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Ryu Sasaki

(continued on next page)

(51) INT CL:
A63F 9/00 (2006.01) **A63F 13/12** (2006.01)

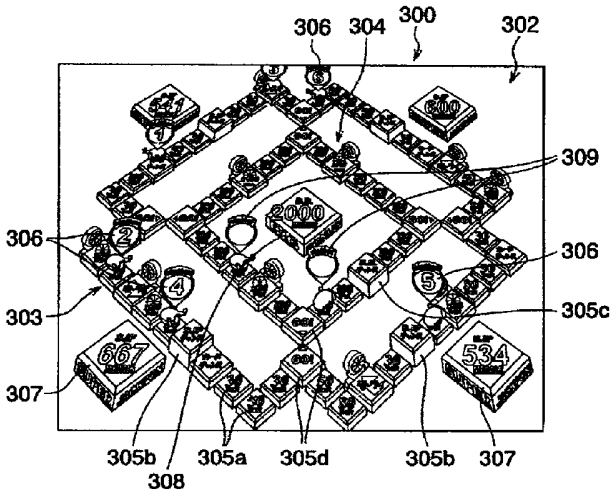
(52) UK CL (Edition X):
A6H HLM

(56) Documents Cited by ISA:
WO 2003/024549 A1 **JP 080000829 A**
JP 2002210228 A **JP 2001029643 A**

(58) Field of Search by ISA:
INT CL[7] **A63F**
Other: **Jitsuyo Shinan Koho 1922-1996, Jitsuyo Shinan Toroku Koho 1996-2005, Kokai Jitsuyo Shinan Koho 1971-2005, Toroku Jitsuyo Shinan Koho 1994-2005**

(54) Abstract Title: **Game machine**

(57) There is provided a game machine capable of increasing an interest for a center game. The game machine includes a plurality of stations (40), a station control device (110) for controlling an individual game executed in each of the stations (40), and a center game control device (100) for controlling the center game executed commonly between the plurality of stations (40). At least one particular route (304) formed by a combination of squares (305a, 305b, ...) is shared by a plurality of game machines and the position of a piece (306) to be arranged on the route (304) is also shared by the game machines. Giving of a reward associated with the position of the piece (306) on the particular route (304) is controlled so as to be fought with the other game machines (1) sharing the particular route (304).



