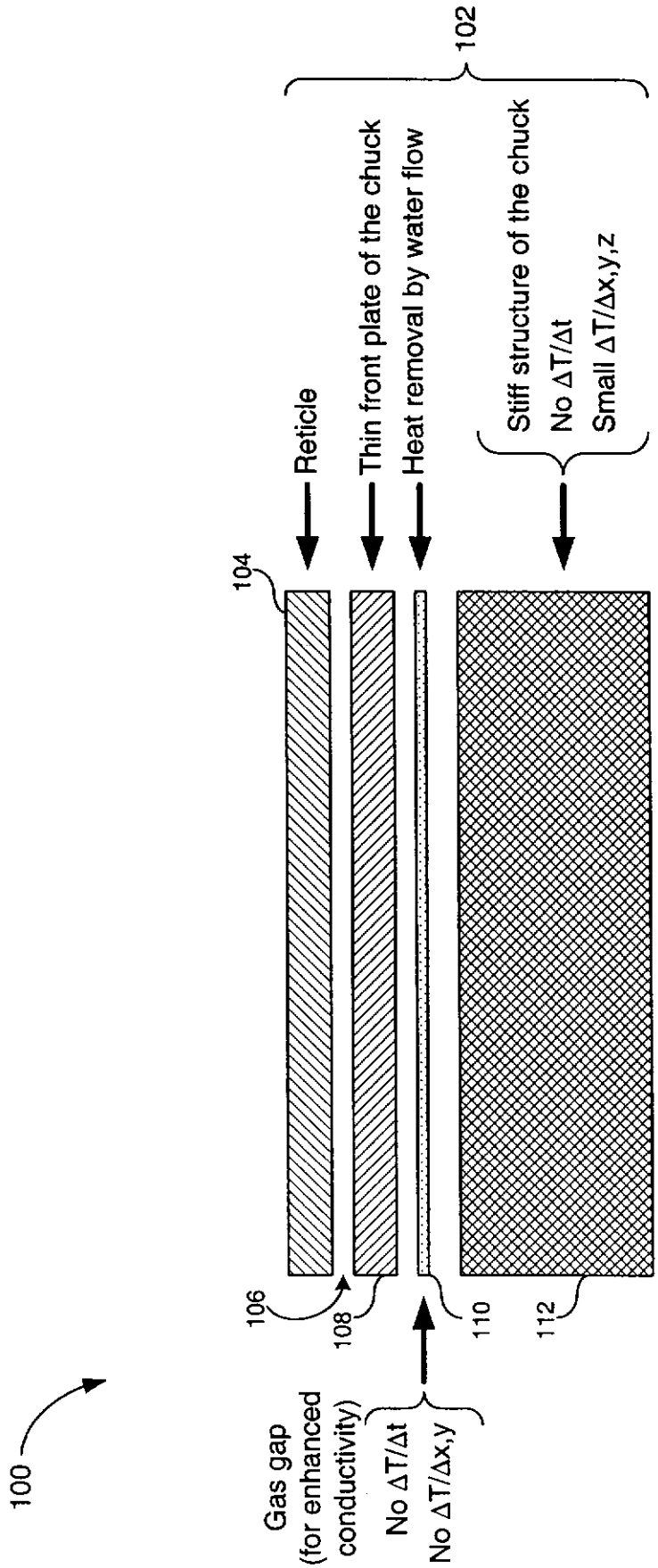

100
102
Reticle
Thin front plate of the chuck
Heat removal by water flow
Stiff structure of the chuck
No ΔT/Δt
Small ΔT/Δx,y,z
104
106
108
110
112
Gas gap
(for enhanced
conductivity)
No ΔT/Δt
No ΔT/Δx,y

