

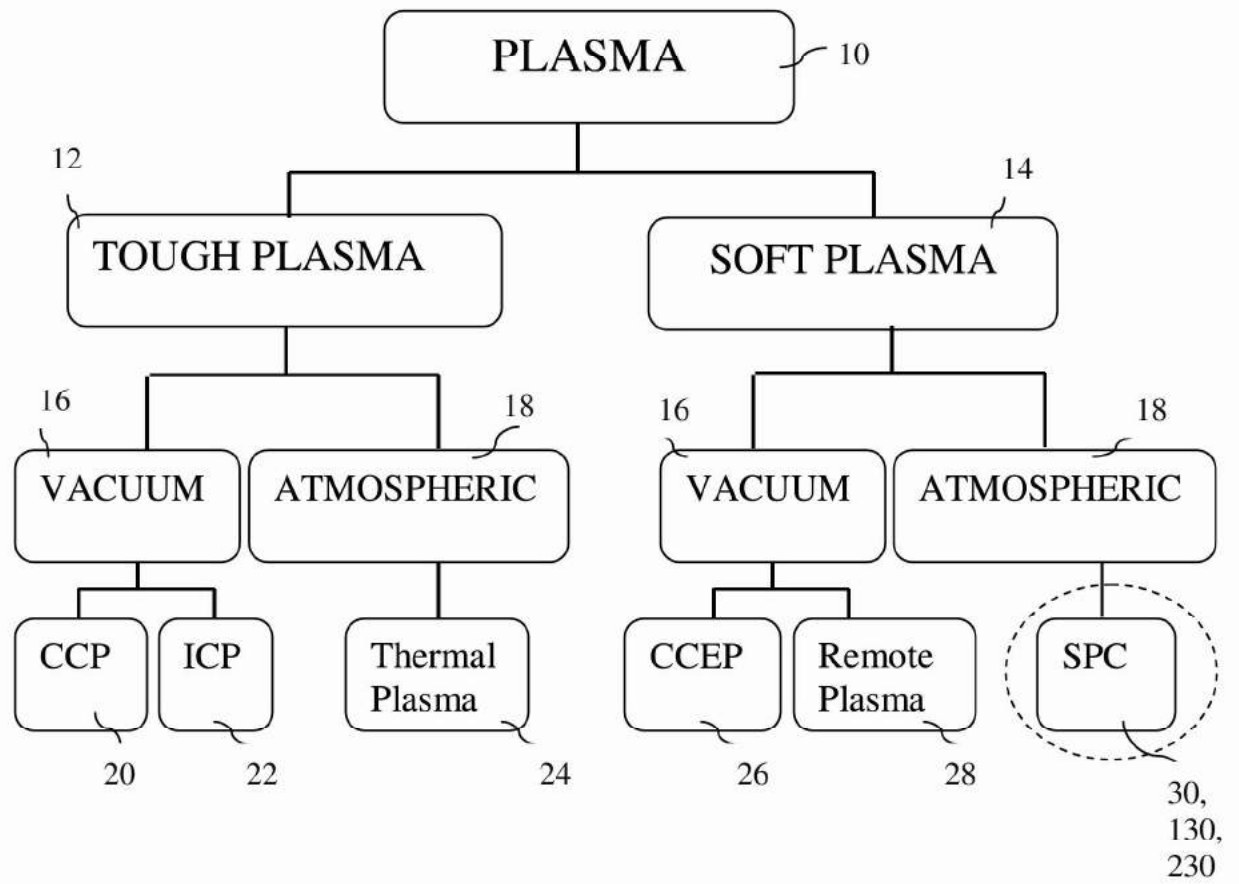


FIG. 1

Row	COMPARISON OF SPC WITH OTHER PLASMA TECHNIQUES					
1	Process Parameters	Capacitively/ Inductively Coupled Plasma (CCP/ICP)	Plasma Cutting	Direct Dielectric Electric Barrier (DBD) Cleaning	Electric discharge machining (EDM)	SPC
2	Working Pressure	Low Pressure	Atmospheric	Atmospheric	Atmospheric	Atmospheric
3	Feedstock	Gas	Gas	Gas	Non-conductive liquid (e.g. water)	Fluids
4	Power Consumption	Medium	Very High	Low	High	Low
5	Speed	Low	Very High	Medium	Low	High
6	Removable Contaminant	Organic Compounds, Oxide and the like.	Almost All	Organic compounds only	Metals only	Almost All
7	Temperature	Medium (200-800° C)	Very High (20000-30000° C)	Low (<100° C)	High (7000-10000° C)	Low (< 65° C)
8	Damage	High	Very High	Low	Medium	Low

FIG. 2

Known NTP

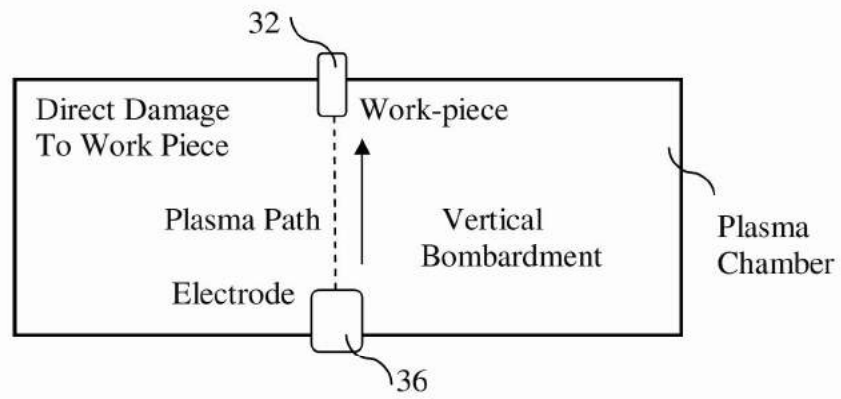


FIG. 3 (PRIOR ART)

