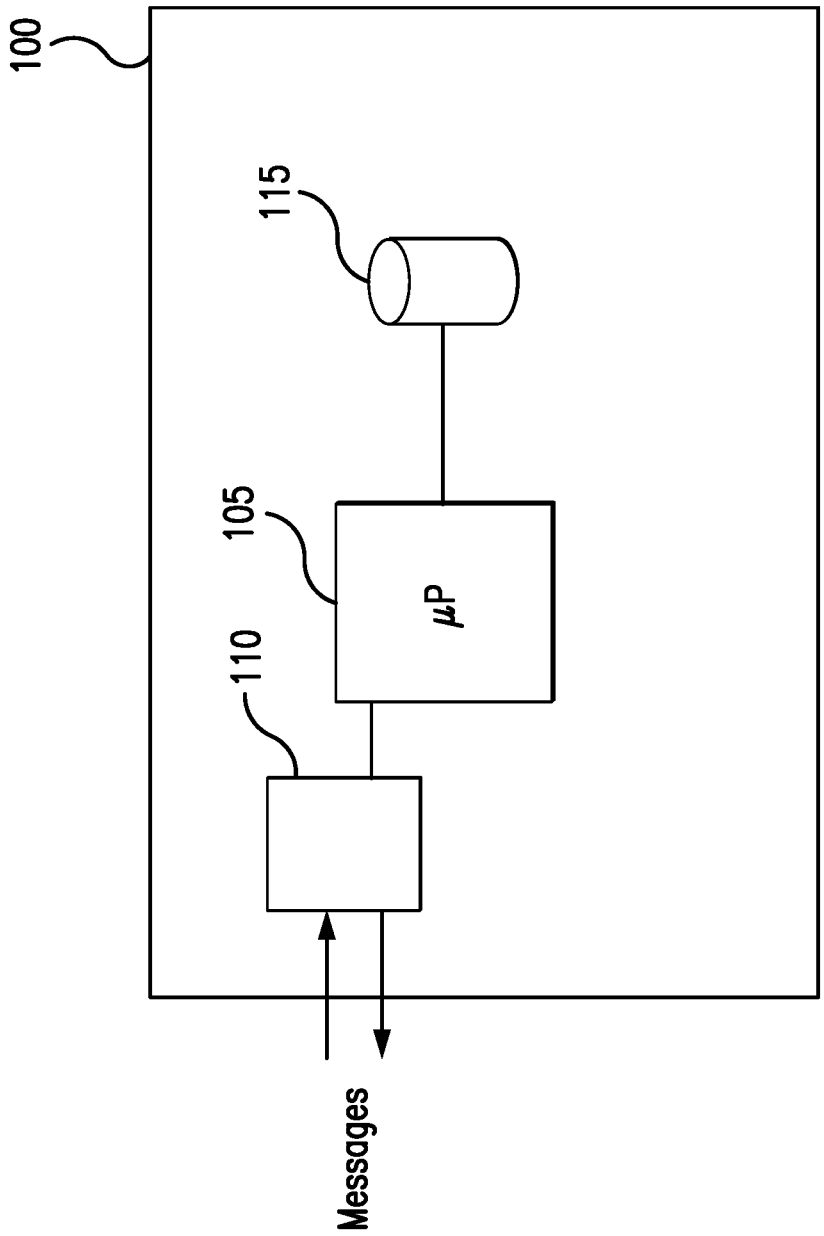


FIG. 1

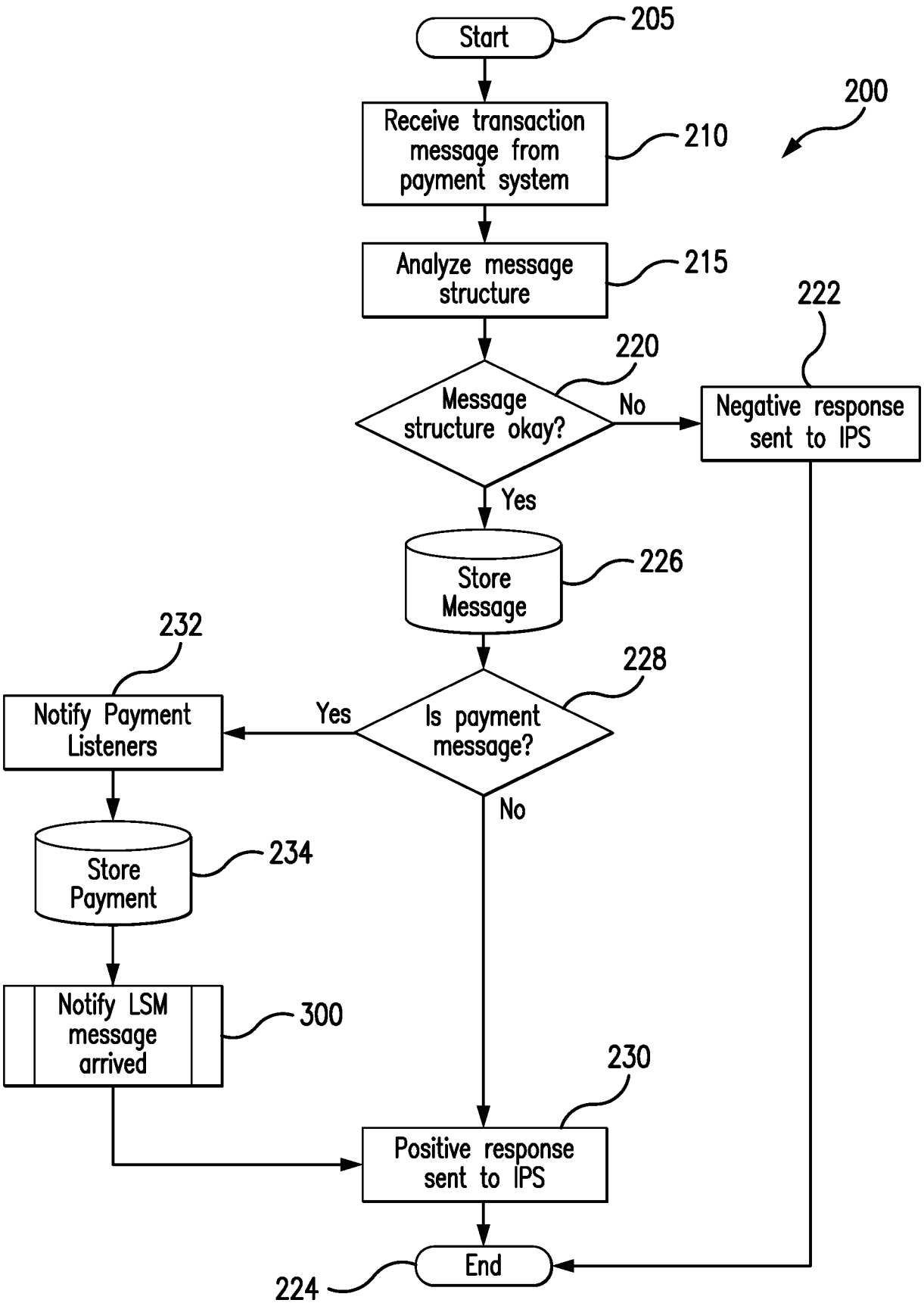

Start
205
200
Receive transaction message from payment system
210
Analyze message structure
215
222
220
Message structure okay?
No
Negative response sent to IPS
Yes
Store Message
226
232
228
Notify Payment Listeners
Yes
Is payment message?
No
Store Payment
234
Notify LSM message arrived
300
230
Positive response sent to IPS
