

(19) (KR)
(12) (A)

(51) Int. Cl.⁷
G02F 1/1333

(11)
(43)

10-2004-0042487
2004 05 20

(21) 10-2002-0070794
(22) 2002 11 14

(71) . 20

(72) 642 1 504-1601

131-23

2 203 706

8 567-14

1 270 126-1005

(74)

:

(54)

가 가
,

(hovering)

,

,

1
2a 2c
3 LCD
4
5
6 5
7 6
8
9 8
10 9

85 : 86 :

가

, (Input Device) , , (Digitizer)

PC

가

가

, , , 가 , , 가
(Touch Panel) , , ,

Capacitive), (Resistive) 가

LCD(Liquid Crystal Display)

, PDA,

PC

0.2mm~2mm

1mm~2mm

0.1mm~0.2mm

/

가

1

2a

2c

(22)
0)가1
(30),

(20)

1
(30)

(21)

(20), 2

(5

(20)
(40)

(30)

1, 2

(21,22)

75~200 μ m

(20)

가

(30)

(20)

(30)

PET

(21)

가

)

1
(Connector Tail)

(20)

(50)

100~300 μ m

2a

(40)

(20)

(30)

(60)

2b
(30)

가

2
(20)

(70)

가

1

(80)

2c
가(Rx1,Rx2), (Ry1,Ry2)
(S)

(Vx,Vy)

가

2a

(30)

2c

2

가

1

(70)

(B)

(Vx)

(80)

가

(A)

2

(20)

(70)

X

(30)

Y

(20)

2

(80)

(A)

(Vy)

가

(30)

2

(70)

가

3 LCD

, LCD , , ,

$$\begin{aligned}
& , \quad , \quad (41) \quad , \quad (41) \\
& (42) \quad (43) \quad , \quad (1) \\
& (44) \quad , \quad (41) \quad (45) \quad , \quad (44), \quad (41) \\
& (45) \quad (46) \quad . \\
& , \quad (45) \quad (47) \quad (48) \\
& (49) \nmid , \quad (47) \quad (48) \quad () \\
\end{aligned}$$

4

4

(51) , (51)
 (52) (53) , (51) (51)
 (54) , (51) (51) (51)
 (55) , (51) (56) , (54), (51) (56)
 (57) .
 .
 (56) PCB(58) (shield plate)(59) (connec
 tor)(61) (62) , (62) (62) (62)
 (66)가 (64) .
 .
 (63) (65) .

$$, \quad (64) \quad \quad \quad (62) \quad \quad \quad (63) \\ (63) \quad \quad \quad (62) \quad \quad \quad (65)$$

(62) (63) LC (64) (63)

, (65) RLC 가 가

(f)

$$, f=1/2\pi\sqrt{LC} \left(\dots, \mathbb{L} \dots, \mathbb{C} \right)$$

가 , 가

가 가 (hovering) 가

가
가

가 (hovering) 가

가

1 , 2

PCB, , PCB

5 , (71) (72) (71) (72) (72) , (pattern spacer) (73) , (74)

, ITO(Indium Tin Oxide) TAO(Tin Antimony Oxide) , (73)

6 5

, (position detect)

6 , (82) (81) , (81) , (81) , (81) , (81) , (81)

(86) , (85), (81), (84) , (87)

, (86) PCB(88) (91) , (91) (shield plate)(89) (connec
tor)(90) (91) (96) 가

(92)

, PCB(88) (89) (adhesive)

, 93 (86) , (94) 가

, (90) 50

7 6

7 , (92) (85) (A) , (85) pF
(86) (B) , (86)
(C)

, (92) (91) (93) , (96) (coordinate) (switch information)

, (hand) (85) , (71) (72) , (71) , 가

, (71) (72) , (71) , 가 , (71) , X , 가

, (72) , (71) , 가 , (71) , X , Y , 가

X Y (92)

X, Y 가

A) (52) , (A) γ (F) , (G) (F) . ()
 0) (G) γ (54) (V_H) (H) (7)
 , (53) (A) 2 90° EXOR (A-) (45) γ
 (I) (F) (A-) , (F) (F)
 (I) γ (55) (-V_J) (J) (70)
 , (60) γ , (F) (A) , γ (63) (H)
 (J)
 , (60) γ , (F) (A) (63)
 (H) (J) (, 90° (J)
). (70) (H) (J) 1