FIG. 1

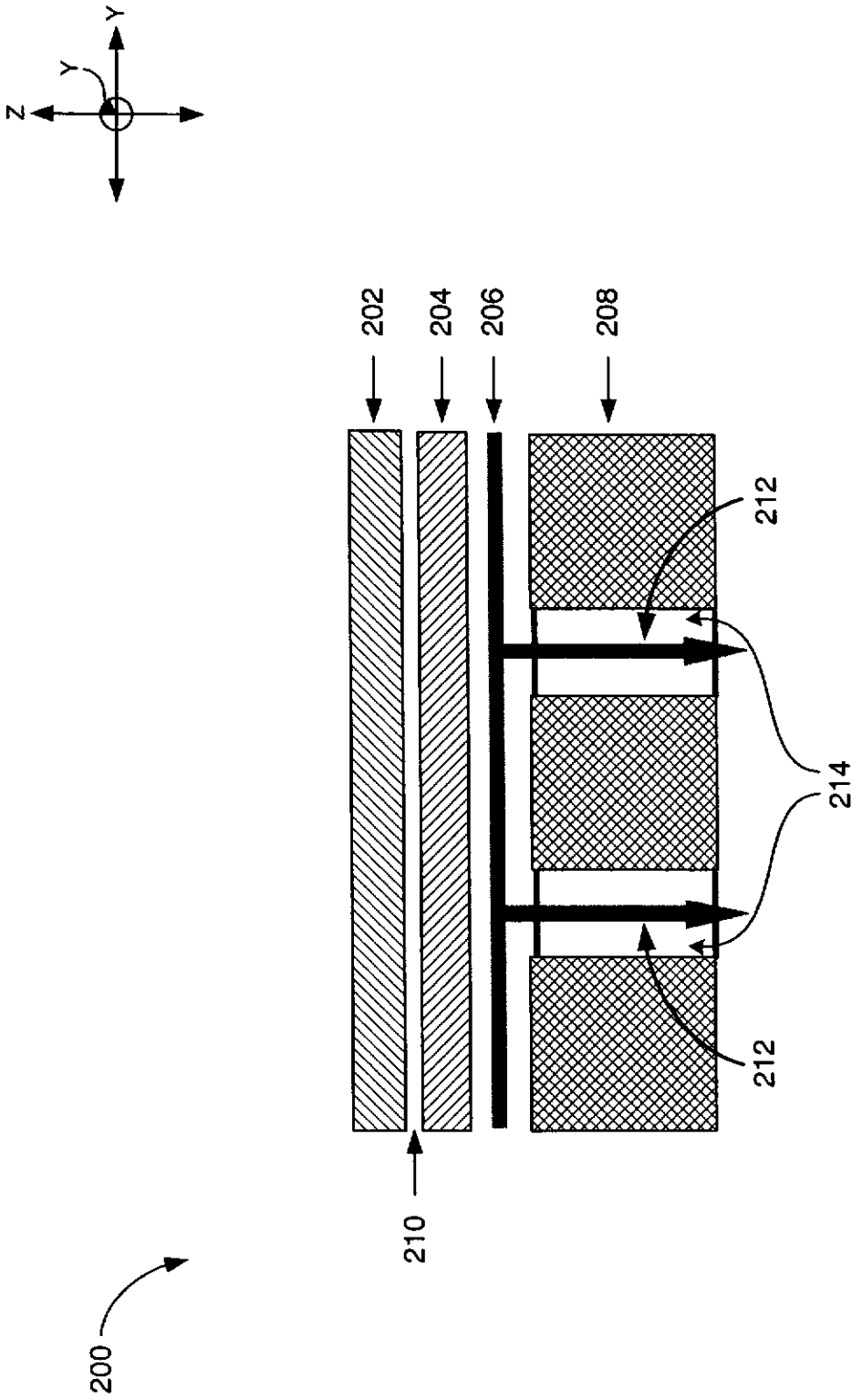


FIG. 2

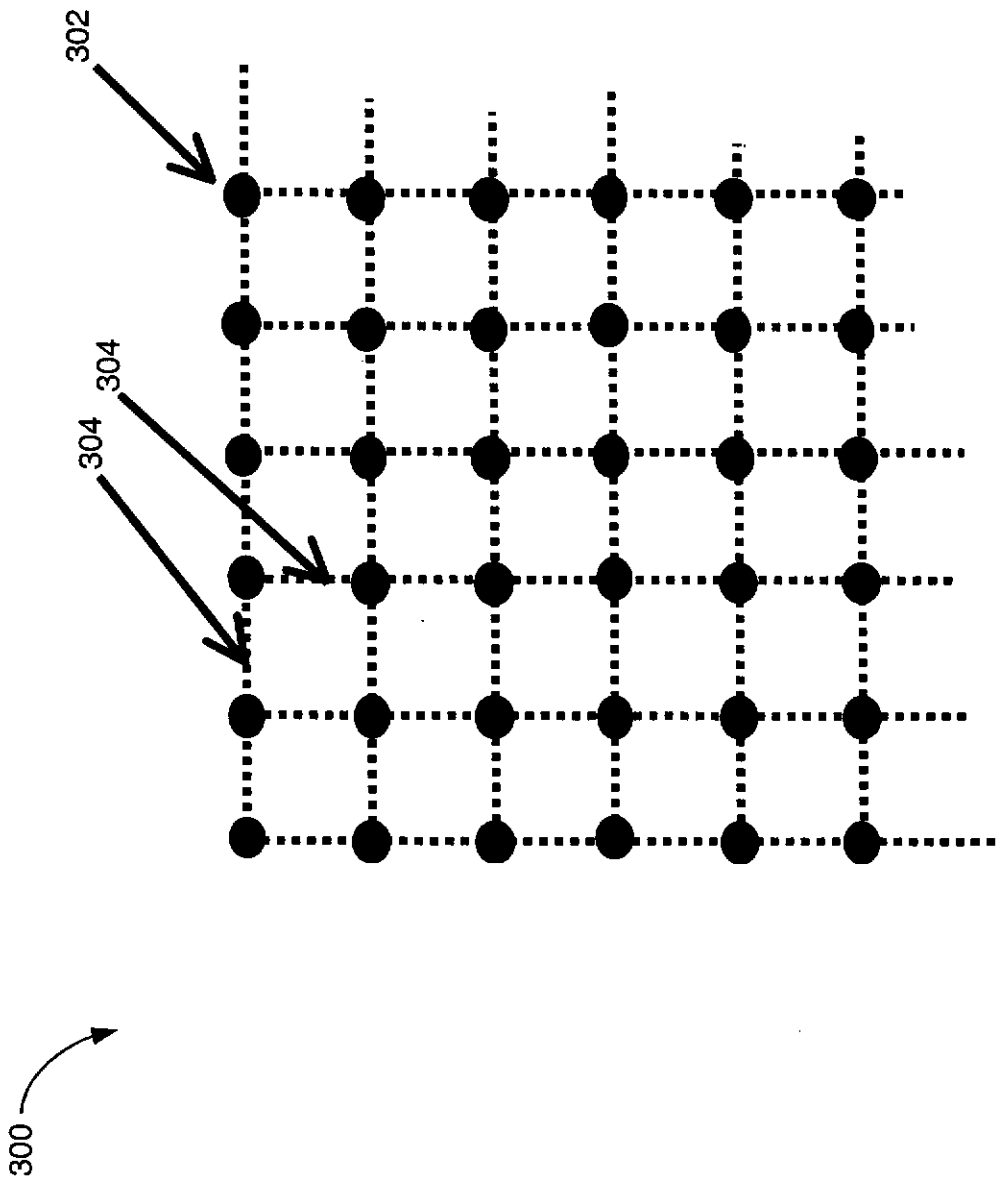


FIG. 3

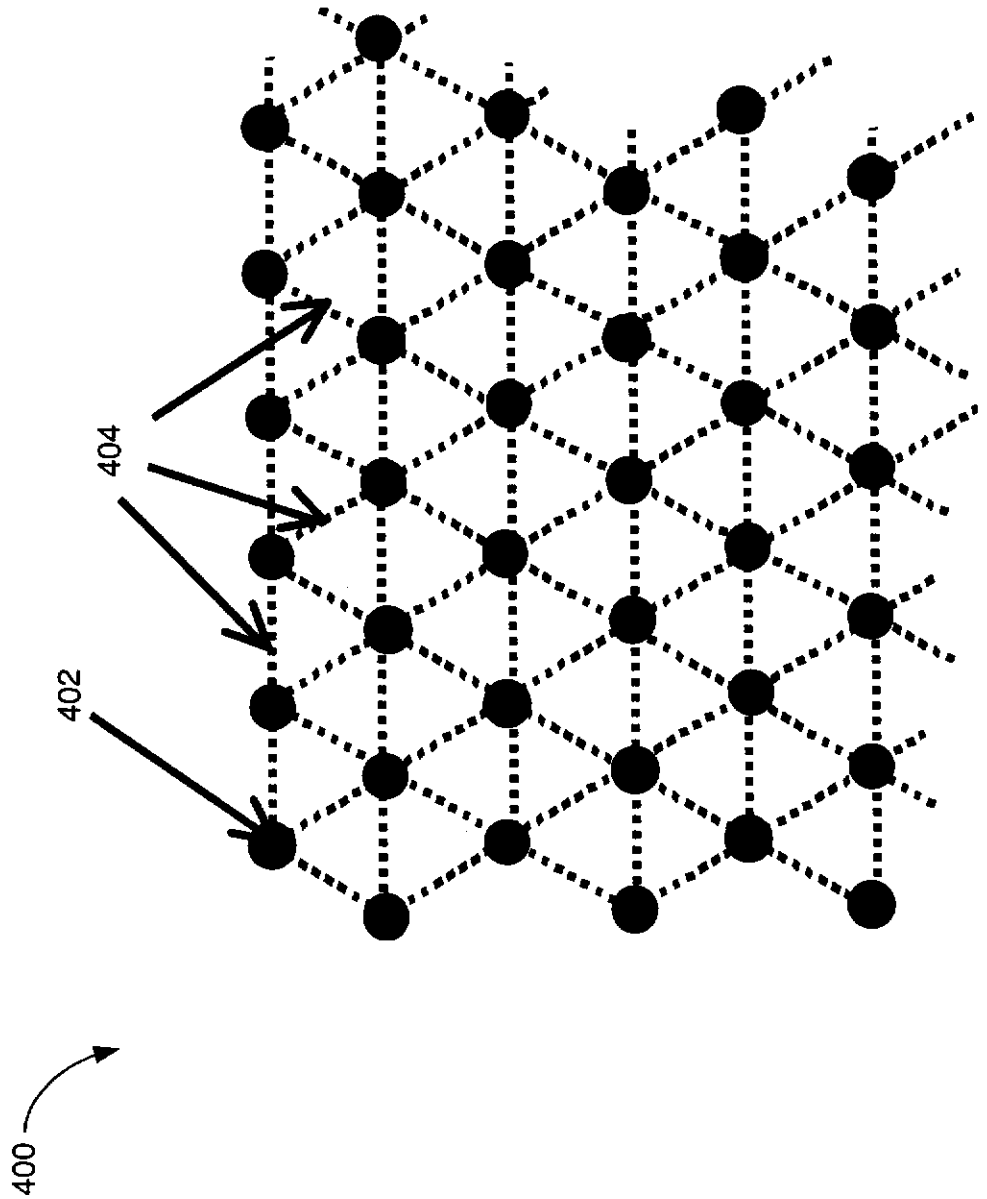


FIG. 4

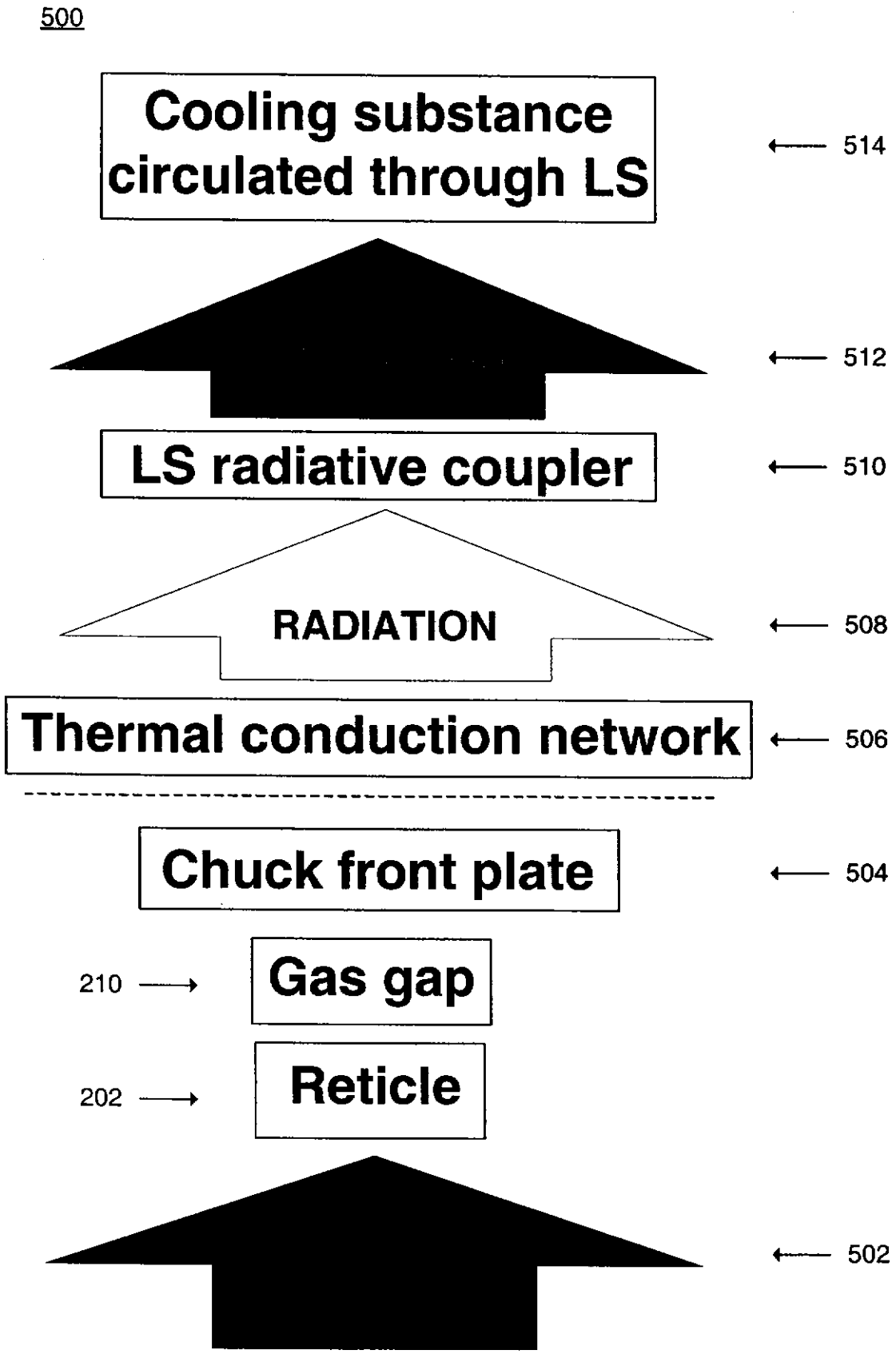

500
Cooling substance circulated through LS
514
512
LS radiative coupler
510
RADIATION
508
Thermal conduction network
506
Chuck front plate
504
210
Gas gap
202
Reticle
502

FIG. 5

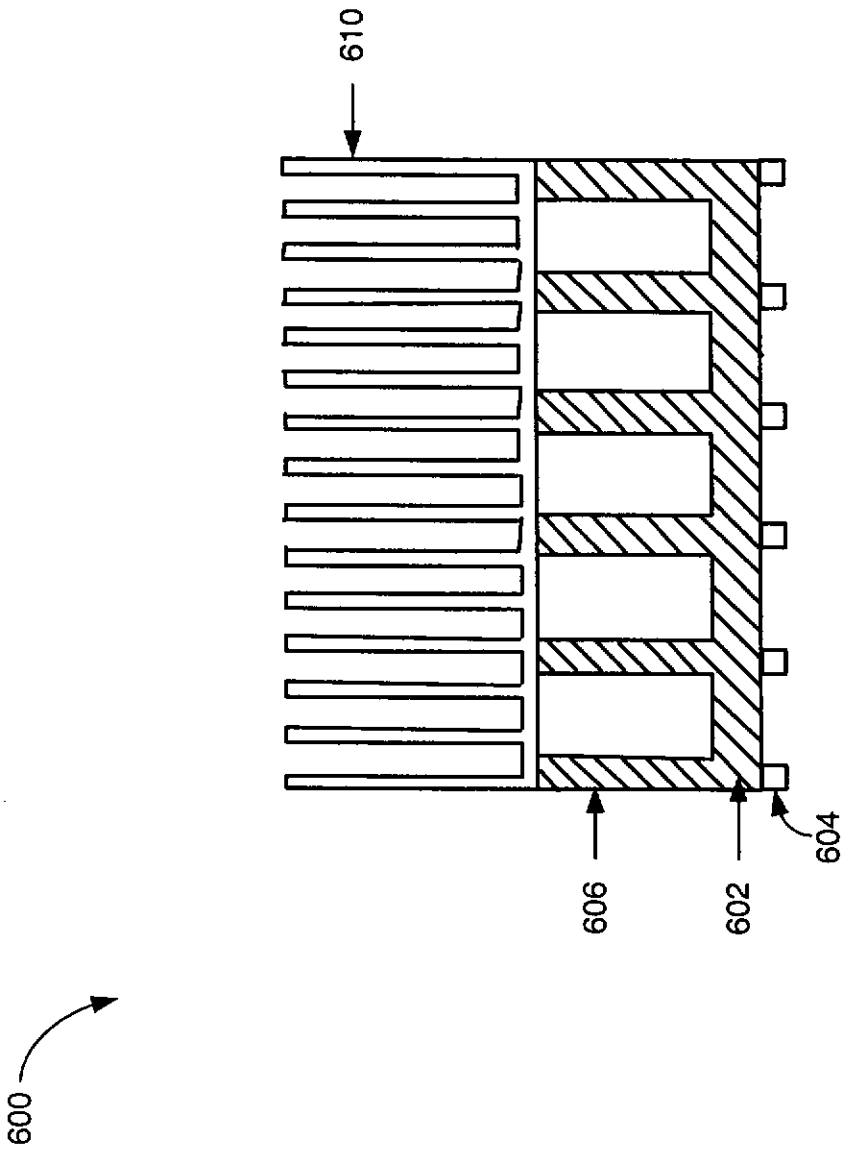


FIG. 6A

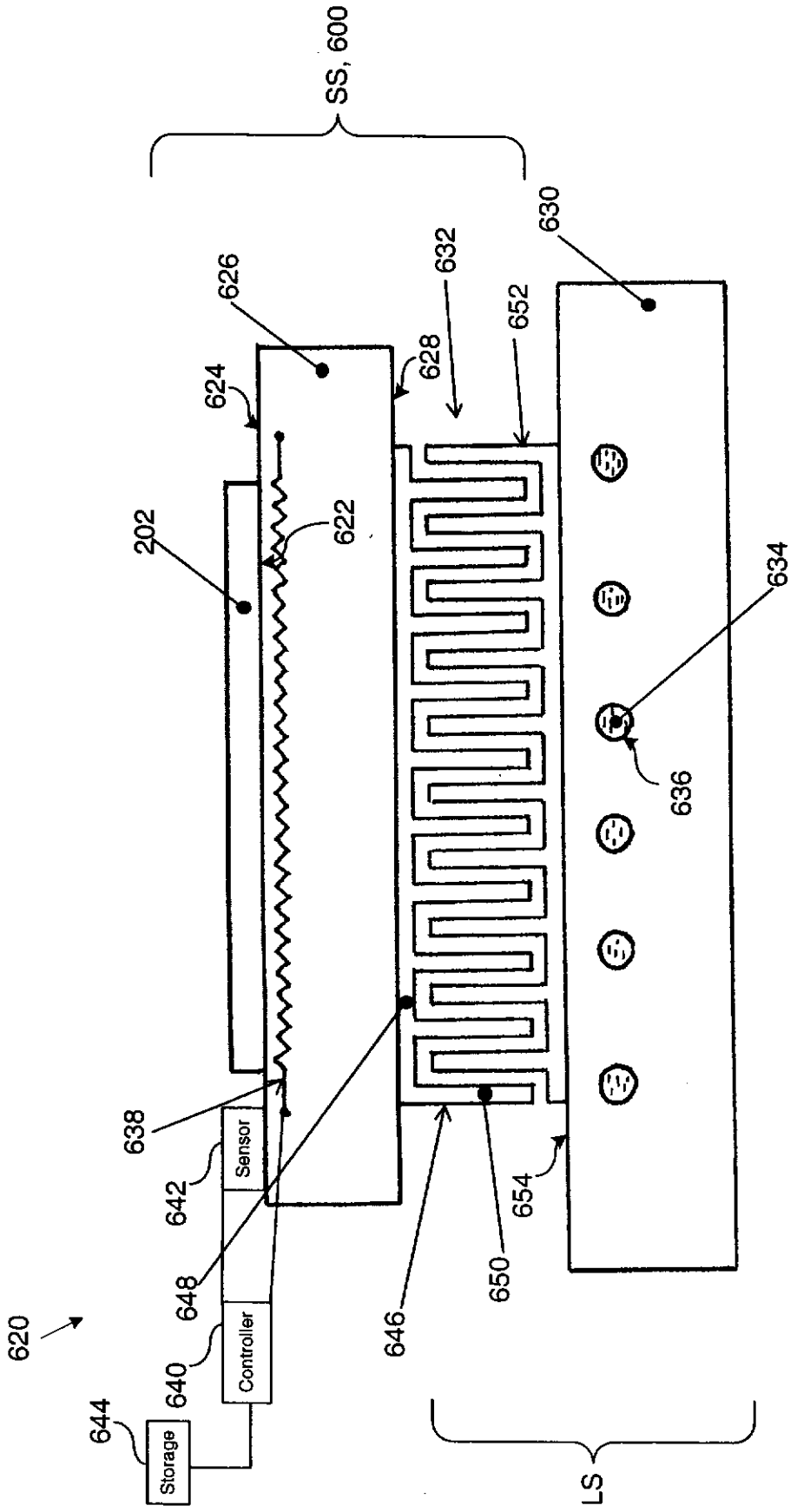

SS, 600
630
632
626
652
628
624
622
202
634
636
638
Sensor
642
654
648
650
646
620
640
Controller
644
Storage
LS