GB 2 425 267 A

GB 2425267 A continuation

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FIG. 1

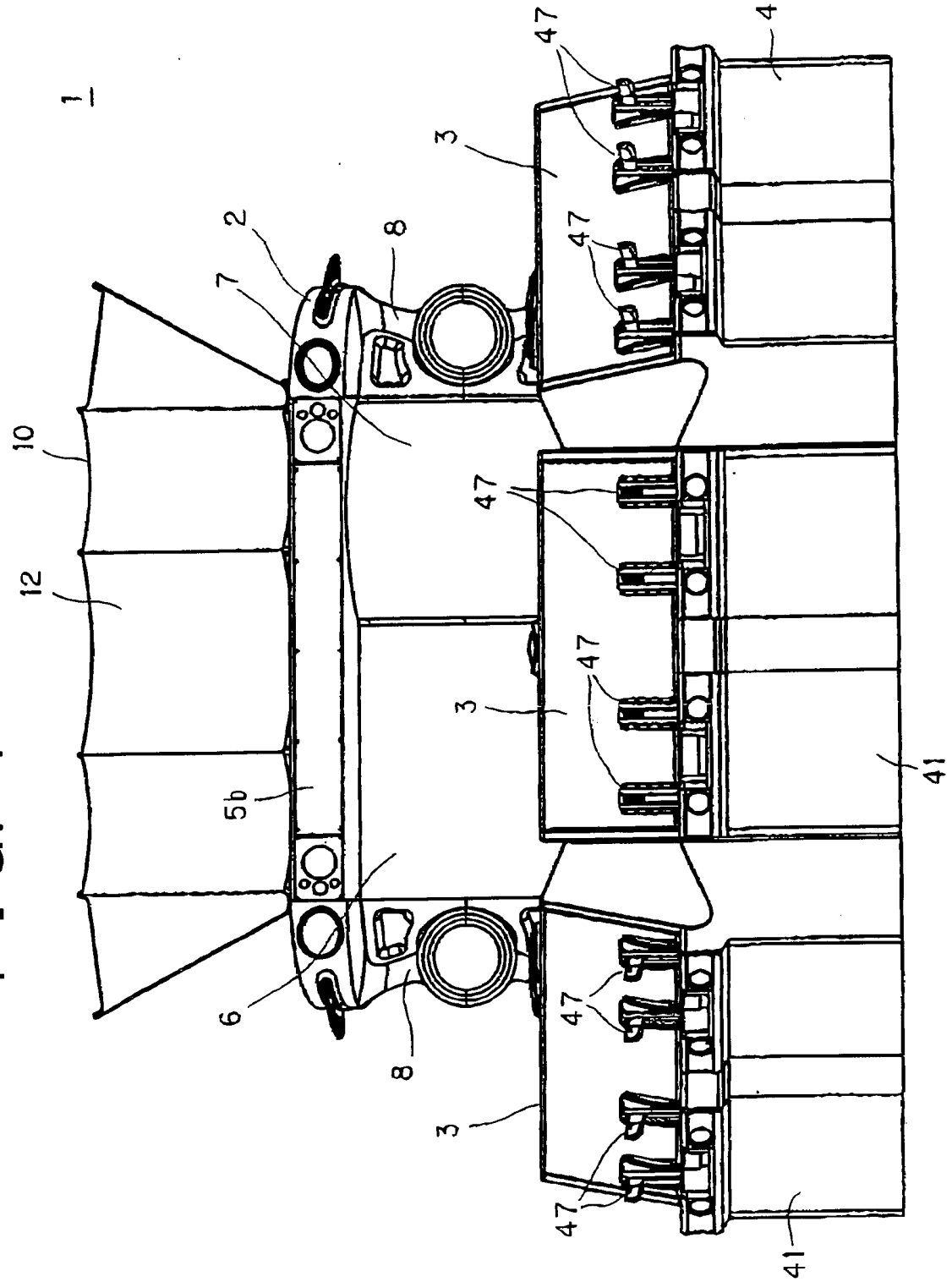


FIG. 2

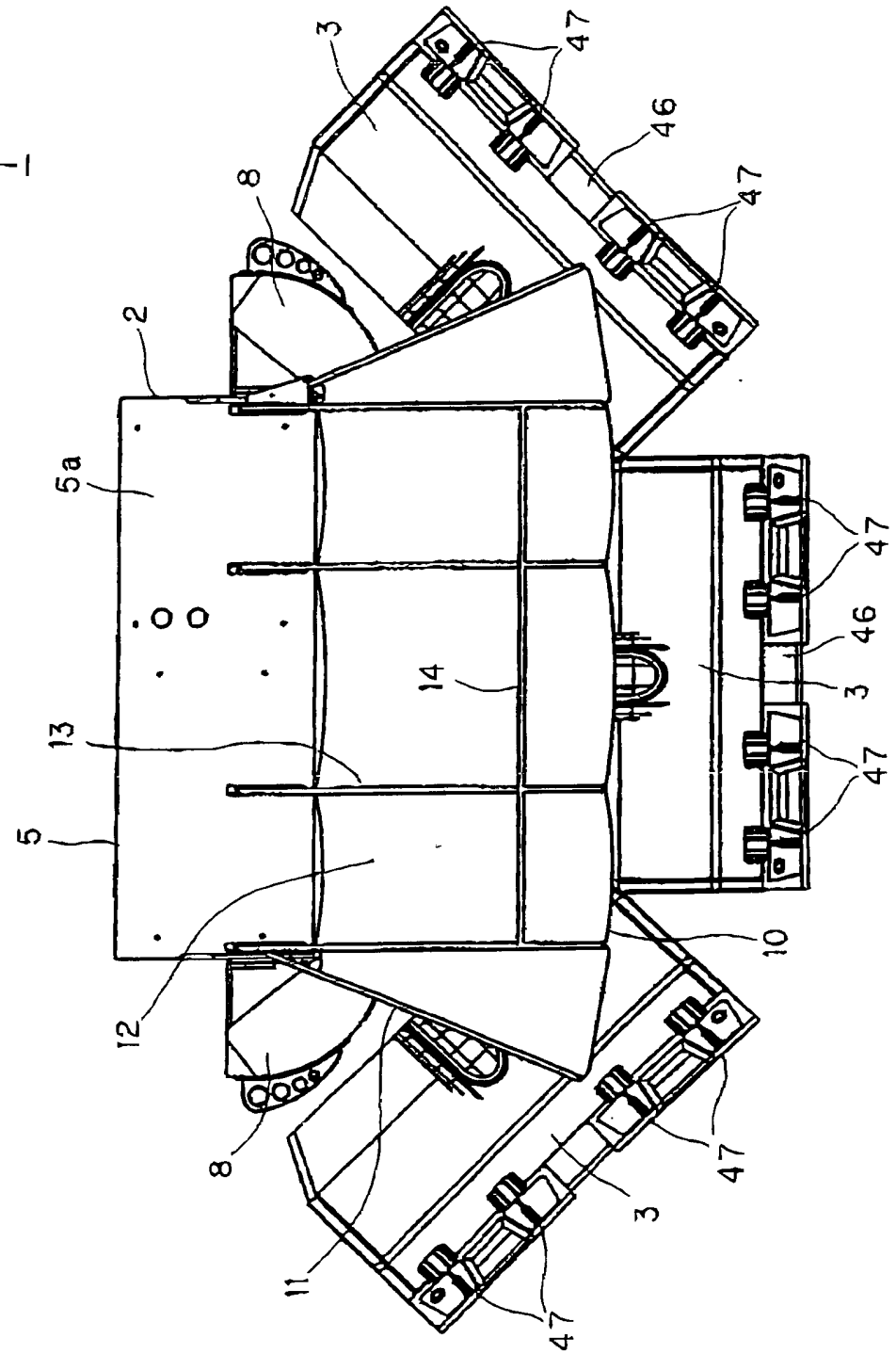


FIG. 3

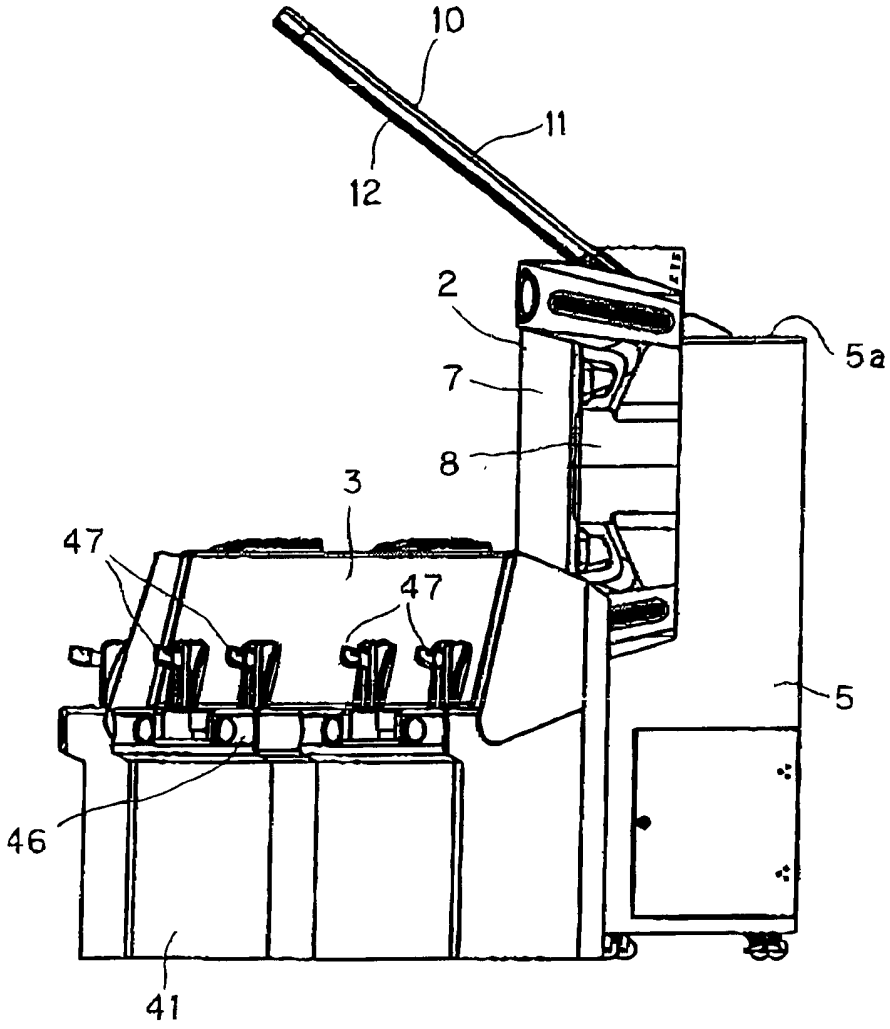


FIG. 4

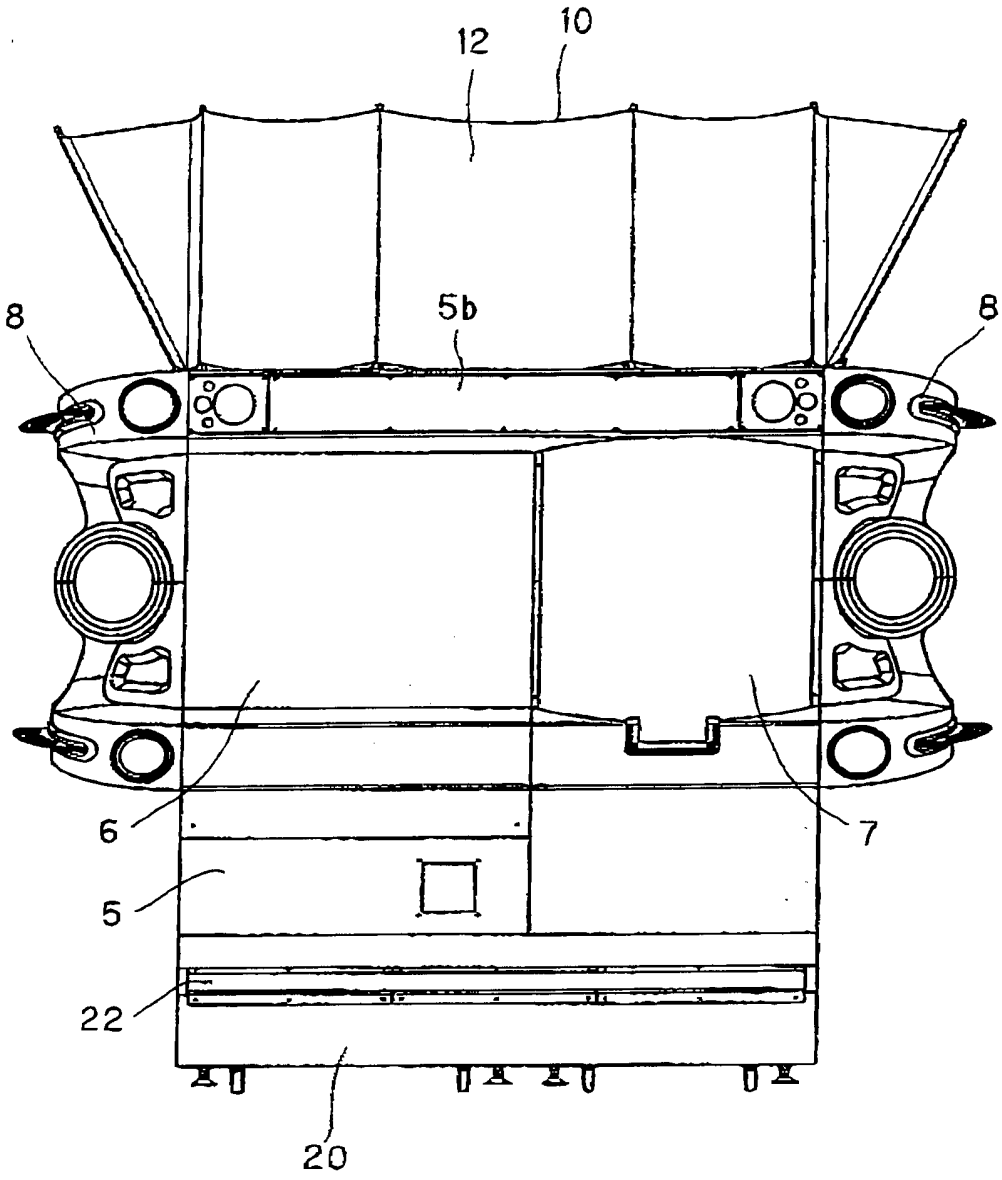


FIG. 5

