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(54) **A game unit**

Spielgerät

Machine de jeu

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Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a structure of a box-like game unit to be arranged in large numbers outside of and adjacently to a main body of a game machine such as a casino game machine, a horse race game machine, a boat race game machine or the like.

[0002] In a customary box-like game unit, a cash box capable of storing surplus coins resulted from deducting pay-back coins from cast coins (in the following, coin and medal are called coin collectively) is disposed on a bottom of a game unit cabinet, and on the cash box are piled up in order a flat parallelepiped control unit for carrying out controlling necessary to game, a coin pay-back apparatus, and a display apparatus for displaying progress of game, bet rate, result of game, allotment and the like.

[0003] The customary game unit has a difficulty that if the display apparatus is made larger it becomes higher and necessarily also the box-like game unit cabinet becomes higher.

[0004] If the flat parallelepiped control unit is disposed adjacently to a side wall of the game unit cabinet in an erect posture, a coin inspecting apparatus and a coin return must be disposed adjacently to another side wall of the game unit cabinet. And when a hinge-type machine door is provided at a front face of the game unit cabinet for repair, maintenance and inspection of the control unit, the coin pay-back apparatus, the coin inspecting apparatus and the like, the coin inspecting apparatus which may be repaired or inspected frequently is disposed on a side corresponding to a free end of the machine door, therefore the control unit must be disposed on a side corresponding to the hinge of the machine door.

[0005] As a result, in order to take out the control unit from the game unit cabinet, the machine door must be opened beyond 90 degrees.

[0006] Players often perform a casino game or a horse race game drinking drinks such as juice and beer. If a player spills the drink on the box-like game unit cabinet, the drink leaks into the game unit cabinet through a gap between an opening part of a top door and a top part of a display instrument to give various instruments in the cabinet a bad influence.

[0007] In a machine door hinged on one side of a front face of the game unit cabinet so as to open in front, sometimes a lower edge of the machine door is inclined downward from a hinge side by own weight of the door and the door does not close tightly.

[0008] Particularly, in case that a door for taking out a cash box is provided under the machine door, sometimes the lower edge of the machine door interferes with the cash box take out door to prevent smooth opening and closing of the cash box take out door.

[0009] In a game unit cabinet having a top face on which a top door is provided so as to be opened upward, since the top door is wide and heavy enough, spring force of a gas spring for letting the top door spring up when a locking mechanism of the top door is unlocked must be increased against own weight and inertia force of the top door acting in the closing direction. However, the increased spring force of the gas spring undesirebly lets the top door spring up vigorously when the top door is unlocked.

[0010] In a customary game unit in which players pay bet moneys of game by bills, a bill receiving apparatus is disposed on a front face of the game unit cabinet, therefore it is difficult to insert bills in a bill slot of the bill receiving apparatus because players must crouch in a half-sitting posture and there is high possibility that unfairness is acted behind back of the game unit cabinet.

[0011] US-A-4,397,509 and US-A-5,386,903 disclose conventional game units.

SUMMARY OF THE INVENTION

[0012] The present invention relates to an improvement of the game unit for a game machine which overcomes the aforementioned difficulties.

[0013] The present invention provides a game unit according to claim 1. Preferred embodiments are defined in the dependent claims.

[0014] According to this invention, the flat parallelepiped control unit case can be housed compactly in the narrow flat space formed between the display instrument and the side wall of the game unit cabinet near the hinge within the game unit cabinet so that the game unit cabinet can be miniaturized. In addition, the control unit case can be easily taken out and in through an opening formed by the top door opened upward.

[0015] The displayed picture of the display instrument can be watched directly and contents of the displayed picture can be easily and correctly recognized visually.

[0016] The control unit case can be housed in the game unit cabinet stably and taken out and in surely without collision with other instruments and parts.

[0017] Taking out and in of the control unit case can be performed easily by holding the handle.

[0018] According to this invention, in a state that the control unit case is housed in the game unit cabinet, the control substrate with electronic control parts alone can be taken out and in easily through the opening of the front face to perform efficiently exchange, repair. inspection and the like of the electronic control parts.

[0019] The control substrate can be installed easily in the control unit case and held stably at a predetermined position in the control unit case.

[0020] Unjust exchange of ROM etc. in the control unit case can be prevented previously.

[0021] According to the invention, even if a player spills a drink on the display instrument or the top door, the drink is prevented from entering into the game unit cabinet so that trouble or damage of the game unit can

be avoided surely.

[0022] The liquid receptacle can be taken out of the game unit cabinet easily so that the liquid in the liquid receptacle can be discharged easily.

[0023] Contents of displays of the display instrument can be easily recognized visually and the liquid receptacle can be disposed on the front side so as to be taken out easily.

[0024] In thes game unit, even if the machine door is deformed downward in a parallelogram by its own weight, the deformation of the machine door is corrected by the door guide piece so that the machine door can be opened and closed smoothly.

[0025] Since the deformation of the machine door is corrected, movement of the opening and closing member is not obstructed.

[0026] In thes game unit, the top door having a heavy own weight can be closed lightly and fast from an open state and when the top door approaches a close position, the top door can be closed softly.

[0027] Since the top door is opened with the front side lifted, inspection of various instruments within the game unit cabinet can be performed easily.

[0028] According to the game unit, only a specific person with a key can release the locking mechanism, open the lid member and expose the bill receiving apparatus upward for performing repair, maintenance and inspection of the bill receiving apparatus.

[0029] The person with the key can observe or touch the bill receiving apparatus from the front side of the game unit cabinet without being obstructed by the lid member, therefore repair, maintenance or inspection of the bill receiving apparatus can be performed easily without moving the game unit cabinet at all.

[0030] The top face member and the lid member can open and close separately without interfering with each other.

[0031] Since the bill receiving apparatus can be lifted by the lifting mechanism to be exposed enough, repair, maintenance, inspection etc. can be performed easily and surely.

[0032] Repair, maintenance or inspection works of the bill inspection section and the bill storing section can be performed separately.

[0033] According to the game unit, closing position of the top door relating to the game unit cabinet can be adjusted very easily and surely.

[0034] Since only a person having a key can unlock the locking means, various instruments in the game unit cabinet can be prevented from theft, damage or mischief.

[0035] According to the game unit with the guard apparatus, if the door opens during electricity is transmitted from the main electric source, the first watch means detects opening of the door switch and lets the display means display opening of the door. If the door opens during electricity from the main electric source is cut off or electricity fails, the second watch means operated by the battery detects opening of the door switch, the signal holding means operated by the battery holds the detection signal, and the display control means lets the display means display the special display to warn that the door was opened during electricity failure.

[0036] Thus, opening-closing of the door can be watched for warning round the clock.

[0037] States of the door switches are watched by the first watch means during electricity is transmitted and by the second watch means during electricity fails, so that when at least one door is opened during electricity is transmitted the display means displays that the door is opened, and in case that at least one door is opened during electricity failure the display means displays the special display when electricity is transmitted again to warn that the door was opened during electricity failure.

[0038] By arranging any one of the above-mentioned game units around a game machine main in large numbers, a compact game machine can be obtained.

BRIEF DESCRIPTION OF THE DRAWINGS

[0039]

Fig. 1 is an entire perspective view of a casino game machine having game units according to the present invention;
Fig. 2 is a side view of Fig. 1;
Fig. 3 is a front view of a game unit shown in Fig. 1;
Fig. 4 is a left side view of the game unit;
Fig. 5 is a right side view of the game unit;
fig. 6 is a plan view of the game unit;
Fig. 7 is a rear view of the game unit;
Fig. 8 is a bottom view of the game unit;
Fig. 9 is a front view showing arrangement of instruments in the game unit;
Fig. 10 is a right side view of Fig. 9;
Fig. 11 is a plan view of Fig. 9;
Fig. 12 is a plan view of a top door;
Fig. 13 is a side view showing the game unit in more detail than Fig. 4;
Fig. 14 is an enlarged sectional side view showing a part of Fig. 13;
Fig. 15 is a left side view showing the game unit being moved;
Fig. 16 is a left side view showing the game unit being inclined;
Fig. 17 is an exploded perspective view of a flat parallelepiped control unit case;
Fig. 18 is a left side view of the control unit case;
Fig. 19 is a front view of the control unit case;
Fig. 20 is a plan view of the control unit case;
Fig. 21 is a sectional side view of the control unit case;
Fig. 22 is an exploded perspective view of a control substrate;
Fig. 23 is a partly cut front view of the game unit;
Fig. 24 is a sectional side view of the game unit with

a top door closed;
Fig. 25 is a sectional side view of the game unit with the top door full opened;
Fig. 26 is a sectional side view of the game unit showing a state just before the top door is closed;
Fig. 27 is a perspective view showing a pivot portion of lower end of a gas cylinder;
Fig. 28 is a side view of a top part of the game unit showing a liquid receiving structure;
Fig. 29 is a plan view of Fig. 28;
Fig. 30 is an enlarged sectional view showing an essential part of Fig. 28;
Fig. 31 is a plan view of a liquid receiving trough member;
Fig. 32 is a front view of the liquid receiving trough member;
Fig. 33 is a right side view of the gutter-like liquid receiving member;
Fig. 34 is a front view of a top door close position adjusting mechanism;
Fig. 35 is an enlarged front view showing an essential part of Fig. 34;
Fig. 36 is an enlarged left side view showing an essential part of Fig. 34;
Fig. 37 is a front view of a top door retaining mechanism;
Fig. 38 is a front view similar to Fig. 37 showing a state that the top door is released;
Fig. 39 is a left side view of a bill receiving apparatus;
Fig. 40 is a left side view of a bill receiving case;
Fig. 41 is a front view of the bill receiving case;
Fig. 42 is a plan view of the bill receiving case;
Fig. 43 is a sectional side view of the bill receiving case showing a state that a sealing cover is opened;
Fig. 44 is a sectional side view similar to Fig. 43 showing a state that the sealing cover is opened and a manipulative lever is pulled in front;
Fig. 45 is a sectional side view similar to Fig 43 showing a state that the sealing cover is opened and the manipulative lever is pulled fully in front to unlock a locking mechanism;
Fig. 46 is a diagram showing a general constitution of a guard apparatus of the casino game machine; and
Fig. 47 is a flow chart showing a operation procedure of display control in a display control circuit of the guard apparatus.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT OF THE INVENTION

[0040] Hereinafter, a preferred embodiment of the present invention will be described with reference to the drawings.

[0041] In this embodiment, the present invention is applied to a casino game machine 0. The casino game machine 0 comprises a casino game machine main 1, box-like game units 2 which are arranged on both sides of the game machine main 1 four by four, a dice shooting apparatus 4 for throwing dice 3 disposed on one side of the game machine main 1 and the game units 2, a game control apparatus 5 disposed on another side of the game machine main 1 and the game units 2 for controlling the casino game machine 0 as a whole, a display apparatus 6 erected on the game control apparatus 5, and a lighting apparatuses 8 extending from tops of supports 7 provided on both sides of the display apparatus 6. Each of the dice 3 is made of soft plastics and has rounded edges and corners. Three dice 3 are thrown on a top face of the game machine main 1 by the dice shooting apparatus 4.

[0042] Players stand in front of respective game units 2, predict total number of pips of the dice 3, combination of the pips or the like before the dice 3 are thrown, and put bills or coins into the game unit 2. After all players have paid bets, the dice 3 are thrown by the dice shooting apparatus 4, and if the prediction comes true, coins are paid at the corresponding game unit 2.

[0043] The game unit 2 has a box-like game unit cabinet 9 which is shaped nearly in a vertically long parallelepiped as shown in Figs. 3 to 8. A top face member or a top door 10 of the game unit cabinet 9 is inclined down from a rear side toward a front side and has a armrest 11 projecting horizontally at the front side. A rear edge of the top door 10 is hinged on a top edge of a back plate 9a of the game unit cabinet 9 by a hinge 58 so as to rock up and down.

[0044] As shown in Fig. 12, the top door 10 is formed with a display opening 10a to which a display section 12a of a CRT display apparatus 12 can be loosely fitted. Further, on the right side of the top door 10 is formed a cut 10b to which an upper part of a bill receiving apparatus 13 can be loosely fitted, in front of the cut 10b is formed a coin slot 10c, and in front of the coin slot 10c is formed an opening 10d adapted to house a coin return section 14. On the left side of the top door 10 is provided a pit be for attaching an indication light 15.

[0045] Within the game unit cabinet 9, as shown in Figs. 9 to 11, under the CRT display apparatus 12 are disposed an electric power unit 16 on the left and a coin pay-back apparatus 17 on the right. The electric power unit 16 and the coin pay-back apparatus 17 are installed on a middle bottom plate 9b of the game unit cabinet 9. Between the CRT display apparatus 12 as well as the electric power unit 16 and a left side plate 9c of the game unit cabinet 9 is disposed a flat parallelepiped control unit case 18. On the right rear side of the coin pay-back apparatus 17 is disposed the bill receiving apparatus 13 with its upper part exposed above the top door 10, and a coin inspecting apparatus 19 is disposed in front of the bill receiving apparatus 13. Further in front of the coin inspecting apparatus 19 is disposed the coin return section 14. An upper end of a coin shoot 17a of the coin pay-back apparatus 17 is connected to a coin guide section 14a on rear side of the coin return section 14, so

that coins are sent to the coin guide section 14a from the coin pay-back apparatus 17 through the coin shoot 17a and supplied to a saucer 14b on front side of the coin return section 14.

[0046] At an upper part in the game unit 9 and in front of the CRT display apparatus 12 is disposed an opening 20a of a coin supplement shoot 20 having a lower part opened above the coin pay-back apparatus 17. When the coin payoff apparatus 17 is in short of coin and the shortage is indicated, an administrator of the casino game machine 0 can put a large number of coins into the coin pay-back apparatus 17 through the opening 20a at the upper end of the coin supplement shoot 20 to supplement coins.

[0047] A lower portion of the coin inspecting apparatus 19 is bifurcated in two branch shoots. A branch shoot 19a (Fig. 11) is opened to the coin supplement shoot 20, and another branch shoot 19b (Fig. 10) passes behind the coin pay-back apparatus 17, penetrates the middle bottom plate 9b of the game unit 9 and opens above a cash box 21 below the middle bottom plate 9b. A switch-over apparatus (not shown) is provided at the bifurcated portion, so that when the coin pay-back apparatus 17 is full of coin, normal coins put into the coin inspecting apparatus 19 are guided to the cash box 21 through the branch shoot 19b, and when the coin pay-back apparatus is not full of coin, normal coins put into the coin inspection apparatus 19 are supplemented in the coin pay-back apparatus 17 through the branch shoot 19a and the coin supplement shoot 20.

[0048] When a coin put into the coin inspecting apparatus 19 is an abnormal one, the abnormal coin does not supplied to the branch shoots 19a, 19b and discharged to a coin return 22.

[0049] As shown in Figs. 3, 13, 14, a machine door 24 is hinged on a front edge of the left side plate 9c of the game unit cabinet 9 by hinges 23. At a nearly central portion of the machine door 24 is formed a sound opening 24a for conducting sound generated by a speaker (not shown) in the game unit cabinet 9, and a return opening 24b communicating with the above-mentioned coin return 22 is formed on the right side of the sound opening 24a. Along a lower edge of the machine door 24 is formed a machine door guide piece 25 gently curved upward toward rear (Fig. 14). Positioned below the machine door 24, a lower edge of a cash box door 26 is hinged on a bottom plate 9e of the game unit cabinet 9 by a hinge 27 so as to be opened in front. The cash box 21 is housed in a space between the middle bottom plate 9b and the bottom plate 9e, as shown in Figs. 9, 10. Even if the machine door 24 is deformed in a parallelogram by its own weight with the right side part hung down, the machine door 24 is corrected by the door guide piece 25 into a rectangle, so that the machine door 24 does not interfere with the cash box door 26 and both the doors 24, 26 can be opened and closed smoothly.

[0050] As shown in Fig. 14, at both right and left ends of front side of the bottom plate 9e are attached casters 28 which freely turn on vertical axes, and as shown in Figs. 4, 5, 7, 8, at both right and left ends of rear side of the bottom plate 9e are attached wheels 29 pivoted on brackets 30. In neighborhoods of the caster 28 and the wheel 29 are screwed fixing stud bolts 31 which are shortened when the cabinet 9 is moved and lengthened when the cabinet 9 is installed. And at upper right and left parts of the back plate 9a of the cabinet 9 are attached grip handles 32 so as to appear and disappear.

[0051] The flat parallelepiped control unit case 18 constructed as shown in Figs. 17 to 22 has a front plate 18a with an opening 18b formed (Fig. 17), and a closing plate 34 somewhat larger than the opening 18b is fixed at right angle to a front edge of a control substrate 33 which has control parts attaching plates 35a, 35b, 35c disposed in parallel with each other. On the control parts attaching plates 35a, 35b, 35c are attached electronic parts such as IC, IC memory and the like (not shown), so that transmission and receiving of signals are carried out between the game control apparatus 5 of the casino game machine 0 and the control substrate 33, necessary pictures are displayed on the CRT display apparatus 12 by signals from the control substrate 5, and the coin pay-back apparatus 15 is operated.

[0052] As shown in Figs. 18, 20, on an inner surface of the left side plate 9c of the game unit cabinet 9 are fixed vertically two guide rails 36 at a predetermined interval. As shown in Figs. 17, 20, on a left side plate 18c of the control unit case 18 are fixed sliding members 37 capable of fitting to the guide rails 36. And as shown in Figs. 18, 20, 21, on a top plate 18d of the control unit case 18 is fixed a grip 38. In order to install the control unit case 18 in the game unit cabinet 9, in a state that the top door 10 is opened upward (Fig. 25), the control unit case 18 is lowered from the top of the game unit cabinet 9 through the space between the left side plate 9c of the cabinet 9 and the CRT display apparatus 12 until the sliding members 37 engage with the guide rails 36, then the control unit case 18 is lowered gently. Thus the control unit case 18 can be installed in the game unit cabinet 9 stably.

[0053] On a right side plate 18g of the control unit case 18 are fixed upper and lower ends of a attaching bracket 39 (Figs. 21, 22). At each of the upper and lower ends is integrally formed a clipping piece 40 having a groove 40a of V-shape in plan. When the control substrate 33 is inserted into the control unit case 18, upper and lower ends in rear of the control substrate 33 are engaged with the V-shaped grooves 40a to surely and stably fix the control substrate 33 within the control unit case 18.

[0054] As shown in Fig. 21, on a rear side plate 18f of the control unit case 18 and a rear side edge of the control parts attaching plate 35a are provided connectors 41, 42, respectively. When the control substrate 33 is engaged with the clipping pieces 40, the connectors 41, 42 are connected with each other to electrically connect leading wires in the control unit case 18 with the elec-

tronic parts on the control substrate 33.

[0055] Also on the closing plate 34 is provided a grip 43 and under the grip 43 is provided a locking mechanism 44. When a key (not shown) is inserted in the locking mechanism 44 and turned, a clasp 45 of the locking mechanism 44 is rotated and retained by a clasp receiving member 46 on the front plate 18a of the control unit case 18 to prevent the control substrate 33 from being pulled out from the control unit case 18.

[0056] Many ventilation holes 47 which are so small that an electric wave does not leak are formed in the left side plate 18c and the top plate 18d of the control unit case 18, and adhering hold member 48 are provided on a circumferential edge of the closing plate 34. Therefore, an electric wave in the control unit case does not leak out, but air can freely pass through the interior of the control unit case 18.

[0057] Next, a mechanism for carrying out opening and closing of the top door 10 shown in Figs. 23 to 27 will be described.

[0058] At a position of the game unit cabinet 9 under the armrest 11 is formed a support member 49 like a step for supporting a front edge of the armrest 11. A lower horizontal section 49a of the support member 49 is formed with a cut 49b, and neighboring the cut 49b, on a lower surface of the lower horizontal section 49a are fixed a pair of gas cylinder pivoting bracket 50 on which a lower end of a gas cylinder 51 is pivoted by a bolt-nut 52.

[0059] An upper end of the gas cylinder 51 is pivoted by a bolt-nut 54 on a gas cylinder receiving member 53 fixed on a lower surface of the top door 10 positioned on the right side of the display opening 10a as shown in Fig. 12.

[0060] A sealing box 55 for partitioning and sealing the bill receiving apparatus 13 from the space within the game unit cabinet 9 is provided and a damper attaching bracket 56 is fixed on a left side plate 55a of the sealing box 55. When an operator pulls down the top door 10 opened as shown in Fig. 25, moment by own weight of the top door 10 increases gradually to accelerate the top door 10, and just before the top door is closed (Fig. 26), the gas cylinder receiving member 53 of the top door 10 touches the oil damper 57 to largely decelerate lowering of the top door 10 by the oil damper 57. Therefore, the top door 10 does not collide with the game unit cabinet 9 with a large impact force so that the top door can be closed quietly.

[0061] Figs. 28 to 33 show a construction for preventing drink such as juice spilled on an upper surface of the CRT display apparatus 12 from invading in the game unit cabinet 9.

[0062] A liquid receiving trough member 60 made of synthetic resin is formed as shown in Figs. 31, 32, and_as shown in Fig. 30, the trough member 60 is fitted to the CRT display apparatus 12 so that a peripheral part 60b of the trough member 60 adjacent to an annular inner edge 60a thereof is closely contacted with a peripheral part of the display section 12a of the CRT display apparatus 12. On the peripheral part 60a of the trough member 60 is adhered a touch panel 62 through an elastic material 61 such as soft rubber. On a lower surface of the top door 10 adjacent to the opening 10a is attached a frame member 64 through an elastic material 63 similar to the elastic material 61, so that when the top door 10 is closed down, the frame member 64 is closely contacted with the touch panel 62.

[0063] A liquid discharging sleeve 60c is provided on the front right side of the liquid receiving trough member 60, and an upper end of a flexible communication pipe 65 is fitted to the liquid discharging sleeve 60c.

[0064] As shown in Fig. 28, a liquid receiving saucer (liquid receptacle) 66 is positioned under the liquid discharging sleeve 60c partly laying over the upper step 49c of the support member 49. The liquid receiving saucer 66 is placed on a support member (not shown) so as not to move horizontally. The liquid receiving saucer 66 has a receiving sleeve to which a lower end of the communication pipe 65 is fitted, so that liquid flowing into the liquid receiving trough member 60 is led to the liquid receiving saucer 66 through the communication pipe 65.

[0065] A mechanism for adjusting an upper opening position and a lower closing position of the top door 10 is shown in Figs. 34 to 38.

[0066] As shown in Figs. 34, 36, at each of right and left positions of the upper step 49c of the support member 49 is attached a pair of hook brackets 67, and between the pair of hook brackets 67 are pivoted a engaging piece 68 and a hook piece 69 by pins 68a, 69a so as to rock right and left (Figs. 37, 38). A tensile coil spring 70 is interposed between the engaging piece 68 and the hook piece 69. A engaging section 69b of the hook piece 69 is retained by a retaining section 68b of the engaging piece 68.

[0067] On a front wall standing up at a front side of the upper step 49c of the support member 49 is provided a locking mechanism 71. A pin 71b projecting from a rocking piece 71a of the locking mechanism 71 is loosely fitted in a window 72a of a connecting plate 72 provided in contact with the upper step 49c. Each pin 72b projected at respective ends of the connecting plate 72 is fitted to a hole 68c of the engaging piece 68. When a key (not shown) is inserted in the locking mechanism 71 and turned right and left, the connecting plate 72 moves right and left to rock the engaging pieces right and left.

[0068] Above the hook bracket 67 is positioned a channel-like attachment member 73 which is fixed to an armrest support plate 10f of the top door 10 by welding for instance. A right piece 73b of the attachment member 73 is formed with a vertically prolonged hole 73d (Fig. 36), a left piece 73a of the channel-like attachment member 73 is formed with both front and rear vertically prolonged holes similar to the hole 73d which are the same as the hole 73d, and a top piece 73c of the attachment member 73 is formed with a hole 73e.

[0069] Between the left and right pieces 73a, 73b of the attachment member 73 is fitted a channel-like rise and fall member 74, and at a middle position in respect of right and left of a top piece 74c of the member 74 is fixed an engage member 75 of U-shape side view. Bolts 76 penetrating respective left and right pieces 74a, 74b of the channel-like rise and fall member 74 are inserted in the above-mentioned prolonged holes of the channel-like attachment member 73 and nuts 77 are screwed onto tip ends of the bolts 76. Positioned just below the hole 73e of the attachment member 73, a nut 78 is welded to the top piece 74c of the rise and fall member 74.

[0070] An adjust screw 79 is inserted in the hole 73e formed in the top piece 73c of the attachment member 73 from above. A top part 79a of the adjust screw 79 is rotatably contacted with a pressing piece 80 fixed on the armrest support plate 10f of the top door 10. The adjustment screw 79 is screwed in the nut 78, and a diametric groove (not shown) is formed on a lower end of the adjust screw 79.

[0071] Next, a lifting mechanism of the bill receiving apparatus 13 shown in Figs. 39 to 45 will be described.

[0072] As shown in Figs. 40 to 42, the bill receiving apparatus 13 comprises a bill detecting unit 81 which is prolonged in front and rear and has a front shape of nearly regular square, and a flat parallelepiped bill storing unit 82 which has a width nearly equal to that of the bill detecting unit 81, a depth smaller than that of the bill detecting unit 81, and a height larger than that of the bill detecting unit 81. The bill detecting unit 81 and the bill storing unit 82 are housed in a bill receiving case 83 with the bill detecting 81 piled up on the bill storing unit 82 so as to be pulled out and separated from the bill receiving case 83.

[0073] The bill receiving case 83 is housed in the sealing box 55 of a modified pentagon in side view (Figs. 24 to 26, 39). Between an inner surface of a left side plate 55a of the sealing box 55 and an outer surface of a left side plate 83a of the bill receiving case 83, and between an inner surface of a right side plate 55b of the sealing box 55 and an outer surface of a right side plate 83b of the bill receiving case 83 are interposed respective slide rails 84 (Fig. 39). The bill receiving case 83 can move up and down guided by the slide rails 84 to appear from and disappear in the sealing box 55.

[0074] The sealing box 55 has a front plate 55c, a bottom plate 55d and a rear plate 55e, besides the left and right side plates 55a, 55b. A sealing cover 86 is hinged on an upper end of the rear plate 55e by a cover hinge 58 which is coaxial with the hinge 58 of the top door 10. On a front portion of the sealing cover 86 is provided a locking mechanism 87. If the sealing cover 86 is opened upward after the locking mechanism 87 is unlocked by turning a key (not shown) inserted in the locking mechanism 87 to detach a retaining piece 87a of the locking mechanism 87 from a retaining hole (not shown) of the front plate 55c of the sealing box 55, an upper portion of the bill detecting unit 81 is exposed as shown in Fig. 43.

