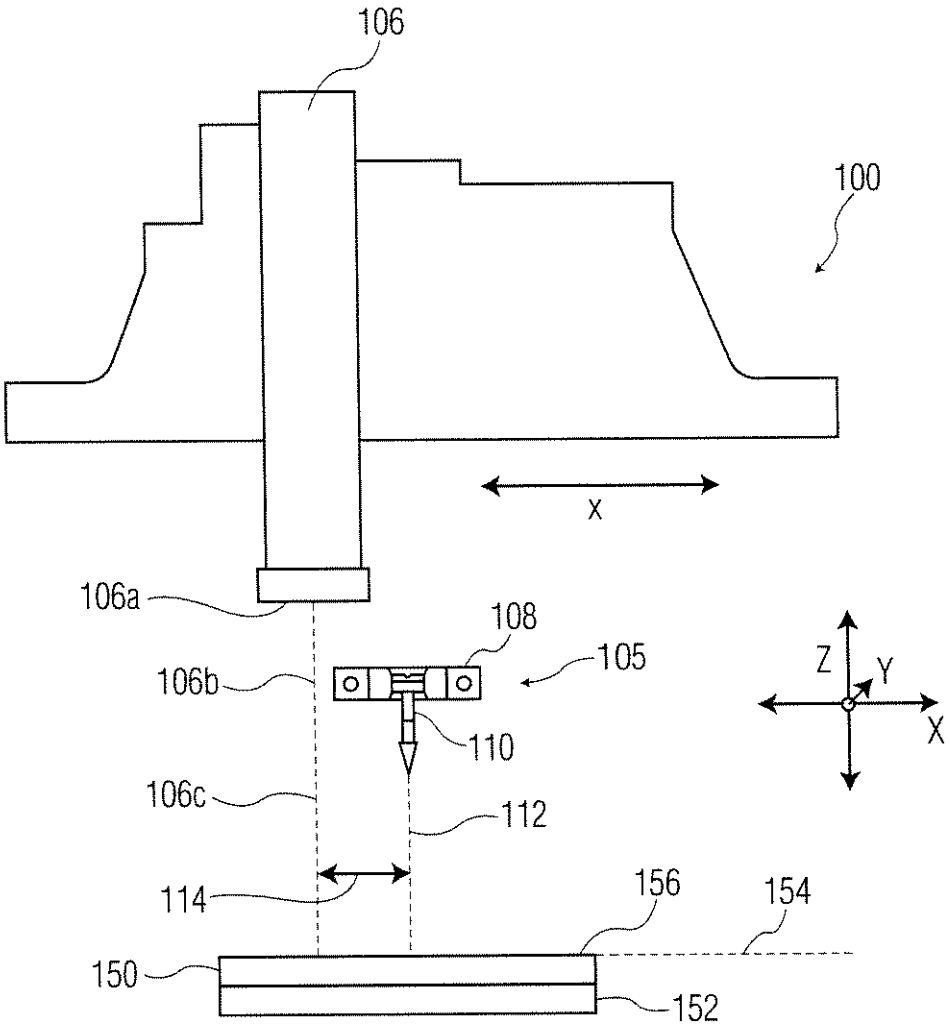


FIG. 1
PRIOR ART

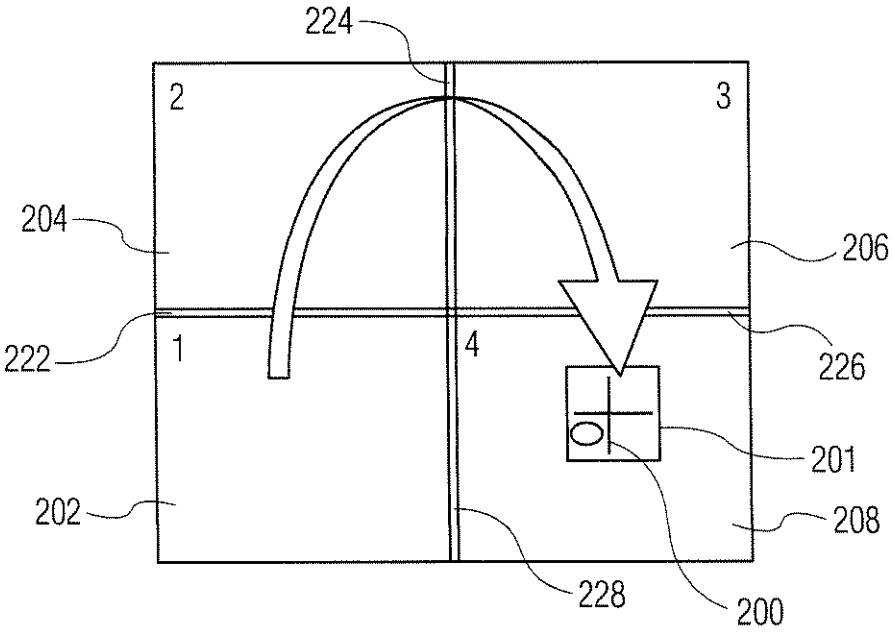


FIG. 2
PRIOR ART

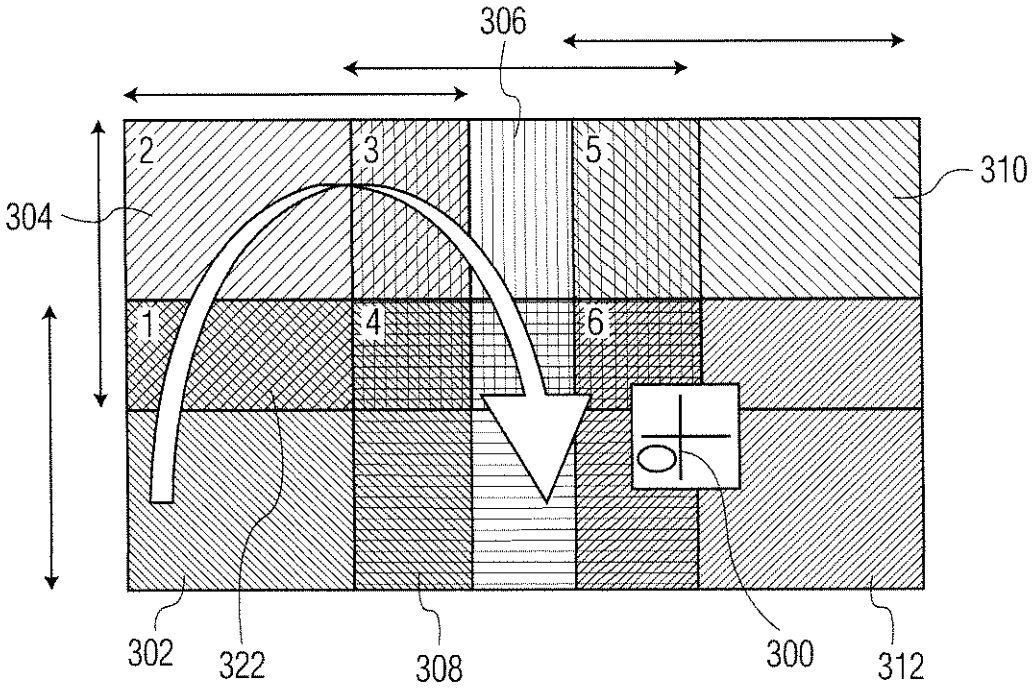


FIG. 3
PRIOR ART

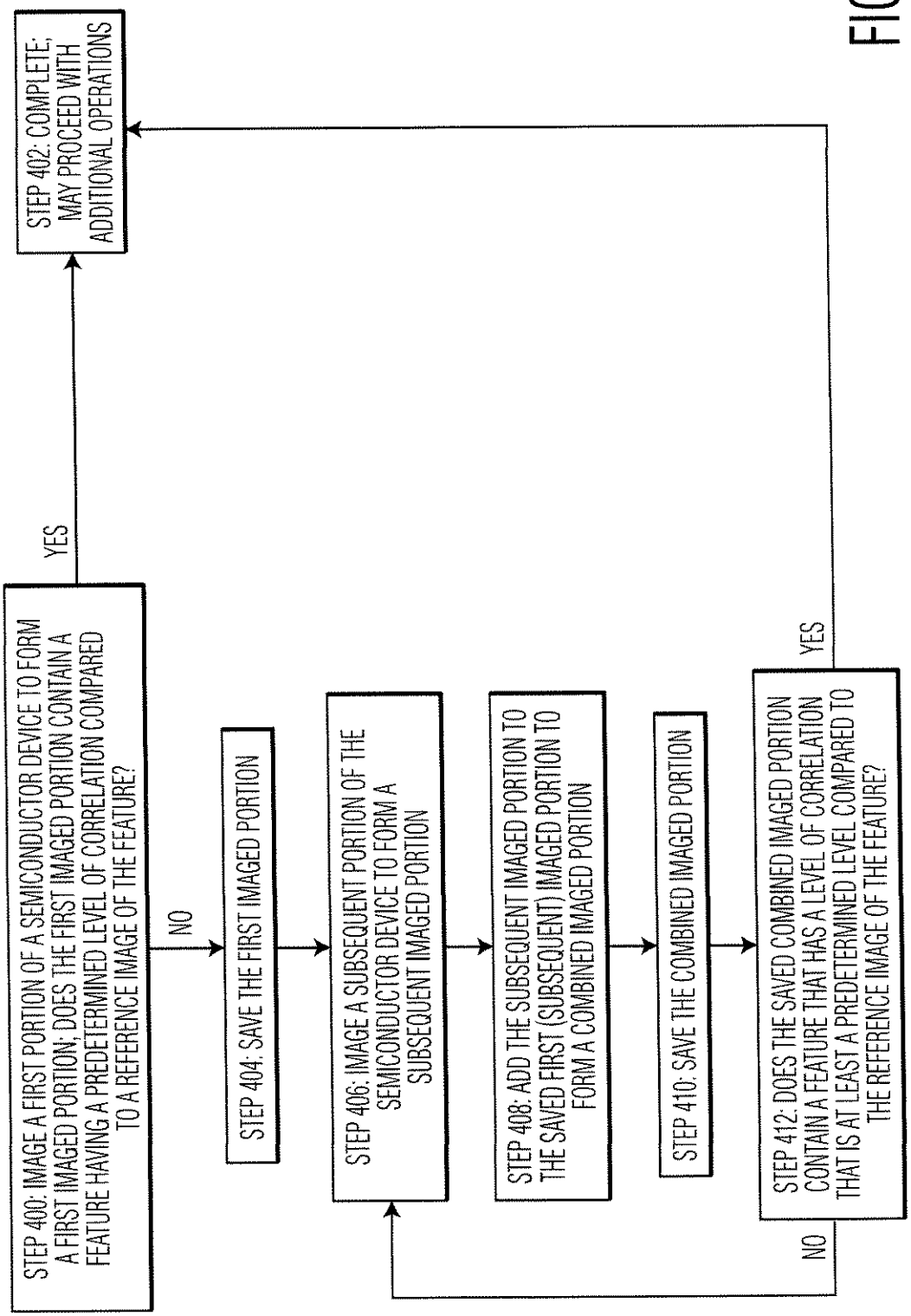

STEP 400: IMAGE A FIRST PORTION OF A SEMICONDUCTOR DEVICE TO FORM A FIRST IMAGED PORTION; DOES THE FIRST IMAGED PORTION CONTAIN A FEATURE HAVING A PREDETERMINED LEVEL OF CORRELATION COMPARED TO A REFERENCE IMAGE OF THE FEATURE?
YES
STEP 402: COMPLETE; MAY PROCEED WITH ADDITIONAL OPERATIONS
NO
STEP 404: SAVE THE FIRST IMAGED PORTION
STEP 406: IMAGE A SUBSEQUENT PORTION OF THE SEMICONDUCTOR DEVICE TO FORM A SUBSEQUENT IMAGED PORTION
STEP 408: ADD THE SUBSEQUENT IMAGED PORTION TO THE SAVED FIRST (SUBSEQUENT) IMAGED PORTION TO FORM A COMBINED IMAGED PORTION
STEP 410: SAVE THE COMBINED IMAGED PORTION
STEP 412: DOES THE SAVED COMBINED IMAGED PORTION CONTAIN A FEATURE THAT HAS A LEVEL OF CORRELATION THAT IS AT LEAST A PREDETERMINED LEVEL COMPARED TO THE REFERENCE IMAGE OF THE FEATURE?
YES
NO