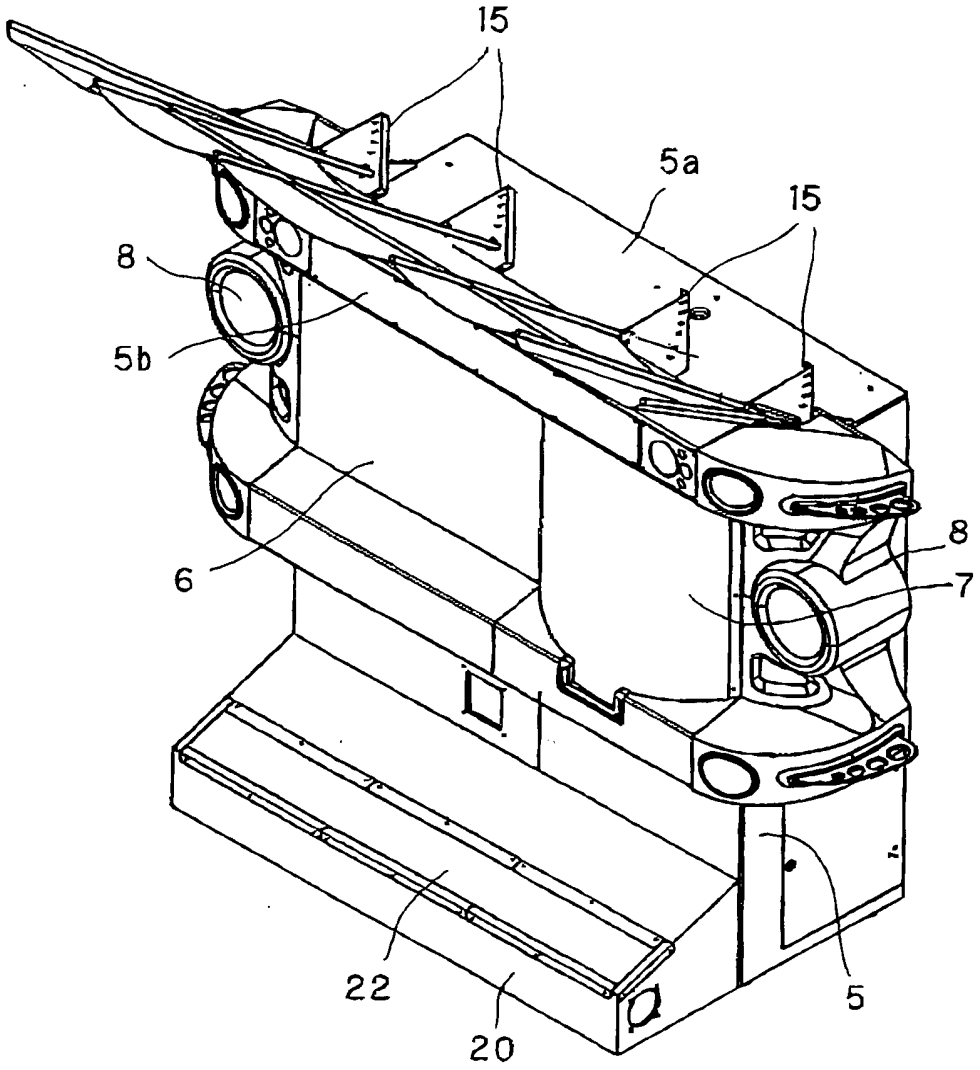


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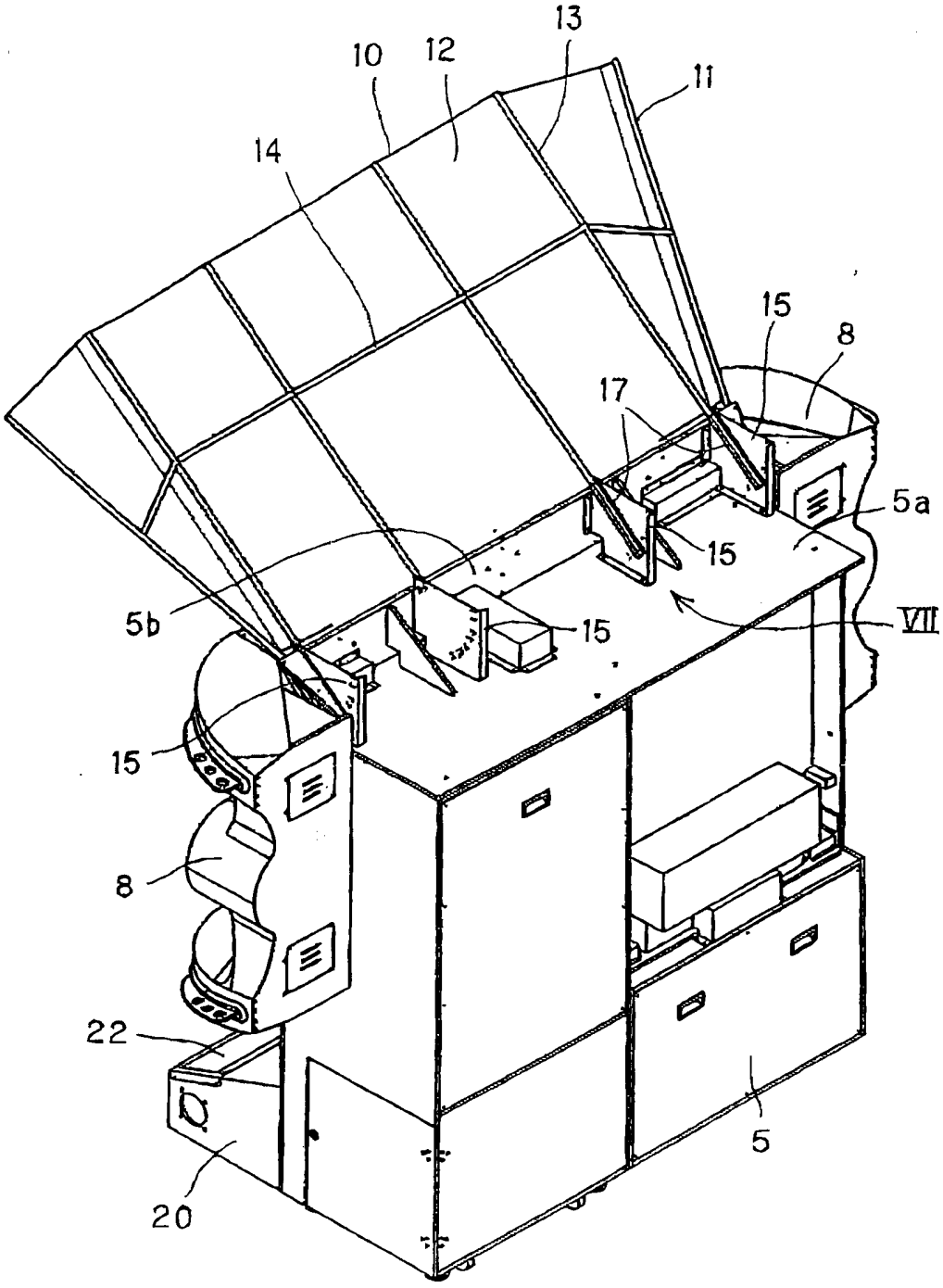


FIG. 7

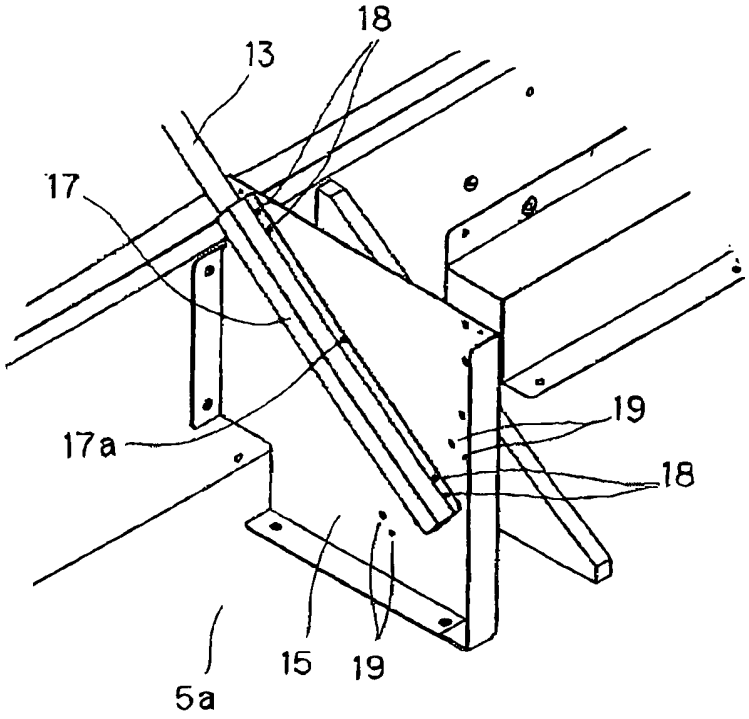


FIG. 8

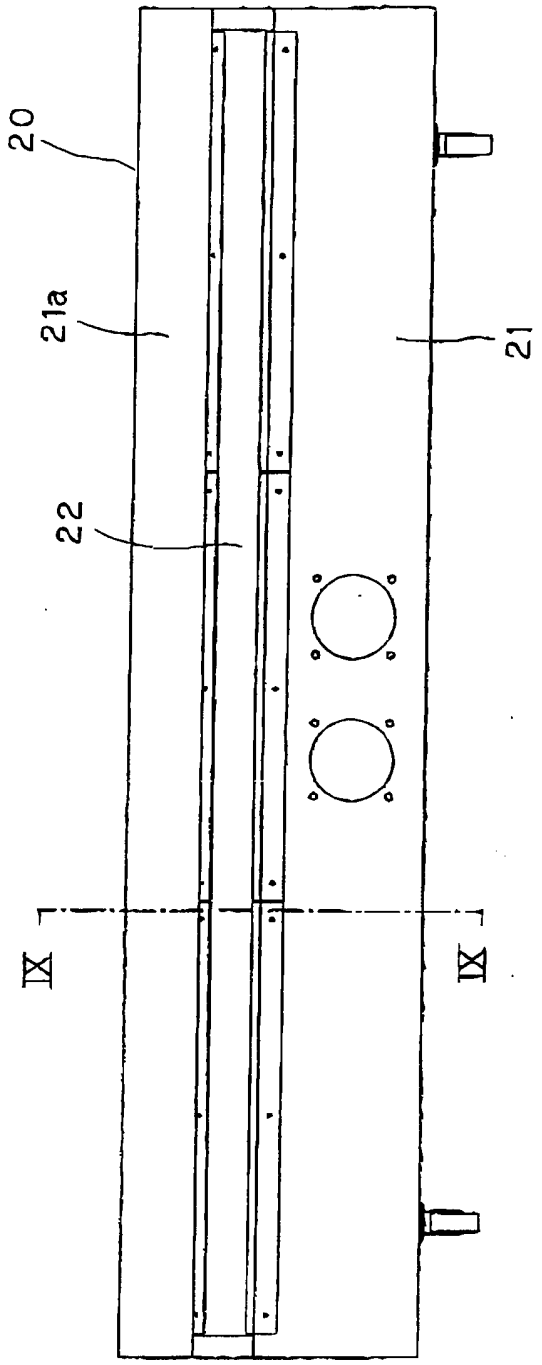


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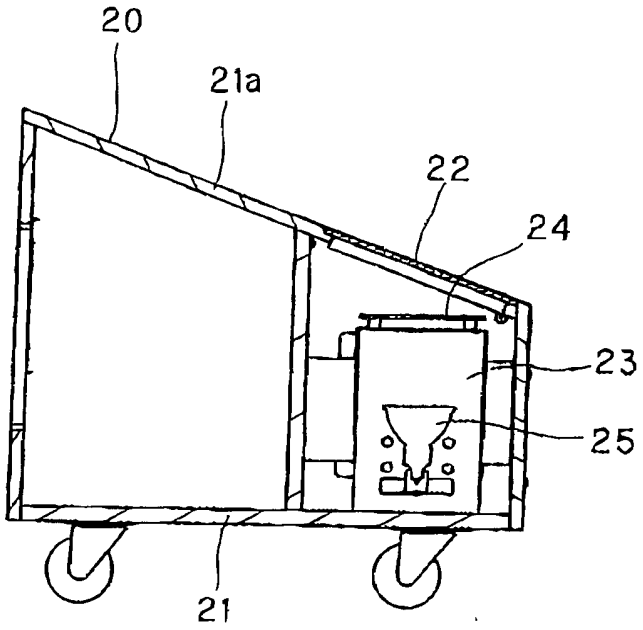