[0075] Within the sealing box 55 is provided a wind lifter 88 positioned at a rear side of the bill receiving case 83. A tip end of a wire veered out from the wind lifter 88 is connected to a rear bottom of the bill receiving case 83 so that the bill receiving case 83 can move up and down lightly by forcing energy of the wind lifter 88.

[0076] On the right side plate 55b of the sealing box 55 is integrally attached a guide plate 89 having a guide groove 89a formed vertically. On the right side plate 83b of the bill receiving case 83 are projected upper and lower guide pins 83c, 83d which can slide up and down in the guide groove 89a of the guide plate 89.

[0077] On the right side plate 55b of the sealing box 55 and the guide plate 89 is provided a shaft 90 projecting to the left, and a manipulative lever 91 and a lift limiting member 92 are pivoted on the shaft 90. A retaining piece 91a formed at a rear upper part of the manipulative lever 91 bent to the left engages with an upper rear edge 92e of a front piece 92a of the lift limiting member 92.

[0078] The lift limiting member 92 is formed in nearly J-shape comprising the front piece 92a and a rear piece 92b. Upper and lower retaining pawls 92c, 92d are formed on a rear edge of the front piece 92a and a tensile coil spring 93 is interposed between an upper end of the rear piece 92b and the guide plate 89. The coil spring 93 forces the lift limiting member 92 rearward, and the retaining pawls 92c, 92d projects over the guide groove 89a so as to engage with the guide pins 83c, 83d of the bill receiving case 83.

[0079] A locking mechanism 94 is provided on an upper portion of an inner surface of the front plate 55c of the sealing box 55, and a retaining piece 94a of the locking mechanism 94 is adapted to touch the front piece 91b of the manipulative lever 91.

[0080] Next, a guard apparatus 100 (Fig. 46) of the casino game machine 0 will be described.

[0081] The box-like game unit cabinet 9 has five doors, namely, the top door 10, the machine door 24, the cash box door 26, the sealing cover 86 of the bill receiving apparatus 13 and the closing plate 34 of the control unit case 18. The guard apparatus 100 watches opening and closing of the doors round the clock. Especially opening and closing of the cash box door 26 and the bill receiving apparatus 13 are important regarding the guard.

[0082] Fig. 46 shows a general constitution of the guard apparatus 100.

[0083] The doors 10, 24, 26, the sealing cover 86 and the closing plate 34 of the game unit cabinet 9 have respective door switches 101a, 101b, 101c, 101d and 101e for detecting opening and closing of the doors. In Fig. 46, only the door switch 101c is illustrated representatively but other door switches are also arranged in parallel.

[0084] The door switch 101c is a changing-over switch having a common grounded terminal a, a terminal b which short-circuits when the door is closed and a

terminal c which short-circuits when the door is opened. The terminal b is connected to a first door watch circuit 102 for during electrification and the terminal c is connected to a second door watch circuit 103 for during electricity failure.

[0085] The first door watch circuit 102 watches opening-closing of the door switch 101c when the circuit 102 is electrified from a main electric source, and outputs a detection signal to a display control circuit 105 when the door switch 101c is in "open" state.

[0086] When supply of electricity from the main electric source is cut off, the second door watch circuit 103 watches opening-closing of the door using electric power of a battery 106 and outputs a detection signal to a detection signal holding circuit 104 if the door switch 101c is opened even once.

[0087] The detection signal holding circuit 104 acts using the electric power of the battery 106 and holds the detection signal from the circuit 103. The detection signal holding circuit 104 outputs a signal to the effect that the detection signal has been received to the display control circuit 105 and continues to output the same signal until a holding cancel signal is sent from the display control circuit 105.

[0088] The display control circuit 105 controls display of the above-mentioned CRT display apparatus 12.

[0089] The first door watch circuit for during electrification 102, the display control circuit 105, the CRT display apparatus 12 and other instruments in the game unit 2 act by electric power of the main electric source. On the one hand, the second door watch circuit for during electricity failure 103 and the detection signal holding circuit 104 act by the battery 106 so that even if the main electric source is cut off or electricity fails, the second door watch circuit 103 and the detection signal holding circuit 104 act surely to continue watching opening-closing of the five doors.

[0090] When electricity is transmitted from the main electric source, if any one of the doors opens and a detection signal is outputted from the first door watch circuit 102 to the display control circuit 105, the display control circuit 105 lets the CRT display apparatus 12 display "DOOR OPEN" in green.

[0091] On the one hand, when electricity from the main electric source is cut off, if any one of the doors opens and a detection signal is outputted from the second door watch circuit 103 to the detection signal holding circuit 104, the detection signal holding circuit 104 holds the detection signal and outputs a signal to the effect that the detection signal has been received to the display control circuit 105.

[0092] After that, when electricity is transmitted from the main electric source, the display control circuit 105 acts to receive an output signal from the detection signal holding circuit 104 and let the CRT display 12 display "DOOR OPEN" in red specially for warning.

[0093] By this warning, it is known that at least one door was opened during electricity failure.

[0094] If a warning cancel signal is outputted to the display control circuit 105, the display control circuit 105 stops the red display "DOOR OPEN" and outputs a holding cancel signal to the detection signal holding circuit 104 to stop signal output therefrom.

[0095] Fig. 47 shows operation procedure of the CRT display apparatus 12 by the above-mentioned display control circuit 105.

[0096] When electricity is transmitted from the main electric source to start, it is judged at Step 1 whether or not there was a detection signal during electricity failure (the detection signal from the detection signal holding circuit 104), and if there was not the detection signal during electricity failure, the flow advances to Step 2 where it is judged whether or not electricity is off. If electricity is off, the flow ends, and if electricity is on, the flow advances to Step 3.

[0097] At Step 3, presence of detection signal during electrification (the detection signal from the detection signal holding circuit 104) is judged. If the detection signal during electrification is not present, the flow returns to Step 2, and if the detection signal during electrification is present, the flow advances to Step 4 to let the CRT display apparatus 12 display "DOOR OPEN" in green. Then, at Step 5, presence of the detection signal during electrification is judged again, and as far as the detection signal is present continuously, the flow returns to Step 4 to maintain the green display "DOOR OPEN". When the door is closed and the detection signal during electrification disappears, the flow returns to Step 2 and the display is stopped.

[0098] On the one hand, when it is judged at Step 1 that a detection signal during electricity failure is present, the flow jumps to Step 6 to let the CRT display apparatus display "DOOR OPEN" in red.

[0099] Until a cancel signal appears at Step 7, Step 6 is repeated to maintain the red display "DOOR OPEN". When the cancel signal appears at Step 7, the flow advances to Step 8 to stop the display and output a holding cancel signal to the detection signal holding circuit 104, then jumps to Step 2.

[0100] As mentioned above, if at least one of the five doors opens, the green display "DOOR OPEN" is expressed for enabling to confirm present state of doors. Therefore, it can be prevented that a door is left opening by mistake, and even if a door is opened forcibly it can be detected soon.

[0101] If any one door is opened during electricity failure, the red warning display "DOOR OPEN" is expressed on the game unit 2 when electricity is transmitted next. Therefore, it can be known whether or not a door has been opened during the electricity failure.

[0102] Thus, the guard apparatus 100 can watch opening-closing of the doors round the clock.

[0103] Even during electricity failure, the watch can be carried out using a minimum electric power of the battery 106.

[0104] According to the guard apparatus 100, the dis-

play shows that at least one of the five doors opens, however, the watch circuit during electrification 102 and the detection signal holding circuit 104 may output signals corresponding to opening-closing of the five doors respectively so that the CRT display apparatus 12 can express different displays enabling to distinguish an opened door from other doors.

[0105] Lamps of different colors may be used in place of the CRT display apparatus 12.

[0106] Since the box-like game unit 2 is constructed as described above, even if the machine door 24 is deformed into a parallelogram with the right side descending compared to the left side near the hinge 23 by its own weight, when the machine door closes, the right side is raised by the machine door guide piece 25 to reform the machine door 24 into a rectangle, so that the lower edge of the machine door guide piece 25 is held in parallel with the upper edge of the cash box door 26. Therefore, the machine door 24 and the cash box door 26 can open and close smoothly.

[0107] Since the game unit cabinet 9 has casters 28 provided at both right and left ends on the front side of the bottom plate 9e and the wheels 29 provided at both right and left ends on the rear side of the bottom plate 92 as shown in Figs. 14 to 16, the game unit cabinet 9 on a floor can be moved toward required directions stably and easily.

[0108] When there is a step on the floor, one may hold the grip handle 32 provided on the back plate 9a of the game unit cabinet 9 to incline the cabinet 9 backward as shown in Fig. 16 and move it maintaining the inclined posture. Thus, the game unit cabinet 9 can be carried getting over the step by only one person easily.

[0109] When a coin falls down between the casino game machine main 1 and the game unit 2 or between neighboring game units 2, the coin can be recovered easily by moving only a necessary game unit cabinet 9 forward irrespective of other game unit 2.

[0110] When it is wanted to fix the game unit cabinet 9 on the floor, the fixing stud bolt 31 can be stretched down to support the game unit cabinet 9 by the stud bolt 31.

[0111] As shown in Fig. 9, the flat parallelepiped control unit case 18 is positioned in a narrow space within the game unit cabinet 9 formed between the left side plate 9c of the cabinet 9 and the CRT display apparatus 12 as well as the electric power unit 16. Therefore, space within the game unit cabinet 9 is utilized effectively and miniaturization of the game unit cabinet 9 is possible.

[0112] Since the sliding member 37 integral with the left side plate 18c of the control unit case 18 is slidably fitted to the guide rail 36 attached to the left side plate 9c of the game unit cabinet 9, the control unit case 18 can be easily raised by means of the grip 38 when the top door 10 is opened, so that the control unit case 18 can be easily taken out of the game unit cabinet 9.

[0113] Since many ventilation holes 47 are formed in the left side plate 18c and the top plate 18d of the control unit case 18, air can smoothly flow through the control unit case 18 to cool various electronic parts in the control unit case 18 sufficiently.

[0114] The control substrate 33 can be easily taken out by unlocking the locking mechanism 44, releasing the adhering hold member and pulling the grip 43. Therefore, necessary repair and maintenance of the control substrate 33 can be carried out easily.

[0115] Since weight of the top door 10 is supported by the gas cylinder 51, the top door 10 can be opened and closed lightly.

[0116] Immediately before the top door 10 is closed completely when downward moment of the top door 10 is considerably increased, the top door 10 is supported by the oil damper 57 having a resistant force larger than the spring force of the gas cylinder 51, so that the top door can be closed quietly without a violent collision against the game unit cabinet 9.

[0117] Even if a player standing just in front of the game unit 2 or resting his elbows on the armrest for playing spills a drink such as a juice by mistake on the CRT display apparatus 12, the drink is intercepted by the touch panel 62 covering the display surface 12a of the CRT display apparatus 12, and guided onto the top door 10 or into the liquid receiving trough member 60 by the frame member 64 so as not to invade the CRT display apparatus 12, the electric power unit 16, the coin payback apparatus 17, the control unit case 18, the coin inspecting apparatus 19 and the like in the game unit cabinet 9. Thus, trouble or damage of the above-mentioned apparatuses can be prevented.

[0118] The drink flowing into the liquid receiving trough member 60 is guided to the liquid receiving saucer 66 through the communication pipe 65 and stored in the liquid receiving saucer 66 which can be easily taken out for disposal of the drink by opening the top door 10.

[0119] In that case, it is necessary to open only the top door 10 and the machine door 24 need not be opened, so that the player can continue the game standing in front of the game unit cabinet 9 watching the CRT display apparatus 12.

[0120] Adjustment of closing position of the top door 10 is carried out as follows. After the nut 77 (Figs. 35, 36) is released in a state that the top door 10 is opened, the adjust screw 79 is turned by a driver engaged with a diametric groove provided on a lower end of the adjust screw 79 to raise or lower the channel-like rise and fall piece 74 relatively to the channel-like attachment member 73.

[0121] After the adjustment, the nut 77 is tightened again to firmly fix the rise and fall piece 74 to the attachment member 73 for maintaining the adjusted state.

[0122] Even if the top door 10 is closed and opened many times during the above adjustment work by the adjust screw 79 and forces are applied to the adjust screw 79, because the adjust screw 79 is engaged with

the nut 78 integral with the rise and fall member 74, the member 74 is not moved relatively to the member 73 so much and the member 74 can hold its position. Therefore, the adjustment work can be carried out divided in many steps to ensure a proper adjustment of closing position of the top door 10.

[0123] The bill receiving apparatus 13 is sealed by the sealing box 55 and the sealing cover 56 irrespective of opening-closing of the top door 10, therefore, even if maintenance or modification of instruments other than the bill receiving apparatus 13 such as the CRT display apparatus 12, the coin return section 14, the electric power unit 16, the coin pay-back apparatus 17 and the control unit case 18, is carried out with the top door 10 opened, there is no fear that bills in the bill receiving apparatus 13 are stolen.

[0124] Since the hinge 58 of the top door 10 and the cover hinge 85 of the sealing cover 86 are arranged on the same axis, the top door 10 and the sealing cover 86 can be opened and closed separately without interfering with each other.

[0125] If a serviceman for repair, maintenance and inspection of the bill receiving apparatus 13 inserts a private key into the locking mechanism 87 to unlock it and opens the sealing cover 86 upward as shown in Fig. 43, an upper portion of the bill detecting unit 81 is exposed so that bills clogging in a bill feed mechanism provided in the upper portion for feeding bills from front toward rear can be removed easily.

[0126] If the manipulative lever 91 is pulled forward, the lift limiting member 92 interlocked with the lever 91 rocks clockwise, the upper retaining pawl 92c is disconnected from the guide pin 83c of the bill receiving case 83, the case 83 goes up forced by the wind lifter 88, the guide pin 83d of the case 83 is retained by the retaining pawl 92d of the lift limiting member 92, and only the bill detecting unit 81 is exposed above the sealing box 55. As a result, the bill detecting unit 81 can be taken out from the bill receiving case 83 by pulling forward only the bill detecting unit 81 relatively to the bill storing unit 82 for repair and inspection of the bill detecting unit 81.

[0127] An administrator of the casino game machine 0 has both keys for the locking mechanisms 87, 94. When the locking mechanisms 87, 94 are unlocked, the manipulative lever 91 can be rocked further forward. As the result, the lower retaining pawl 92d is disconnected from the guide pin 83d of the bill receiving case 83 and the case 83 goes up forced by the wind lifter 88 up to the upper limit position, so that the bill storing unit 82 can be removed from the bill receiving case 83 to take out bills in the bill storing unit 82.

[0128] As mentioned above, the bill receiving apparatus 13 is provided with two locking mechanisms 87, 94, the serviceman has only a key for the locking mechanism 87 and the administrator of the casino game machine 0 has two kinds of keys for the locking mechanisms 87, 94. Therefore, it is prevented that the serviceman takes out bills in the bill storing unit 82 in the course of repair.

[0129] In the above embodiment shown in the drawings, the present invention is applied to the casino game machine, however, the present invention is also applicable to a horse race game machine, a boat race game machine or any other game machines.

Claims

1. A game unit to be arranged outside and adjacently to a game machine comprising:

a game unit cabinet (2) of box-shape having a front face and a top face;
a display instrument (12) housed in the game unit cabinet (2) and having a display surface (12a) for displaying progress of a game, a bet rate, result of the game, allotment and like, said display surface (12a) being disposed to face upward on the top surface of the game unit cabinet (2);
a machine door (24) hinged on a side of said front face of the game unit cabinet (2) by a hinge (23) so as to be openable to the front; and
a control unit case (18) in the shape of a flat parallelepiped disposed between said display instrument (12) and a side wall (9c) of the game unit cabinet (2) near that hinge(23) within the game unit cabinet (2) in an erect posture; **characterised in that**:

a top door (10) is provided at that top face of the game unit cabinet (2) substantially on the same surface as that display surface (12a) so as to be openable upward, said top door (10) having an opening (10a) in which the display surface (12a) is fitted when the top door (10) is closed and being sized to lay above that control unit case (18), and said control unit case (18) is supported vertically slideably within the game unit cabinet (2) so that when the top door (10) is opened, the control unit case (18) can be inserted downwardly into and taken upwardly out of the interior of the game unit cabinet (2).

2. A game unit as claimed in claim 1, wherein said top door is formed with an opening for said display instrument which is fitted to a circumference of said display instrument.

3. A game unit as claimed in claim 1 or 2, wherein a vertical guide rail is provided on an inner surface of said side wall of said game unit cabinet near said hinge, and a slide member going up and down guided by said guide rail is provided on an outer surface

of said control unit case.

4. A game unit as claimed in claim 3, wherein a handle for pulling up said control unit case against its weight is provided at a top of said control unit case.

5. A game unit according to one of claims 1 to 4, wherein:

a control substrate with electronic control parts necessary for operation of the game unit is housed in said control unit case;
an opening formed in a front face of said control unit case for taking in and out said control substrate along a flat face of said control unit case; and
a closing member formed on a front edge of said control substrate integrally for closing said opening when said control substrate is housed in said control unit case.

6. A game unit as claimed in claim 5, wherein grooves of V-shape in plan are formed at respective upper and lower parts on a rear side in said control unit case, for holding respective upper and lower edges on a rear side of said control substrate.

7. A game unit as claimed in claim 5 or 6, wherein a locking mechanism for maintaining said control substrate n a state housed in said control unit case is provided.

8. A game unit according to one of claims 1 to 7, wherein:

a liquid receiving trough member is surrounding and is adhered to said display instrument;
a liquid receptacle detachably provided in said game unit cabinet positioned under said liquid receiving trough member and said top door closed; and
a pipe connecting a lowermost part of said liquid receiving trough member with said liquid receptacle.

9. A game unit as claimed in claim 8, wherein said liquid receptacle is disposed just under said closed top door.

10. A game unit as claimed in claim 8 or 9, wherein said display surface of said display instrument is inclined so as to lower toward front from rear.

11. A game unit according to one of claims 1 to 10, wherein:

a door guide piece is formed along a lower edge of said machine door gently curved upward toward rear, said door guide piece coming into sliding contact with a middle bottom member of said game unit cabinet adjacent to a lower edge of said machine door when said machine door is opened and closed.

12. A game unit as claimed in claim 11, wherein an opening and closing member other than said machine door is provided under and adjacently to said machine door so as to be opened in front.

13. A game unit according to one of claims 1 to 12, wherein:

a gas spring has both ends respectively connected to said game unit cabinet and said top door; and
an oil buffer mechanism provided on said game unit cabinet so as to be contacted with said top door when said top door is on or near a closing position thereof.

14. a game unit as claimed in claim 13, wherein said top door is hinged on a rear edge of said game unit cabinet so as to open upward and close downward.

15. A game unit according to one of claims 1 to 14, wherein:

a channel-like attachment member is fixed to said top door or said game unit cabinet;
a rise and fall member fitted to said attachment member so as to rise and fall;
an adjust screw provided between said rise and fall member and said top door of said game unit cabinet;
an engage member fixed to said rise and fall member; and
a hook member detachably engaging with said engage member provided on said game unit cabinet or said top door.

16. A game unit as claimed in claim 15, wherein said hook member is combined with a locking means so as to be disconnected from said engage member when said locking means is unlocked.

17. A game unit according to one of claims 1 to 16, wherein a guard apparatus of a game unit has a game unit cabinet, comprising:

a door switch for detecting opening-closing of a door provided in said game unit cabinet;
a display means for displaying information of opening-closing of said door,
a first watch means for watching state of said door switch when electricity is transmitted from a main electric source;

a second watch means for watching state of said door switch when electricity from said main electric source is cut off;
a signal holding means for holding a detection signal when said second watch means detects opening of said door switch to generate said detection signal;
a battery for supplying said second watch means and said signal holding means with electric power; and
a display control means for letting said display means display a special display in case that said signal holding means holds said detection signal when electricity is transmitted from said main electric power.

18. A game unit as claimed in claim 17, wherein said game unit cabinet has a plurality of doors provided with respective said door switches, and said first and second watching means watch states of said door switches.

Patentansprüche

1. Spieleeinheit, die außerhalb und benachbart zu einem Spielapparat anzuordnen ist, umfassend:

ein Gehäuse (2) der Spieleeinheit in Boxform, die eine Vorderseite und eine Oberseite aufweist;
ein Anzeigeinstrument (12), das in dem Gehäuse der Spieleeinheit (2) eingeschlossen ist und eine Anzeigefläche (12a) zum Anzeigen des Fortschreitens eines Spiels, einer Wettrate, dem Ergebnis des Spiels, der Verteilung und dergleichen aufweist, wobei die Anzeigefläche (12a) so angeordnet ist, dass sie nach oben zur Oberseite des Gehäuses der Spieleeinheit (2) zeigt;
eine Apparatetür (24), die auf einer Seite der Vorderseite des Gehäuses der Spieleeinheit (2) durch ein Scharnier (23) schwenkbar ist, um nach vorne beweglich zu sein; und
einen Steuereinheitkasten (18) in Form eines flachen Quaders, welcher zwischen dem Anzeigeelement (12) und einer Seitenwand (9c) des Gehäuses der Spieleeinheit (2) in der Nähe des Scharniers (23) in aufrechter Haltung im Inneren des Gehäuses der Spieleeinheit (2) vorgesehen ist; **dadurch gekennzeichnet, dass**
eine obere Tür (10) an der Oberseite des Gehäuses der Spieleeinheit (2) im Wesentlichen auf der selben Oberfläche wie derjenigen der Anzeigefläche (12a) nach oben schwenkbar ausgestaltet ist, wobei die obere Tür (10) eine Öffnung (10a) aufweist, in welche die Anzeigefläche (12a) eingepasst ist, wenn die obere Tür (10) geschlossen ist, und so dimensioniert ist, dass sie über dem Steuereinheitkasten (18) liegt, und wobei der Steuereinheitkasten (18) im Inneren des Gehäuses der Spieleeinheit (2) so vertikal gleitbar getragen ist, dass, wenn die obere Tür (10) geöffnet wird, der Steuereinheitkasten (18) nach unten in das Innere des Gehäuses der Spieleeinheit (2)eingesenkt und nach oben herausgenommen werden kann.

2. Spieleeinheit wie in Anspruch 1 beansprucht, wobei die obere Tür mit einer Öffnung für das Anzeigeelement gebildet ist, welche auf den Umfang des Anzeigeinstruments angepasst ist.

3. Spieleeinheit wie in Anspruch 1 oder 2 beansprucht, wobei eine vertikale Führungsleiste auf der Innenoberfläche der Seitenwand des Gehäuses der Spieleeinheit in der Nähe des Scharniers ausgestaltet ist und ein Gleitteil, welches durch die Führungsleiste geführt sich aufwärts und abwärts bewegt, auf der Außenoberfläche des Steuereinheitkastens ausgestaltet ist.

4. Spieleeinheit wie in Anspruch 3 beansprucht, wobei ein Handgriff zum Hochziehen des Steuereinheitkastens gegen sein Gewicht an der Oberseite des Steuereinheitkastens ausgestaltet ist.

5. Spieleeinheit gemäß einem der Ansprüche 1 bis 4, mit einem Steuersubstrat mit zum Betrieb der Spieleeinheit erforderlichen, elektronischen Steuerelementen, welche in den Steuereinheitkasten untergebracht ist;
einer Öffnung, die in einer Vorderseite des Steuereinheitkastens zum Einstecken und Herausnehmen des Steuersubstrats entlang einer flachen Seite des Steuereinheitkastens gebildet ist; und
einem Schließelement, welches auf einer Vorderkante des Steuersubstrats in einer Einheit gebildet ist, zum Verschließen der Öffnung, wenn das Steuersubstrat in den Steuereinheitkasten eingeschlossen ist.

6. Spieleeinheit wie in Anspruch 5 beansprucht, wobei Rillen mit V-Form im Grundriss an den jeweiligen oberen und unteren Teilen auf der Rückseite des Steuereinheitkastens gebildet sind zum Halten von jeweiligen oberen und unteren Kanten auf der Rückseite des Steuersubstrats.

7. Spieleeinheit wie in Anspruch 5 oder 6 beansprucht, wobei ein Schließmechanismus vorgesehen ist, um das Steuersubstrat in einem in dem Steuereinheitkasten eingeschlossenen Zustand zu halten.

8. Spieleeinheit gemäß einem der Ansprüche 1 bis 7,

mit einem Flüssigkeitsempfangswannenelement, welches das Anzeigeelement umgibt und daran befestigt ist;
einem Flüssigkeitsbehälter, welcher in dem Gehäuse der Spieleeinheit an einer Stelle unterhalb des Flüssigkeitsempfangswannenelements und der geschlossenen, oberen Tür lösbar ausgestaltet ist; und
einer Leitung, die den untersten Bereich des Flüssigkeitsempfangswannenelements mit dem Flüssigkeitsbehälter verbindet.

9. Spieleeinheit wie in Anspruch 8 beansprucht, wobei der Flüssigkeitsbehälter unmittelbar unter der geschlossenen oberen Tür ausgestaltet ist.

10. Spieleeinheit wie in Anspruch 8 oder 9 beansprucht, wobei die Anzeigefläche des Anzeigeinstruments so geneigt ist, dass sie von hinten nach vorne tiefer wird.

11. Spieleeinheit gemäß einem der Ansprüche 1 bis 10, wobei ein Türführungsstück entlang der unteren Kante der Apparatetür leicht nach oben zur Rückseite hin gebildet ist, wobei das Türführungsstück, wenn die Apparatetür geöffnet und geschlossen wird, in Gleitkontakt mit dem mittleren Bodenelement des Gehäuses der Spieleeinheit neben einer unteren Kante der Apparatetür kommt.

12. Spieleeinheit wie in Anspruch 11 beansprucht, wobei ein von der Apparatetür verschiedenes Öffnungs- und Schließelement unter und neben der Apparatetür vorgesehen ist, um von vorne geöffnet werden zu können.

13. Spieleeinheit gemäß einem der Ansprüche 1 bis 12, wobei eine Gasfederung beide Enden jeweils mit dem Gehäuse der Spieleeinheit und der oberen Tür verbunden hat; und
ein Öl-Puffer-Mechanismus in dem Gehäuse der Spieleeinheit vorgesehen ist, um mit der oberen Tür in Kontakt zu stehen, wenn die obere Tür an oder nahe seiner Schließposition ist.

14. Spieleeinheit wie in Anspruch 13 beansprucht, wobei die obere Tür an einer rückseitigen Kante des Gehäuses der Spieleeinheit schwenkbar ist, um aufwärts geöffnet und abwärts geschlossen zu werden.

15. Spieleeinheit gemäß einem der Ansprüche 1 bis 14, wobei ein kanalartiges Befestigungsteil an die obere Tür oder das Gehäuse der Spieleeinheit fixiert ist; mit
einem Auf- und Ab-Element, welches an dem Befestigungselement angebracht ist, um aufzusteigen und zu fallen;
einer Einstellschraube, die zwischen dem Auf- und Ab-Element und der oberen Tür des Gehäuses der Spieleeinheit vorgesehen ist;
einem Eingriffsteil, der an dem Auf- und Ab-Element befestigt ist; und
einem auf dem Gehäuse der Spieleeinheit oder der oberen Tür ausgestalteten Hakenelement, welches in das Eingriffselement lösbar eingreift.

