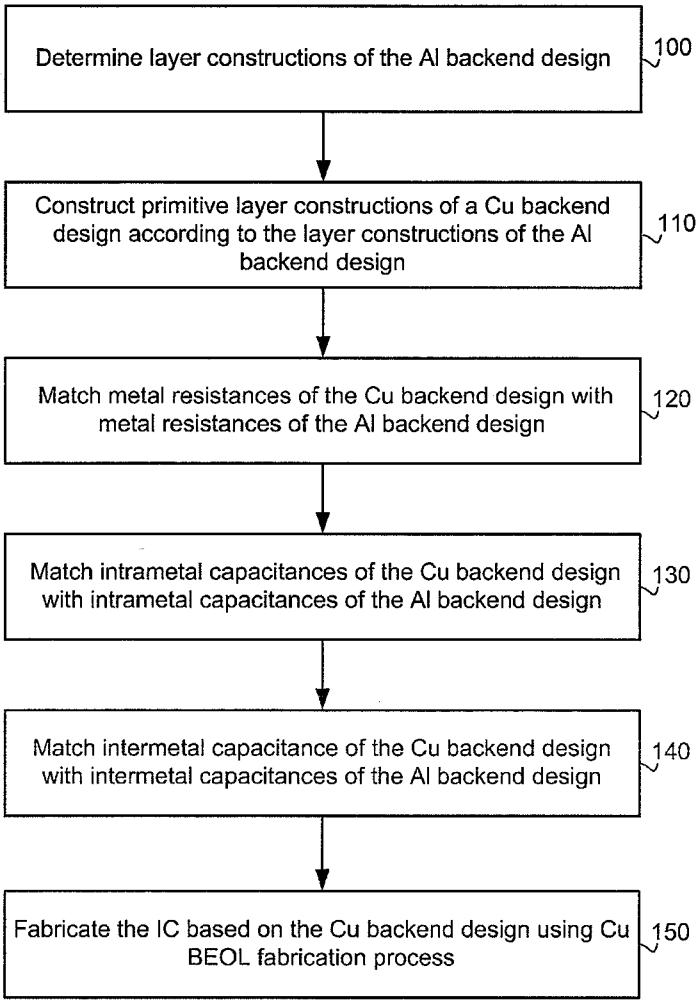

Determine layer constructions of the Al backend design
100
Construct primitive layer constructions of a Cu backend design according to the layer constructions of the Al backend design
110
Match metal resistances of the Cu backend design with metal resistances of the Al backend design
120
Match intrametal capacitances of the Cu backend design with intrametal capacitances of the Al backend design
130
Match intermetal capacitance of the Cu backend design with intermetal capacitances of the Al backend design
140
Fabricate the IC based on the Cu backend design using Cu BEOL fabrication process
150

FIG. 1

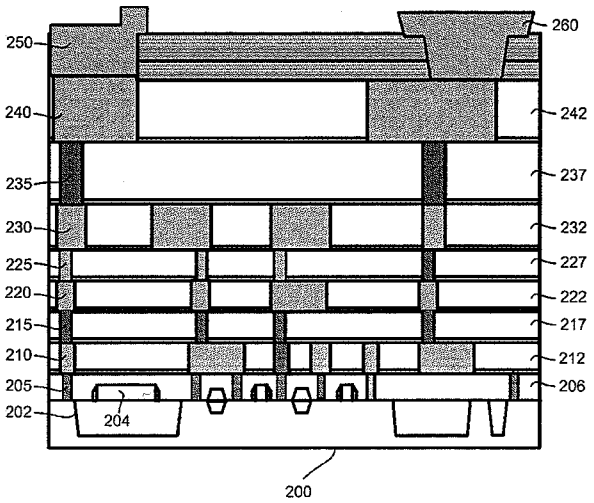

250
260
240
242
235
237
230
232
225
227
220
222
215
217
210
212
205
206
202
204
200

