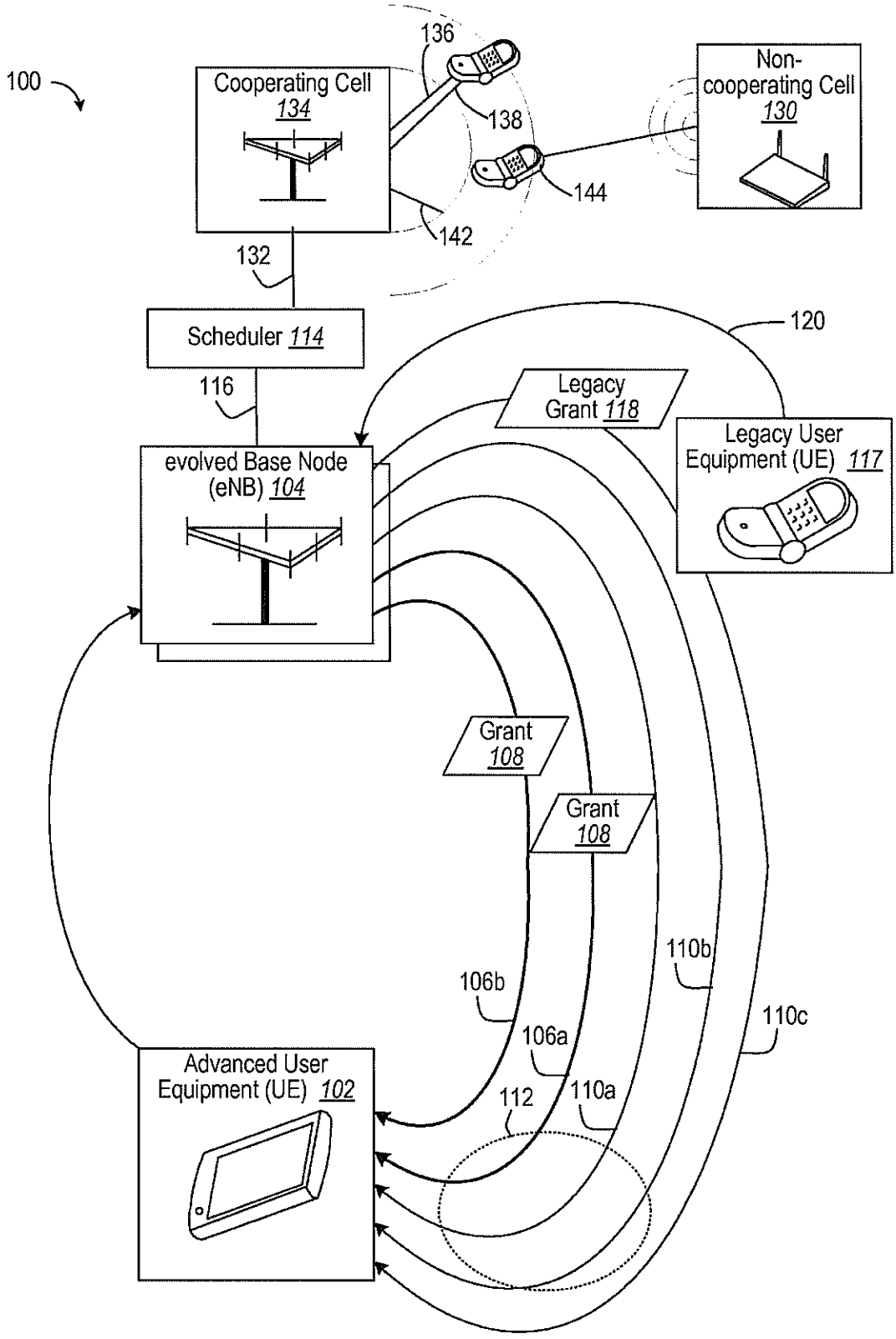

100
Cooperating Cell 134
136
138
144
142
Non-cooperating Cell 130
132
Scheduler 114
116
120
Legacy Grant 118
Legacy User Equipment (UE) 117
evolved Base Node (eNB) 104
Grant 108
Grant 108
110b
106b
110c
106a
Advanced User Equipment (UE) 102
112
110a

