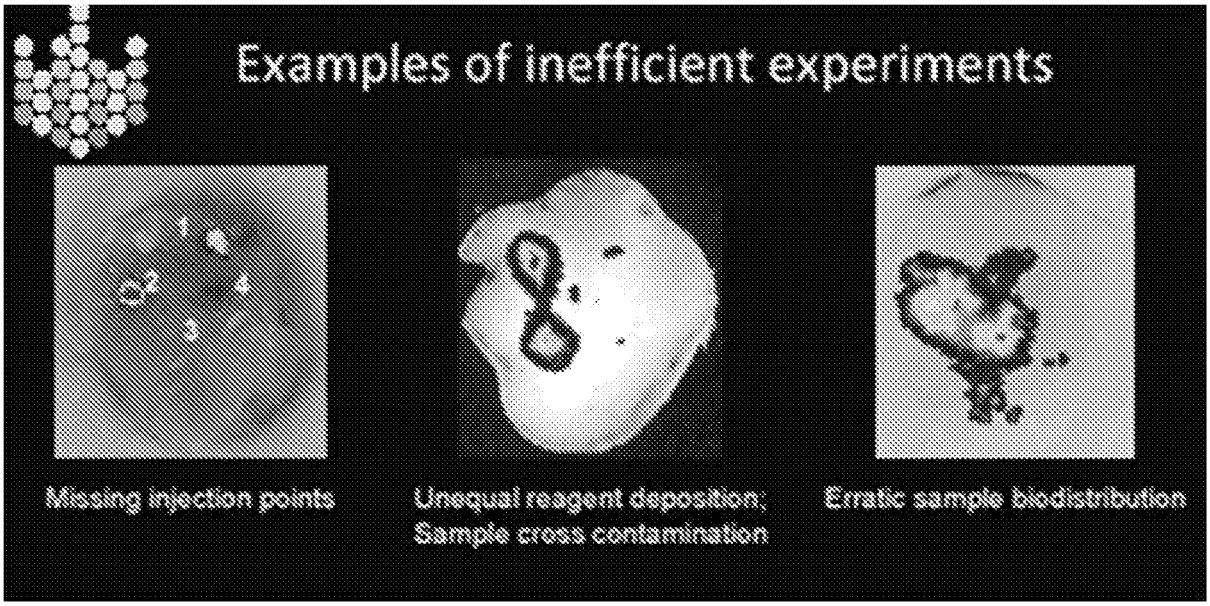
Figure 1


Examples of inefficient experiments
1
2
3
4
Missing injection points
Unequal reagent deposition;
Sample cross contamination
Erratic sample biodistribution

A B C

Figure 2

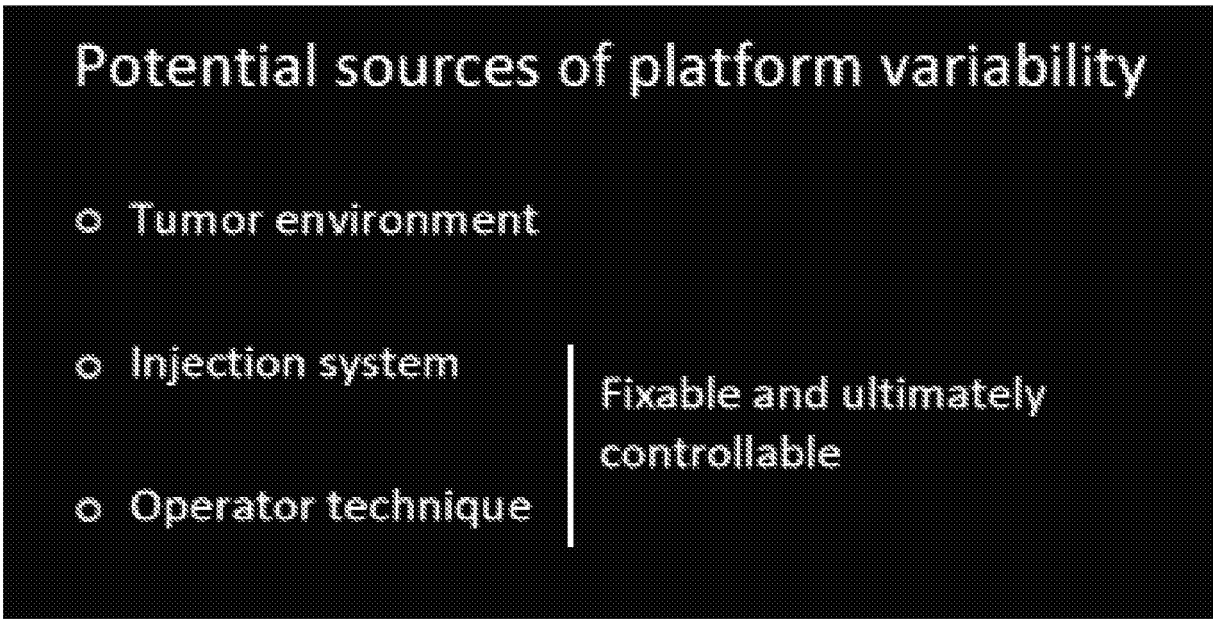

Potential sources of platform variability
Tumor environment
Injection system
Operator technique
Fixable and ultimately controllable