FIG. 4

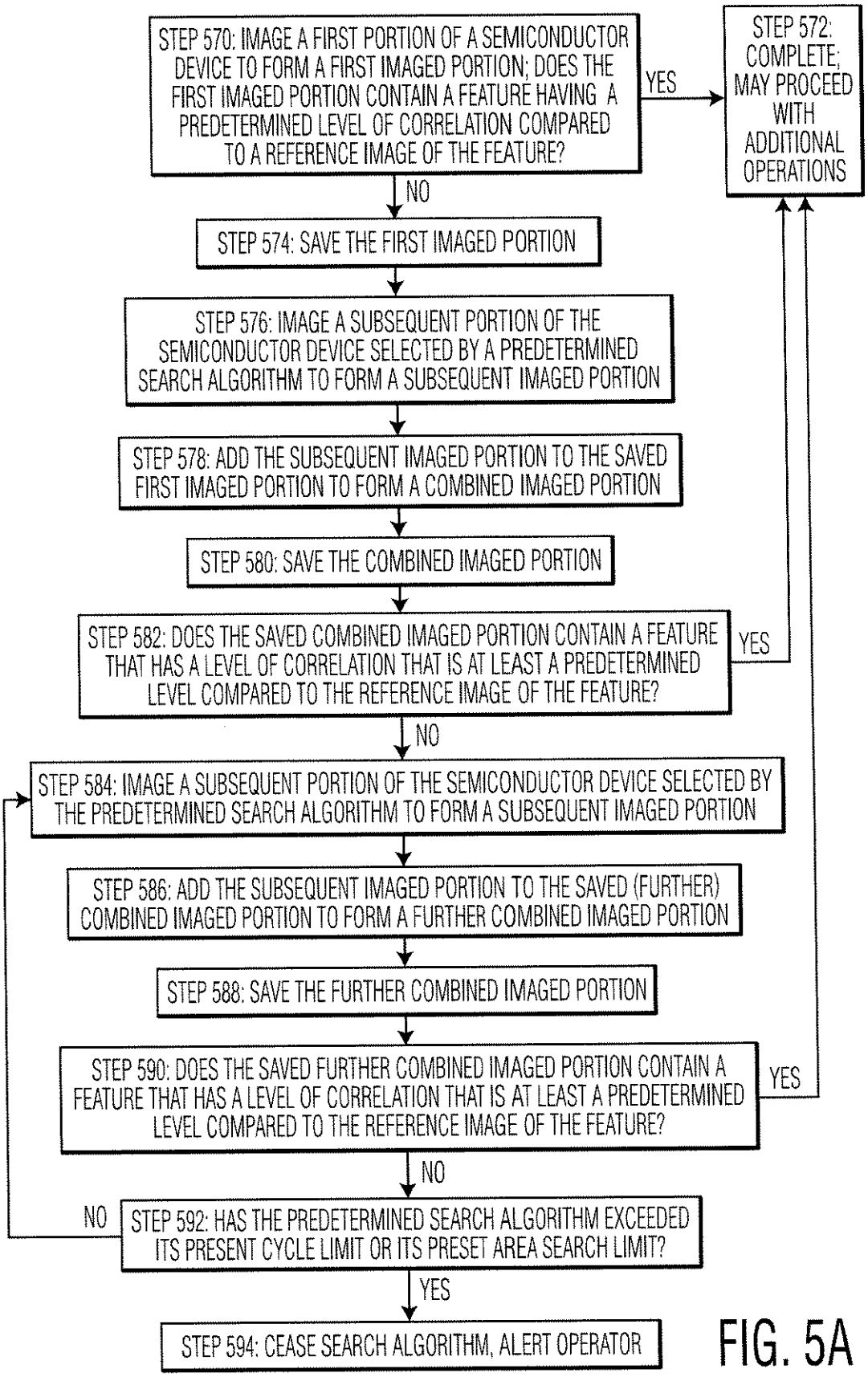

STEP 570: IMAGE A FIRST PORTION OF A SEMICONDUCTOR DEVICE TO FORM A FIRST IMAGED PORTION; DOES THE FIRST IMAGED PORTION CONTAIN A FEATURE HAVING A PREDETERMINED LEVEL OF CORRELATION COMPARED TO A REFERENCE IMAGE OF THE FEATURE?
YES
STEP 572: COMPLETE; MAY PROCEED WITH ADDITIONAL OPERATIONS
NO
STEP 574: SAVE THE FIRST IMAGED PORTION
STEP 576: IMAGE A SUBSEQUENT PORTION OF THE SEMICONDUCTOR DEVICE SELECTED BY A PREDETERMINED SEARCH ALGORITHM TO FORM A SUBSEQUENT IMAGED PORTION
STEP 578: ADD THE SUBSEQUENT IMAGED PORTION TO THE SAVED FIRST IMAGED PORTION TO FORM A COMBINED IMAGED PORTION
STEP 580: SAVE THE COMBINED IMAGED PORTION
STEP 582: DOES THE SAVED COMBINED IMAGED PORTION CONTAIN A FEATURE THAT HAS A LEVEL OF CORRELATION THAT IS AT LEAST A PREDETERMINED LEVEL COMPARED TO THE REFERENCE IMAGE OF THE FEATURE?
YES
NO
STEP 584: IMAGE A SUBSEQUENT PORTION OF THE SEMICONDUCTOR DEVICE SELECTED BY THE PREDETERMINED SEARCH ALGORITHM TO FORM A SUBSEQUENT IMAGED PORTION
STEP 586: ADD THE SUBSEQUENT IMAGED PORTION TO THE SAVED (FURTHER) COMBINED IMAGED PORTION TO FORM A FURTHER COMBINED IMAGED PORTION
STEP 588: SAVE THE FURTHER COMBINED IMAGED PORTION
STEP 590: DOES THE SAVED FURTHER COMBINED IMAGED PORTION CONTAIN A FEATURE THAT HAS A LEVEL OF CORRELATION THAT IS AT LEAST A PREDETERMINED LEVEL COMPARED TO THE REFERENCE IMAGE OF THE FEATURE?
YES
NO
NO
STEP 592: HAS THE PREDETERMINED SEARCH ALGORITHM EXCEEDED ITS PRESENT CYCLE LIMIT OR ITS PRESET AREA SEARCH LIMIT?
YES
STEP 594: CEASE SEARCH ALGORITHM, ALERT OPERATOR

