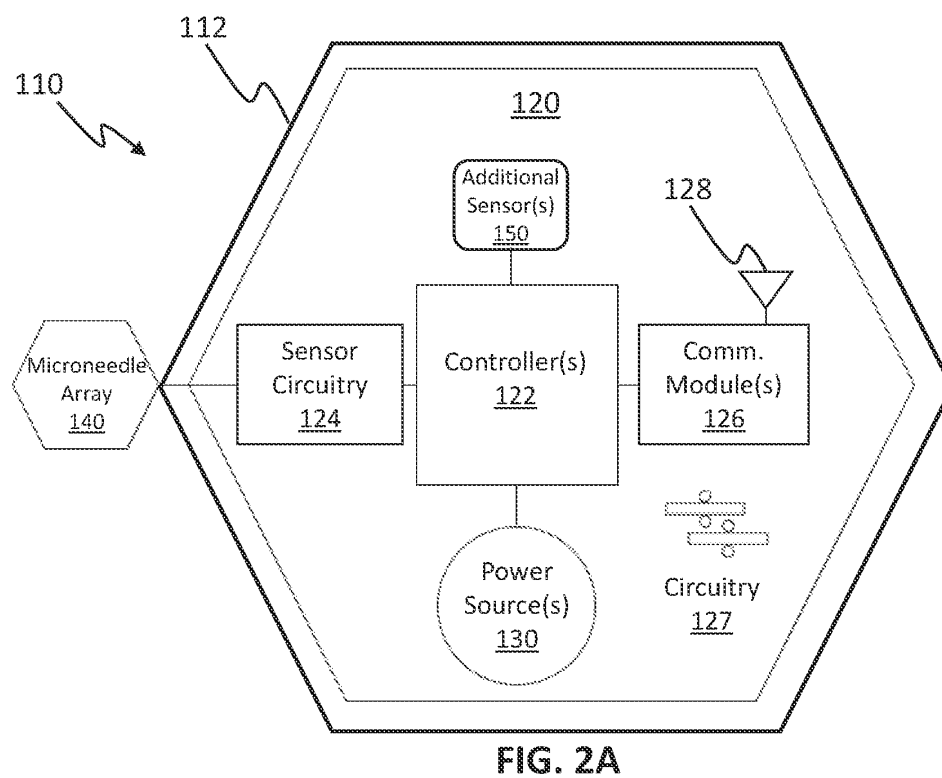
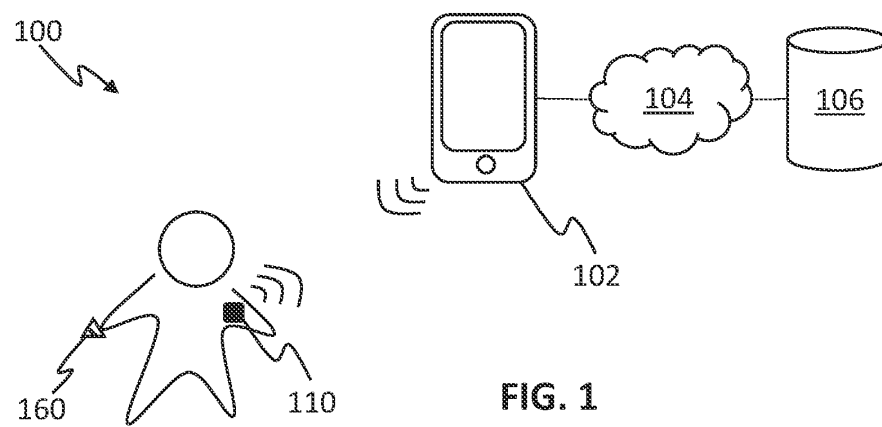




