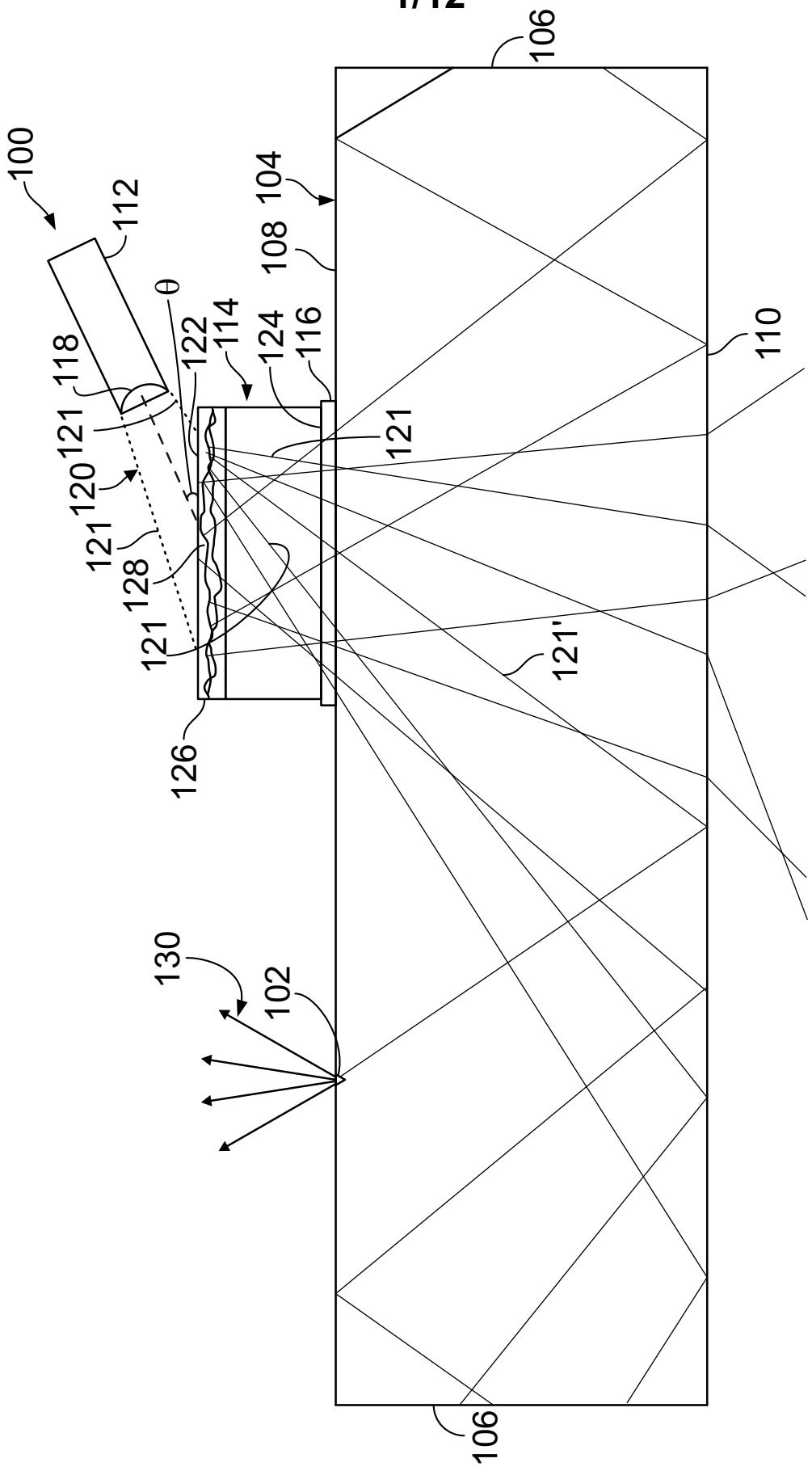

100
112
θ
118
122
114
124
116
104
108
106
110
121
120
121
128
121
126
121'
130
102
106

