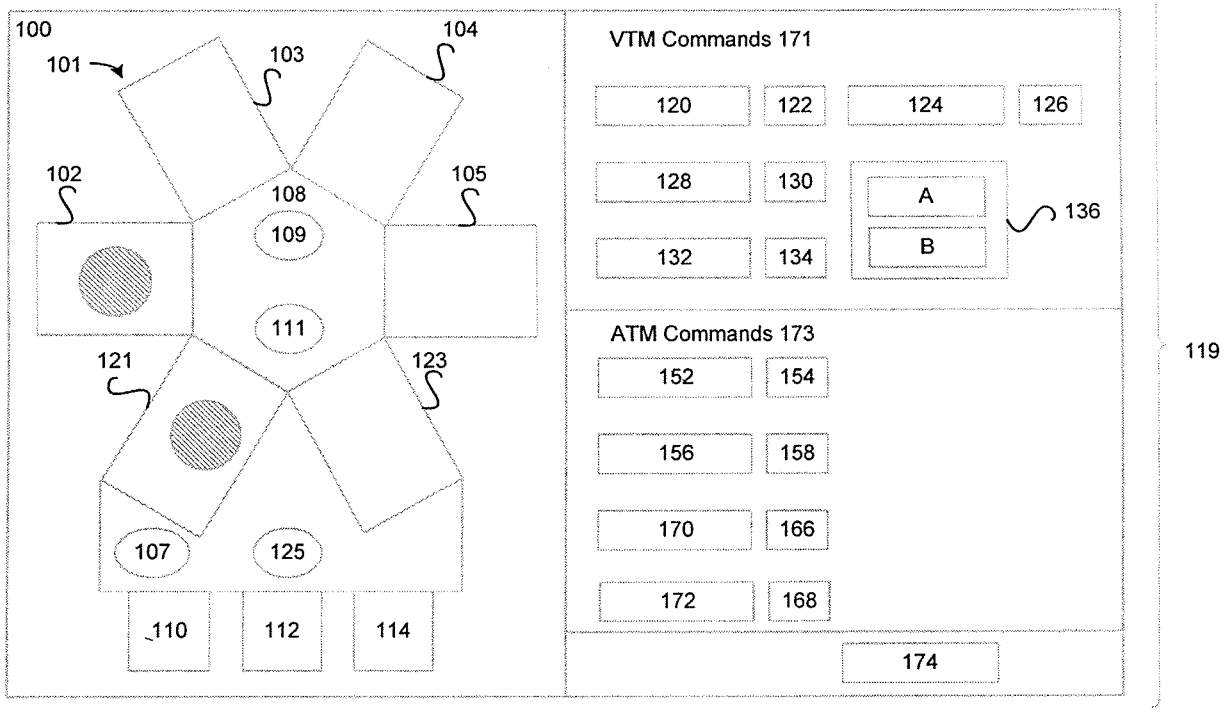


FIG. 1 Prior Art

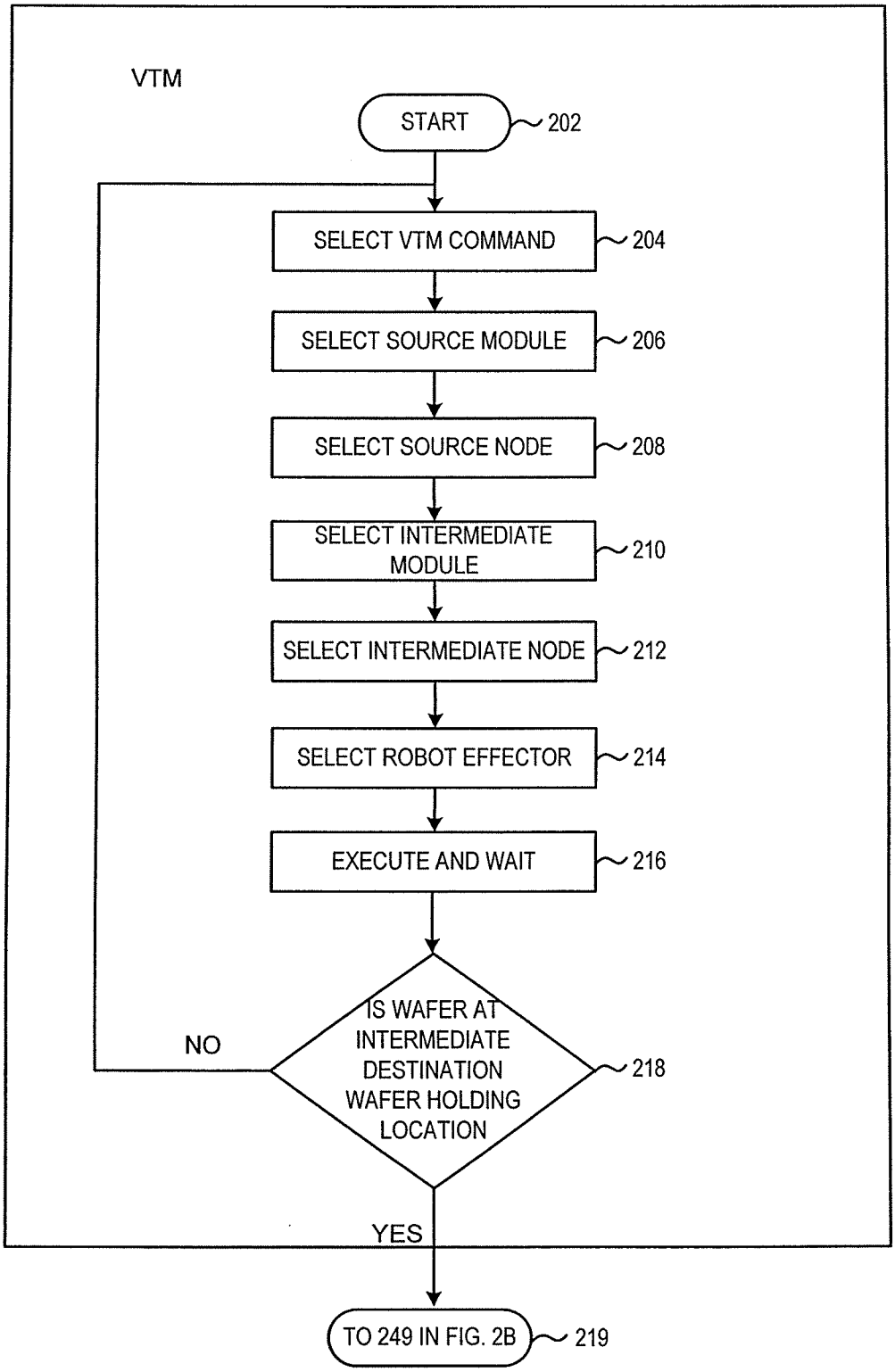


