FIG. 1

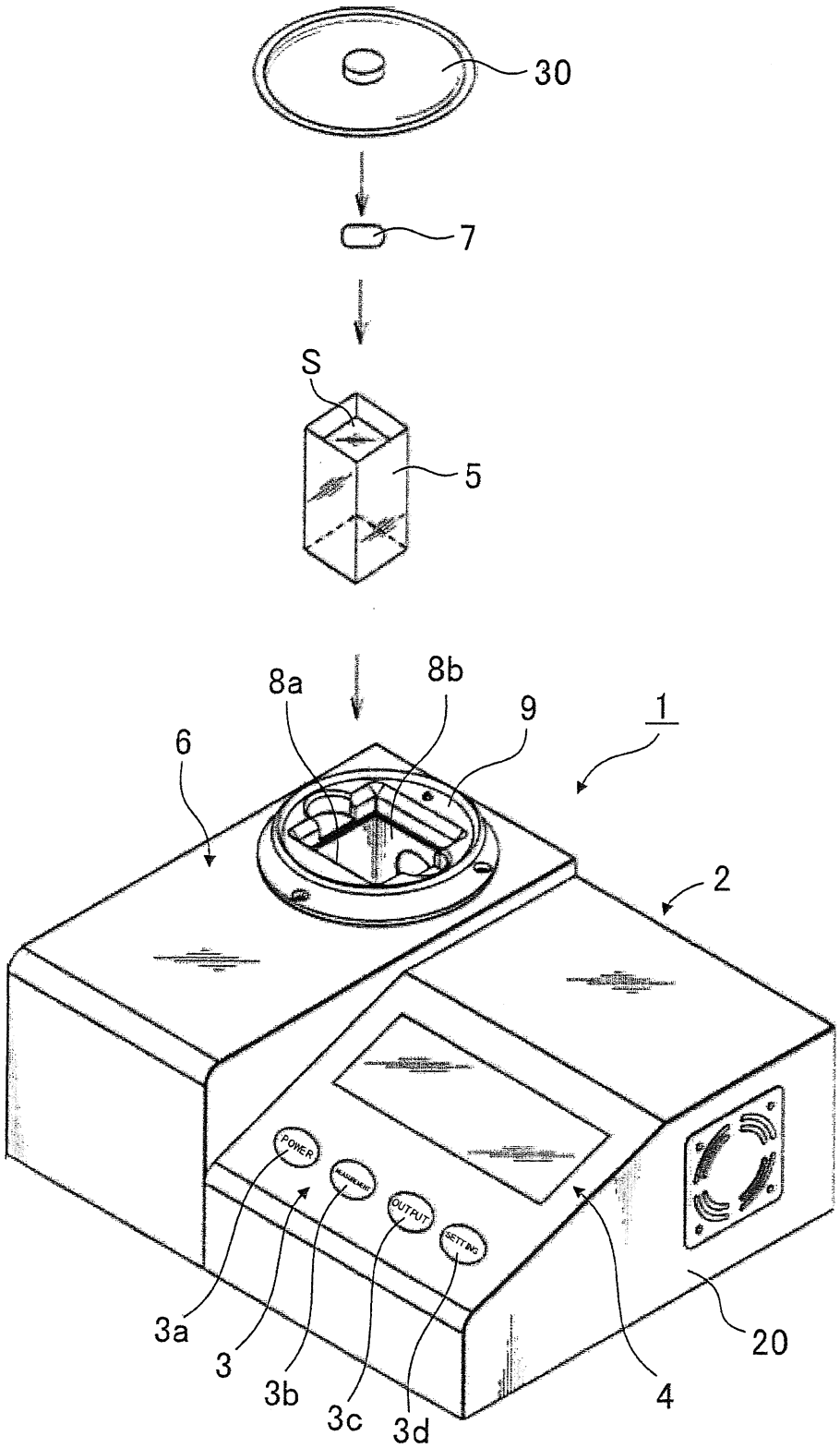


FIG. 2

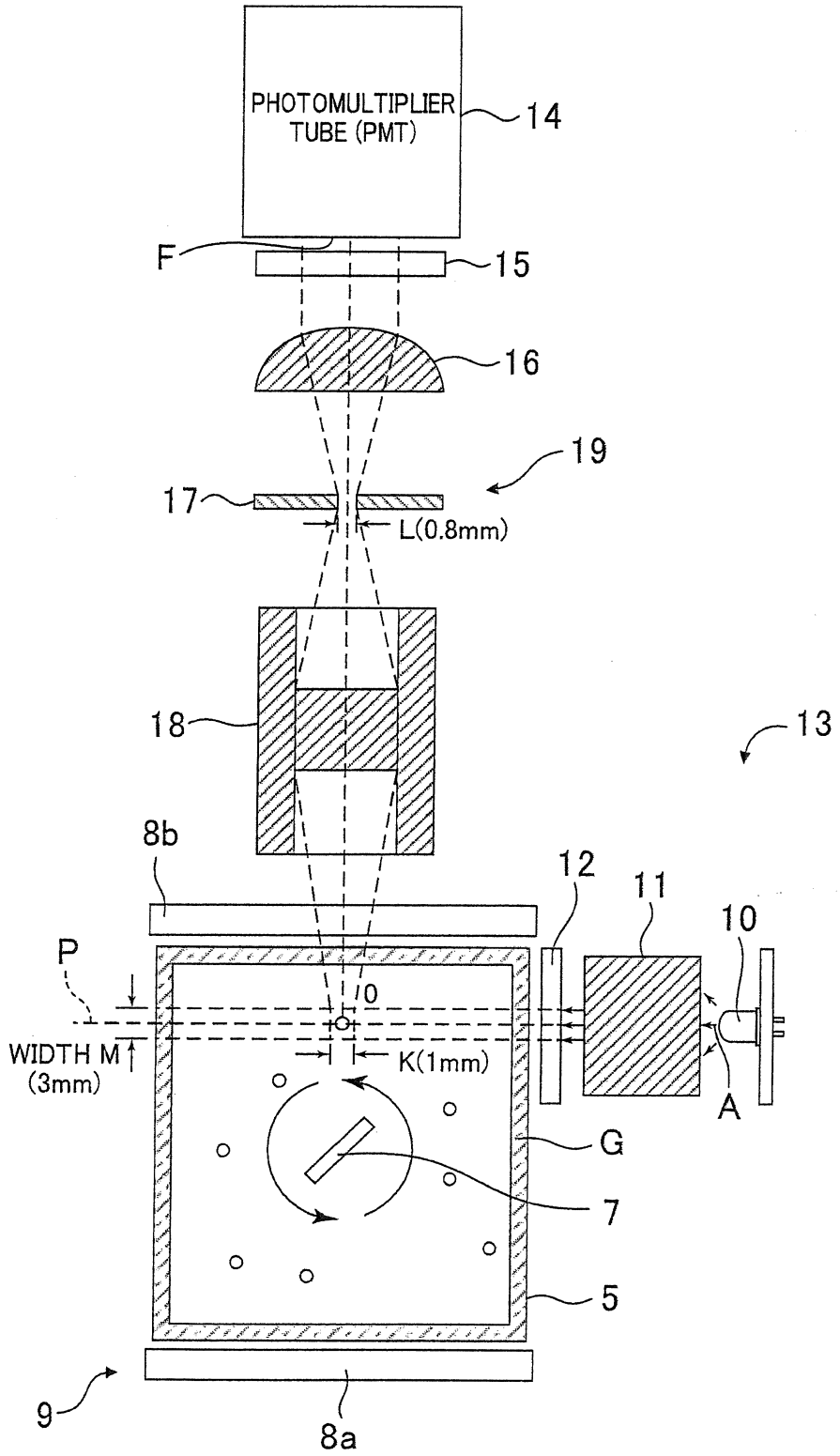

PHOTOMULTIPLIER TUBE (PMT)
14
F
15
16
19
17
L(0.8mm)
18
13
8b
12
11
10
P
0
WIDTH M (3mm)
K(1mm)
A
G
7
5
9
8a

FIG. 3

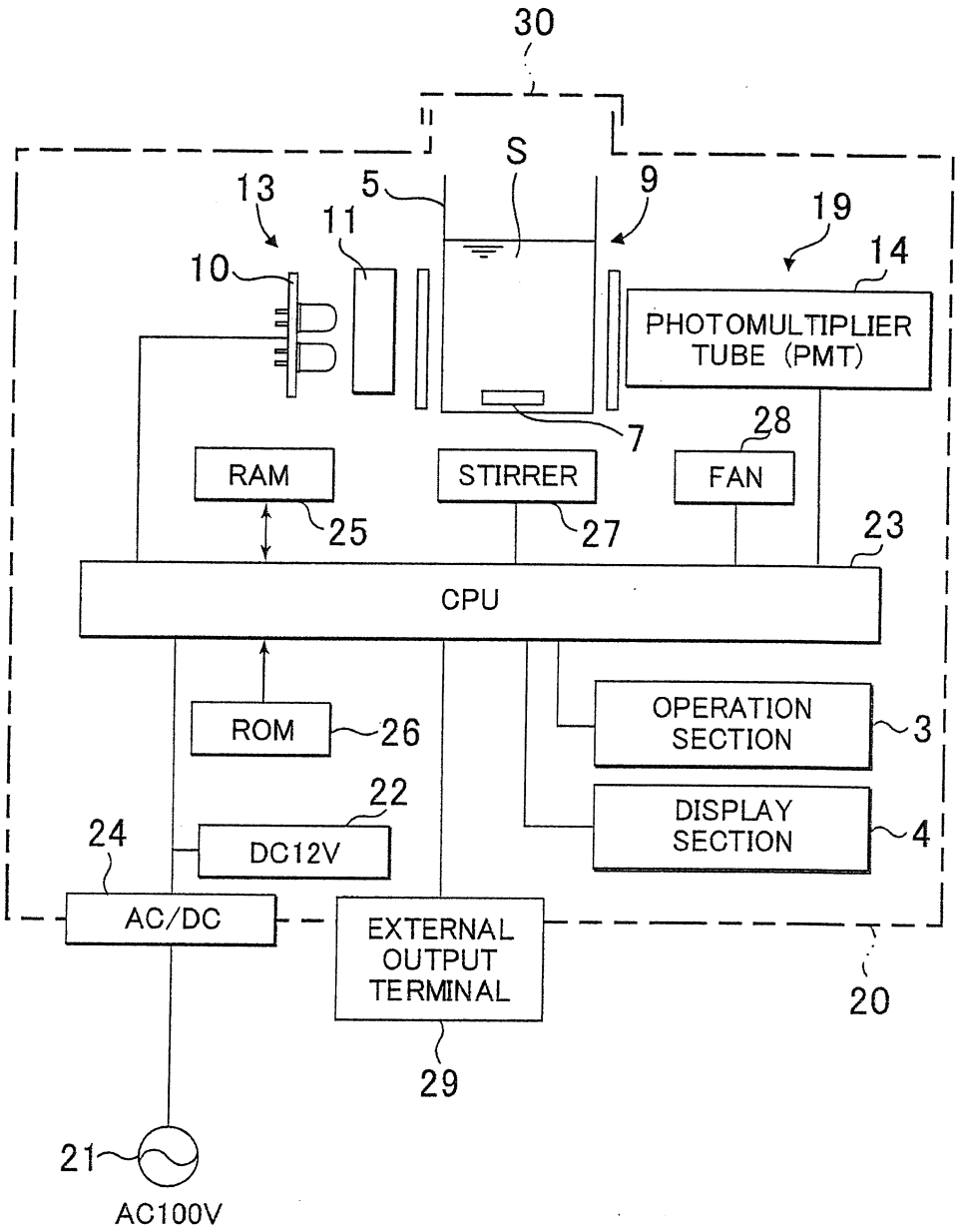

30
S
13
5
9
19
11
14
10
PHOTOMULTIPLIER TUBE (PMT)
7
28
RAM
STIRRER
FAN
25
27
23
CPU
ROM
26
OPERATION SECTION
