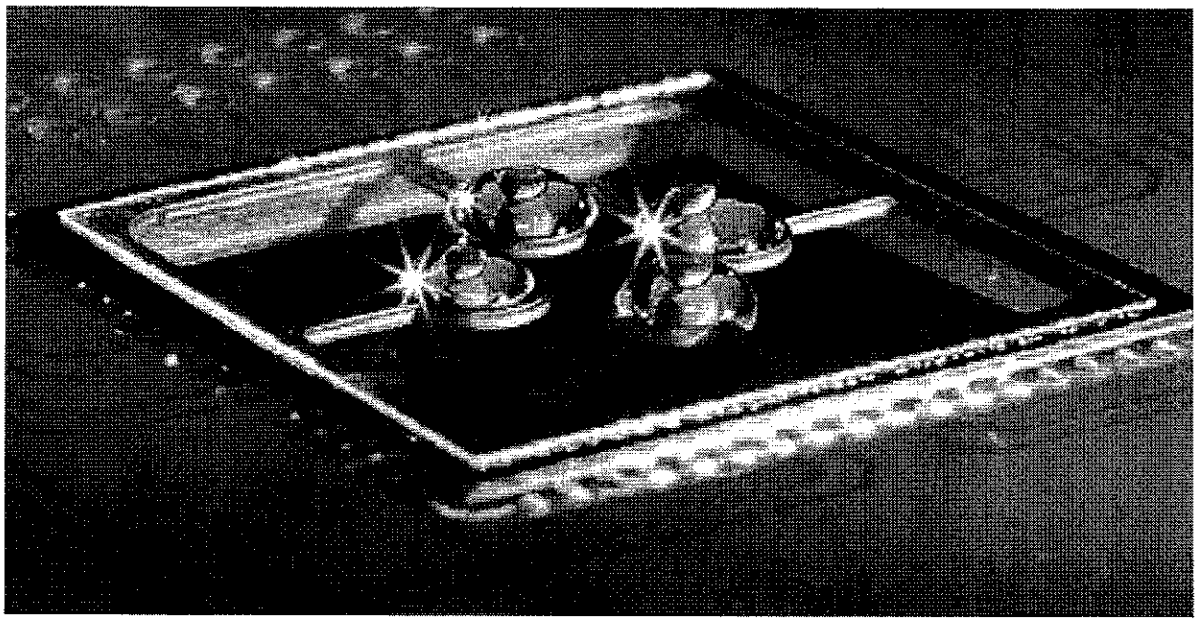


Fig. 1

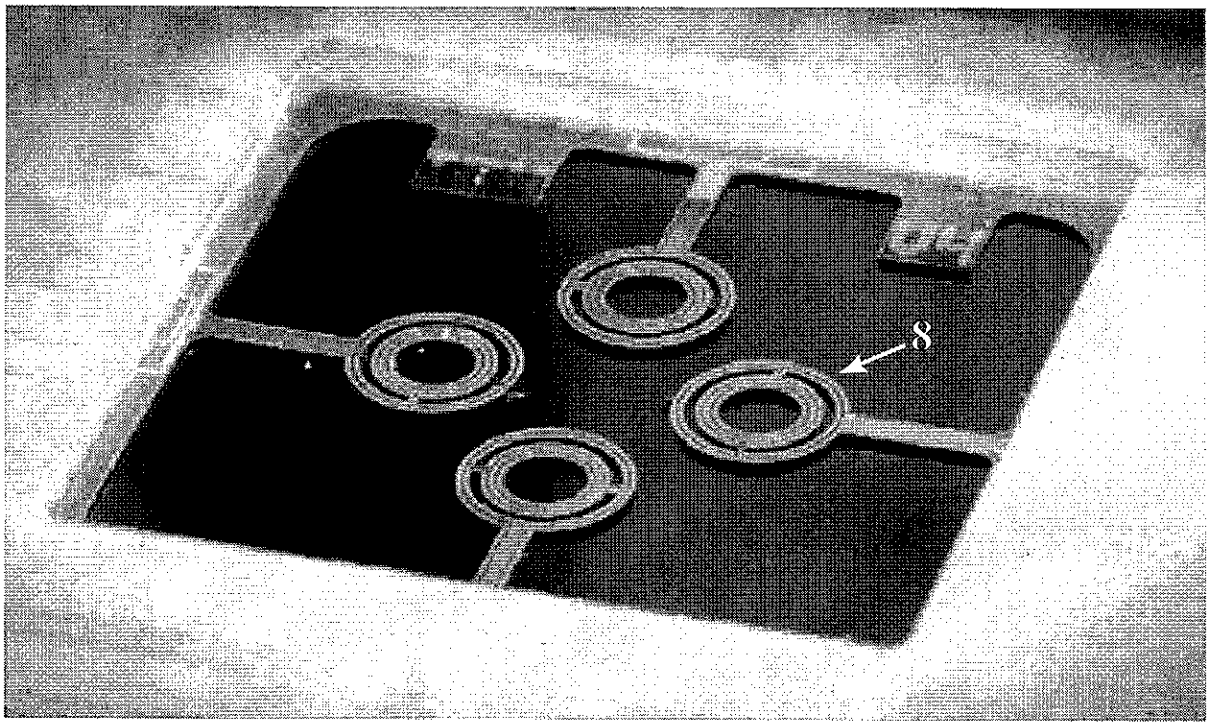


Fig. 2

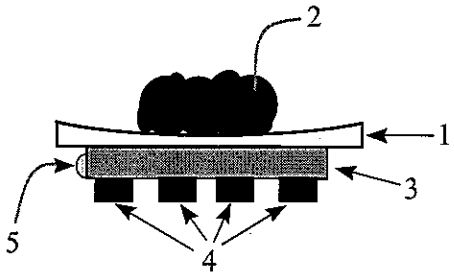