FIG. 2

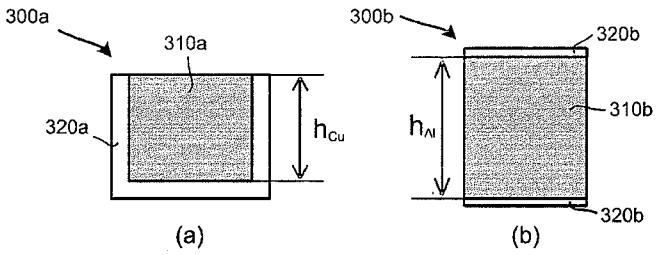

300a
310a
320a
h_{Cu}
(a)
300b
320b
h_{Al}
310b
320b
(b)

FIG. 3

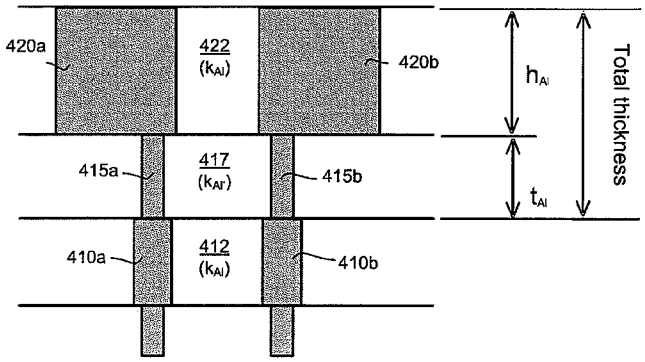

420a
422
(k_{Al})
420b
h_{Al}
Total thickness
415a
417
(k_{Al})
415b
t_{Al}
410a
412
(k_{Al})
410b

FIG. 4

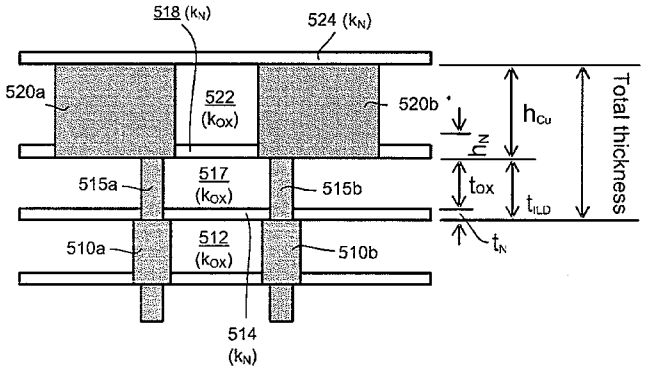

518 (k_N)
524 (k_N)
520a
522
(k_{ox})
520b
h_{Cu}
Total thickness
h_N
515a
517
(k_{ox})
515b
t_{ox}
t_{ILD}
510a
512
(k_{ox})
510b
t_N
514
(k_N)

