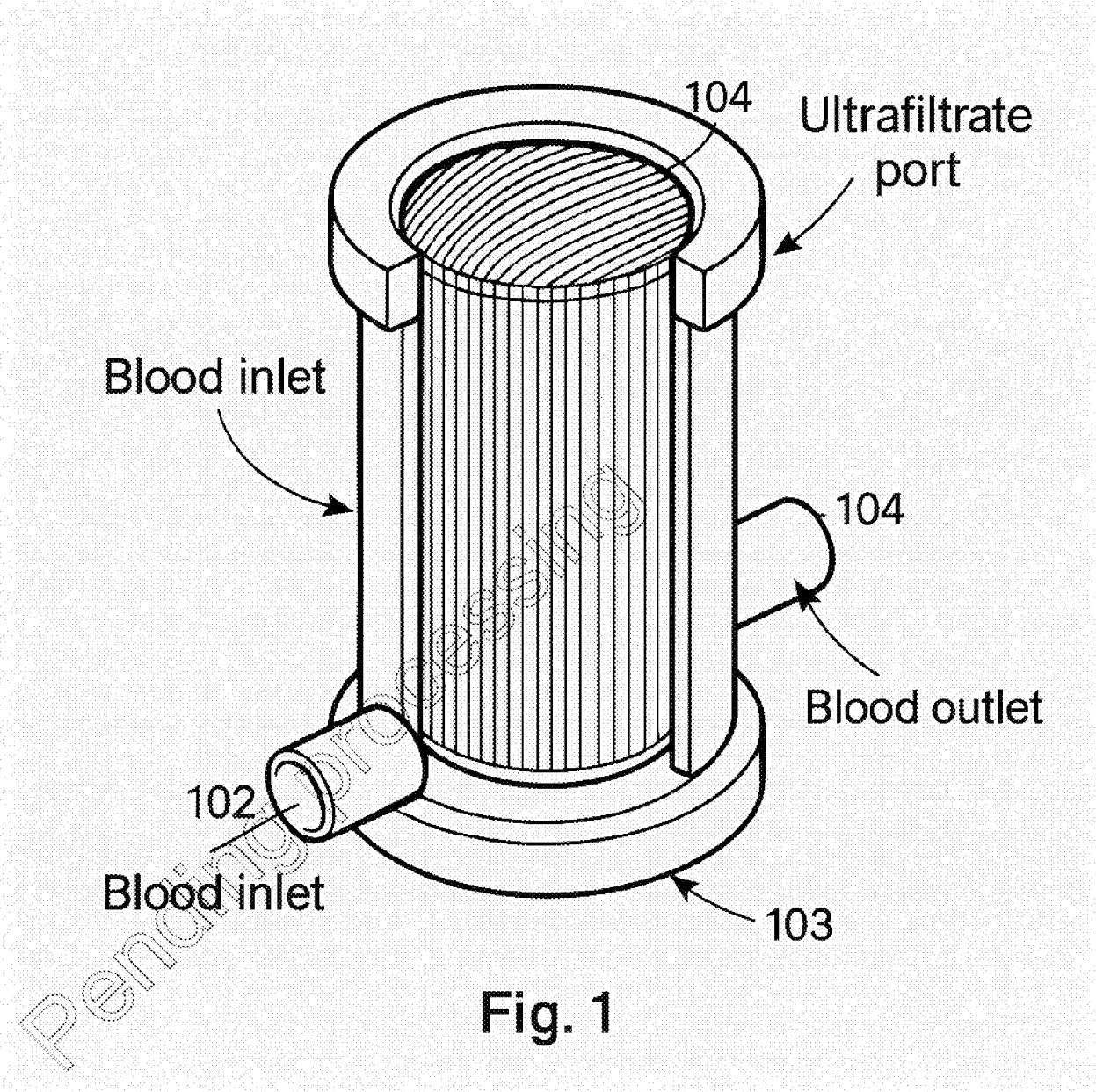
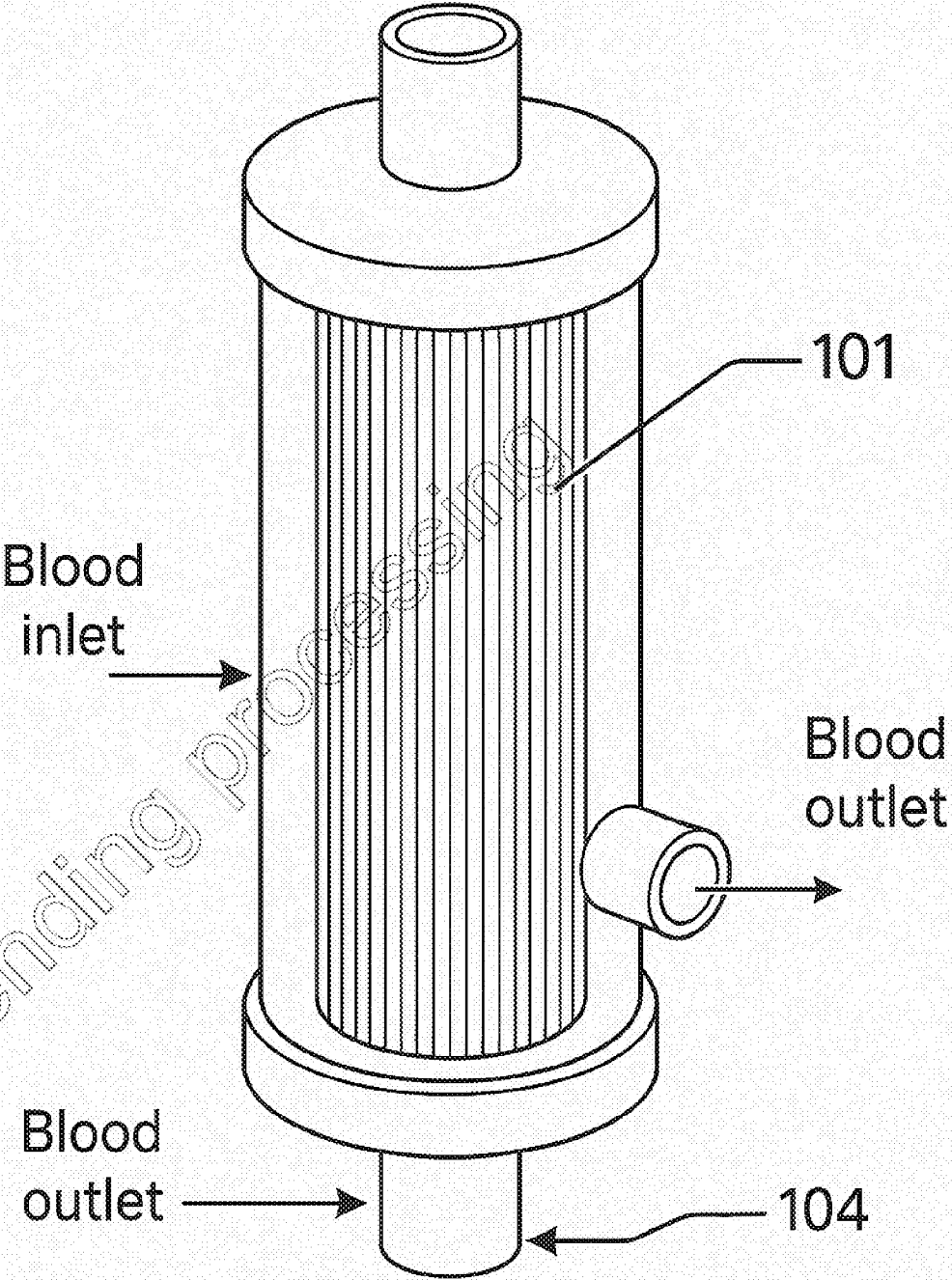


