

(19)  
(12)

(KR)  
(A)

(51) 。 Int. Cl. <sup>7</sup>  
H04N 7/01

(11)  
(43)

2002 - 0002229  
2002 01 09

(21) 10 - 2001 - 0035702  
(22) 2001 06 22

(30) 2000 - 189479 2000 06 23 (JP)

(71) 가 가

1 1 1

(72) 가 가 가 1가 가

가 가 가 1가 가

(74)

:

(54)

가 .

(12) ,

(13<sub>1</sub> - 13<sub>m</sub>) ,

(14) ,

(15) ,

(17<sub>1</sub> - 17<sub>n</sub>) ,

(50)

(18)

(10) .

1

, , , , ,

1

1

2

3

4

5

6

7

8 1

9

2

10 2

11 3

12 4

13 5 가

14 6

15

16

17

18

19 1

20 1

21 1

22 1

23 6

< >

1 :

10 :

12 :

13<sub>1</sub> - 13<sub>m</sub> :

14 :

15 :

17<sub>1</sub> - 17<sub>n</sub> :

18 :

20 :

30 :

40 : .

CRT ( , FED ) ) , ( )

ELD ) ) 2 가 ( , LCD ) , ( , )

가 . PDP 1 ( , PDP )

LCD 1

5 ) , LCD ( 9 - 32571

I business machines corp) ( 11 - 109921 ) . (internationa

16

2

17

1

가

18

가

( )

가

1

, 7

480Hz

가

가

가

가

가

가

가

, , .

, , 2 ,

, 2 ,

, , 가

가 ,

가 ,

가

< >

( 1 )

1 1 7 1 1  
 (1) (10) (20) (30) (50)

(10) (20) (30)  
 ( , DVD(Digital Versatile Disk), NTSC HDTV )  
 $S_{s1}$   $S_{s2}$   $S_{v1}$   $S_{v2}$   $S_{s1}$   $S_{s2}$   
 $S_{v1}$   $S_{v2}$   $S_{s1}$   $S_{s2}$   
 (30) (50) CLK (30)가 CLK  
 (10) (30)가  
 (50) 가  $S_{v2}$   $S_{s2}$   
 가 (50) 가  
 가 (  $S_{s2}$   $S_{s1}$  ) 가  
 가 (  $S_{s2}$  )  
 $S_{v1}$  (20) (20) 2  
 $S_{s1}$  2  
 (10)  
 (20)  $n(n-2)$  1 2 (20) (21) ,  
 $(22_1, \dots, 22_n)$  (23) (21)  
 $S_{v1}$   $S_{s1}$   $(22_1, \dots, 22_n)$   
 1/60 sec  
 (10) 가  $(22_1, \dots, 22_n)$  가 60Hz 1  
 $(22_1)$  2  $(22_2)$  ,  $n(n-2)$   
 $n$   $(22_n)$  ,  $n+1$  1  $(22_1)$   
 $k(i-1)$   $k-n$   $r$  ,  $r$   $r$   
 $(22_r)$  ,  $r$   $n$   $(22_n)$  ,  $r$  ,  $r$   
 가 240Hz ,  $k$   $(k-1)$  ,  $k-n$  ,  $r$  ,  $r$   
 $4k-3$   $r$   $(22_r)$  ,  $r$   $n$  (22  
 $n$ ) , 4  $(1/60sec)$   $(22_1, \dots, 22_n)$  ,  
 가 480Hz ,  $k$   $(k-1)$  ,  $k-n$  ,  $r$  ,  
 $r$   $(22_r)$  ,  $r$   $n$   
 $(22_n)$  , 8  $(1/60sec)$   $(22_1, \dots, 22_n)$   
 (  $1/60sec$  )  
 (23)

(23)  $2^n$  가 8 (  $22_1, \dots, 22_n$  ) ,  $1$  (  $2$  ,  $i(i=1, \dots, n-1)$  ,  $i+1$  ) ,  $4$  (  $4$  ) ,  $4$  (  $4$  )

$2$  , 가 (  $3$  ) 가 , 가 가 (10) .

(10)  $m$   $1$   $m$   $3$  (12) ,  $m$   $1$   $m$  (13<sub>1</sub>, ..., 13<sub>m</sub>) , (14) , (15) ,  $n$   $1$   $n$  (17<sub>1</sub>, ..., 17<sub>n</sub>) , (18)

$S_{v1}$   $S_{s1}$  (12) ,  $m$   $1$   $m$  (13<sub>1</sub>, ..., 13<sub>m</sub>) 가 (12) (15)  $S_c$  (12) (15)  $S_{s1}, S_{s2}$  (20) ,  $2$  ,  $2$  (14) ,  $1$   $n$  (17<sub>1</sub>, ..., 17<sub>n</sub>) 가 (15) (18)  $S_{v2}$  (18)  $S_{s2}$  (50)

$3$  (10)  $m$  , (15)  $S_{s1}$  60Hz (20)  $3(=60/60+2)$  , 240Hz (  $1/60\text{sec}$  )  $0(=480/60+2)$  가  $1$   $2$  가  $1$  ,  $6(=240/60+2)$  , 480Hz  $1$  ,

(13<sub>1</sub>, ..., 13<sub>m</sub>)  $m$   $2$  (20)  $2$  ,  $1$   $3$  가 (10)  $S_{s2}$  (  $S_{s1}$  )

$$\begin{aligned}
 & \text{가} \\
 & (13_1, \dots, 13_m) \\
 & (17_1, \dots, 17_n) \\
 & (17_1, \dots, 17_n) \\
 & (50) \quad (18) \quad S_{v2} \quad S_{s2}
 \end{aligned}$$

가 , 가  
4 7  
4 가 360Hz 가 480Hz  
5

$$\begin{aligned}
 & 5 \quad A\text{가 } 1 \quad (13_1) \quad B\text{가 } 2 \\
 & (13_2) \quad C\text{가 } 3 \quad (13_3) \\
 & D\text{가 } 1 \quad (13_1) \quad E\text{가 } 2 \quad (13_2) \\
 & F\text{가 } 3 \quad (13_3) \quad (12)
 \end{aligned}$$

$$\begin{aligned}
 & (12) \quad (15) \quad (15) \\
 & a \quad 1 \quad A \quad (15) \\
 & (171) \quad (4, 5) \\
 & 1/1440\text{sec} (= 1/360 - 1/480) \\
 & 1/1440\text{sec} \quad A \quad B \quad (15)\text{가} \quad B \\
 & b \quad (4) \quad (17_2) \quad (5) \quad b \\
 & b\text{가 } 2 \quad C\text{가 } 3 \quad (13_3) \quad (5) \\
 & S_{v2} \quad (17_2) \quad a \quad (18)
 \end{aligned}$$

$$\begin{aligned}
 & b \quad C\text{가 } 3 \quad (13_3) \\
 & B \quad c \quad (C \quad 1/720\text{sec}) \\
 & (17_1) \quad (5) \\
 & c \quad D \quad 1 \quad (13_1) \quad b \\
 & (18) \quad c\text{가 } 1 \quad S_{v2} \quad (17_1)
 \end{aligned}$$

$$\begin{aligned}
 & c \quad D \quad C \quad 2 \quad D \\
 & (17_2) \quad (4, 5) \quad d \quad d \quad 2 \\
 & (13_2) \quad (5) \quad d\text{가} \quad C \quad E \quad 2 \\
 & (18) \quad S_{v2}
 \end{aligned}$$

, D F가 3 (17<sub>2</sub>) e (13<sub>3</sub>) (18) 1 (17<sub>1</sub>) d가 2 S<sub>v2</sub>

4, 5 1 5 A a , 4 , 2 (2 가 ) , 1 , 가 가

0Hz, 가 240Hz ) ( 6 가 480Hz, (B C 1/1440sec D ) b c 7 A a , 7 (2 (1 가 )

가 , (50)가 (50) (14)

(10)

( )

(20) 가  
 (18) (50) ( )  
 )  
 1 (10)  $S_c$  가 60Hz ,  
 8 가 480Hz 가 ( 8 ).  
 (b) (20)가 , 8  
 A , A, B  $a_1, \dots, a_7$  , 8  
 a , B  $a_1, a_2, \dots, a_7$  b , 7  
 0)가 (c) A (2  
 a , B  $r_1, \dots, r_7$   
 ,  $S_{v2}$   $S_{s2}$  (20)가  
 , 8 (d) A ,  
 a ,  $r_s$  ,  
 , 8 a .  
 , 가 , 8 (b)  
 , 8 (c) a b 2 8  
 , 8 (d) , 8 (c)  
 , a가 .  
 8 (10)  $S_c$   
 , , 19 22 ,  
 (10) ,  
 (20) .  
 , (50)가 .  
 i) (20) 19 .  
 1) , 가 240Hz , 가 240Hz  
 , A, B, C, D, E 가 19 (b) 19 (a)  
 a, b, c, d, e  
 2) , , 가 240Hz , 가 480Hz

(20)가 , 가 ,  
 ( 19 (c) ) . , 19 (a) A, B ... a, b, ... a',  
 ... 19 (c) , a' a b .

3) , 가 240Hz , 가 480Hz  
 가 , (20)  
 가 a, b, c, d, e  
 A, B, C, D, E a, b, c, d, e 8 (c) ,  
 . 19 (c) a'가  
 ( ) . , , a'  
 가 , 19 (d) a'  
 a .

4) , 가 240Hz , 가 60Hz  
 , 가 19 ( )  
 e) B, C, D b, c, d  
 .  
 ) , (20) 20 .

1) , 가 240Hz , 가 240Hz  
 , 가 20 (a)  
 A, B, C, D, E 20 (b) a, b, c, d, e  
 .

2) , 가 240Hz , 가 480Hz  
 , 가  
 ( , 20 (c) , , 가  
 ( 240Hz a, b a ) , 가  
 가 , 20 (c) a가  
 120Hz(240Hz )가 ,

3) , 가 240Hz 가 60Hz  
 , 가 20 ( )  
 d) B, C, D b, c, d  
 .

(50)가 .  
 ) (20) 21 .

1) 가 240Hz , 가 240Hz  
 , 가 21 (a)  
 A, B, C, D, E 21 (b) a, b, c, d, e

2) 가 240Hz , 가 480Hz  
 (20)가 21 (c) A, B, C, D, E  
 a, b, c, d, e a', ... , 21 (d)

3) 가 240Hz , 가 480Hz  
 (20)가 ( ) , LCD ON  
 a가 ( ) . 21 (c) a'가

4) 가 240Hz , 가 60Hz  
 (e) , 가 21  
 A, B, C, D, E b, c, d

) , (20) 22 .

