

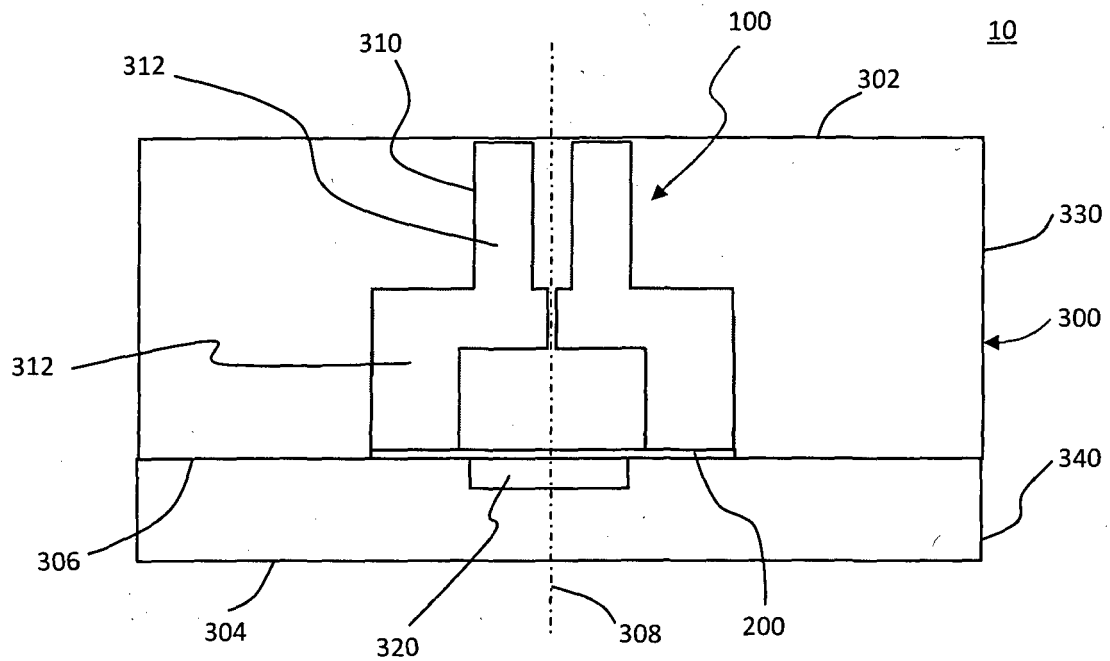


Fig. 1

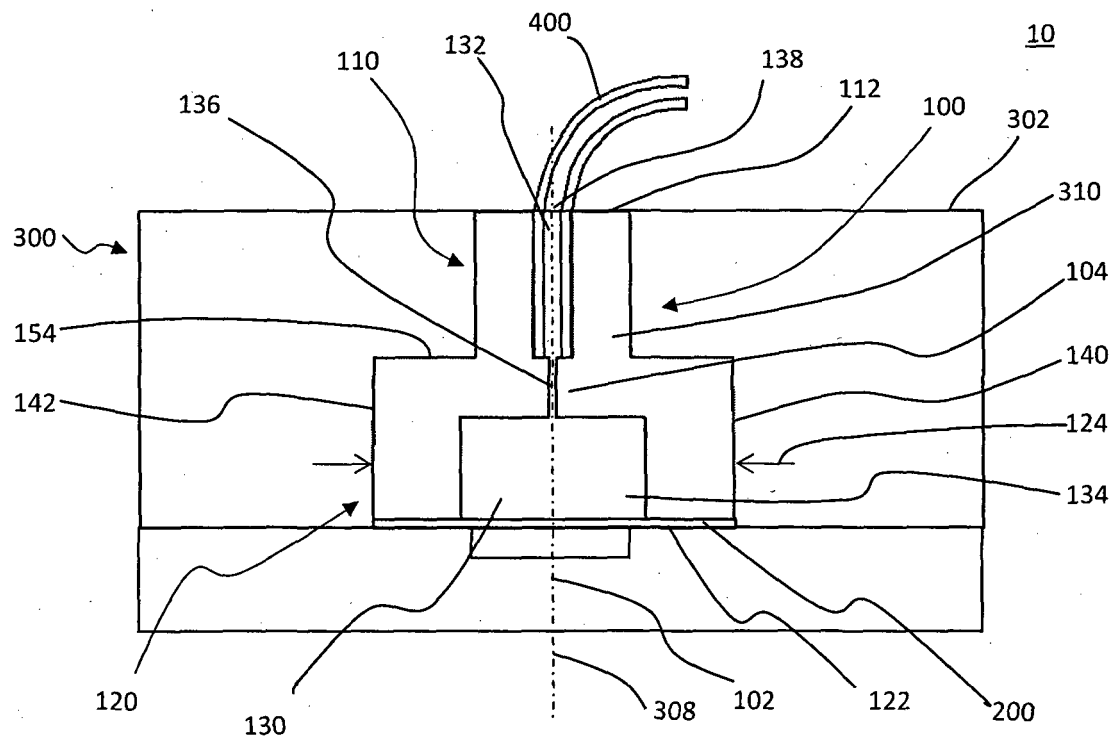


Fig. 2

