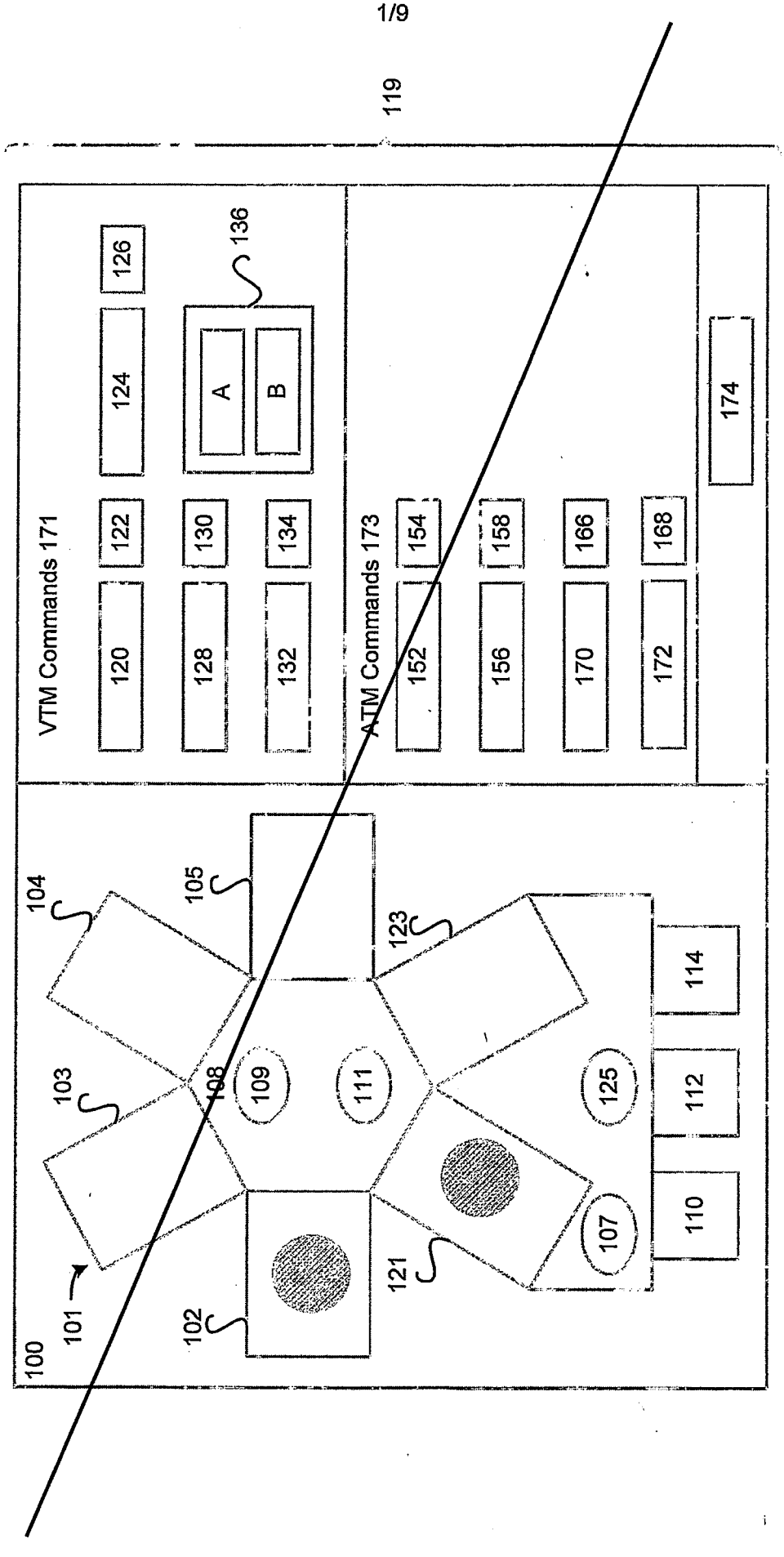


FIG. 1 Prior Art

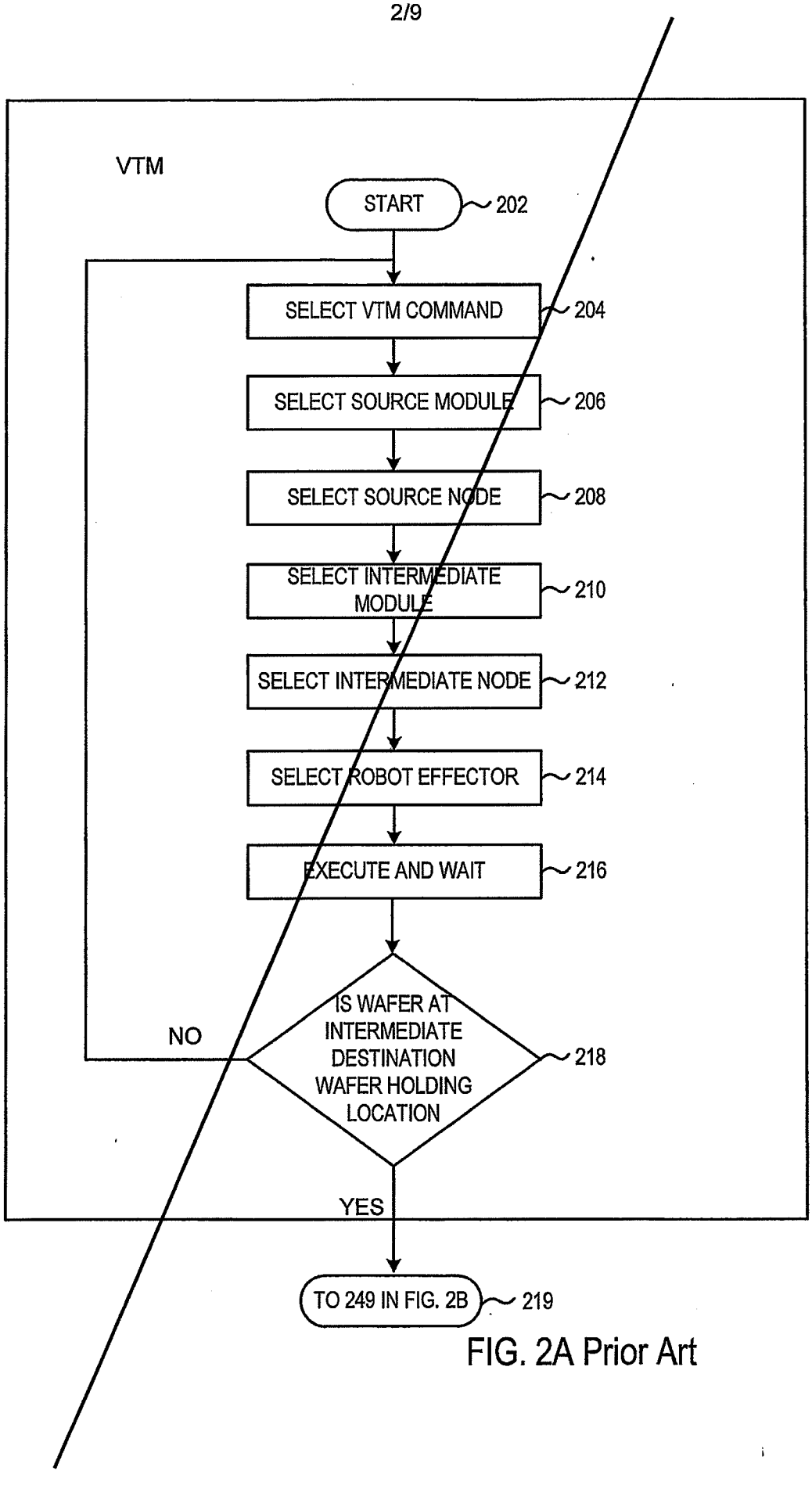


FIG. 2A Prior Art

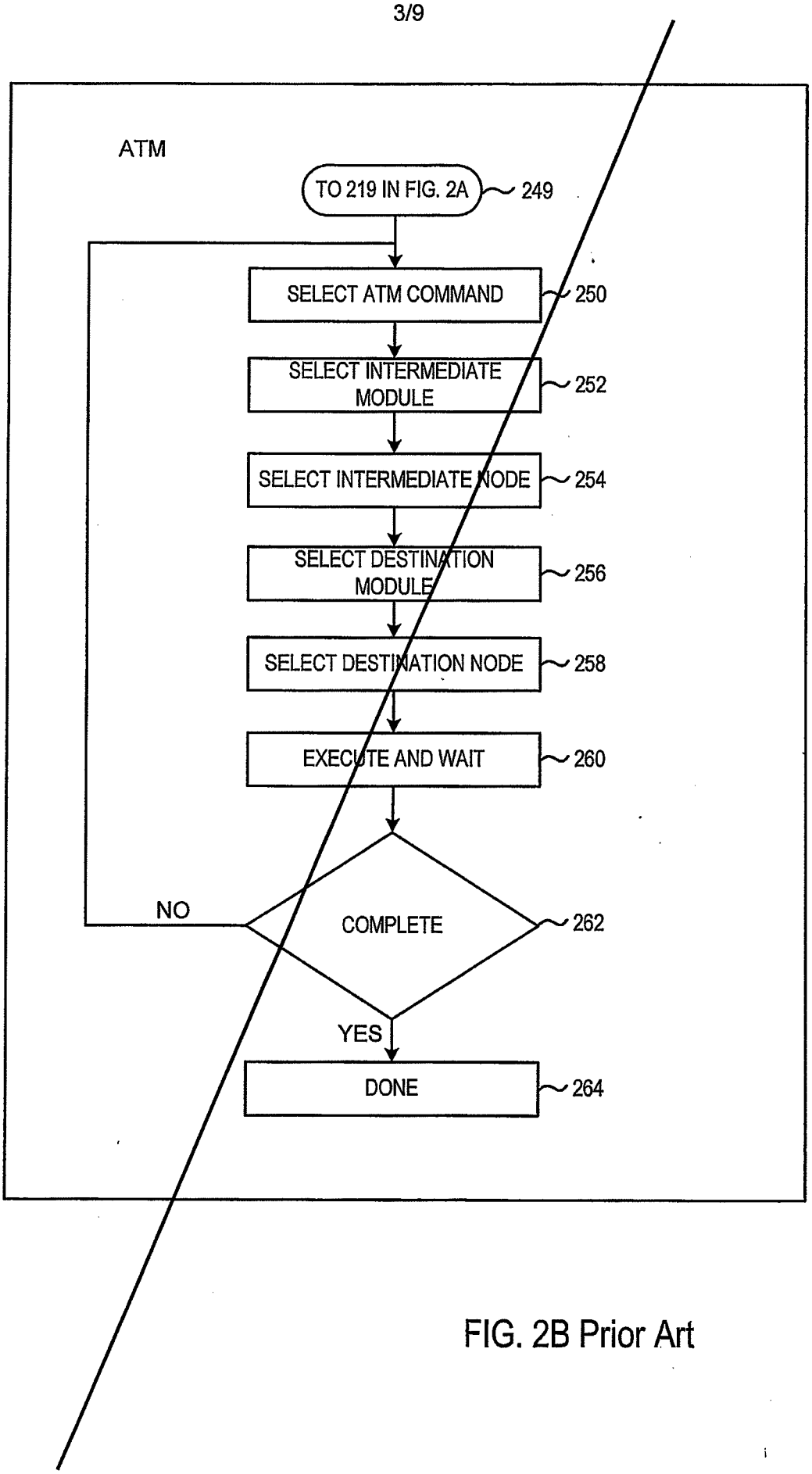


