FIG. 1D

FIG. 1C

FIG. 1B

FIG. 1A

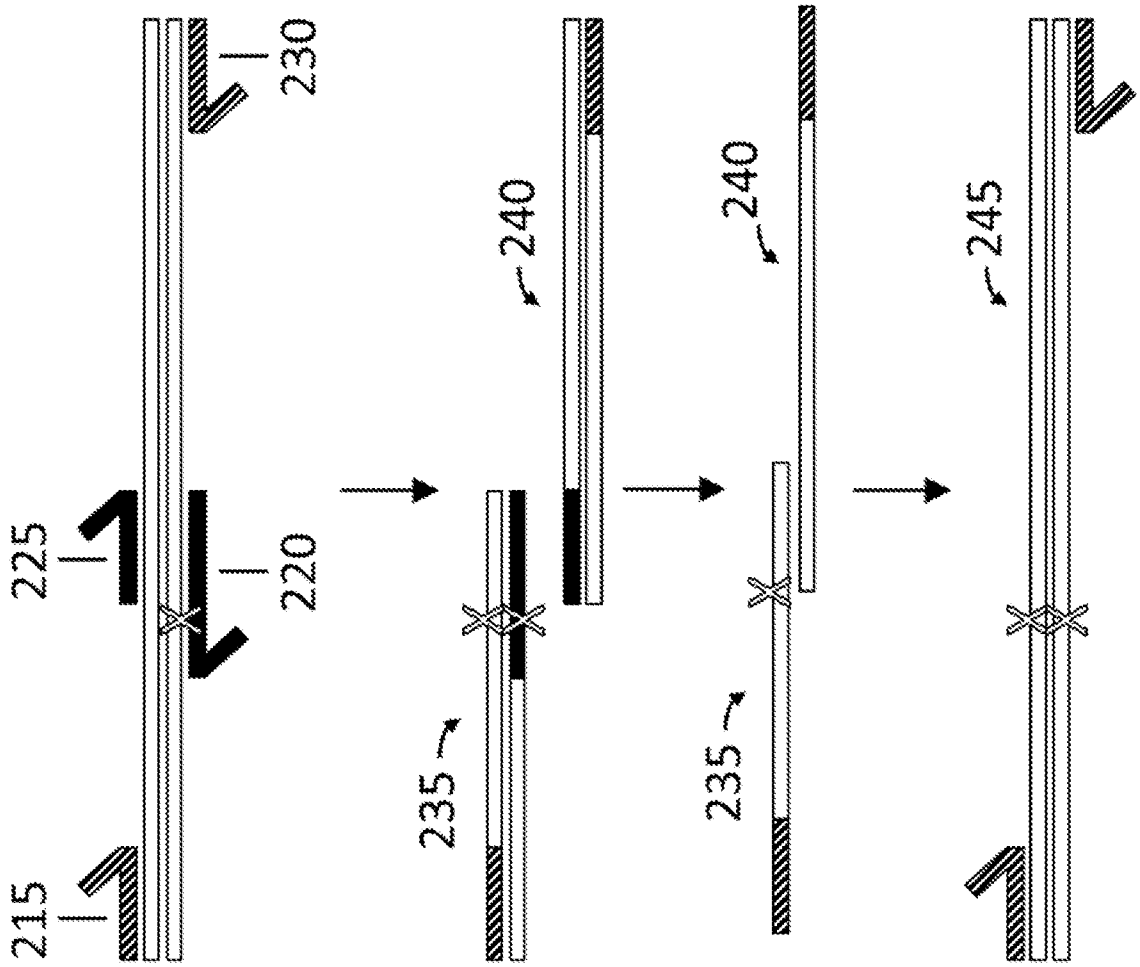



FIG. 2A FIG. 2B FIG. 2C FIG. 2D

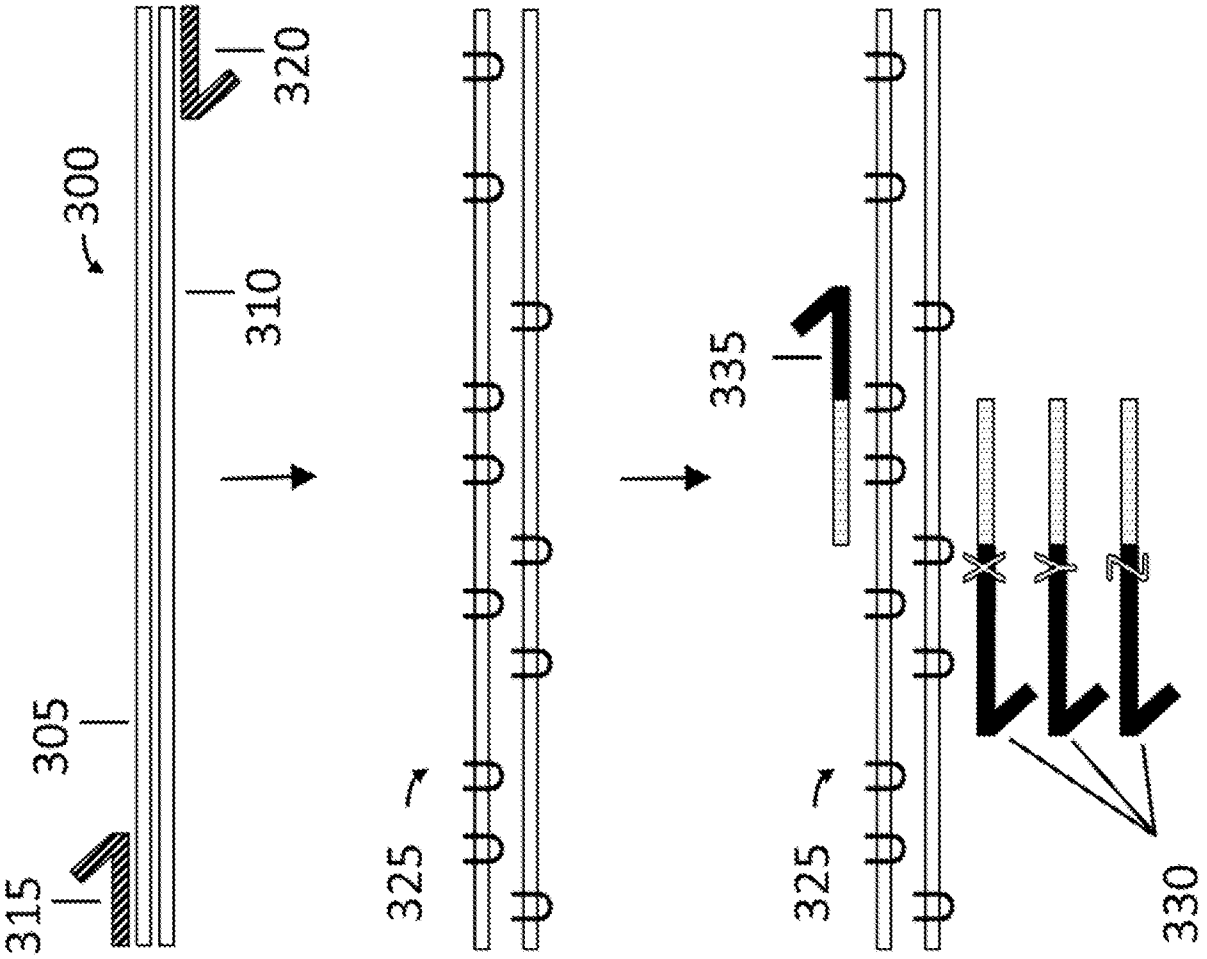



FIG. 3A

FIG. 3B

FIG. 3C

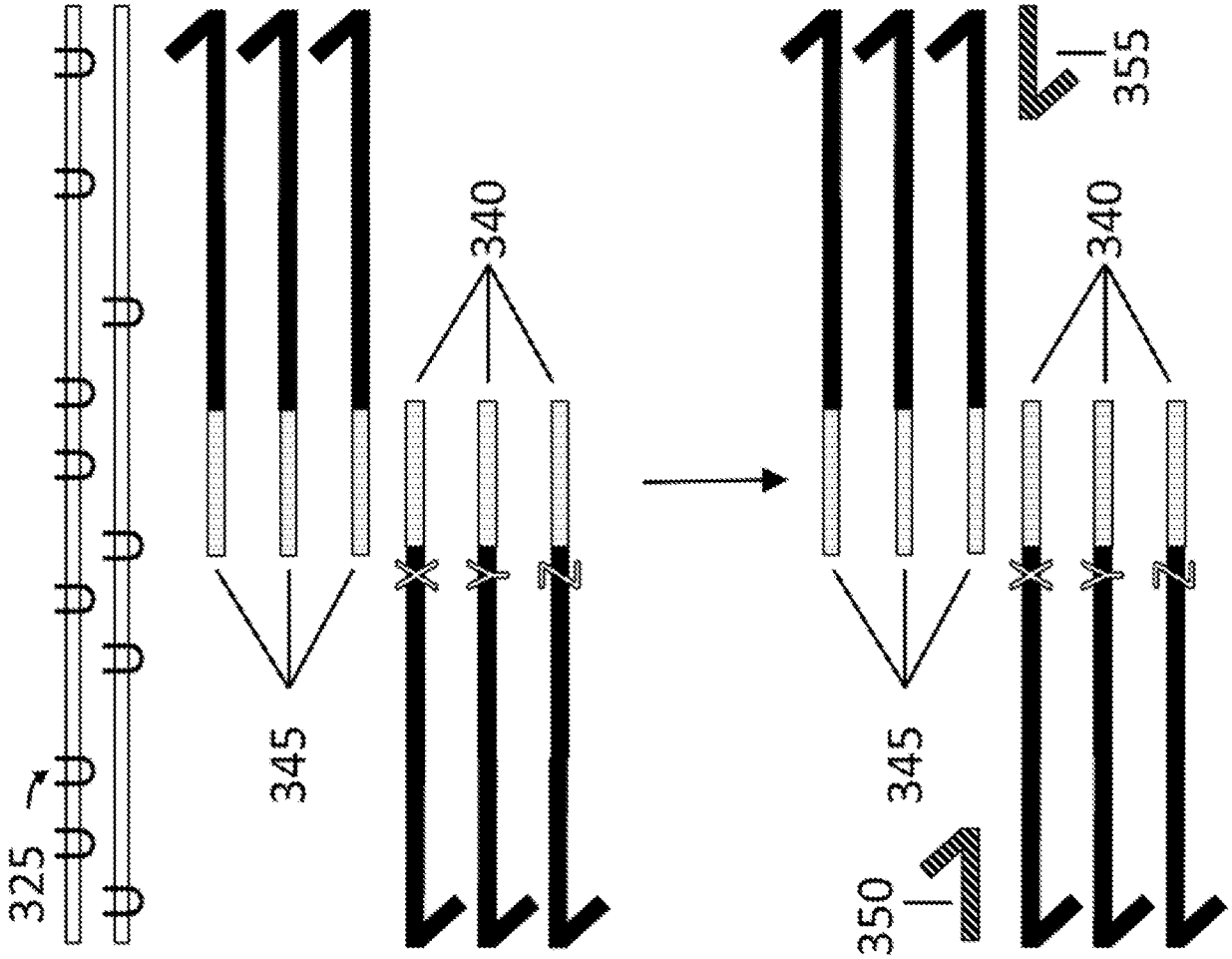



FIG. 3D

FIG. 3E

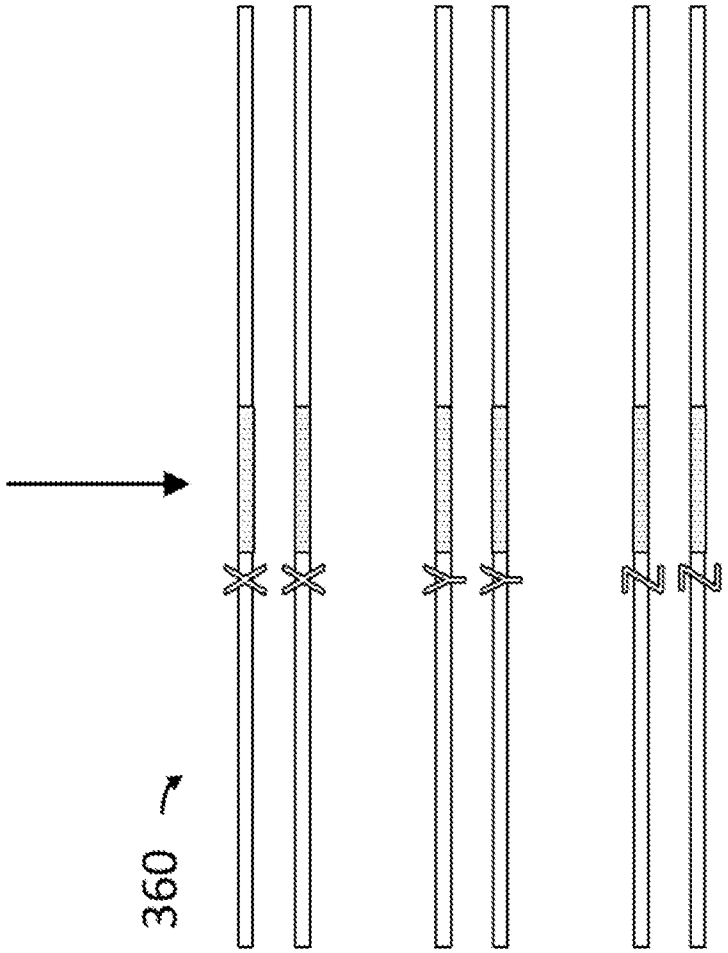