1) 가 240Hz , 가 240Hz  
 , 가 22 (a)  
 A, B, C, D, E 22 (b) a, b, c, d, e

2) 가 240Hz , 가 480Hz  
 (c) , 가 22  
 A, B, C, D, E a, b, c, d, e  
 ( , a b a ) ,  
 ON , ( ) , LCD  
 22 (c)

3) 가 240Hz , 가 60Hz  
 , 가 22 (d)  
 B, C, D b, c, d

(50)

가 , 가

( 2 )

2 9 10 (1A) , 1 2 (1) , 9  
(40) 가 (40) (50) (10)

D ), PC 가 (40) ( NTSC, PAL, H  
(40) ( ) ,

(40) , (20) (20)  
가 , (20)  
(40)  
(10)가

2 (10) 가 60Hz ,  
8 가 480Hz

(20)가 (50)가 가 ,  
( ) 8 (b) ,  
( ) 8 (b)  
, 가 (d) (20)가 ,  
( 가 ) 8 (b) ,  
( 가 ) 8 (c)  
8 (c) 8 (c)  
1 가 ,가 ,가  
가

, MPEG4 , MPEG4 ( 11 - 89327 ) ( ,  
7 - 107465 )

(50)가 10 가가 120Hz 가 ( 10 ) .  
가 480Hz ,

가 10 (d) ( )  
 가 ) 10 (b) 가 ) 10 (c) 10 (c)  
 (17<sub>1</sub>) , 2 , 가  
 (40) , 가 ,  
 ( 3 )  
 3 11 3 CRT, FED , 1 2  
 (50)  
 , 8 (c), 8 (d) 10 (c) ,  
 $S_{v2}$   
 , 11 (b) 2 11 (c) 1  
 가 , Vdrv( ) 가 가  
 , 가 가 8, 10  
 8 (c), 10 (c) 8 (d), 10 (d)  
 2 , 8 (c), 10 (b) 8 ,  
 가  
 1% CRT Vdrv  
 Ek - co , 가 , FED ,  
 (20)  
 3 가  
 ( 4 )

4 12 . 4 LCD , 1 2 ELD

, , 8 (c), 8 (d) 10 (c), 10 (d)

ELD LCD 가 , LCD 가  
 가 LCD  
 ( , FLC ) , Optically Compensated Bend ( , O  
 CB ) FLC OCB 가 . ( , O  
 12 (62) , (63)  
 (61) (65) , (61)  
 (62) , (63)  
 8 (c), 8 (d) (18)  
 (65)  
 (63) 1

, 가 가 가 가 가 ,  
 ( ) 가 , 3 가 가  
 가 ,

4 , 가 .  
 ( 5 )  
 5 13 . 5 240Hz , 1 2  
 (50) 240Hz ,

, 13 (a) , 가 , 13 (b)  
 ( 13 ) 가 ( 13 )가 ,  
 13 (c) , 240Hz 가 ,



60Hz 50ms ) 14 ( 14 (b) ) 3 ( 6  
 0Hz 가 20deg/s  
 c 1

1

$$c = 3 / (20 \times (3/60)) = 3 \text{cpd}$$

3cpd

가 12cpd  
 15

10deg/s 가 120Hz  
 20deg/s 가 240Hz

6

가

480Hz 가 1

, 7

가

가

가

(57)

1.

2.

1 ,

,

,

가

,

,

가

,

가

,

,

3.

1 ,

,

4.

3 ,

,

,

2

,

5.

4 ,

1 , 1 , 2

6.

5 , 2

7.

5 ,

8.

5 ,

가 1

가

가

가

9.

5 ,

가 2

가

가

가

10.

5

가 2

가

가

가

11.

5

가

가





20.