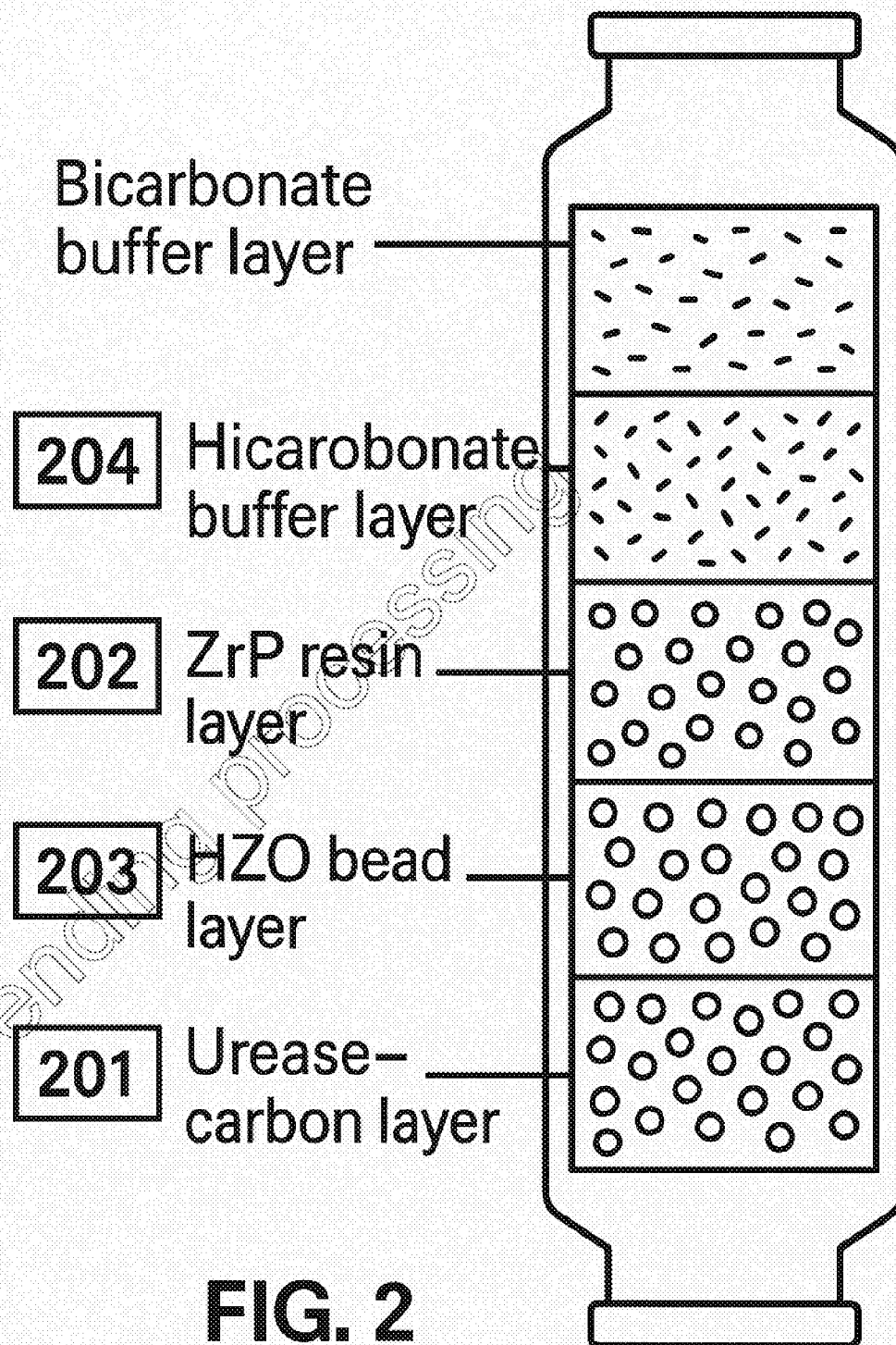
Figures



**FIG. 1**



Ultrafiltrate port



**FIG. 2**