FIG. 3F

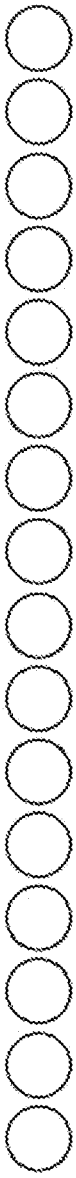


FIG. 4A

FIG. 4B

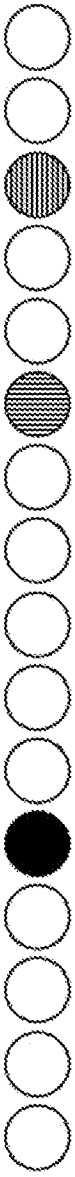


FIG. 4C

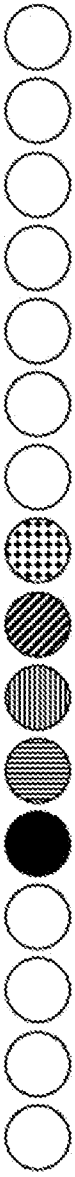


FIG. 4D

FIG. 4E

FIG. 5A

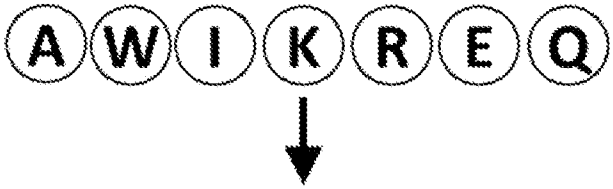
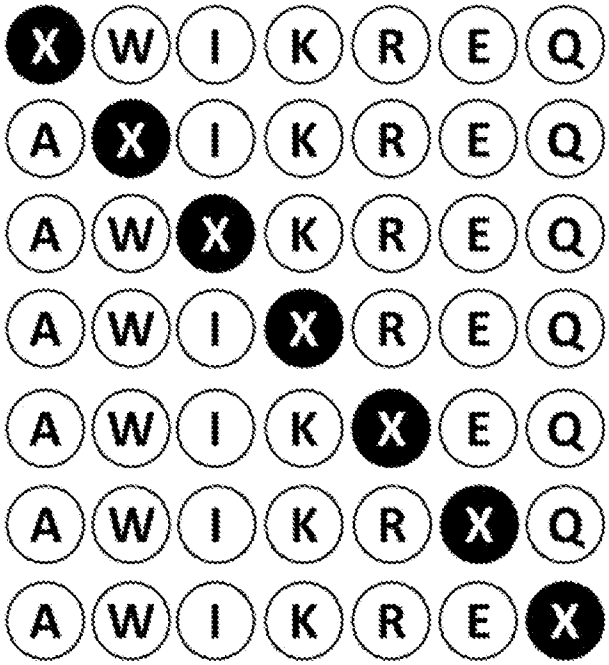