FIG. 1

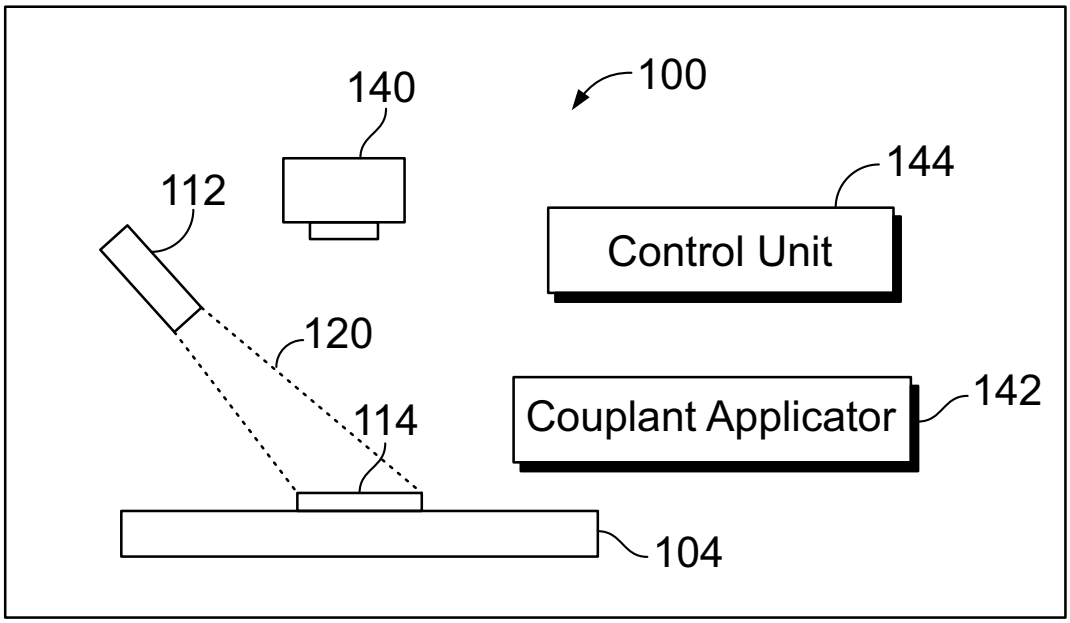

140
100
144
112
Control Unit
120
142
114
Couplant Applicator
104

FIG. 2

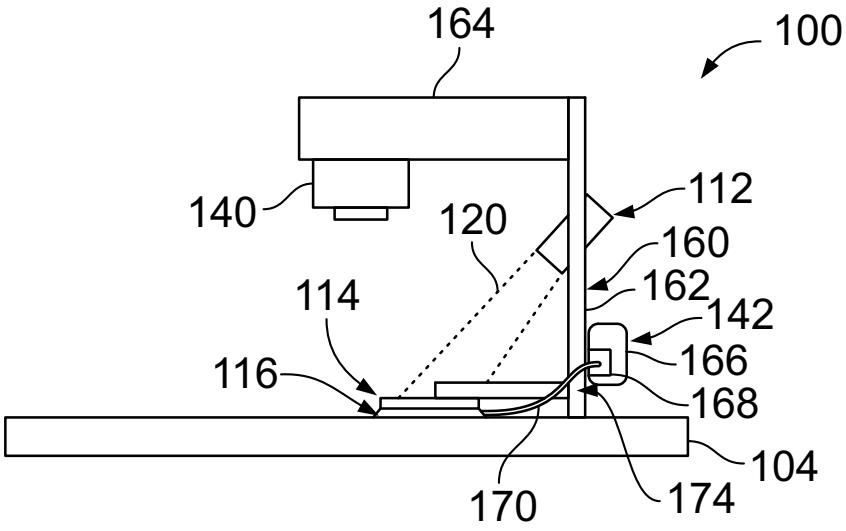

164
100
140
120
112
160
162
114
142
166
116
168
104
170
174

FIG. 3

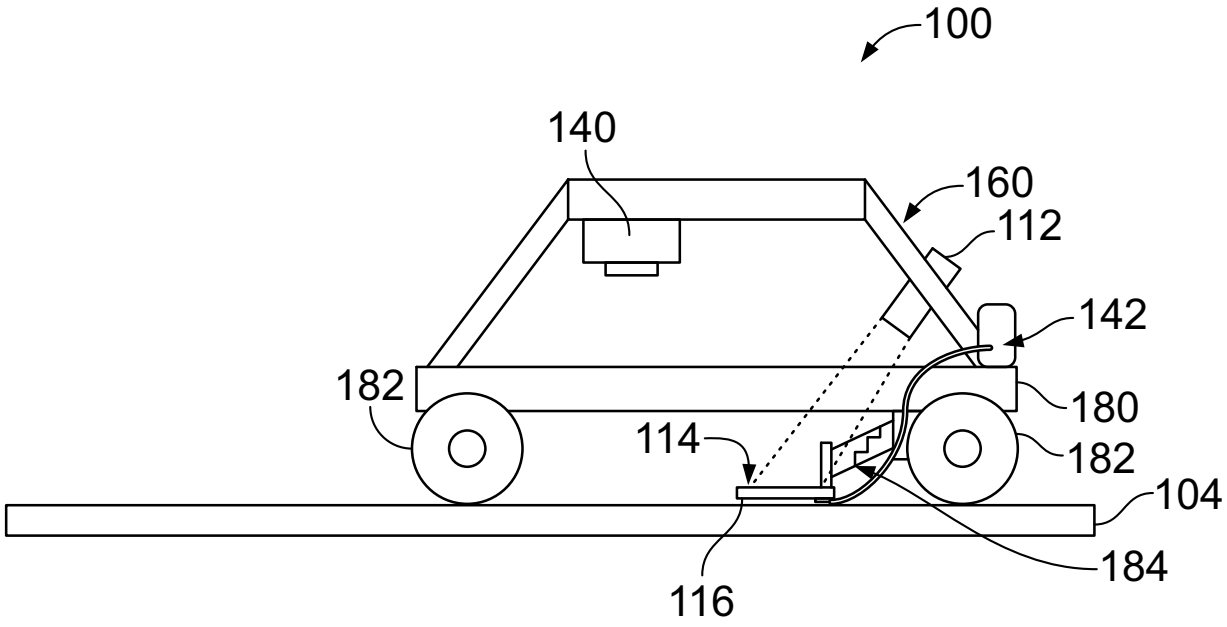

100
140
160
112
142
182
180
114
182
104
184
116

FIG. 4

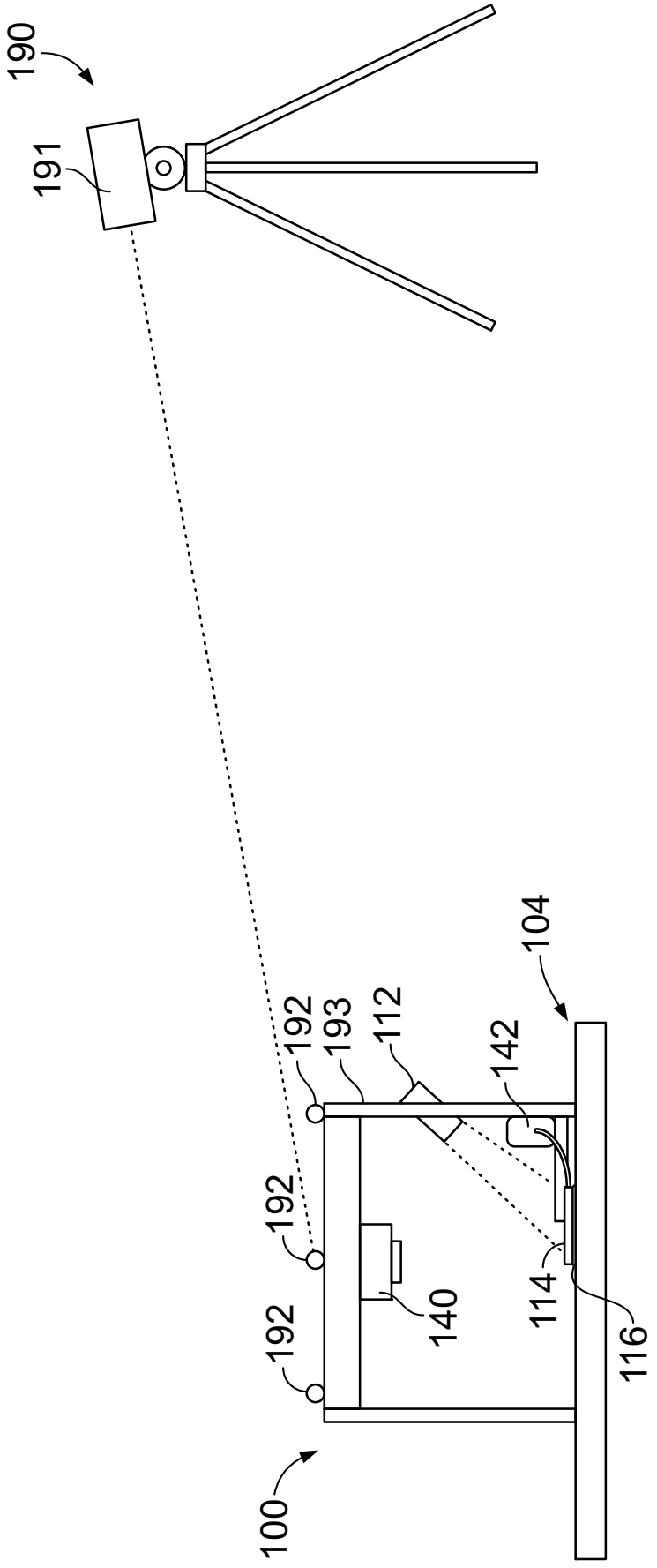


FIG. 5