FIG. 6B

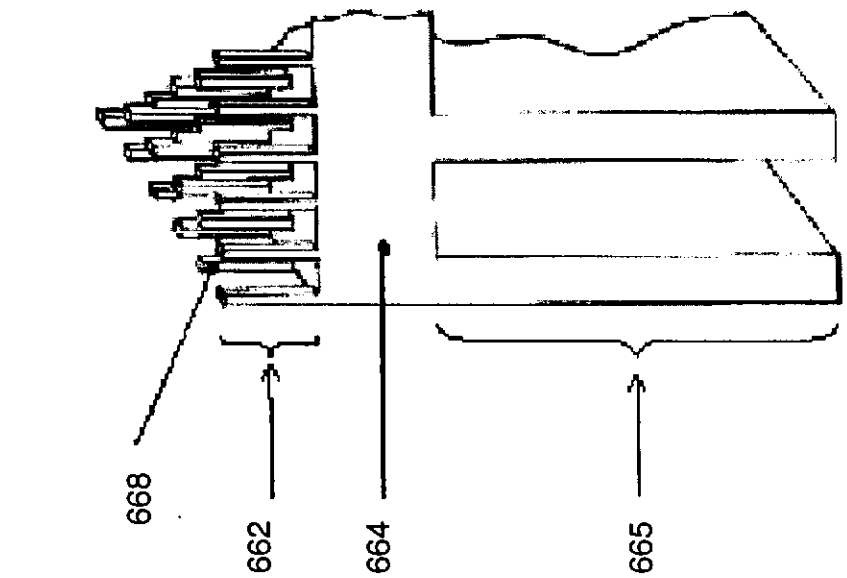


FIG. 6C

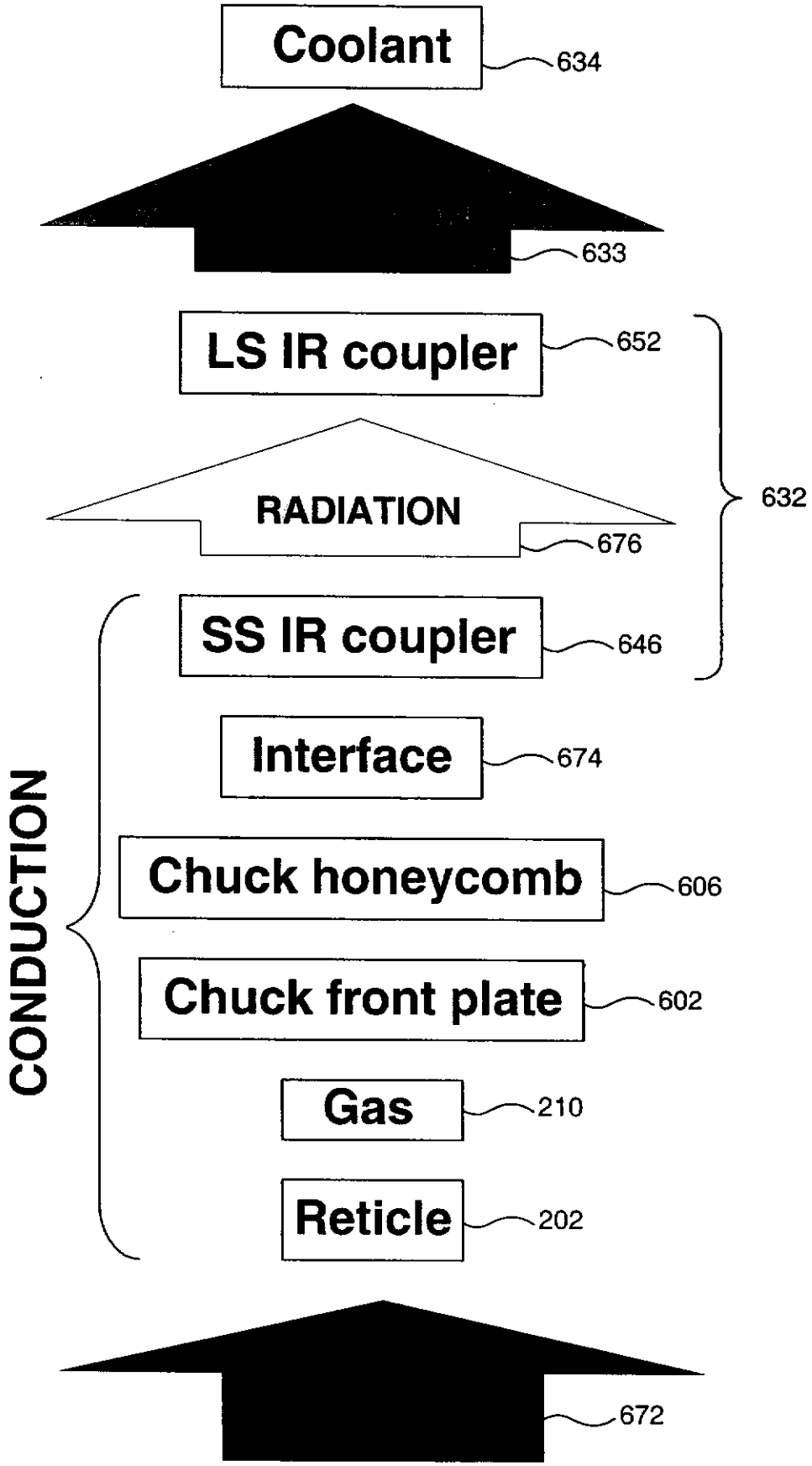

Coolant
634
633
LS IR coupler
652
RADIATION
676
632
SS IR coupler
646
Interface
674
Chuck honeycomb
606
Chuck front plate
602
Gas
210
Reticle
202
CONDUCTION
672

FIG. 6D

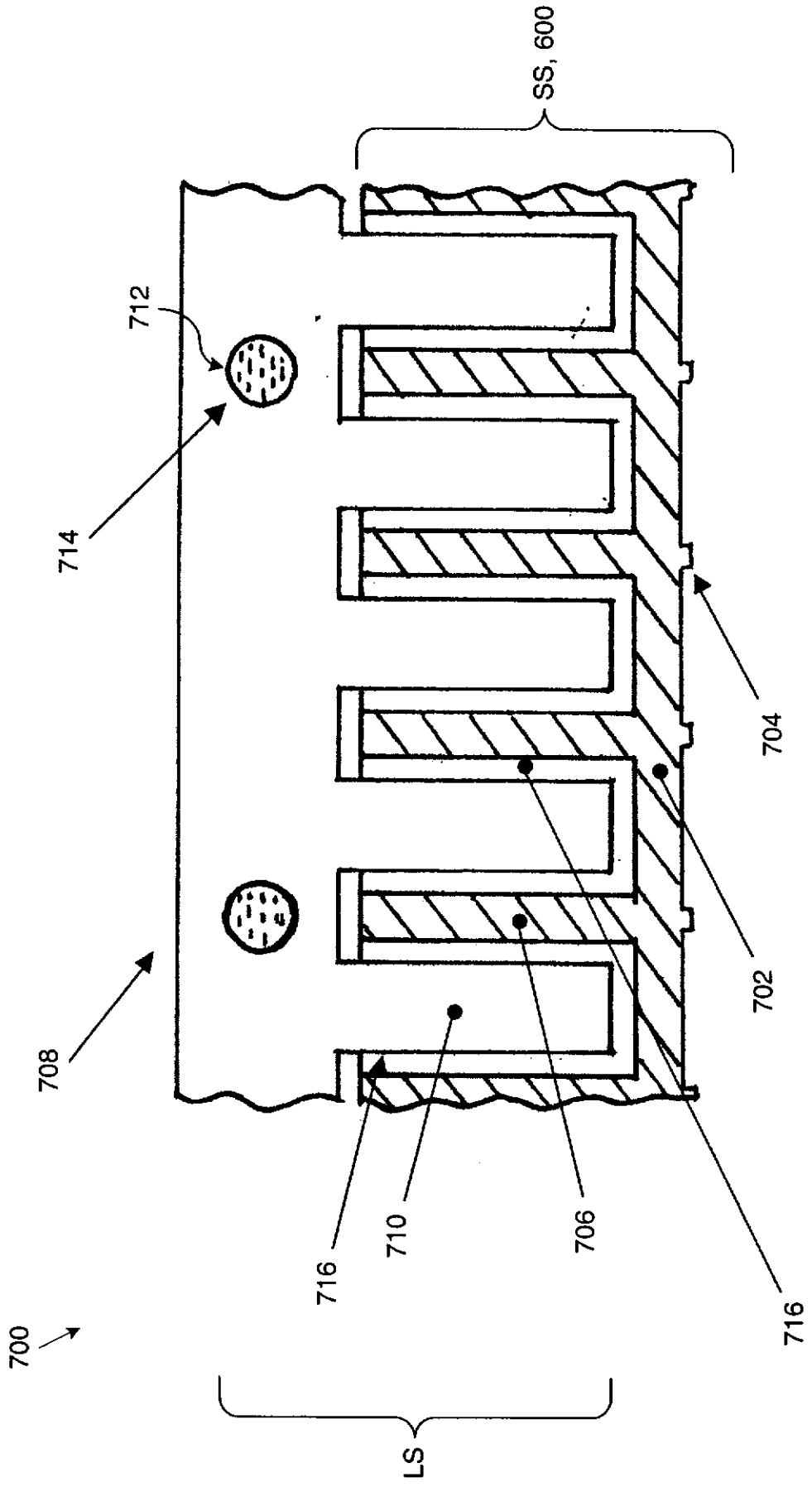


FIG. 7A

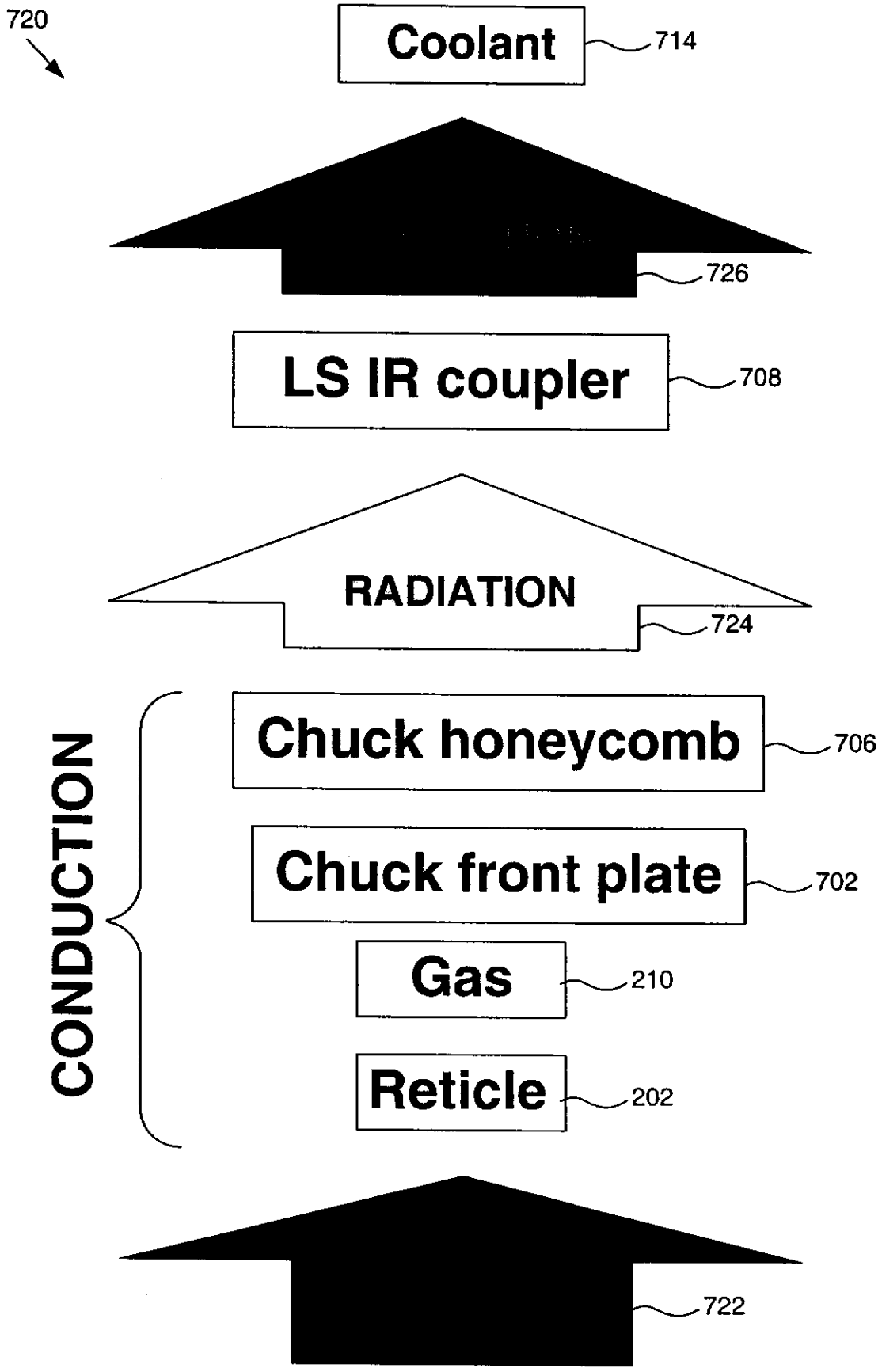

720
Coolant
714
726
LS IR coupler
708
RADIATION
724
CONDUCTION
Chuck honeycomb
706
Chuck front plate
702
Gas
210
Reticle
202
722

