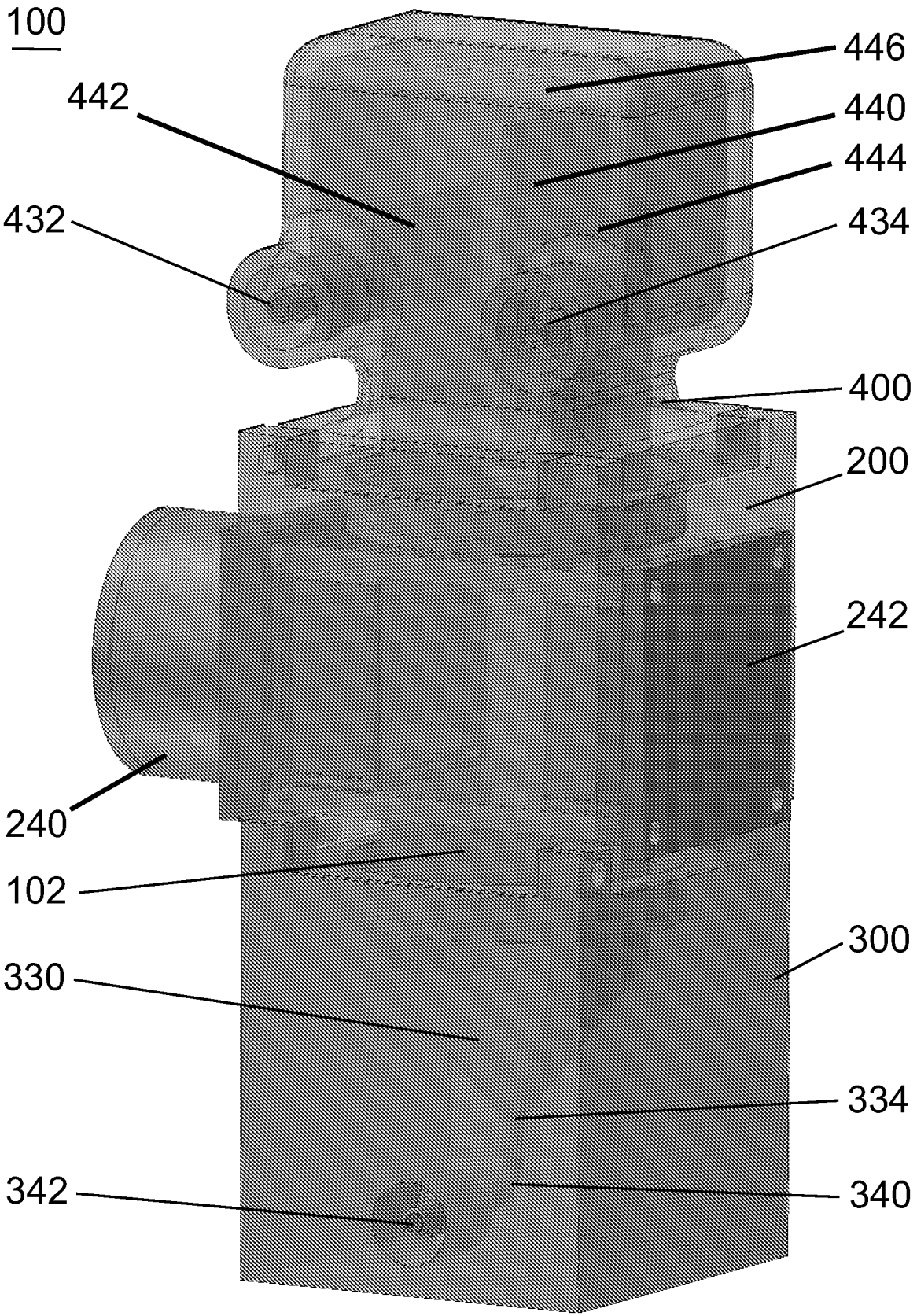

100
446
442
440
444
432
434
400
200
242
240
102
300
330
334
342
340

FIG. 1

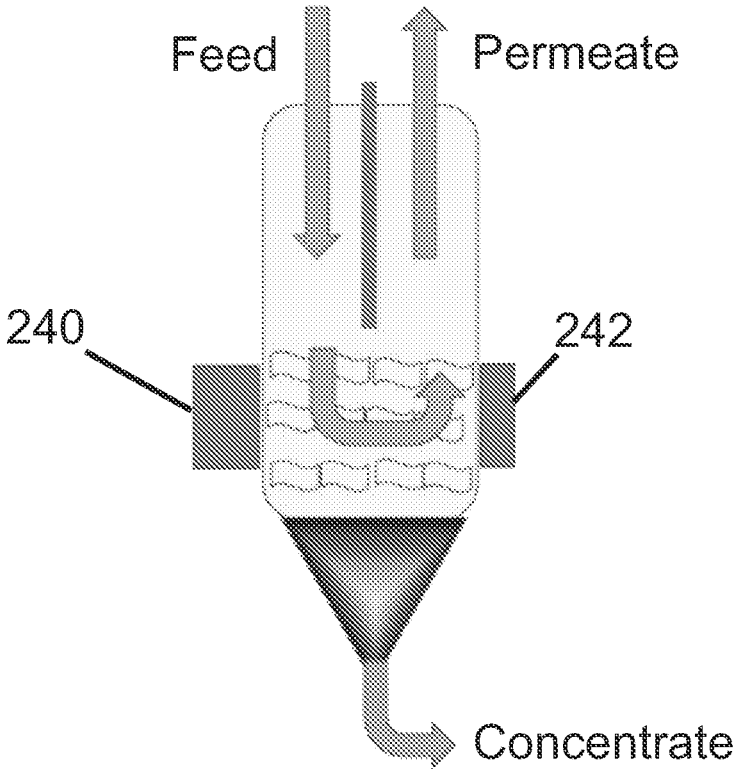


FIG. 2

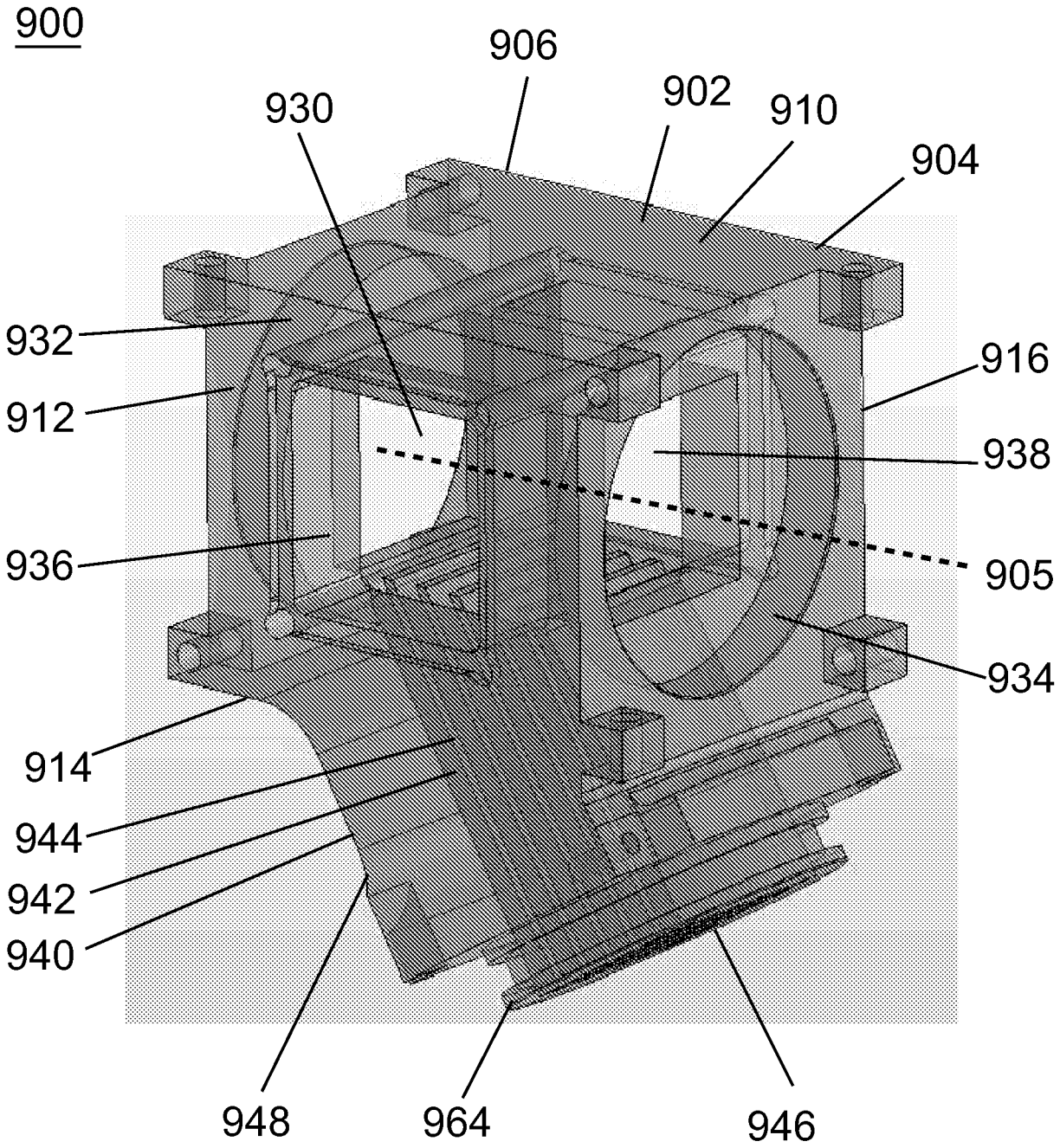

900
906
930
902
910
904
932
916
912
938
936
905
934
914
944
942
940
948
964
946

FIG. 3

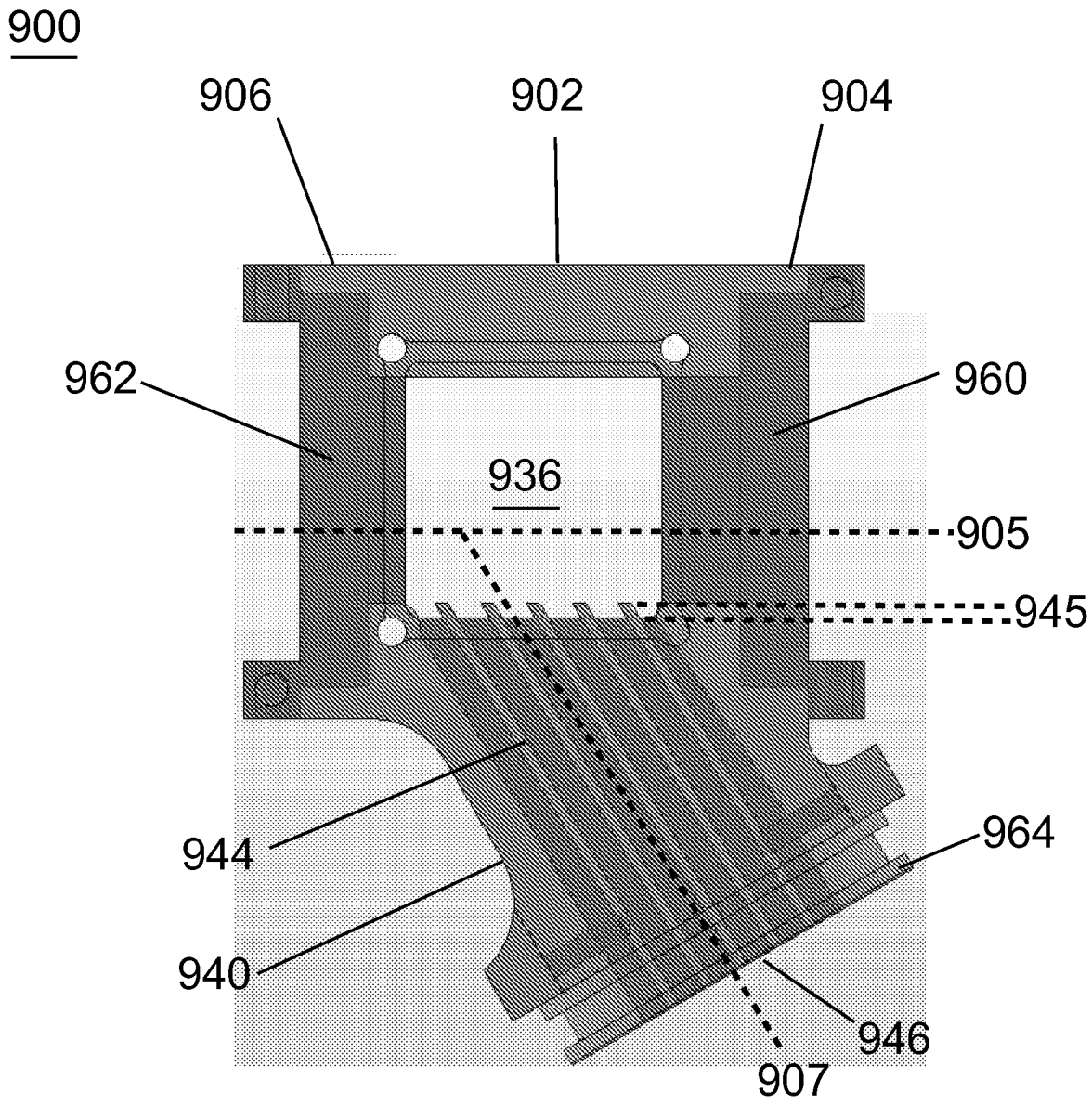


FIG. 4

900

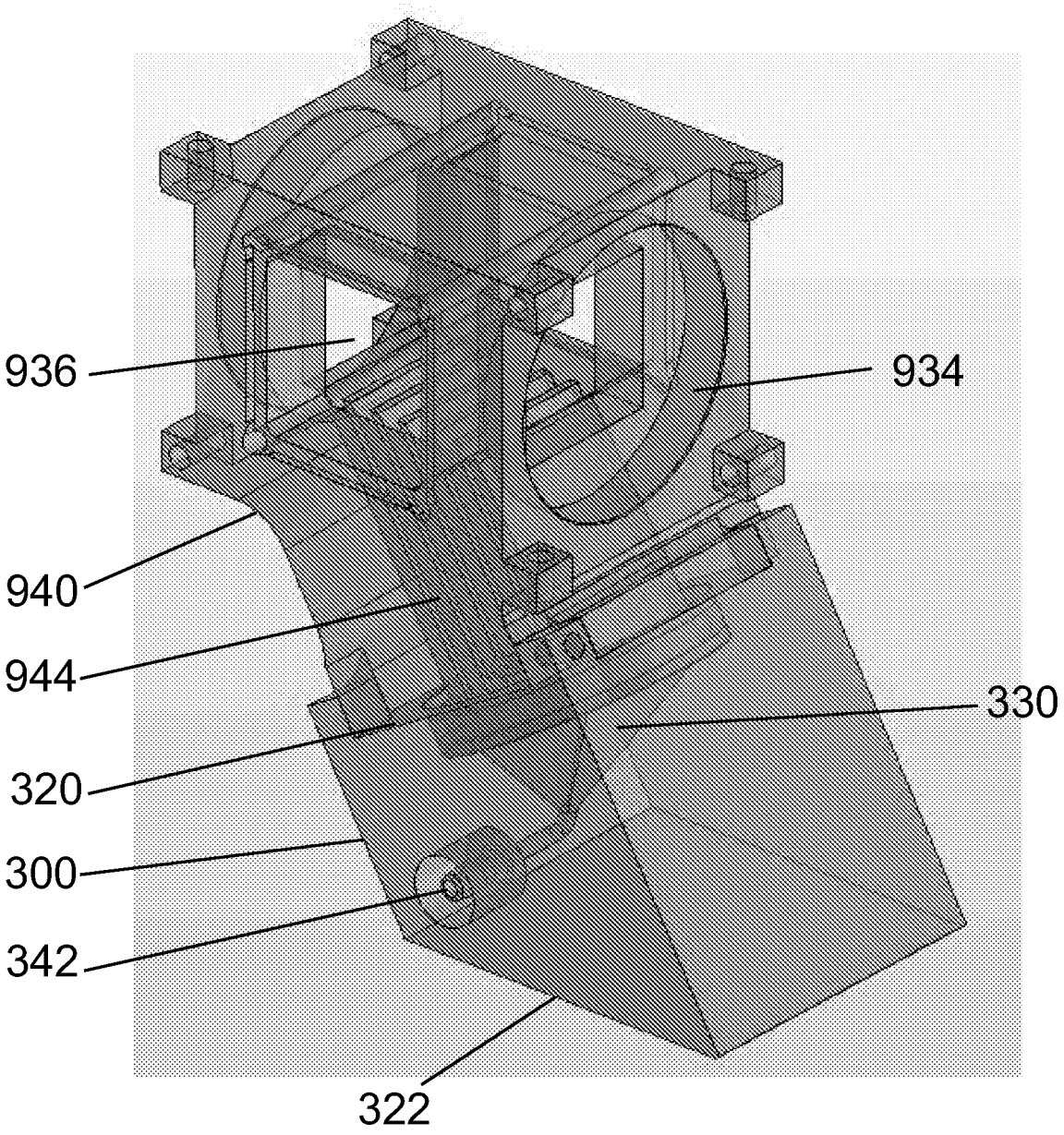


FIG. 5