Figure 3

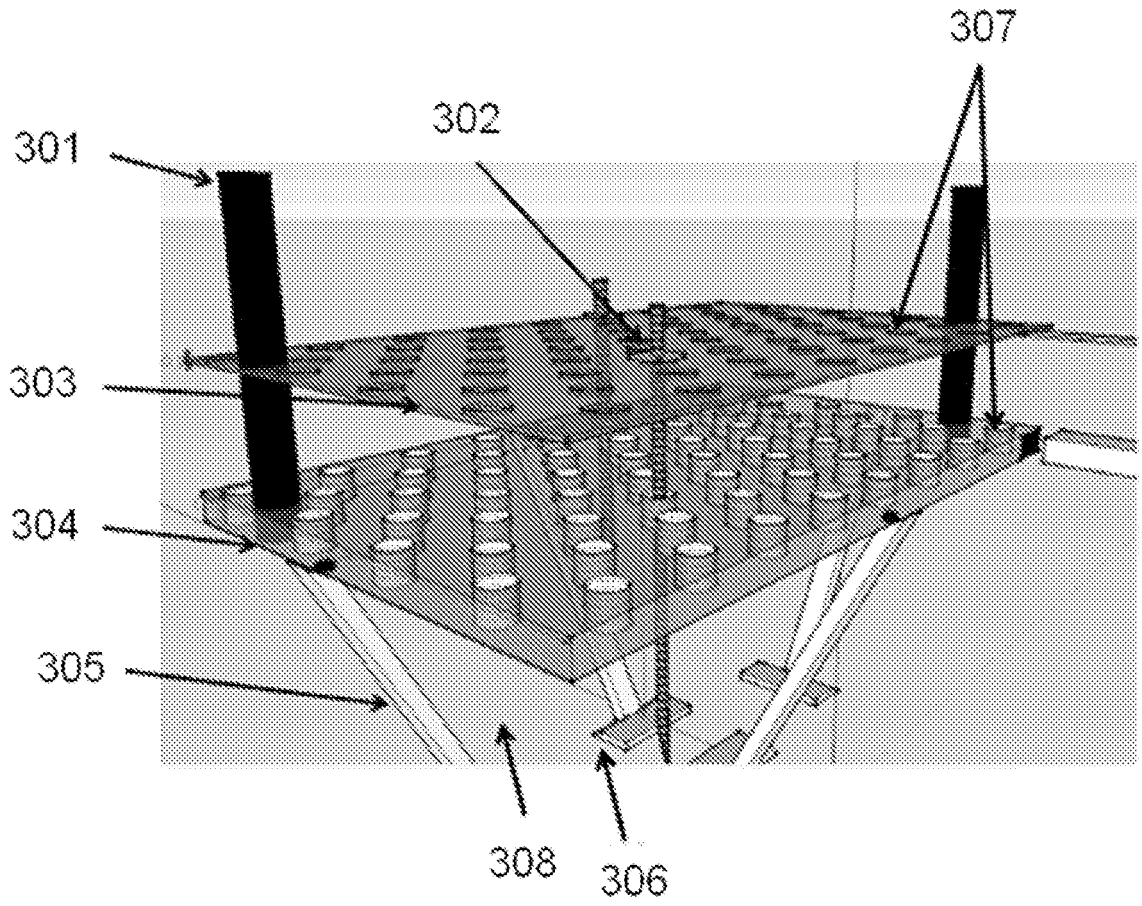


Figure 4

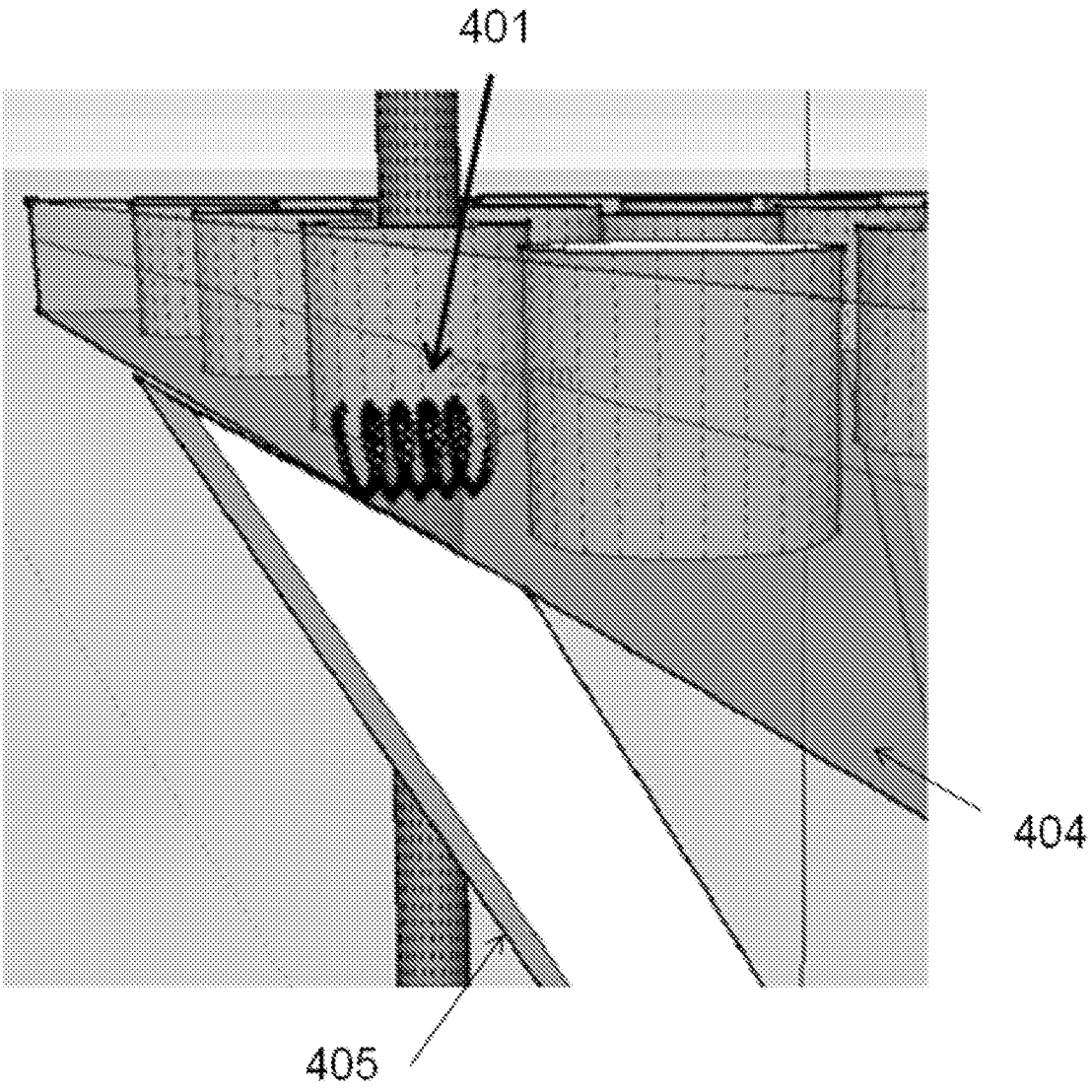


Figure 5

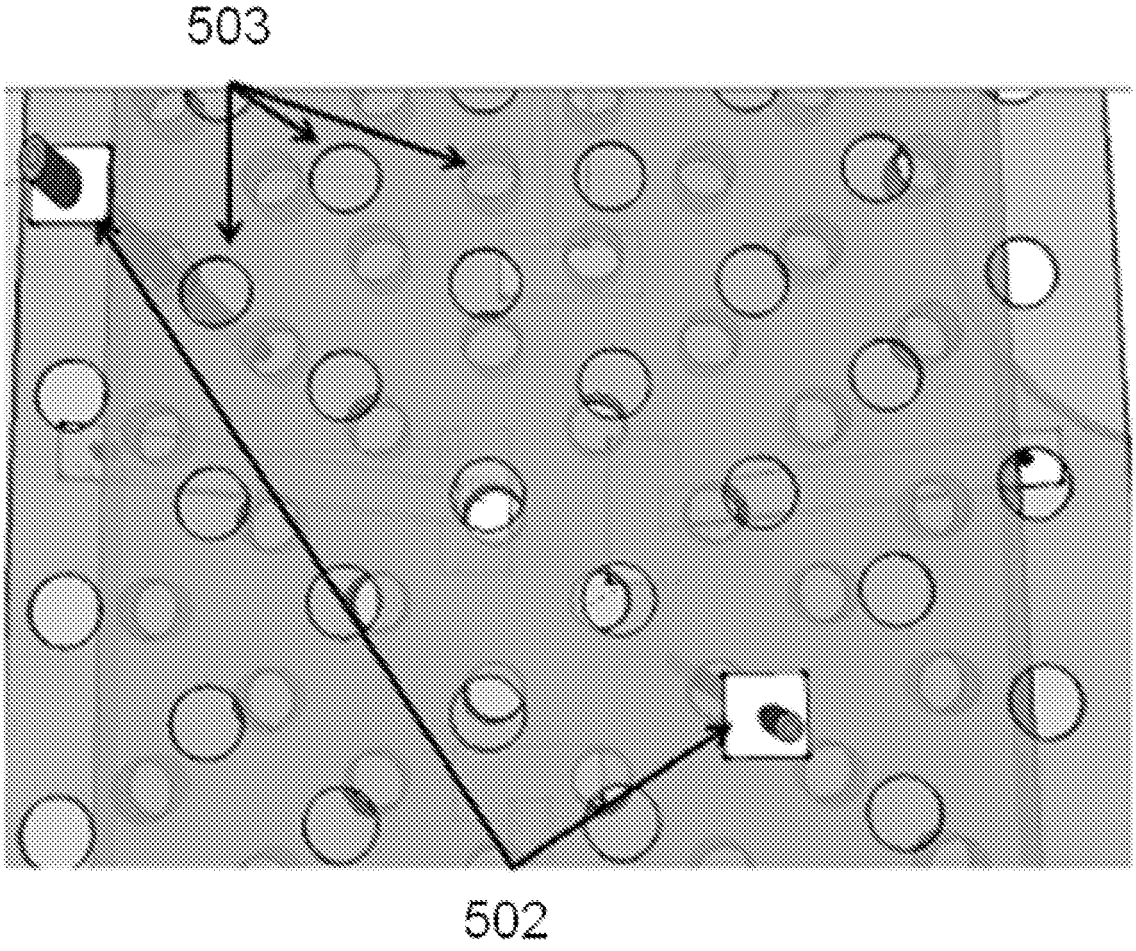


Figure 6