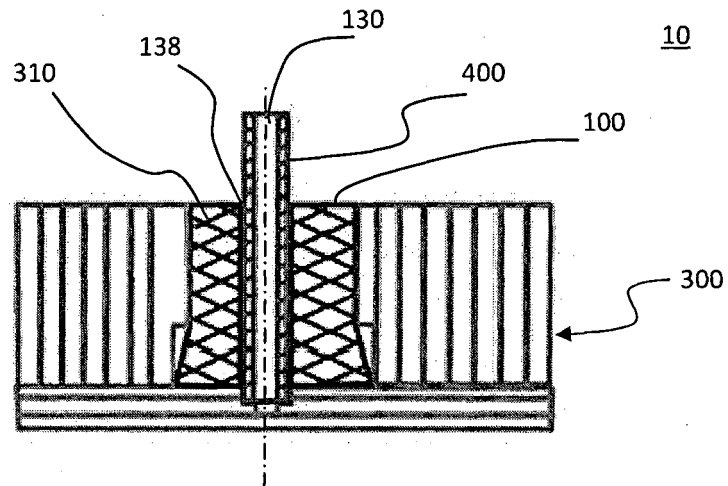
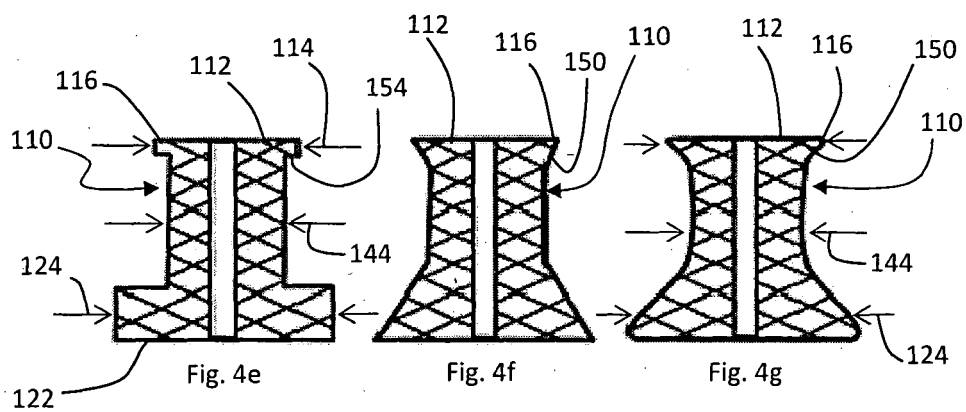
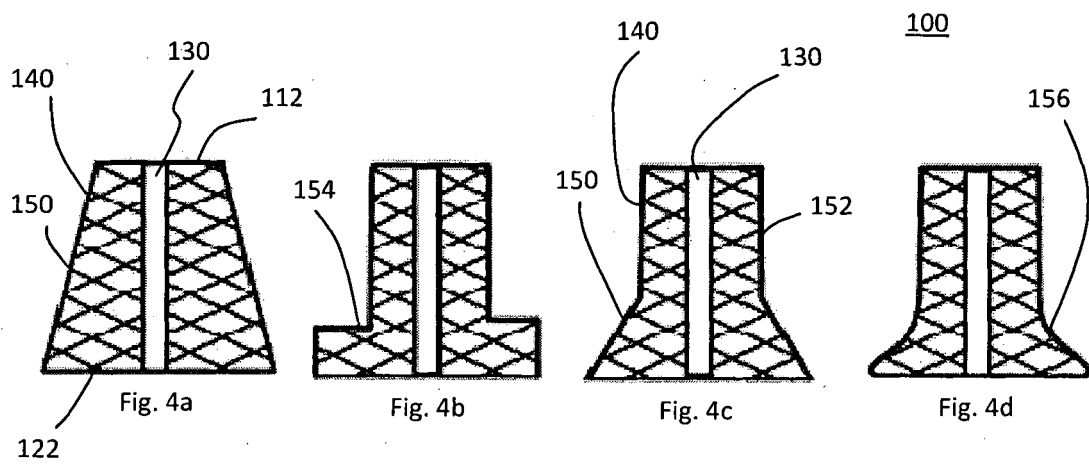


