FIG. 1

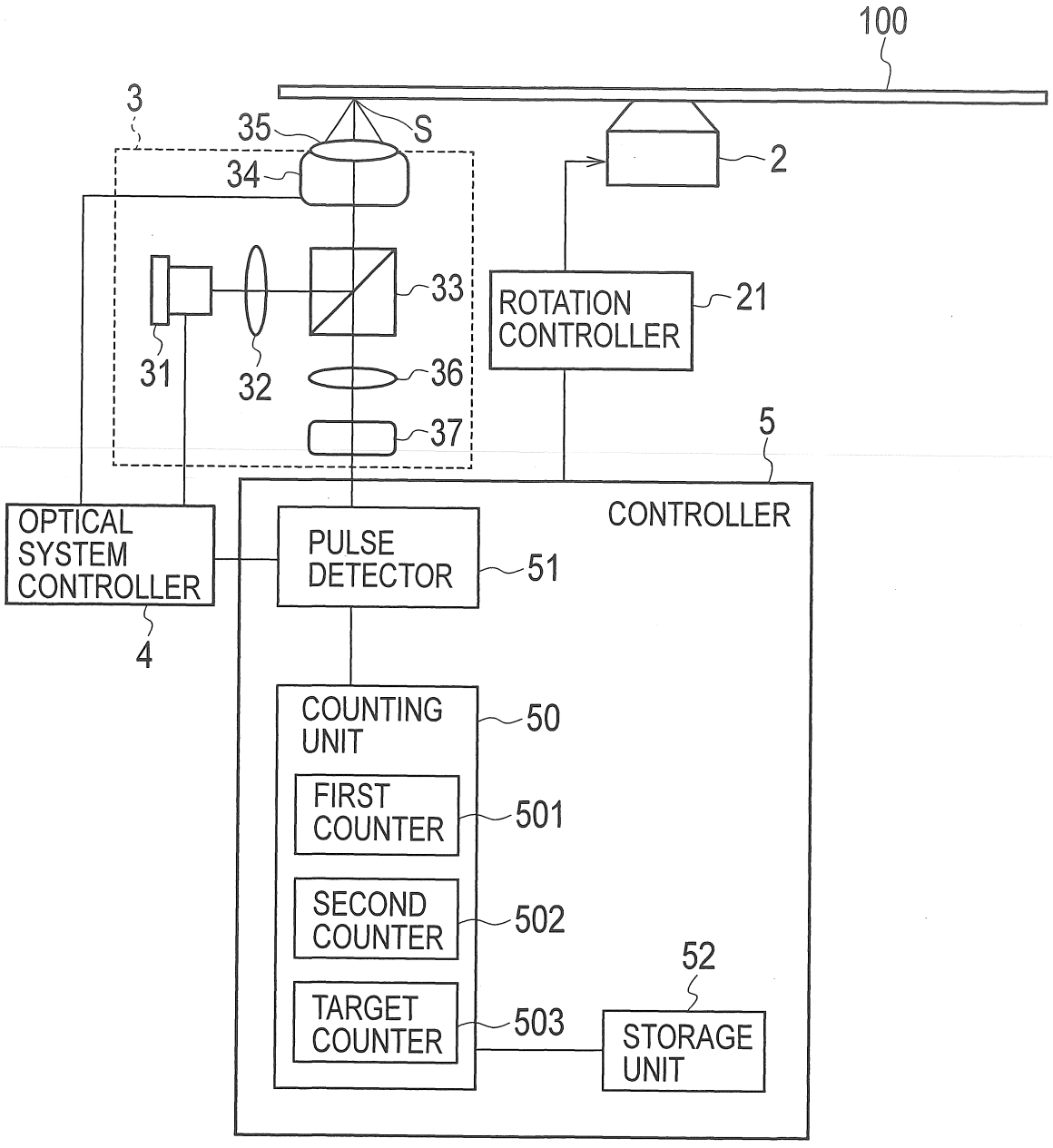

100
3
35
S
34
2
33
ROTATION CONTROLLER
21
31
32
36
37
5
CONTROLLER
OPTICAL SYSTEM CONTROLLER
4
PULSE DETECTOR
51
COUNTING UNIT
50
FIRST COUNTER
501
SECOND COUNTER
502
52
TARGET COUNTER
503
STORAGE UNIT