,

,

,

,

,

,

,

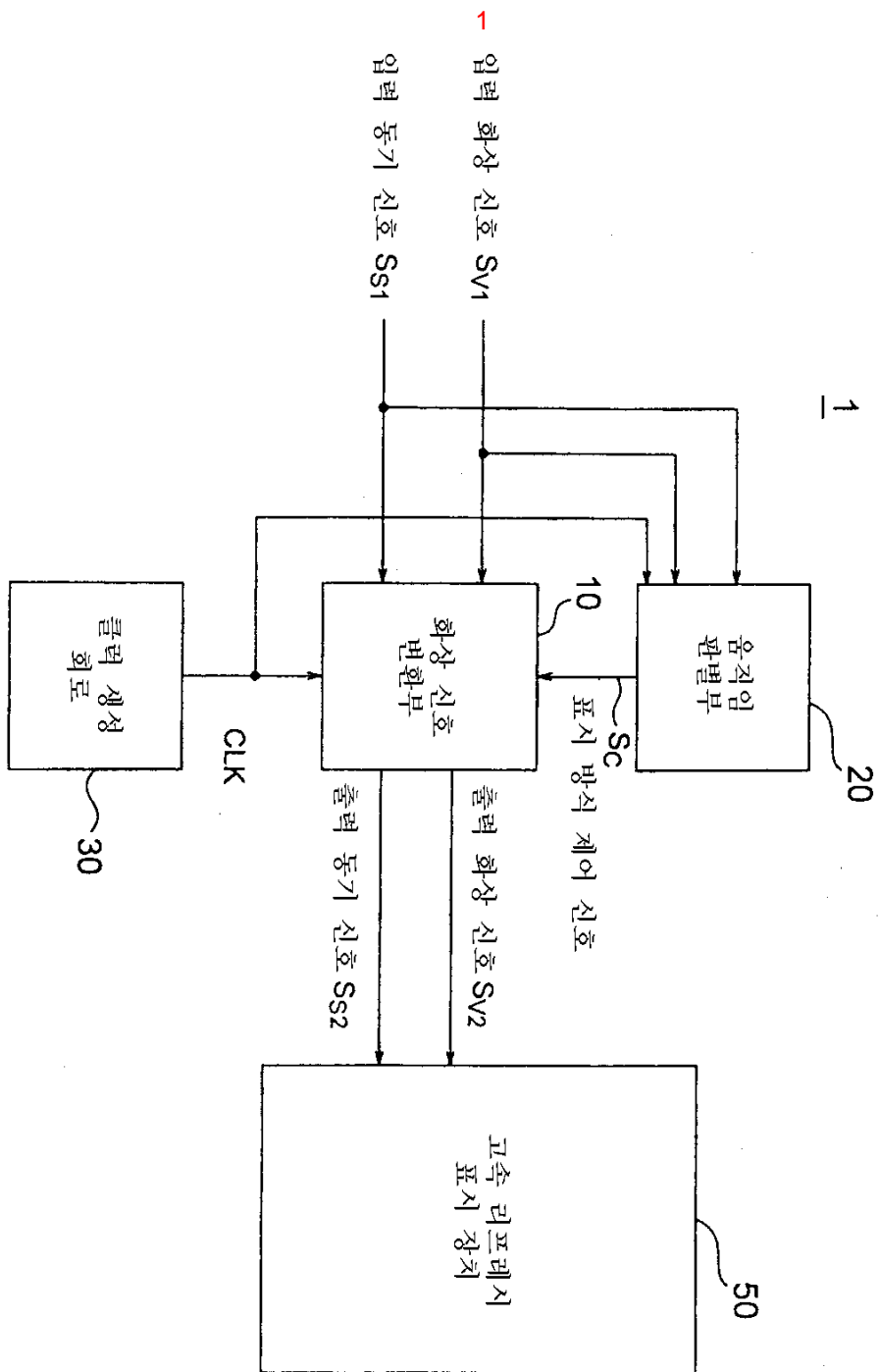
,

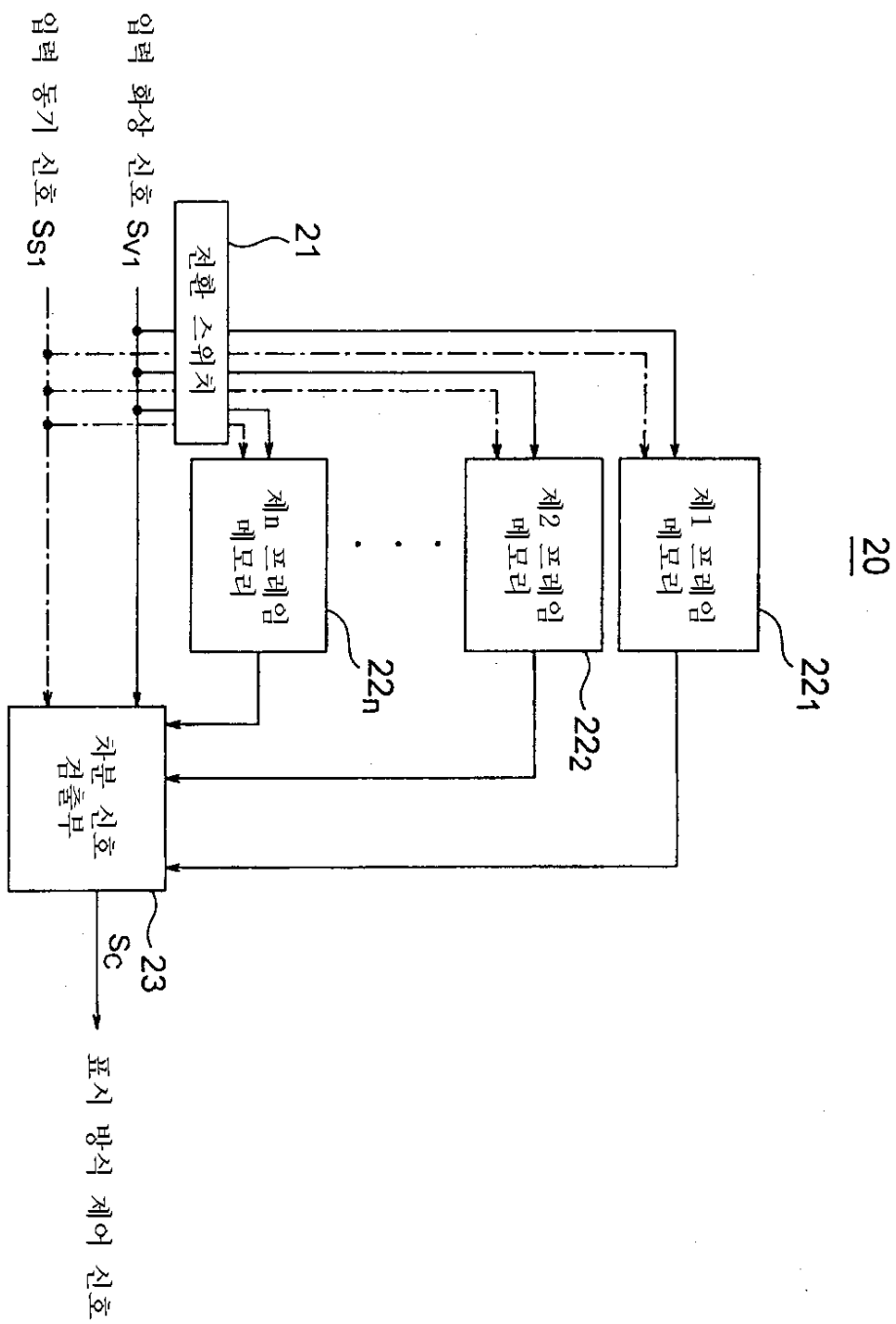
,

,

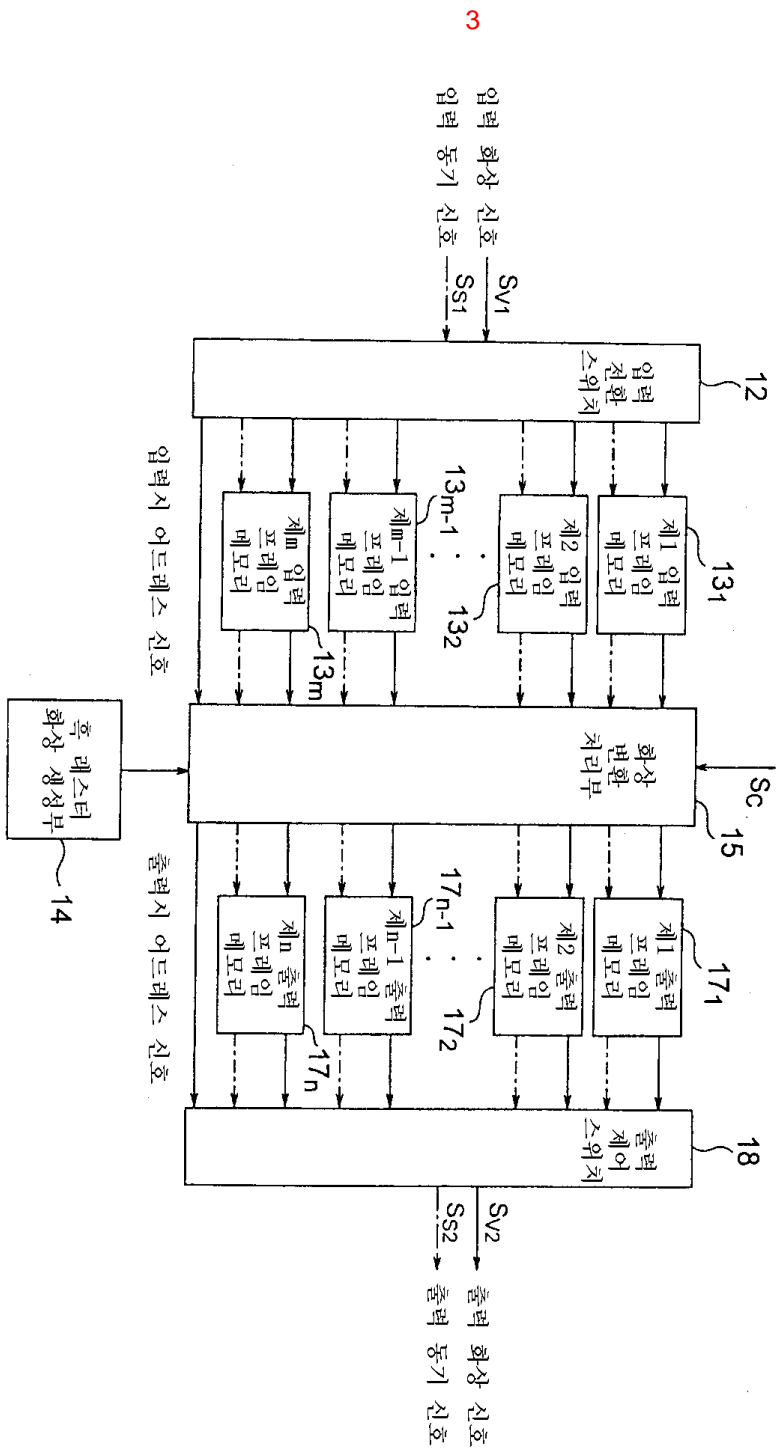
,

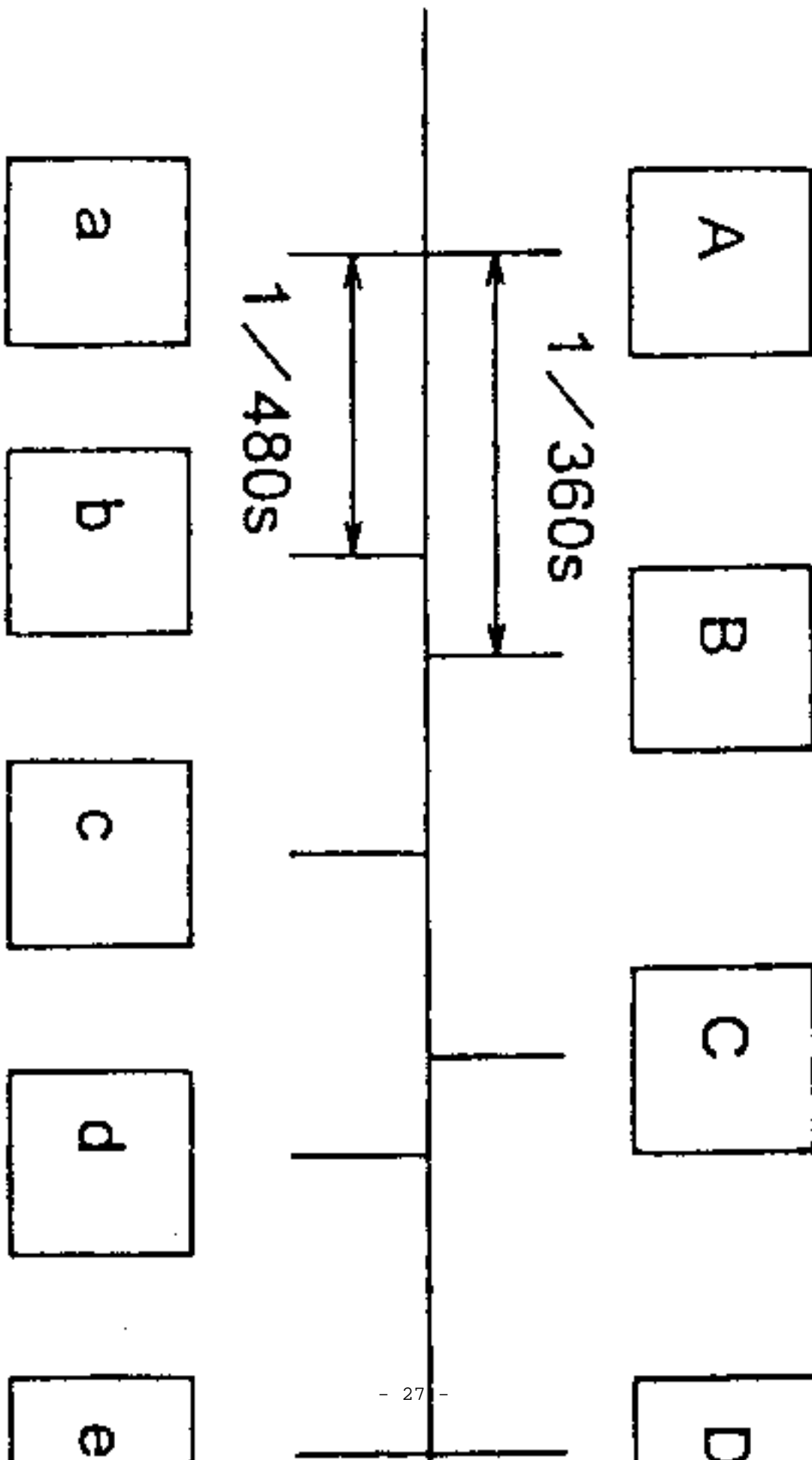
.