3
22
DISPLAY SECTION
4
24
DC12V
AC/DC
EXTERNAL OUTPUT TERMINAL
20
29
21
AC100V

FIG. 4

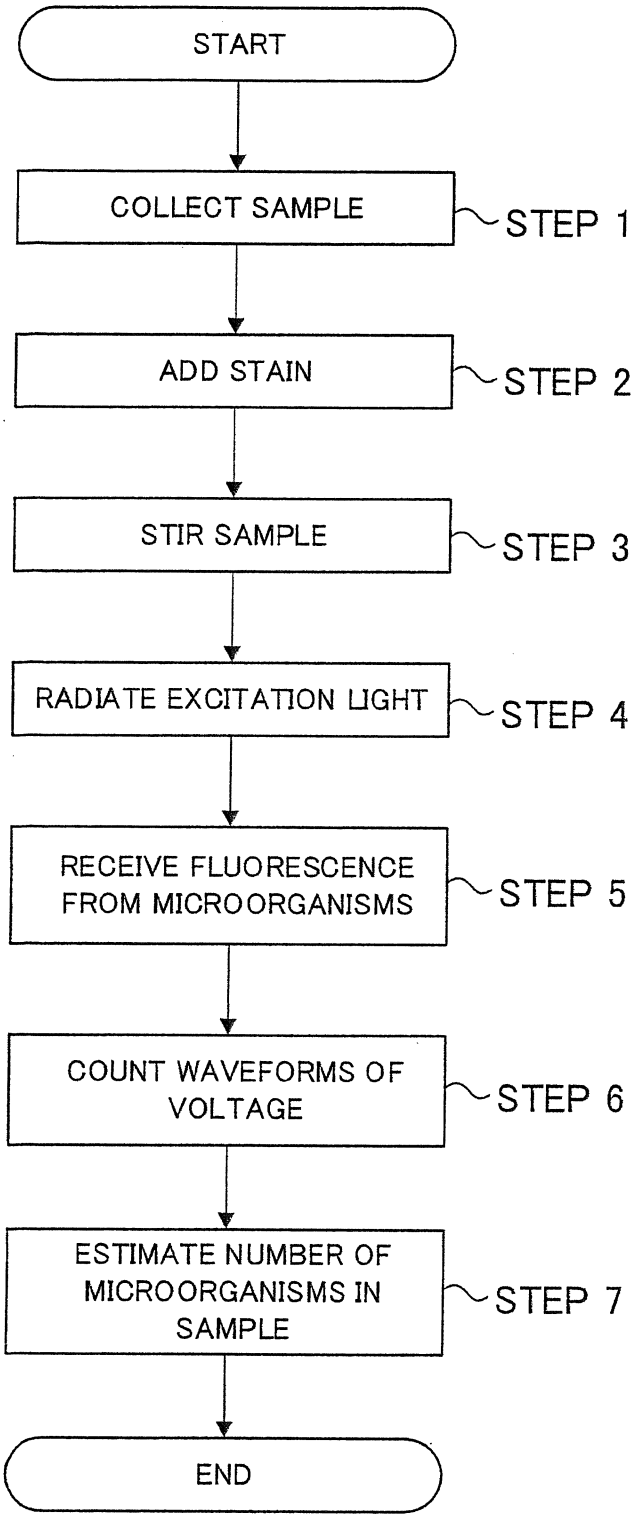

START
COLLECT SAMPLE
STEP 1
ADD STAIN
STEP 2
STIR SAMPLE
STEP 3
RADIATE EXCITATION LIGHT
STEP 4
RECEIVE FLUORESCENCE FROM MICROORGANISMS
STEP 5
COUNT WAVEFORMS OF VOLTAGE
STEP 6
ESTIMATE NUMBER OF MICROORGANISMS IN SAMPLE
STEP 7
END