Fig. 3A

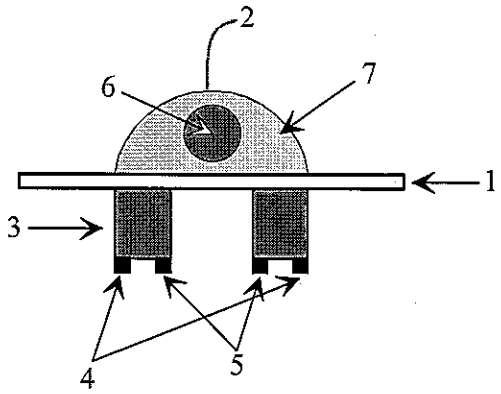


Fig. 3B

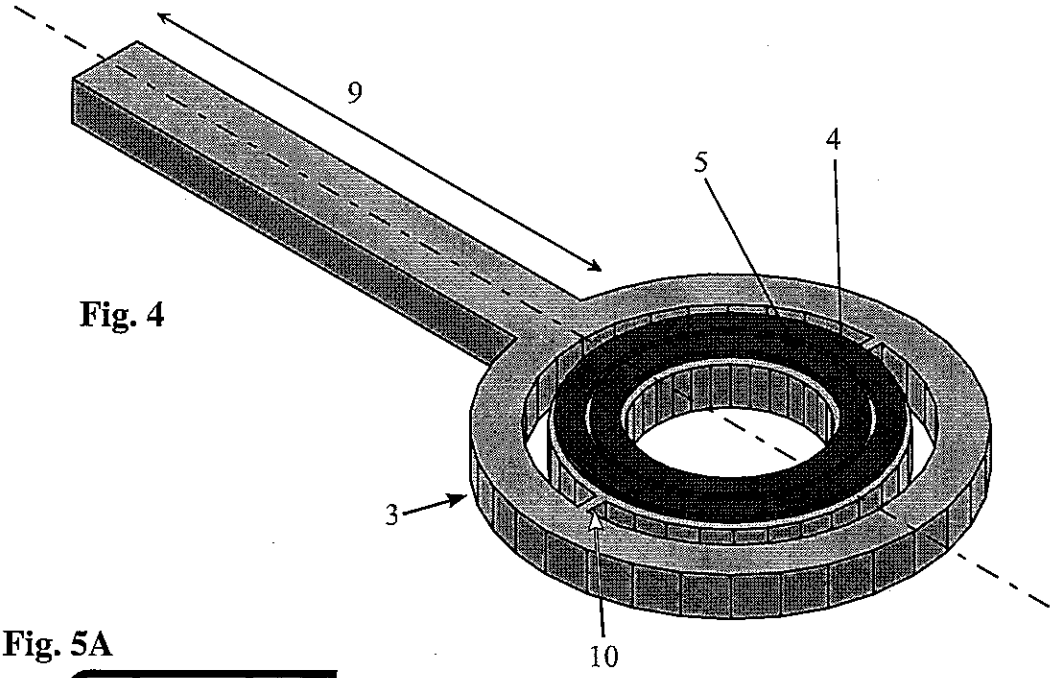
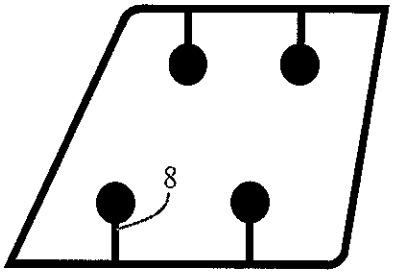