FIG. 2B Prior Art

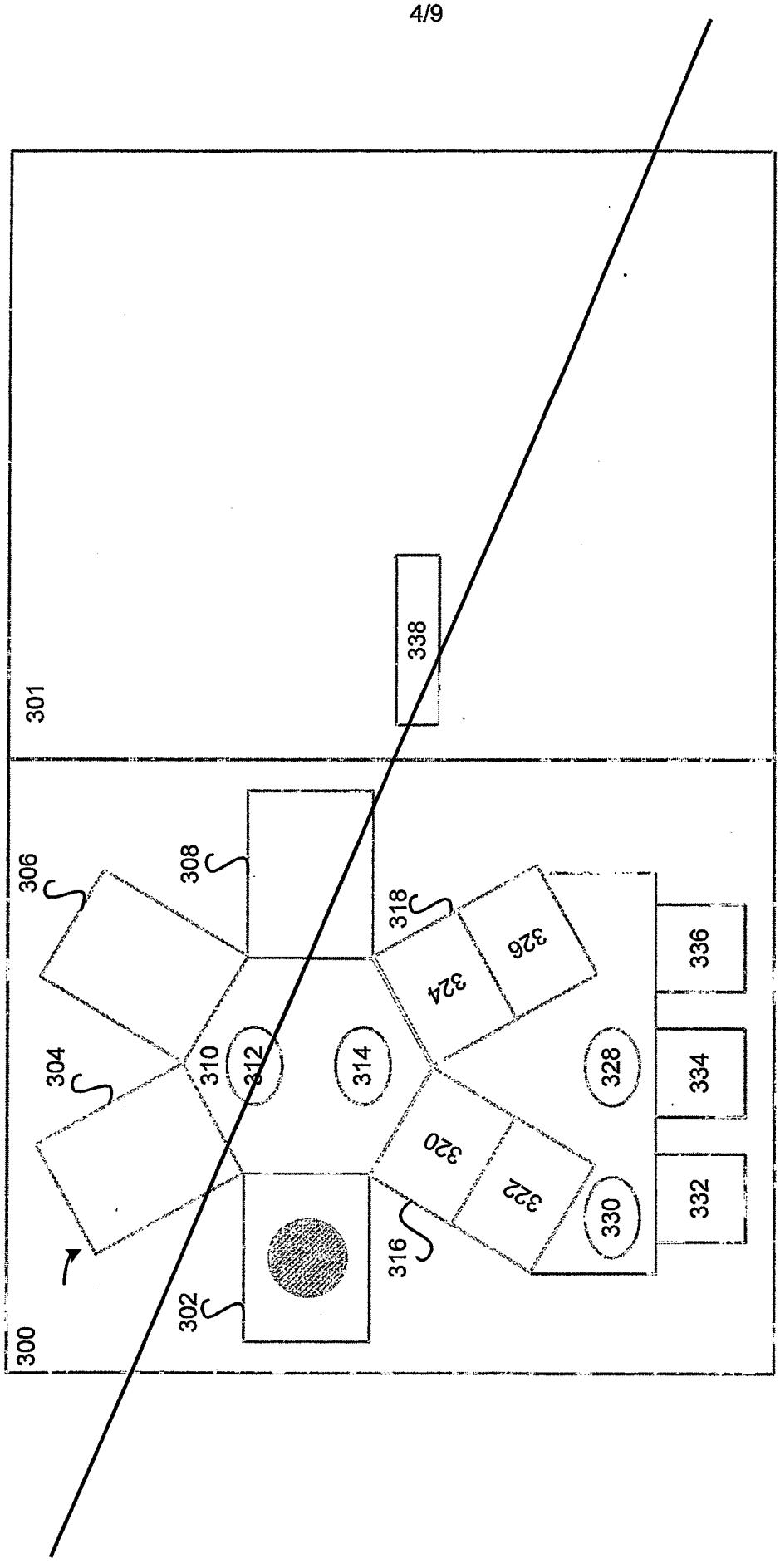

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FIG. 3

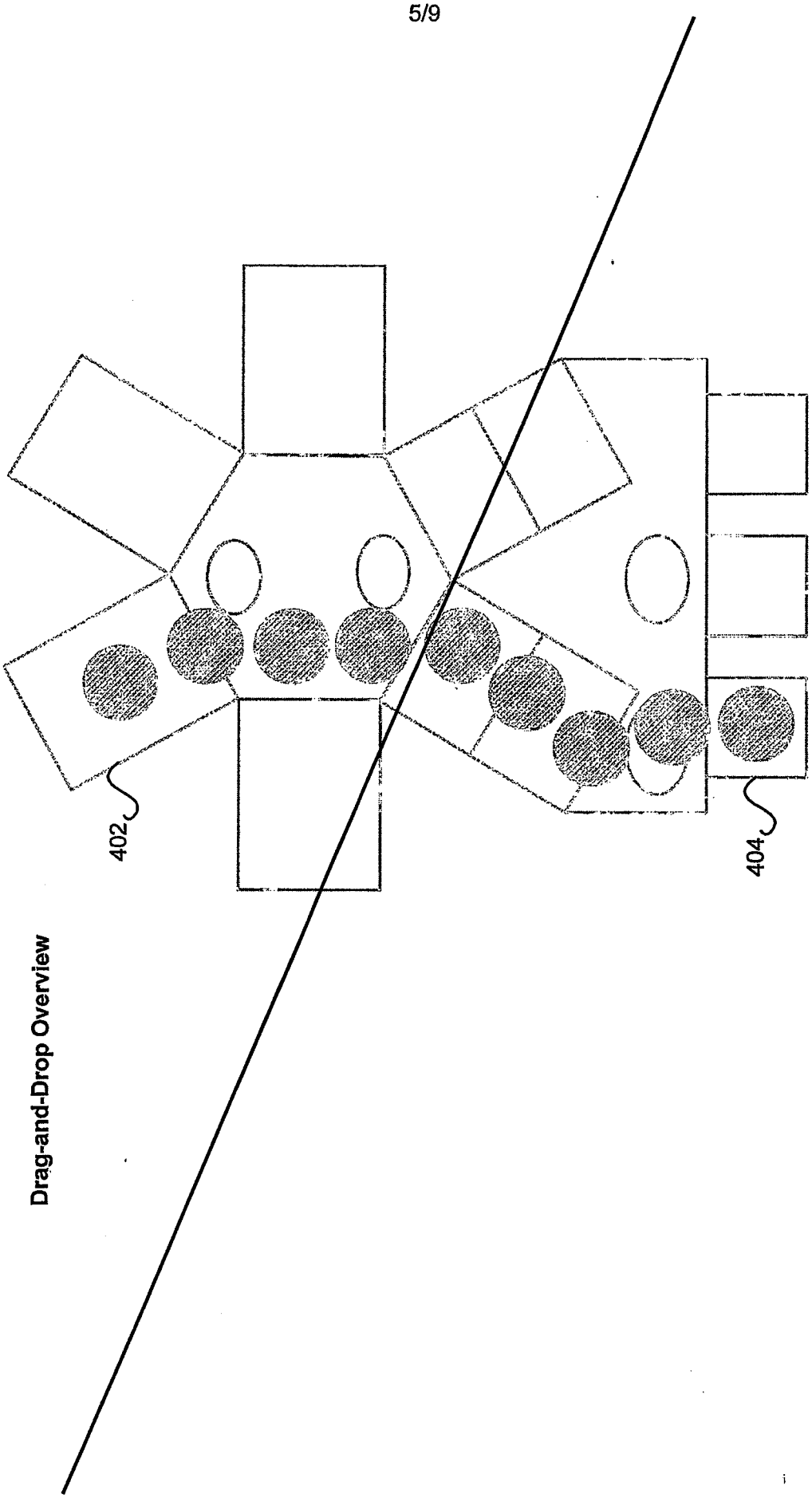


