

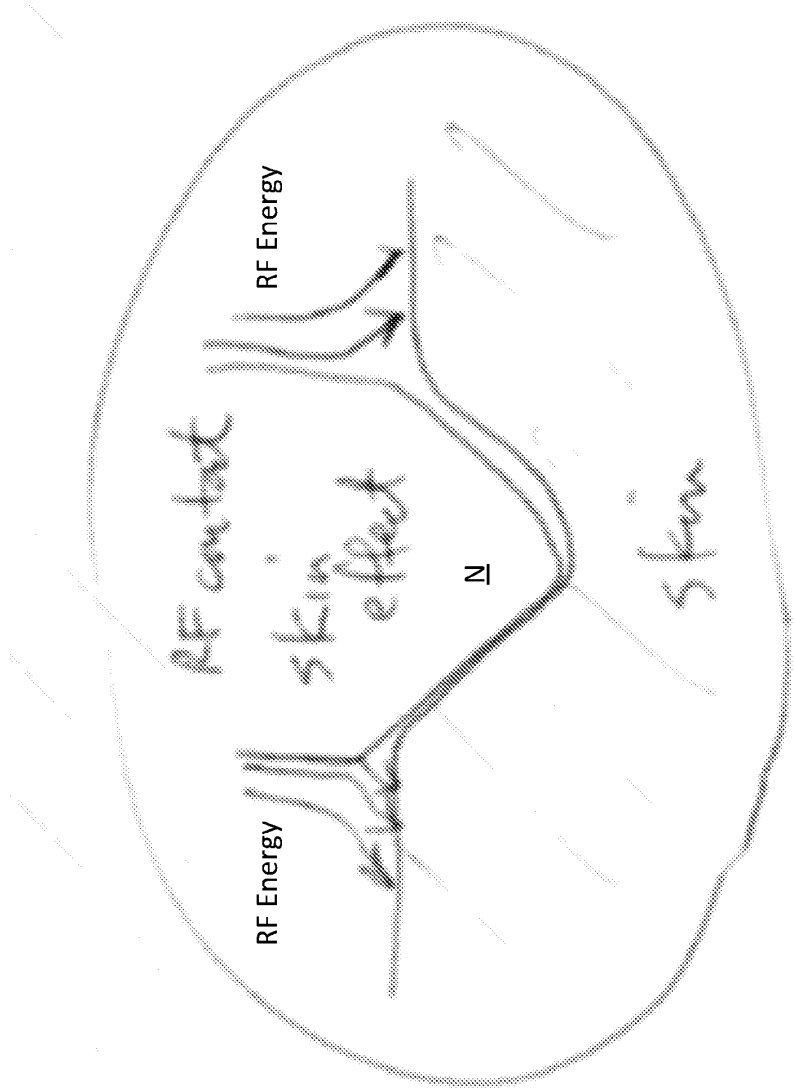


Fig. 1A

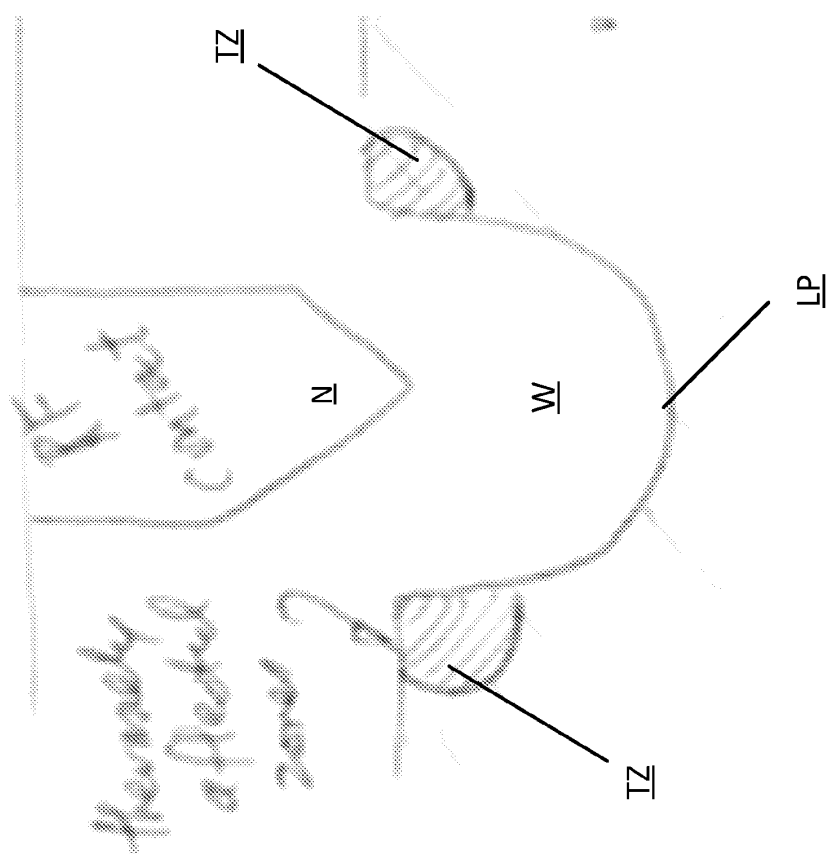