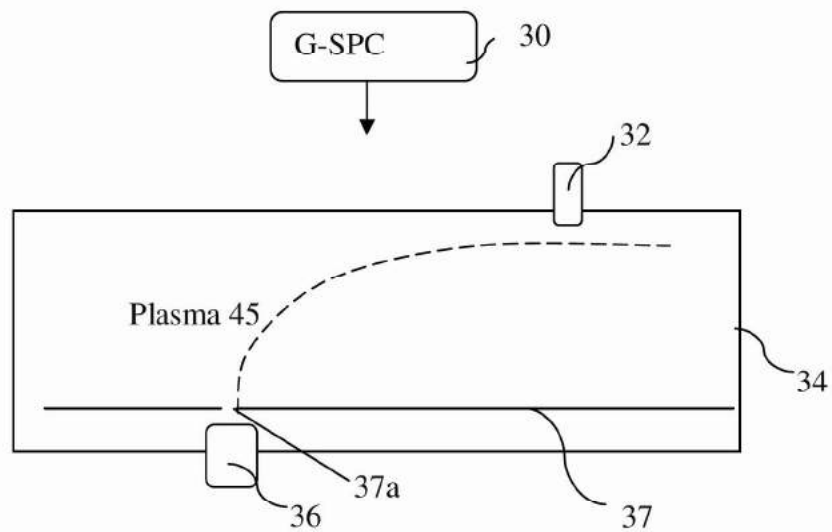


FIG. 4A

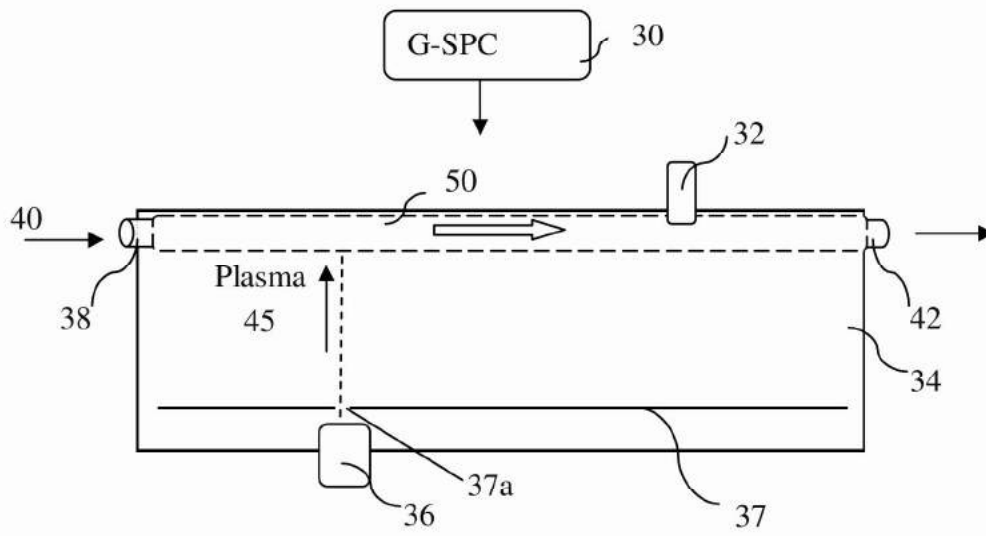


FIG. 4B

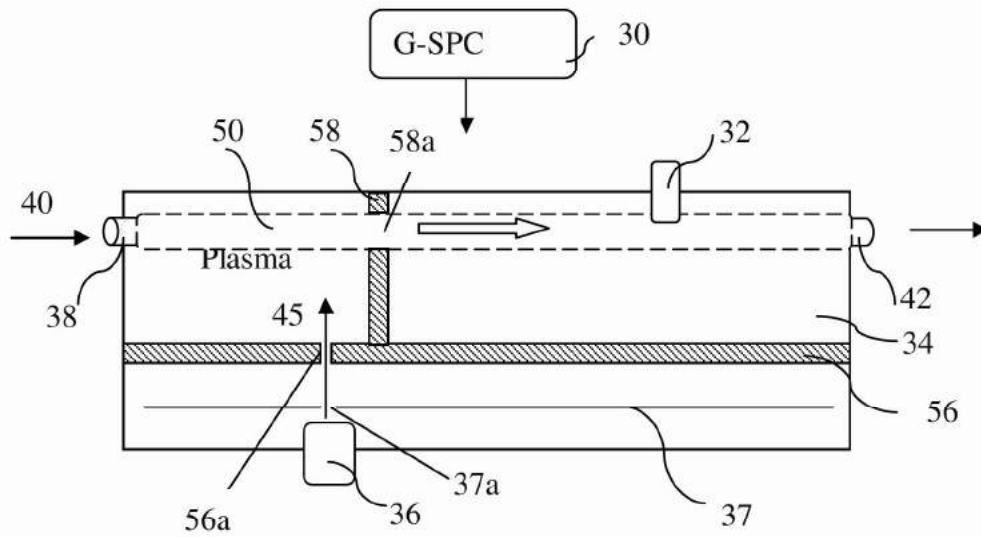


FIG. 4C

TEST PARAMETERS OF G-SPC	
PROCESS PARAMETER	
Feedstock gas	Argon
Pressure	1 bar
Power Supply	AC driven (up to 500W)
Frequency	5-25 kHz
Process Time	<60s or longer
Gap between Electrode to Work piece	15-25 mm

