

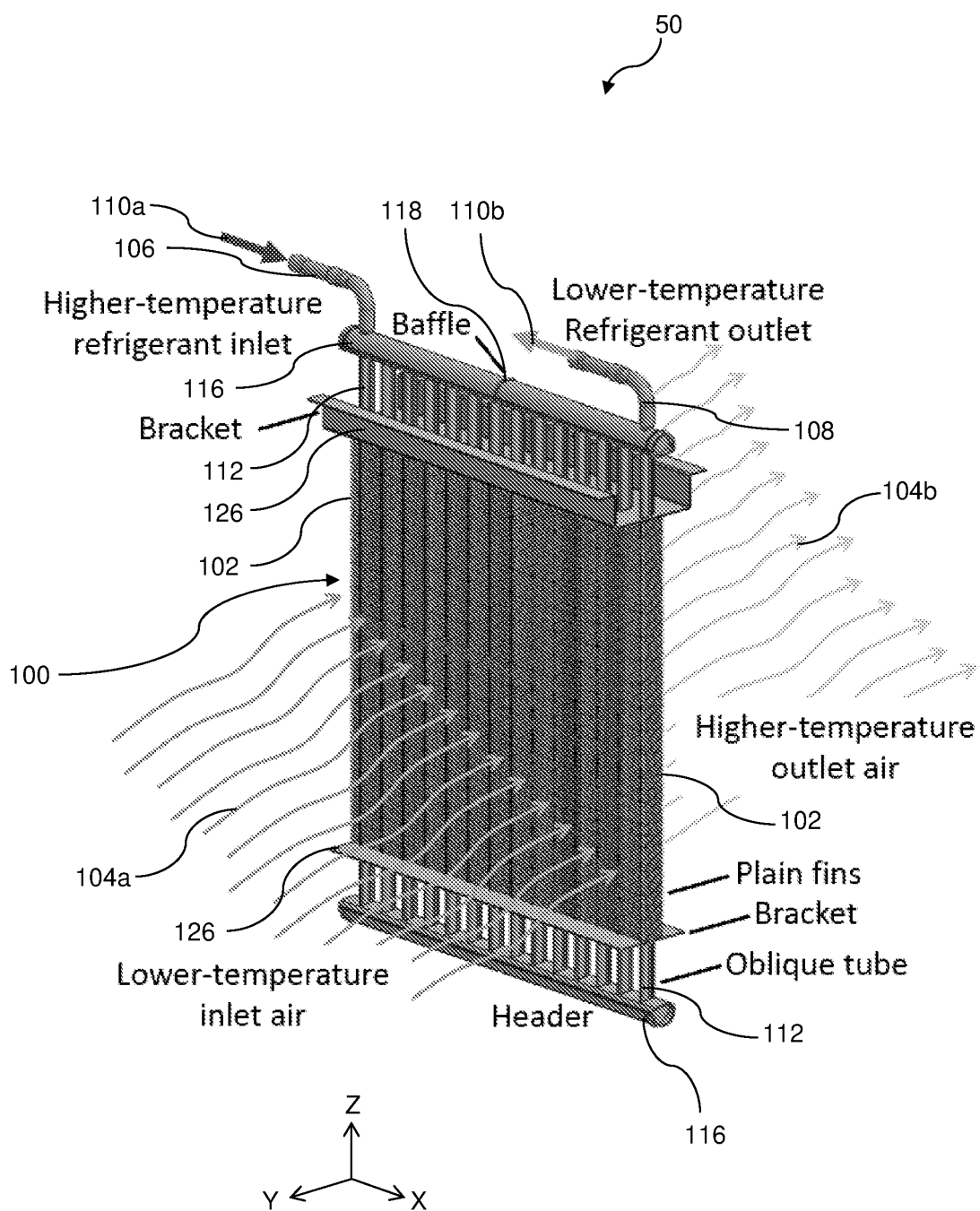


Figure 1A

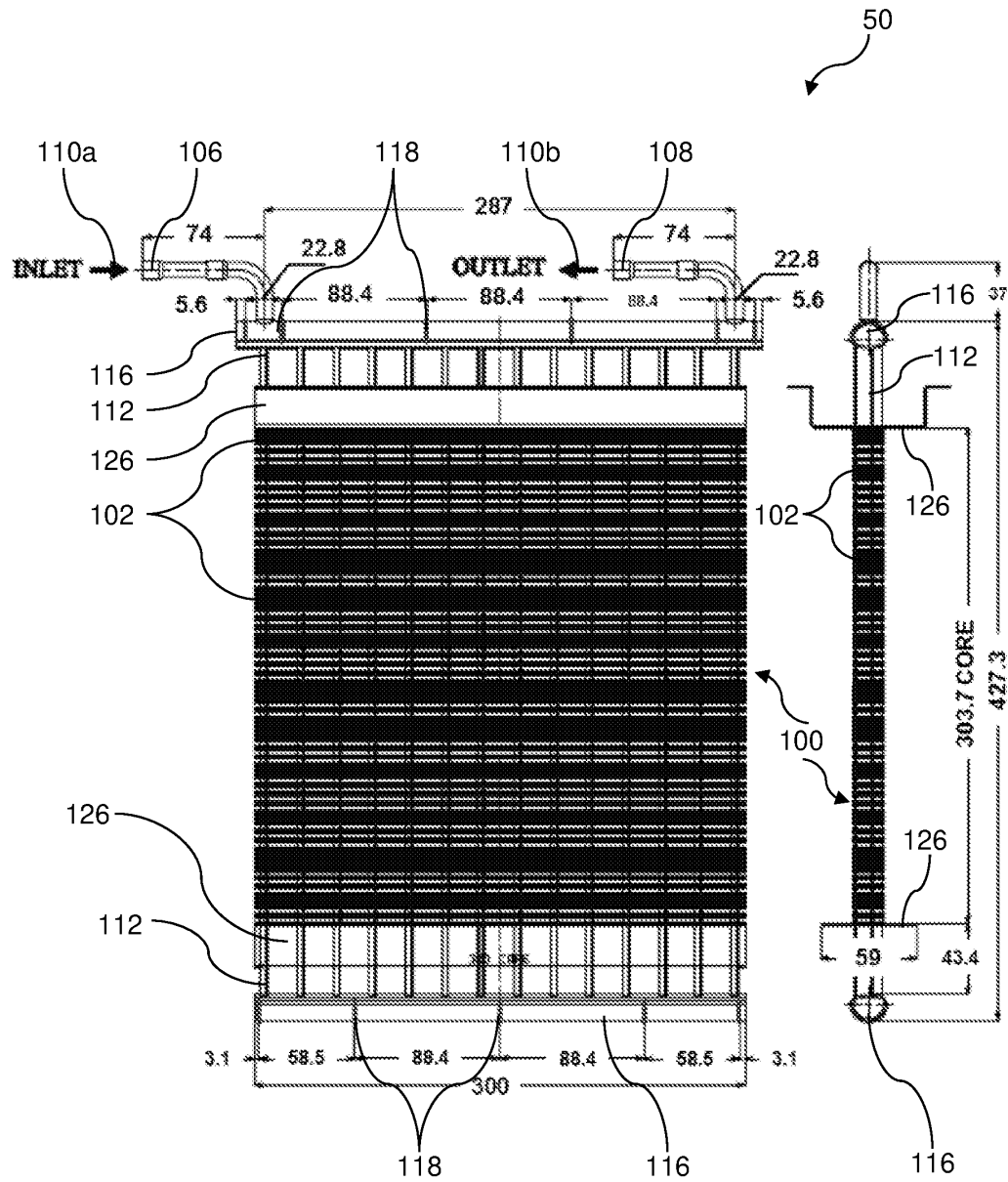


Figure 1B

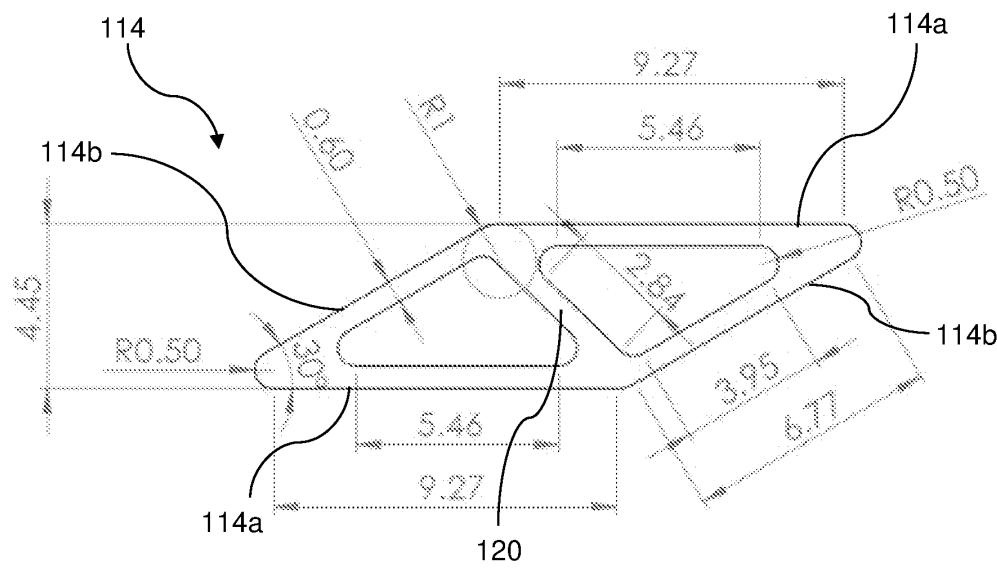


Figure 1C

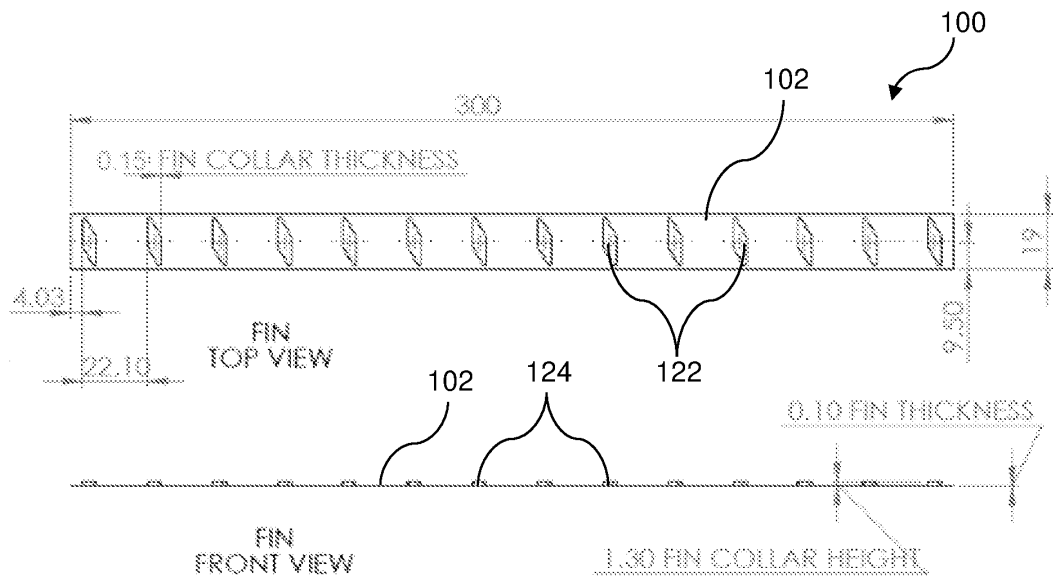


Figure 1D

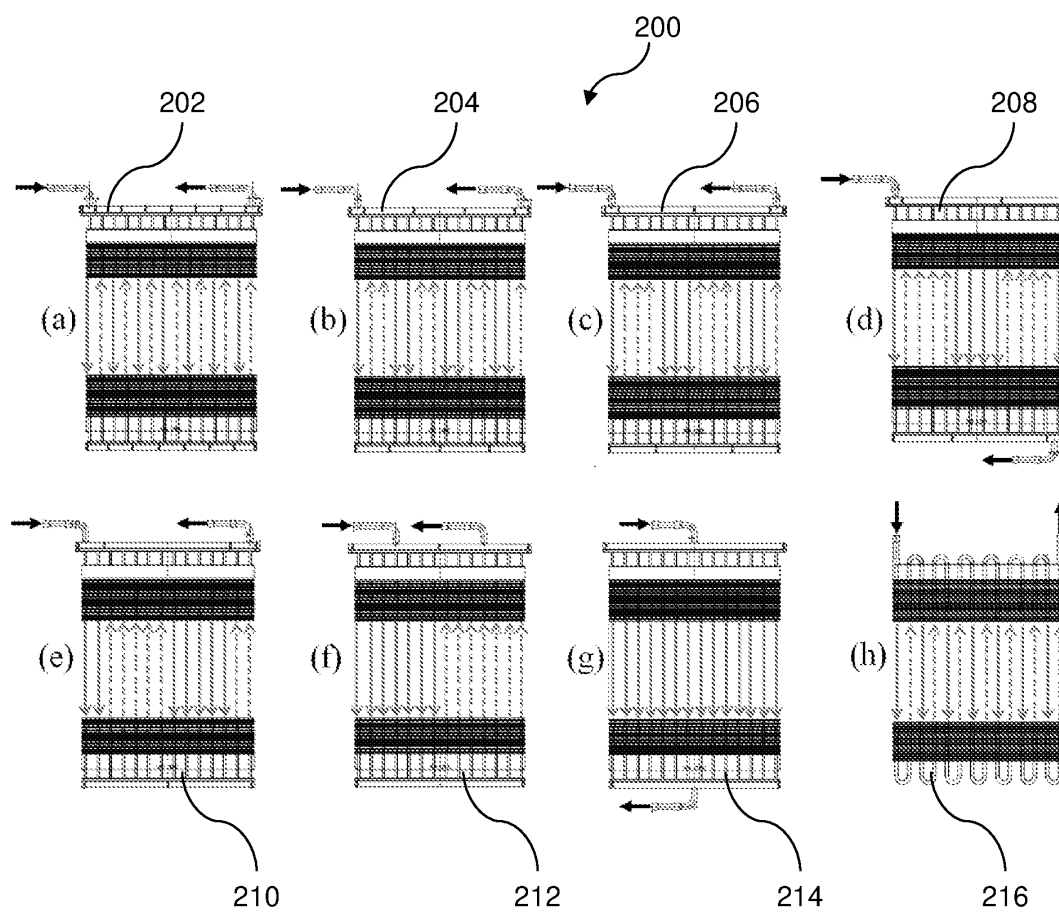


Figure 2

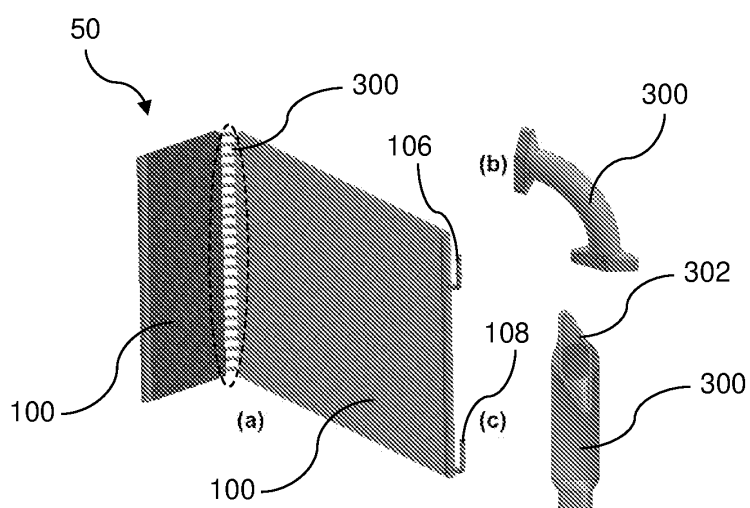


Figure 3

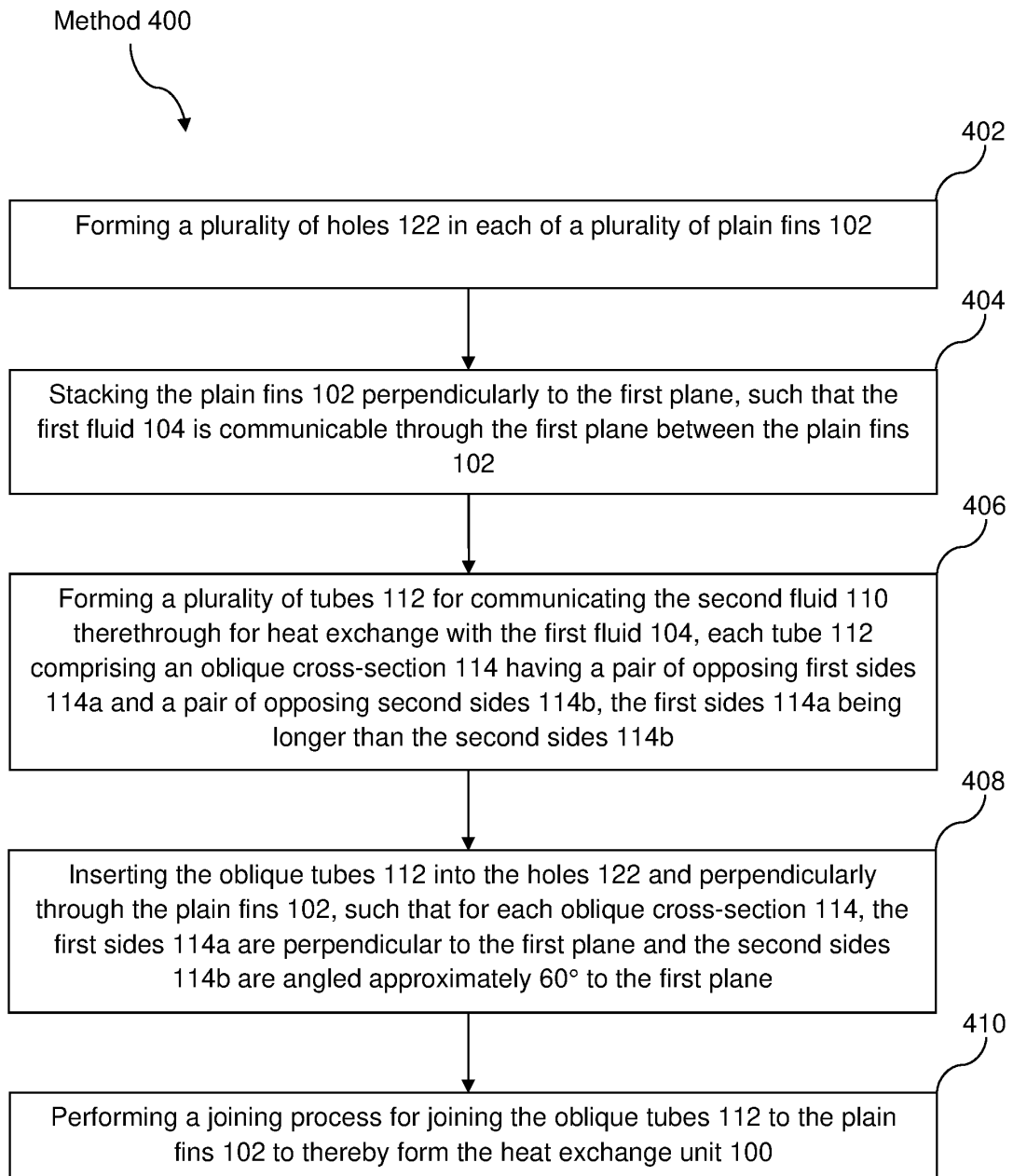