FIG. 4

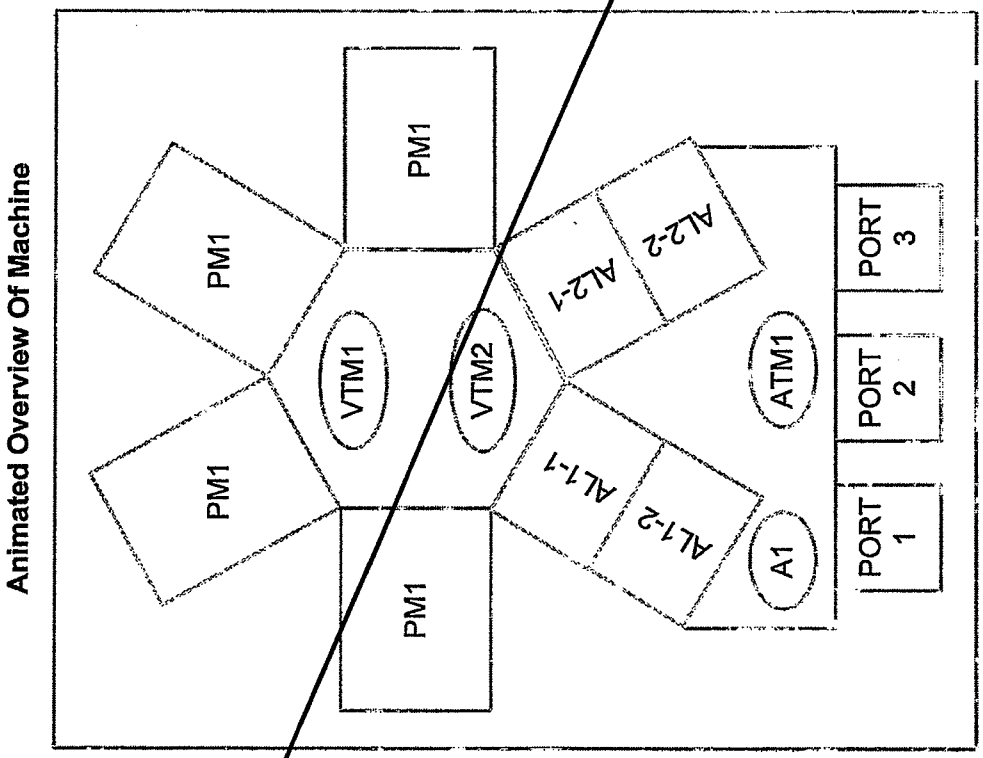

Animated Overview Of Machine
PM1
PM1
PM1
PM1
VTM1
VTM2
AL2-1
AL2-2
AL1-1
AL1-2
ATM1
A1
PORT 1
PORT 2
PORT 3

