

(19)
(12)

(KR)
(A)

(51) 。 Int. Cl. ⁷
G06F 1/00

(11)
(43)

2001 - 0096562
2001 11 07

(21) 10 - 2001 - 0004732
(22) 2001 02 01

(30) 09/501,853 2000 02 10 (US)

(71)

10504

(72)

27615

713

27513

417

2

27511

113

27516

111

27513

404

27513

104

27613

8203 - 107

27607

107

(74)

:

(54) U S B

USB

USB

. USB

. USB
USB

가
. USB

, USB

. USB

. USB

1

USB

2

2

1

(hub)

2

3

(encryption key pair)

4

5

6

100 : 104 :

102 : 200 : CPU

206 : 210 : PCI

226 : 228 :

220 : IDE 232 : MAC

234 : 246 :

320 : EEPROM

USB 가 , USB 가
USB 가 (encryption keys) USB 가 USB (

(segments)
PU), (random access memory :RAM) (PC) (a central processing unit:C
/output system read only memory:BIOS ROM) (basic input
file memory), , CD - ROM (non - volat
("), (")
(floor standing), (portable microcomputer)
(system planar) IBM's PC 300 ,
(Aptiva series), (Intellistation series)가

(USB)
가 . USB
- (self - initializing)가 가 . USB / (coup
led/decoupled) . 가, USB / (attached/detac
hed) .

USB
가 .
USB (physical lock securing the device) 가 (ph

, USB 가
USB

USB 가 . USB USB
. USB , USB

. USB 가 . USB USB . USB
. USB 1 USB 2

가 , .

가 , , 가 ,
가 .

1 6

가 .

USB USB USB 가 USB 가
. USB USB
(physical locking mechanism) , USB . USB

USB USB ,
. USB 가 USB (public key) USB
. USB
RSA / 1 2 , 2 USB . USB
가 , 1 USB .

, USB , USB USB 가 . USB 가
. USB 가
, USB

USB 가 , USB (random num
ber)
. , USB 가 U
SB , 2 , USB 가
. , USB
가 , USB

USB USB 가

1 (104) (102) (100) (local area n
network:LAN) (106) (102) (100) (104)
LAN (106) (102) (Ethernet)

" " , , X.10 X.25

2 (104) (104) (planar)((CPU:200),
) (accessory cards) (104)

CPU(200) (206) (peripheral component inte
rconnect:PCI) (204) (202)
(integrated drive electronics) (220) (Industry Standard Architectur
e:ISA) (204) PCI (208) PCI (204) IDE (220) ID
E 가 (222) PCI/ISA (212) P
CI (208) ISA (214) (expansion bus)
PCI/ISA (212) (power management logic) PCI/ISA (212)
(244) CMOS(213)

USB (302) PCI/ISA (212) USB (302) USB
(304)

(210) PCI PCI (204) PCI (210) PCI
ISA (216) ISA (216) 가 ISA PCI/ISA (212)
가 가 가 ()

I/O (218) PCI - ISA (212) I/O (218) PCI - ISA (212)
(224), (226) (228)

CPU(200)

PCI - ISA (212) / 가 가
(242) (242) I/O
(electrically erasable programmable read only memory:EEPROM) BIOS

(246) (104) PCI (248) (plug) (248)
 (246) (246) (248) (248) (104) ()
 (104) (full normal system power:243) (248)
 (212) AUX(5)
 (261) / (encryption
 /decryption engine:260) /
 (262) (260) (260) (262)
 (262) (262) (260) 가 1 가 (262)
 (262) (262), (262) (262) (260)
 가 (262) EEPROM (260)
 (262) 가 EEPROM(
 262) (260)
 1 2
 (secure communication)
 RSA (secure sockets layer:SSL)
 (260) EEPROM(262) (261) (SM) (238)
 PCI - ISA (238)
 2 (two - wire), (261)가
 (104) (230) (230) (Media
 Independent Interface:MII) (252) (234) (media in
 dependent interface:MII)(232) . MII (252) (234) 10/100 Mbps
 (MAC)(232) (230)
 (104)가 (106) (100) 가 ()
 (210) ISA (216)
 MAC(232) , MII (252) PCI (208)
 . MAC(232)
 , MAC(232)
 , MAC(232)
 가 , MAC(232) (disassemble) /

/ (preamble generation/removal) / , MAC(2
32) 82557 , (230)