FIG. 2A Prior Art

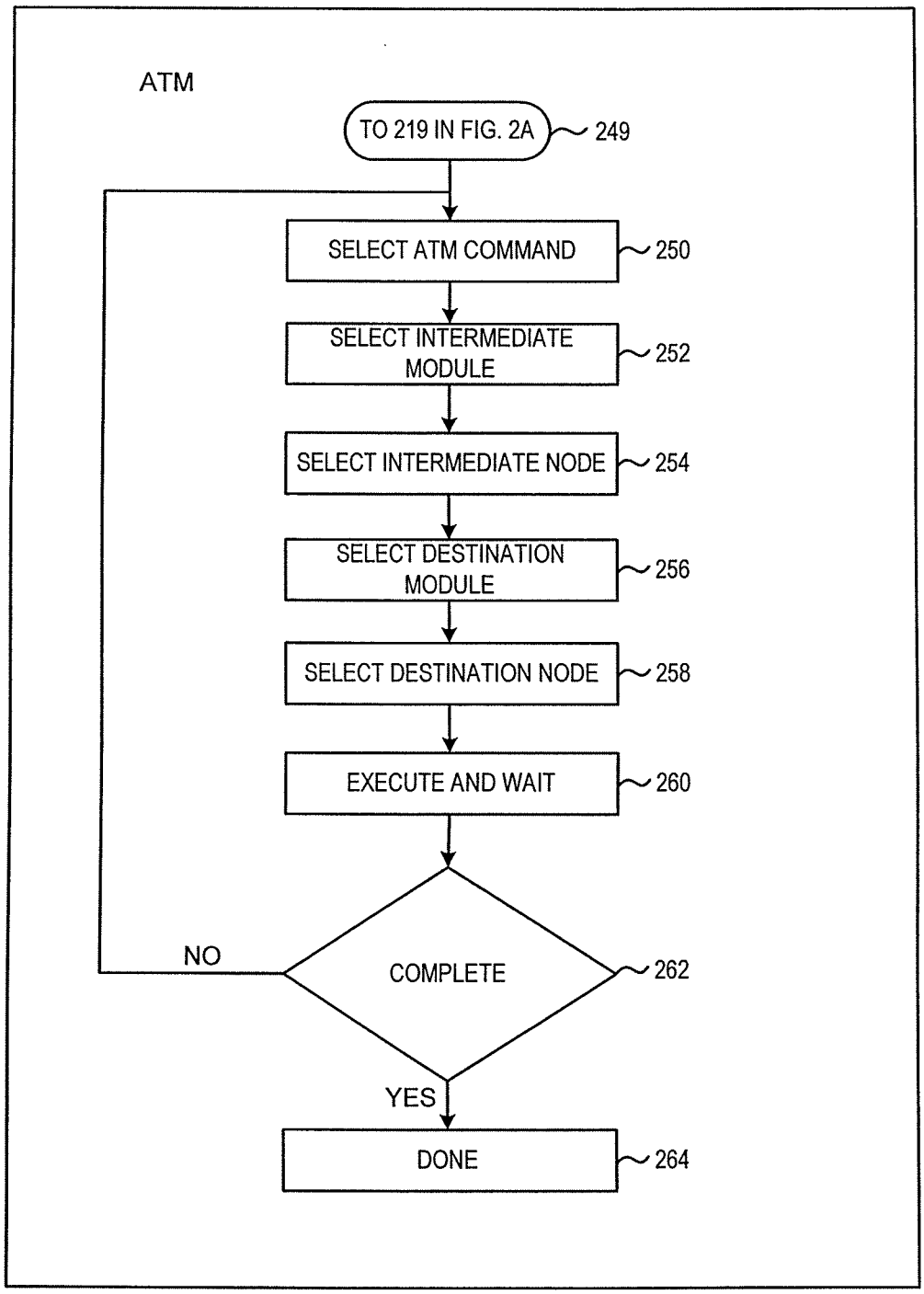


FIG. 2B Prior Art

