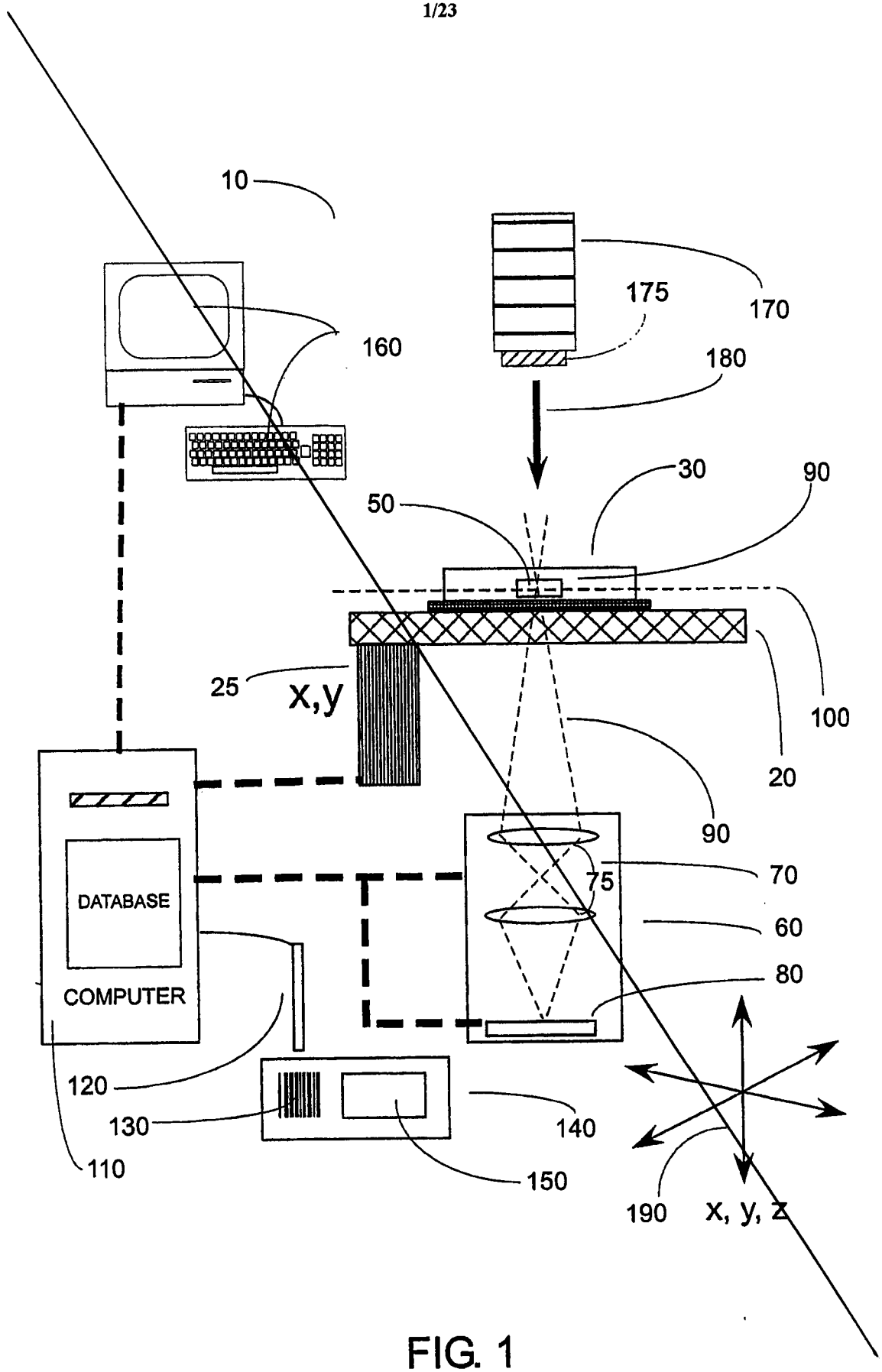
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180
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25
x,y
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20
90
70
75
60
80
DATABASE
COMPUTER
120
130
140
110
150
190
x, y, z

FIG. 1

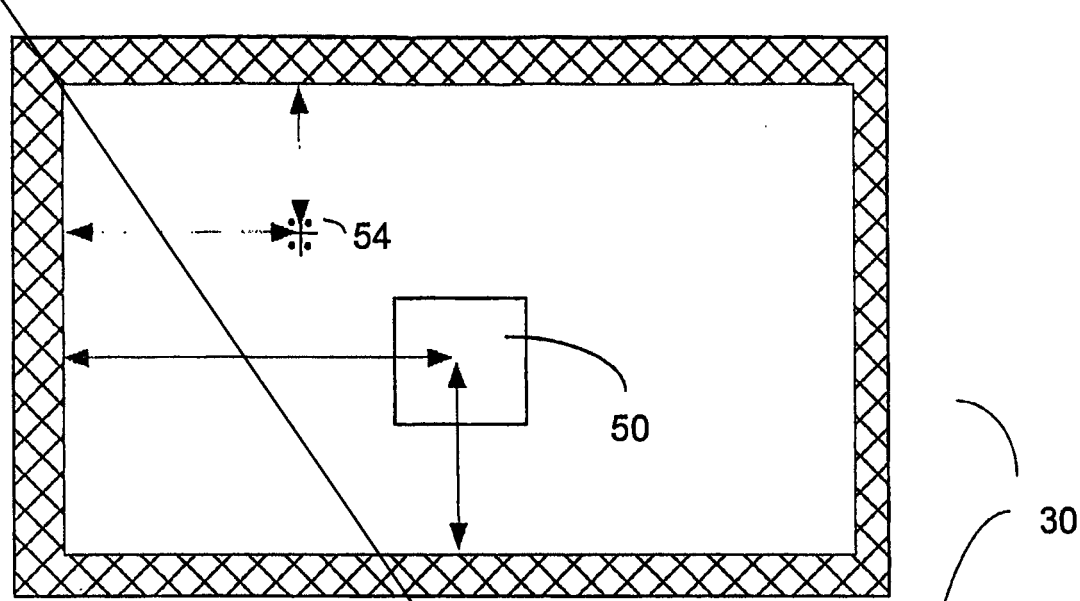


Fig. 2a

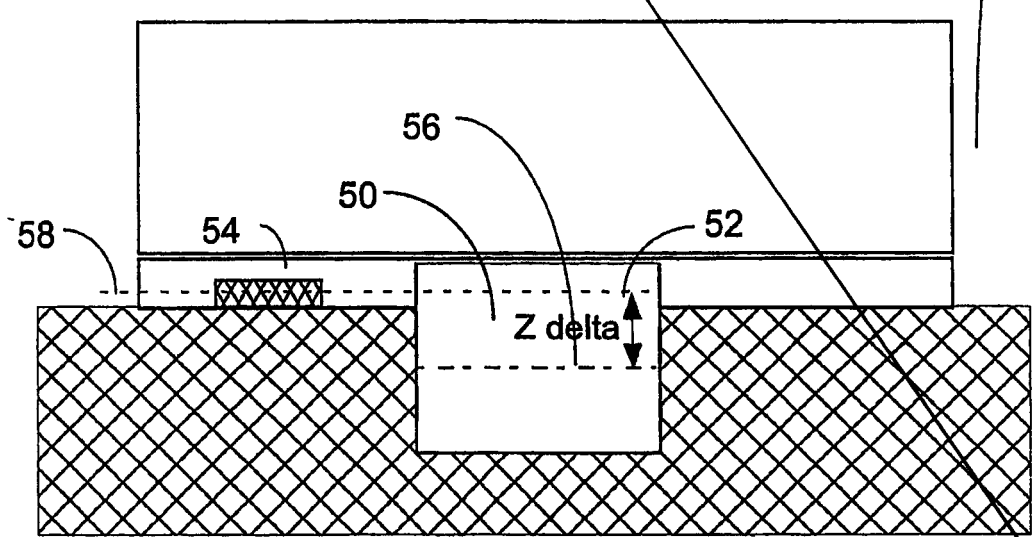


Fig. 2b

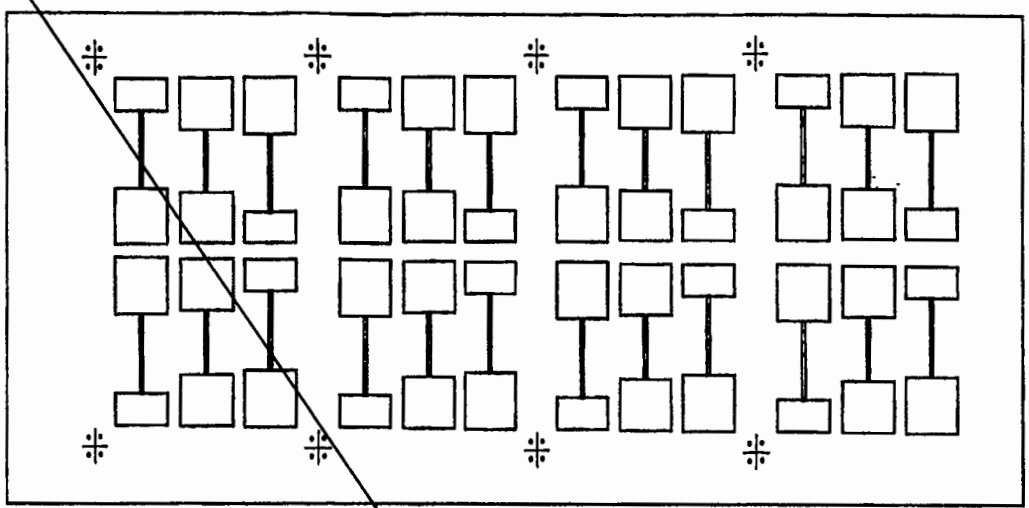


Fig. 3a

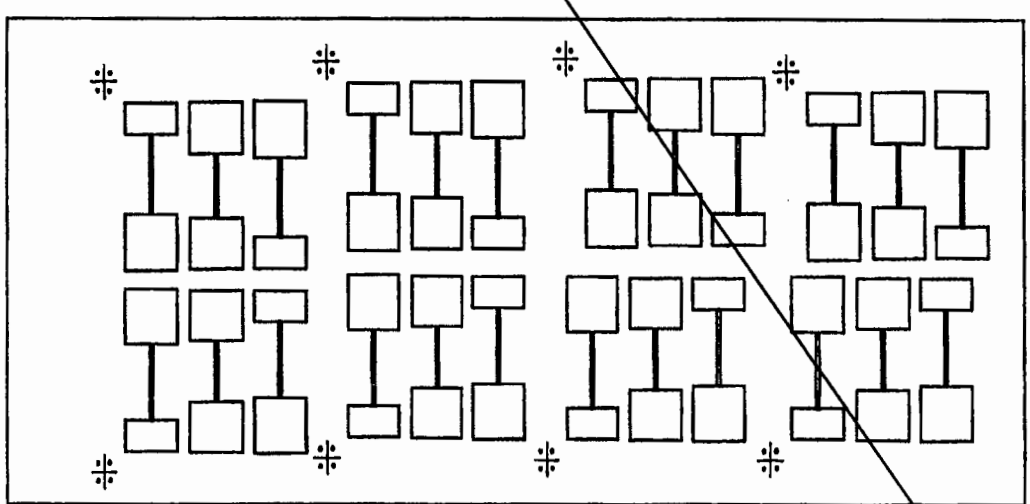


Fig. 3b

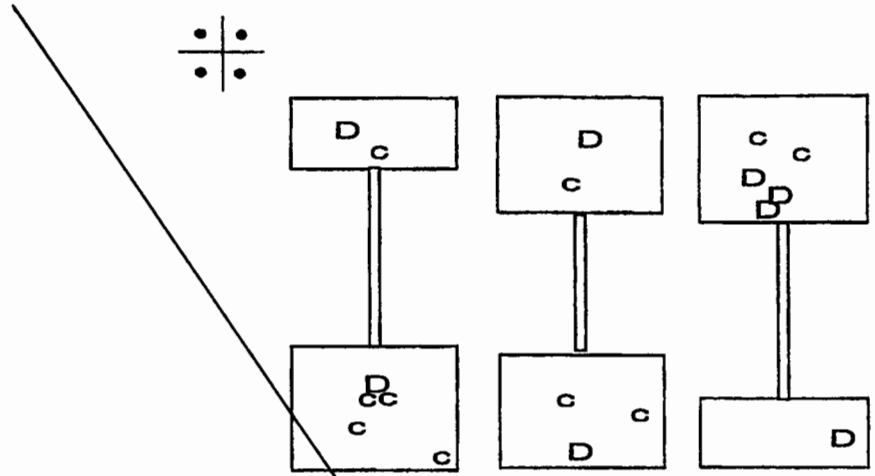


Fig. 4a

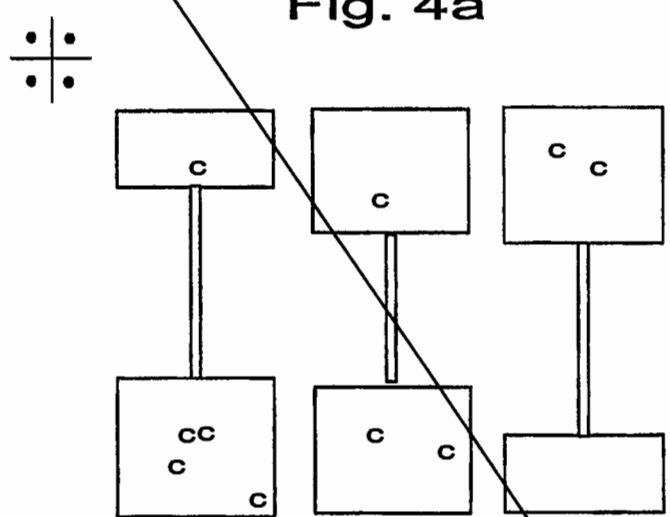


Fig. 4b

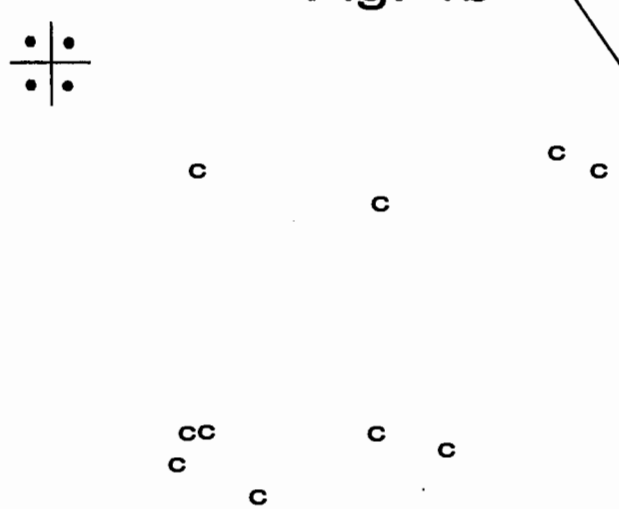
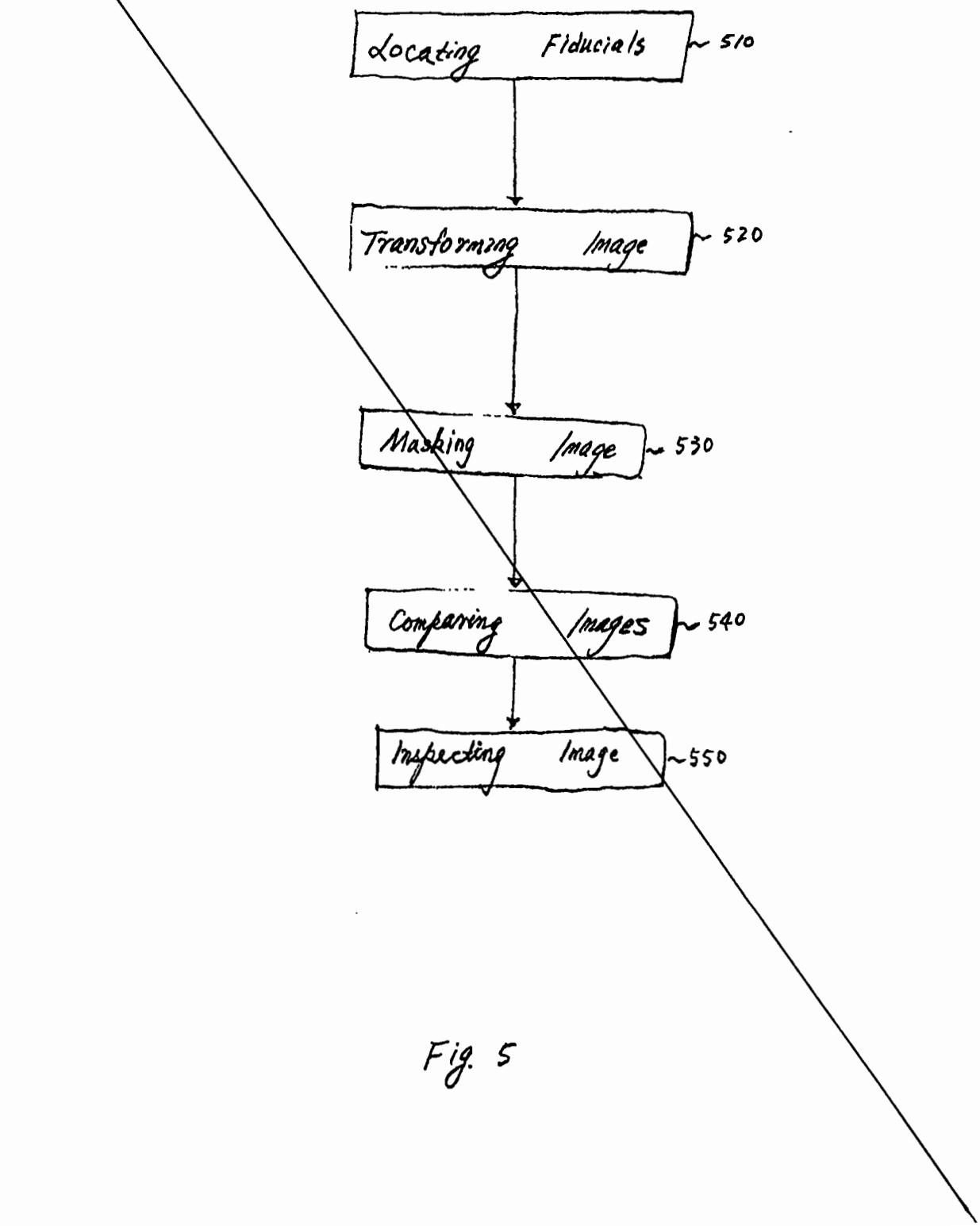