FIG. 5A

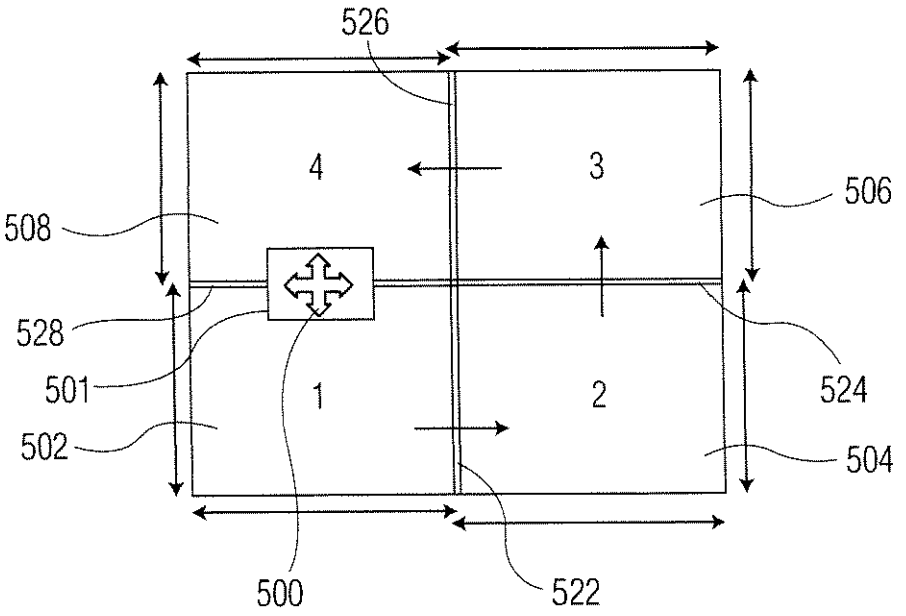

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FIG. 5B

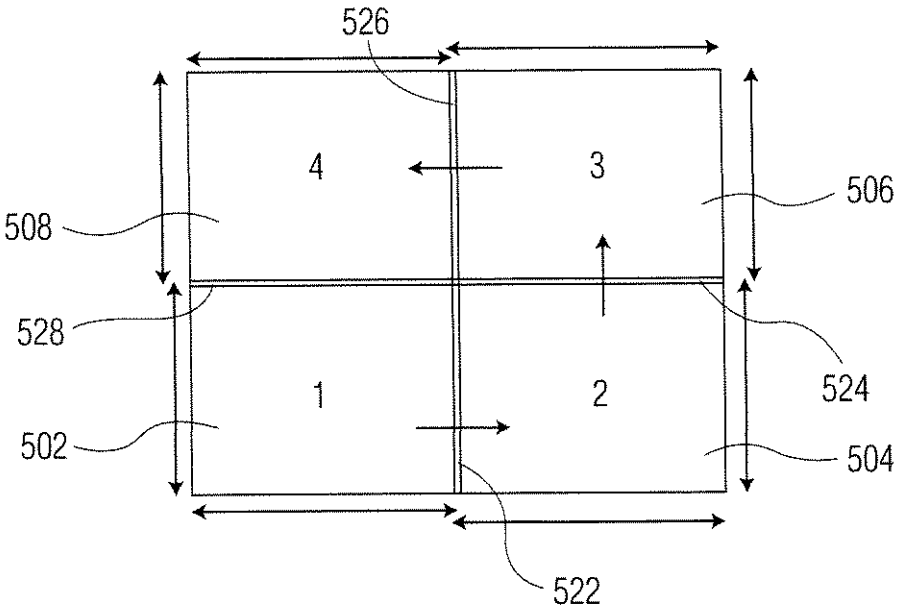

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FIG. 5C

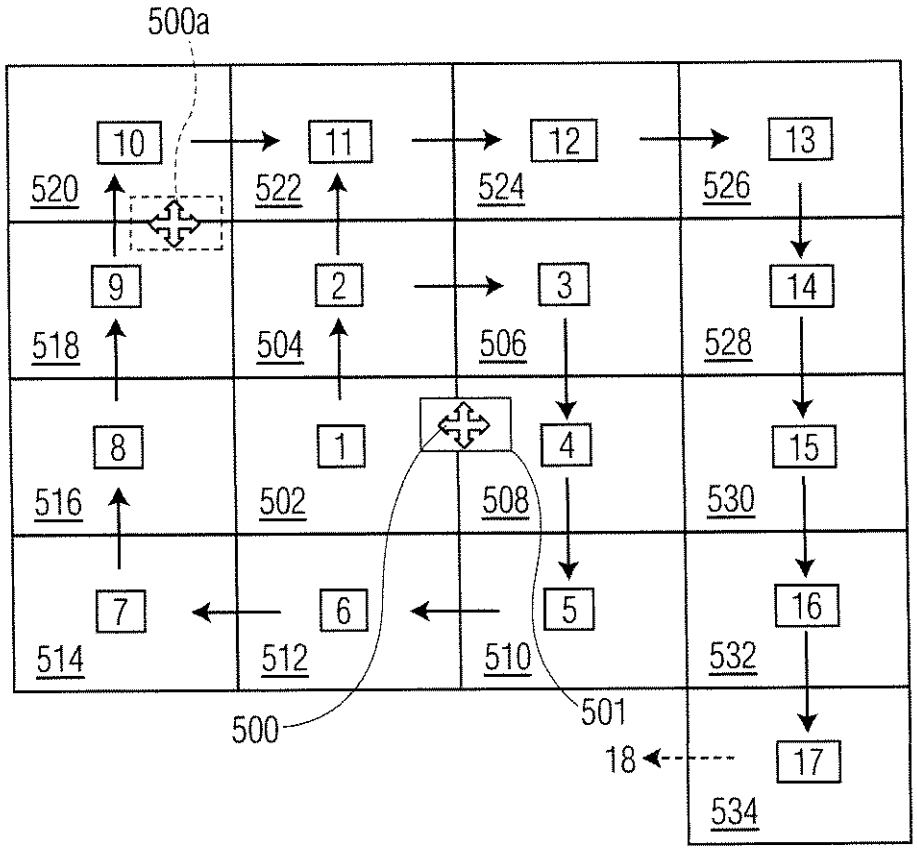

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FIG. 5D

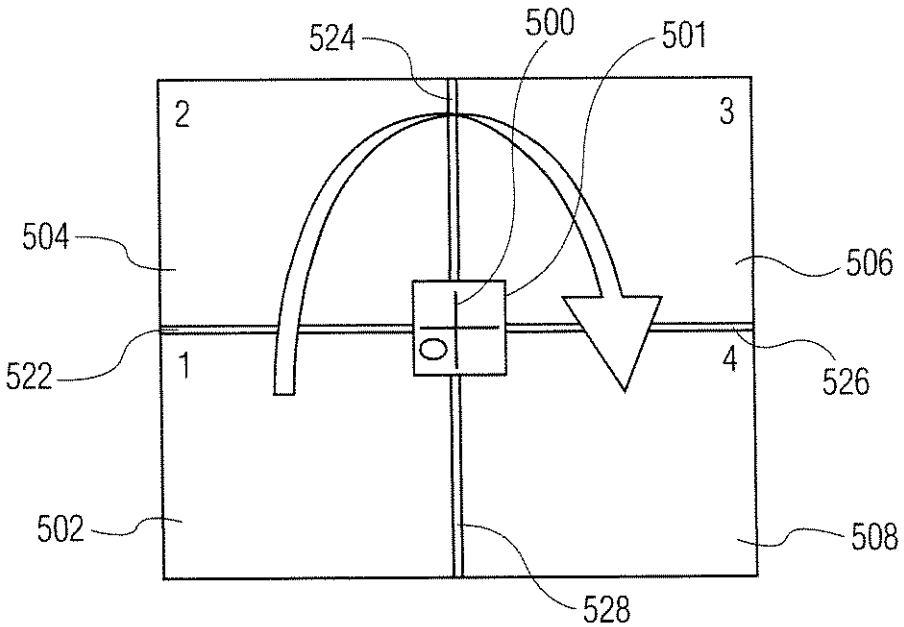

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FIG. 5E

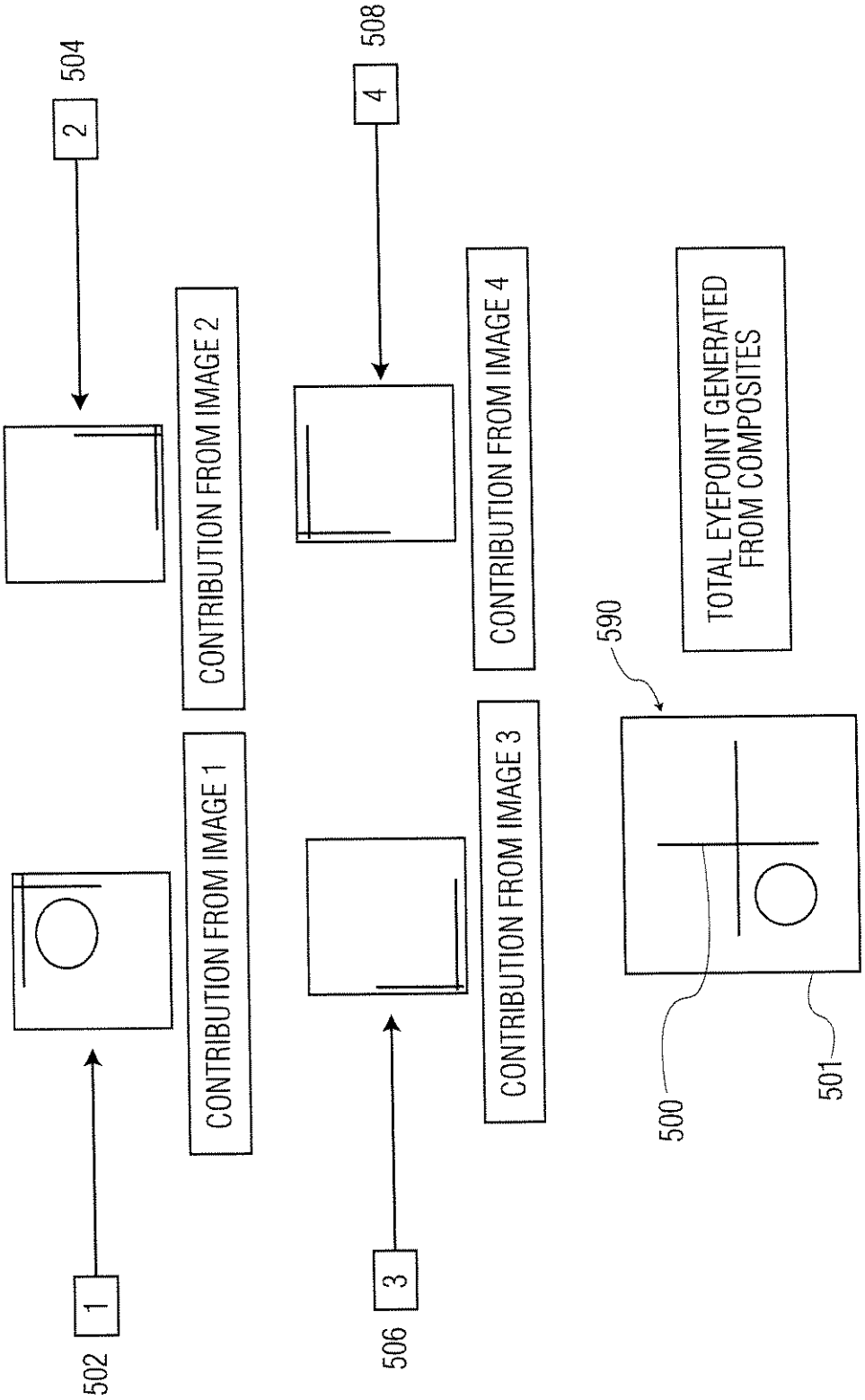

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CONTRIBUTION FROM IMAGE 1
CONTRIBUTION FROM IMAGE 2
CONTRIBUTION FROM IMAGE 3
CONTRIBUTION FROM IMAGE 4
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TOTAL EYEPOINT GENERATED FROM COMPOSITES
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501