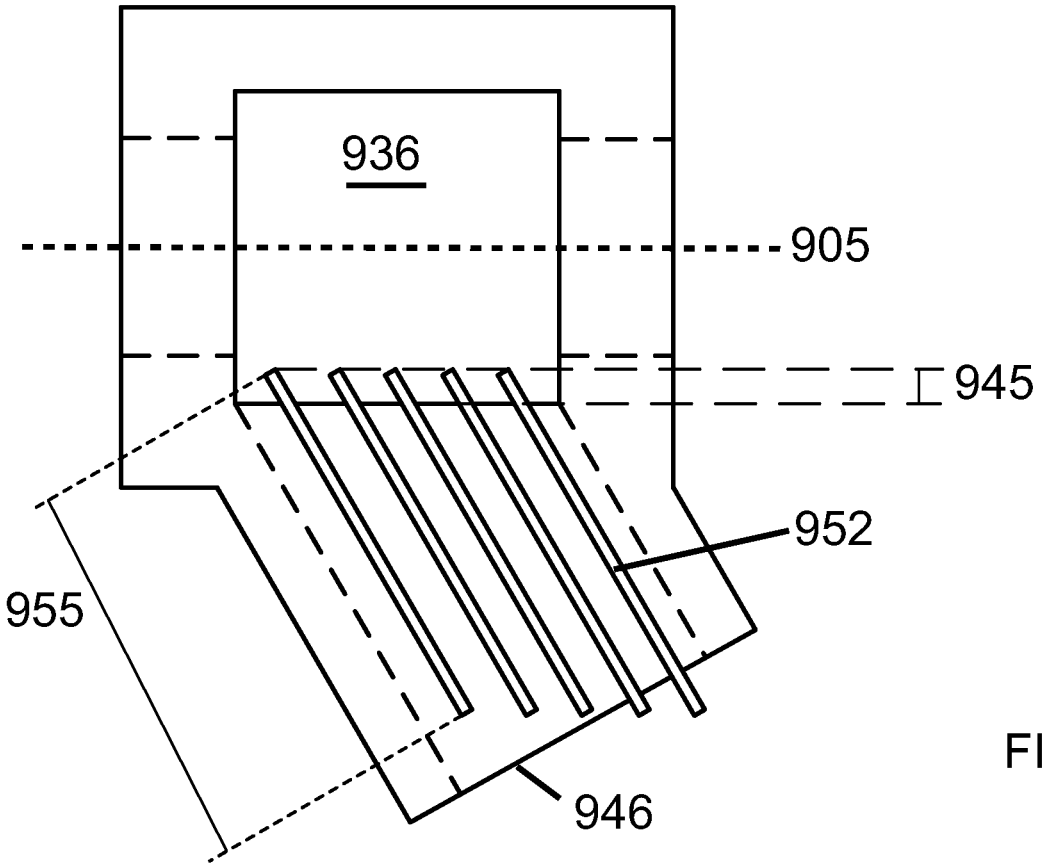


FIG. 6

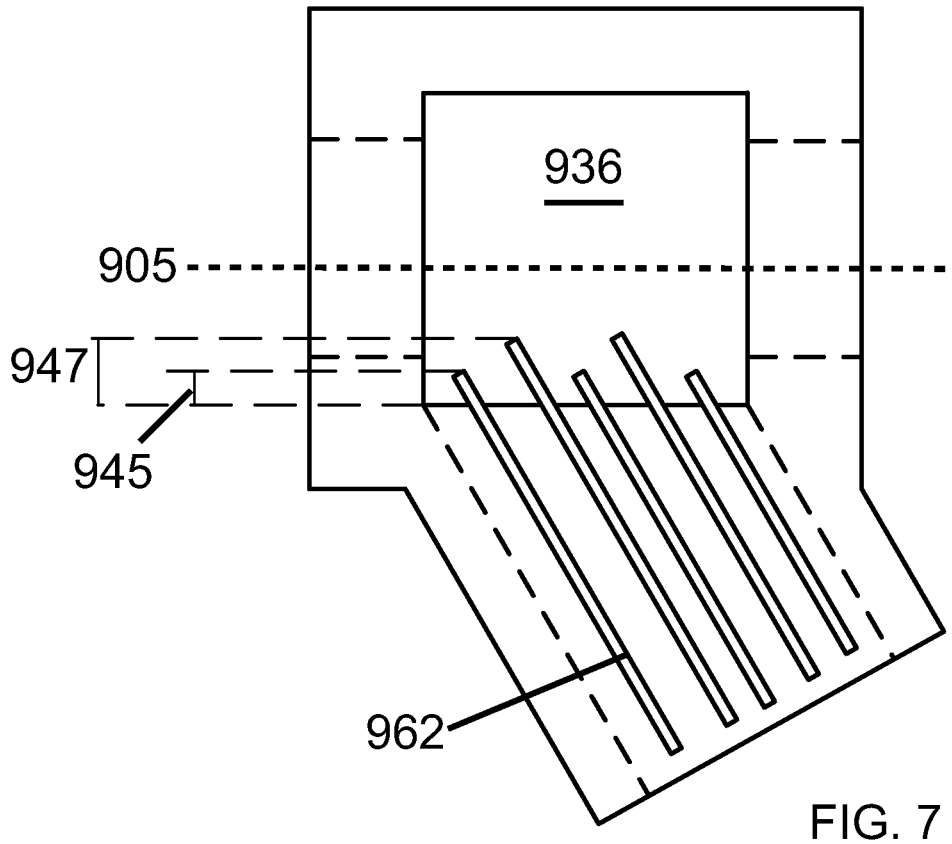


FIG. 7

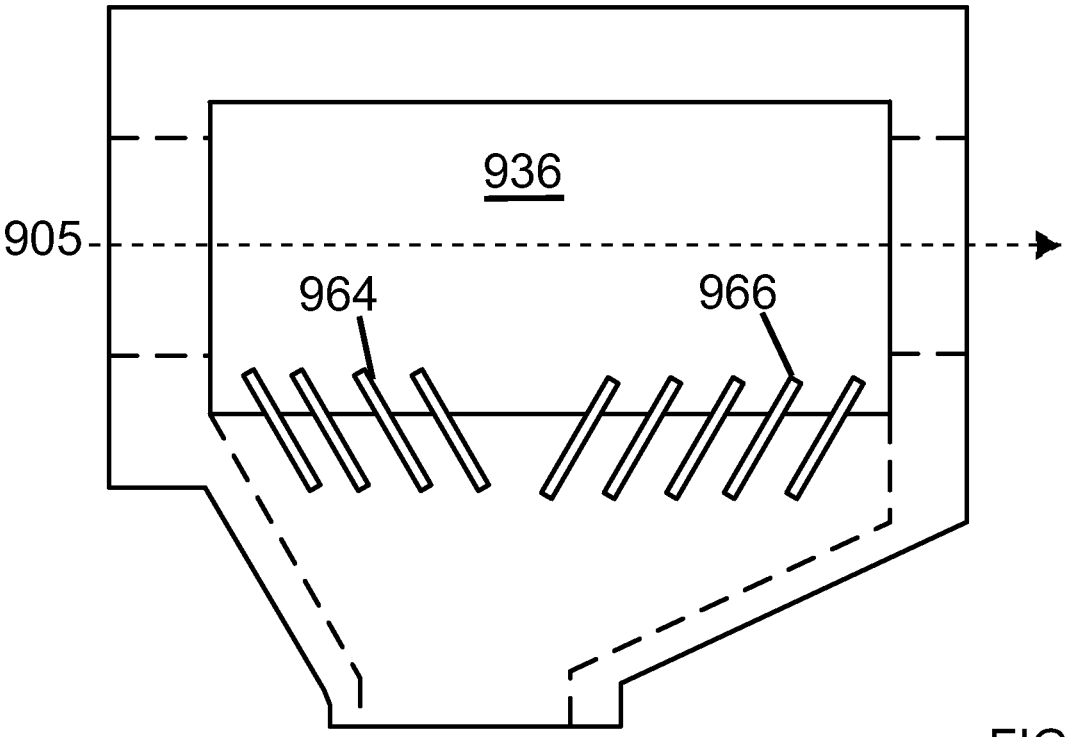


FIG. 8

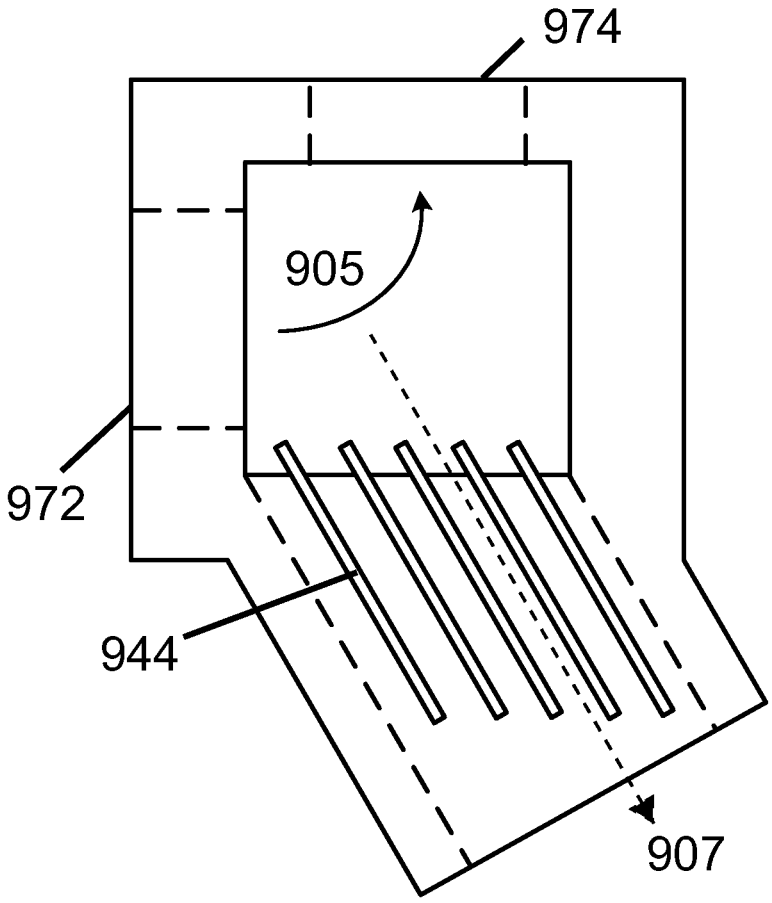


FIG. 9

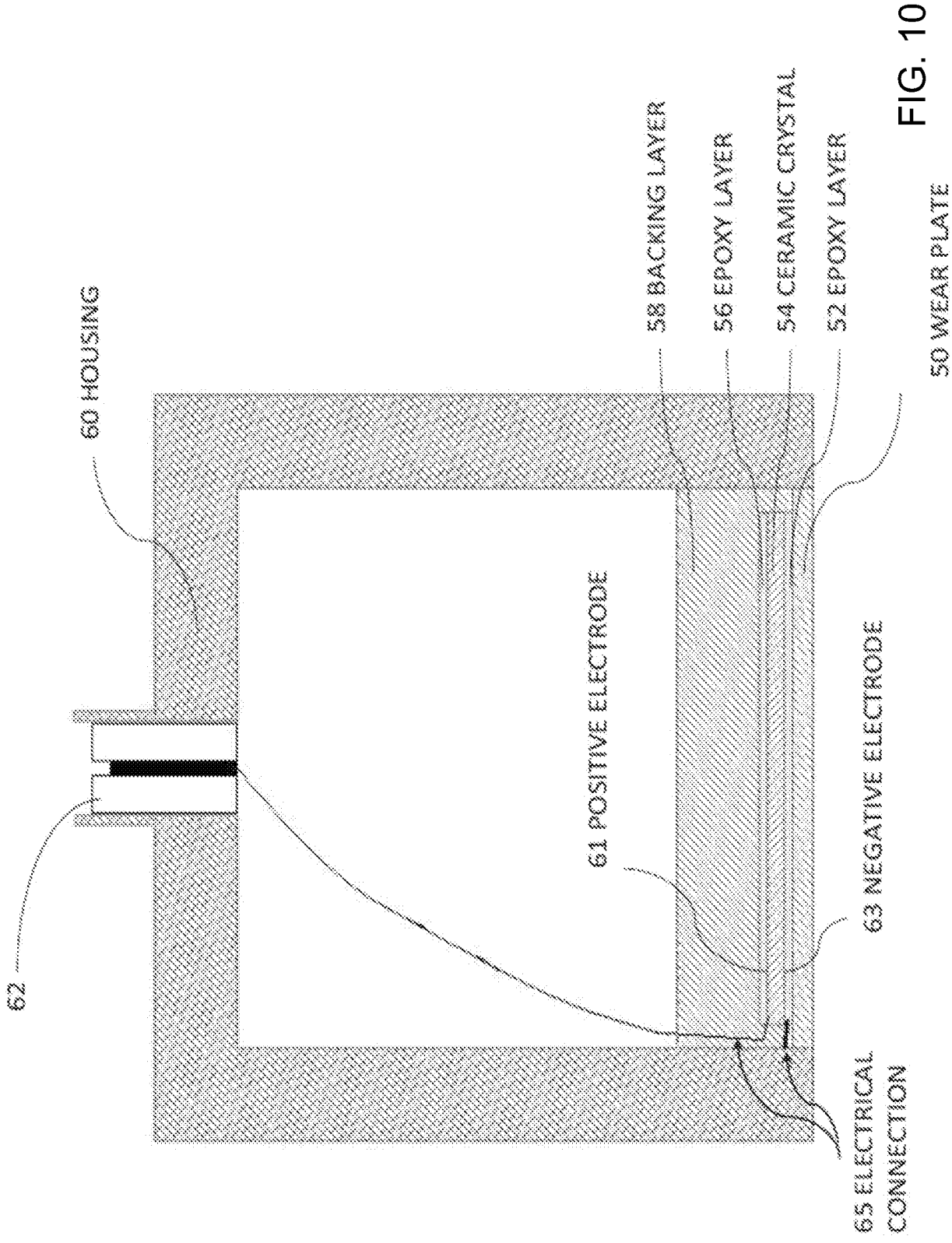

60 HOUSING
62
61 POSITIVE ELECTRODE
63 NEGATIVE ELECTRODE
65 ELECTRICAL CONNECTION
58 BACKING LAYER
56 EPOXY LAYER
54 CERAMIC CRYSTAL
52 EPOXY LAYER
50 WEAR PLATE