FIG. 5B




X = ANY CODON

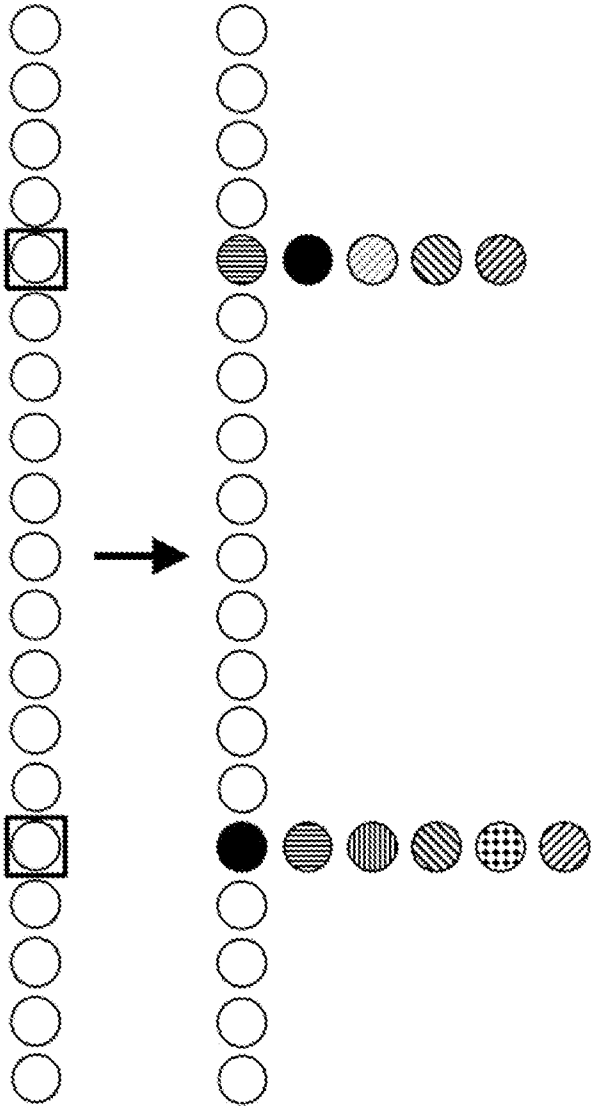


FIG. 6A

FIG. 6B

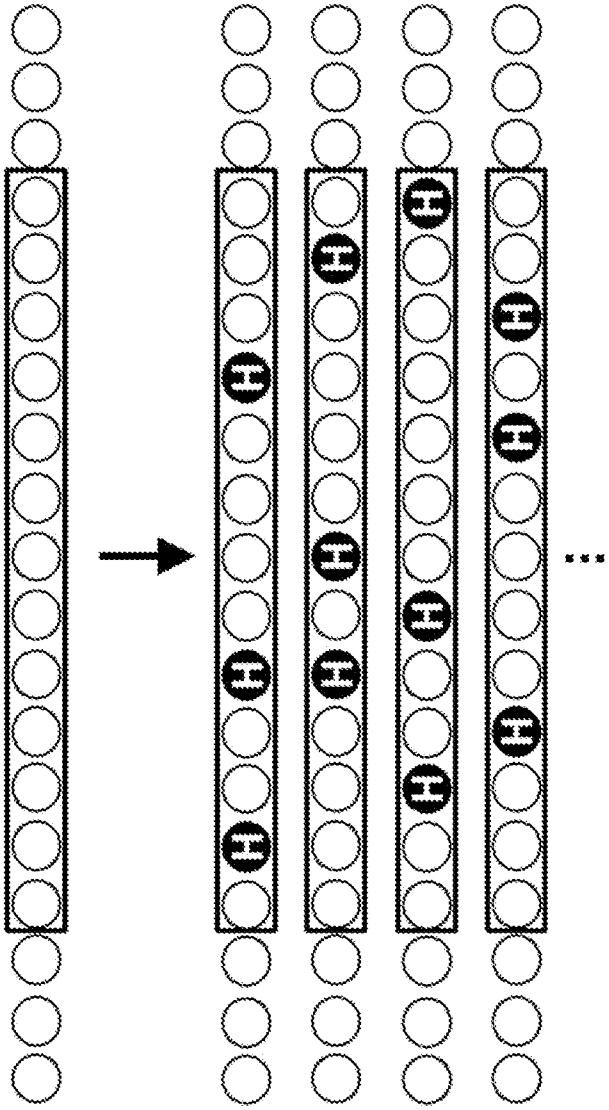


FIG. 7A

FIG. 7B

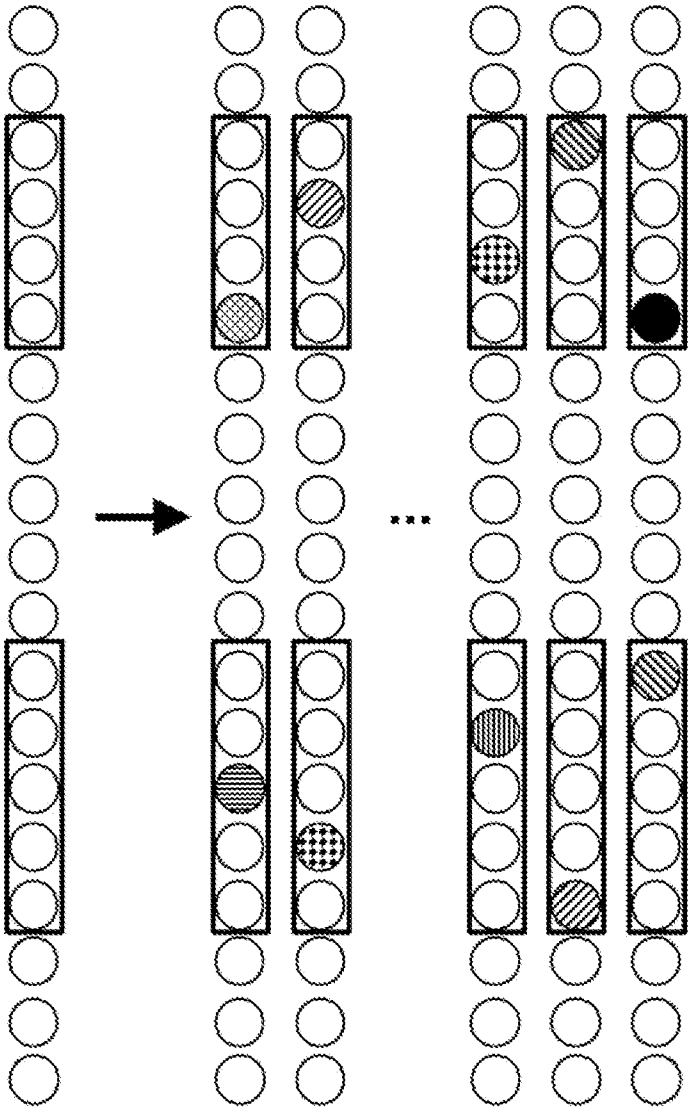


FIG. 8A

FIG. 8B

FIG. 9A

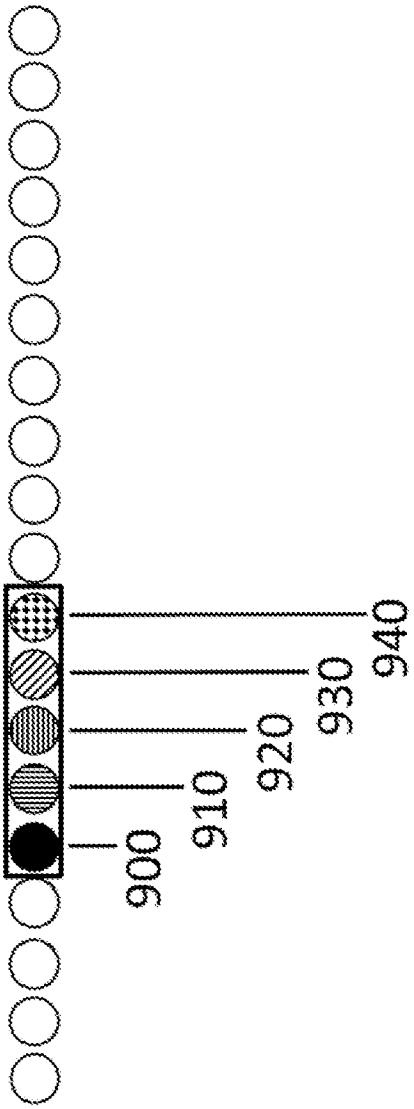



FIG. 9B

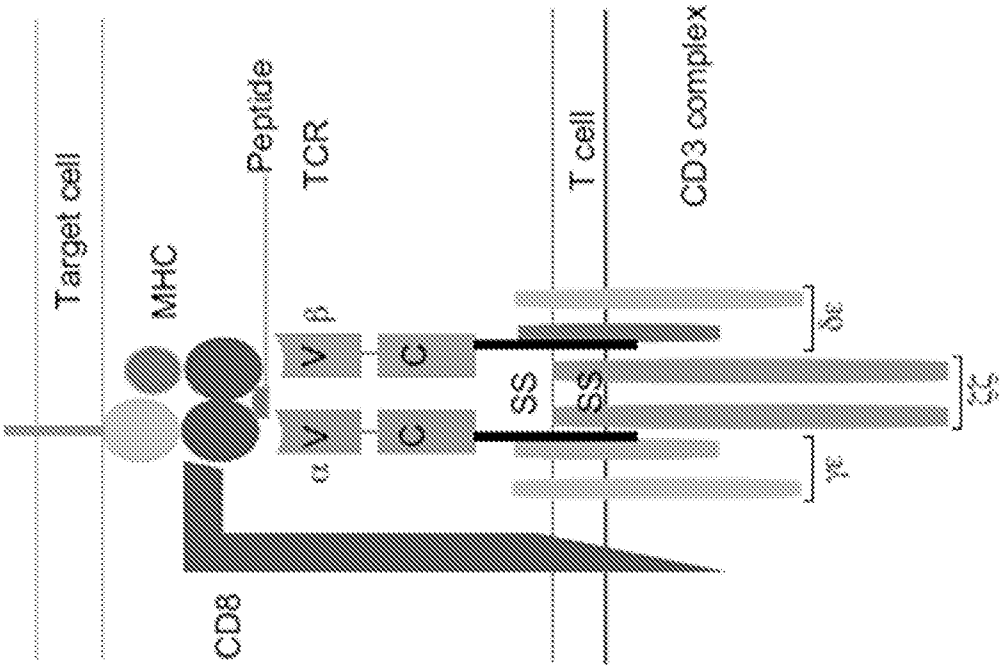