Figure 4A

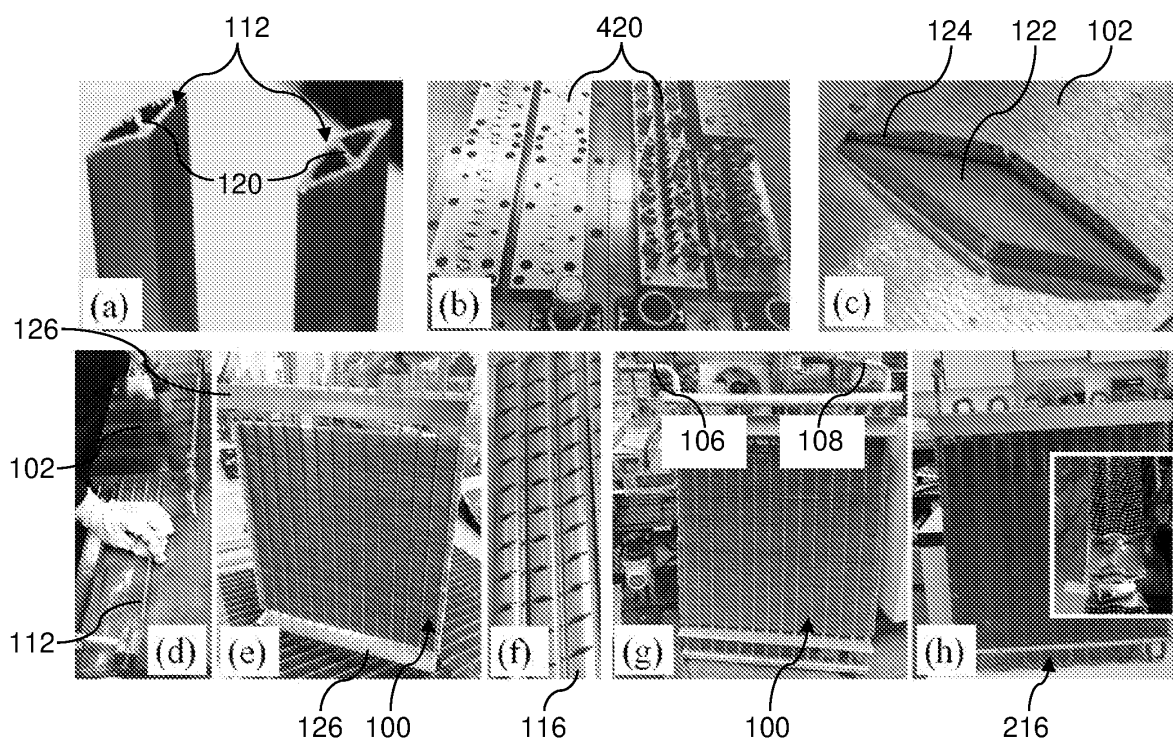


Figure 4B

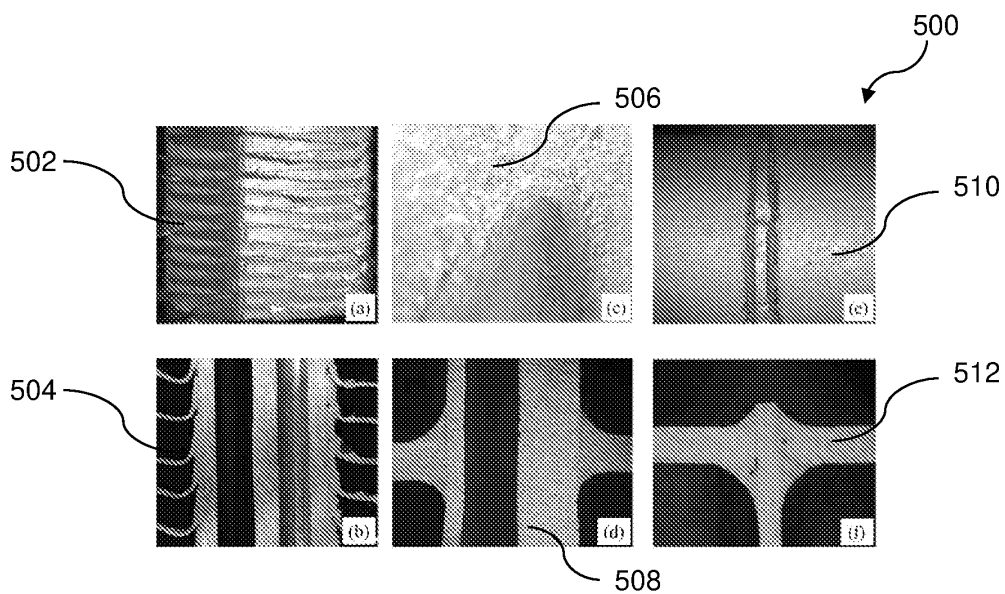


Figure 5

600
↙

Circular tube material	Copper
Oblique tube material	Aluminium
Fin material	Aluminium
Fin thickness	0.15mm
Fin gap	1.228mm
Fin size (width x depth)	22.1mm x 19mm
Number of tube row(s)	1
Longitudinal tube pitch	22.1mm
Circular tube size	6.82mm
Oblique tube size	10.1mm x 4.71mm
Circular tube internal area	22.1mm ²
Oblique tube internal area	24.6mm ²
Fin area occupied by circular tube	36.5mm ²
Fin area occupied by oblique tube	54.2mm ²
Heat transfer area (PFCT)	793mm ²
Heat transfer area (PFOT)	776mm ²
Heat transfer area (CFCT)	799mm ²
Heat transfer area (CFOT)	782mm ²