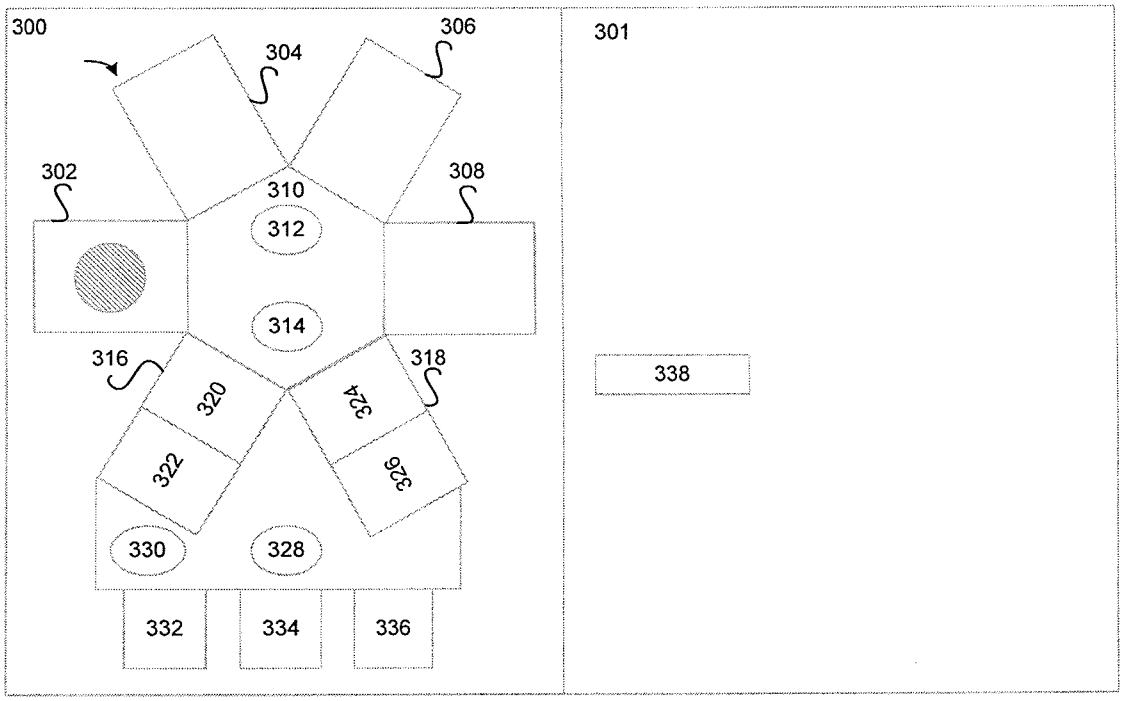

300
301
304
306
302
308
310
312
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318
320
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338