16. Spieleeinheit wie in Anspruch 15 beansprucht, wobei das Hakenelement mit einer Schließeinrichtung verbunden ist, um von dem Eingriffselement getrennt zu werden, wenn die Verschließeinrichtung entriegelt wird.

17. Spieleeinheit gemäß einem der Ansprüche 1 bis 16, wobei eine Überwachungsvorrichtung einer Spieleeinheit ein Gehäuse der Spieleeinheit aufweist mit:

einem Türschalter zum Detektieren des Öffnens und Verschließens einer in dem Gehäuse der Spieleeinheit vorgesehenen Tür;
eine Anzeigeeinrichtung zum Anzeigen von Informationen des Öffnens und Verschließens der Tür;
eine erste Beobachtungseinrichtung zum Beobachten des Zustandes des Türschalters, wenn Elektrizität von einer Hauptelektrizitätsquelle geliefert wird;
eine zweite Beobachtungseinrichtung zum Beobachten des Zustandes der Türschaltung, wenn die Elektrizität von der Hauptelektrizitätsquelle abgeschaltet ist;
eine Signalhaltereinrichtung zum Halten eines Detektionssignals, wenn die zweite Beobachtungseinrichtung das Öffnen des Türschalters zum Erzeugen des Detektionssignals detektiert;
eine Batterie zum Liefern von elektrischem Strom an die zweite Beobachtungseinrichtung und die Signalhaltereinrichtung; und
eine Anzeigesteuereinrichtung, welche die Anzeigeeinrichtung eine spezielle Anzeige in einem Fall anzeigen läßt, bei dem die Signalhaltereinrichtung das Detektionssignal hält, wenn die Elektrizität von der Hauptelektrizitätsquelle geliefert wird.

18. Spieleeinheit wie in Anspruch 17 beansprucht, wobei das Gehäuse der Spieleeinheit eine Vielzahl von mit jeweiligen Türschaltern ausgestatteten Türen aufweist und wobei die ersten und zweiten Beobachtungseinrichtungen die Zustände der Türschalter überwachen.

Revendications

1. Unité de jeu destinée à être agencée à l'extérieur et à côté d'une machine de jeu, comprenant :

une armoire (2) d'unité de jeu en forme de boîte, présentant une face frontale et une face supérieure ;
un instrument d'affichage (12) logé dans l'armoire (2) de l'unité de jeu et présentant une surface d'affichage (12a) pour afficher le progrès d'un jeu, un taux de pari, le résultat du jeu, le gain et similaires, ladite surface d'affichage (12a) étant disposée de manière à être tournée vers le haut sur la surface supérieure de l'armoire (2) de l'unité de jeu
une porte machine (24) agencée sur un côté de ladite face frontale de l'armoire (2) de l'unité de jeu par une charnière (23), de manière à pouvoir être ouverte vers l'avant ; et

un caisson (18) d'unité de commande qui présente la forme d'un parallélépipède plat disposé entre ledit instrument d'affichage (12) et une paroi latérale (9c) de l'armoire (2) de l'unité de jeu, à proximité de la charnière (23), à l'intérieur de l'armoire (2) d'unité de jeu en position relevée ; **caractérisée en ce que** :

une porte supérieure (10) est prévue sur la surface supérieure de l'armoire (2) de l'unité de jeu essentiellement sur la même surface que la surface d'affichage (12a) de manière à pouvoir être ouverte vers le haut, ladite porte supérieure (10) présentant une ouverture (10a) dans laquelle la surface d'affichage (12a) est ajustée lorsque la porte supérieure (10) est fermée, et dimensionnée de manière à être située au-dessus du caisson (18) de l'unité de commande, et ledit caisson (18) de l'unité de commande est soutenu verticalement à coulissement dans l'armoire (2) de l'unité de jeu de telle sorte que lorsque la porte supérieure (10) est ouverte, le caisson (18) de l'unité de commande peut être inséré vers le bas dans l'armoire (2) de l'unité de jeu et être pris vers le haut depuis l'inérieur de cette armoire.

2. Unité de jeu selon la revendication 1, dans laquelle ladite porte supérieure est configurée avec une ouverture pour ledit instrument d'affichage qui est ajustée sur une circonférence dudit instrument d'affichage.

3. Unité de jeu selon la revendication 1 ou 2, dans laquelle un rail vertical de guidage est prévu sur une surface intérieure de ladite paroi latérale de ladite armoire de l'unité de jeu à proximité de ladite charnière, et un élément coulissant montant et descendant en étant guidé par ledit rail de guidage est prévu sur une surface extérieure dudit caisson de l'unité de commande.

4. Unité de jeu selon la revendication 3, dans laquelle une poignée pour tirer vers le haut ledit caisson de l'unité de commande en opposition à son poids est prévue sur le sommet dudit caisson de l'unité de commande.

5. Unité de jeu selon l'une des revendications 1 à 4, dans laquelle un support de commande présentant les pièces électroniques de commande nécessaires pour le fonctionnement de l'unité de jeu est logé dans ledit caisson de l'unité de commande ;
une ouverture formée dans une surface frontale dudit caisson de l'unité de commande pour déplacer ledit support de commande sur une surface plane dudit caisson de l'unité de commande ; et
un organe de fermeture formé d'un seul tenant sur un bord avant dudit support de commande, pour fermer ladite ouverture lorsque ledit support de commande est logé dans ledit caisson de l'unité de commande.

6. Unité de jeu selon la revendication 5, dans laquelle des rainures présentant la forme d'un V en plan sont formées sur la partie supérieure et la partie inférieure respectives d'un côté arrière dudit caisson de l'unité de commande, pour retenir un bord supérieur et un bord inférieur respectifs sur un côté arrière dudit support de commande.

7. Unité de jeu selon la revendication 5 ou 6, dans laquelle un mécanisme de verrouillage pour maintenir ledit support de commande en position logée à l'intérieur dudit caisson de l'unité de commande est prévu.

8. Unité de jeu selon l'une des revendications 1 à 7, dans laquelle un organe en cuvette de réception de liquide entoure ledit instrument d'affichage et y est collé ;
un réceptacle à liquide prévu de manière libérable dans ladite armoire de l'unité de jeu est positionné en dessous dudit organe en cuvette de réception de liquide et de ladite porte supérieure fermée ; et
un conduit relie une partie inférieure dudit organe en cuvette de réception de liquide et ledit réceptacle à liquide.

9. Unité de jeu selon la revendication 8, dans laquelle ledit réceptacle à liquide est disposé juste en dessous de ladite porte supérieure fermée.

10. Unité de jeu selon la revendication 8 ou 9, dans laquelle ladite surface d'affichage dudit instrument

d'affichage est inclinée de manière à s'abaisser de l'arrière vers l'avant.

11. Unité de jeu selon l'une des revendications 1 à 10, dans laquelle une pièce de guidage de porte est formée le long d'un bord inférieur de ladite machine de jeu, légèrement incurvée vers le haut et l'arrière, ladite pièce de guidage de porte venant en contact coulissant avec un organe centrai inférieur de ladite armoire de l'unité de jeu adjacent à un bord inférieur de ladite porte des machines lorsque ladite porte des machines est ouverte et fermée.

12. Unité de jeu selon la revendication 11, dans laquelle un organe d'ouverture et de fermeture autre que ladite porte des machines est prévu en dessous et en position adjacente à ladite porte de machine de manière à être ouvert par l'avant.

13. Unité de jeu selon l'une des revendications 1 à 12, dans laquelle un vérin pneumatique a ses deux extrémités reliées respectivement à ladite armoire de l'unité de jeu et à ladite porte supérieure ; et
un mécanisme d'amortissement hydraulique est prévu sur ladite armoire de l'unité de jeu de manière à entrer en contact avec ladite porte supérieure lorsque ladite porte supérieure se trouve dans sa position de fermeture ou à proximité de celle-ci.

14. Unité de jeu selon la revendication 13, dans laquelle ladite porte supérieure est articulée sur un bord arrière de ladite armoire de l'unité de jeu de manière à s'ouvrir vers le haut et à se fermer vers le bas.

15. Unité de jeu selon l'une des revendications 1 à 14, dans laquelle un organe de fixation en forme de canal est fixé sur ladite porte supérieure ou sur ladite armoire de l'unité de jeu ;
un organe montant et descendant est fixé sur ledit organe de fixation de manière à monter et descendre ;
une vis d'ajustement est prévue entre ledit organe montant et descendant et ladite porte supérieure de ladite armoire de l'unité de jeu ;
un organe d'engagement est fixé sur ledit organe montant et descendant ; et
un organe en crochet engage de manière libérable ledit organe d'engagement prévu sur ladite armoire de l'unité de jeu ou sur ladite porte supérieure.

16. Unité de jeu selon la revendication 15, dans laquelle ledit organe en crochet est combiné avec un mécanisme de verrouillage de manière à être désolidarisé dudit organe d'engagement lorsque ledit organe de verrouillage est déverrouillé.

17. Unité de jeu selon l'une des revendications 1 à 16, dans laquelle un appareil de protection de l'unité de jeu présente une armoire d'unité de jeu, comprenant :

un commutateur de porte pour détecter l'ouverture et la fermeture d'une porte prévue dans ladite armoire de l'unité de jeu ;
un élément d'affichage est prévu pour afficher des informations d'ouverture ou de fermeture de ladite porte ;
un premier moyen de surveillance est prévu pour surveiller l'état dudit commutateur de porte lorsque de l'électricité est délivrée par une source principale d'électricité ;
un deuxième moyen de surveillance est prévu pour surveiller l'état dudit commutateur de porte lorsque l'électricité provenant de ladite source principale d'électricité est débranchée ;
un moyen de maintien du signal est prévu pour maintenir un signal de détection lorsque ledit deuxième moyen de surveillance détecte l'ouverture dudit commutateur de porte, pour créer ledit signal de détection ;
une batterie est prévue pour délivrer de l'énergie électrique audit deuxième moyen de surveillance et audit moyen de maintien du signal ; et
un moyen de commande de l'affichage est prévu pour faire afficher par ledit moyen d'affichage un affichage spécial au cas où ledit moyen de maintien de signal maintient ledit signal de détection lorsque l'énergie est délivrée par ladite alimentation électrique principale.

18. Unité de jeu selon la revendication 17, dans laquelle ladite armoire de l'unité de jeu présente une pluralité de portes dotées dudit commutateur de porte respectif, et ledit premier et ledit deuxième moyen de surveillance surveillent les états desdits commutateurs de porte.

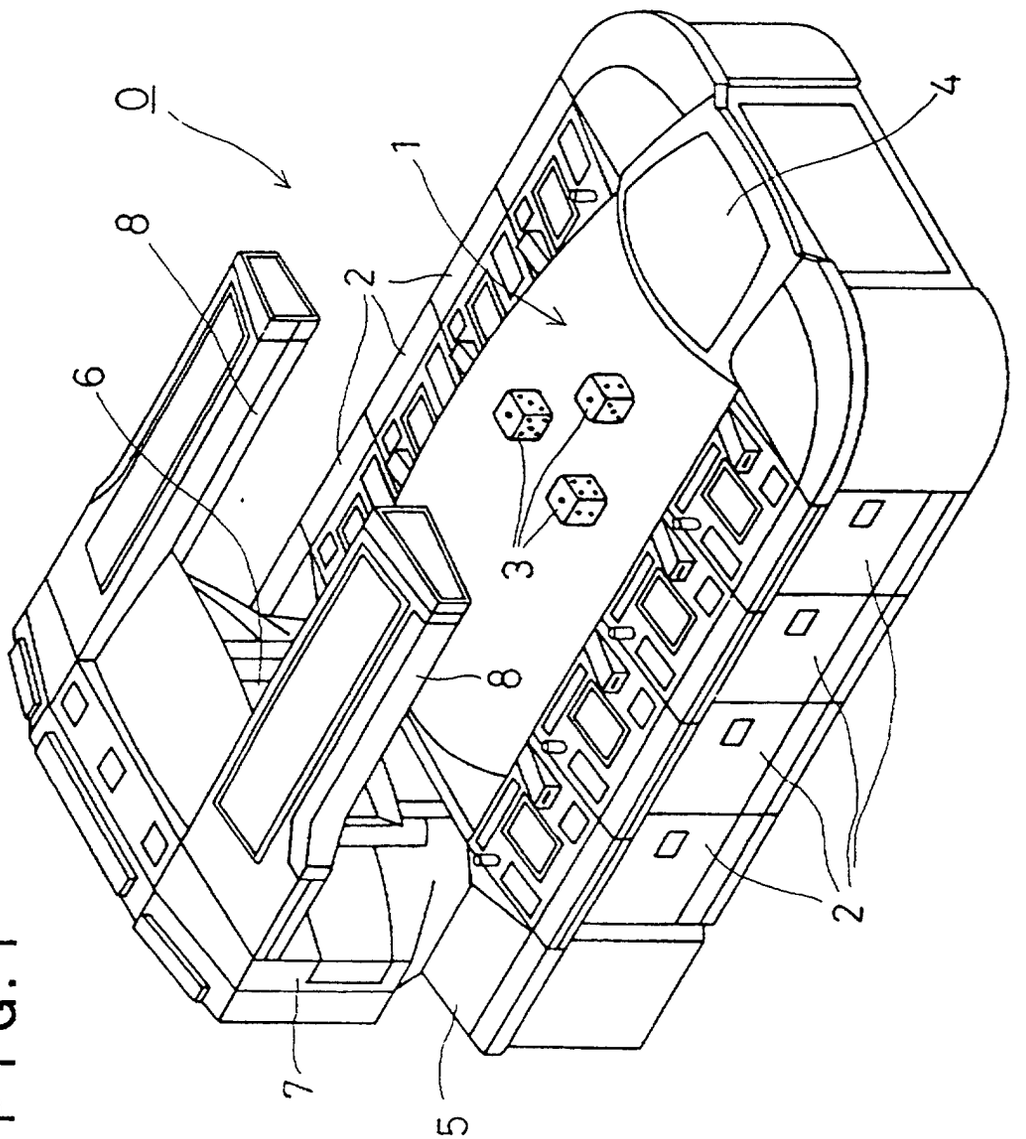

FIG. 1

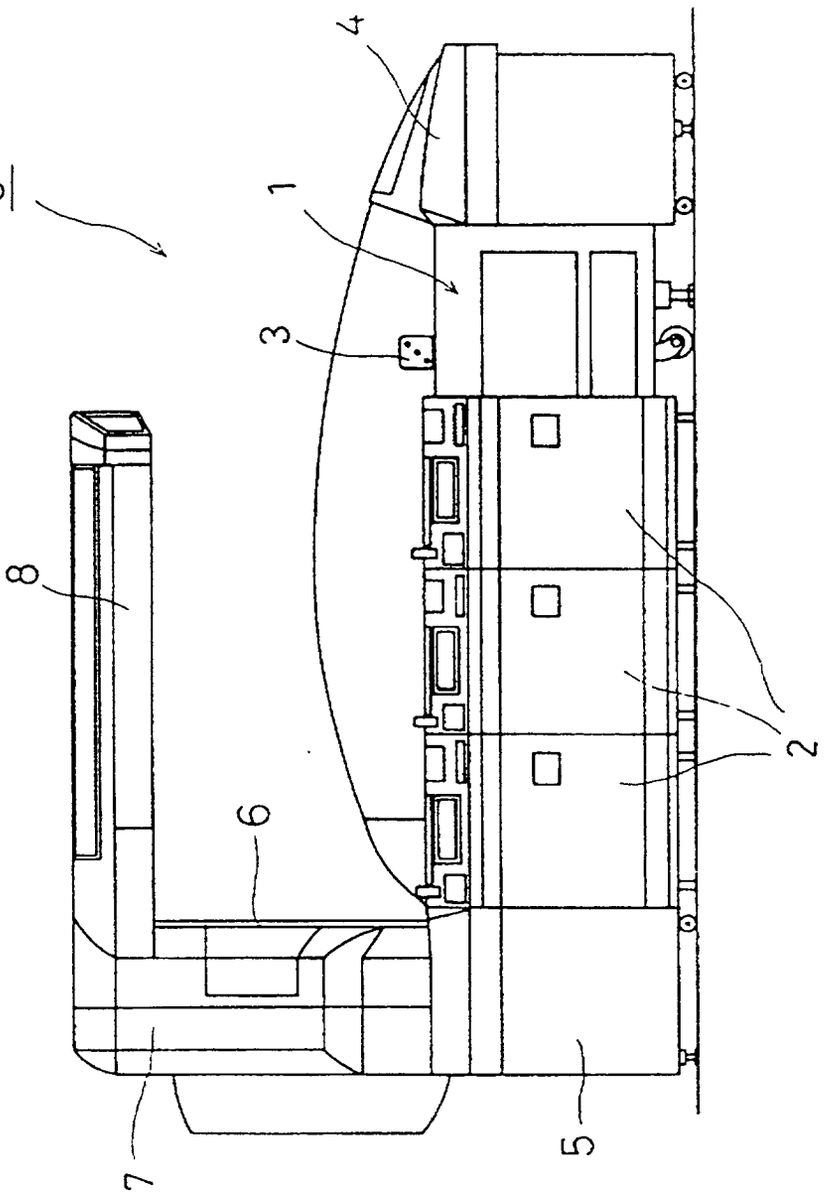

FIG. 2

FIG. 3

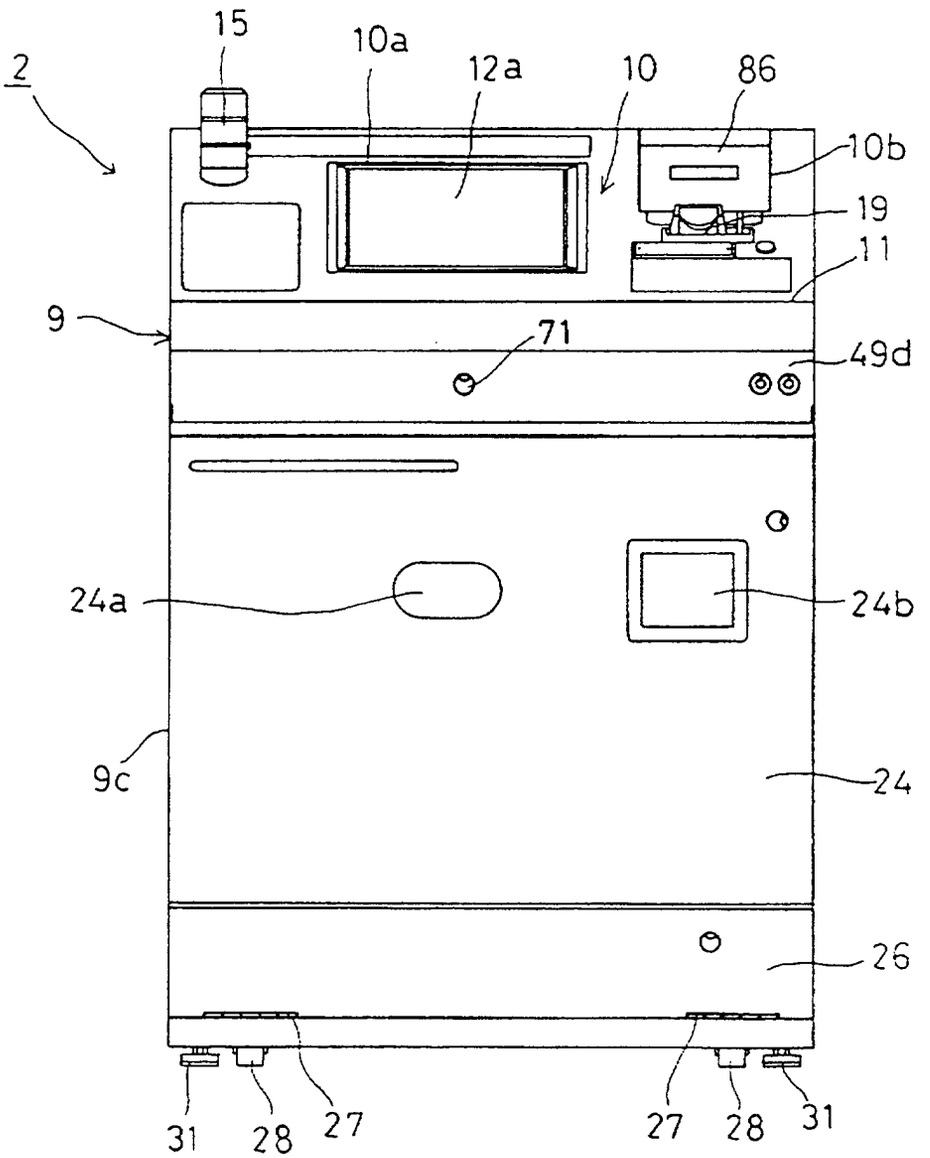
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FIG. 4