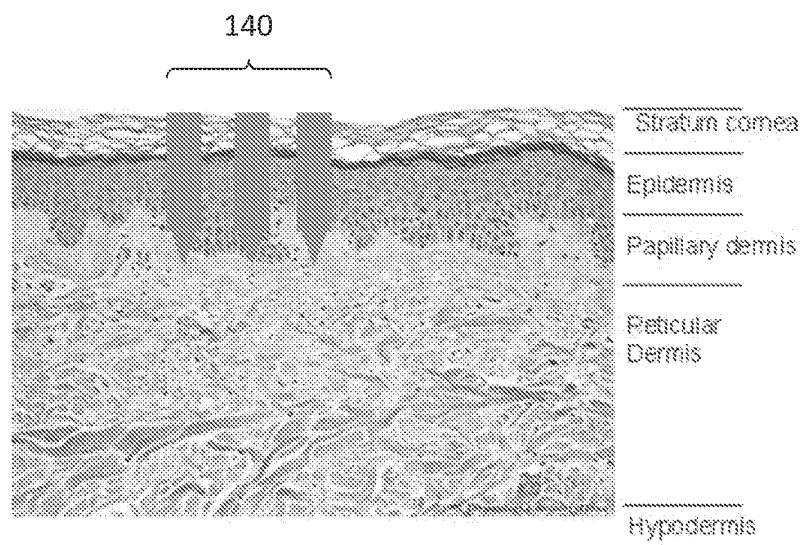


FIG. 2B

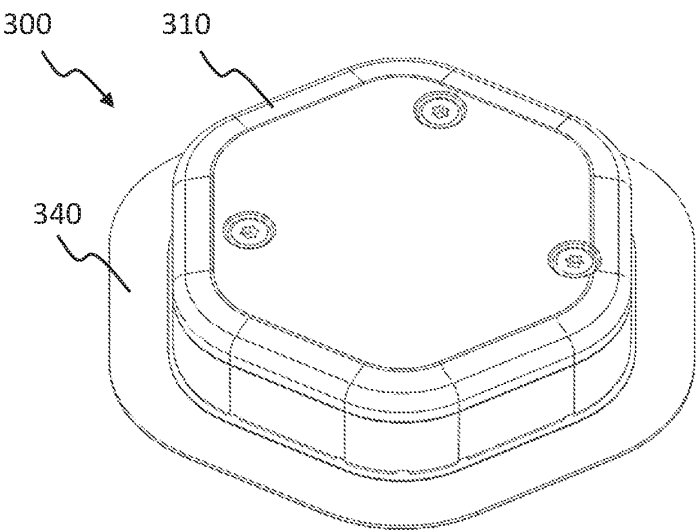


FIG. 3A

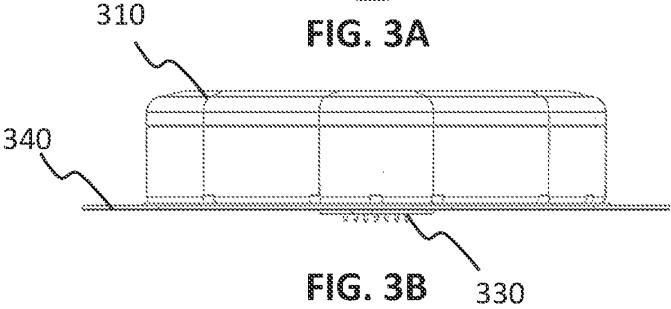


FIG. 3B

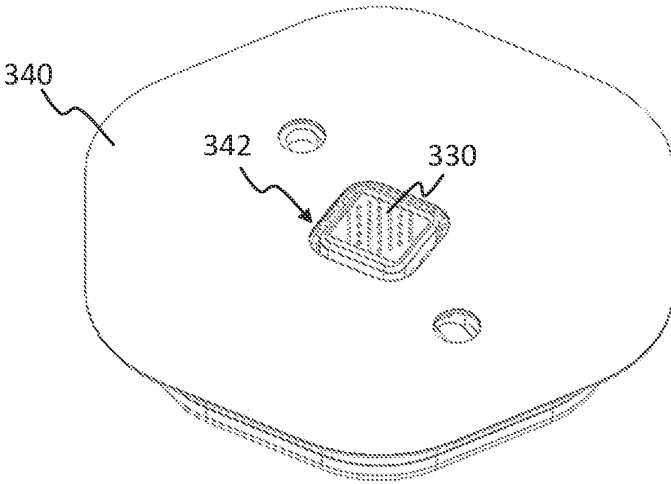


FIG. 3C

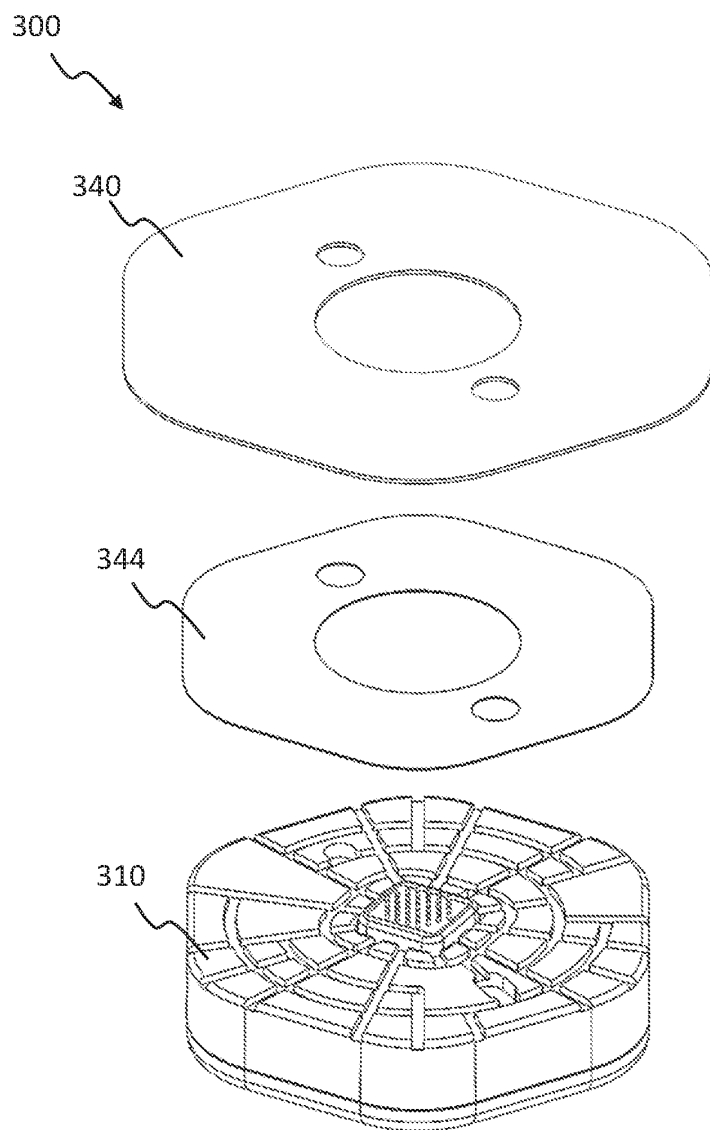


FIG. 3D

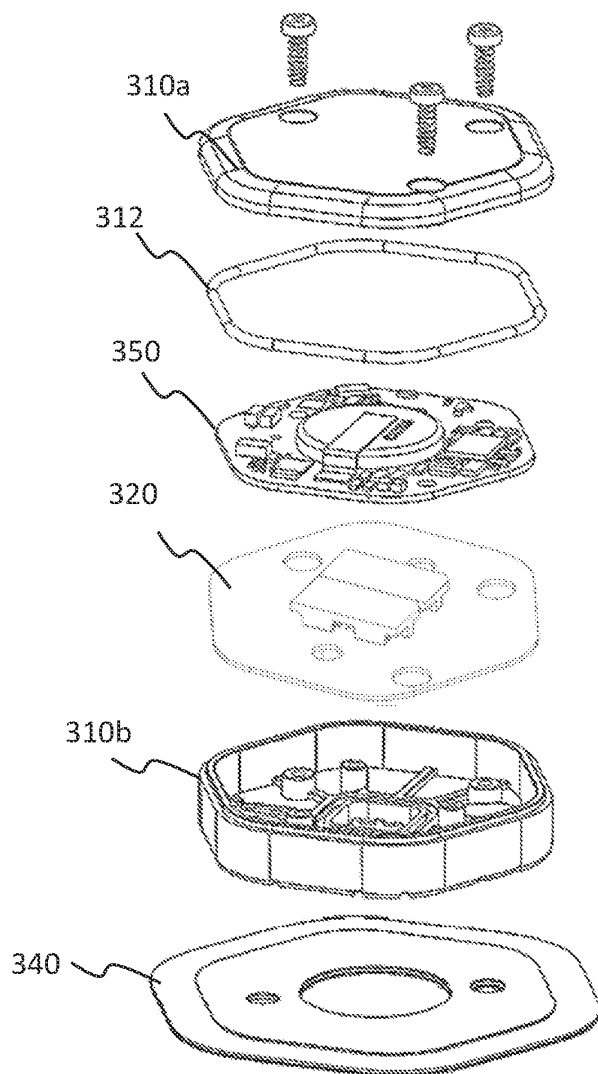


FIG. 3E

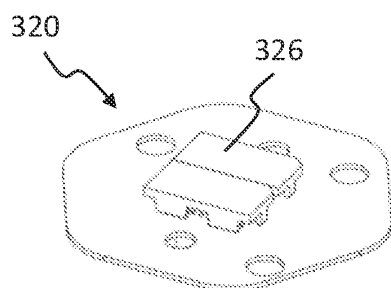


FIG. 3F

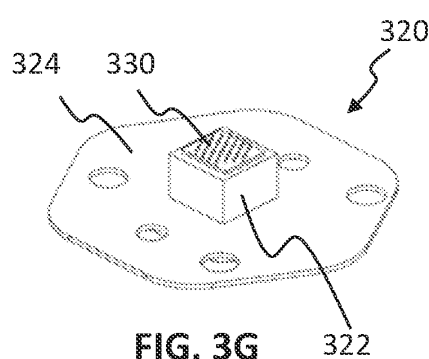


FIG. 3G

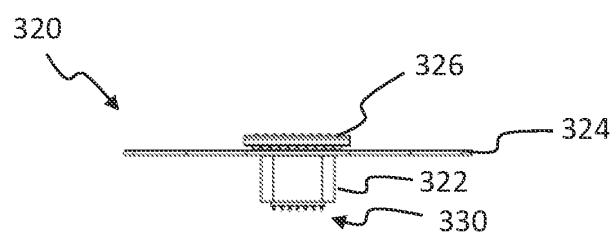


FIG. 3H

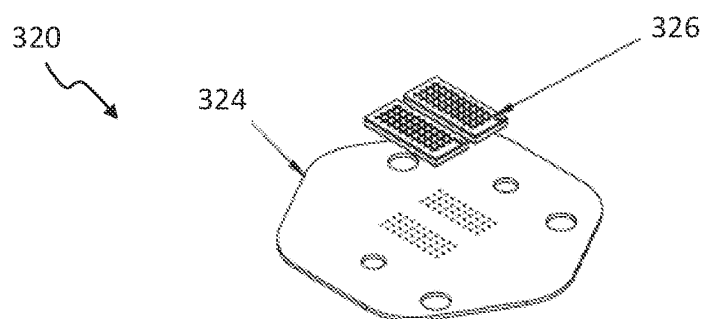


FIG. 3I

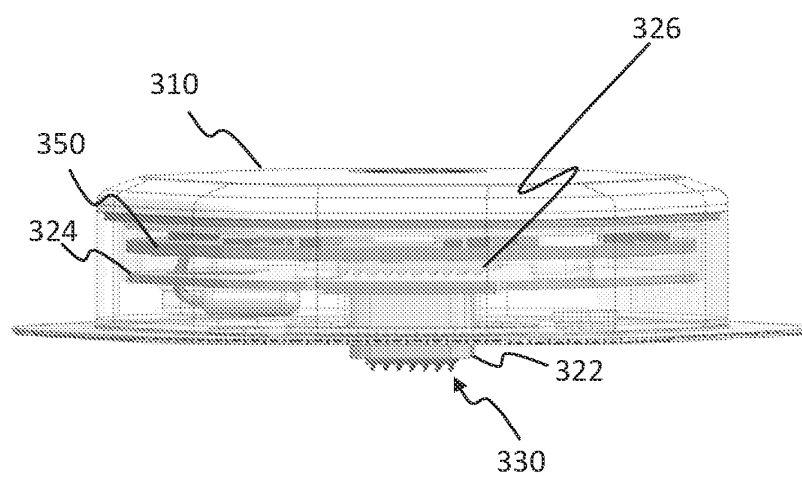


FIG. 3J

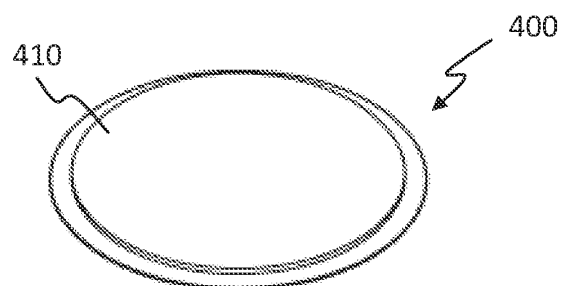


FIG. 4A

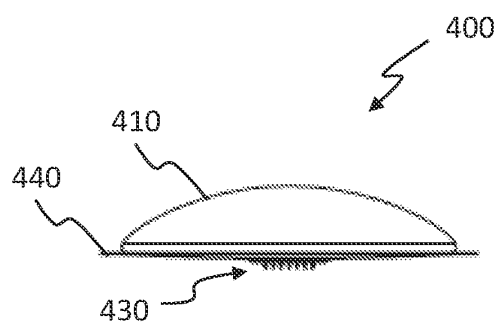


FIG. 4B

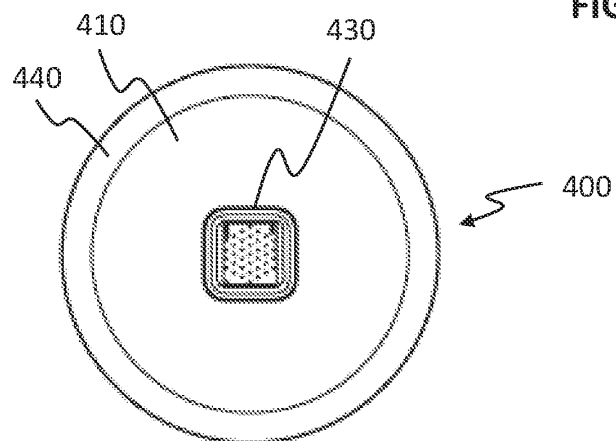


FIG. 4C

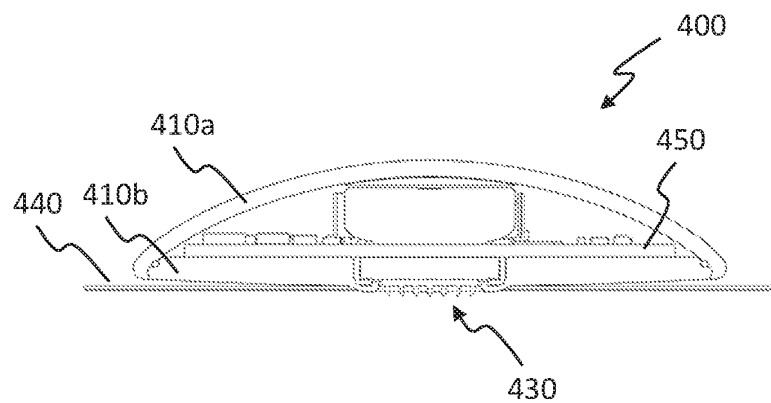


FIG. 4D

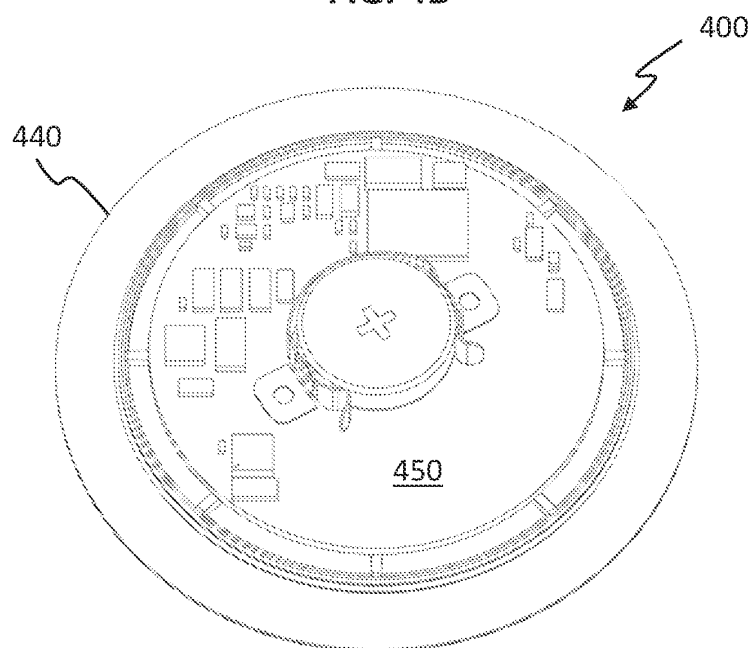


FIG. 4E

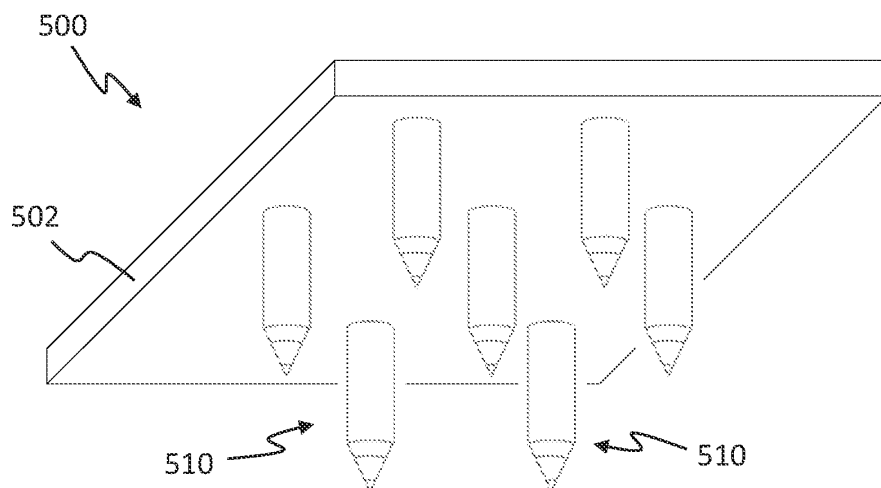


FIG. 5A

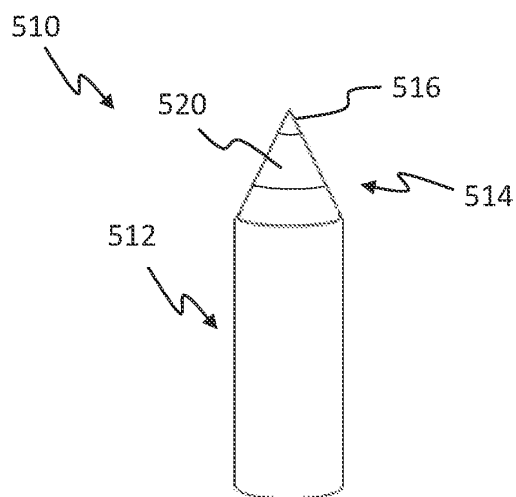


FIG. 5B