FIG. 5

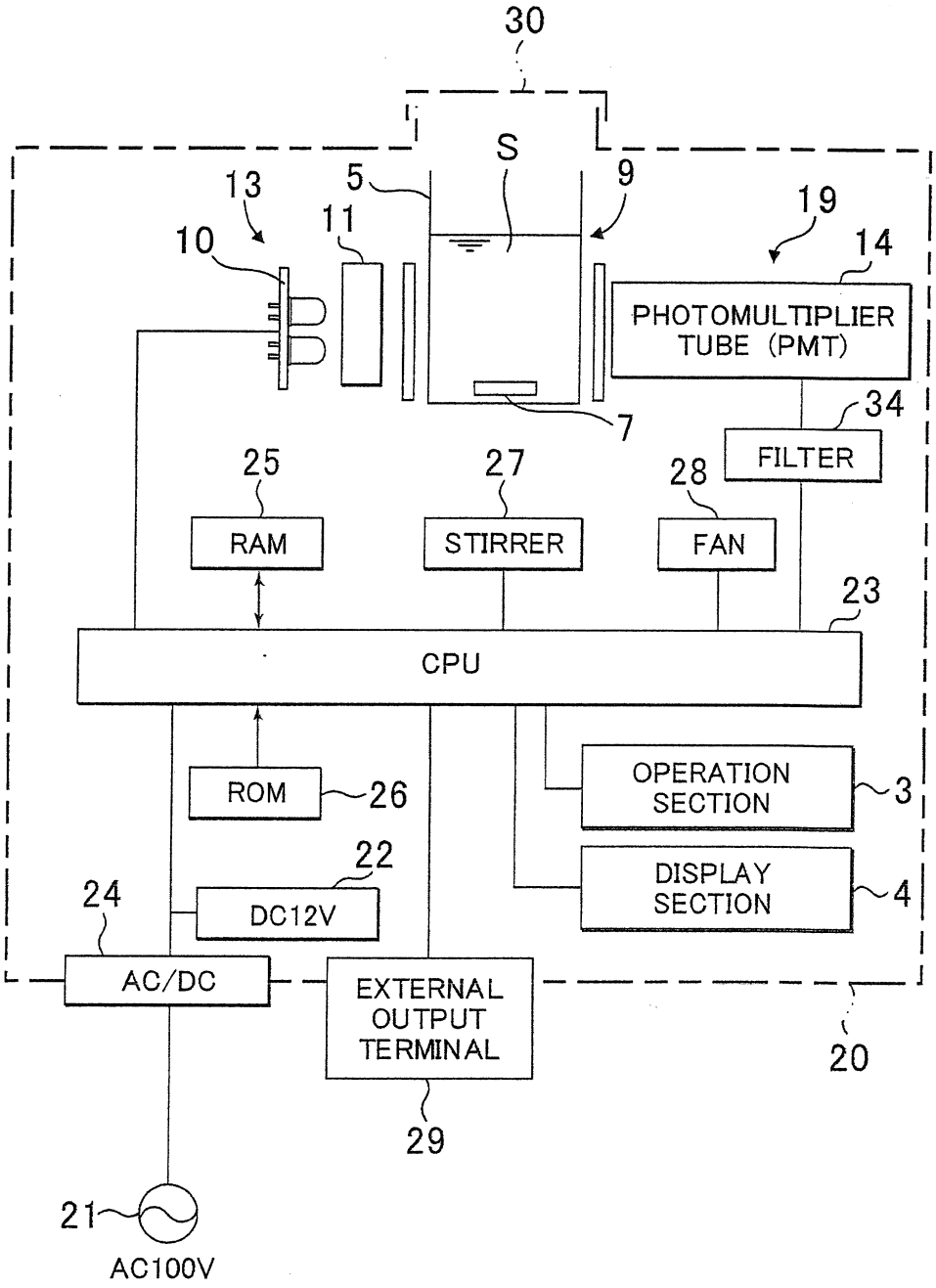

30
S
13
5
9
19
10
11
14
PHOTOMULTIPLIER TUBE (PMT)
34
7
FILTER
25
27
28
RAM
STIRRER
FAN
23
CPU
ROM
26
OPERATION SECTION
3
22
DISPLAY SECTION
4
24
DC12V
AC/DC
EXTERNAL OUTPUT TERMINAL
20
29
21
AC100V

FIG. 6

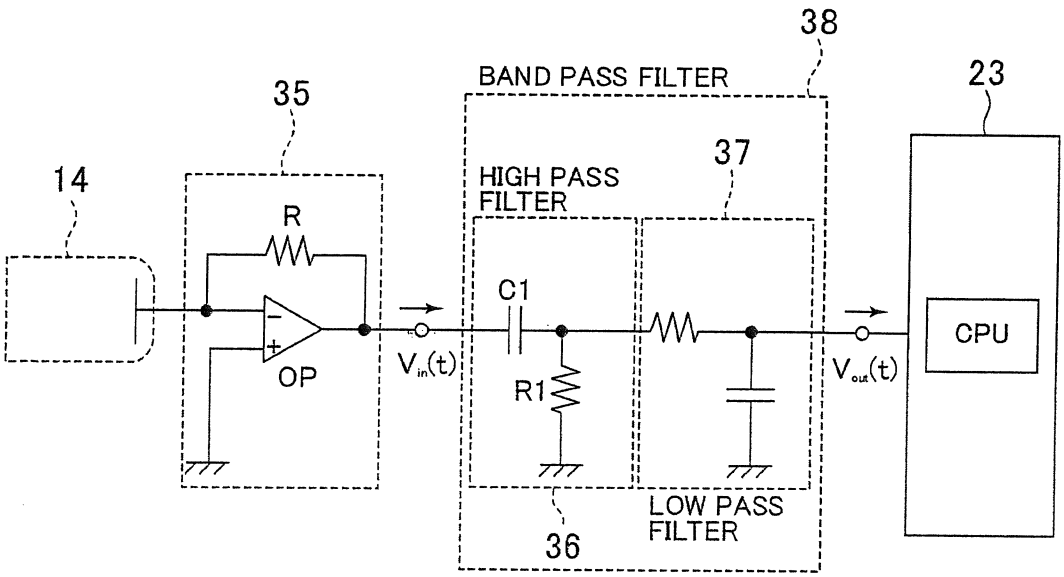

38
BAND PASS FILTER
23
35
37
14
HIGH PASS
FILTER
R
C1
CPU
OP
$V_{in}(t)$
R1
$V_{out}(t)$
LOW PASS
FILTER
36

FIG. 7

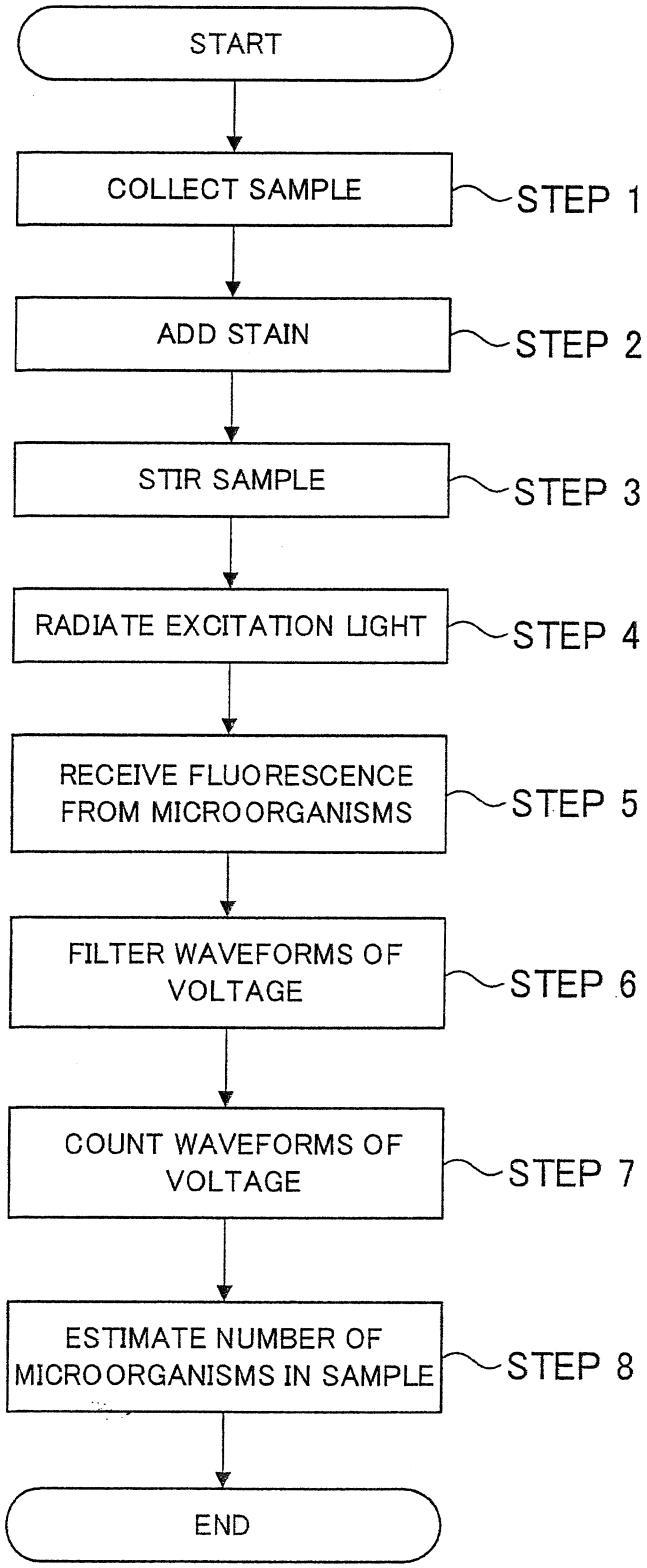

START
COLLECT SAMPLE
STEP 1
ADD STAIN
STEP 2
STIR SAMPLE
STEP 3
RADIATE EXCITATION LIGHT
STEP 4
RECEIVE FLUORESCENCE FROM MICROORGANISMS
STEP 5
FILTER WAVEFORMS OF VOLTAGE
STEP 6
COUNT WAVEFORMS OF VOLTAGE
STEP 7
ESTIMATE NUMBER OF MICROORGANISMS IN SAMPLE
STEP 8
END