FIG. 7B

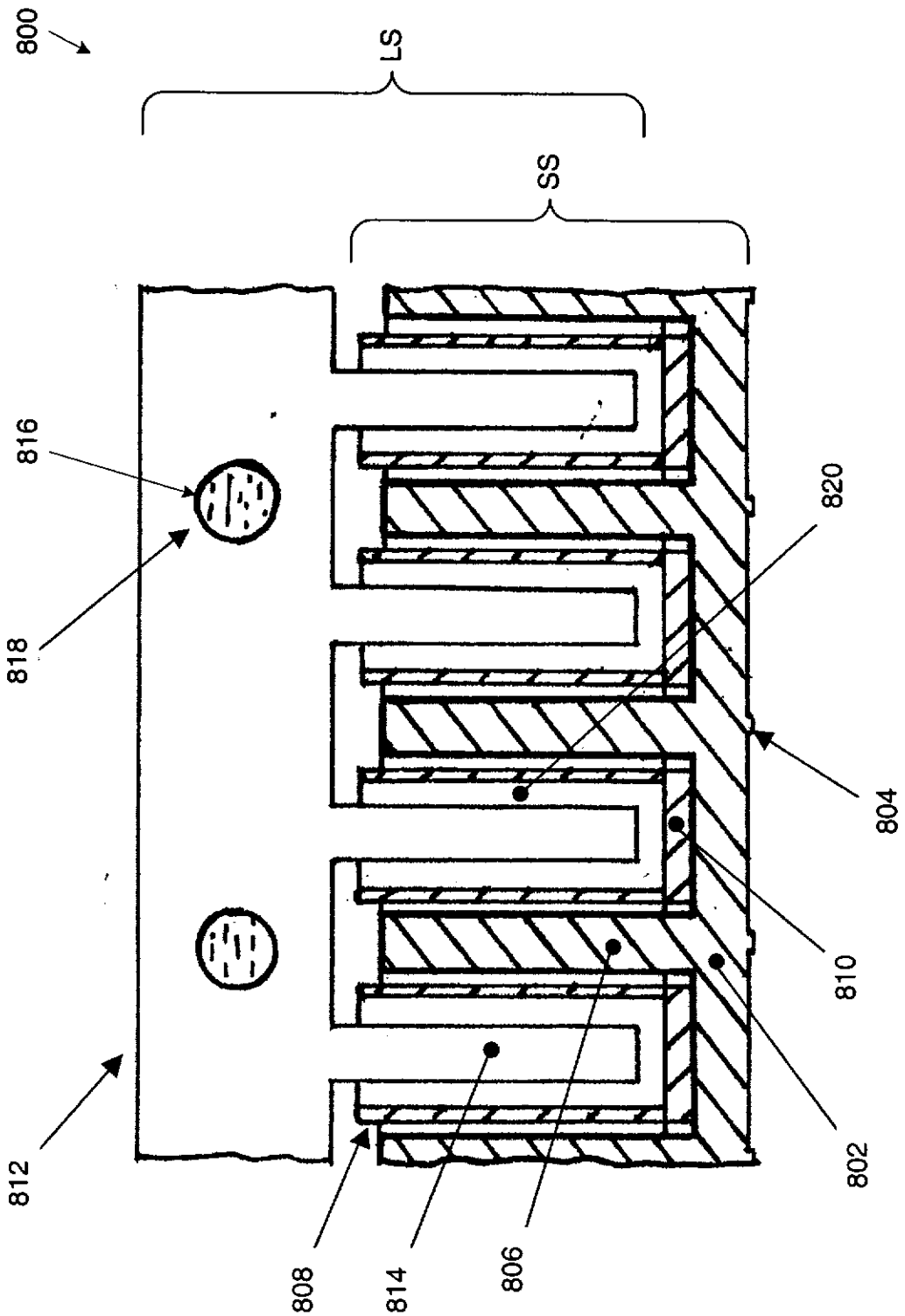


FIG. 8A

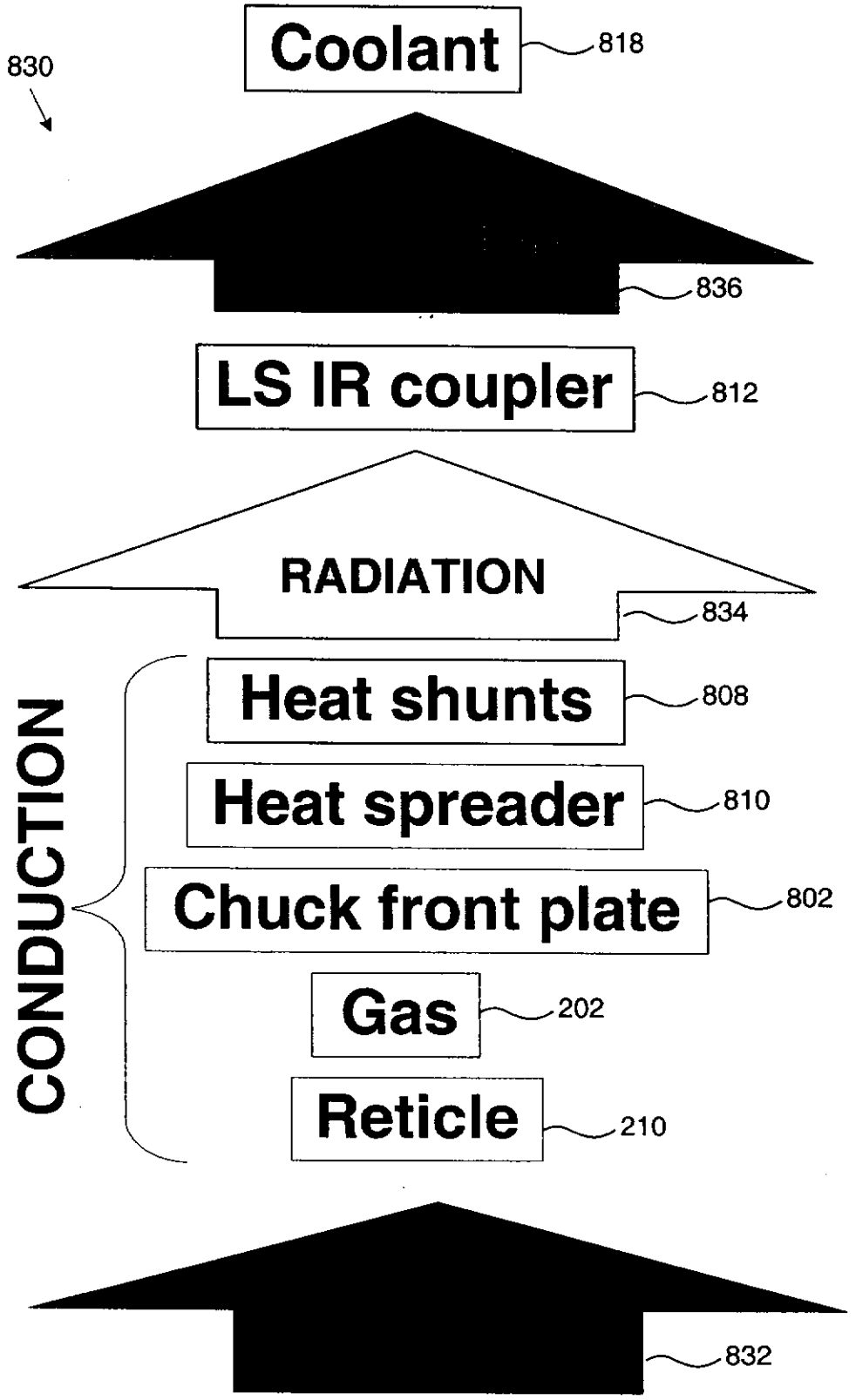

Coolant
818
830
836
LS IR coupler
812
RADIATION
834
CONDUCTION
Heat shunts
808
Heat spreader
810
Chuck front plate
802
Gas
202
Reticle
210
832