FIG. 1

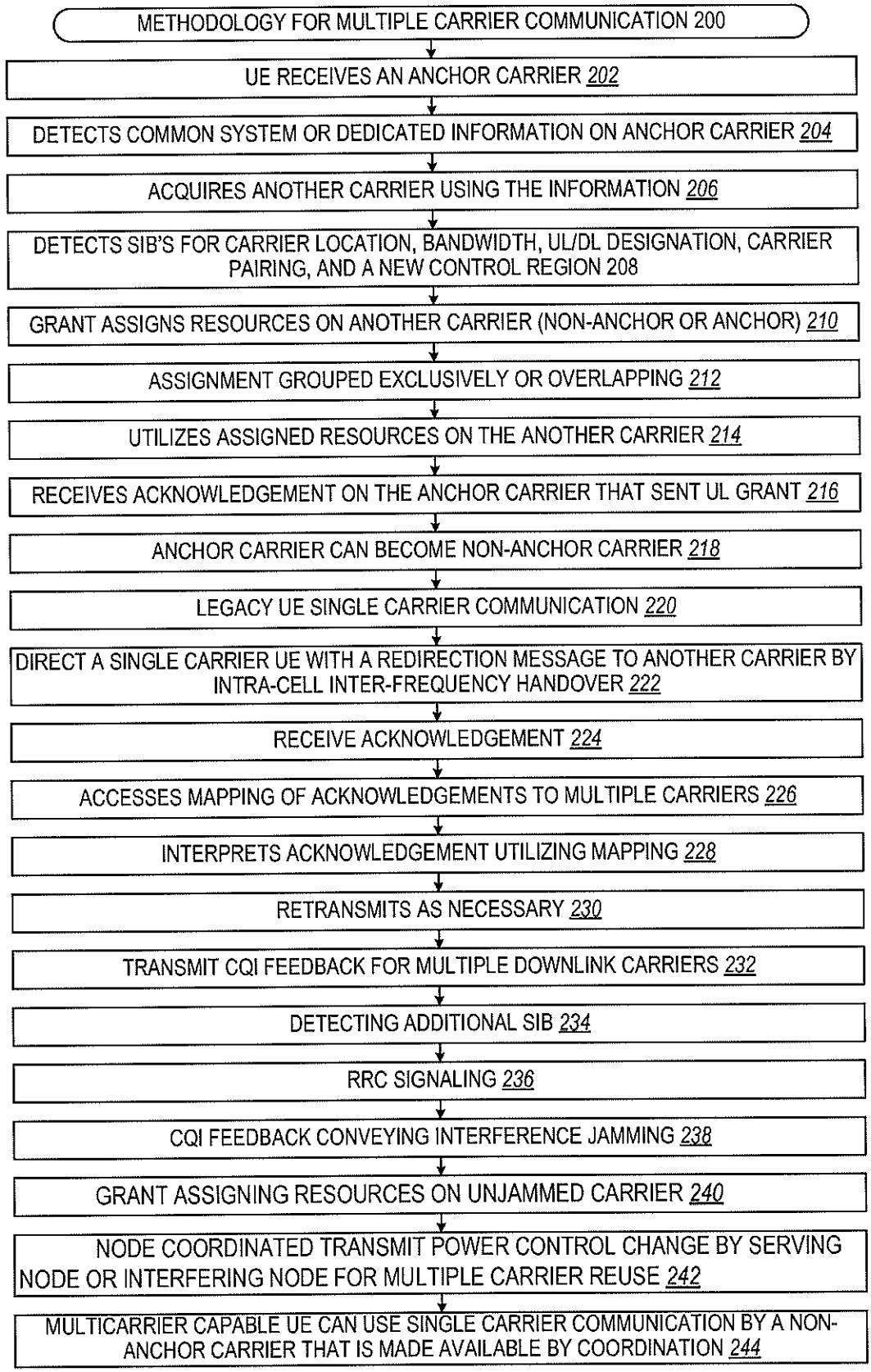

METHODOLOGY FOR MULTIPLE CARRIER COMMUNICATION 200
UE RECEIVES AN ANCHOR CARRIER 202
DETECTS COMMON SYSTEM OR DEDICATED INFORMATION ON ANCHOR CARRIER 204
ACQUIRES ANOTHER CARRIER USING THE INFORMATION 206
DETECTS SIB'S FOR CARRIER LOCATION, BANDWIDTH, UL/DL DESIGNATION, CARRIER PAIRING, AND A NEW CONTROL REGION 208
GRANT ASSIGNS RESOURCES ON ANOTHER CARRIER (NON-ANCHOR OR ANCHOR) 210
ASSIGNMENT GROUPED EXCLUSIVELY OR OVERLAPPING 212
UTILIZES ASSIGNED RESOURCES ON THE ANOTHER CARRIER 214
RECEIVES ACKNOWLEDGEMENT ON THE ANCHOR CARRIER THAT SENT UL GRANT 216
ANCHOR CARRIER CAN BECOME NON-ANCHOR CARRIER 218
LEGACY UE SINGLE CARRIER COMMUNICATION 220
DIRECT A SINGLE CARRIER UE WITH A REDIRECTION MESSAGE TO ANOTHER CARRIER BY INTRA-CELL INTER-FREQUENCY HANDOVER 222
RECEIVE ACKNOWLEDGEMENT 224
ACCESSES MAPPING OF ACKNOWLEDGEMENTS TO MULTIPLE CARRIERS 226
INTERPRETS ACKNOWLEDGEMENT UTILIZING MAPPING 228
RETRANSMITS AS NECESSARY 230
TRANSMIT CQI FEEDBACK FOR MULTIPLE DOWNLINK CARRIERS 232
DETECTING ADDITIONAL SIB 234
RRC SIGNALING 236
CQI FEEDBACK CONVEYING INTERFERENCE JAMMING 238
GRANT ASSIGNING RESOURCES ON UNJAMMED CARRIER 240
NODE COORDINATED TRANSMIT POWER CONTROL CHANGE BY SERVING NODE OR INTERFERING NODE FOR MULTIPLE CARRIER REUSE 242
MULTICARRIER CAPABLE UE CAN USE SINGLE CARRIER COMMUNICATION BY A NON-ANCHOR CARRIER THAT IS MADE AVAILABLE BY COORDINATION 244