FIG. 5A

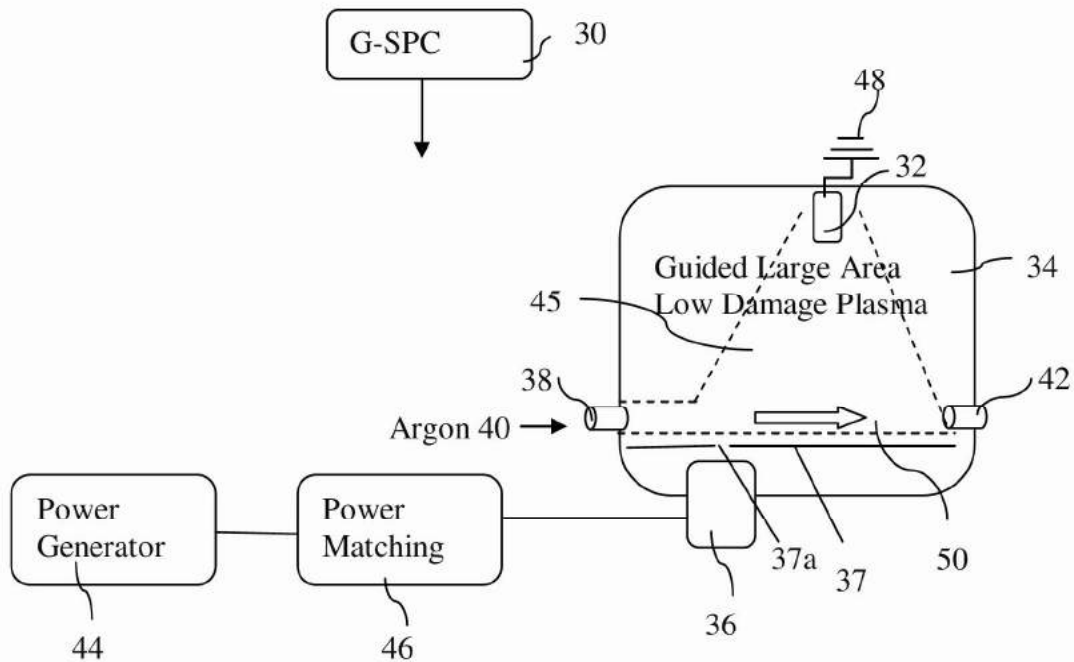


FIG. 5B

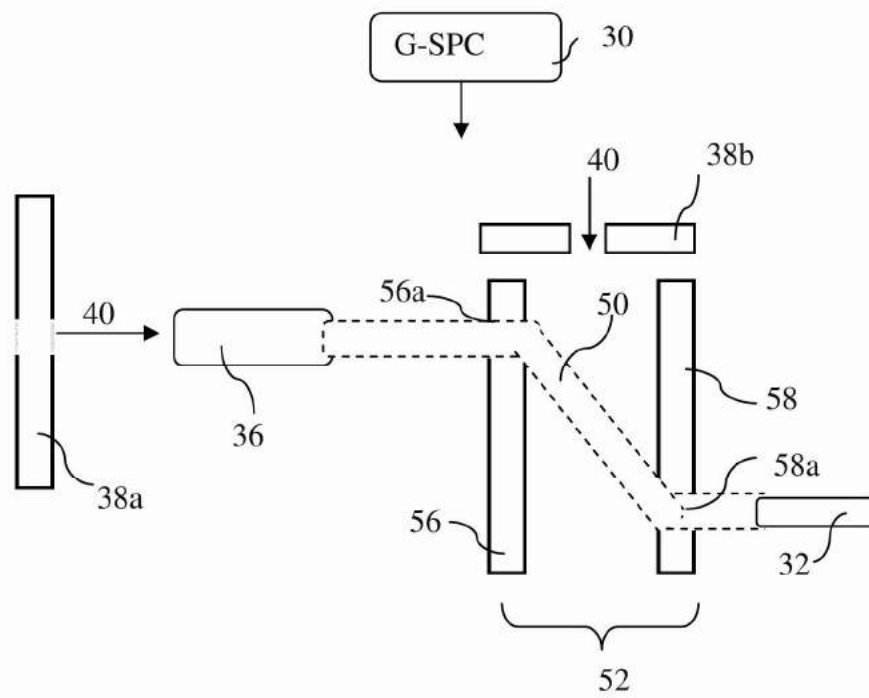


FIG. 6

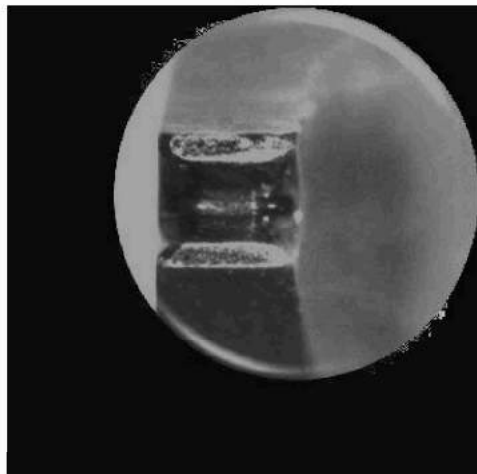


FIG. 7A

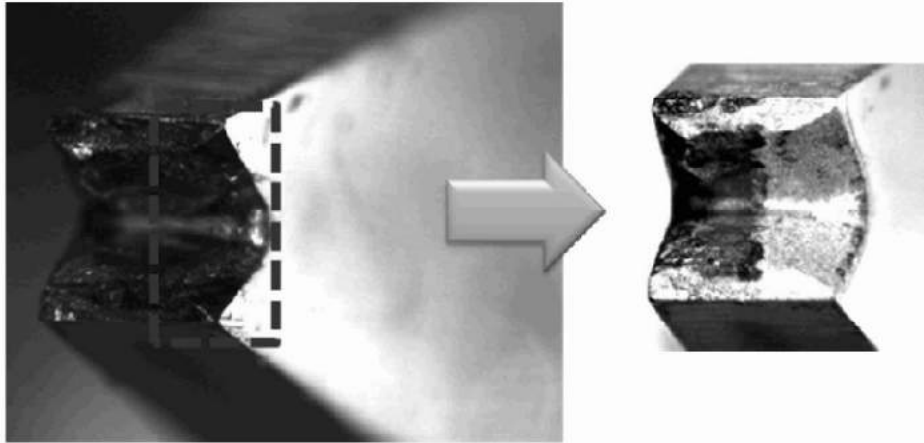
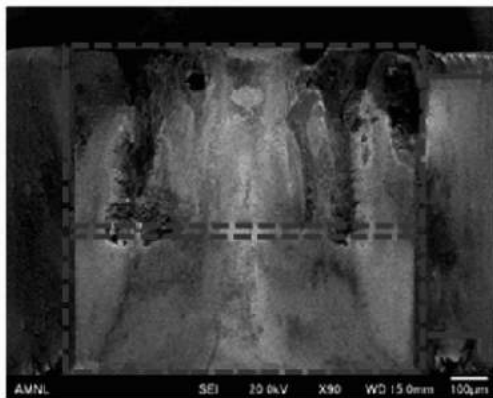