End
224

FIG. 2

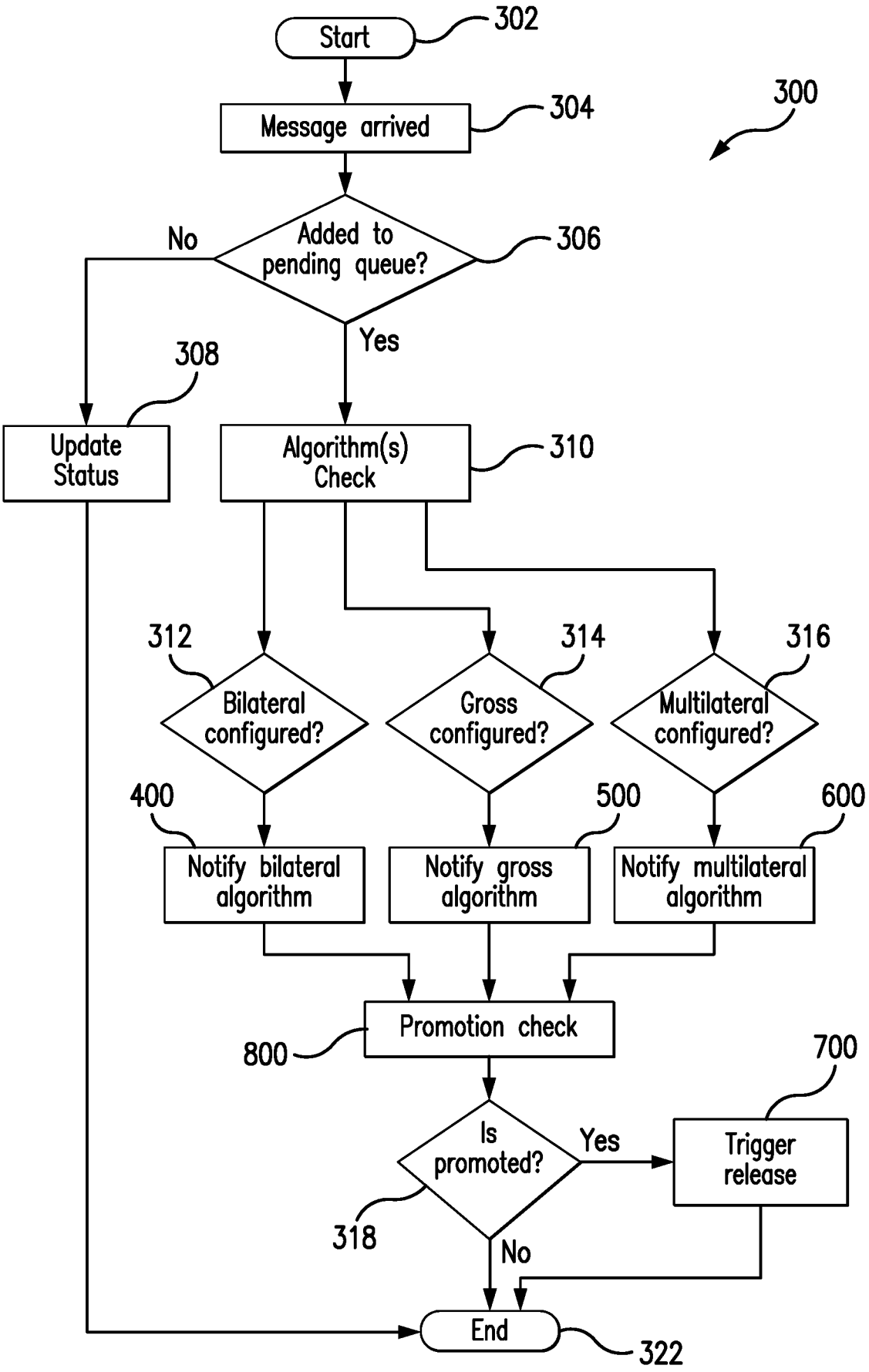

Start
302
300
Message arrived
304
No
Added to pending queue?
306
Yes
308
Update Status
Algorithm(s) Check
310
312
314
316
Bilateral configured?
Gross configured?
Multilateral configured?
400
500
600
Notify bilateral algorithm
Notify gross algorithm
Notify multilateral algorithm
Promotion check
800
700
Is promoted?
Yes
Trigger release
318
No
End
322