Fig. 4

Fig. 5A



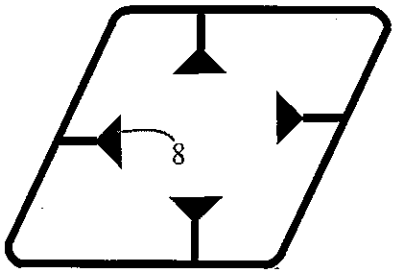


Fig. 5B

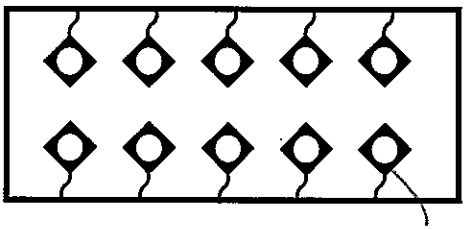


Fig. 5C

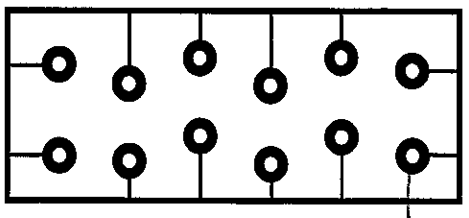


Fig. 5D

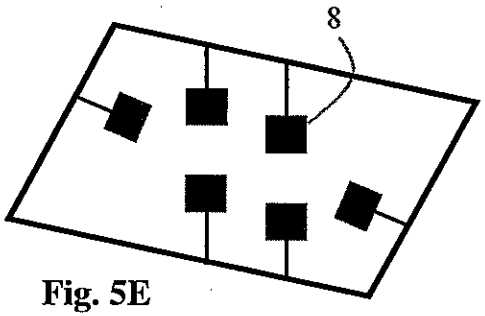


Fig. 5E

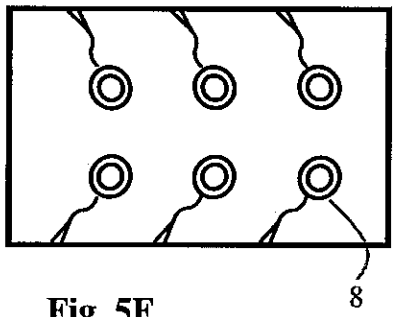
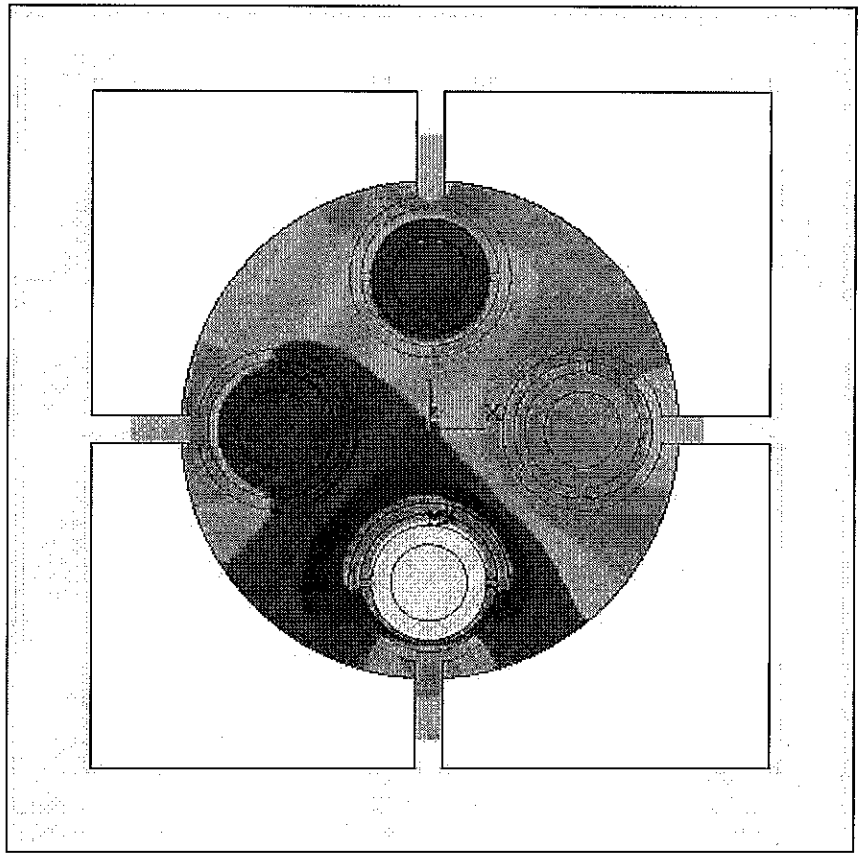
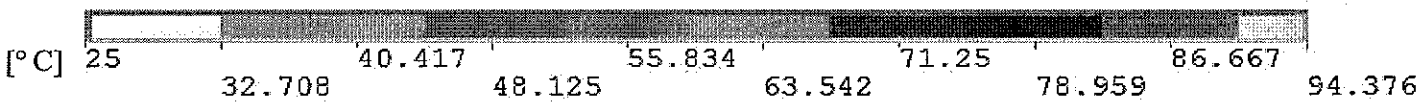