Figure 6A

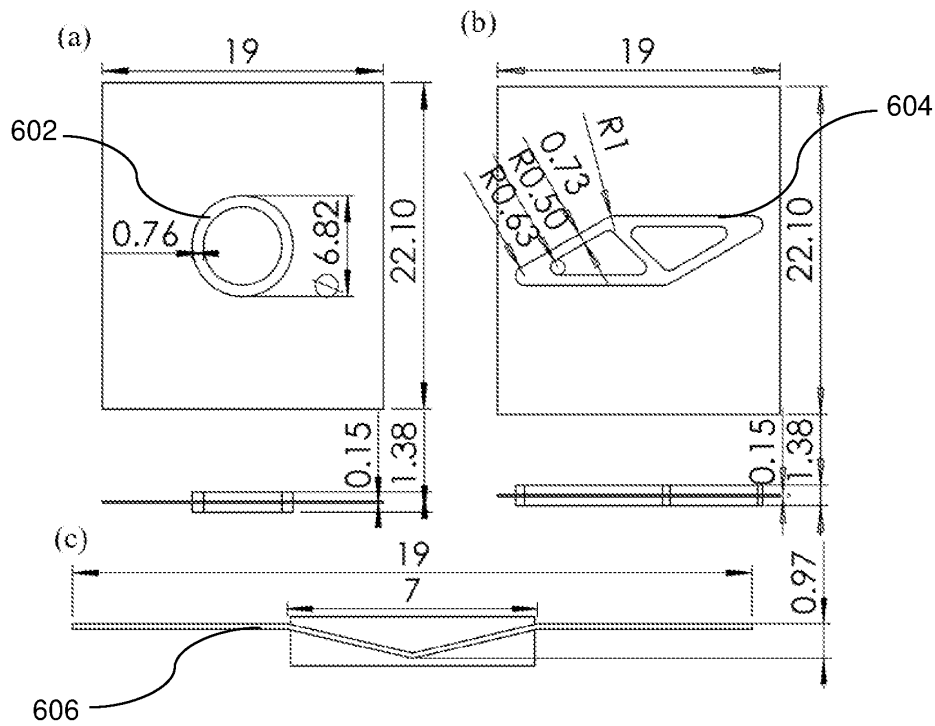


Figure 6B

700

Air Velocity (m/s)	Slip Stationary Wall		Symmetry	
	Q (W)	Δp (Pa)	Q (W)	Δp (Pa)
1.0	0.266	4.89	0.266	4.89
1.5	0.330	8.13	0.330	8.12
2.0	0.377	11.9	0.377	12.0
2.5	0.416	16.6	0.416	16.6
3.0	0.450	21.9	0.450	21.9

Figure 7A

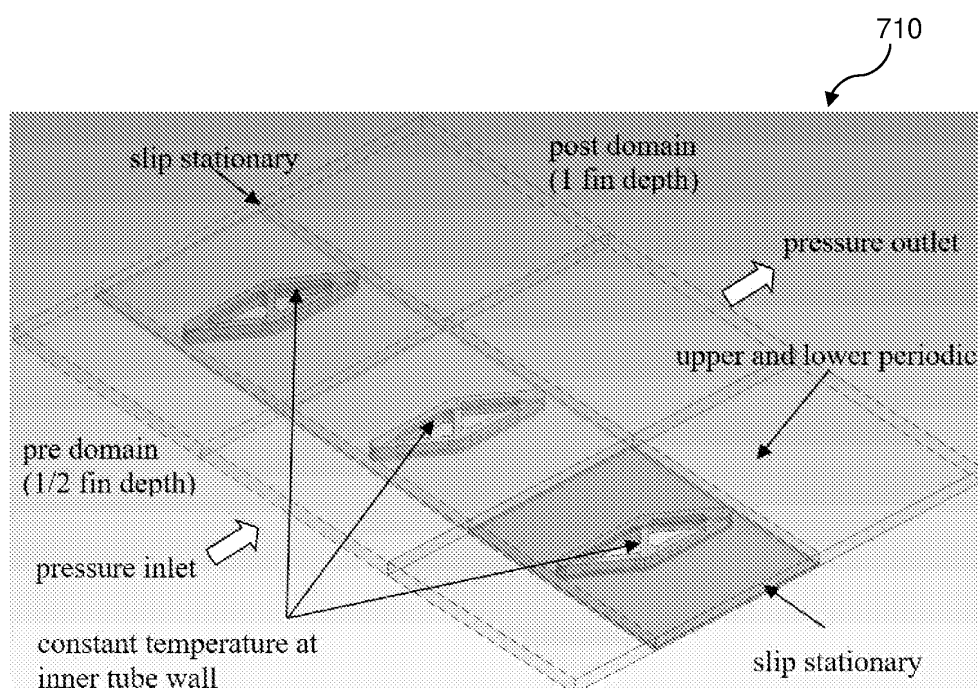


Figure 7B

800

Total Element Number	U (W/m ² K)	Δp (Pa)
PFCT Model		
1,654,820	68.89	12.09
3,357,189	67.99	11.98
10,068,912	68.19	11.96
PFOT Model		
1,344,056	88.30	11.70
2,948,110	82.97	10.88
9,529,168	83.11	11.07

