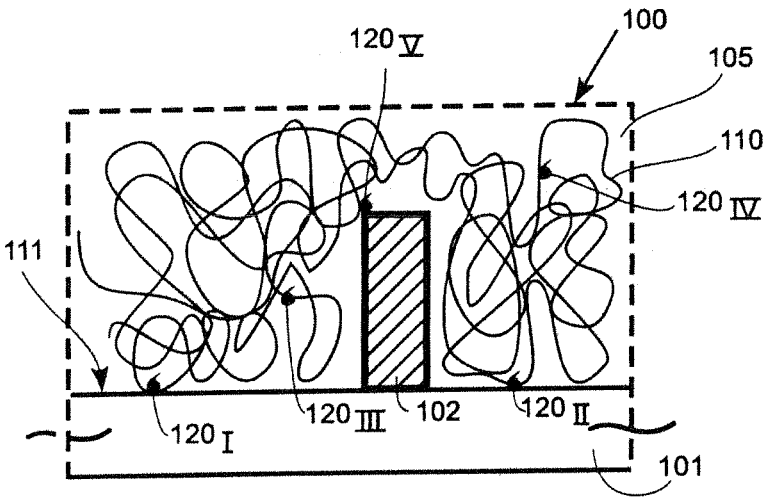

100
120 V
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120 IV
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120 I
120 III
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120 II
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FIG. 1

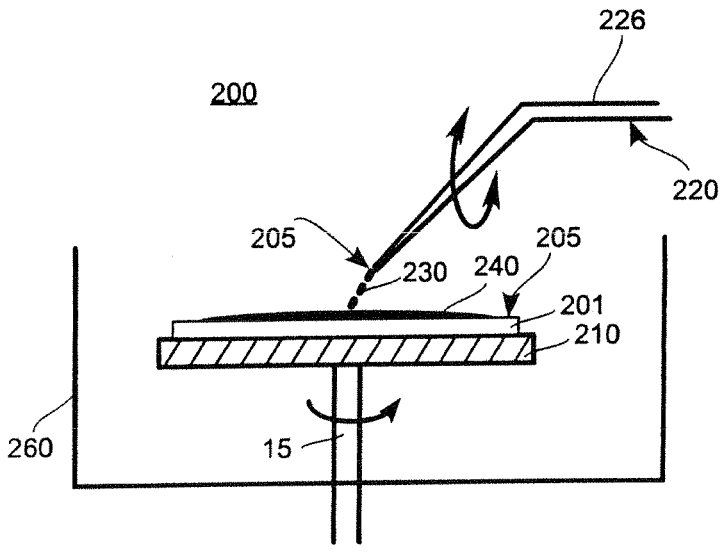

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FIG. 2A

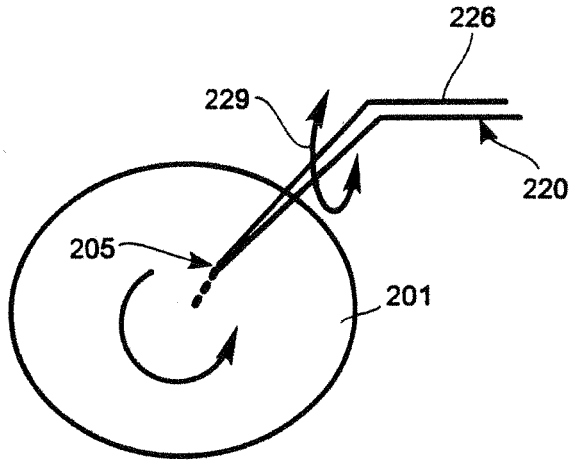

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FIG. 2B

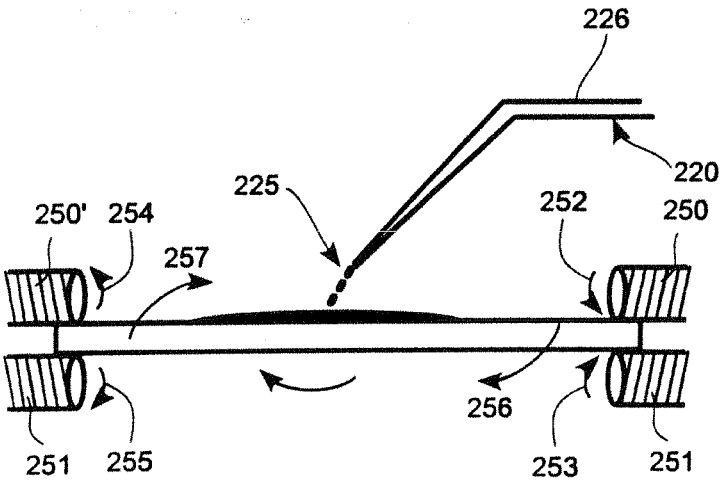

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255
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FIG. 2C