(physical layer:234) R45 (236)
(234) 10 100Mbps CSMA/CD 가
(234) MII (252) (236)
(234) (wave)
(234) (Integrated Services) ICS - 1890

(234) 37가 - (auto - negotiation logic)
(104) (capability) , (100)
(100)

3 (encryption key pair)
(300)
(302) , (304)
(261) (306)

4 (400) USB
(404) (402) USB
USB USB
, USB 가 USB
(406) USB 가 USB
(408) , USB USB

5 가 (500) (502) , (504)
USB (506) 가
USB USB (508) , (510)
USB
, (512) USB 가 USB (514) . US

B 가 - -
 USB 가
 USB 가
 (514) USB (516) 가

(512) , 가 가 ,
 USB (518) (516)

6 (600) (602) (604) USB
 (606) USB
 (608)

가

USB 가 가 USB

(57)

1.

USB

USB

USB 가 USB

USB

2.

1

(an asymmetric encryption key pair)

1 2

가 1 2

1 ,

USB USB 가 USB

2

USB .

3.

2 ,

USB 가 USB 가 , USB 가

USB 가 ,

, USB USB

..

4.

2 ,

USB 가 ,

USB ,

, USB

,

가 - USB - USB 가

USB .

5.

4 ,

가 USB 가 U

SB 2

USB .

6.

5 ,

USB (a random number) ,

USB ,

USB 2 ,

가

USB .

7.

USB ,

USB

,

USB 가 USB

.

8.

7 ,

- 2 1 2 ,

가 1 - ,

1 ,

USB 2 USB 가 , USB

.

9.

8 ,

USB 가 USB 가 , USB 가 ,

USB

.

10.

8 ,

USB 가
USB ,

USB

- USB - USB 가

11.

10 ,

USB USB 2 가

12.

11 ,

USB ,

USB ,

USB 2 ,

가

13.