FIG. 8B

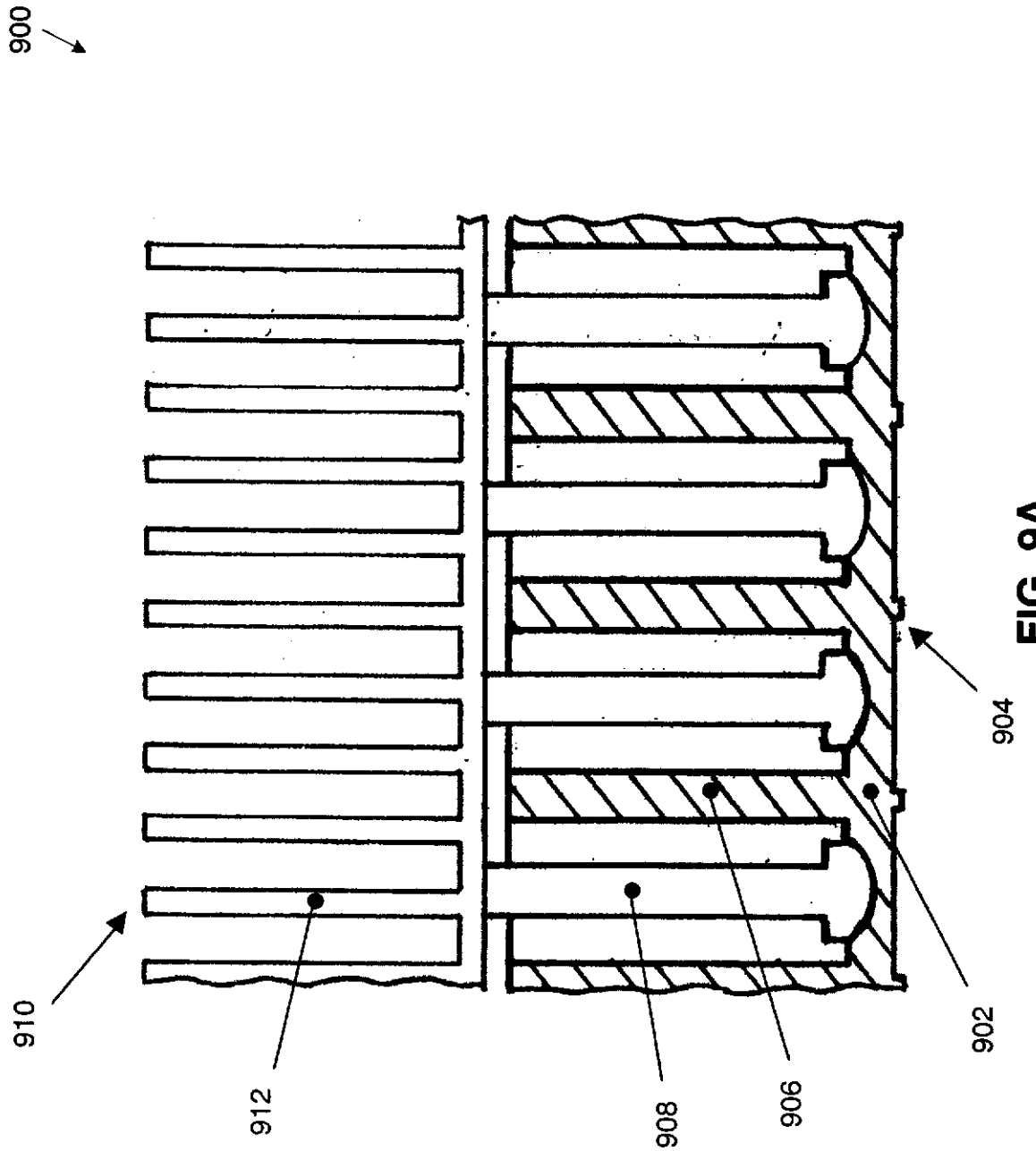


FIG. 9A

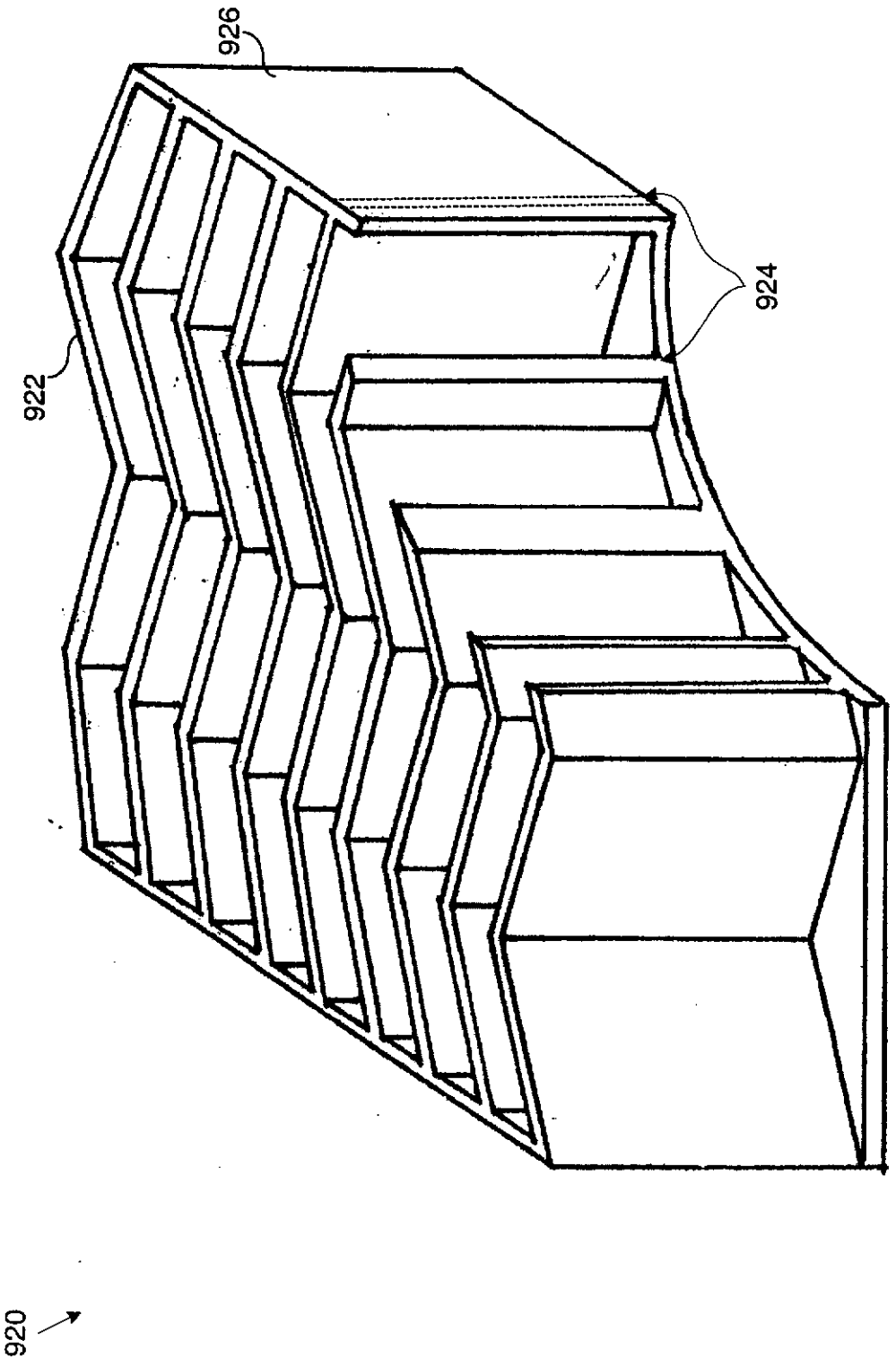


FIG. 9B

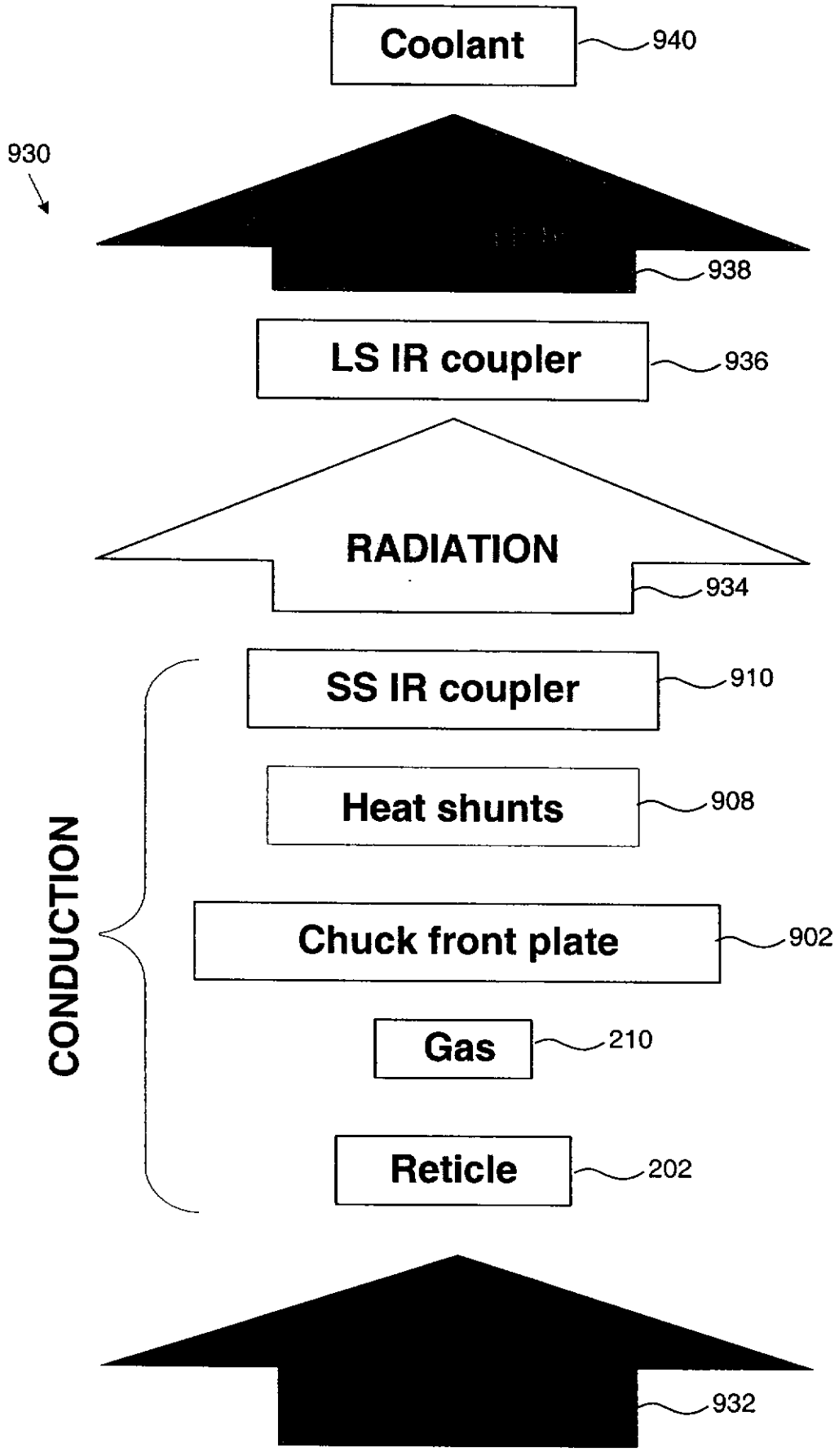

Coolant
940
930
938
LS IR coupler
936
RADIATION
934
CONDUCTION
SS IR coupler
910
Heat shunts
908
Chuck front plate
902
Gas
210
Reticle
202
932

FIG. 9C

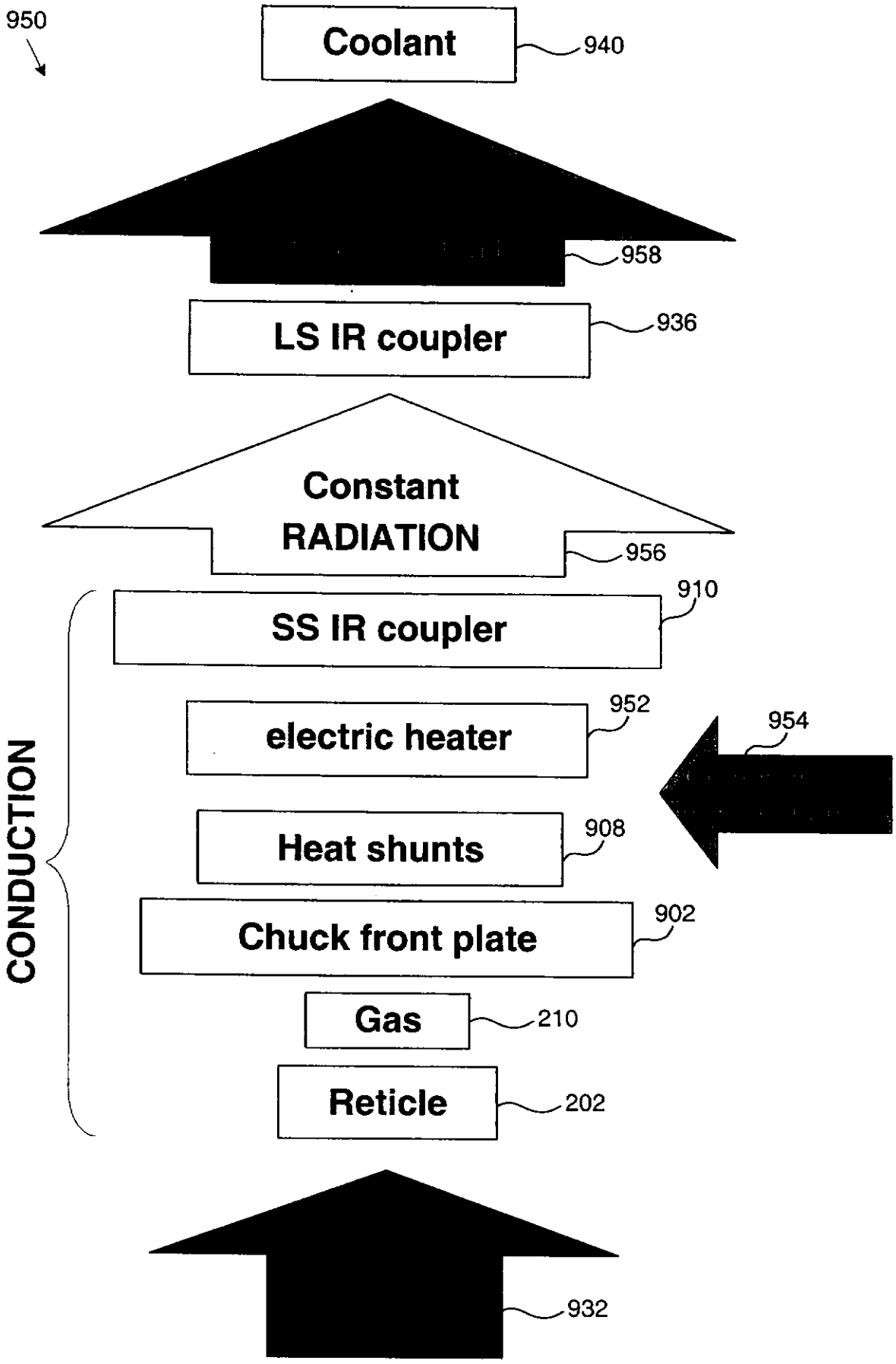

950
Coolant
940
958
LS IR coupler
936
Constant
RADIATION
956
910
SS IR coupler
952
electric heater
954
908
Heat shunts
902
Chuck front plate
Gas
210
Reticle
202
CONDUCTION
932