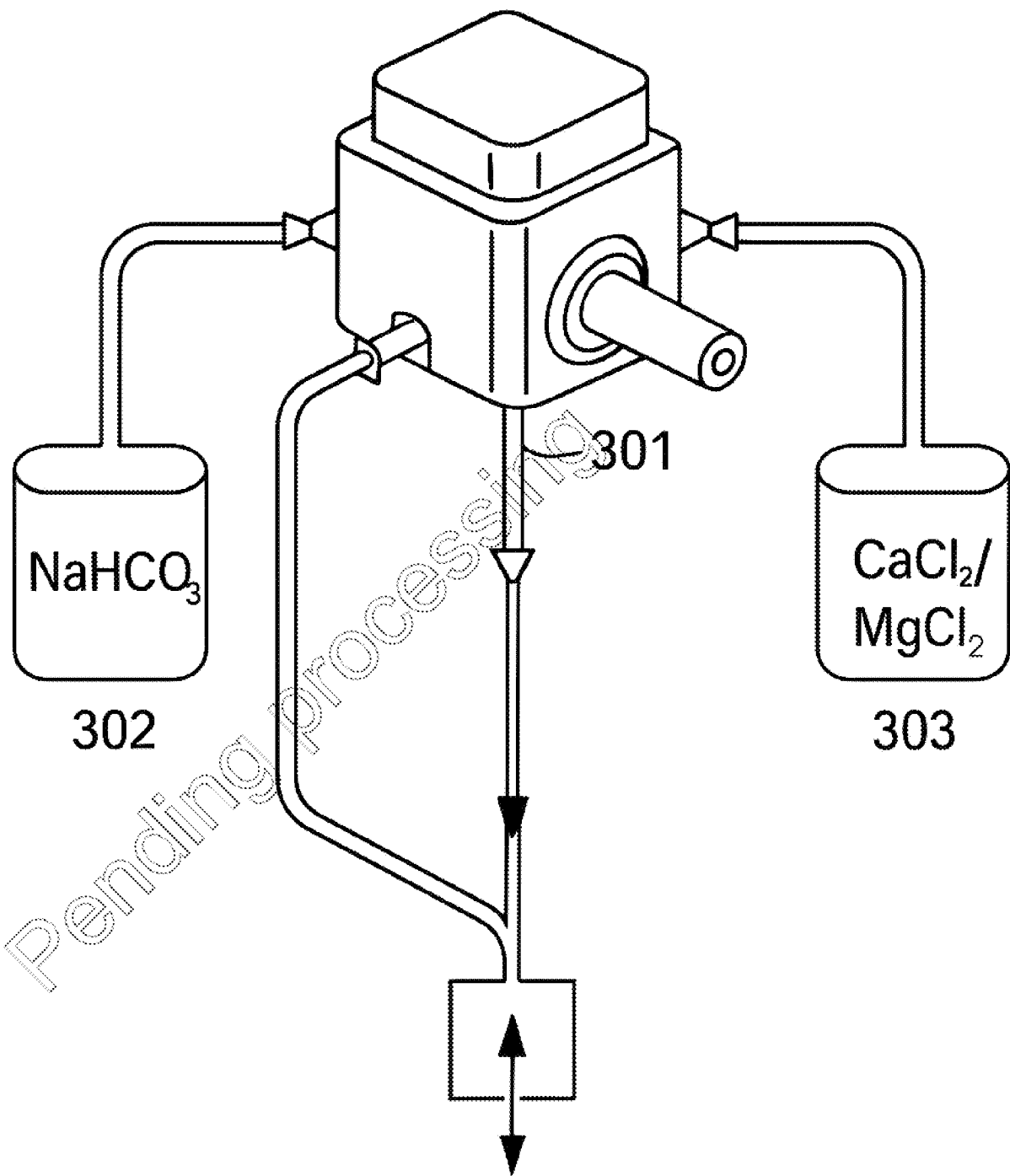


FIG. 3

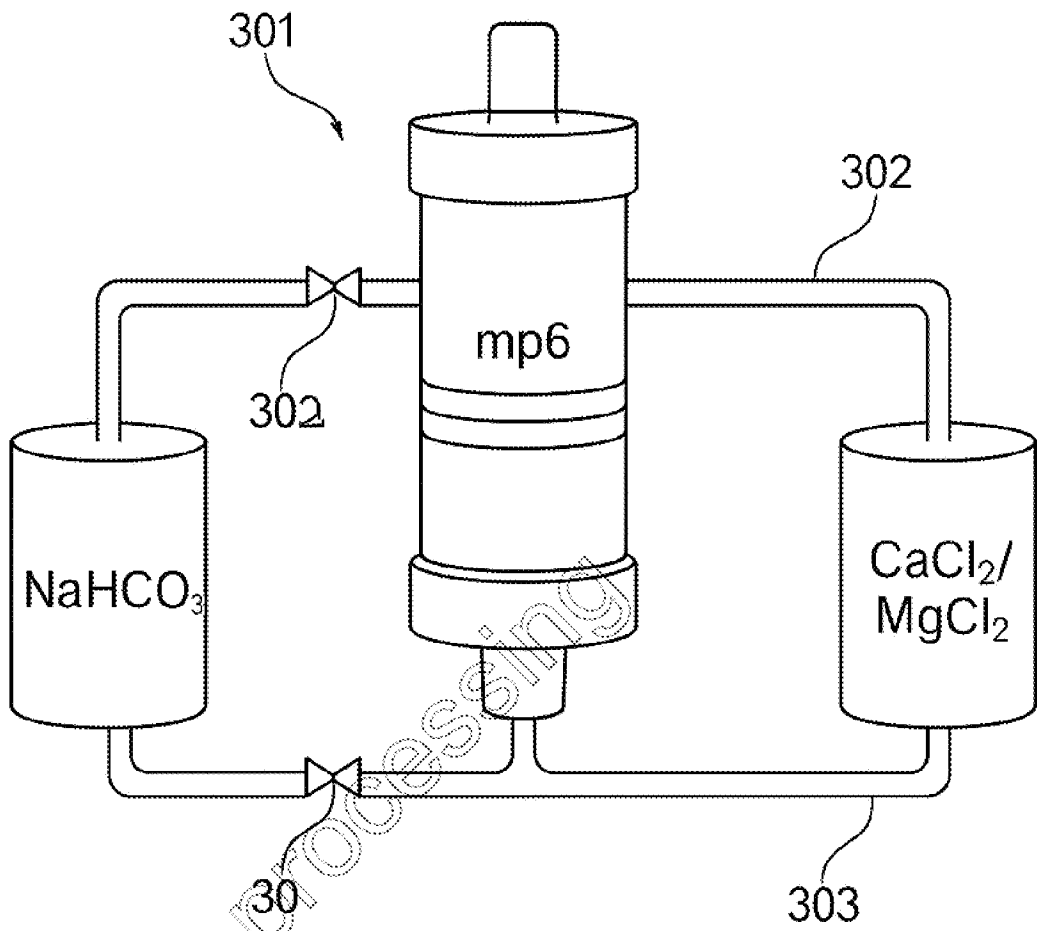
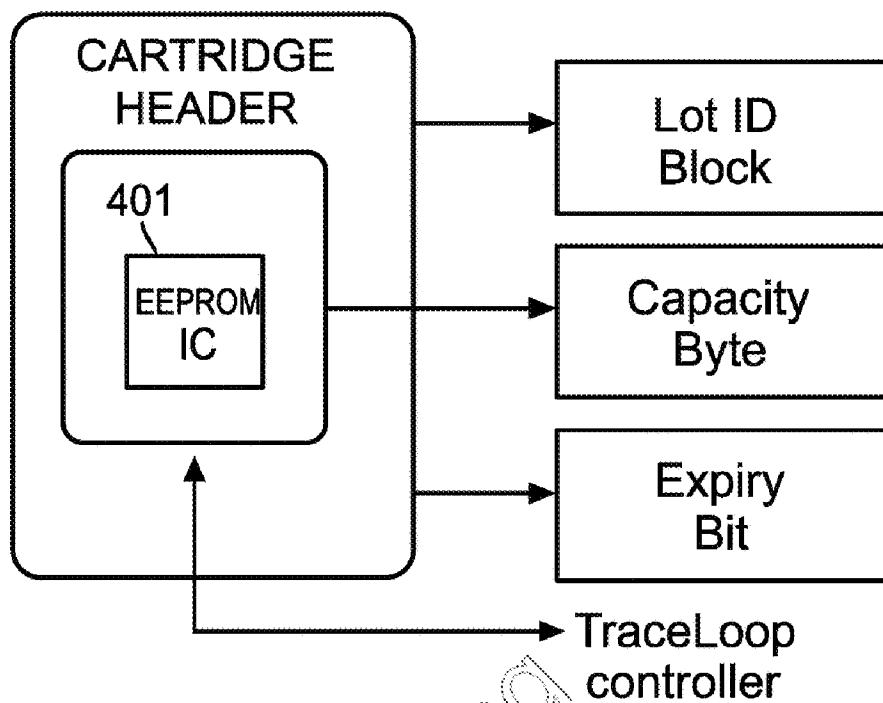