USB ,

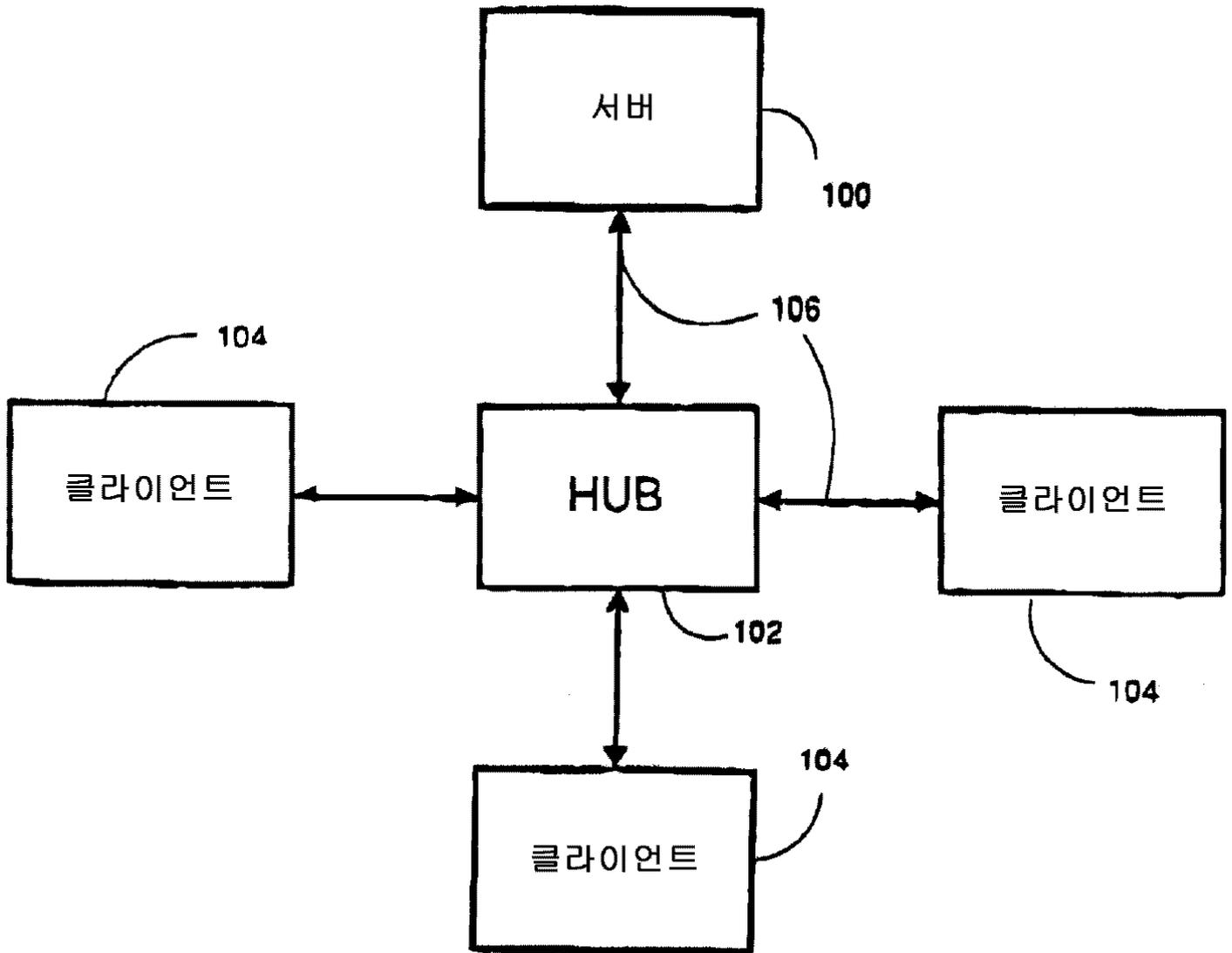
가 1 - 2 1 2 ,

1 ,

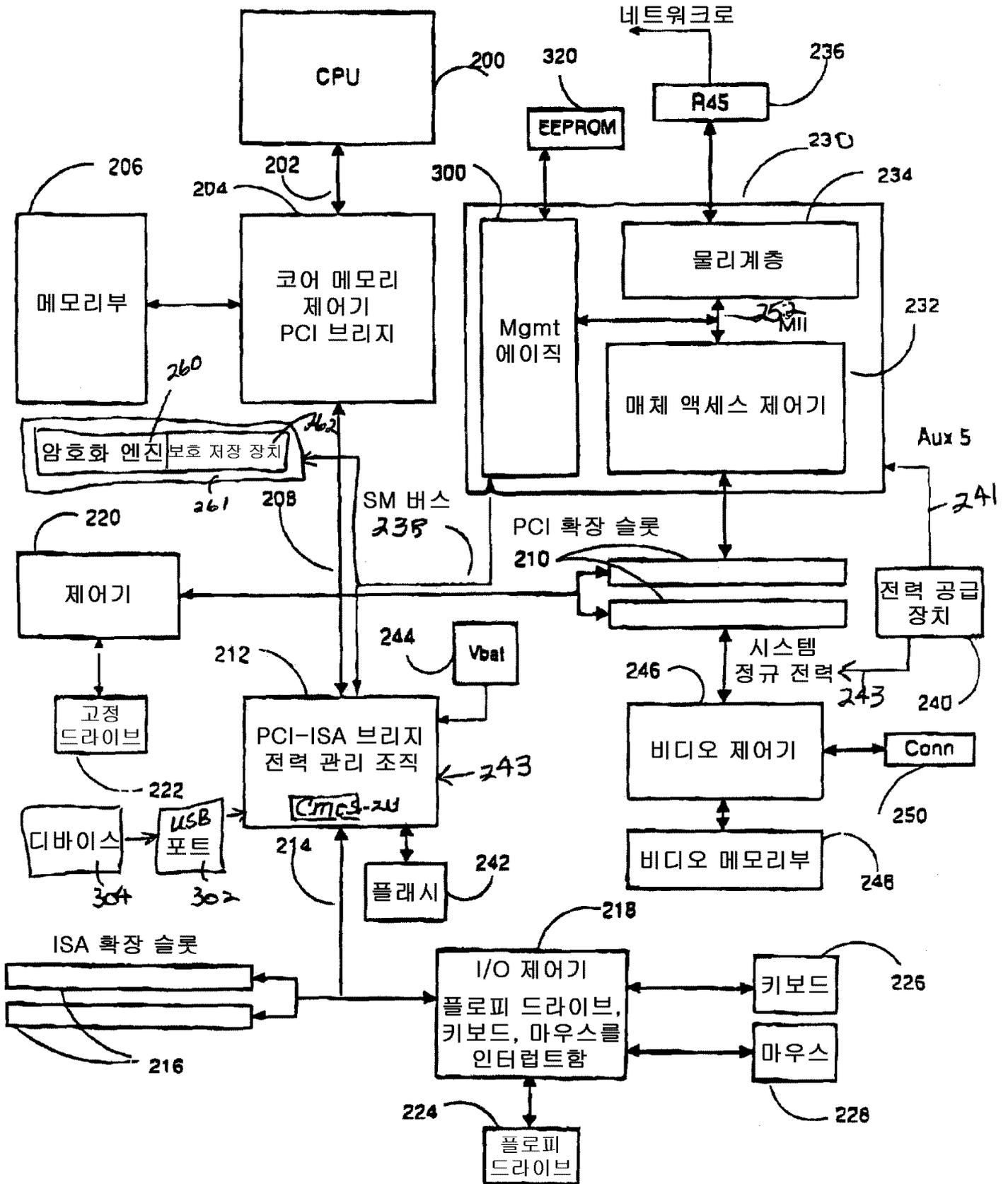
USB 2 USB 가 USB