FIG. 2

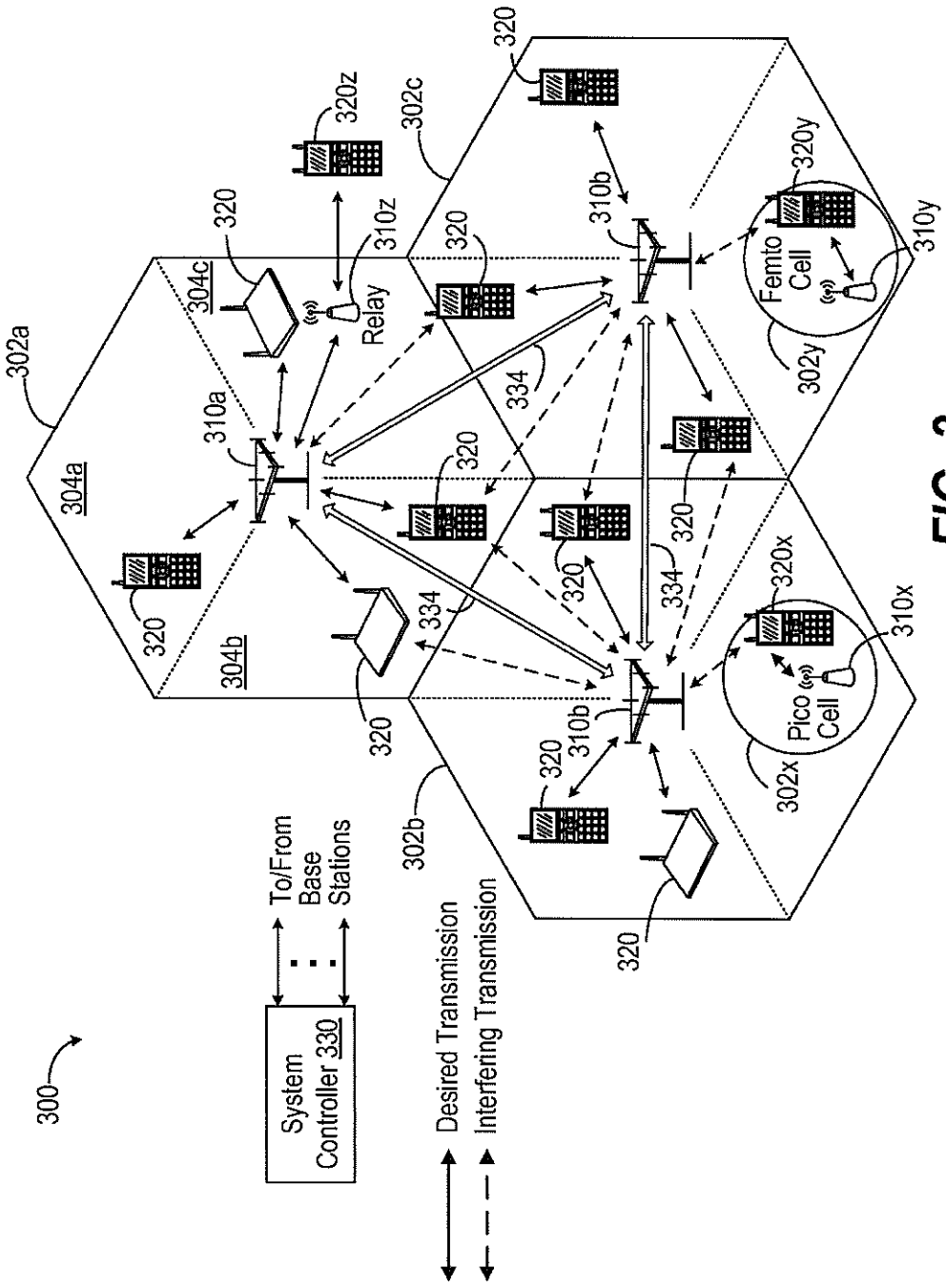

300
System Controller 330
To/From Base Stations
Desired Transmission
Interfering Transmission
302a
302b
302c
302x
302y
304a
304b
304c
310a
310b
310x
310y
310z
320
320x
320y
320z
334
Relay
Femto Cell
Pico Cell