FIG. 3

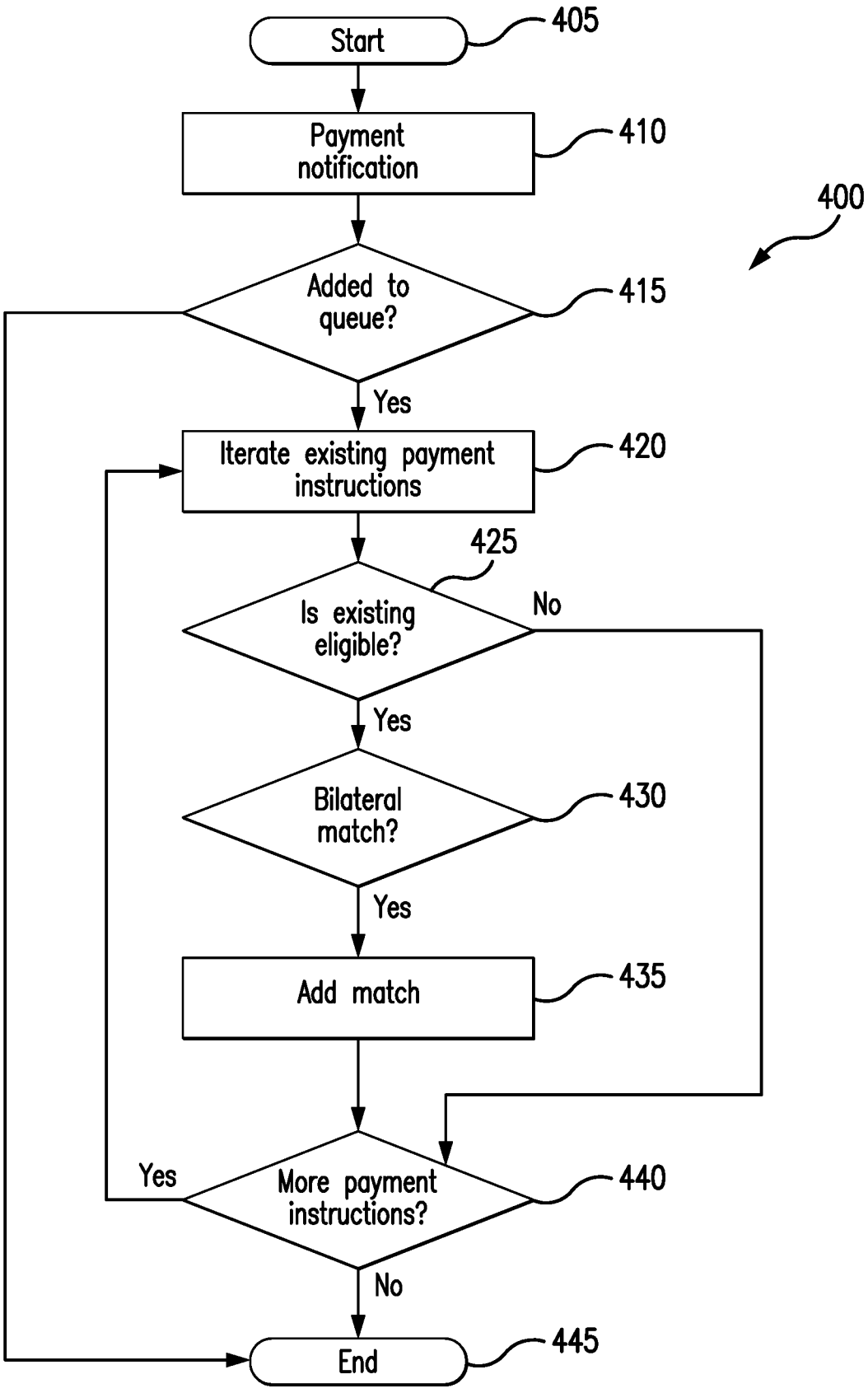

Start
405
Payment notification
410
400
Added to queue?
415
Yes
Iterate existing payment instructions
420
425
Is existing eligible?
No
Yes
Bilateral match?
430
Yes
Add match
435
Yes
More payment instructions?
440
No
End
445