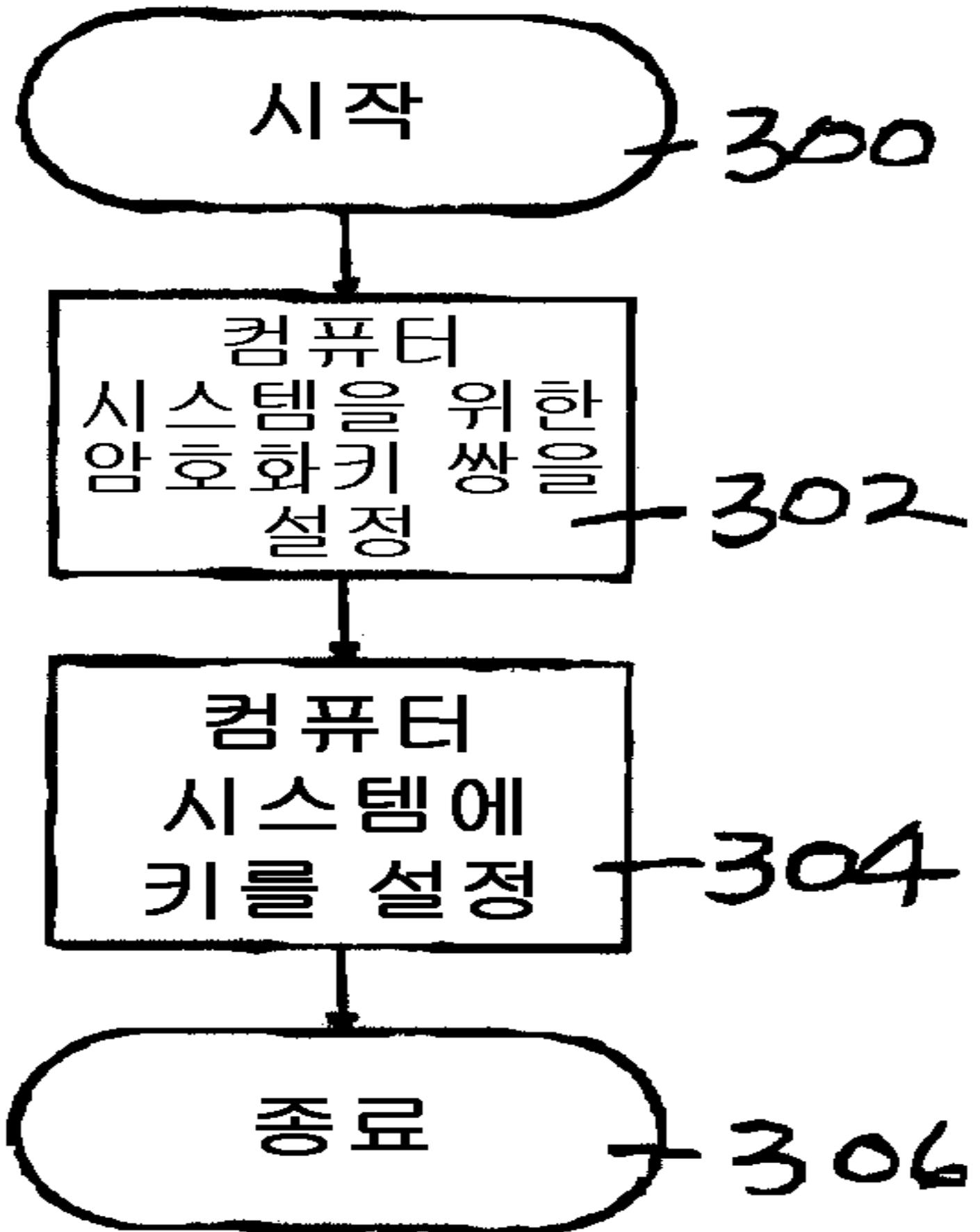
USB 가 , USB
USB , USB
USB 가 가 - - ,
USB , USB
USB ,
USB ,
USB ,
USB 2 ,
가