FIG. 10B

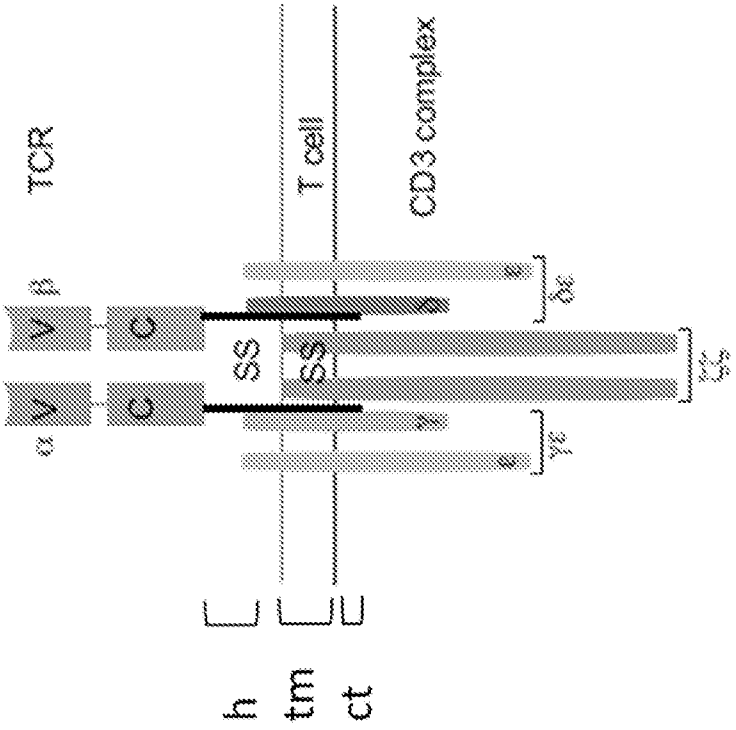



FIG. 10A

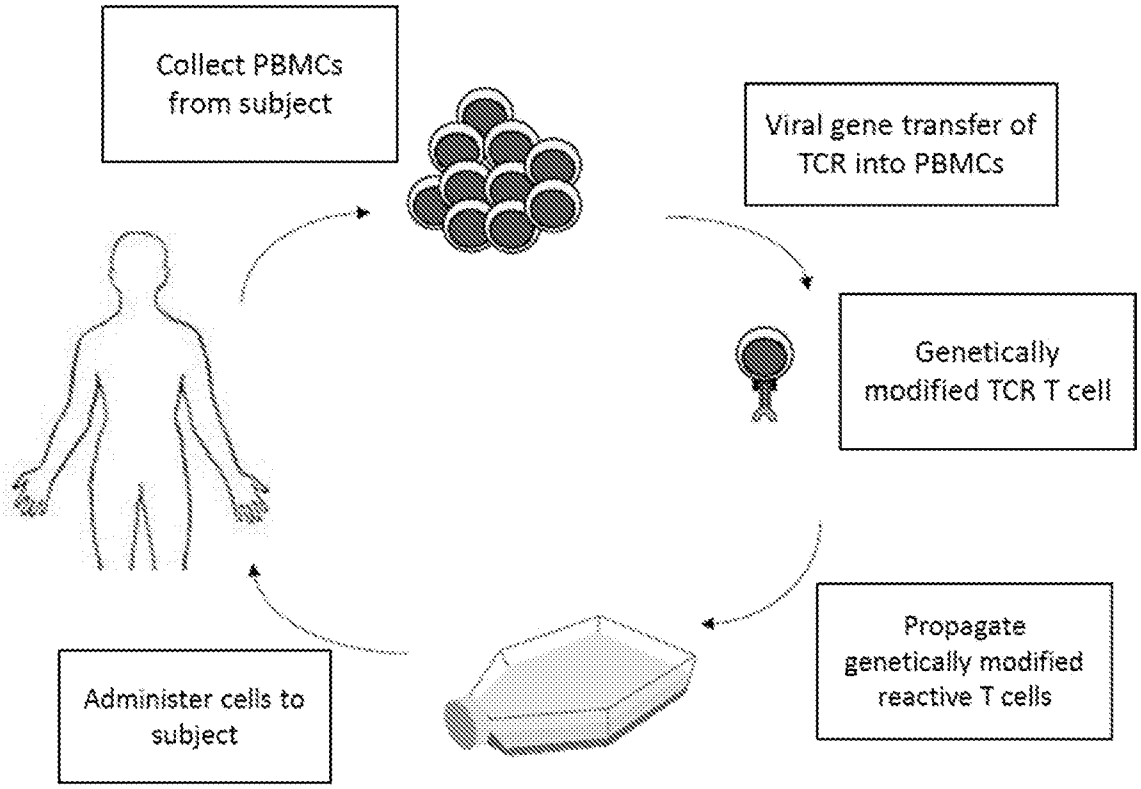

Collect PBMCs from subject
Viral gene transfer of TCR into PBMCs
Genetically modified TCR T cell
Propagate genetically modified reactive T cells
Administer cells to subject