Figure 8A

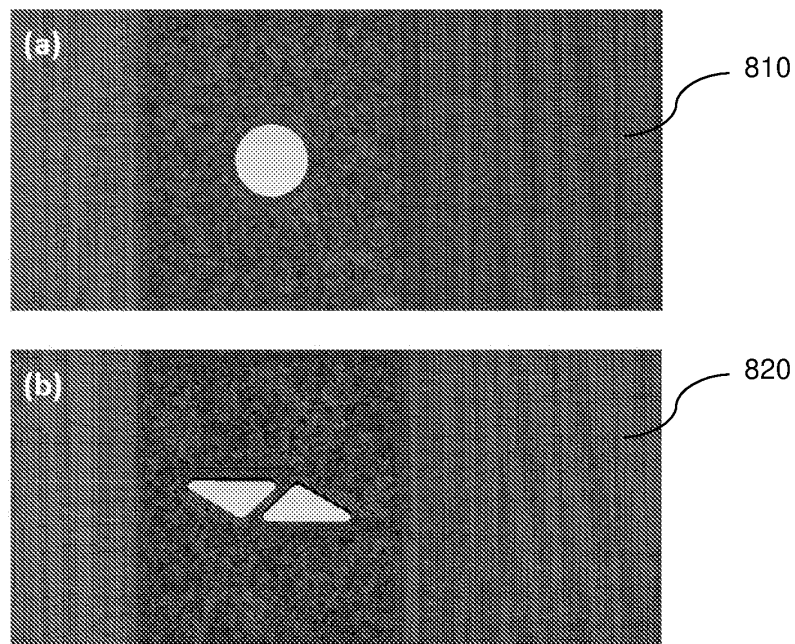


Figure 8B

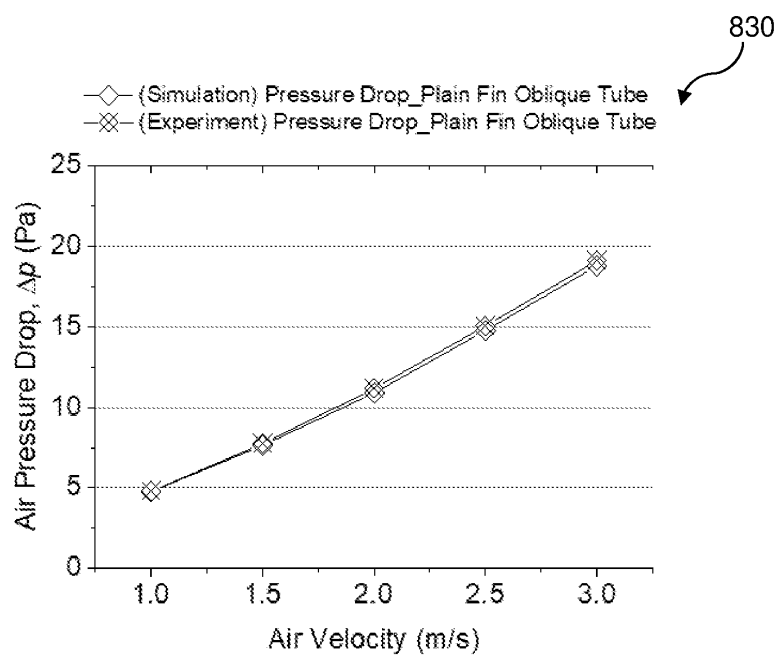


Figure 8C

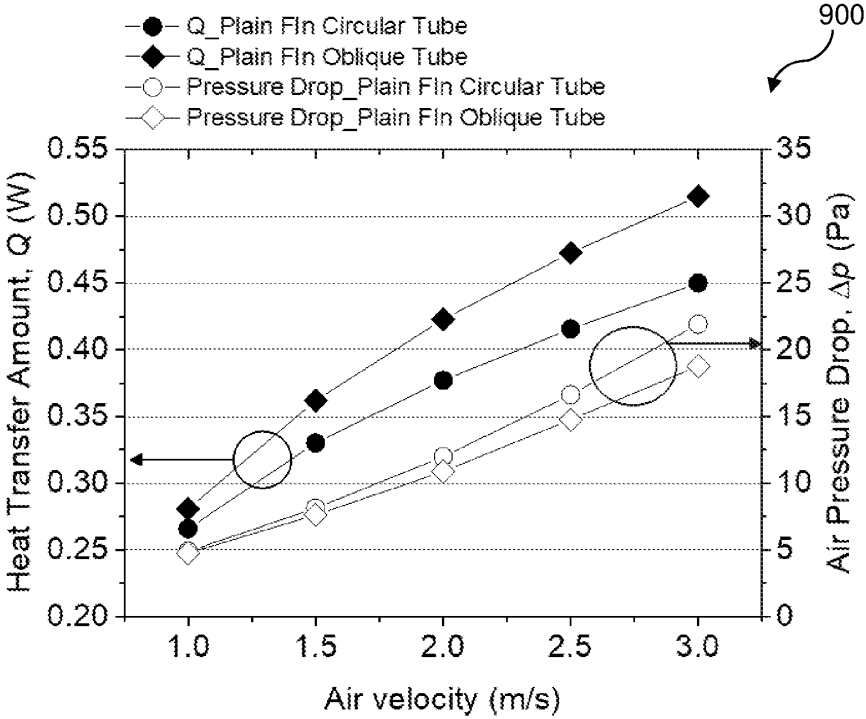


Figure 9A

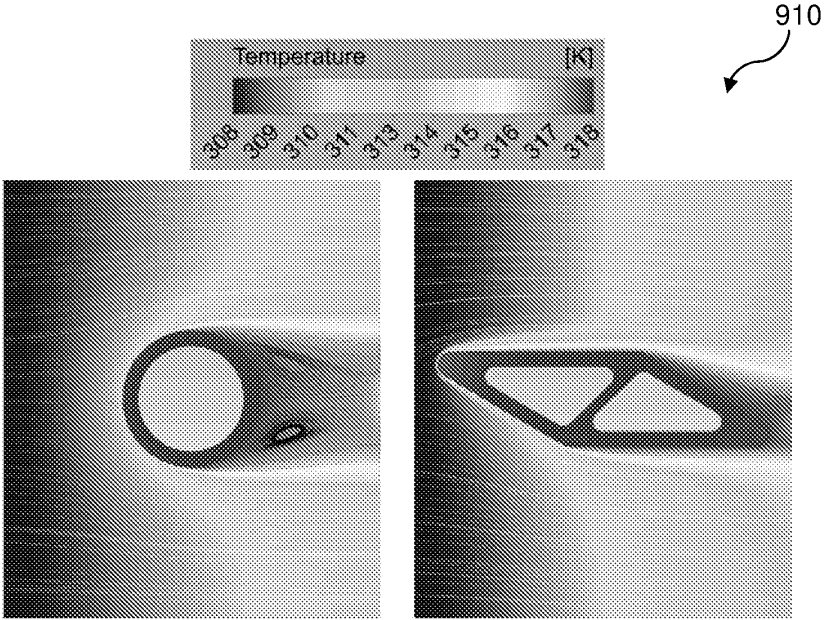


Figure 9B

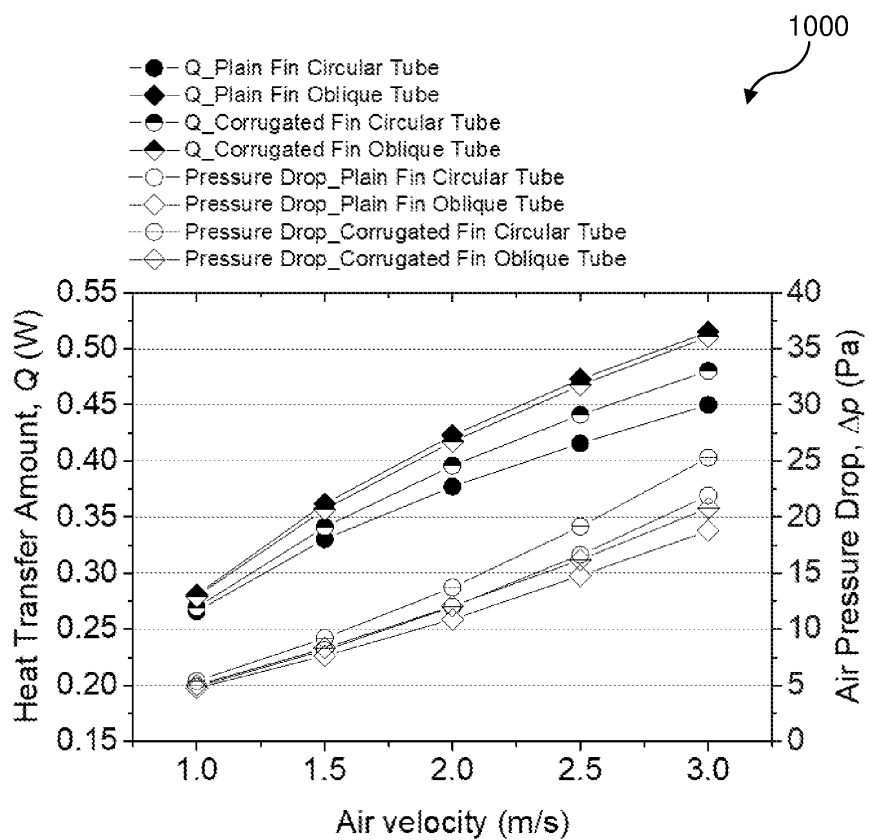


Figure 10A

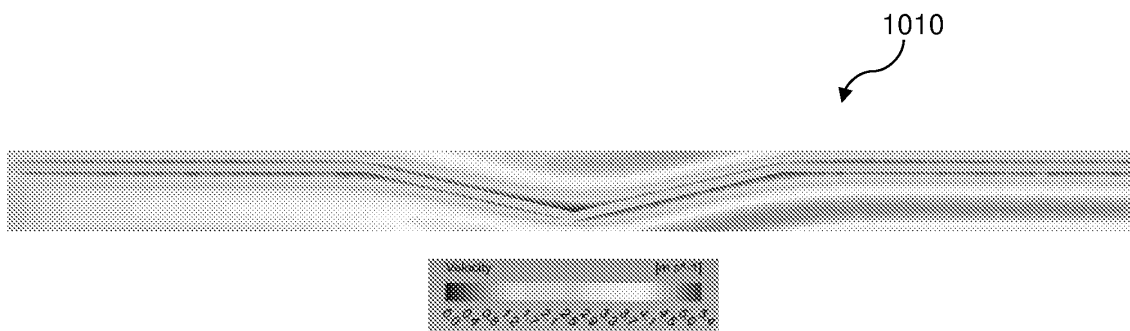


Figure 10B

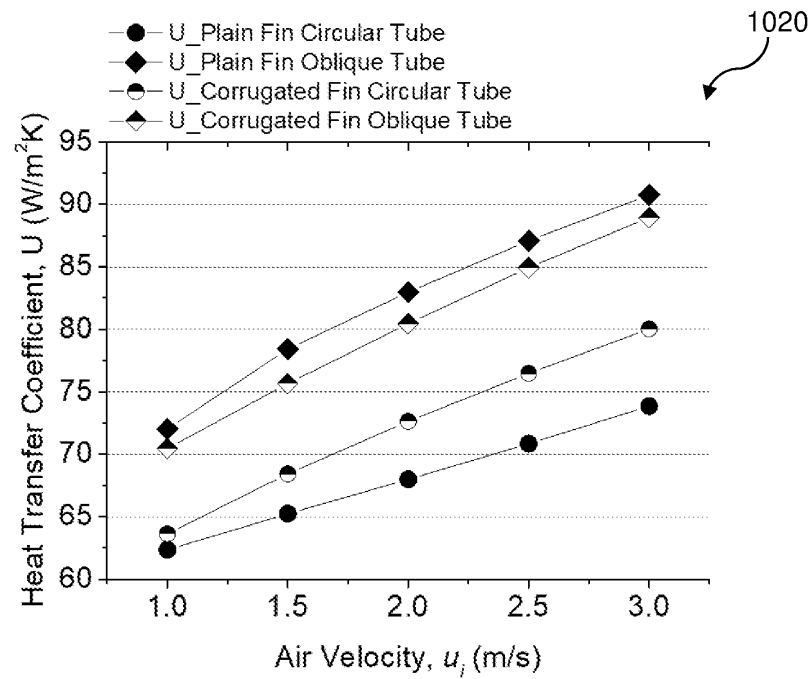


Figure 10C

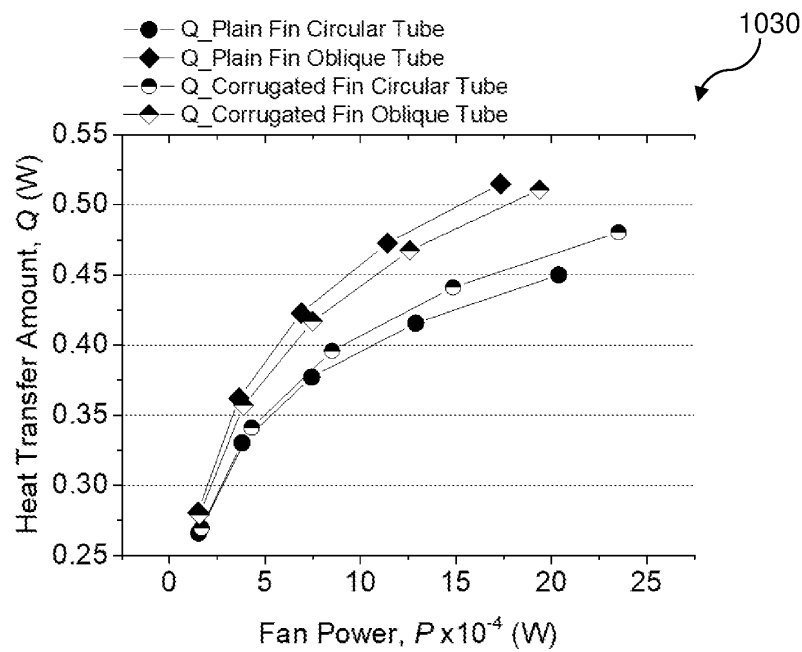


Figure 10D

1100

Property	Copper (Cu)	Aluminium (Al)	Brass (Br)
Density (kg/m ³)	8,978	2,719	8,580
Specific heat capacity (J/kgK)	381	871	380
Thermal conductivity (W/mK)	387.6	202.4	111
Yield strength (MPa)	70	241	200