FIG. 7B



Element	Weight%
Al	25.59
W	74.41
Totals	100.00

Element	Weight%
Al	1.00
W	99.00
Totals	100.00

FIG. 7C

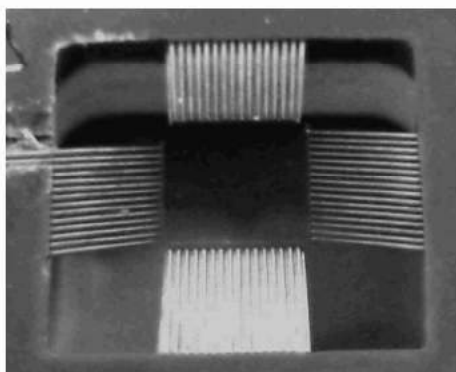


FIG. 8A

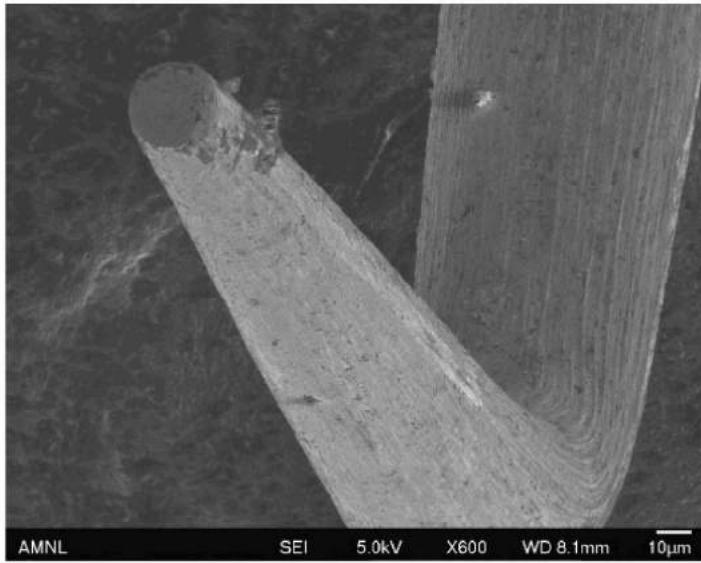


FIG. 8B

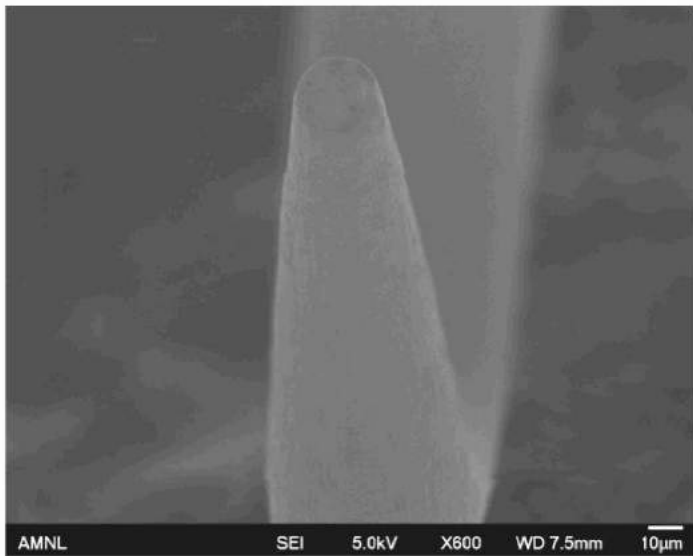


FIG. 8C

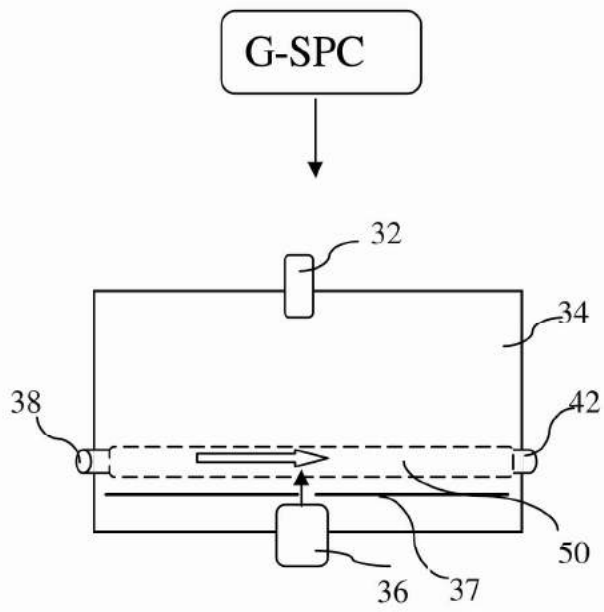


FIG. 9A

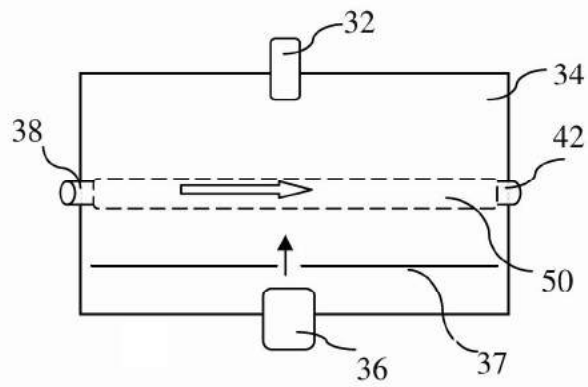


FIG. 9B

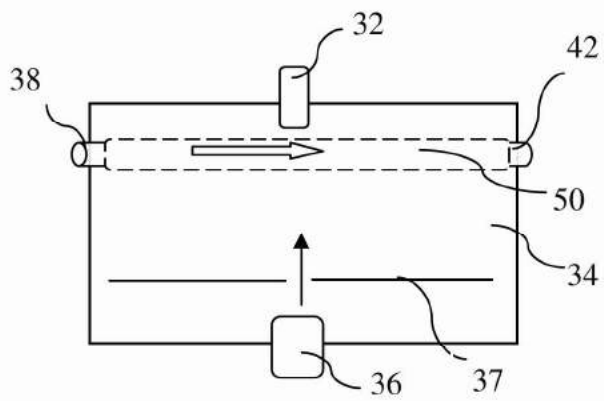


FIG. 9C

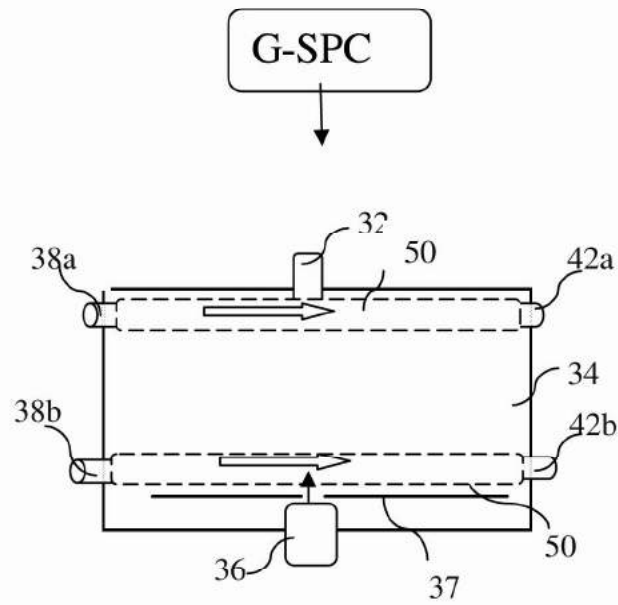