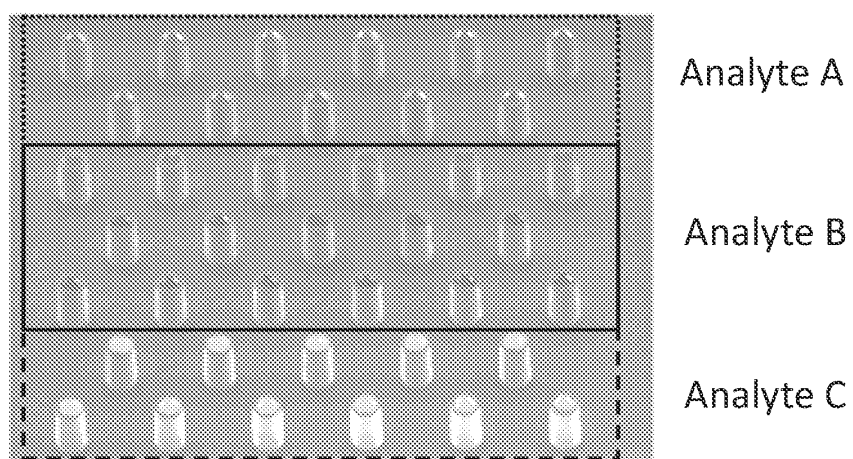


FIG. 6

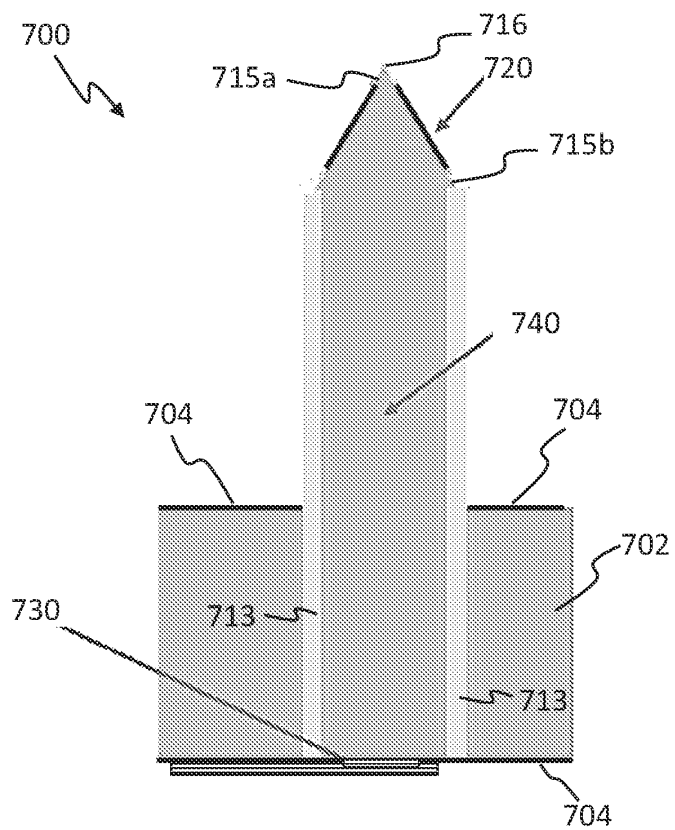


FIG. 7A

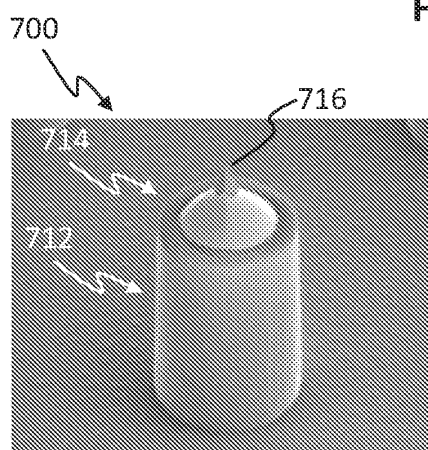


FIG. 7B

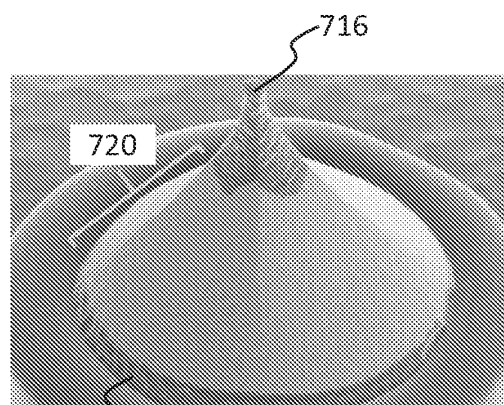


FIG. 7C



FIG. 8

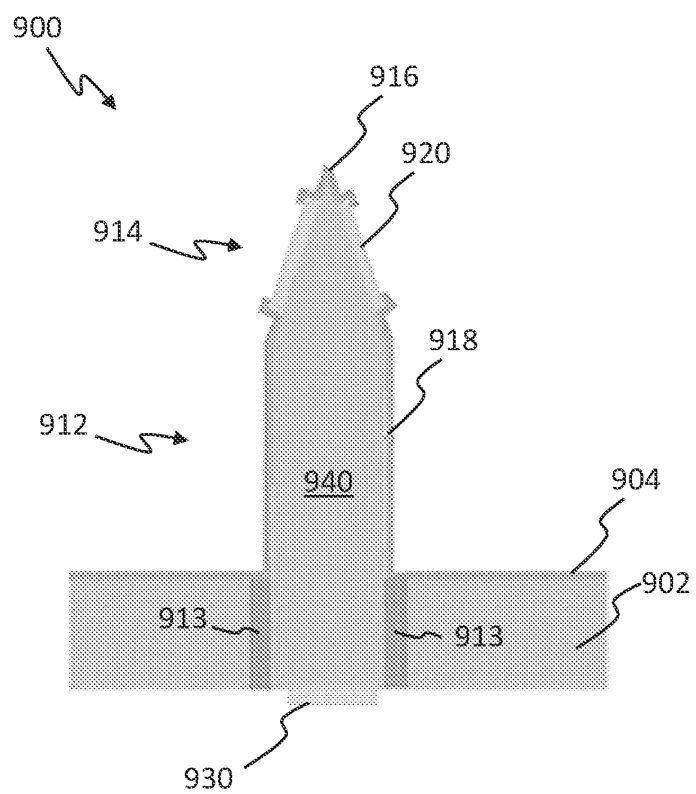


FIG. 9

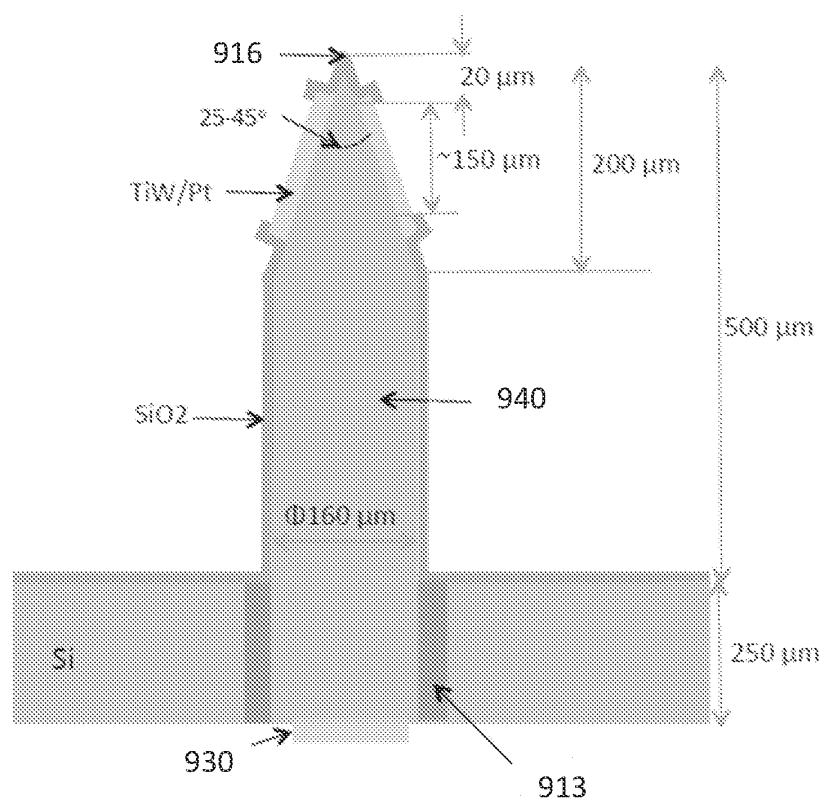


FIG. 10

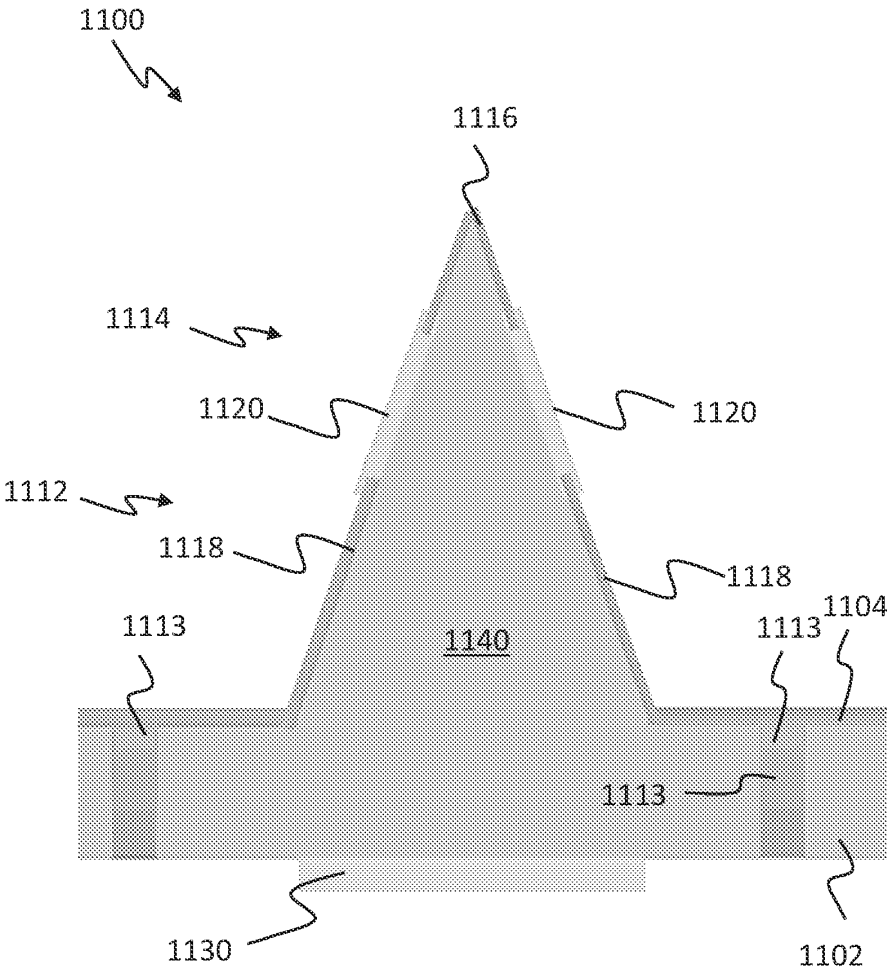


FIG. 11A

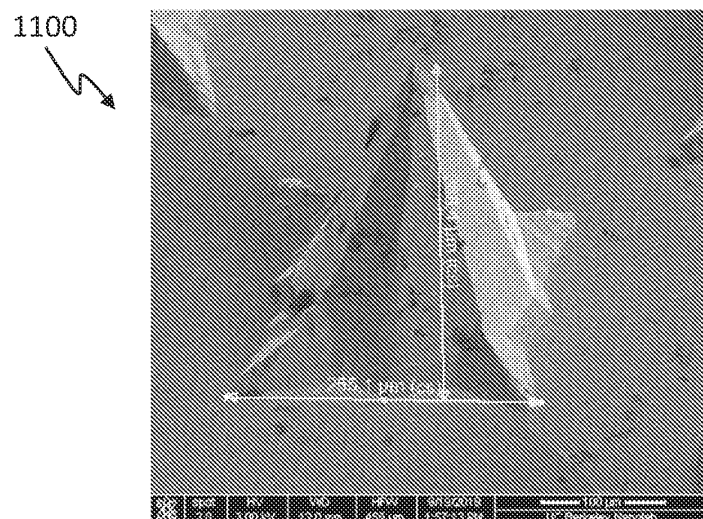


FIG. 11B

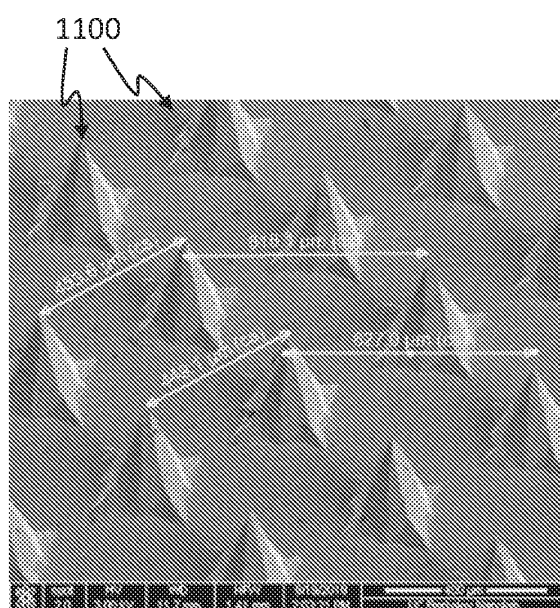


FIG. 11C

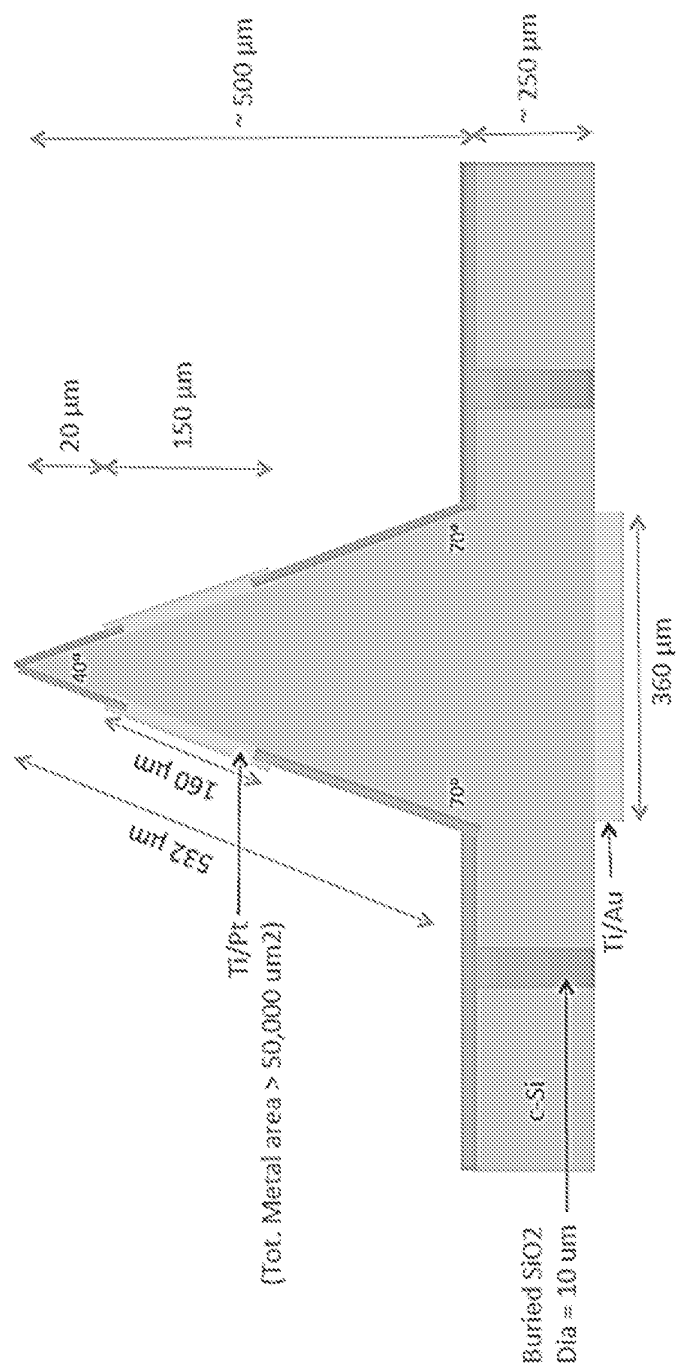


Fig. 12

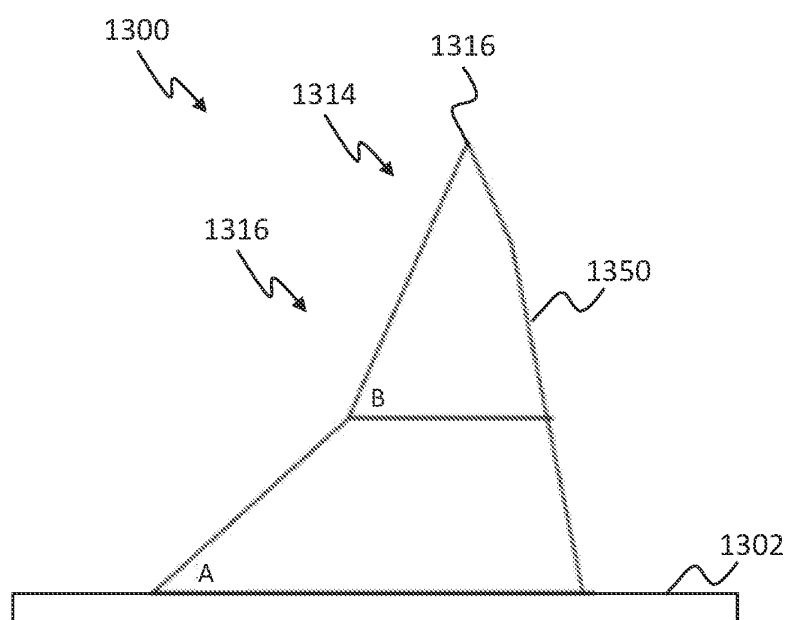


FIG. 13A

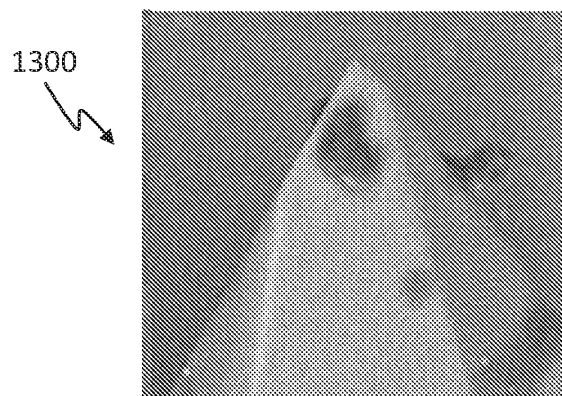


FIG. 13B

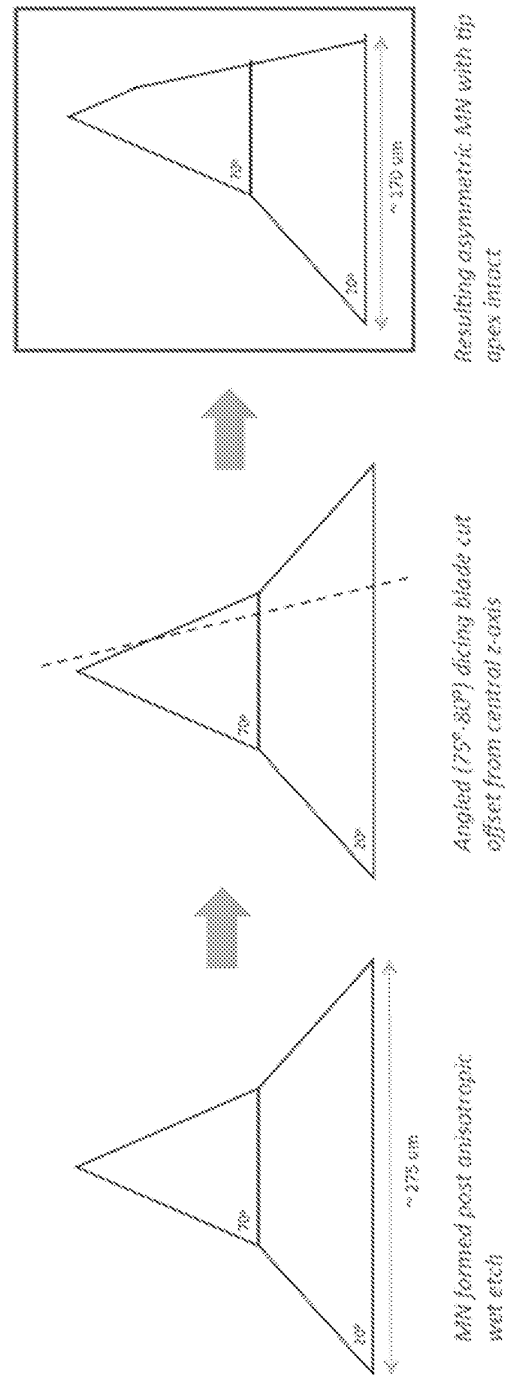


FIG. 13E

FIG. 13D

FIG. 13C

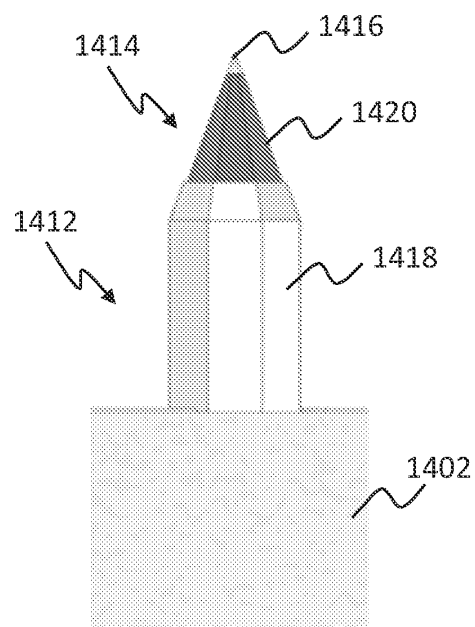


FIG. 14A

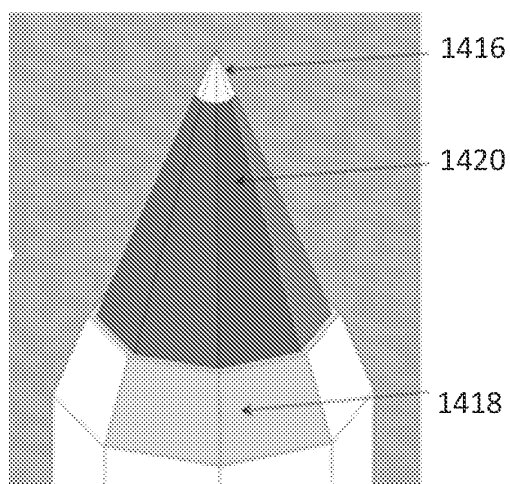


FIG. 14B

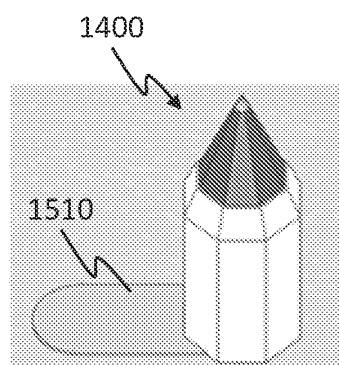


FIG. 15A

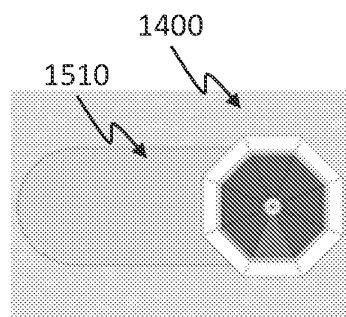


FIG. 15B

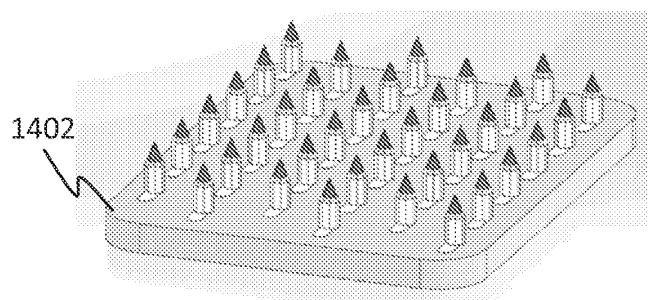


FIG. 15C