Figure 11A

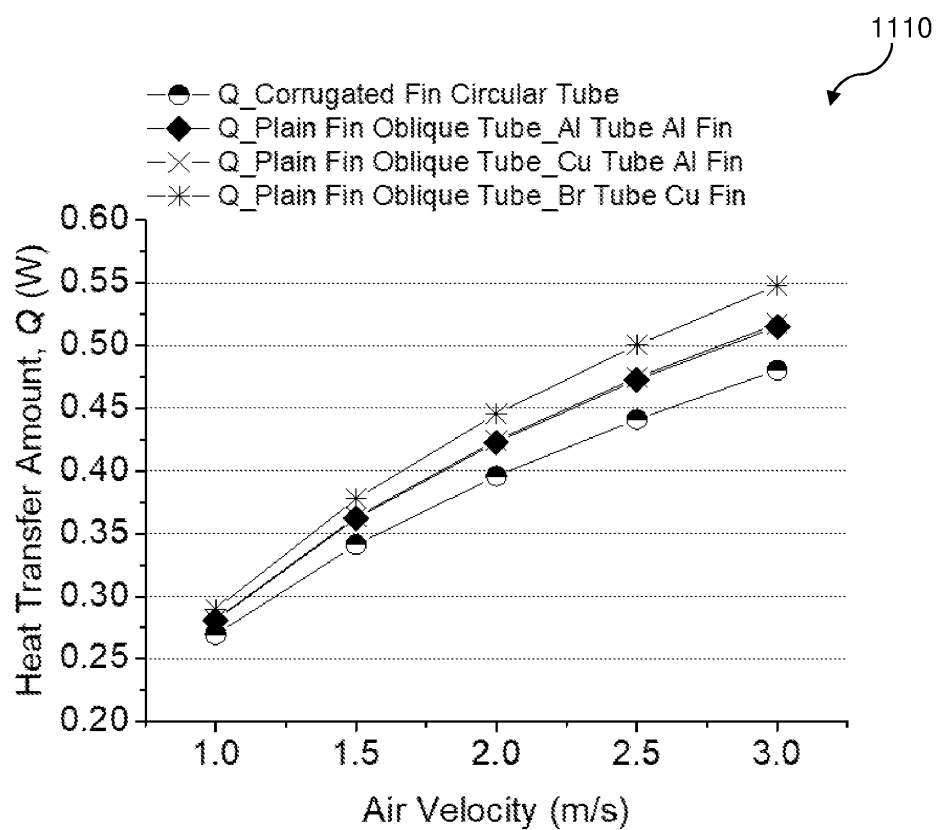


Figure 11B

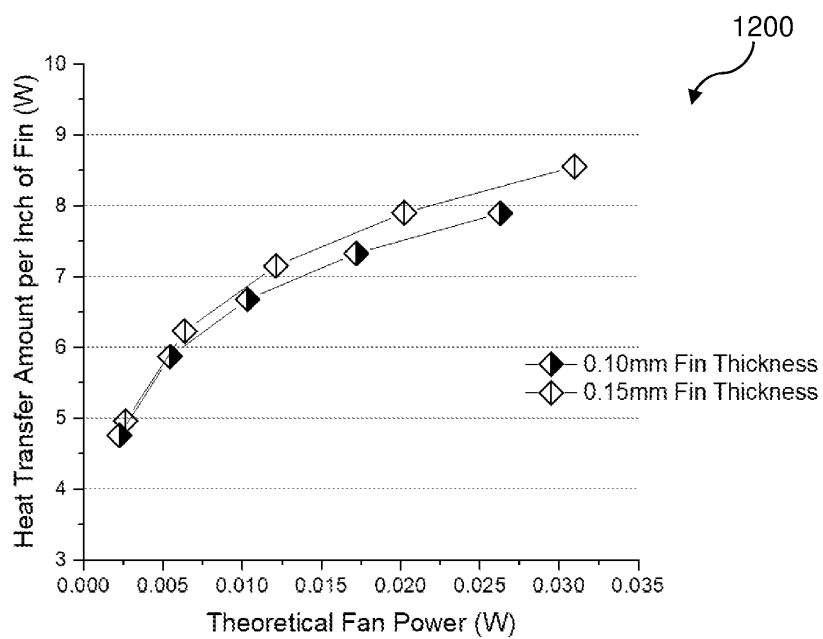


Figure 12

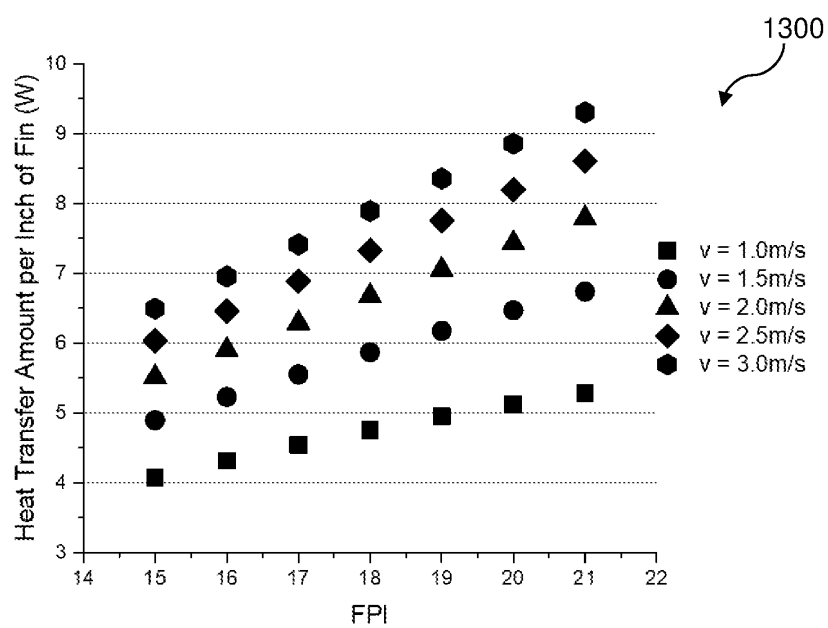


Figure 13A

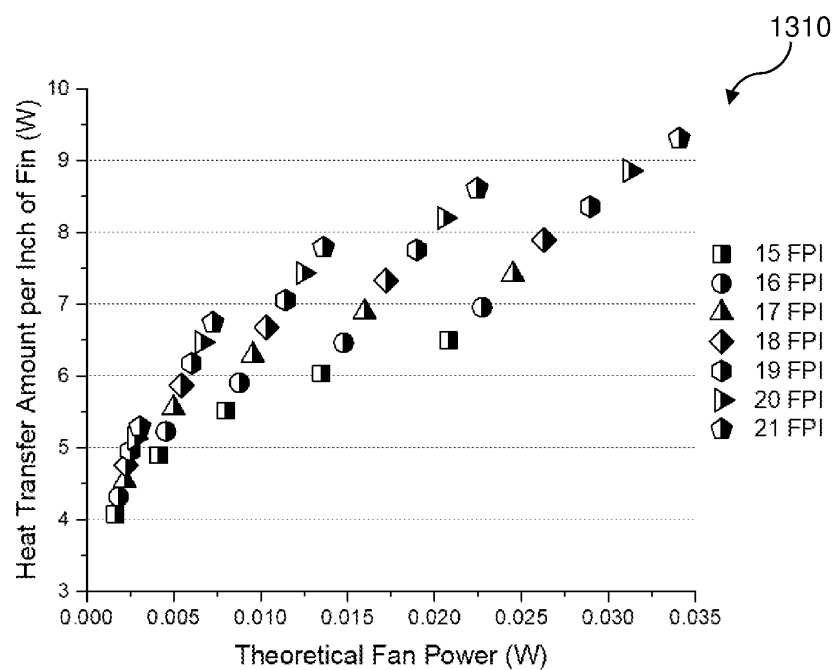