FIG. 9D

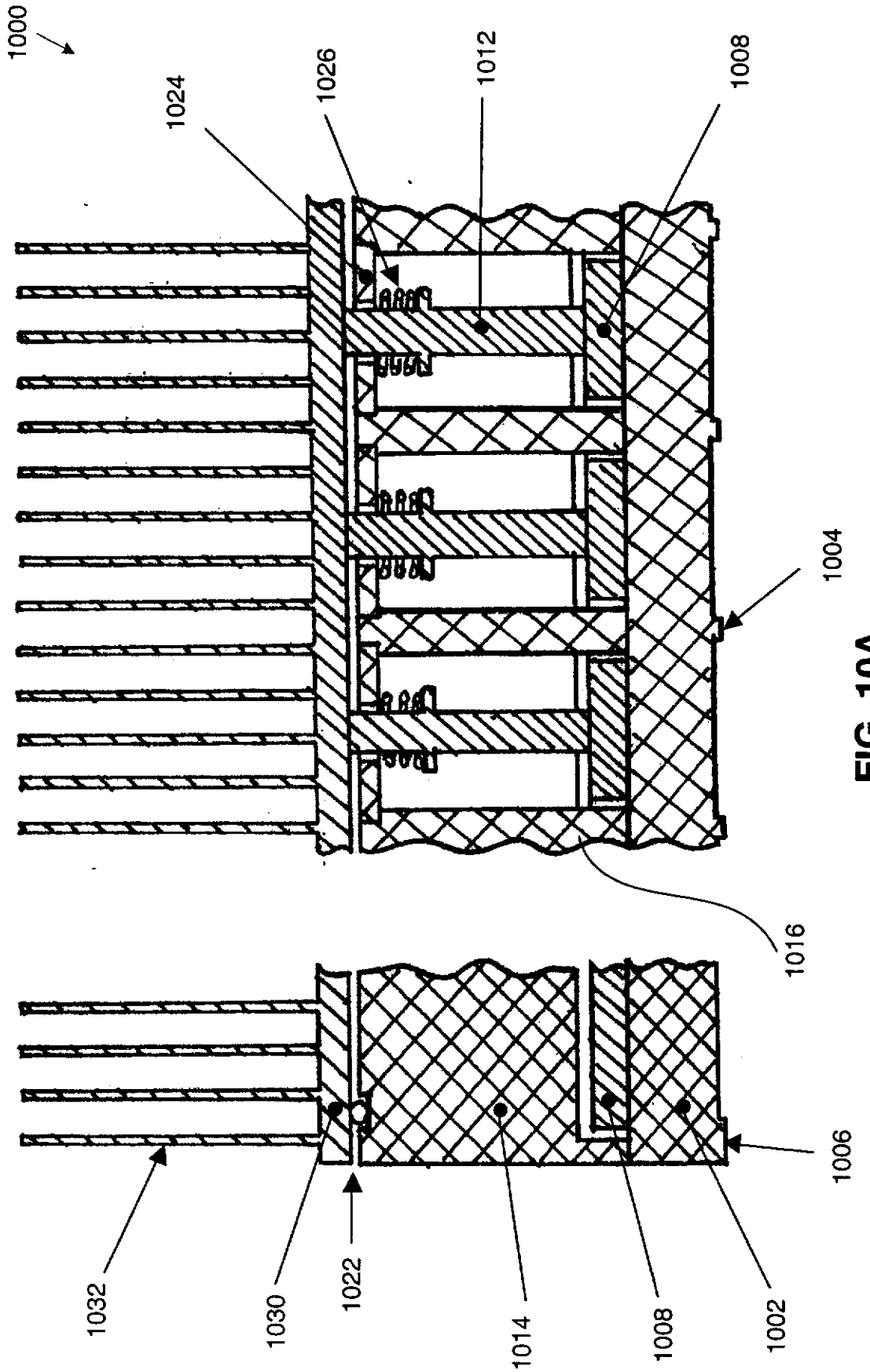

1000
1024
1026
1012
1008
1004
1016
1006
1032
1030
1022
1014
1008
1002

FIG. 10A

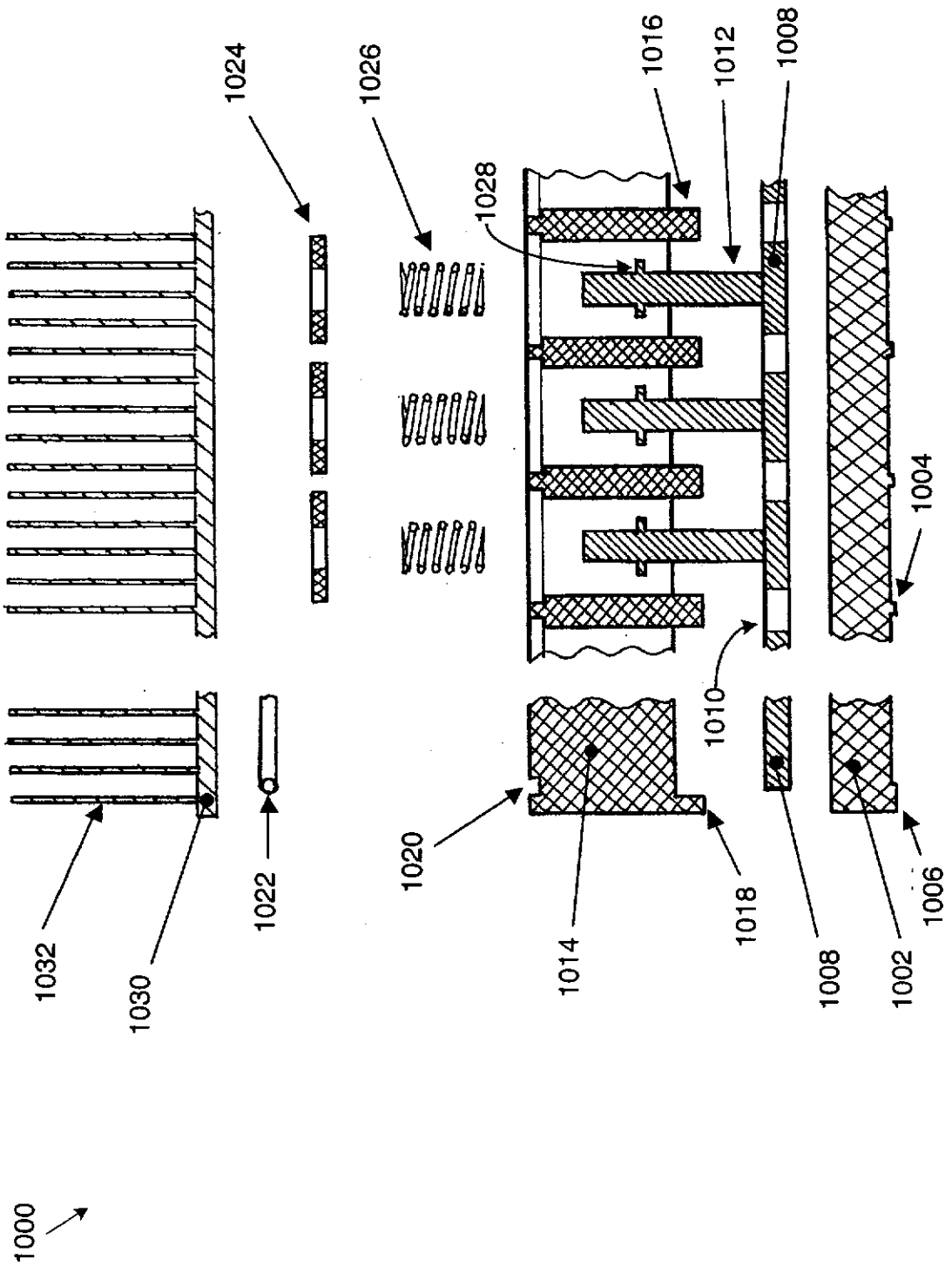

1000
1032
1030
1022
1024
1026
1028
1016
1012
1008
1004
1010
1020
1014
1018
1008
1002
1006

FIG. 10B

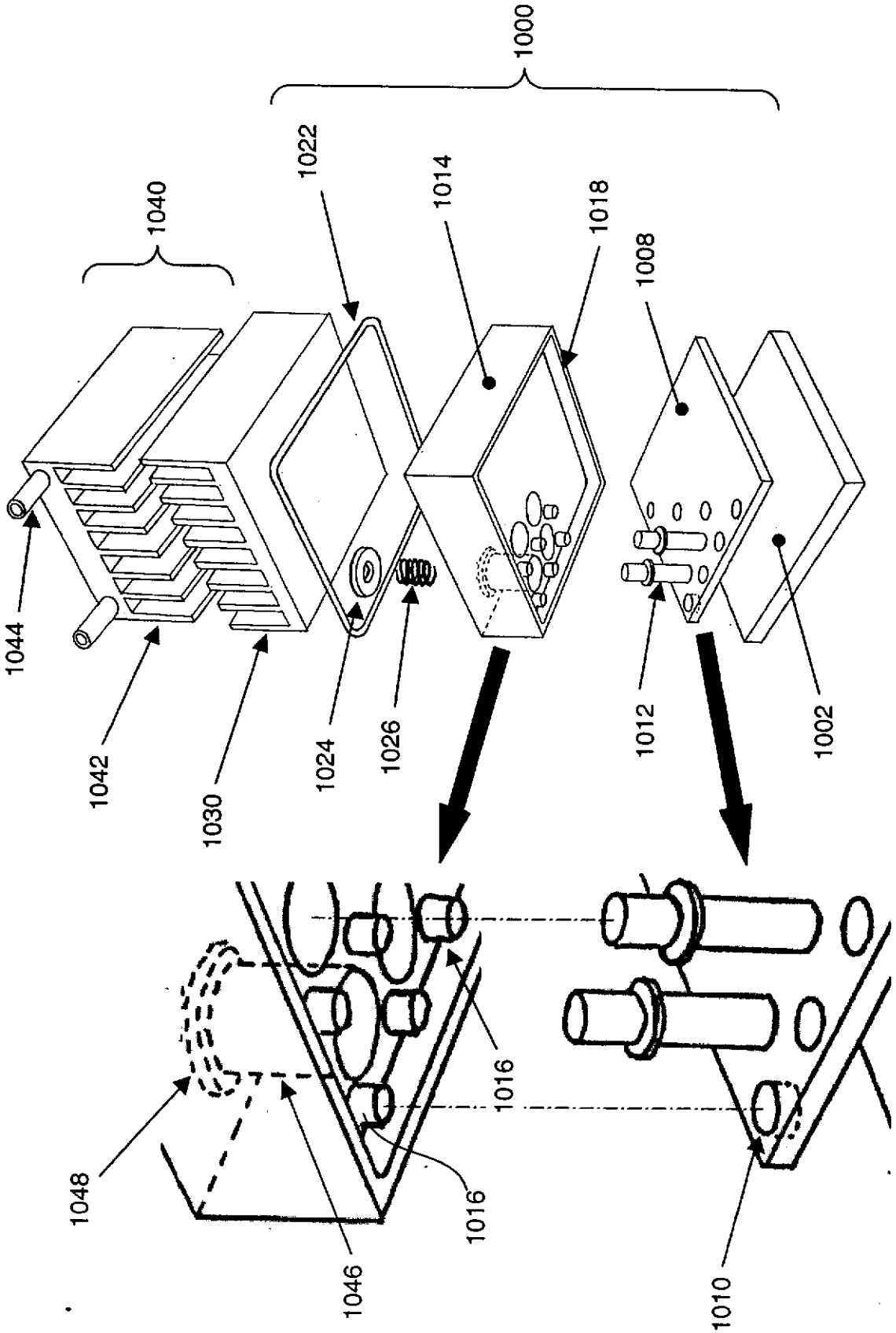


FIG. 10C

FIG. 10D

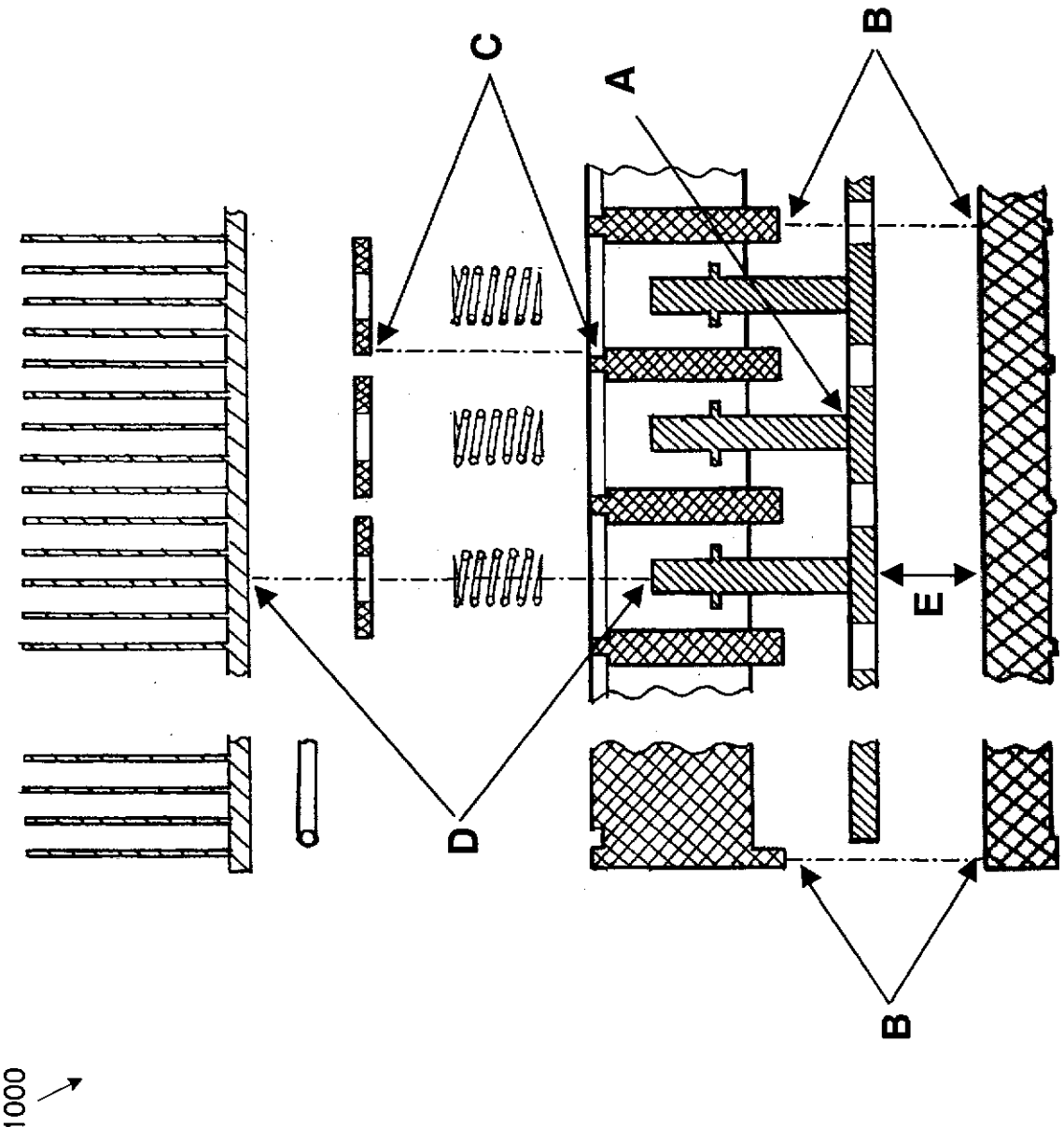
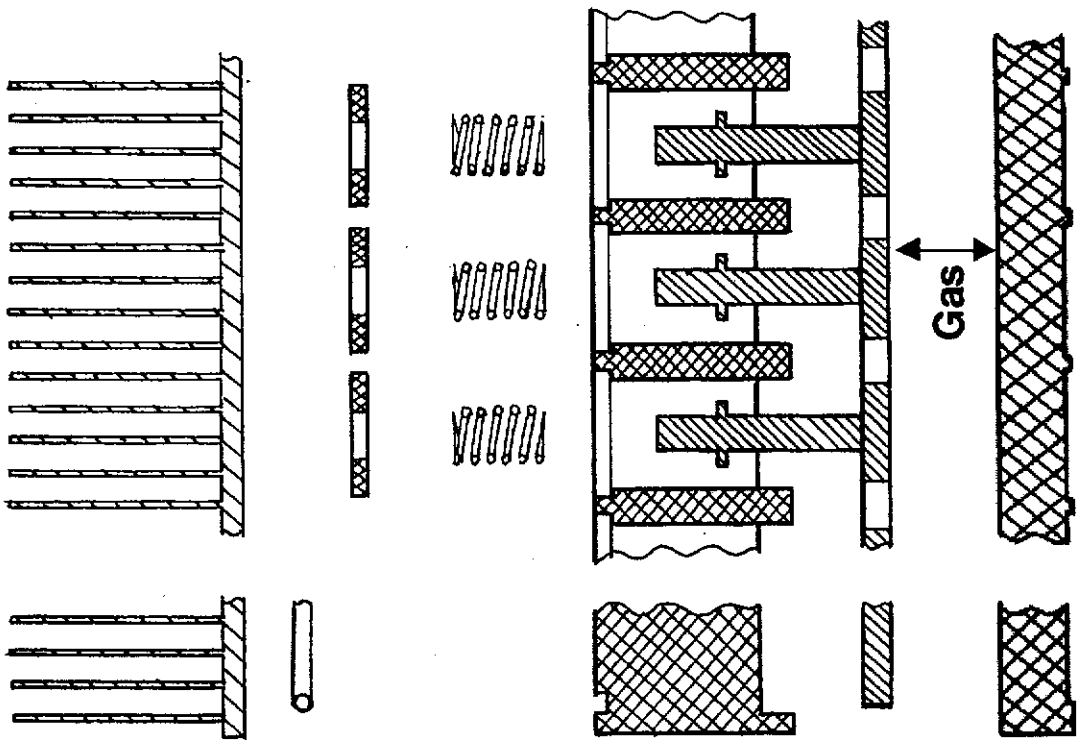