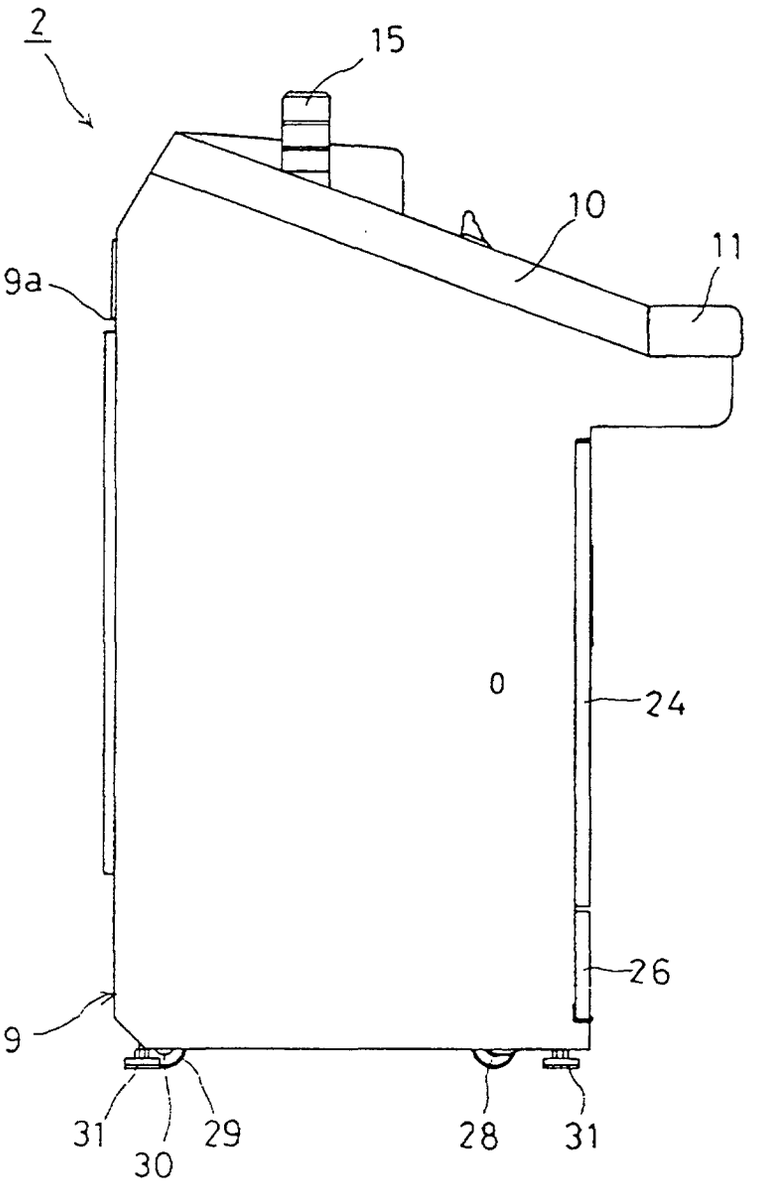


FIG. 5

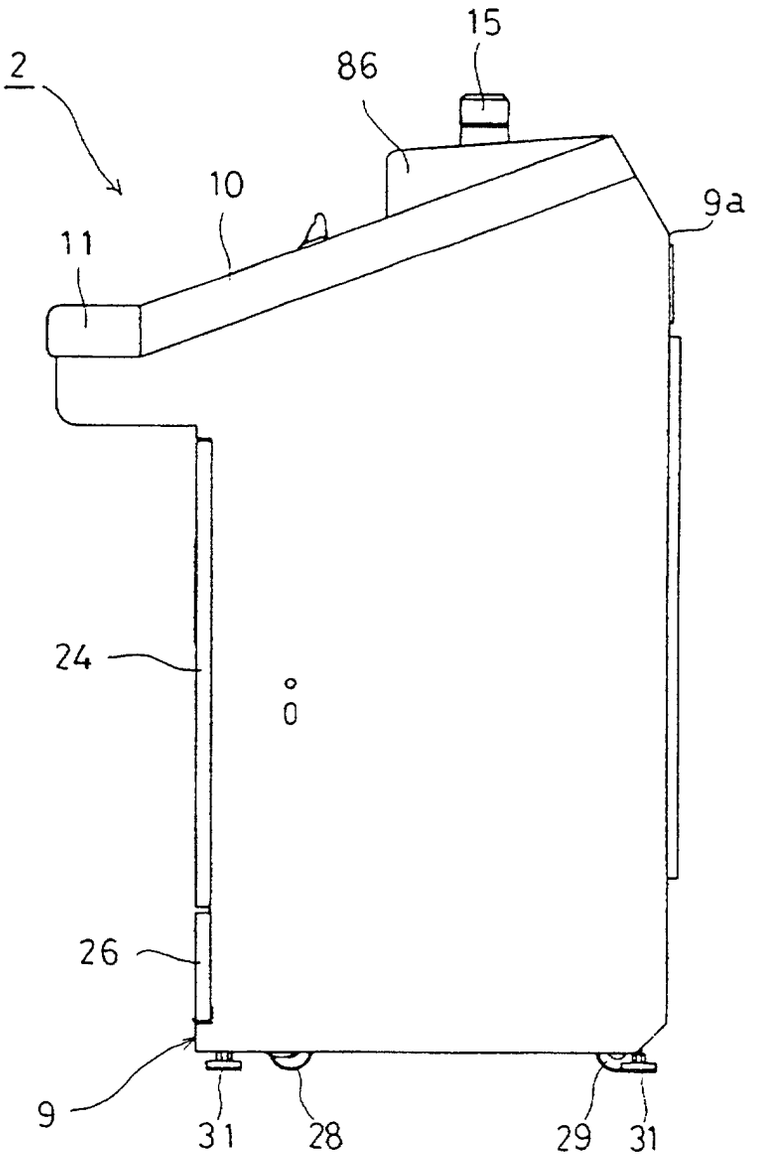


FIG. 6

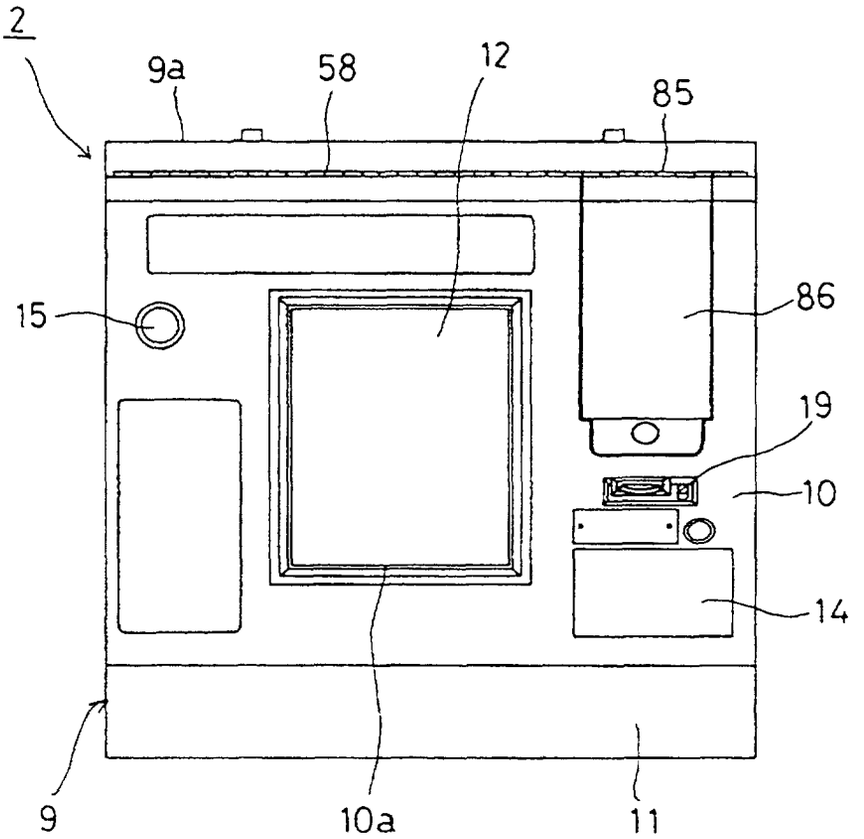


FIG. 7

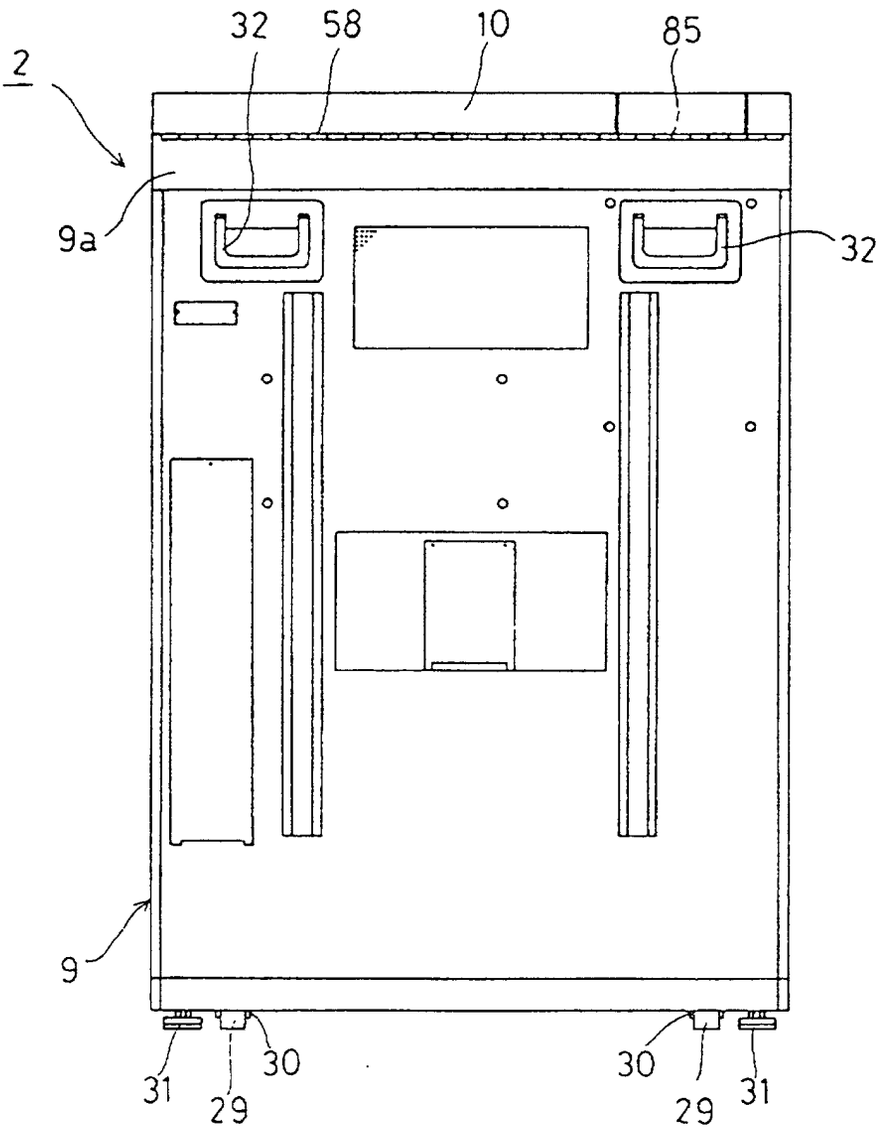


FIG. 8

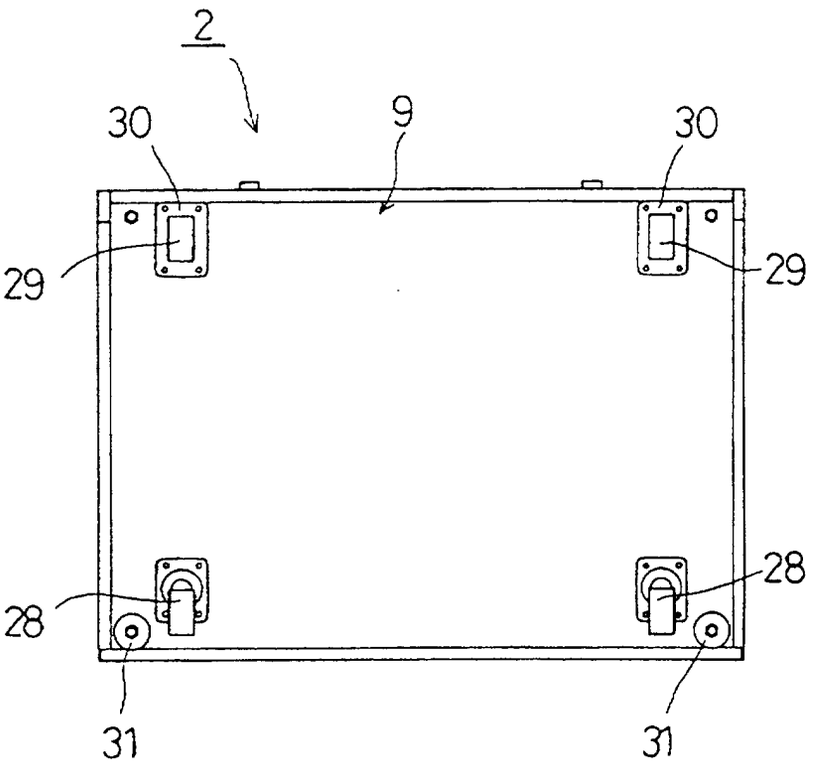


FIG. 9

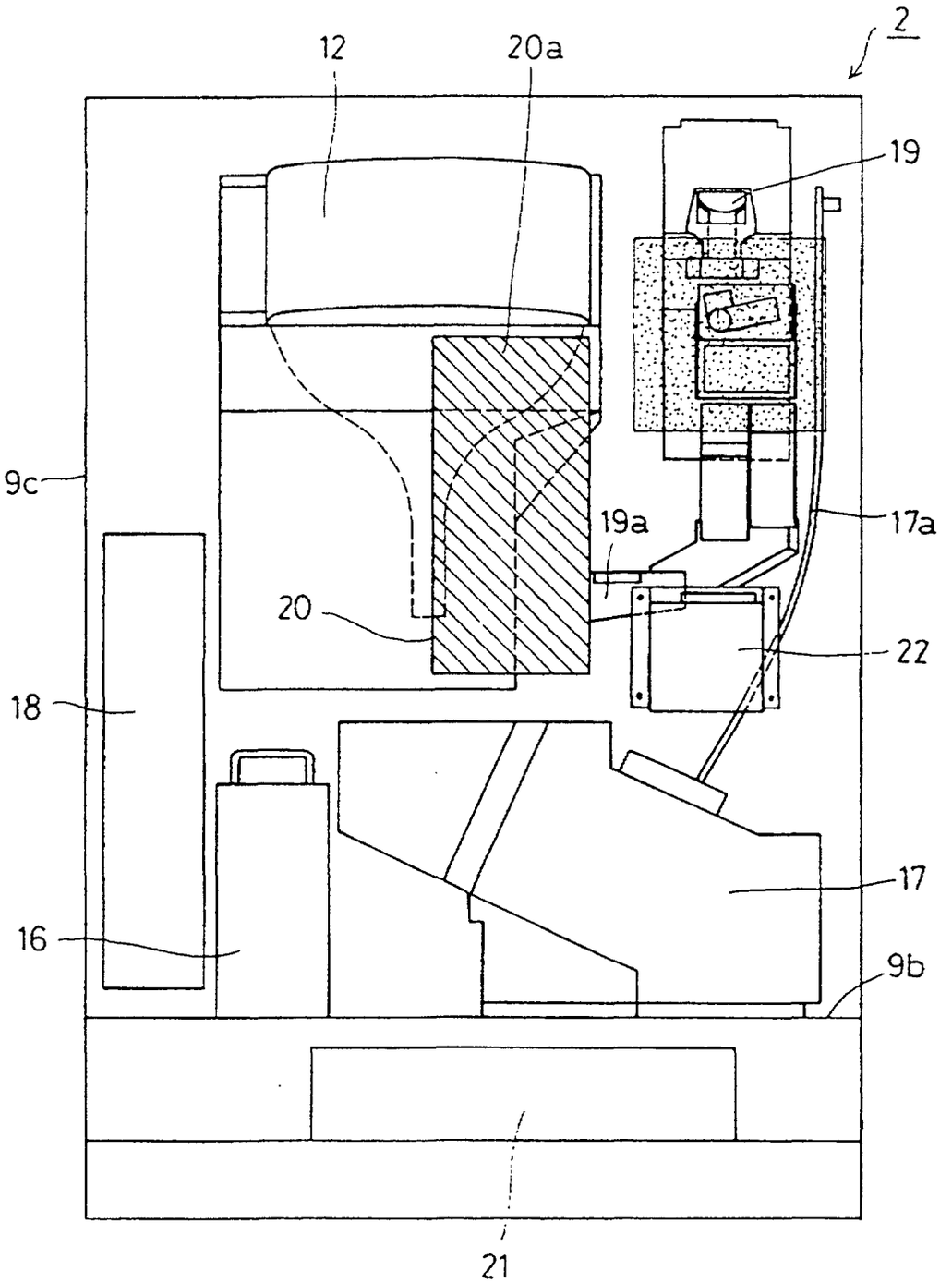


FIG.10

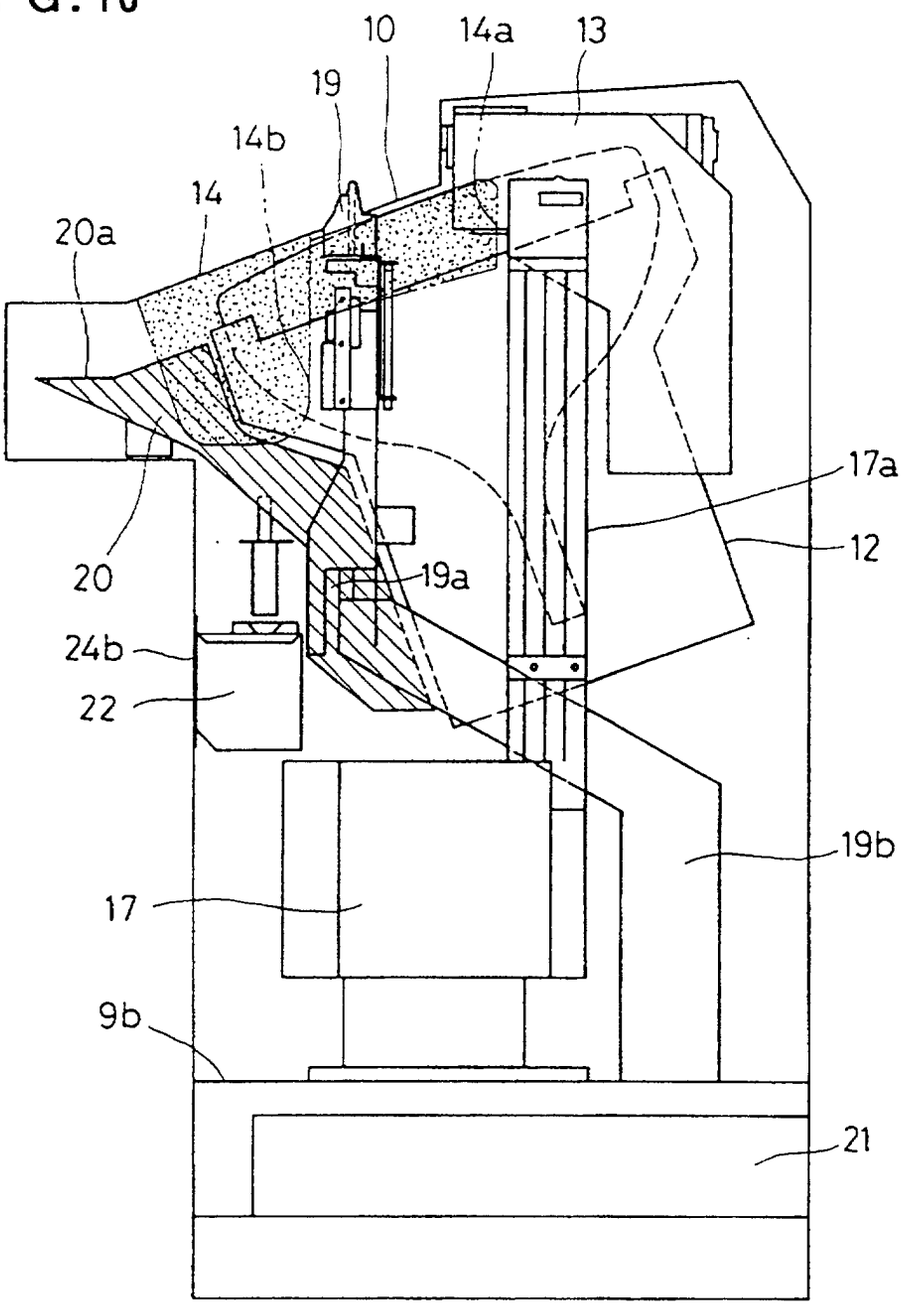
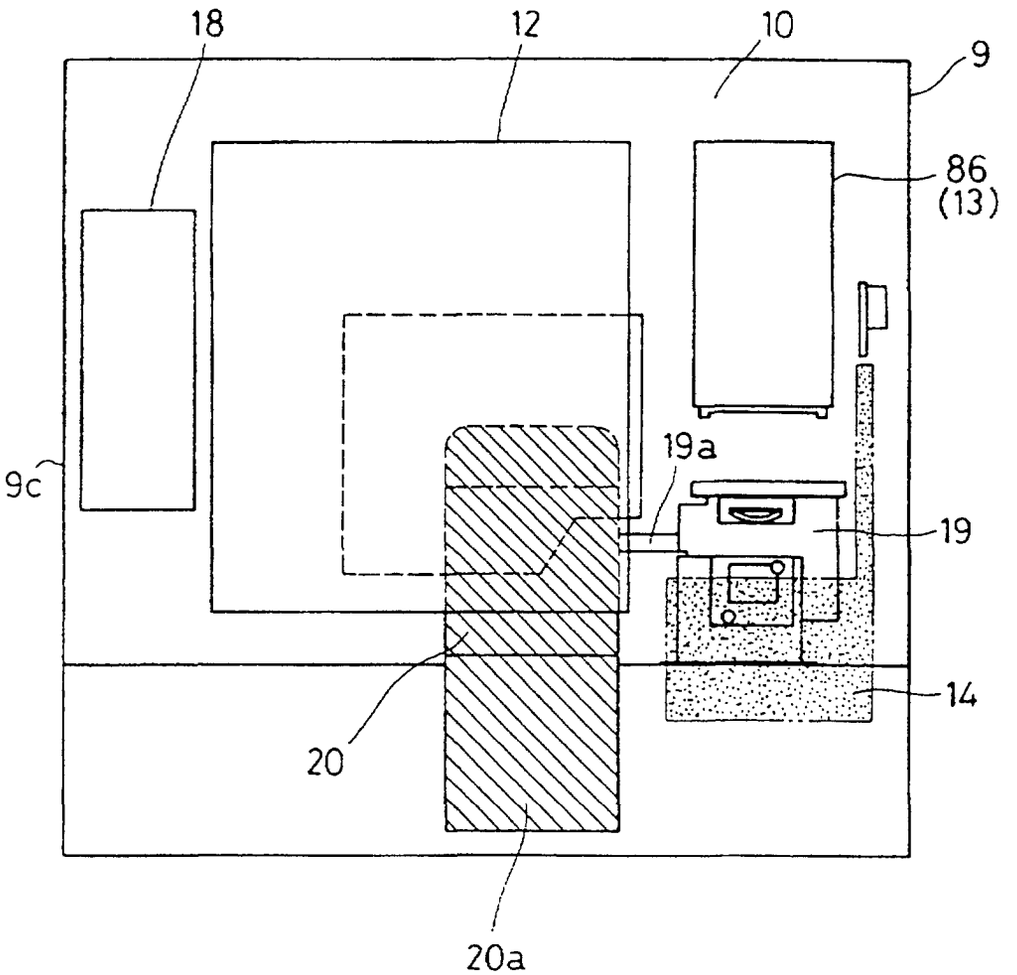