FIG. 5A

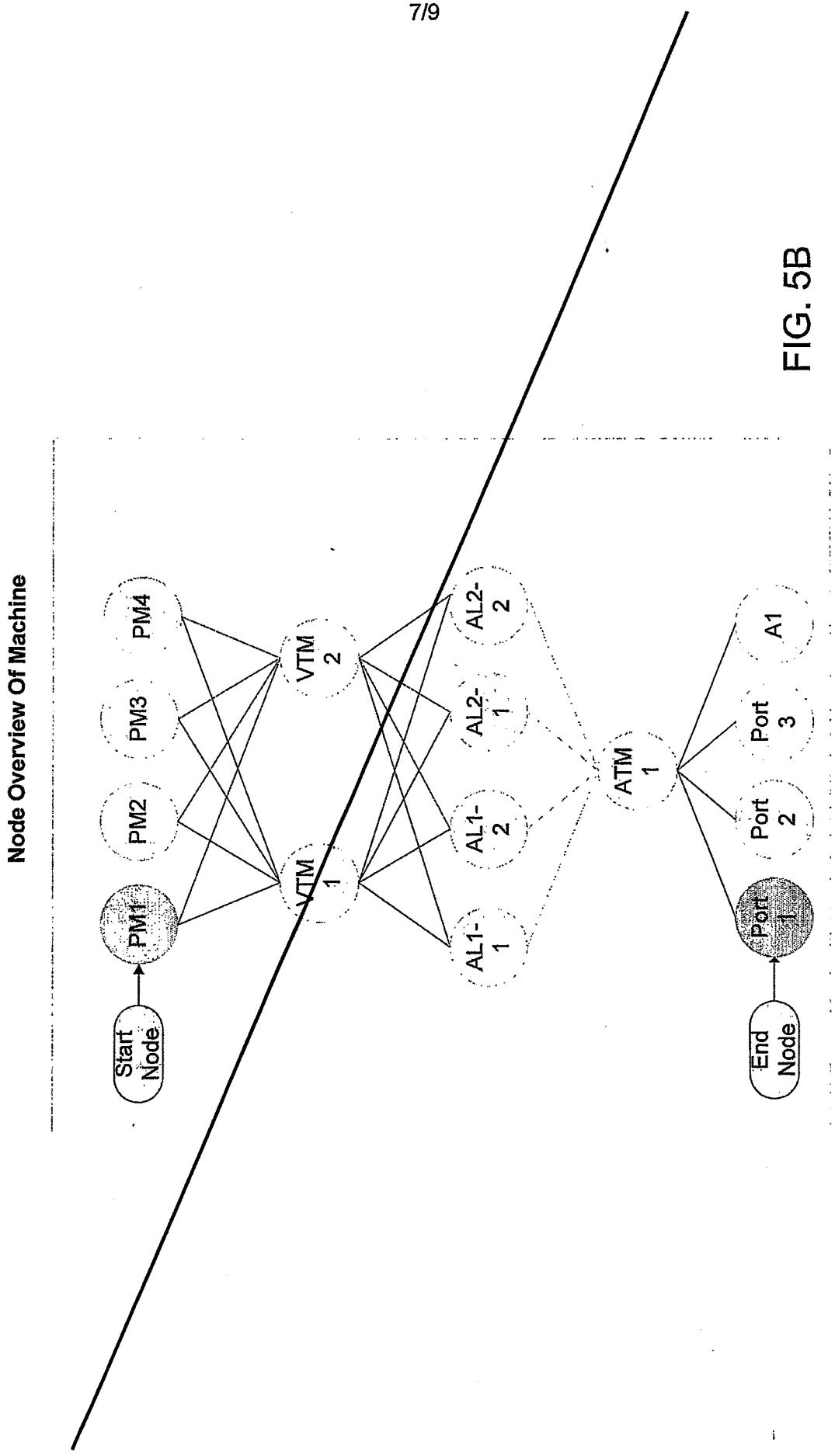

Node Overview Of Machine
Start Node
PM1
PM2
PM3
PM4
VTM 1
VTM 2
AL1-1
AL1-2
AL2-1
AL2-2
ATM 1
Port 1
Port 2
Port 3
A1
End Node

FIG. 5B

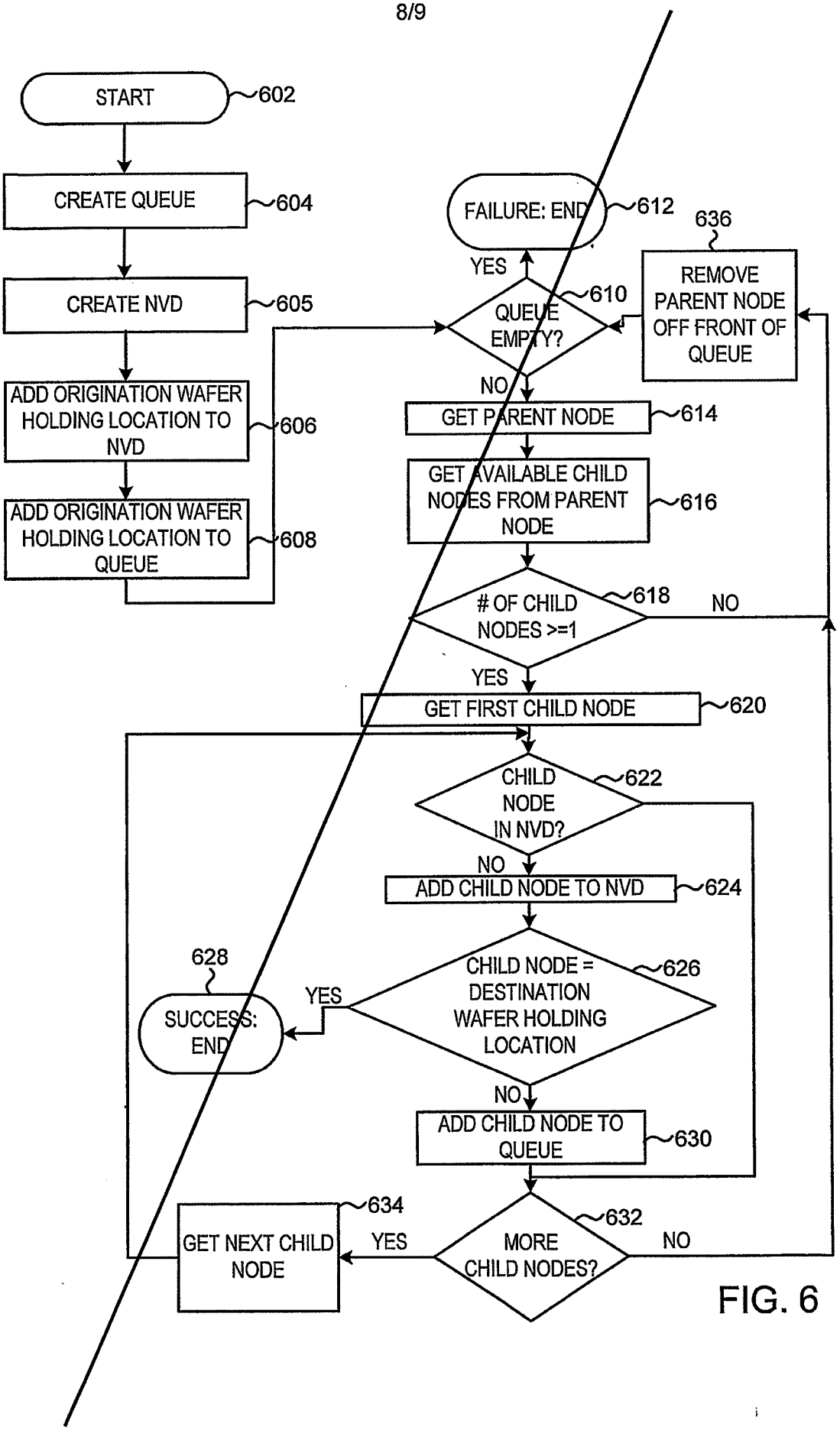

START
602
CREATE QUEUE
604
CREATE NVD
605
ADD ORIGINATION WAFER HOLDING LOCATION TO NVD
606
ADD ORIGINATION WAFER HOLDING LOCATION TO QUEUE
608
FAILURE: END
612
636
REMOVE PARENT NODE OFF FRONT OF QUEUE
YES
QUEUE EMPTY?
610
NO
GET PARENT NODE
614
GET AVAILABLE CHILD NODES FROM PARENT NODE
616
OF CHILD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