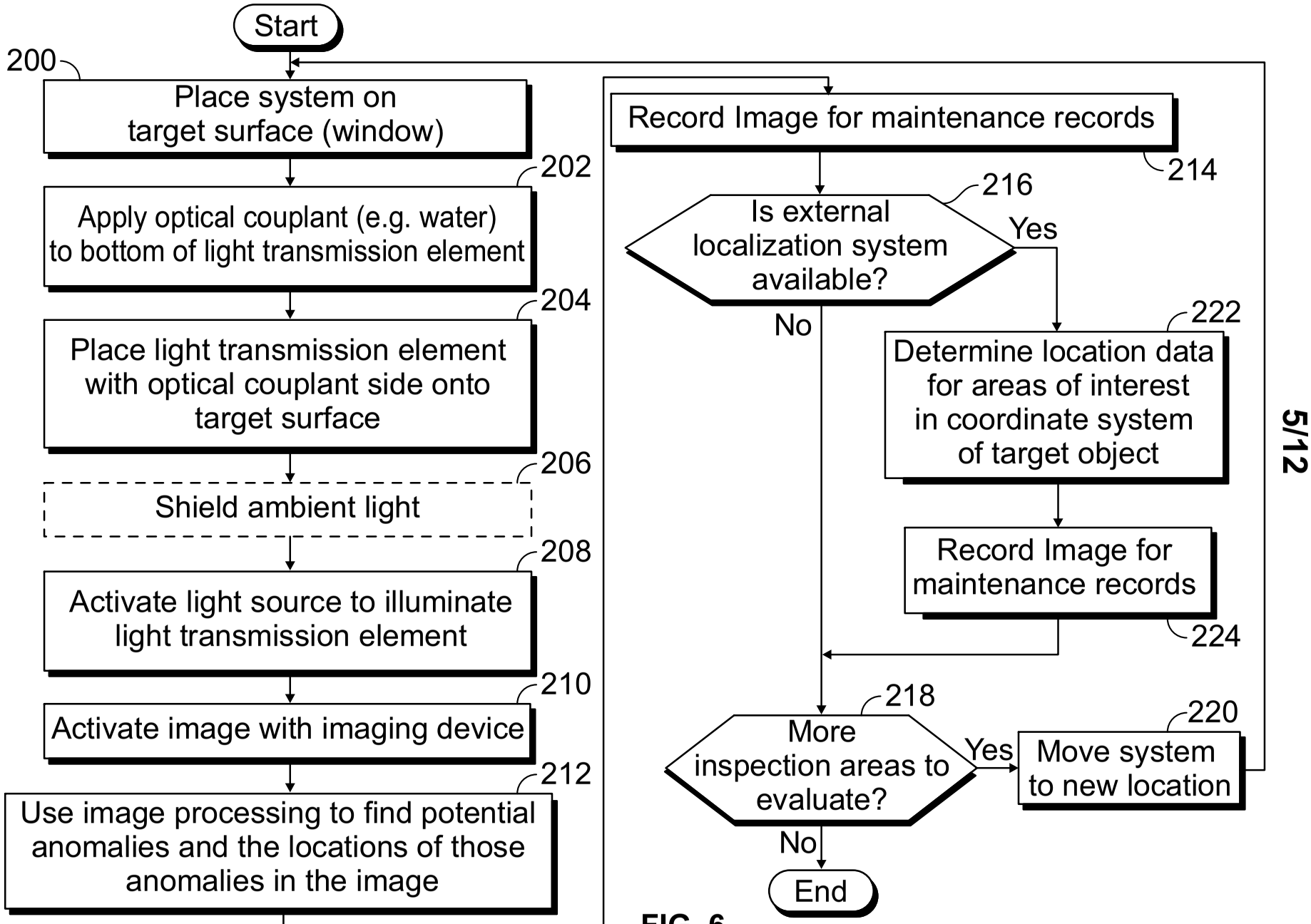

Start
200
Place system on target surface (window)
202
Apply optical couplant (e.g. water) to bottom of light transmission element
204
Place light transmission element with optical couplant side onto target surface
206
Shield ambient light
208
Activate light source to illuminate light transmission element
210
Activate image with imaging device
212
Use image processing to find potential anomalies and the locations of those anomalies in the image
Record Image for maintenance records
214
216
Is external localization system available?
Yes
No
222
Determine location data for areas of interest in coordinate system of target object
Record Image for maintenance records
224
218
More inspection areas to evaluate?
Yes
220
Move system to new location
No
End