FIG. 8A

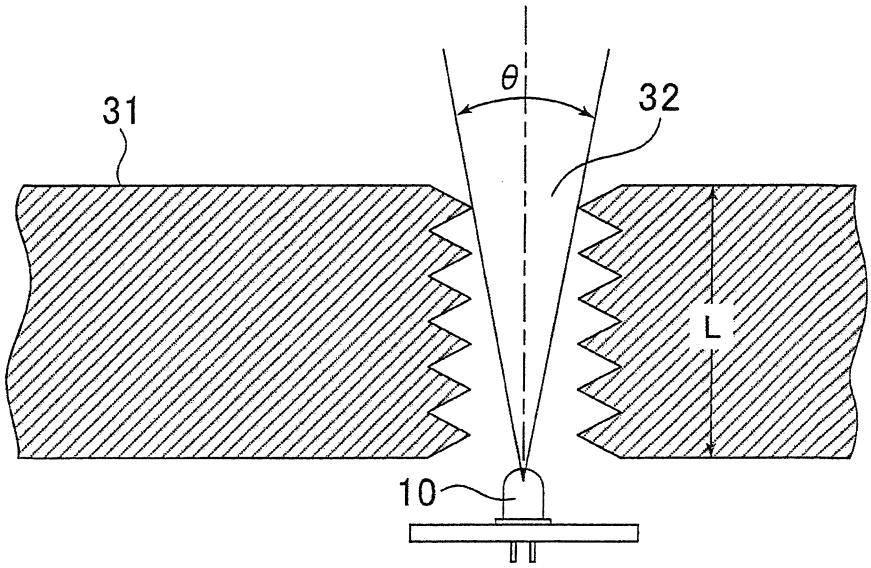


FIG. 8B

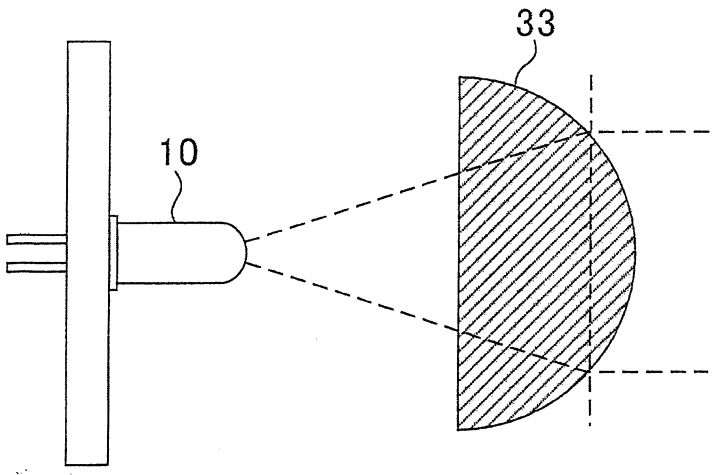


FIG. 9A

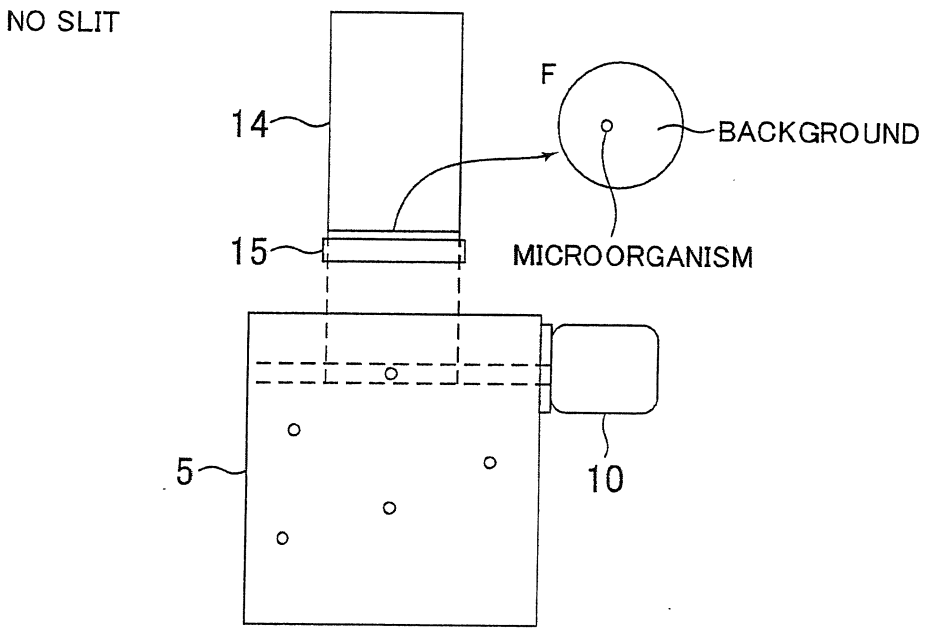

NO SLIT
14
F
BACKGROUND
15
MICROORGANISM
5
10

FIG. 9B

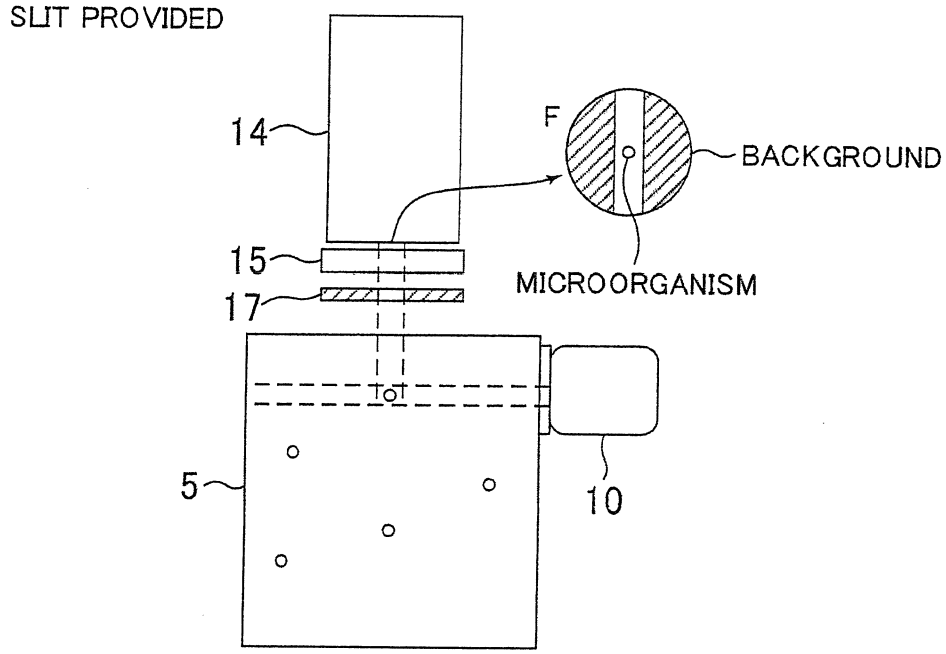

SLIT PROVIDED
14
F
BACKGROUND
15
MICROORGANISM
17
5
10

FIG. 10A

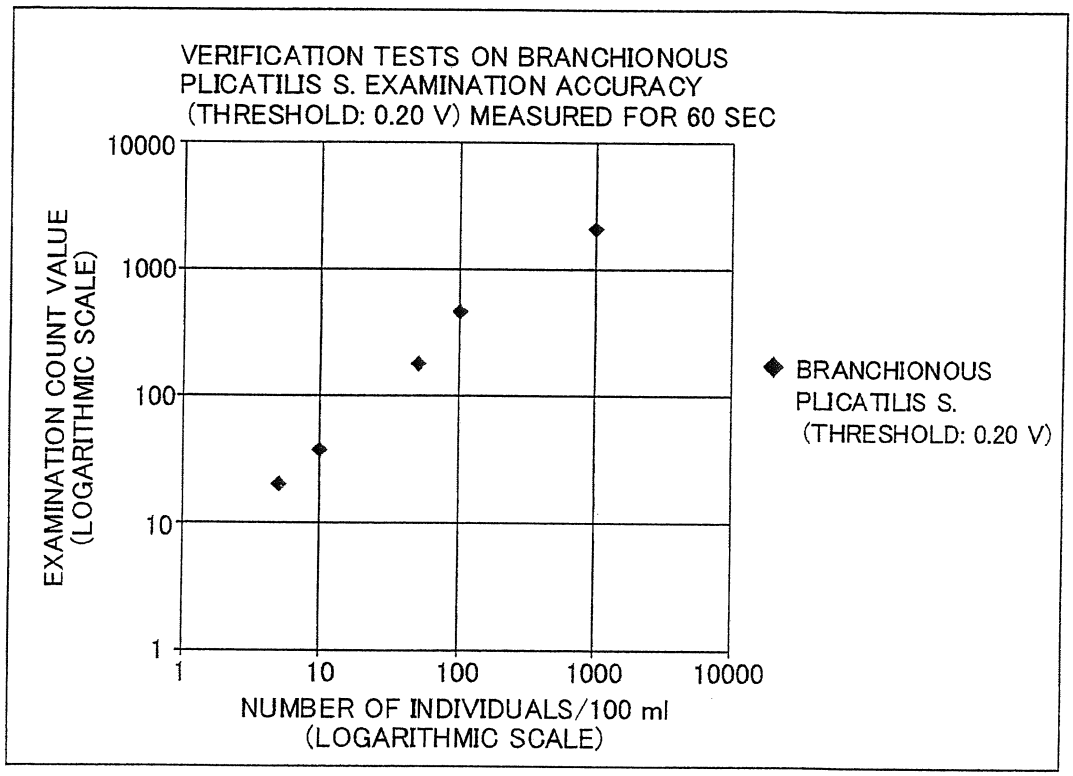


FIG. 10B

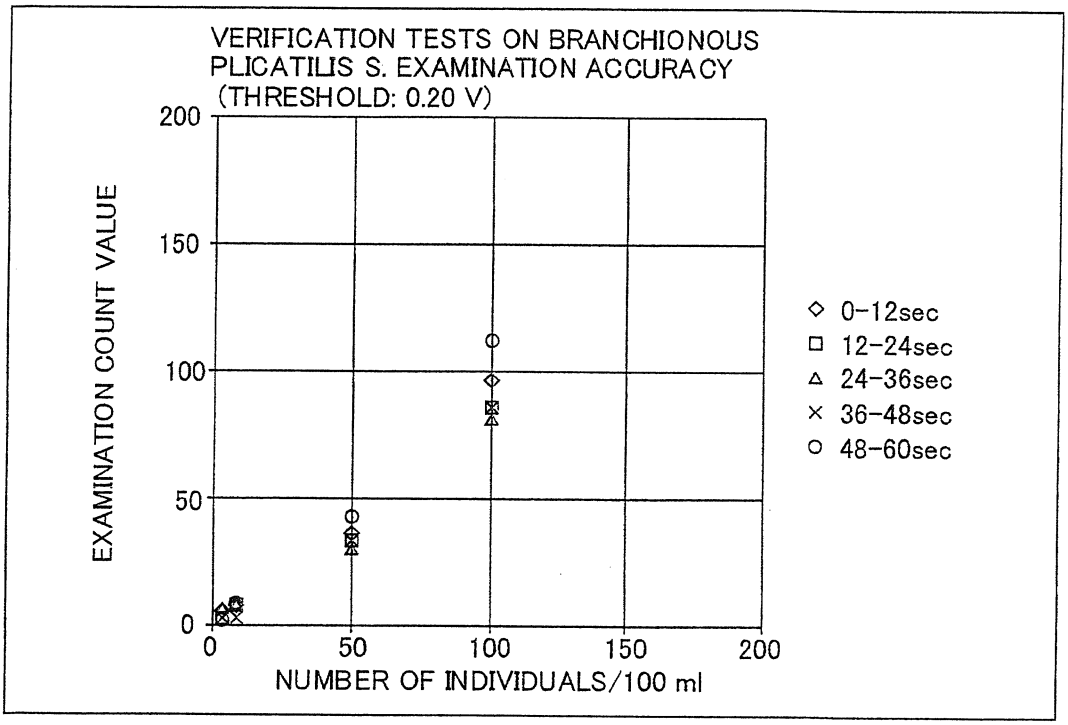


FIG. 11A

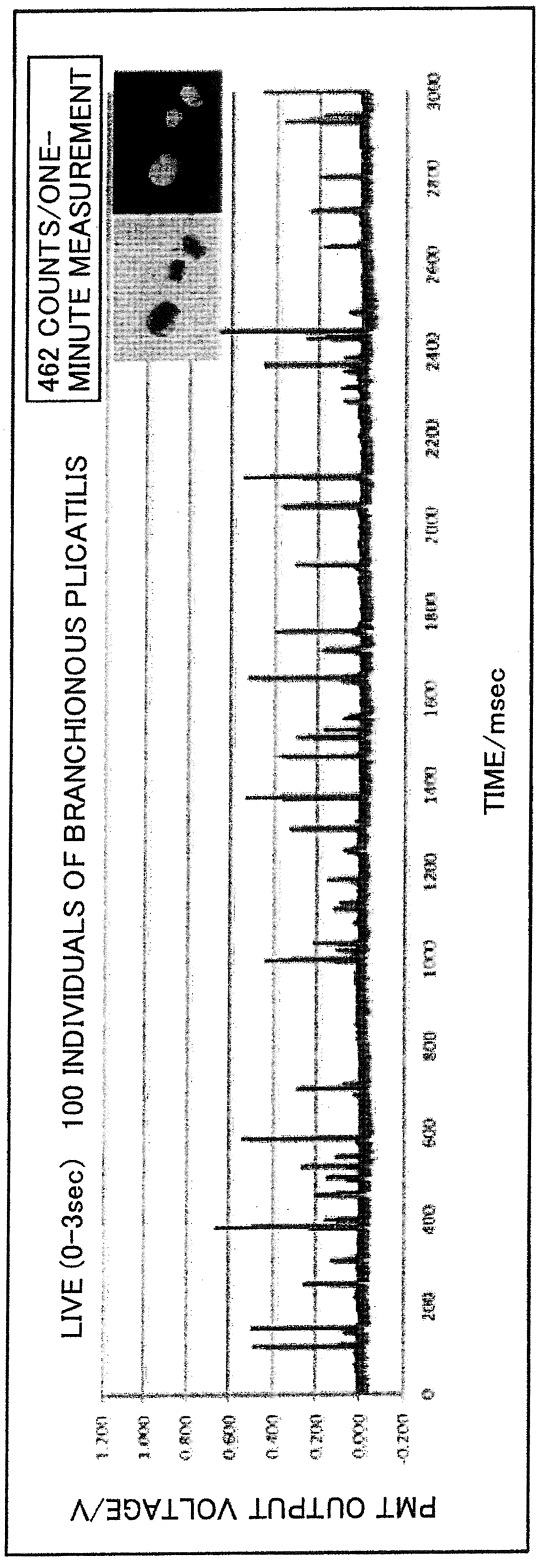

[BULK SLIT TYPE]LIVE/DEAD TEST
STIRRER: APPROXIMATELY 360 rpm, CONTROL VOLTAGE: 0.680 V, STAINING TIME: 30 MINUTES