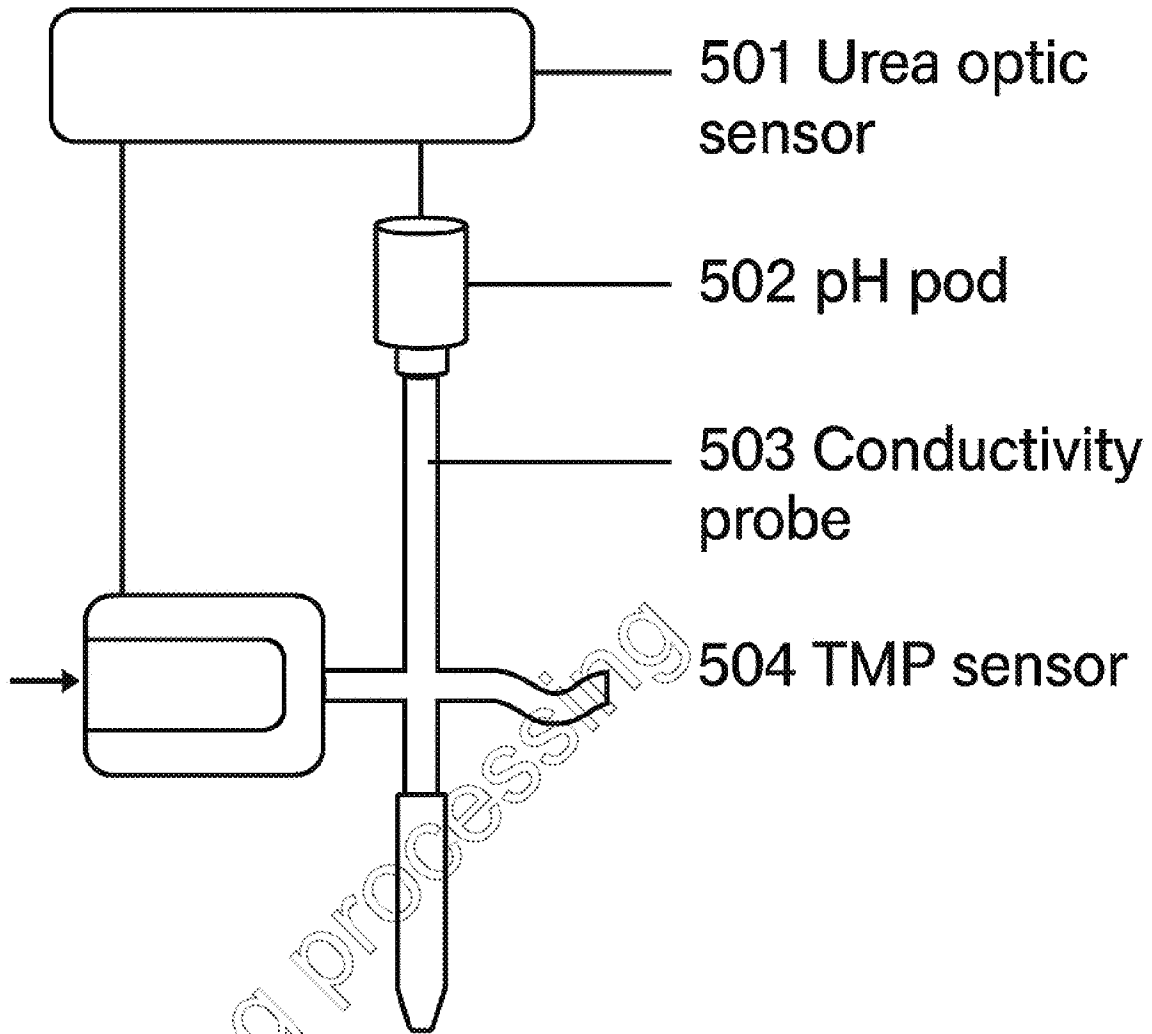
FIG. 3

Pending processing



**FIG. 4** Cartridge EEPROM Logic

Pending processing



501 Urea optic sensor

502 pH pod

503 Conductivity probe

504 TMP sensor