FIG. 2

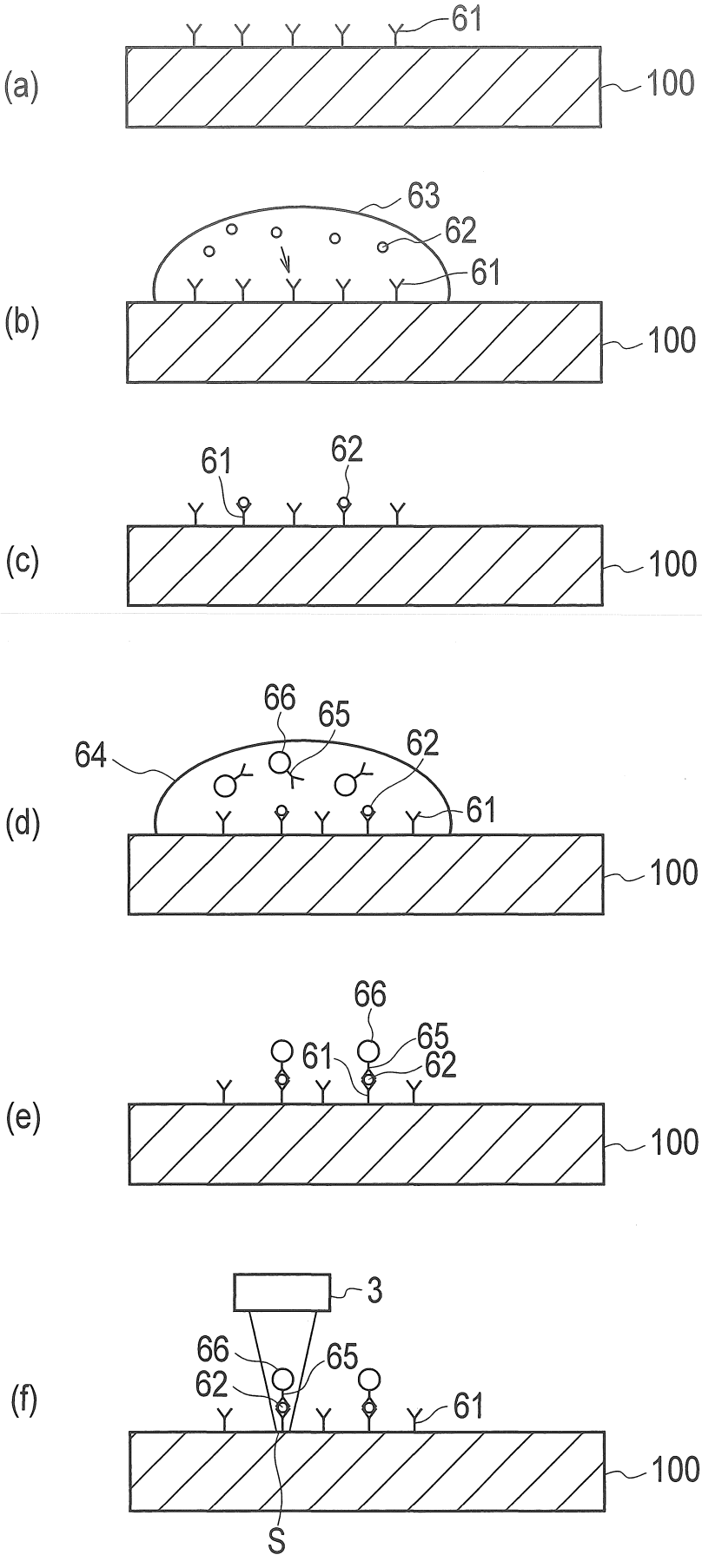

(a)
61
100
(b)
63
62
61
100
(c)
61
62
100
(d)
66
65
64
62
61
100
(e)
66
65
61
62
100
(f)
3
66
65
62
61
100
S

