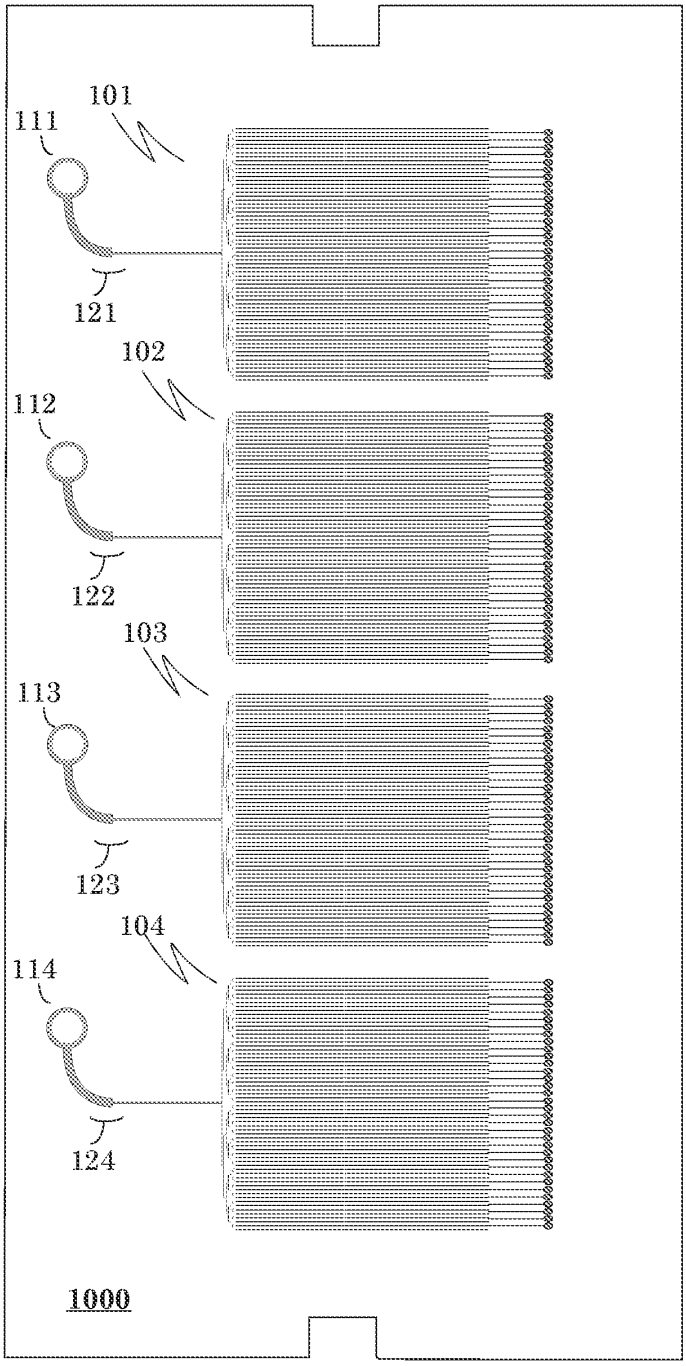


FIG. 1

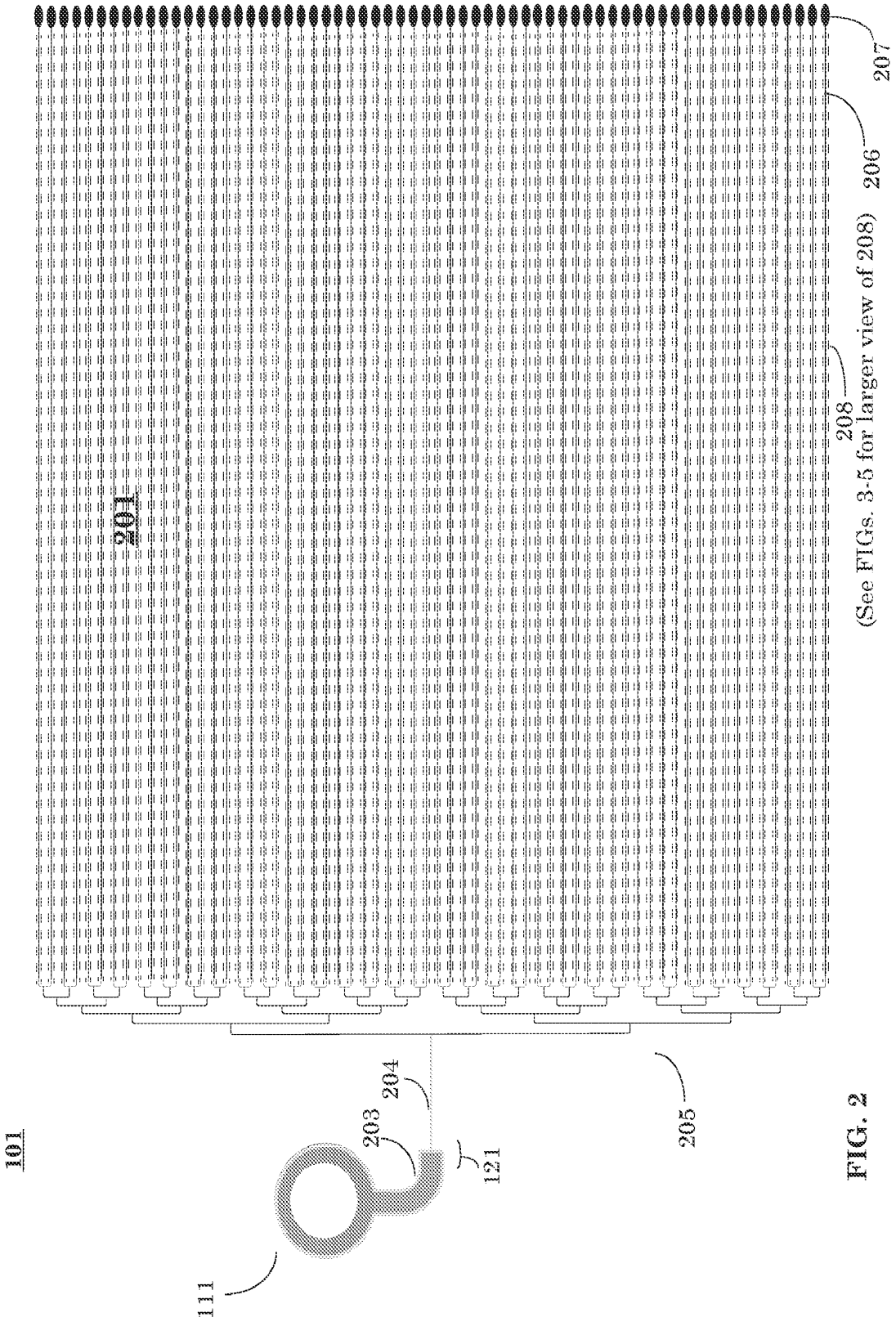

101
201
207
206
208
(See FIGs. 3-5 for larger view of 208)