FIG. 6

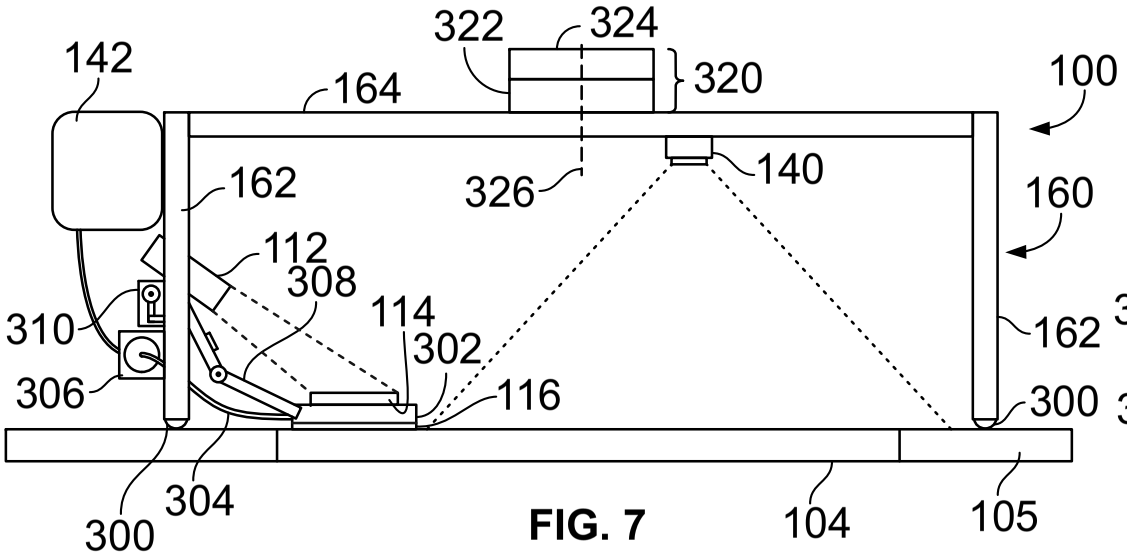


FIG. 7

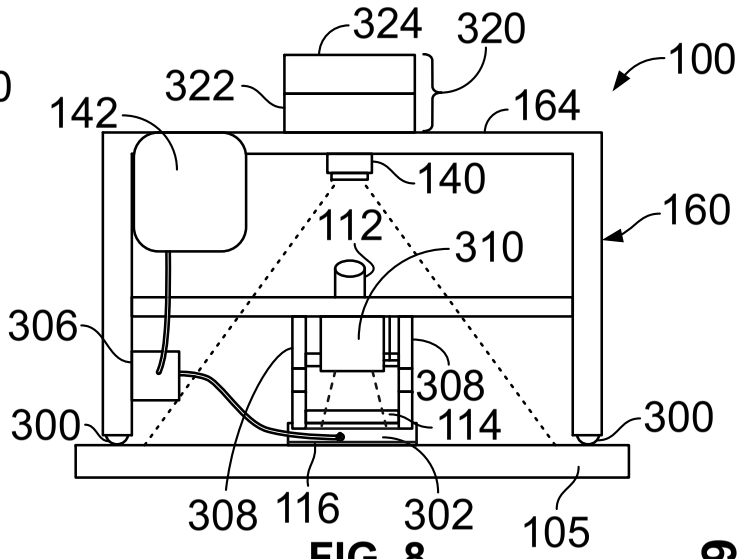


FIG. 8

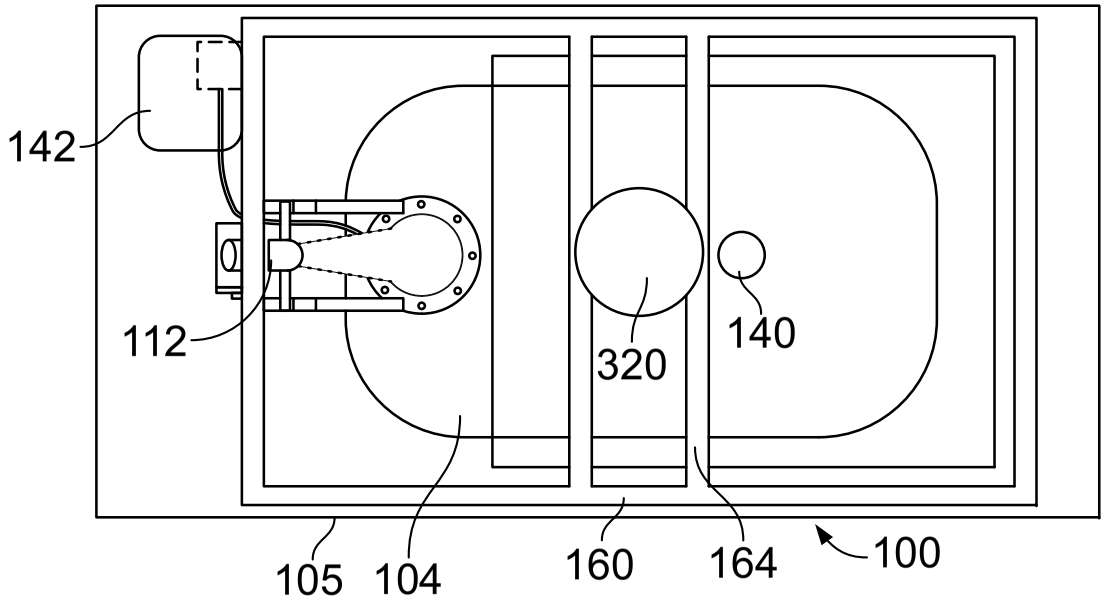


FIG. 9

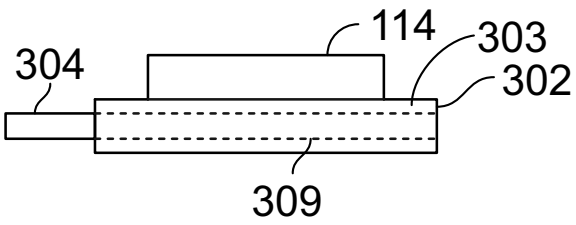


FIG. 10

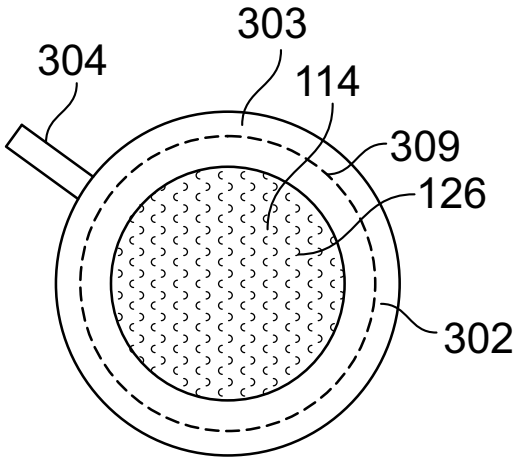


FIG. 11

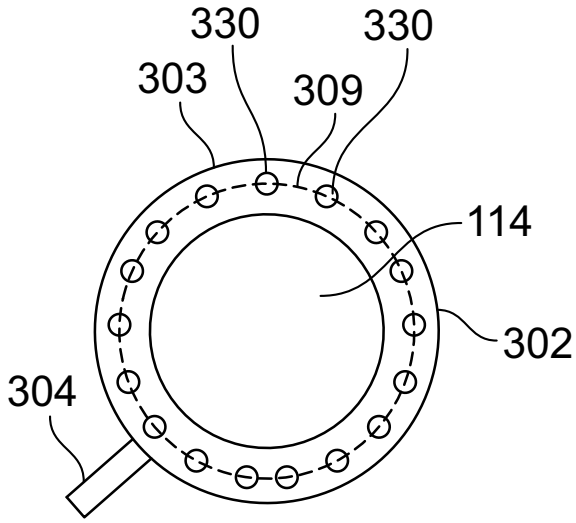


FIG. 12

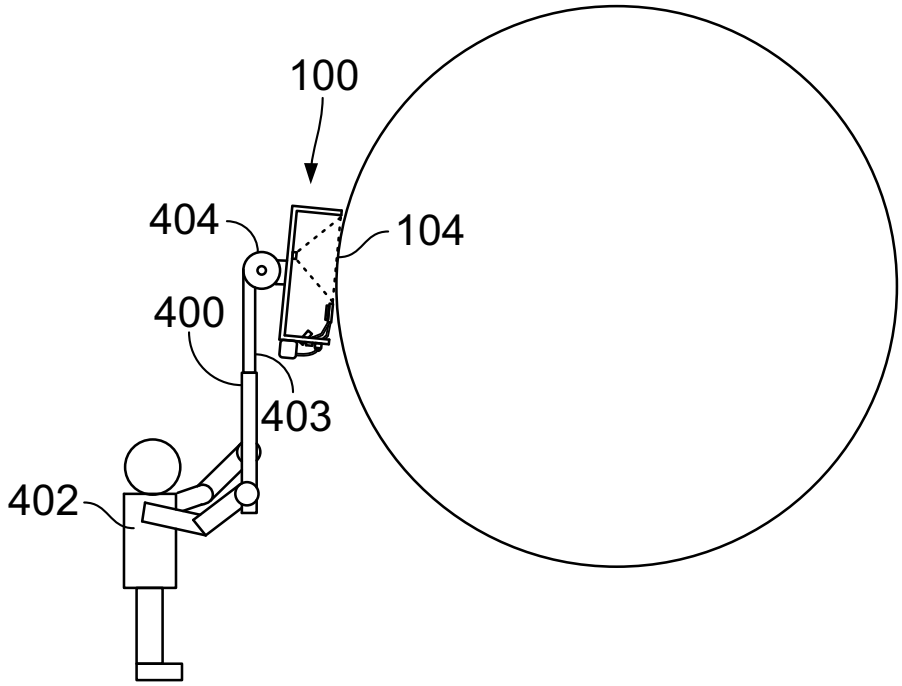