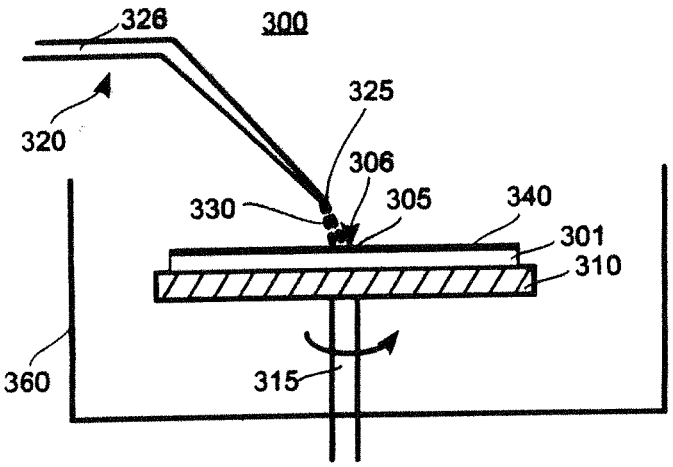


FIG. 3A

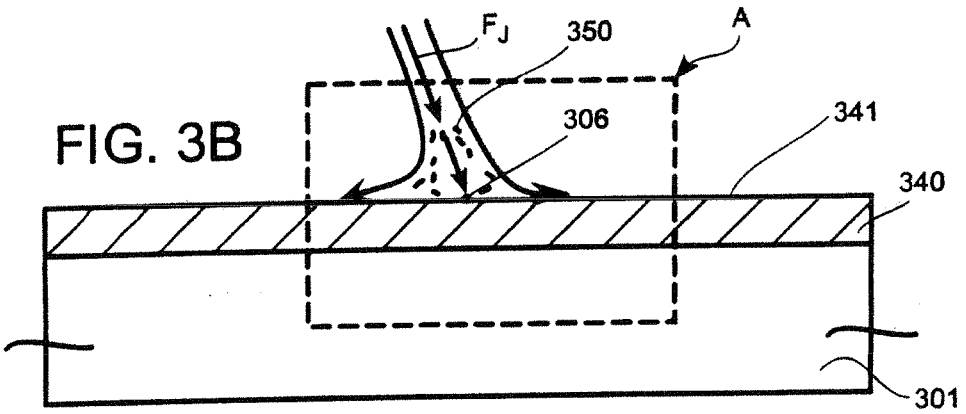


FIG. 3B

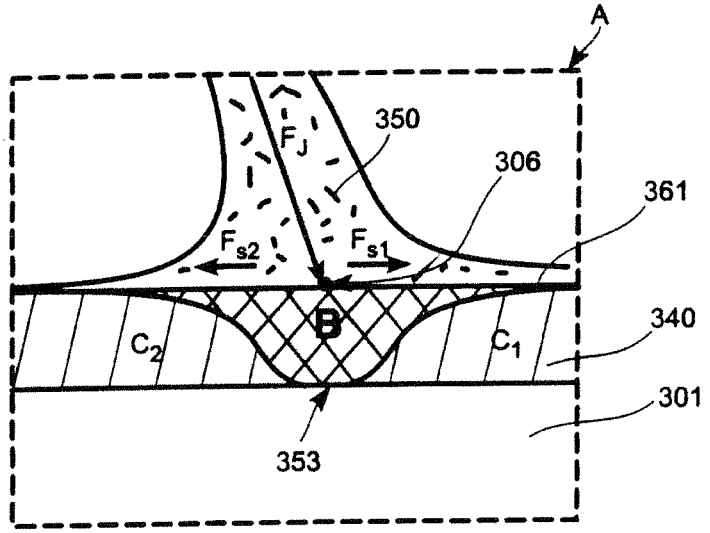


FIG. 3C

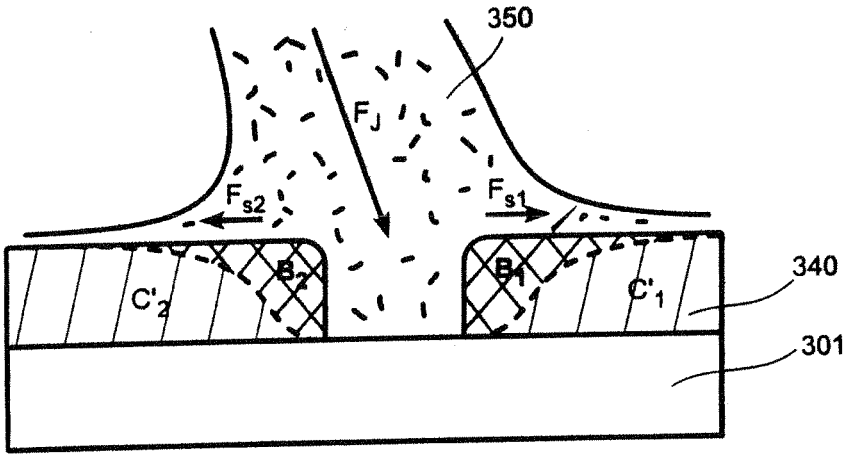

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F_J
F_{s2}
F_{s1}
B_2
B_1
C'_2
C'_1
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FIG. 3D