FIG. 10A

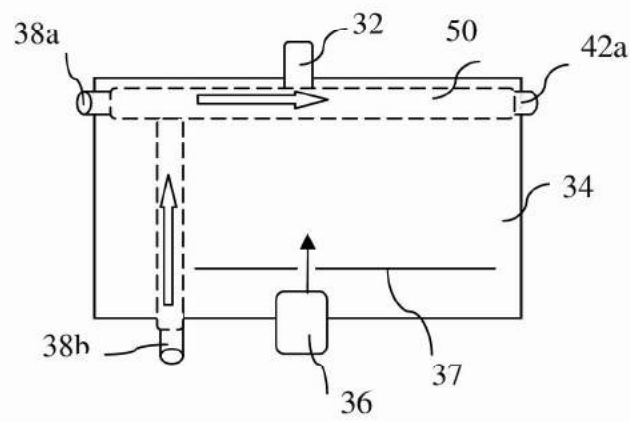


FIG. 10B

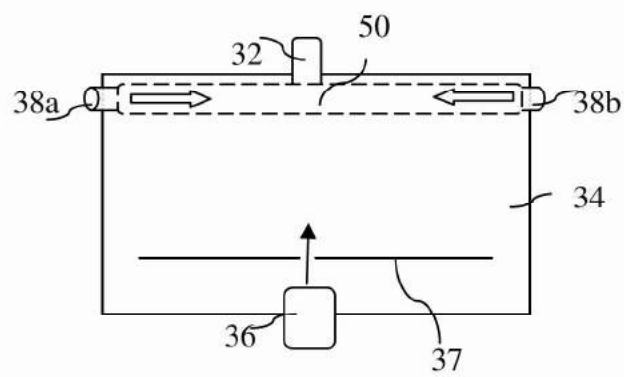


FIG. 10C

Material	Linear coefficient at 20 °C (10^{-6} K^{-1})	Volumetric coefficient at 20 °C (10^{-6} K^{-1})
Aluminium	23.1	69
Copper	17	51
Diamond	1	3
Gold	14	42
Iron	11.8	33.3
Lead	29	87
Magnesium	26	78
Mercury	61	182
Molybdenum	4.8	14.4
Nickel	13	39
Platinum	9	27
Silicon	2.56	9
Silver	18	54
Titanium	8.6	11–14
Tungsten	4.5	13.5