1

$$V_x = (V_H \cdot \text{DATASIZE} = 0 >^2 + V_J^2)^{\frac{1}{2}}$$

$\nu_\theta = \tan^{-1}(\nu_J / \nu_H)$ (2)
 60) , V_x (60) (63) (91) , V_{theta} ()
 V_x (60) (91) (60) γ

$$V_{\text{theta}} / V_{\text{theta}}$$

$$, (64) (63) (62) (62) (63) (63) ,$$

$$(62) (63) LC (64) (63)$$

(65) RLC

가

가

(f)

$$, f = 1/2\pi\sqrt{LC} (, L , C)$$

가

가

가 가

가

(57)

1.

2.

1

3.

2

4.

1 ,

5.

4 ,

6.

1 ,

7.

6 ,

2 , 1 , 2 ,

8.

6 ,

PCB, ,

9.

8 ,

PCB

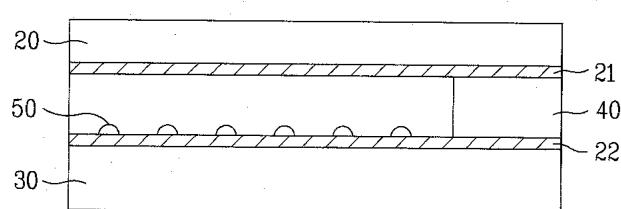
10.

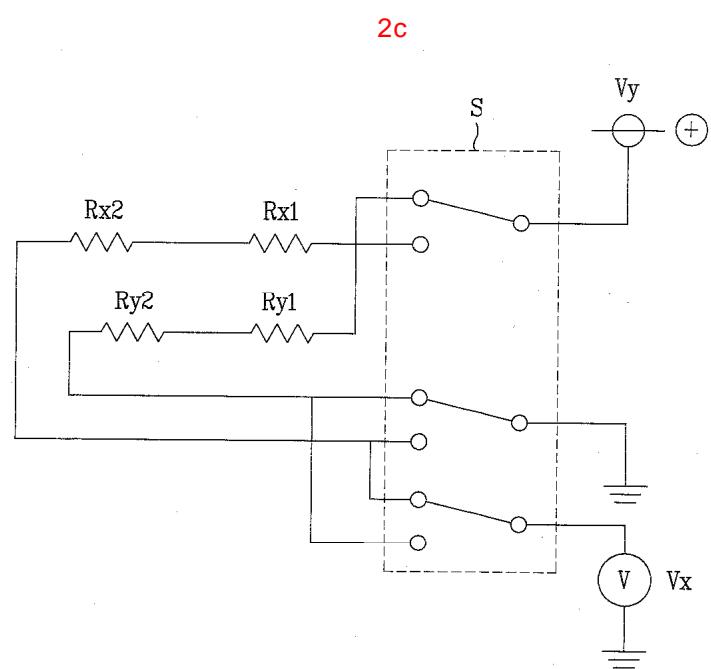
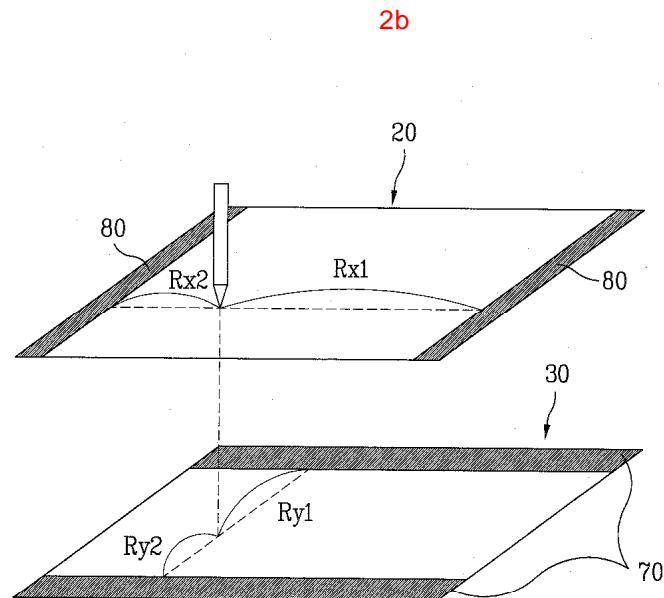
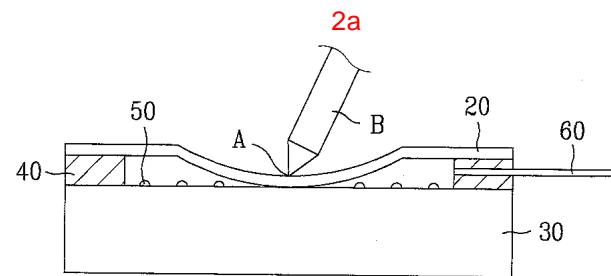
1 ,