Fig. 5F

Fig. 6A





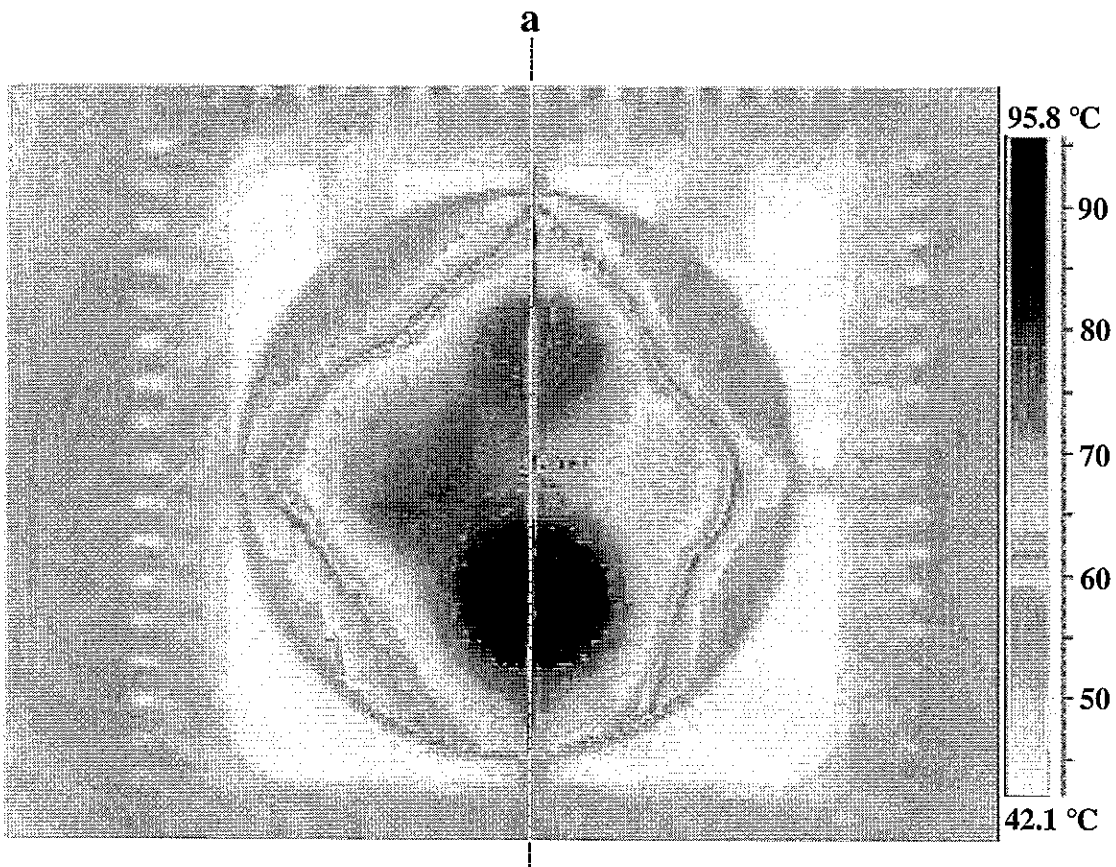


Fig. 6B

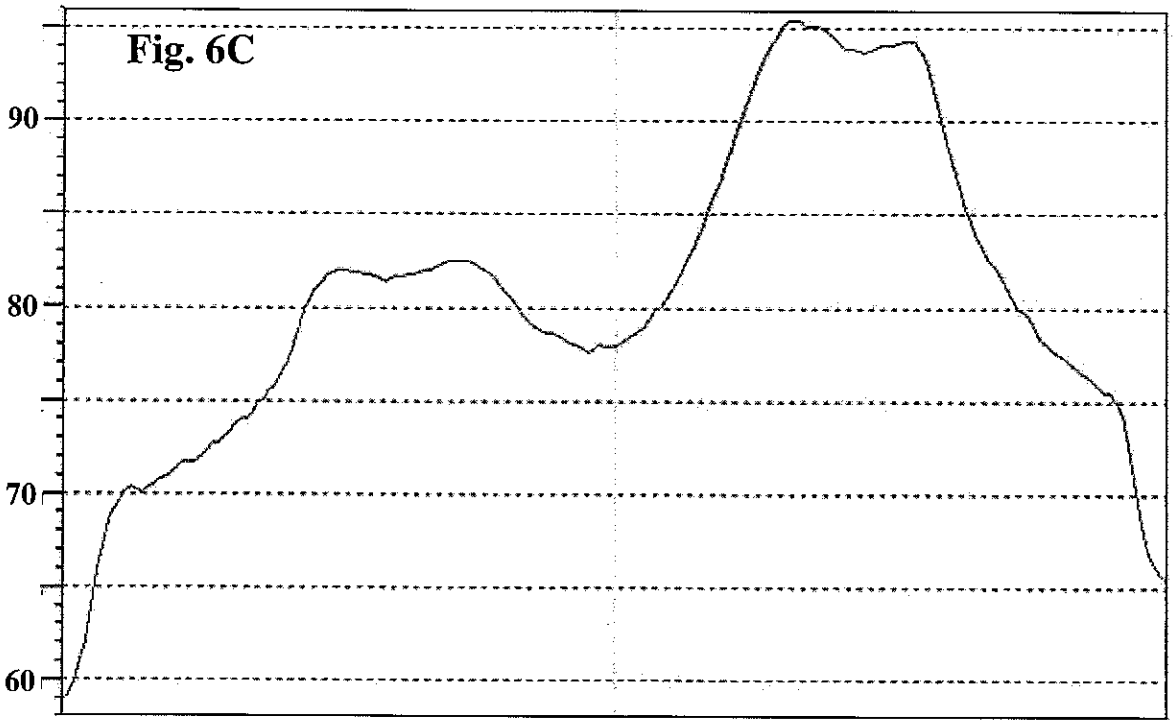


Fig. 6C

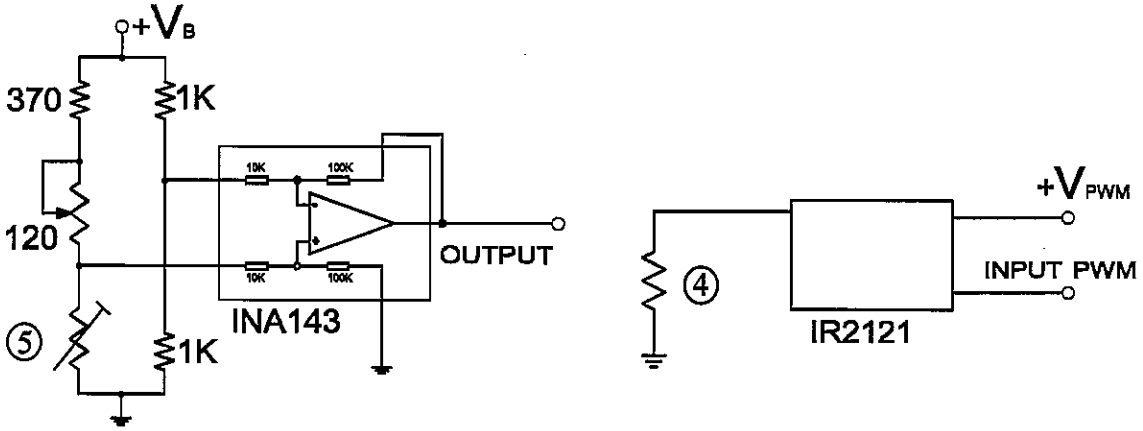

+V_B
370