FIG. 6

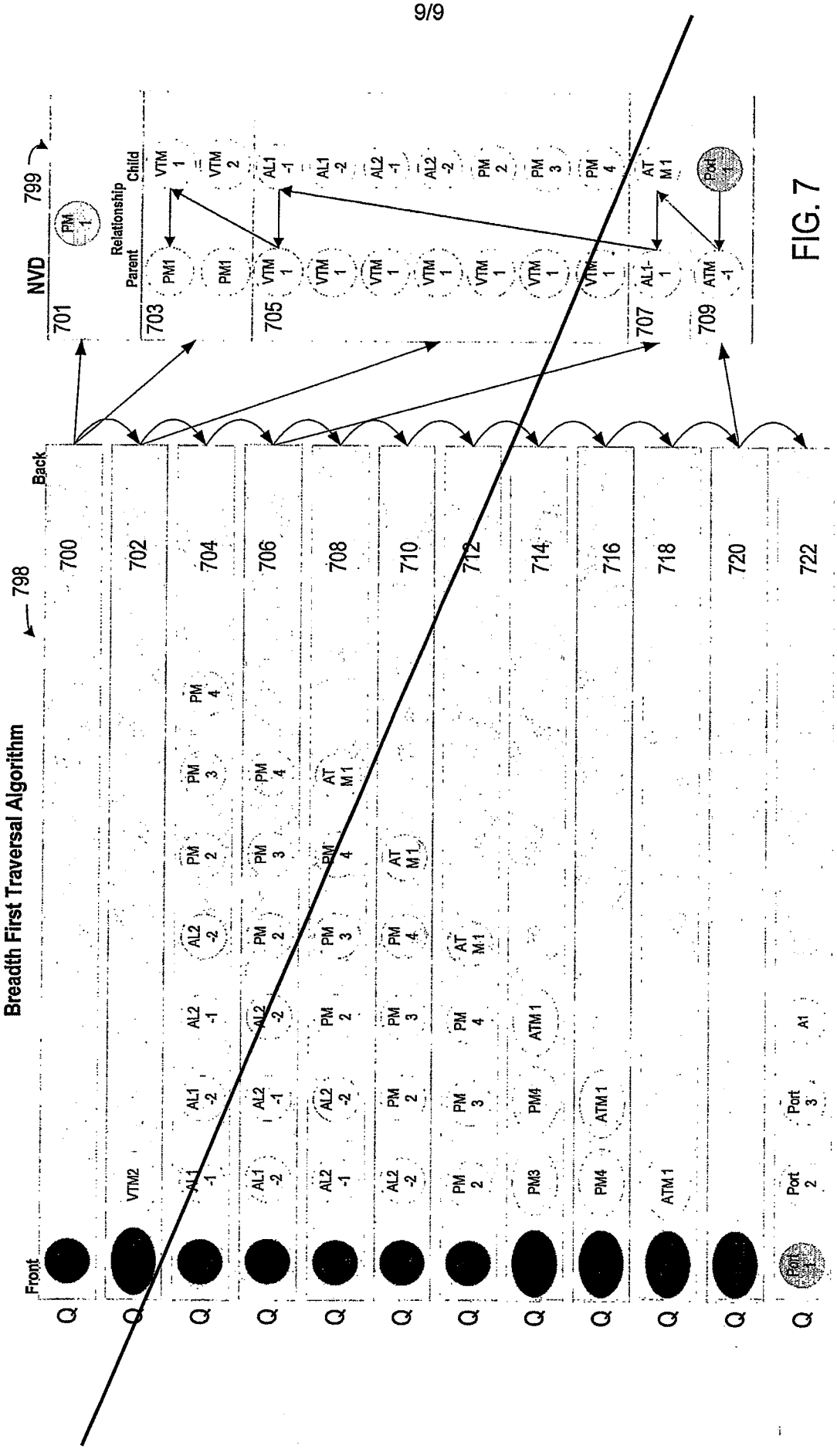

Breadth First Traversal Algorithm
798
799
NVD
Relationship
Parent
Child
Front
Back
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709
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706
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710
712
714
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718
720
722