FIG. 3

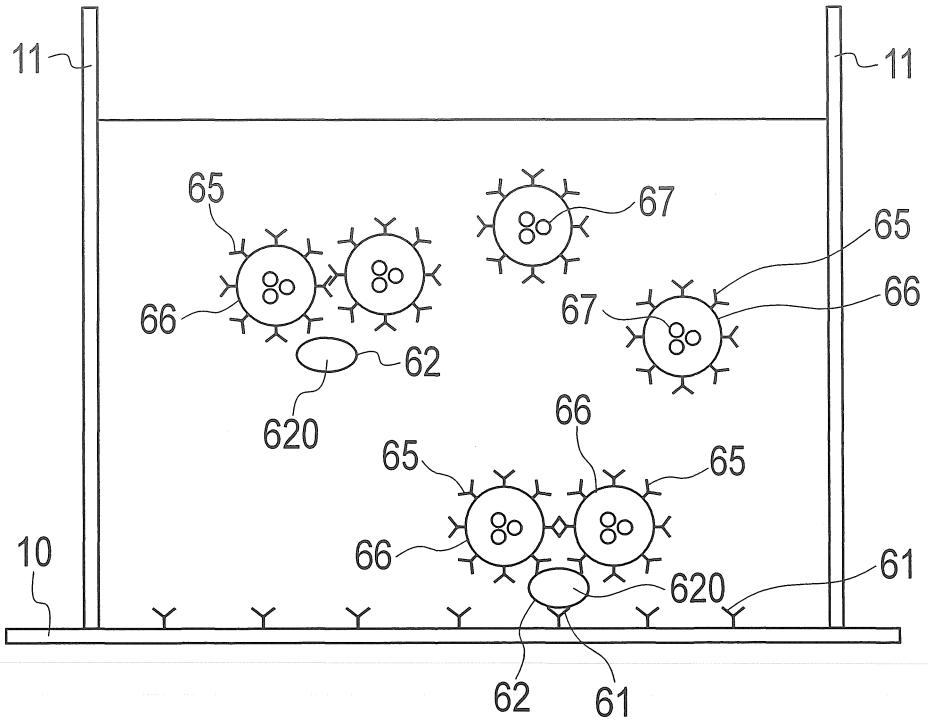

11
11
65
67
65
66
67
66
62
620
66
65
65
66
10
620
61
62
61

FIG. 4

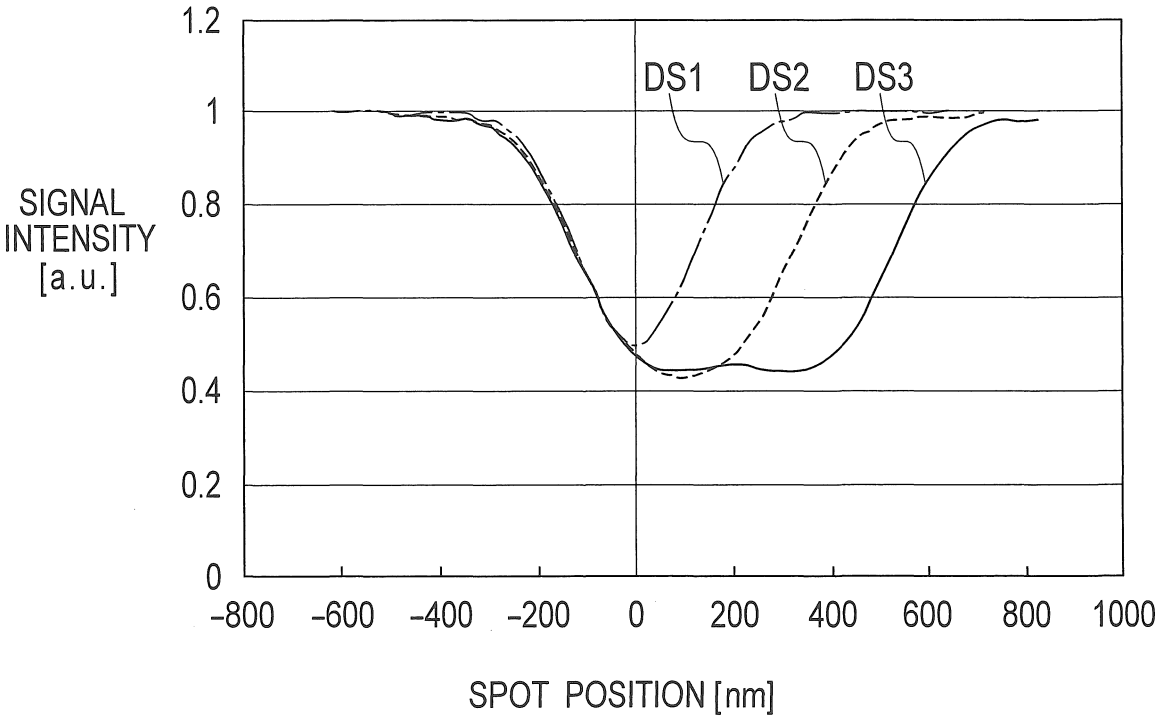

1.2
1
0.8
0.6
0.4
0.2
0
DS1
DS2
DS3
SIGNAL INTENSITY [a.u.]
-800
-600
-400
-200
0
200
400
600
800
1000
SPOT POSITION [nm]