FIG. 10

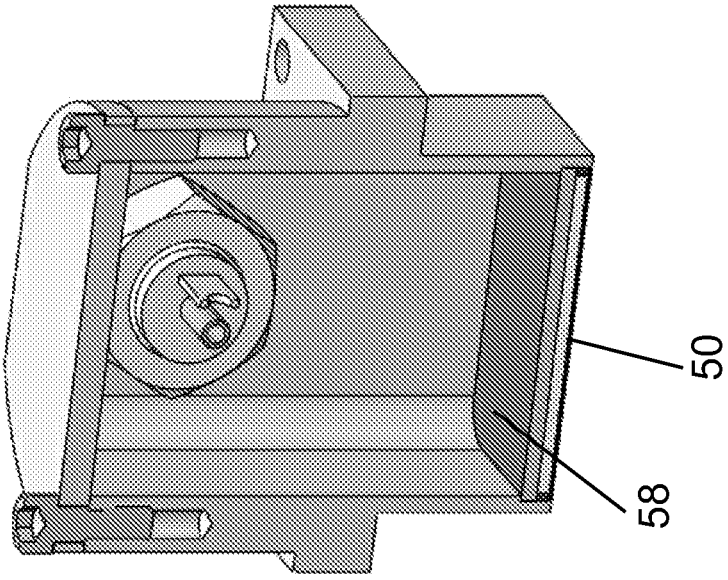


FIG. 12

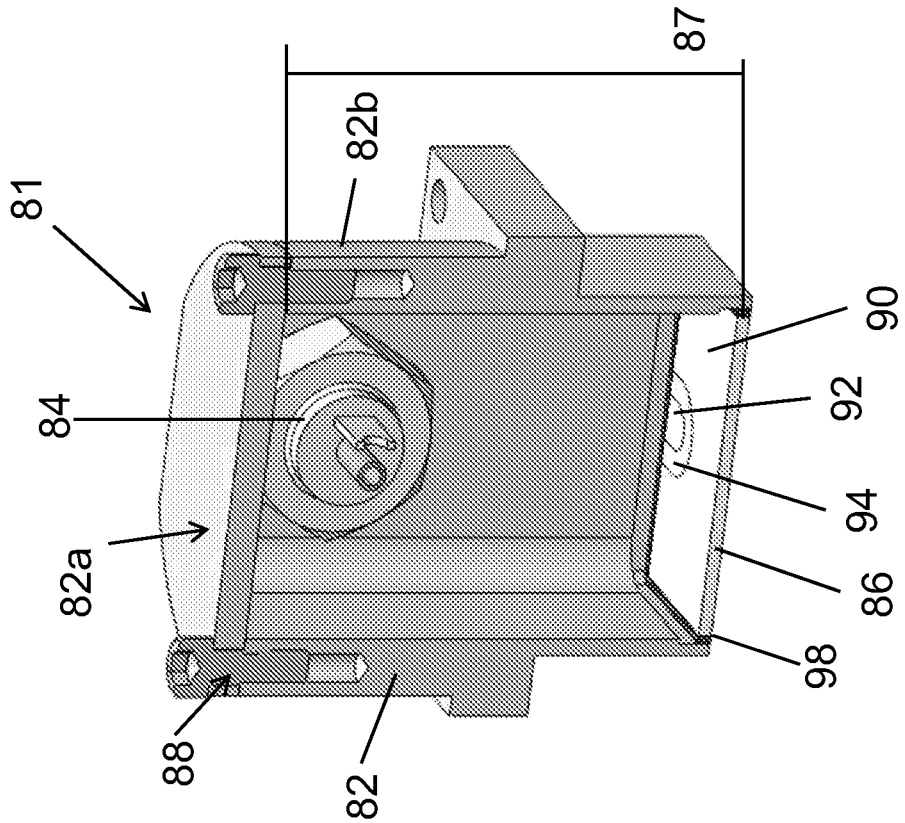


FIG. 11

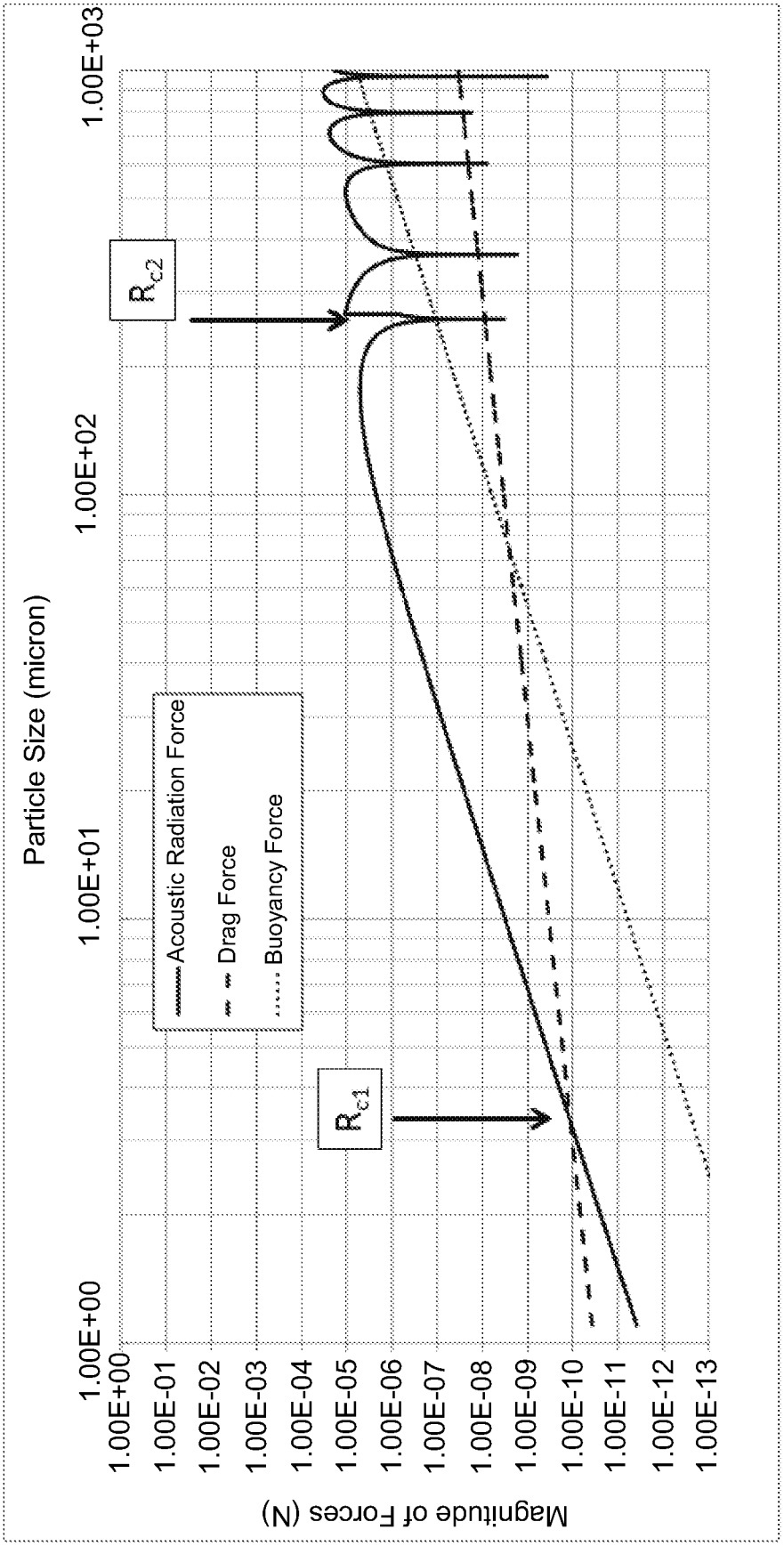

Particle Size (micron)
1.00E+00
1.00E+01
1.00E+02
1.00E+03
Magnitude of Forces (N)
1.00E+00
1.00E-01
1.00E-02
1.00E-03
1.00E-04
1.00E-05
1.00E-06
1.00E-07
1.00E-08
1.00E-09
1.00E-10
1.00E-11
1.00E-12
1.00E-13
Acoustic Radiation Force
Drag Force
Buoyancy Force
R_{c1}
R_{c2}

FIG. 13

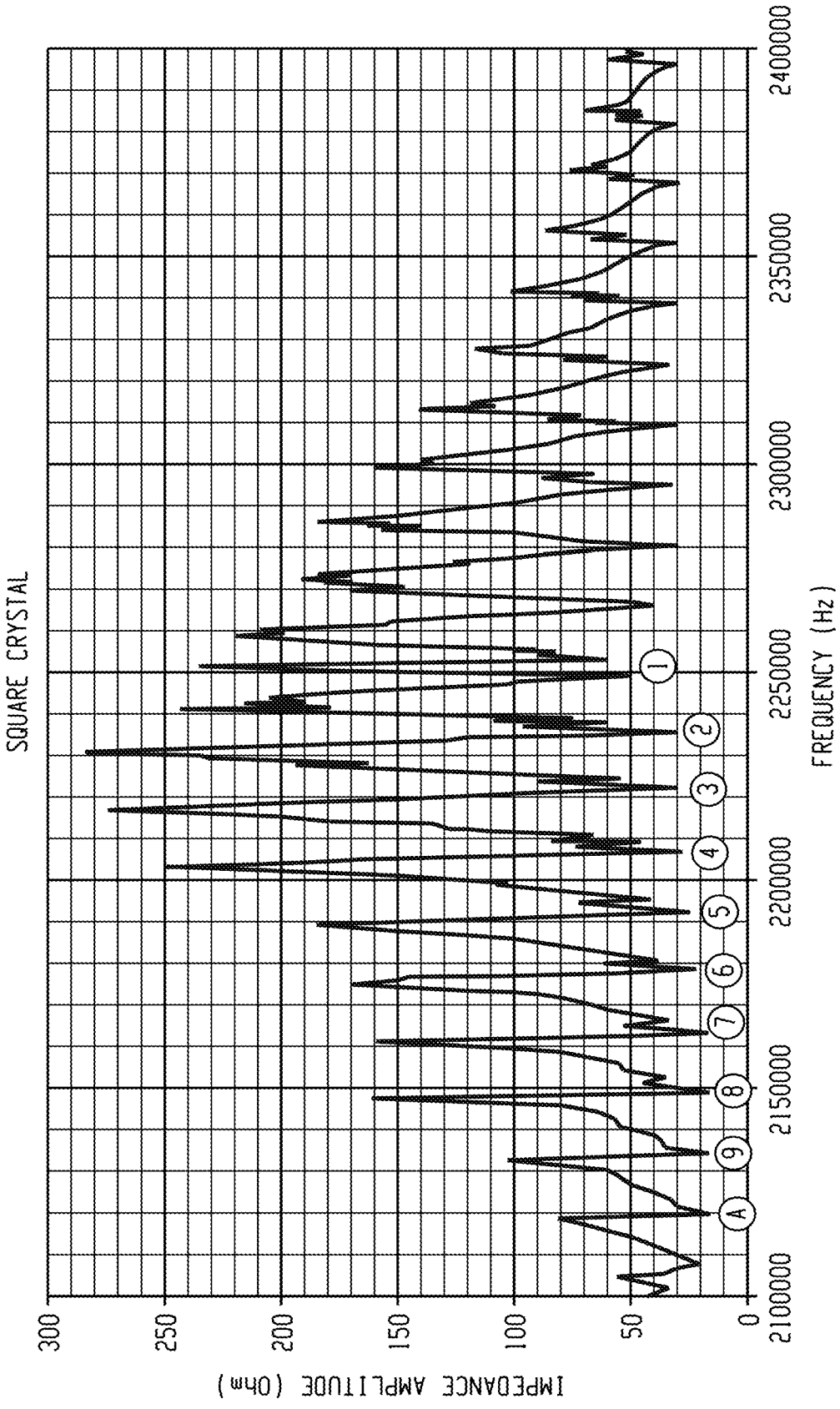

SQUARE CRYSTAL
IMPEDANCE AMPLITUDE (Ohm)
300
250
200
150
100
50
0
2100000
2150000
2200000
2250000
2300000
2350000
2400000
FREQUENCY (Hz)
1
2
3
4
5
6
7
8
9
A