205
204
203
121
111

FIG. 2

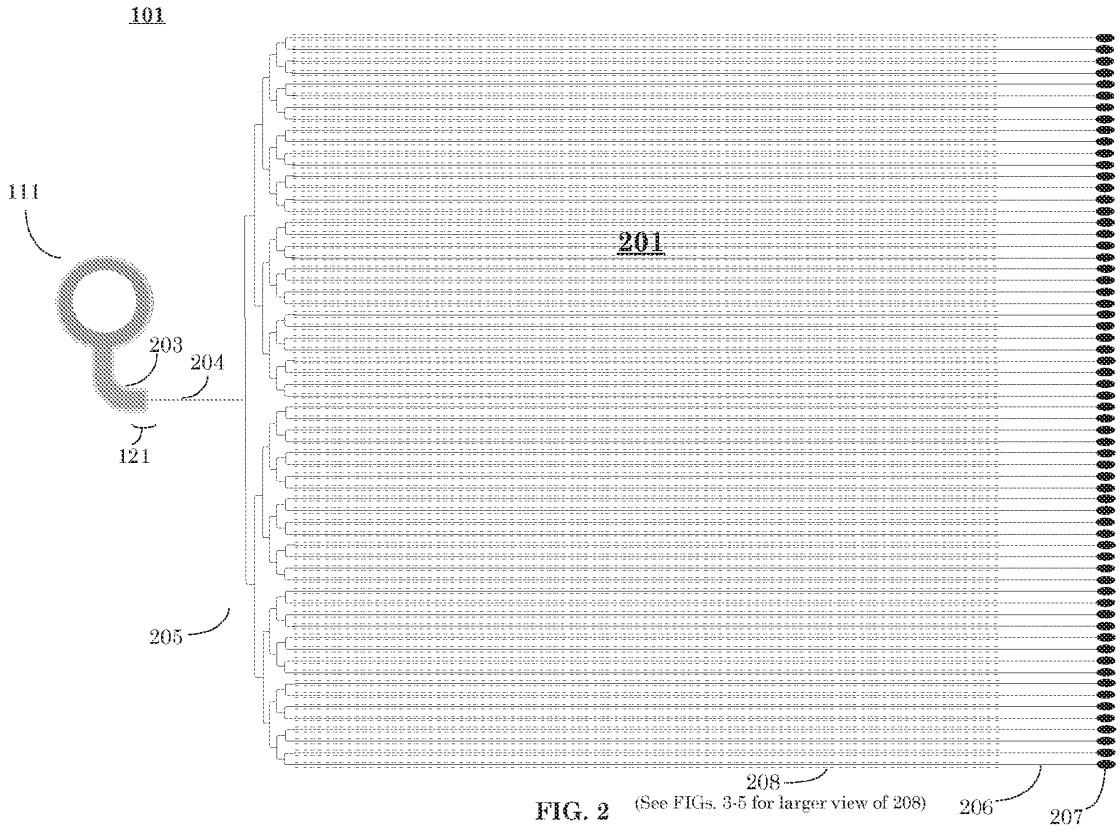


FIG. 2 (See FIGs. 3-5 for larger view of 208)