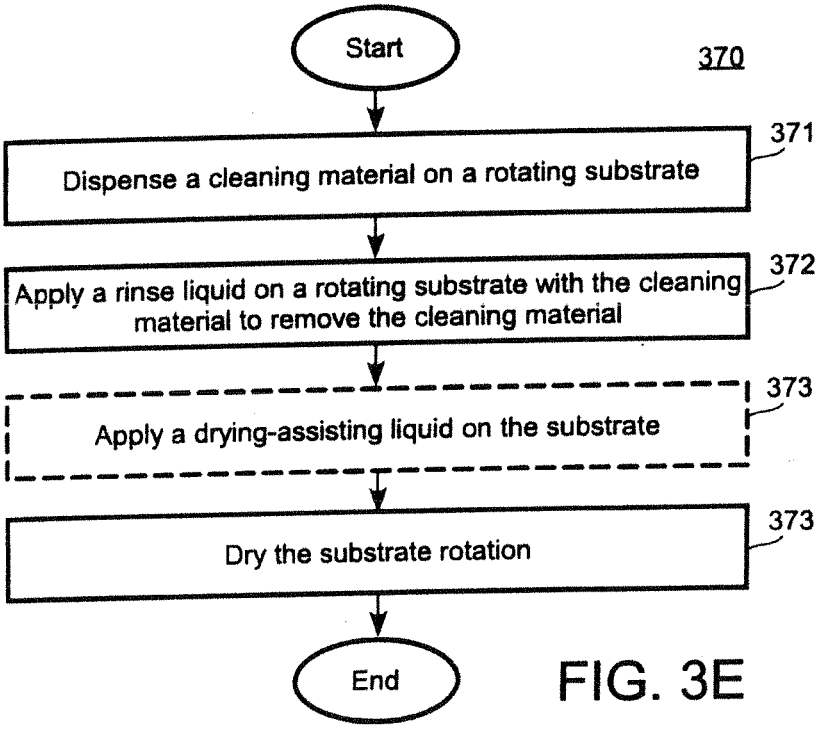

Start
370
Dispense a cleaning material on a rotating substrate
371
Apply a rinse liquid on a rotating substrate with the cleaning material to remove the cleaning material
372
Apply a drying-assisting liquid on the substrate
373
Dry the substrate rotation
373
End