FIG. 10E



1000

FIG. 10F

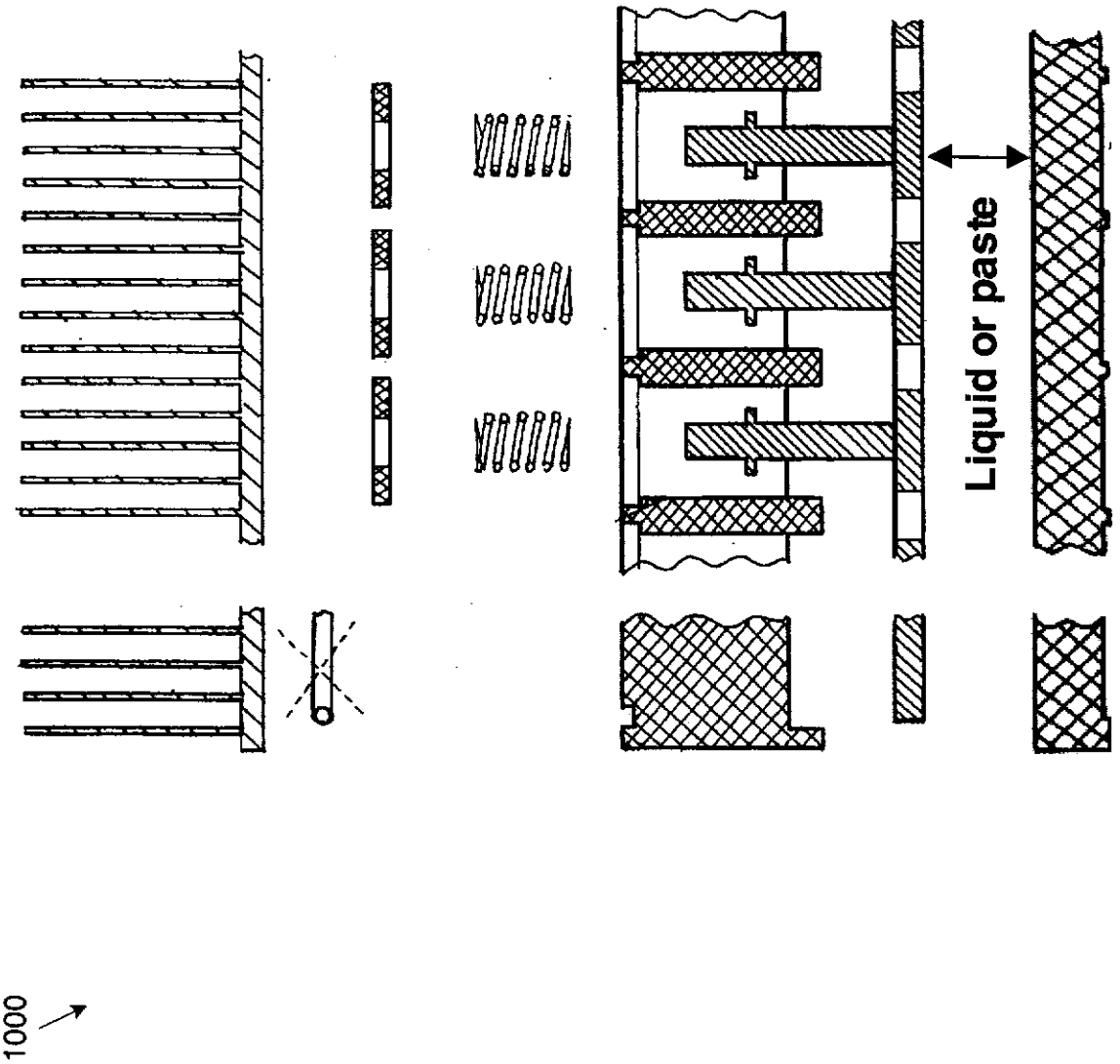


FIG. 10G

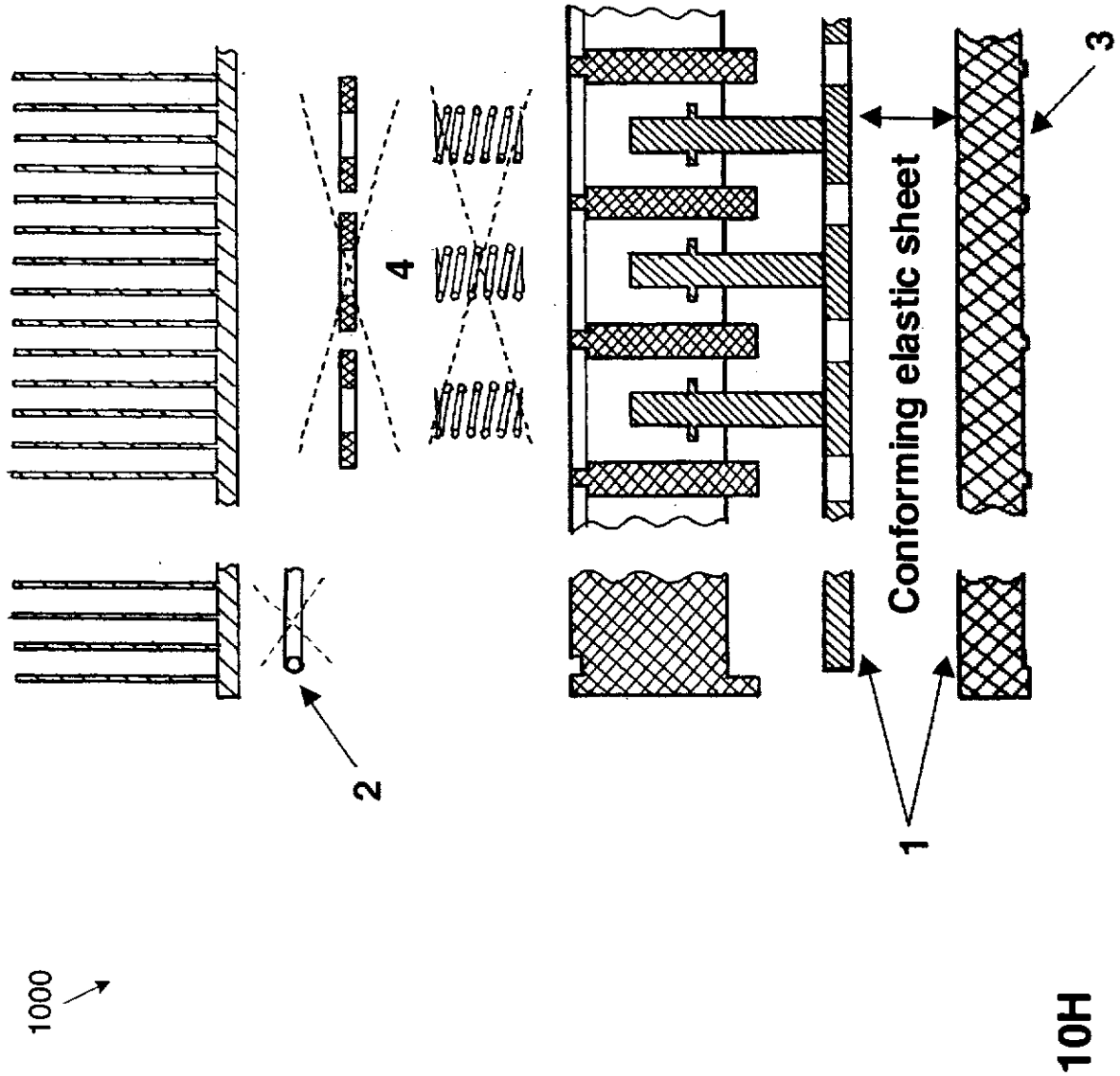


FIG. 10H

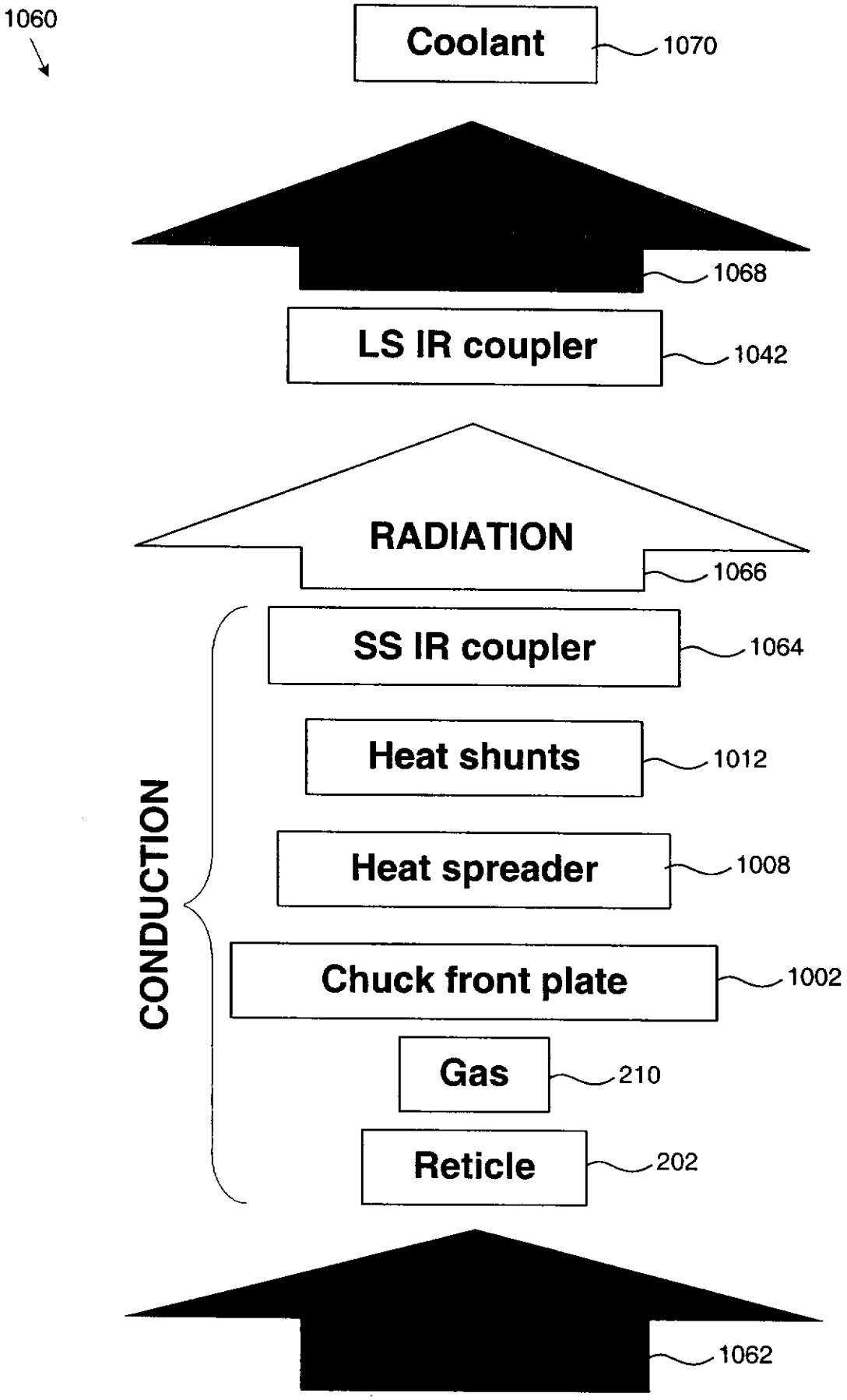

1060
Coolant
1070
1068
LS IR coupler
1042
RADIATION
1066
CONDUCTION
SS IR coupler
1064
Heat shunts
1012
Heat spreader
1008
Chuck front plate
1002
Gas
210
Reticle
202
1062

FIG. 10I

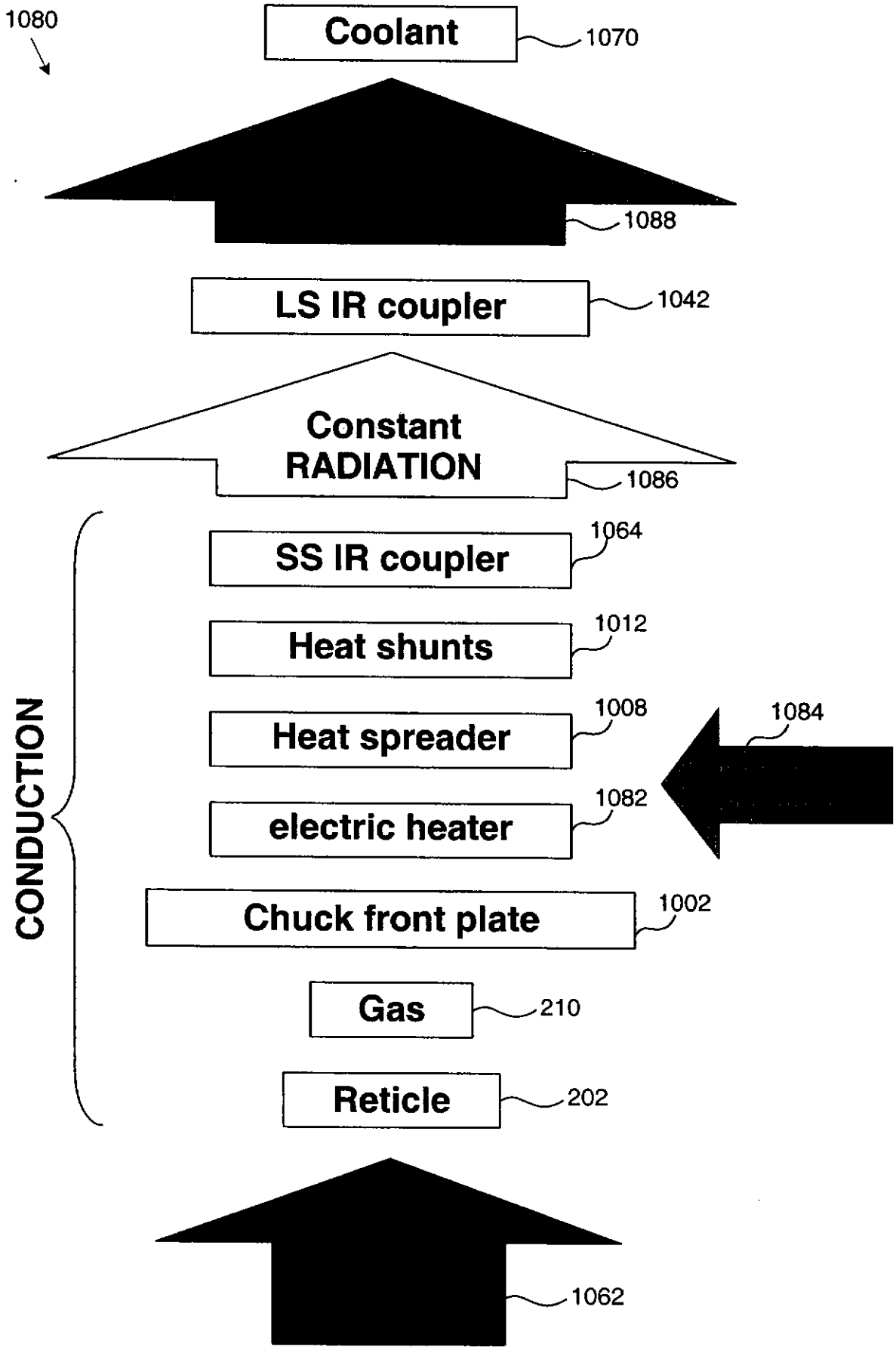

1080
Coolant
1070
1088
LS IR coupler
1042
Constant
RADIATION
1086
CONDUCTION
SS IR coupler
1064
Heat shunts
1012
Heat spreader
1008
1084
electric heater
1082
Chuck front plate
1002
Gas
210
Reticle
202
1062