FIG. 11

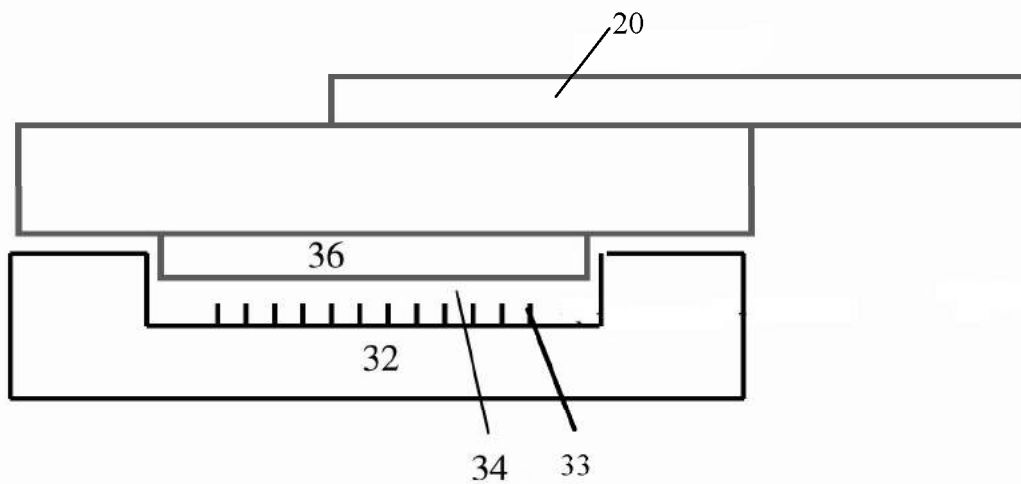


FIG. 12A

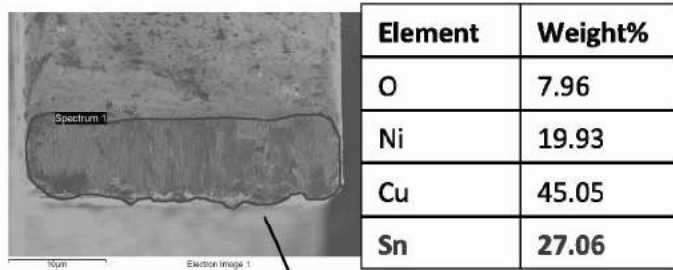


FIG. 12B

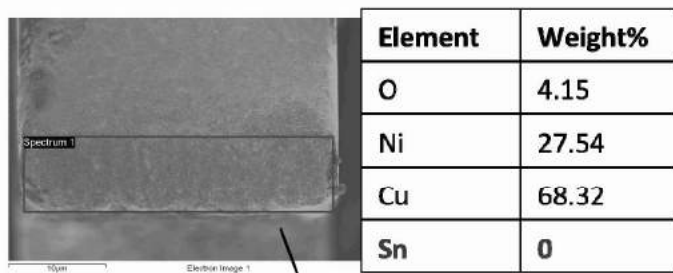


FIG. 12C