FIG. 10C

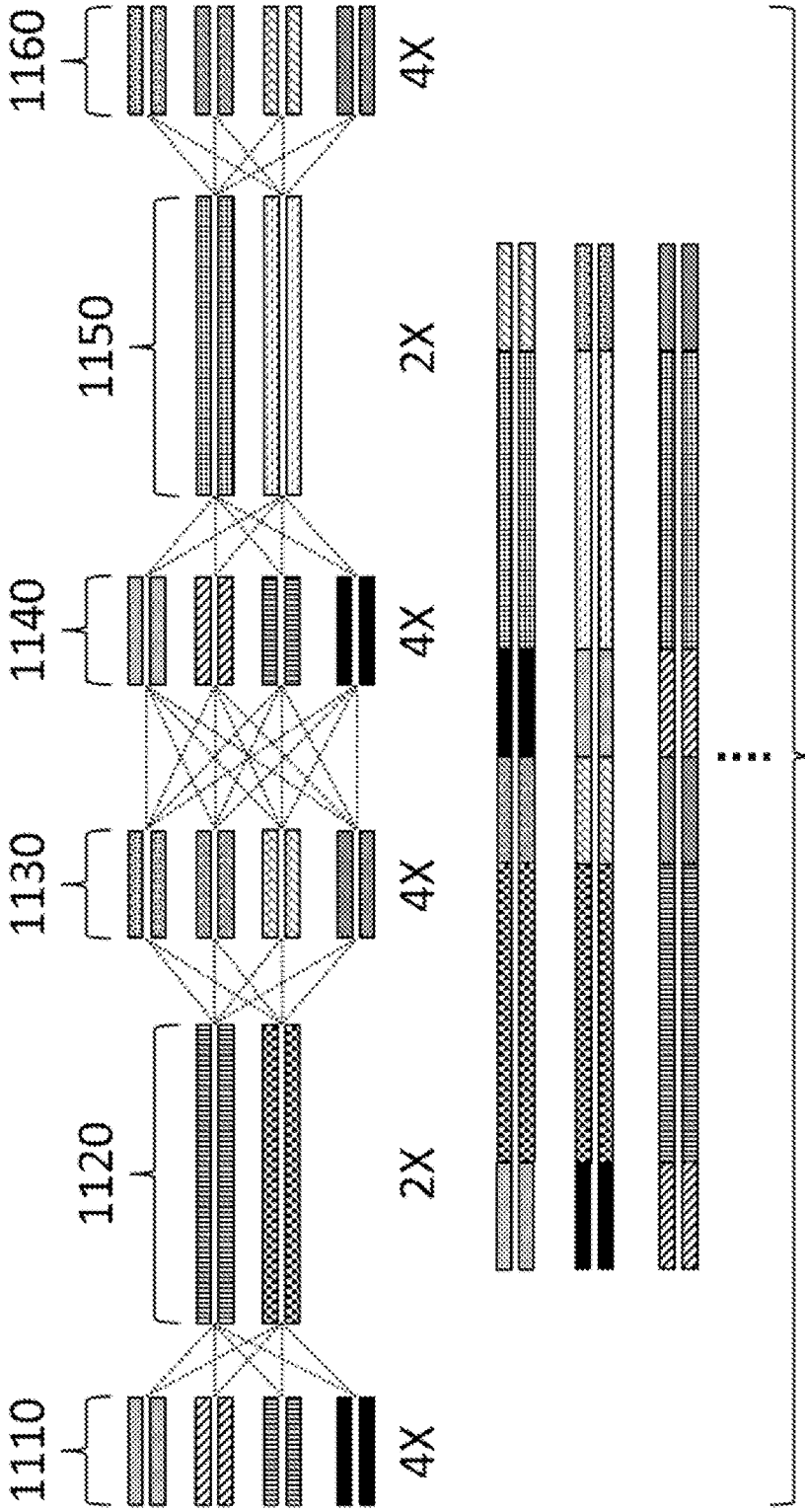



FIG. 11

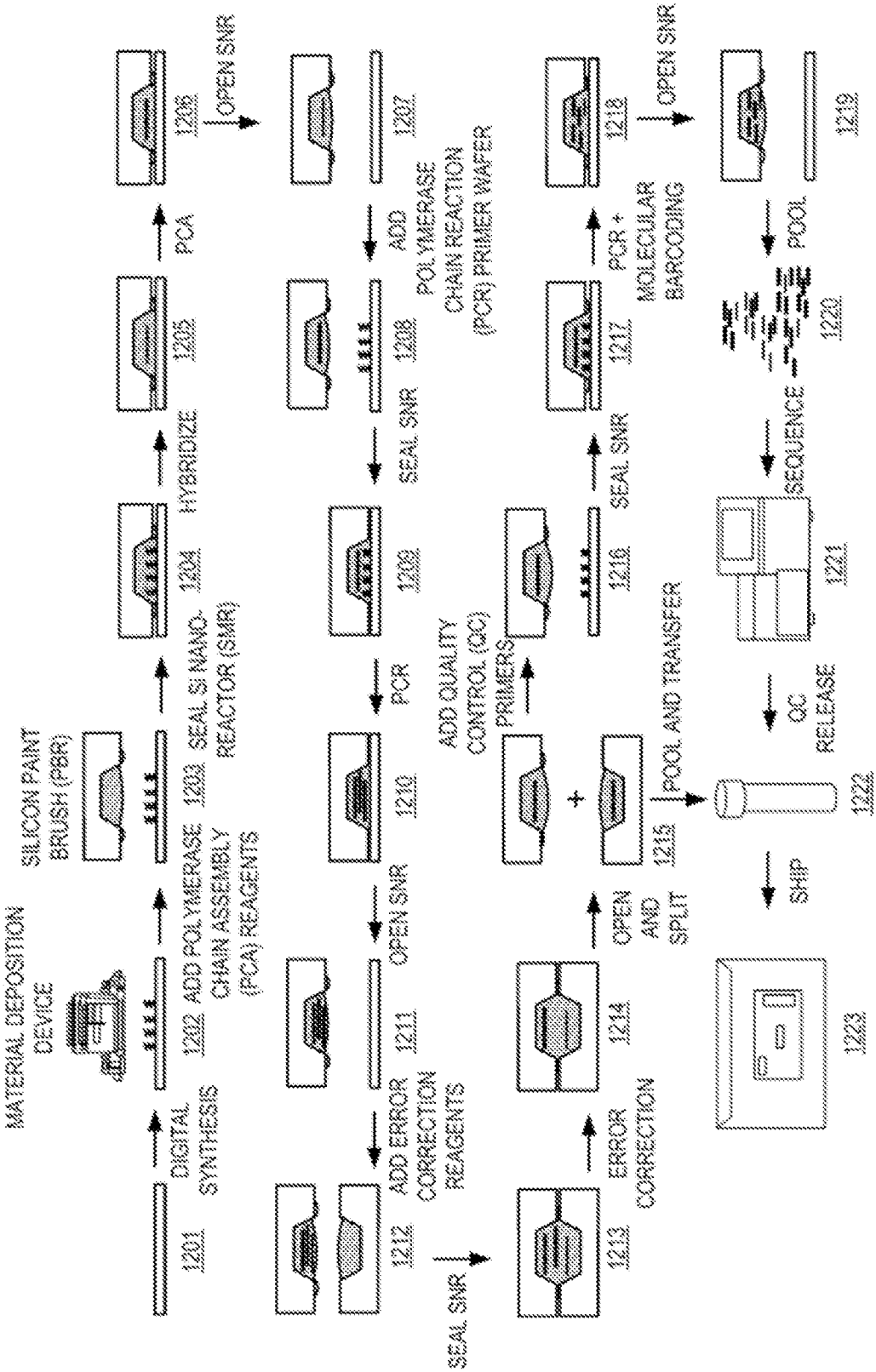

MATERIAL DEPOSITION DEVICE
SILICON PAINT BRUSH (PBR)
1201
DIGITAL SYNTHESIS
1202
ADD POLYMERASE CHAIN ASSEMBLY (PCA) REAGENTS
1203
SEAL Si NANO-REACTOR (SMR)
1204
HYBRIDIZE
1205
PCA
1206
OPEN SMR
1207
ADD POLYMERASE CHAIN REACTION (PCR) PRIMER WAFER
1208
SEAL SMR
1209
PCR
1210
OPEN SMR
1211
ADD ERROR CORRECTION REAGENTS
1212
SEAL SMR
1213
ERROR CORRECTION
1214
OPEN AND SPLIT
1215
POOL AND TRANSFER
ADD QUALITY CONTROL (QC) PRIMERS
1216
SEAL SMR
1217
PCR + MOLECULAR BARCODING
1218
OPEN SMR
1219
POOL
1220
SEQUENCE
1221
QC RELEASE
1222
SHIP
1223