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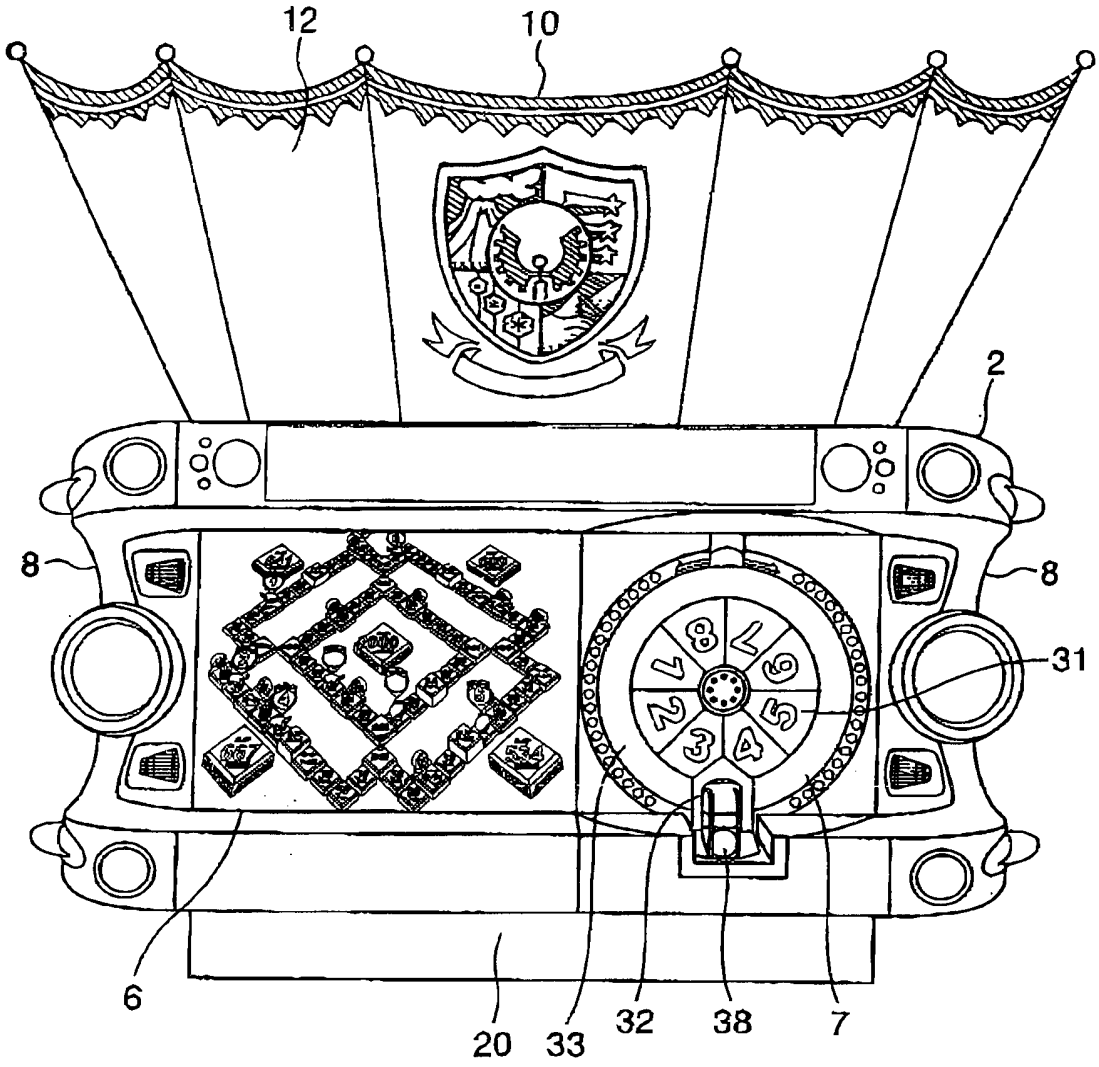


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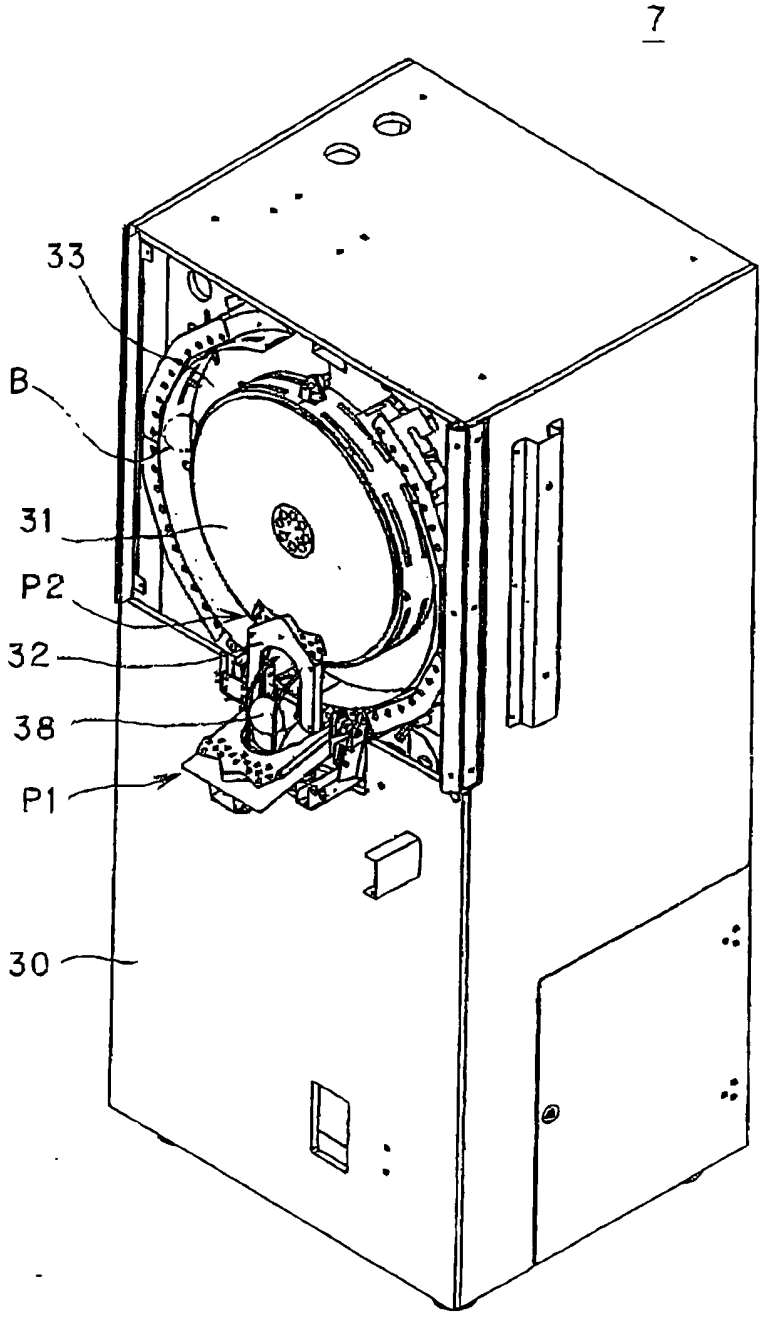