Fig. 4c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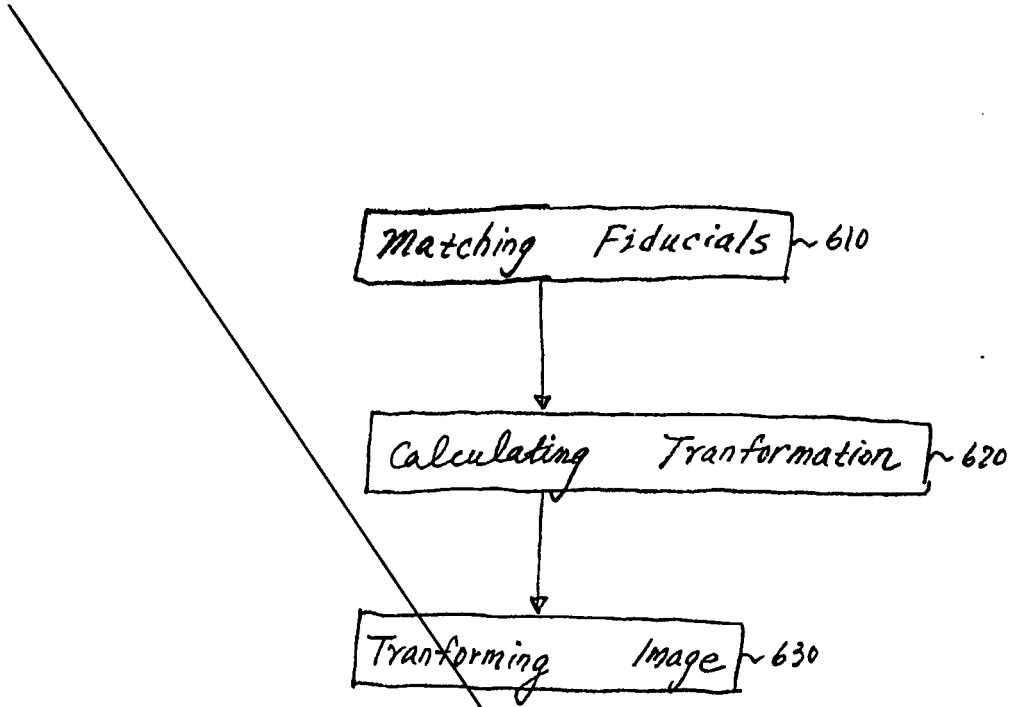
510
Transforming Image
520
Masking Image
530
Comparing Images
540
Inspecting Image
550

Fig. 5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Matching Fiducials
610
Calculating Tranformation
620
Tranforming Image
630

Fig. 6

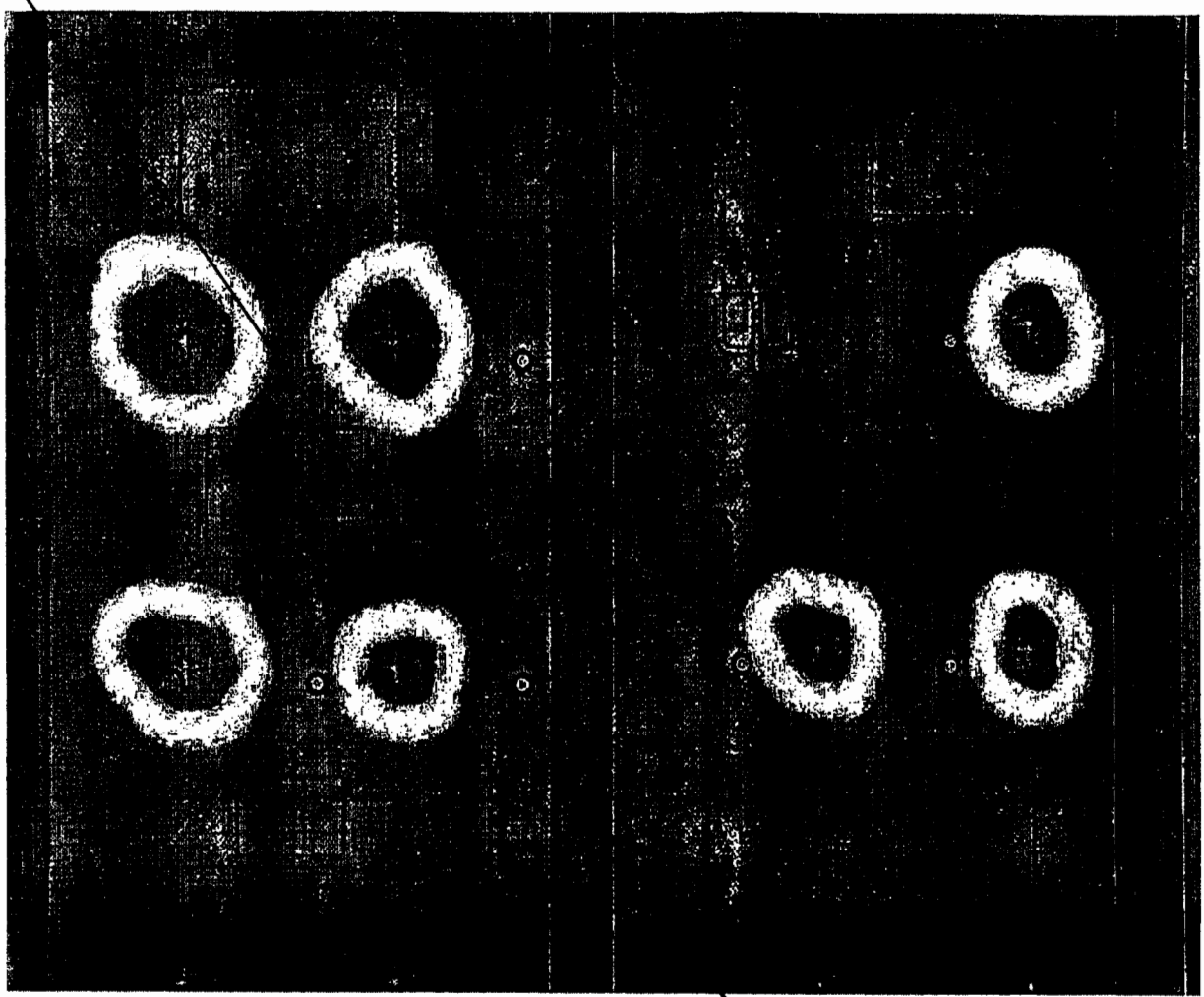


Figure 7

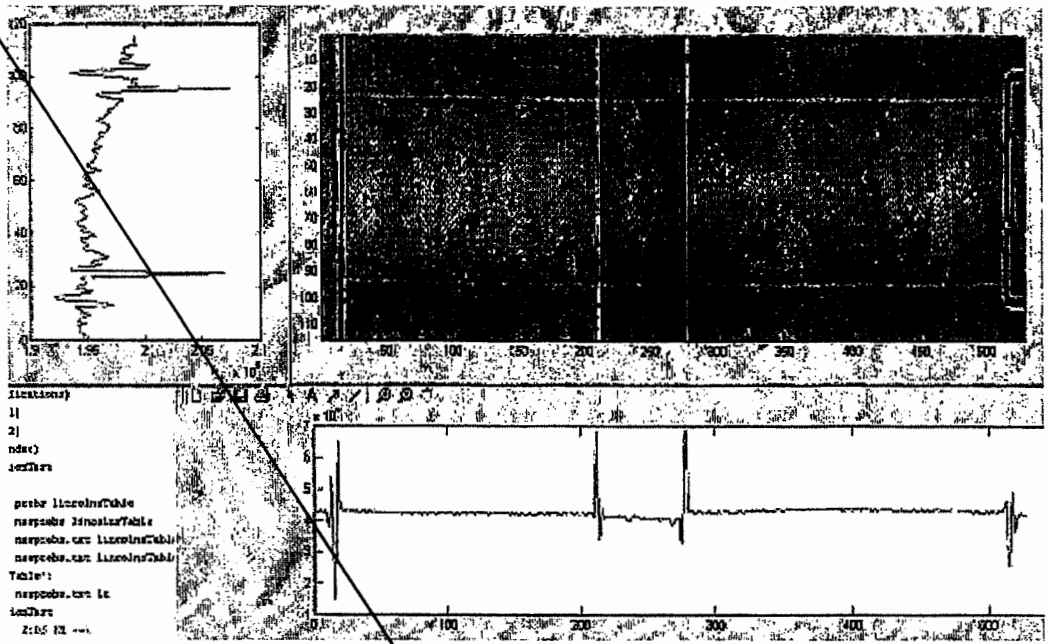


Figure 8



Figure 9

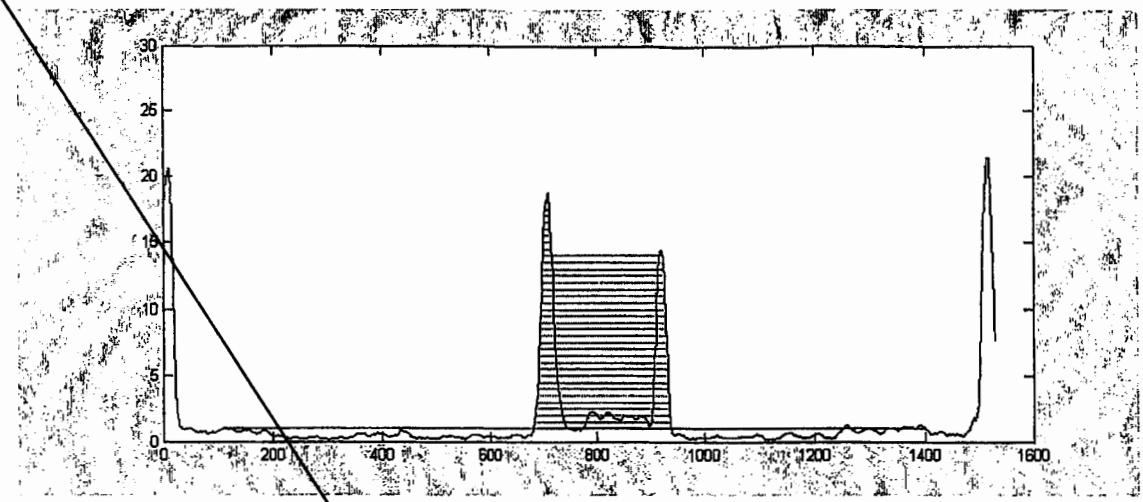


Figure 10

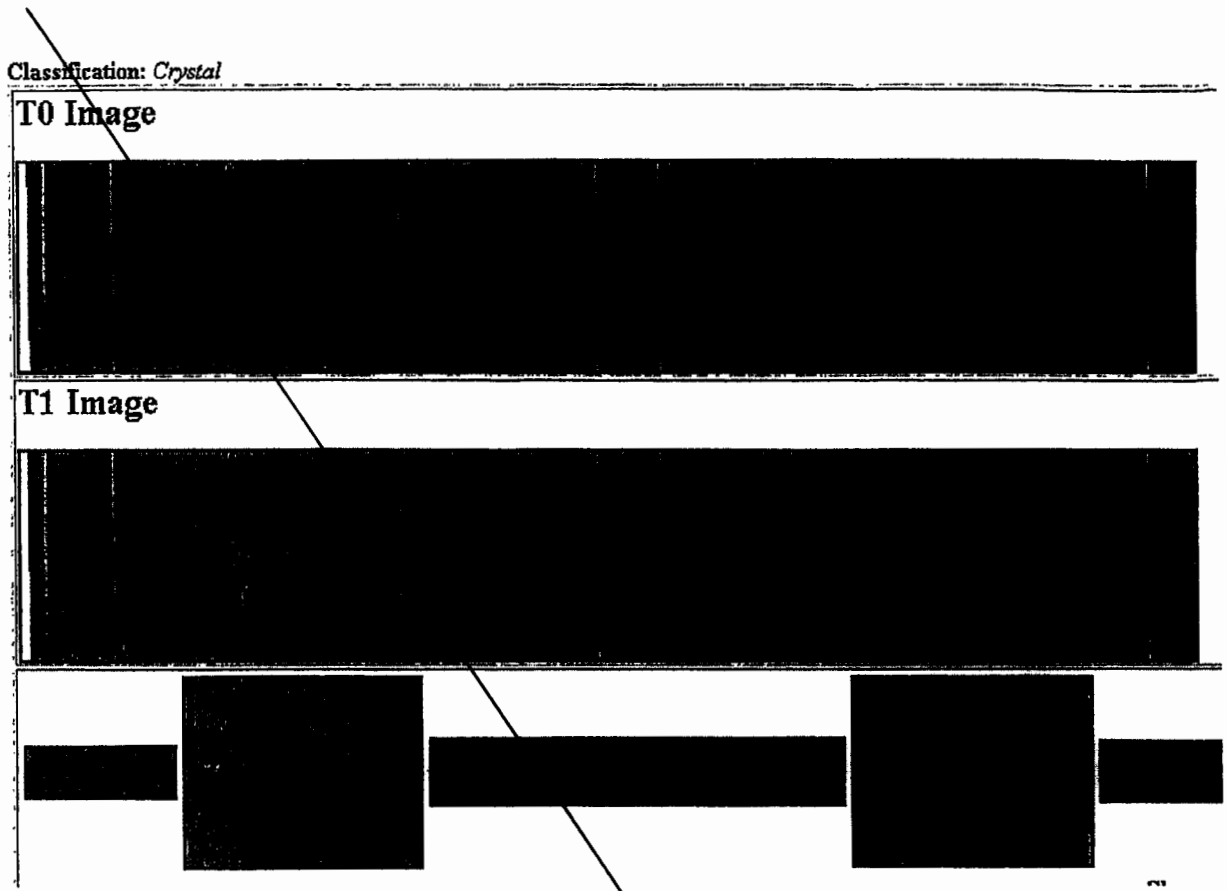
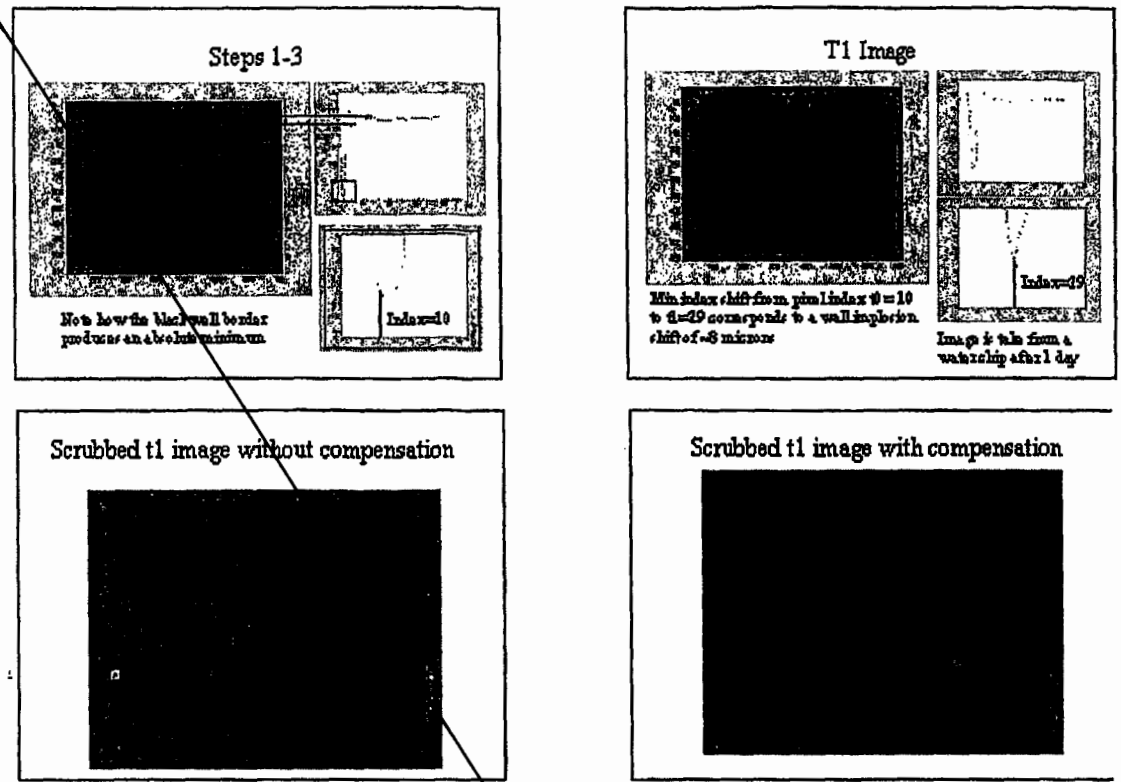