Figure 13B

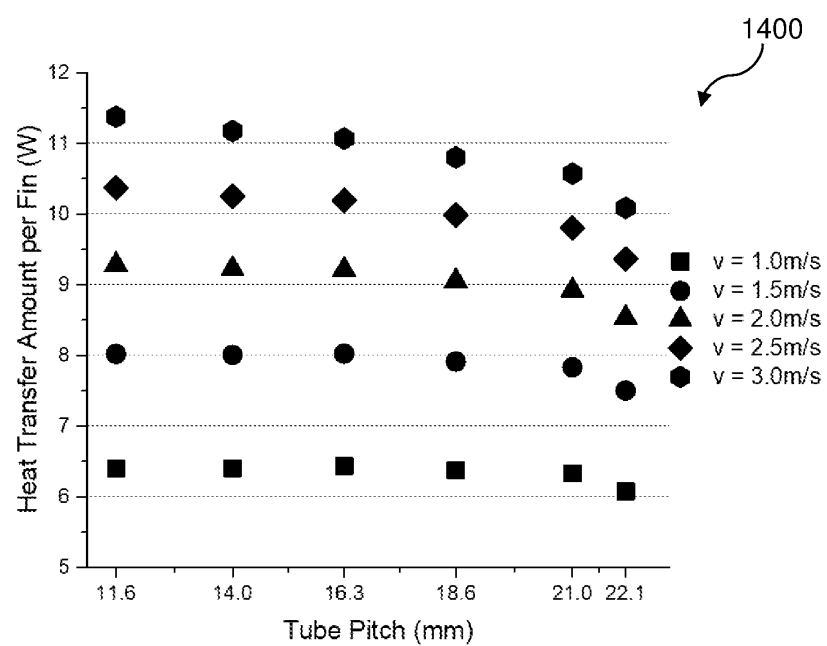


Figure 14A

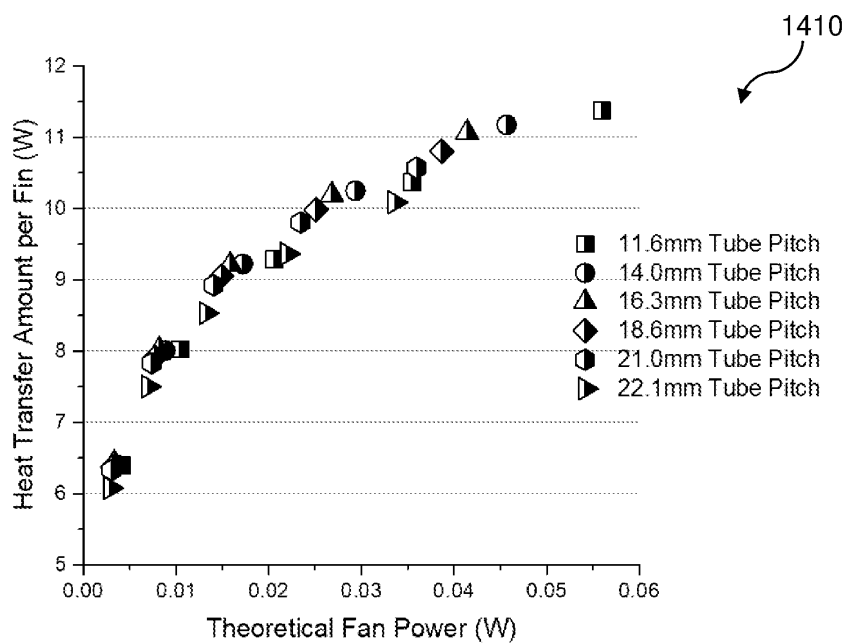


Figure 14B

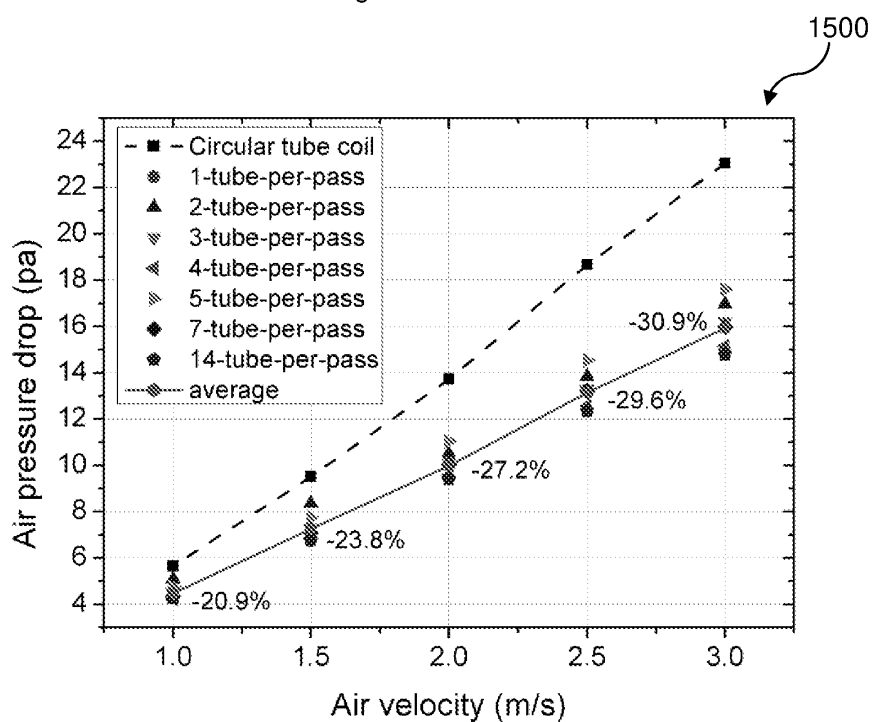


Figure 15