1K
120
⑤
1K
10K
100K
10K
100K
INA143
OUTPUT
④
+V_PWM
INPUT PWM
IR2121

Fig. 7

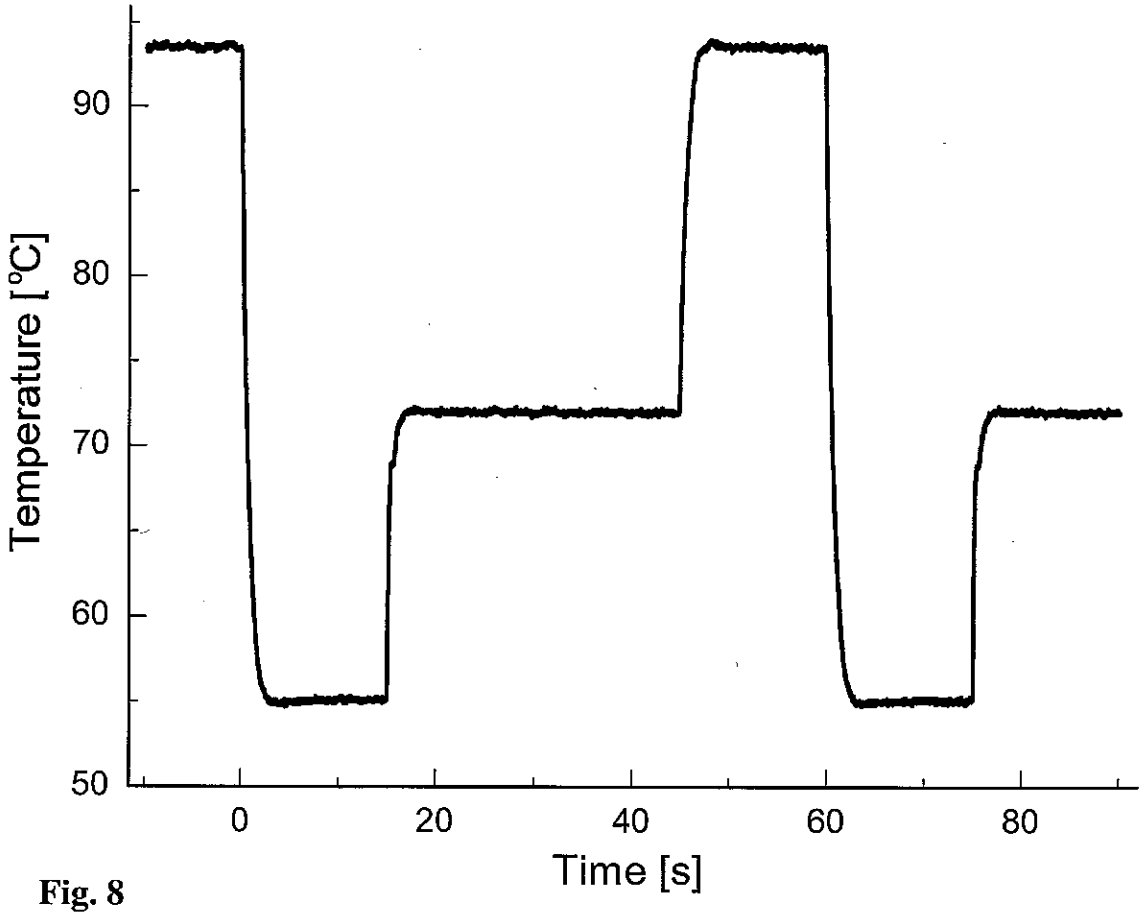

Temperature [°C]
90
80
70
60
50
0
20
40
60
80
Time [s]