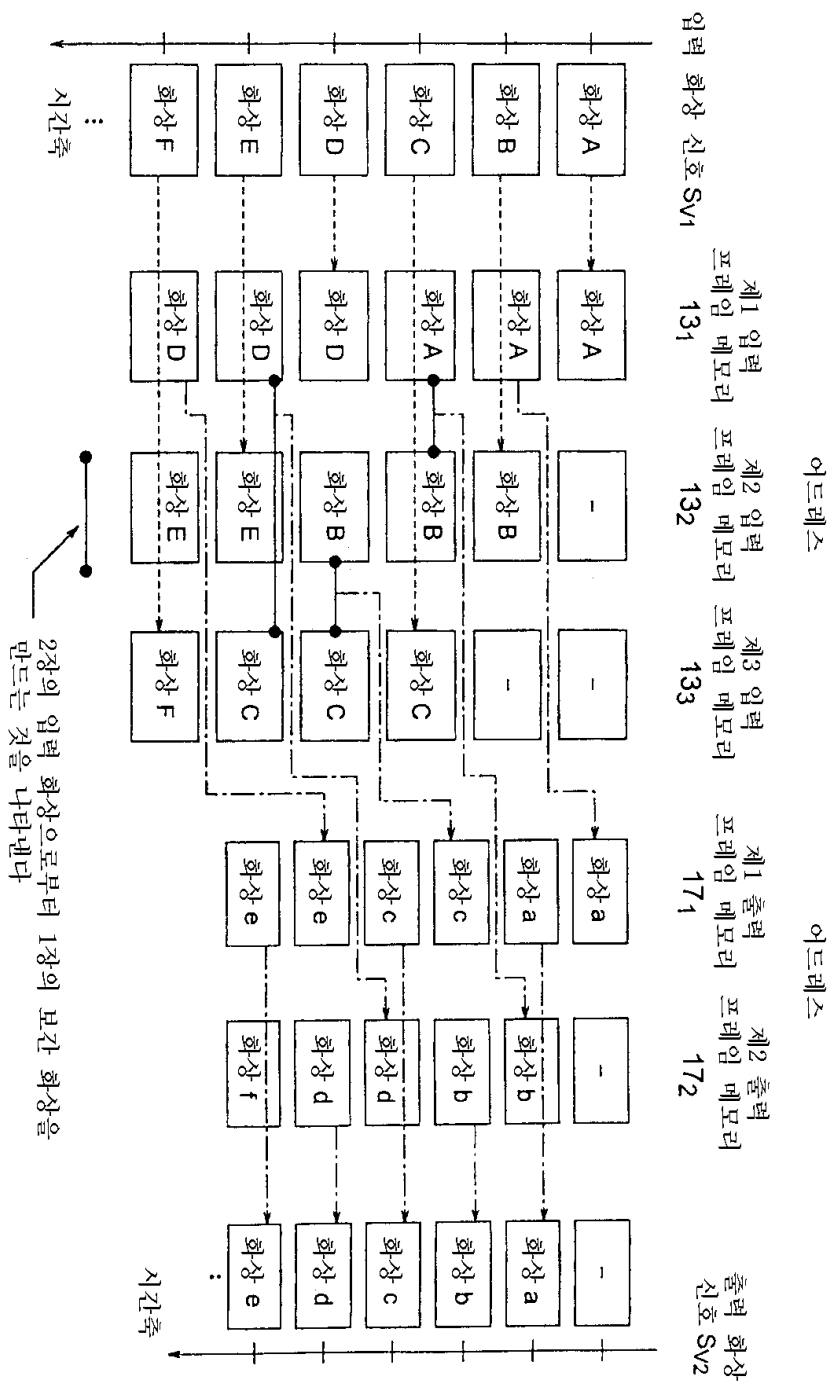


10

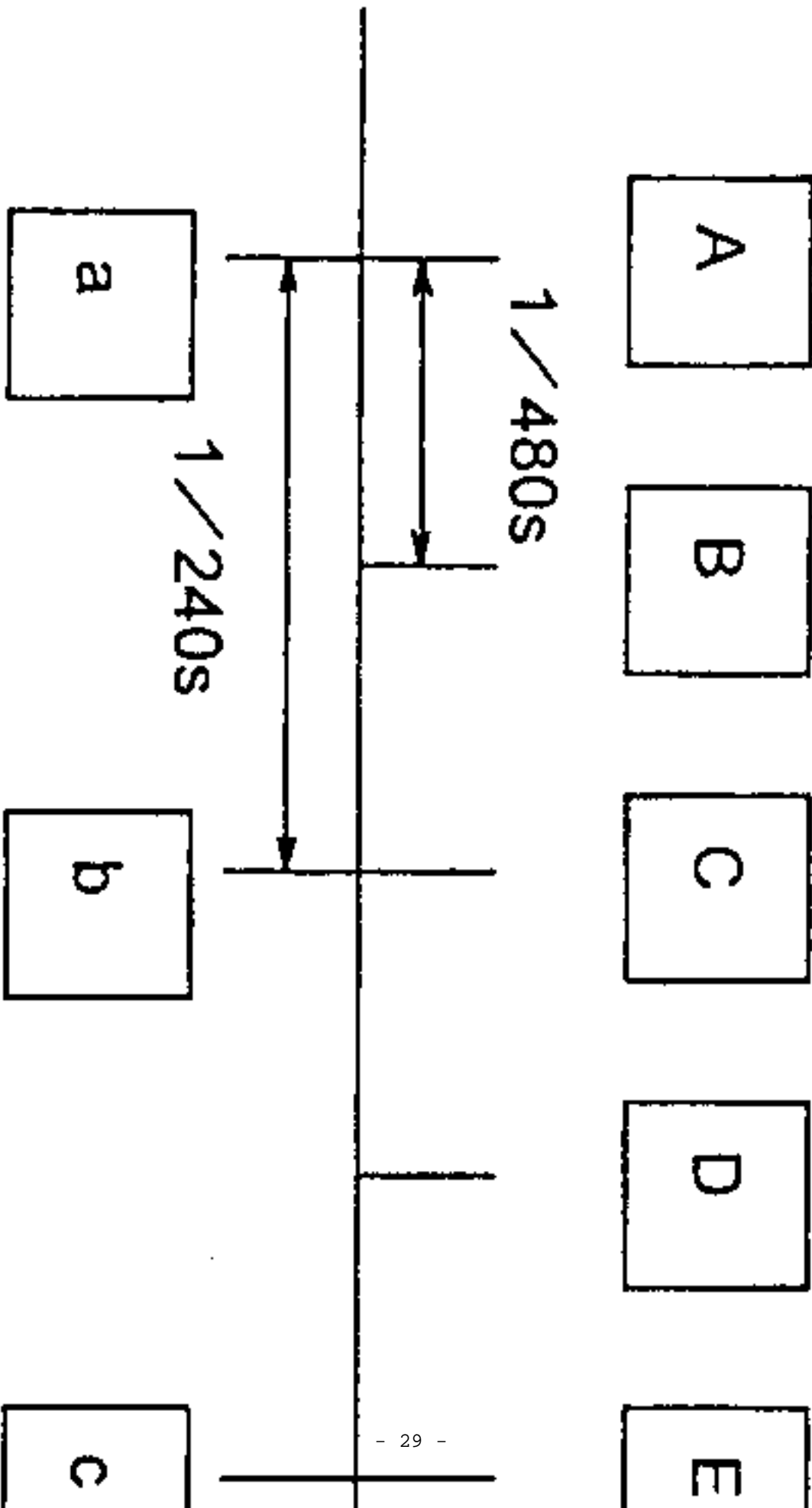




5

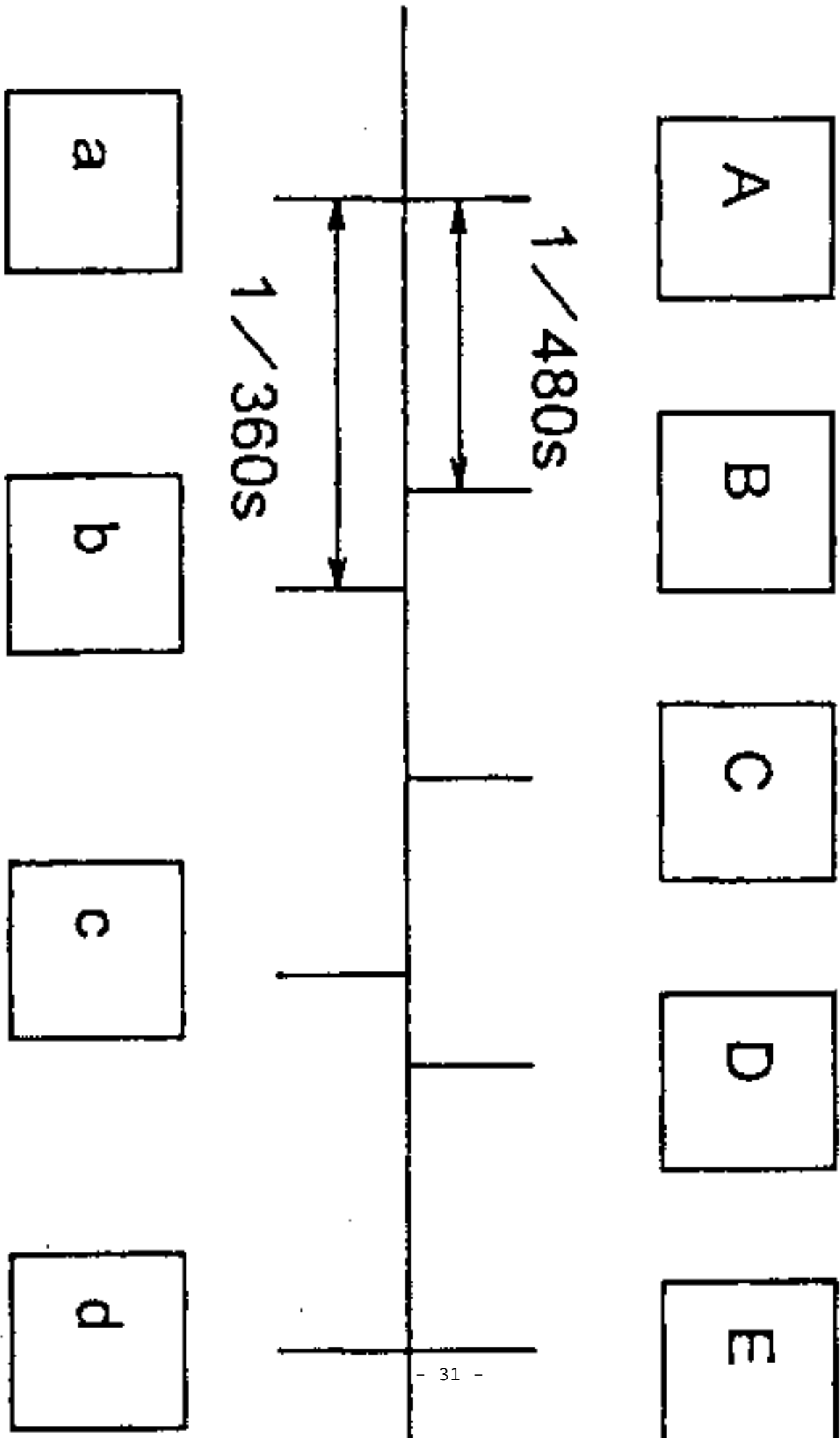


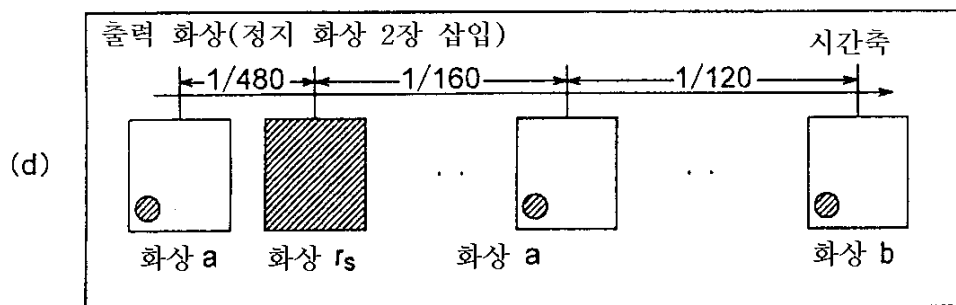
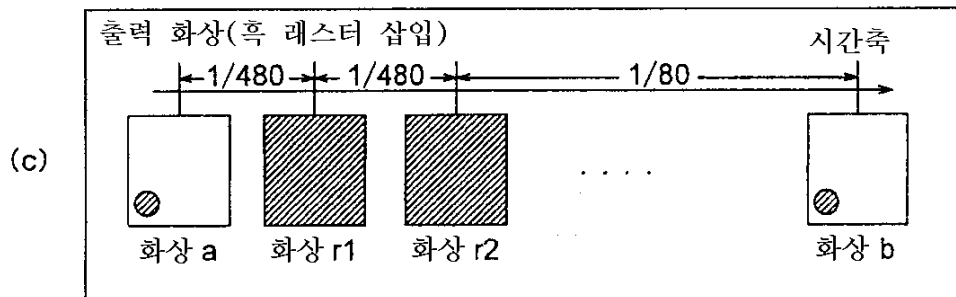
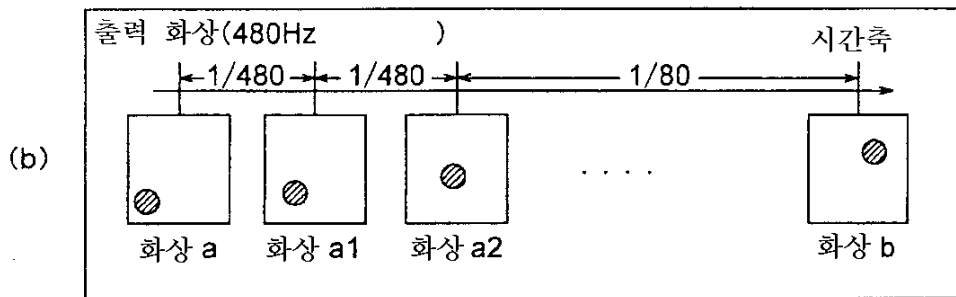
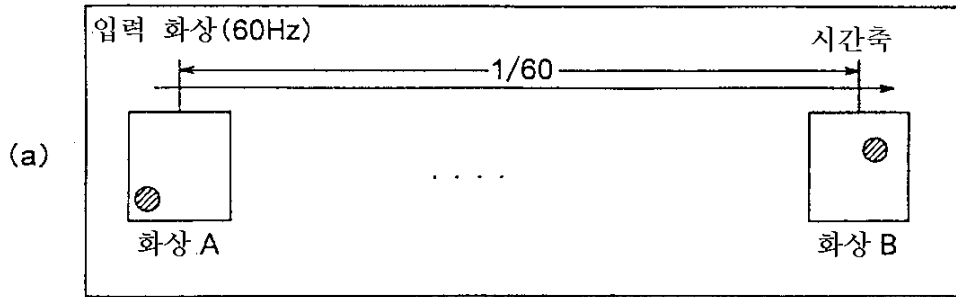
6