FIG. 4

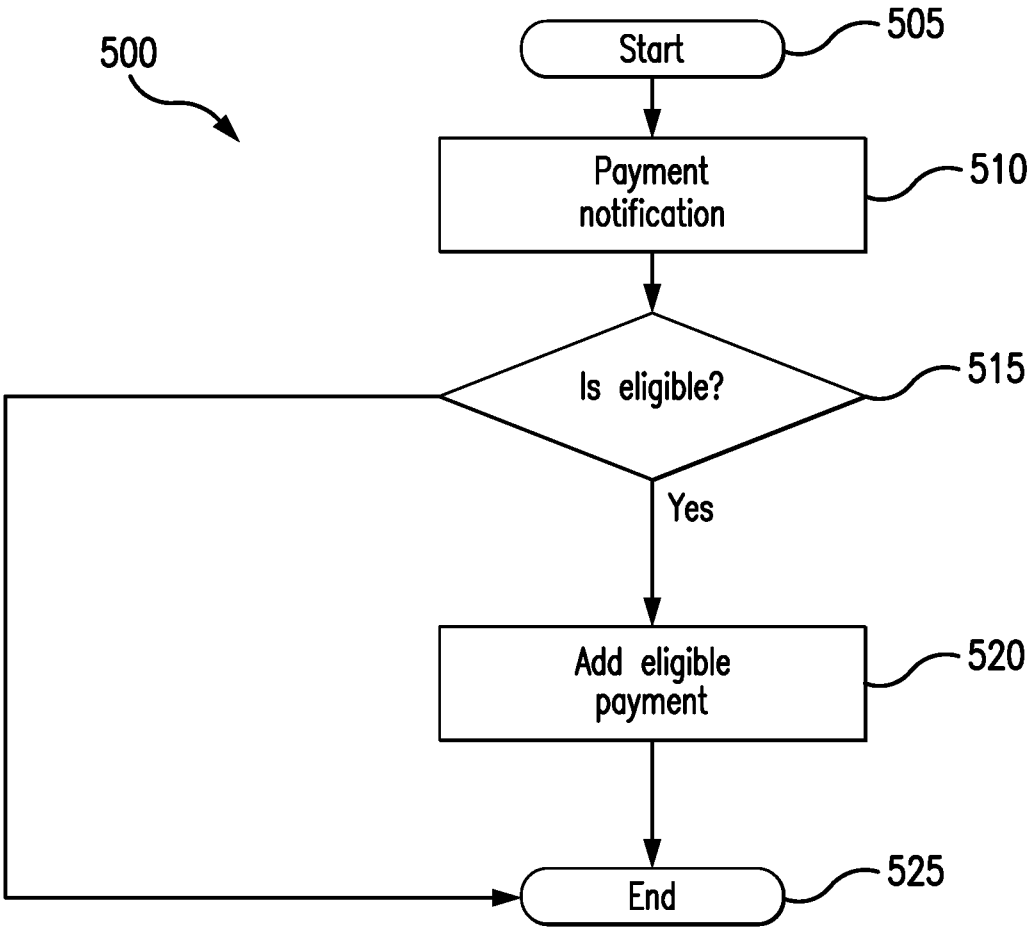

500
Start
505
Payment notification
510
Is eligible?
515
Yes
Add eligible payment
520
End
525

FIG. 5

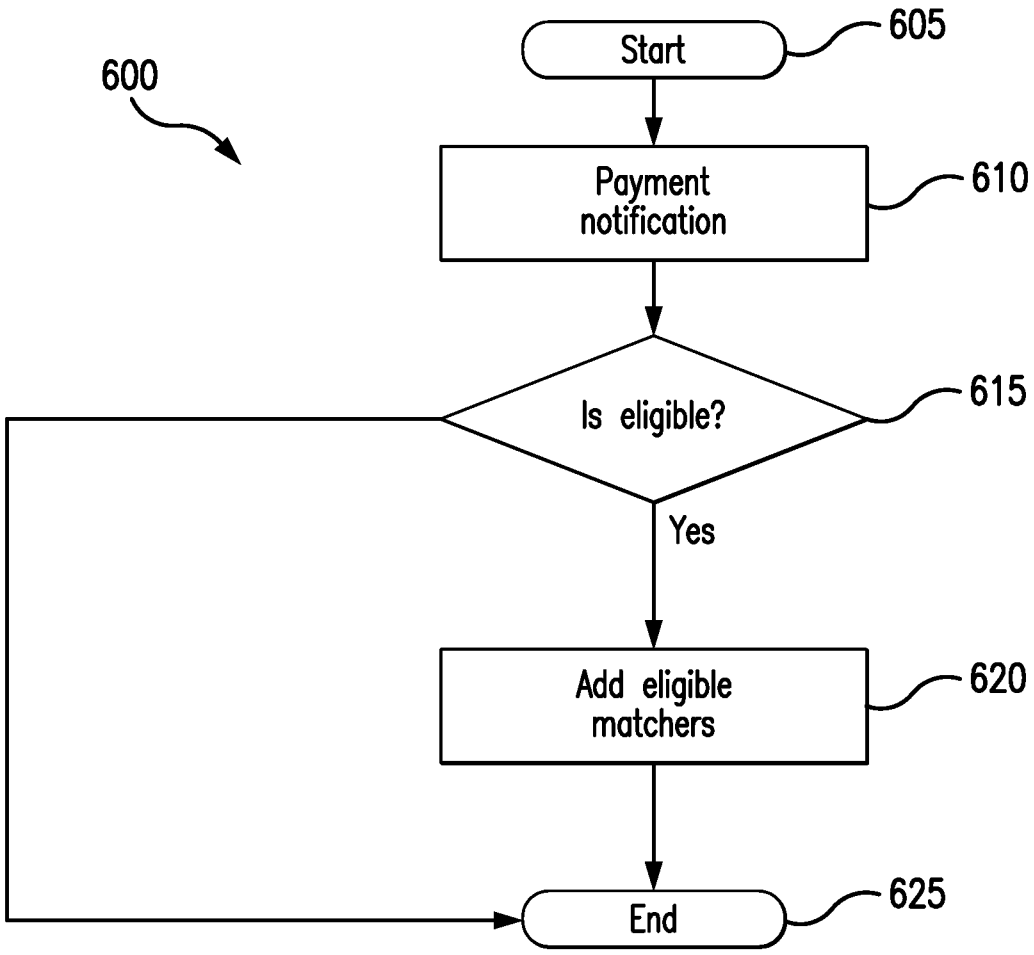

600
Start
605
Payment notification
610
Is eligible?
615
Yes
Add eligible matchers
620
End
625

FIG. 6

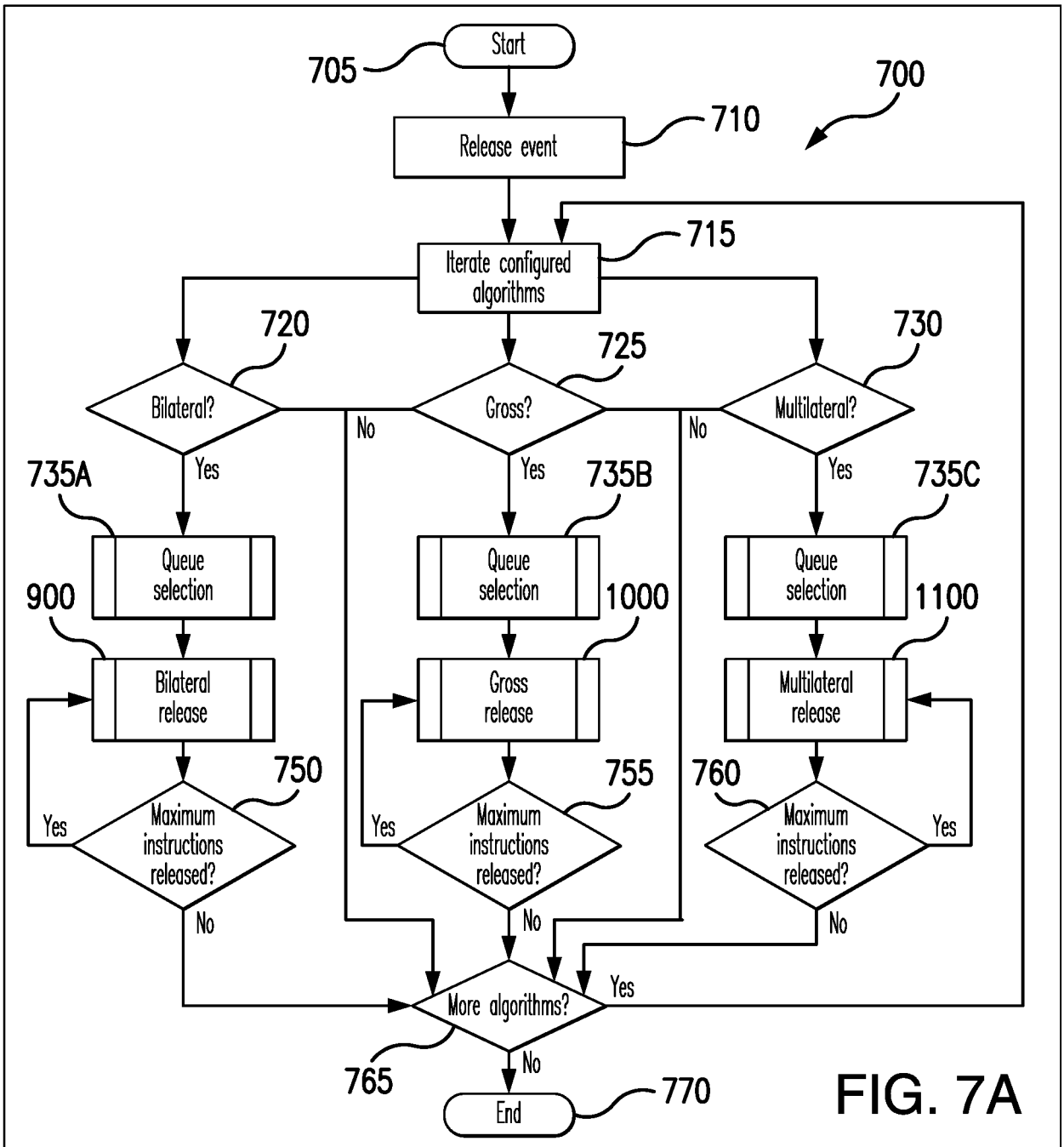

Start
705
700
Release event
710
Iterate configured algorithms
715
720
725
730
Bilateral?
Gross?
Multilateral?
No
No
Yes
Yes
Yes
735A
735B
735C
