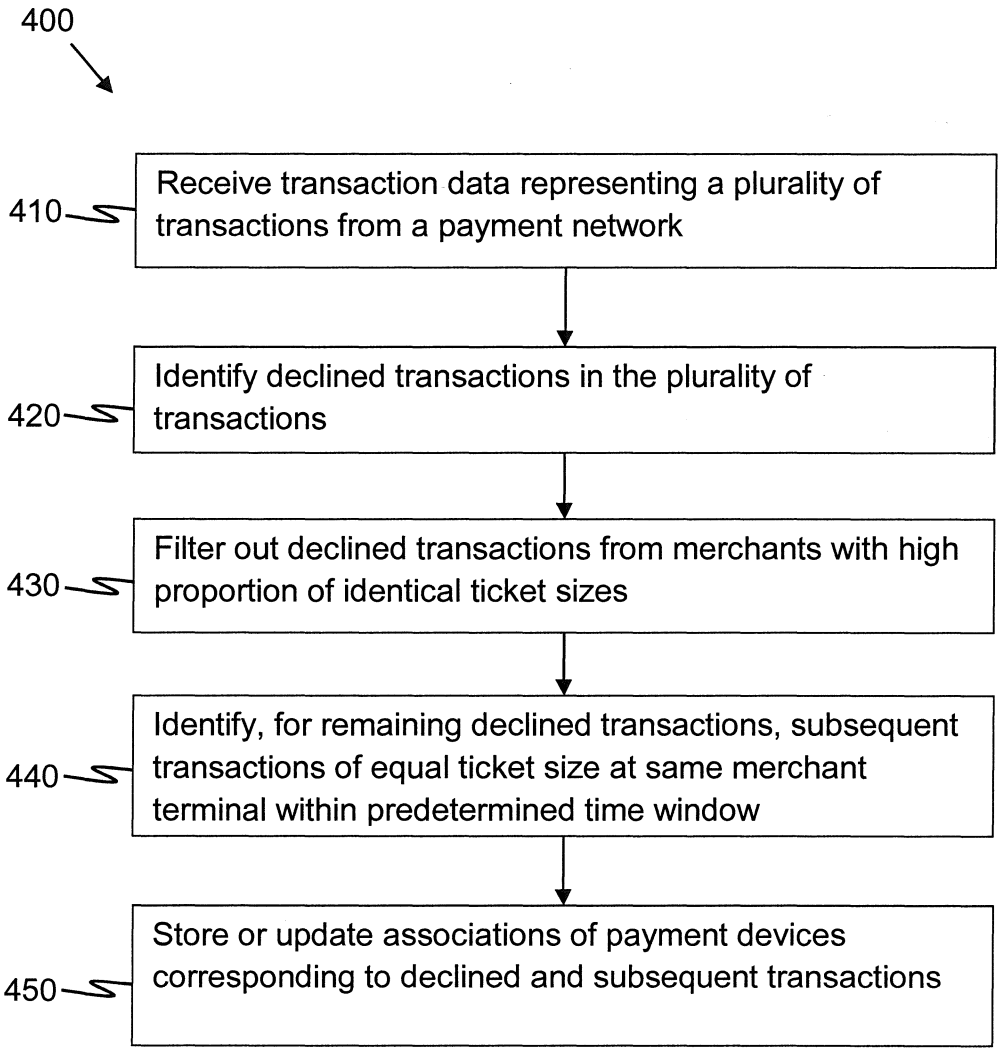

400
410
Receive transaction data representing a plurality of transactions from a payment network
420
Identify declined transactions in the plurality of transactions
430
Filter out declined transactions from merchants with high proportion of identical ticket sizes
440
Identify, for remaining declined transactions, subsequent transactions of equal ticket size at same merchant terminal within predetermined time window
450
Store or update associations of payment devices corresponding to declined and subsequent transactions

FIG. 4