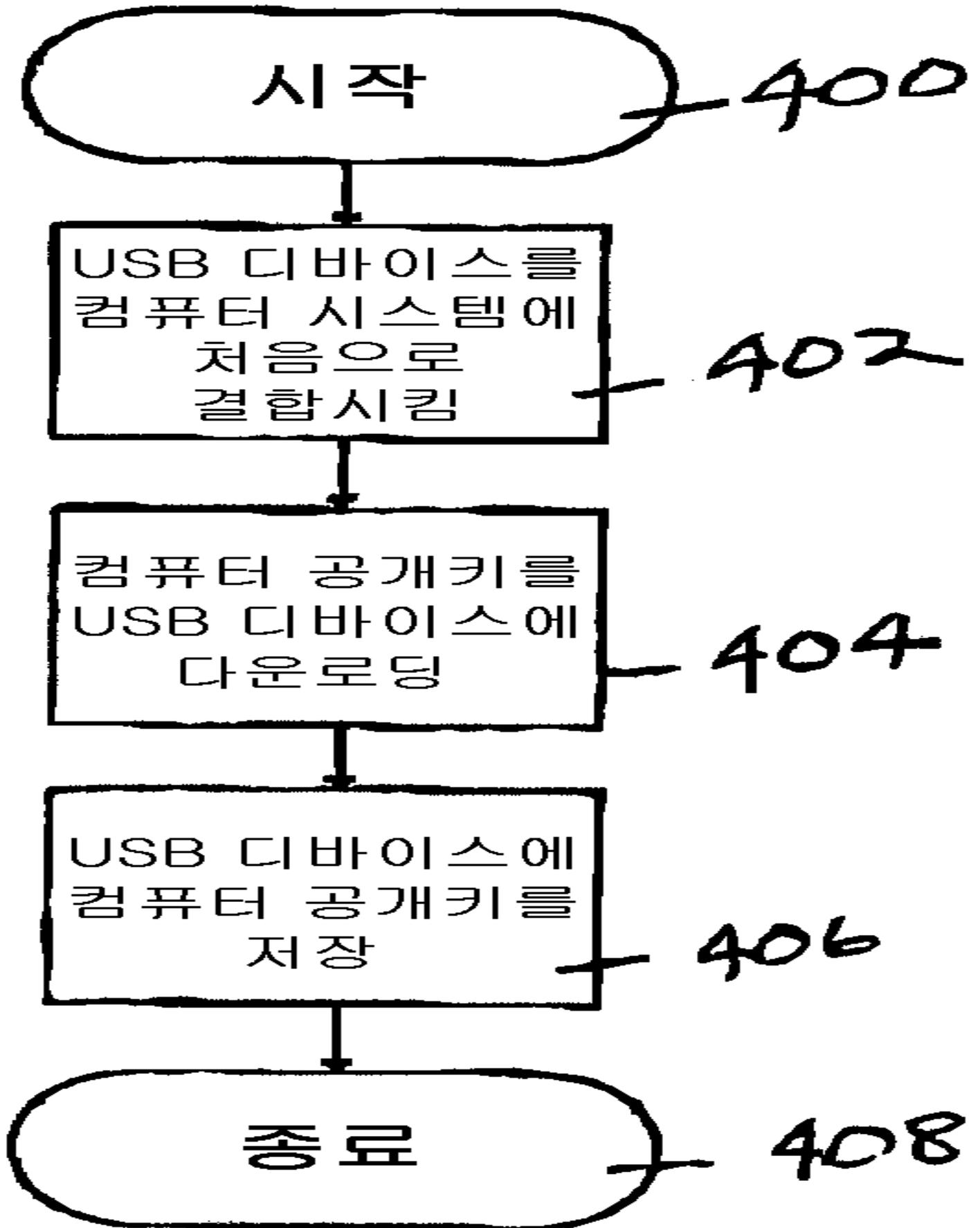
1



2







5