FIG. 3E

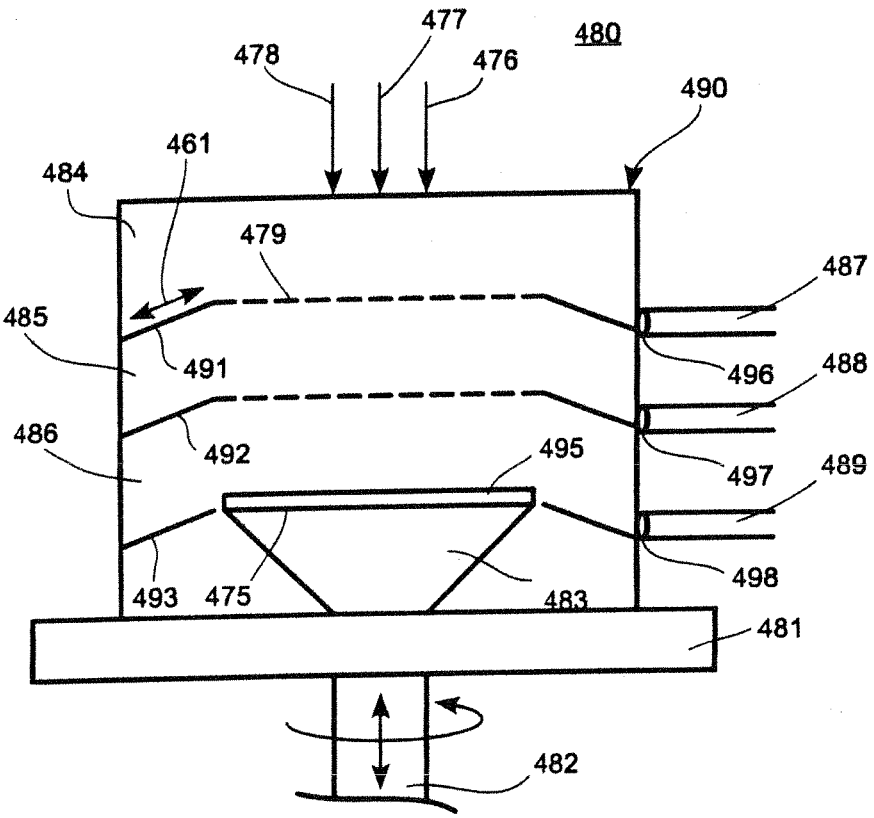

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FIG. 4

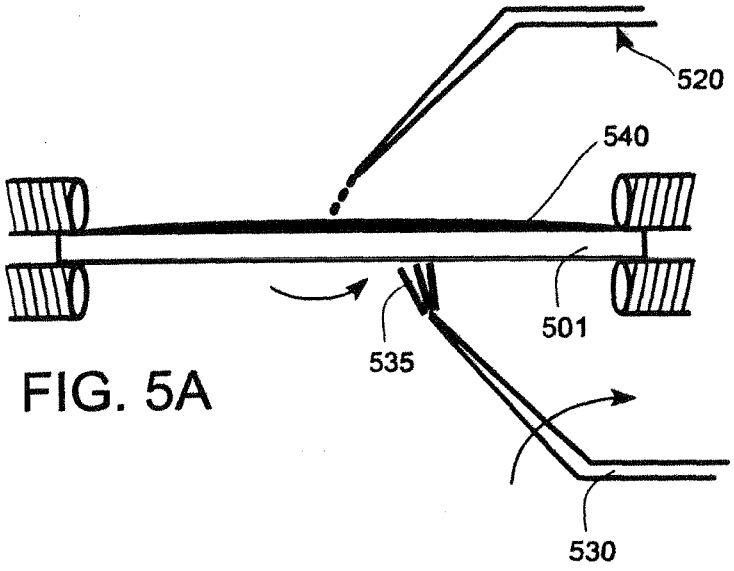

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FIG. 5A

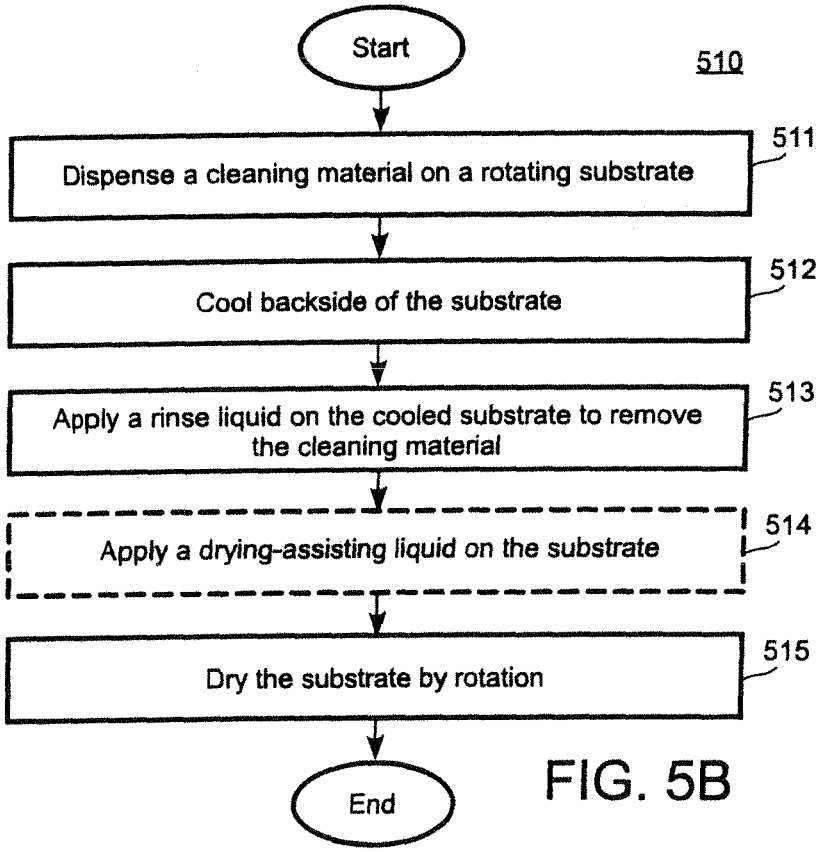

Start
510
Dispense a cleaning material on a rotating substrate
511
Cool backside of the substrate
512
Apply a rinse liquid on the cooled substrate to remove the cleaning material
513
Apply a drying-assisting liquid on the substrate
514
Dry the substrate by rotation
515
End