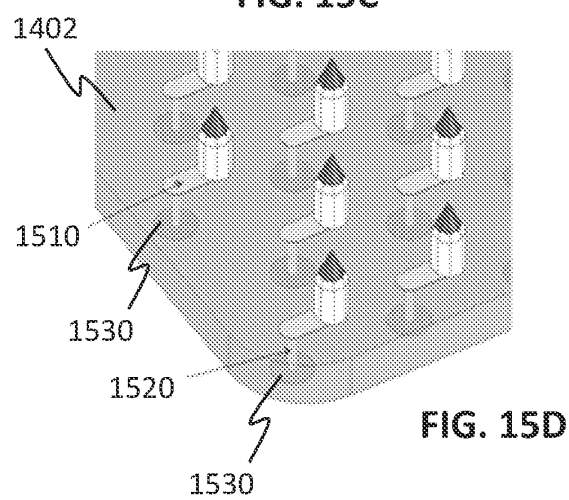


FIG. 15D

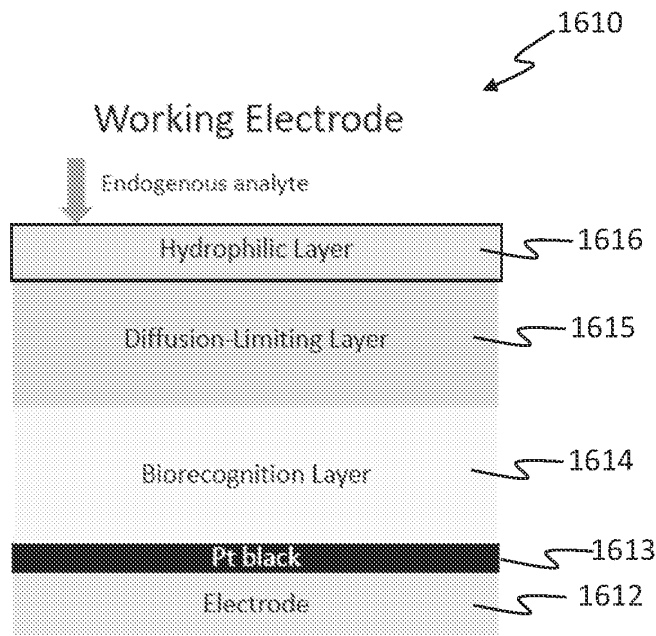


FIG. 16A

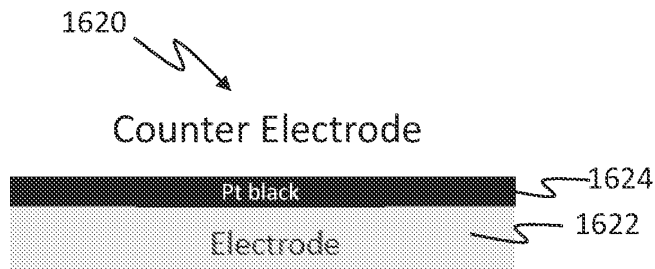


FIG. 16B

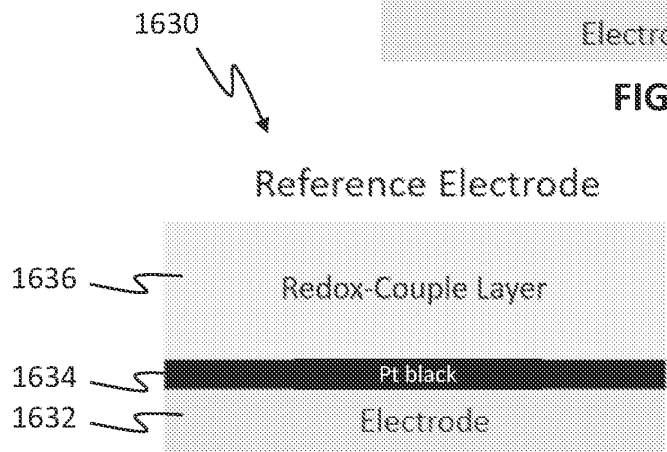


FIG. 16C

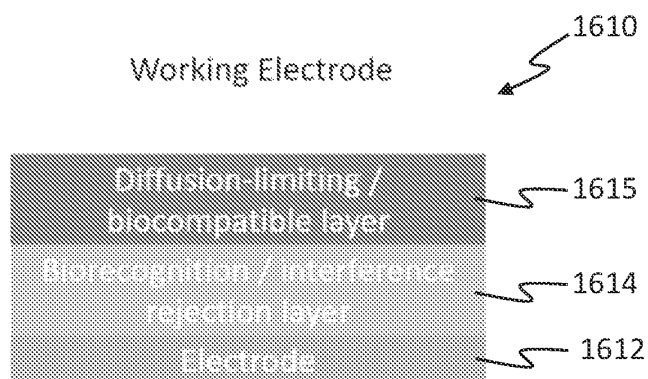


FIG. 16D

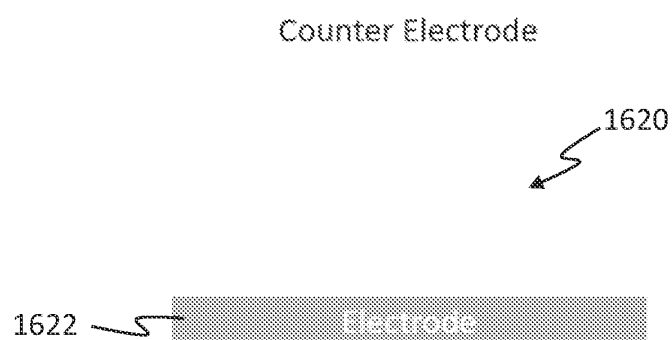


FIG. 16E

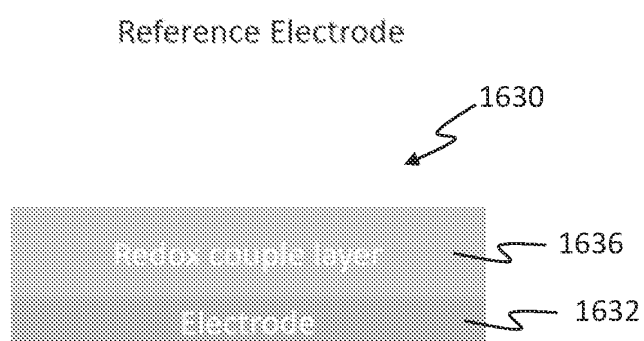
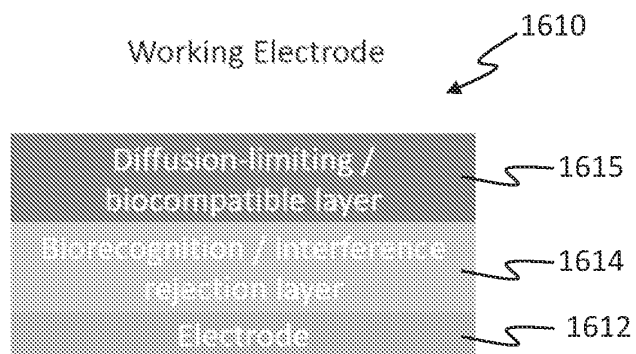
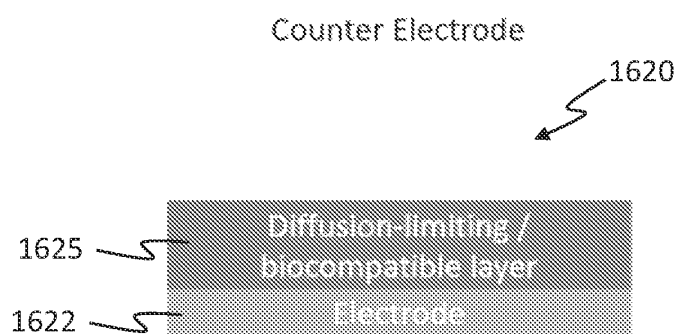
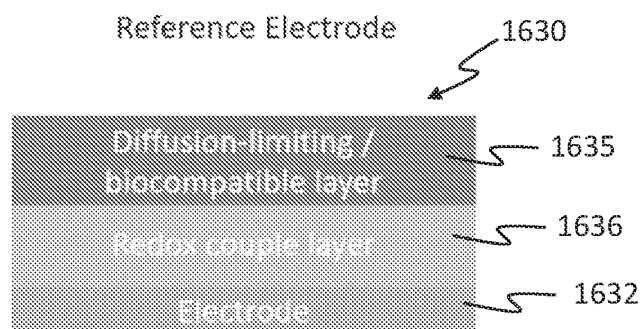
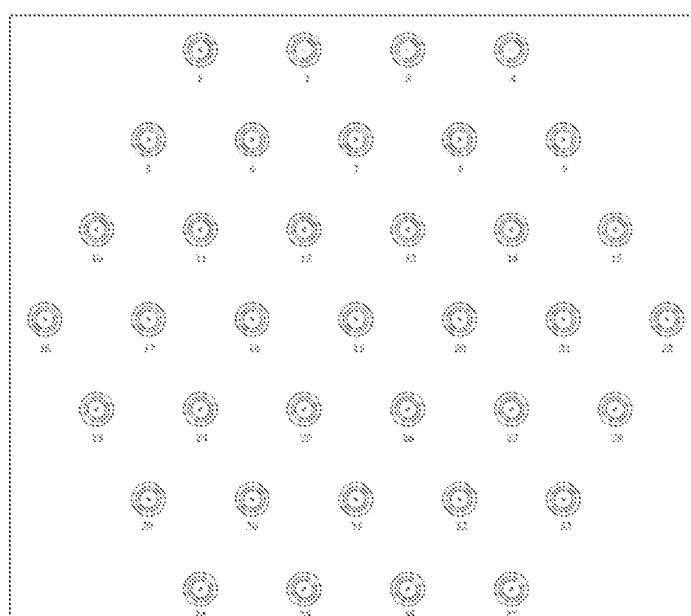


FIG. 16F

**FIG. 16G****FIG. 16H****FIG. 16I**

Basic 37-element microneedle array layout:**FIG. 17**

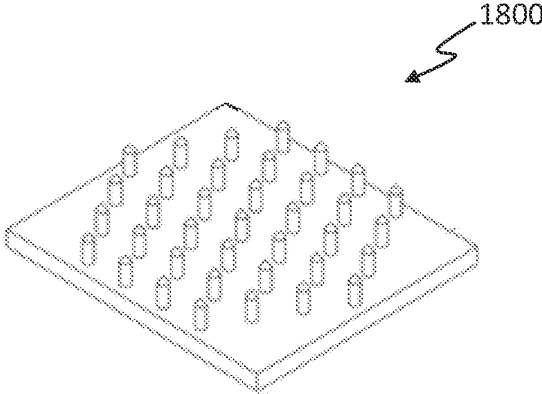


FIG. 18A

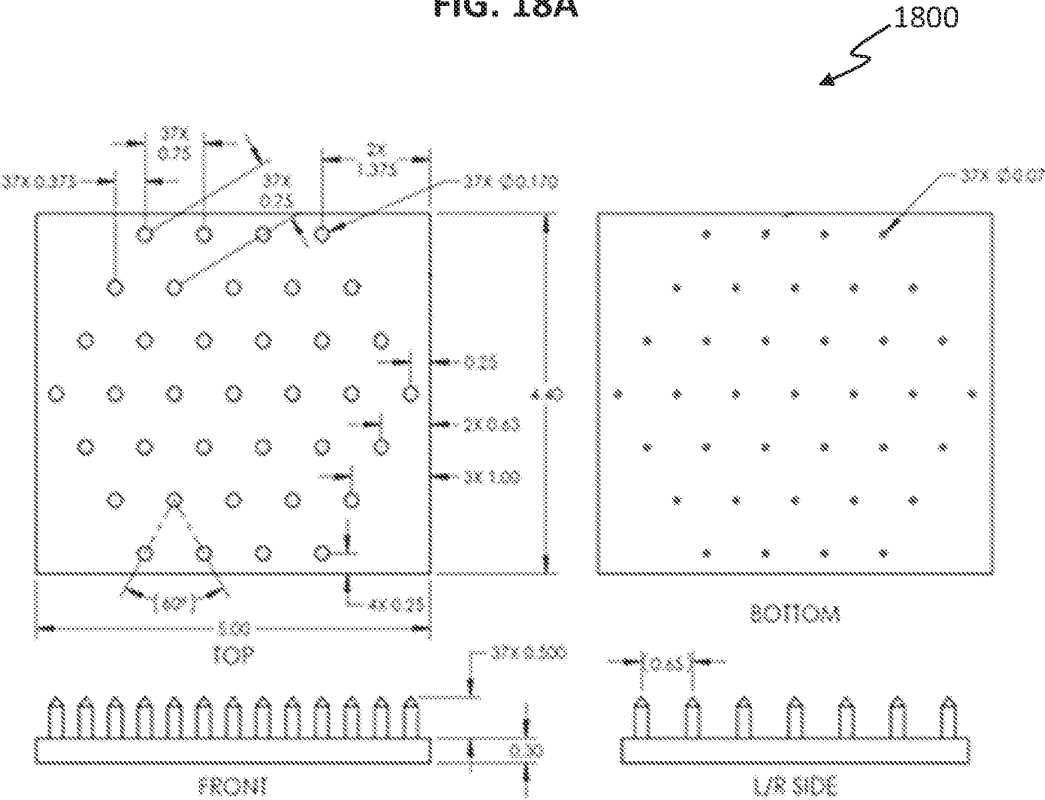


FIG. 18B

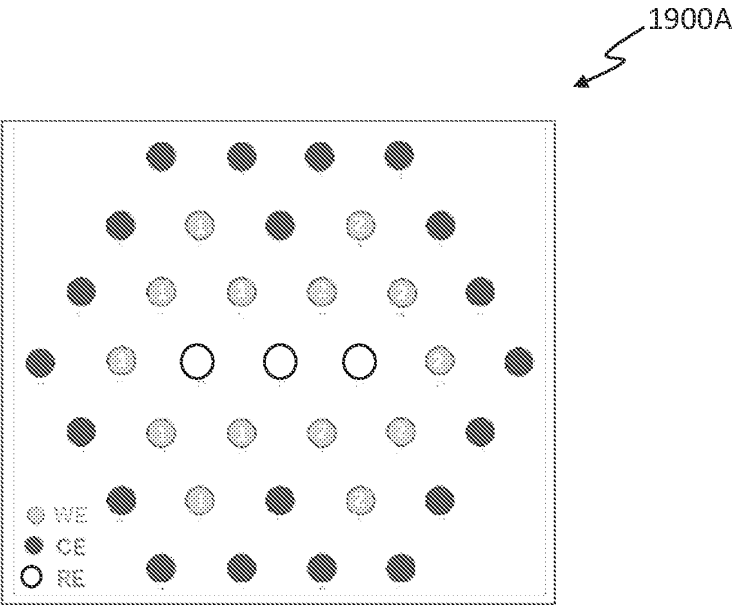


FIG. 19A

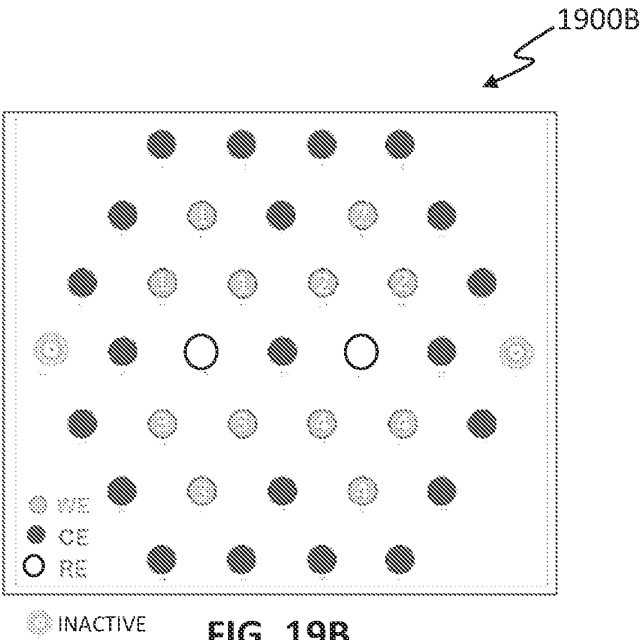
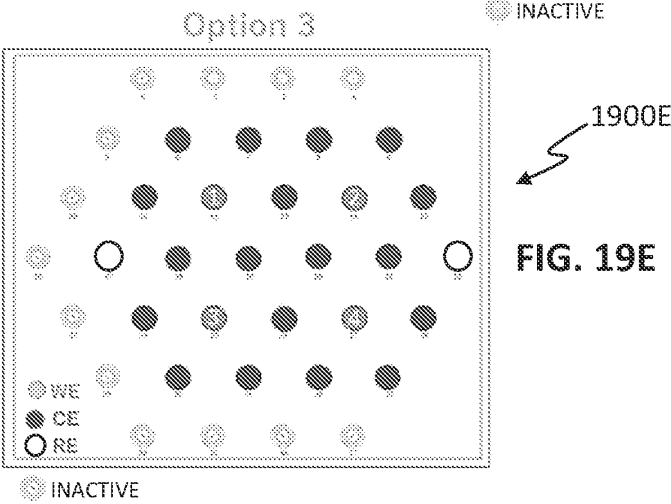
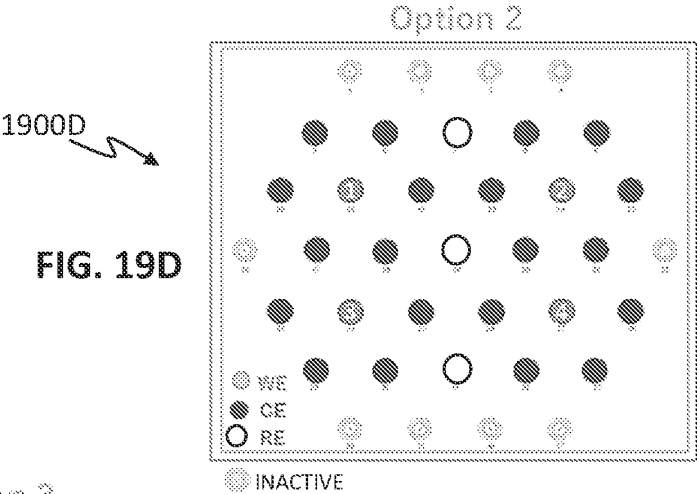
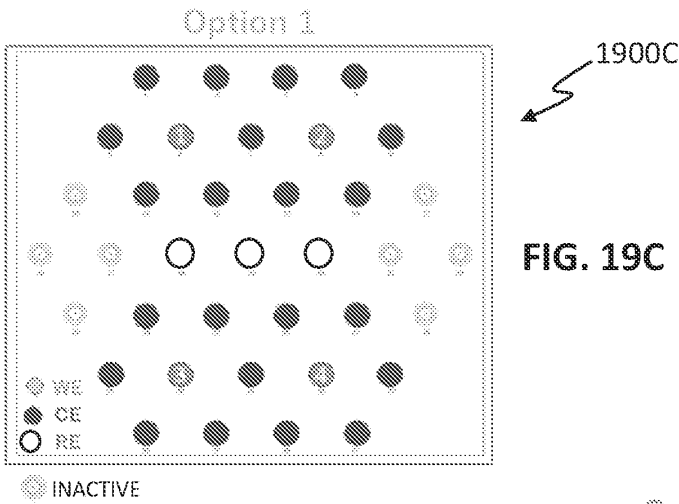