Figure 11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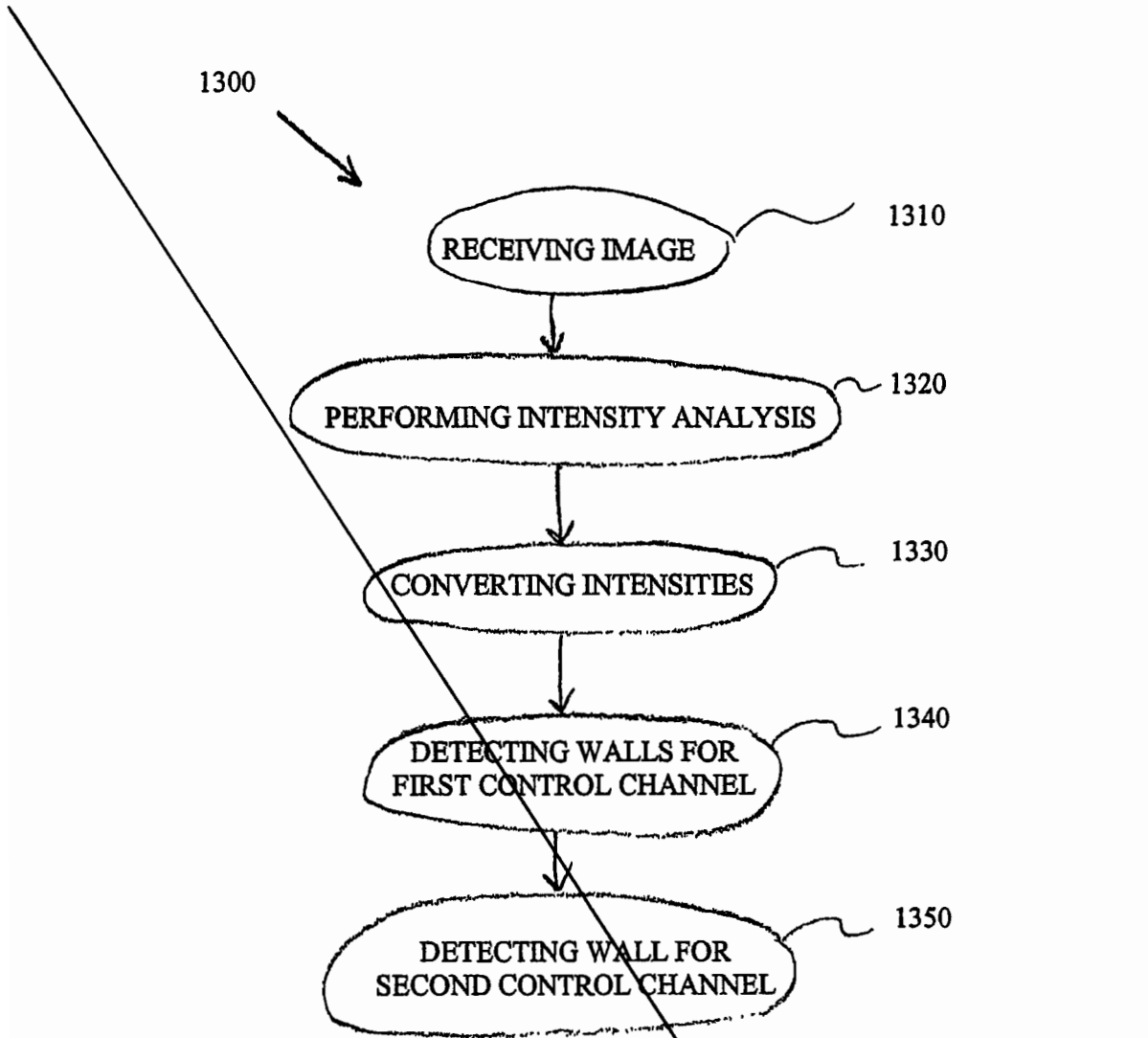
Scrubbed t1 image with compensation

Figure 12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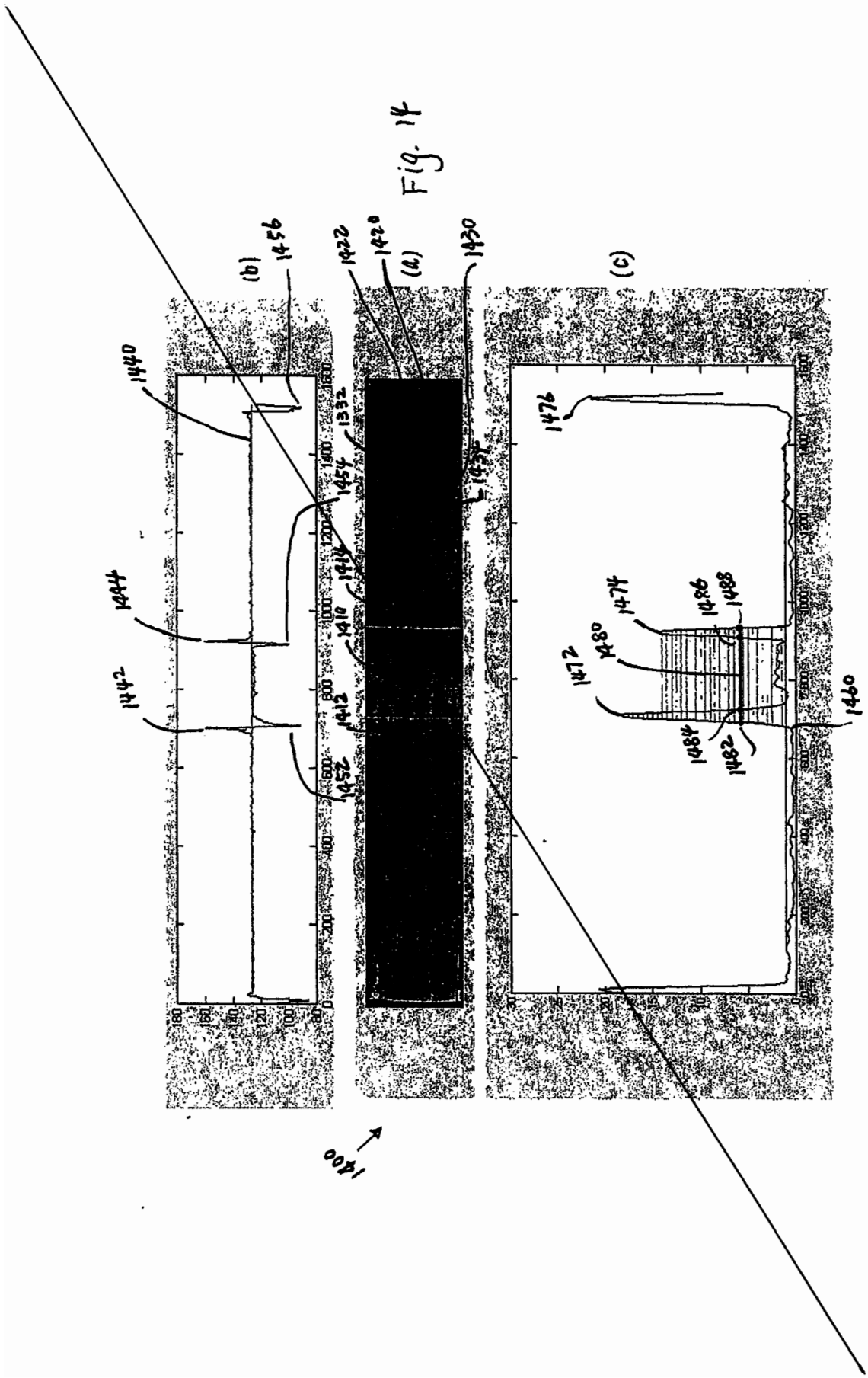
1310
PERFORMING INTENSITY ANALYSIS
1320
CONVERTING INTENSITIES
1330
DETECTING WALLS FOR FIRST CONTROL CHANNEL
1340
DETECTING WALL FOR SECOND CONTROL CHANNEL
1350

Figure 13


(b)
1456
1440
1444
1442
1452
1454
1414
1410
1412
1422
1420
(a)
1430
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1434
(c)
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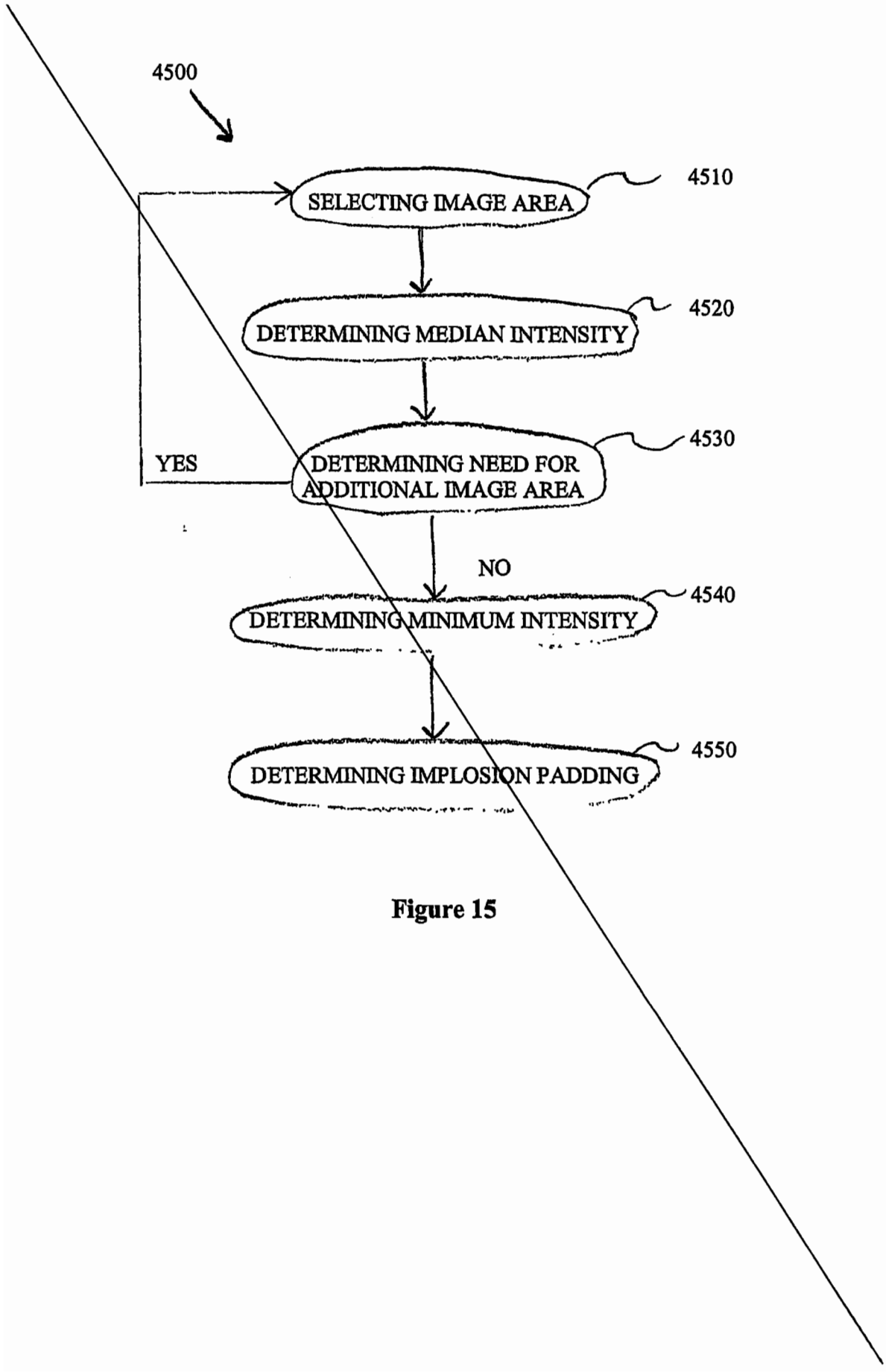
1482
1460
1400

Fig. 14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4510
DETERMINING MEDIAN INTENSITY
4520
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DETERMINING NEED FOR ADDITIONAL IMAGE AREA
4530
NO
DETERMINING MINIMUM INTENSITY
4540
DETERMINING IMPLOSION PADDING
4550

Figure 15

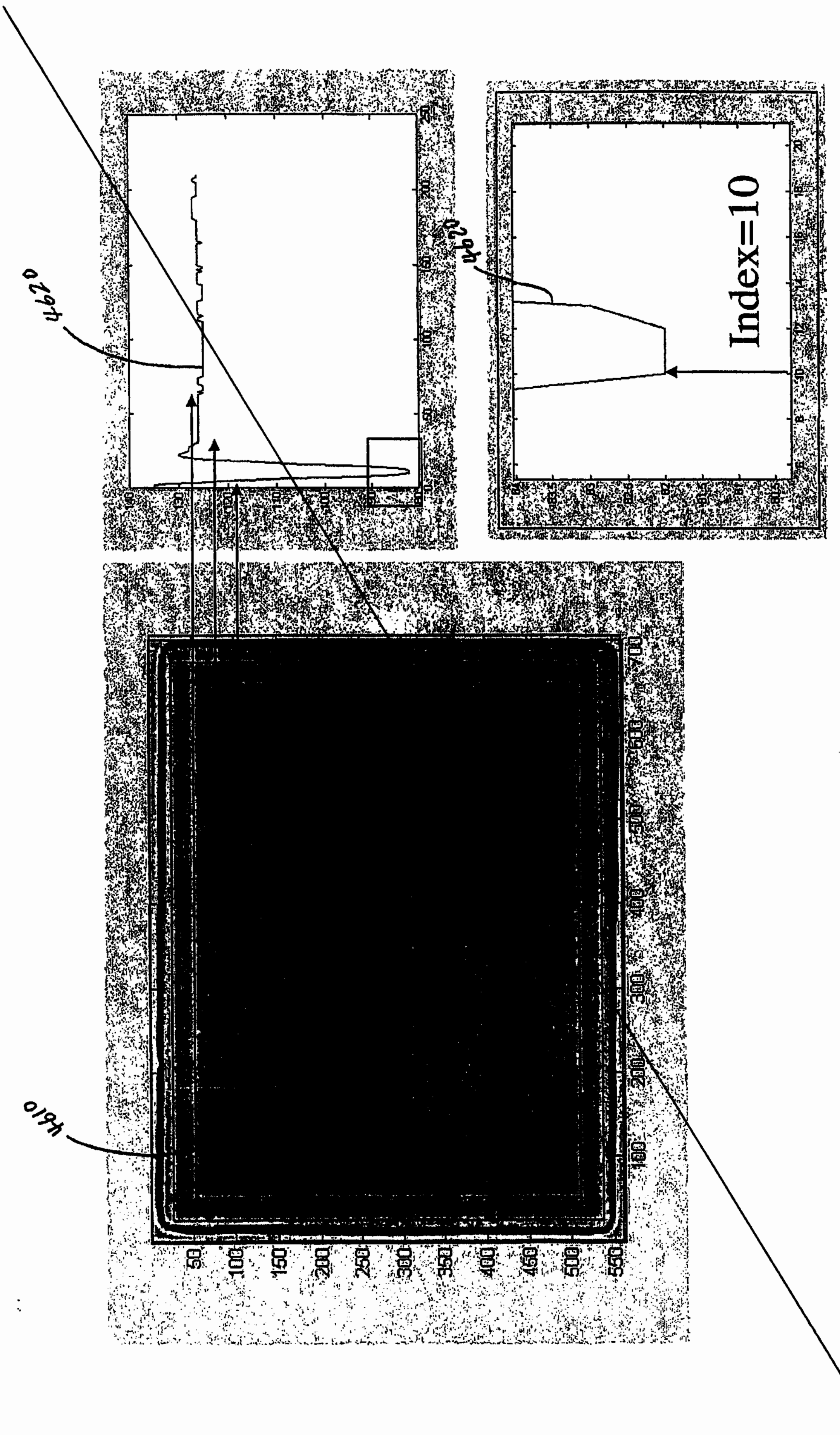
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Fig. 16