FIG. 3

Drag-and-Drop Overview

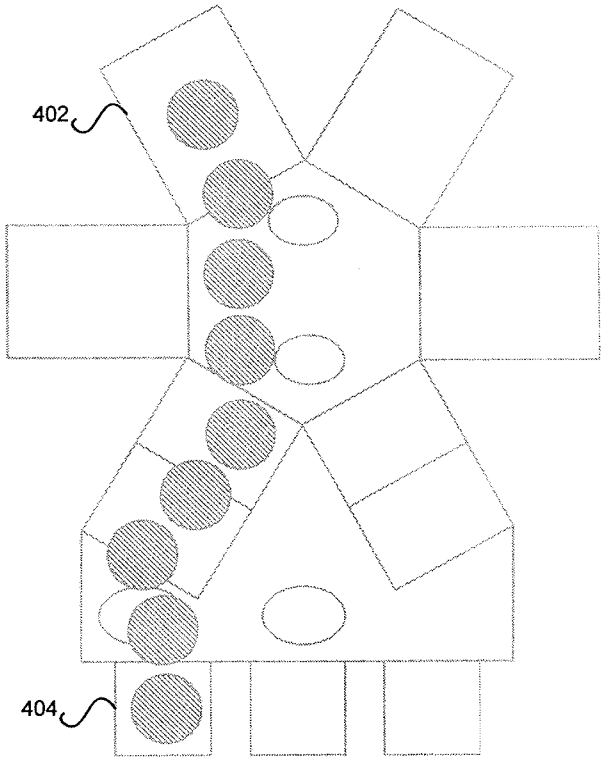


FIG. 4

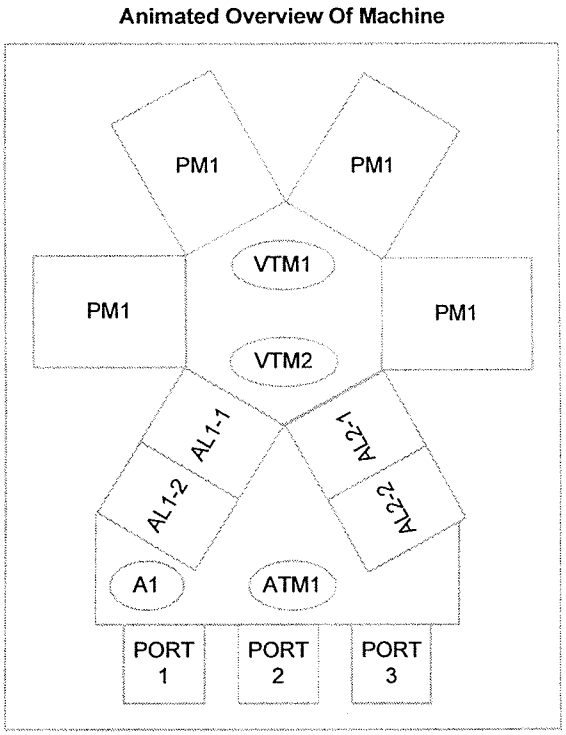

Animated Overview Of Machine
PM1
PM1
PM1
PM1
VTM1
VTM2
AL1-1
AL1-2
AL2-1
AL2-2
A1
ATM1
PORT 1
PORT 2
PORT 3

FIG. 5A

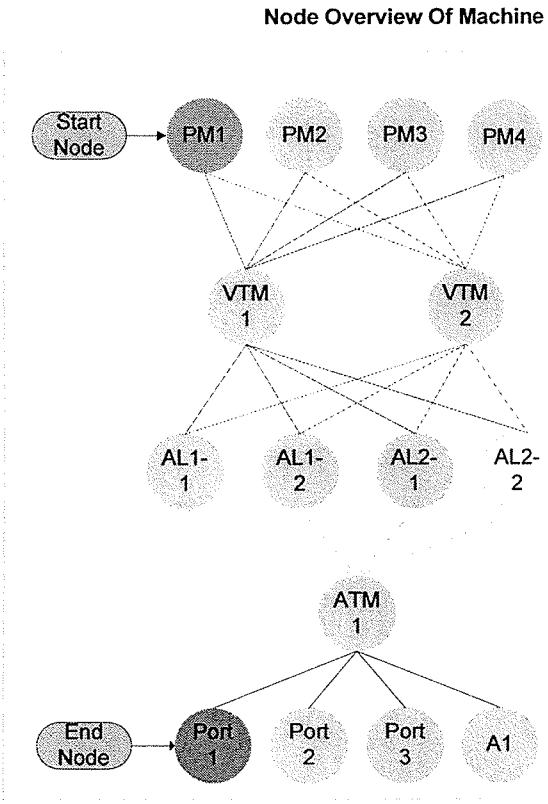

Node Overview Of Machine
Start Node
PM1
PM2
PM3
PM4
VTM 1
VTM 2
AL1-1
AL1-2
AL2-1
AL2-2
ATM 1
End Node
Port 1
Port 2
Port 3
A1