FIG. 5F

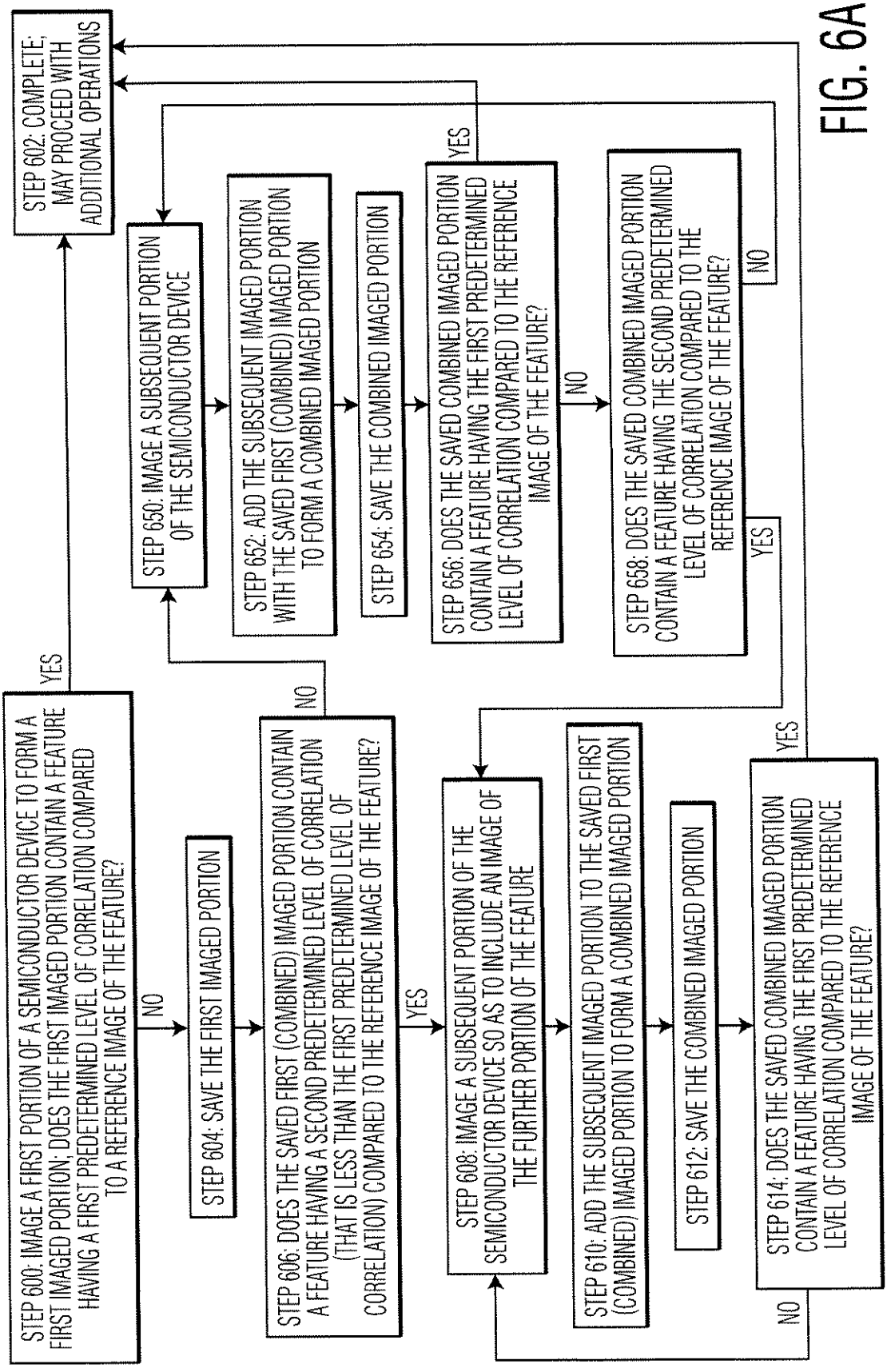

STEP 600: IMAGE A FIRST PORTION OF A SEMICONDUCTOR DEVICE TO FORM A FIRST IMAGED PORTION; DOES THE FIRST IMAGED PORTION CONTAIN A FEATURE HAVING A FIRST PREDETERMINED LEVEL OF CORRELATION COMPARED TO A REFERENCE IMAGE OF THE FEATURE?
YES
NO
STEP 602: COMPLETE; MAY PROCEED WITH ADDITIONAL OPERATIONS
STEP 604: SAVE THE FIRST IMAGED PORTION
STEP 606: DOES THE SAVED FIRST (COMBINED) IMAGED PORTION CONTAIN A FEATURE HAVING A SECOND PREDETERMINED LEVEL OF CORRELATION (THAT IS LESS THAN THE FIRST PREDETERMINED LEVEL OF CORRELATION) COMPARED TO THE REFERENCE IMAGE OF THE FEATURE?
NO
YES
STEP 608: IMAGE A SUBSEQUENT PORTION OF THE SEMICONDUCTOR DEVICE SO AS TO INCLUDE AN IMAGE OF THE FURTHER PORTION OF THE FEATURE
STEP 610: ADD THE SUBSEQUENT IMAGED PORTION TO THE SAVED FIRST (COMBINED) IMAGED PORTION TO FORM A COMBINED IMAGED PORTION
STEP 612: SAVE THE COMBINED IMAGED PORTION
STEP 614: DOES THE SAVED COMBINED IMAGED PORTION CONTAIN A FEATURE HAVING THE FIRST PREDETERMINED LEVEL OF CORRELATION COMPARED TO THE REFERENCE IMAGE OF THE FEATURE?
NO
YES
STEP 650: IMAGE A SUBSEQUENT PORTION OF THE SEMICONDUCTOR DEVICE
STEP 652: ADD THE SUBSEQUENT IMAGED PORTION WITH THE SAVED FIRST (COMBINED) IMAGED PORTION TO FORM A COMBINED IMAGED PORTION
STEP 654: SAVE THE COMBINED IMAGED PORTION
STEP 656: DOES THE SAVED COMBINED IMAGED PORTION CONTAIN A FEATURE HAVING THE FIRST PREDETERMINED LEVEL OF CORRELATION COMPARED TO THE REFERENCE IMAGE OF THE FEATURE?
NO
YES
STEP 658: DOES THE SAVED COMBINED IMAGED PORTION CONTAIN A FEATURE HAVING THE SECOND PREDETERMINED LEVEL OF CORRELATION COMPARED TO THE REFERENCE IMAGE OF THE FEATURE?
NO
YES