FIG. 5

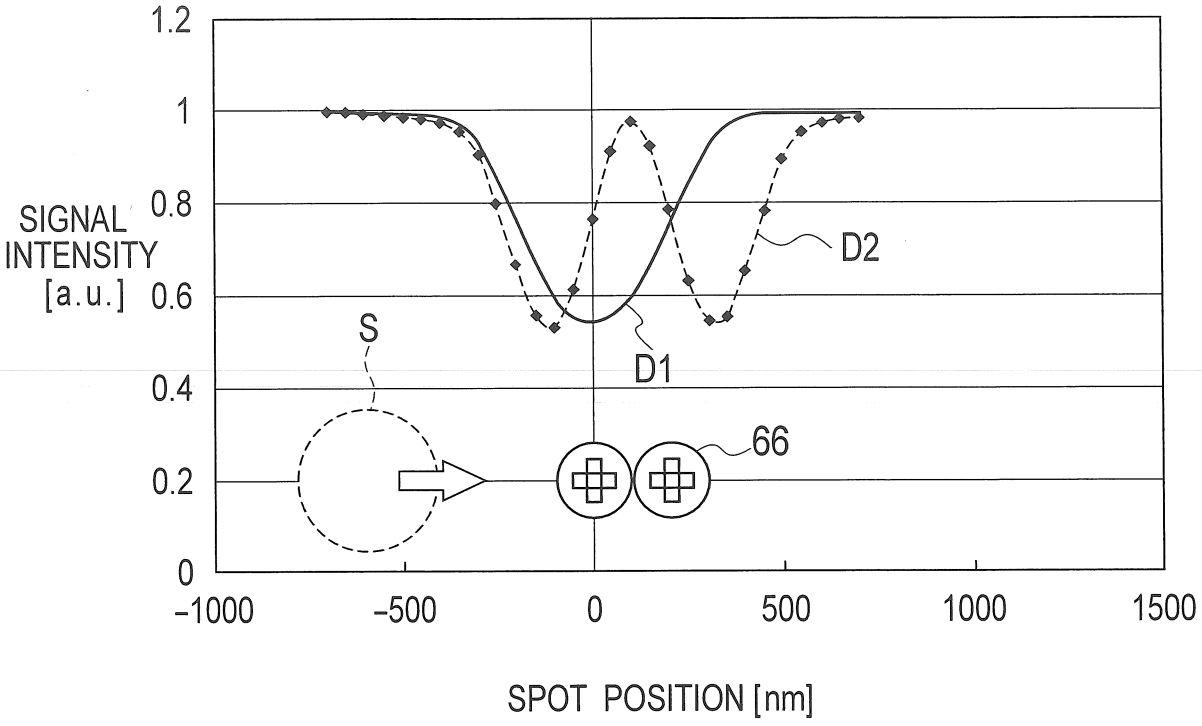

1.2
1
0.8
0.6
0.4
0.2
0
SIGNAL INTENSITY [a.u.]
-1000
-500
0
500
1000
1500
SPOT POSITION [nm]
D1
D2
S
66

FIG. 6

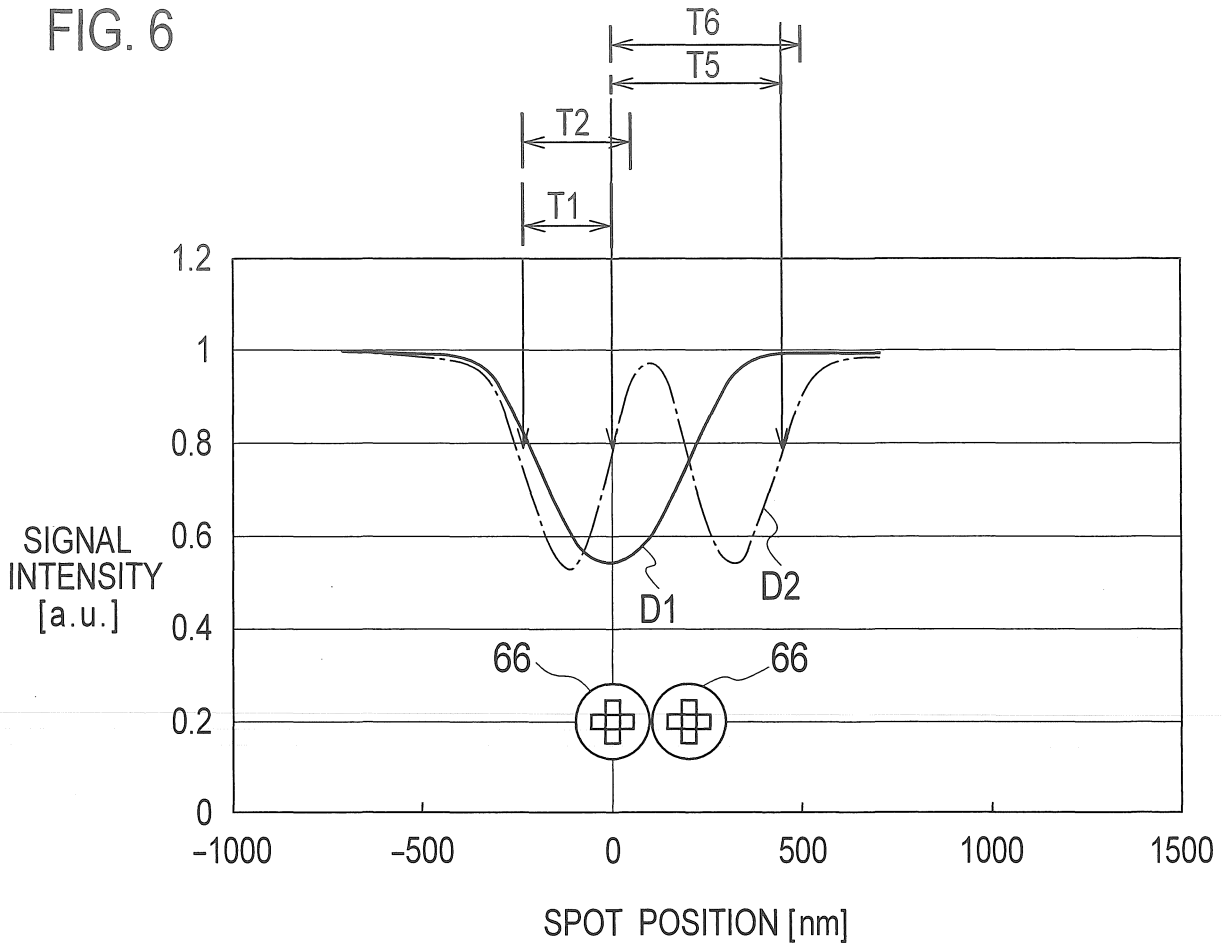

T6
T5
T2
T1
1.2
1
0.8
0.6
0.4
0.2
0
SIGNAL INTENSITY [a.u.]
D1
D2
66
66
-1000
-500
0
500
1000
1500
SPOT POSITION [nm]