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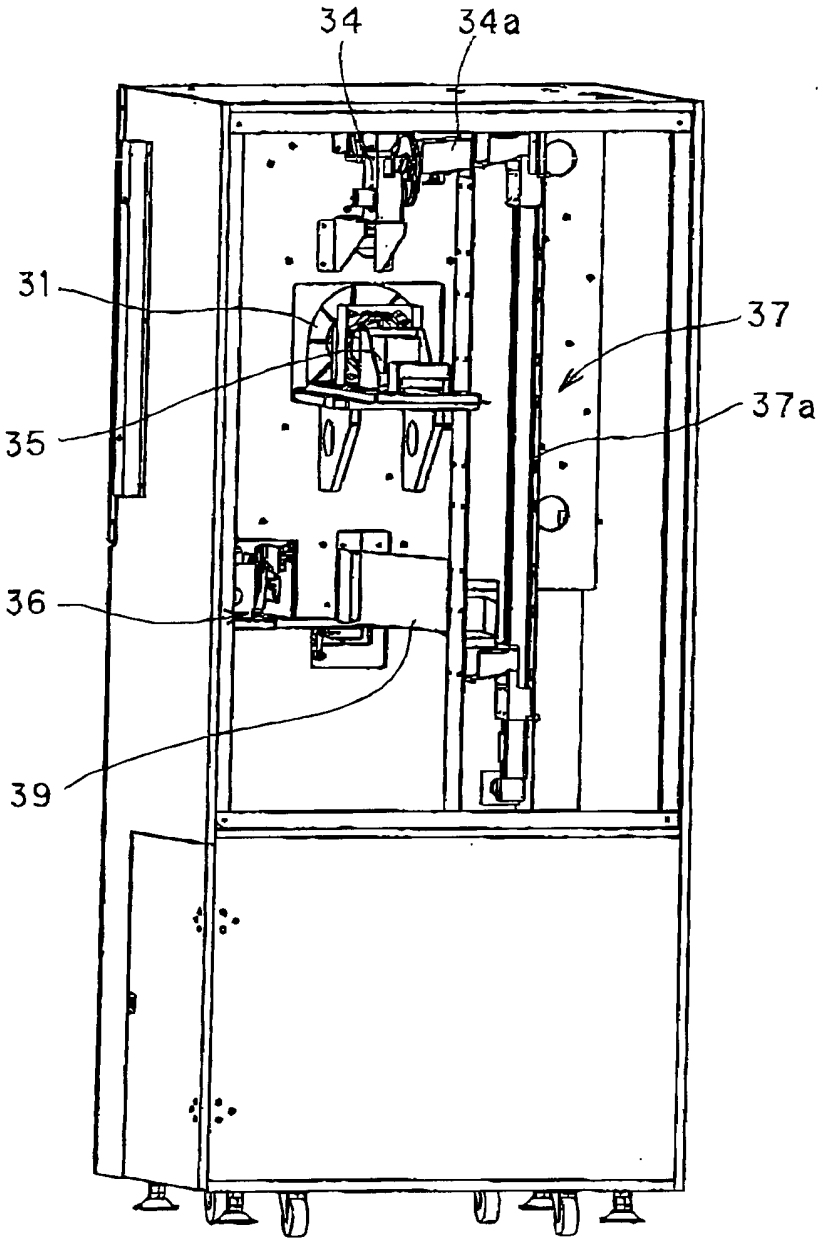


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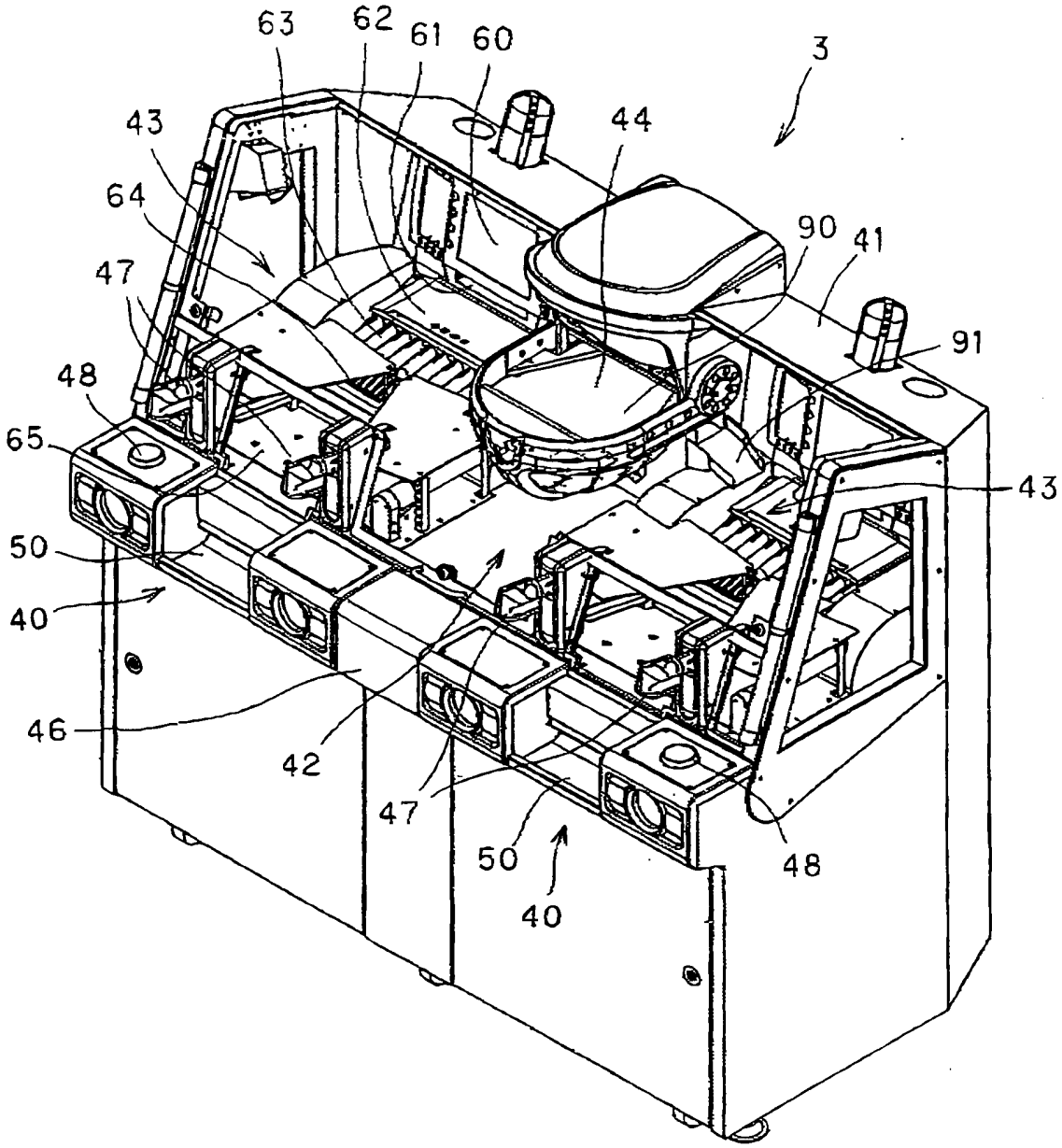