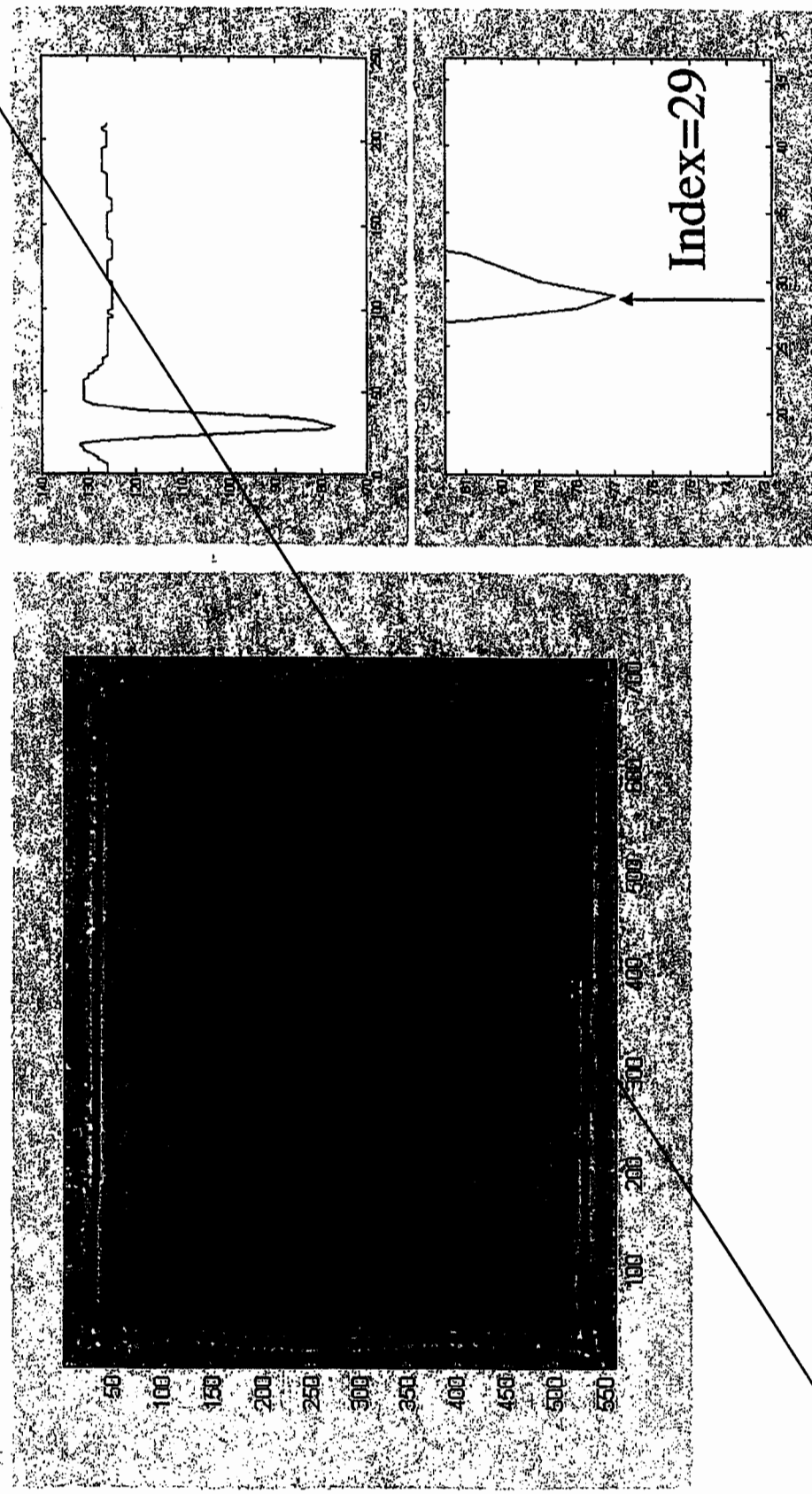


Figure 17

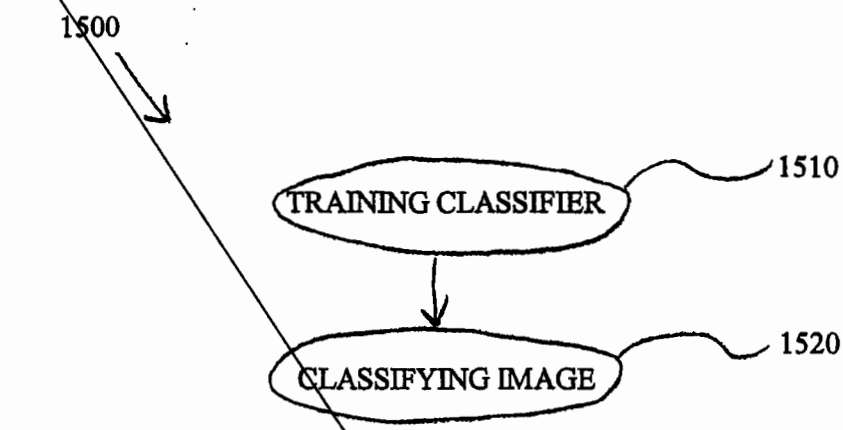
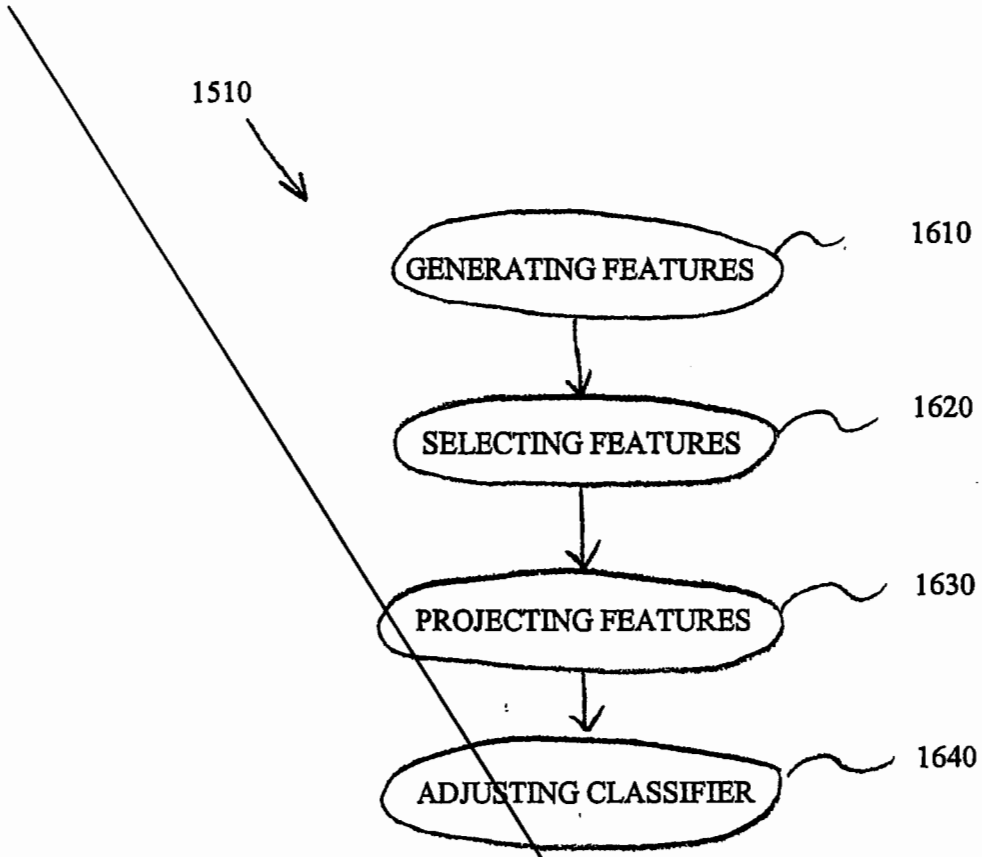


Figure 18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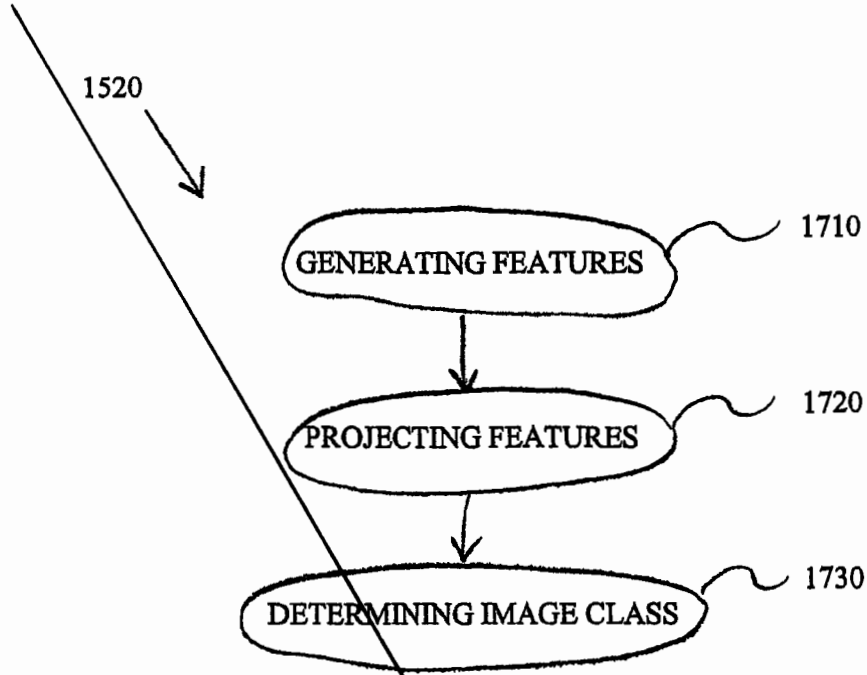
GENERATING FEATURES
1610
SELECTING FEATURES
1620
PROJECTING FEATURES
1630
ADJUSTING CLASSIFIER
1640

Figure 19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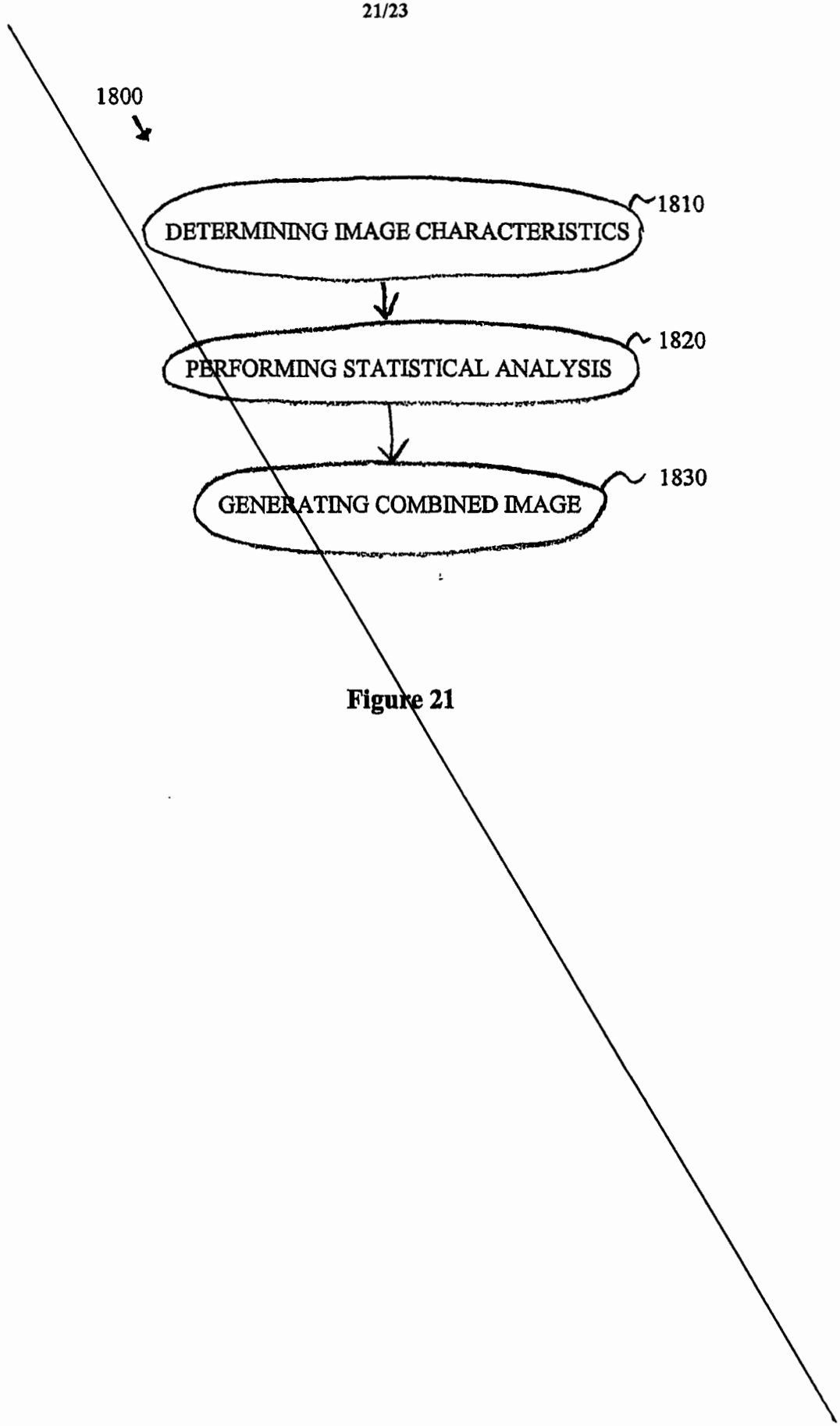
GENERATING FEATURES
1710
PROJECTING FEATURES
1720
DETERMINING IMAGE CLASS
1730

Figure 20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1810
PERFORMING STATISTICAL ANALYSIS
1820
GENERATING COMBINED IMAGE
1830