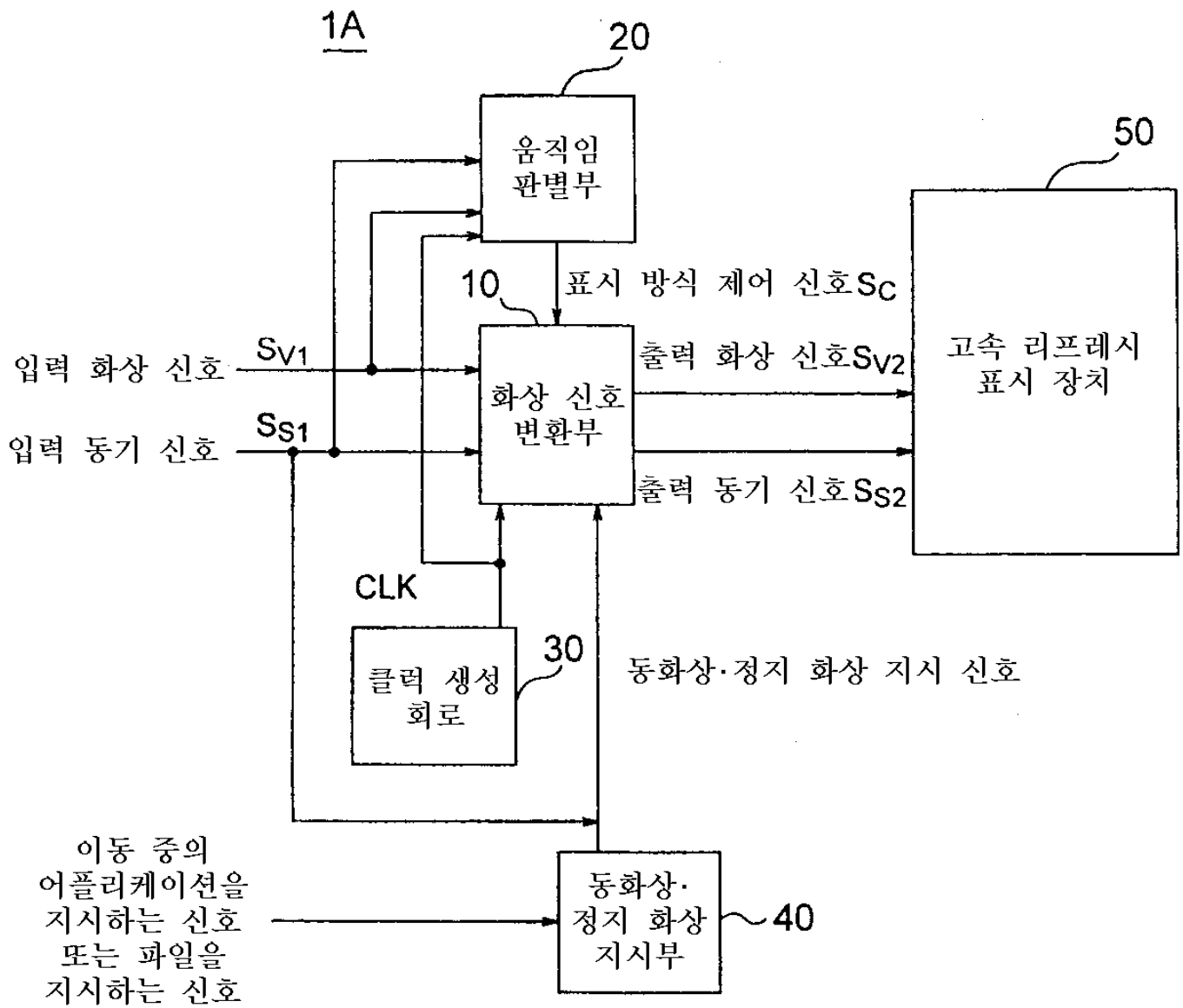


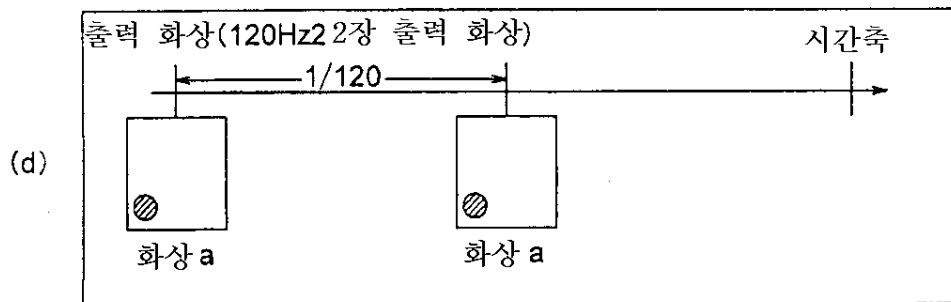
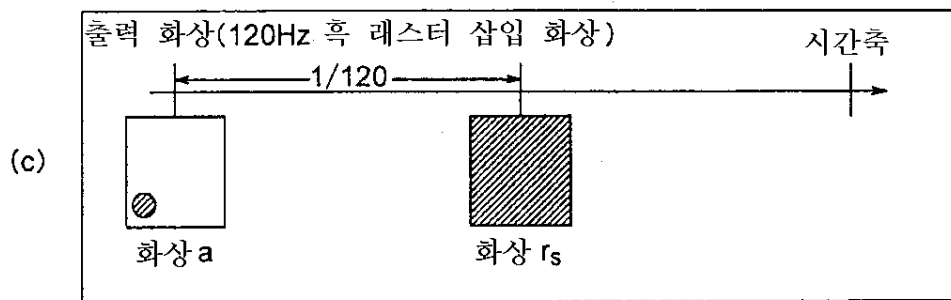
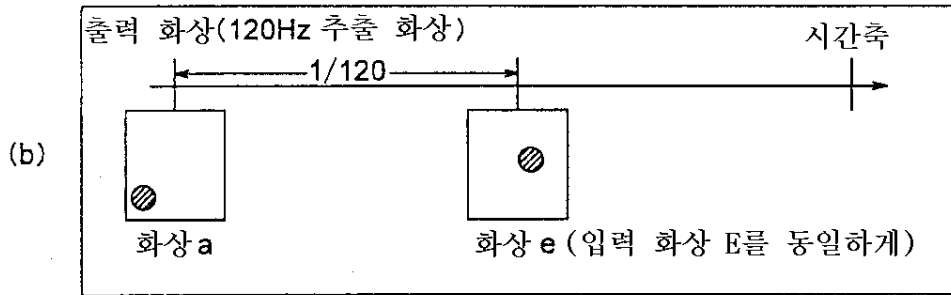
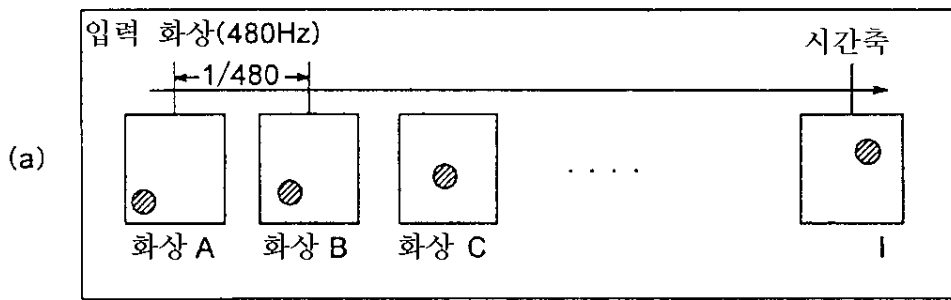