FIG. 6A

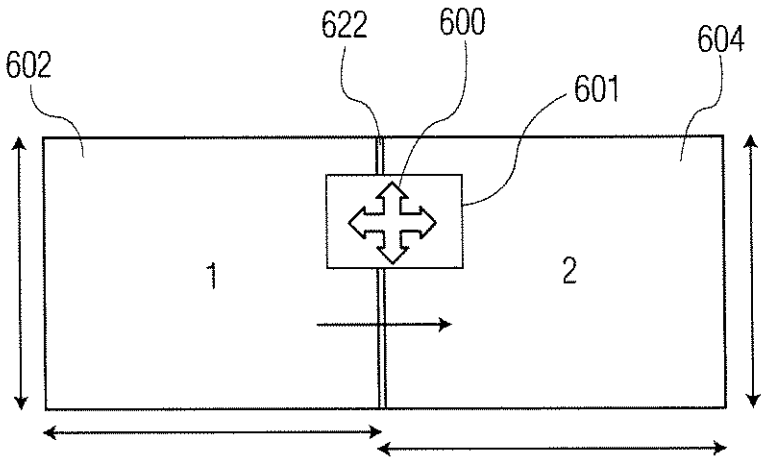

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FIG. 6B

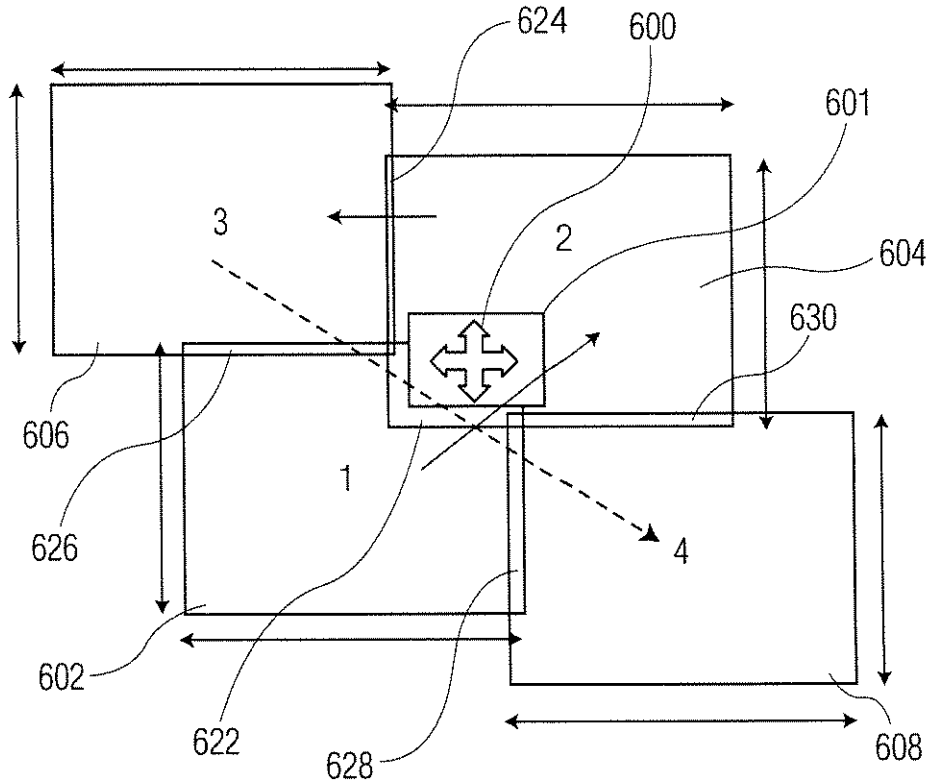

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FIG. 6C

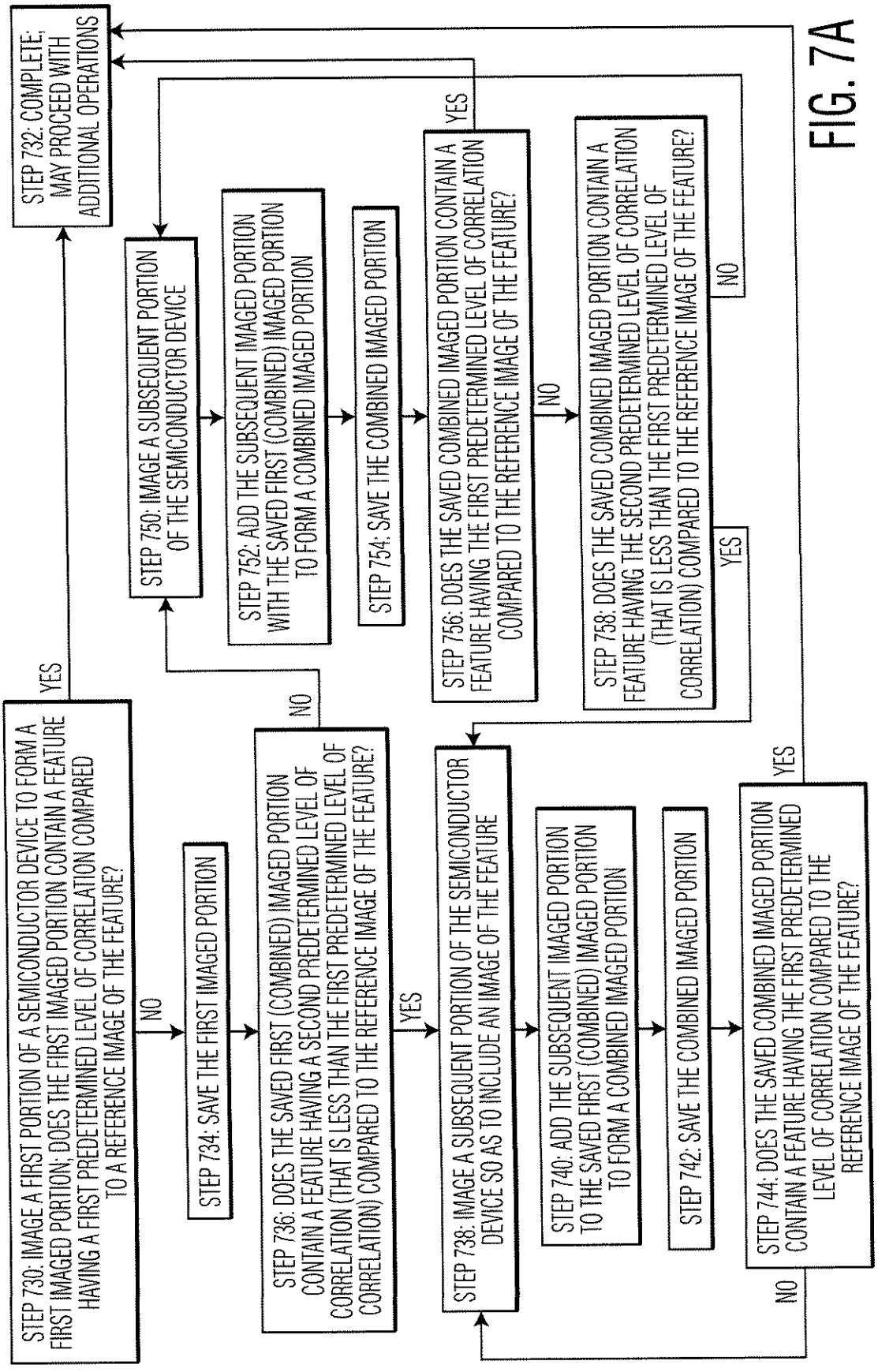

STEP 730: IMAGE A FIRST PORTION OF A SEMICONDUCTOR DEVICE TO FORM A FIRST IMAGED PORTION; DOES THE FIRST IMAGED PORTION CONTAIN A FEATURE HAVING A FIRST PREDETERMINED LEVEL OF CORRELATION COMPARED TO A REFERENCE IMAGE OF THE FEATURE?
YES
NO
STEP 732: COMPLETE; MAY PROCEED WITH ADDITIONAL OPERATIONS
STEP 734: SAVE THE FIRST IMAGED PORTION
STEP 736: DOES THE SAVED FIRST (COMBINED) IMAGED PORTION CONTAIN A FEATURE HAVING A SECOND PREDETERMINED LEVEL OF CORRELATION (THAT IS LESS THAN THE FIRST PREDETERMINED LEVEL OF CORRELATION) COMPARED TO THE REFERENCE IMAGE OF THE FEATURE?
NO
YES
STEP 738: IMAGE A SUBSEQUENT PORTION OF THE SEMICONDUCTOR DEVICE SO AS TO INCLUDE AN IMAGE OF THE FEATURE
STEP 740: ADD THE SUBSEQUENT IMAGED PORTION TO THE SAVED FIRST (COMBINED) IMAGED PORTION TO FORM A COMBINED IMAGED PORTION
STEP 742: SAVE THE COMBINED IMAGED PORTION
STEP 744: DOES THE SAVED COMBINED IMAGED PORTION CONTAIN A FEATURE HAVING THE FIRST PREDETERMINED LEVEL OF CORRELATION COMPARED TO THE REFERENCE IMAGE OF THE FEATURE?
NO
YES
STEP 750: IMAGE A SUBSEQUENT PORTION OF THE SEMICONDUCTOR DEVICE
STEP 752: ADD THE SUBSEQUENT IMAGED PORTION WITH THE SAVED FIRST (COMBINED) IMAGED PORTION TO FORM A COMBINED IMAGED PORTION
STEP 754: SAVE THE COMBINED IMAGED PORTION
STEP 756: DOES THE SAVED COMBINED IMAGED PORTION CONTAIN A FEATURE HAVING THE FIRST PREDETERMINED LEVEL OF CORRELATION COMPARED TO THE REFERENCE IMAGE OF THE FEATURE?
NO
YES
STEP 758: DOES THE SAVED COMBINED IMAGED PORTION CONTAIN A FEATURE HAVING THE SECOND PREDETERMINED LEVEL OF CORRELATION (THAT IS LESS THAN THE FIRST PREDETERMINED LEVEL OF CORRELATION) COMPARED TO THE REFERENCE IMAGE OF THE FEATURE?
NO
YES

FIG. 7A

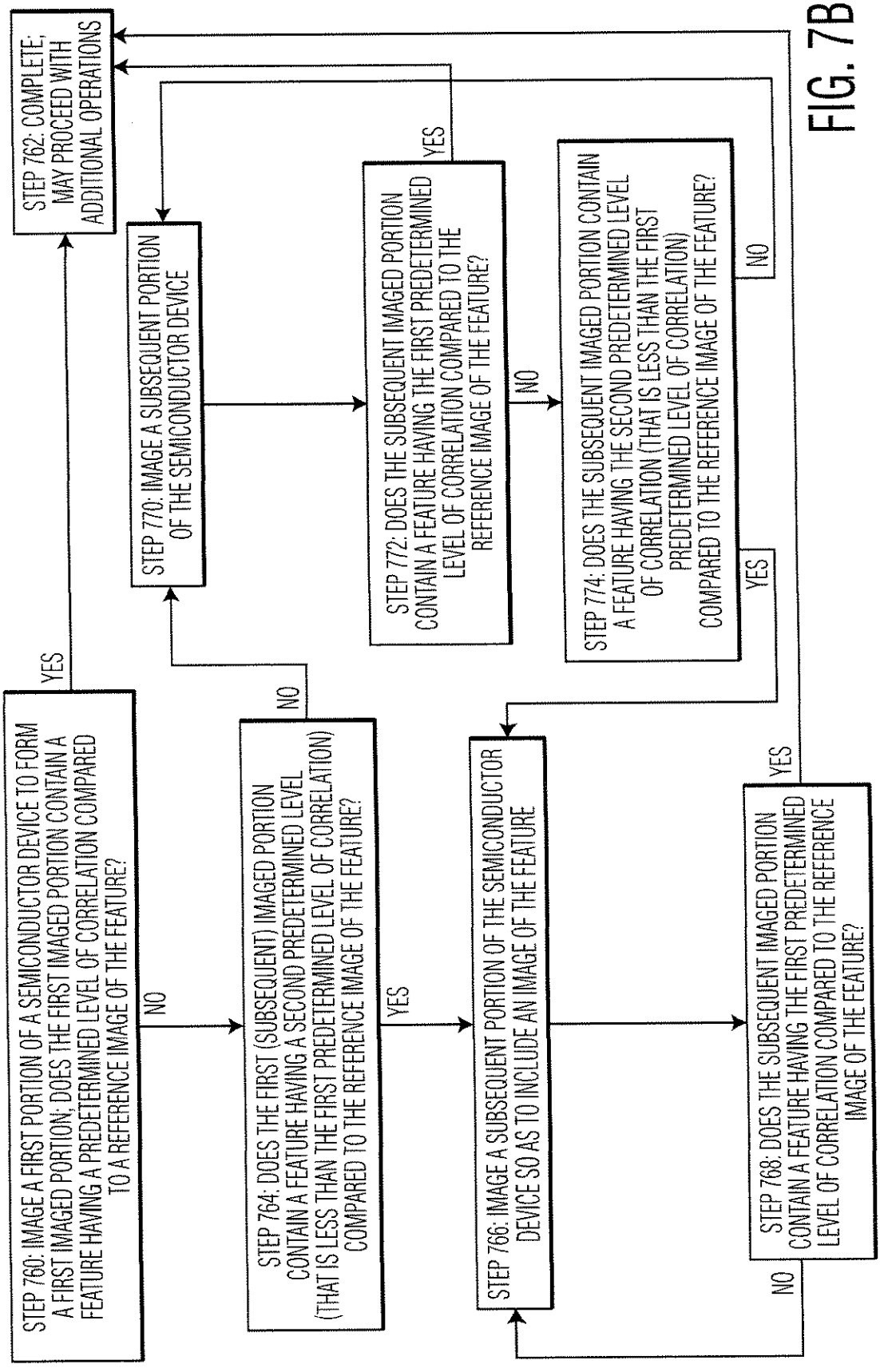

STEP 760: IMAGE A FIRST PORTION OF A SEMICONDUCTOR DEVICE TO FORM A FIRST IMAGED PORTION; DOES THE FIRST IMAGED PORTION CONTAIN A FEATURE HAVING A PREDETERMINED LEVEL OF CORRELATION COMPARED TO A REFERENCE IMAGE OF THE FEATURE?
YES
NO
STEP 762: COMPLETE; MAY PROCEED WITH ADDITIONAL OPERATIONS
STEP 764: DOES THE FIRST (SUBSEQUENT) IMAGED PORTION CONTAIN A FEATURE HAVING A SECOND PREDETERMINED LEVEL (THAT IS LESS THAN THE FIRST PREDETERMINED LEVEL OF CORRELATION) COMPARED TO THE REFERENCE IMAGE OF THE FEATURE?
NO
YES
STEP 770: IMAGE A SUBSEQUENT PORTION OF THE SEMICONDUCTOR DEVICE
STEP 772: DOES THE SUBSEQUENT IMAGED PORTION CONTAIN A FEATURE HAVING THE FIRST PREDETERMINED LEVEL OF CORRELATION COMPARED TO THE REFERENCE IMAGE OF THE FEATURE?
YES
NO
STEP 774: DOES THE SUBSEQUENT IMAGED PORTION CONTAIN A FEATURE HAVING THE SECOND PREDETERMINED LEVEL OF CORRELATION (THAT IS LESS THAN THE FIRST PREDETERMINED LEVEL OF CORRELATION) COMPARED TO THE REFERENCE IMAGE OF THE FEATURE?
YES
NO
STEP 766: IMAGE A SUBSEQUENT PORTION OF THE SEMICONDUCTOR DEVICE SO AS TO INCLUDE AN IMAGE OF THE FEATURE
STEP 768: DOES THE SUBSEQUENT IMAGED PORTION CONTAIN A FEATURE HAVING THE FIRST PREDETERMINED LEVEL OF CORRELATION COMPARED TO THE REFERENCE IMAGE OF THE FEATURE?
YES
NO