Figure 21

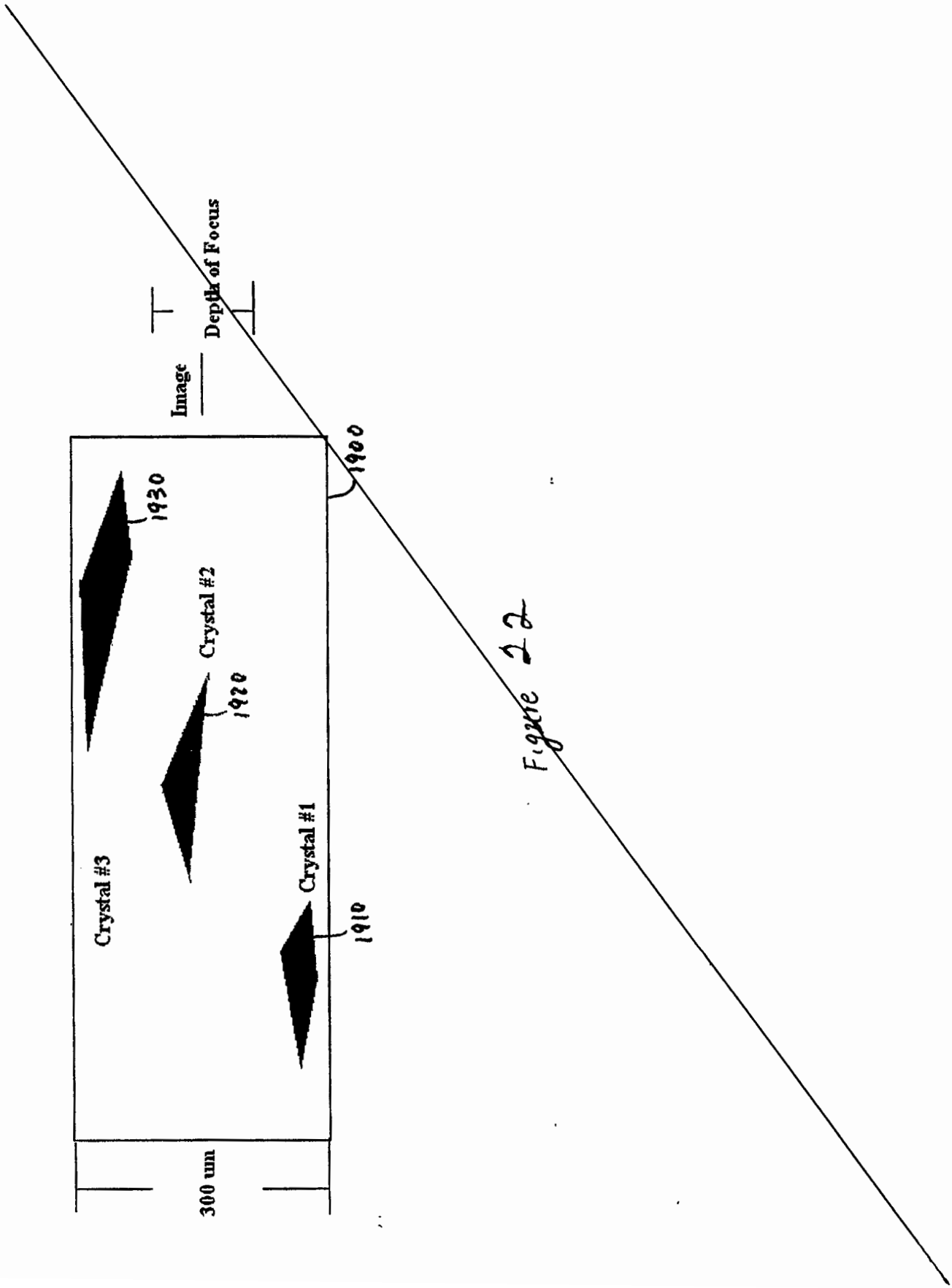

Depth of Focus
Image
1900
1930
Crystal #2
1920
Crystal #3
Crystal #1
1910
300 um

Figure 22

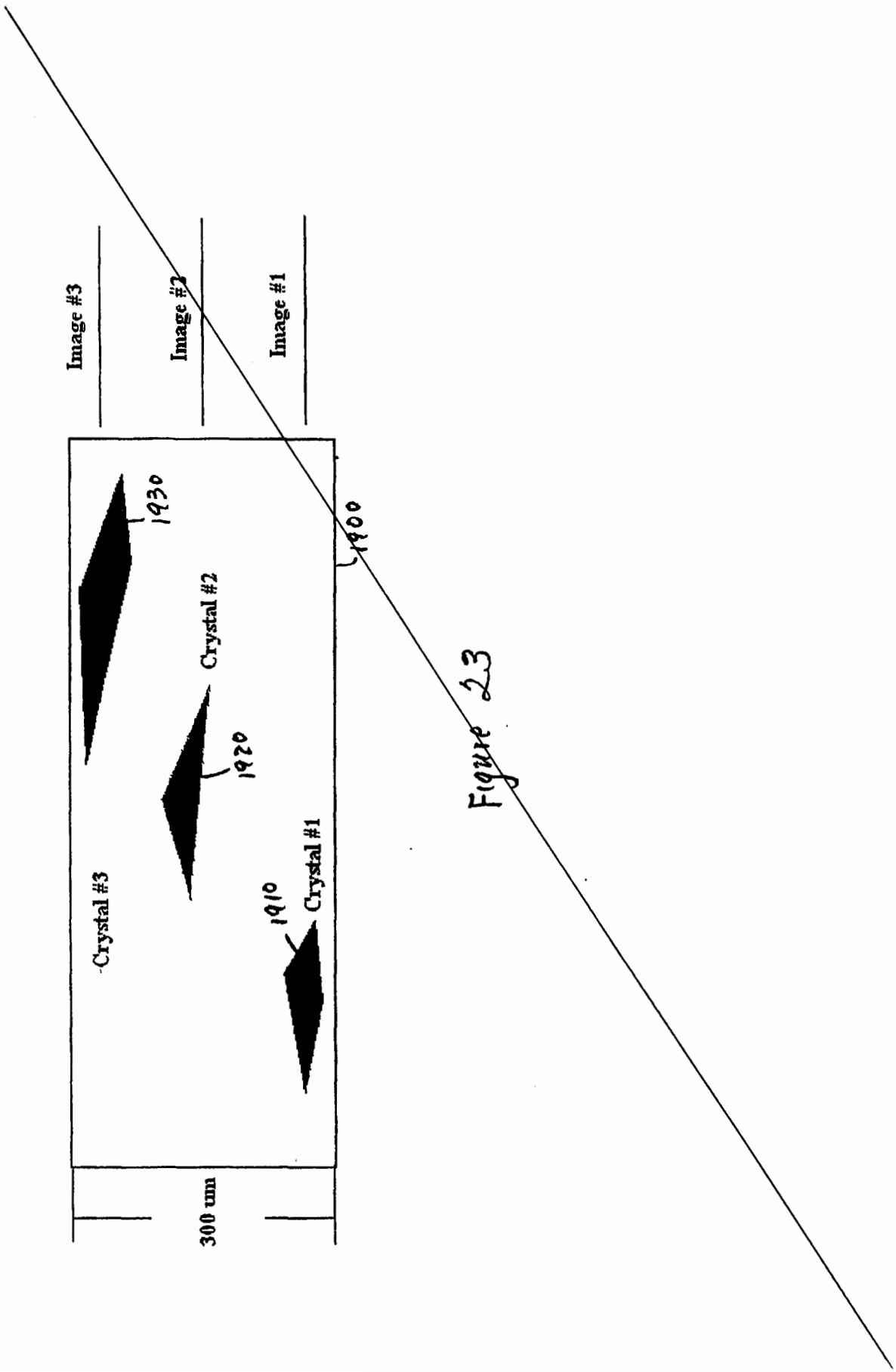
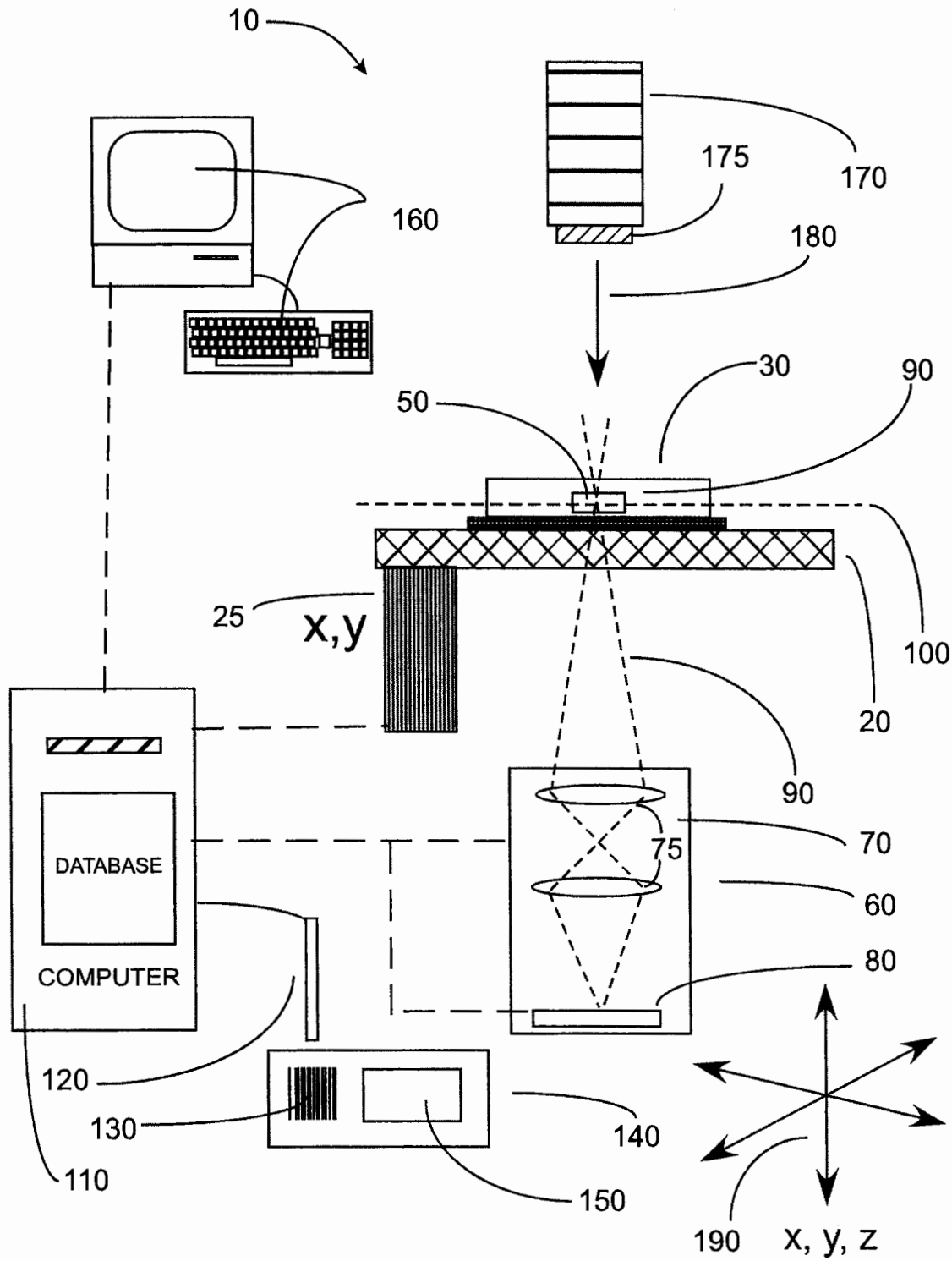


Image #3
Image #2
Image #1
1930
1900
Crystal #2
1920
Crystal #3
1910
Crystal #1
300 um

Figure 23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25
x,y
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20
90
DATABASE
COMPUTER
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60
80
120
130
140
110
150
190
x, y, z