FIG. 10J

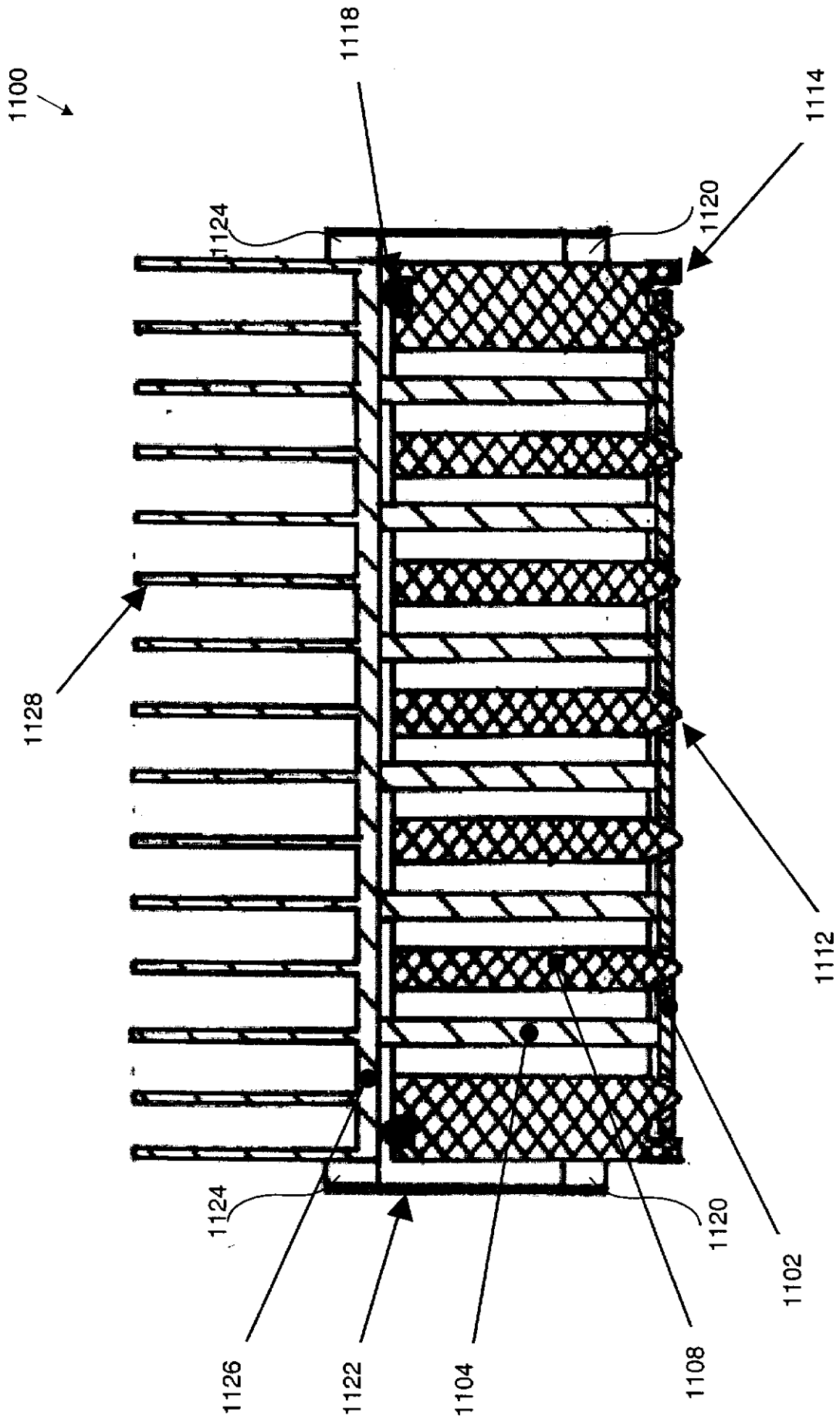

1100
1118
1114
1124
1120
1128
1112
1124
1120
1102
1126
1122
1104
1108

FIG. 11A

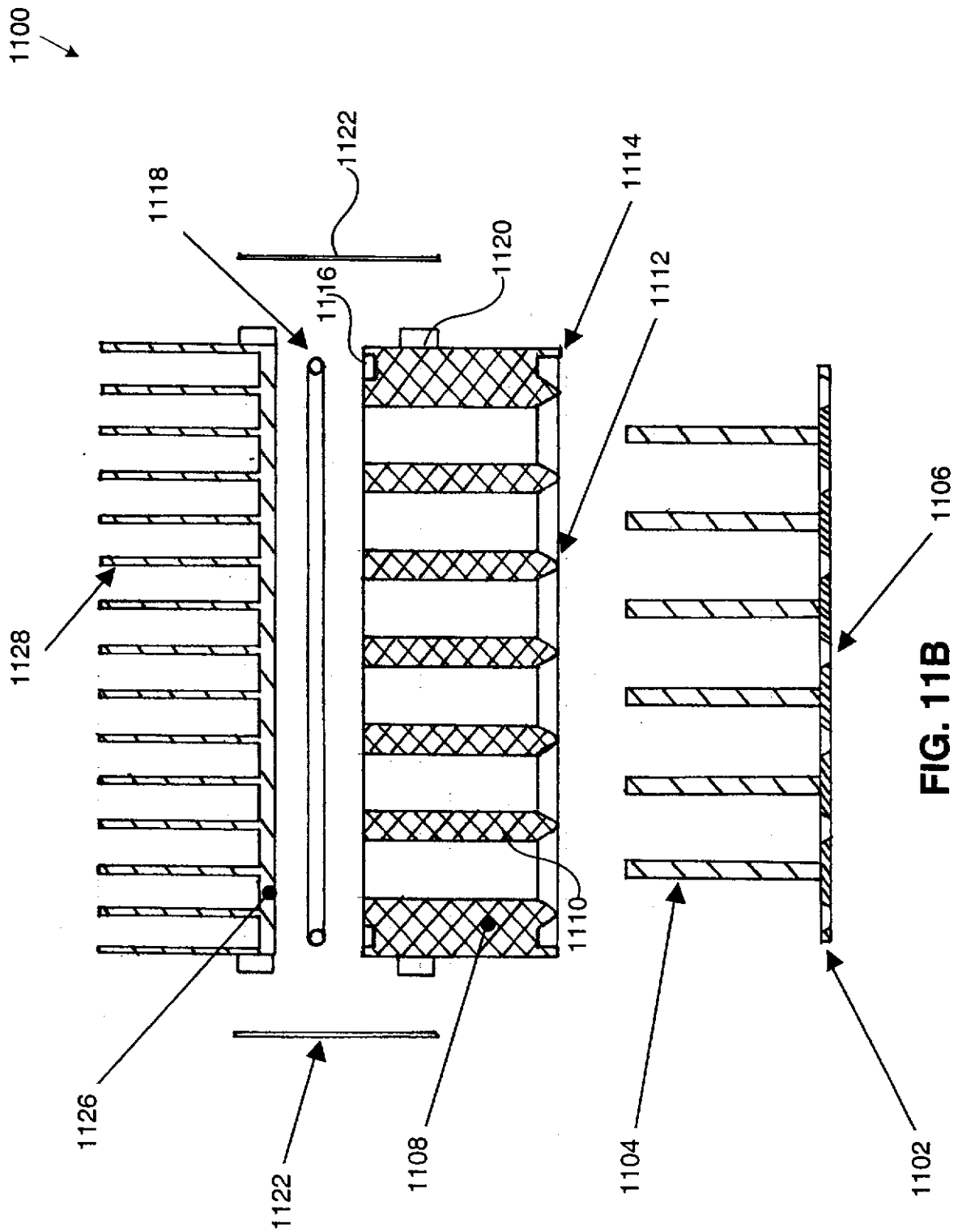

1100
1122
1118
1114
1120
1116
1112
1128
1106
1110
1126
1108
1104
1122
1102

FIG. 11B

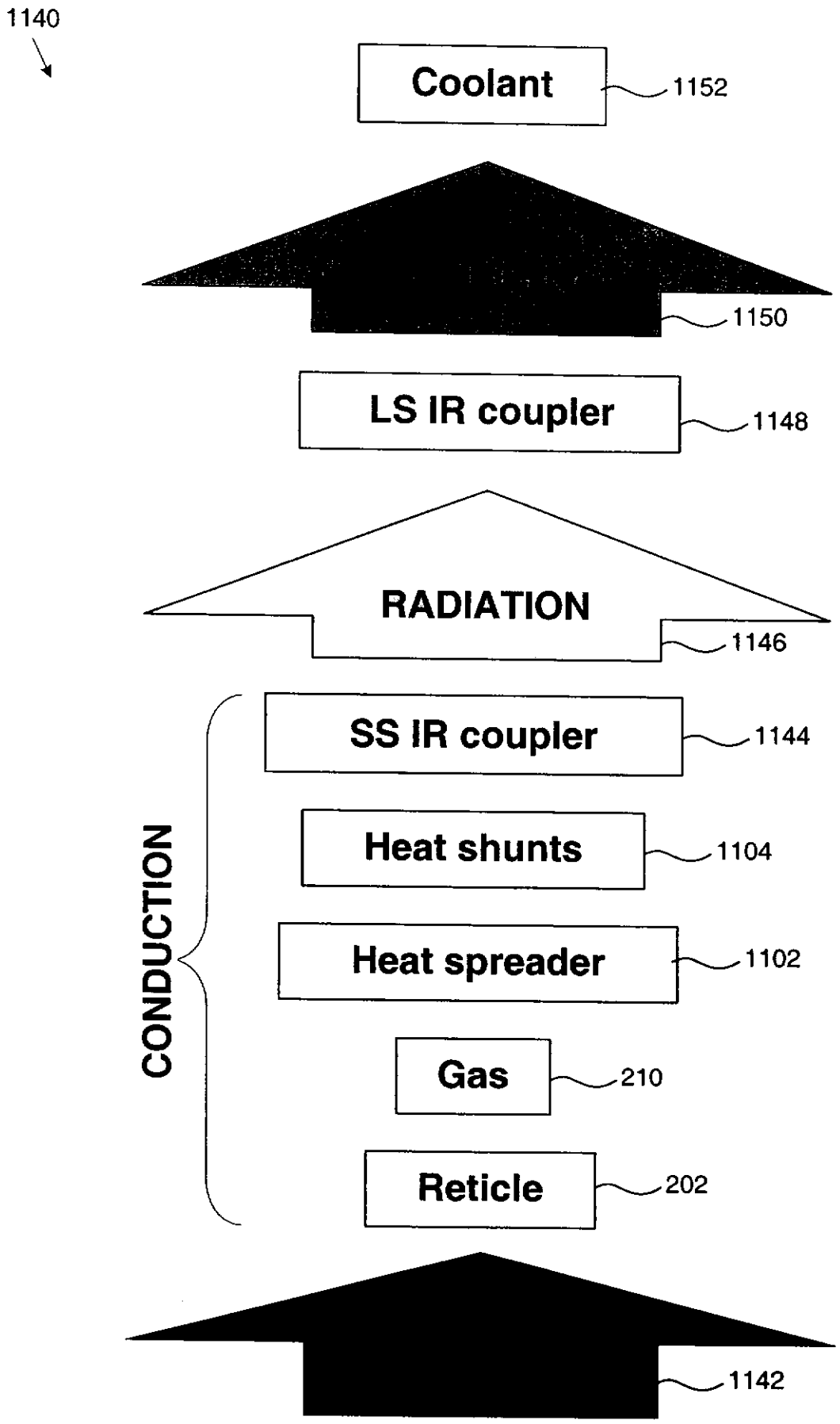

1140
Coolant
1152
1150
LS IR coupler
1148
RADIATION
1146
CONDUCTION
SS IR coupler
1144
Heat shunts
1104
Heat spreader
1102
Gas
210
Reticle
202
1142

FIG. 11C