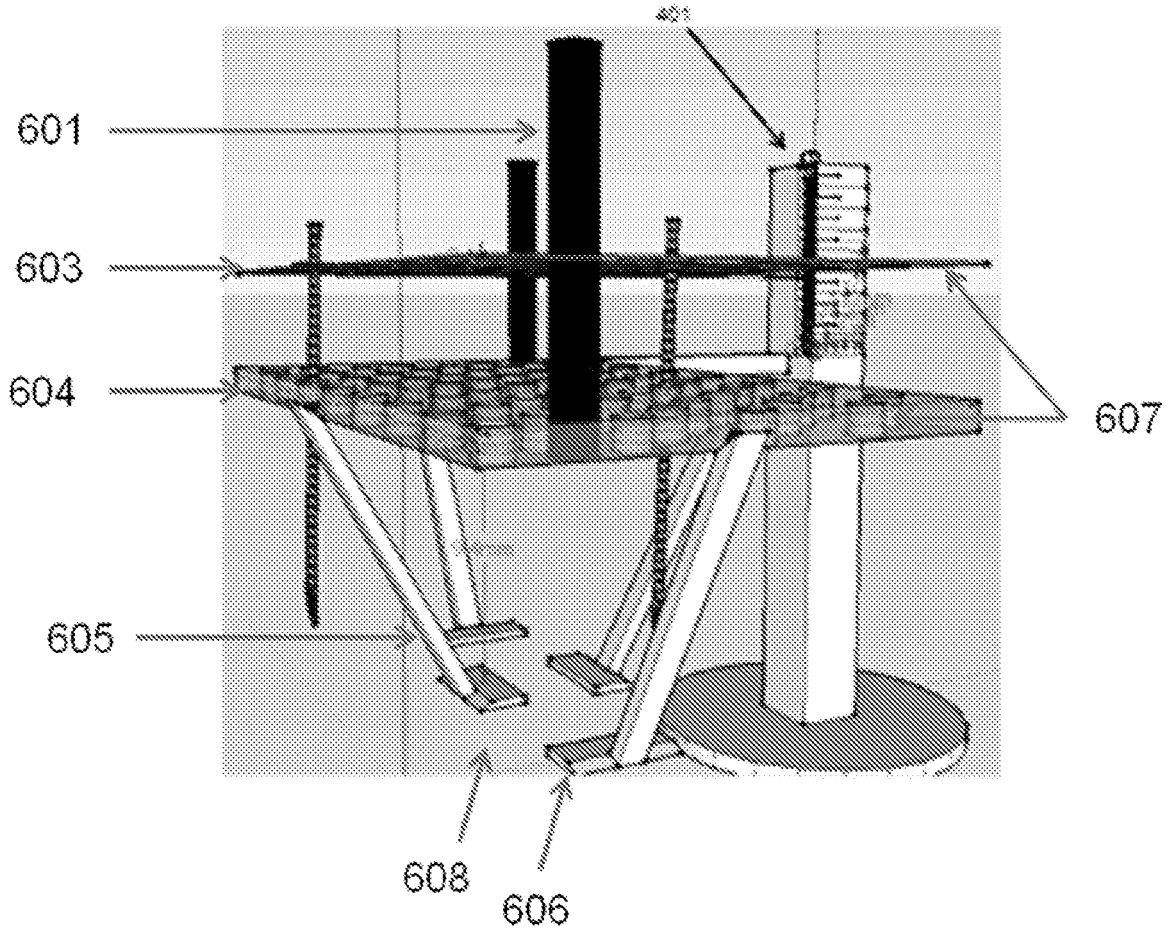


Figure 7

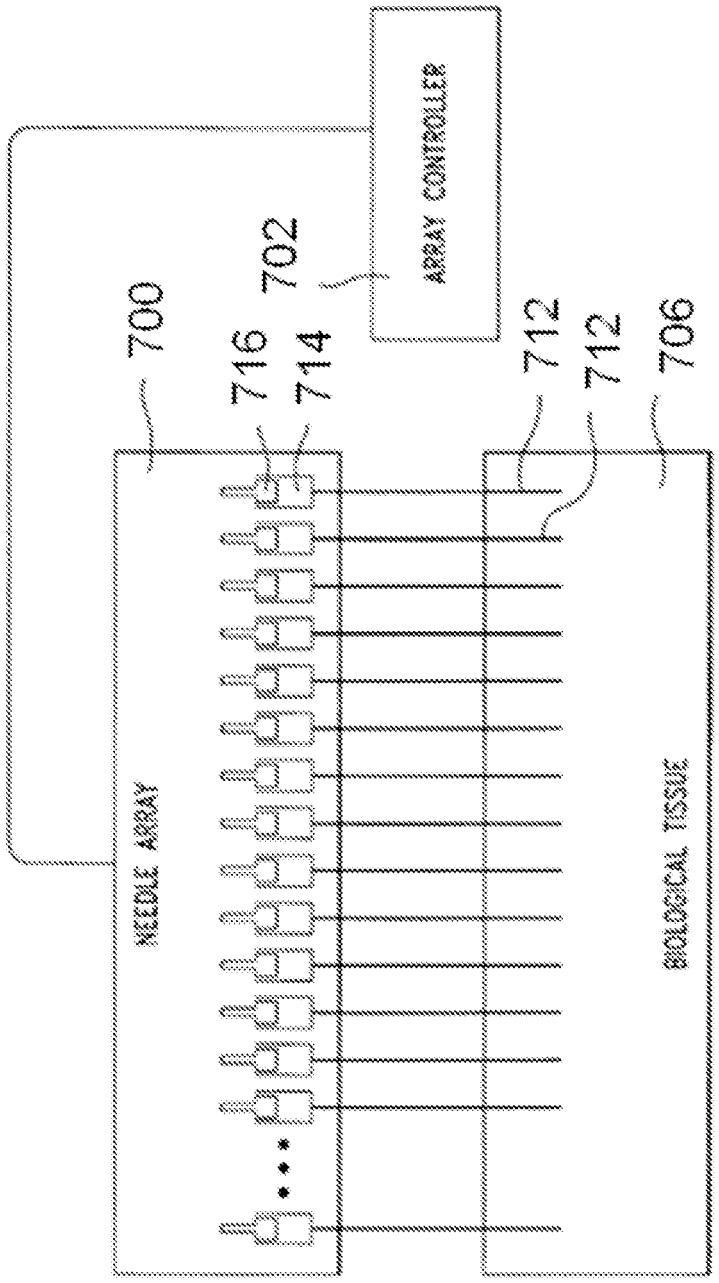

ARRAY CONTROLLER
702
700
716
714
712
712
706
NEEDLE ARRAY
BIOLOGICAL TISSUE

Figure 8

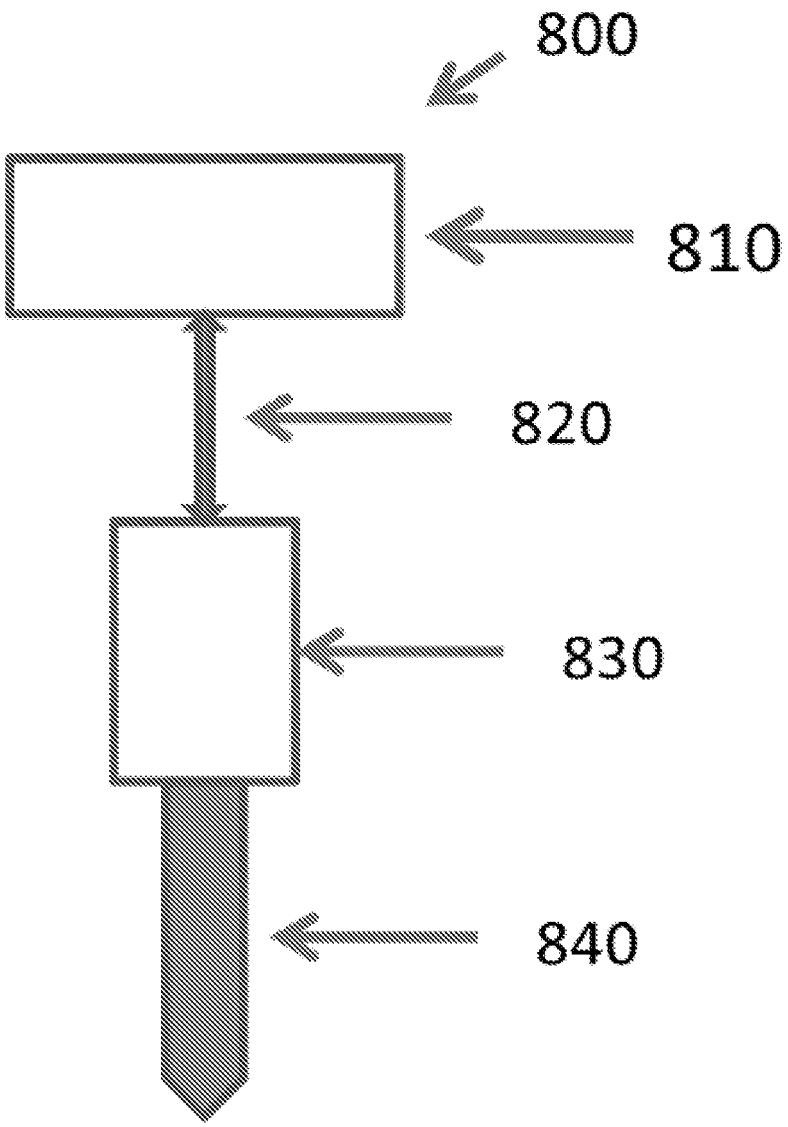