FIG. 12

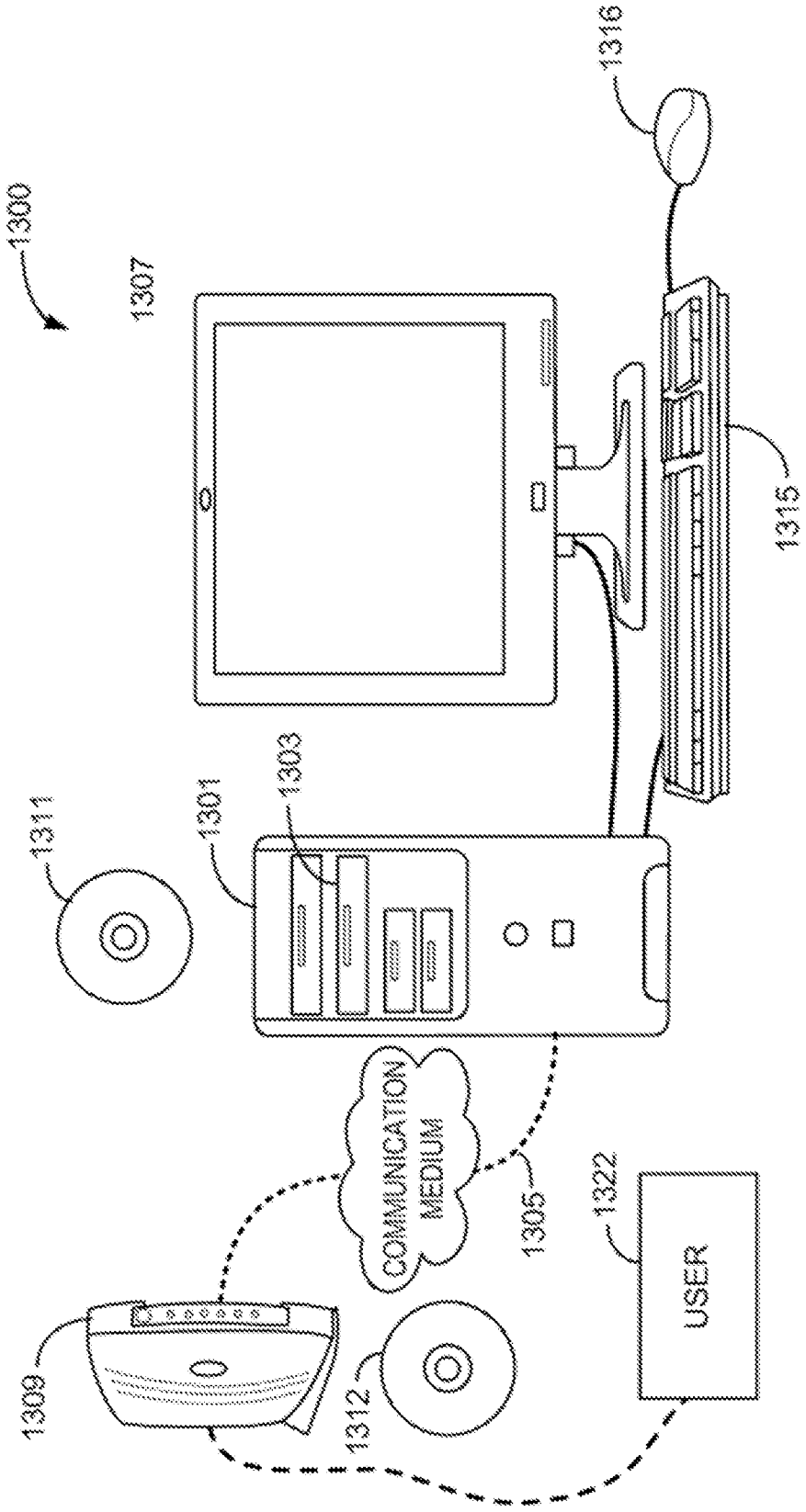

1300
1307
1316
1315
1303
1301
1311
COMMUNICATION MEDIUM
1305
1322
USER
1309
1312

FIG. 13

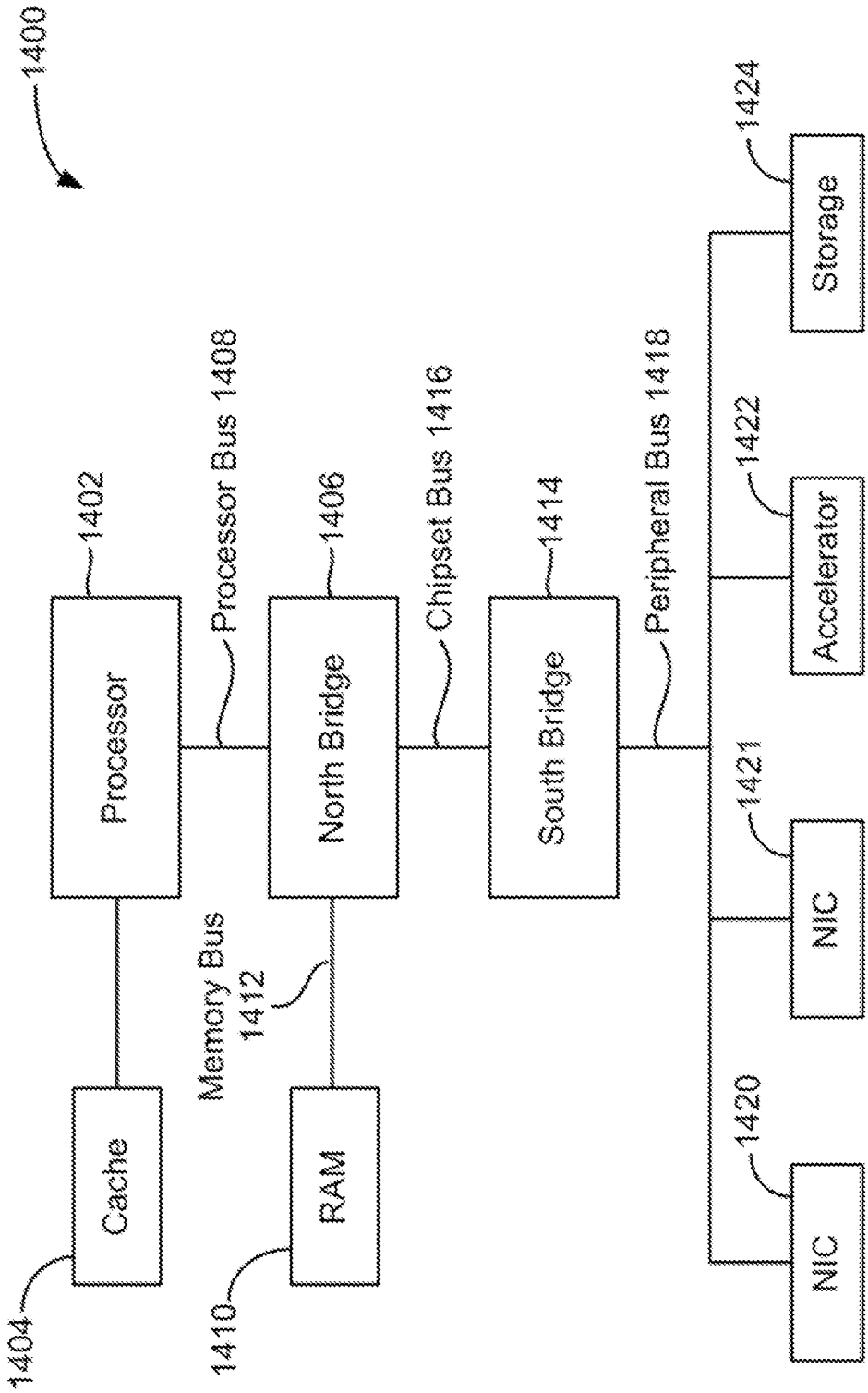

1400
Processor
1402
Processor Bus 1408
North Bridge
1406
Chipset Bus 1416
South Bridge
1414
Peripheral Bus 1418
Storage
1424
Accelerator
1422
NIC
1421
NIC
1420
Cache
1404
Memory Bus
1412
RAM
1410