FIG. 14

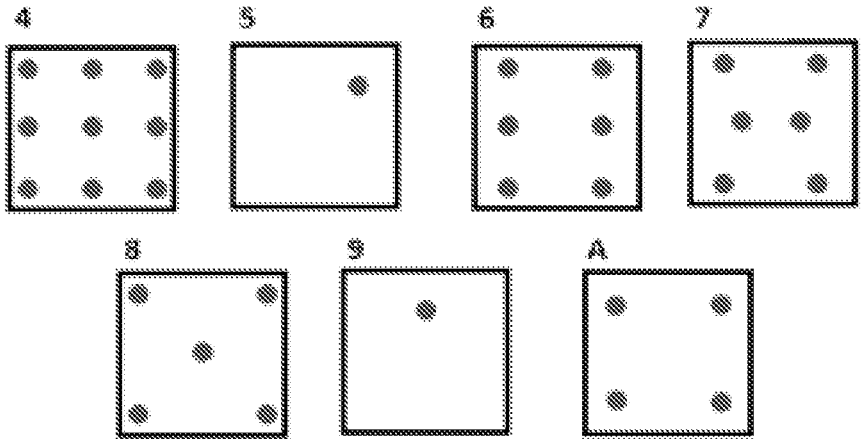


FIG. 15A

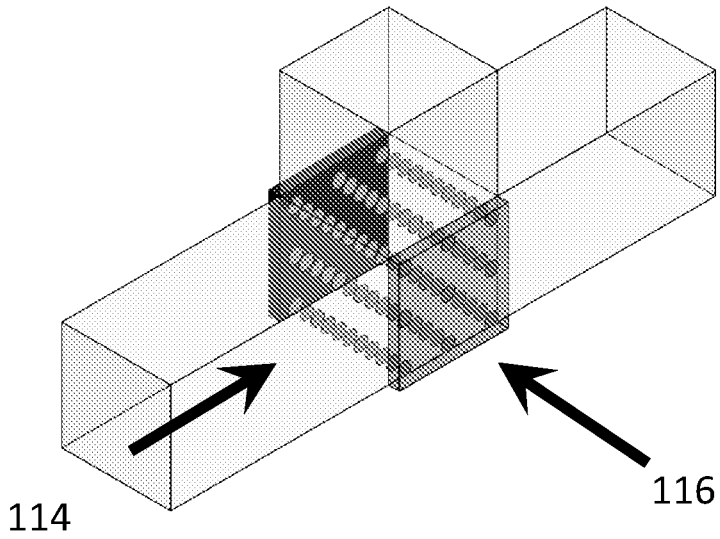


FIG. 15B

FIG 15C

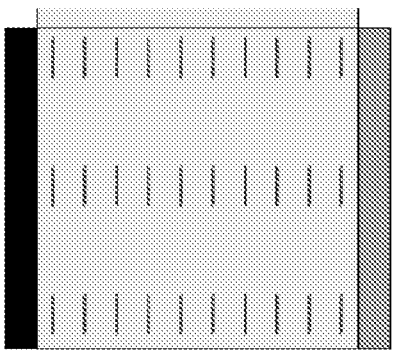
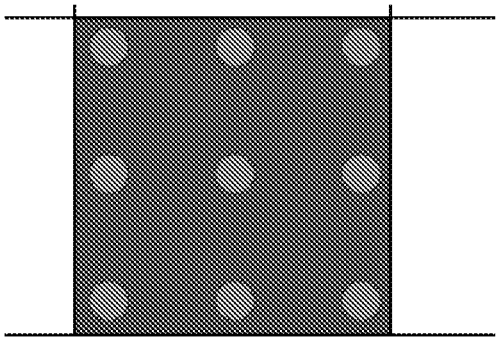