FIG. 5B

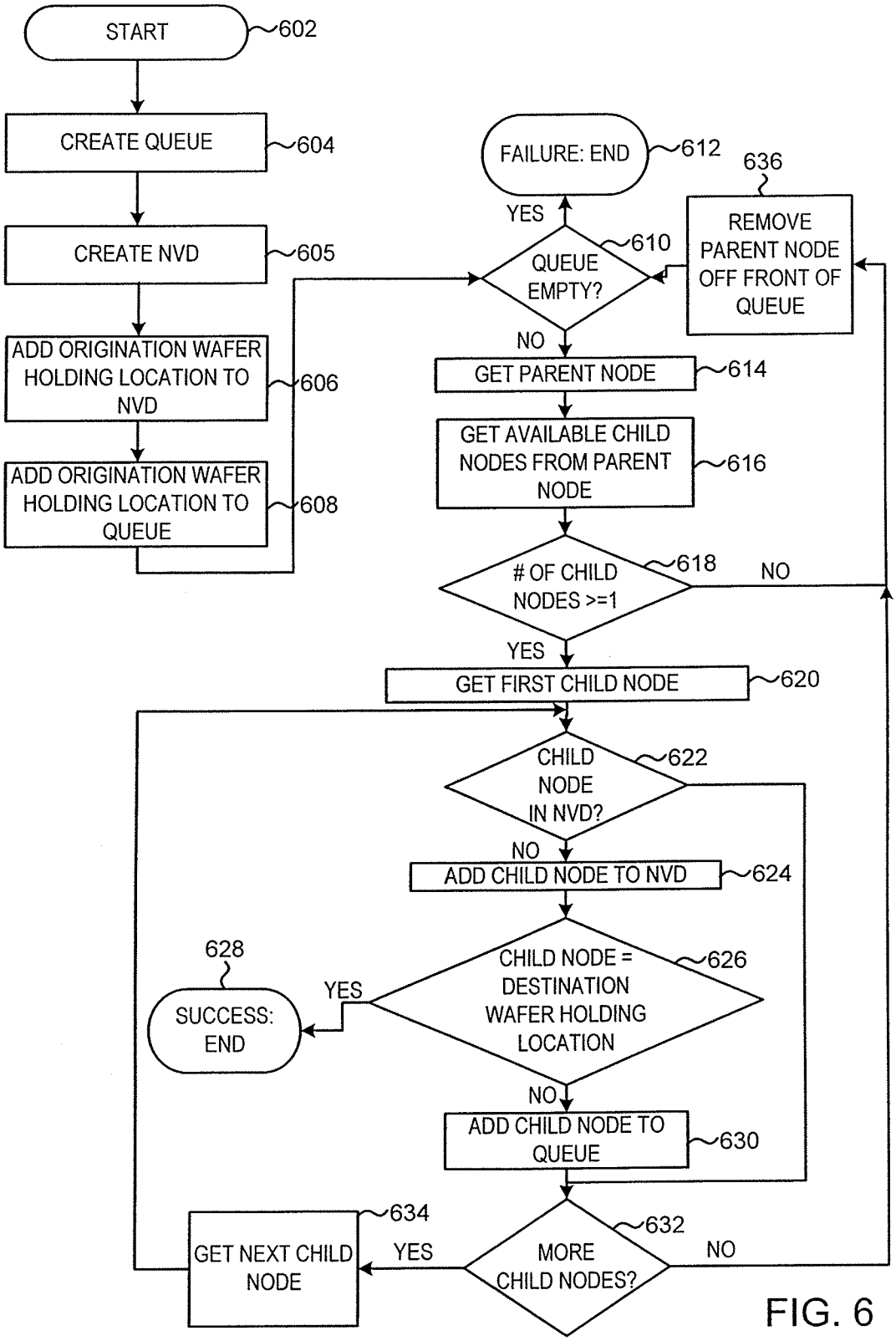

START
602
CREATE QUEUE
604
CREATE NVD
605
ADD ORIGINATION WAFER HOLDING LOCATION TO NVD
606
ADD ORIGINATION WAFER HOLDING LOCATION TO QUEUE
608
FAILURE: END
612
636
YES
QUEUE EMPTY?
610
REMOVE PARENT NODE OFF FRONT OF QUEUE
NO
GET PARENT NODE
614
GET AVAILABLE CHILD NODES FROM PARENT NODE
616
OF CHILD NODES >=1
618
NO
YES
GET FIRST CHILD NODE
620
CHILD NODE IN NVD?
622
NO
ADD CHILD NODE TO NVD
624
628
CHILD NODE = DESTINATION WAFER HOLDING LOCATION
626
YES
SUCCESS: END
NO
ADD CHILD NODE TO QUEUE
630
634
632
GET NEXT CHILD NODE
YES
MORE CHILD NODES?
NO