Bottom, perspective view

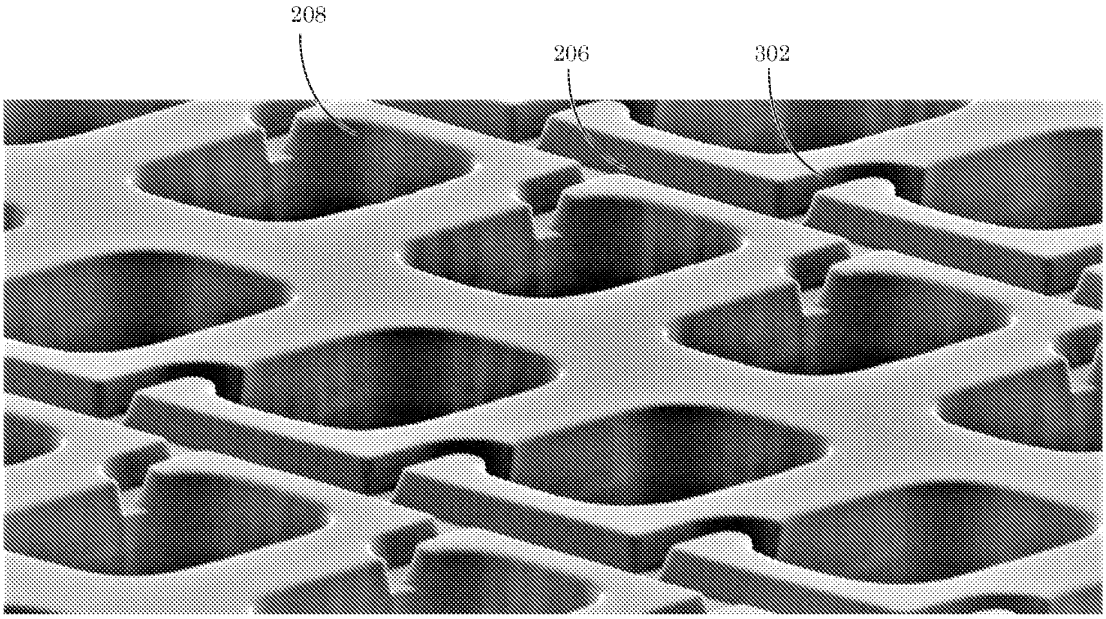
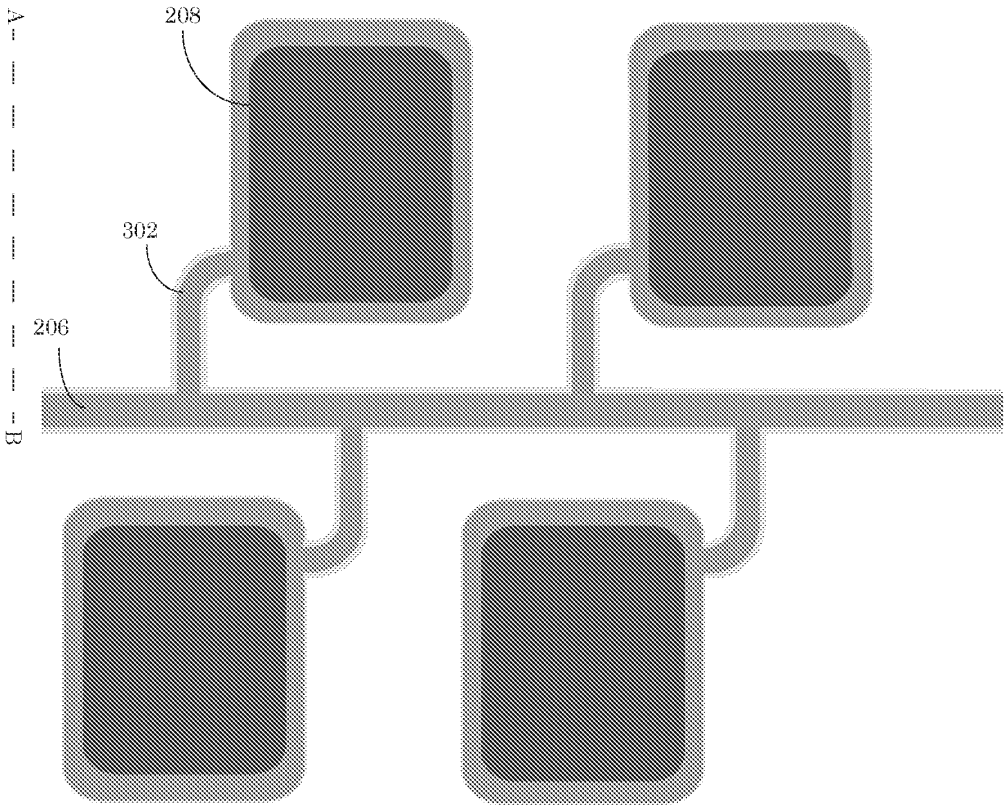
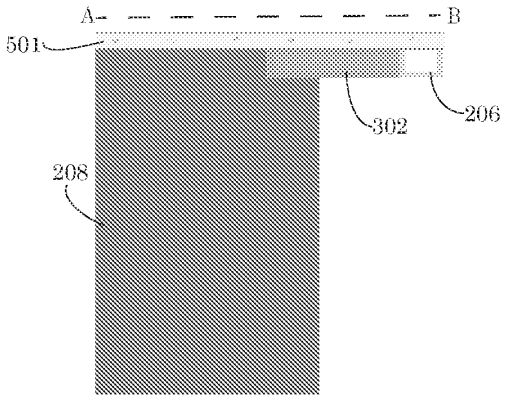