FIG. 7

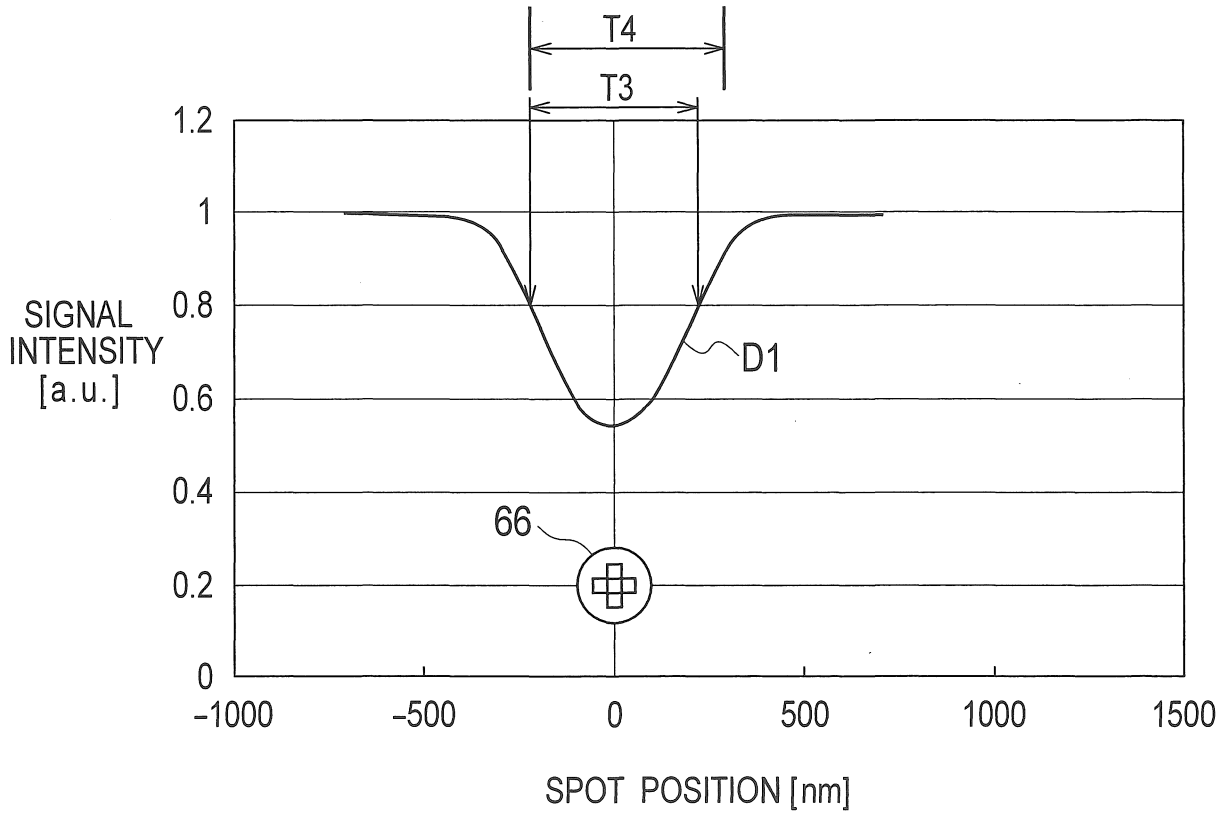

T4
T3
1.2
1
0.8
0.6
0.4
0.2
0
SIGNAL INTENSITY [a.u.]
D1
66
-1000
-500
0
500
1000
1500
SPOT POSITION [nm]