FIG. 7B

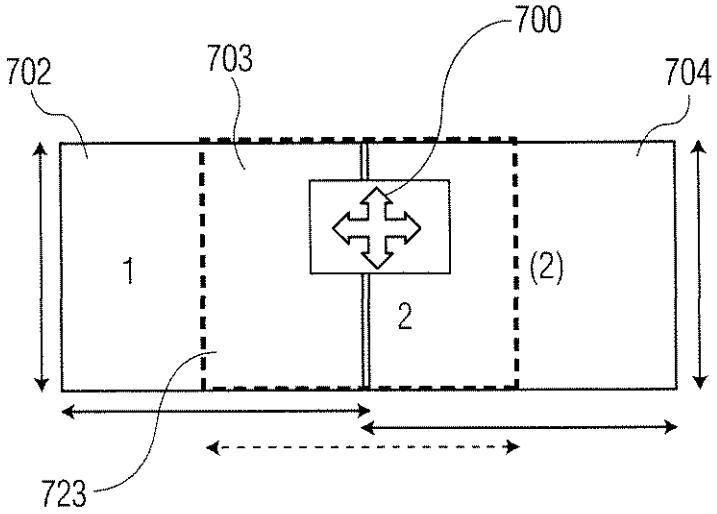

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FIG. 7C

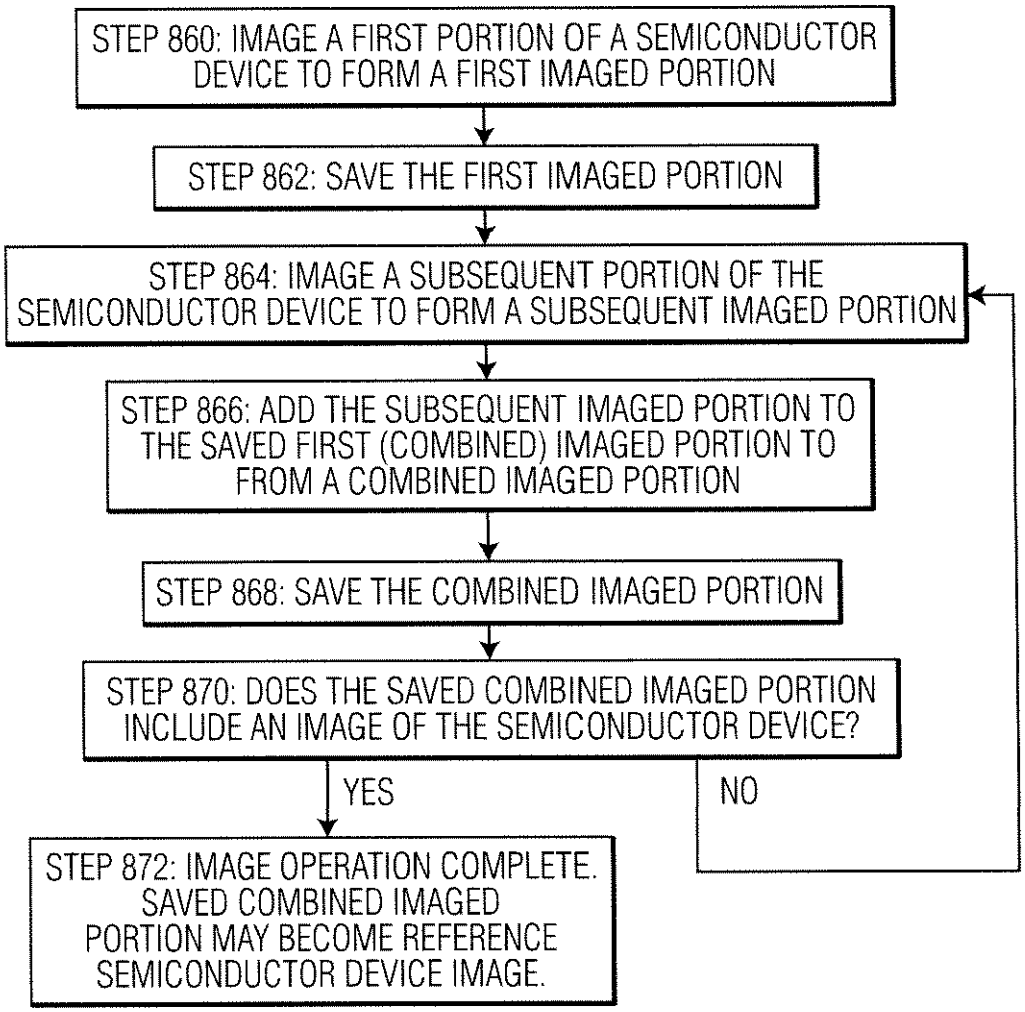

STEP 860: IMAGE A FIRST PORTION OF A SEMICONDUCTOR DEVICE TO FORM A FIRST IMAGED PORTION
STEP 862: SAVE THE FIRST IMAGED PORTION
STEP 864: IMAGE A SUBSEQUENT PORTION OF THE SEMICONDUCTOR DEVICE TO FORM A SUBSEQUENT IMAGED PORTION
STEP 866: ADD THE SUBSEQUENT IMAGED PORTION TO THE SAVED FIRST (COMBINED) IMAGED PORTION TO FROM A COMBINED IMAGED PORTION
STEP 868: SAVE THE COMBINED IMAGED PORTION
STEP 870: DOES THE SAVED COMBINED IMAGED PORTION INCLUDE AN IMAGE OF THE SEMICONDUCTOR DEVICE?
YES
NO
STEP 872: IMAGE OPERATION COMPLETE. SAVED COMBINED IMAGED PORTION MAY BECOME REFERENCE SEMICONDUCTOR DEVICE IMAGE.