Pending processing

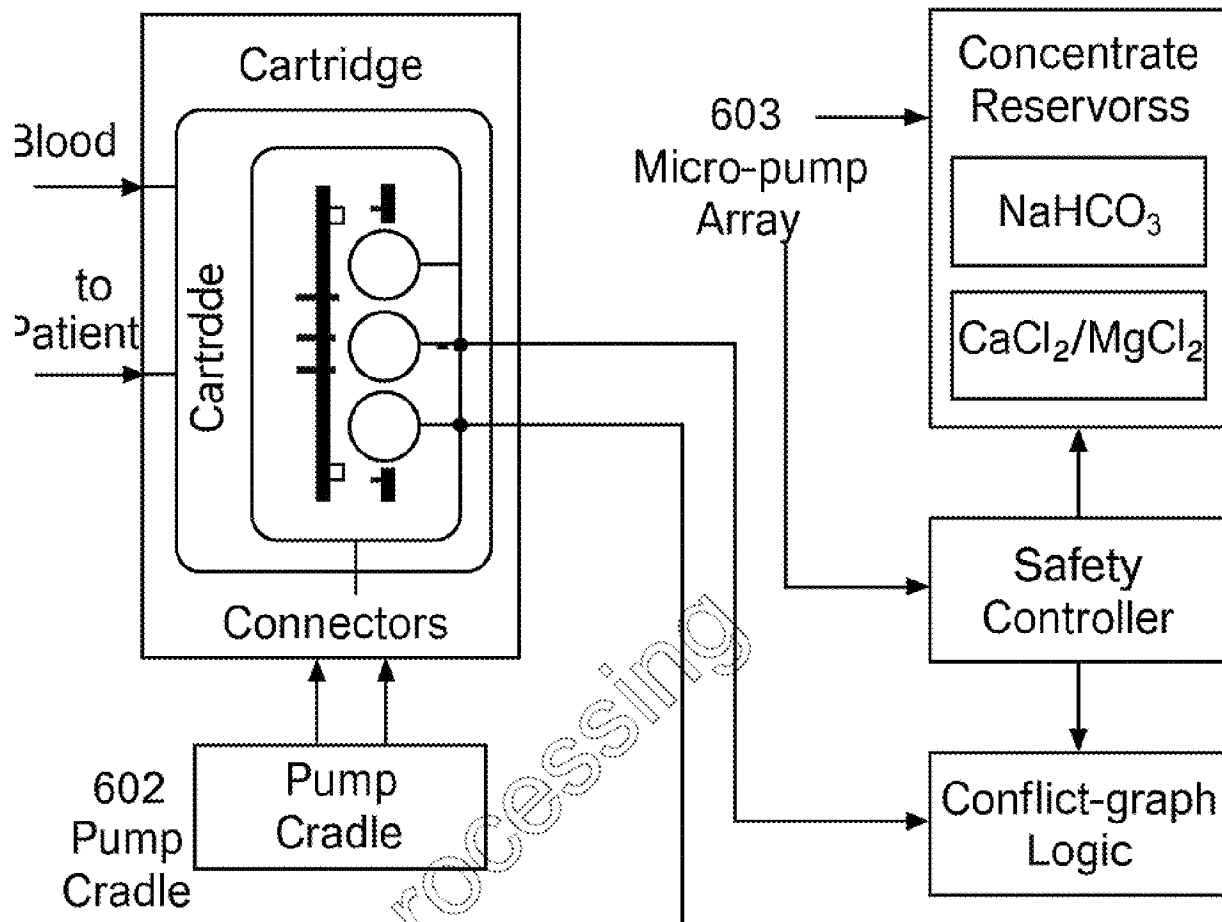


FIG. 6

Pending processing

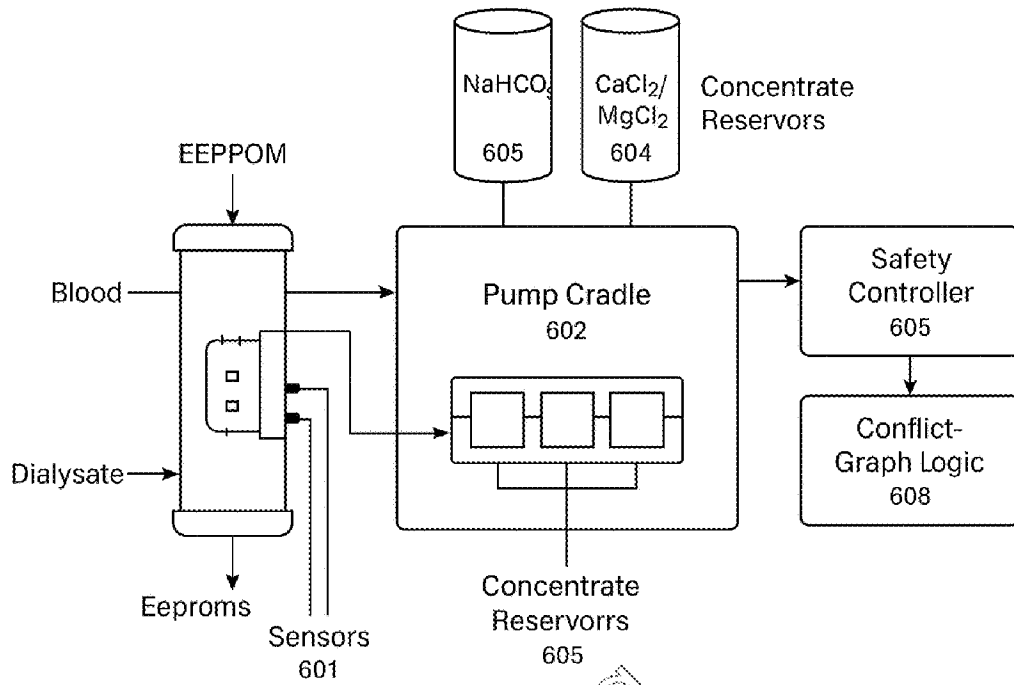
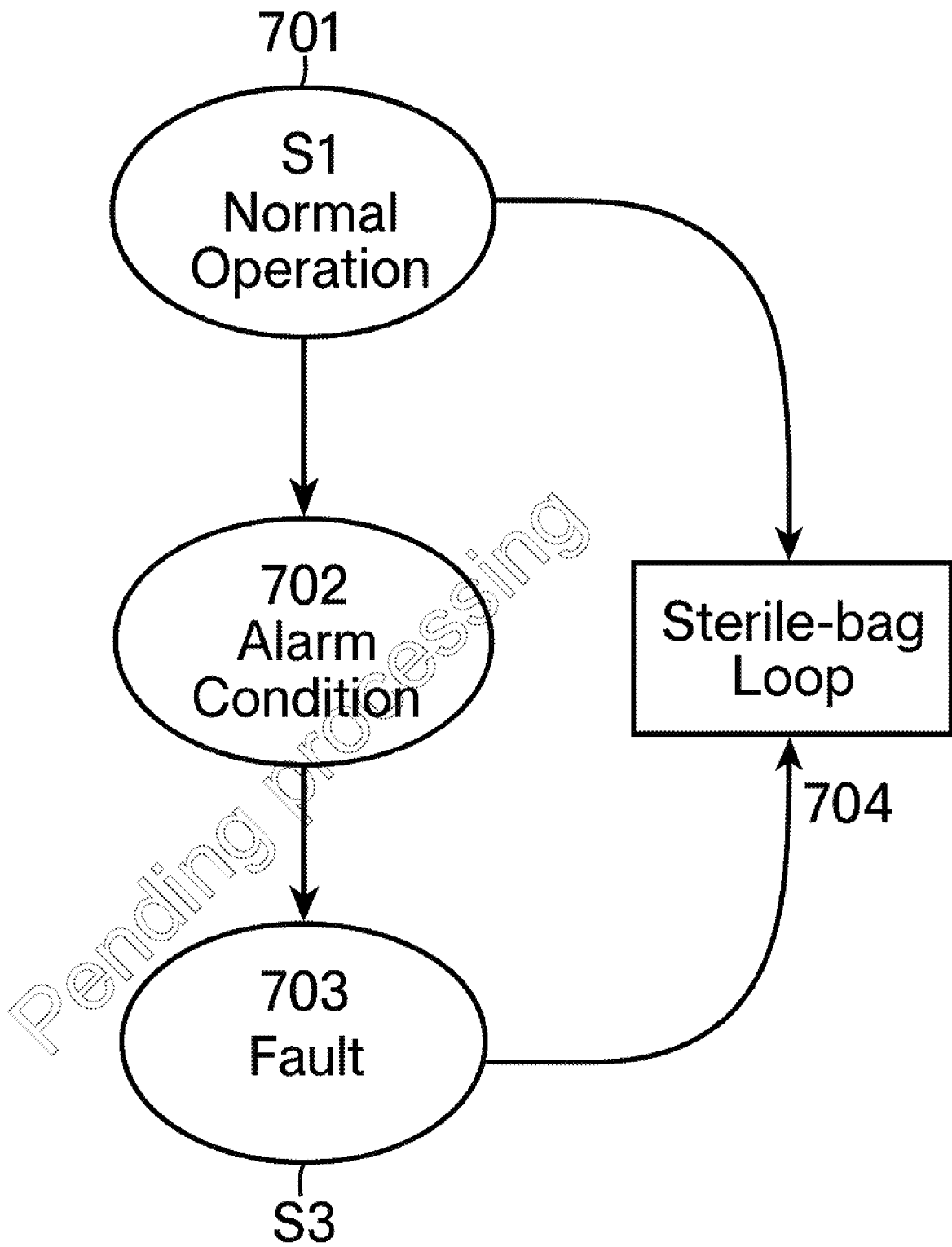
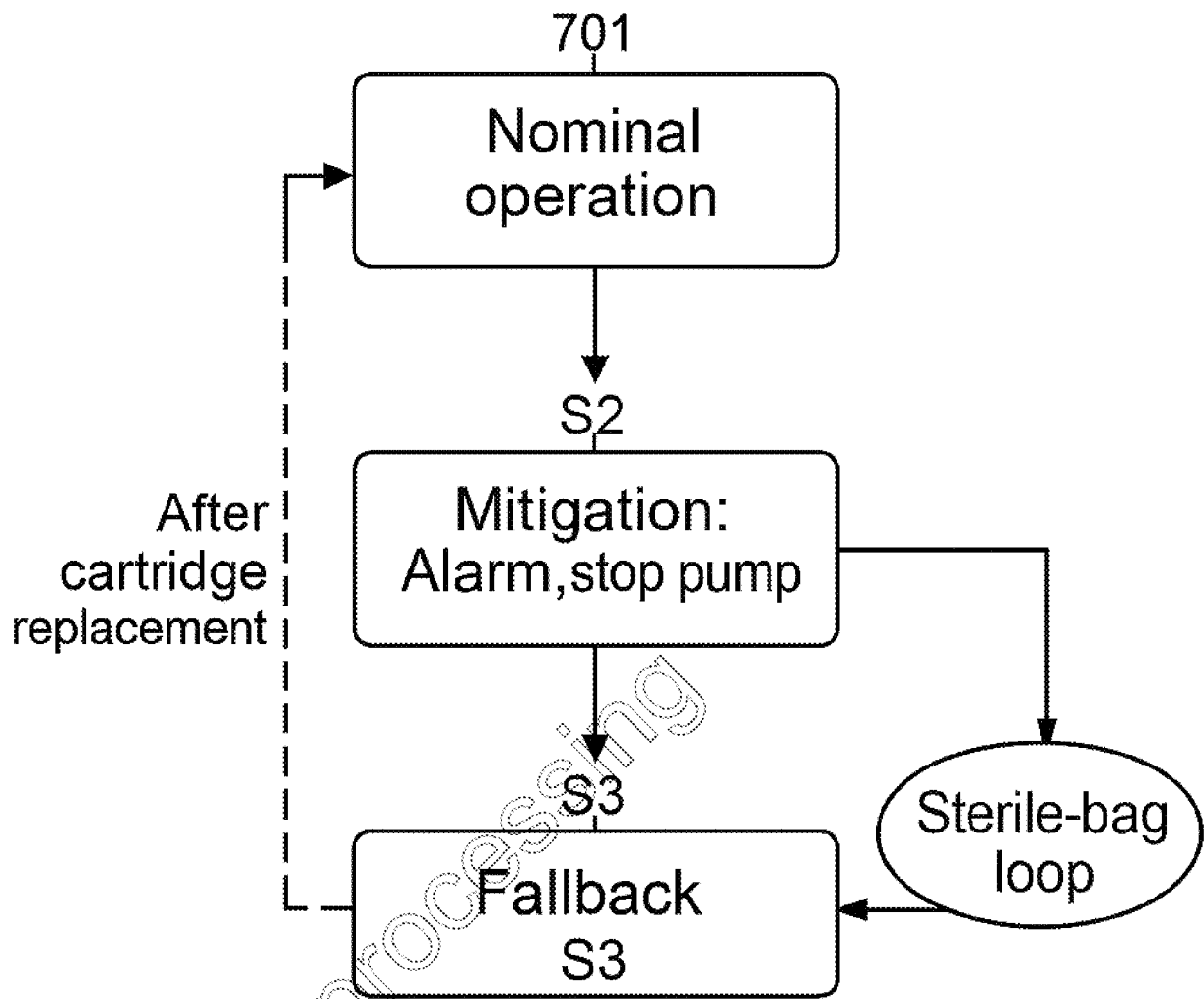