FIG. 15D



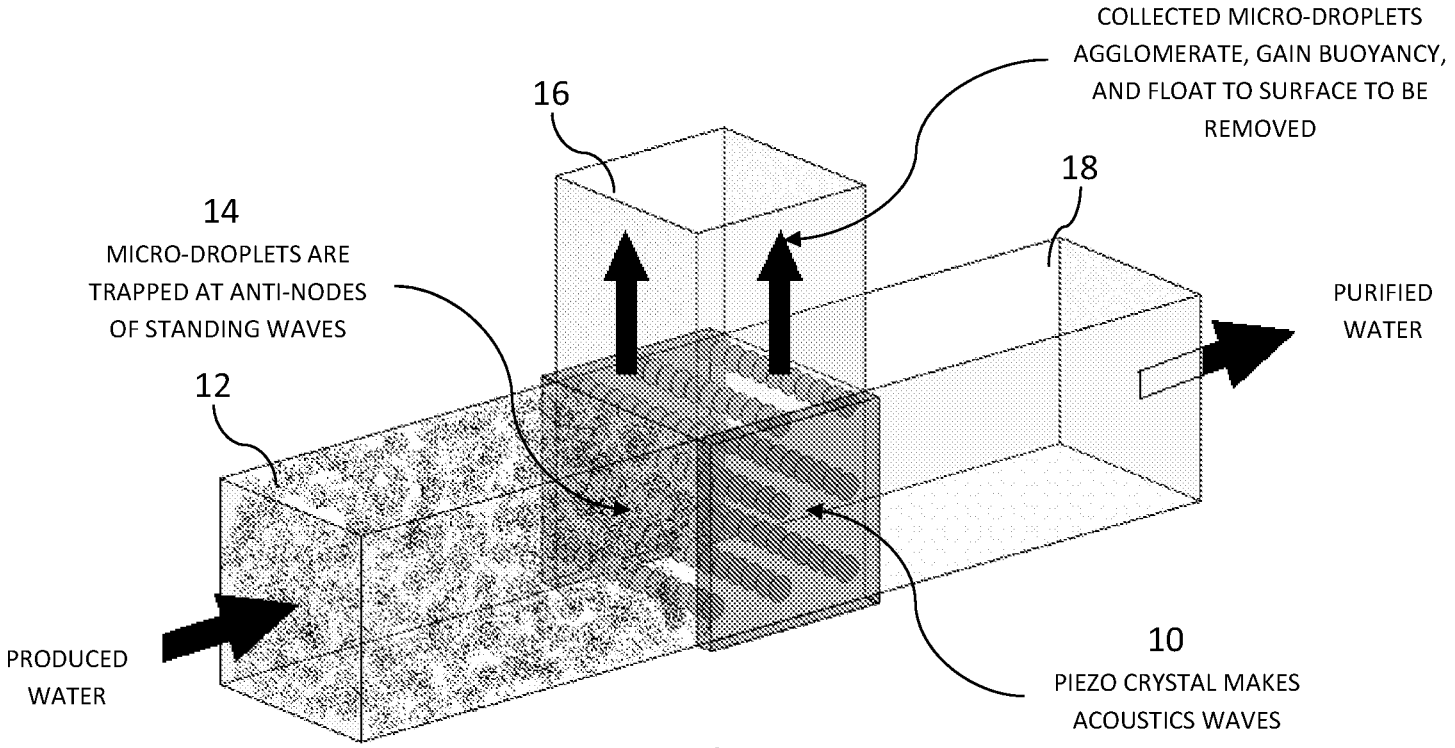


FIG. 16A

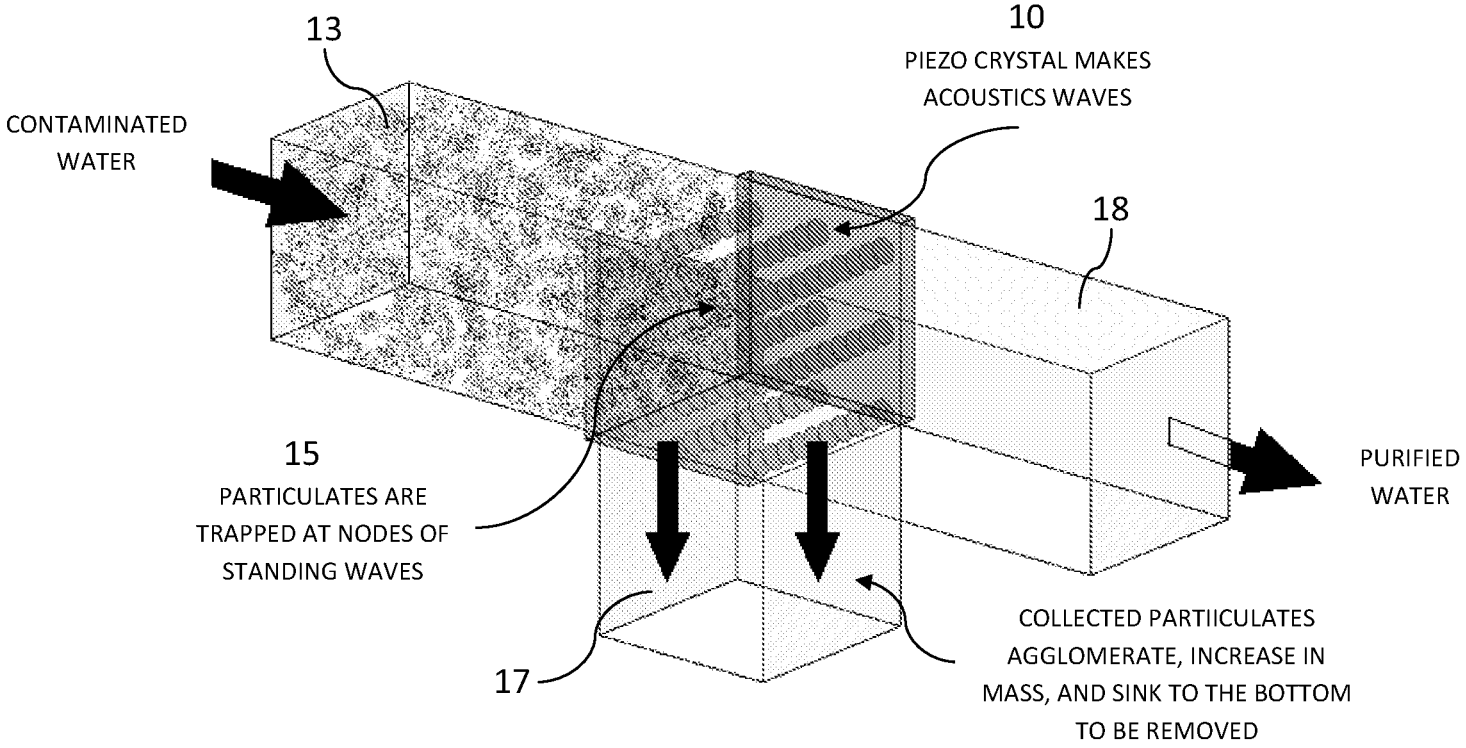


FIG. 16B

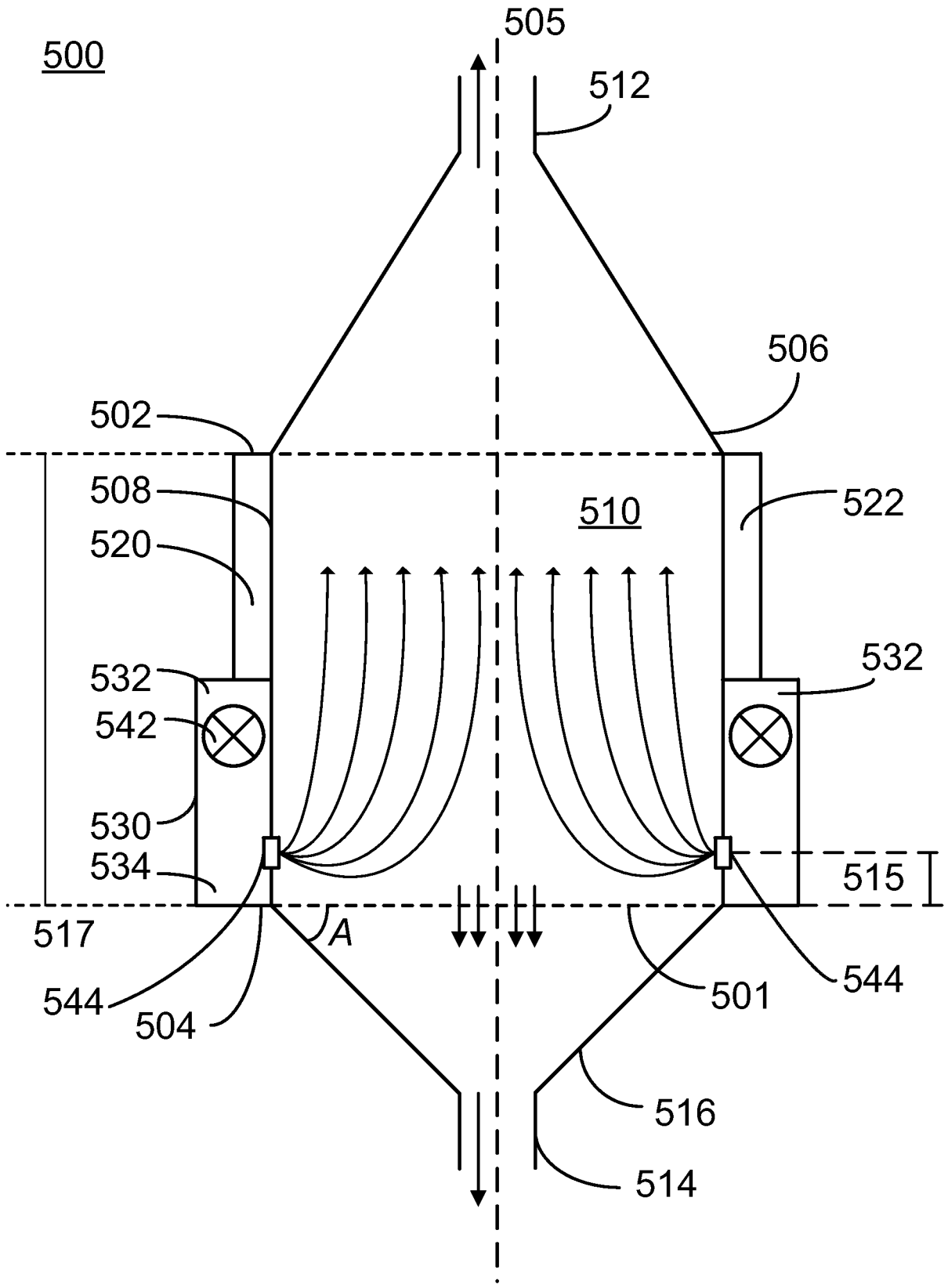

500
505
512
506
502
508
510
522
520
532
532
542
530
534
515
517