Fig. 1B

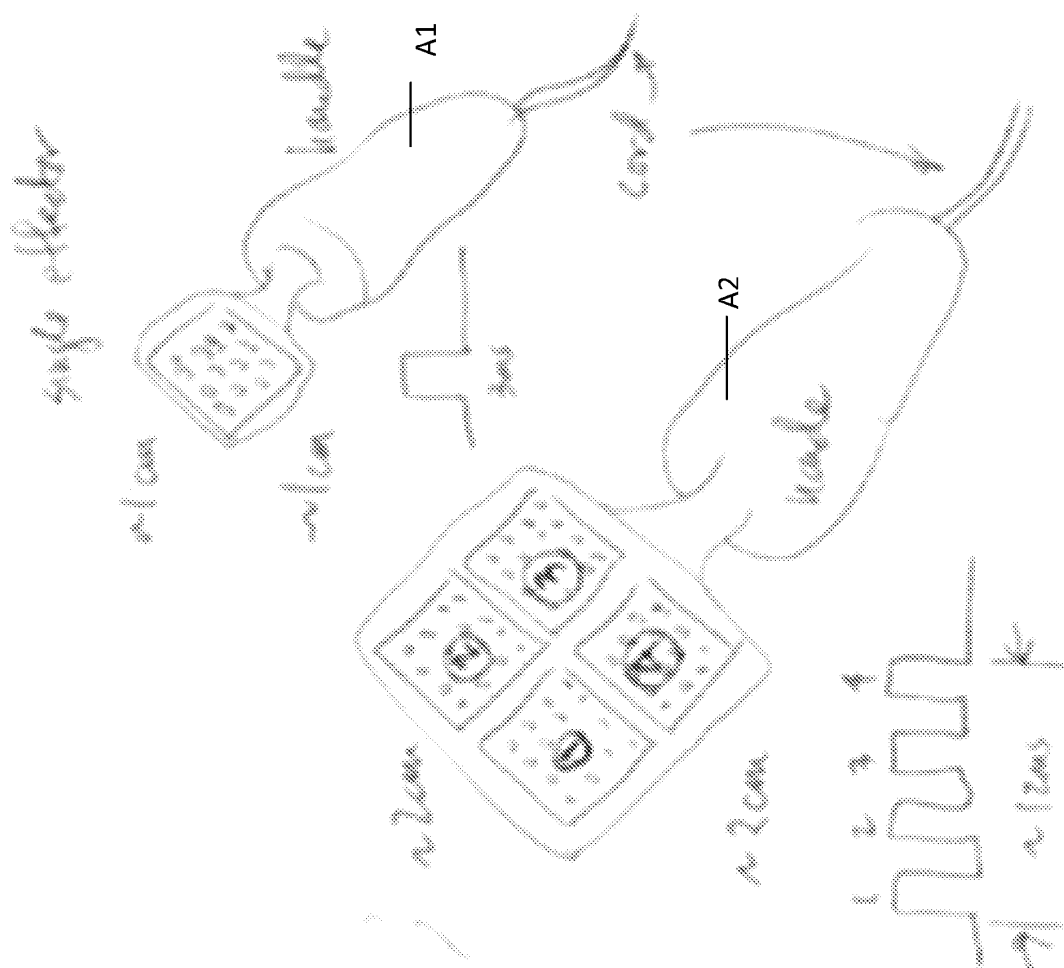
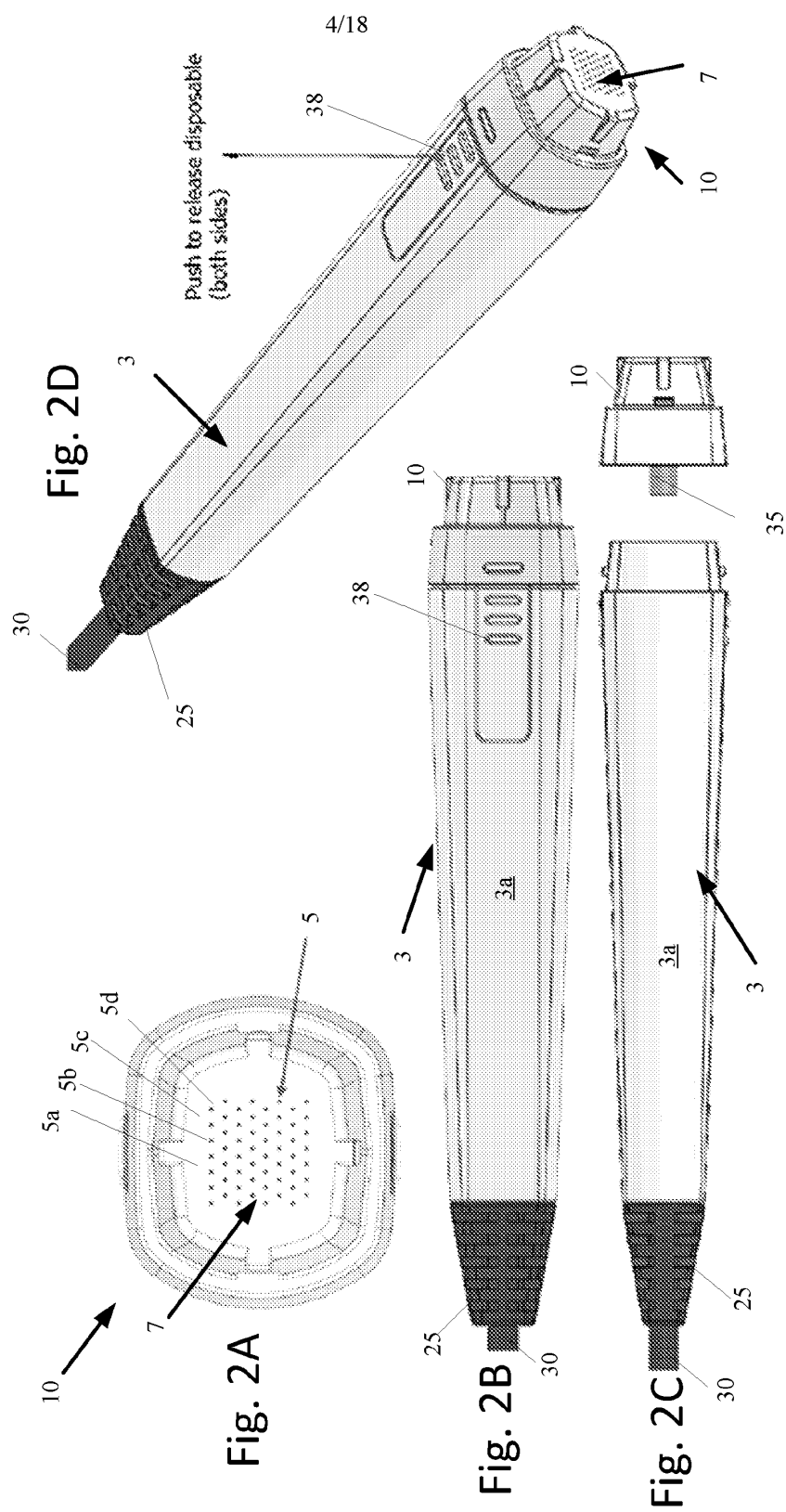