FIG. 3



Bottom view

FIG. 4



Side elevation view

FIG. 5

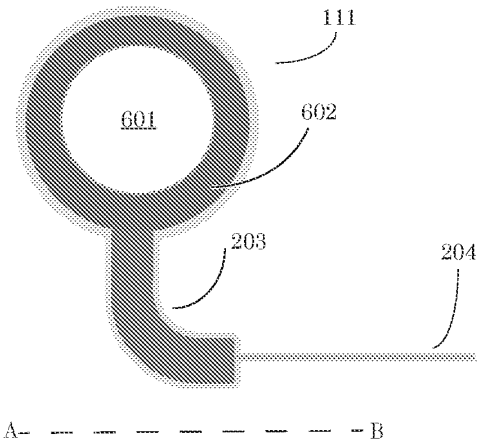
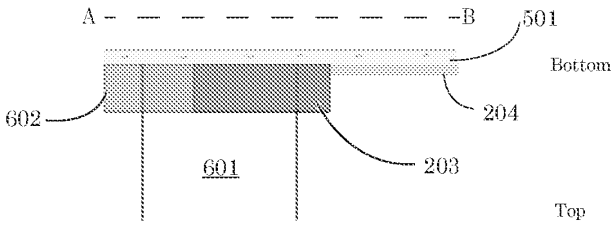