FIG. 1

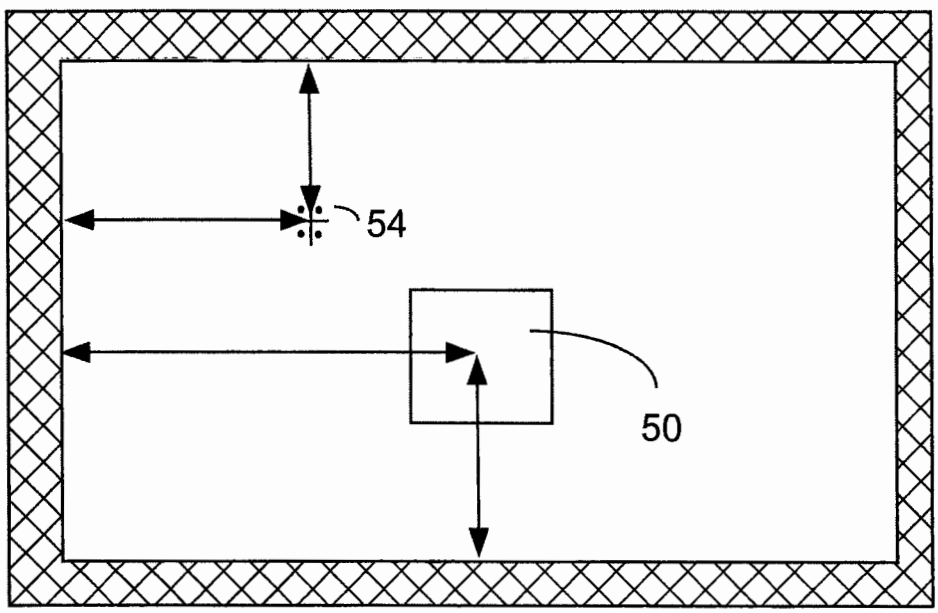


FIG. 2a

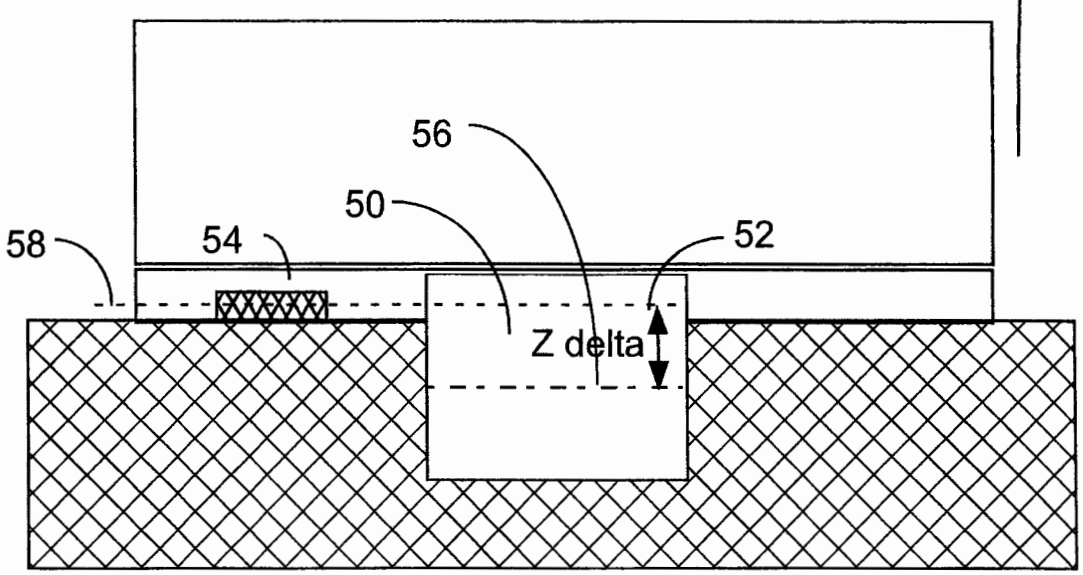


FIG. 2b

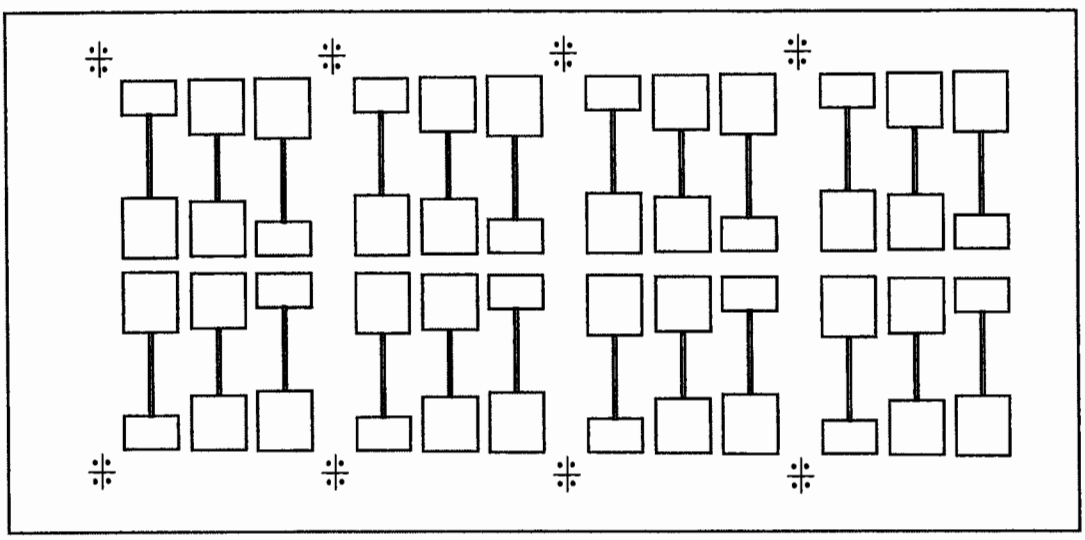


FIG. 3a

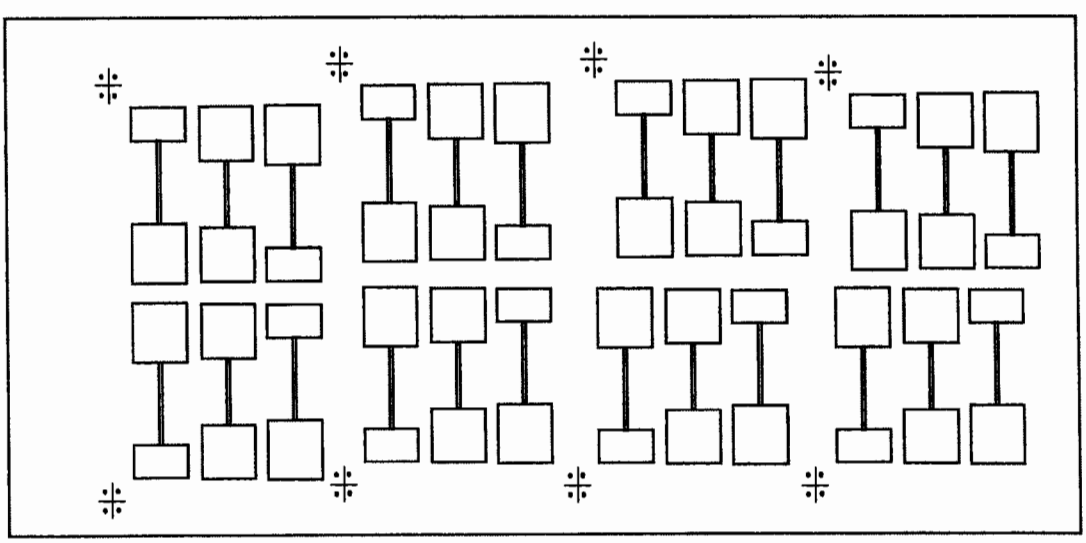


FIG. 3b

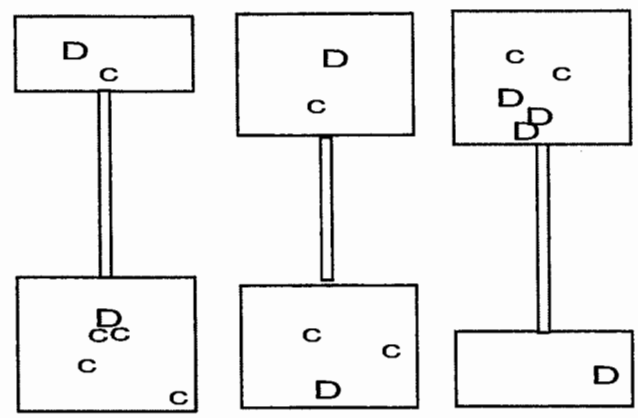


FIG. 4a

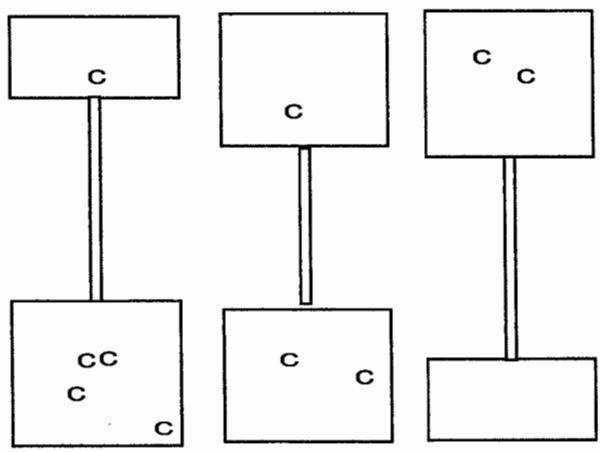
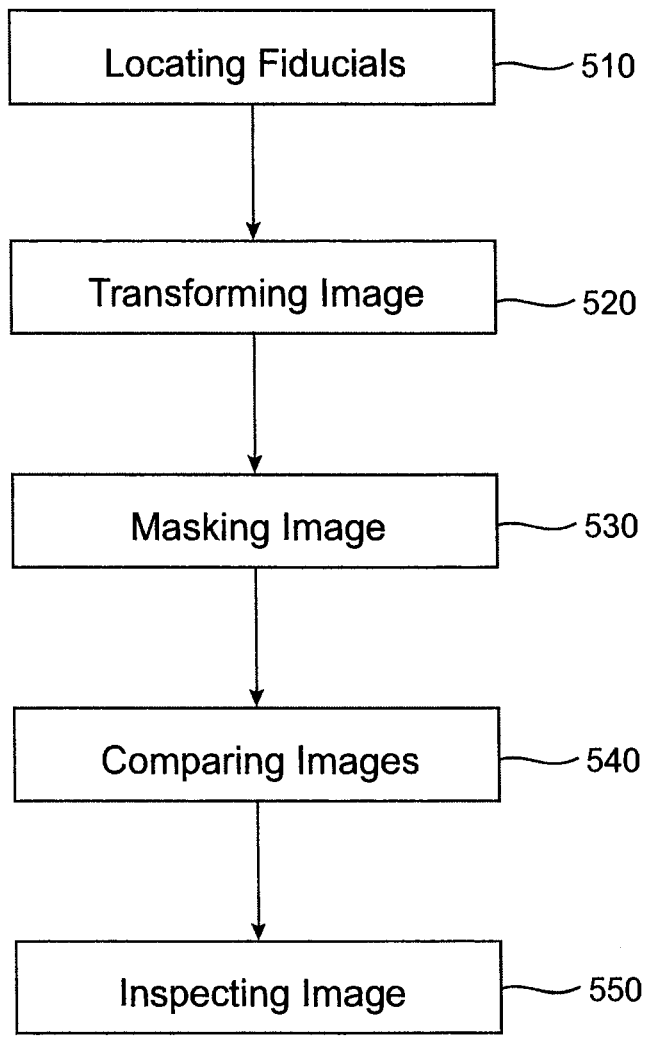


FIG. 4b



FIG. 4c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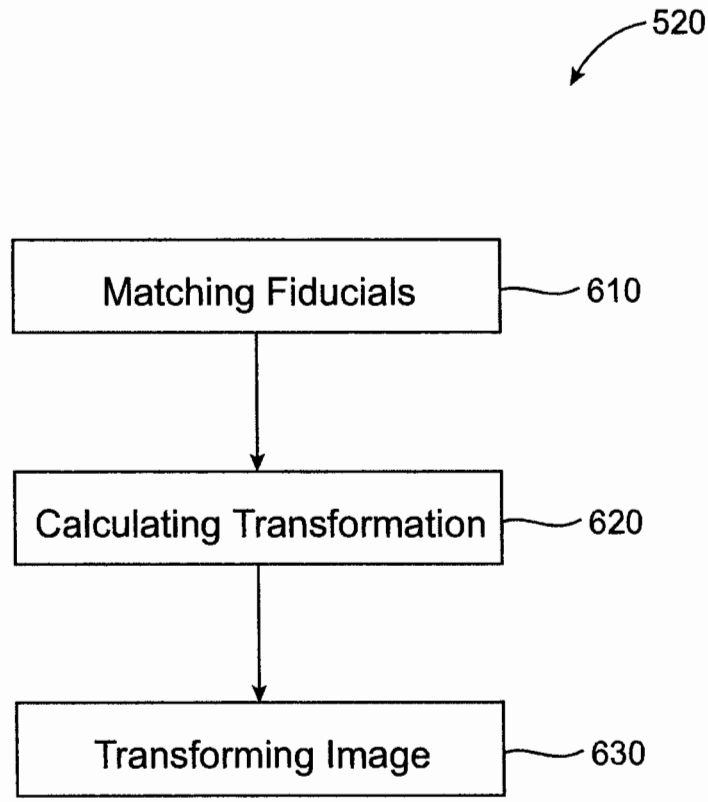
510
Transforming Image
520
Masking Image
530
Comparing Images
540
Inspecting Image
550

FIG. 5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Matching Fiducials
610
Calculating Transformation
620
Transforming Image
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FIG. 6

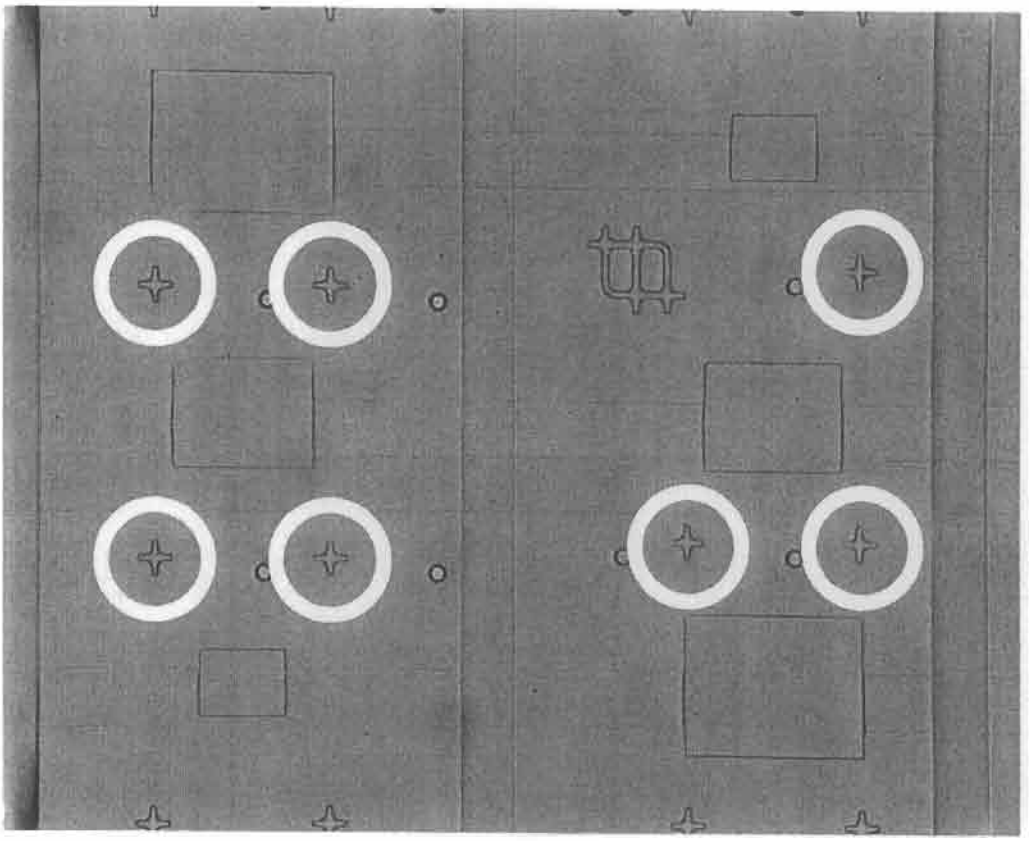
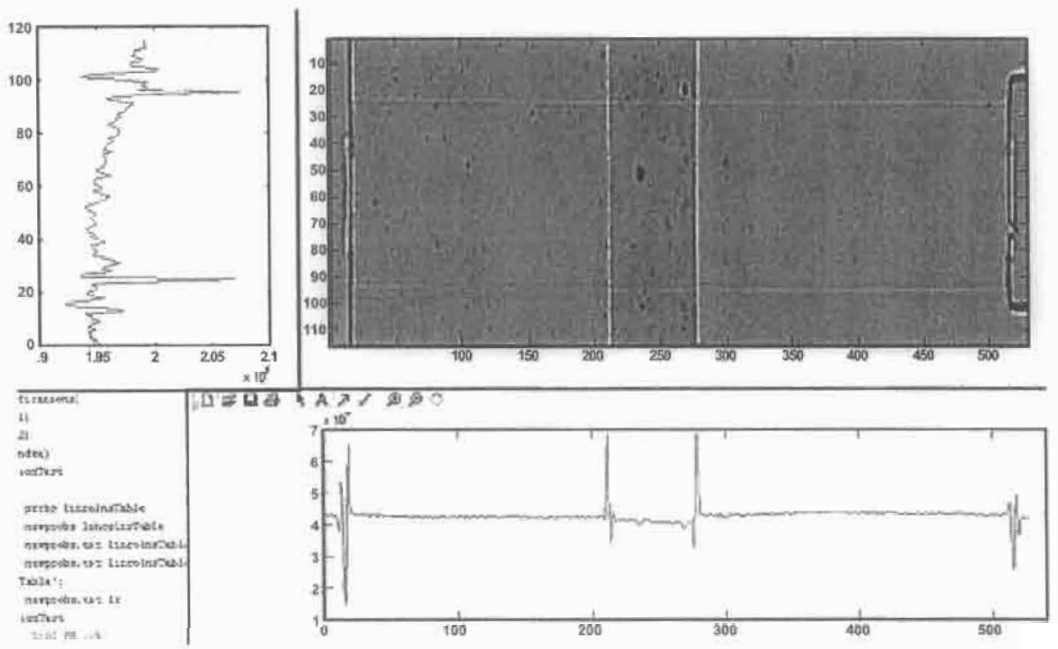


FIG. 7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.9
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2
2.05
2.1
x 10^4
10
20
30
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50
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70
80
90
100
110
100
150
200
250
300
350
400
450
500
x 10^7
7
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5
4
3
2
1
0
100
200
300
400
500

FIG. 8



FIG. 9

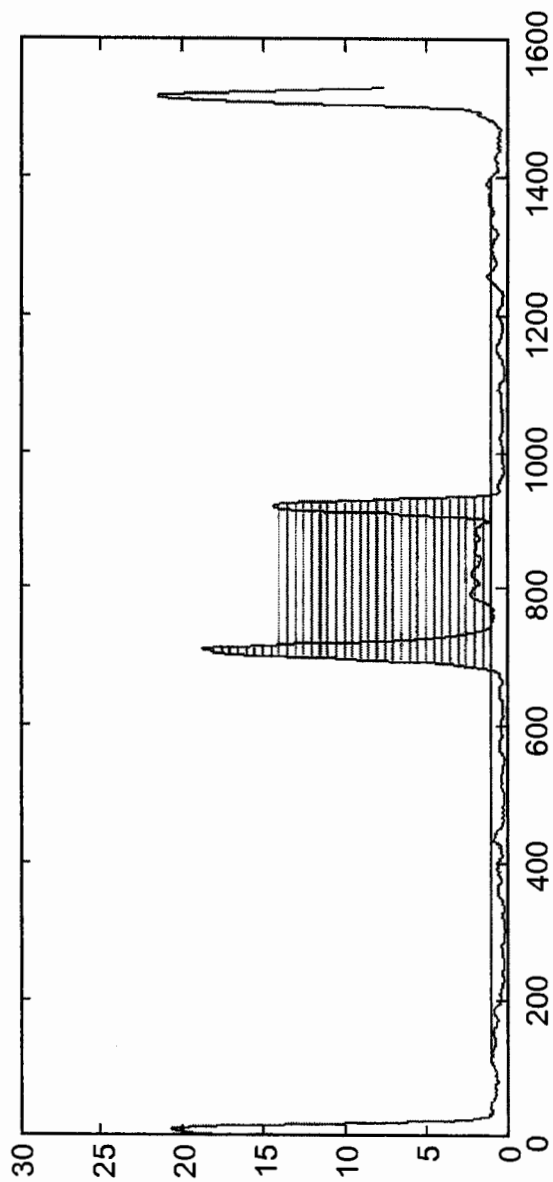


FIG. 10

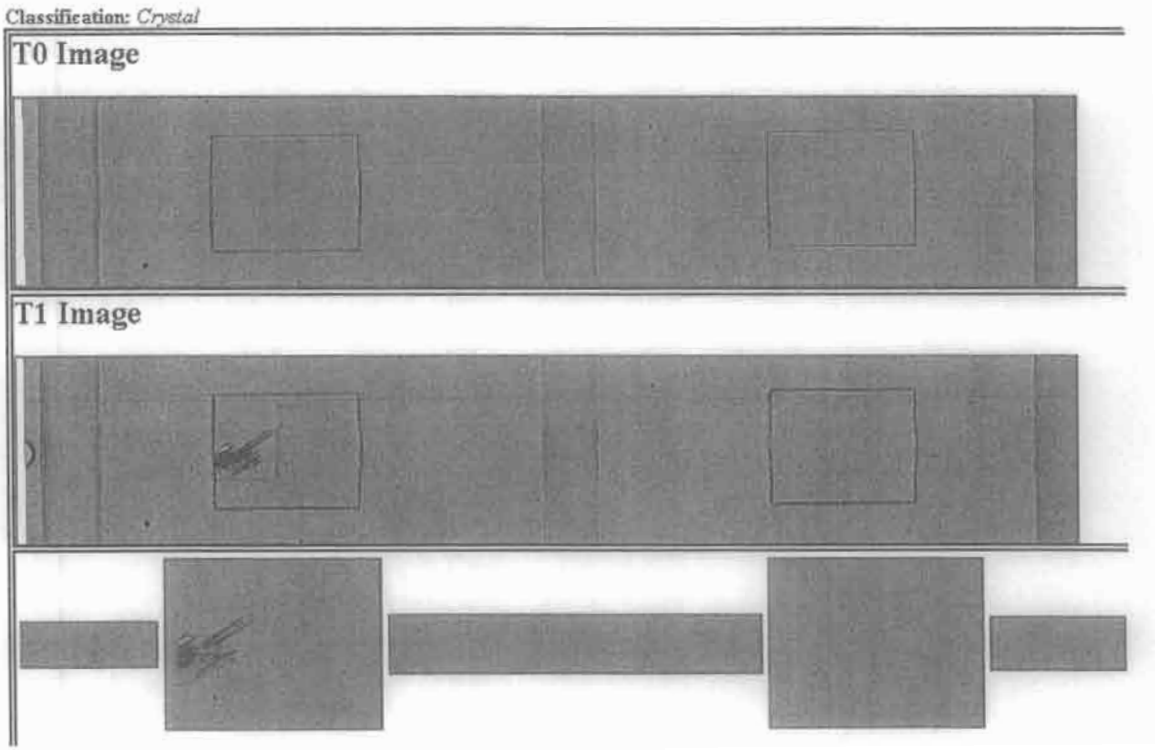
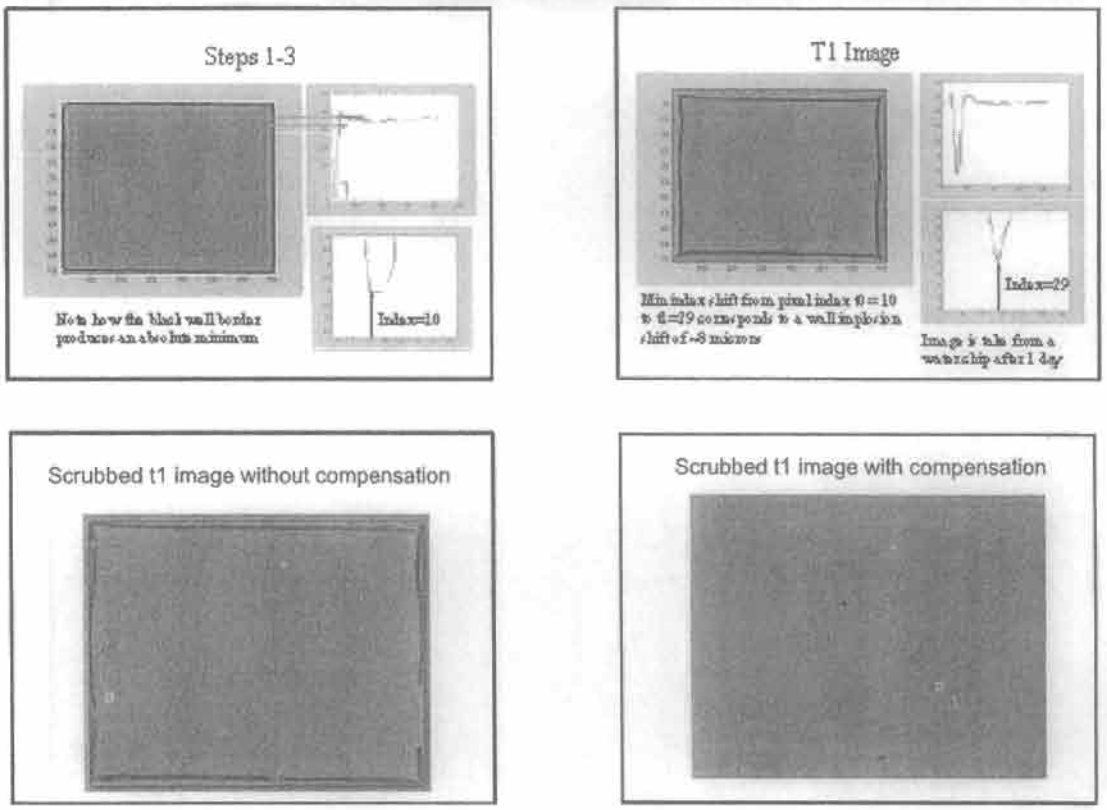