Fig. 1C



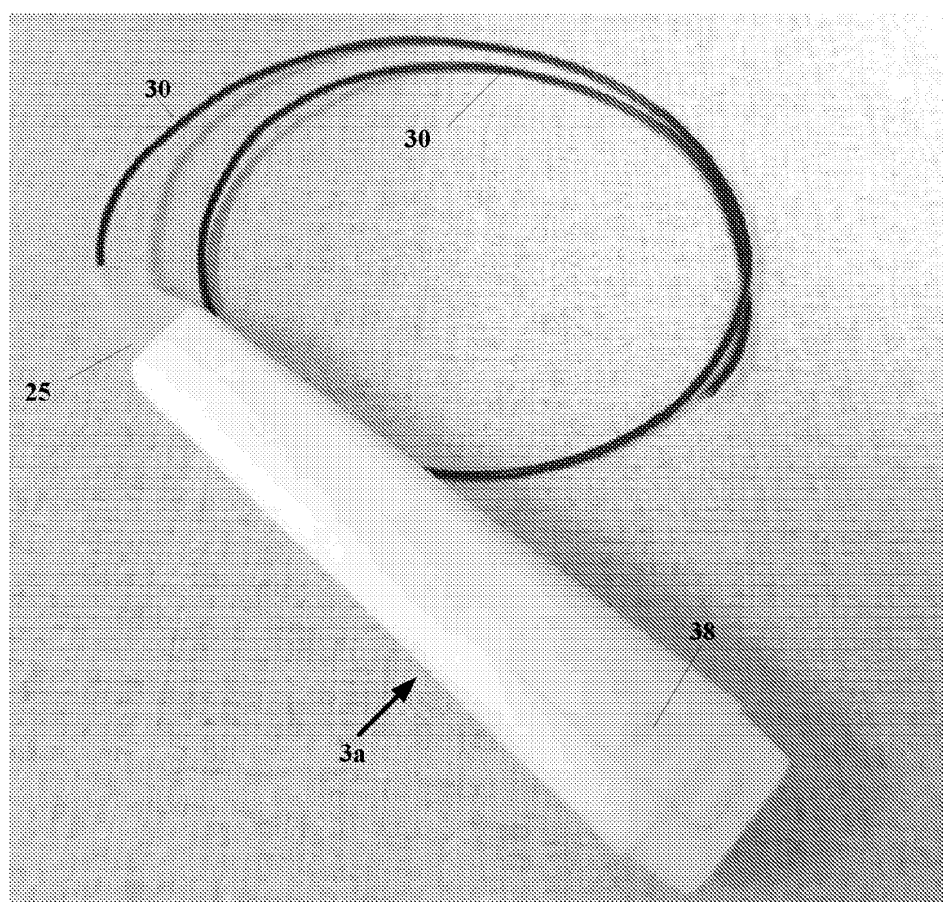


Fig. 3A

10a

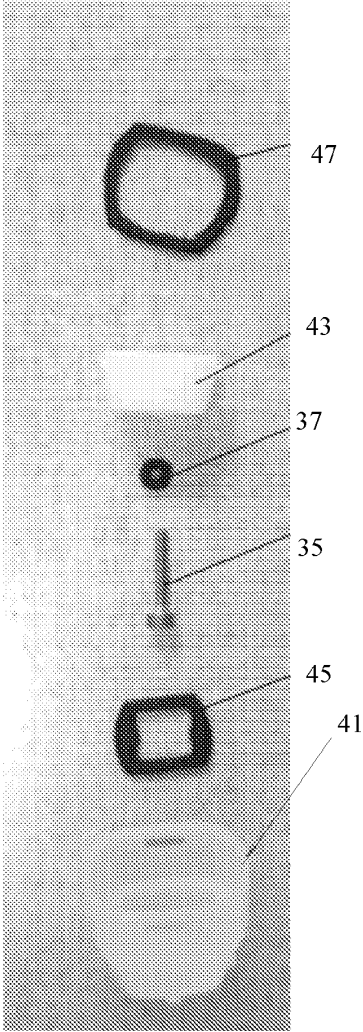


Fig. 3B

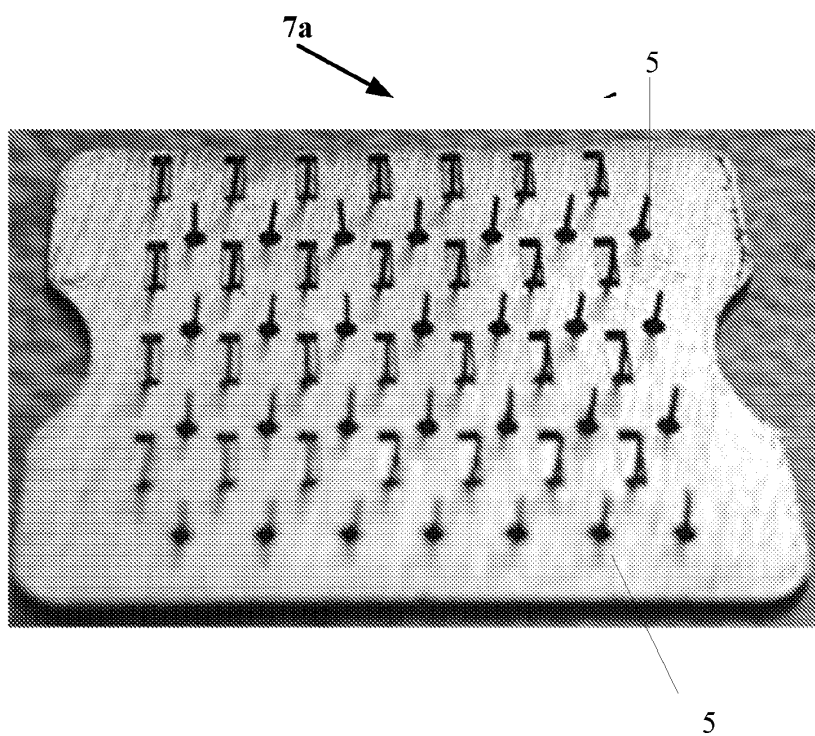


Fig. 4

- Pins contact skin
- RF energy is pulsed

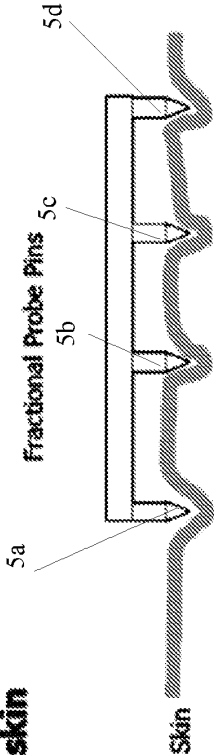
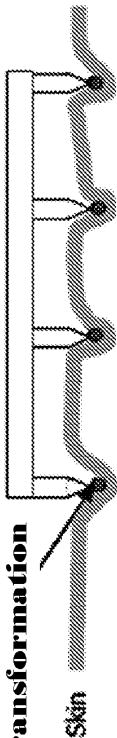


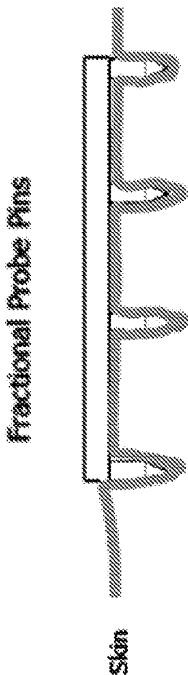
Fig. 5B

Skin / tissue transformation



- RF energy transforms the epidermis and electrode pins penetrate the epidermis

Fig. 5C



- Before energy 3017Ω , 67mA_{rms} , 203V_{rms}
- After energy 1417Ω , $277\text{mA}_{\text{rms}}$, 393V_{rms}
- Impedance change within $\sim 600\mu\text{s}$ of ramp start