FIG. 6A



Side elevation view

FIG. 6B

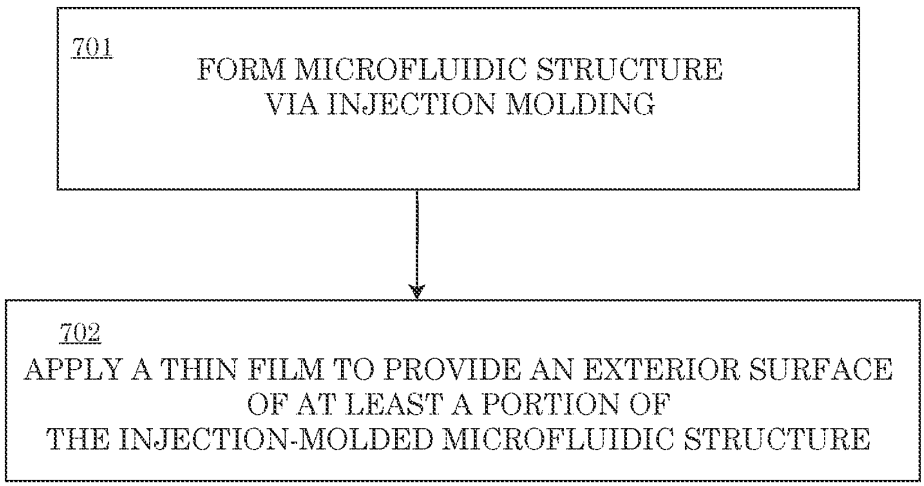

700
701
FORM MICROFLUIDIC STRUCTURE VIA INJECTION MOLDING
702
APPLY A THIN FILM TO PROVIDE AN EXTERIOR SURFACE OF AT LEAST A PORTION OF THE INJECTION-MOLDED MICROFLUIDIC STRUCTURE

FIG. 7

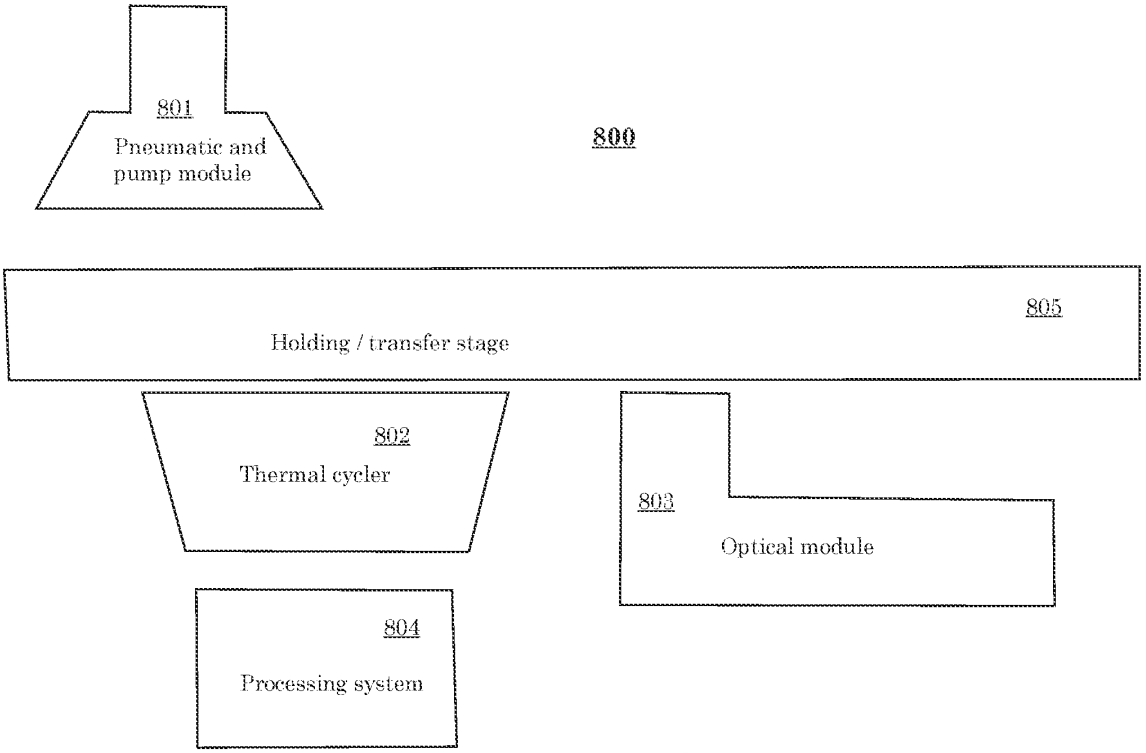

801
Pneumatic and pump module
800
805
Holding / transfer stage
802
Thermal cycler
803
Optical module
804
Processing system