FIG. 19B



1900F

Option 4

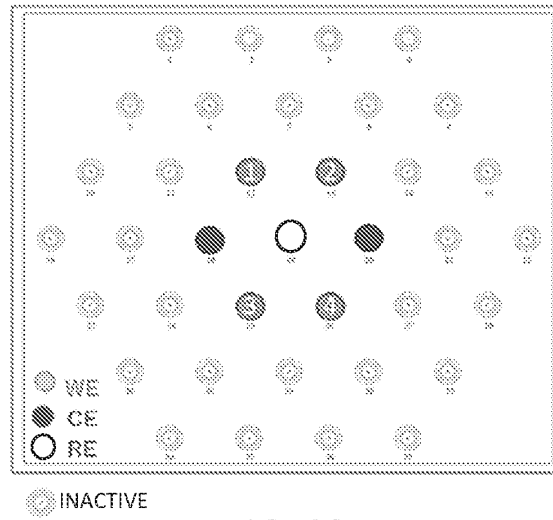


FIG. 19F

1900G

Option 5

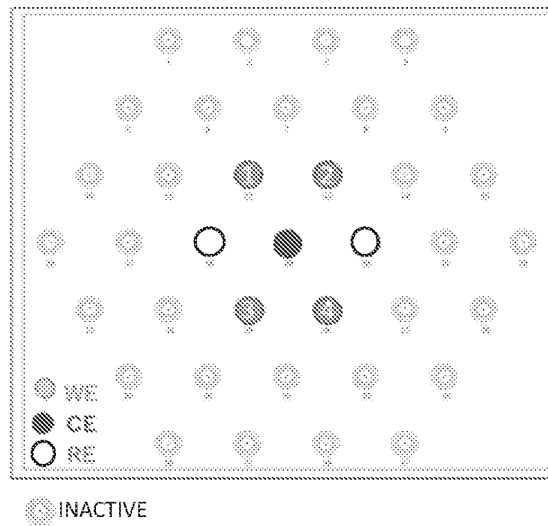
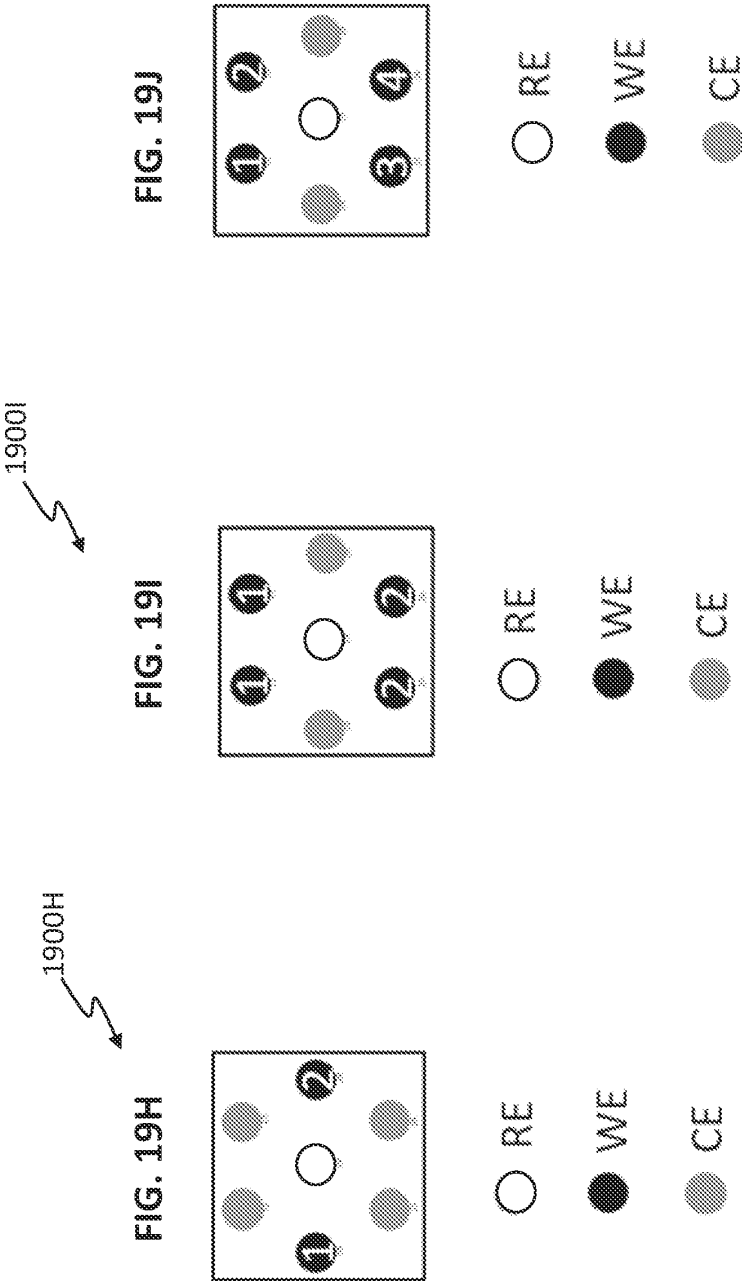


FIG. 19G



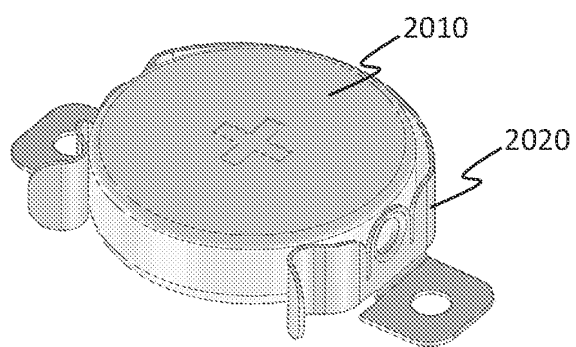
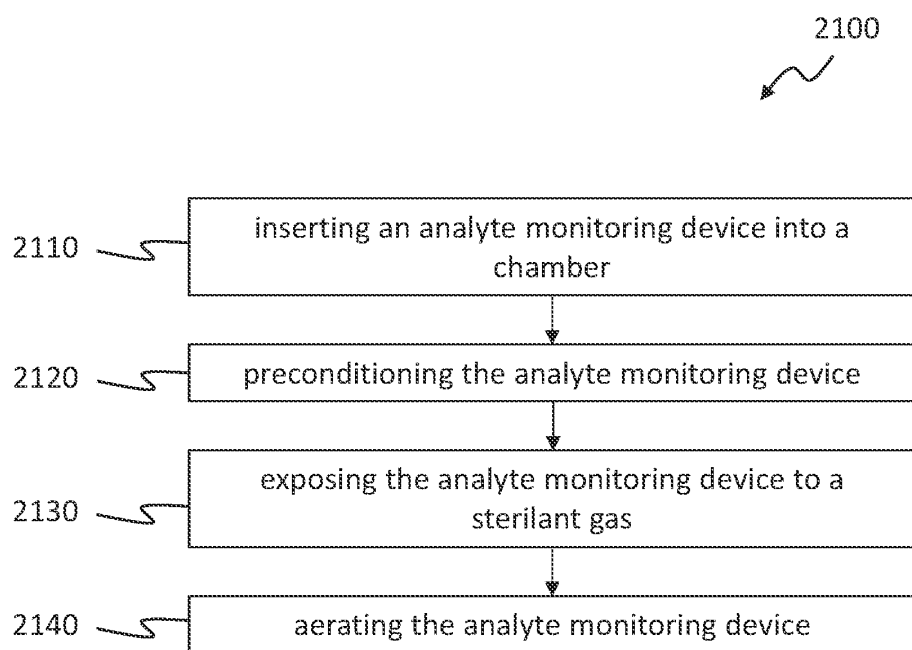