FIG. 13

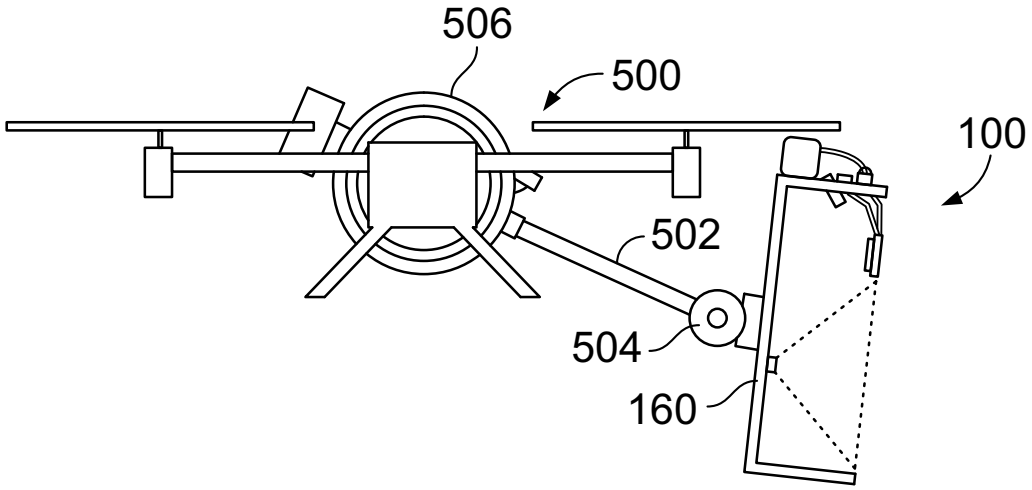


FIG. 14

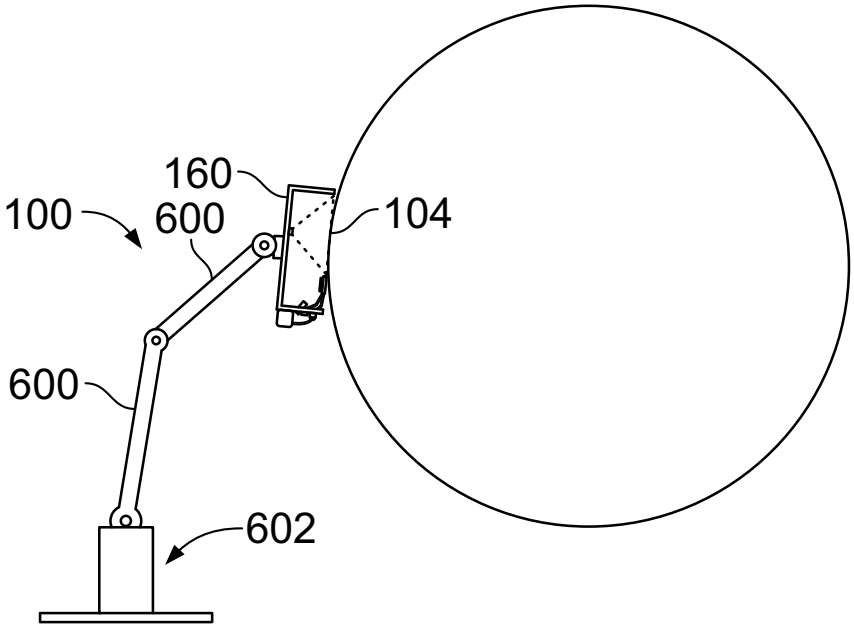


FIG. 15

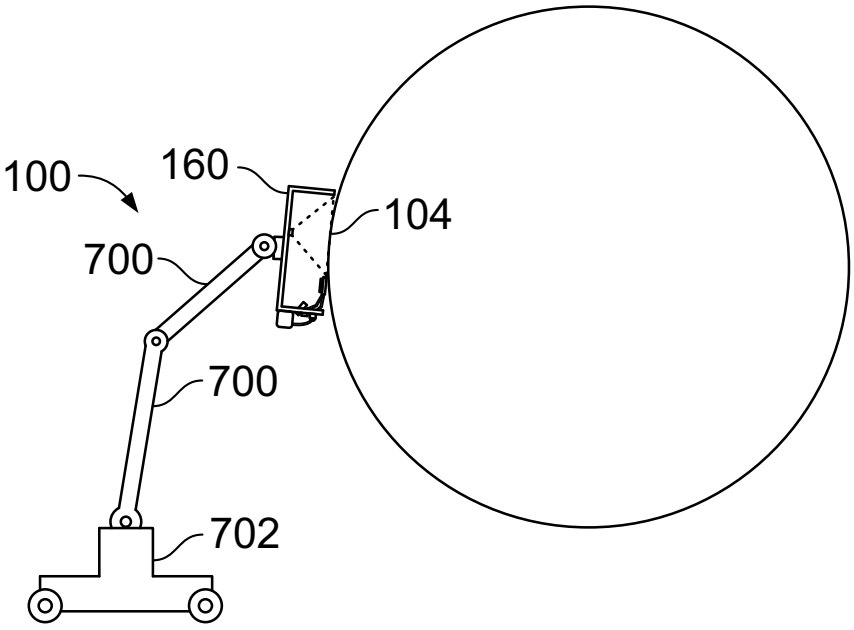


FIG. 16

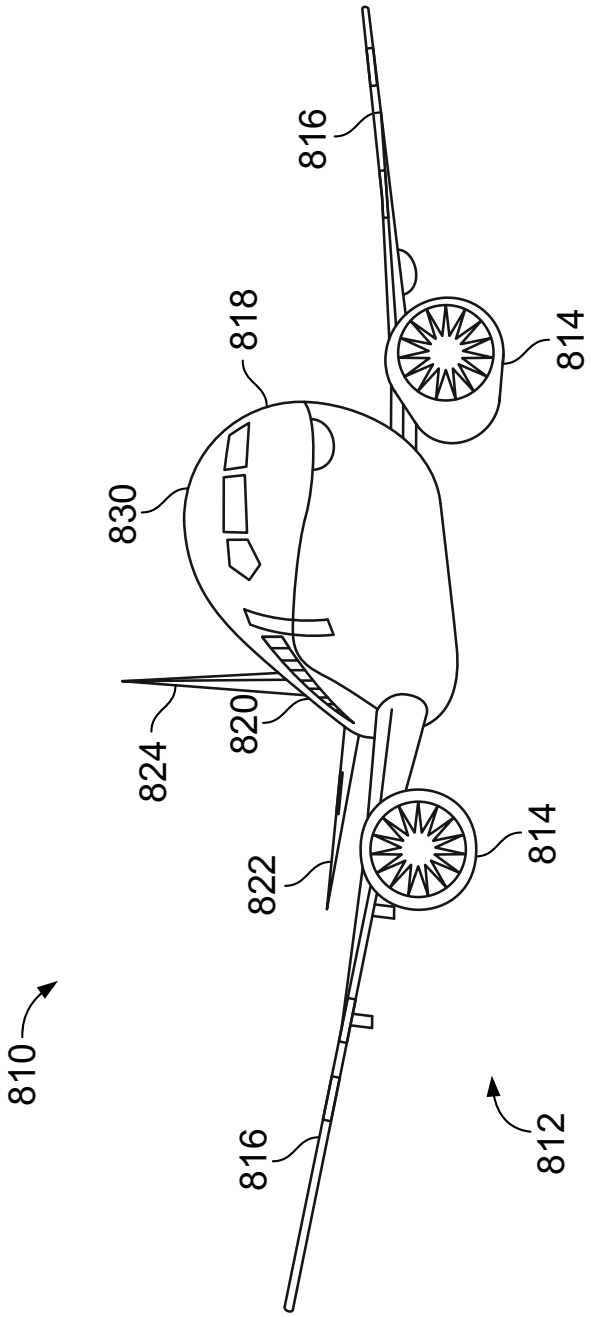


FIG. 17

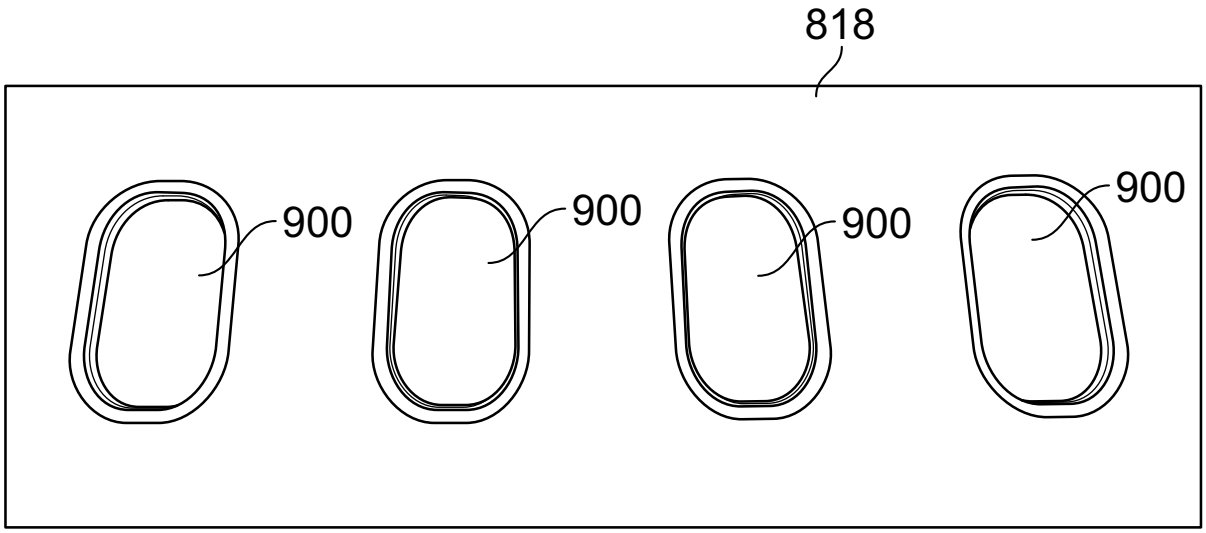


FIG. 18

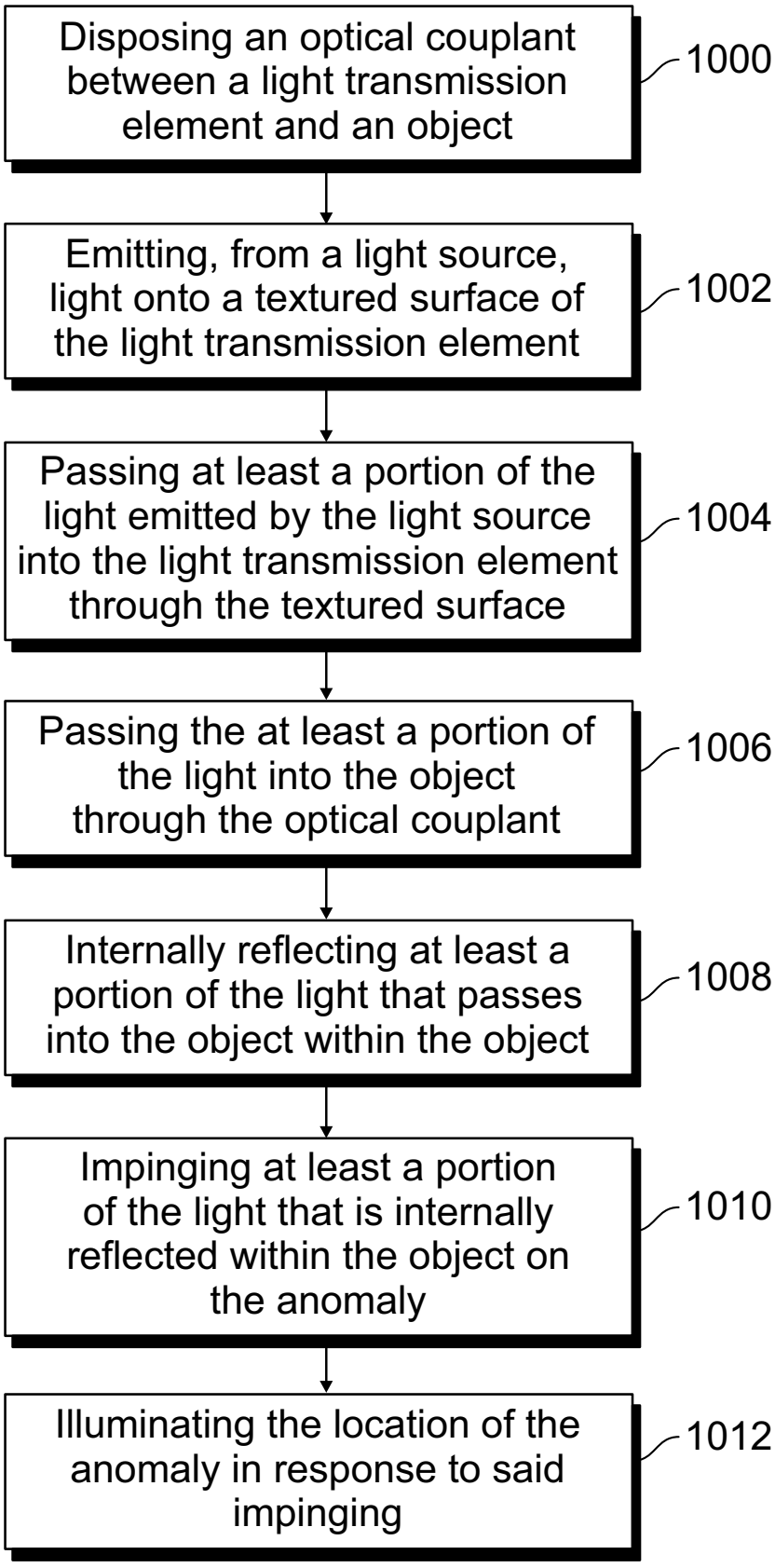

Disposing an optical couplant between a light transmission element and an object
1000
Emitting, from a light source, light onto a textured surface of the light transmission element
1002
Passing at least a portion of the light emitted by the light source into the light transmission element through the textured surface
1004
Passing the at least a portion of the light into the object through the optical couplant
1006
Internally reflecting at least a portion of the light that passes into the object within the object
1008
Impinging at least a portion of the light that is internally reflected within the object on the anomaly
1010
Illuminating the location of the anomaly in response to said impinging
1012

FIG. 19