FIG. 11



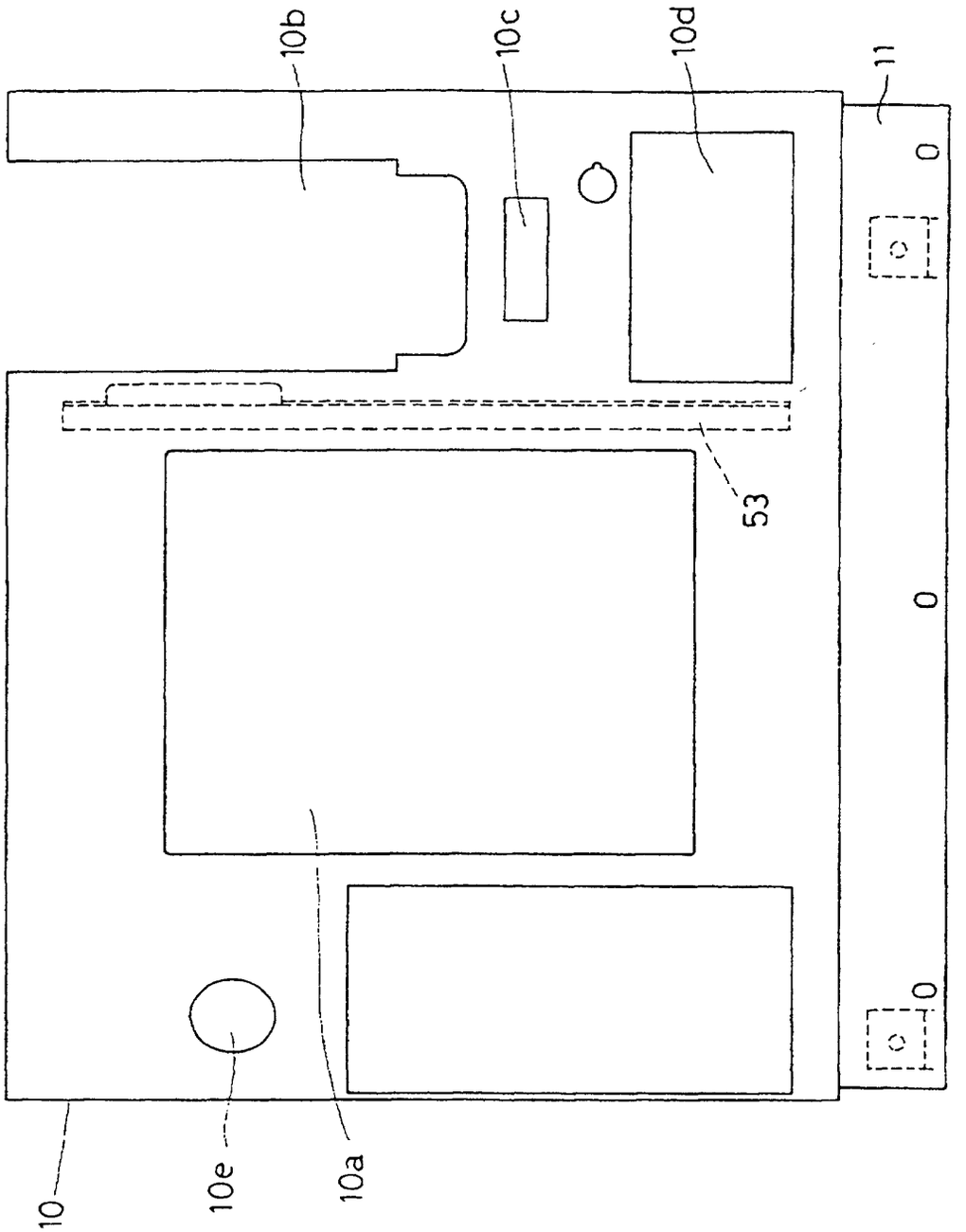


FIG. 12

FIG. 13

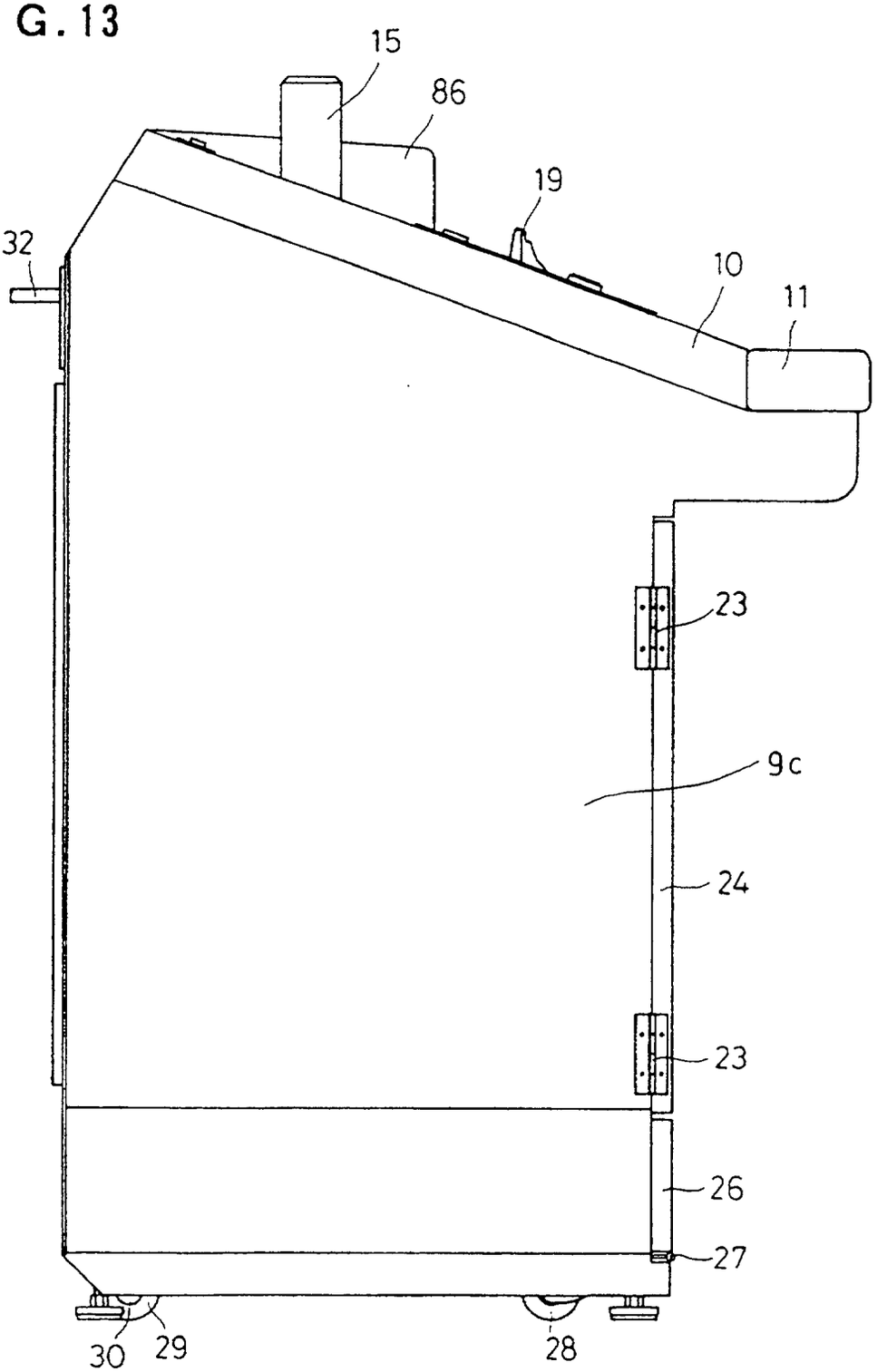


FIG.14

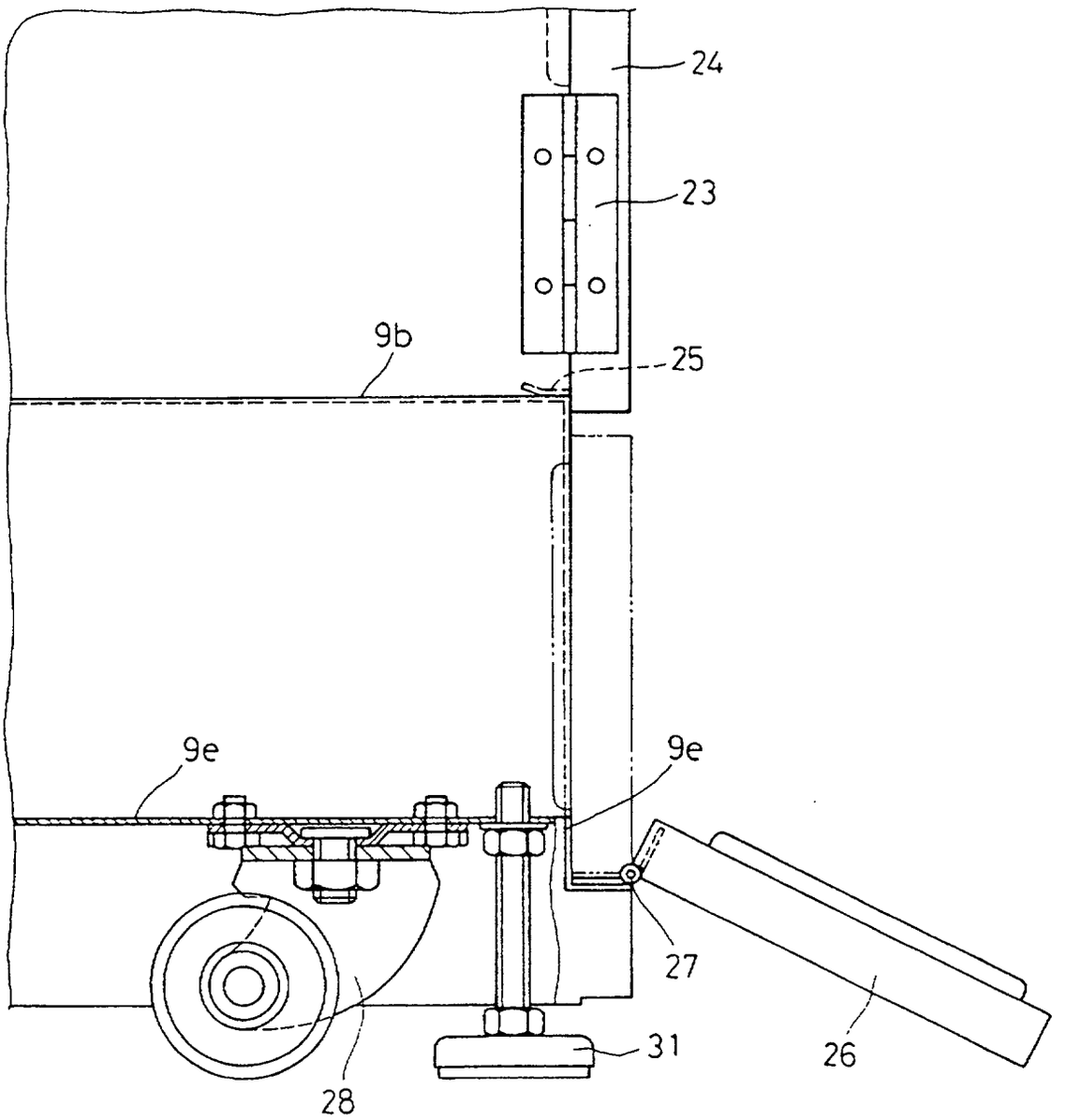


FIG.15

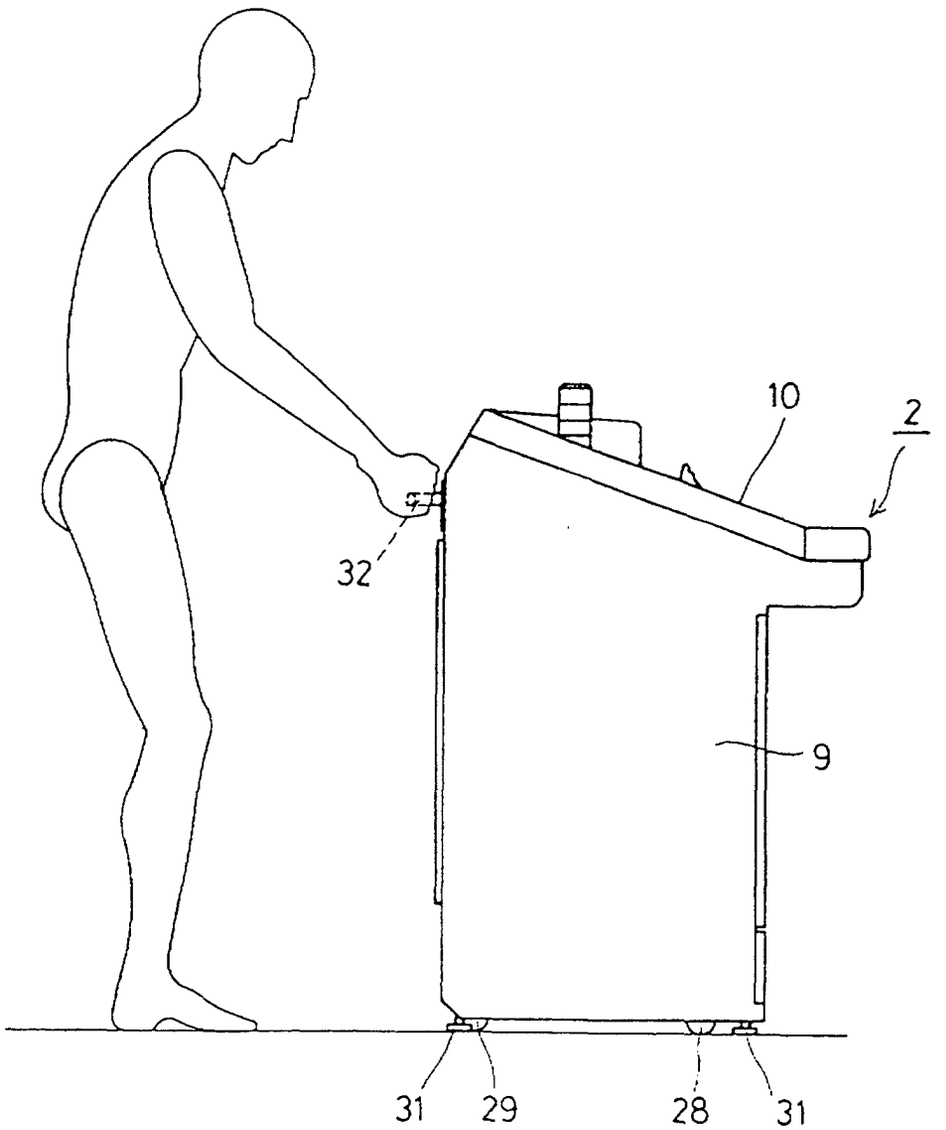


FIG.16

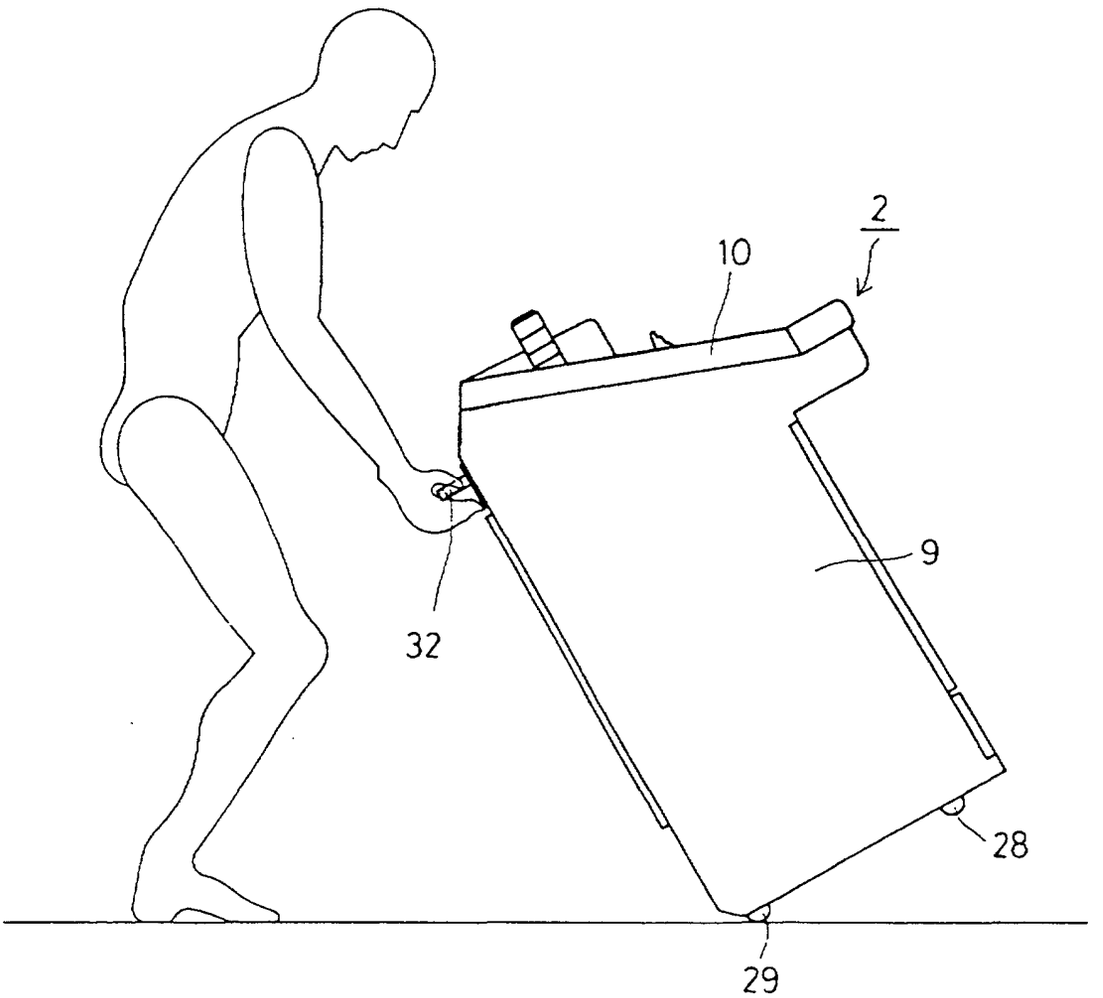


FIG.17

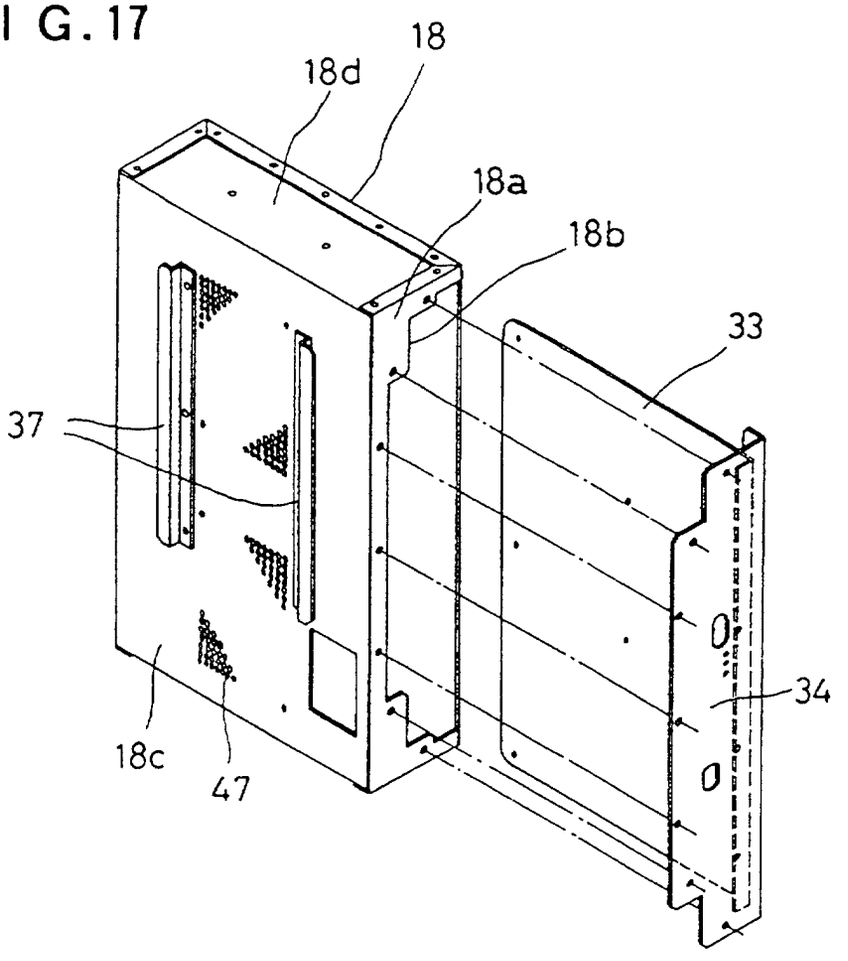


FIG.18

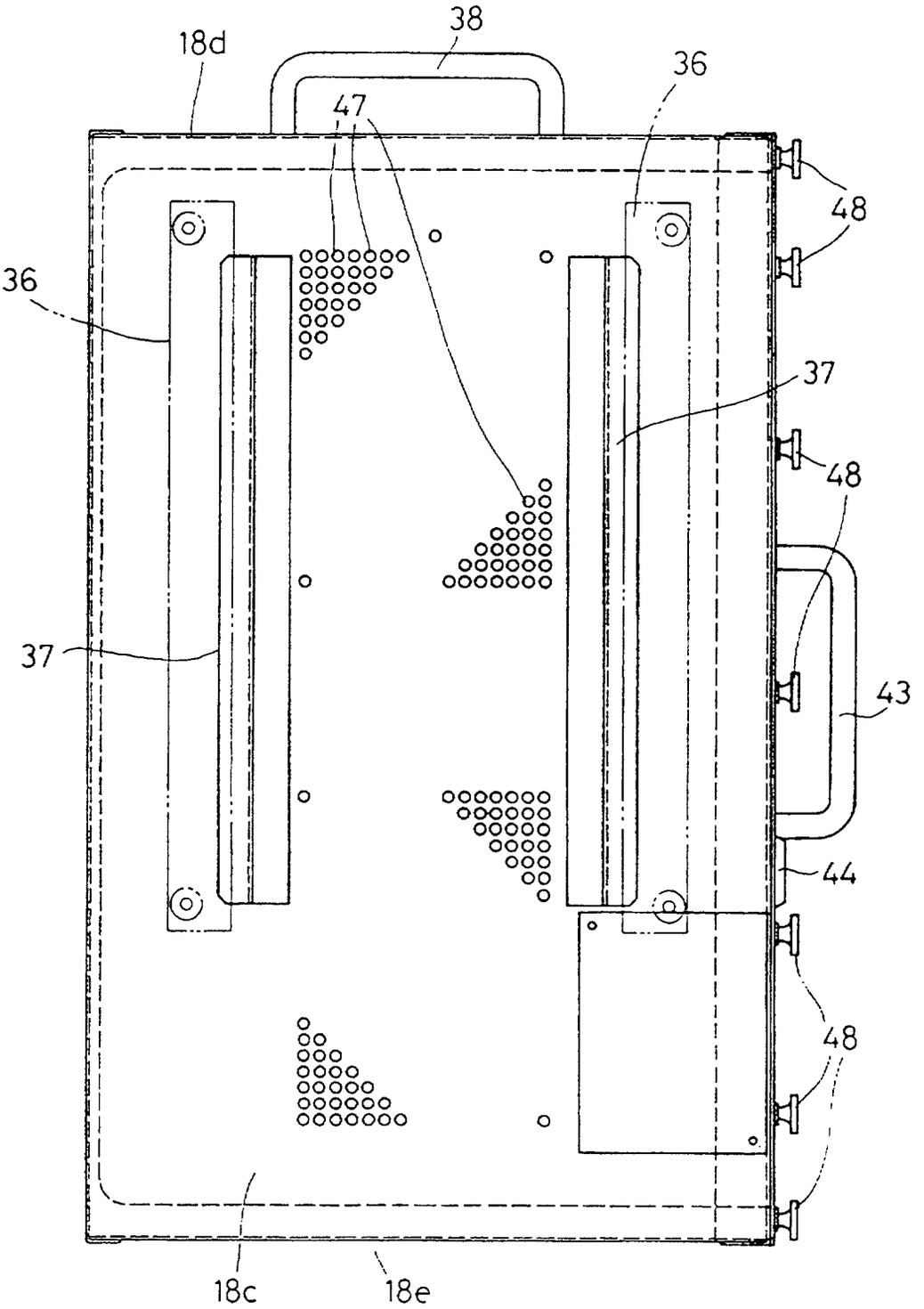


FIG.19

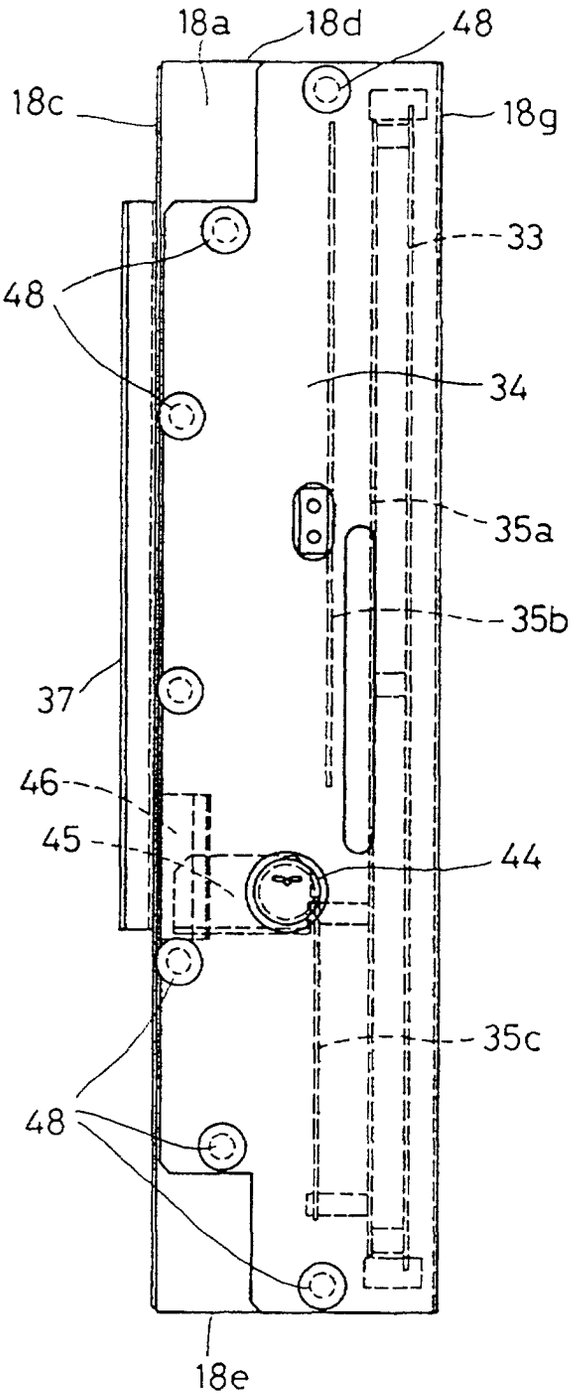


FIG.20

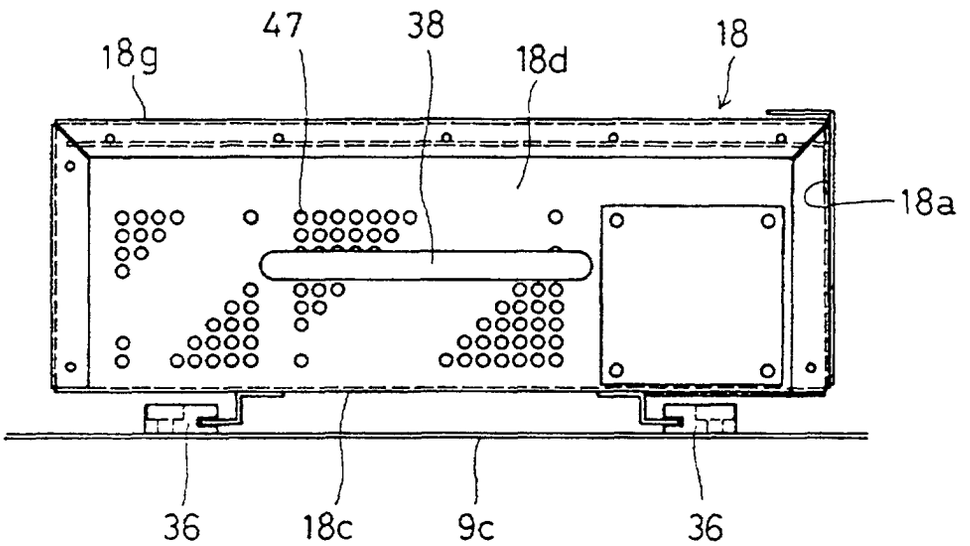