Queue selection
Queue selection
Queue selection
900
1000
1100
Bilateral release
Gross release
Multilateral release
750
755
760
Yes
Maximum instructions released?
Yes
Maximum instructions released?
Maximum instructions released?
Yes
No
No
No
Yes
More algorithms?
765
No
End
770

FIG. 7A

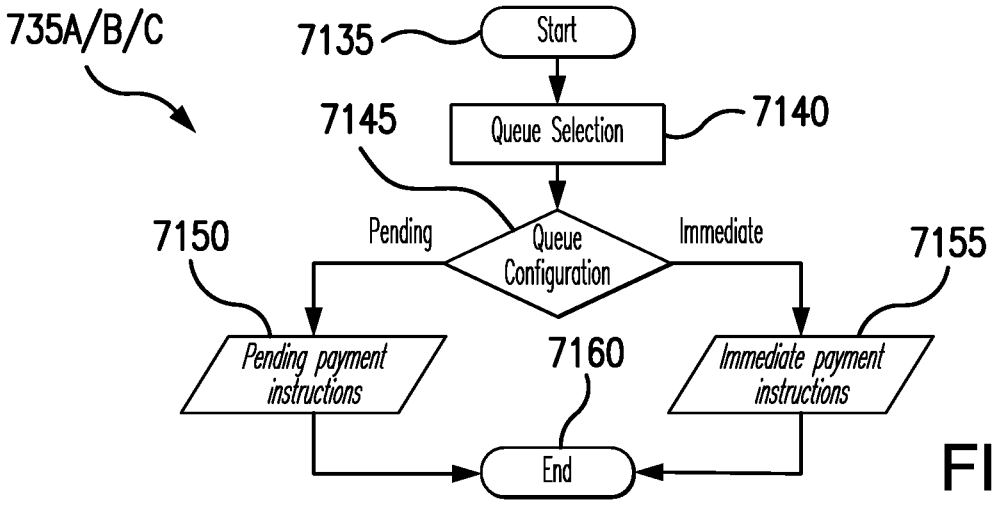

735A/B/C
7135
Start
7145
Queue Selection
7140
7150
Pending
Queue Configuration
Immediate
7155
Pending payment instructions
7160
Immediate payment instructions
End