FIG. 3

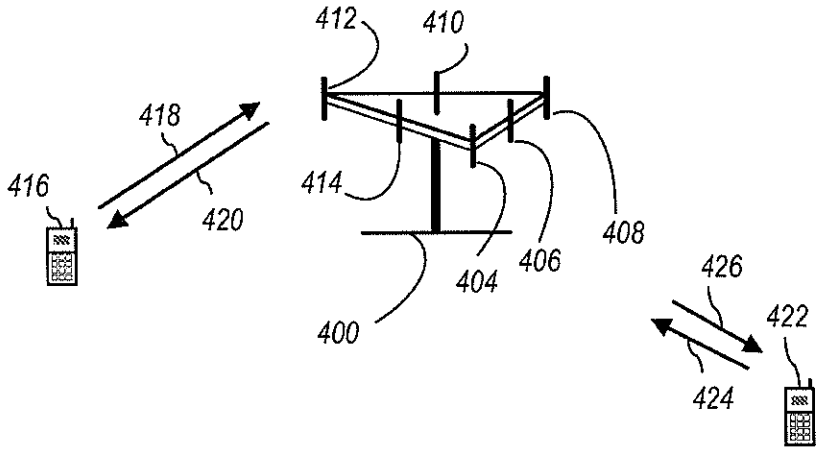



FIG. 4

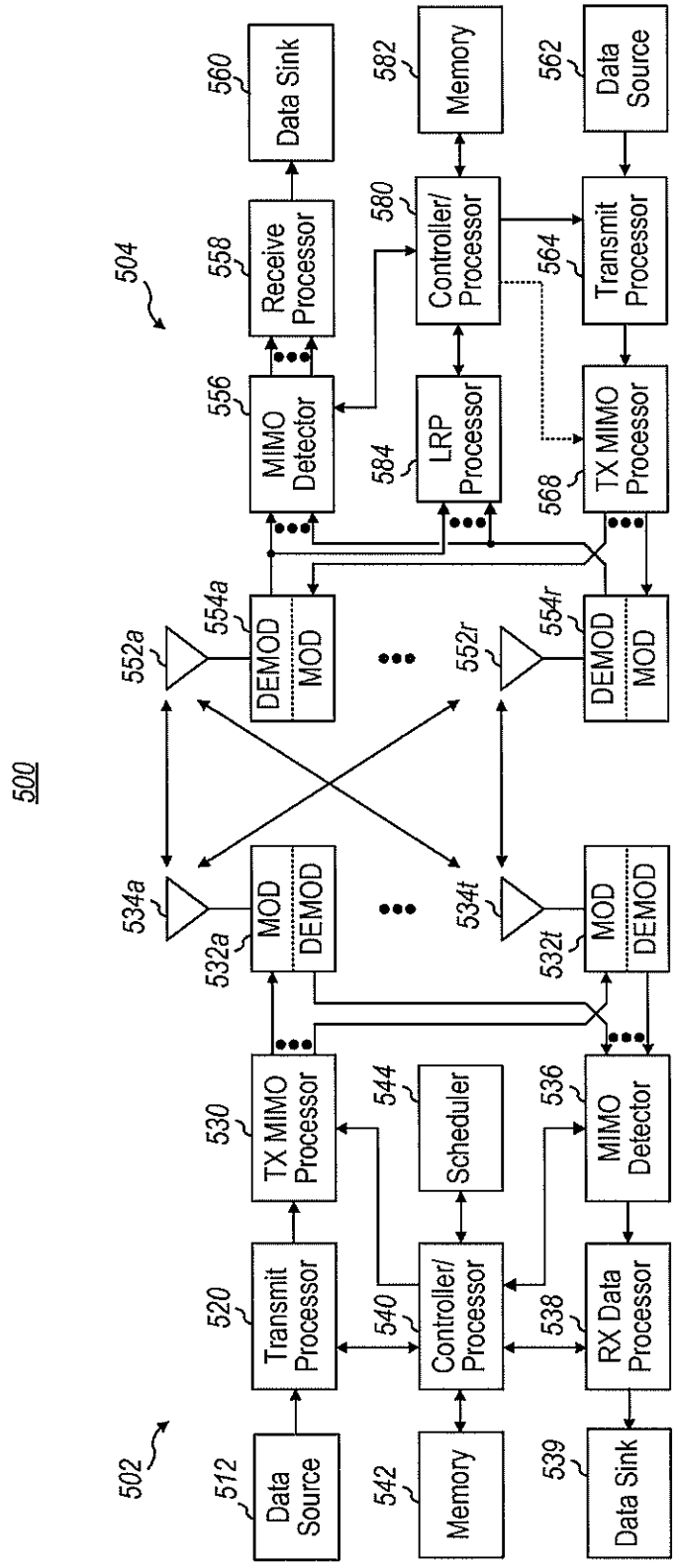

500
502
504
512 Data Source
520 Transmit Processor
530 TX MIMO Processor
532a MOD DEMOD
534a
552a
554a DEMOD MOD
556 MIMO Detector
558 Receive Processor
560 Data Sink
532t MOD DEMOD
534t
552r
554r DEMOD MOD
562 Data Source
564 Transmit Processor
568 TX MIMO Processor
580 Controller/ Processor
582 Memory
584 LRP Processor
536 MIMO Detector
538 RX Data Processor
539 Data Sink
540 Controller/ Processor
542 Memory
544 Scheduler