Figure 9

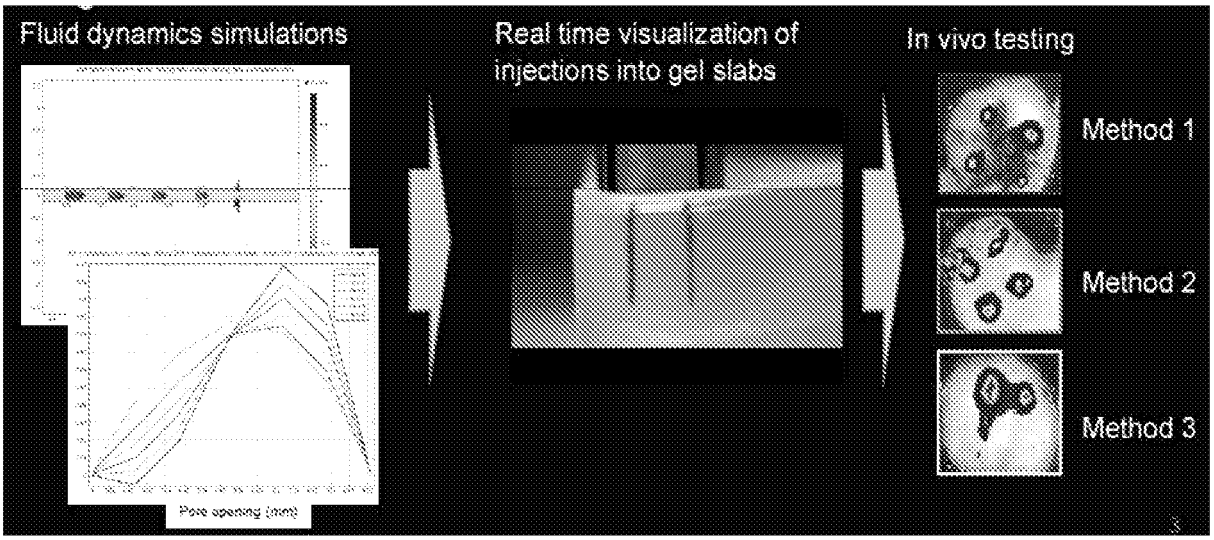

Fluid dynamics simulations
Real time visualization of injections into gel slabs
In vivo testing
Method 1
Method 2
Method 3