FIG. 14

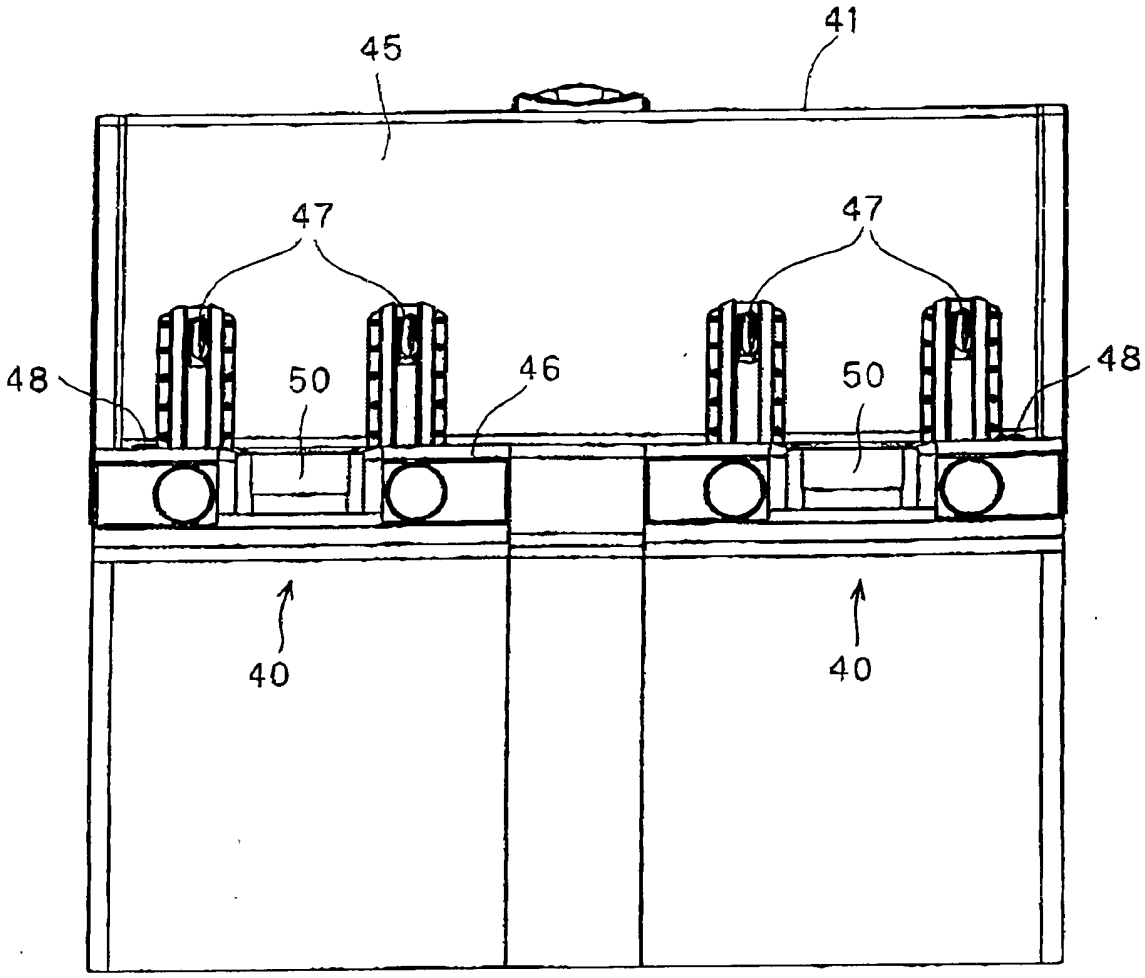


FIG. 15

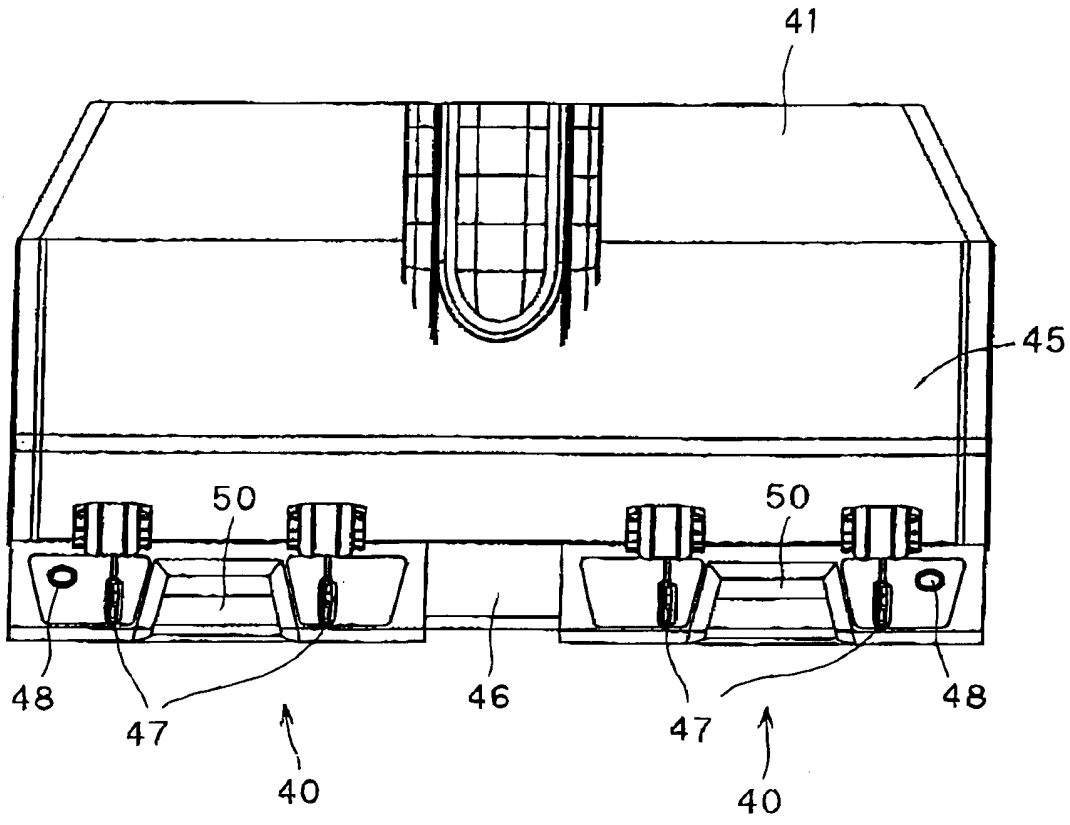


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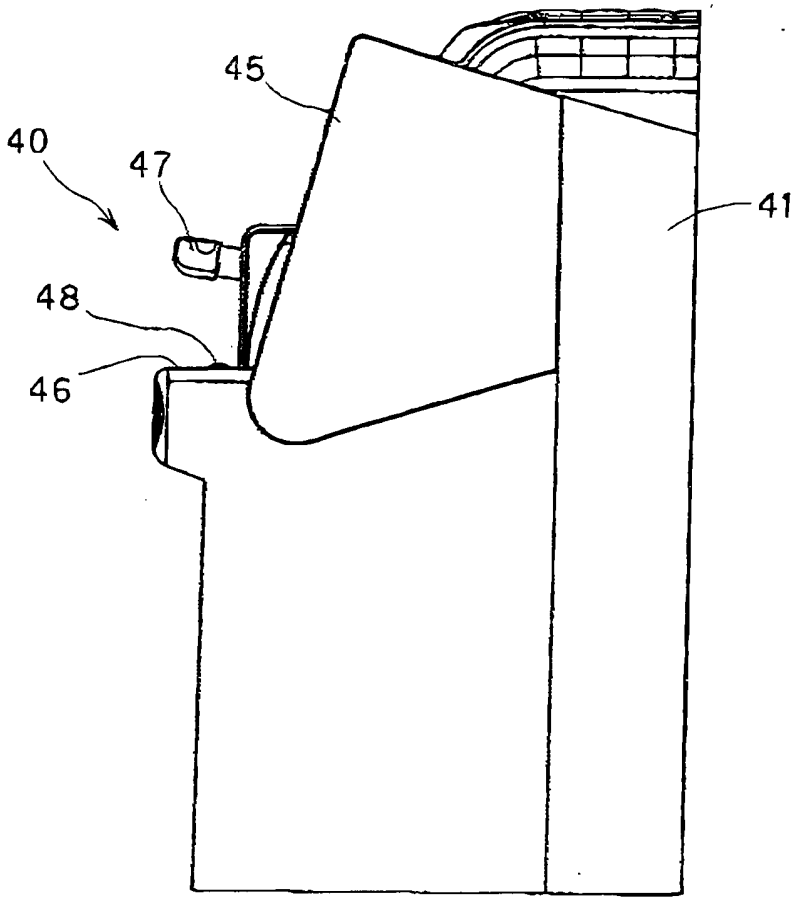