FIG. 5B

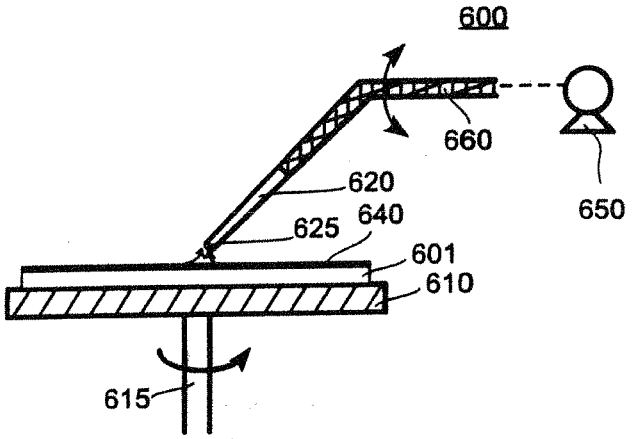


FIG. 6A

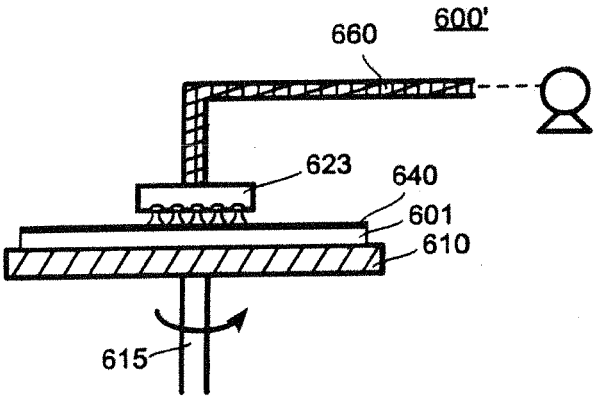


FIG. 6B

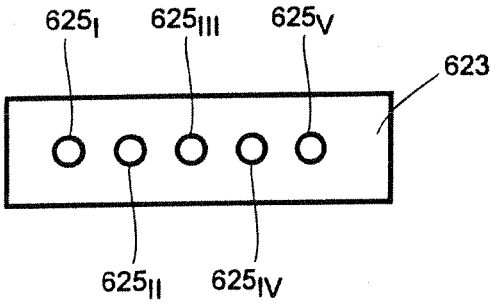


FIG. 6C

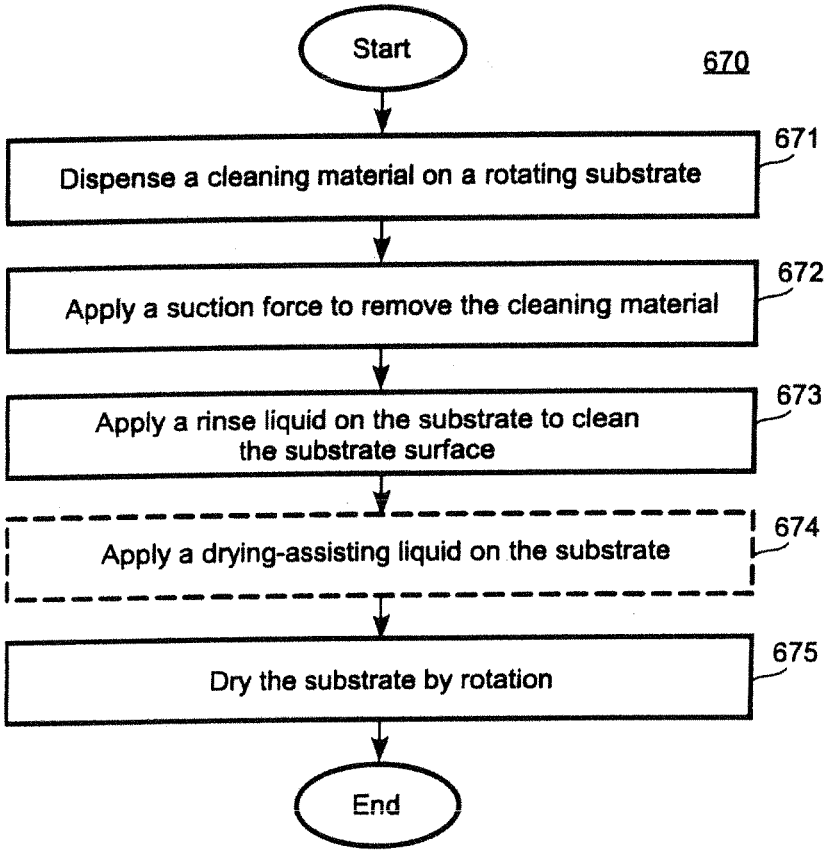

Start
670
Dispense a cleaning material on a rotating substrate
671
Apply a suction force to remove the cleaning material
672
Apply a rinse liquid on the substrate to clean the substrate surface
673
Apply a drying-assisting liquid on the substrate
674
Dry the substrate by rotation
675
End