Figure 10

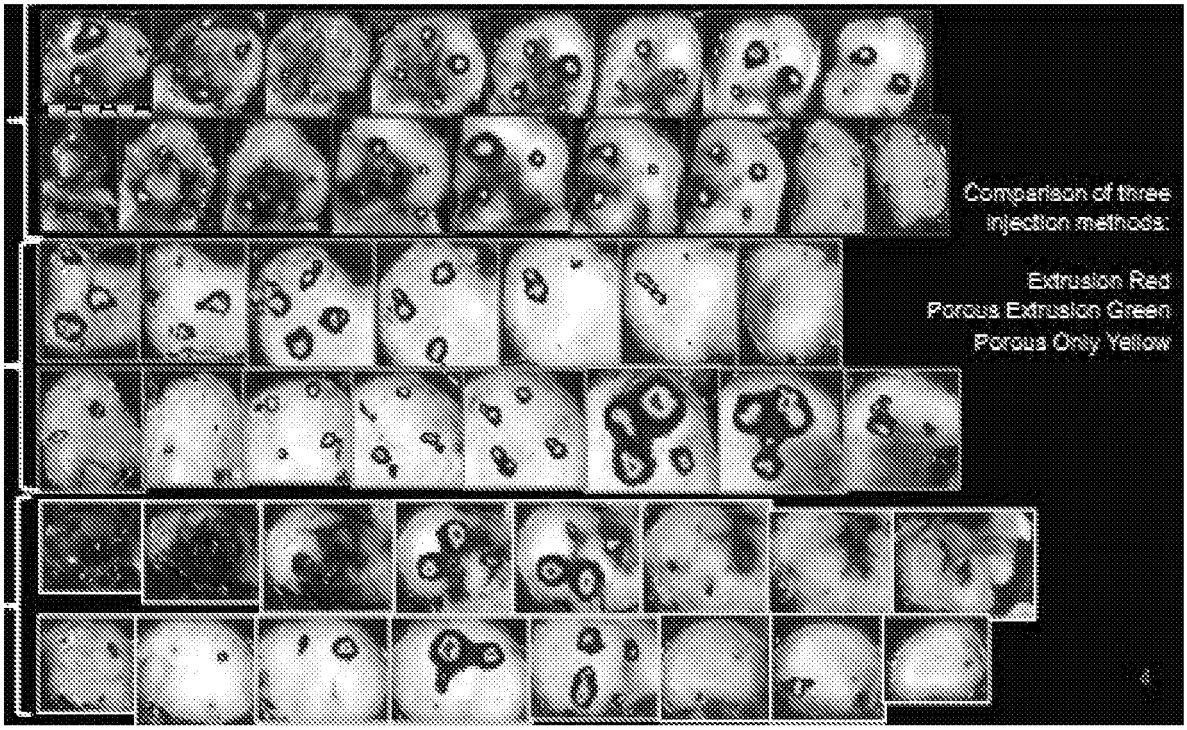

Comparison of three injection methods:
Extrusion Red
Porous Extrusion Green
Porous Only Yellow

Figure 11

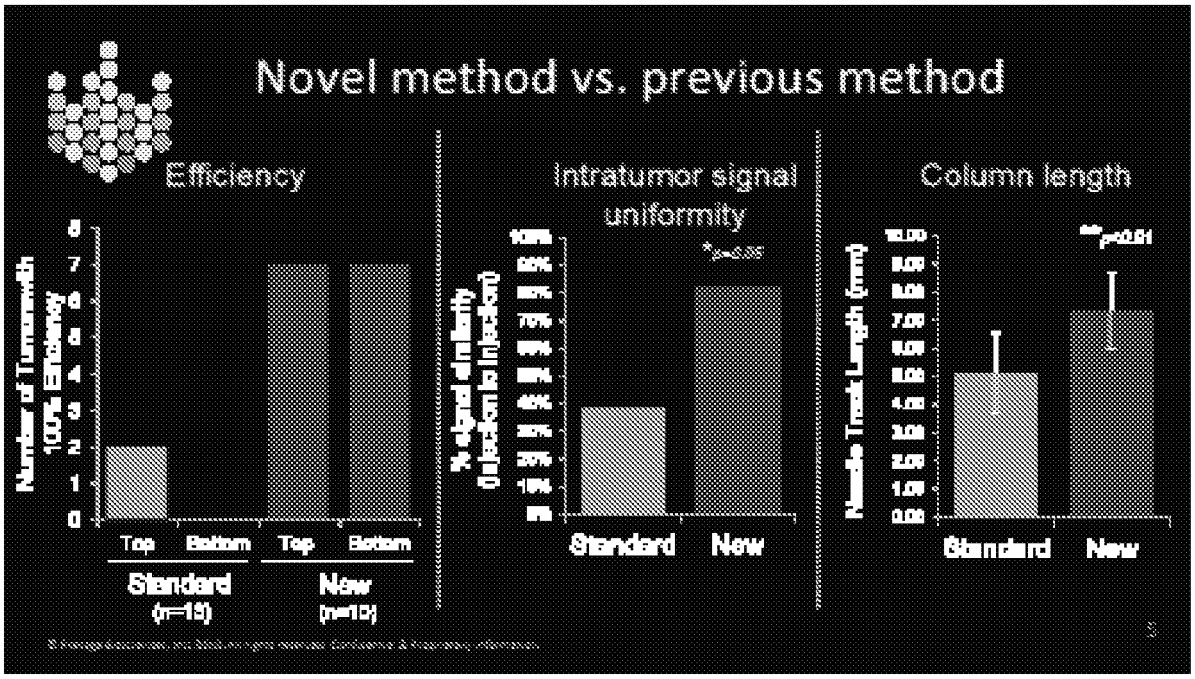

Novel method vs. previous method
Efficiency
Intratumor signal uniformity
Column length
Top
Bottom
Top
Bottom
Standard
New
Standard
New
Standard
New