A
544
504
501
544
516
514

FIG. 17

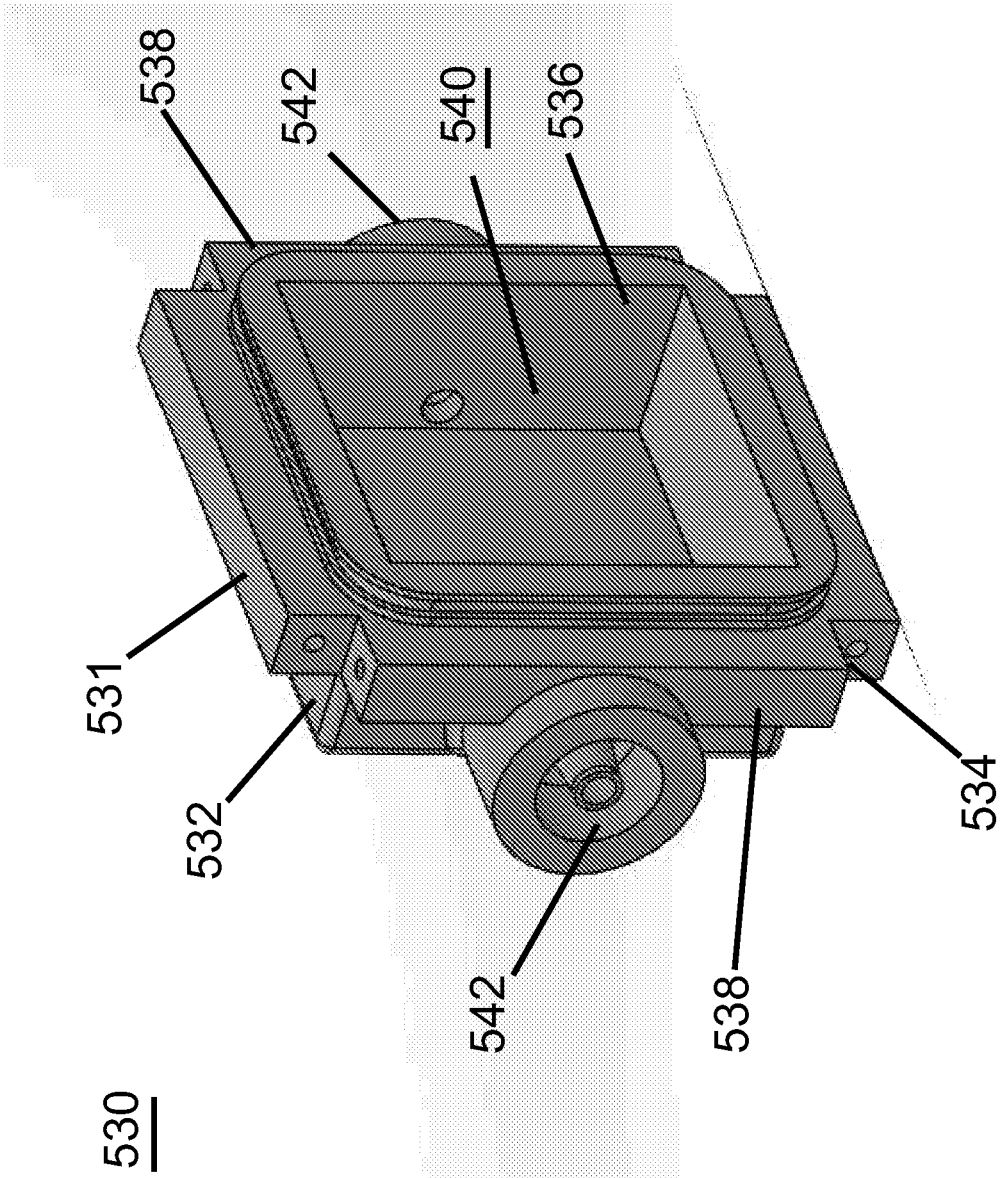
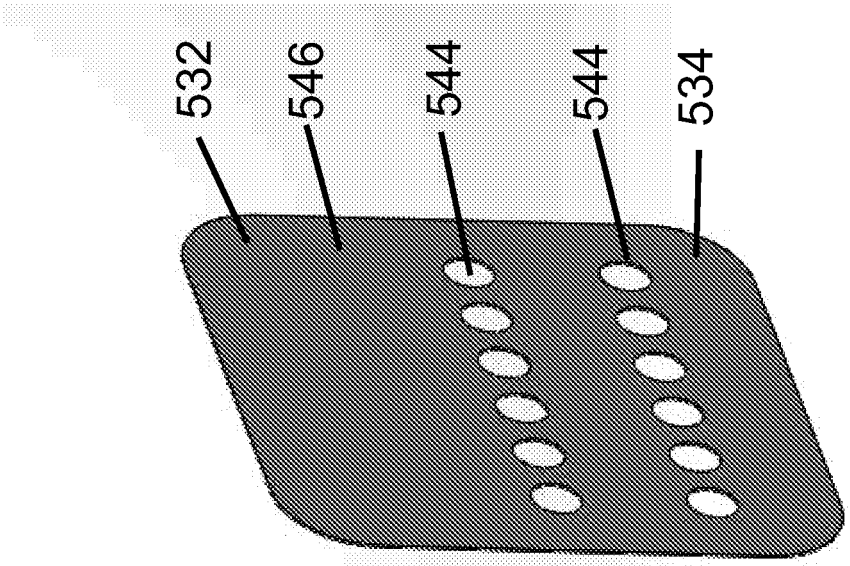


FIG. 18

FIG. 19



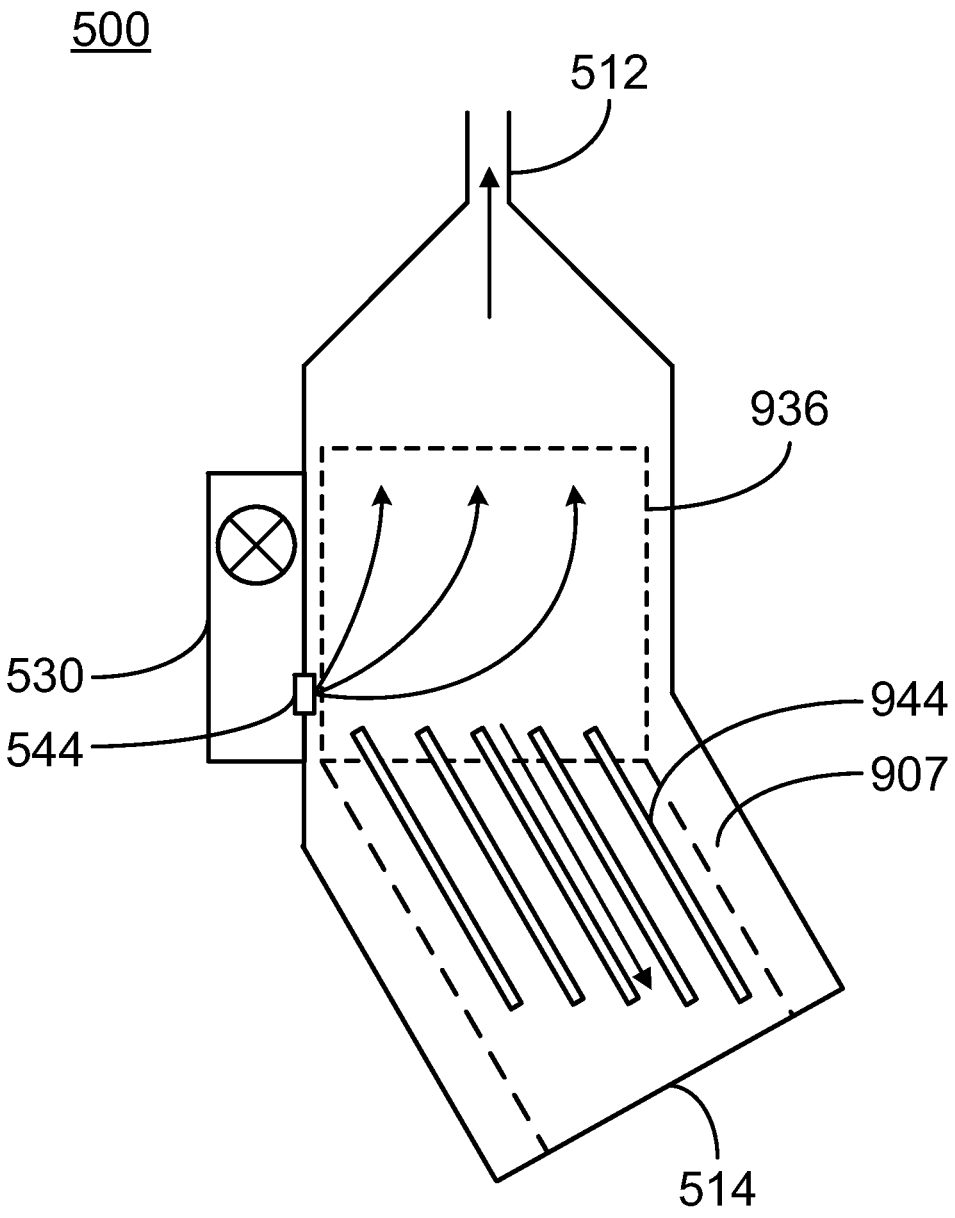
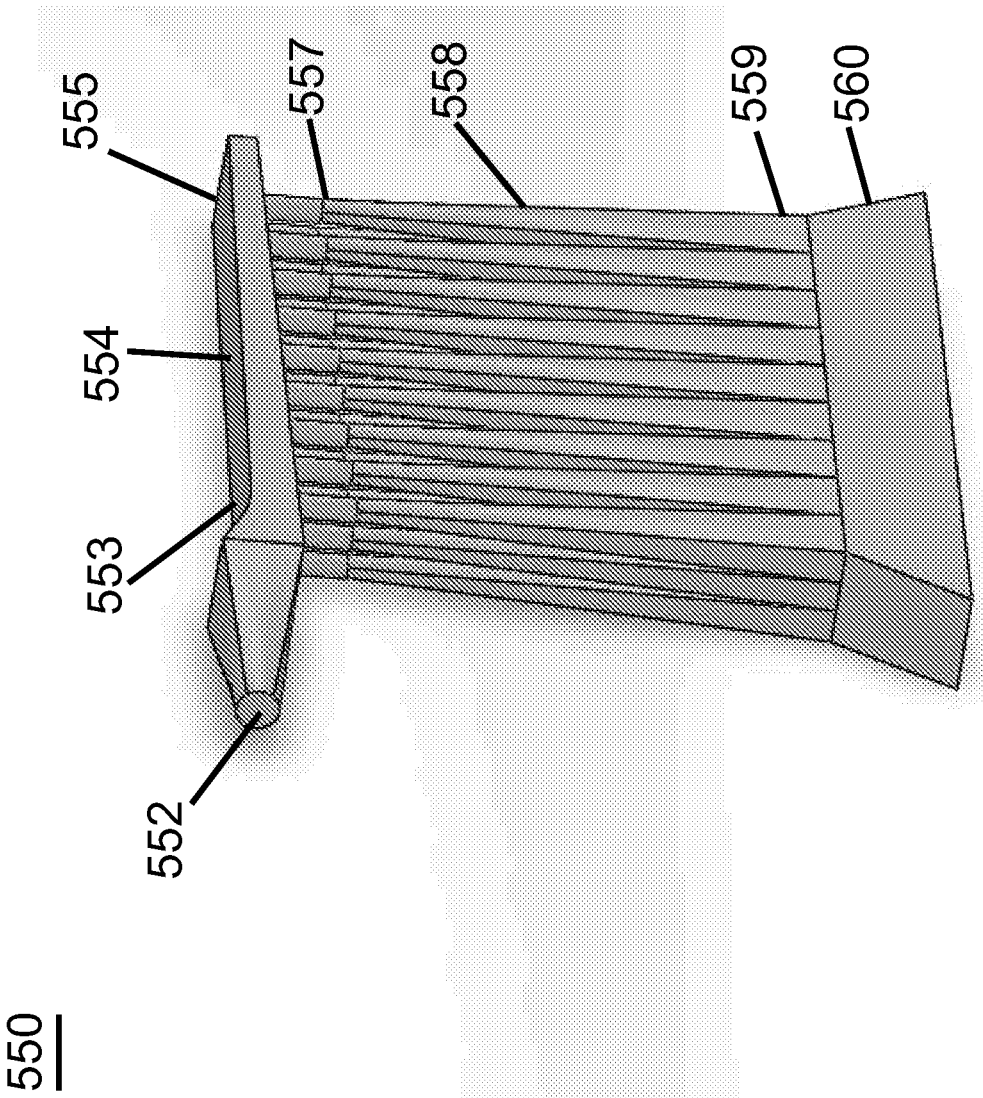