LIVE (0-3sec) 100 INDIVIDUALS OF BRANCHIONOUS PLICATILIS
462 COUNTS/ONE-MINUTE MEASUREMENT
PMT OUTPUT VOLTAGE/V
TIME/msec

FIG. 11B

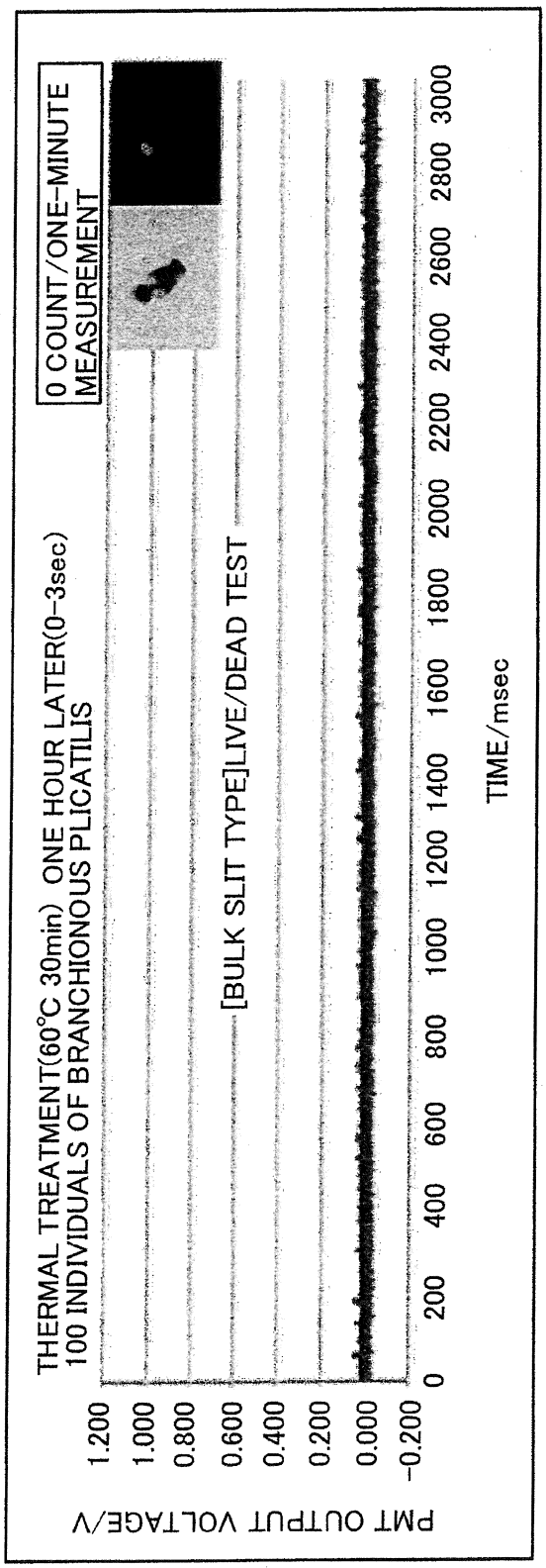

[BULK SLIT TYPE]LIVE/DEAD TEST
STIRRER: APPROXIMATELY 360 rpm, CONTROL VOLTAGE: 0.680 V, STAINING TIME: 30 MINUTES
THERMAL TREATMENT(60°C 30min) ONE HOUR LATER(0-3sec)
100 INDIVIDUALS OF BRANCHIONOUS PLICATILIS
0 COUNT/ONE-MINUTE MEASUREMENT
[BULK SLIT TYPE]LIVE/DEAD TEST
PMT OUTPUT VOLTAGE/V
1.200
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
TIME/msec