FIG. 8

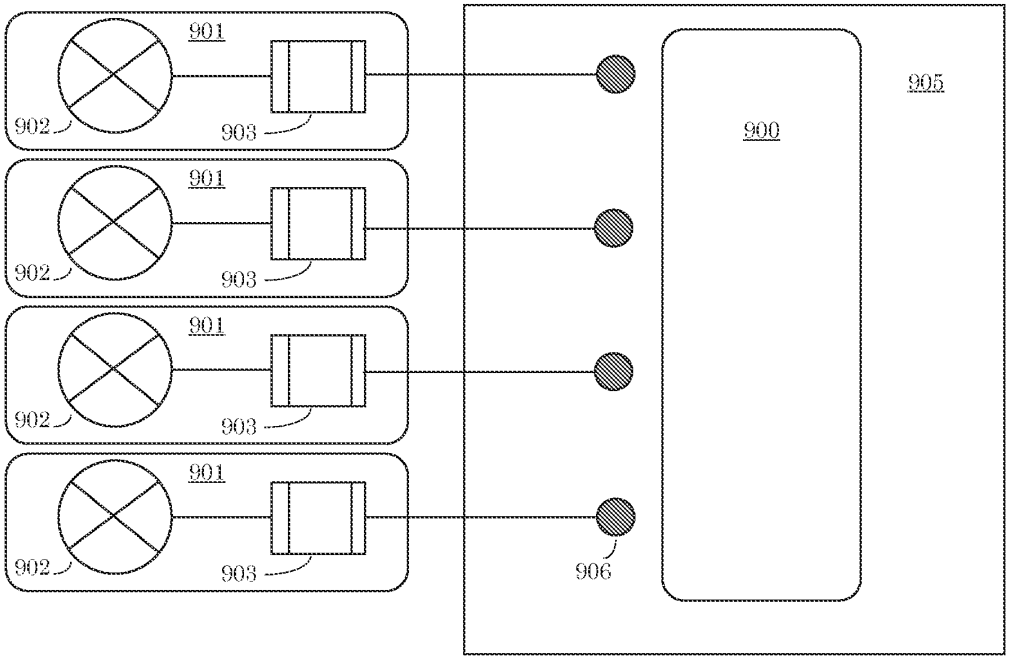


FIG. 9

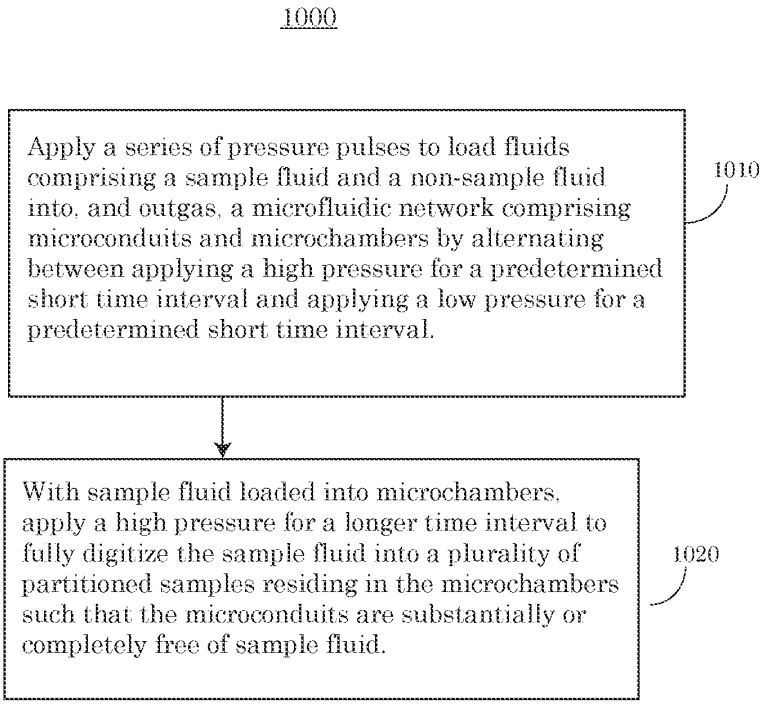

1000
Apply a series of pressure pulses to load fluids comprising a sample fluid and a non-sample fluid into, and outgas, a microfluidic network comprising microconduits and microchambers by alternating between applying a high pressure for a predetermined short time interval and applying a low pressure for a predetermined short time interval.
1010
With sample fluid loaded into microchambers, apply a high pressure for a longer time interval to fully digitize the sample fluid into a plurality of partitioned samples residing in the microchambers such that the microconduits are substantially or completely free of sample fluid.
1020