FIG. 6

Pending processing



Safety-state transition and fallback logic



**FIG. 7**

## Sentinel Table

<b>Resource</b>	<b>Timeout</b>	<b>Mitigation</b>	<b>Restart</b>
Micropump	200 ms	Switch to backup	Auto
Control loop	100 ms	Re-boot task	Manual
NH <sub>3</sub> sensor	15 s	Purge, retry	Auto
Watchdog	500 ms	Cold-reset	Manual

**FIG. 8**

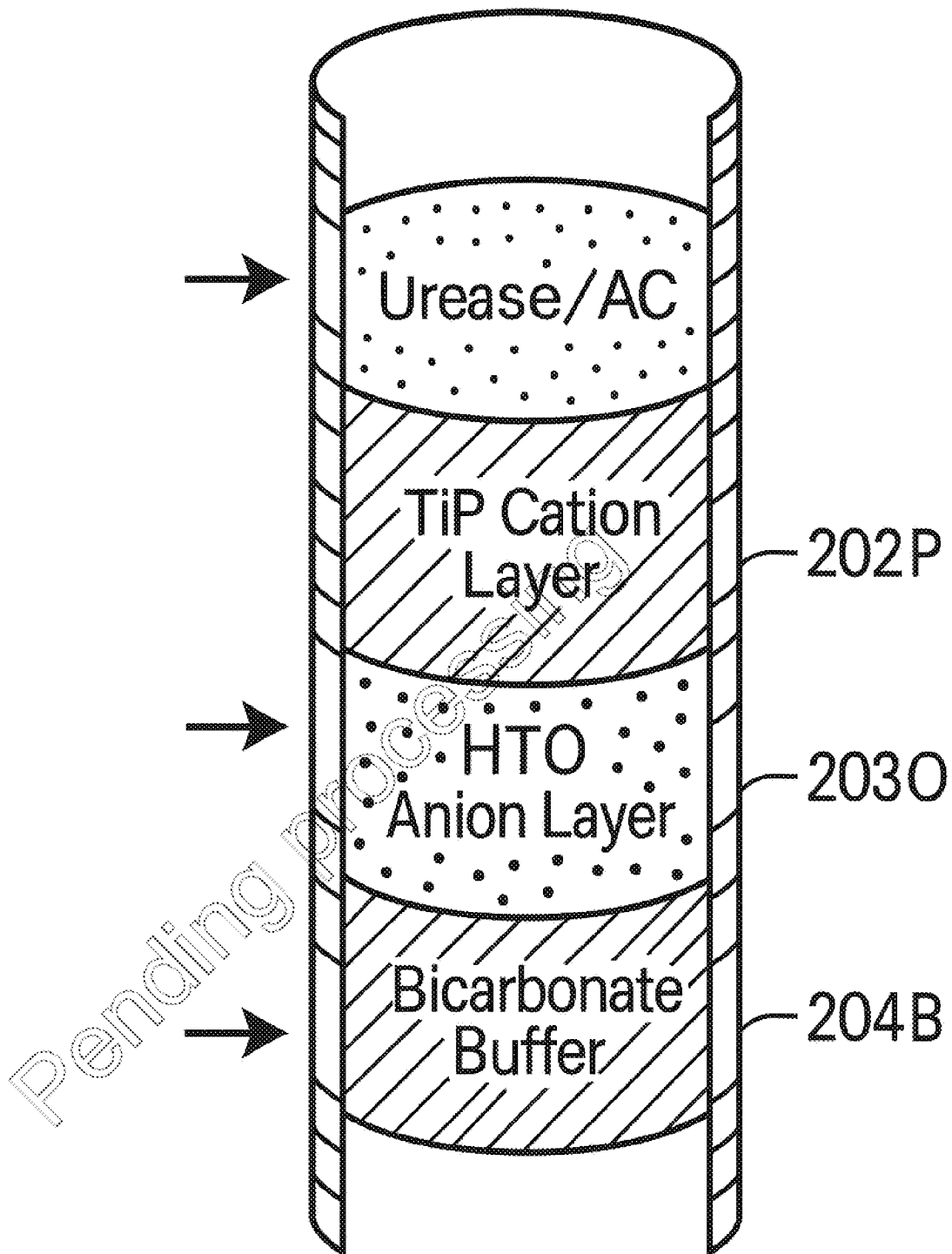


FIG. 9

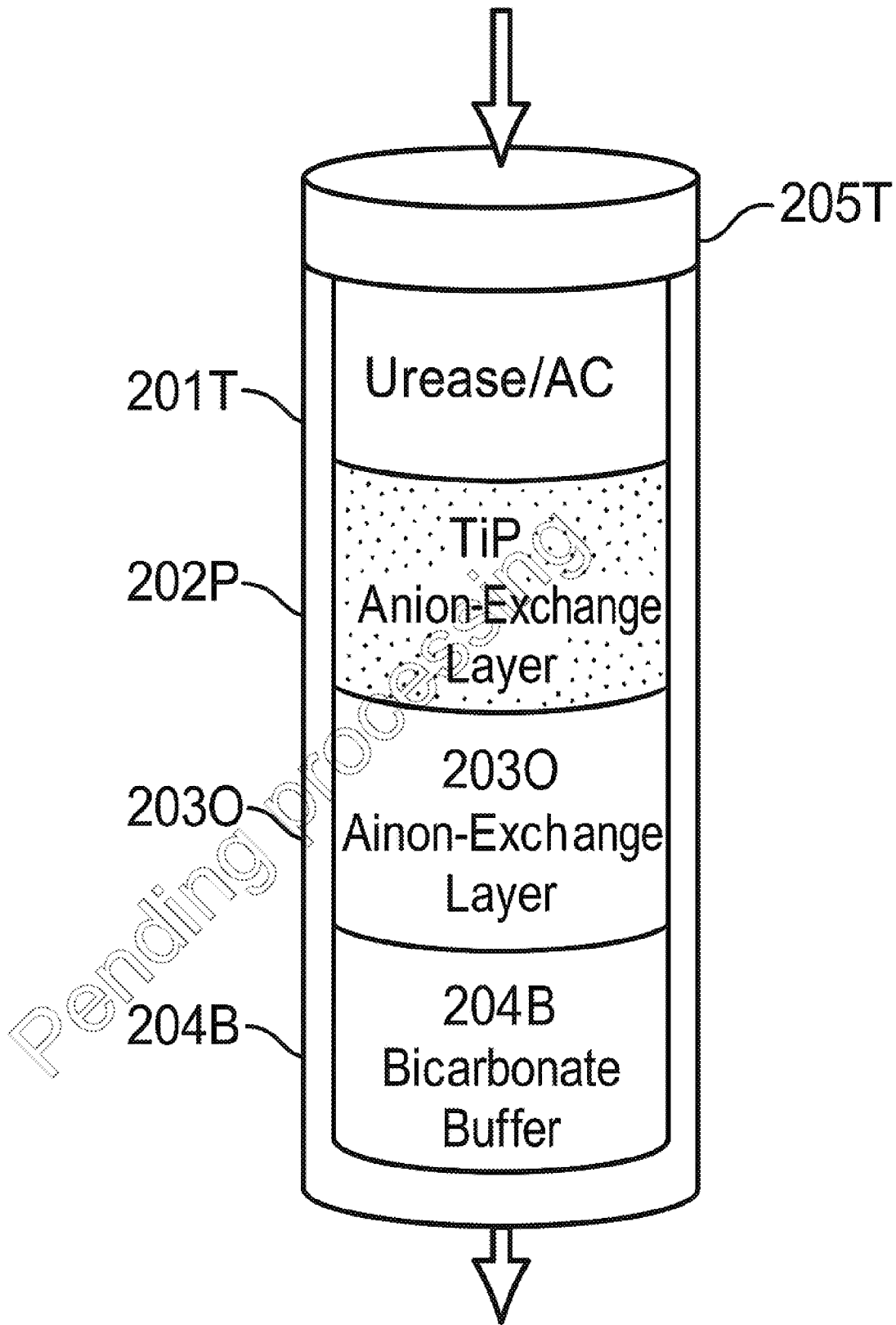
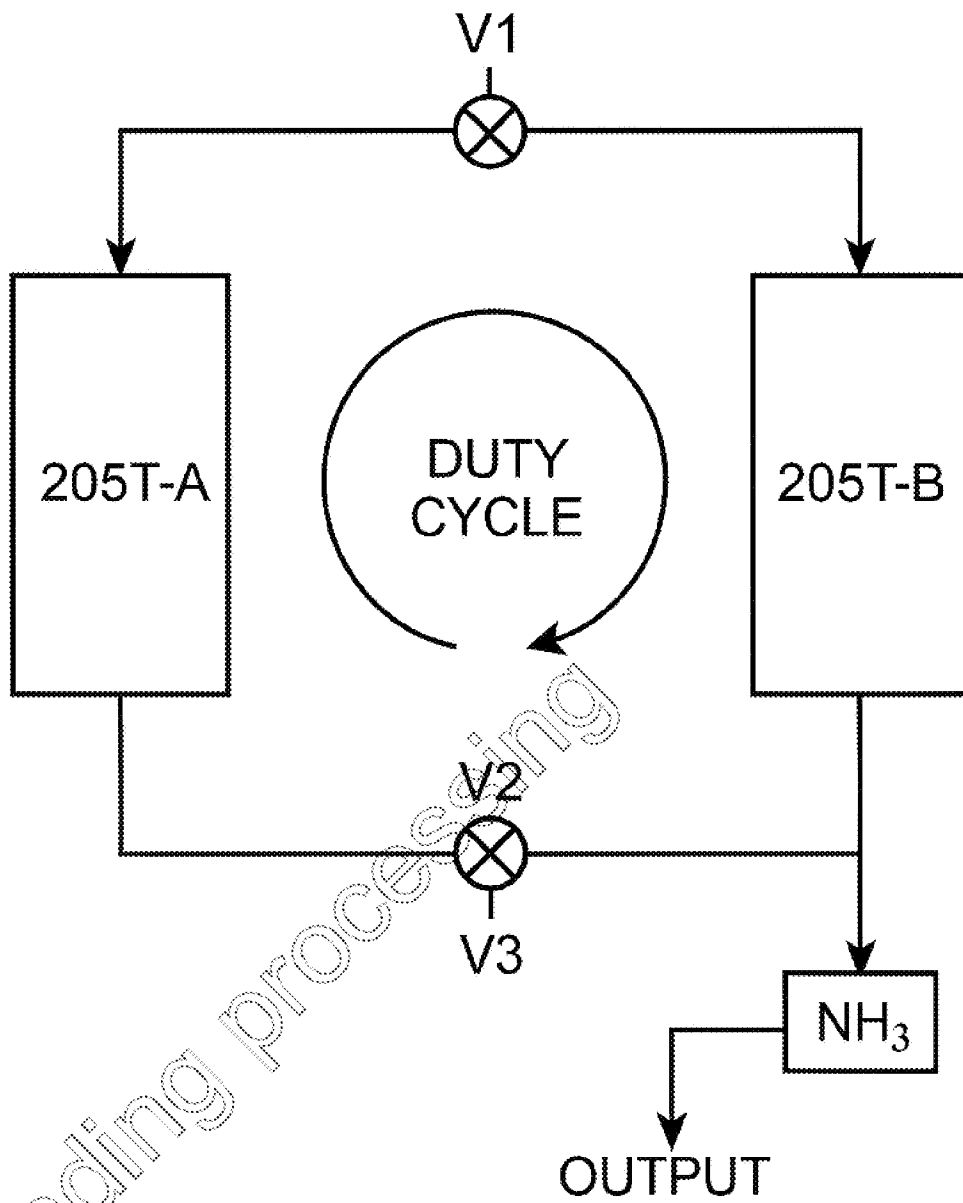