FIG. 20

FIG. 21



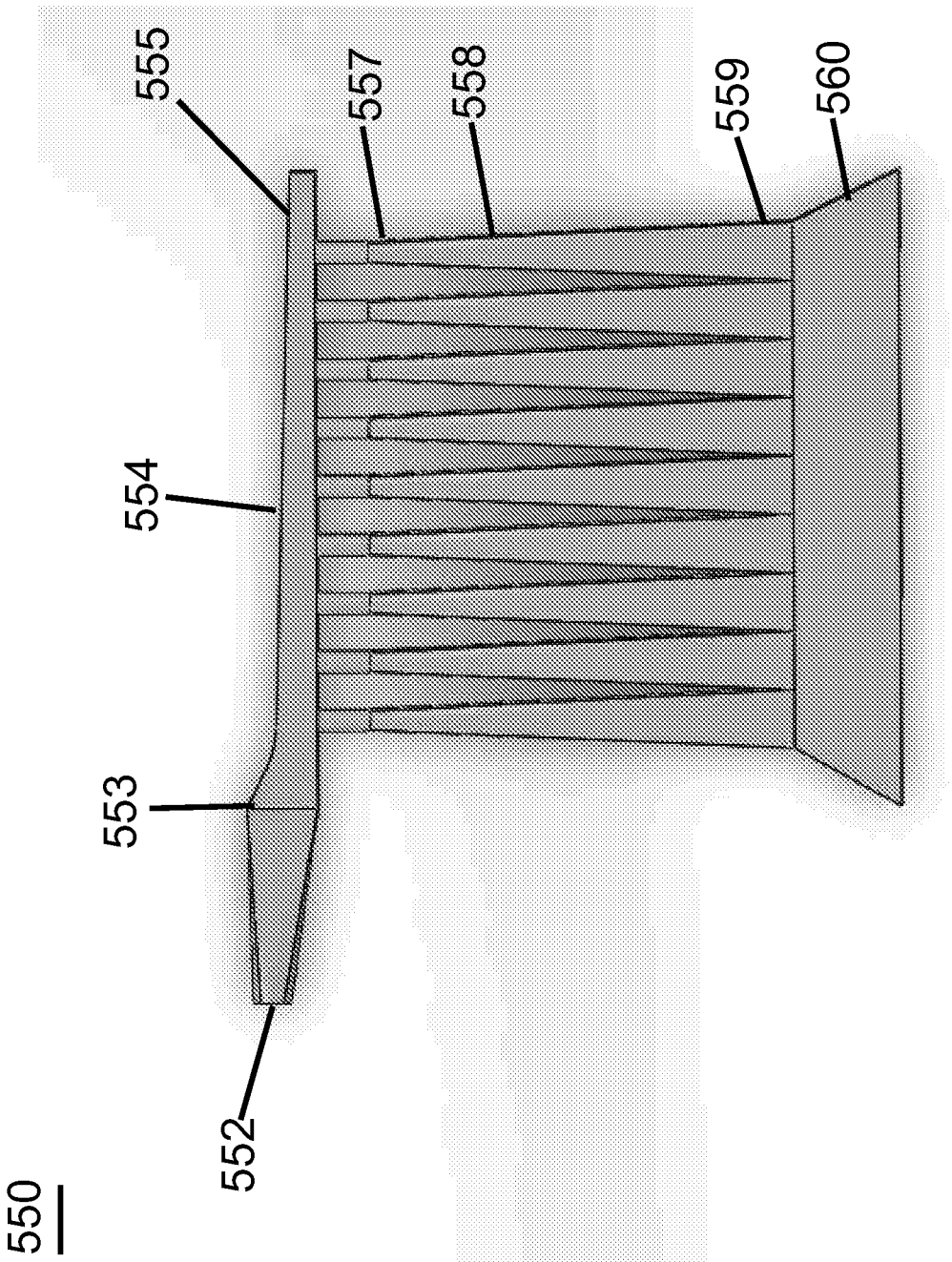


FIG. 22

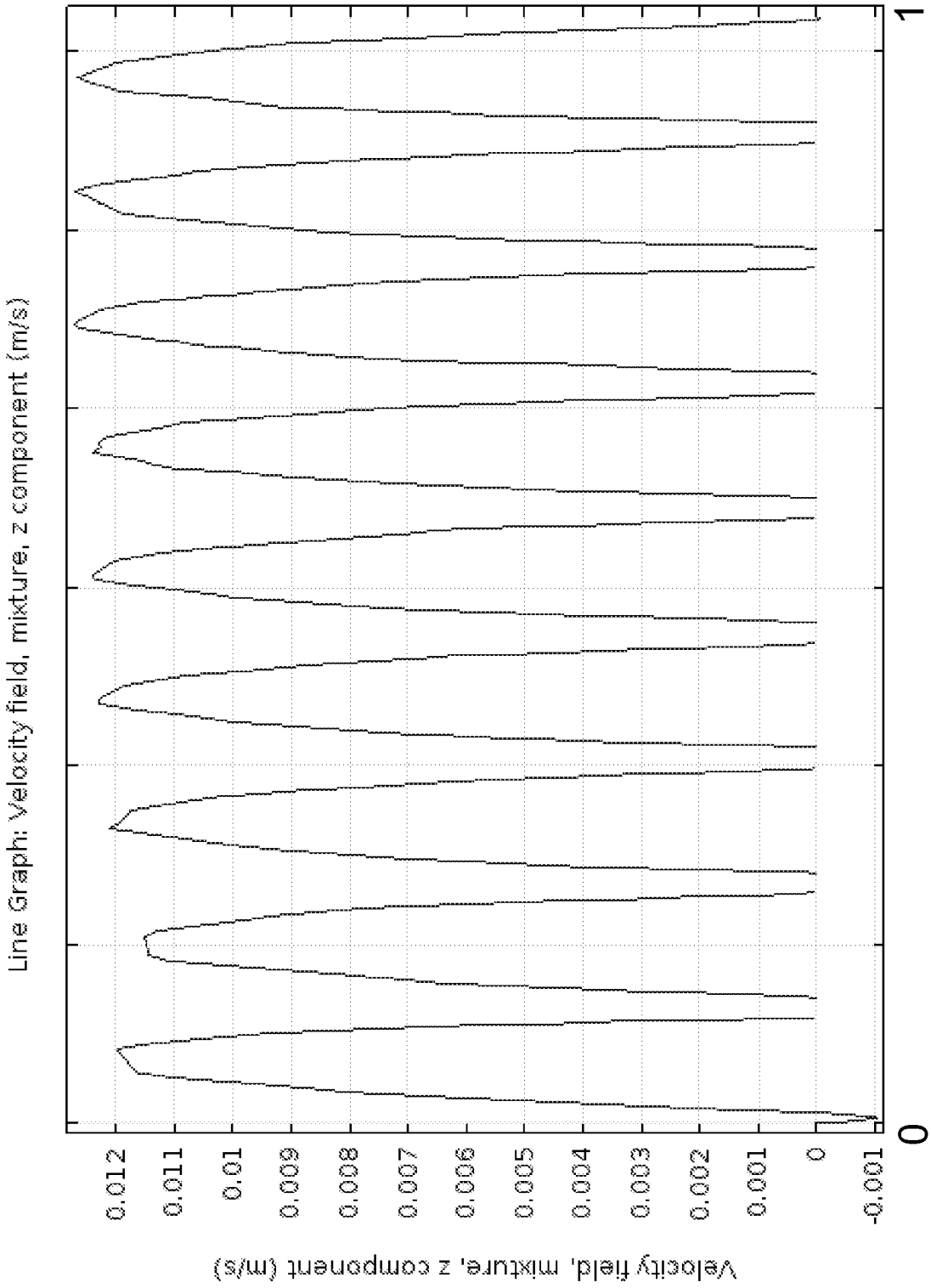

Line Graph: Velocity field, mixture, z component (m/s)
Velocity field, mixture, z component (m/s)
0.012
0.011
0.01
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
-0.001
0
1
distance along plenum