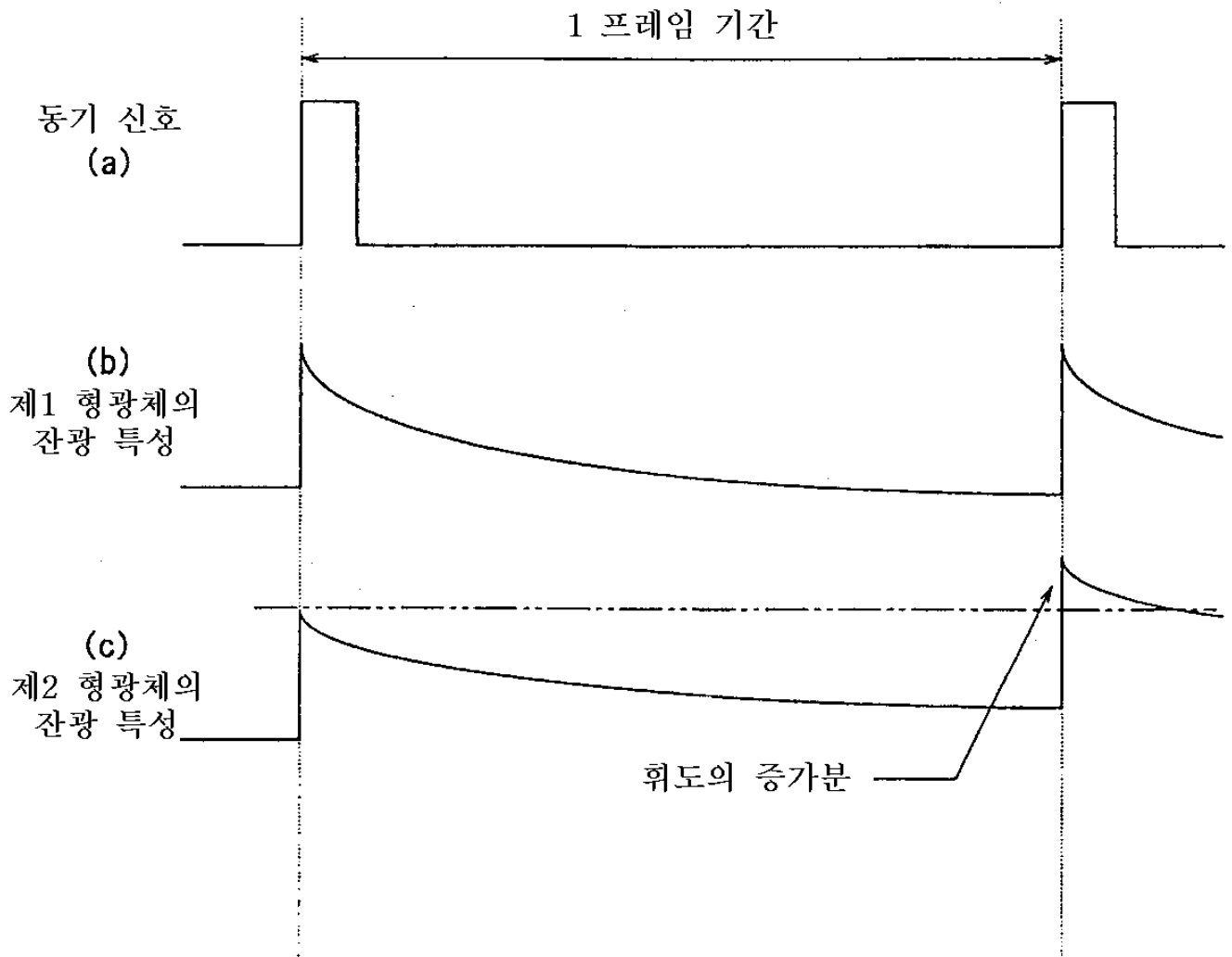
7

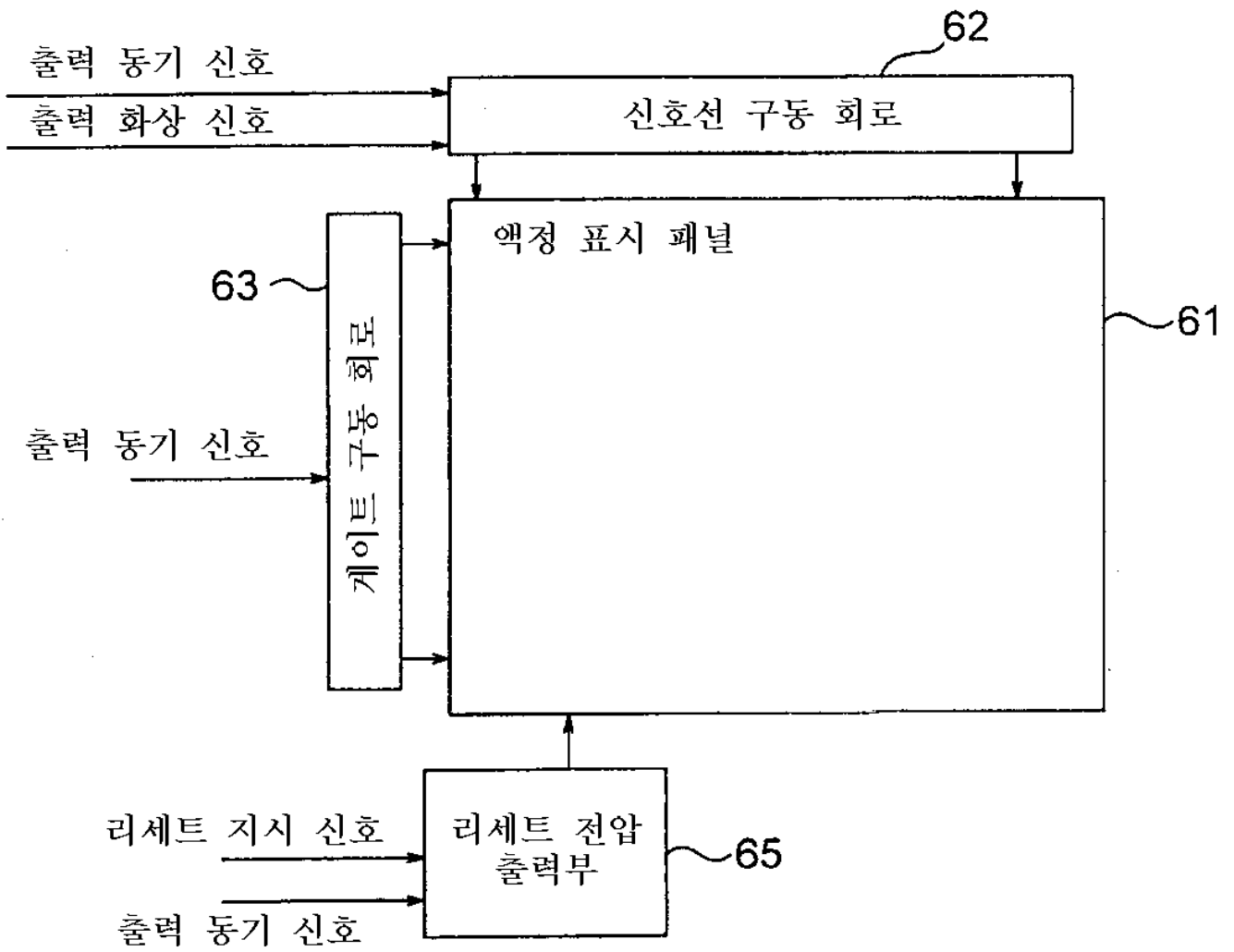






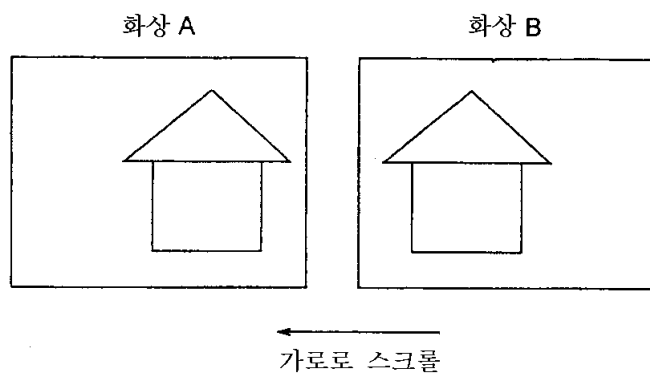




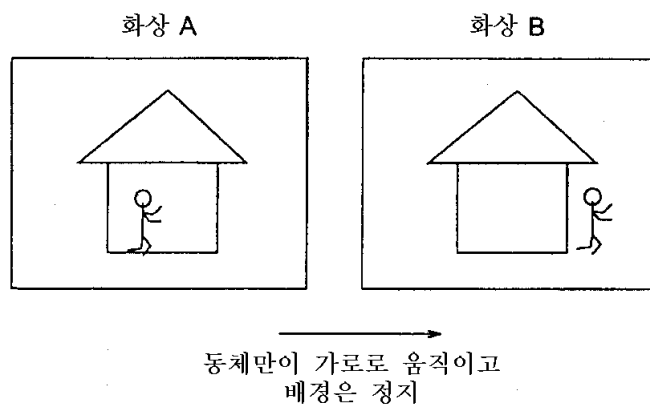


13

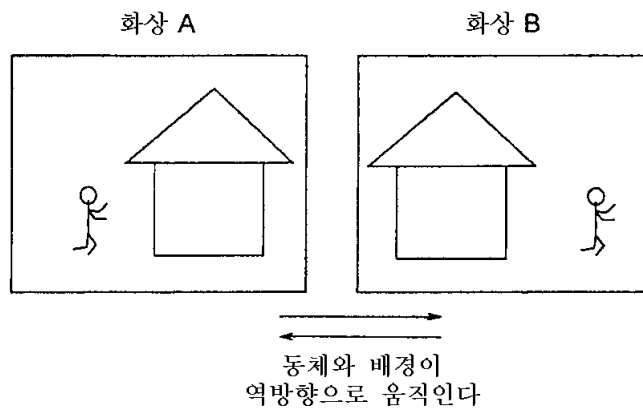
(a)



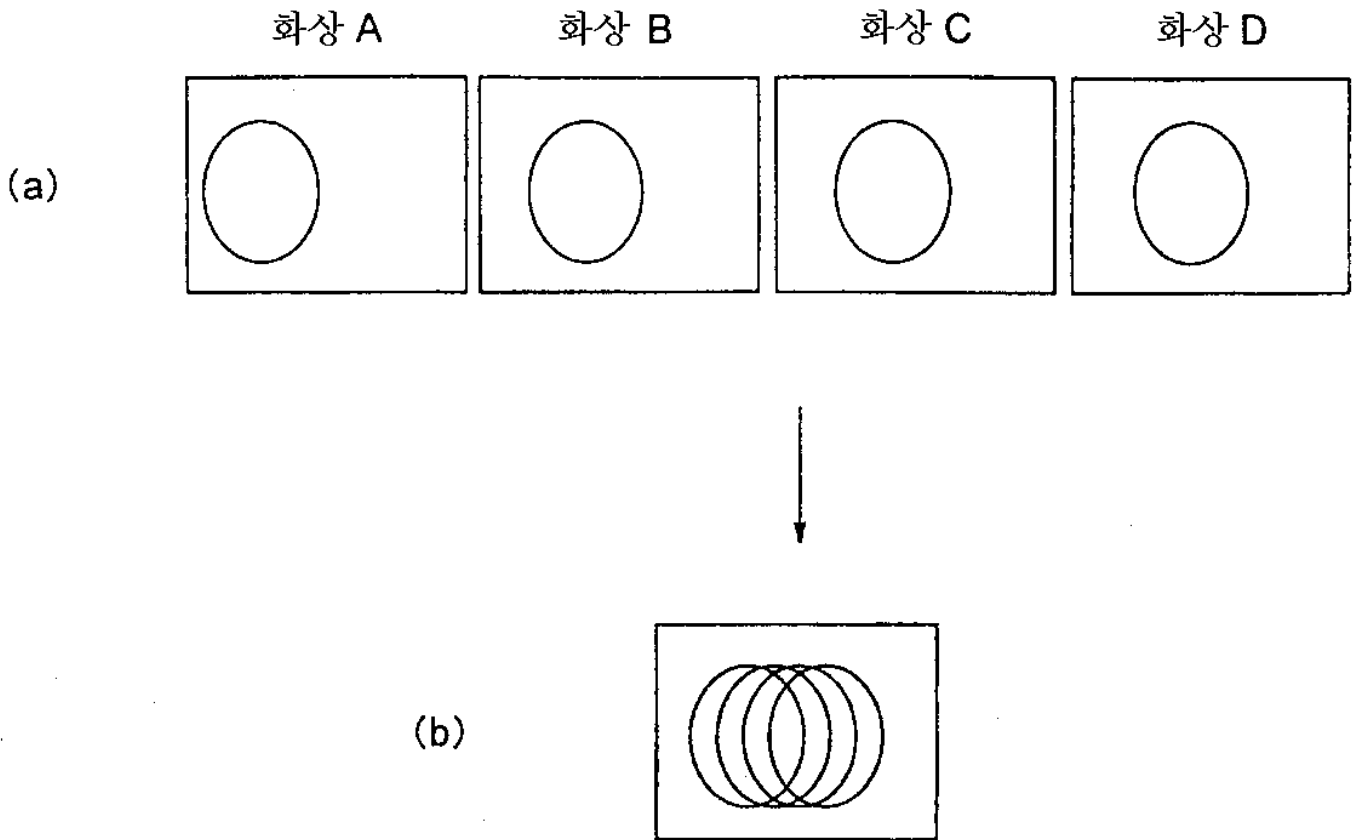
(b)



(c)