FIG. 5

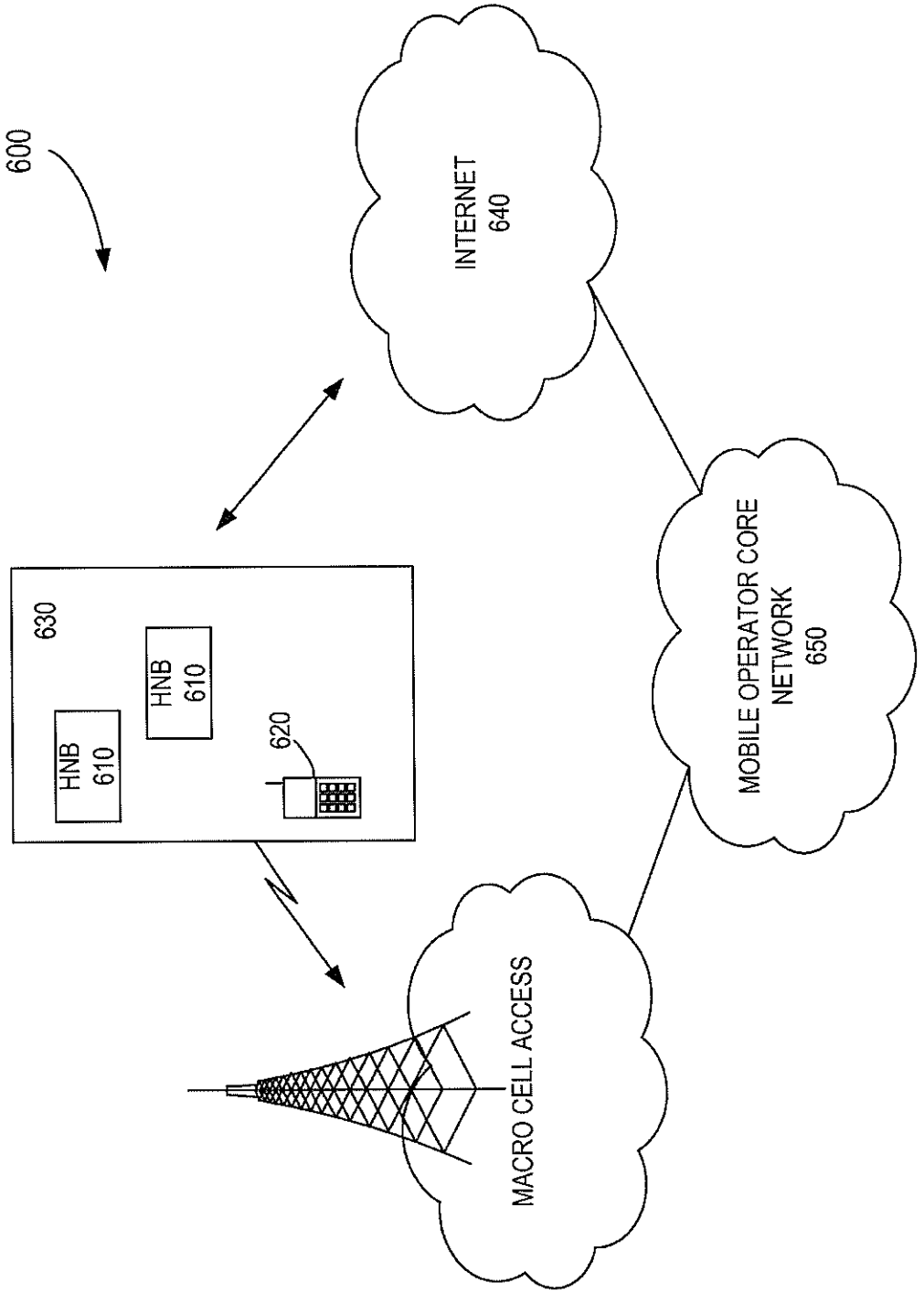

600
INTERNET
640
MOBILE OPERATOR CORE
NETWORK
650
630
HNB
610
HNB
610
620
MACRO CELL ACCESS

FIG. 6

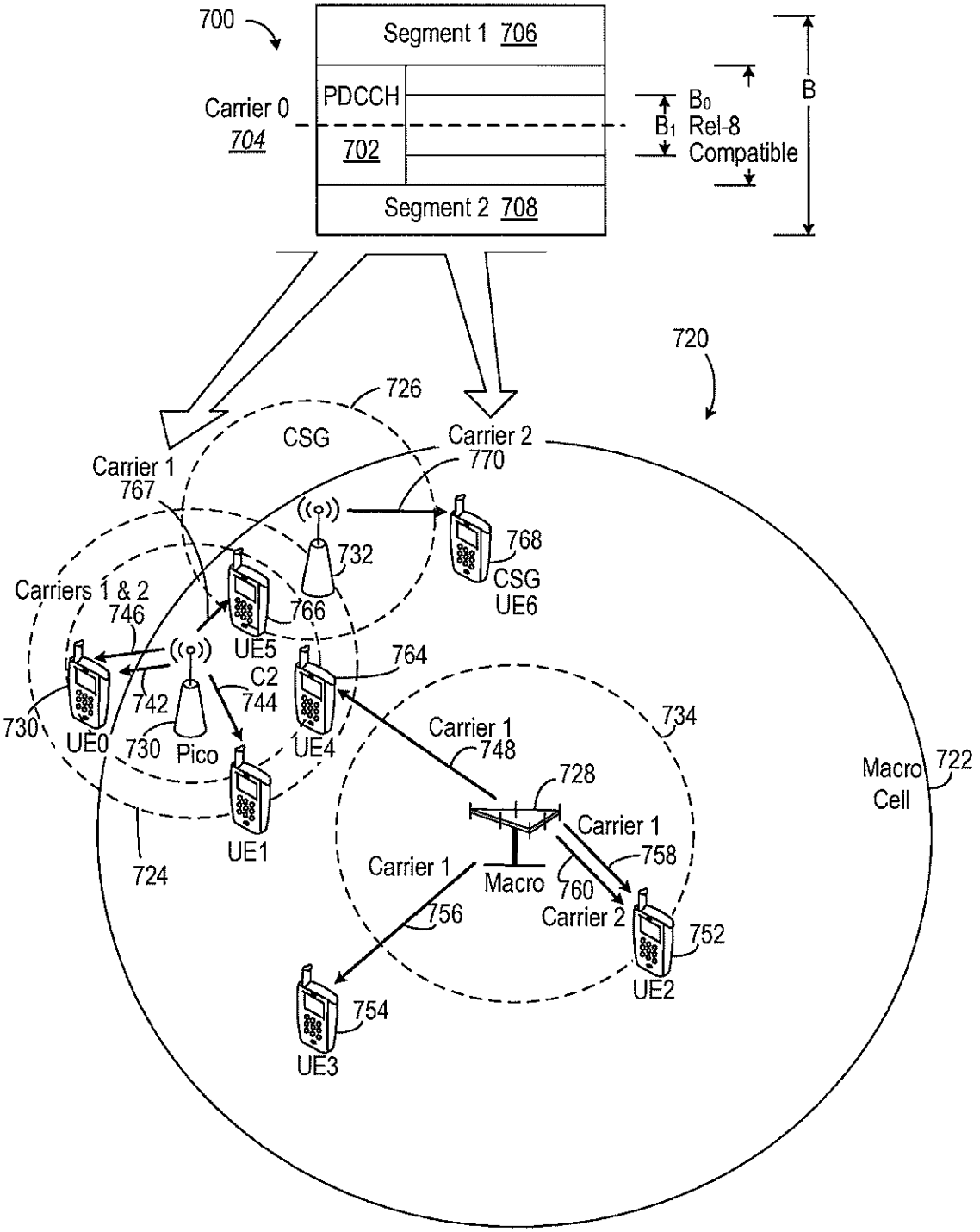

700
Segment 1 706
Carrier 0
704
PDCCH
702
Segment 2 708
B0
B1
Rel-8
Compatible
B
720
726
CSG
Carrier 2
770
Carrier 1
767
732
768
CSG
UE6
Carriers 1 & 2
746
766
UE5
764
C2
744
742
730
UE0
730
Pico
UE4
734
Carrier 1
748
728
Carrier 1
758
Macro
760
Carrier 2
752
UE2
Carrier 1
756
754
UE3
UE1
724
Macro
Cell
722

FIG. 7

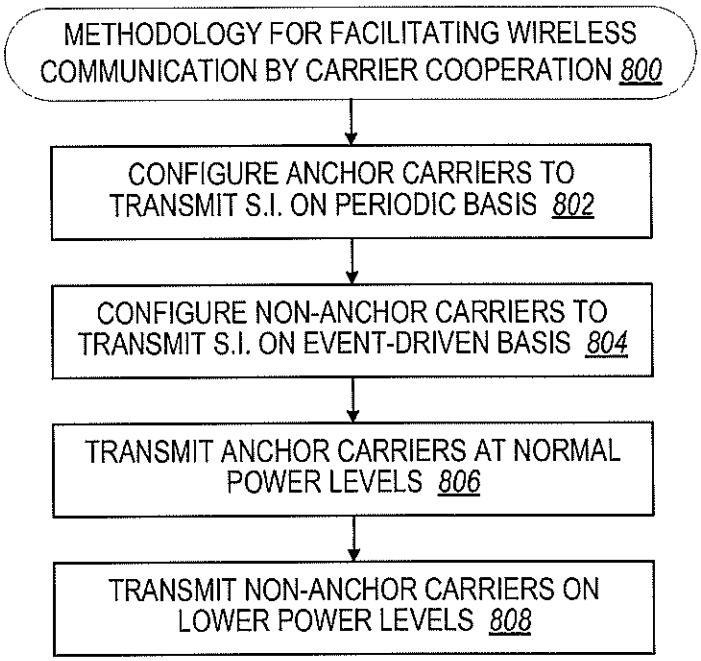

METHODOLOGY FOR FACILITATING WIRELESS COMMUNICATION BY CARRIER COOPERATION 800
CONFIGURE ANCHOR CARRIERS TO TRANSMIT S.I. ON PERIODIC BASIS 802
CONFIGURE NON-ANCHOR CARRIERS TO TRANSMIT S.I. ON EVENT-DRIVEN BASIS 804
TRANSMIT ANCHOR CARRIERS AT NORMAL POWER LEVELS 806
TRANSMIT NON-ANCHOR CARRIERS ON LOWER POWER LEVELS 808