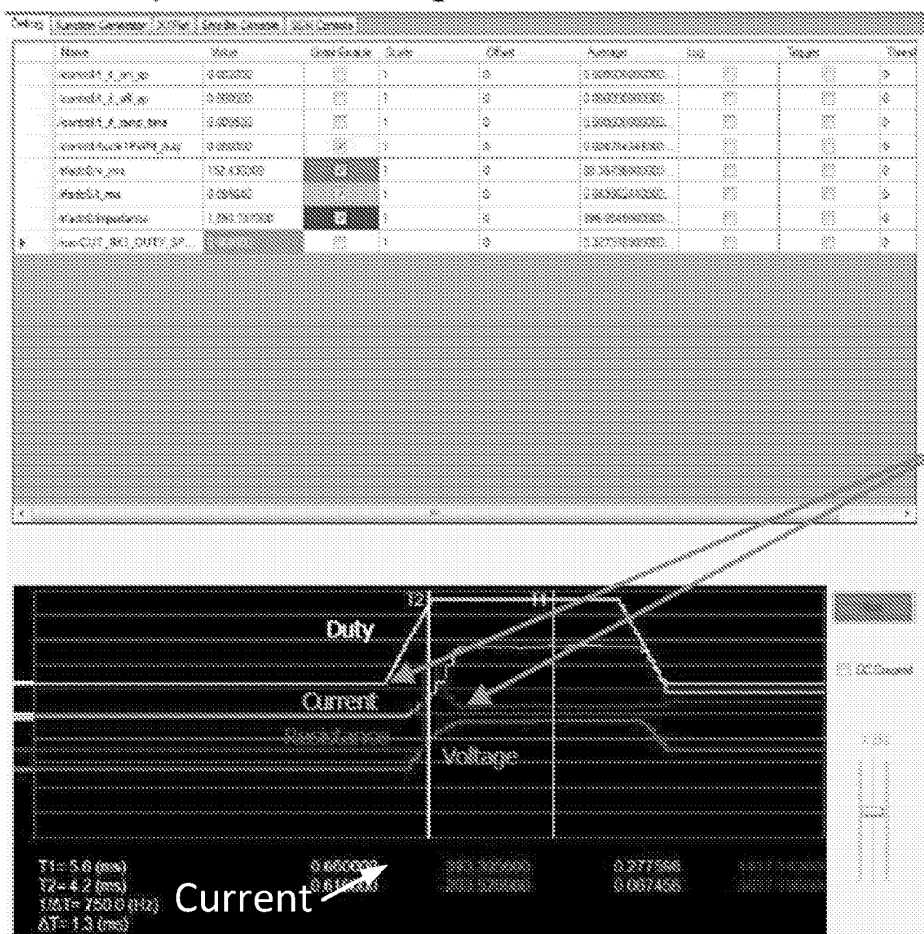


Fig. 6

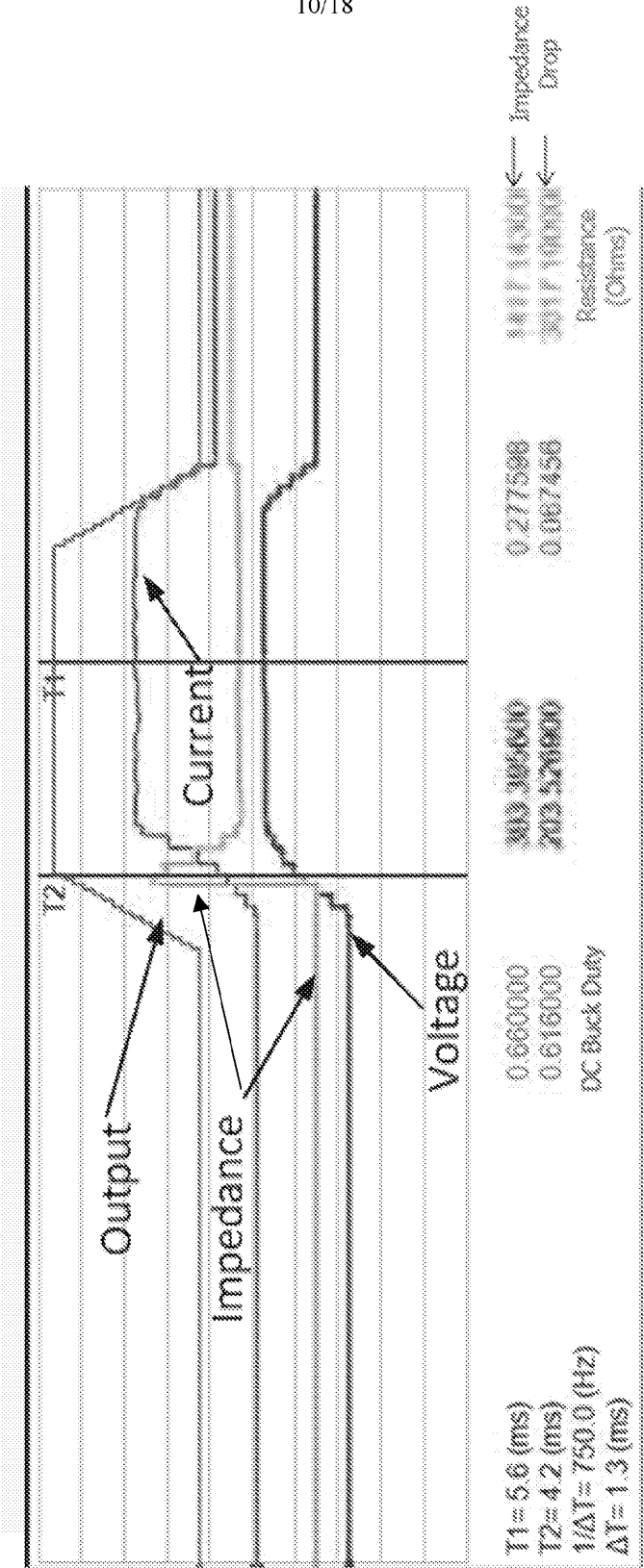


Fig. 7

DC Buck Duty Max / Power Supply Max Output

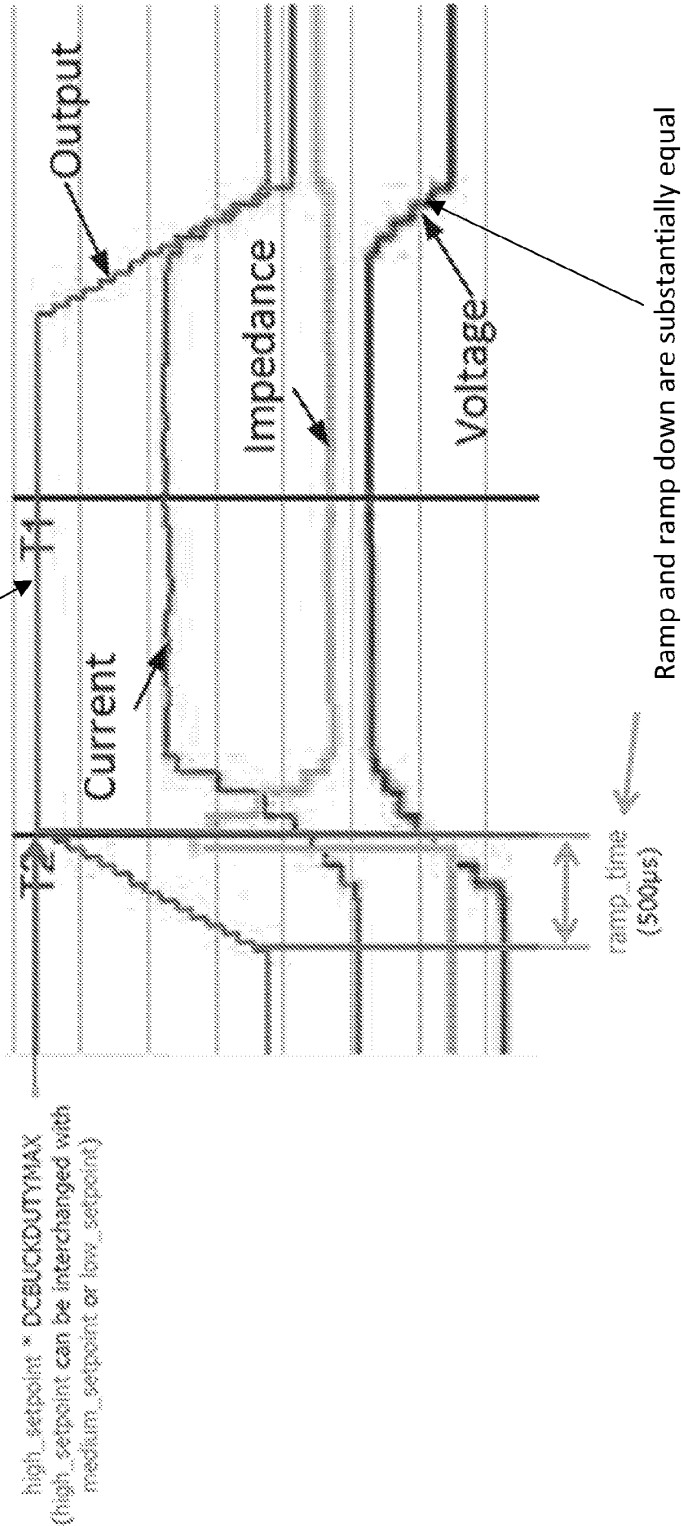


Fig. 8

Resistance / Impedance (yellow)

$\text{resistance_ratio} = 1 - \text{resistance} / \text{resistance_max}$