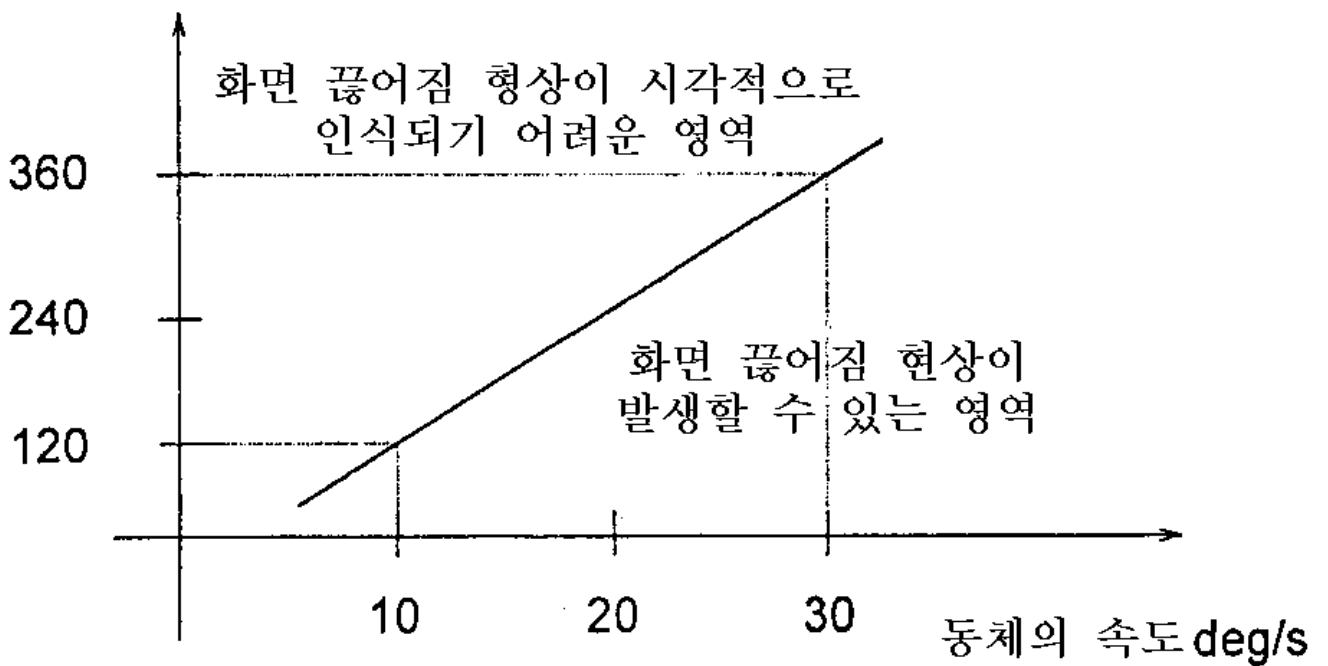
14

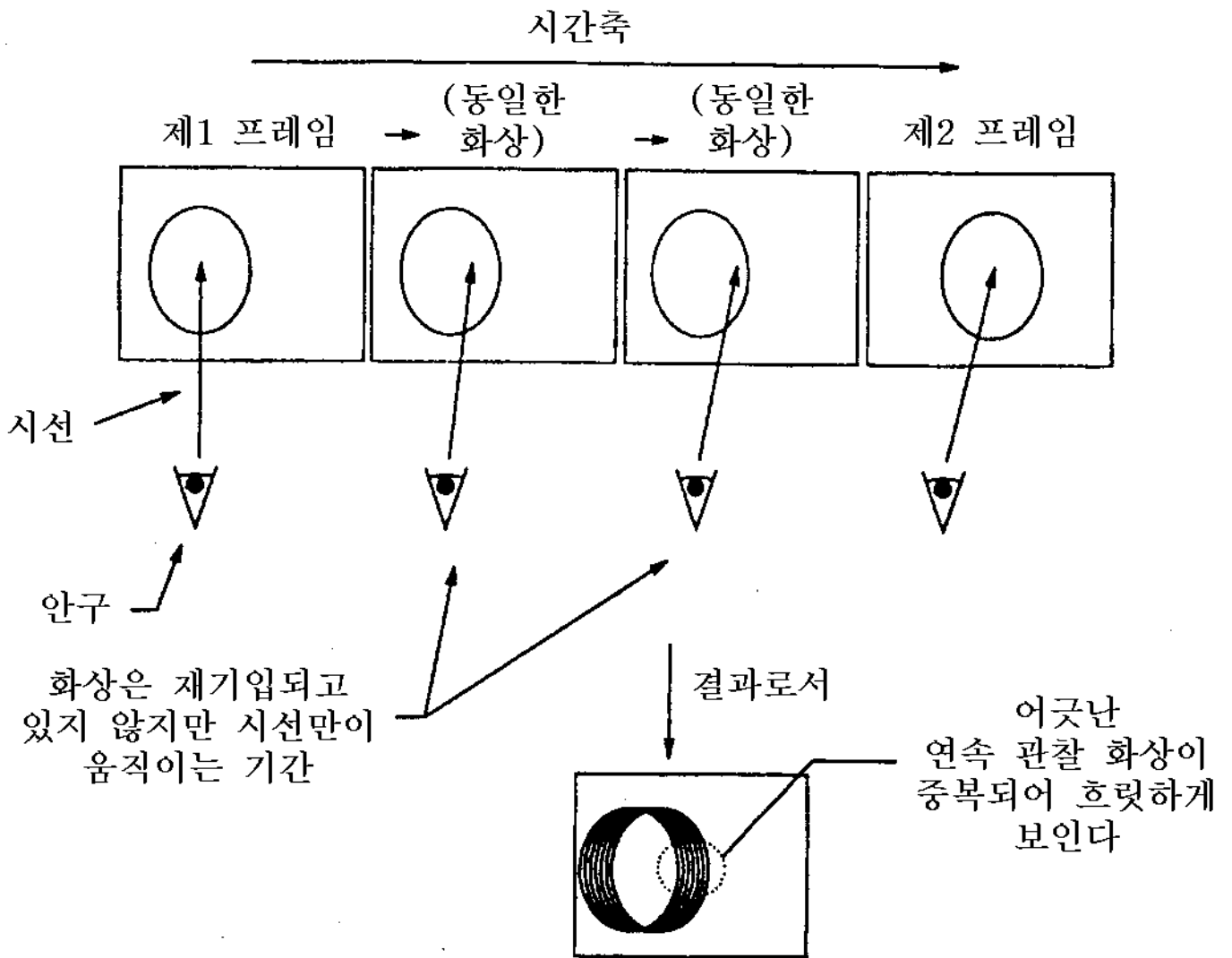


4프레임분의 윤곽 화상에 의해서 형성되는 호

15

프레임 주파수 Hz





시간축

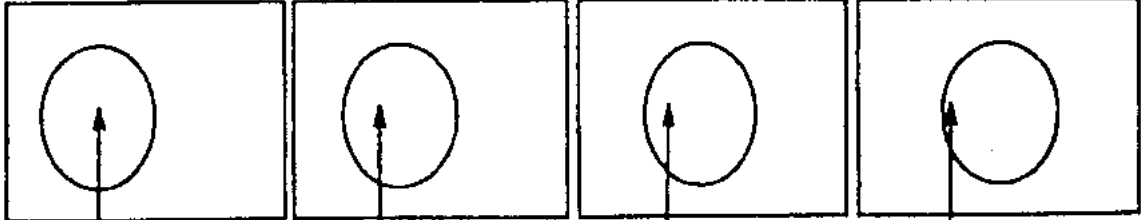


제1 프레임

제2 프레임

제3 프레임

제4 프레임



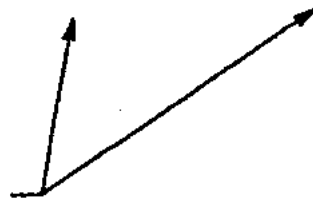
시선



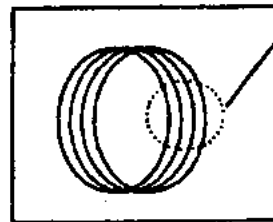
안구



화상은 재기입되고  
있지만 시선이  
움직이지 않는다



결과로서



어긋난 화상이  
중복되어 불연속  