FIG. 10

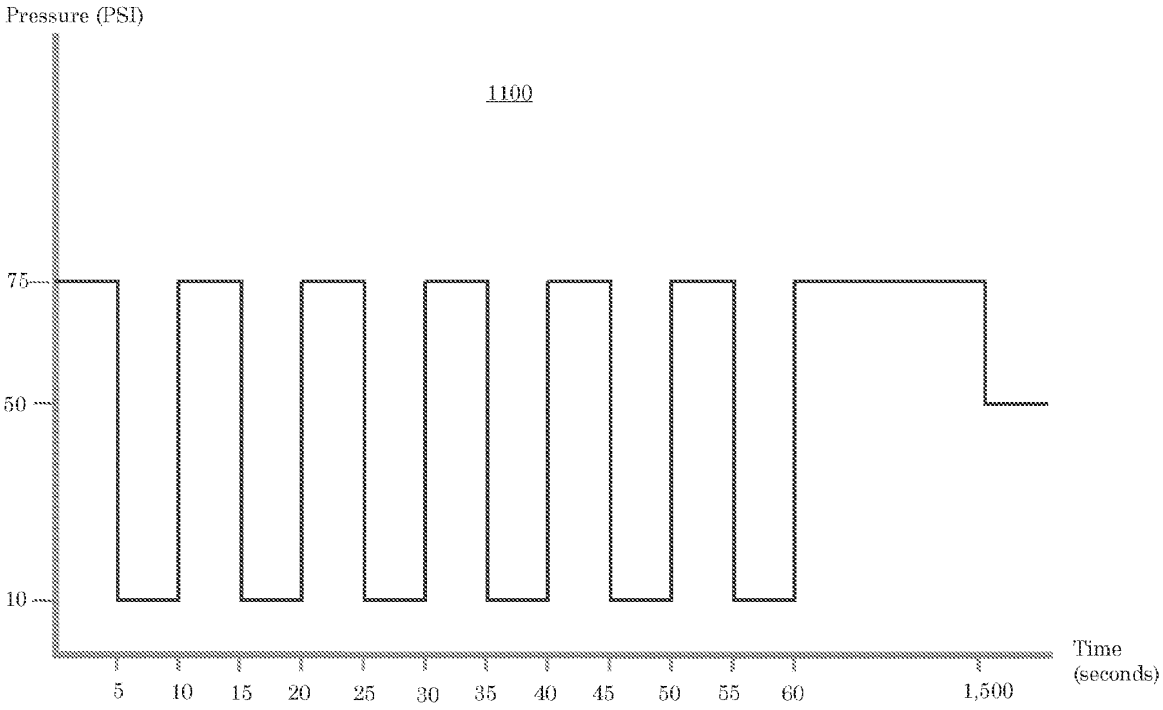
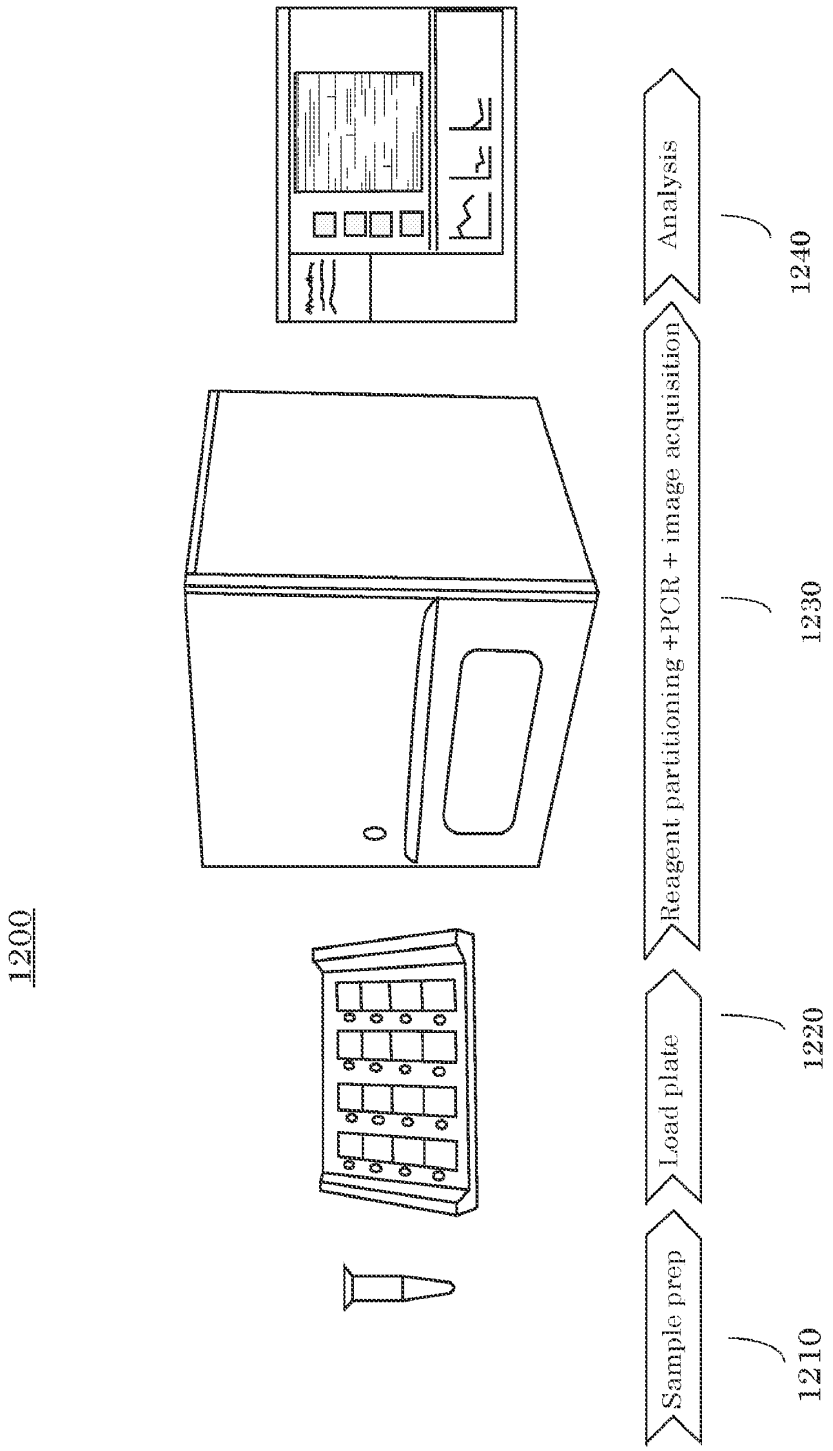