FIG. 14

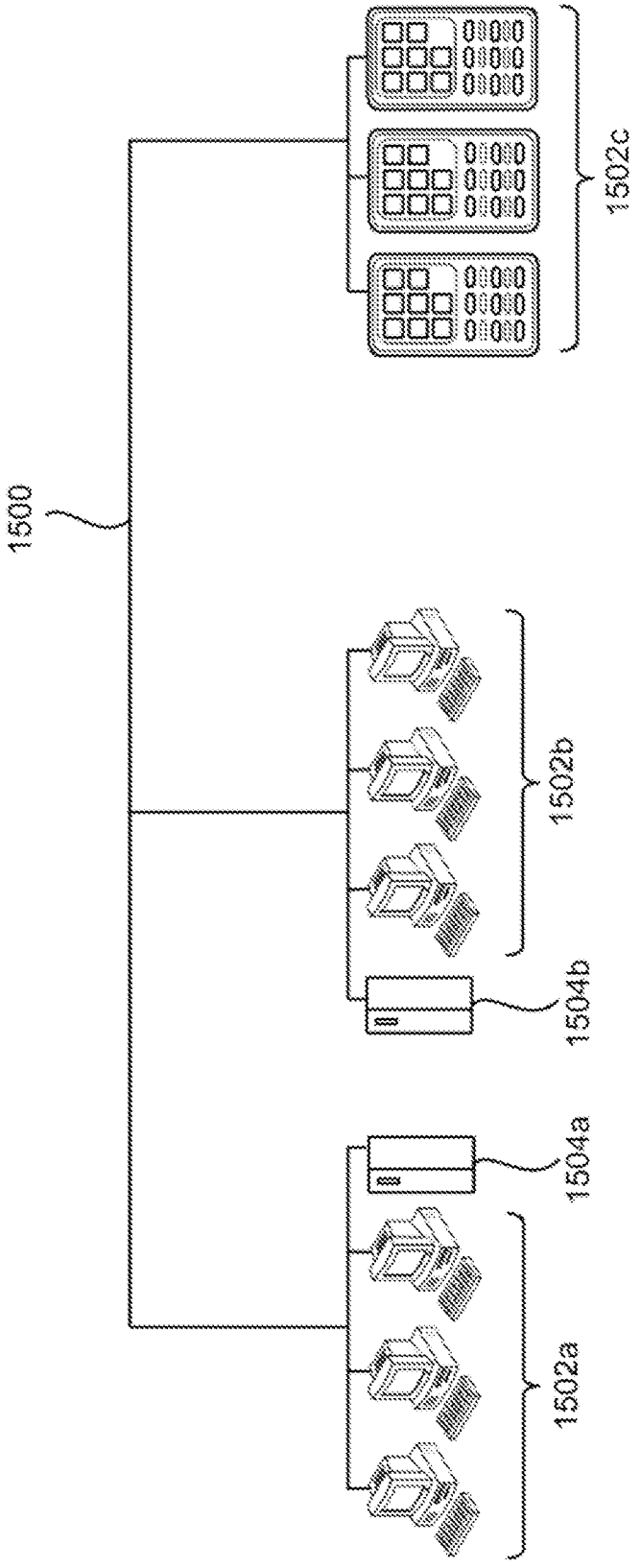



FIG. 15

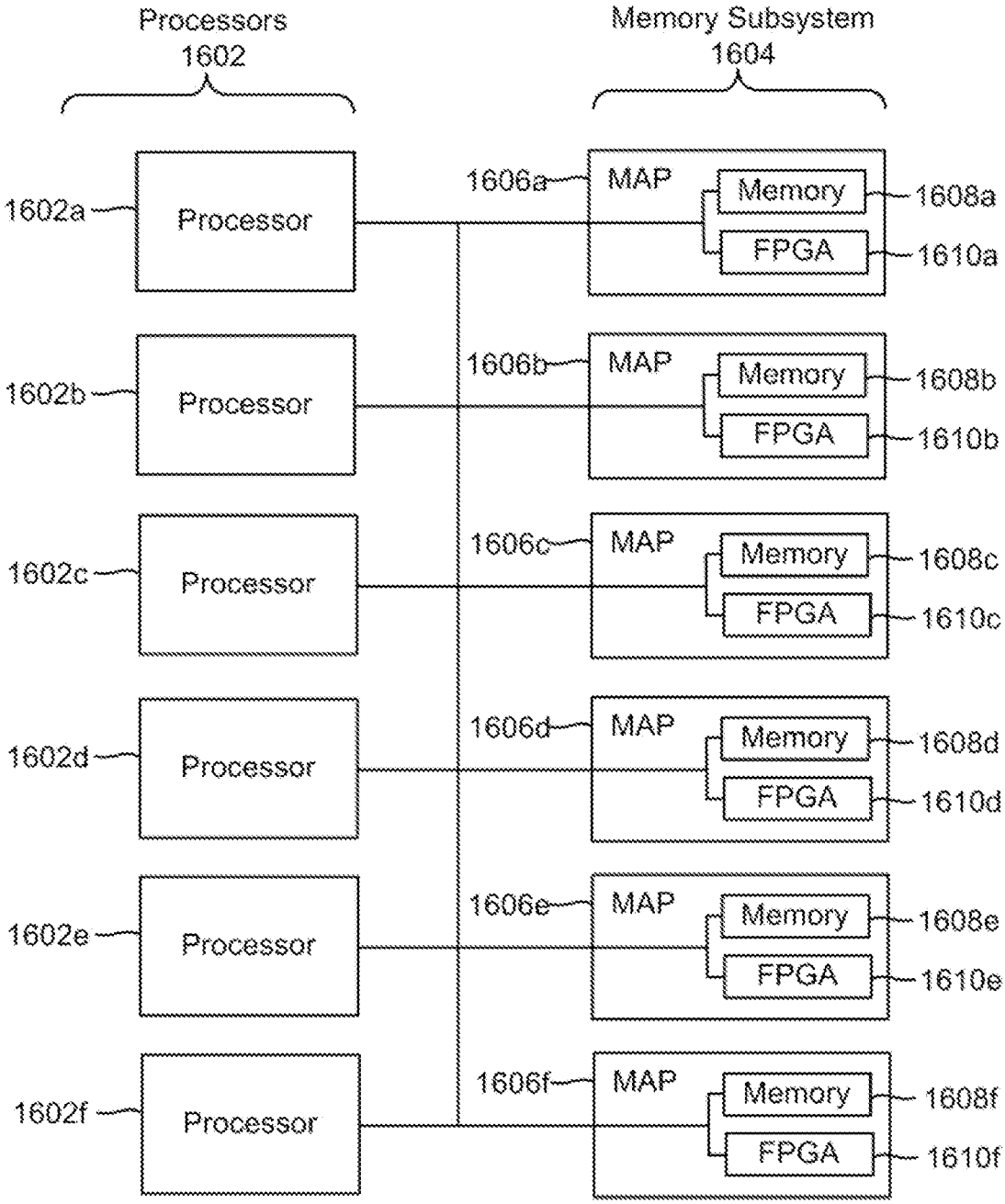

Processors
1602
Memory Subsystem
1604
1602a
Processor
1606a
MAP
Memory
FPGA
1608a
1610a
1602b
Processor
1606b
MAP
Memory
FPGA
1608b
1610b
1602c
Processor
1606c
MAP
Memory
FPGA
1608c
1610c
1602d
Processor
1606d
MAP
Memory
FPGA
1608d
1610d
1602e
Processor
1606e
MAP
Memory
FPGA
1608e
1610e
1602f
Processor
1606f
MAP
Memory
FPGA
1608f
1610f