*FIG. 8*

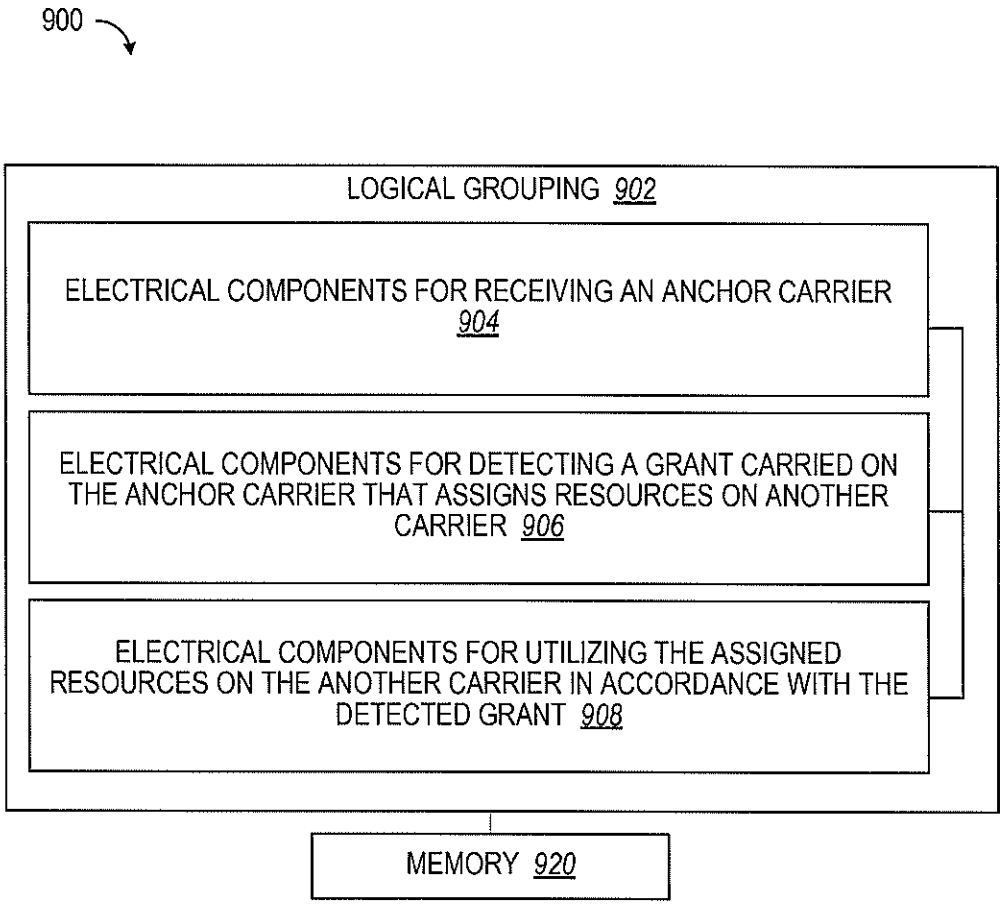

900
LOGICAL GROUPING 902
ELECTRICAL COMPONENTS FOR RECEIVING AN ANCHOR CARRIER 904
ELECTRICAL COMPONENTS FOR DETECTING A GRANT CARRIED ON THE ANCHOR CARRIER THAT ASSIGNS RESOURCES ON ANOTHER CARRIER 906
ELECTRICAL COMPONENTS FOR UTILIZING THE ASSIGNED RESOURCES ON THE ANOTHER CARRIER IN ACCORDANCE WITH THE DETECTED GRANT 908
MEMORY 920