FIG. 8A

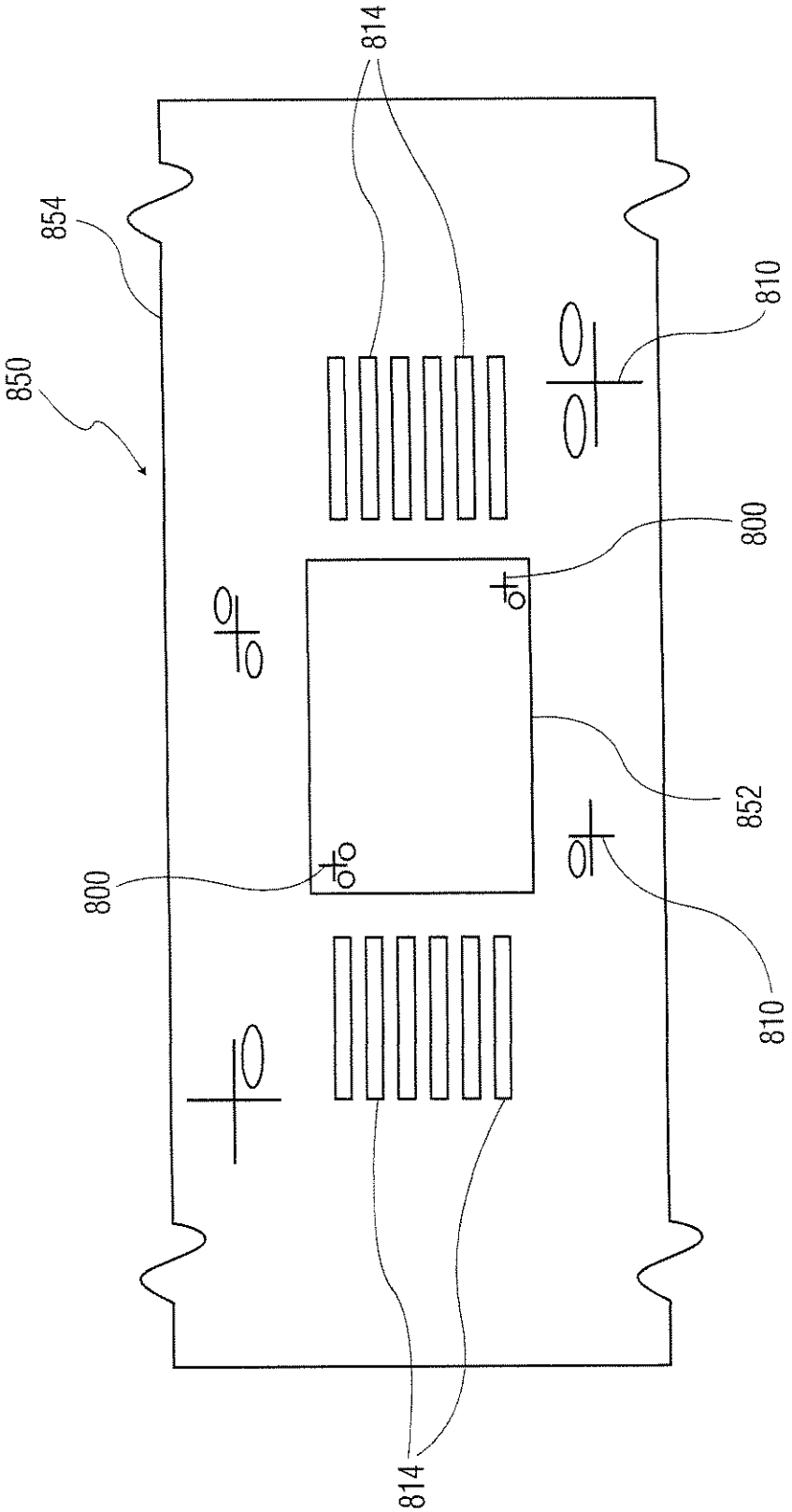


FIG. 8B

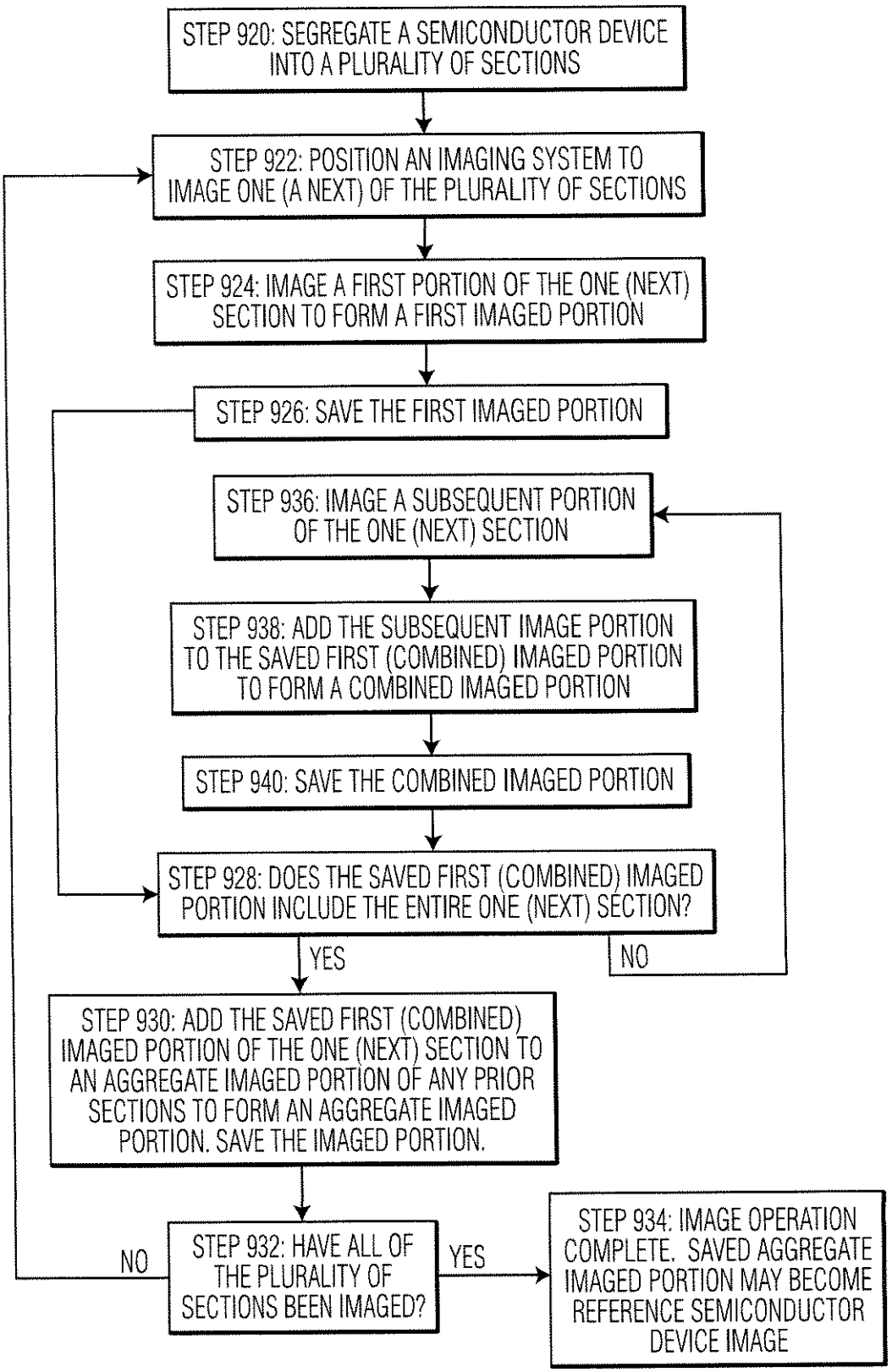

STEP 920: SEGREGATE A SEMICONDUCTOR DEVICE INTO A PLURALITY OF SECTIONS
STEP 922: POSITION AN IMAGING SYSTEM TO IMAGE ONE (A NEXT) OF THE PLURALITY OF SECTIONS
STEP 924: IMAGE A FIRST PORTION OF THE ONE (NEXT) SECTION TO FORM A FIRST IMAGED PORTION
STEP 926: SAVE THE FIRST IMAGED PORTION
STEP 936: IMAGE A SUBSEQUENT PORTION OF THE ONE (NEXT) SECTION
STEP 938: ADD THE SUBSEQUENT IMAGE PORTION TO THE SAVED FIRST (COMBINED) IMAGED PORTION TO FORM A COMBINED IMAGED PORTION
STEP 940: SAVE THE COMBINED IMAGED PORTION
STEP 928: DOES THE SAVED FIRST (COMBINED) IMAGED PORTION INCLUDE THE ENTIRE ONE (NEXT) SECTION?
YES
NO
STEP 930: ADD THE SAVED FIRST (COMBINED) IMAGED PORTION OF THE ONE (NEXT) SECTION TO AN AGGREGATE IMAGED PORTION OF ANY PRIOR SECTIONS TO FORM AN AGGREGATE IMAGED PORTION. SAVE THE IMAGED PORTION.
STEP 932: HAVE ALL OF THE PLURALITY OF SECTIONS BEEN IMAGED?
NO
YES
STEP 934: IMAGE OPERATION COMPLETE. SAVED AGGREGATE IMAGED PORTION MAY BECOME REFERENCE SEMICONDUCTOR DEVICE IMAGE

FIG. 9A

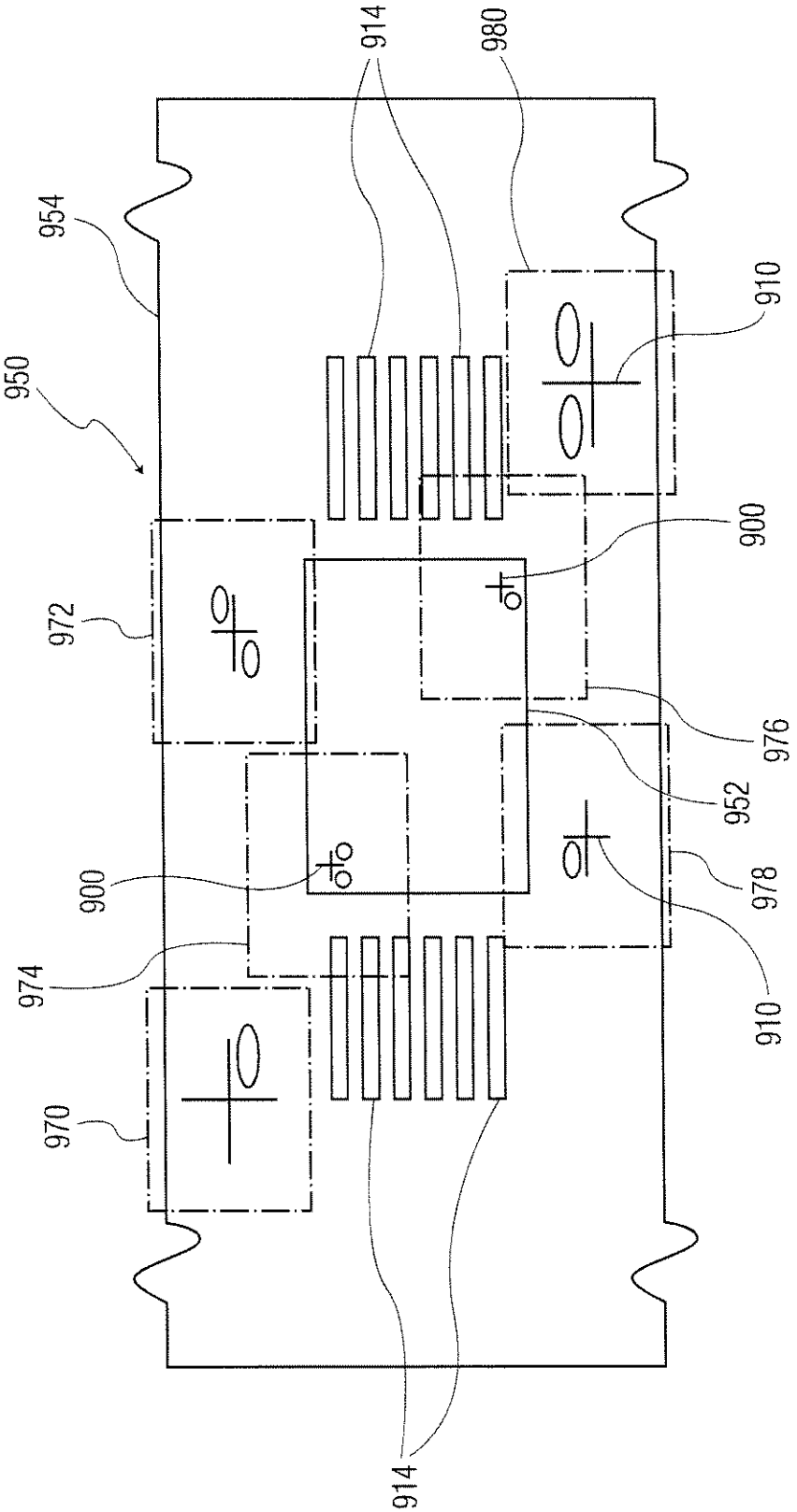


FIG. 9B

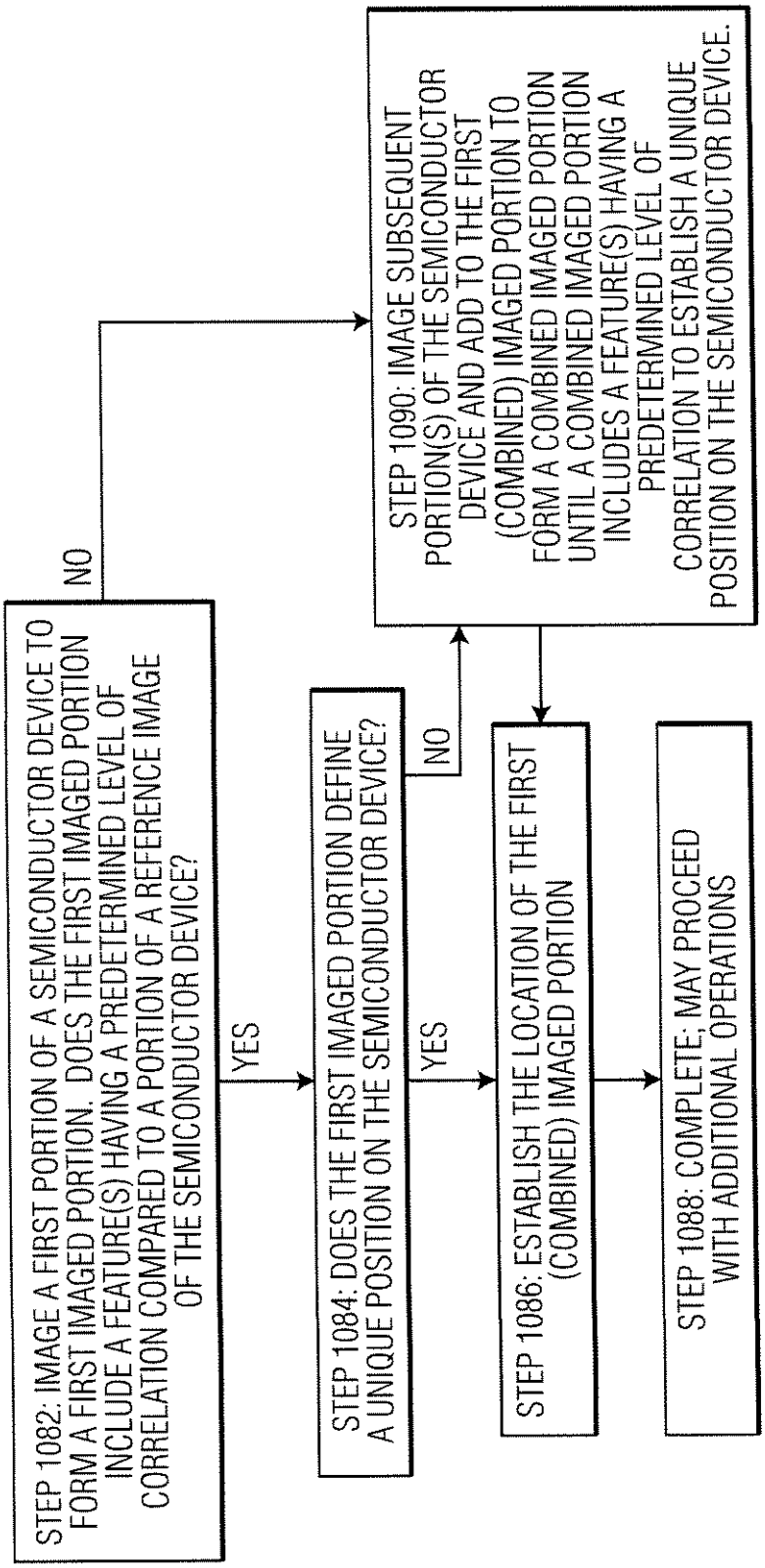

STEP 1082: IMAGE A FIRST PORTION OF A SEMICONDUCTOR DEVICE TO FORM A FIRST IMAGED PORTION. DOES THE FIRST IMAGED PORTION INCLUDE A FEATURE(S) HAVING A PREDETERMINED LEVEL OF CORRELATION COMPARED TO A PORTION OF A REFERENCE IMAGE OF THE SEMICONDUCTOR DEVICE?
NO
YES
STEP 1084: DOES THE FIRST IMAGED PORTION DEFINE A UNIQUE POSITION ON THE SEMICONDUCTOR DEVICE?
NO
YES
STEP 1090: IMAGE SUBSEQUENT PORTION(S) OF THE SEMICONDUCTOR DEVICE AND ADD TO THE FIRST (COMBINED) IMAGED PORTION TO FORM A COMBINED IMAGED PORTION UNTIL A COMBINED IMAGED PORTION INCLUDES A FEATURE(S) HAVING A PREDETERMINED LEVEL OF CORRELATION TO ESTABLISH A UNIQUE POSITION ON THE SEMICONDUCTOR DEVICE.
STEP 1086: ESTABLISH THE LOCATION OF THE FIRST (COMBINED) IMAGED PORTION
STEP 1088: COMPLETE; MAY PROCEED WITH ADDITIONAL OPERATIONS