Figure 12

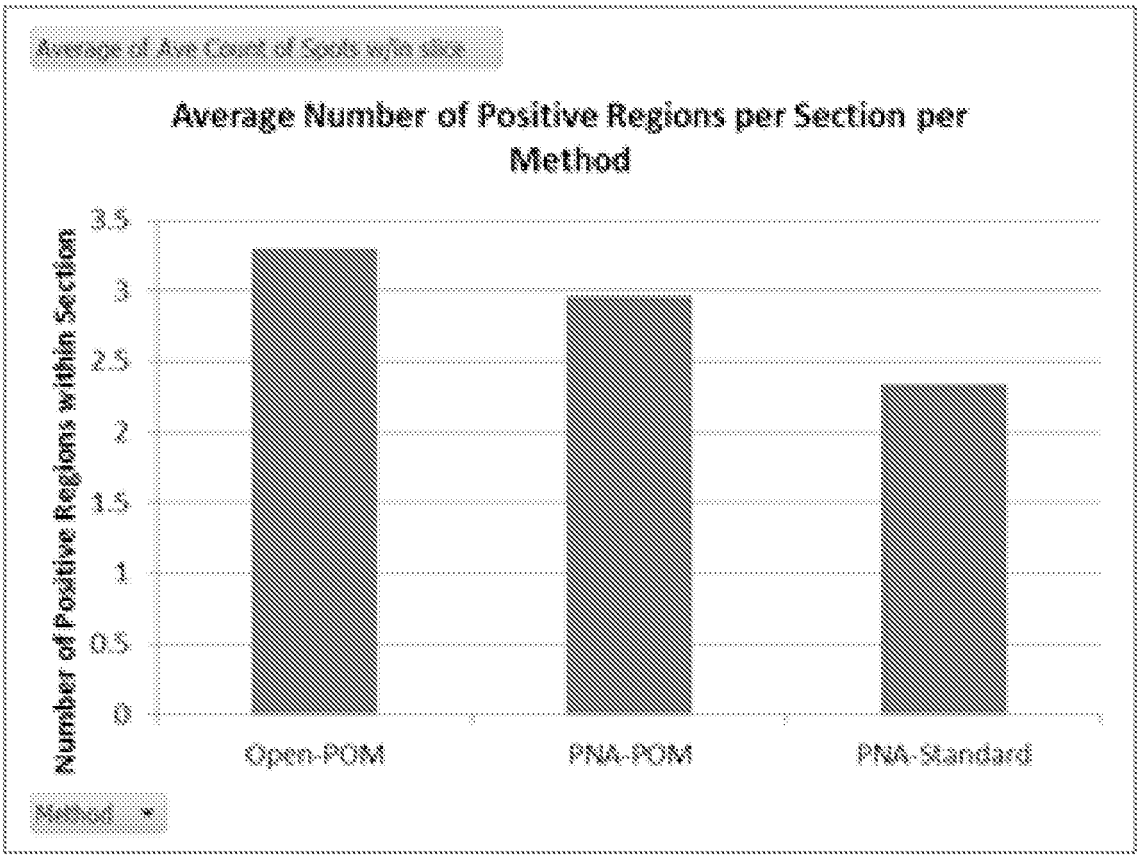

Average Number of Positive Regions per Section per Method
Number of Positive Regions within Section
3.5
3
2.5
2
1.5
1
0.5
0
Open-POM
PNA-POM
PNA-Standard

Figure 13

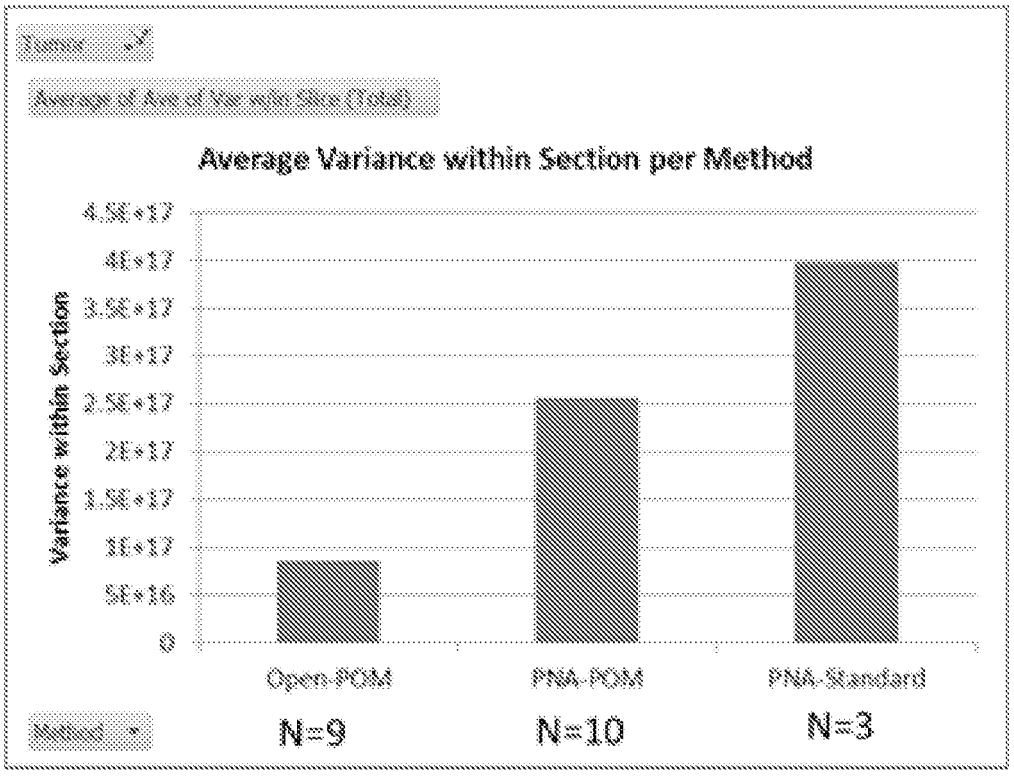

Average Variance within Section per Method
Variance within Section
4.5E+17
4E+17
3.5E+17
3E+17
2.5E+17
2E+17
1.5E+17
1E+17
5E+16
0
Open-POM
PNA-POM
PNA-Standard
N=9
N=10
N=3