FIG. 16

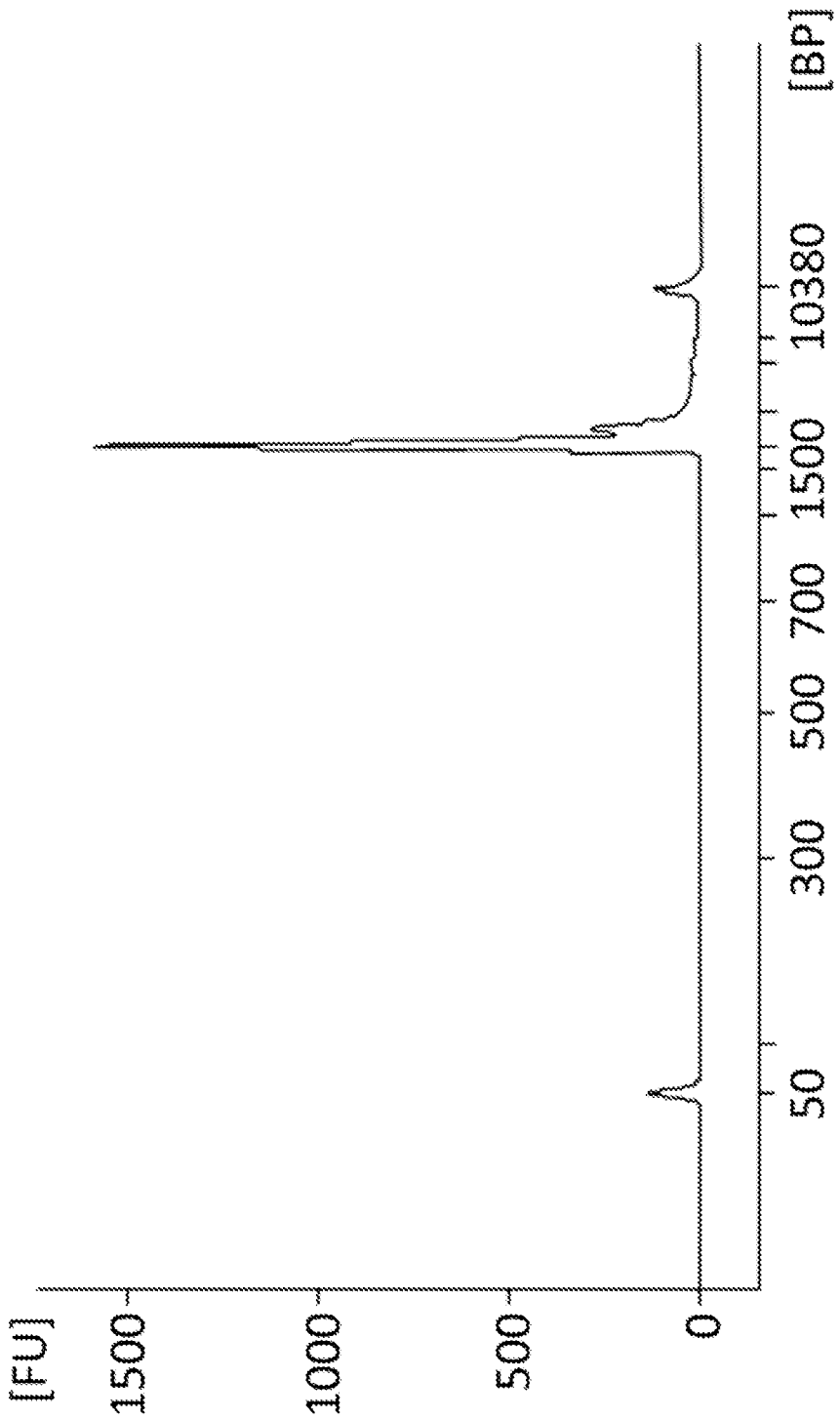



FIG. 17

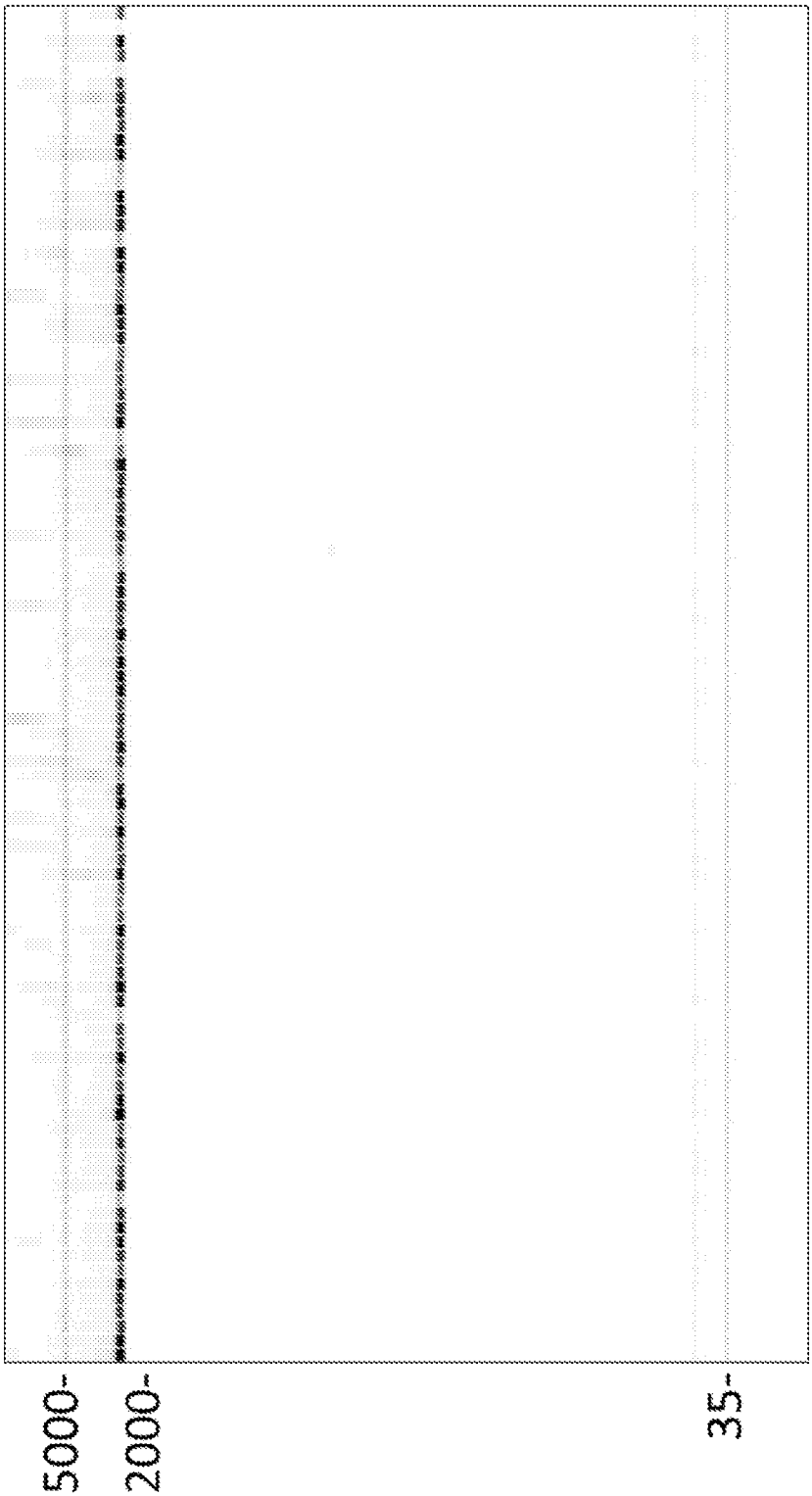



FIG. 18