FIG.21

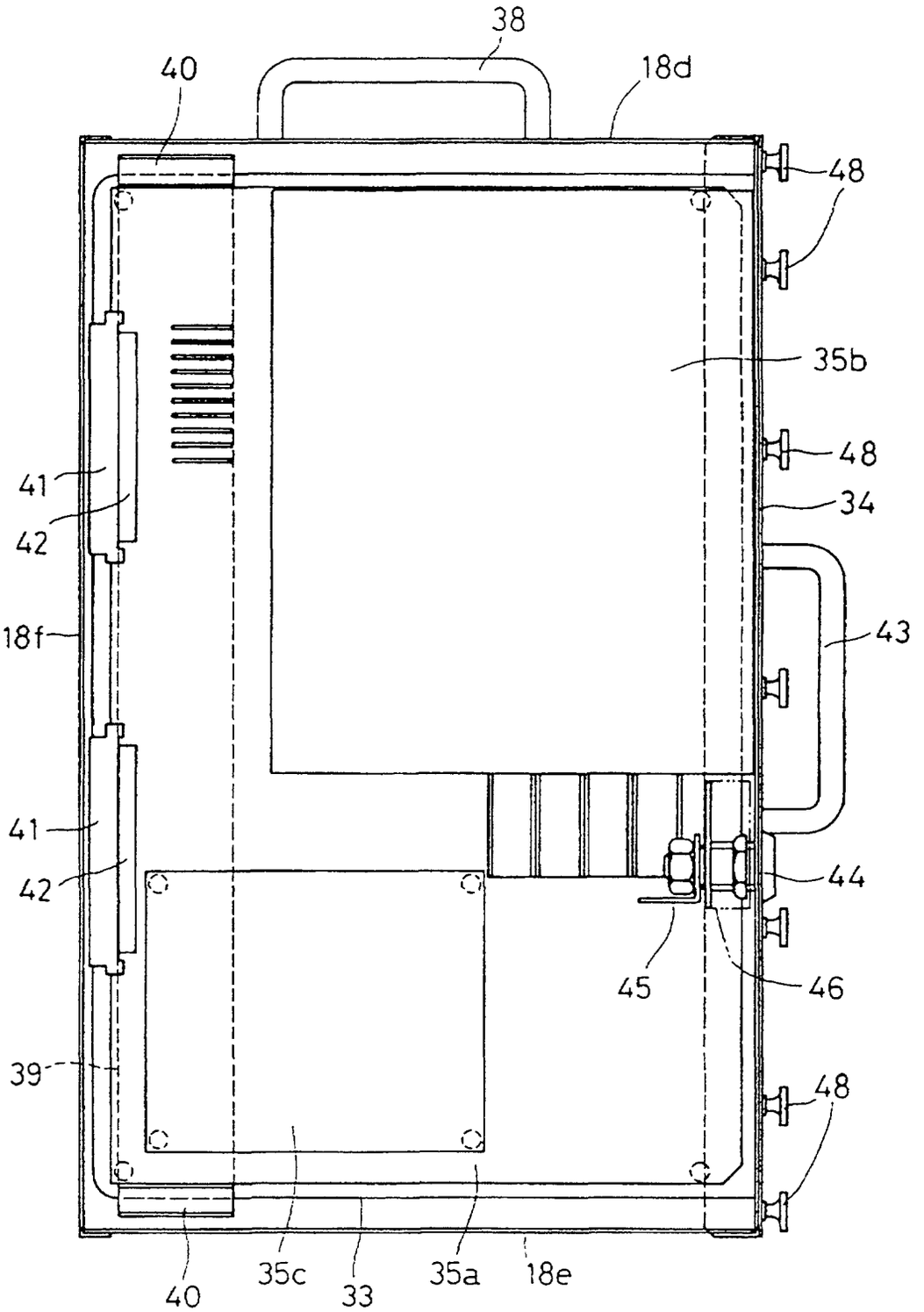

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FIG. 22

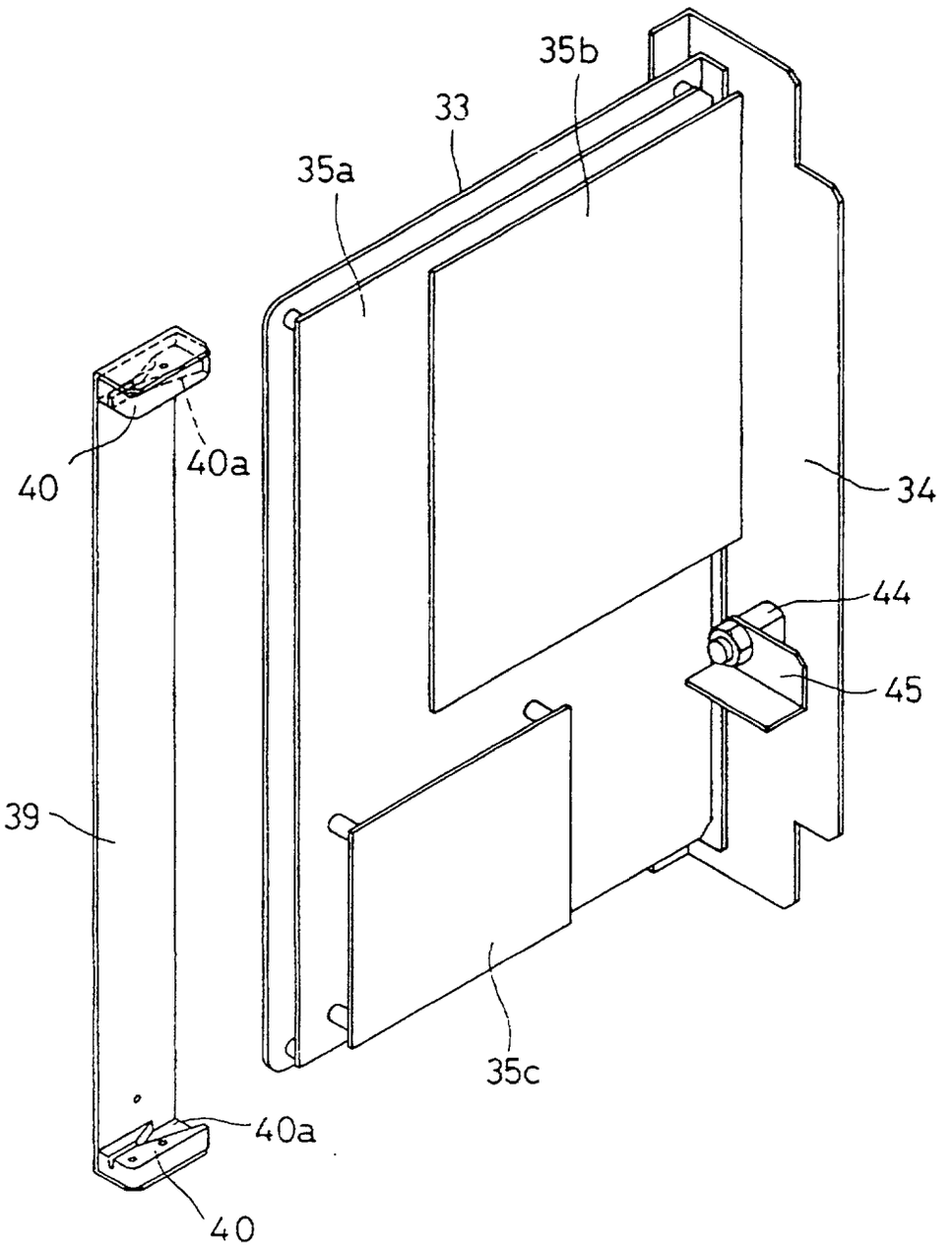


FIG.23

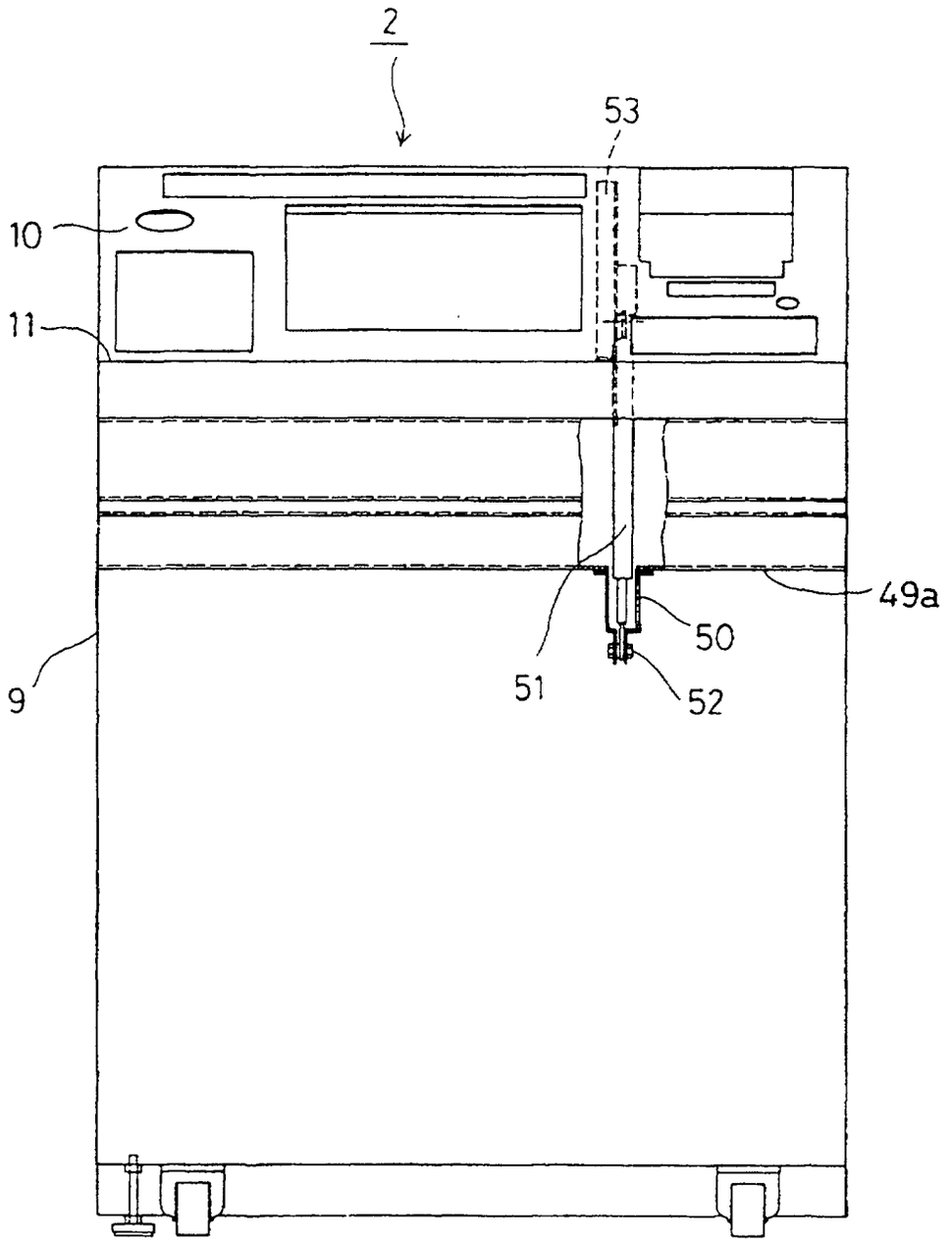


FIG.24

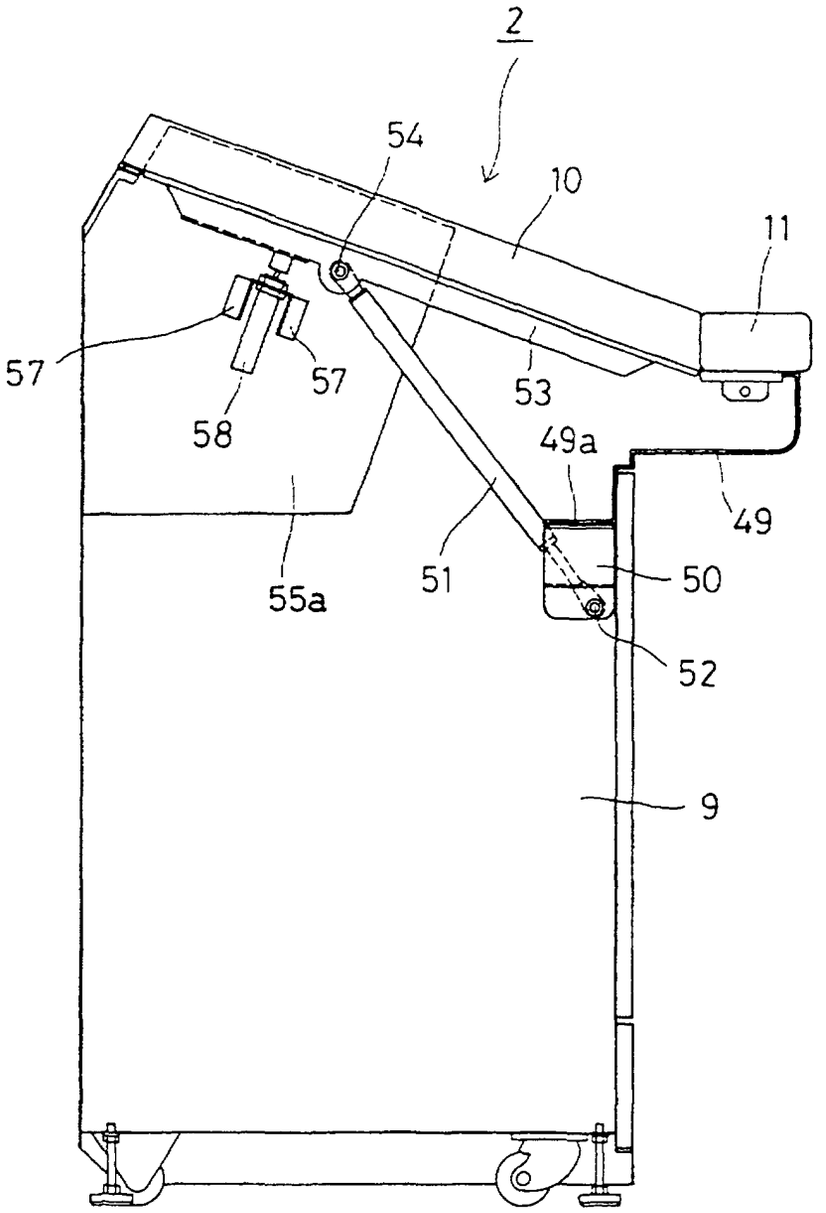


FIG.25

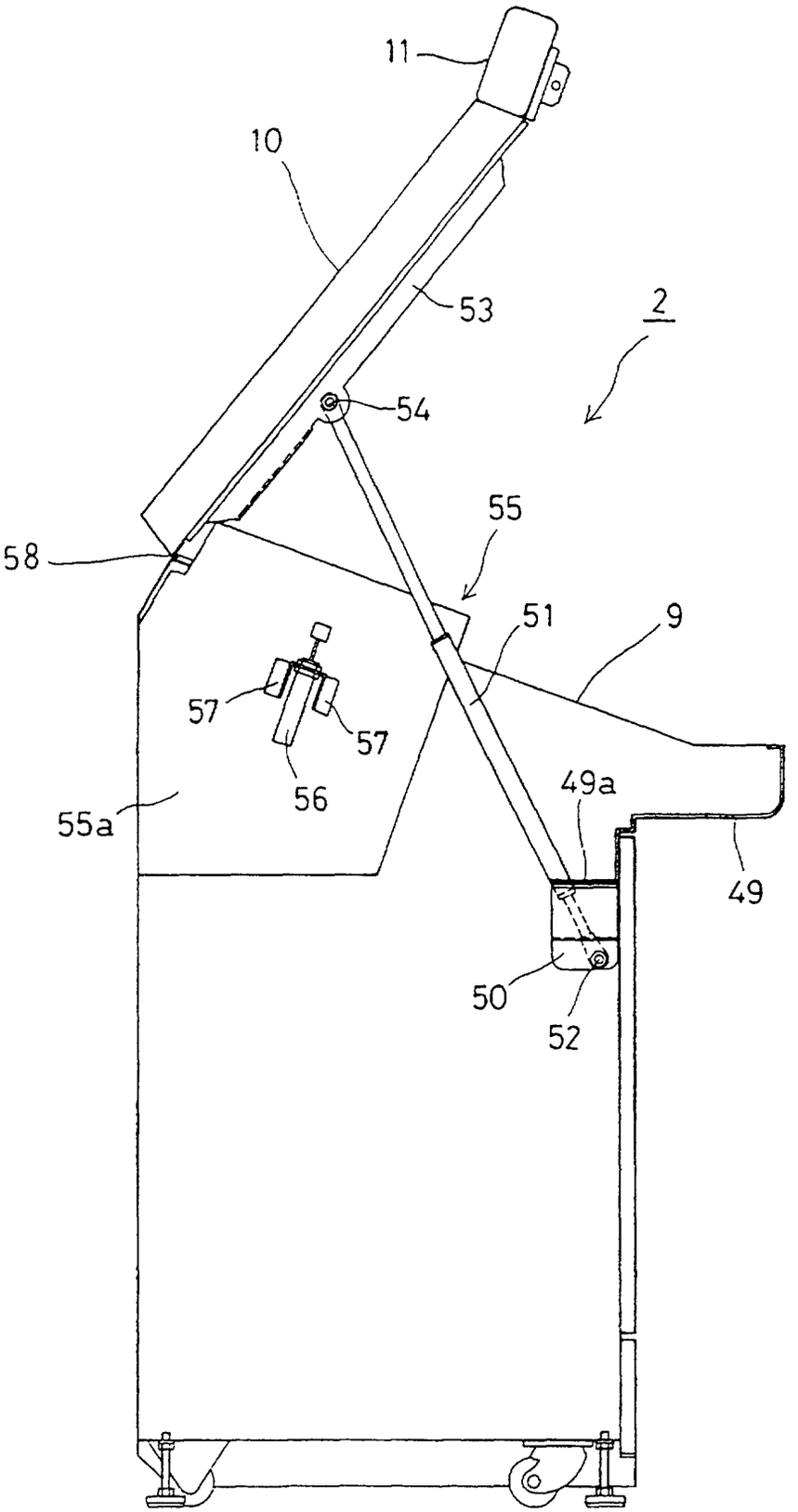


FIG.26

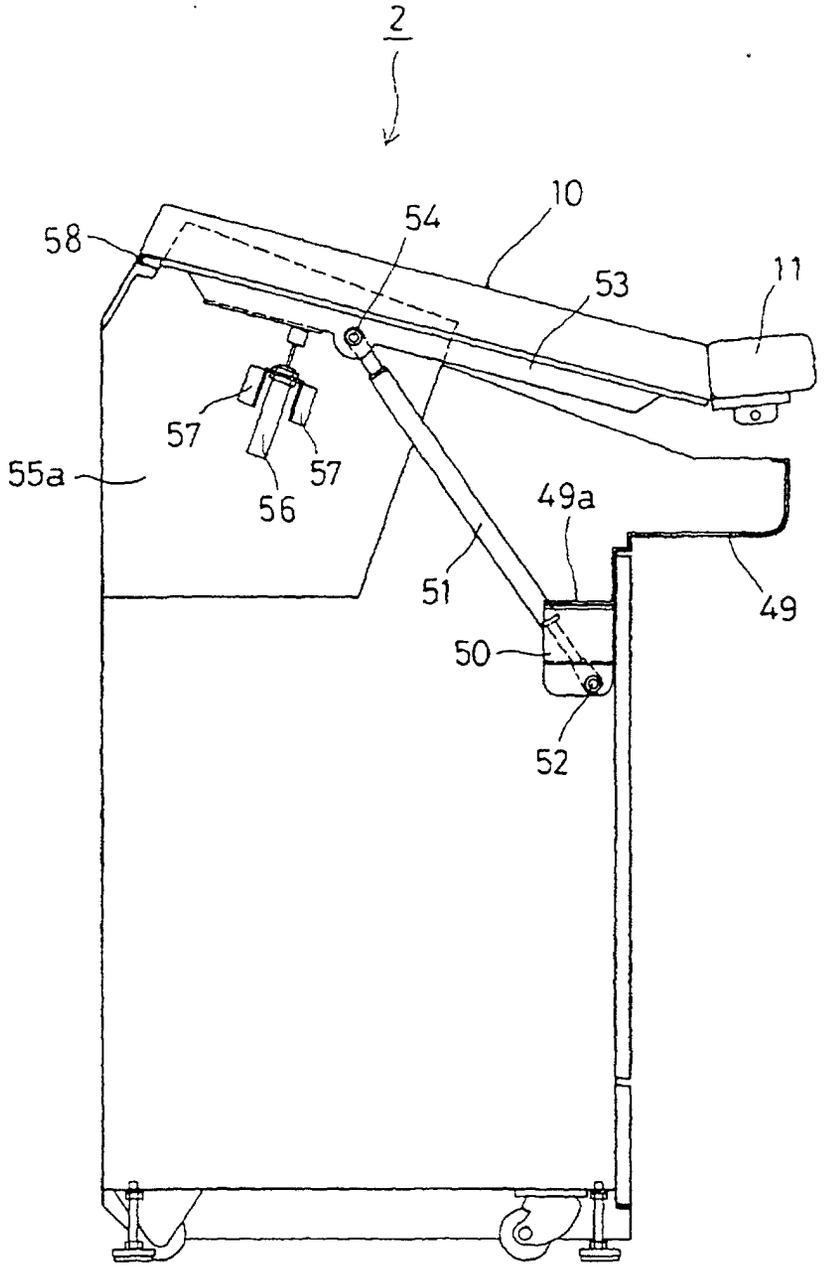


FIG.27

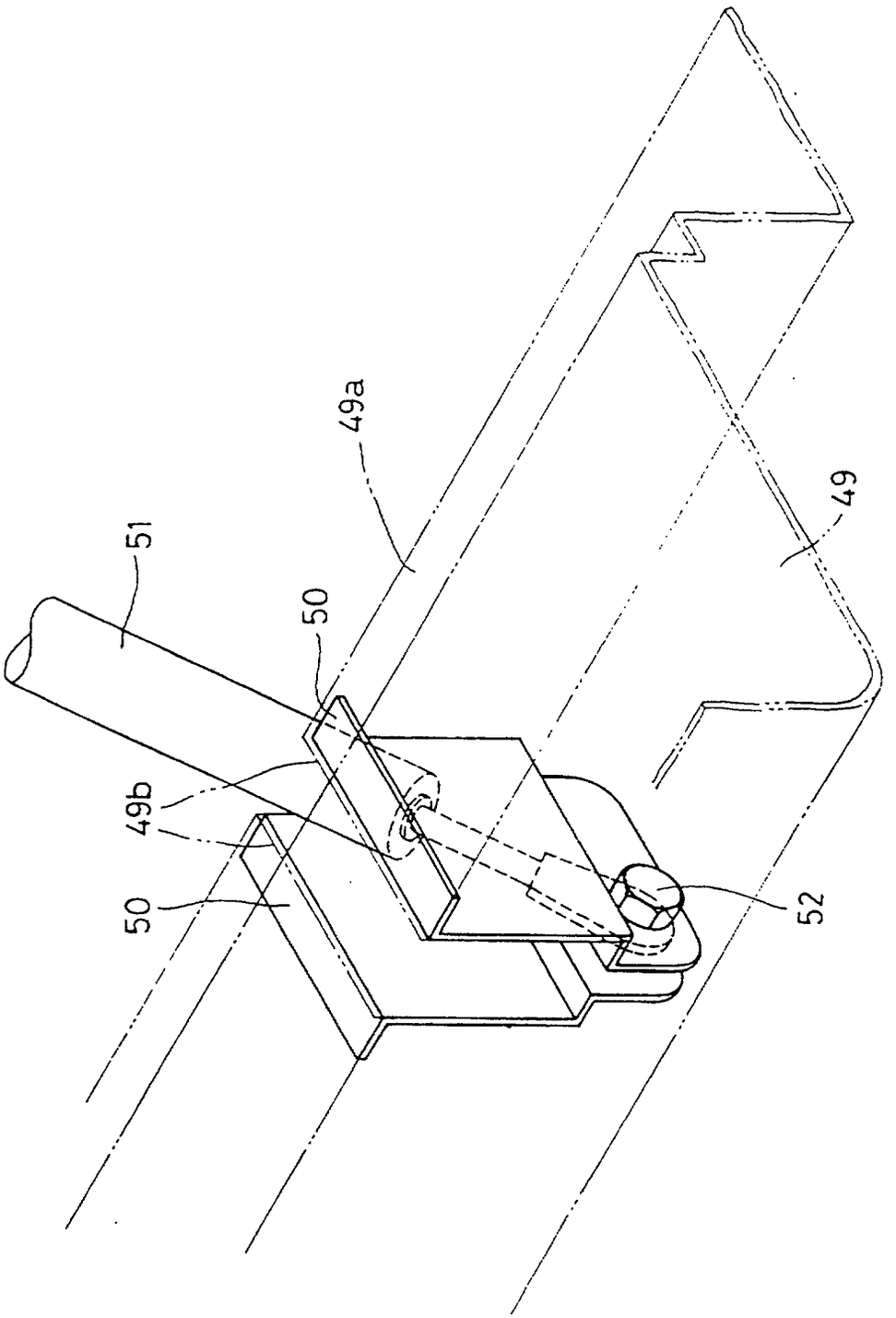
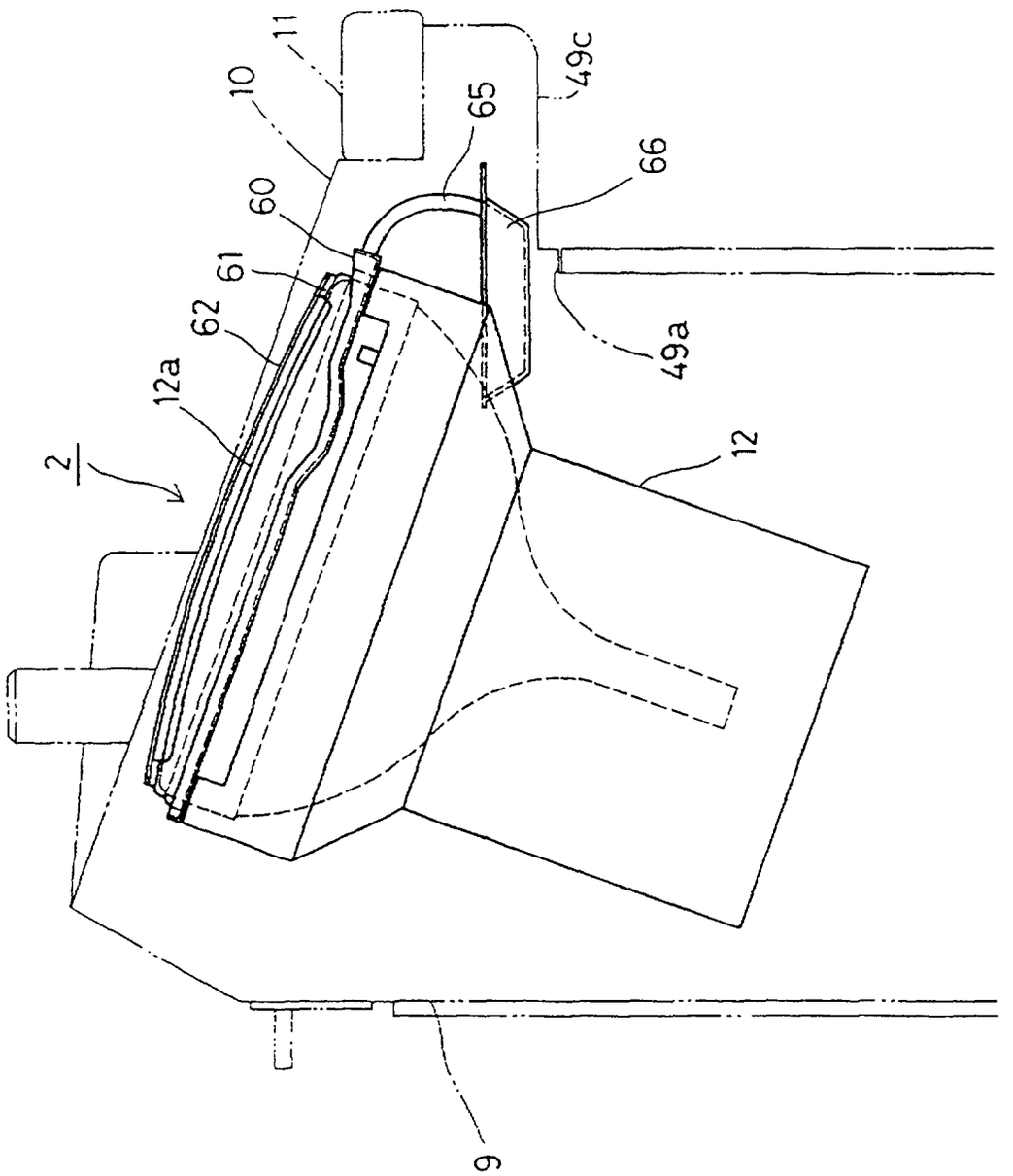