FIG. 5

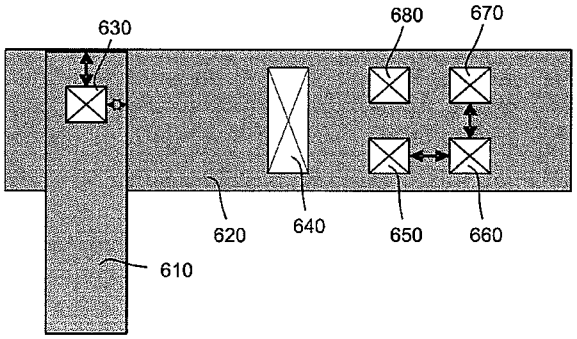


FIG. 6

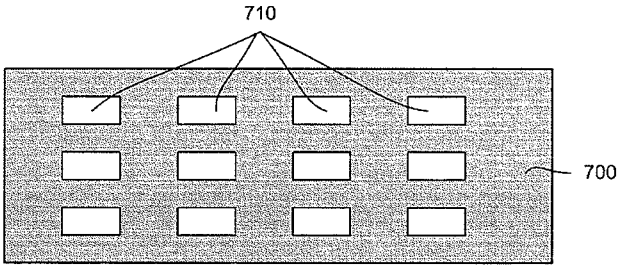


FIG. 7

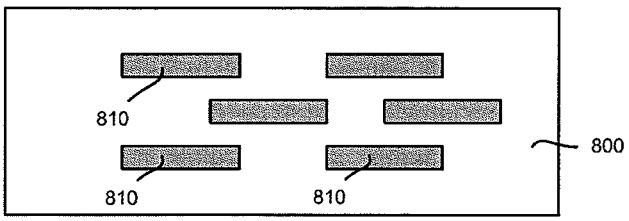

810
810
810
800

FIG. 8

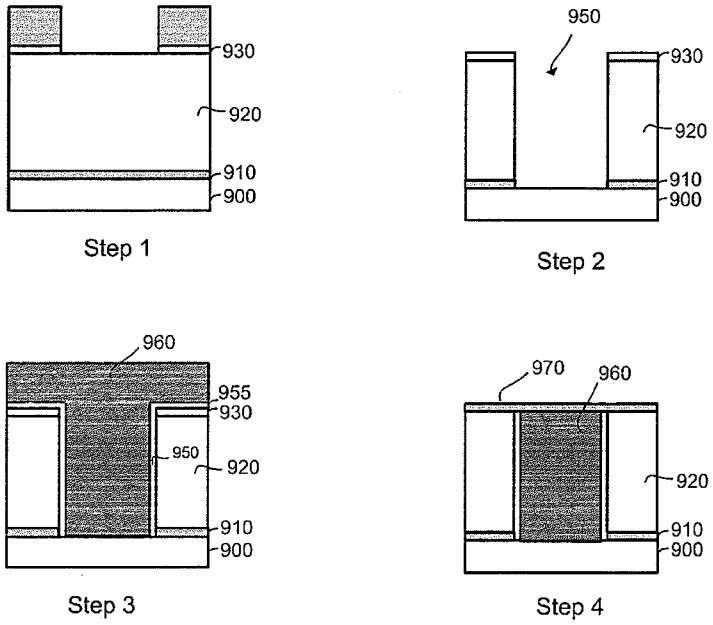

930
920
910
900
Step 1
950
930
920
910
900
Step 2
960
955
930
950
920
910
900
Step 3
970
960
920
910
900
Step 4

FIG. 9

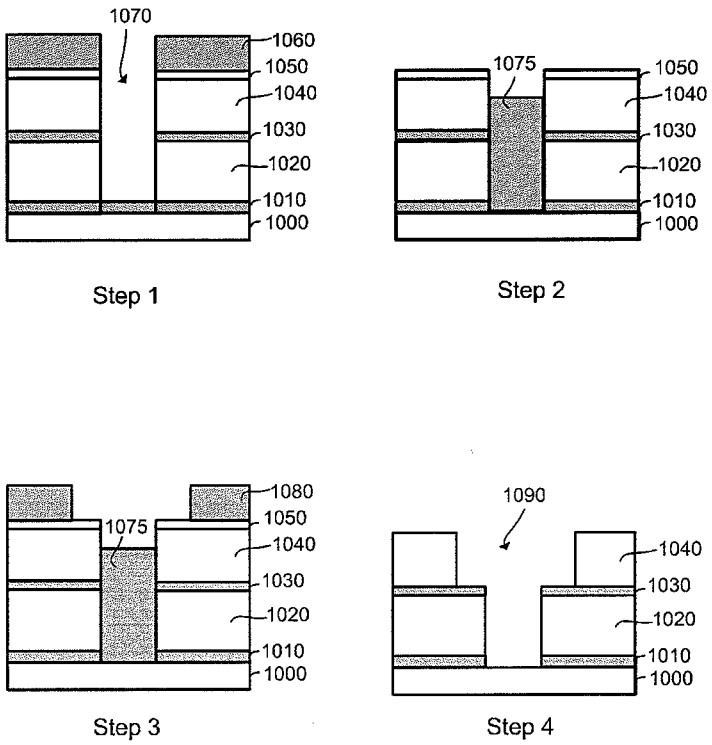

1070
1060
1050
1040
1030
1020
1010
1000
Step 1
1075
1050
1040
1030
1020
1010
1000
Step 2
1080
1075
1050
1040
1030
1020
1010
1000
Step 3
1090
1040
1030
1020
1010
1000
Step 4