FIG. 17

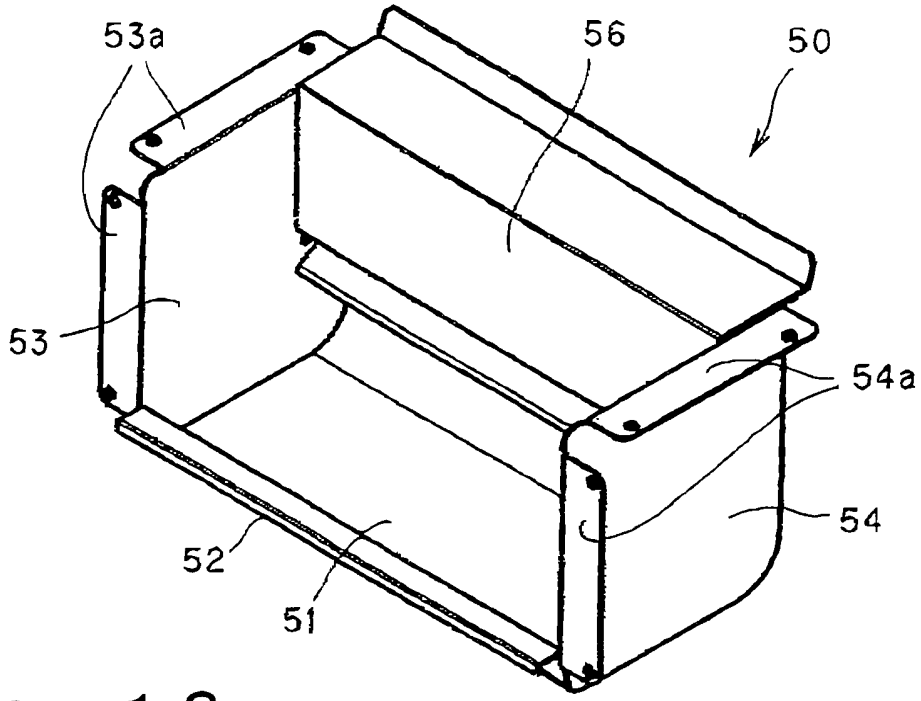


FIG. 18

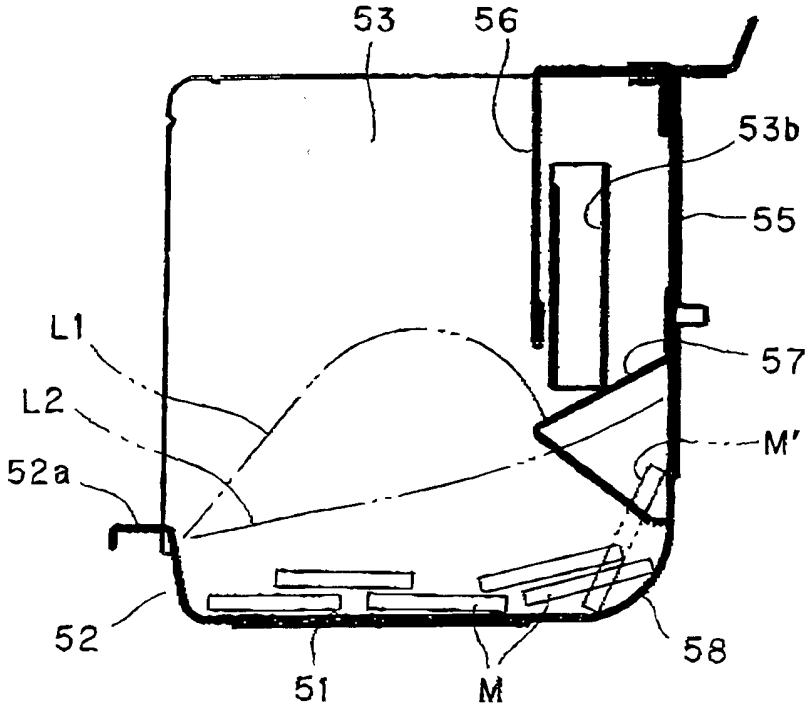


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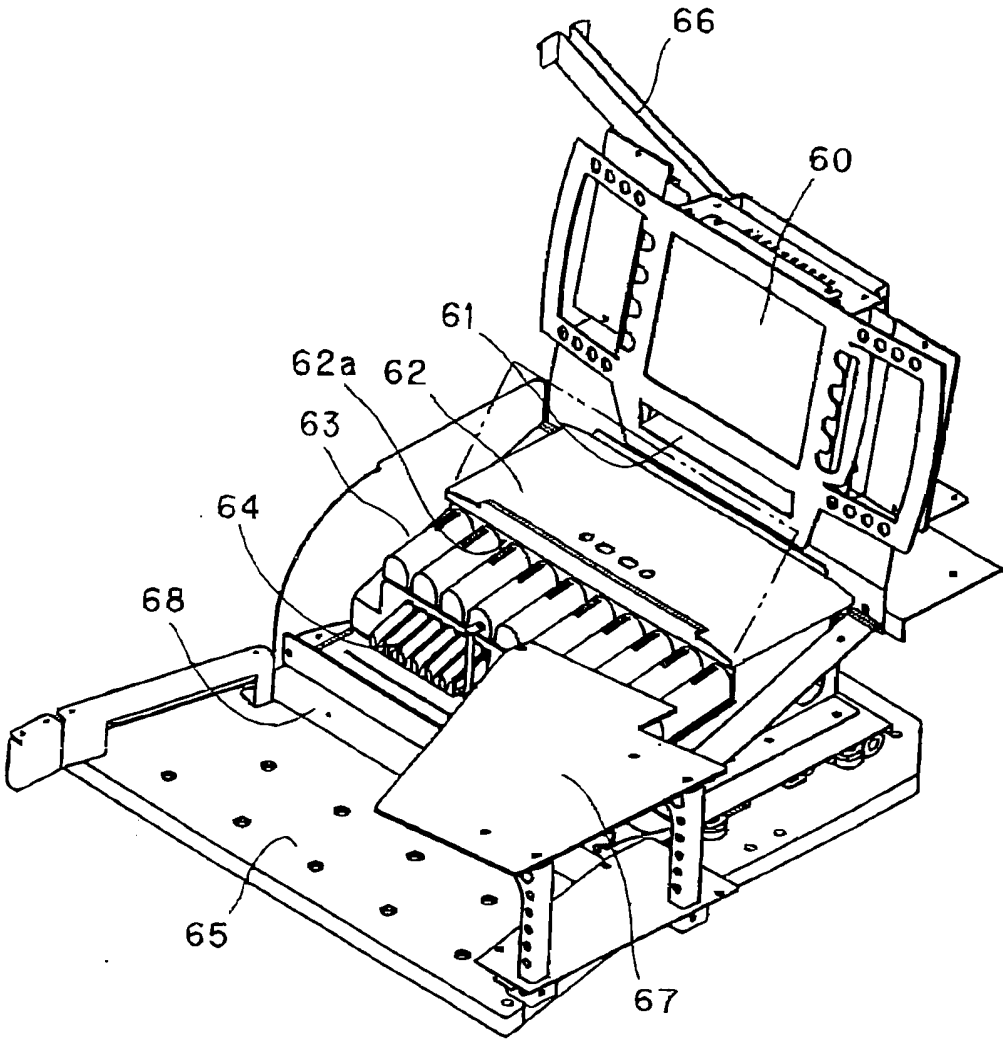