Fig. 8

Fig. 9

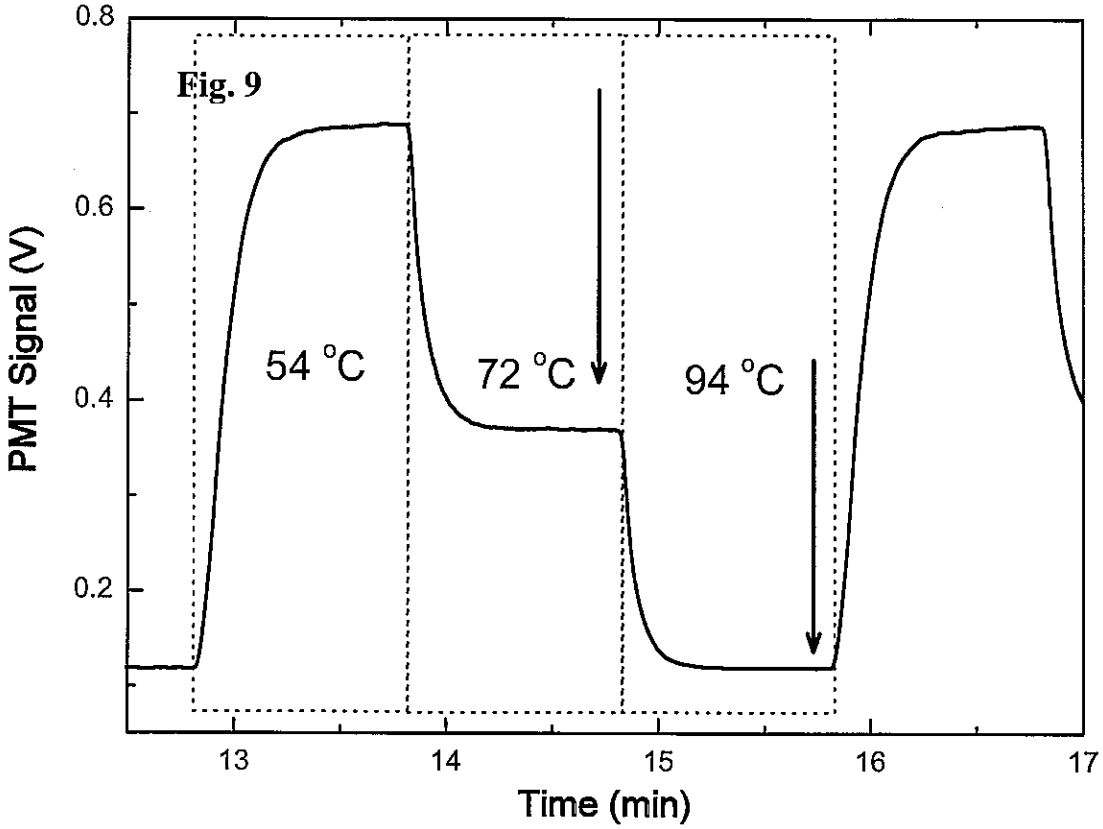
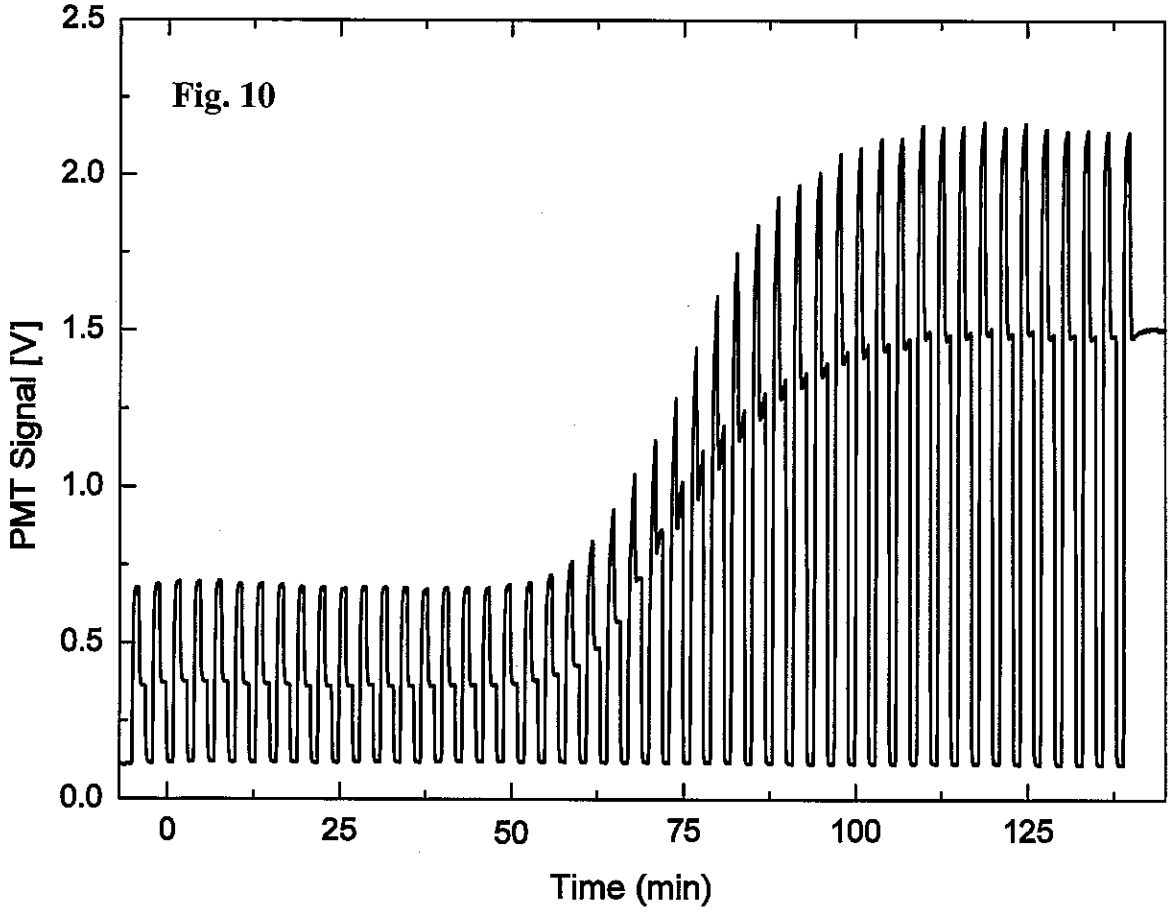

0.8
0.6
0.4
0.2
PMT Signal (V)
54 °C
72 °C
94 °C
13
14
15
16
17
Time (min)

Fig. 10


2.5
2.0
1.5
1.0
0.5
0.0
PMT Signal [V]
0
25
50
75
100
125
Time (min)