FIG. 9

Pending processing



Pending processing

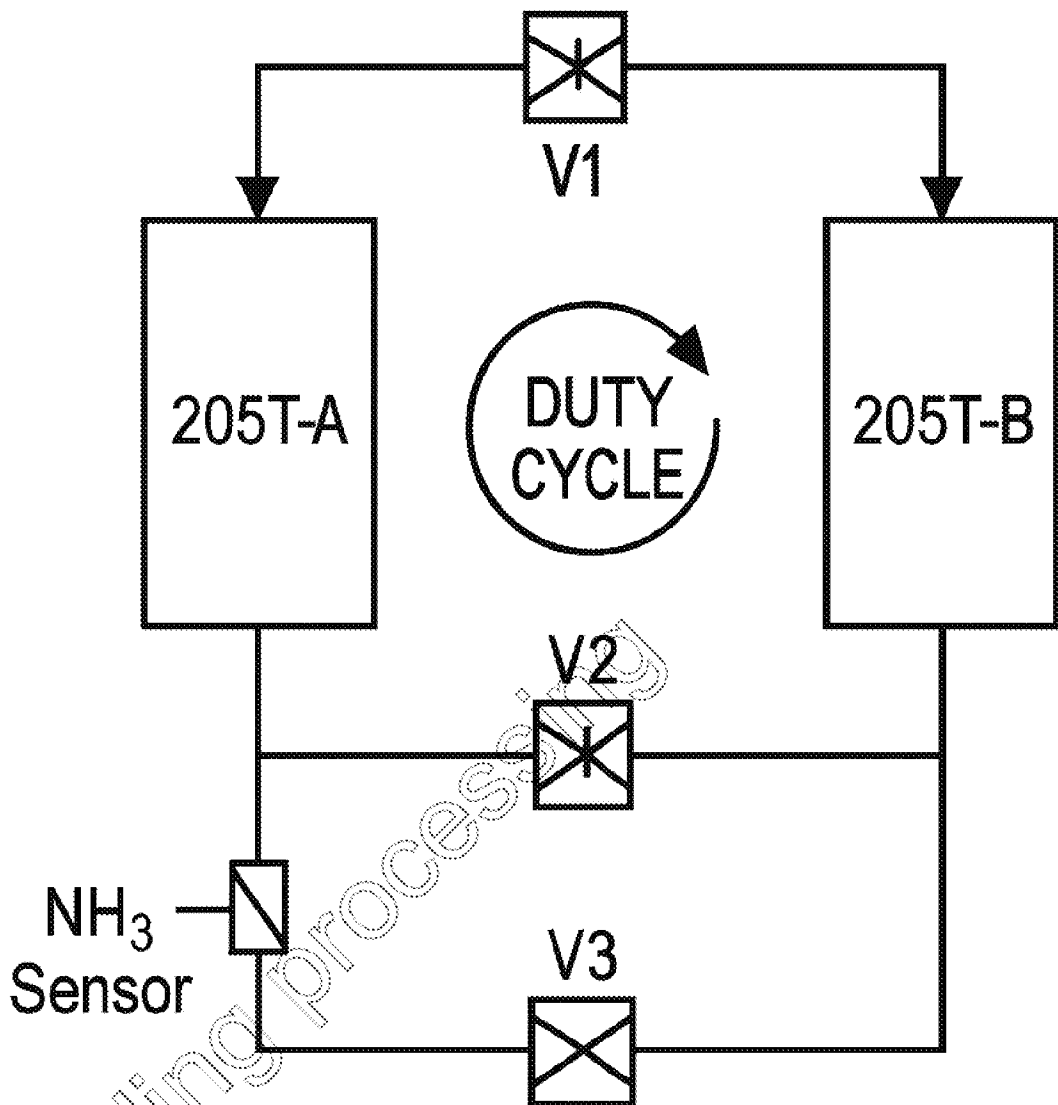
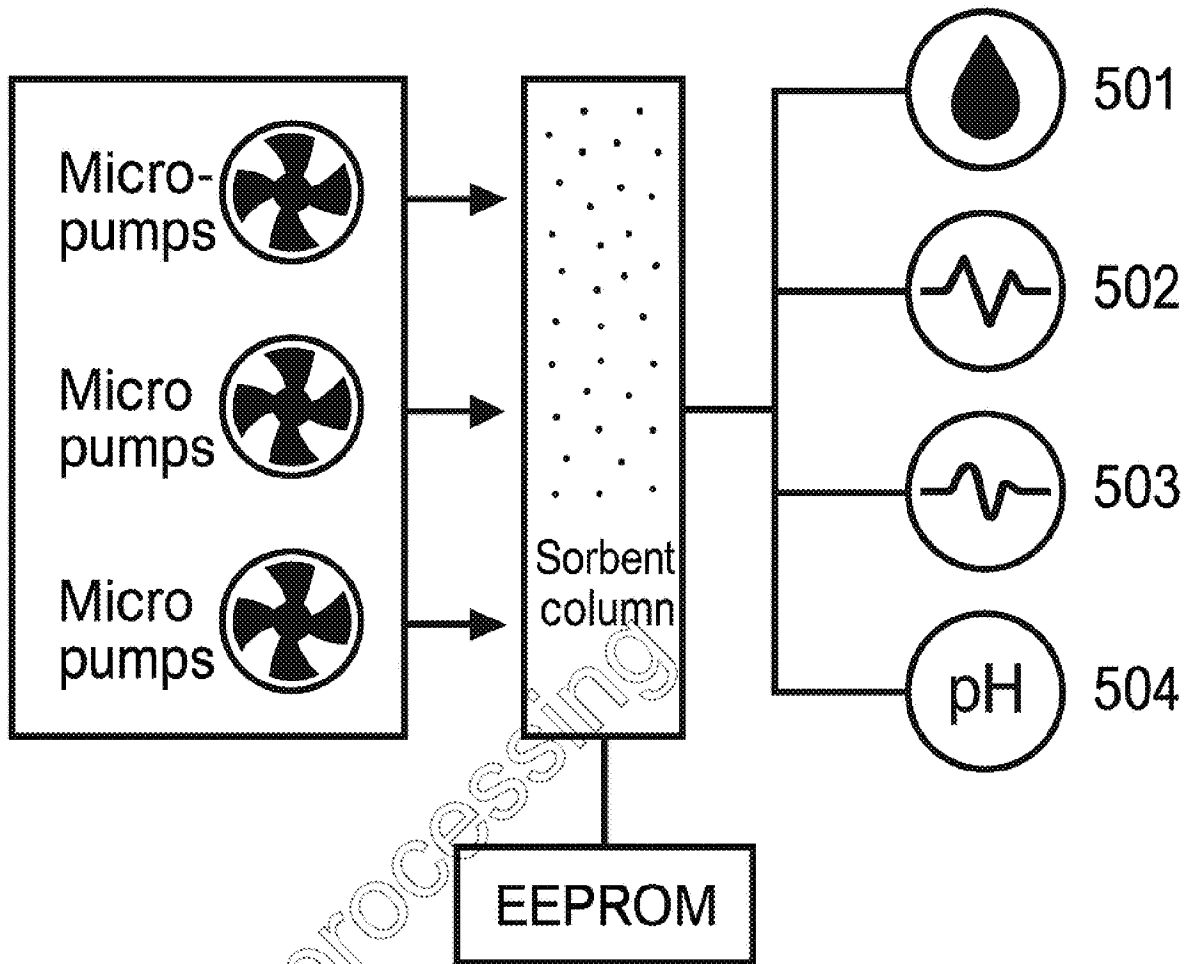


Figure 10

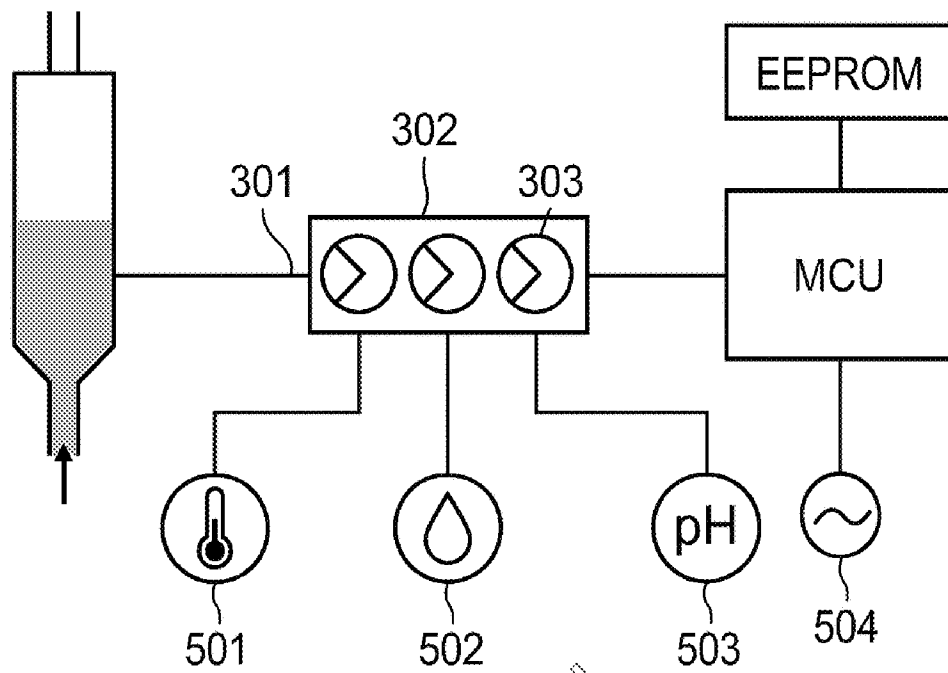
Offset	Field name	Size
0x00	Lot-ID 402	2 bytes
0x02	Capacity byte 403	1 byte
0x03	Expiry bit 404	1 bit
0x04	CRC-16	2 bytes
0x06	Signature	4 bytes