FIG. 11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T1 Image
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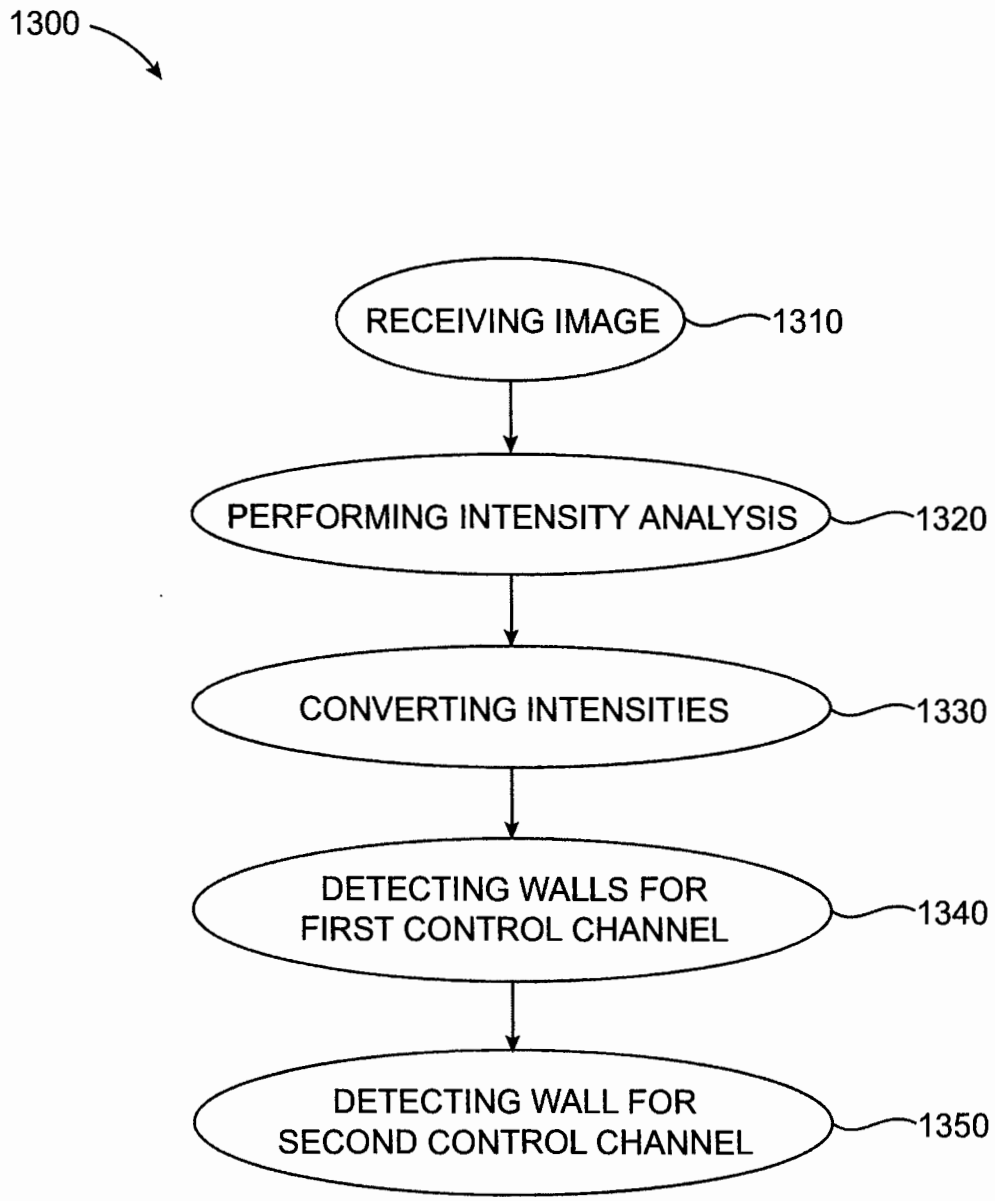
Scrubbed t1 image without compensation
Scrubbed t1 image with compensation

FIG. 12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RECEIVING IMAGE
1310
PERFORMING INTENSITY ANALYSIS
1320
CONVERTING INTENSITIES
1330
DETECTING WALLS FOR FIRST CONTROL CHANNEL
1340
DETECTING WALL FOR SECOND CONTROL CHANNEL
1350

FIG. 13

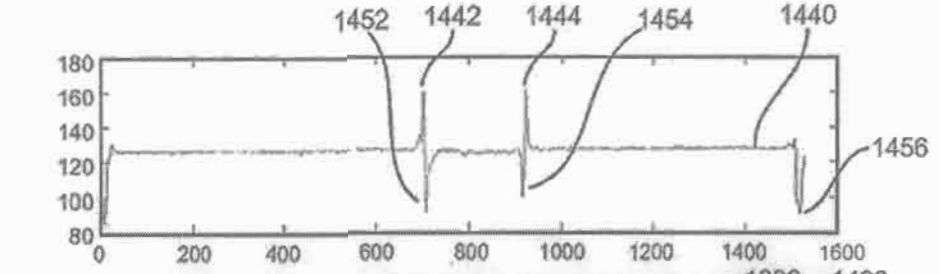


FIG. 14(b)

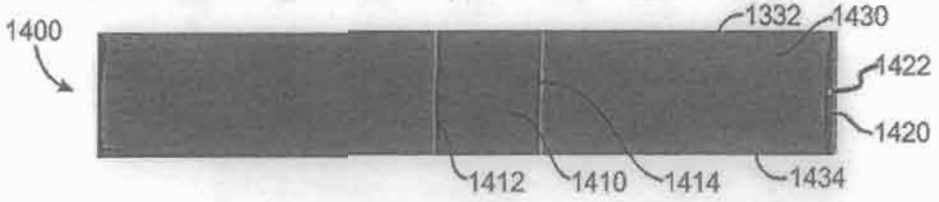


FIG. 14(a)

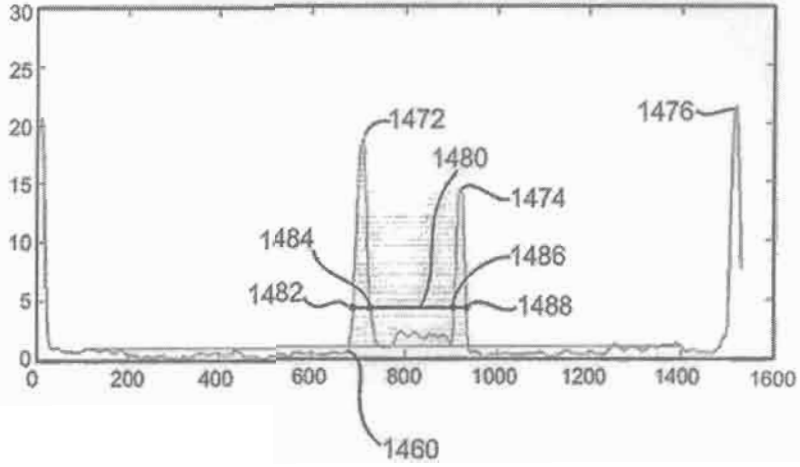
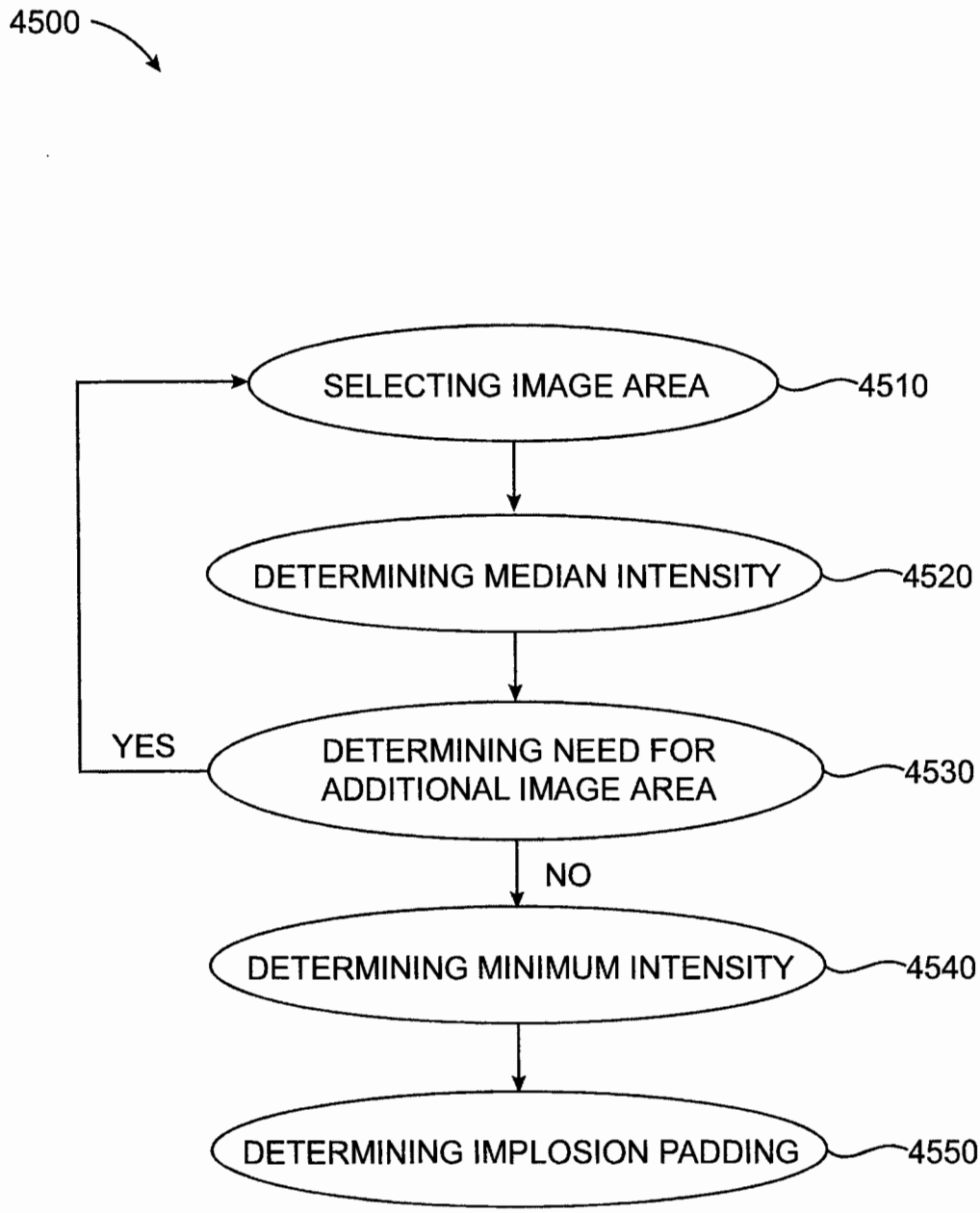


FIG. 14(c)


4500
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4510
DETERMINING MEDIAN INTENSITY
4520
YES
DETERMINING NEED FOR ADDITIONAL IMAGE AREA
4530
NO
DETERMINING MINIMUM INTENSITY
4540
DETERMINING IMPLOSION PADDING
4550