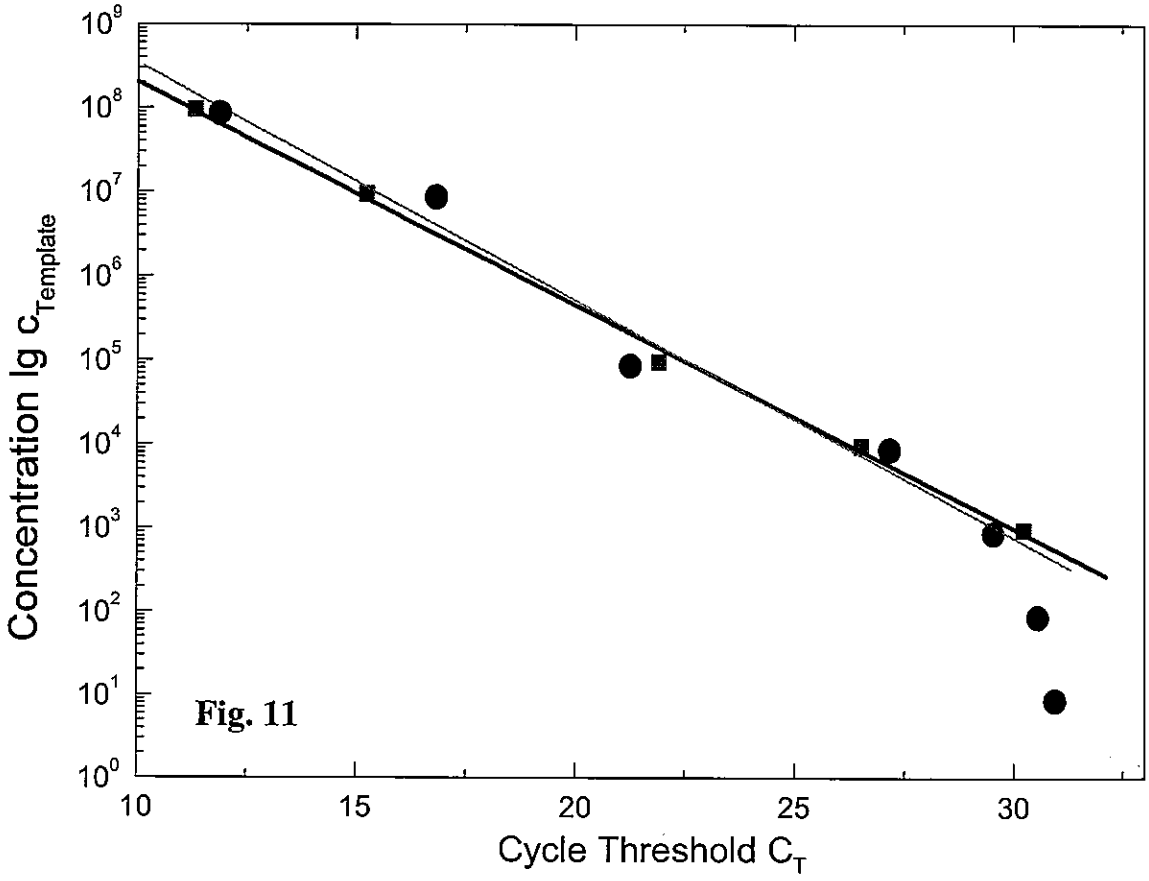

Concentration lg $c_{Template}$
10^9
10^8
10^7
10^6
10^5
10^4
10^3
10^2
10^1
10^0
10
15
20
25
30
Cycle Threshold C_T

Fig. 11

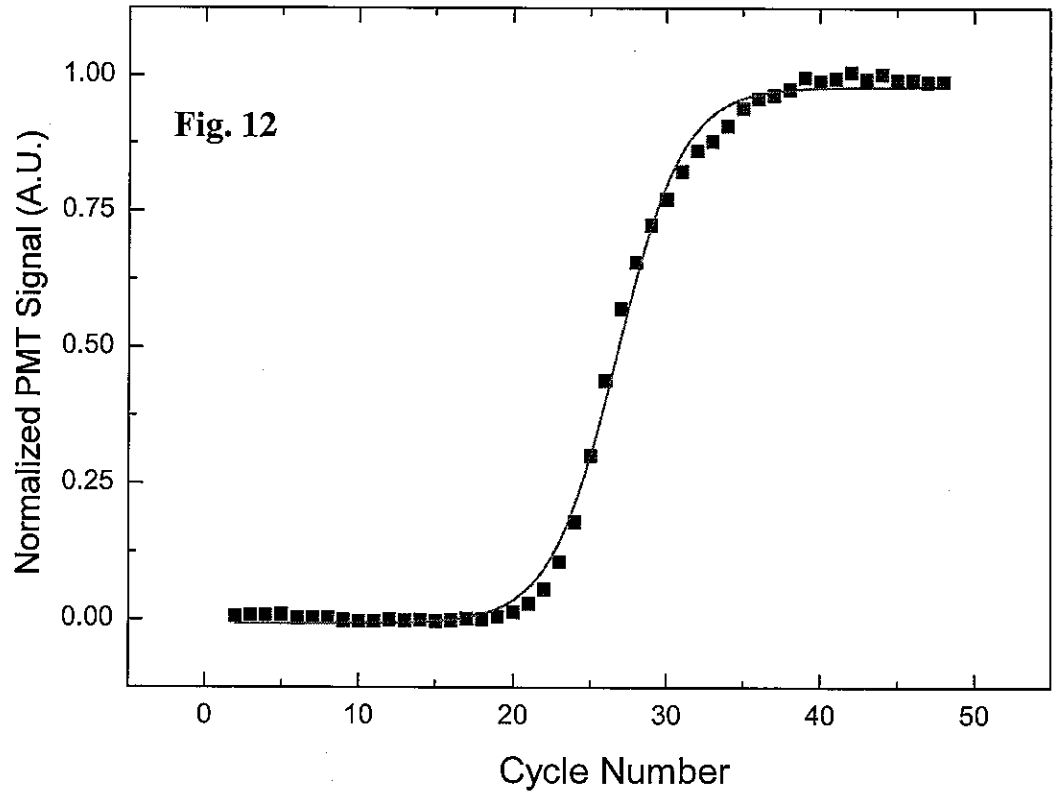

Normalized PMT Signal (A.U.)
1.00
0.75
0.50
0.25
0.00
0
10
20
30
40
50
Cycle Number