Fig. 3



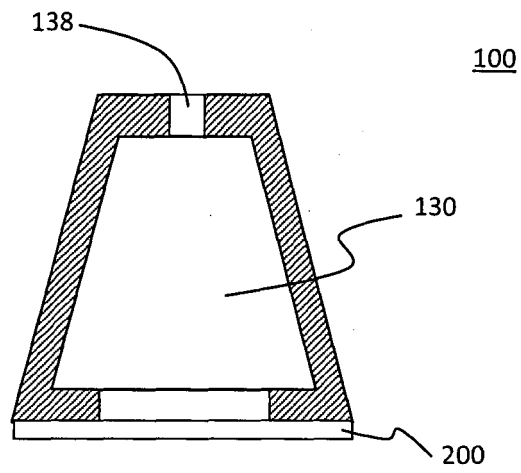


Fig. 5

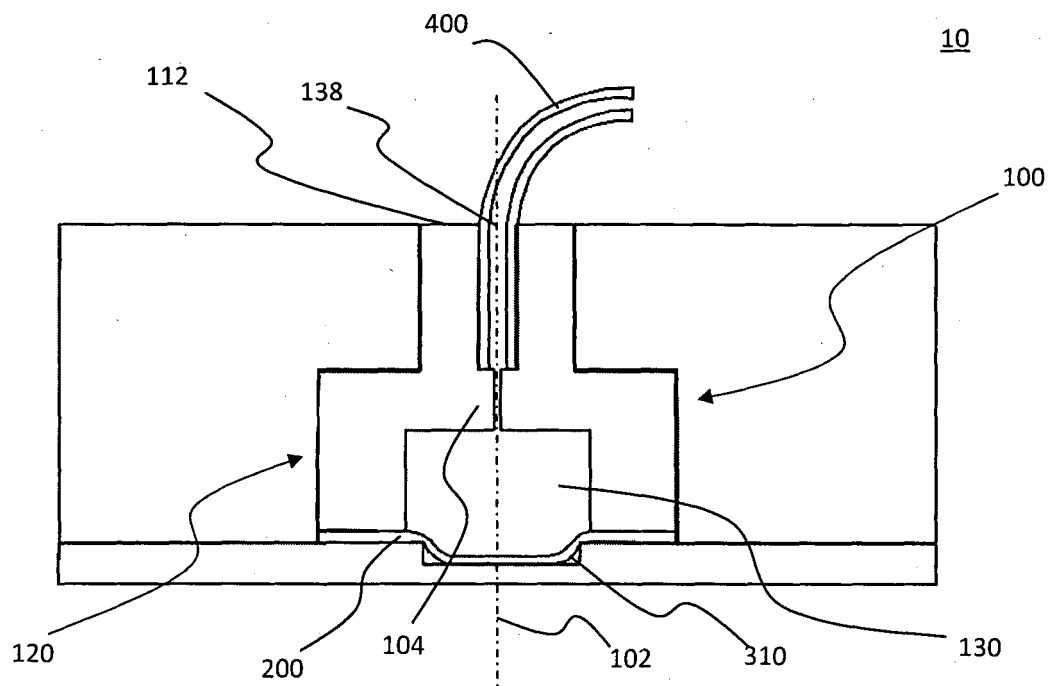


Fig. 6

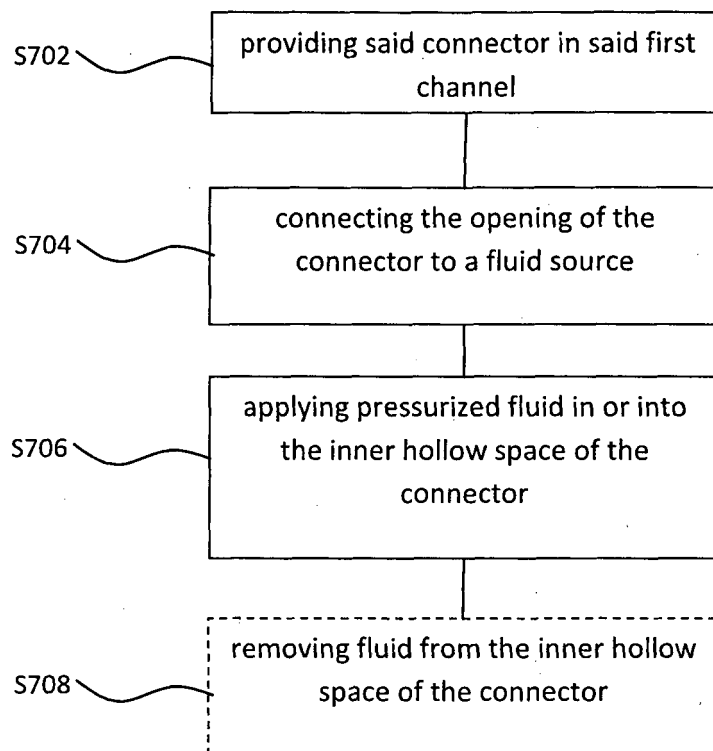


Fig. 7a

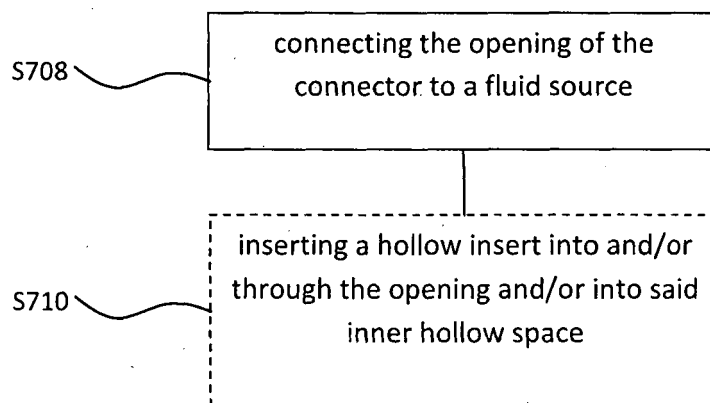


Fig. 7b

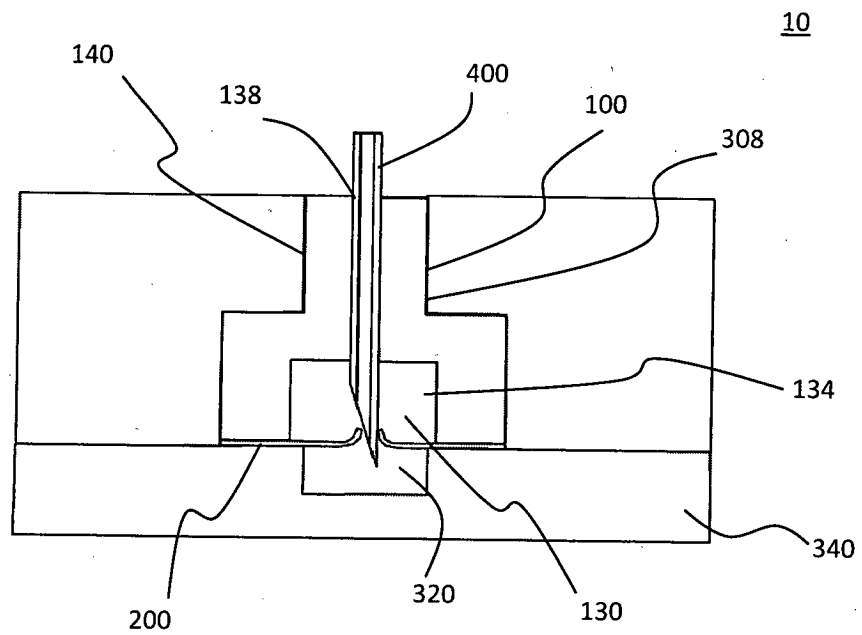


Fig. 8

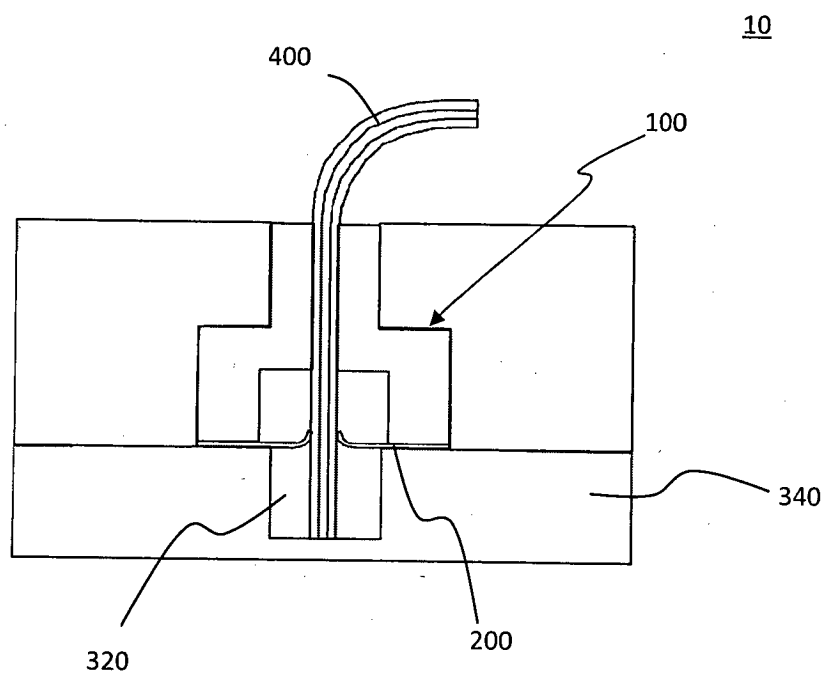