11.

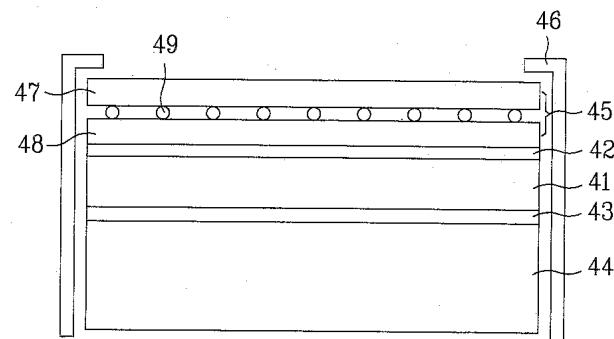
10 ,

1

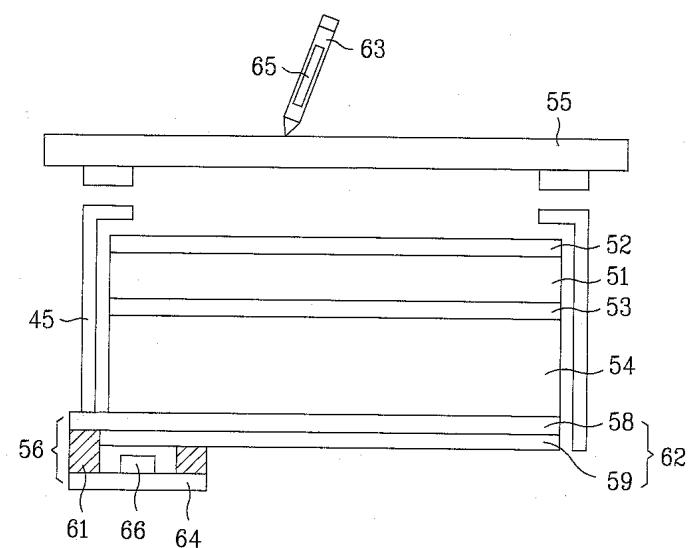




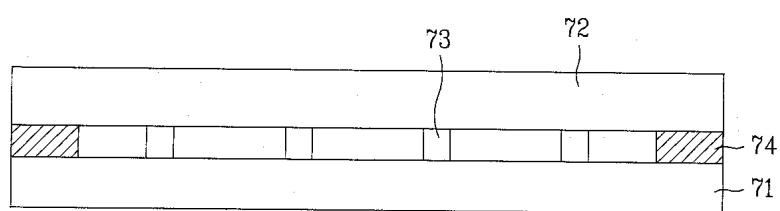
3



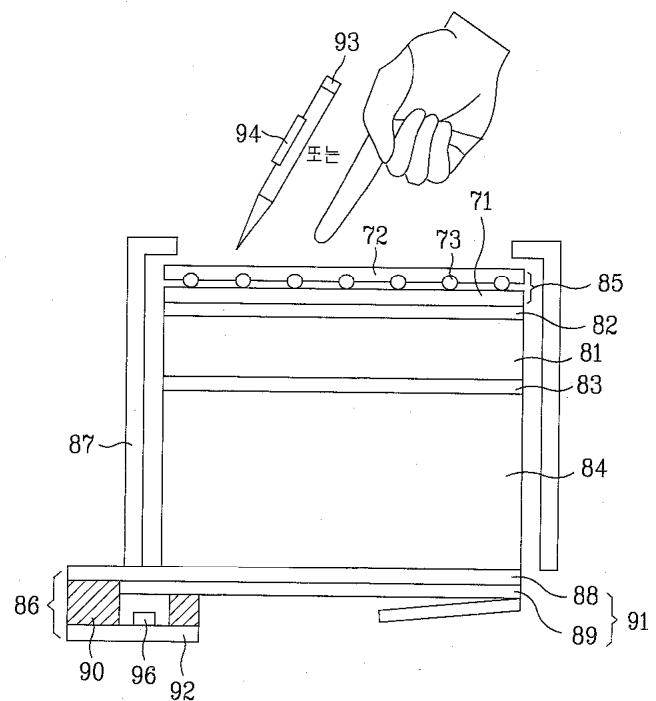
4



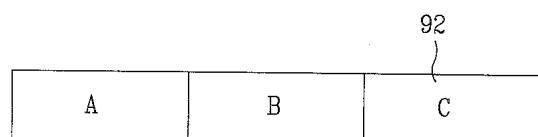
5



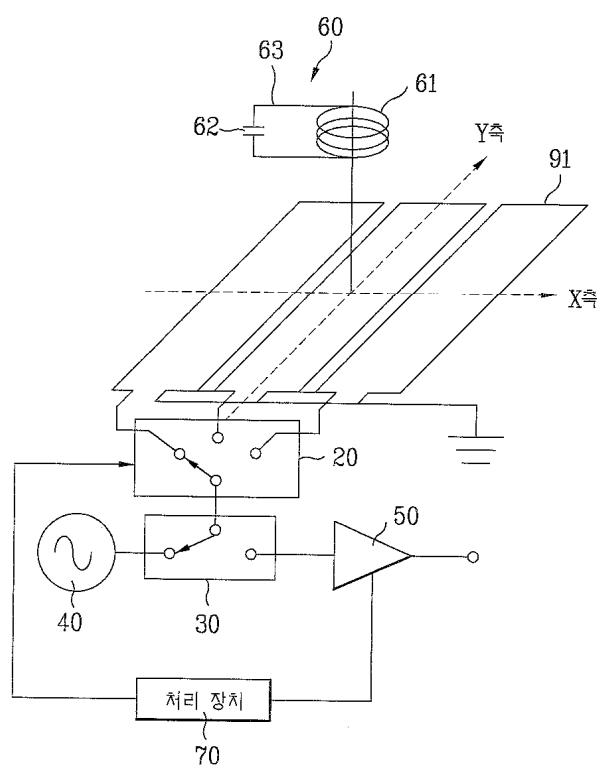
6



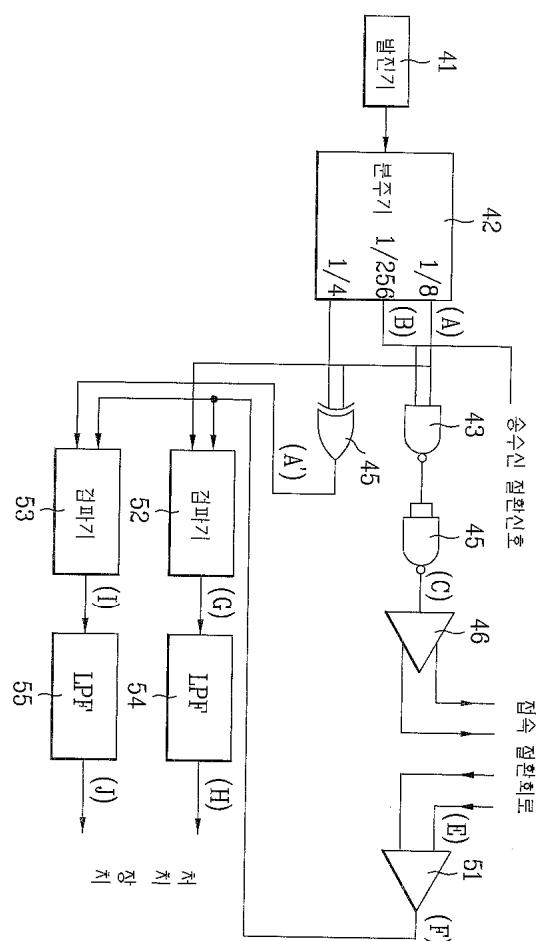
7