FIG. 7B

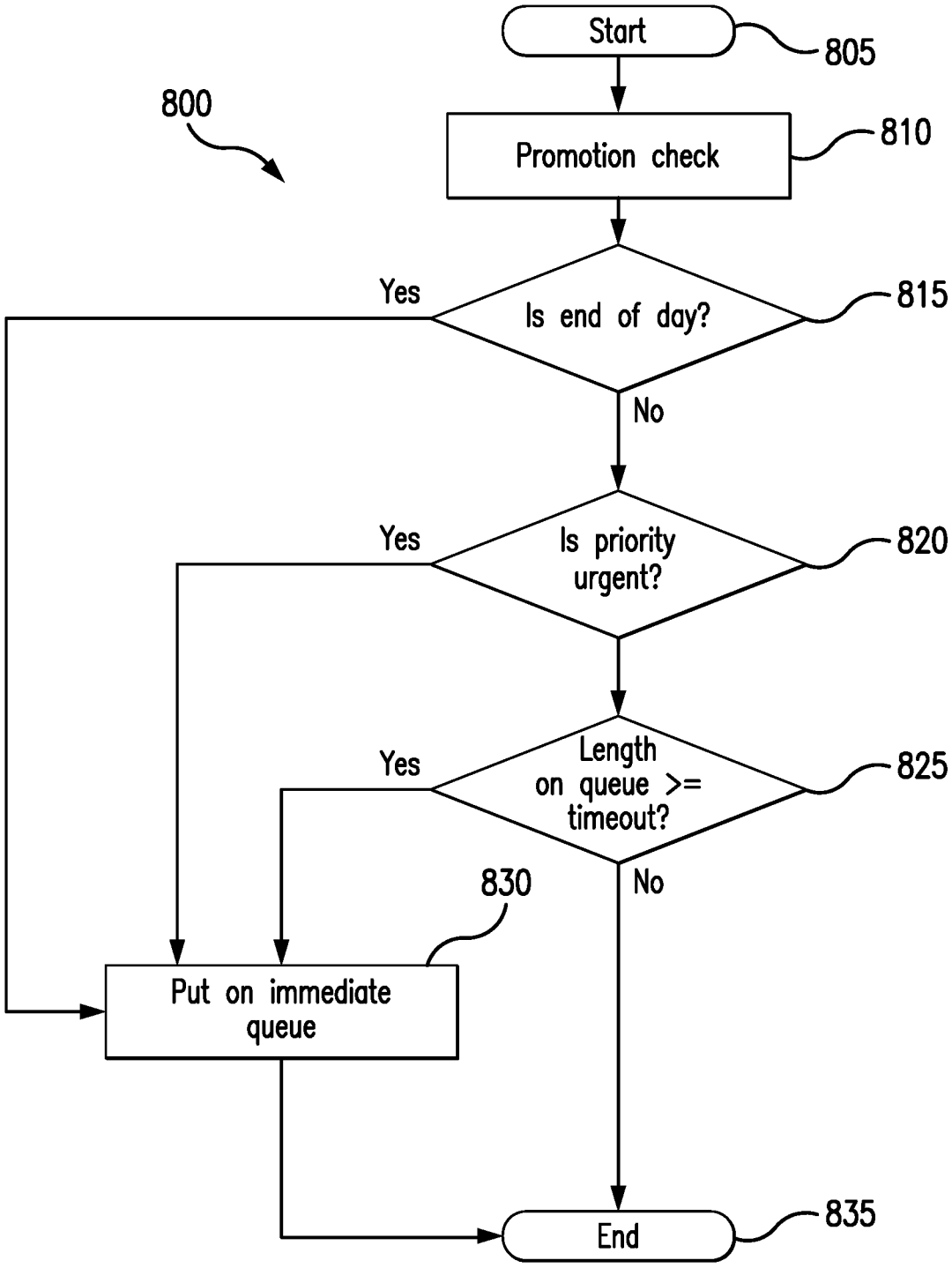

800
Start
805
Promotion check
810
Is end of day?
815
Yes
No
Is priority urgent?
820
Yes
Length on queue >= timeout?
825
Yes
No
830
Put on immediate queue
End
835