FIG. 23

500

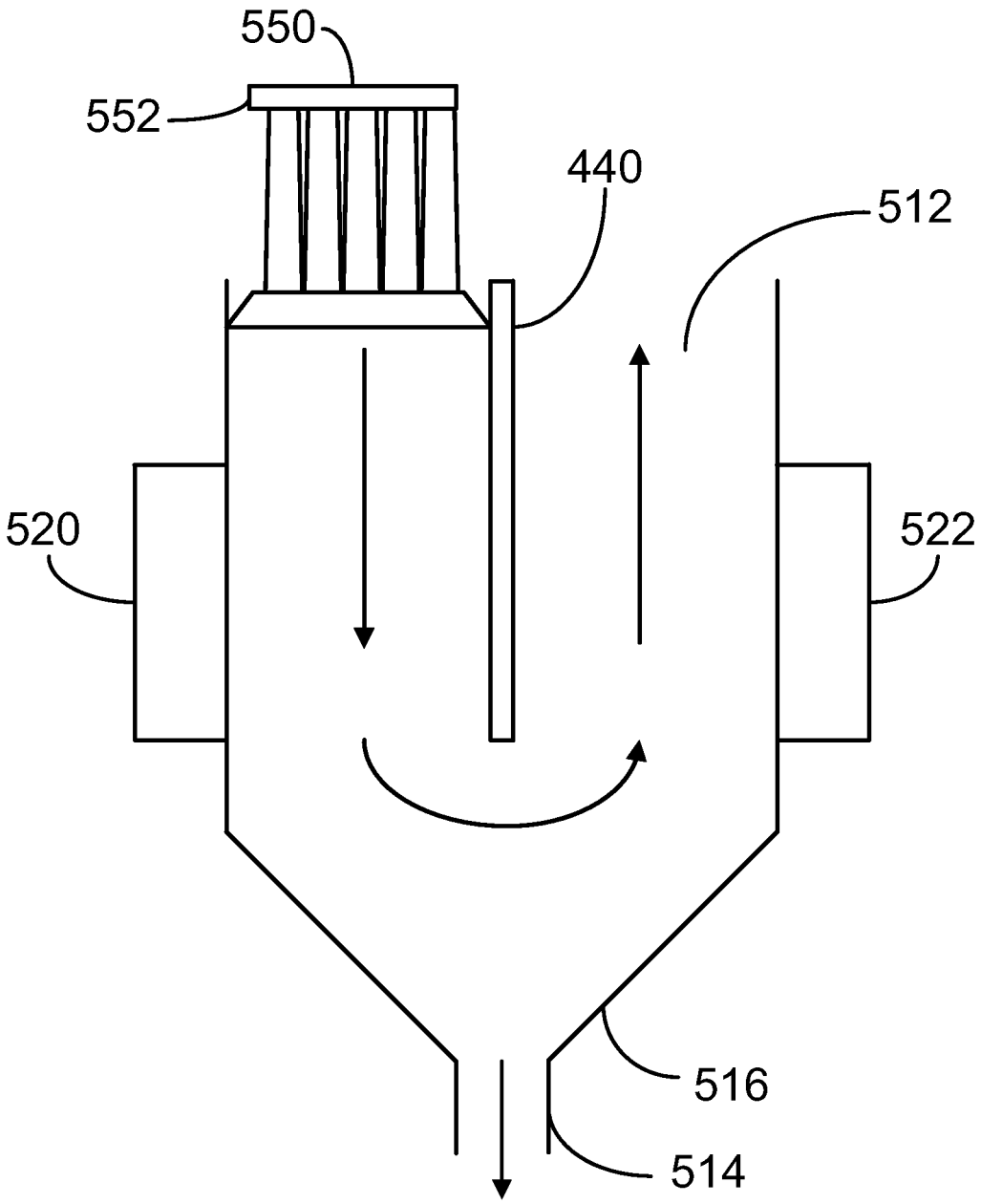


FIG. 24

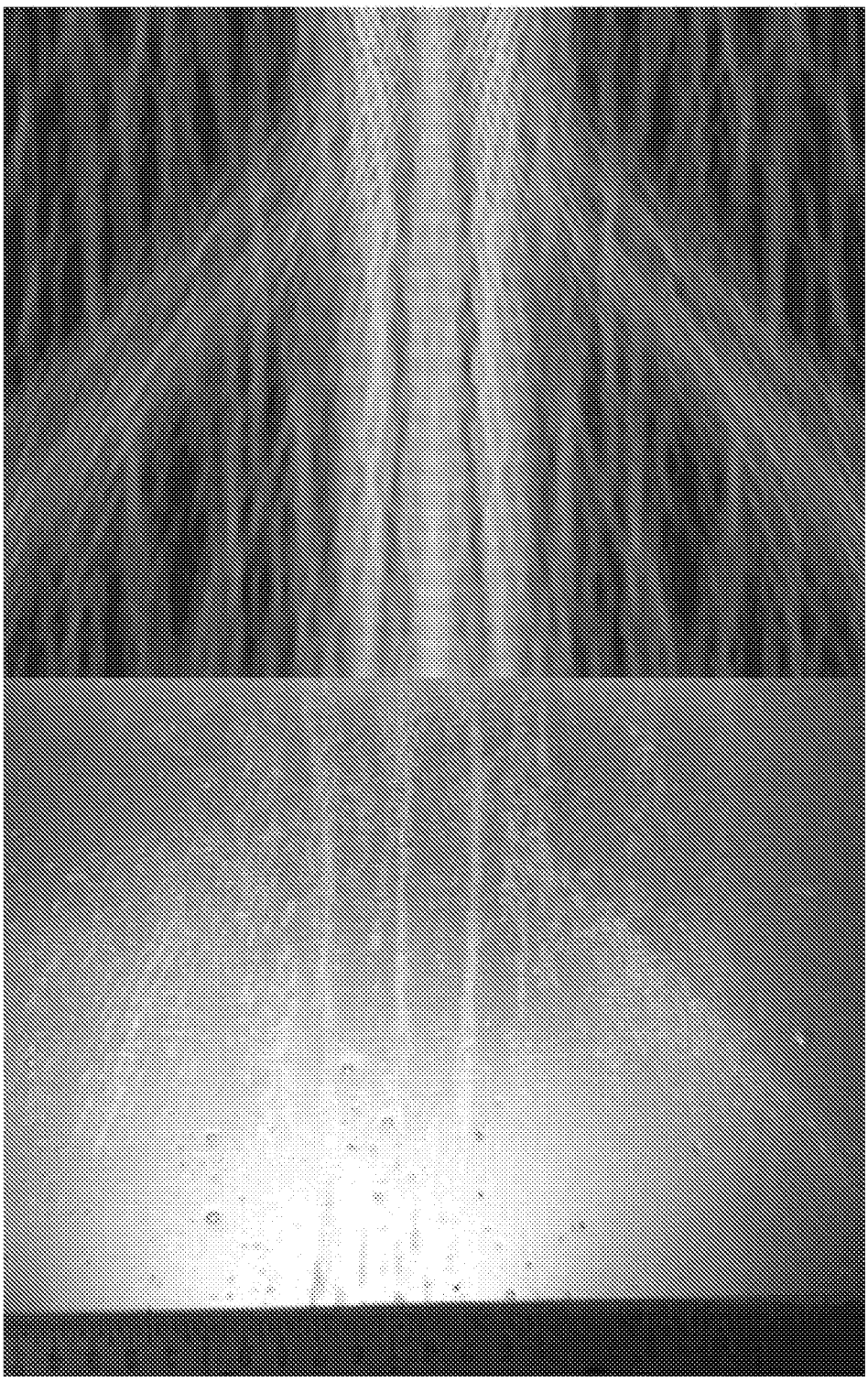


FIG. 25A

FIG. 25B

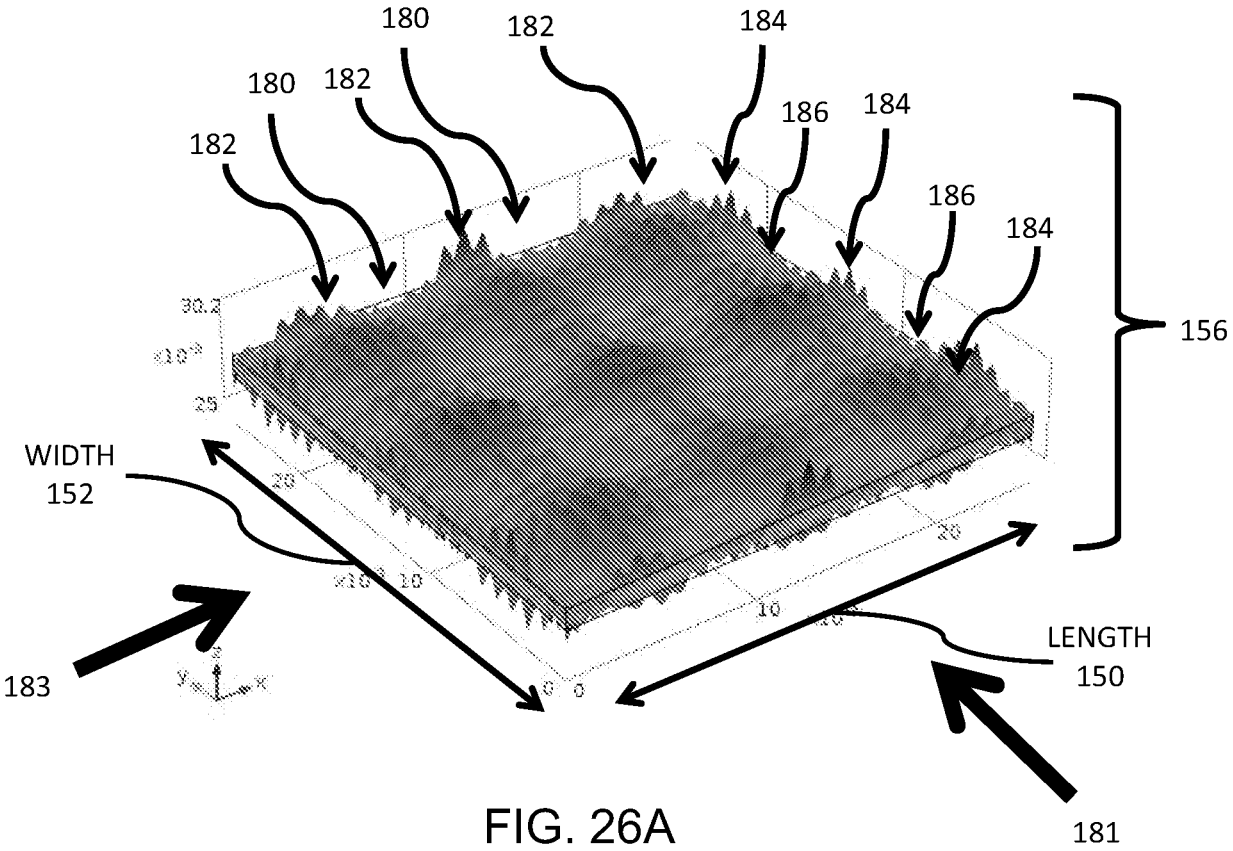


FIG. 26A

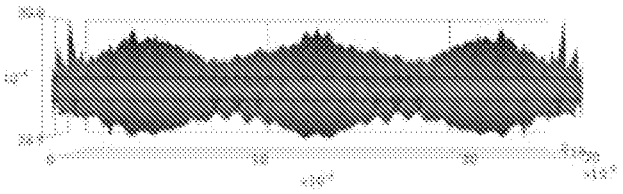


FIG. 26B

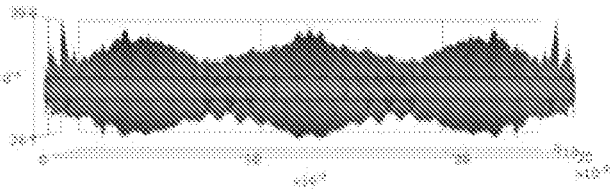


FIG. 26C