FIG. 6

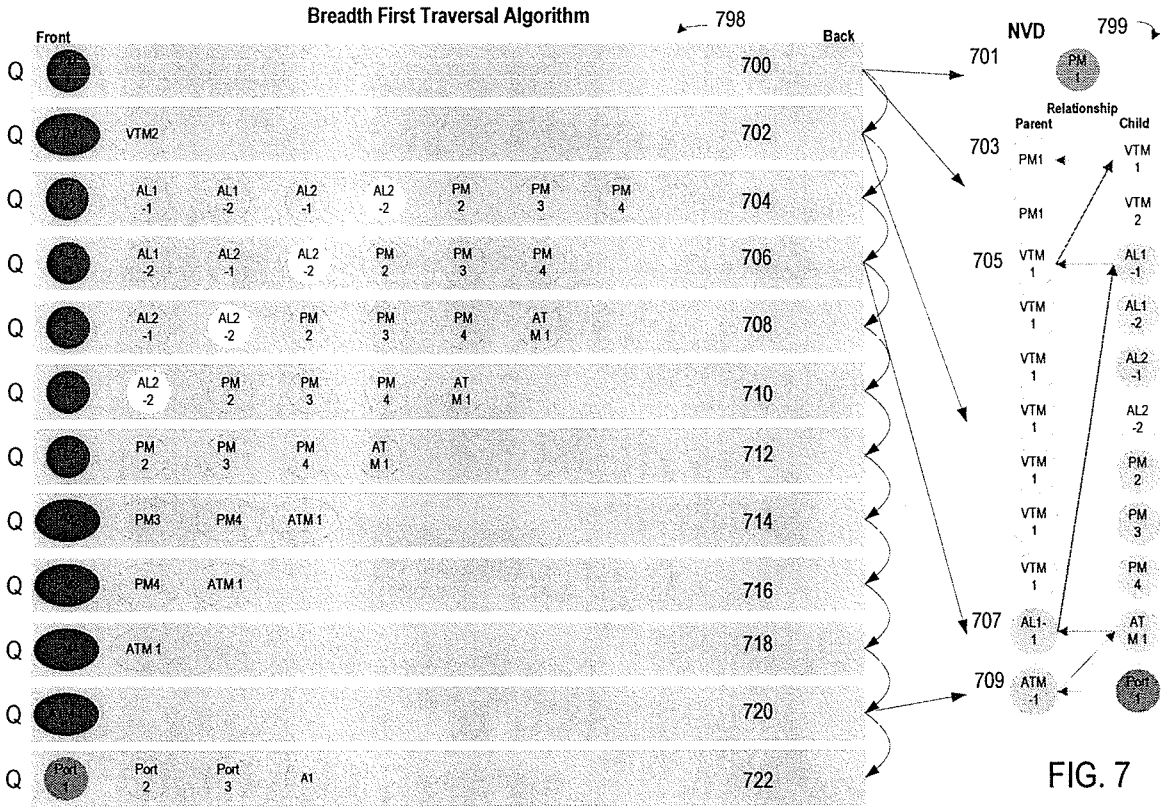

Breadth First Traversal Algorithm
798
Front
Back
NVD
799
Q
700
701
PM 1
Relationship
Parent
Child
VTM2
702
703
PM1
VTM 1
AL1 -1
AL1 -2
AL2 -1
AL2 -2
PM 2
PM 3
PM 4
704
PM1
VTM 2
AL1 -2
AL2 -1
AL2 -2
706
705
VTM 1
AL1 -1
AL2 -1
AL2 -2
PM 2
PM 3
PM 4
AT M 1
708
VTM 1
AL1 -2
AL2 -2
PM 2
PM 3
PM 4
AT M 1
710
VTM 1
AL2 -1
PM 2
PM 3
PM 4
AT M 1
712
VTM 1
AL2 -2
PM3
PM4
ATM 1
714
VTM 1
PM 2
PM4
ATM 1
716
VTM 1
PM 3
707
AL1-1
AT M 1
ATM 1
718
VTM 1
PM 4
709
ATM -1
Port 1
720
Port 1
Port 2
Port 3
A1
722

FIG. 7