### EEPOOM mpp

FIG. 11 – EEPROM Memory Map:



**FIG. 12**



**FIG. 12**

Pending processing

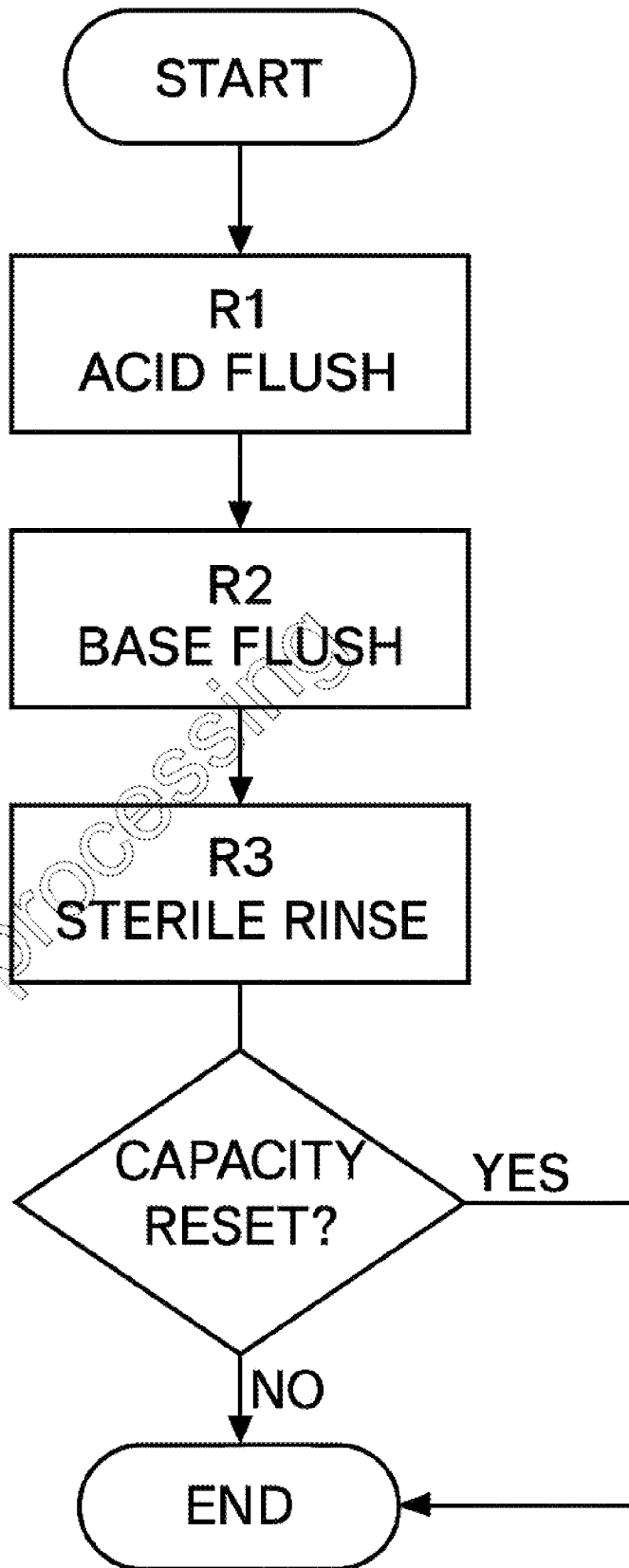
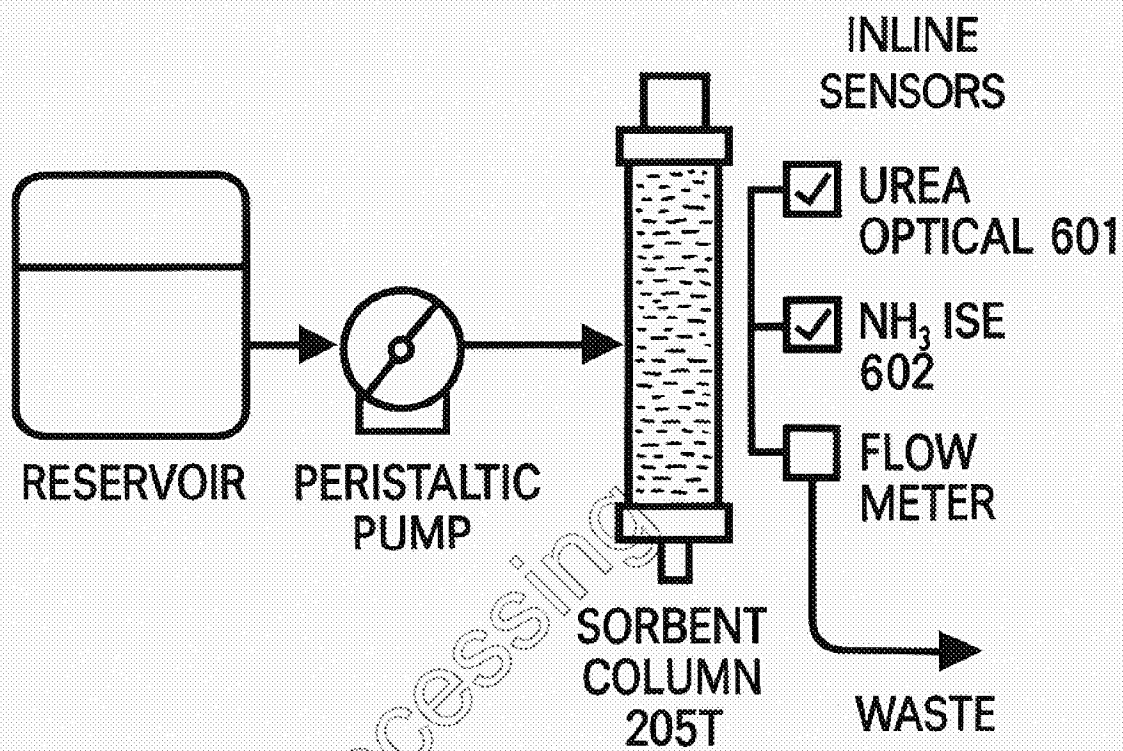
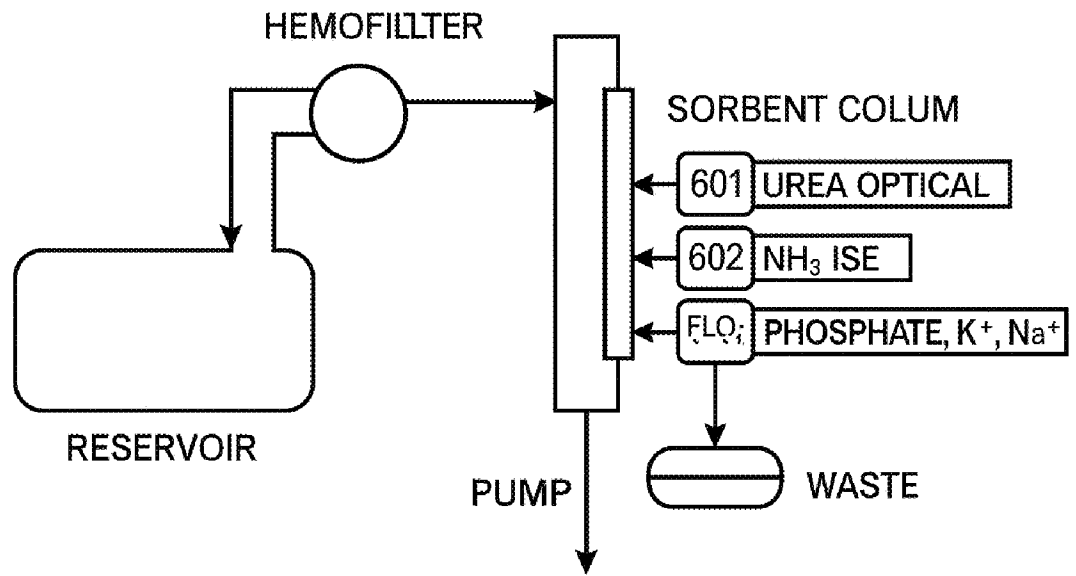


FIG. 13



**FIG. 14**



**FIG. 14**