FIG. 20

**FIG. 21**

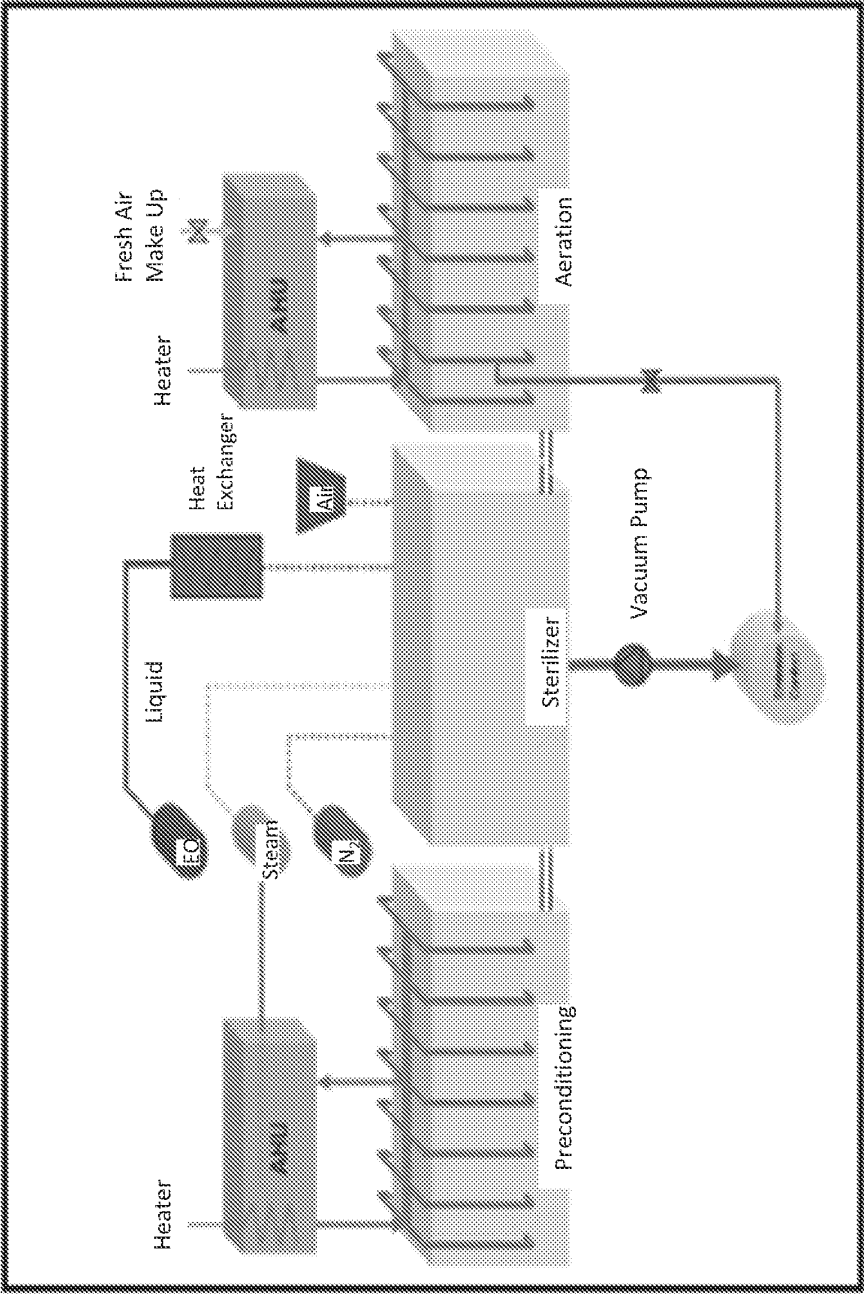


FIG. 22

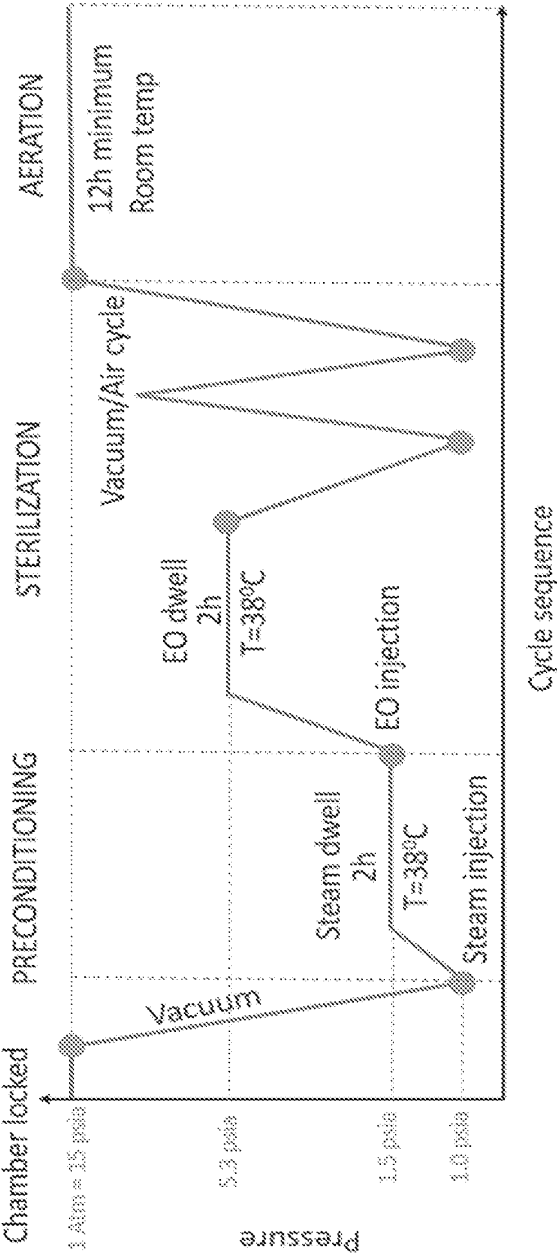


FIG. 23

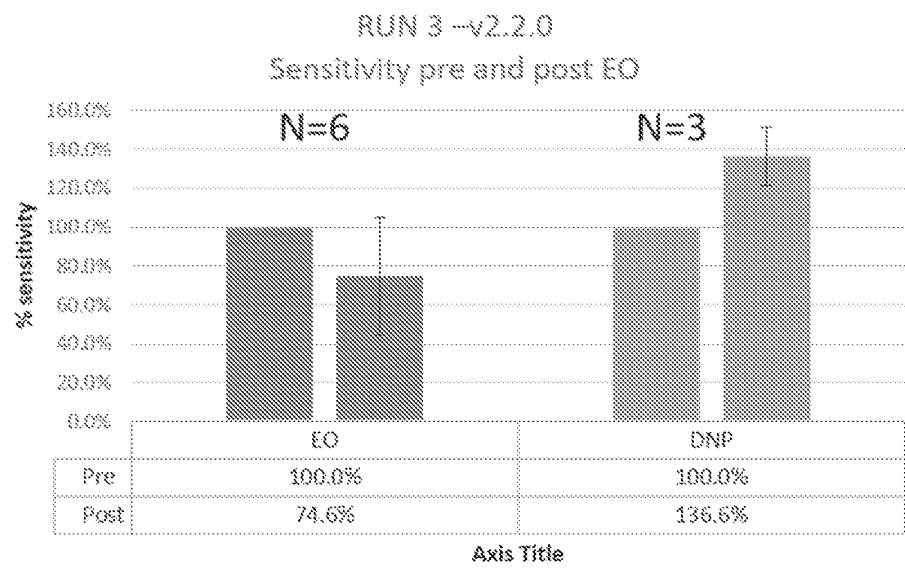
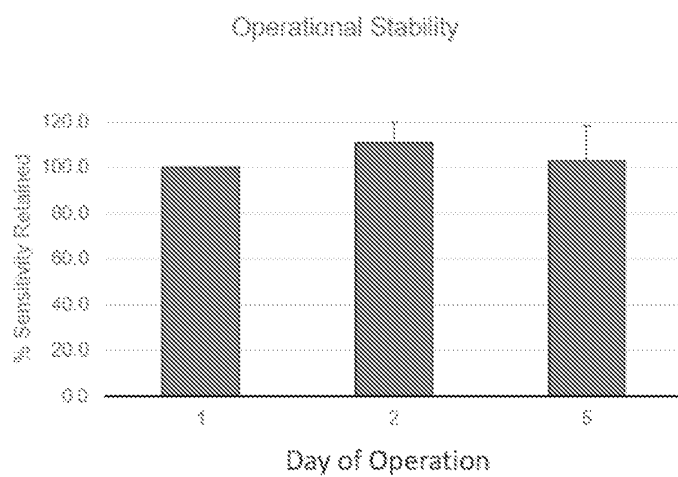
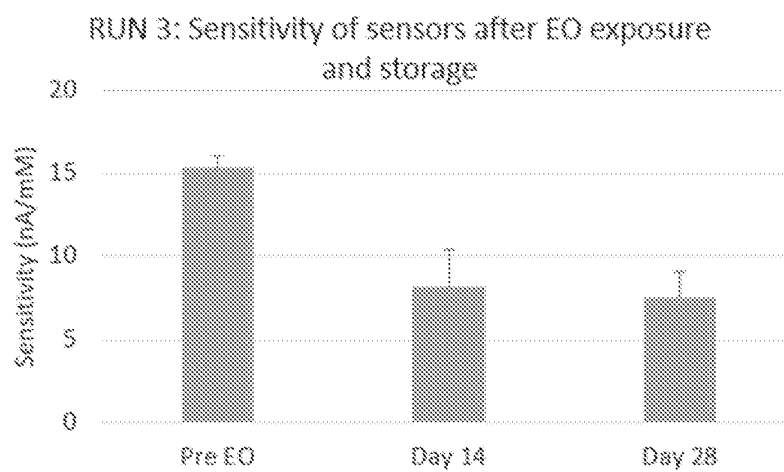
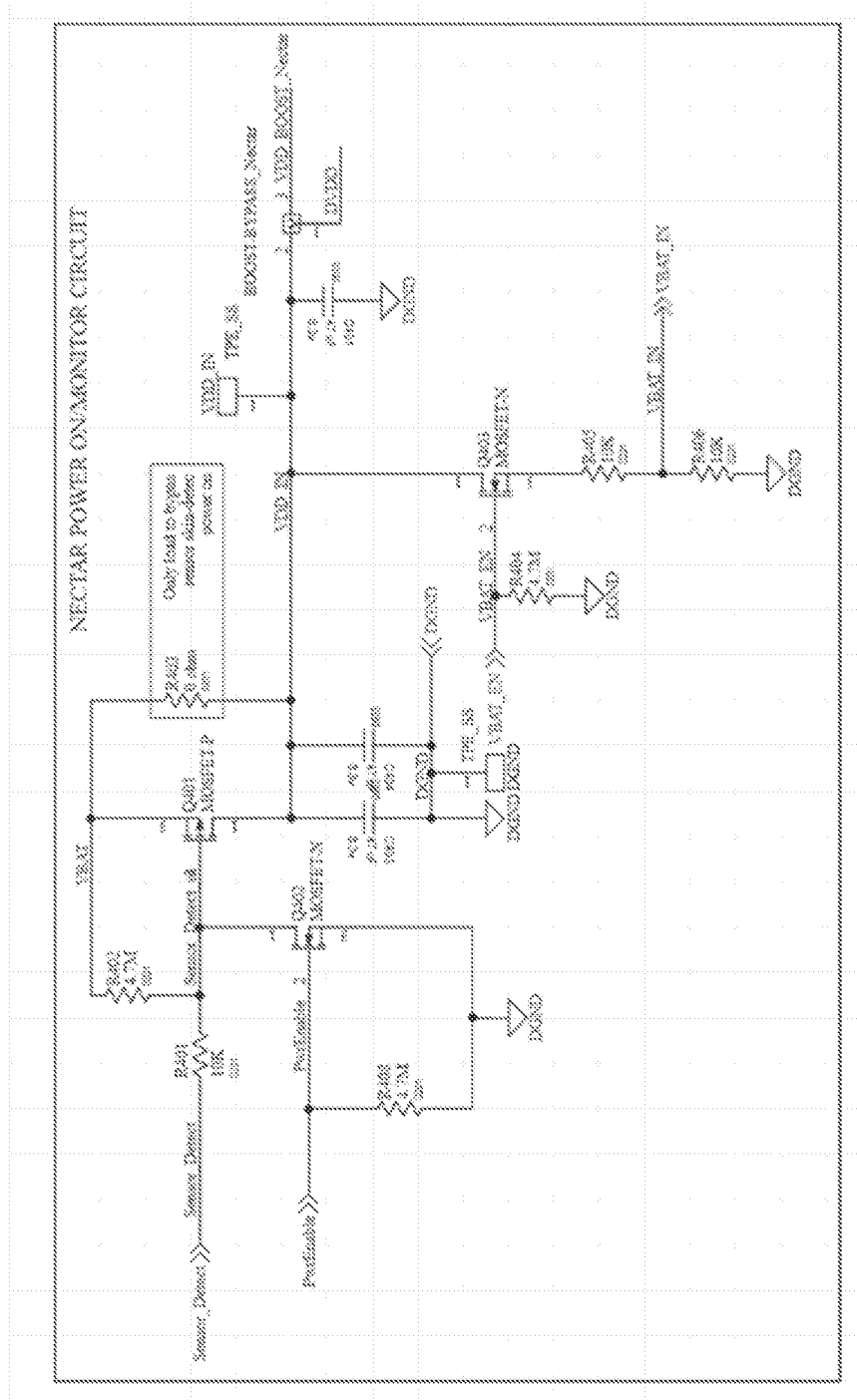


FIG. 24A

**FIG. 24B****FIG. 24C**



526

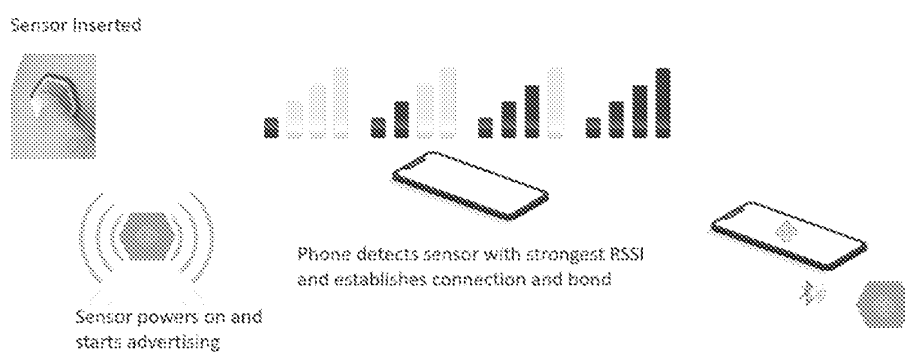


FIG. 26

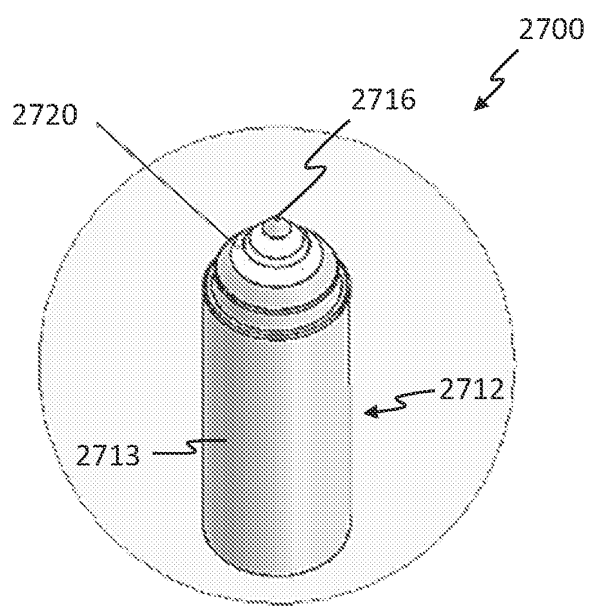
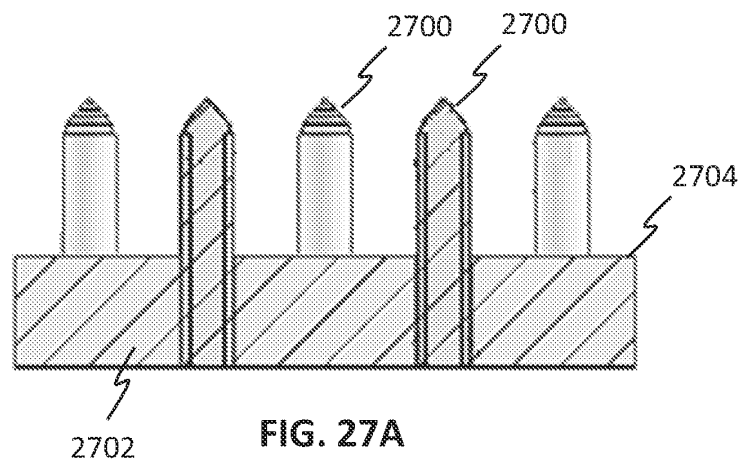
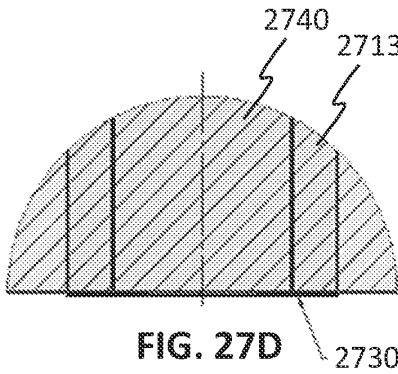
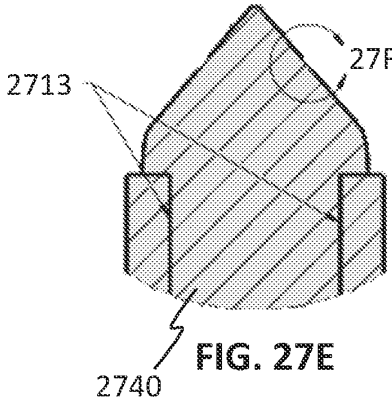
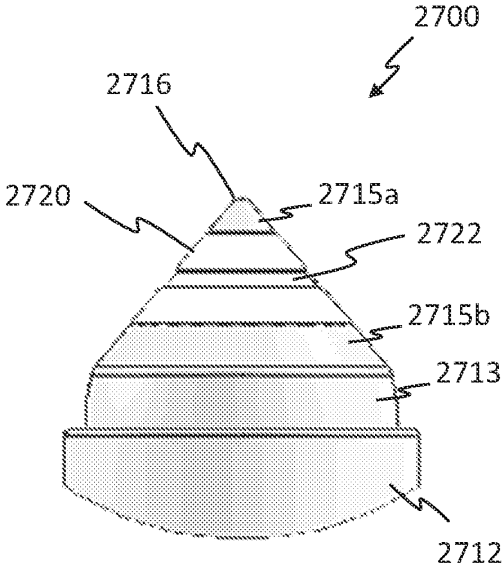
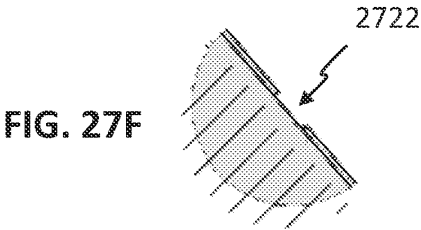