FIG. 8

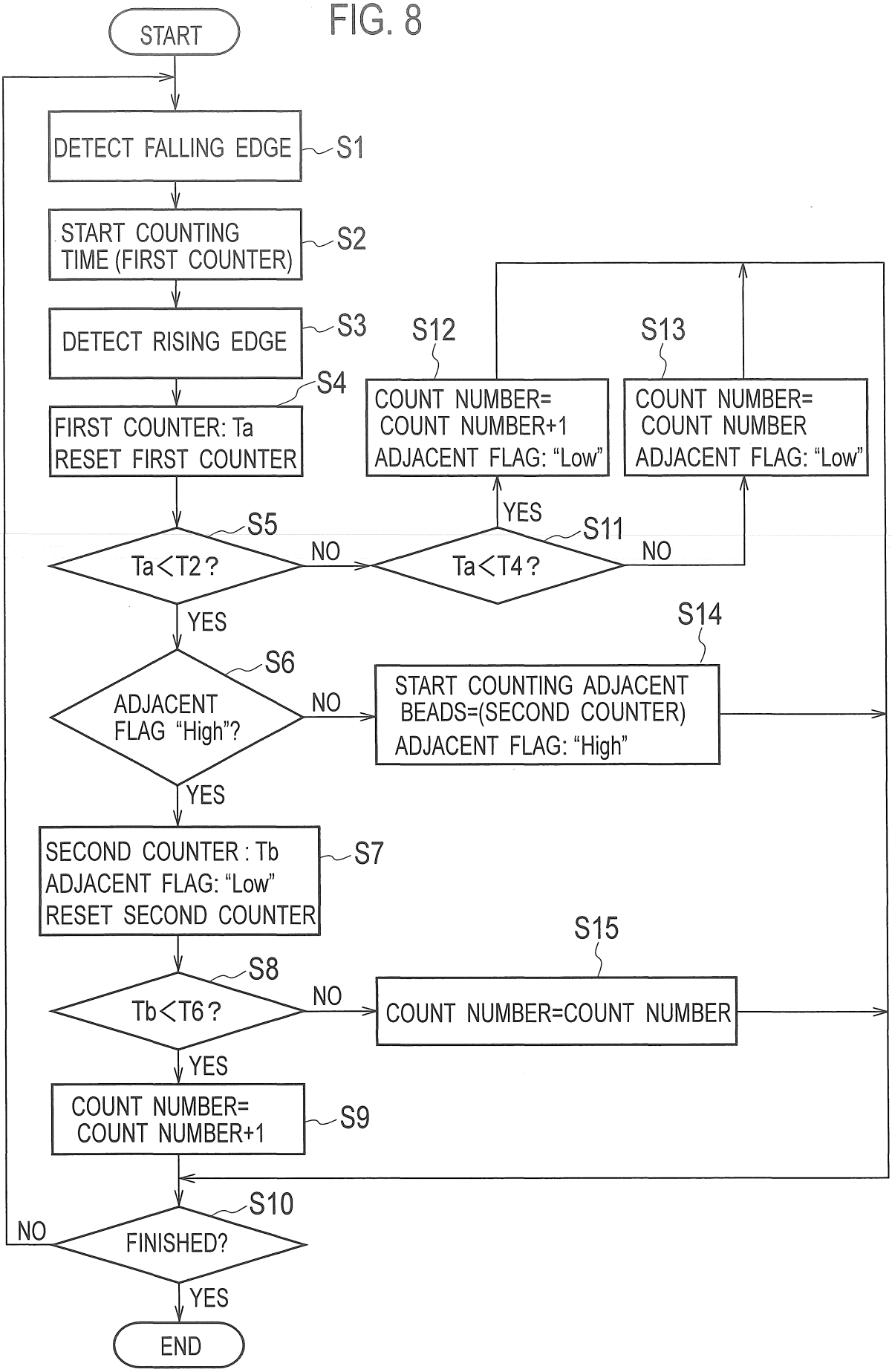

START
DETECT FALLING EDGE
S1
START COUNTING TIME (FIRST COUNTER)
S2
DETECT RISING EDGE
S3
FIRST COUNTER: Ta
RESET FIRST COUNTER
S4
Ta<T2?
S5
NO
YES
COUNT NUMBER= COUNT NUMBER+1
ADJACENT FLAG: "Low"
S12
Ta<T4?
S11
YES
NO
COUNT NUMBER= COUNT NUMBER
ADJACENT FLAG: "Low"
S13
ADJACENT FLAG "High"?
S6
NO
YES
START COUNTING ADJACENT BEADS=(SECOND COUNTER)
ADJACENT FLAG: "High"
S14
SECOND COUNTER : Tb
ADJACENT FLAG: "Low"
RESET SECOND COUNTER
S7
Tb<T6?
S8
NO
YES
COUNT NUMBER=COUNT NUMBER
S15
COUNT NUMBER= COUNT NUMBER+1
S9
FINISHED?
S10
NO
YES
END