FIG. 10

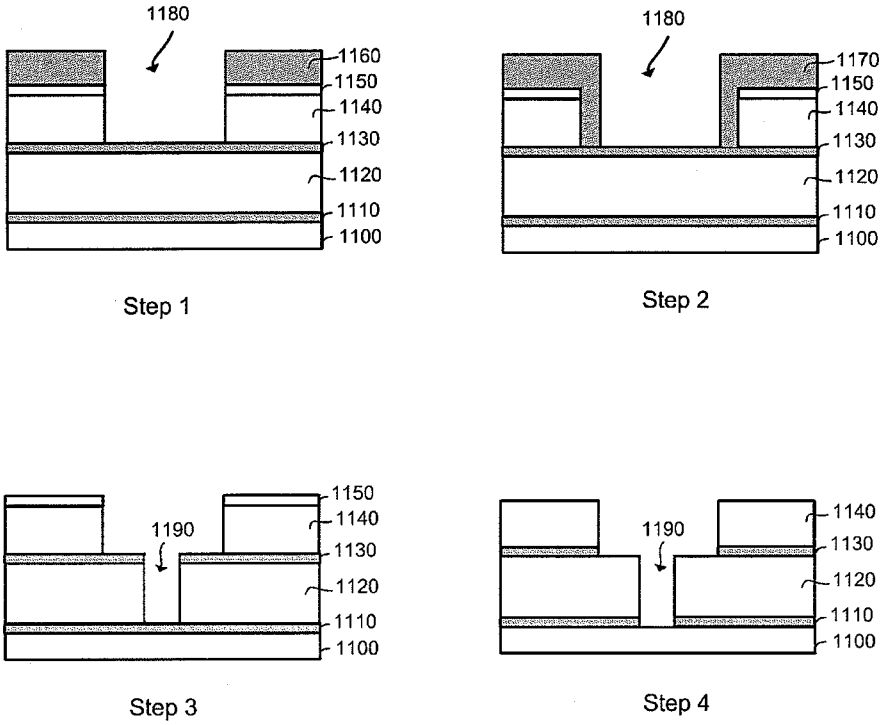

1180
1160
1150
1140
1130
1120
1110
1100
Step 1
1180
1170
1150
1140
1130
1120
1110
1100
Step 2
1150
1190
1140
1130
1120
1110
1100
Step 3
1190
1140
1130
1120
1110
1100
Step 4

FIG. 11

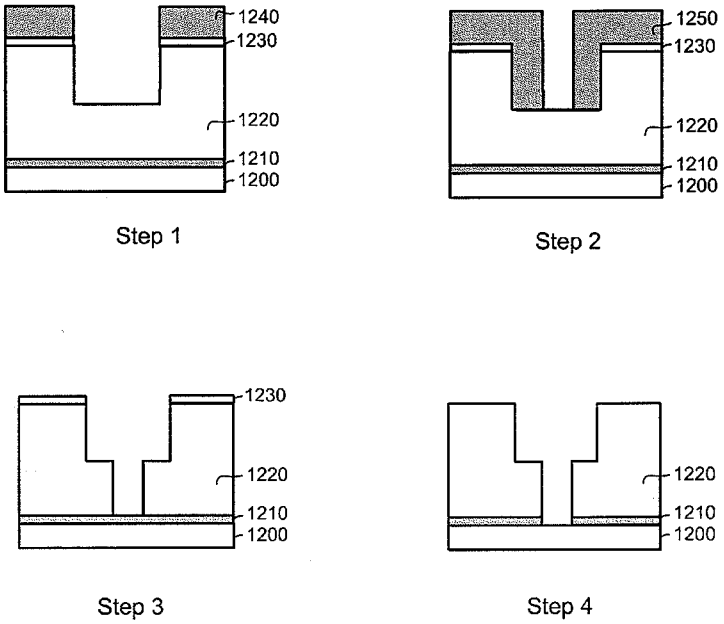

1240
1230
1220
1210
1200
Step 1
1250
1230
1220
1210
1200
Step 2
1230
1220
1210
1200
Step 3
1220
1210
1200
Step 4

FIG. 12