FIG. 27B



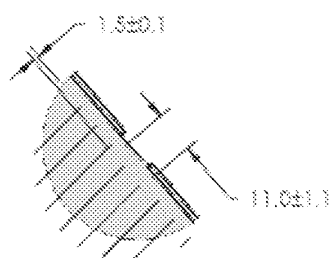


FIG. 28B

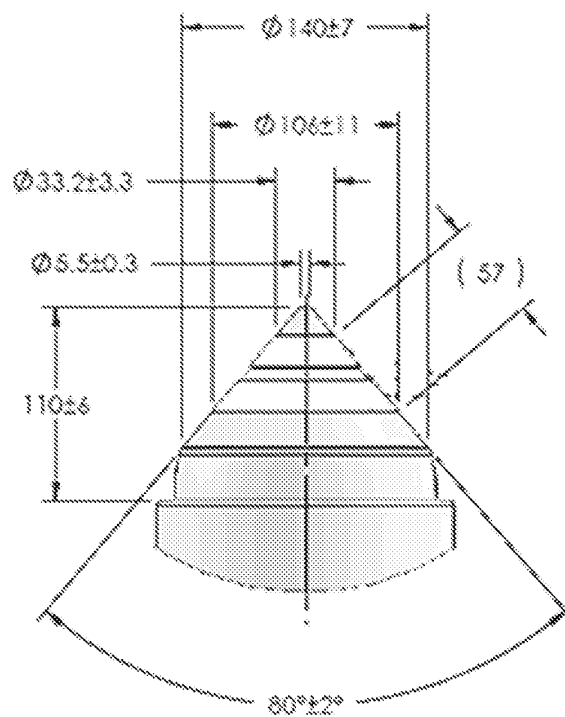


FIG. 28A

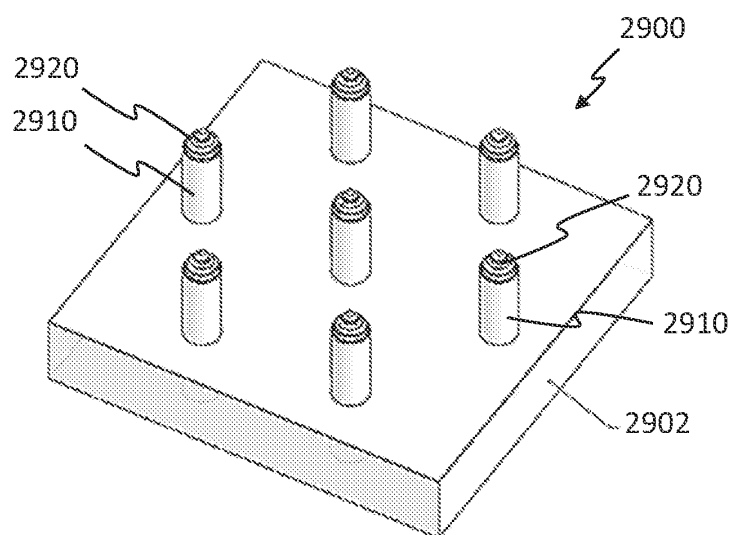


FIG. 29A

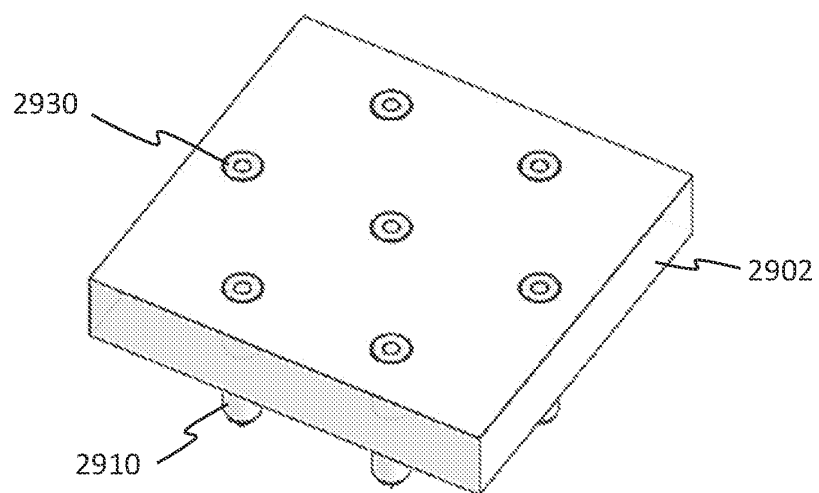


FIG. 29B

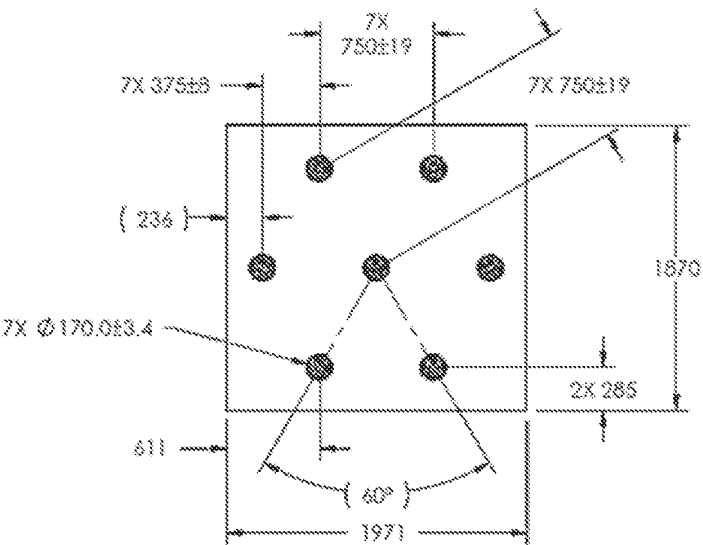


FIG. 30A

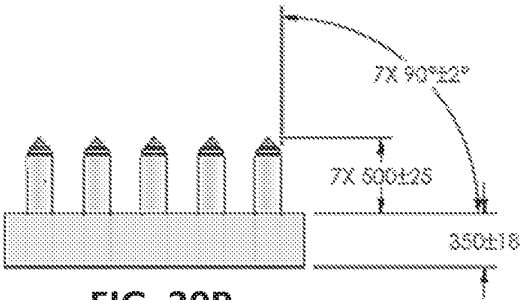


FIG. 30B

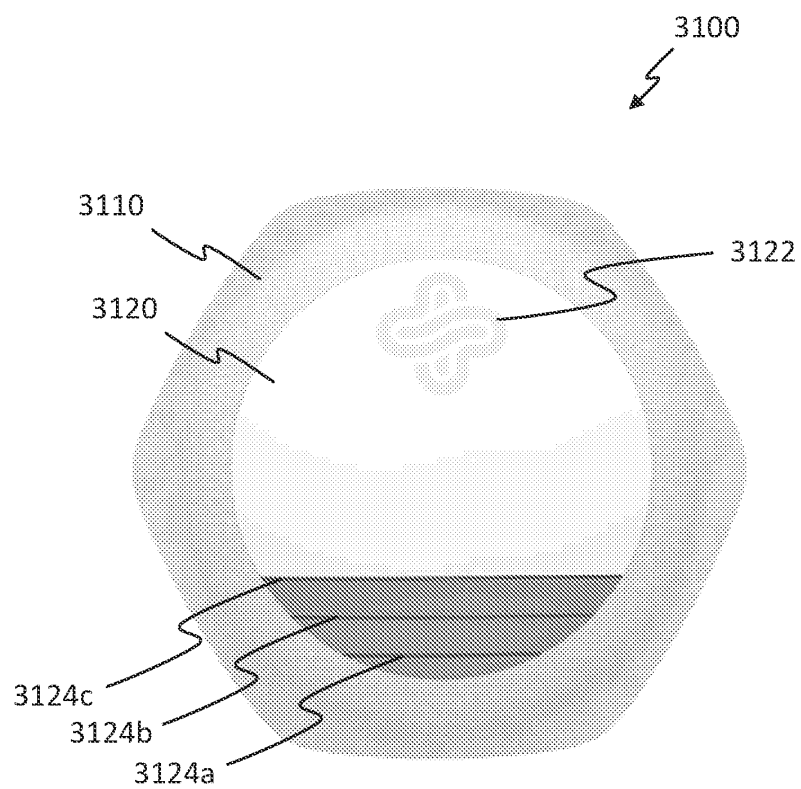


FIG. 31A

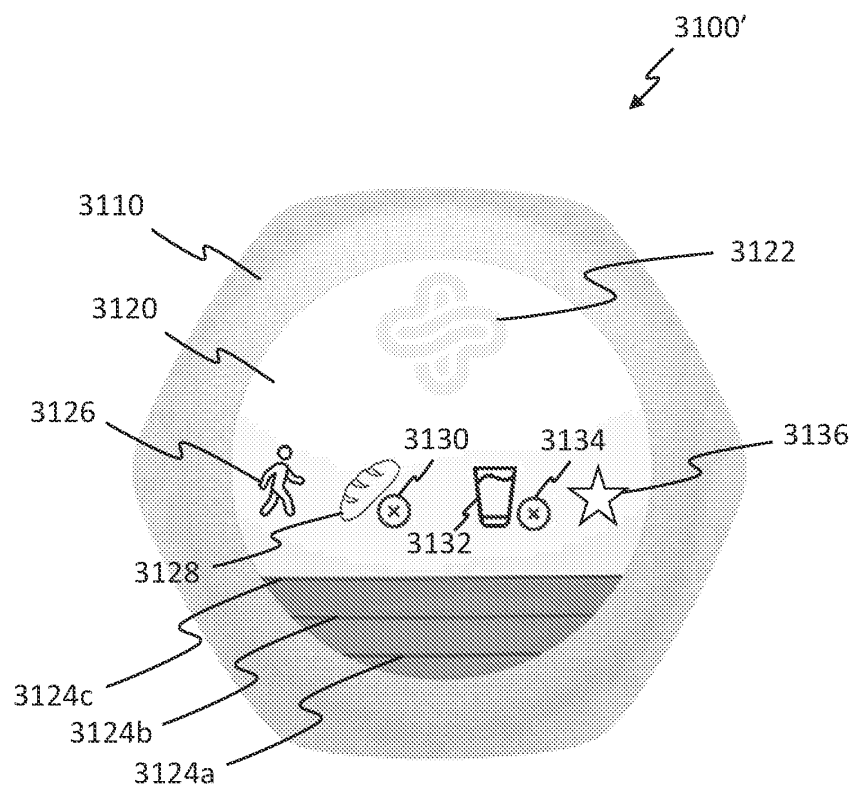
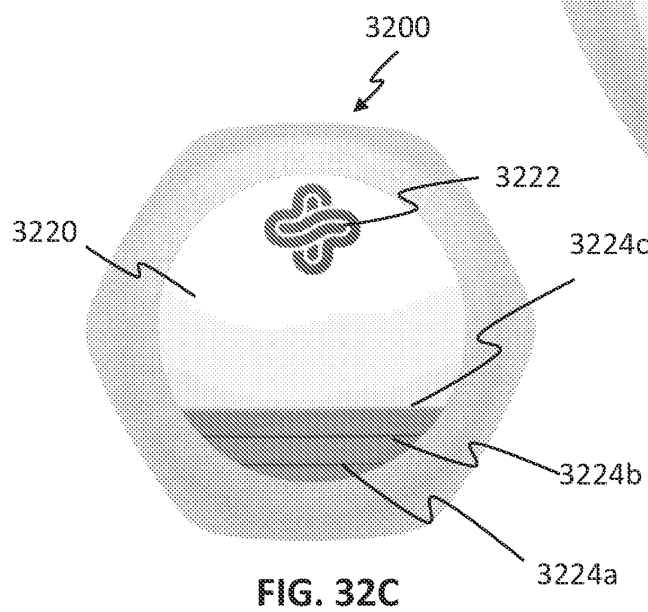
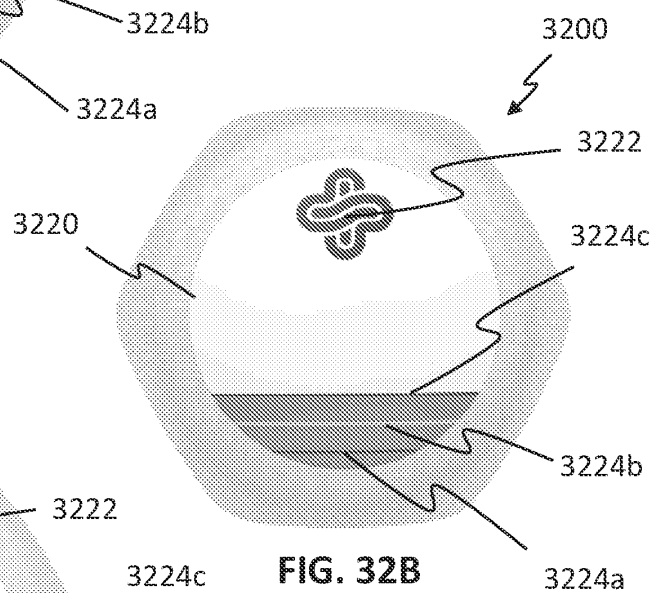
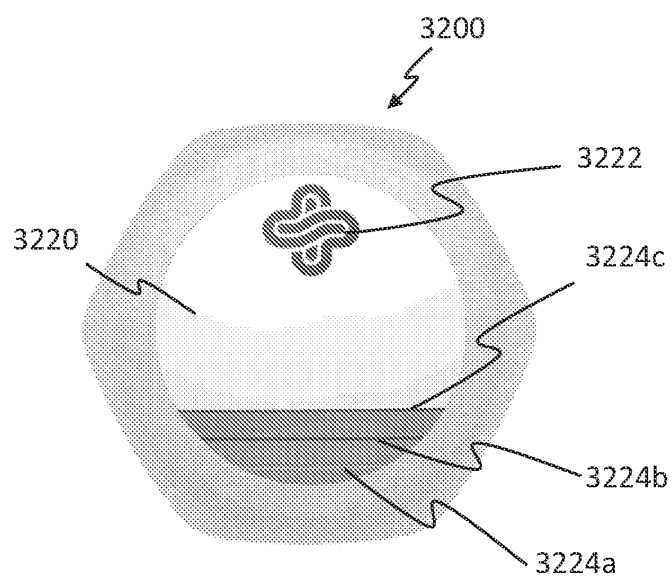