$r_drop_threshold = 0.2$

(Good treatment identified by 20% resistance drop)

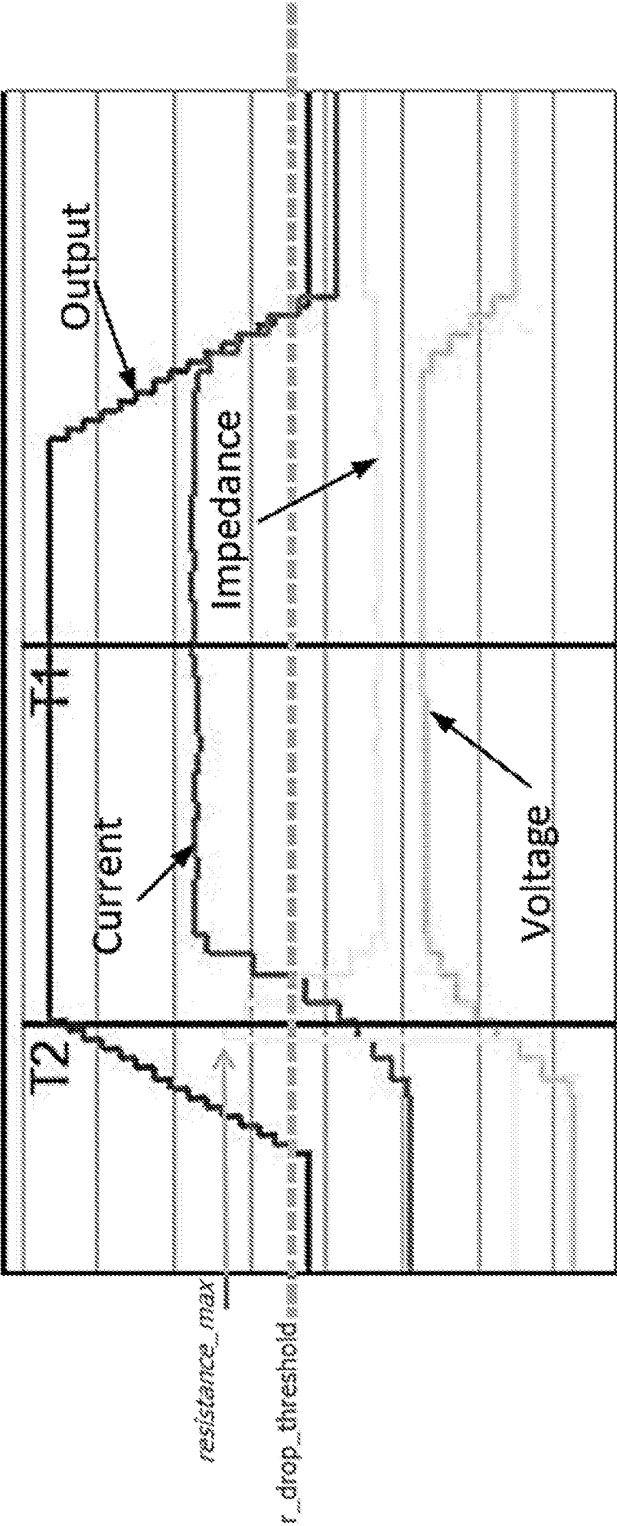


Fig. 9

Resistance / Impedance (yellow)

- pulse_duration is set by user in ms and begins when r_drop_threshold is crossed
- DC Buck Duty ramps down at the end of a pulse_duration