Fig. 9

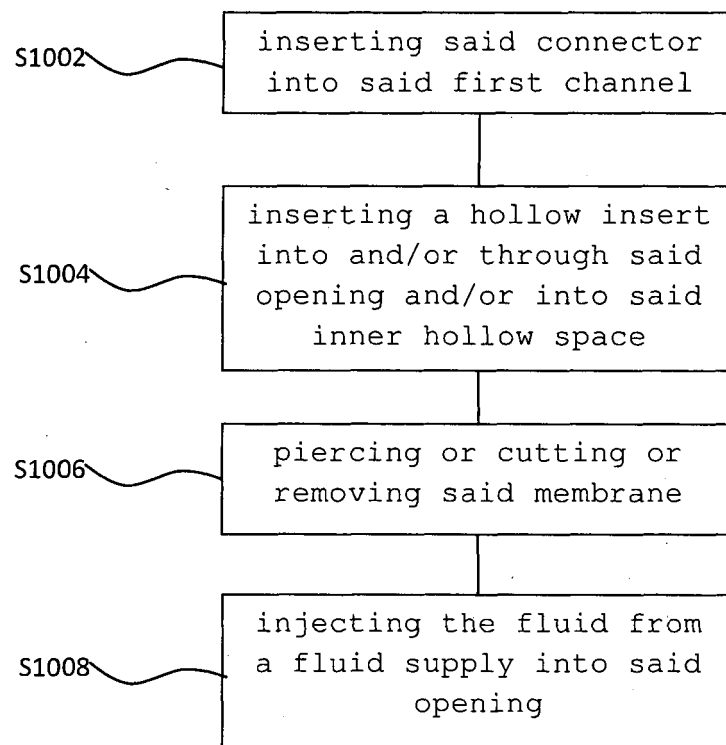


Fig. 10

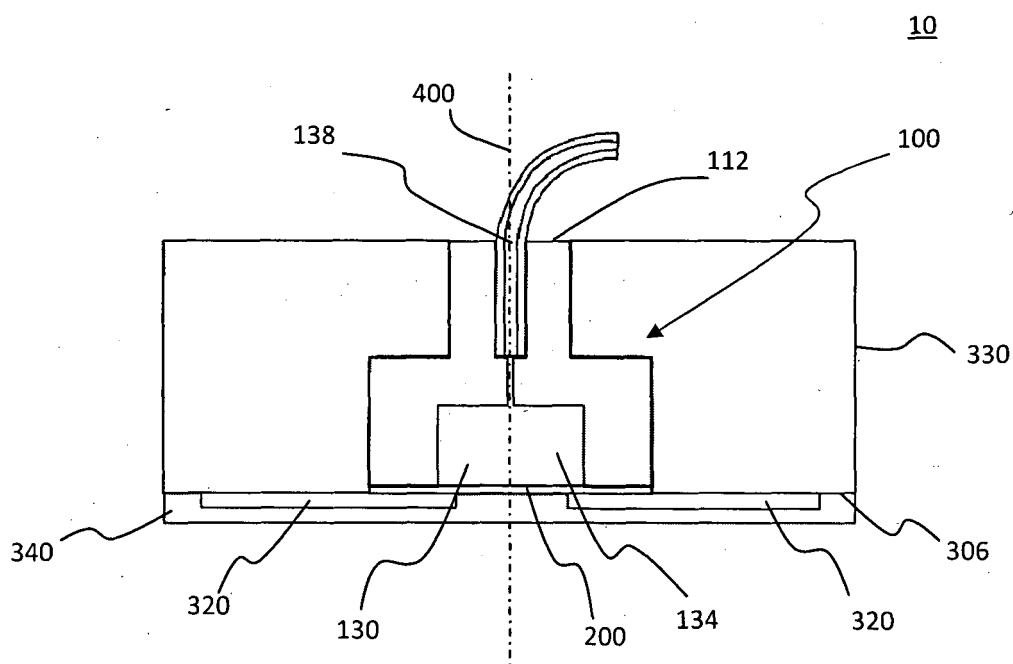


Fig. 11

10

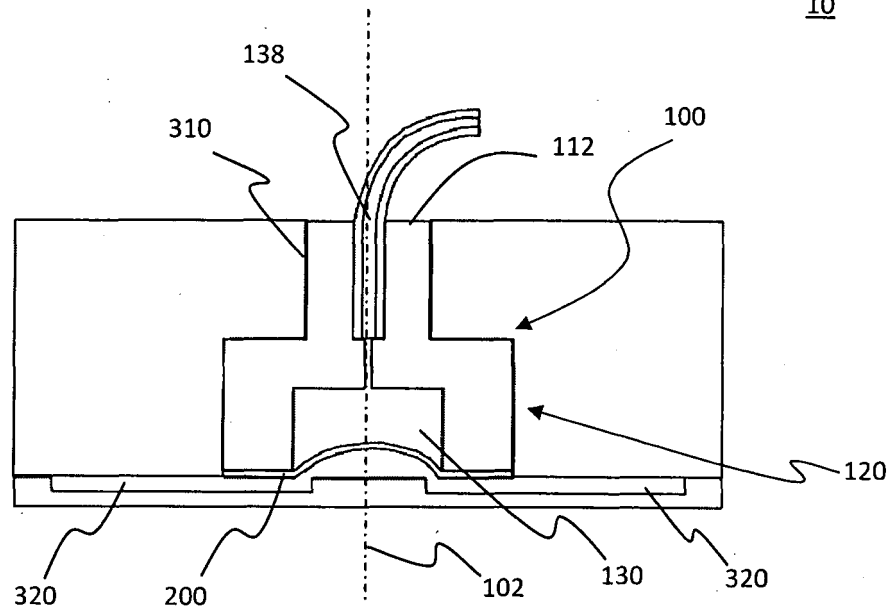


Fig. 12

10

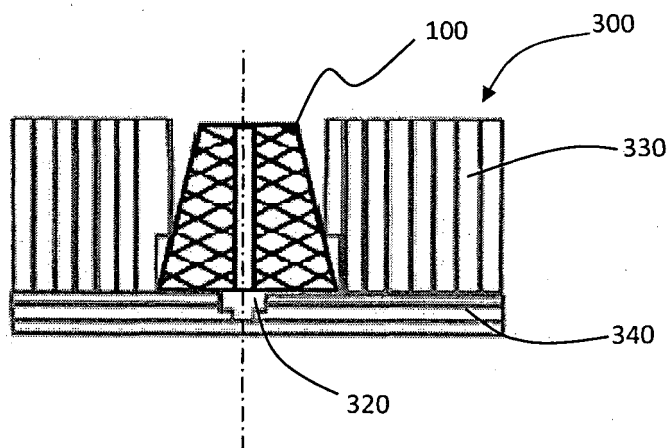


Fig. 13

Manufacturing processes for microfluidic devices and embedding of elastomeric interconnects.

Process	Recommended Materials	Recommended manufacture methods	
Interconnect fabrication	PDMS, flourosilicone rubber, polyacrylic rubber, TPU, nitrile rubber, Viton, Silicone elastomers, etc.	Punching, casting or forming	
Device fabrication	PMMA, PC, COP or COC	Micro-injection molding, micro-milling, laser machining, thermal embossing or casting	
Embedding interconnect	N.A.	Alignment	Manual, microscope visualization or auto-alignment tools
		Bonding	thermal bonding, solvent-assisted bonding, ultrasonic or laser welding, tape, glue or epoxy bonding.