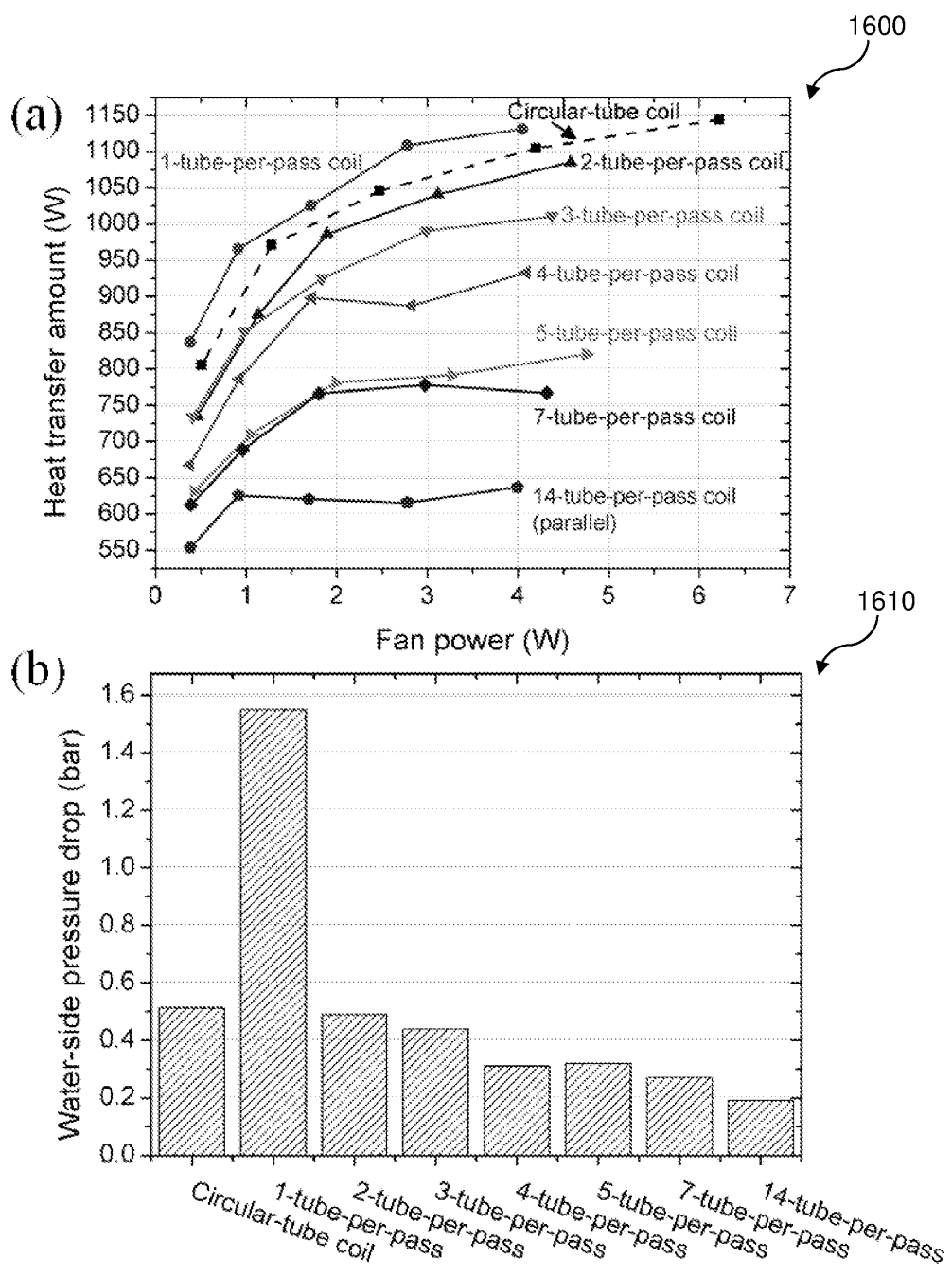


Figure 16

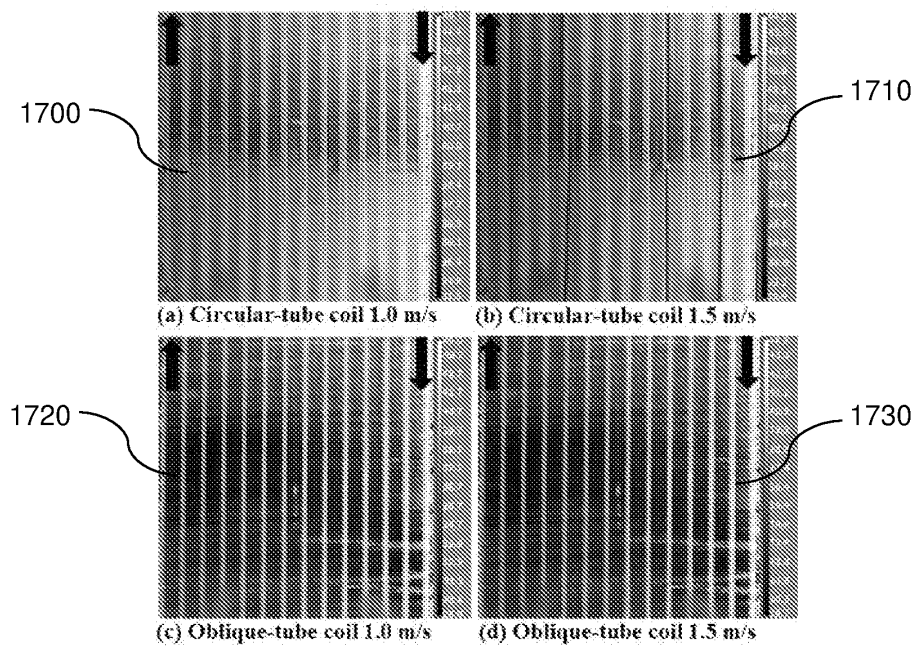


Figure 17

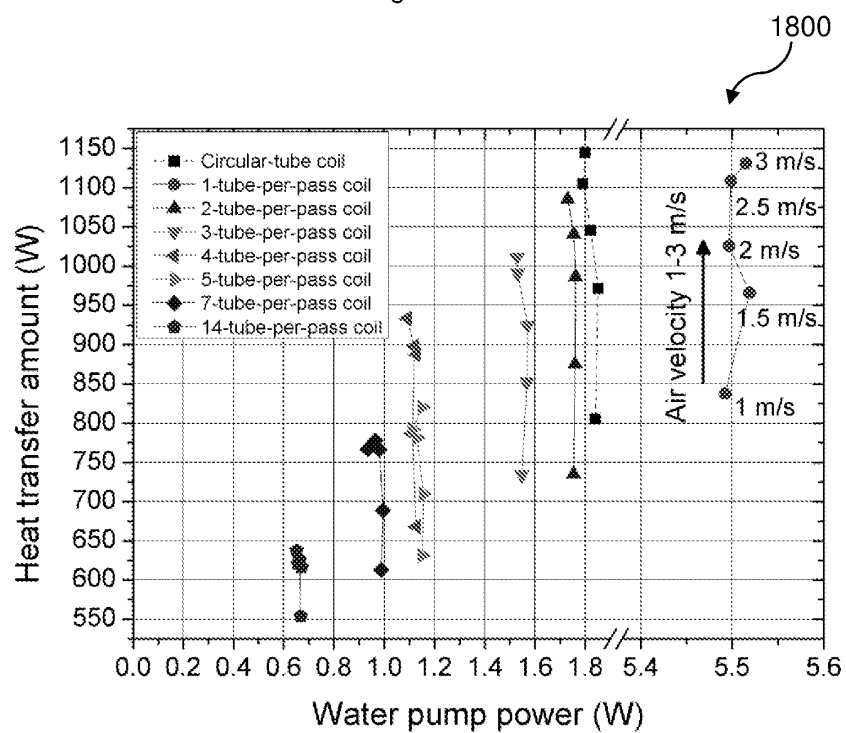


Figure 18

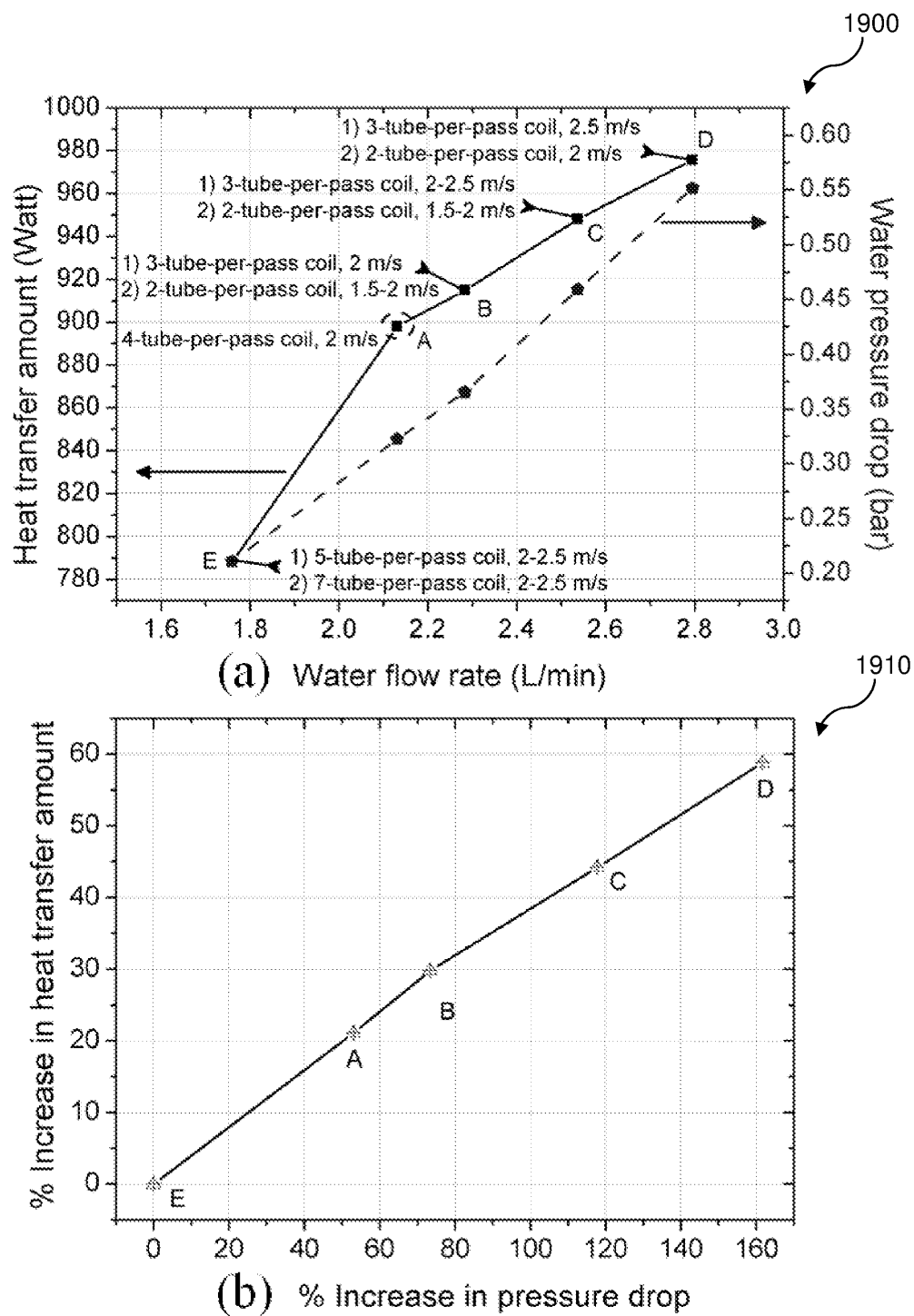


Figure 19