FIG. 11C

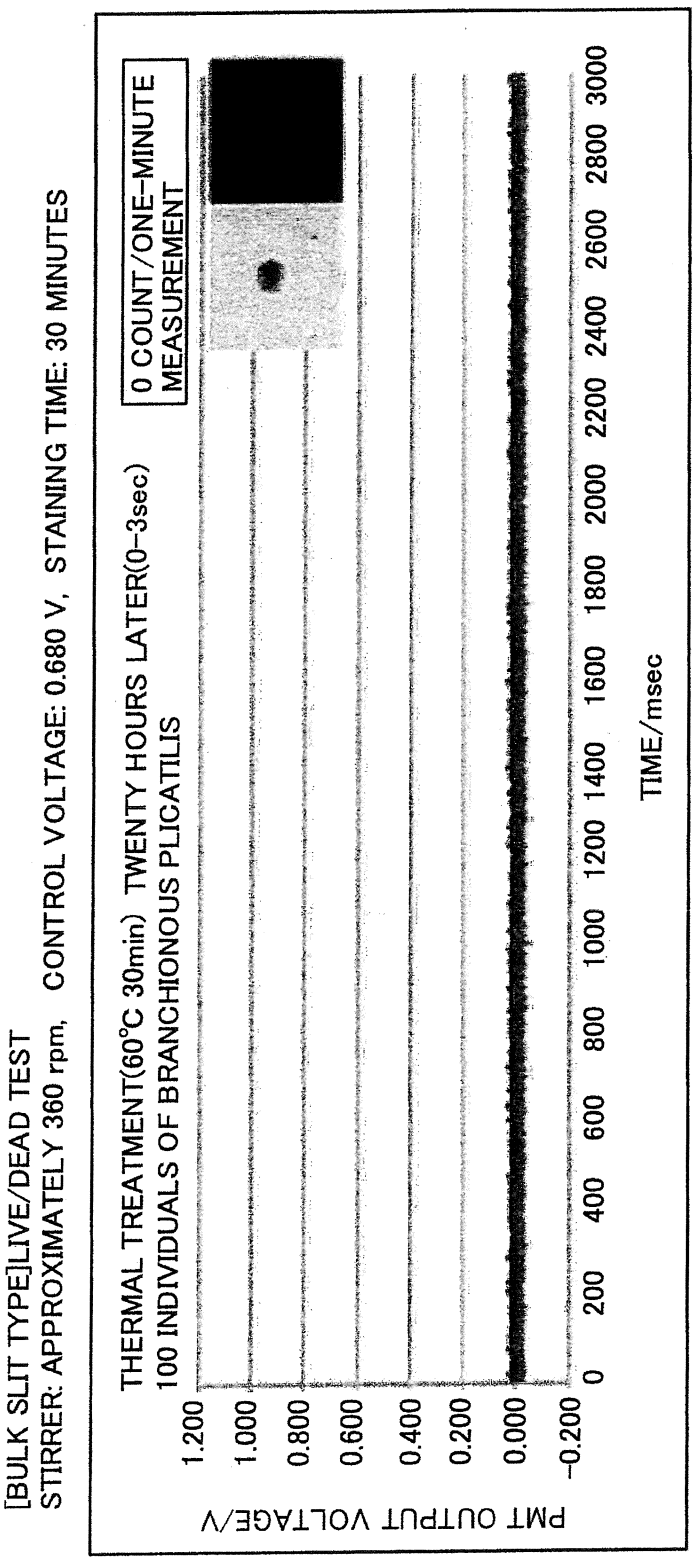

[BULK SLIT TYPE]LIVE/DEAD TEST
STIRRER: APPROXIMATELY 360 rpm, CONTROL VOLTAGE: 0.680 V, STAINING TIME: 30 MINUTES
THERMAL TREATMENT(60°C 30min) TWENTY HOURS LATER(0-3sec)
100 INDIVIDUALS OF BRANCHIONOUS PLICATILIS
0 COUNT/ONE-MINUTE MEASUREMENT
PMT OUTPUT VOLTAGE/V
1.200
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
TIME/msec

FIG. 11D

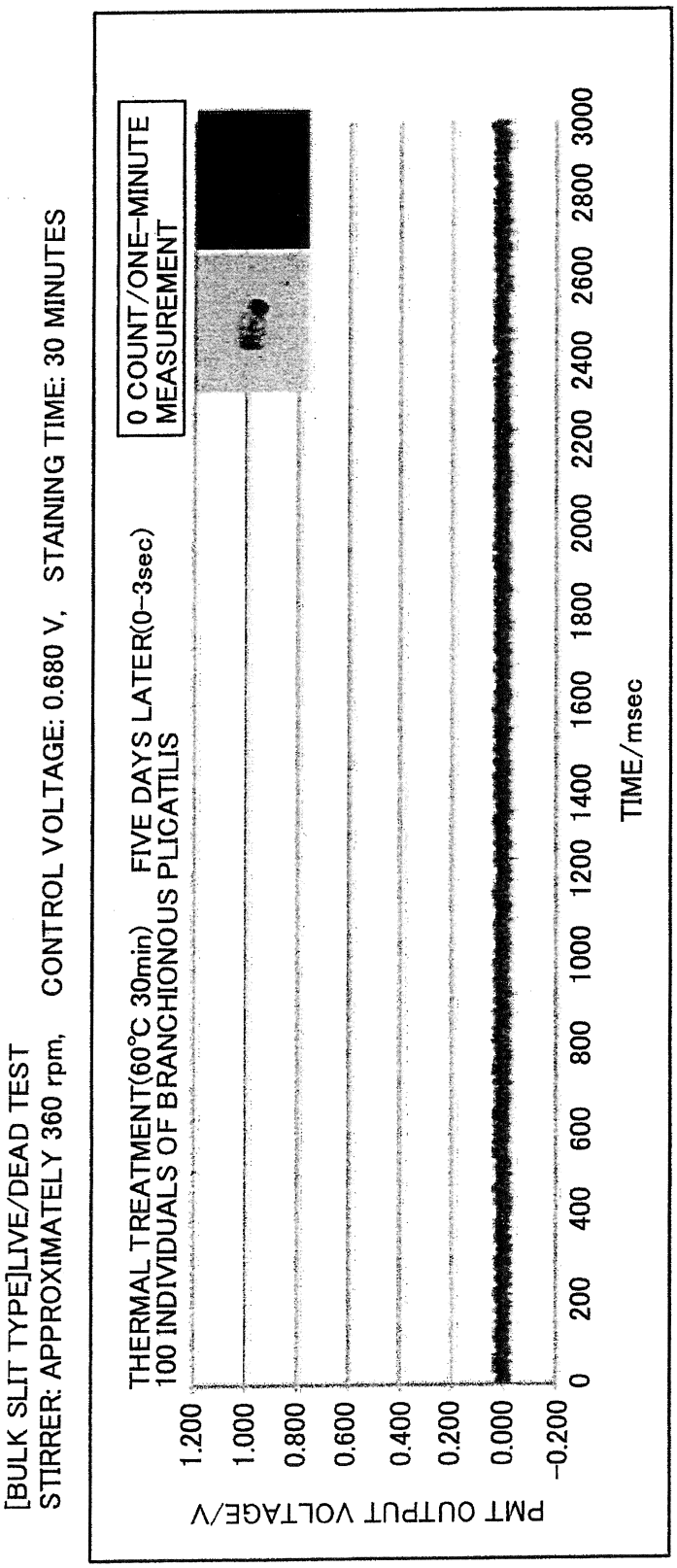

[BULK SLIT TYPE]LIVE/DEAD TEST
STIRRER: APPROXIMATELY 360 rpm, CONTROL VOLTAGE: 0.680 V, STAINING TIME: 30 MINUTES
THERMAL TREATMENT(60°C 30min) FIVE DAYS LATER(0-3sec)
100 INDIVIDUALS OF BRANCHIONOUS PLICATILIS
0 COUNT/ONE-MINUTE MEASUREMENT
PMT OUTPUT VOLTAGE/V
1.200
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
TIME/msec