FIG. 31B



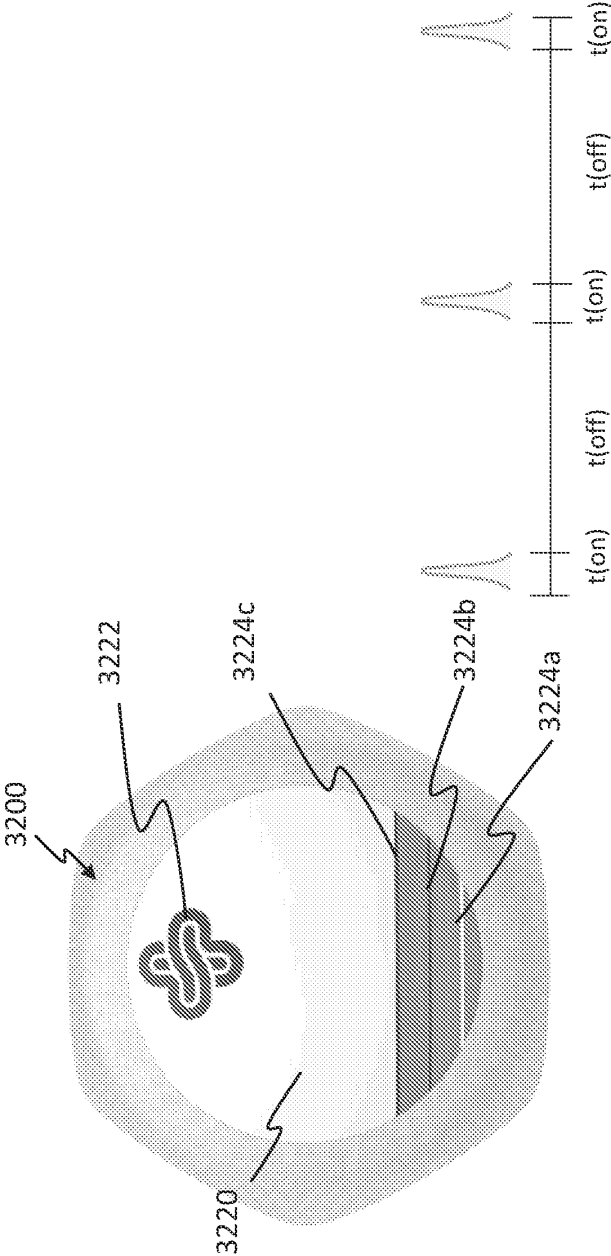


FIG. 33A

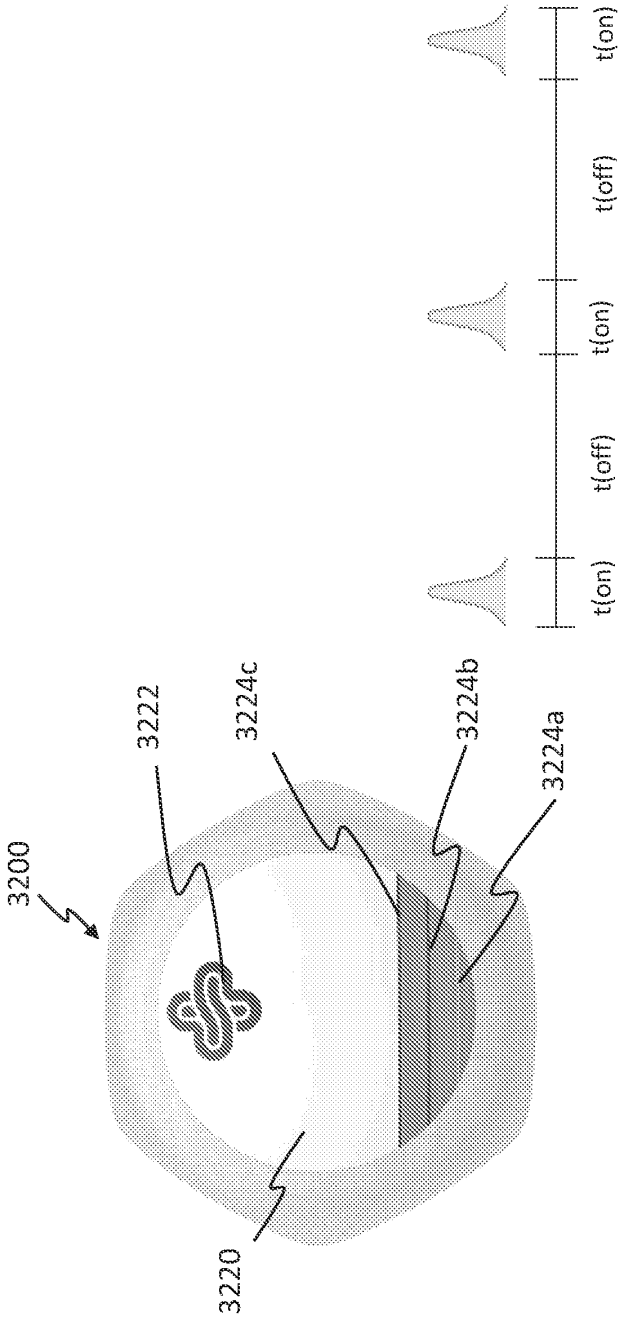


FIG. 33B

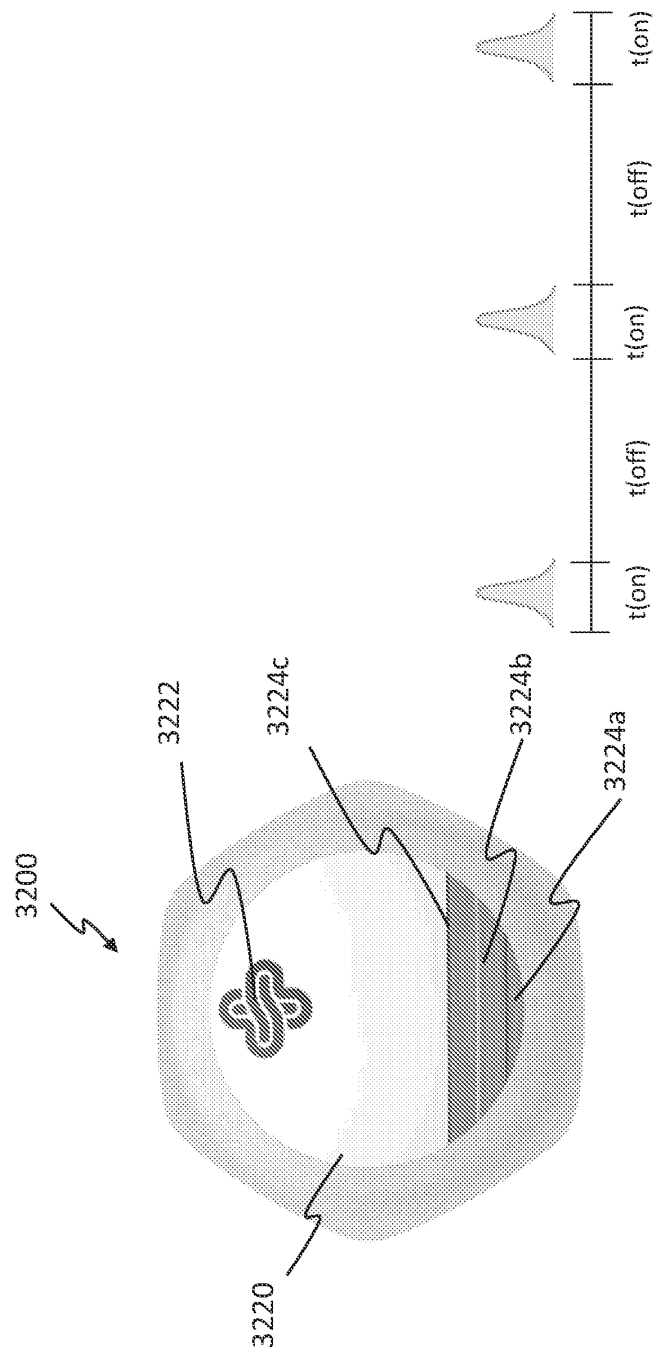


FIG. 33C

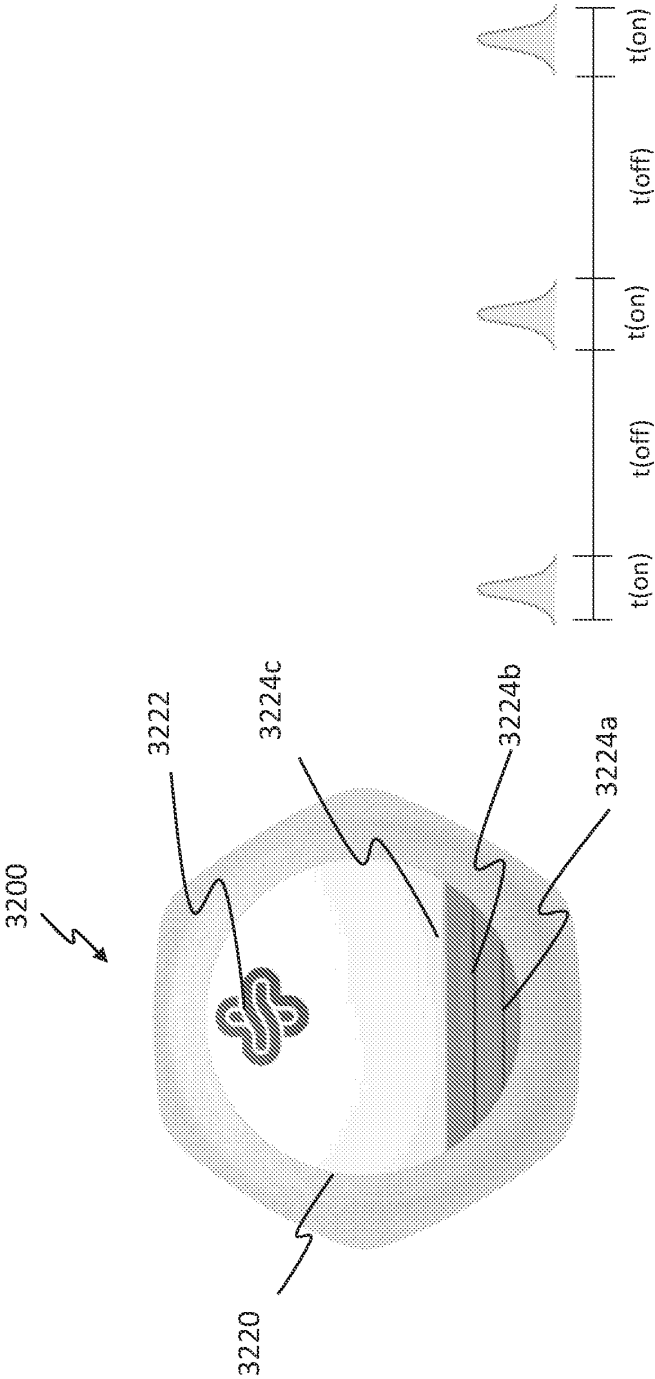


FIG. 33D

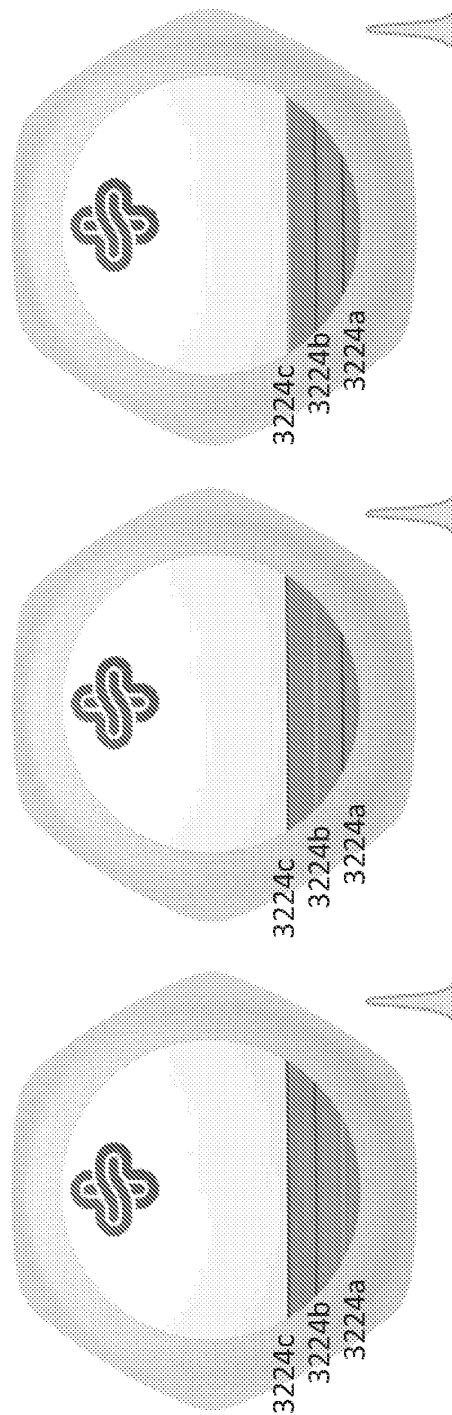


FIG. 34A

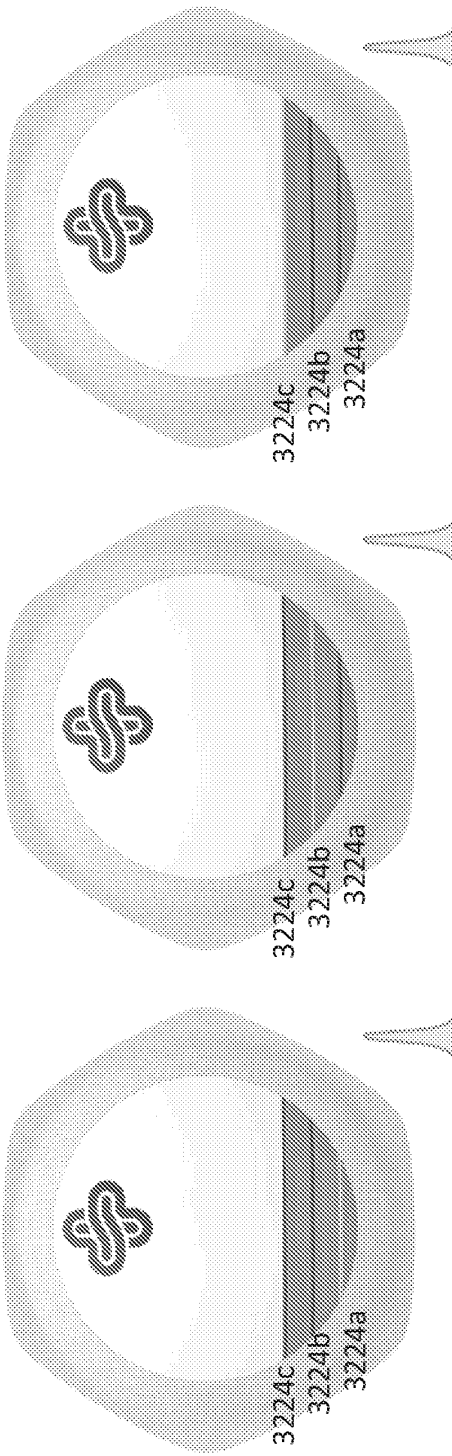


FIG. 34B

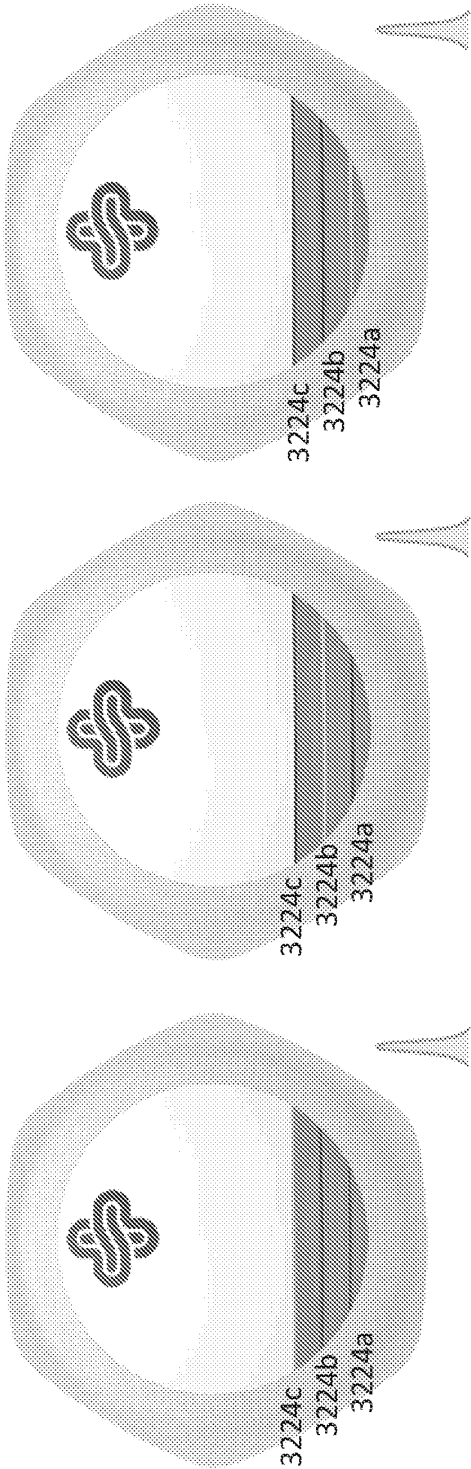


FIG. 34C

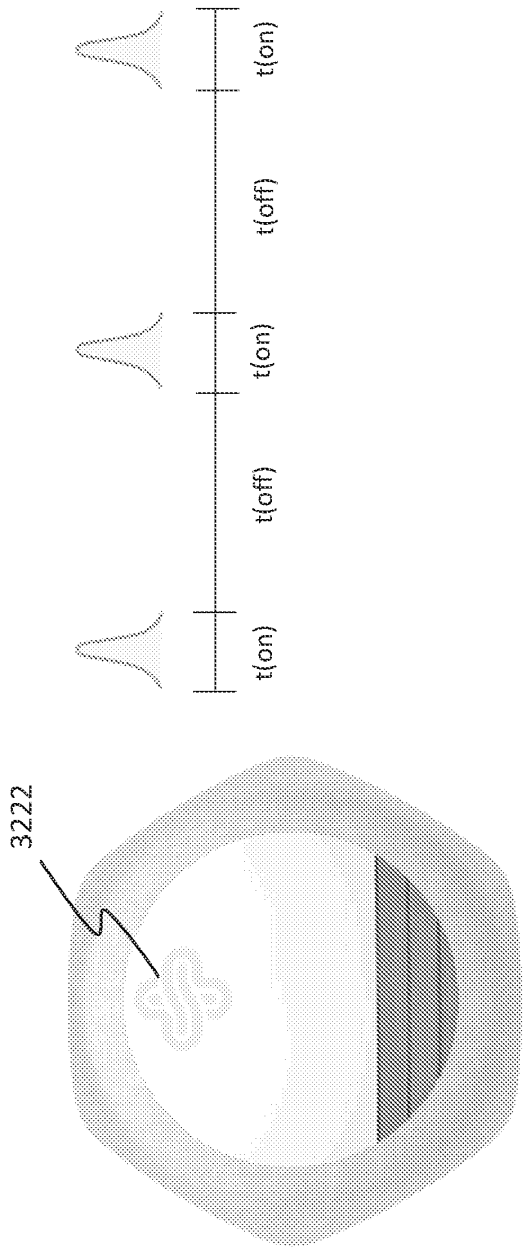


FIG. 35A

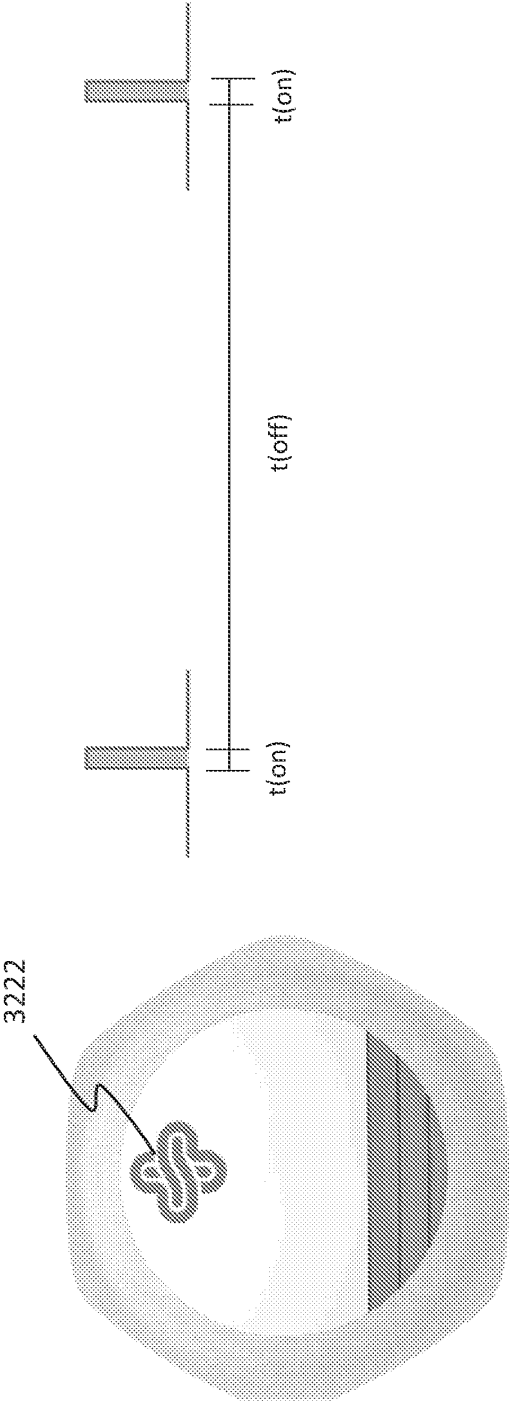


FIG. 35B