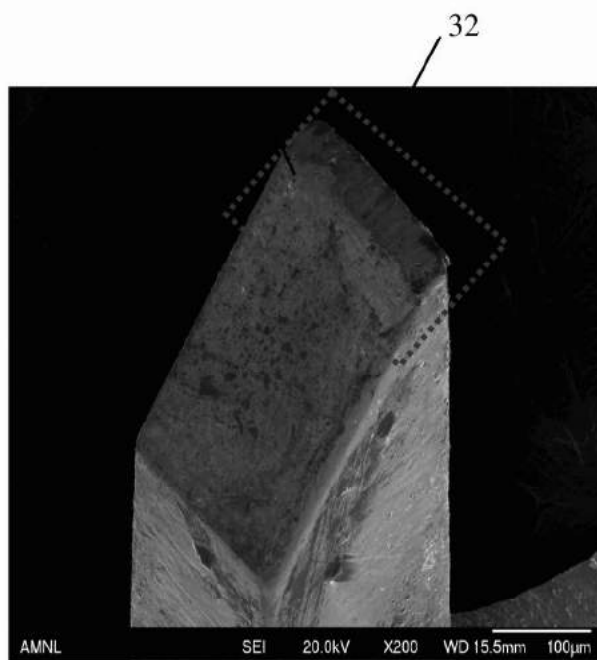


FIG. 12D

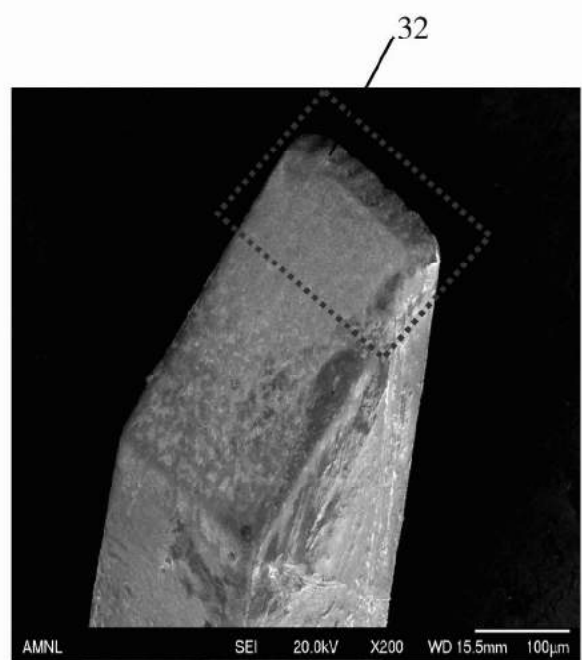


FIG. 12E

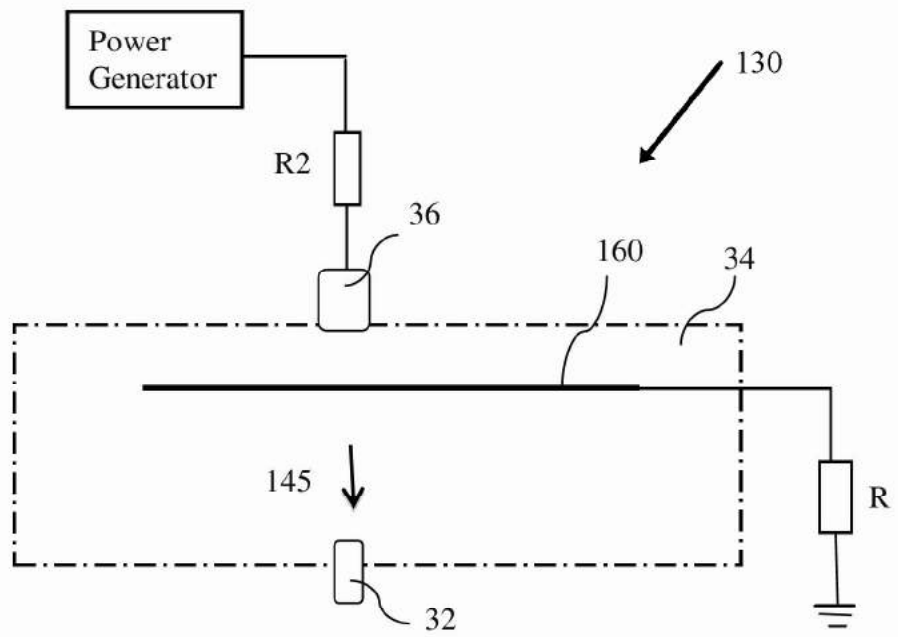


FIG. 13A

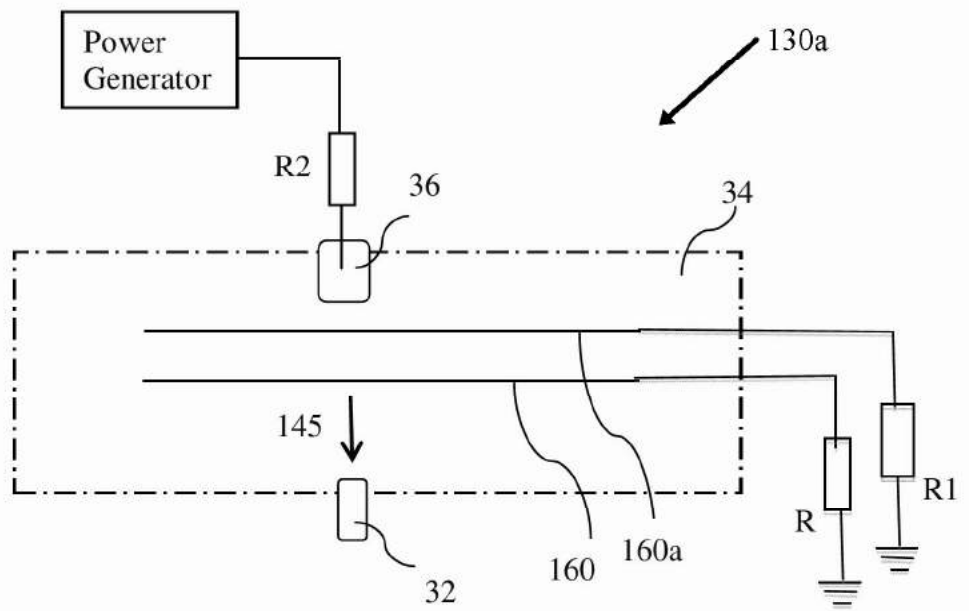