FIG. 12A

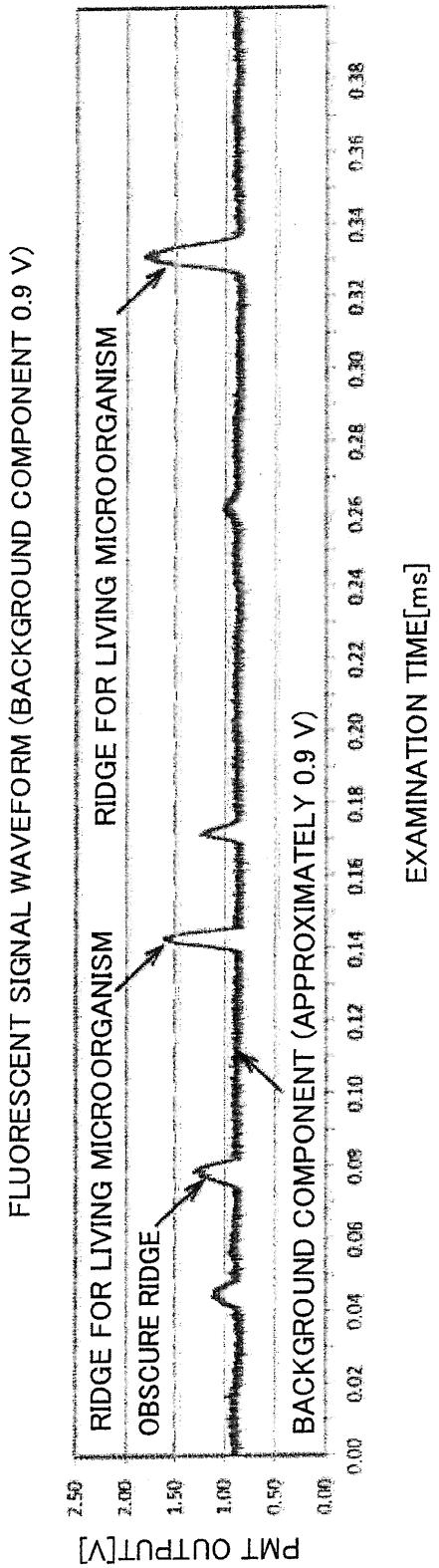

FLUORESCENT SIGNAL WAVEFORM (BACKGROUND COMPONENT 0.9 V)
RIDGE FOR LIVING MICROORGANISM
RIDGE FOR LIVING MICROORGANISM
OBSCURE RIDGE
BACKGROUND COMPONENT (APPROXIMATELY 0.9 V)
PMT OUTPUT[V]
2.50
2.00
1.50
1.00
0.50
0.00
0.00 0.02 0.04 0.06 0.08 0.10 0.12 0.14 0.16 0.18 0.20 0.22 0.24 0.26 0.28 0.30 0.32 0.34 0.36 0.38
EXAMINATION TIME[ms]

FIG. 12B

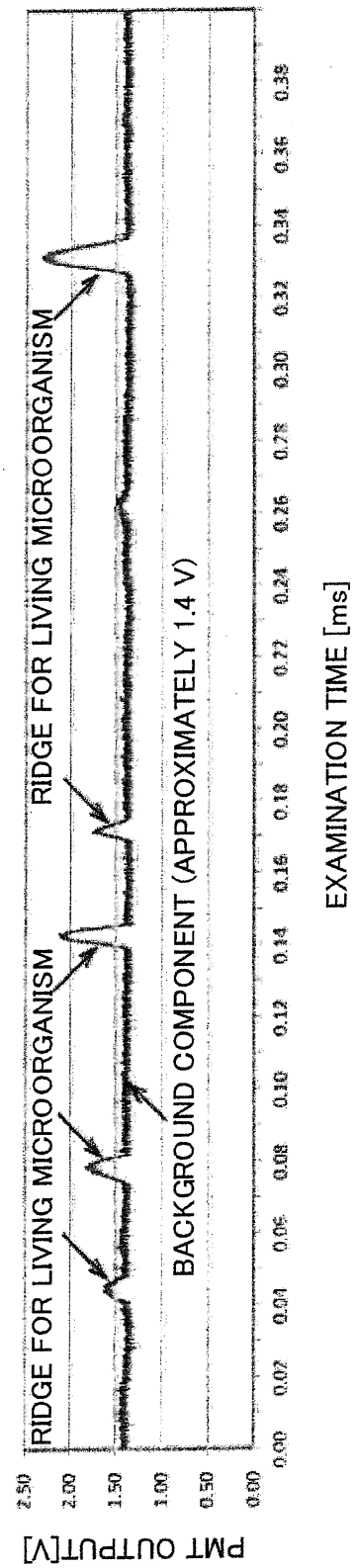

FLUORESCENT SIGNAL WAVEFORM (BACKGROUND COMPONENT 1.4 V)
RIDGE FOR LIVING MICROORGANISM
RIDGE FOR LIVING MICROORGANISM
BACKGROUND COMPONENT (APPROXIMATELY 1.4 V)
PMT OUTPUT[V]
2.50
2.00
1.50
1.00
0.50
0.00
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.18
0.20
0.22
0.24
0.26
0.28
0.30
0.32
0.34
0.36
0.38
EXAMINATION TIME [ms]

FIG. 12C

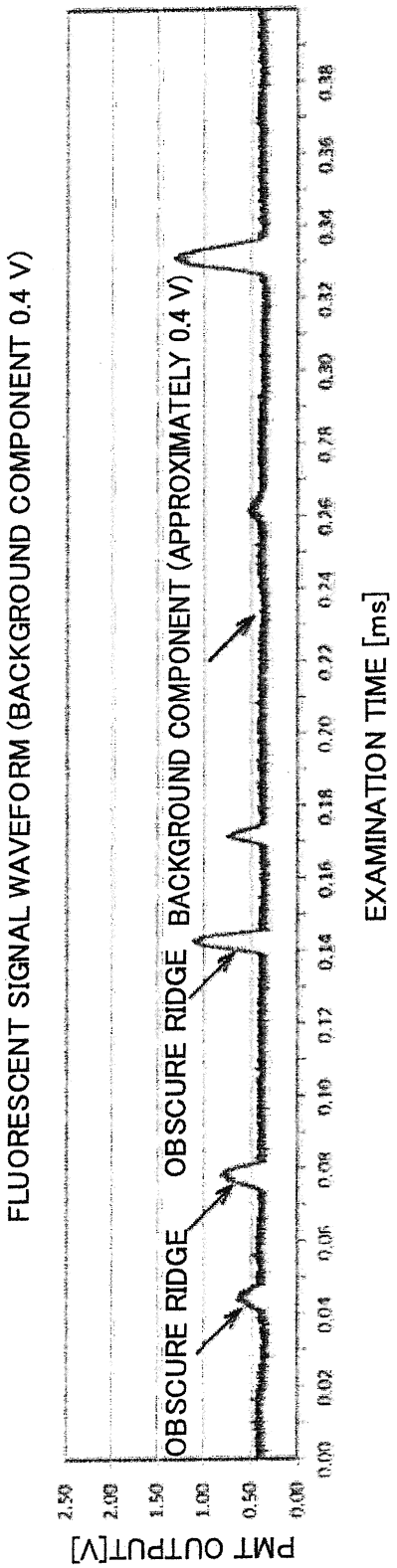

FLUORESCENT SIGNAL WAVEFORM (BACKGROUND COMPONENT 0.4 V)
OBSCURE RIDGE
OBSCURE RIDGE
BACKGROUND COMPONENT (APPROXIMATELY 0.4 V)
PMT OUTPUT[V]
EXAMINATION TIME [ms]