FIG. 6D

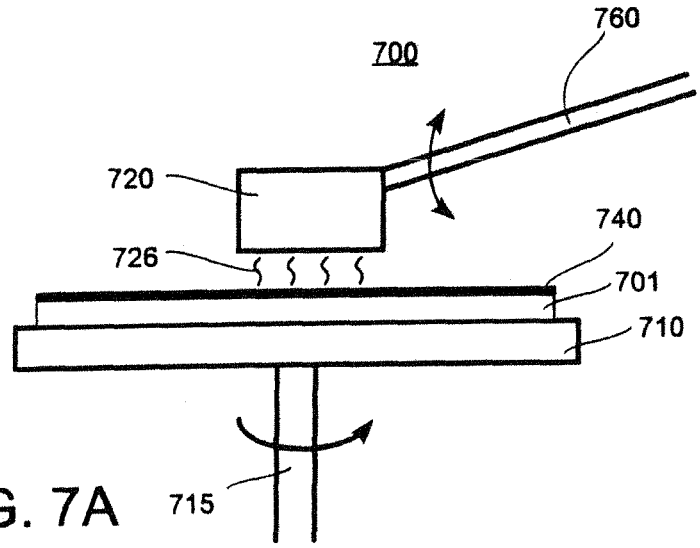


FIG. 7A

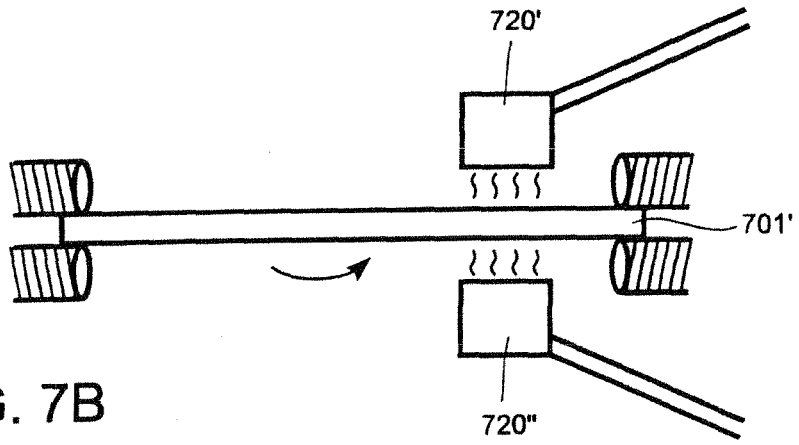


FIG. 7B

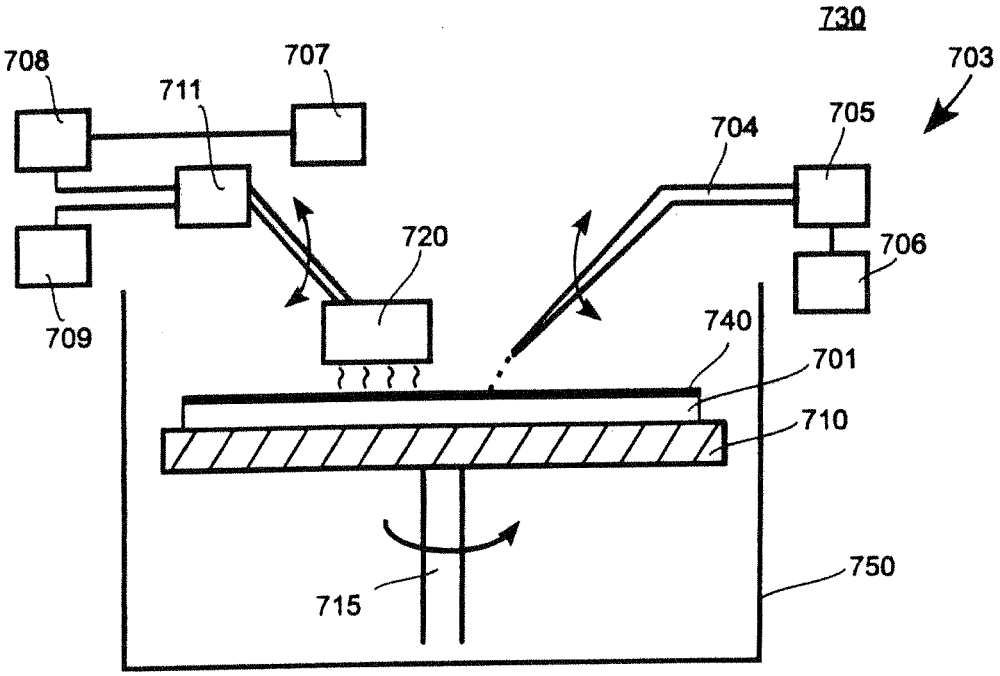


FIG. 7C

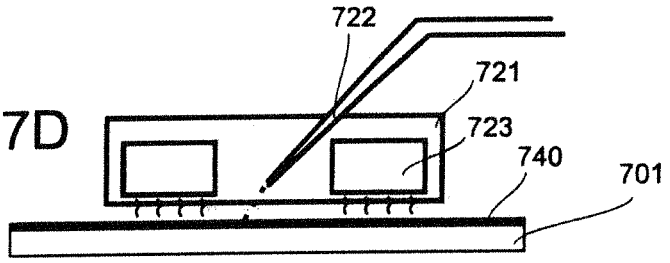


FIG. 7D

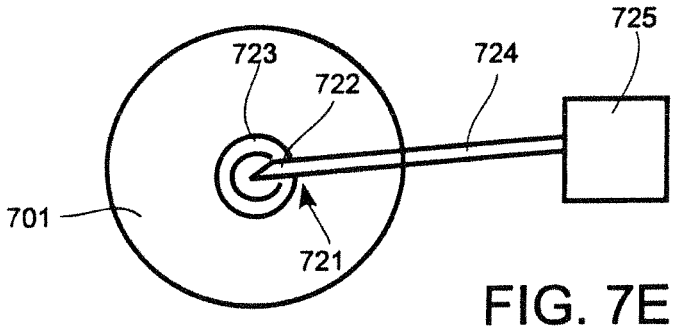


FIG. 7E

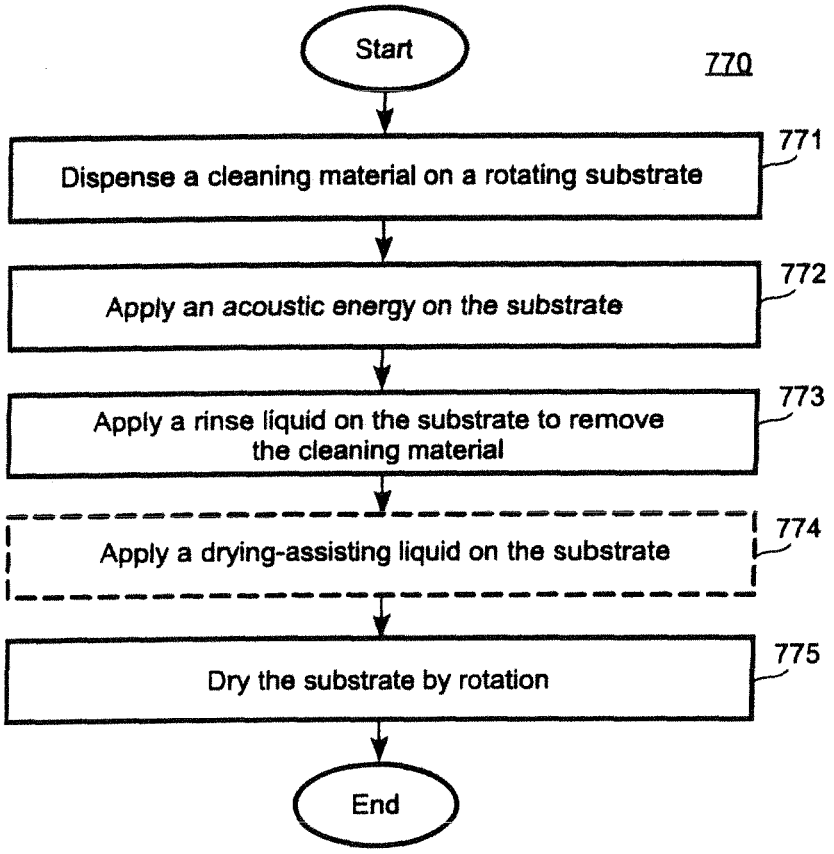

Start
770
Dispense a cleaning material on a rotating substrate
771
Apply an acoustic energy on the substrate
772
Apply a rinse liquid on the substrate to remove the cleaning material
773
Apply a drying-assisting liquid on the substrate
774
Dry the substrate by rotation
775
End