FIG. 9

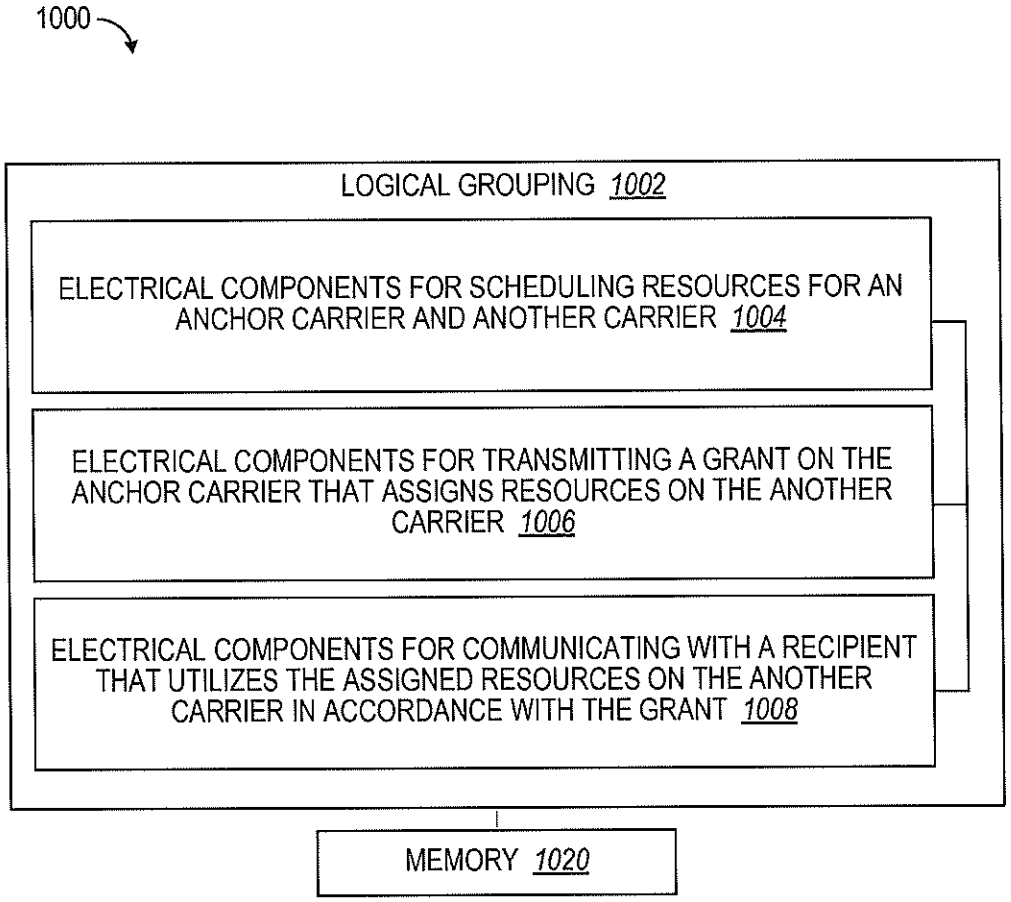

1000
LOGICAL GROUPING 1002
ELECTRICAL COMPONENTS FOR SCHEDULING RESOURCES FOR AN ANCHOR CARRIER AND ANOTHER CARRIER 1004
ELECTRICAL COMPONENTS FOR TRANSMITTING A GRANT ON THE ANCHOR CARRIER THAT ASSIGNS RESOURCES ON THE ANOTHER CARRIER 1006
ELECTRICAL COMPONENTS FOR COMMUNICATING WITH A RECIPIENT THAT UTILIZES THE ASSIGNED RESOURCES ON THE ANOTHER CARRIER IN ACCORDANCE WITH THE GRANT 1008
MEMORY 1020

FIG. 10

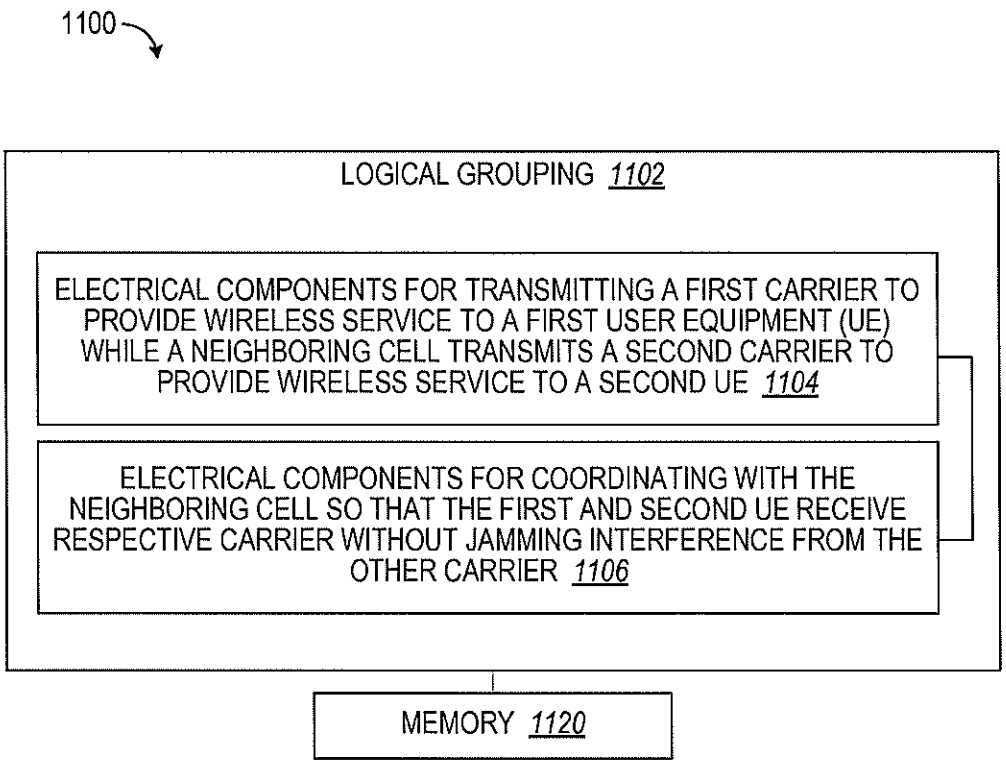

1100
LOGICAL GROUPING 1102
ELECTRICAL COMPONENTS FOR TRANSMITTING A FIRST CARRIER TO PROVIDE WIRELESS SERVICE TO A FIRST USER EQUIPMENT (UE) WHILE A NEIGHBORING CELL TRANSMITS A SECOND CARRIER TO PROVIDE WIRELESS SERVICE TO A SECOND UE 1104
ELECTRICAL COMPONENTS FOR COORDINATING WITH THE NEIGHBORING CELL SO THAT THE FIRST AND SECOND UE RECEIVE RESPECTIVE CARRIER WITHOUT JAMMING INTERFERENCE FROM THE OTHER CARRIER 1106
MEMORY 1120