FIG. 15

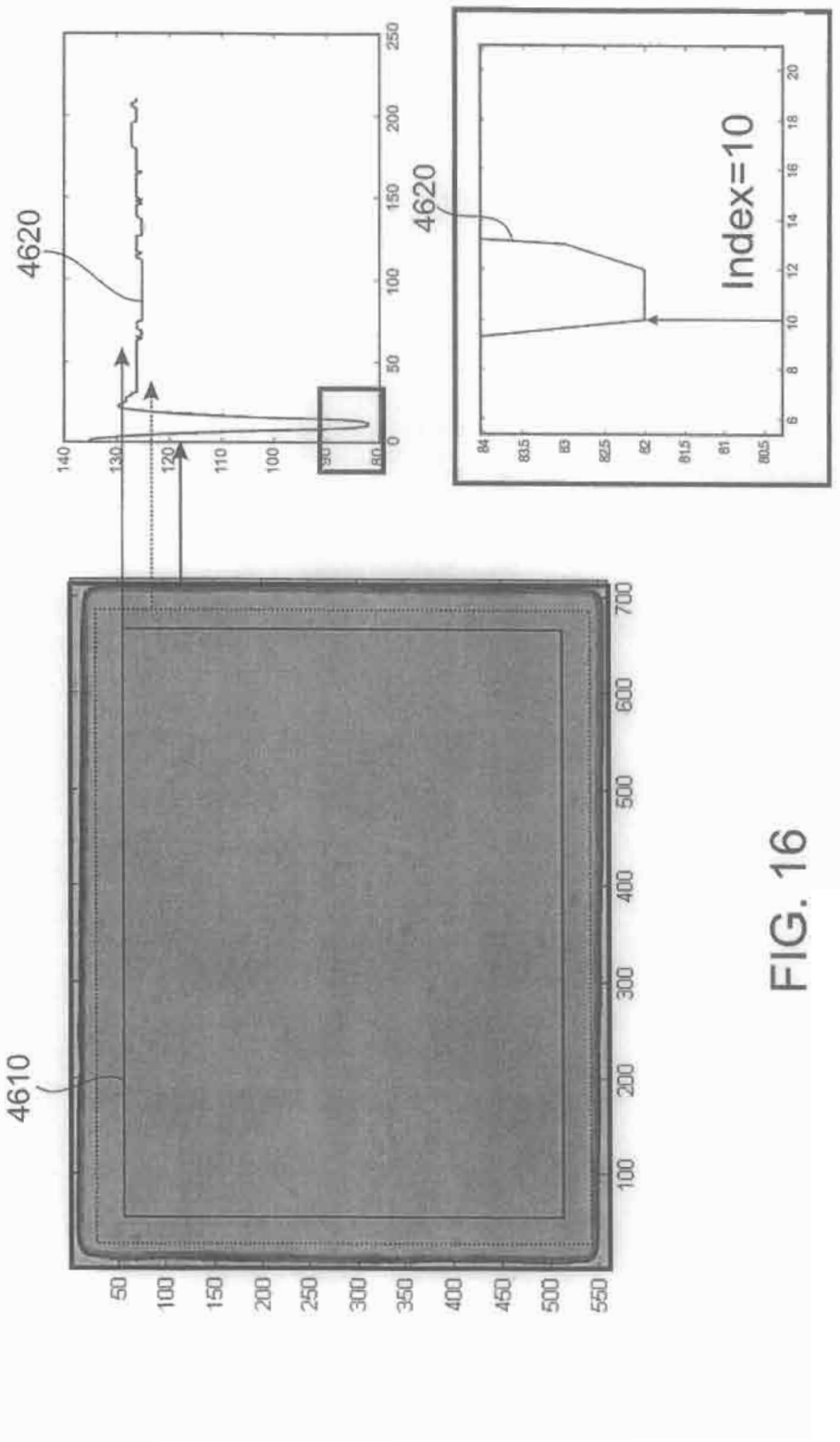


FIG. 16

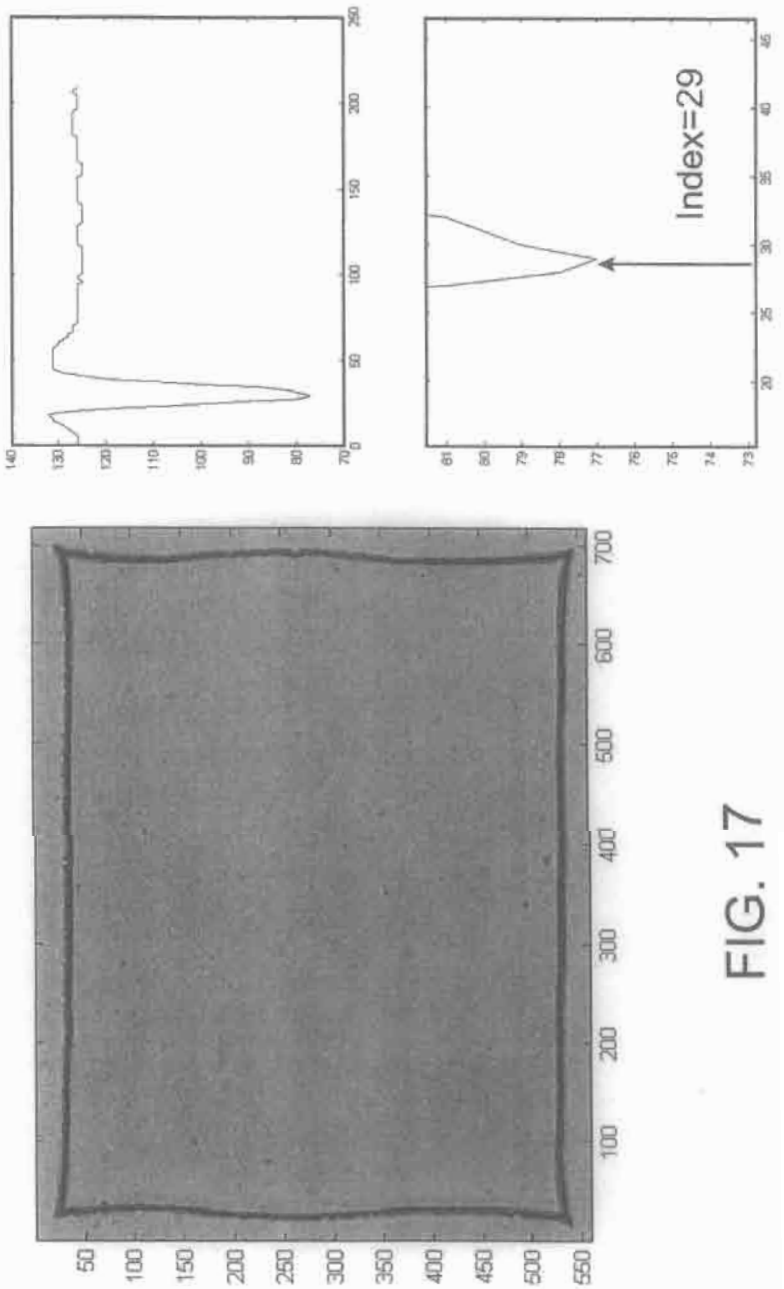


FIG. 17

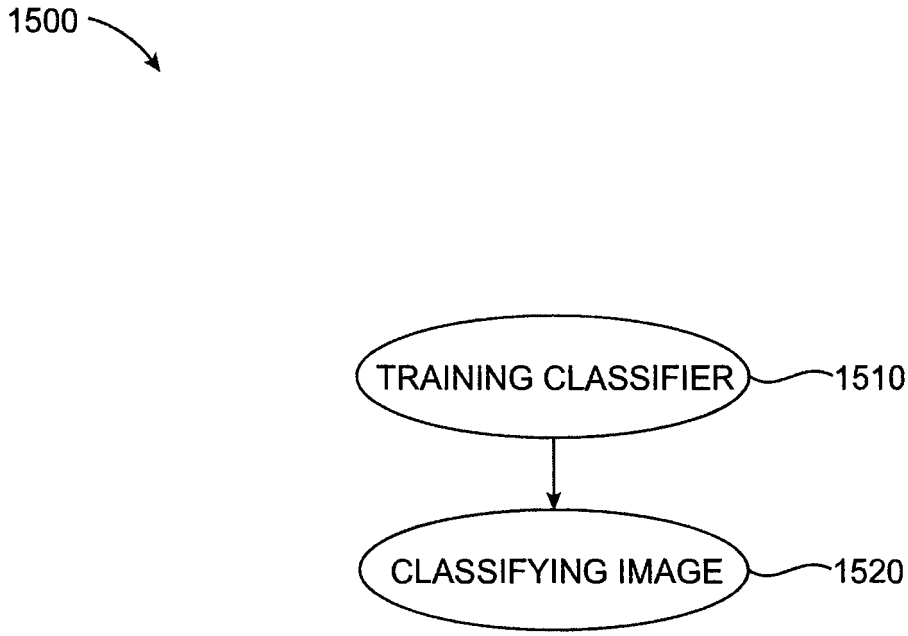
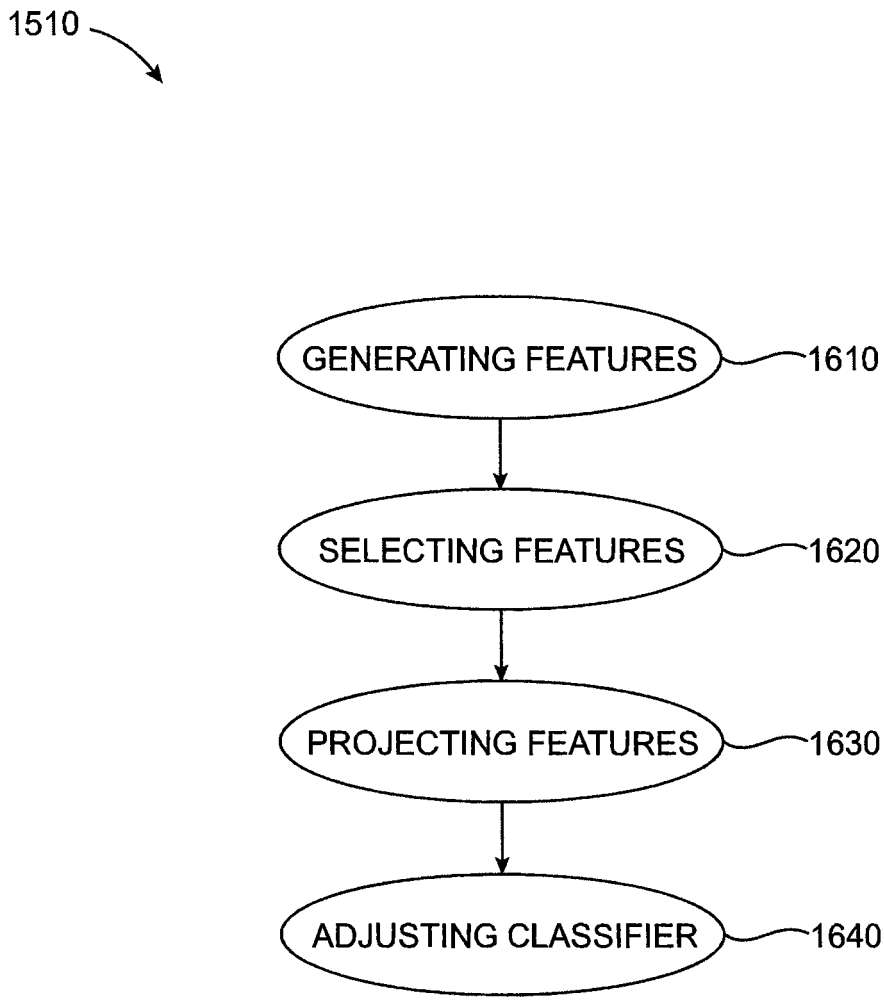


FIG. 18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1610
SELECTING FEATURES
1620
PROJECTING FEATURES
1630
ADJUSTING CLASSIFIER
1640

FIG. 19

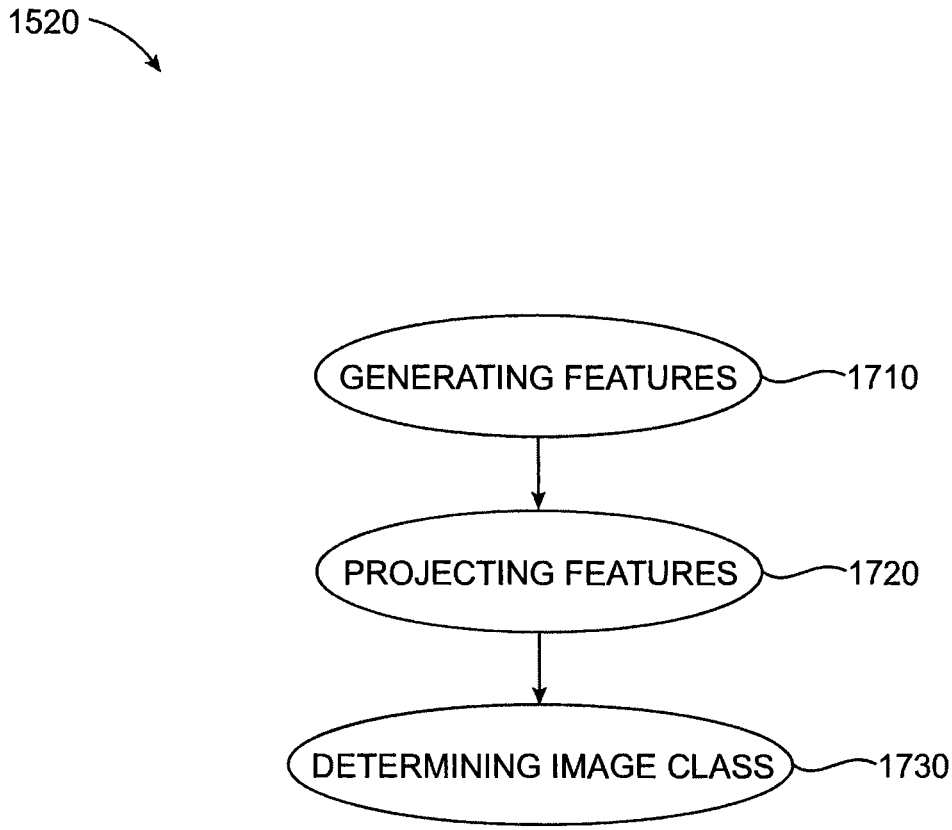
1520
GENERATING FEATURES
1710
PROJECTING FEATURES
1720
DETERMINING IMAGE CLASS
1730

FIG. 20

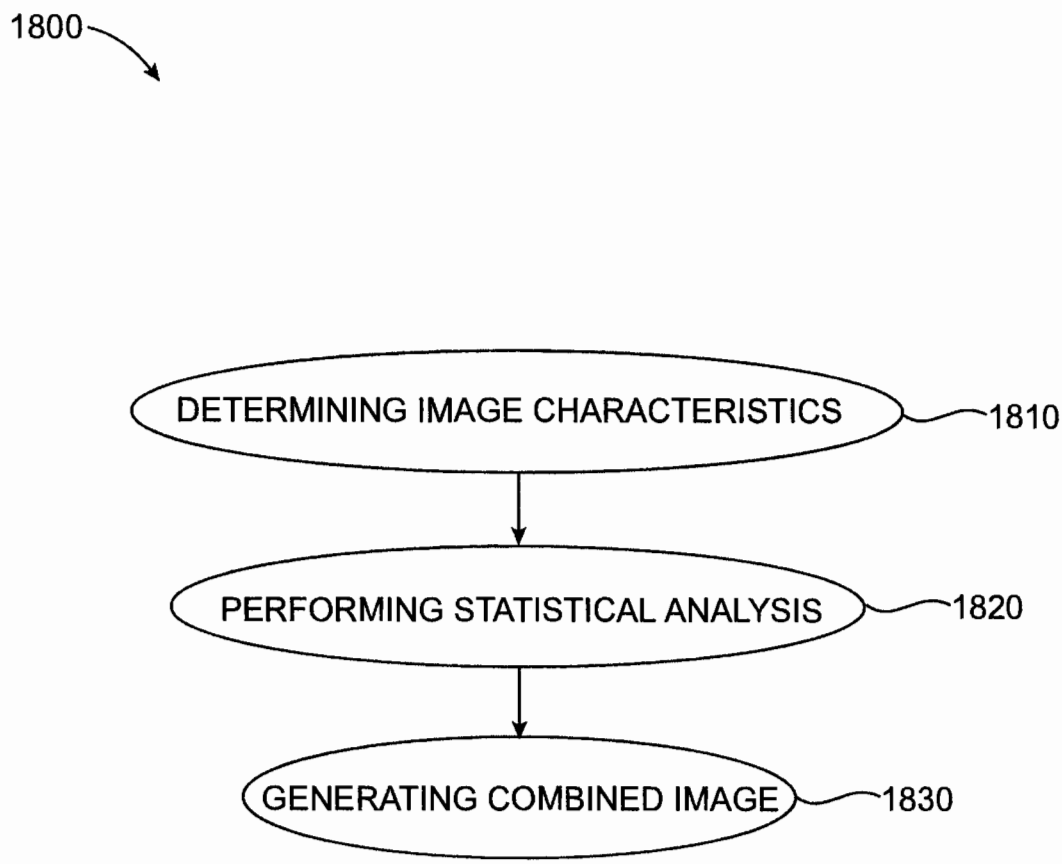
1800
DETERMINING IMAGE CHARACTERISTICS
1810
PERFORMING STATISTICAL ANALYSIS
1820
GENERATING COMBINED IMAGE
1830

FIG. 21

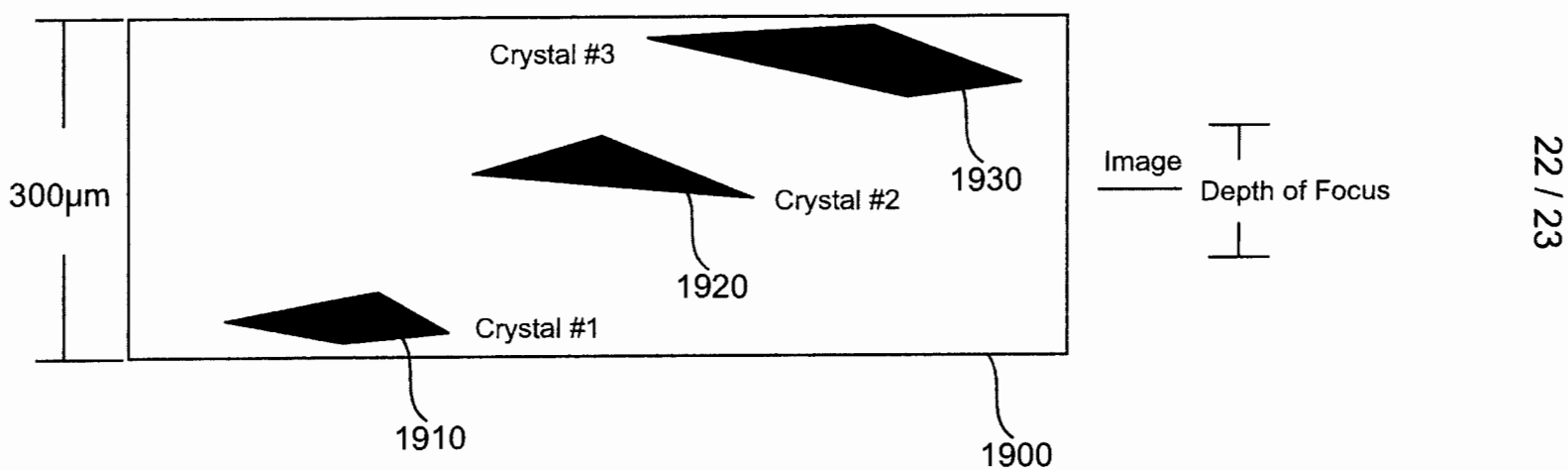
Crystal #3
1930
Crystal #2
1920
Crystal #1
1910
1900
300µm
Image
Depth of Focus

FIG. 22

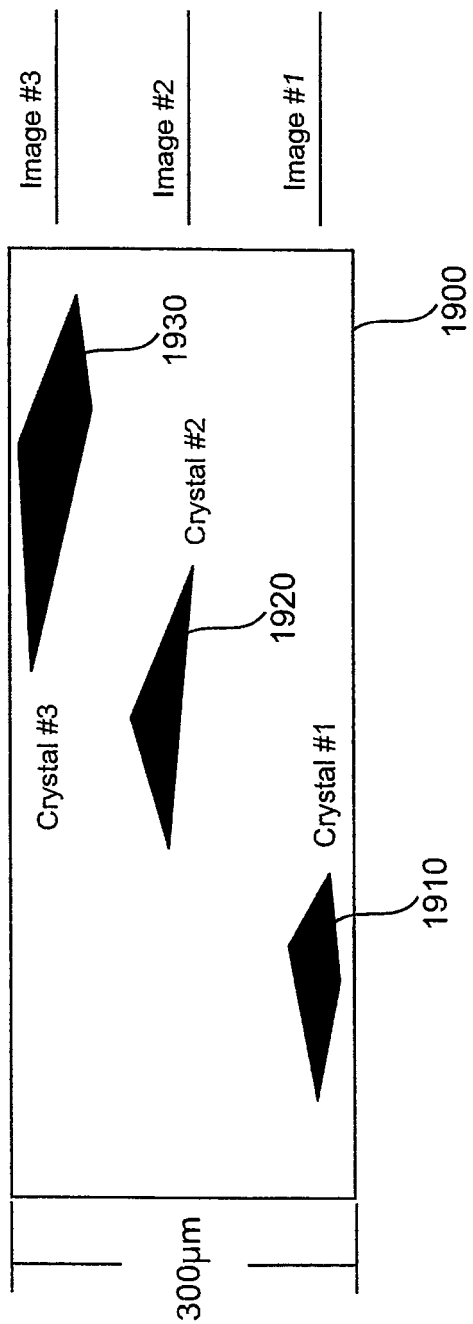
Image #3
Image #2
Image #1
1930
1900
Crystal #2
1920
Crystal #3
Crystal #1
1910
300μm

FIG. 23