화상으로서 보인다

18

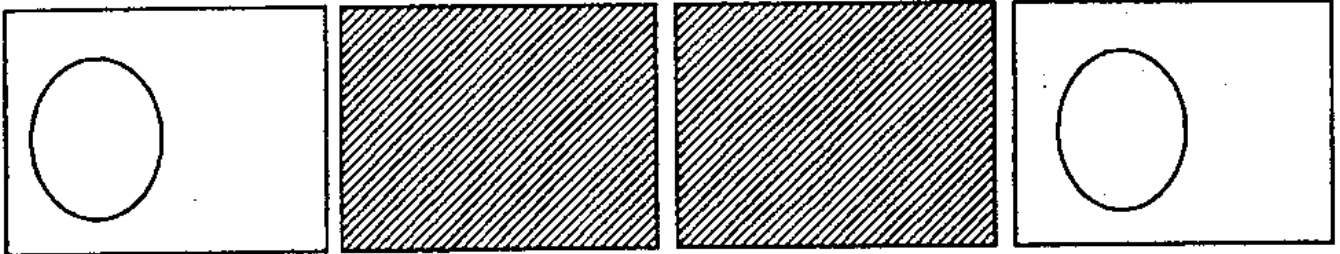
시간축



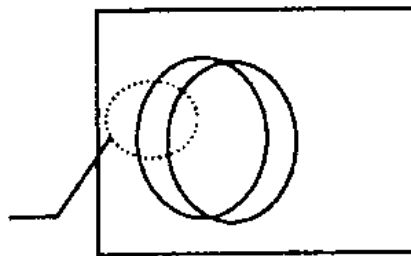
제1 프레임

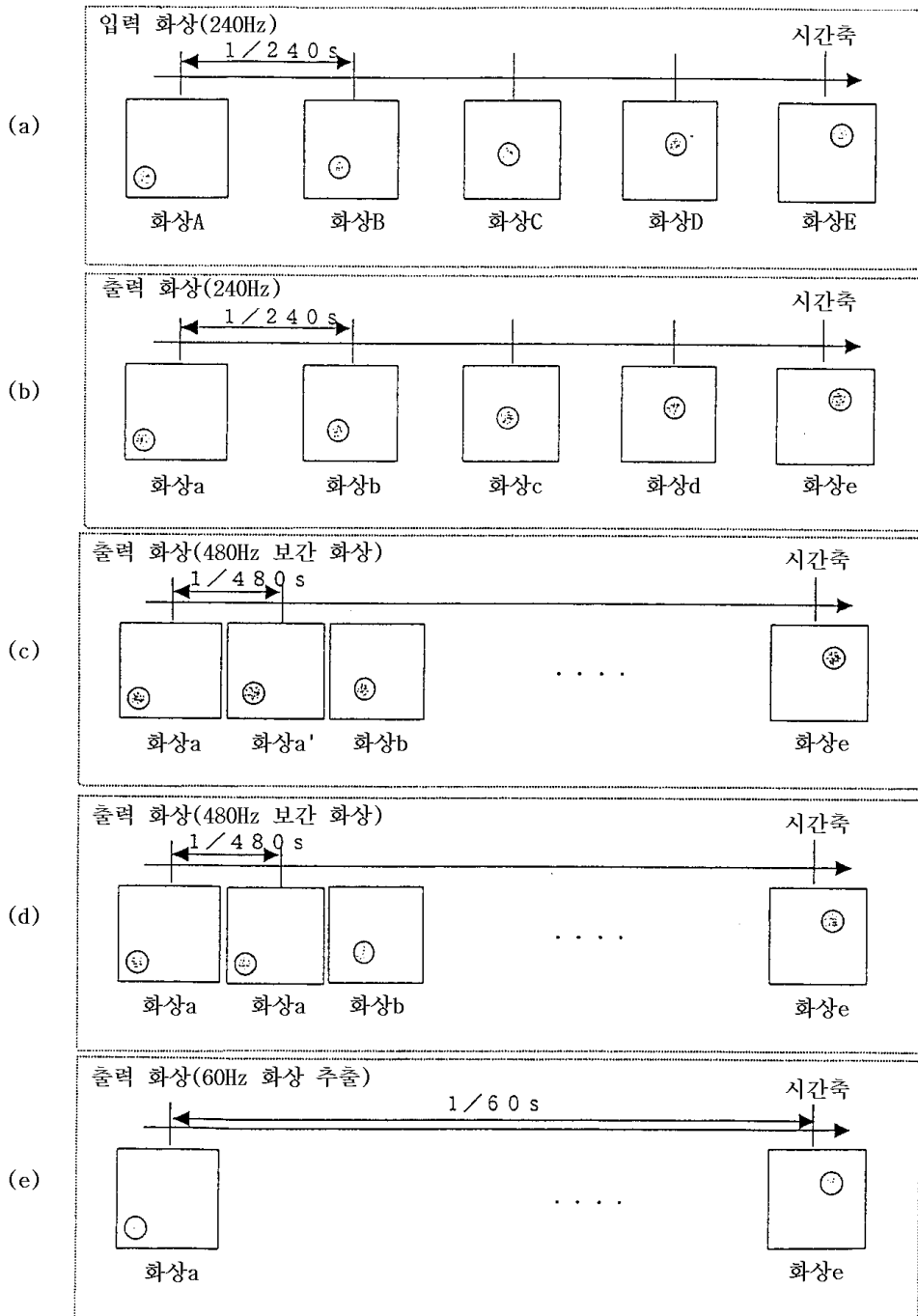
표시가 없는 기간

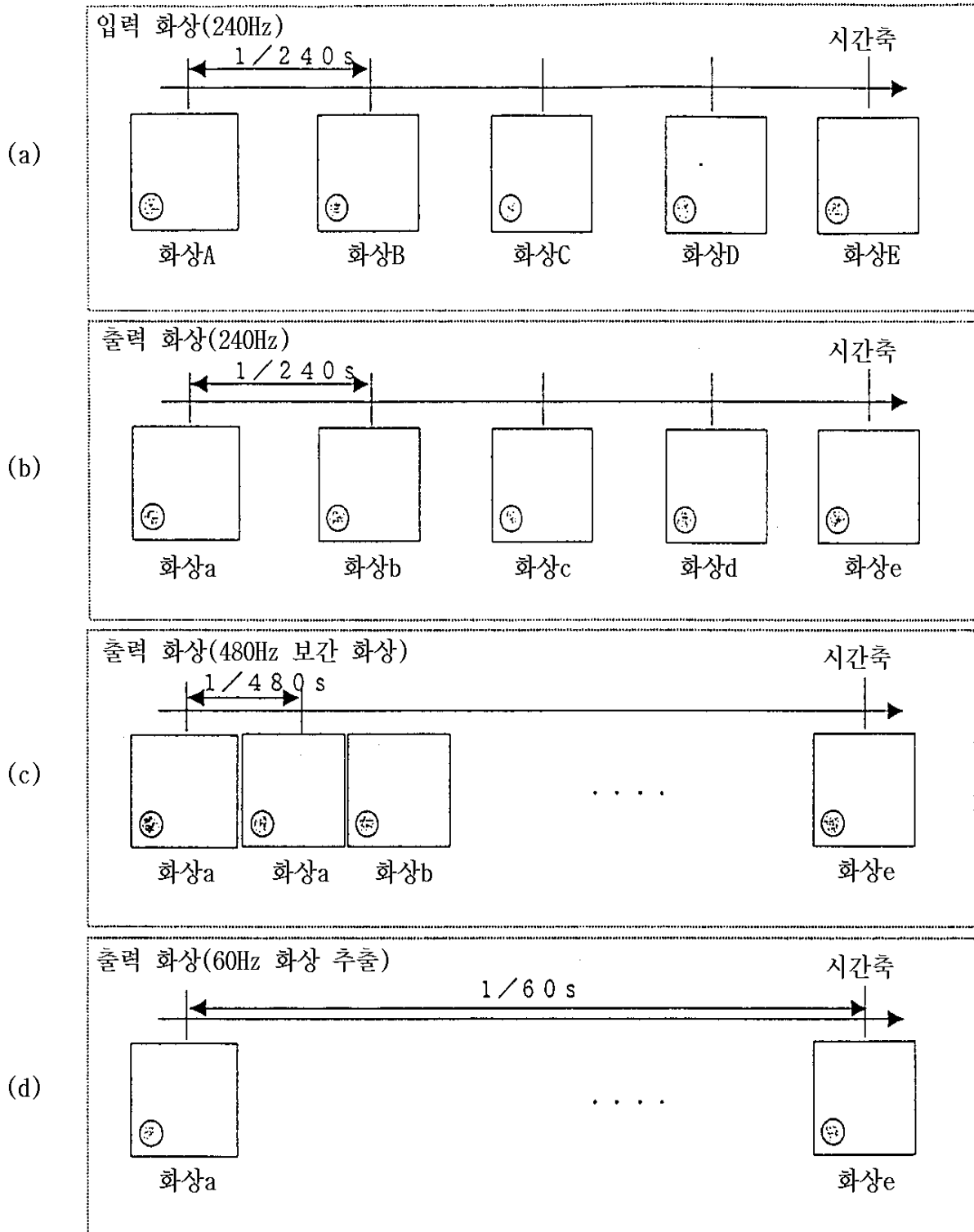
제2 프레임

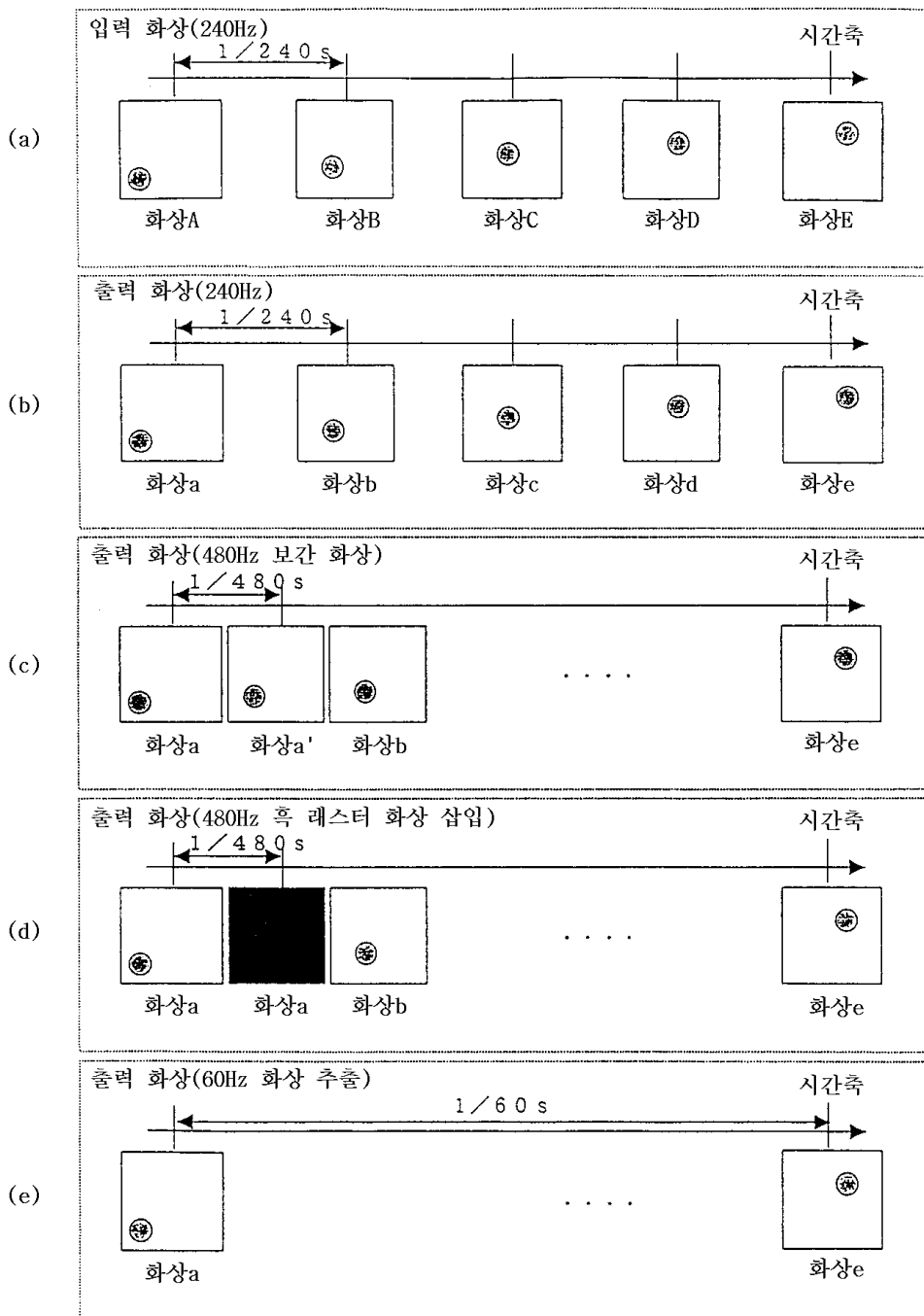


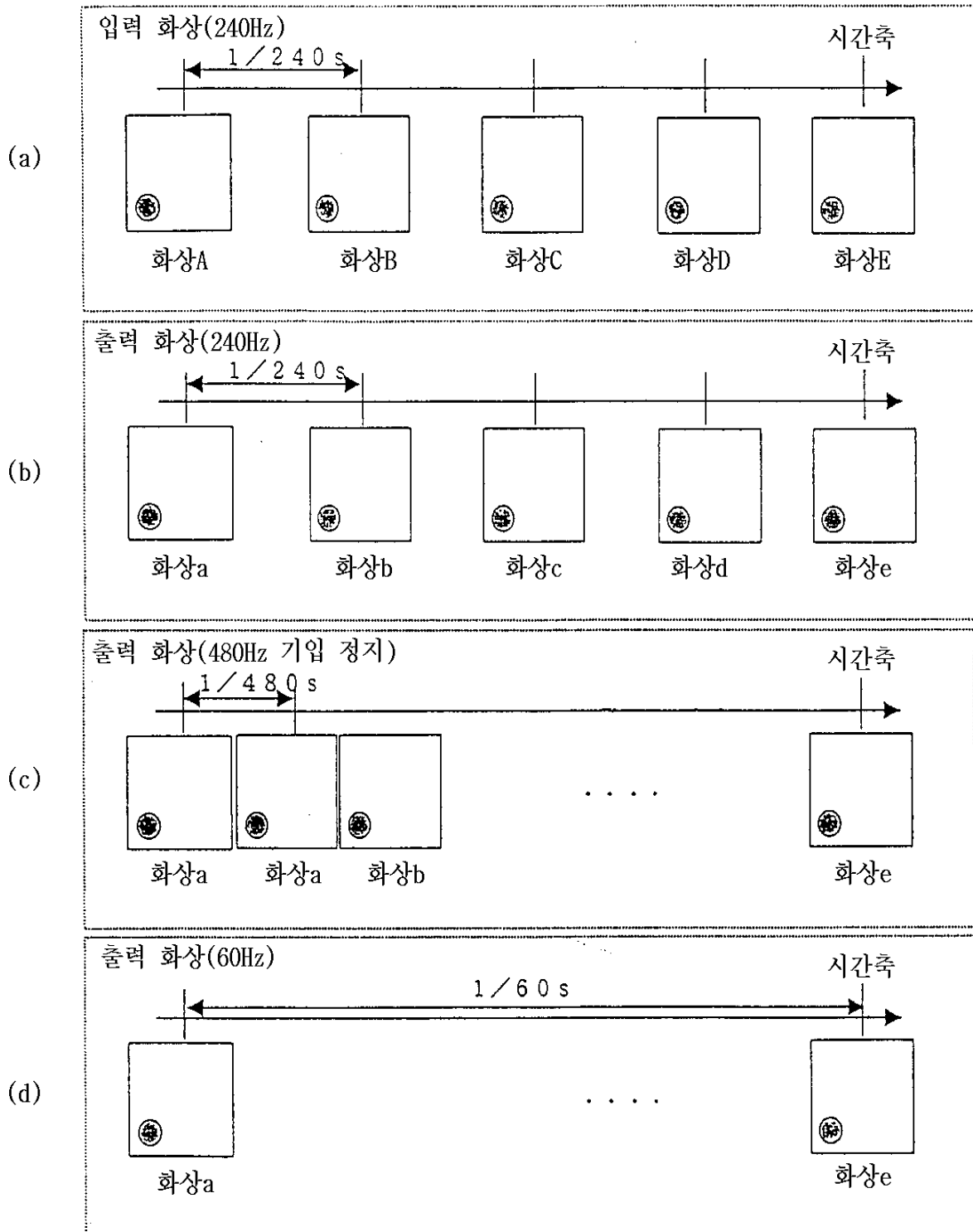
전프레임과  
다음 프레임 사이에  
화상이 없기 때문에,  
화면 끊어짐 현상  
으로서 인식된다











23