FIG. 9

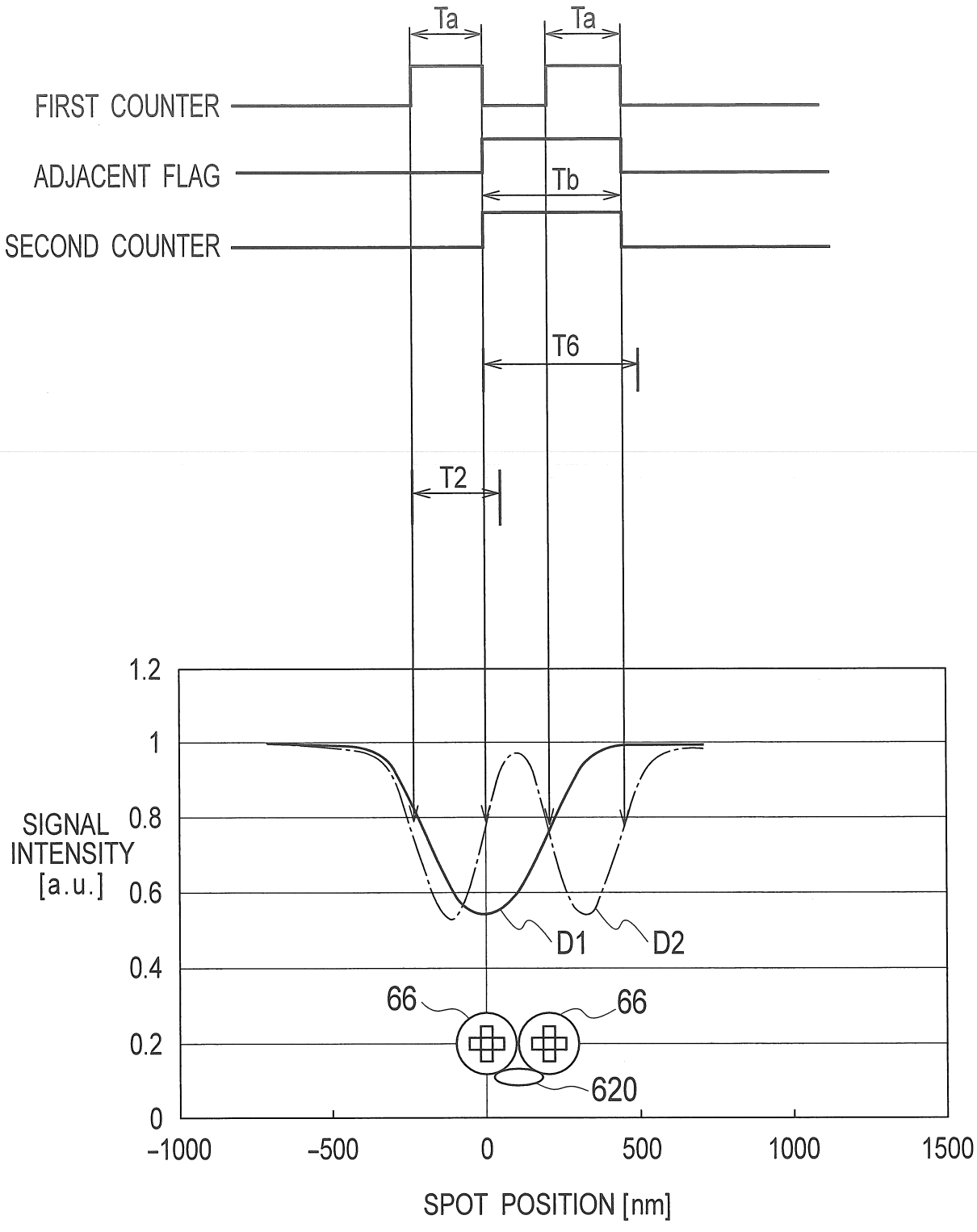

Ta
Ta
FIRST COUNTER
ADJACENT FLAG
Tb
SECOND COUNTER
T6
T2
1.2
1
0.8
0.6
0.4
0.2
0
SIGNAL INTENSITY [a.u.]
D1
D2
66
66
620
-1000
-500
0
500
1000
1500
SPOT POSITION [nm]