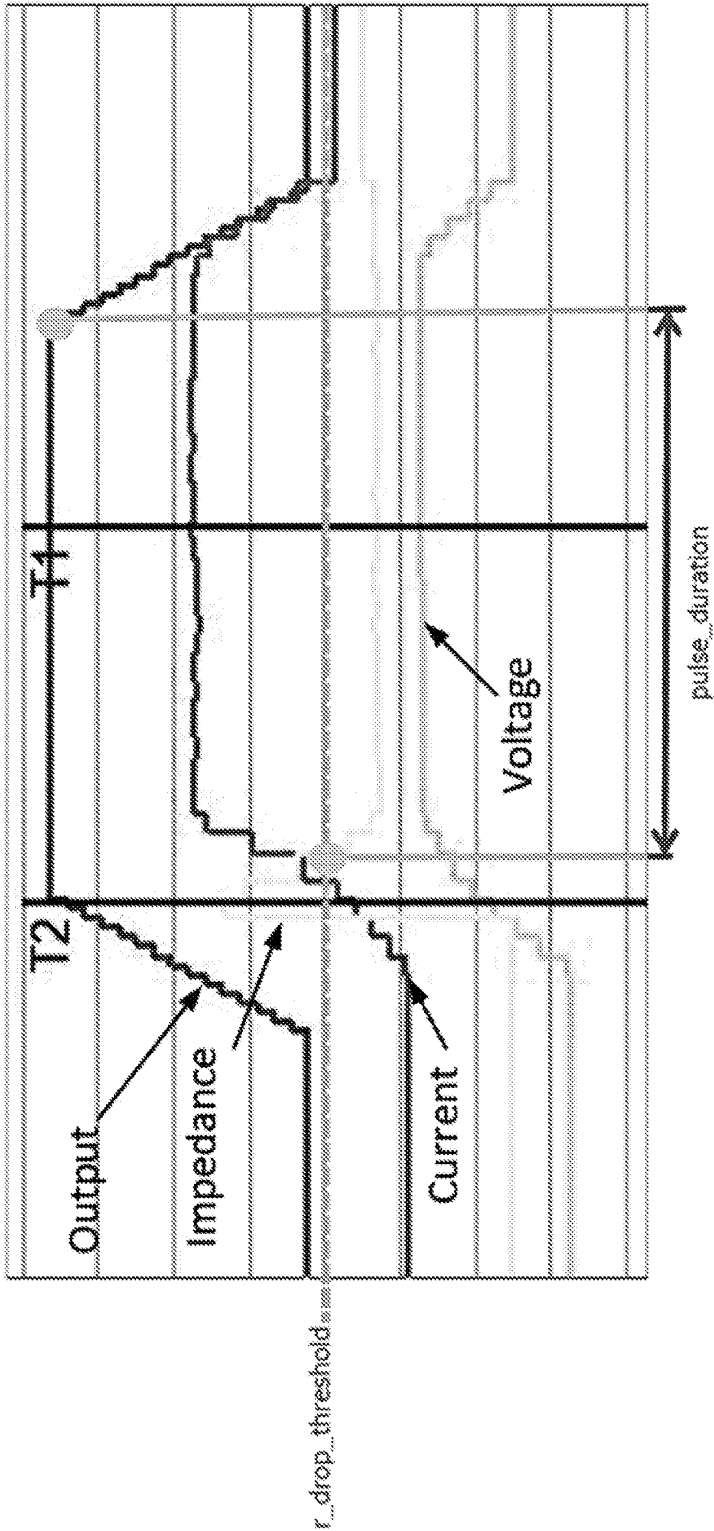


Fig. 10

- Fractional penetration and impedance drop seen

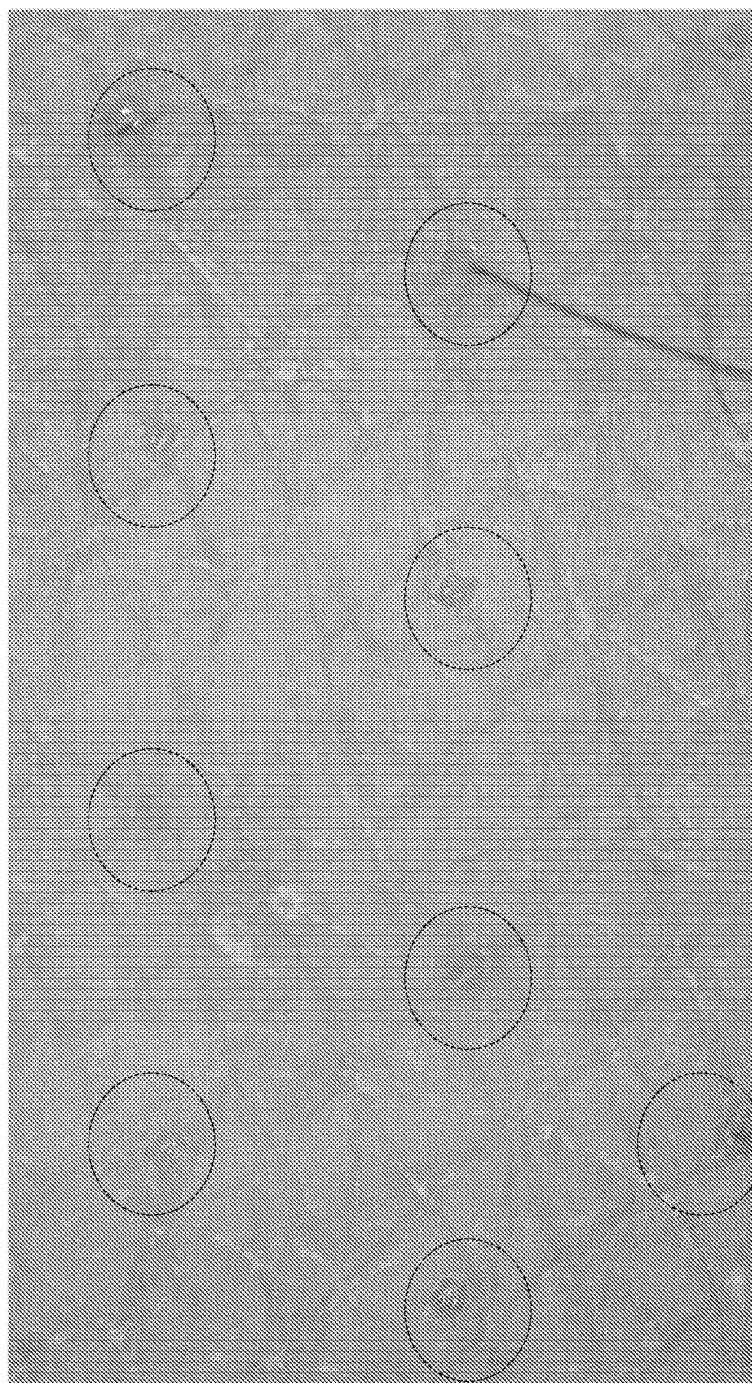