FIG. 8

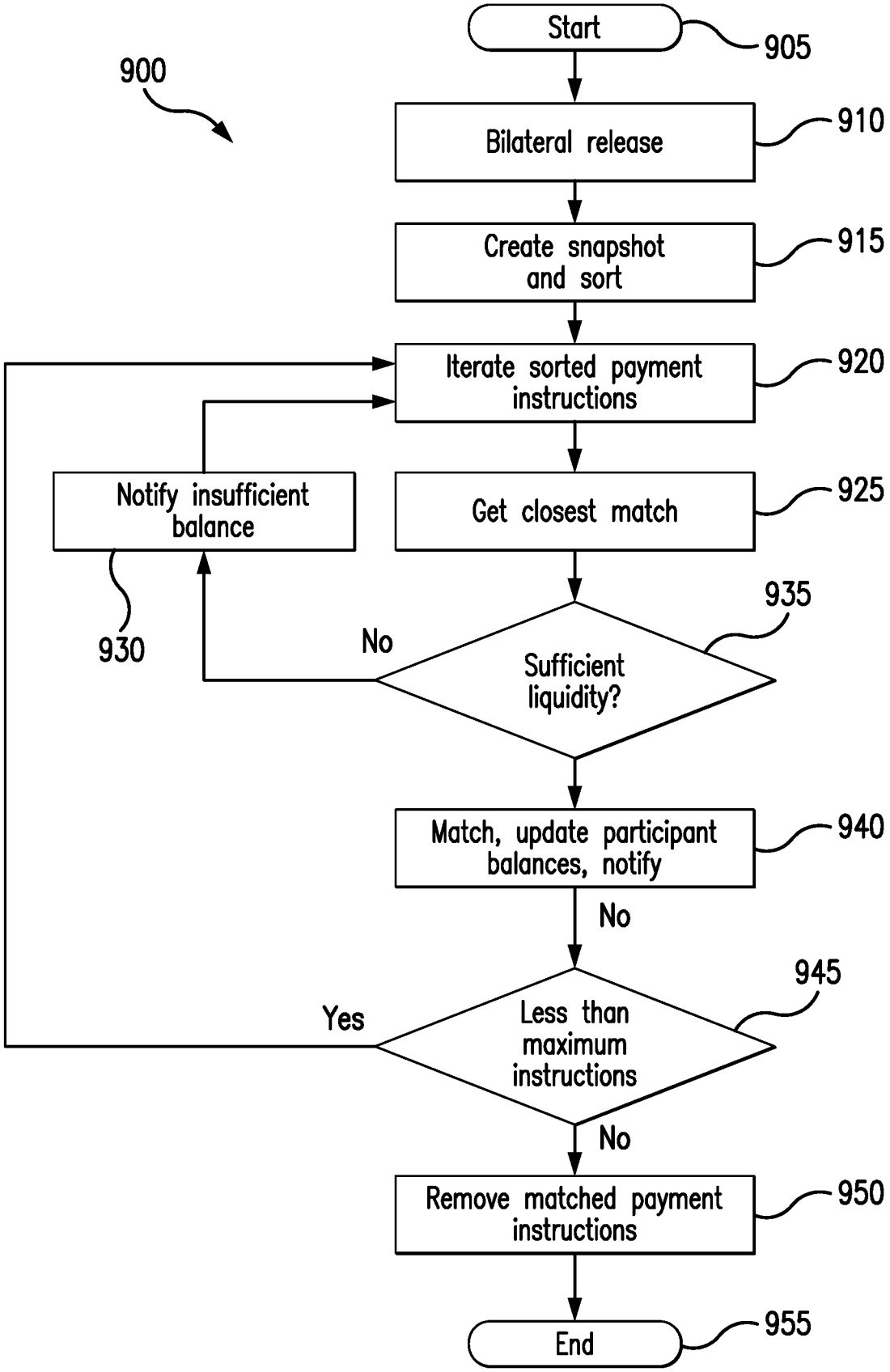

900
Start
905
Bilateral release
910
Create snapshot and sort
915
Iterate sorted payment instructions
920
Get closest match
925
Sufficient liquidity?
935
No
Notify insufficient balance
930
Match, update participant balances, notify
940
No
Less than maximum instructions
945
Yes
No
Remove matched payment instructions
950
End
955

FIG. 9

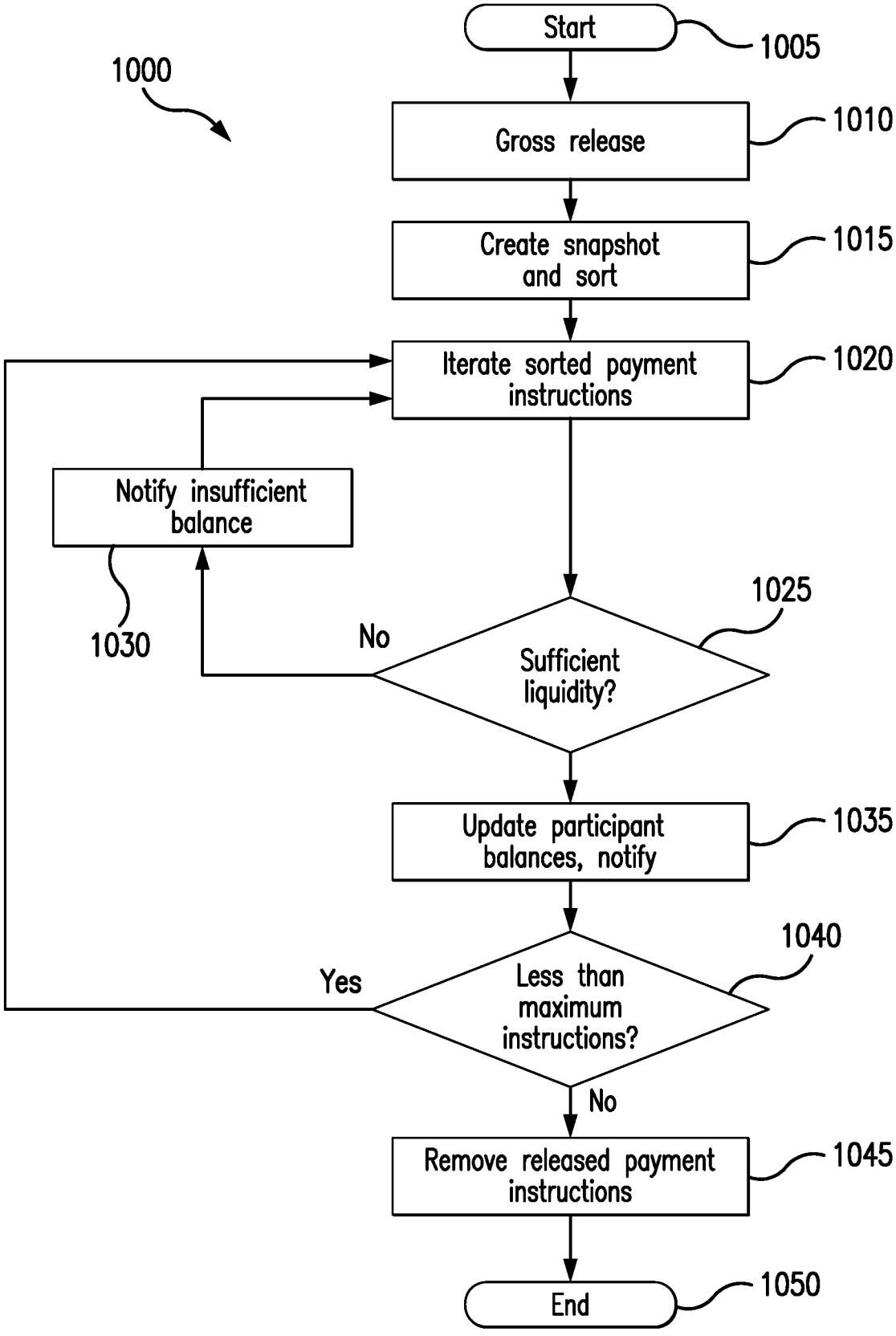

Start
1005
1000
Gross release
1010
Create snapshot and sort
1015
Iterate sorted payment instructions
1020
Notify insufficient balance
1030
No
1025
Sufficient liquidity?
Update participant balances, notify
1035
1040
Yes
Less than maximum instructions?
No
Remove released payment instructions
1045
End
1050