Fig. 14

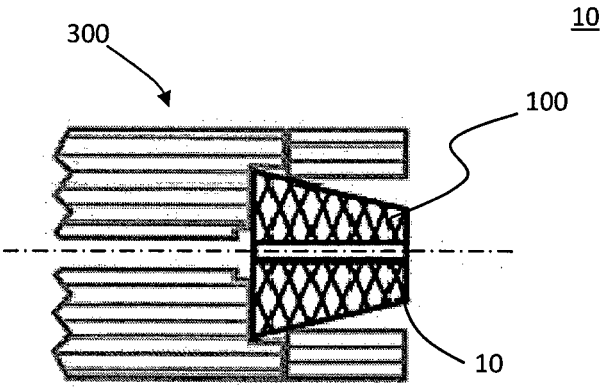


Fig. 15

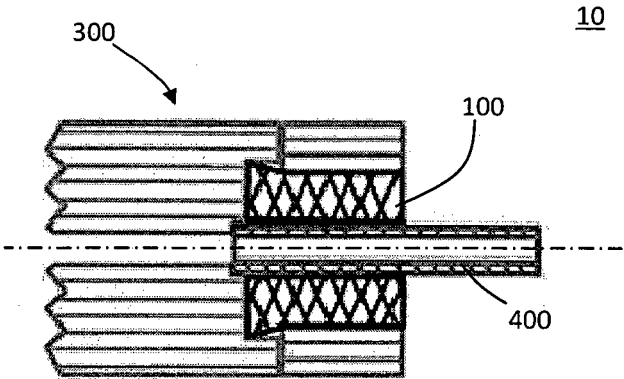


Fig. 16

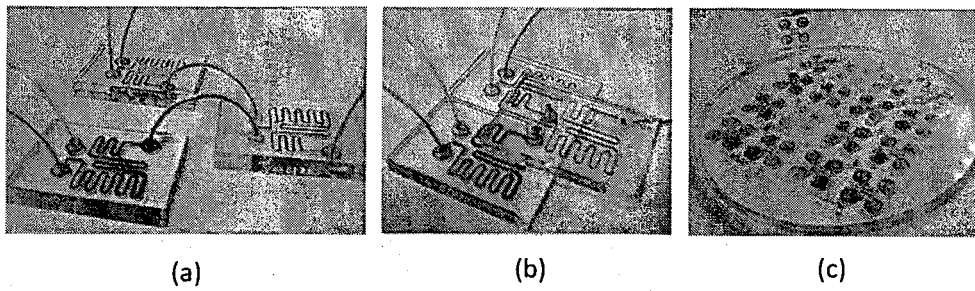


Fig. 17

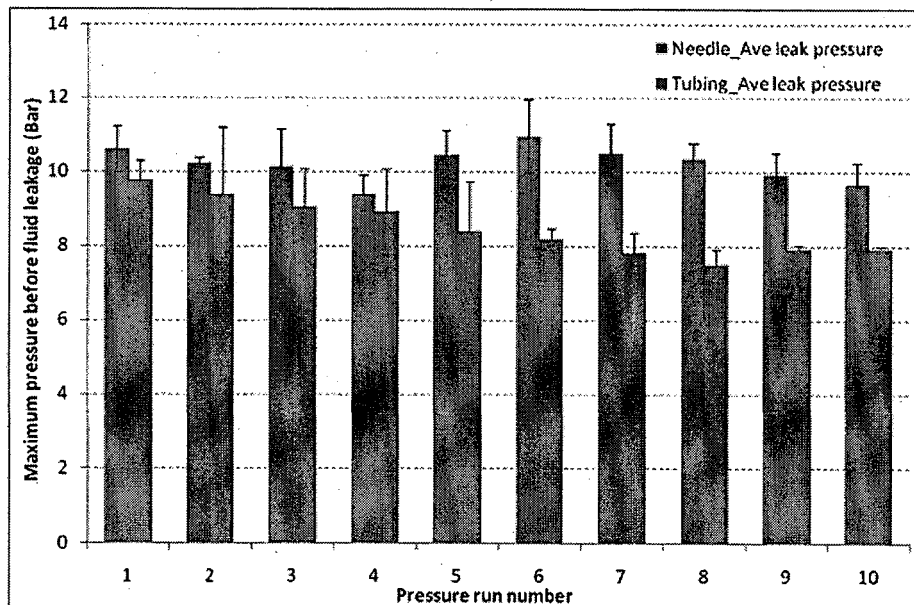


Fig. 18

Average leakage pressure data for direct needle or tubing connection to PDMS interconnects. The observed failure modes of the interconnection are also recorded.