FIG. 7

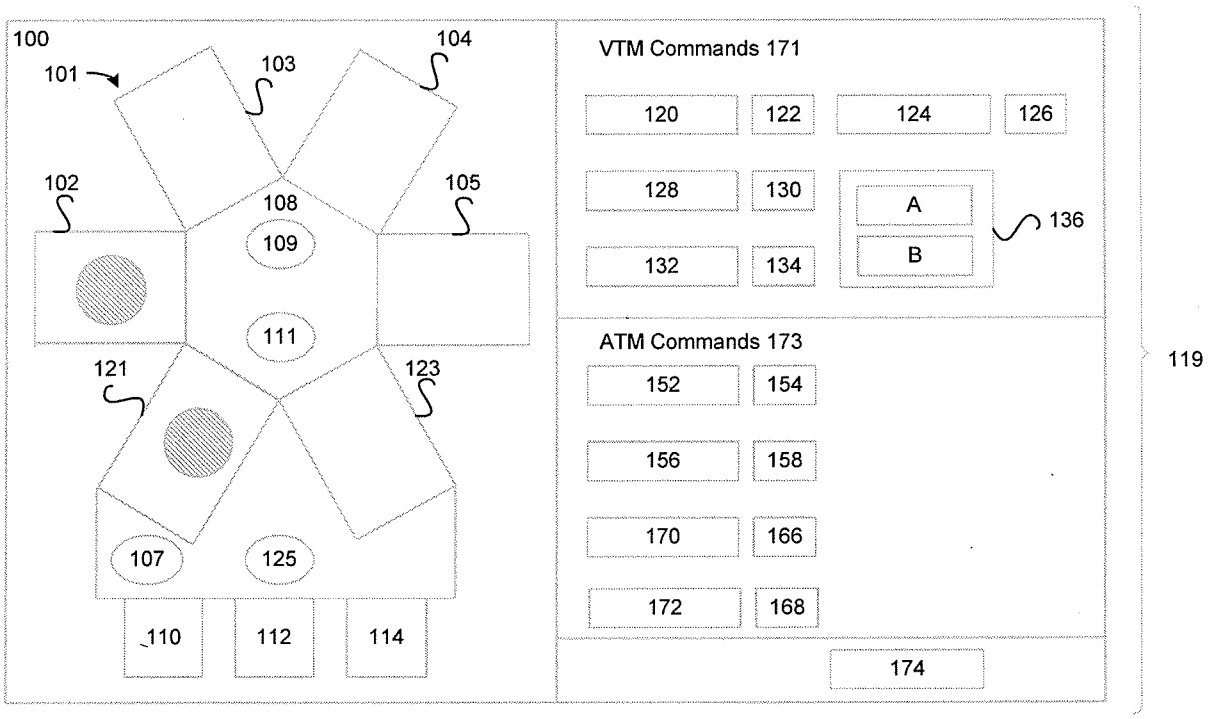


FIG. 1 Prior Art

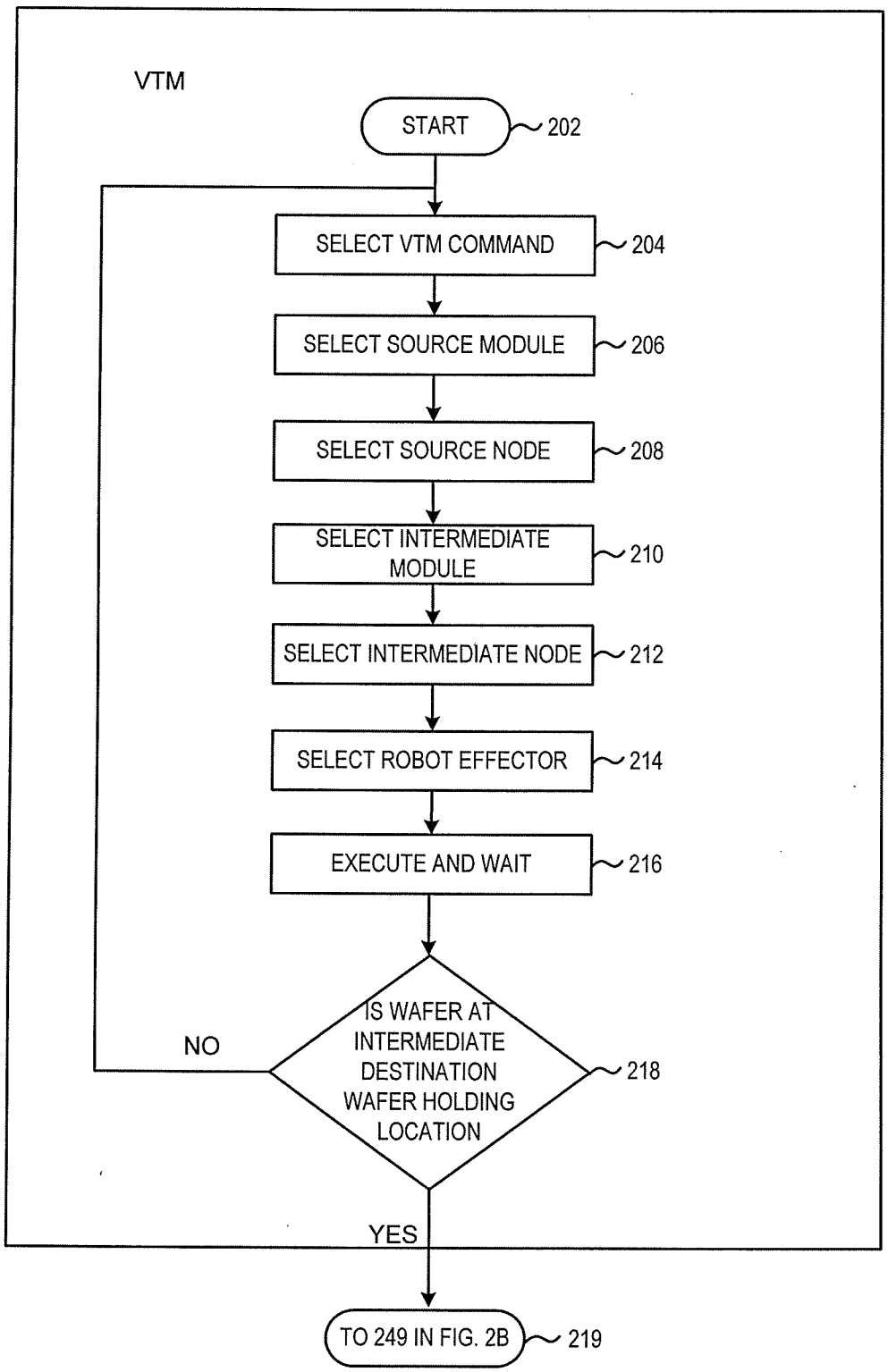


FIG. 2A Prior Art

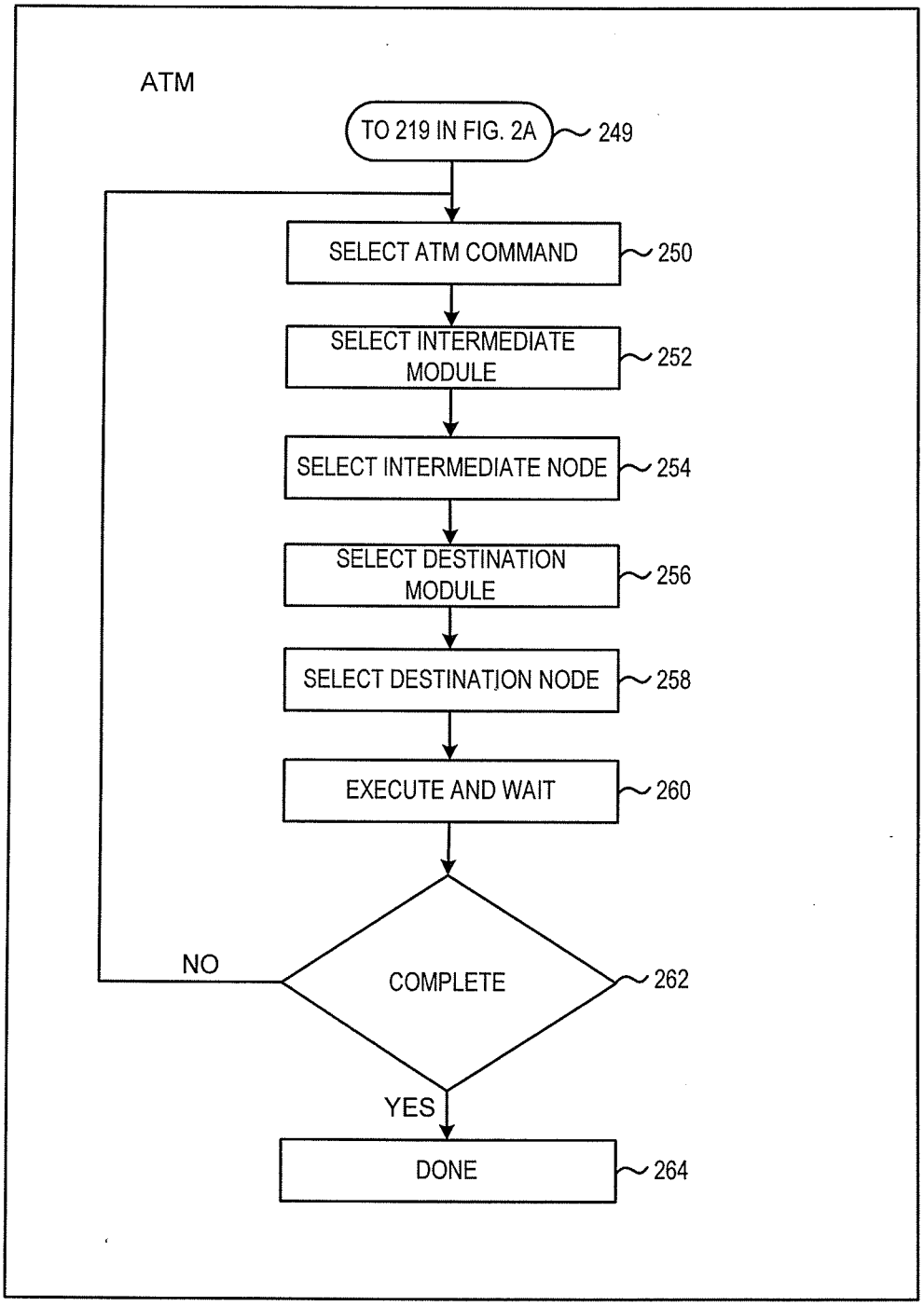


FIG. 2B Prior Art

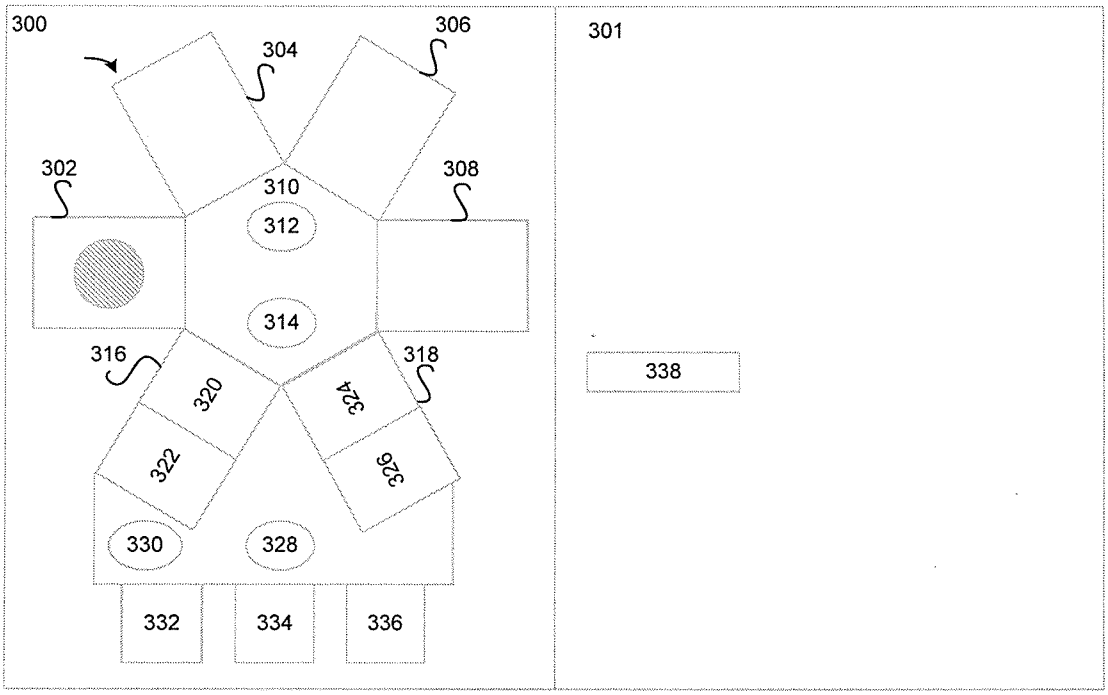

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FIG. 3

Drag-and-Drop Overview

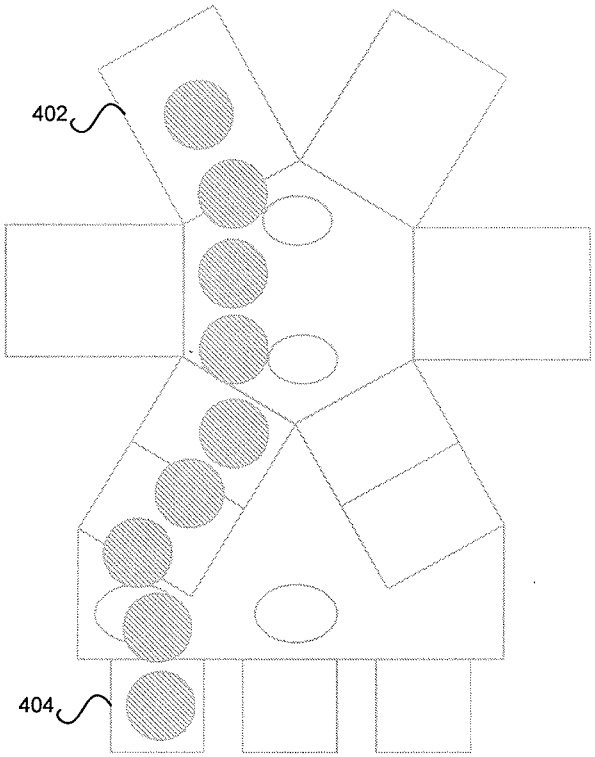