FIG. 10

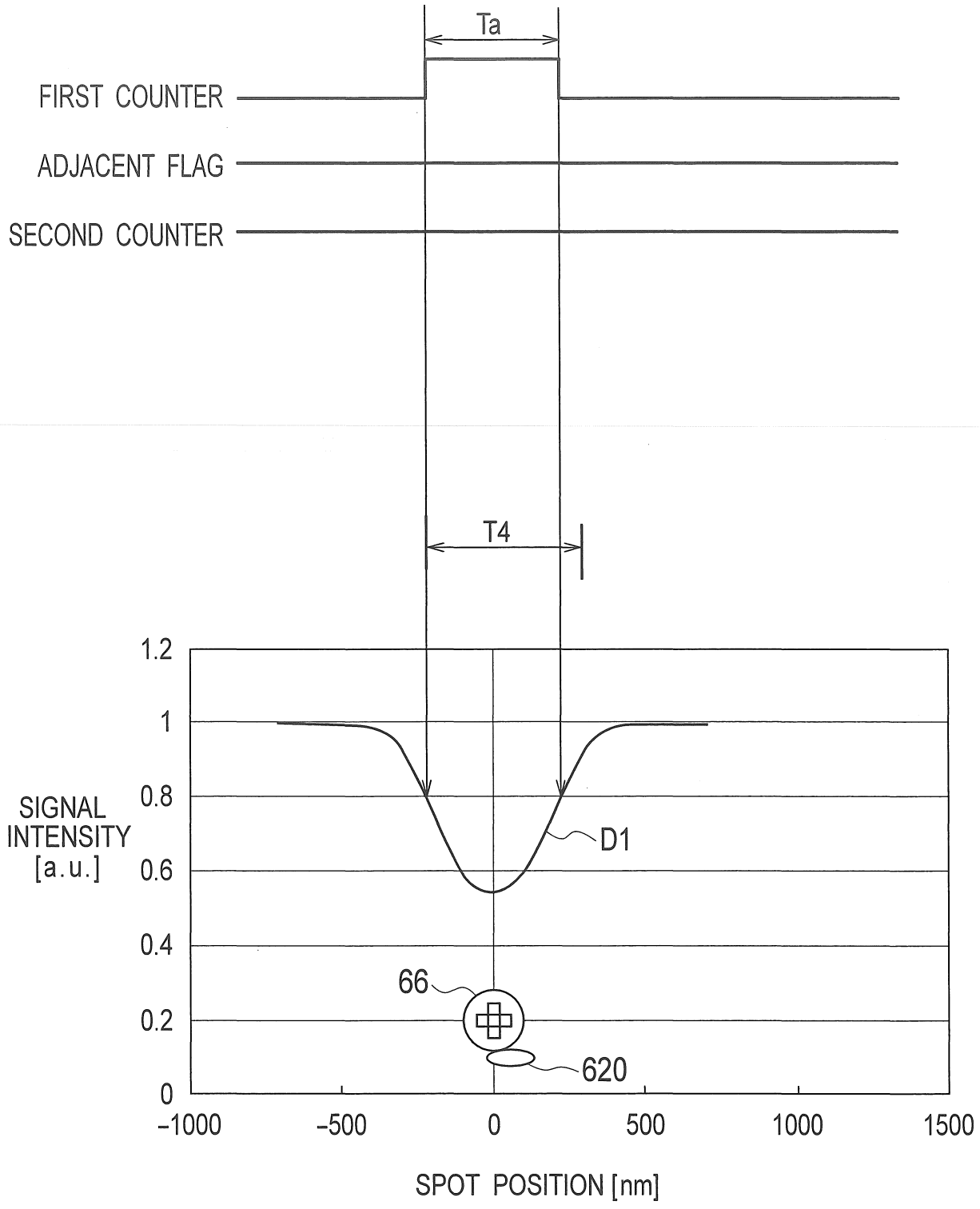
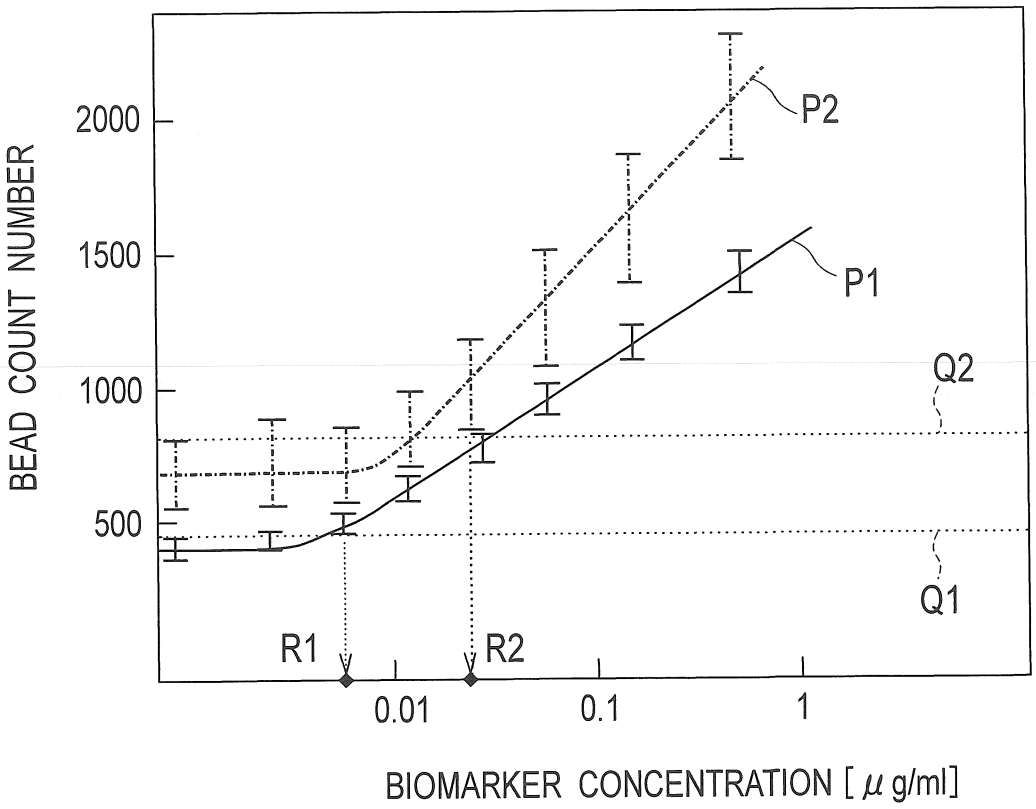

Ta
FIRST COUNTER
ADJACENT FLAG
SECOND COUNTER
T4
1.2
1
0.8
0.6
0.4
0.2
0
SIGNAL INTENSITY [a.u.]
D1
66
620
-1000
-500
0
500
1000
1500
SPOT POSITION [nm]

FIG. 11


BEAD COUNT NUMBER
2000
1500
1000
500
P2
P1
Q2
Q1
R1
R2
0.01
0.1
1
BIOMARKER CONCENTRATION [μ g/ml]