FIG. 28



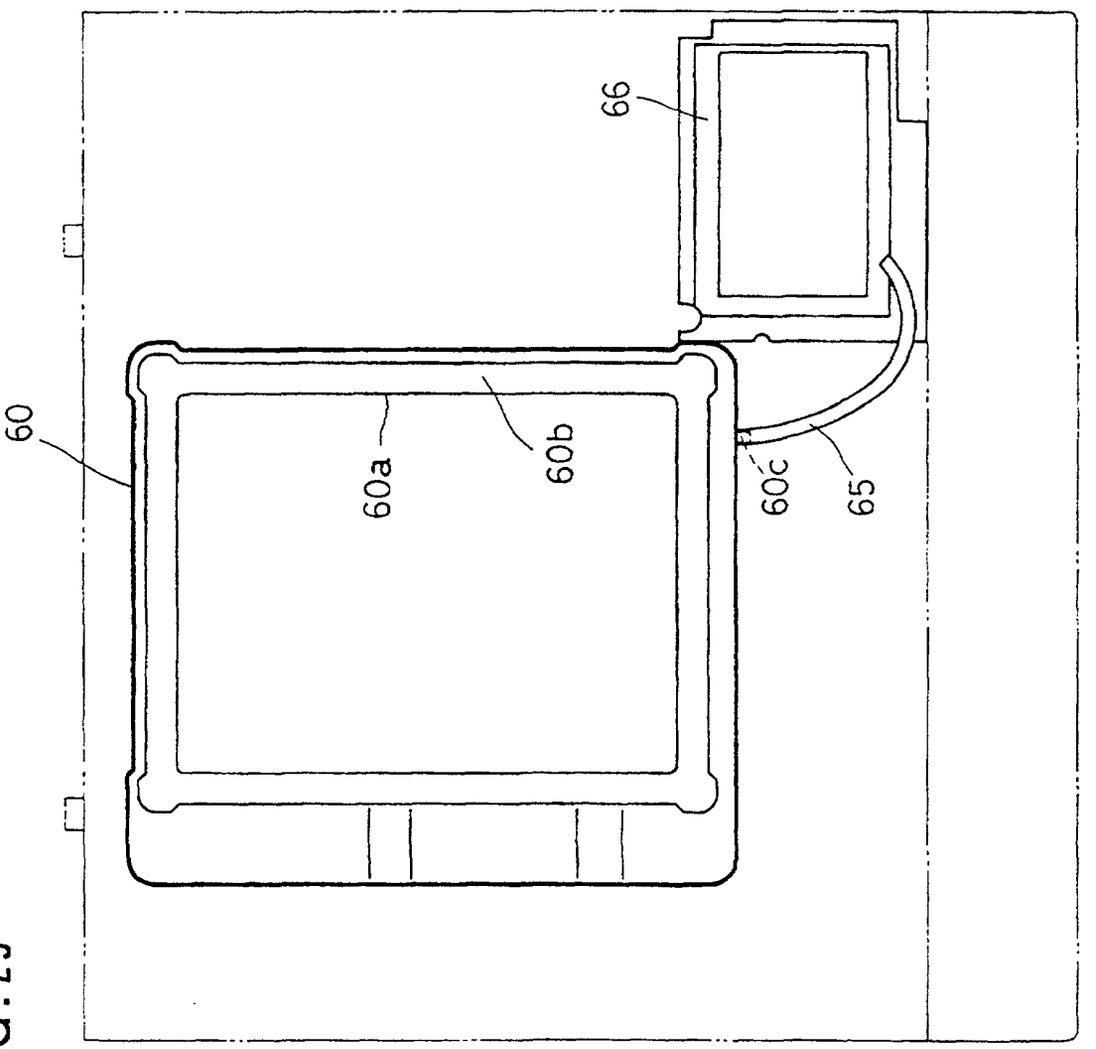


FIG. 29

FIG.30

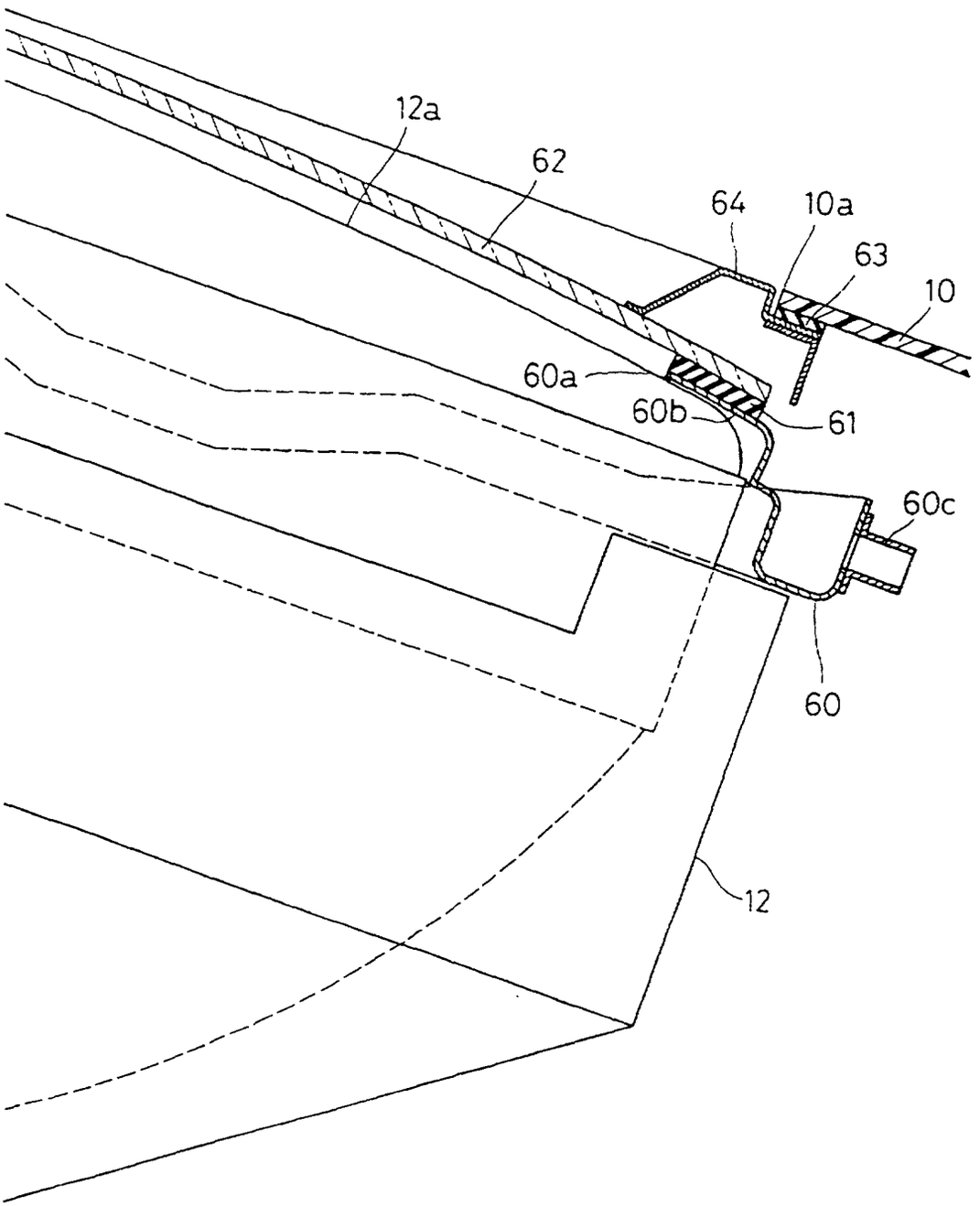


FIG. 31

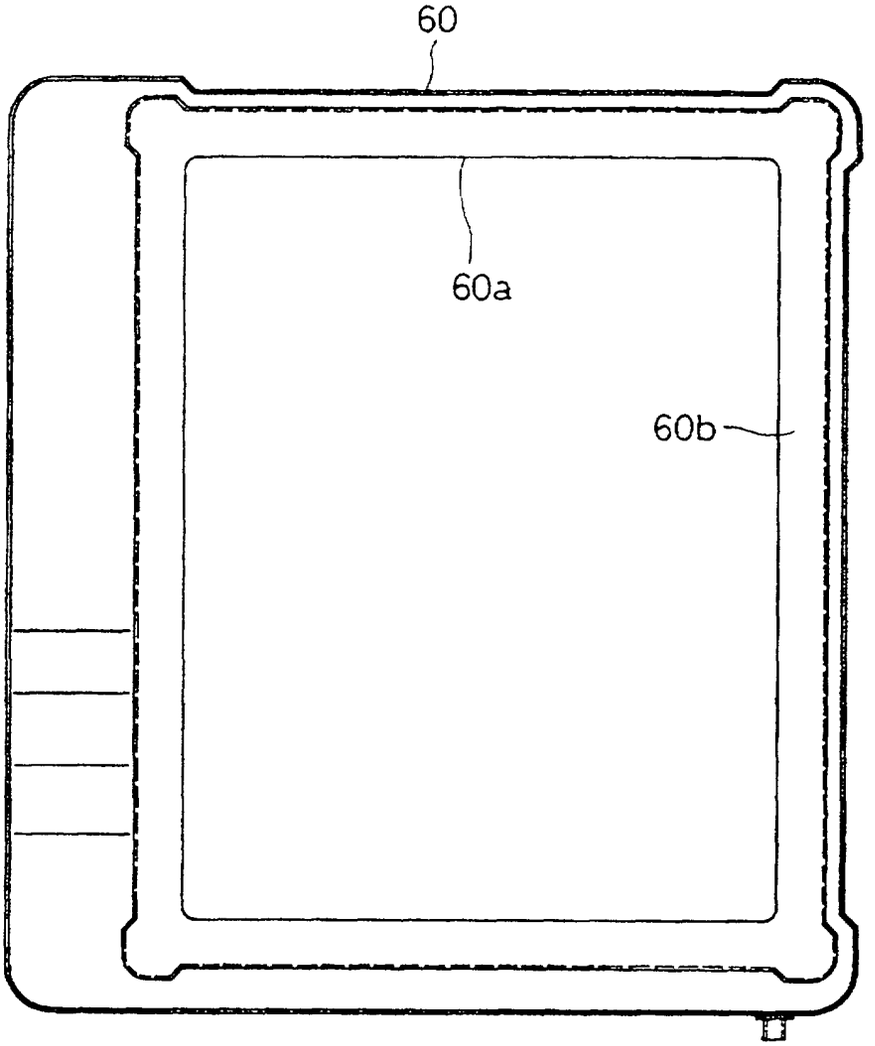


FIG. 32

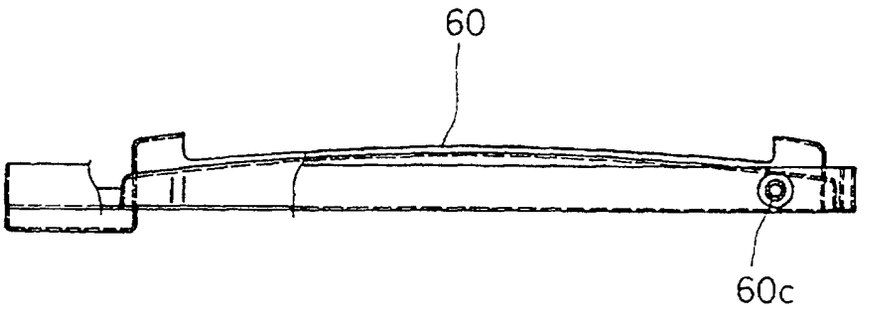


FIG. 33

FIG.34

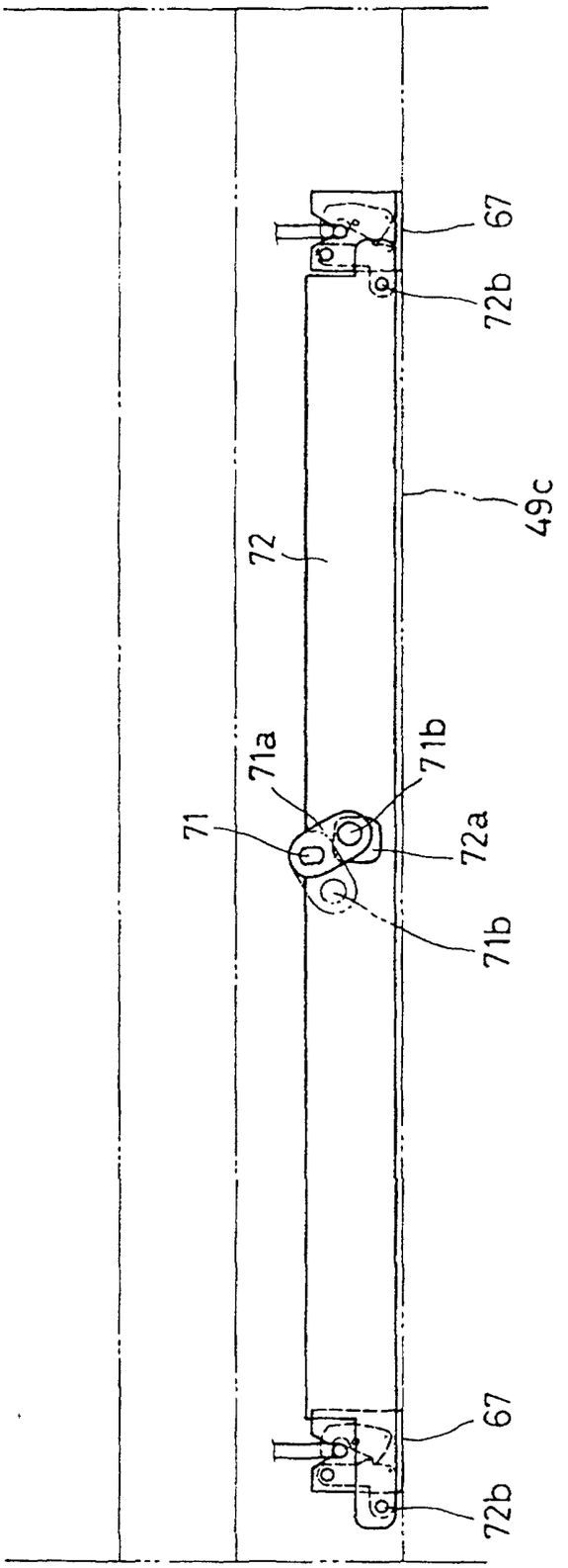


FIG. 35

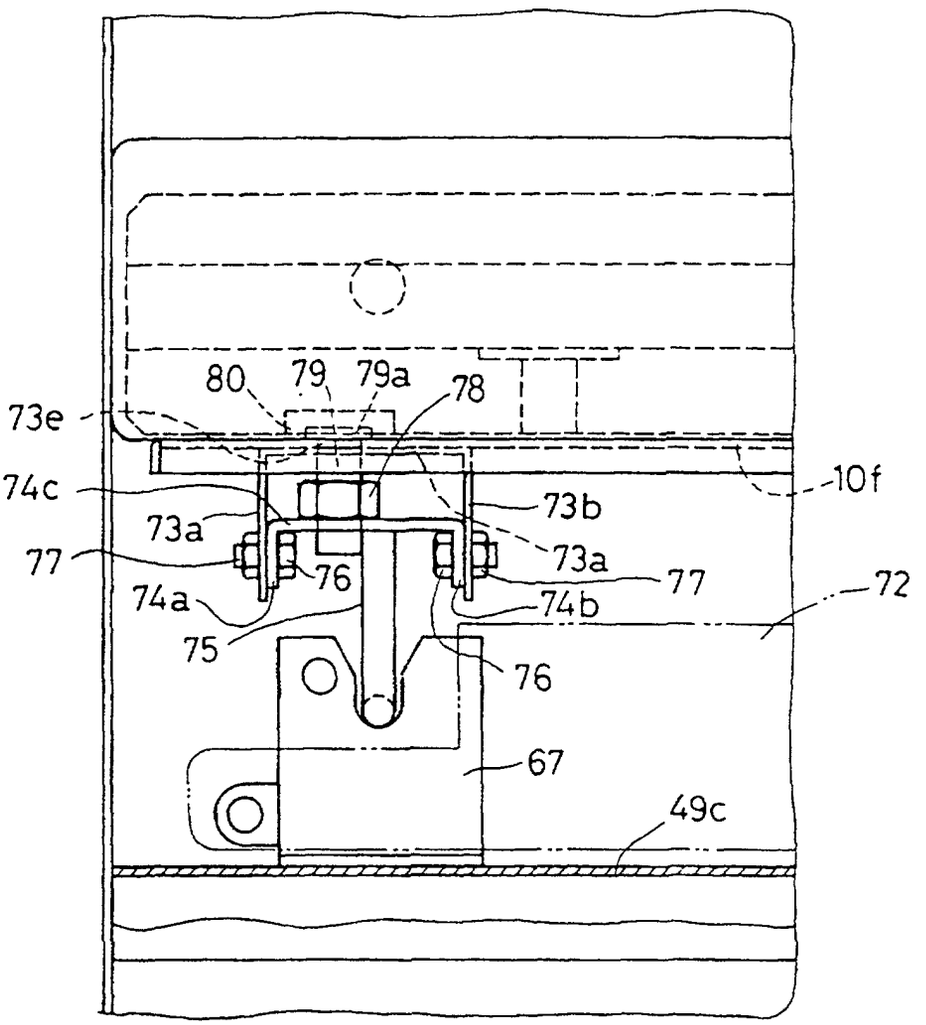

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FIG. 36

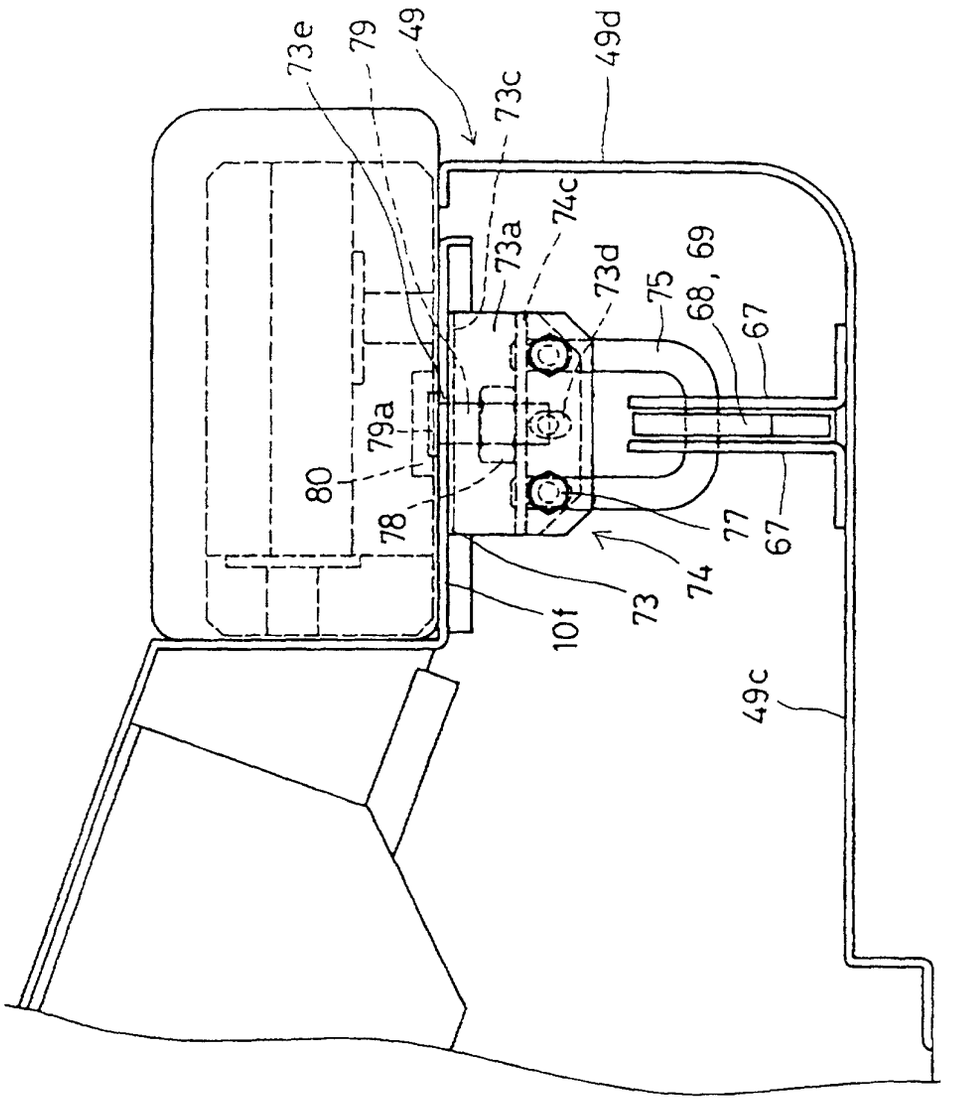
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FIG. 37