FIG. 10

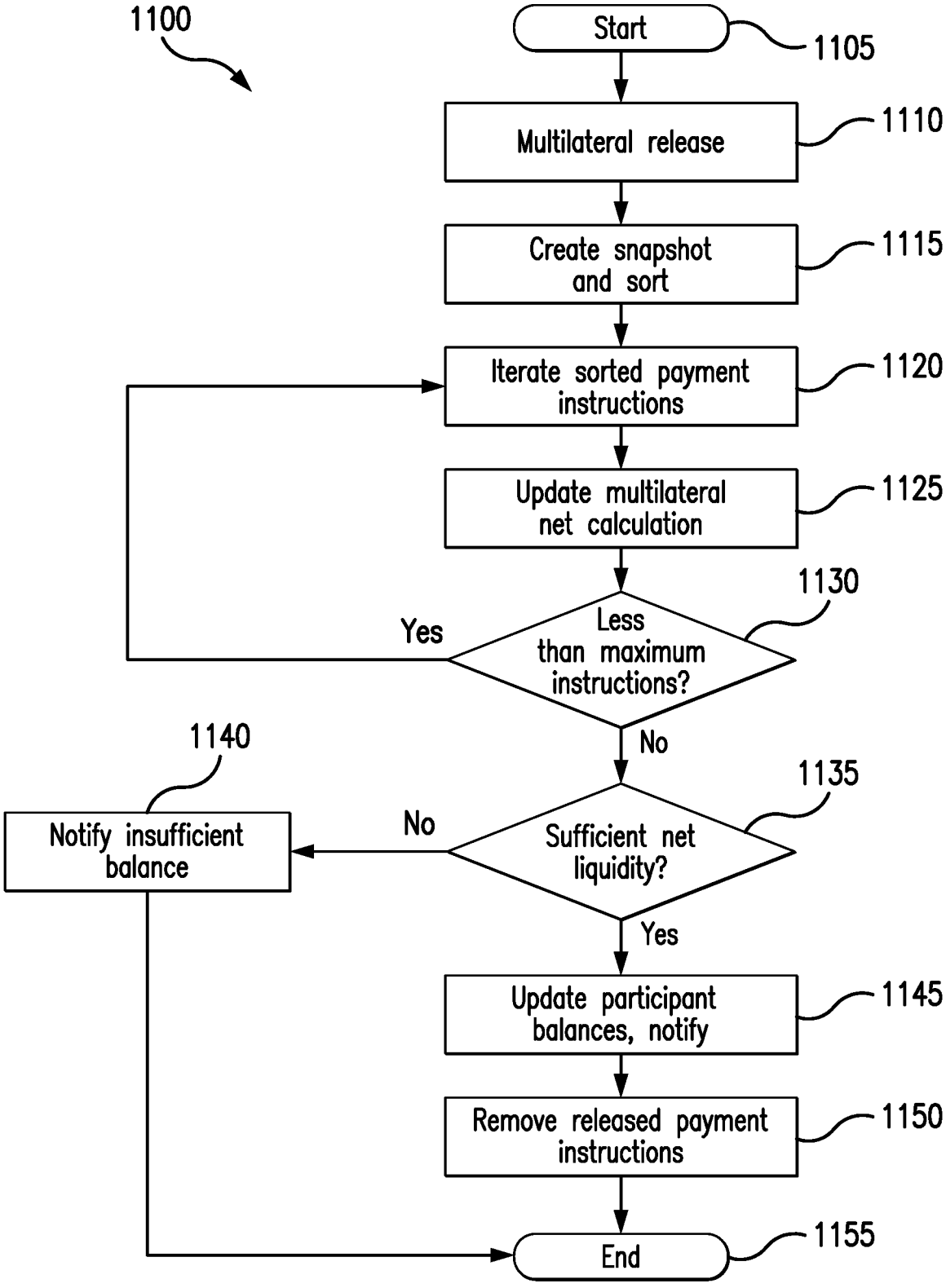

1100
Start
1105
Multilateral release
1110
Create snapshot and sort
1115
Iterate sorted payment instructions
1120
Update multilateral net calculation
1125
1130
Less than maximum instructions?
Yes
No
1140
Notify insufficient balance
No
1135
Sufficient net liquidity?
Yes
Update participant balances, notify
1145
Remove released payment instructions
1150
End
1155

FIG. 11

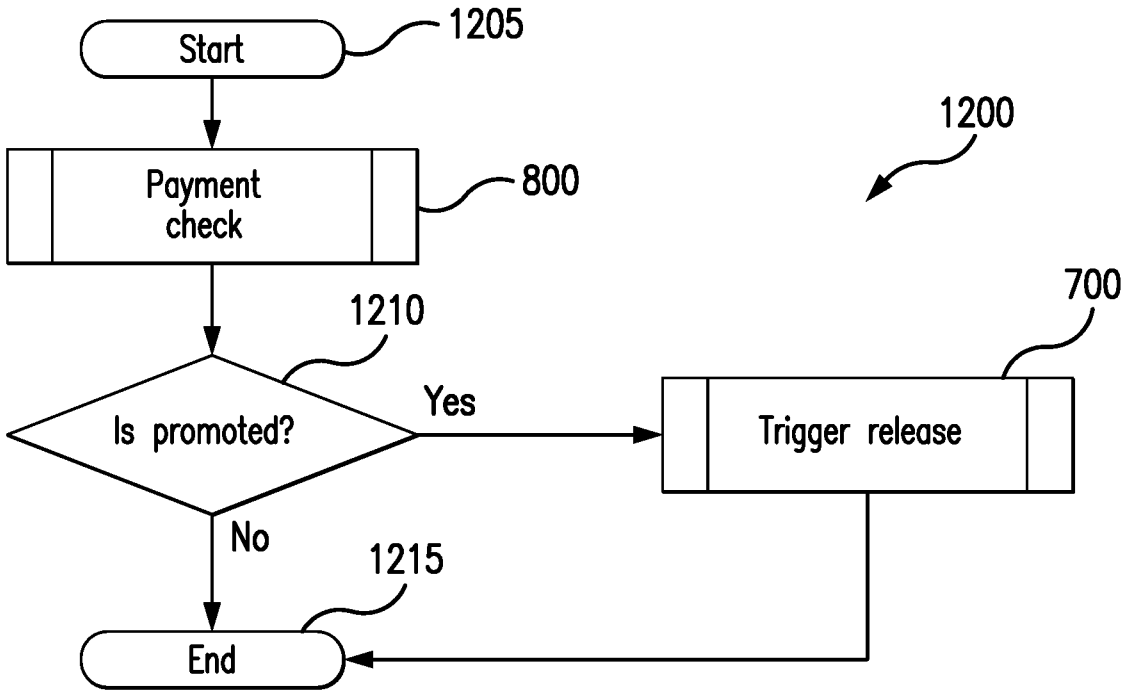

Start
1205
1200
Payment check
800
1210
700
Is promoted?
Yes
Trigger release
No
1215
End

FIG. 12