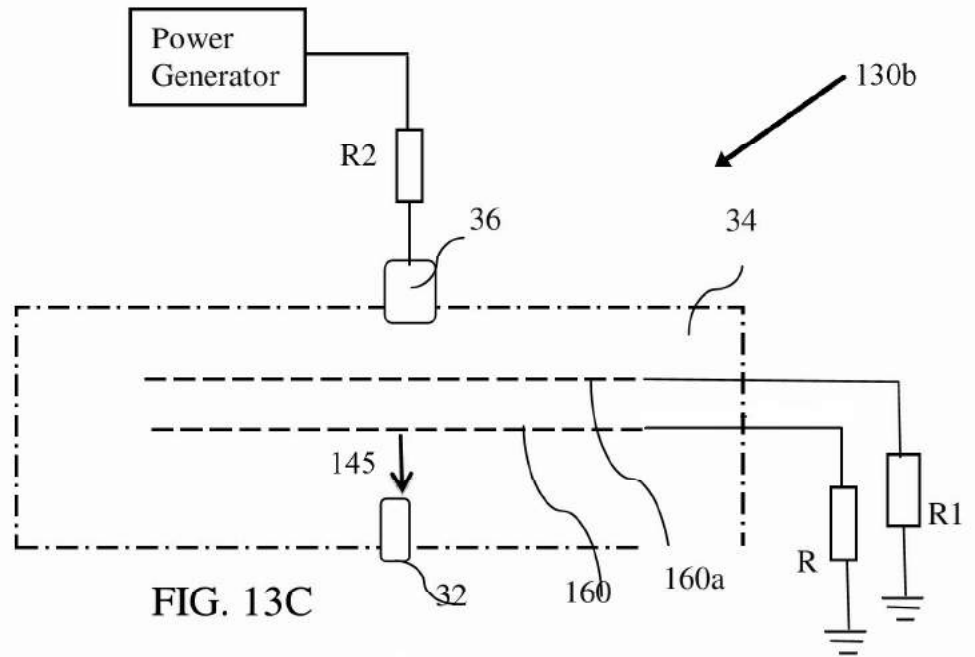
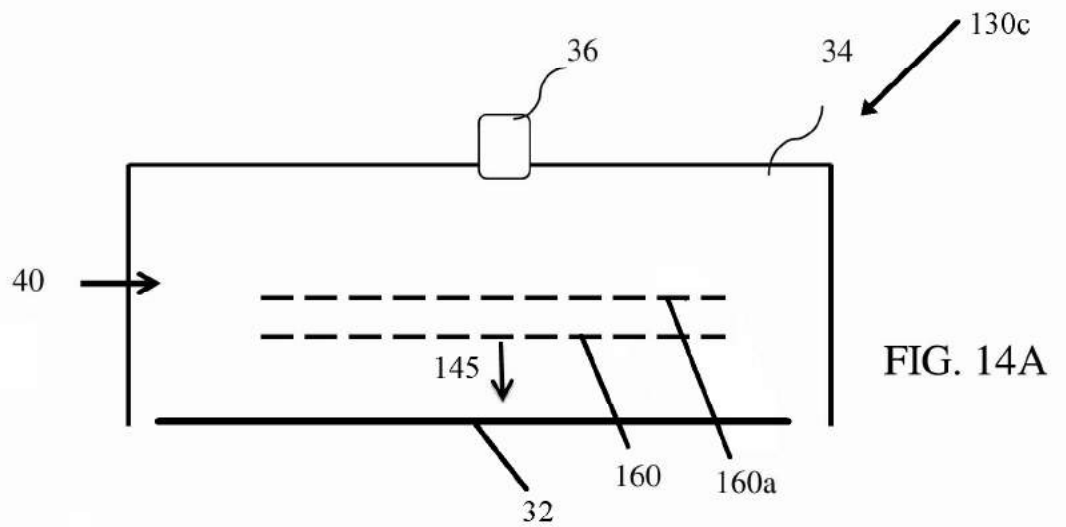
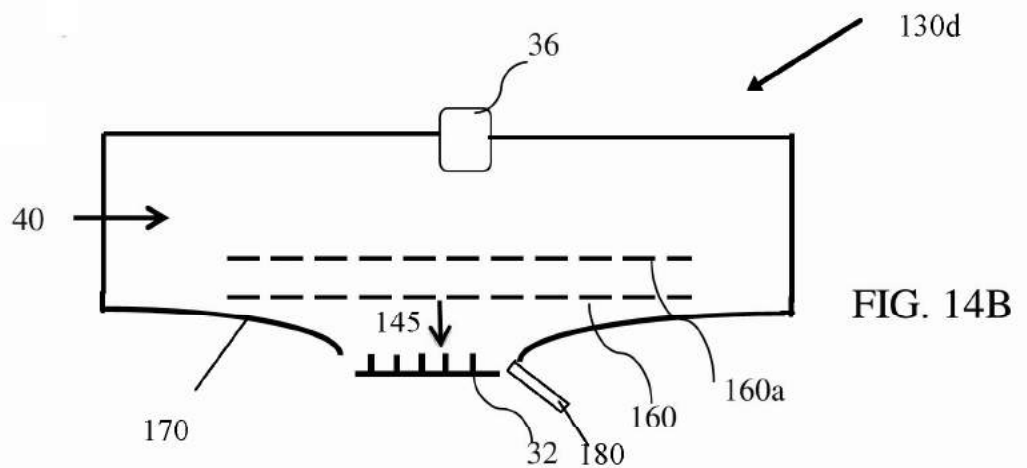


FIG. 13B



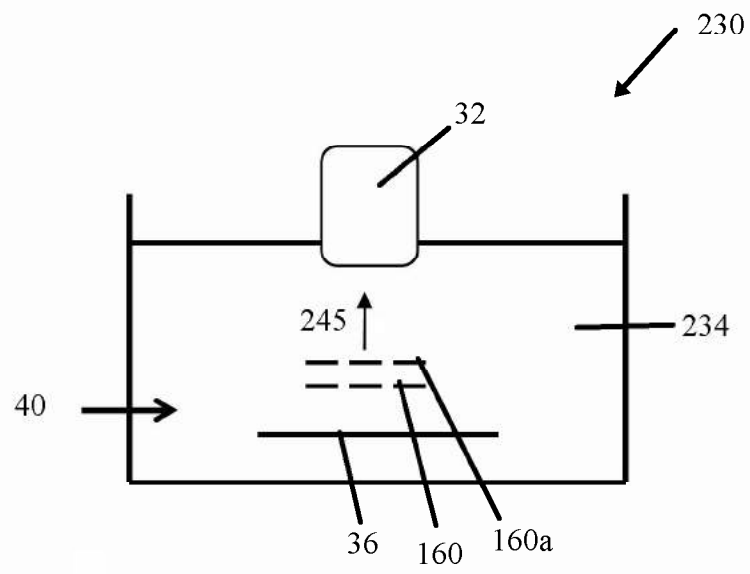


FIG. 15