FIG. 10

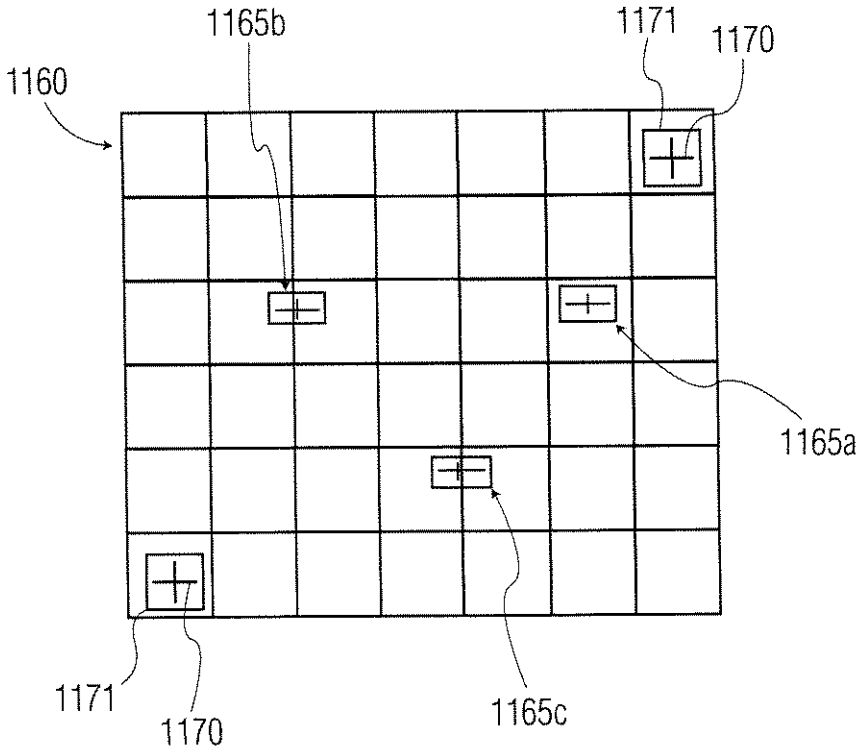


FIG. 11

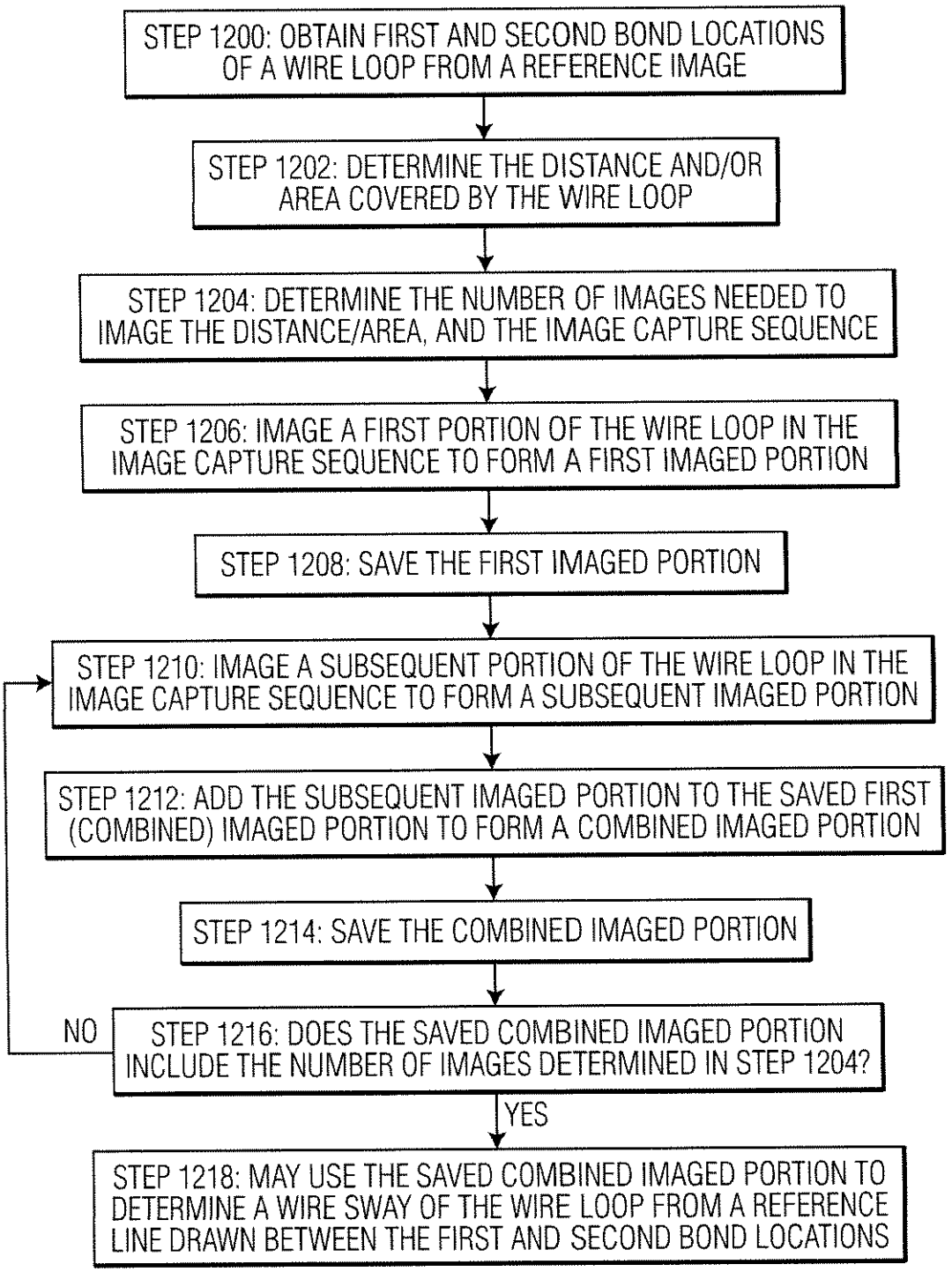

STEP 1200: OBTAIN FIRST AND SECOND BOND LOCATIONS OF A WIRE LOOP FROM A REFERENCE IMAGE
STEP 1202: DETERMINE THE DISTANCE AND/OR AREA COVERED BY THE WIRE LOOP
STEP 1204: DETERMINE THE NUMBER OF IMAGES NEEDED TO IMAGE THE DISTANCE/AREA, AND THE IMAGE CAPTURE SEQUENCE
STEP 1206: IMAGE A FIRST PORTION OF THE WIRE LOOP IN THE IMAGE CAPTURE SEQUENCE TO FORM A FIRST IMAGED PORTION
STEP 1208: SAVE THE FIRST IMAGED PORTION
STEP 1210: IMAGE A SUBSEQUENT PORTION OF THE WIRE LOOP IN THE IMAGE CAPTURE SEQUENCE TO FORM A SUBSEQUENT IMAGED PORTION
STEP 1212: ADD THE SUBSEQUENT IMAGED PORTION TO THE SAVED FIRST (COMBINED) IMAGED PORTION TO FORM A COMBINED IMAGED PORTION
STEP 1214: SAVE THE COMBINED IMAGED PORTION
NO
STEP 1216: DOES THE SAVED COMBINED IMAGED PORTION INCLUDE THE NUMBER OF IMAGES DETERMINED IN STEP 1204?
YES
STEP 1218: MAY USE THE SAVED COMBINED IMAGED PORTION TO DETERMINE A WIRE SWAY OF THE WIRE LOOP FROM A REFERENCE LINE DRAWN BETWEEN THE FIRST AND SECOND BOND LOCATIONS

FIG. 12A

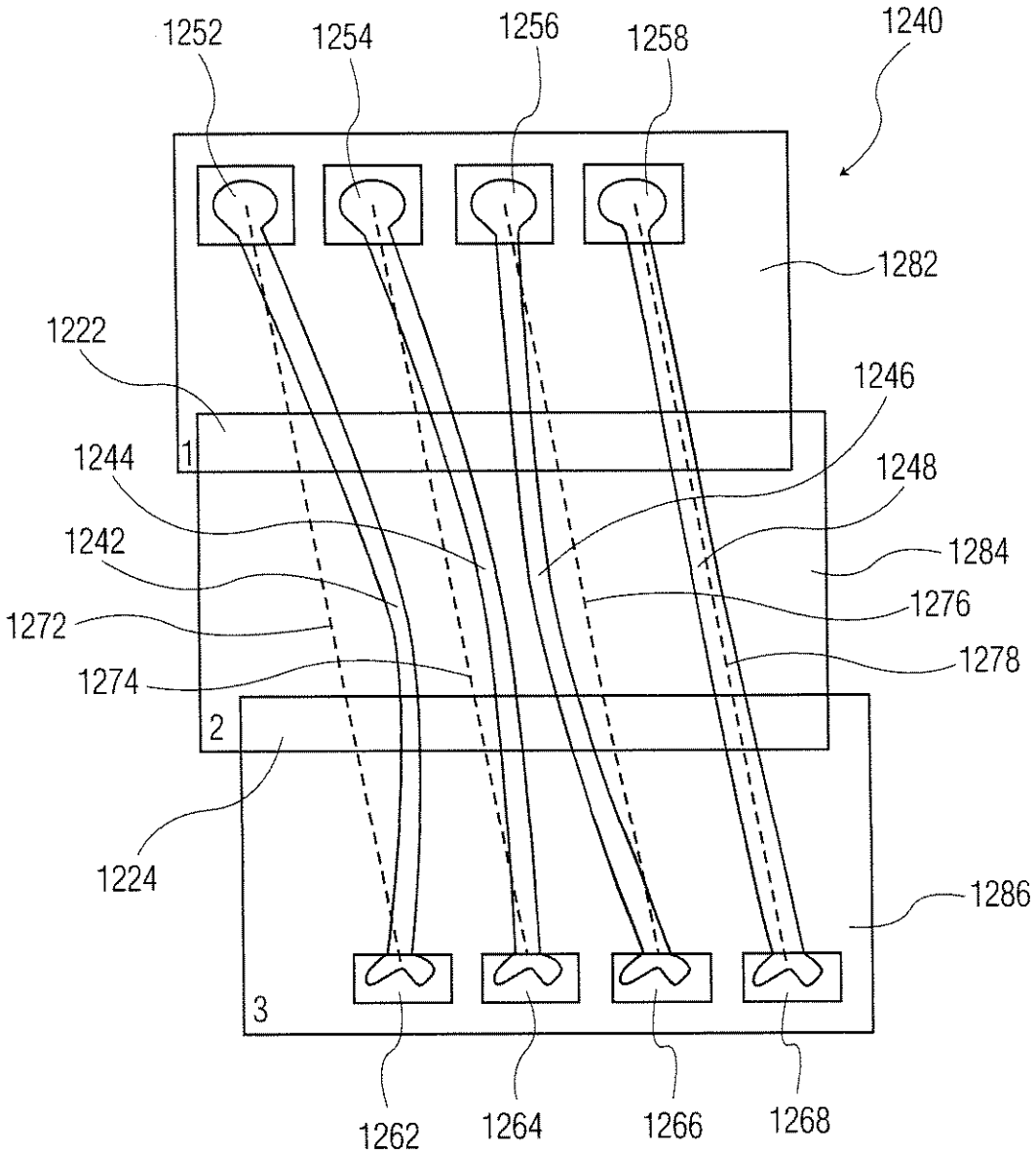

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FIG. 12B