Pressure (PSI)
1100
75
50
10
5
10
15
20
25
30
35
40
45
50
55
60
1,500
Time
(seconds)

FIG. 11


1200
Sample prep
1210
Load plate
1220
Reagent partitioning +PCR + image acquisition
1230
Analysis
1240

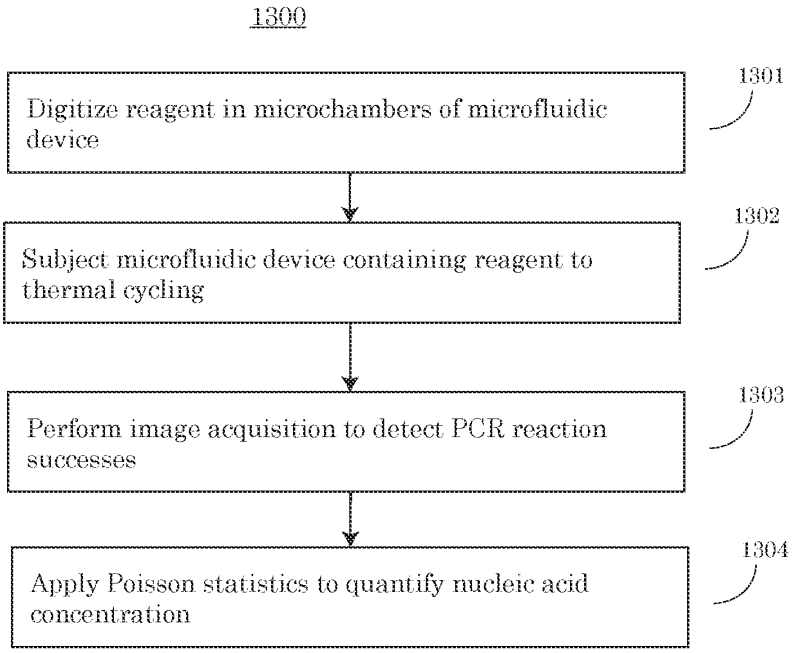

1300
Digitize reagent in microchambers of microfluidic device
1301
Subject microfluidic device containing reagent to thermal cycling
1302
Perform image acquisition to detect PCR reaction successes
1303
Apply Poisson statistics to quantify nucleic acid concentration
1304

FIG. 13