Fig. 11A

- No fractional penetration, no impedance drop seen

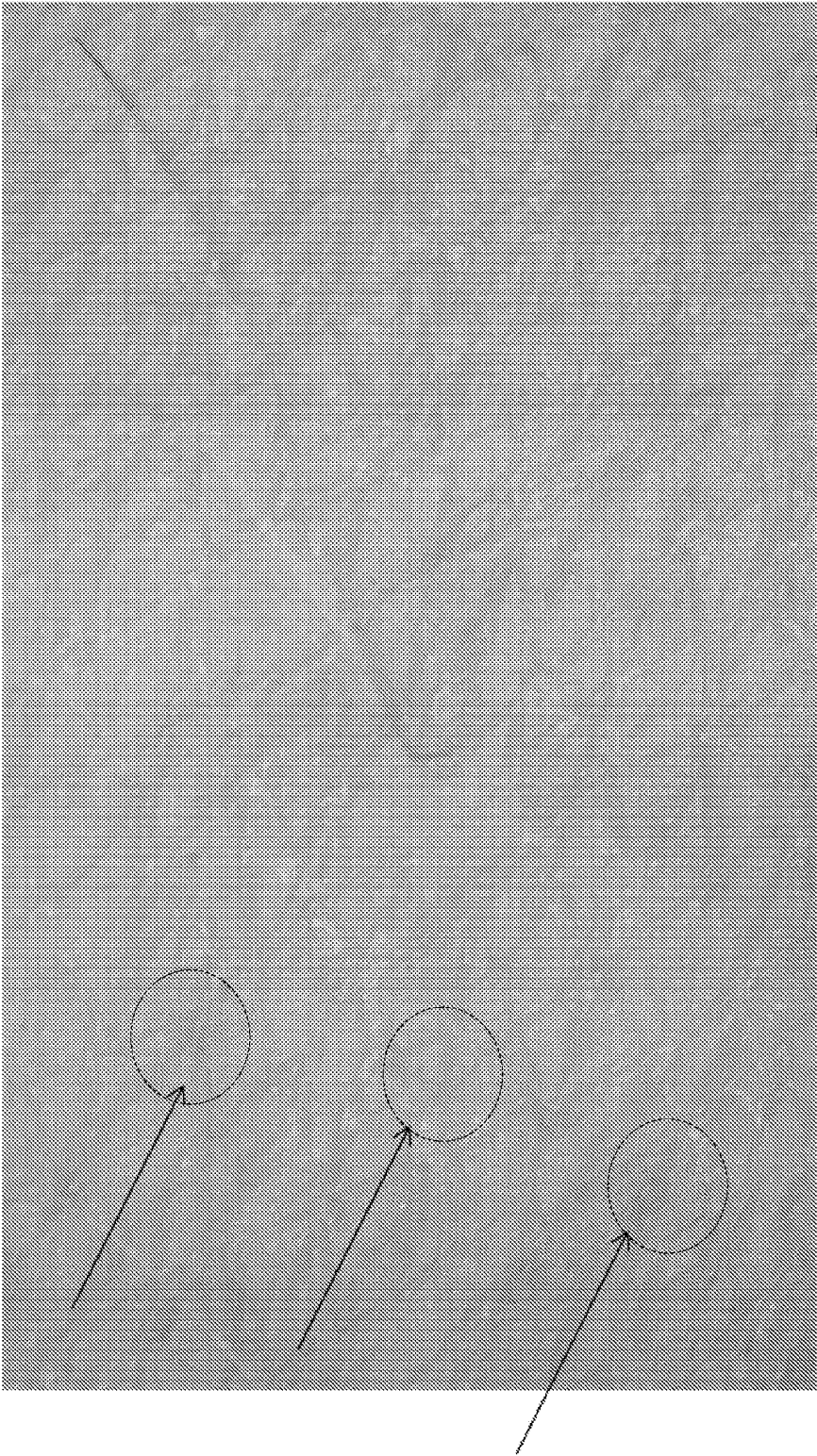


Fig. 11B