FIG. 13A

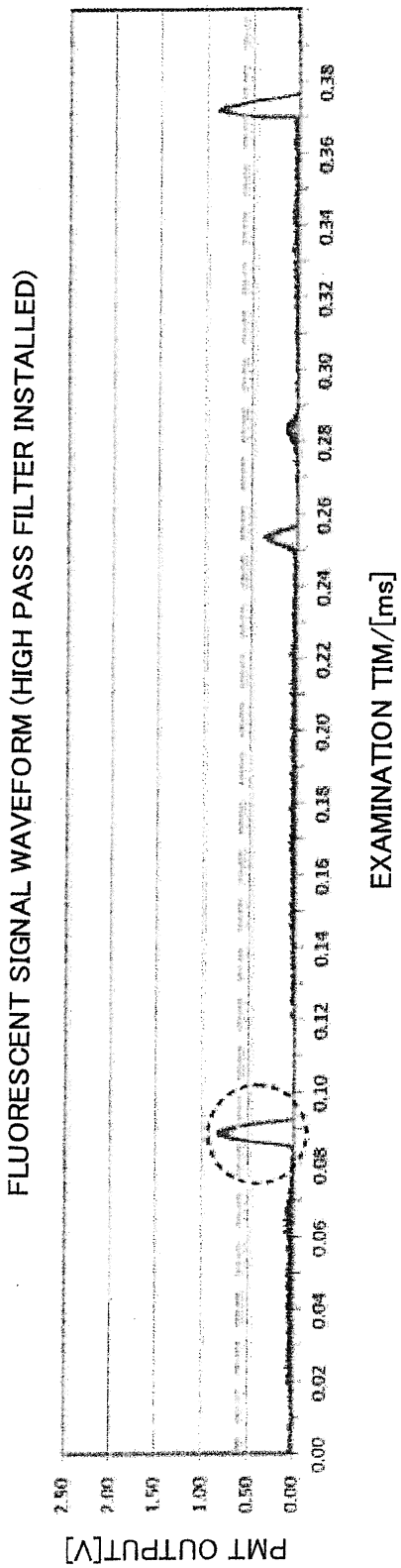

FLUORESCENT SIGNAL WAVEFORM (HIGH PASS FILTER INSTALLED)
PMT OUTPUT[V]
2.50
2.00
1.50
1.00
0.50
0.00
EXAMINATION TIM/[ms]
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.18
0.20
0.22
0.24
0.26
0.28
0.30
0.32
0.34
0.36
0.38

FIG. 13B

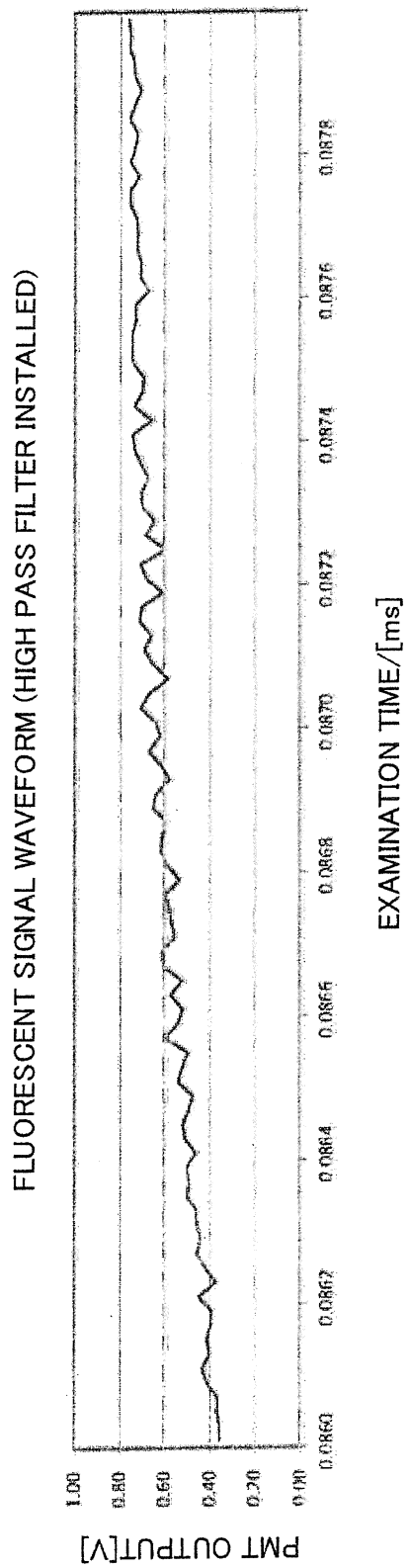

FLUORESCENT SIGNAL WAVEFORM (HIGH PASS FILTER INSTALLED)
PMT OUTPUT[V]
1.00
0.80
0.60
0.40
0.20
0.0860
0.0862
0.0864
0.0866
0.0868
0.0870
0.0872
0.0874
0.0876
0.0878
EXAMINATION TIME/[ms]

FIG. 13C

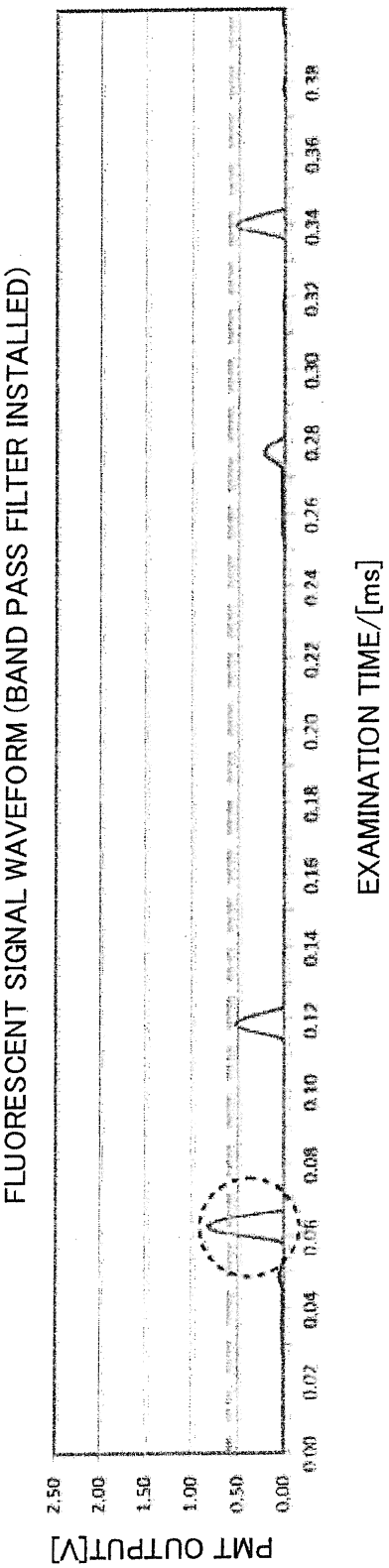
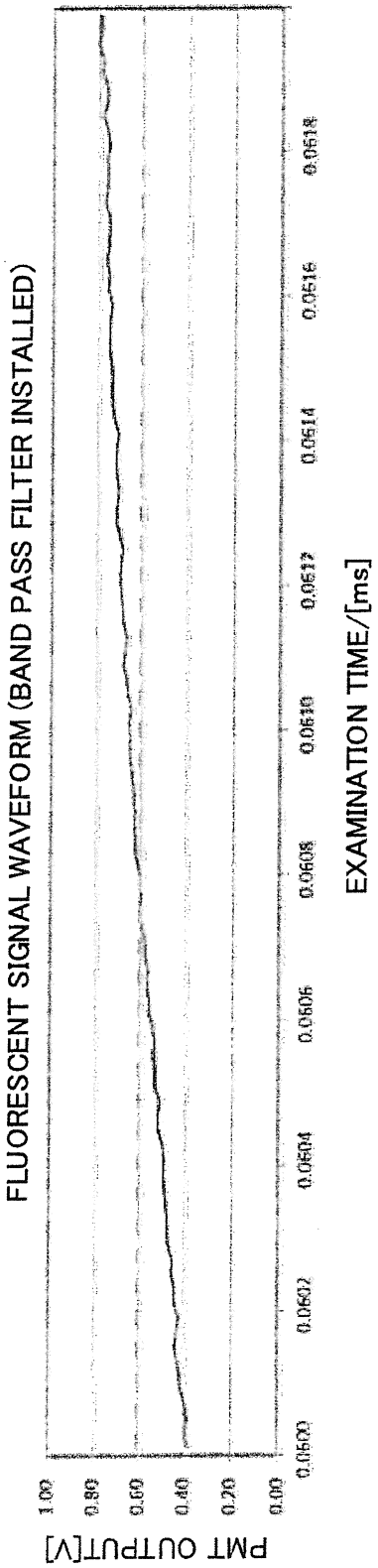

FLUORESCENT SIGNAL WAVEFORM (BAND PASS FILTER INSTALLED)
PMT OUTPUT[V]
2.50
2.00
1.50
1.00
0.50
0.00
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.18
0.20
0.22
0.24
0.26
0.28
0.30
0.32
0.34
0.36
0.38
EXAMINATION TIME/[ms]

FIG. 13D


FLUORESCENT SIGNAL WAVEFORM (BAND PASS FILTER INSTALLED)
PMT OUTPUT[V]
1.00
0.80
0.60
0.40
0.20
0.00
0.0600
0.0602
0.0604
0.0606
0.0608
0.0610
0.0612
0.0614
0.0616
0.0618
EXAMINATION TIME/[ms]