FIG. 4

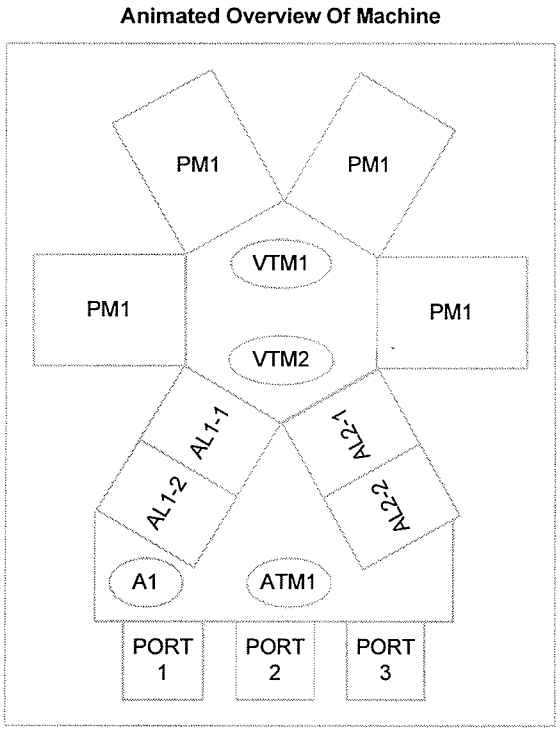

Animated Overview Of Machine
PM1
PM1
PM1
PM1
VTM1
VTM2
AL1-1
AL1-2
AL2-1
AL2-2
A1
ATM1
PORT 1
PORT 2
PORT 3

FIG. 5A

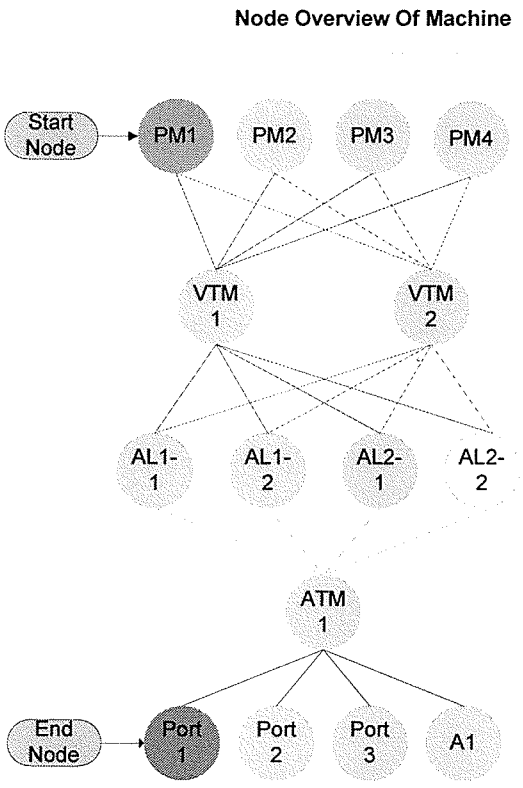

Node Overview Of Machine
Start Node
PM1
PM2
PM3
PM4
VTM 1
VTM 2
AL1-1
AL1-2
AL2-1
AL2-2
ATM 1
End Node
Port 1
Port 2
Port 3
A1