Fig. 12

Fig. 13

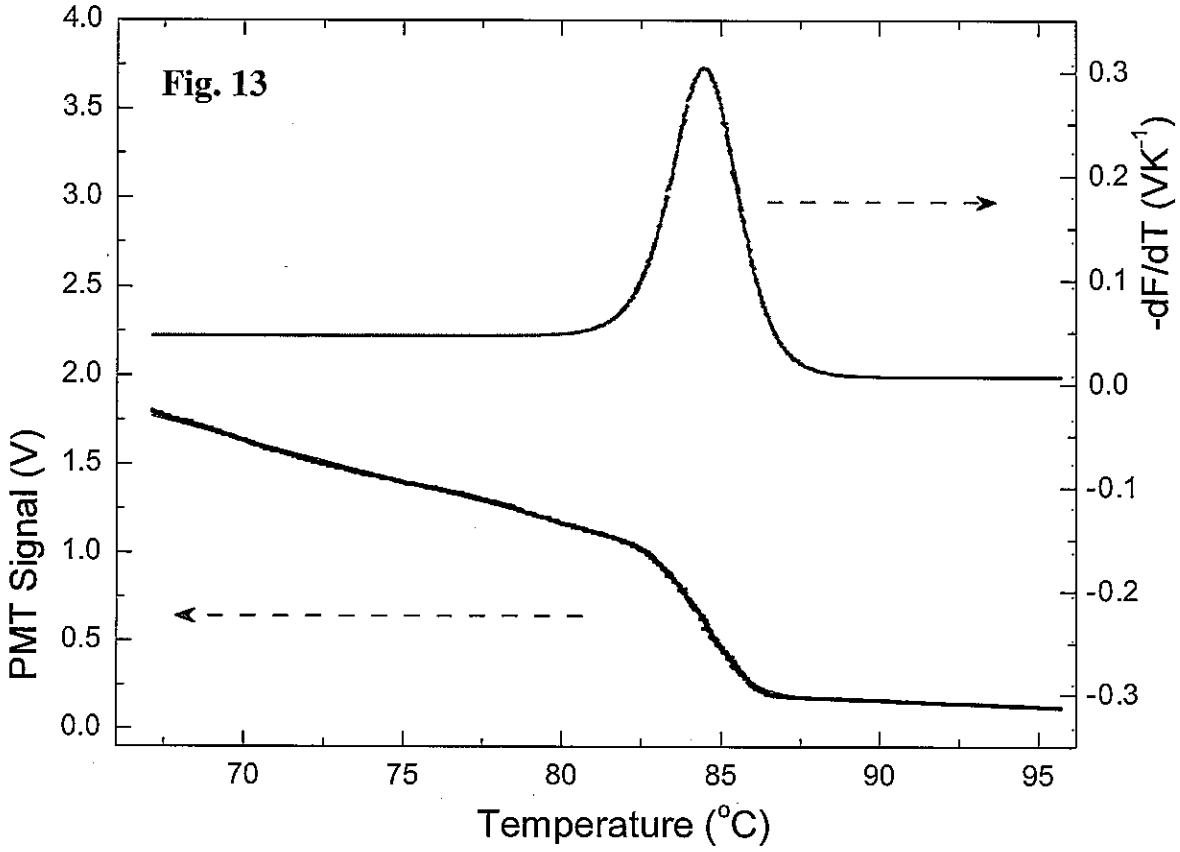
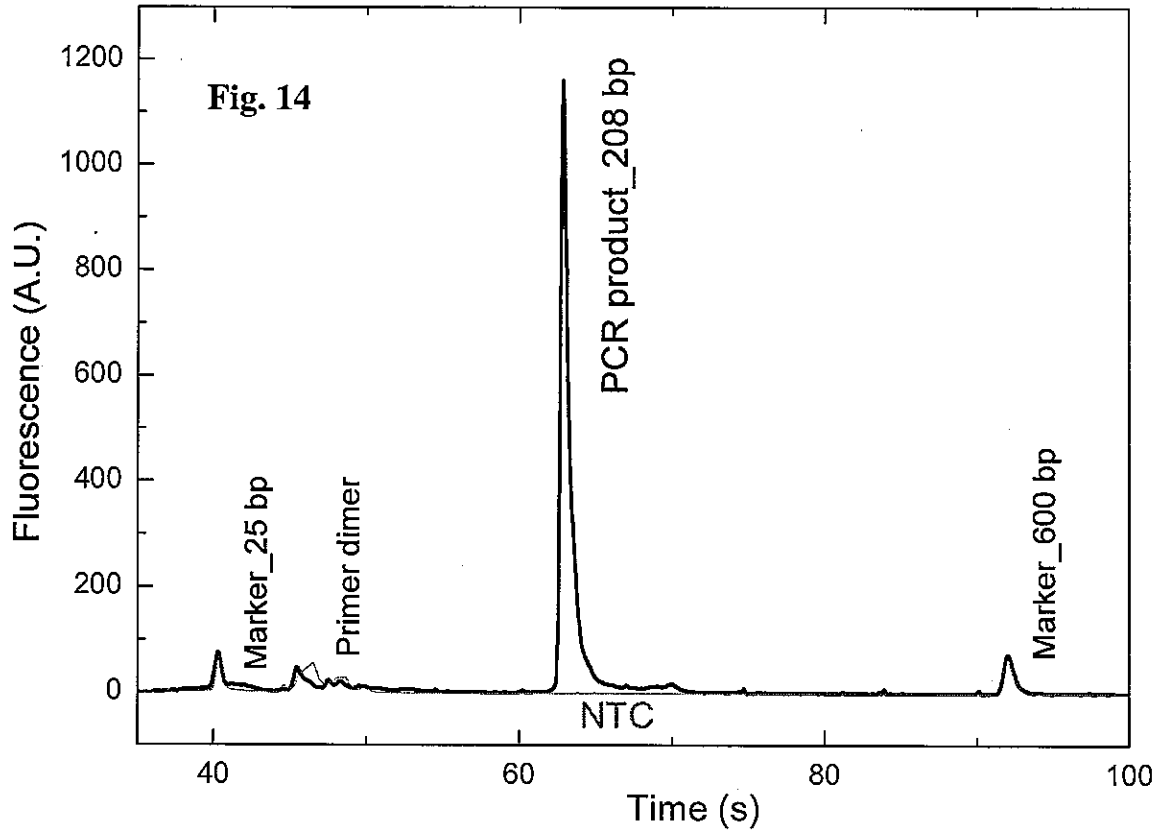

PMT Signal (V)
-dF/dT (VK^{-1})
Temperature (^{o}C)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
70
75
80
85
90
95

Fig. 14


Fluorescence (A.U.)
Time (s)
Marker_25 bp
Primer dimer
PCR product_208 bp
Marker_600 bp
NTC
1200
1000
800
600
400
200
0
40
60
80
100