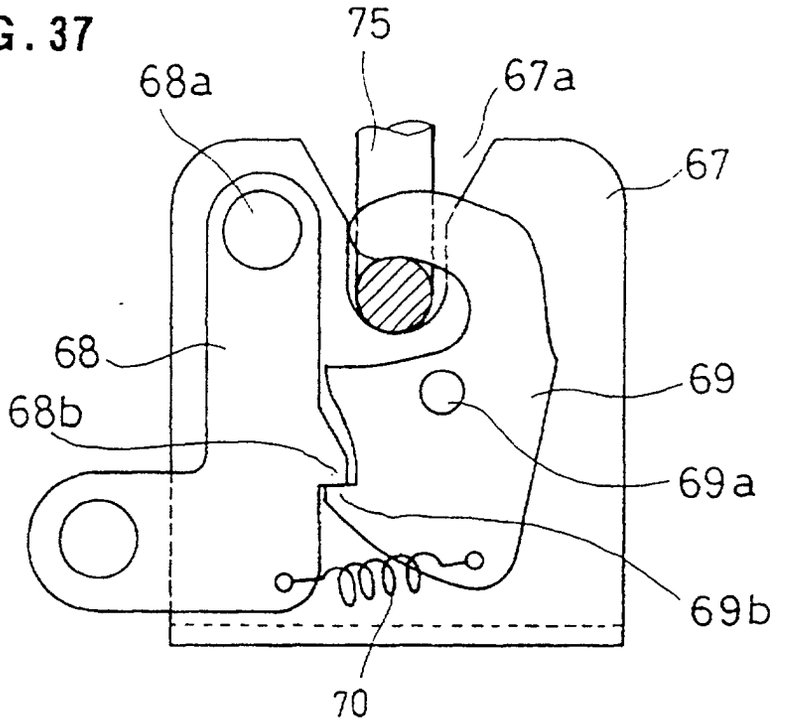


FIG. 38

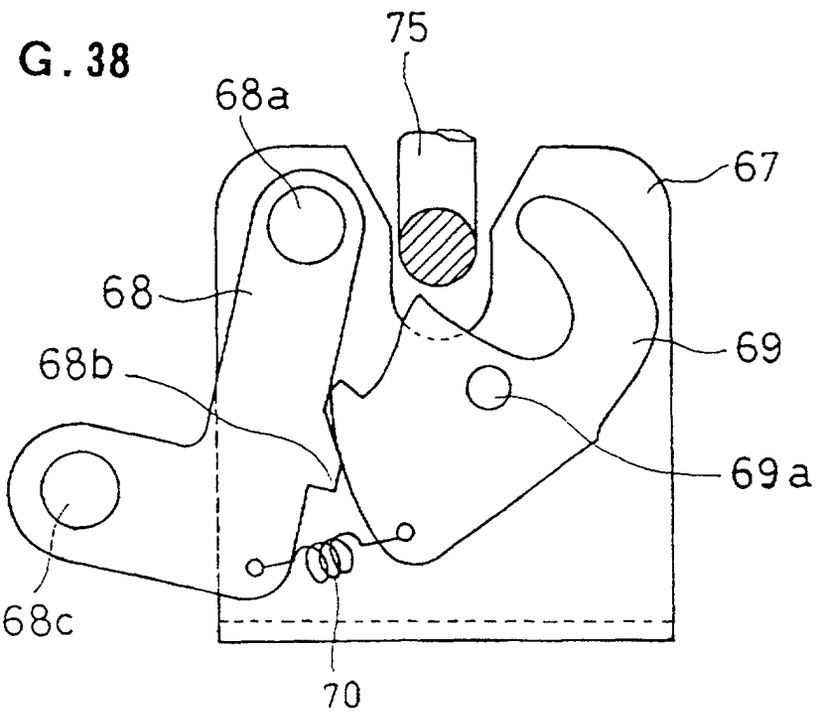


FIG. 39

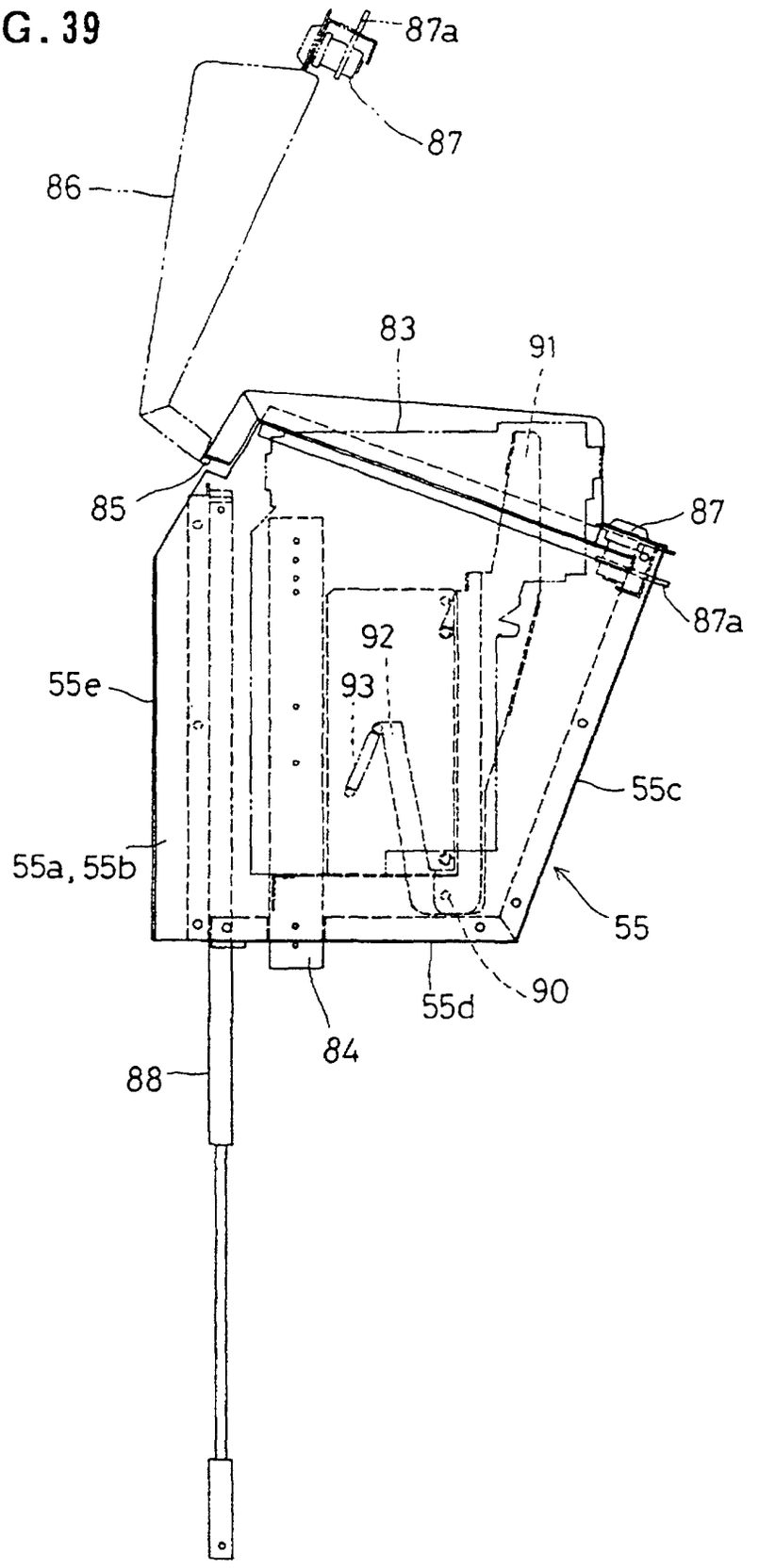


FIG.40

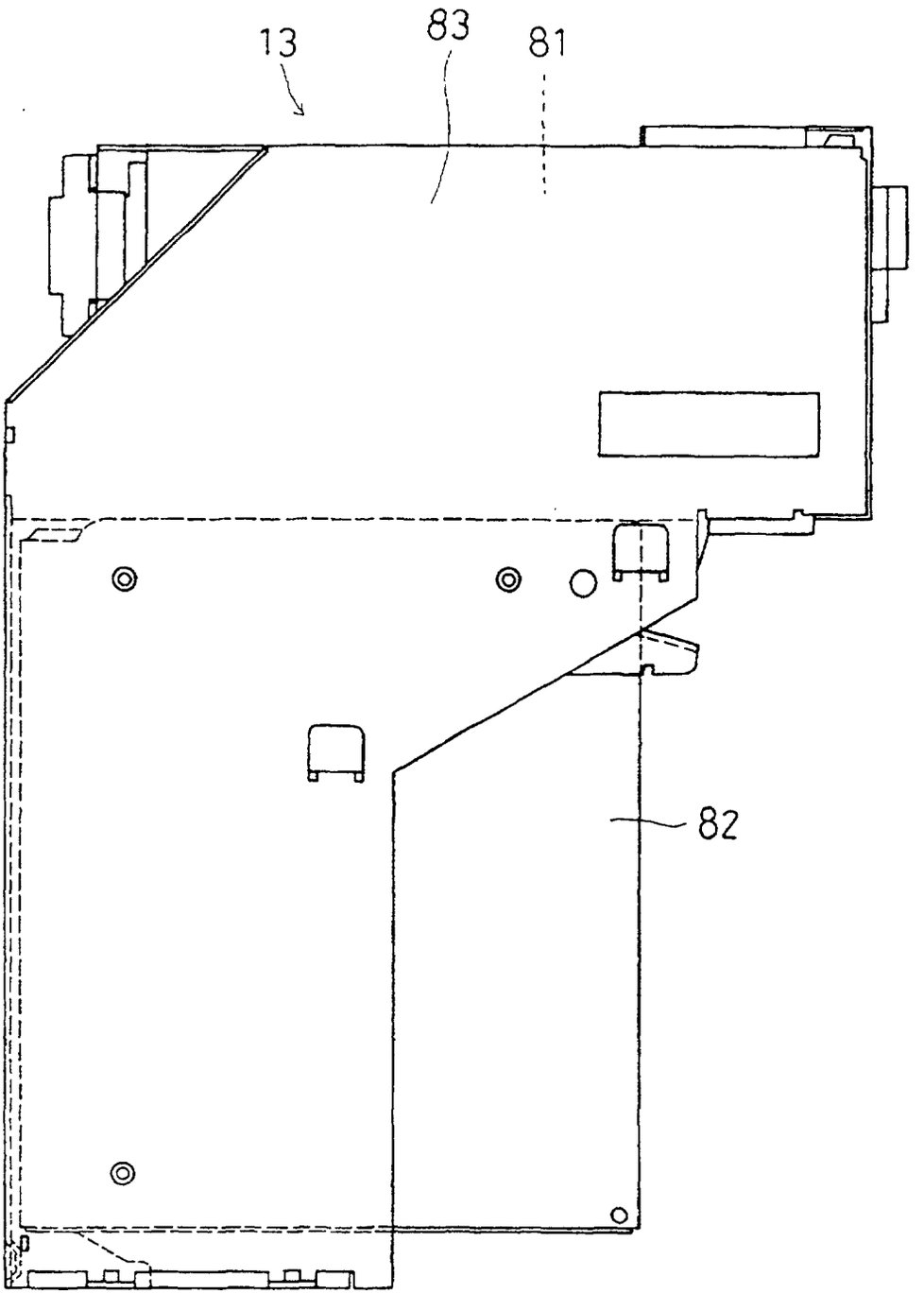


FIG.41

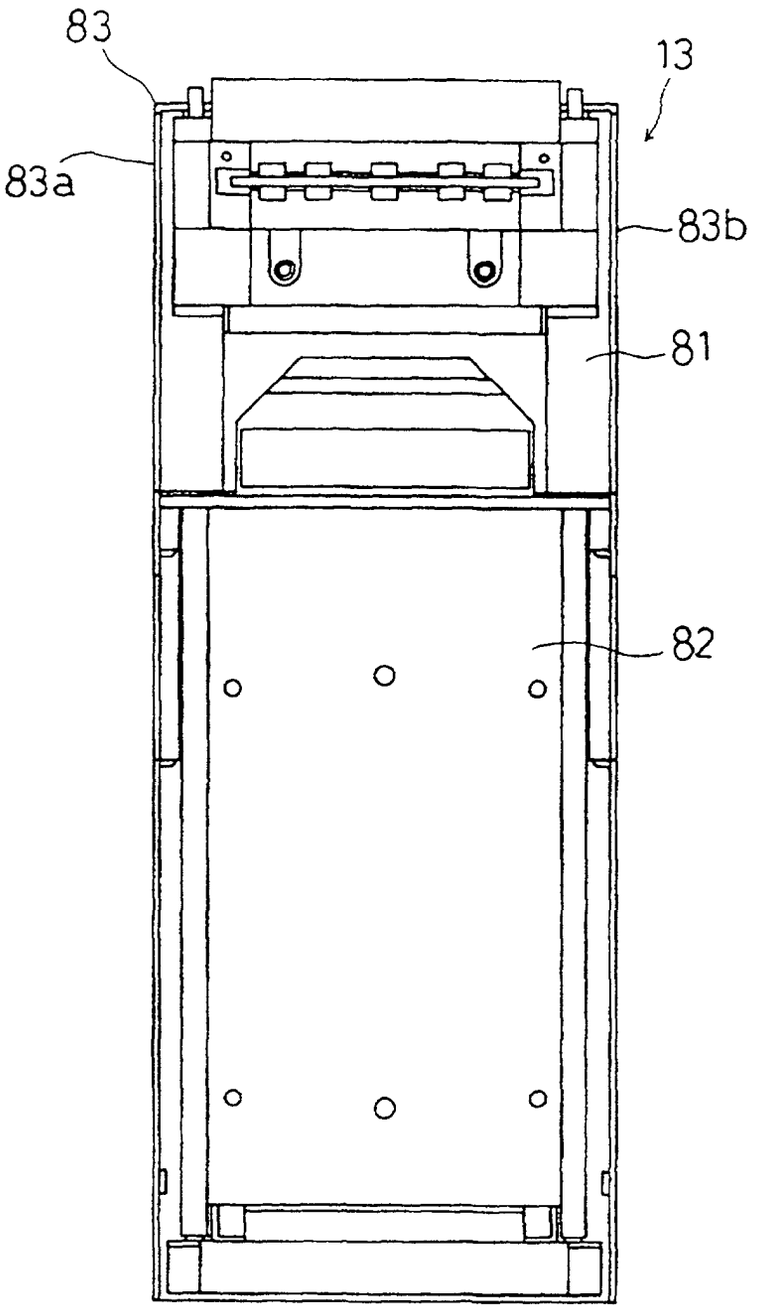


FIG. 42

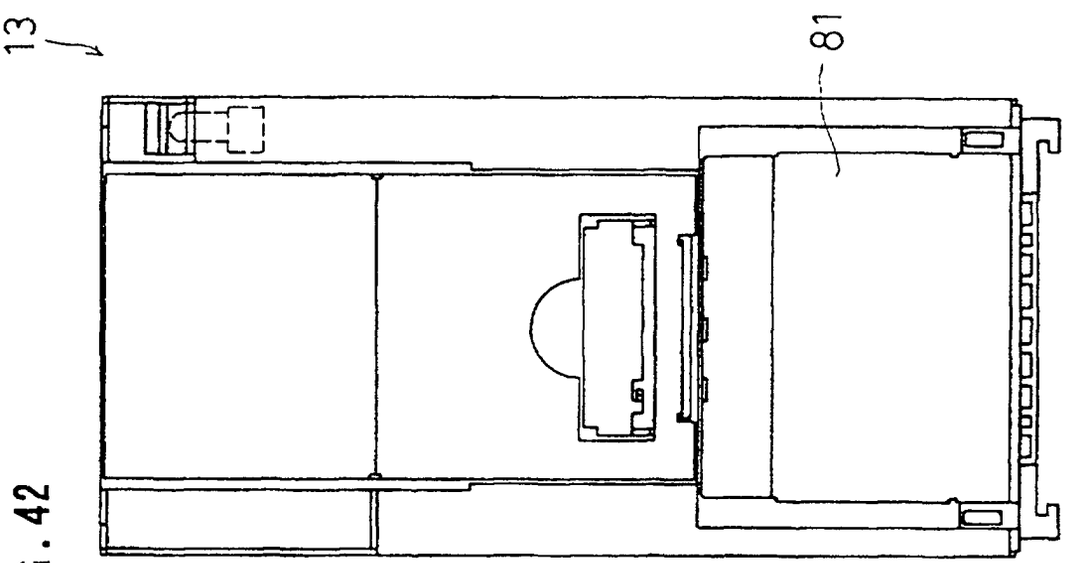


FIG.43

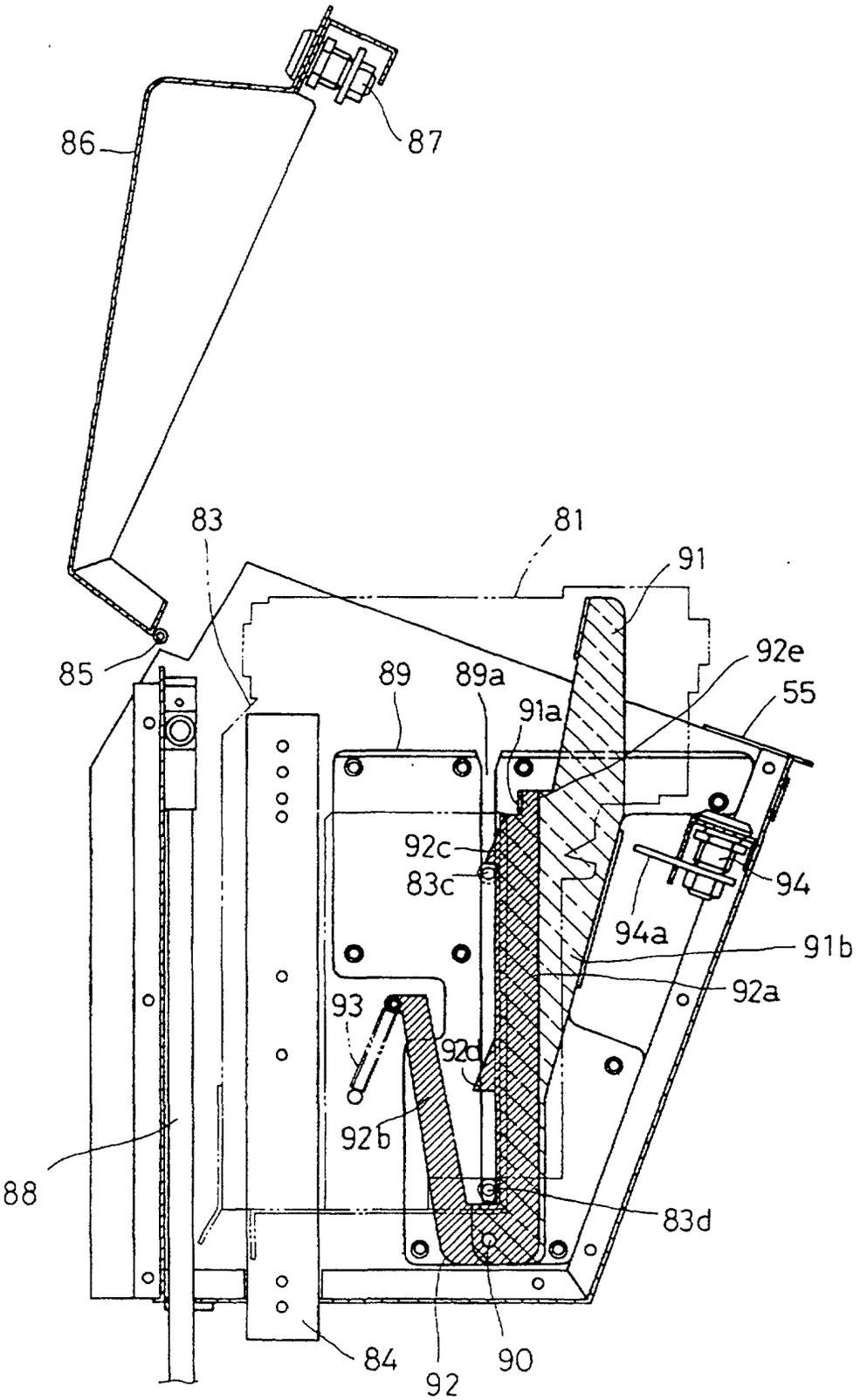

86
87
83
81
91
85
89
89a
91a
92e
55
92c
83c
94
94a
91b
92a
93
92d
92b
88
83d
84
92
90

FIG.44

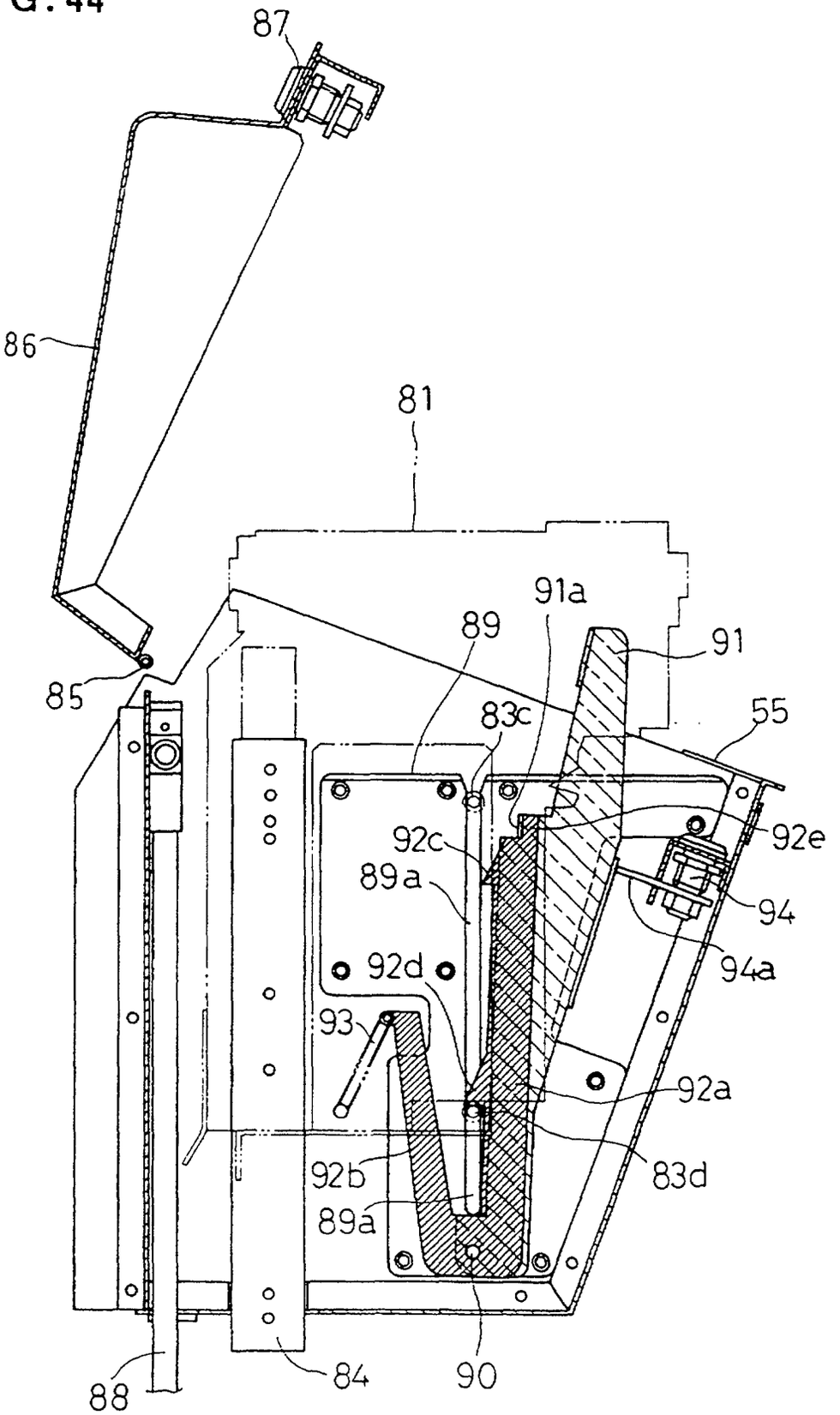

87
86
81
85
89
91a
91
55
83c
92e
92c
89a
94
94a
92d
93
92a
83d
92b
89a
88
84
90

FIG. 45

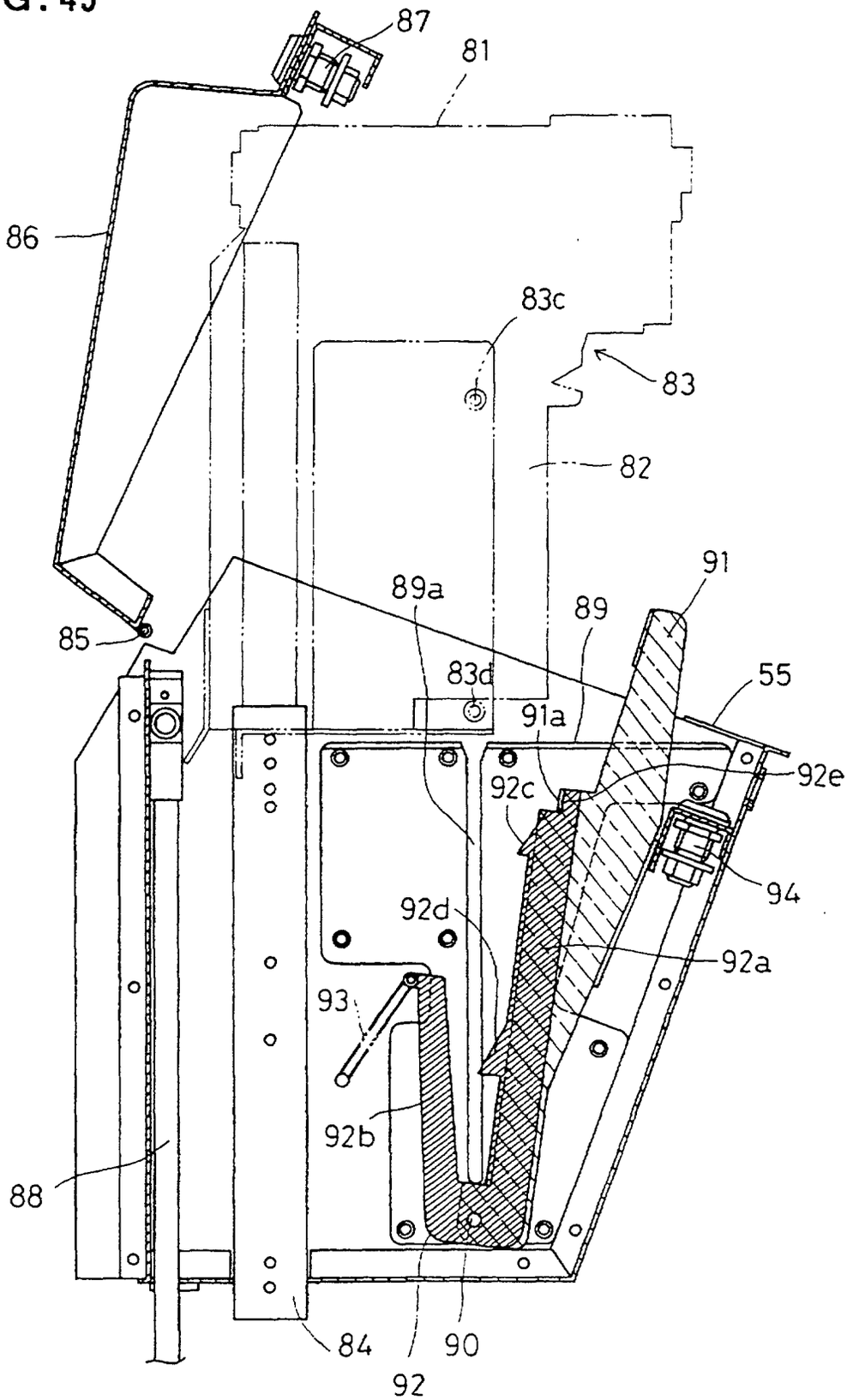

87
81
86
83c
83
82
91
89a
89
85
83d
55
91a
92e
92c
94
92d
92a
93
92b
88
84
90
92

FIG. 46

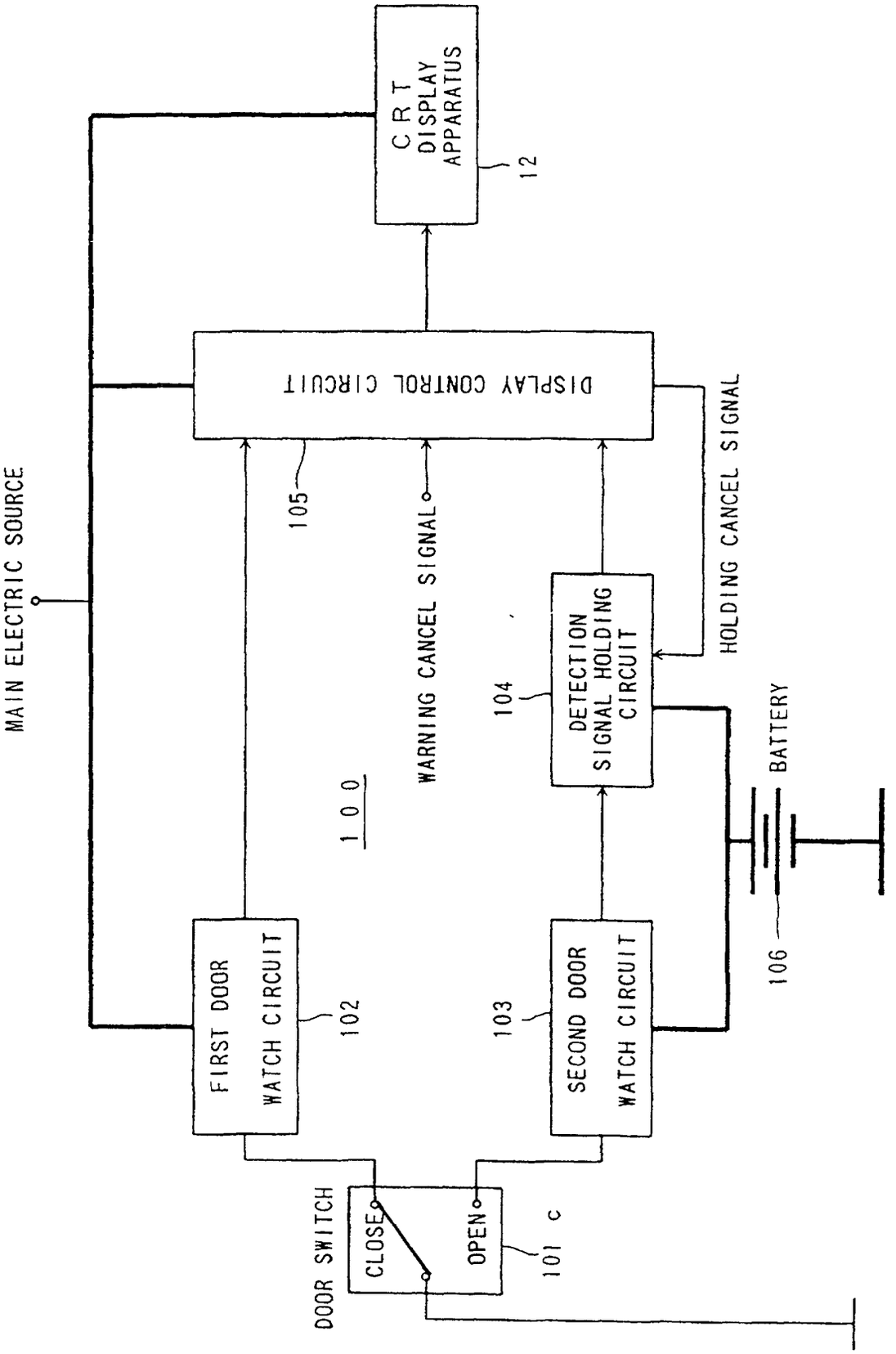
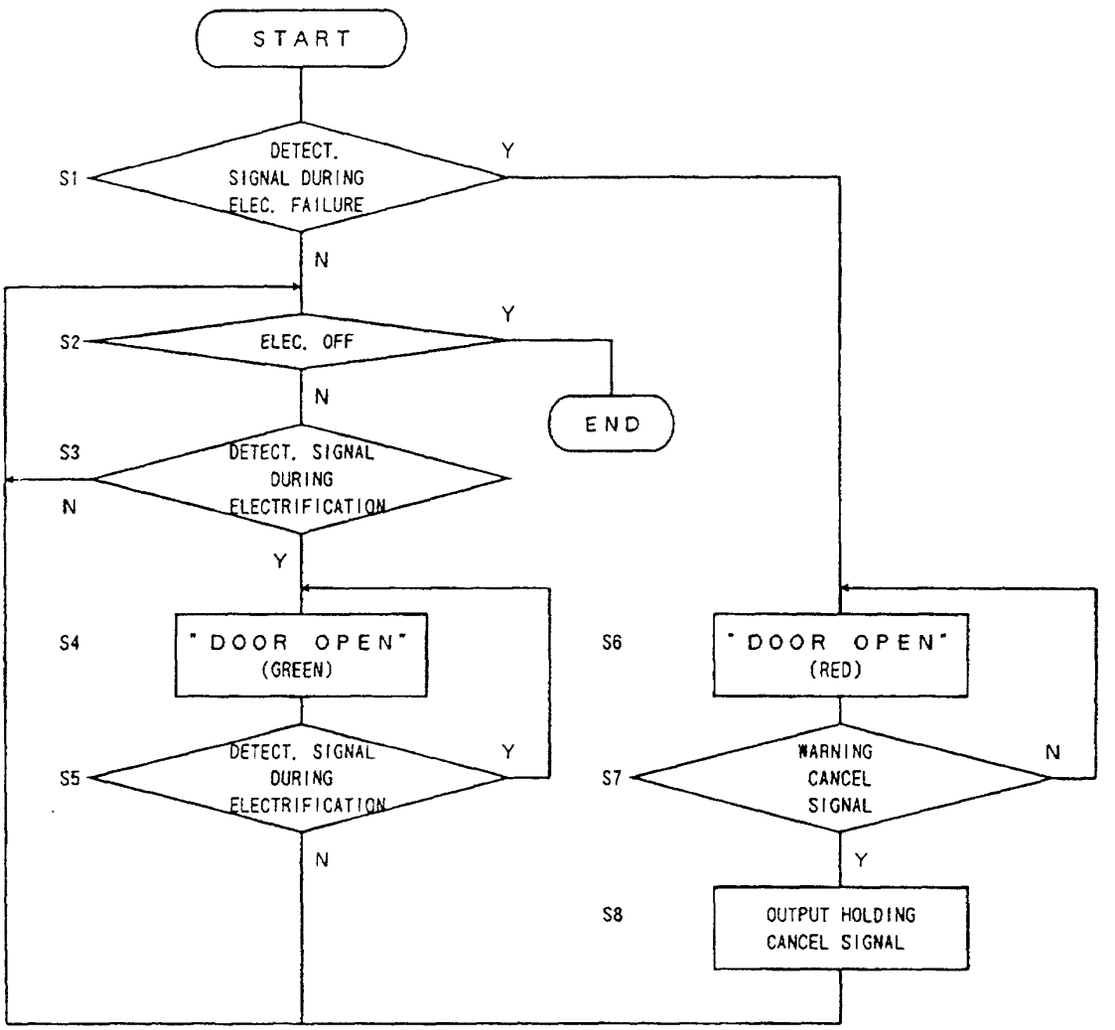

CRT DISPLAY APPARATUS
12
DISPLAY CONTROL CIRCUIT
105
WARNING CANCEL SIGNAL
HOLDING CANCEL SIGNAL
MAIN ELECTRIC SOURCE
104
DETECTION SIGNAL HOLDING CIRCUIT
BATTERY
100
FIRST DOOR WATCH CIRCUIT
102
103
SECOND DOOR WATCH CIRCUIT
106
DOOR SWITCH
CLOSE
OPEN
101c

FIG.47


START
S1
DETECT. SIGNAL DURING ELEC. FAILURE
Y
N
S2
ELEC. OFF
Y
N
END
S3
DETECT. SIGNAL DURING ELECTRIFICATION
N
Y
S4
"DOOR OPEN" (GREEN)
S5
DETECT. SIGNAL DURING ELECTRIFICATION
Y
N
S6
"DOOR OPEN" (RED)
S7
WARNING CANCEL SIGNAL
N
Y
S8
OUTPUT HOLDING CANCEL SIGNAL