Figure 14

Figure 14A

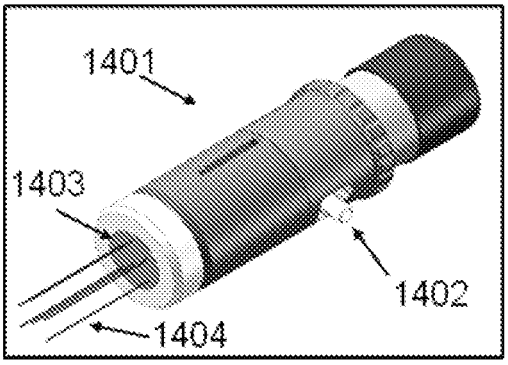


Figure 14B

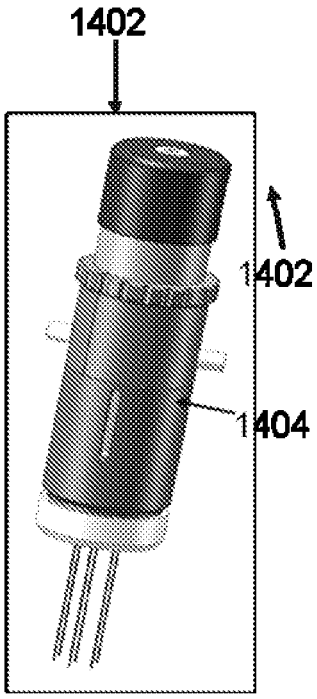


Figure 14

Figure 14C

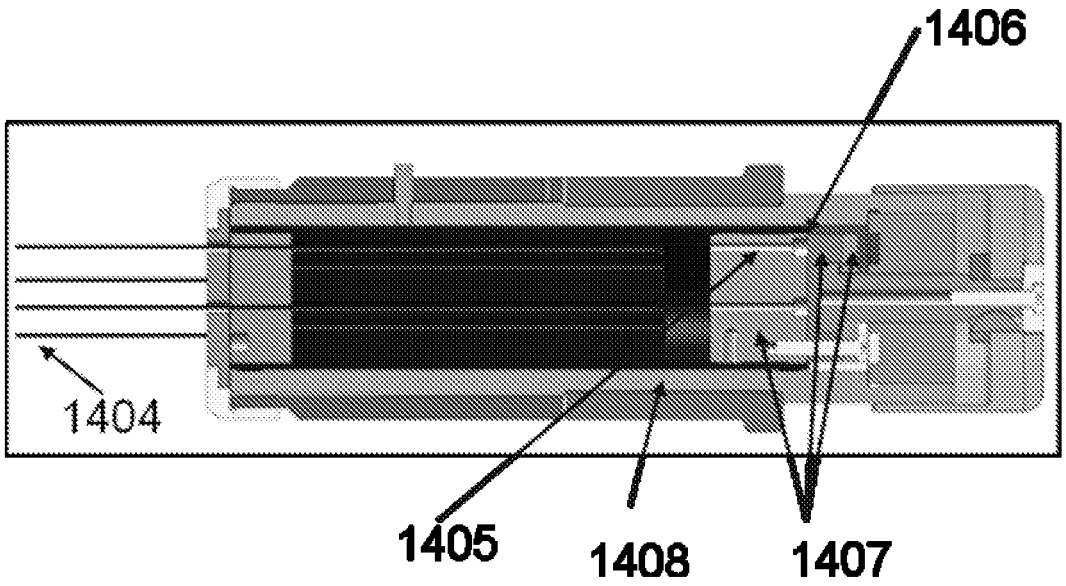


Figure 15

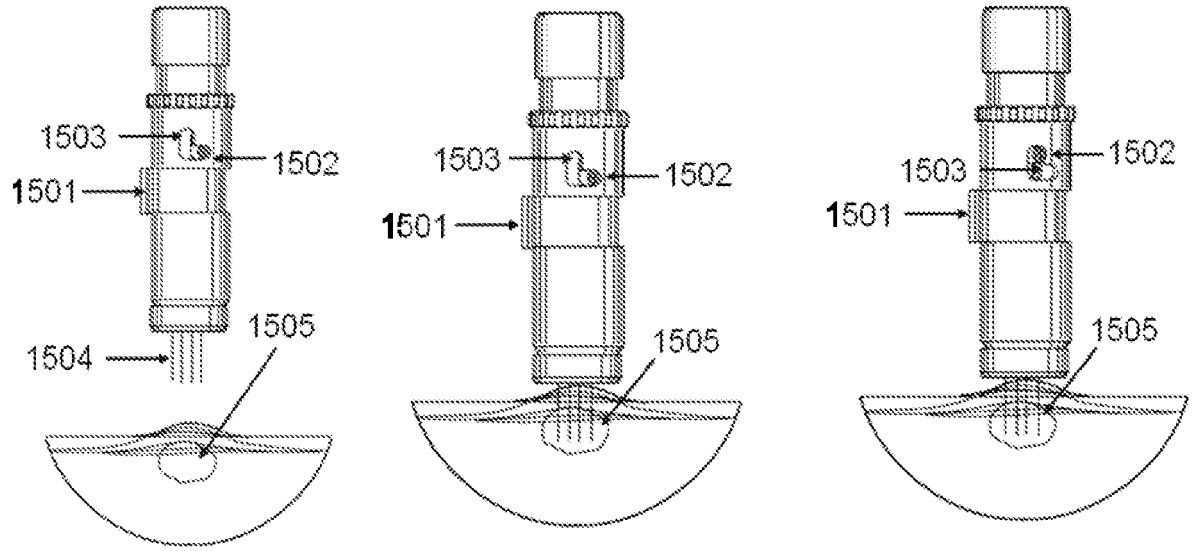
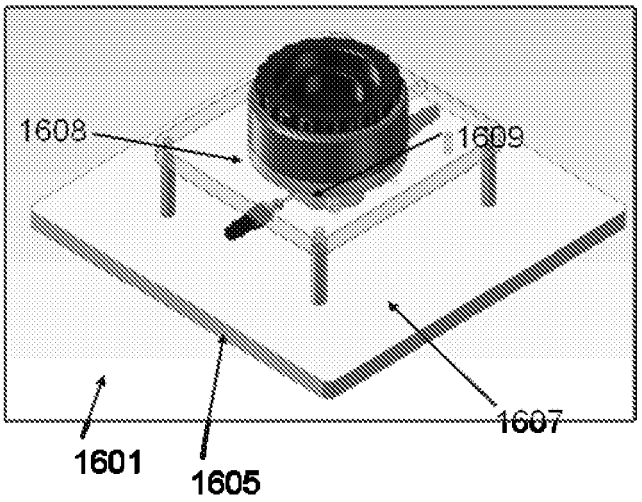