Interconnection	Average pressure for single tests	Failure modes
Direct needle	10.1 bars	- Leakage around tubing and needle - De-attachment of needle from the interconnect
Direct tubing	9.8 bars	- Leakage around tubing and interconnect internal core - De-attachment of tubing from the interconnect

Fig. 19

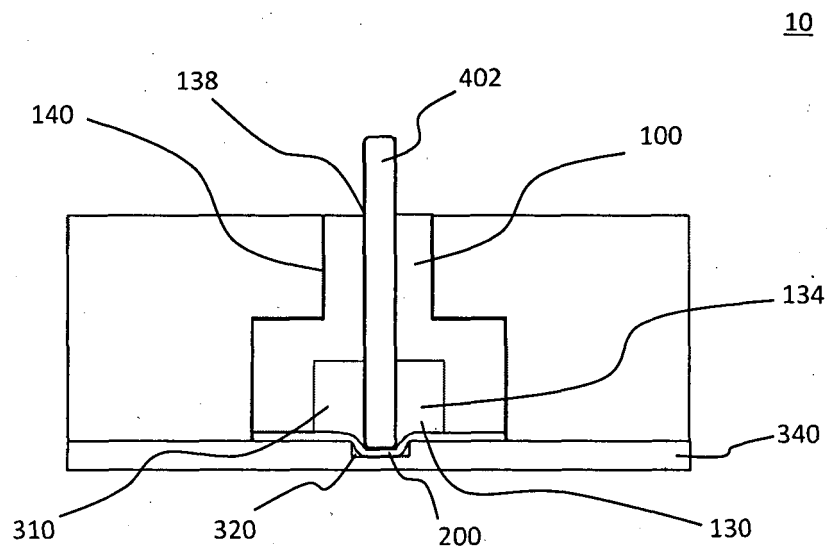


Fig. 20