FIG. 11

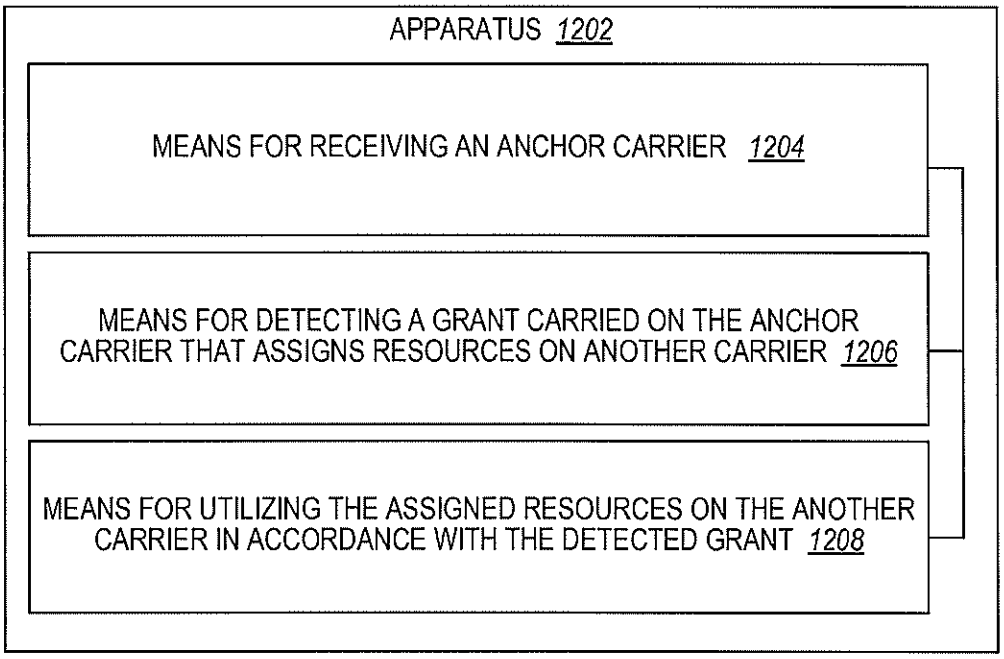

APPARATUS 1202
MEANS FOR RECEIVING AN ANCHOR CARRIER 1204
MEANS FOR DETECTING A GRANT CARRIED ON THE ANCHOR CARRIER THAT ASSIGNS RESOURCES ON ANOTHER CARRIER 1206
MEANS FOR UTILIZING THE ASSIGNED RESOURCES ON THE ANOTHER CARRIER IN ACCORDANCE WITH THE DETECTED GRANT 1208

*FIG. 12*

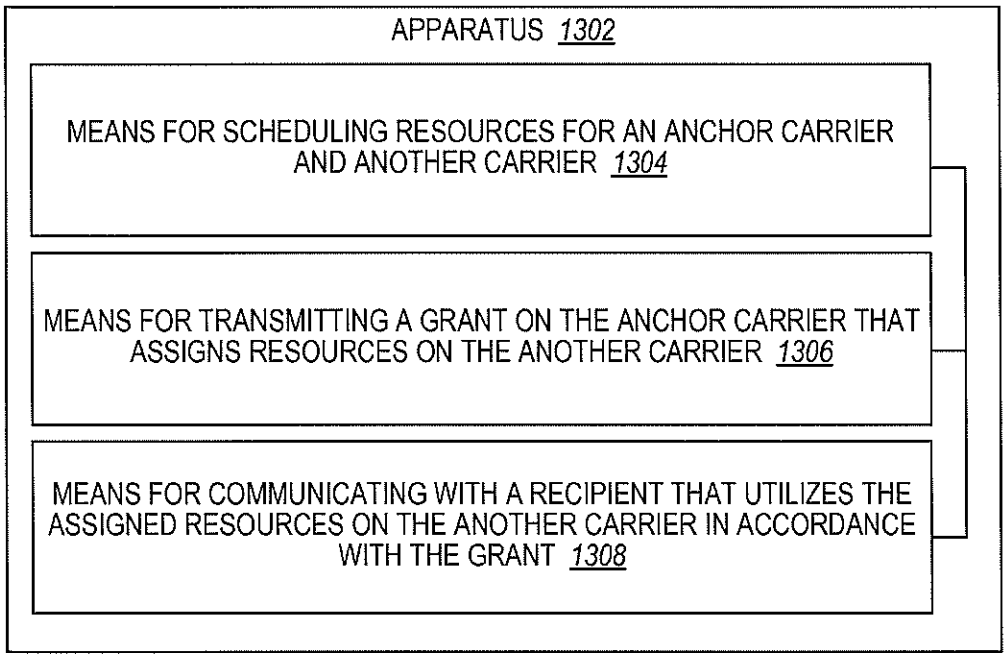

APPARATUS 1302
MEANS FOR SCHEDULING RESOURCES FOR AN ANCHOR CARRIER AND ANOTHER CARRIER 1304
MEANS FOR TRANSMITTING A GRANT ON THE ANCHOR CARRIER THAT ASSIGNS RESOURCES ON THE ANOTHER CARRIER 1306
MEANS FOR COMMUNICATING WITH A RECIPIENT THAT UTILIZES THE ASSIGNED RESOURCES ON THE ANOTHER CARRIER IN ACCORDANCE WITH THE GRANT 1308

*FIG. 13*

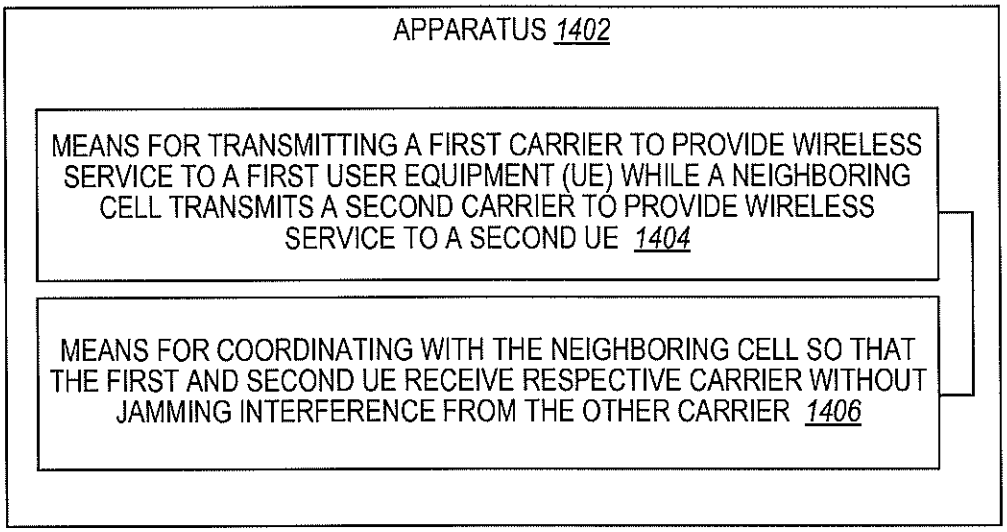

APPARATUS 1402
MEANS FOR TRANSMITTING A FIRST CARRIER TO PROVIDE WIRELESS SERVICE TO A FIRST USER EQUIPMENT (UE) WHILE A NEIGHBORING CELL TRANSMITS A SECOND CARRIER TO PROVIDE WIRELESS SERVICE TO A SECOND UE 1404
MEANS FOR COORDINATING WITH THE NEIGHBORING CELL SO THAT THE FIRST AND SECOND UE RECEIVE RESPECTIVE CARRIER WITHOUT JAMMING INTERFERENCE FROM THE OTHER CARRIER 1406

FIG. 14