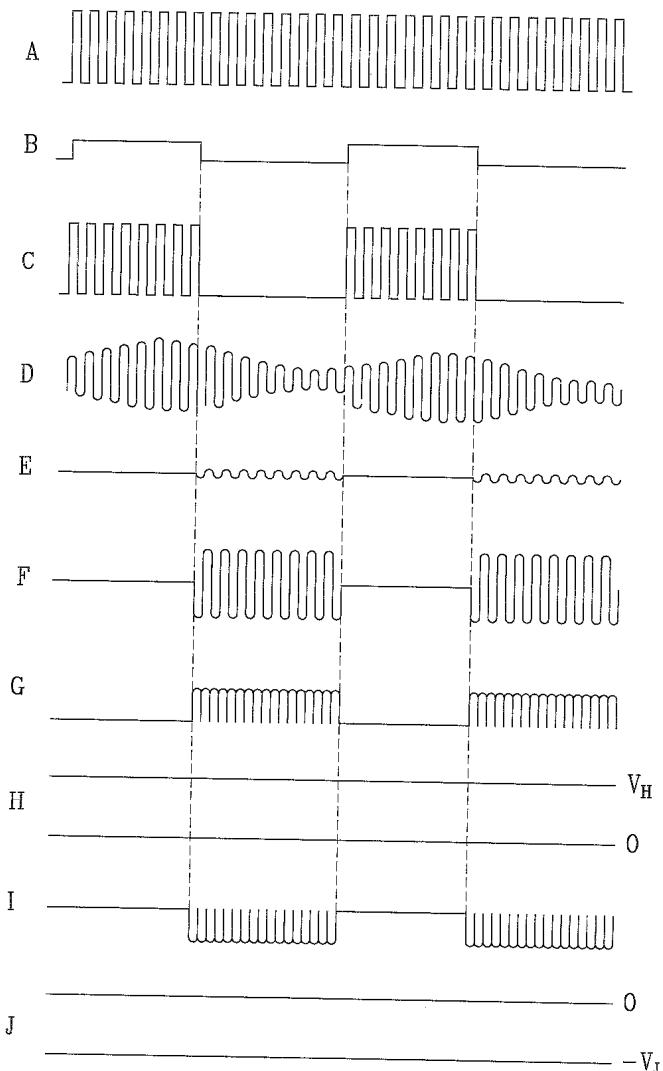
8



9



10



专利名称(译)	用于显示设备的触摸面板		
公开(公告)号	KR1020040042487A	公开(公告)日	2004-05-20
申请号	KR1020020070794	申请日	2002-11-14
[标]申请(专利权)人(译)	乐金显示有限公司		
申请(专利权)人(译)	LG显示器有限公司		
当前申请(专利权)人(译)	LG显示器有限公司		
[标]发明人	HONG HEEJUNG 흥희정 KONG NAMYOUNG 공남용 YOU TAEHO 유태호 PARK HEEJEONG 박희정 LEE CHUNSUCK 이천석		
发明人	흥희정 공남용 유태호 박희정 이천석		
IPC分类号	G02F1/1333 G06F3/045 G06F3/033 G06F3/046		
CPC分类号	G06F3/046 G06F2203/04104 G06F3/045		
代理人(译)	金勇 新昌		
其他公开文献	KR100480823B1		
外部链接	Espacenet		

摘要(译)

本发明涉及一种能够实现悬停功能的显示装置的触控面板难以实现的电容薄膜方法，它集成了电磁式和电容薄膜方法以及难以在电磁式中实现的手感。并且它包括包括在显示装置中配置的电容膜型触控板的触控板，根据驱动信号和图像信号在显示单元上指示图像，以及包括在显示装置下侧的电磁类型并利用电磁场共振的特性来感应触控位置。触控板，电磁感应，电容膜，显示装置，液晶面板。