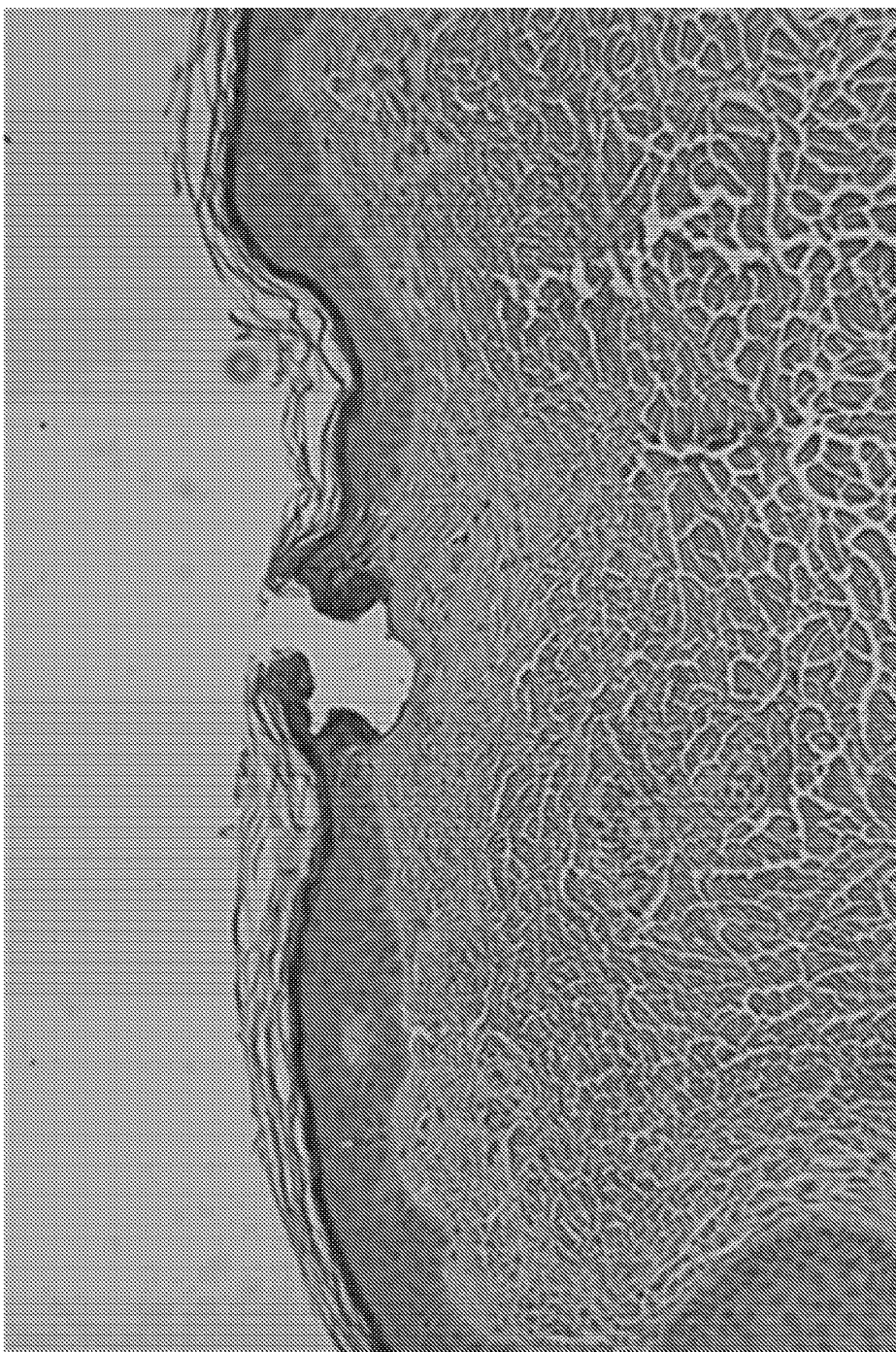


Fig. 12A

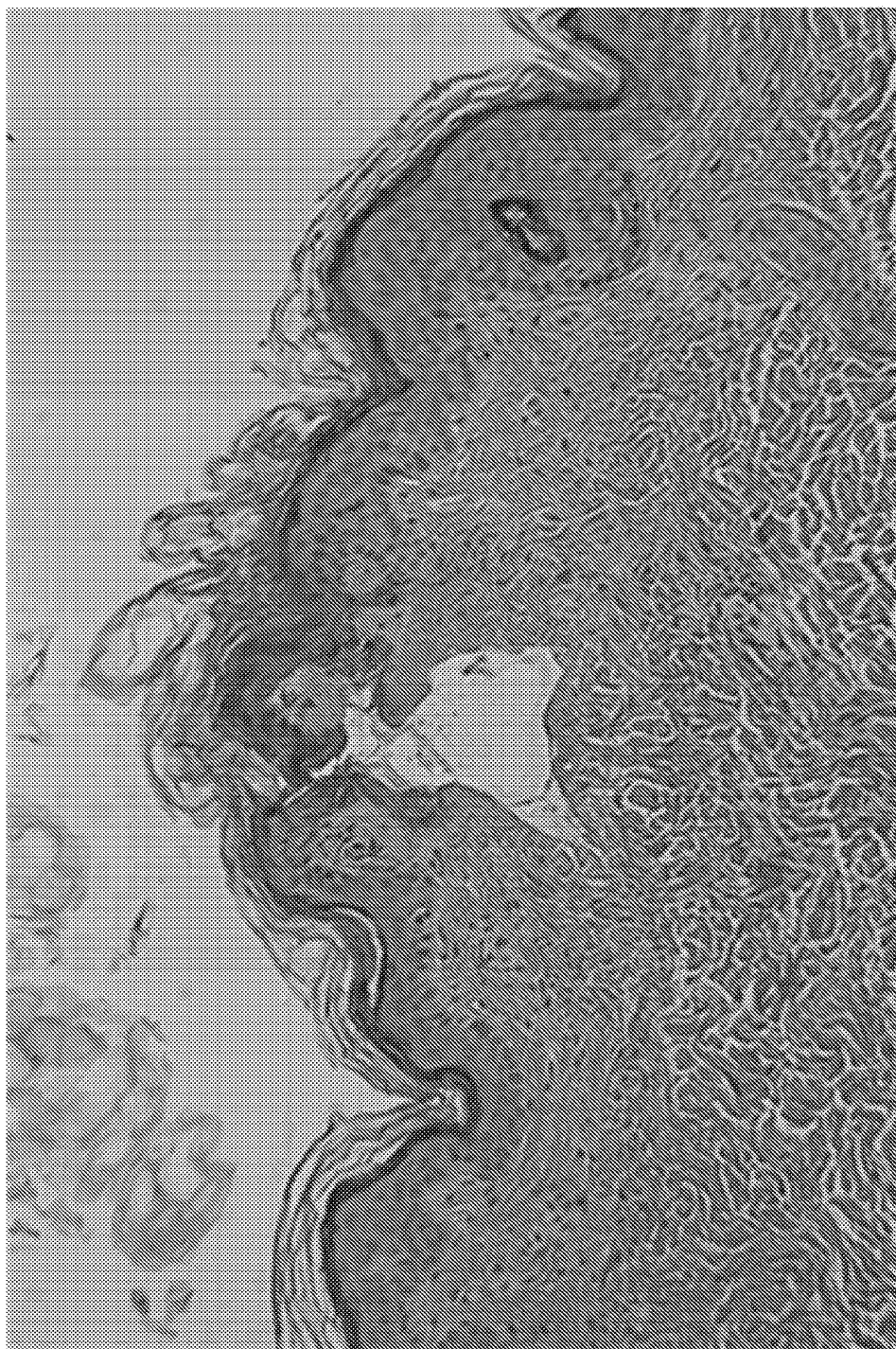


Fig. 12B

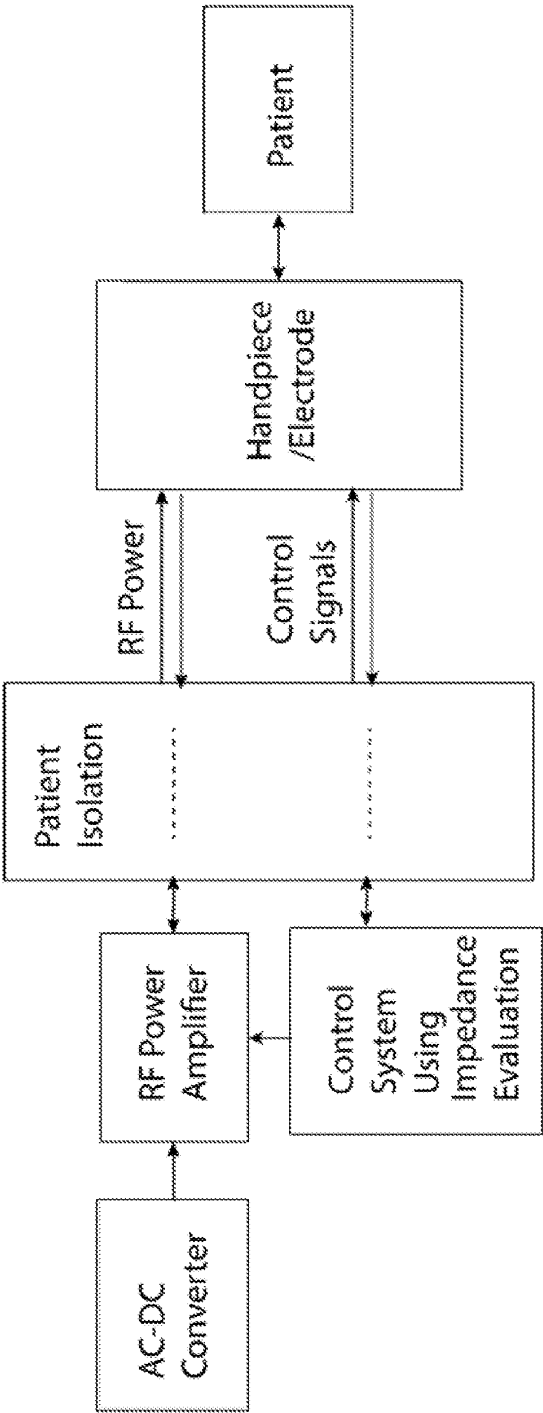


FIG. 13