FIG. 7F

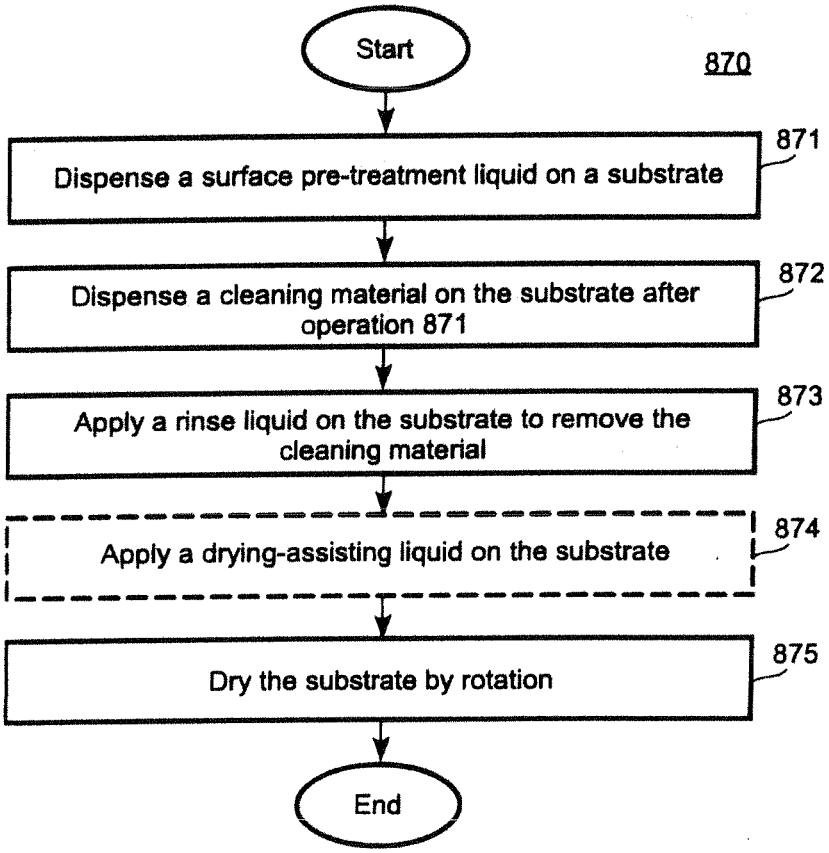

Start
870
Dispense a surface pre-treatment liquid on a substrate
871
Dispense a cleaning material on the substrate after operation 871
872
Apply a rinse liquid on the substrate to remove the cleaning material
873
Apply a drying-assisting liquid on the substrate
874
Dry the substrate by rotation
875
End

FIG. 8

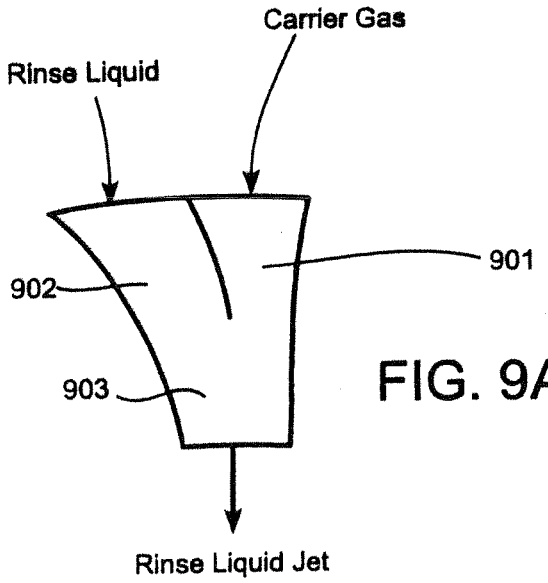

Carrier Gas
Rinse Liquid
901
902
903
Rinse Liquid Jet

FIG. 9A

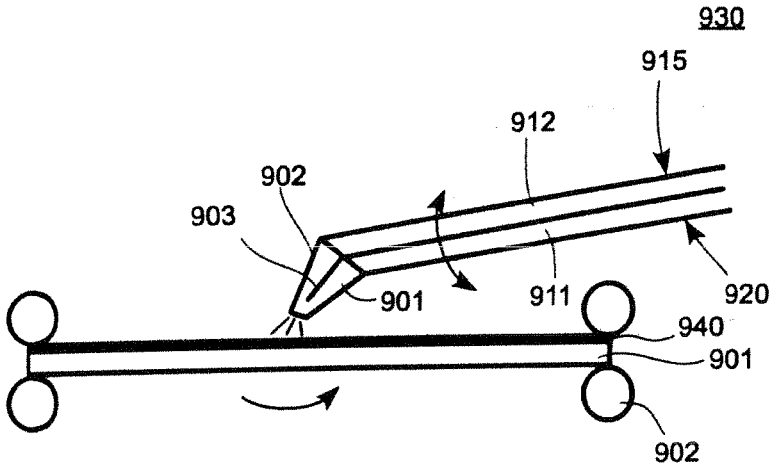

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FIG. 9B

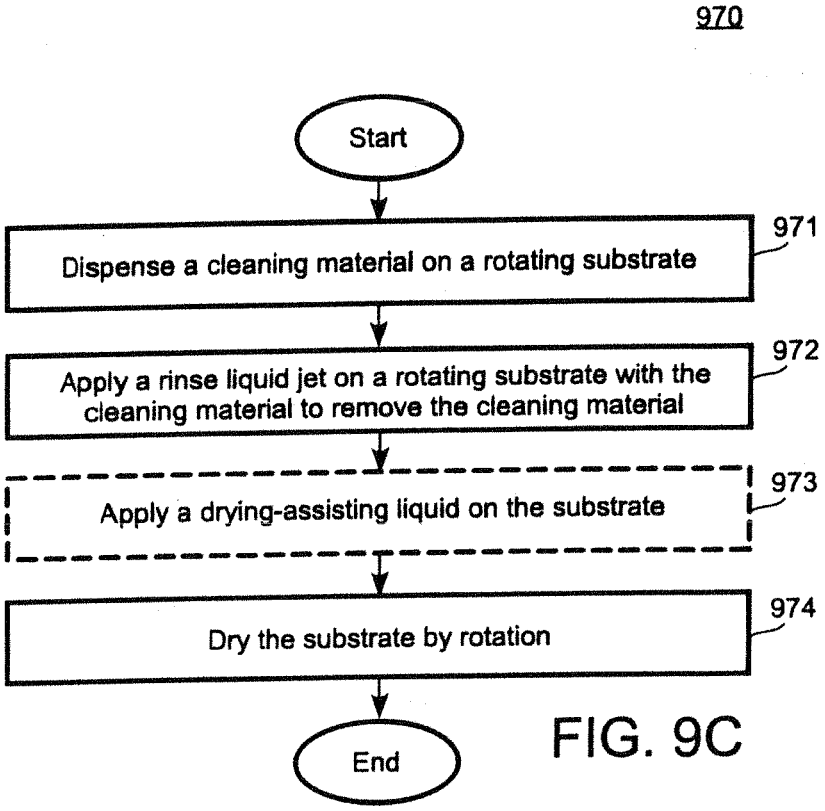

970
Start
Dispense a cleaning material on a rotating substrate
971
Apply a rinse liquid jet on a rotating substrate with the cleaning material to remove the cleaning material
972
Apply a drying-assisting liquid on the substrate
973
Dry the substrate by rotation
974
End