1503
1502
1501
1504
1505
1503
1502
1501
1505
1503
1502
1501
1505

Figure 16



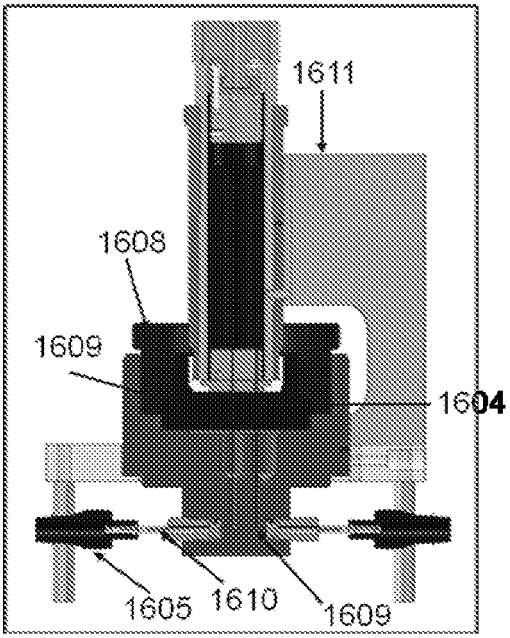


Figure 17

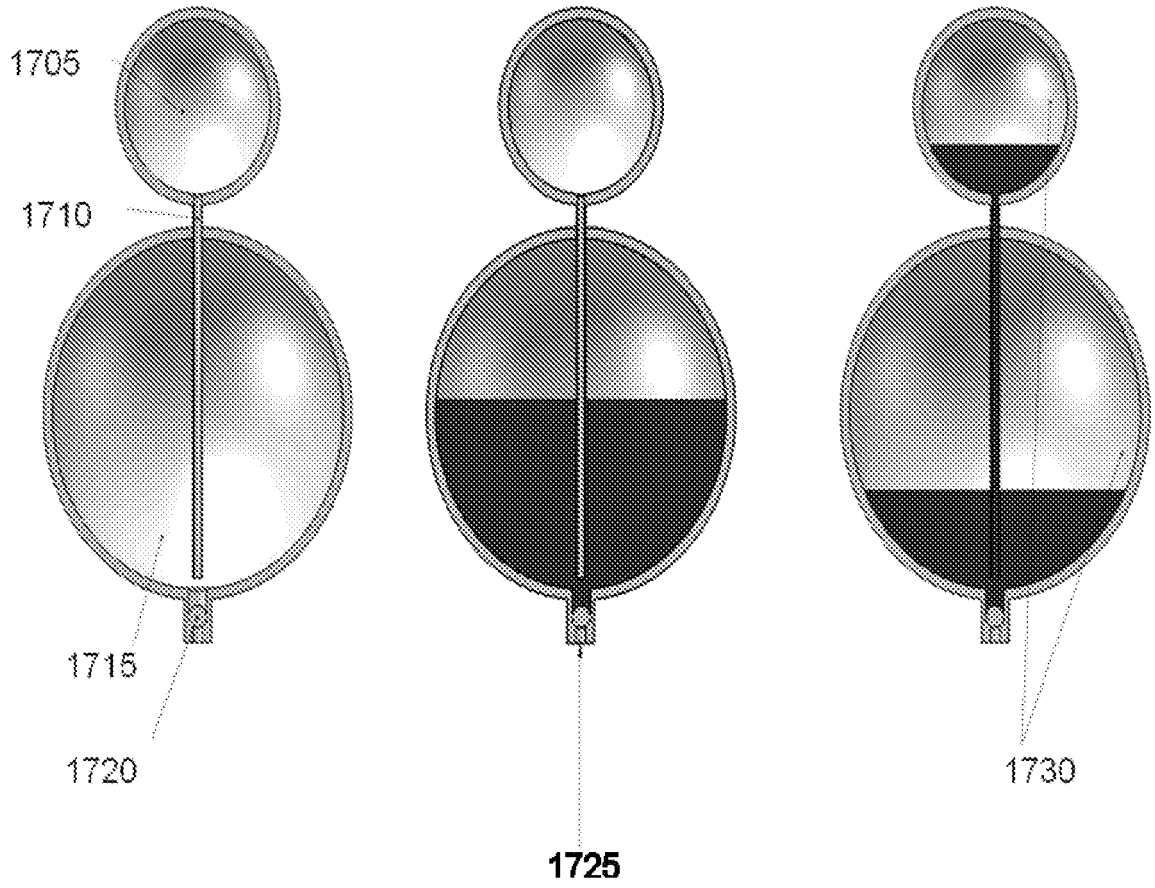


Figure 18

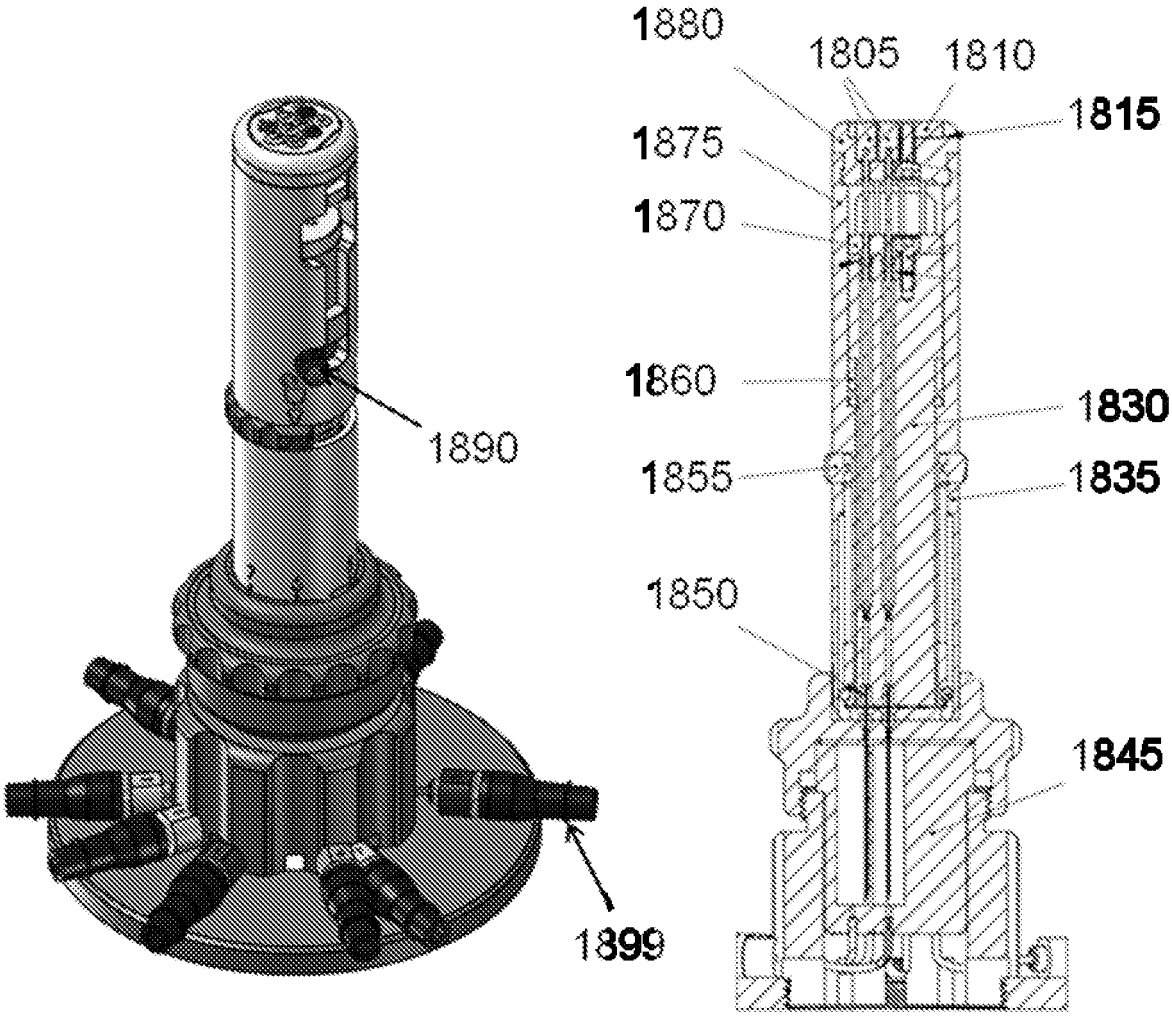

1880
1805
1810
1815
1875
1870
1860
1830
1855
1835
1850
1845
1890
1899

Figure 19