FIG. 5B

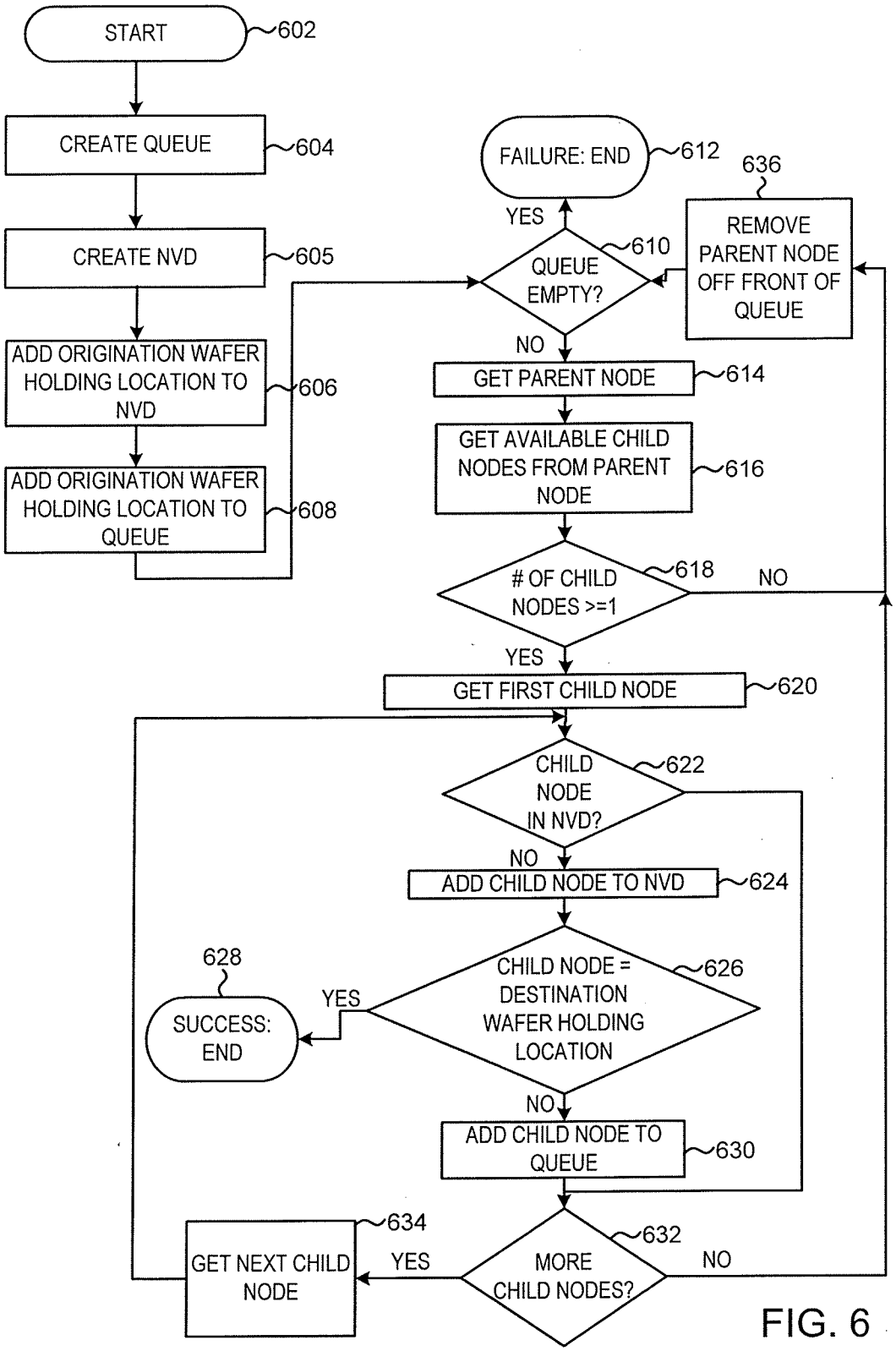

START
602
CREATE QUEUE
604
CREATE NVD
605
ADD ORIGINATION WAFER HOLDING LOCATION TO NVD
606
ADD ORIGINATION WAFER HOLDING LOCATION TO QUEUE
608
FAILURE: END
612
636
REMOVE PARENT NODE OFF FRONT OF QUEUE
YES
610
QUEUE EMPTY?
NO
GET PARENT NODE
614
GET AVAILABLE CHILD NODES FROM PARENT NODE
616
OF CHILD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

FIG. 6

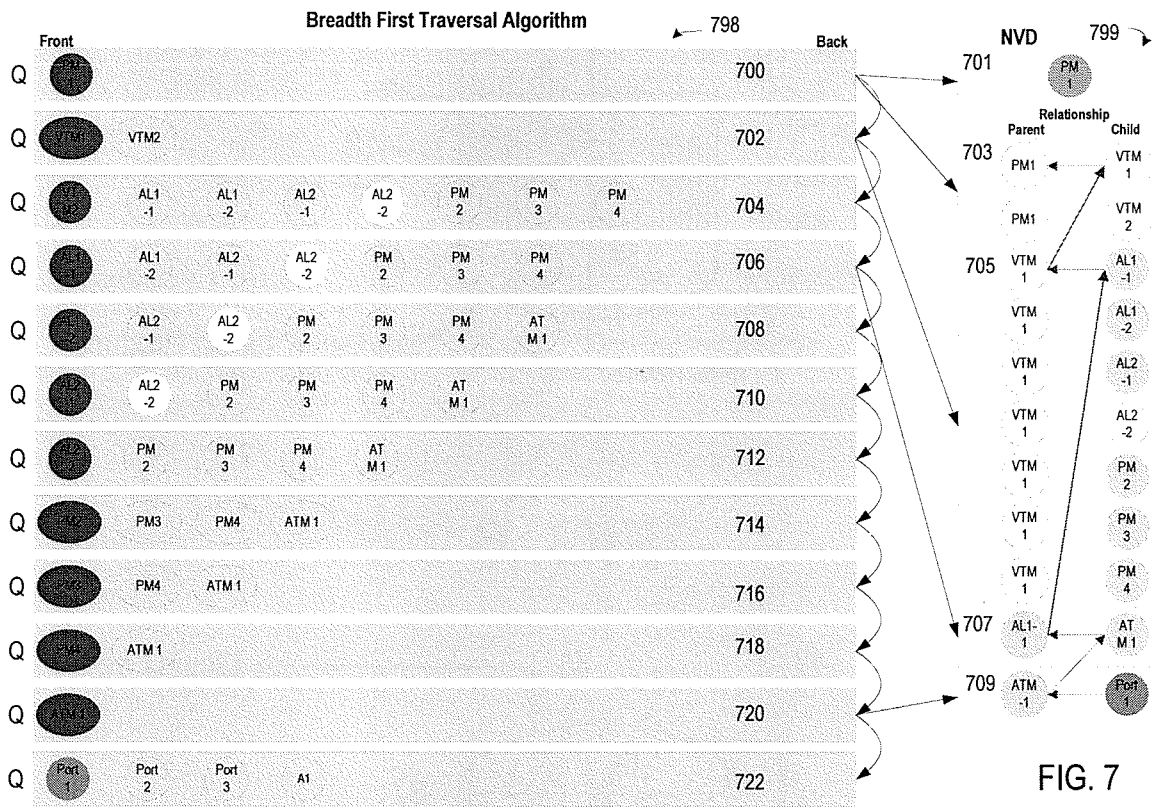

Breadth First Traversal Algorithm
798
Front
Back
NVD
799
Q
VTM2
AL1 -1
AL1 -2
AL2 -1
AL2 -2
PM 2
PM 3
PM 4
AT M 1
PM3
PM4
ATM 1
Port 1
Port 2
Port 3
A1
700
702
704
706
708
710
712
714
716
718
720
722
701
703
705
707
709
Relationship
Parent
Child
PM1
VTM 1
VTM 2
AL1 -1
AL1 -2
AL2 -1
AL2 -2
PM 2
PM 3
PM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

FIG. 7