FIG. 9C

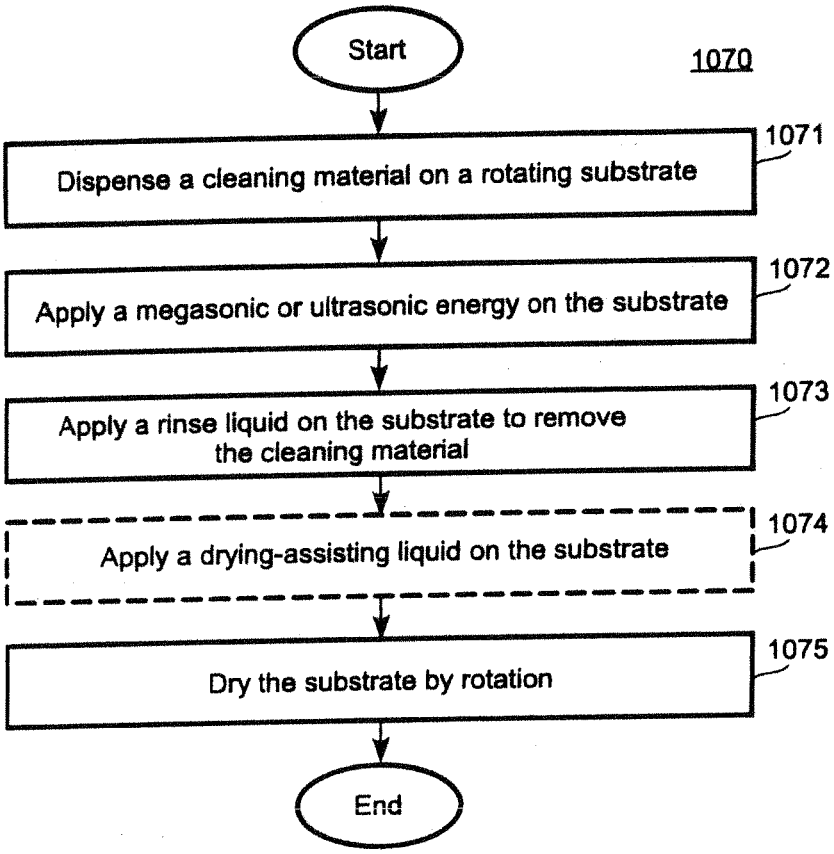

Start
1070
Dispense a cleaning material on a rotating substrate
1071
Apply a megasonic or ultrasonic energy on the substrate
1072
Apply a rinse liquid on the substrate to remove the cleaning material
1073
Apply a drying-assisting liquid on the substrate
1074
Dry the substrate by rotation
1075
End

FIG. 10

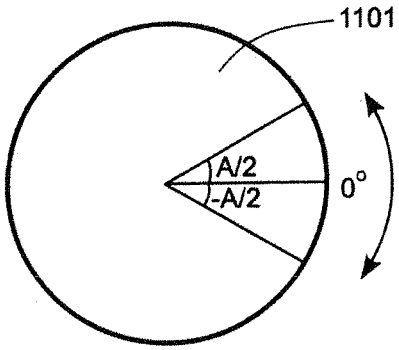


FIG. 11A

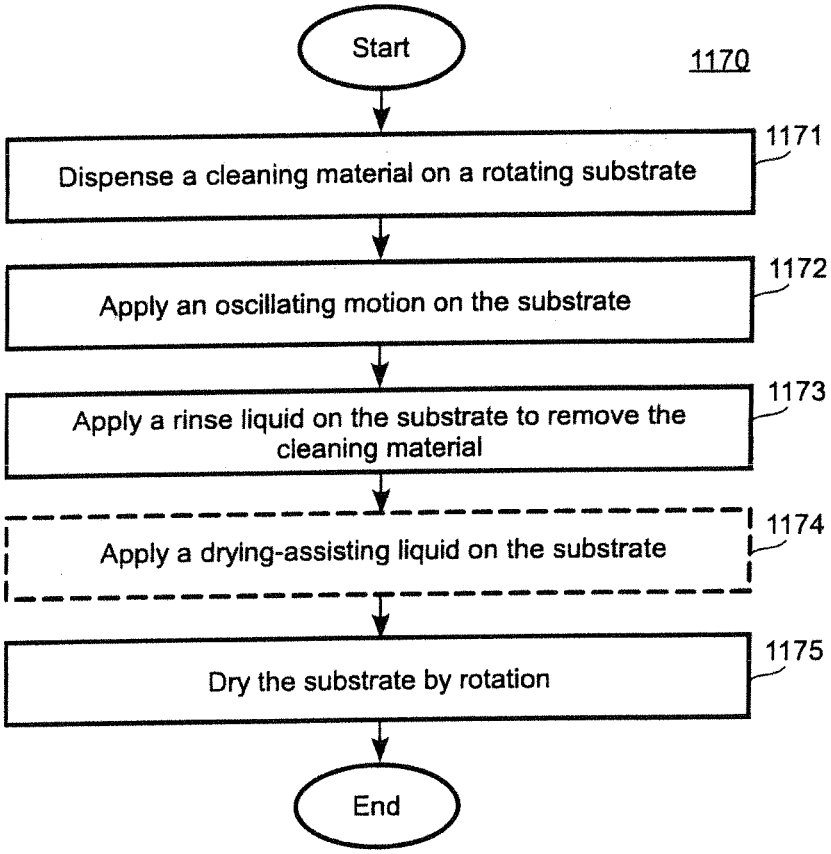


FIG. 11B