FIG. 20

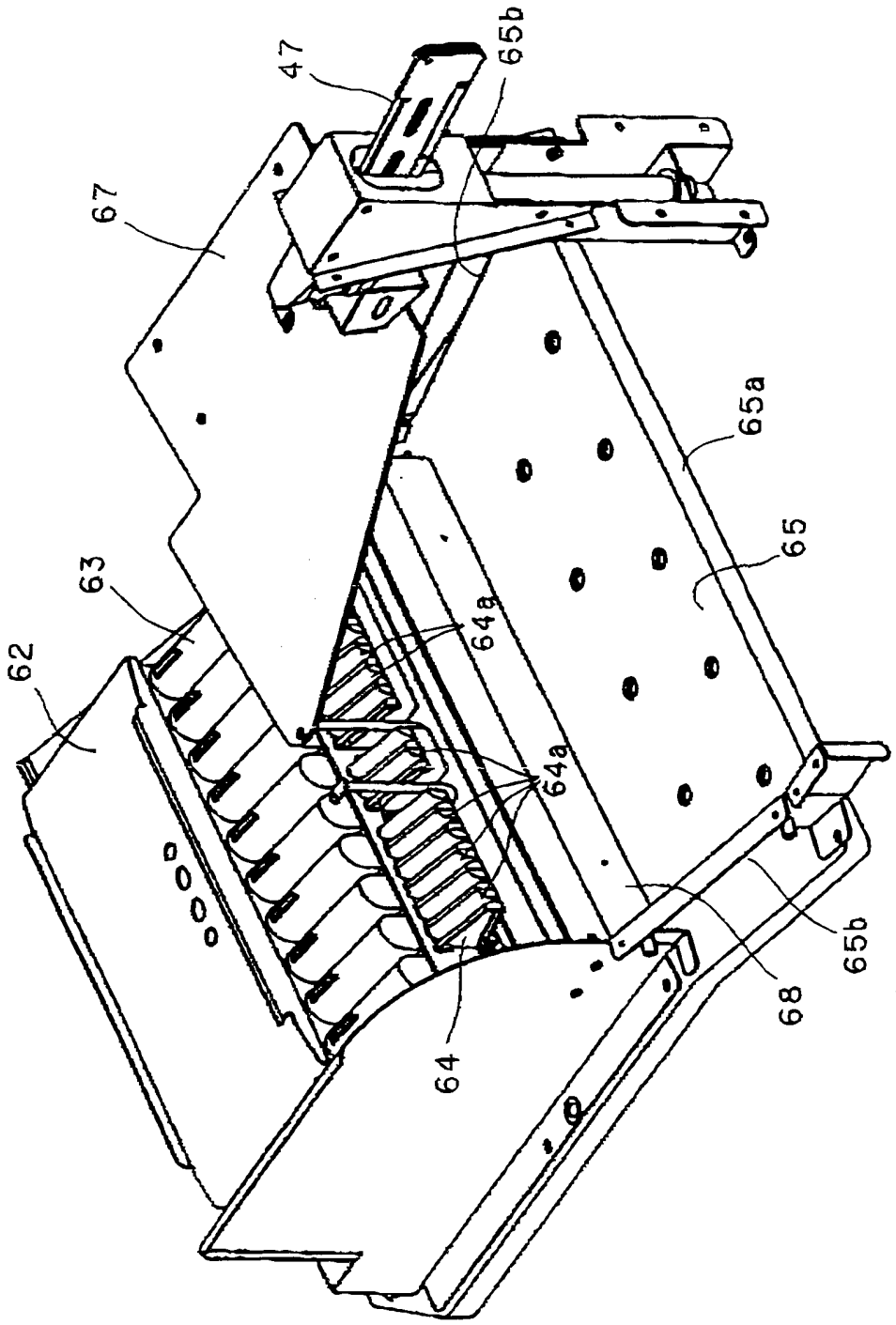


FIG. 21

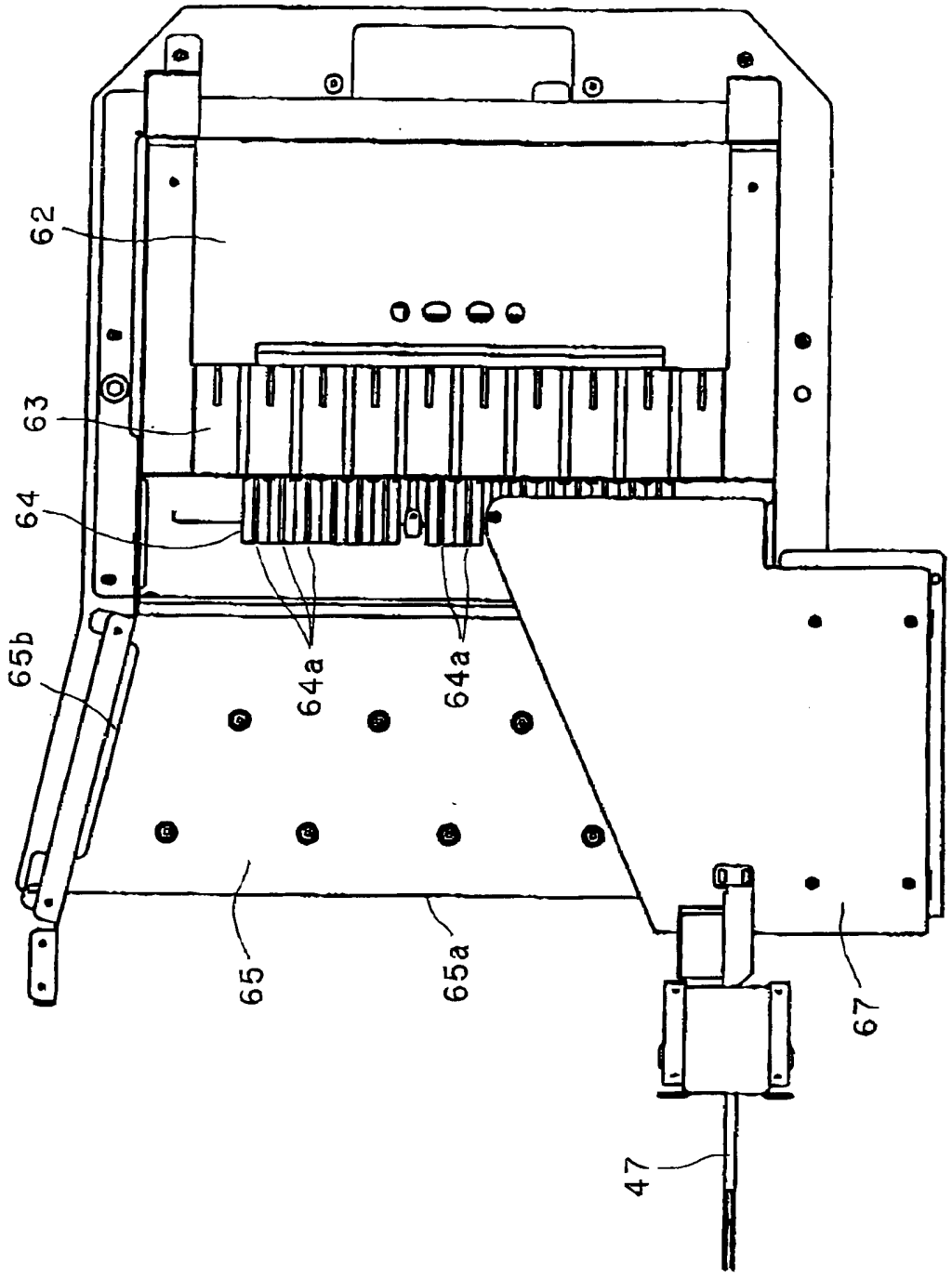


FIG. 22

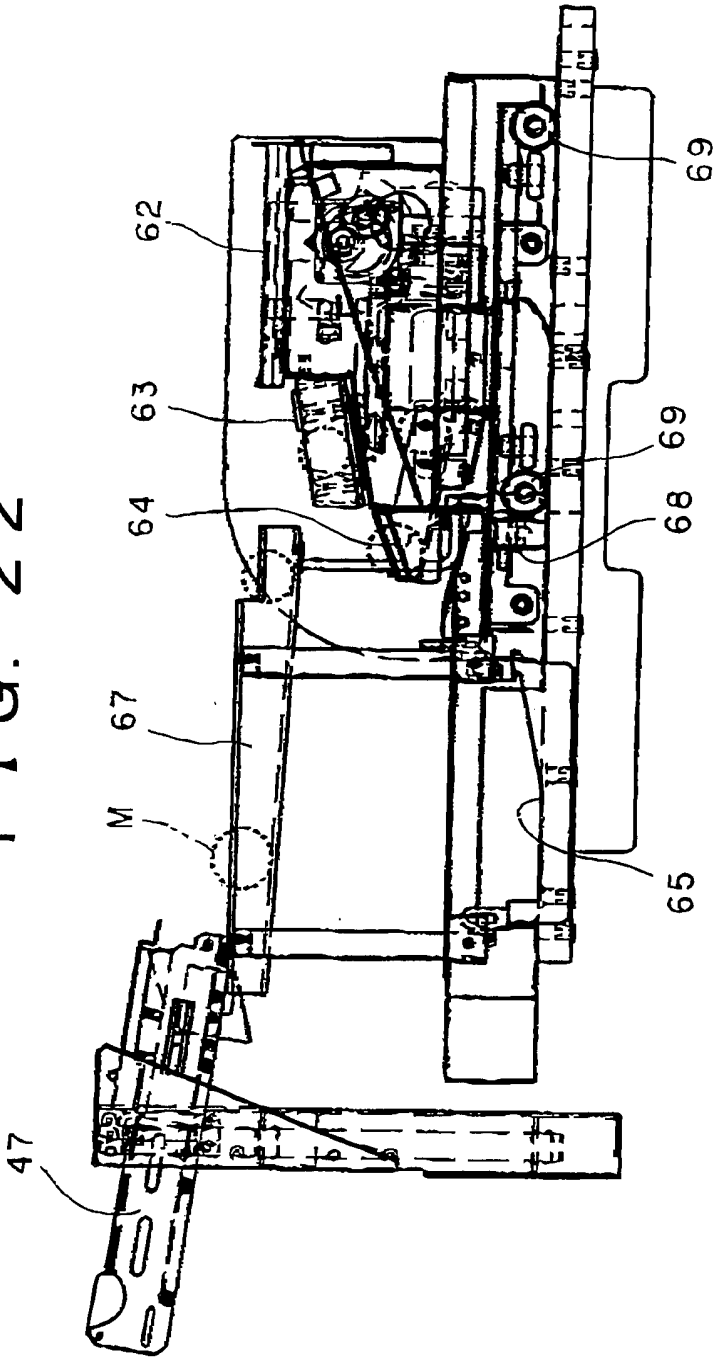


FIG. 23

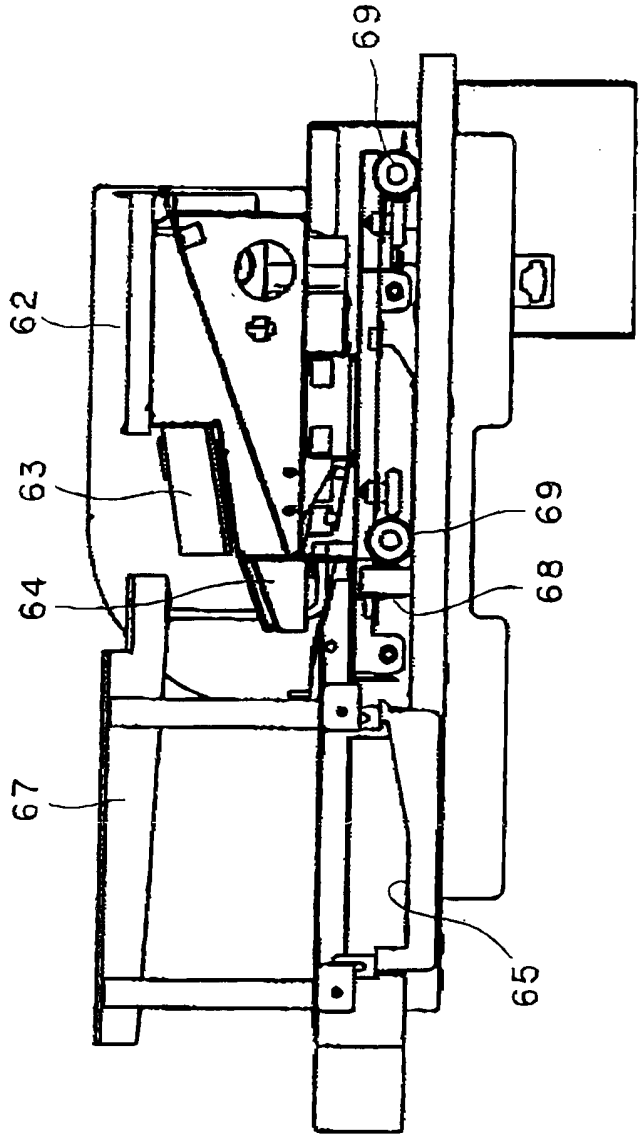


FIG. 24

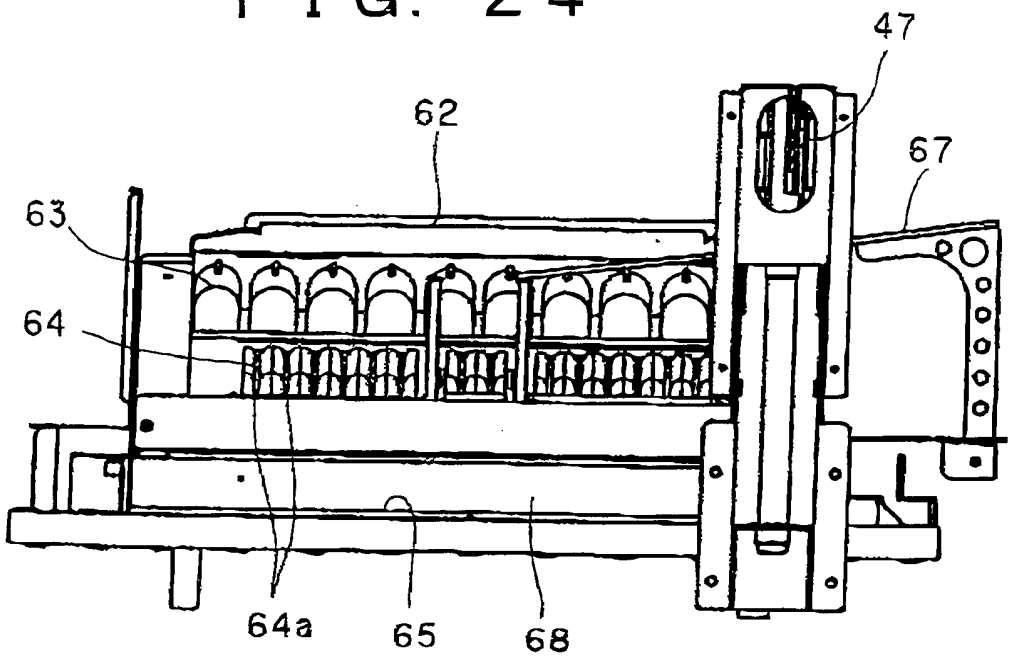


FIG. 25

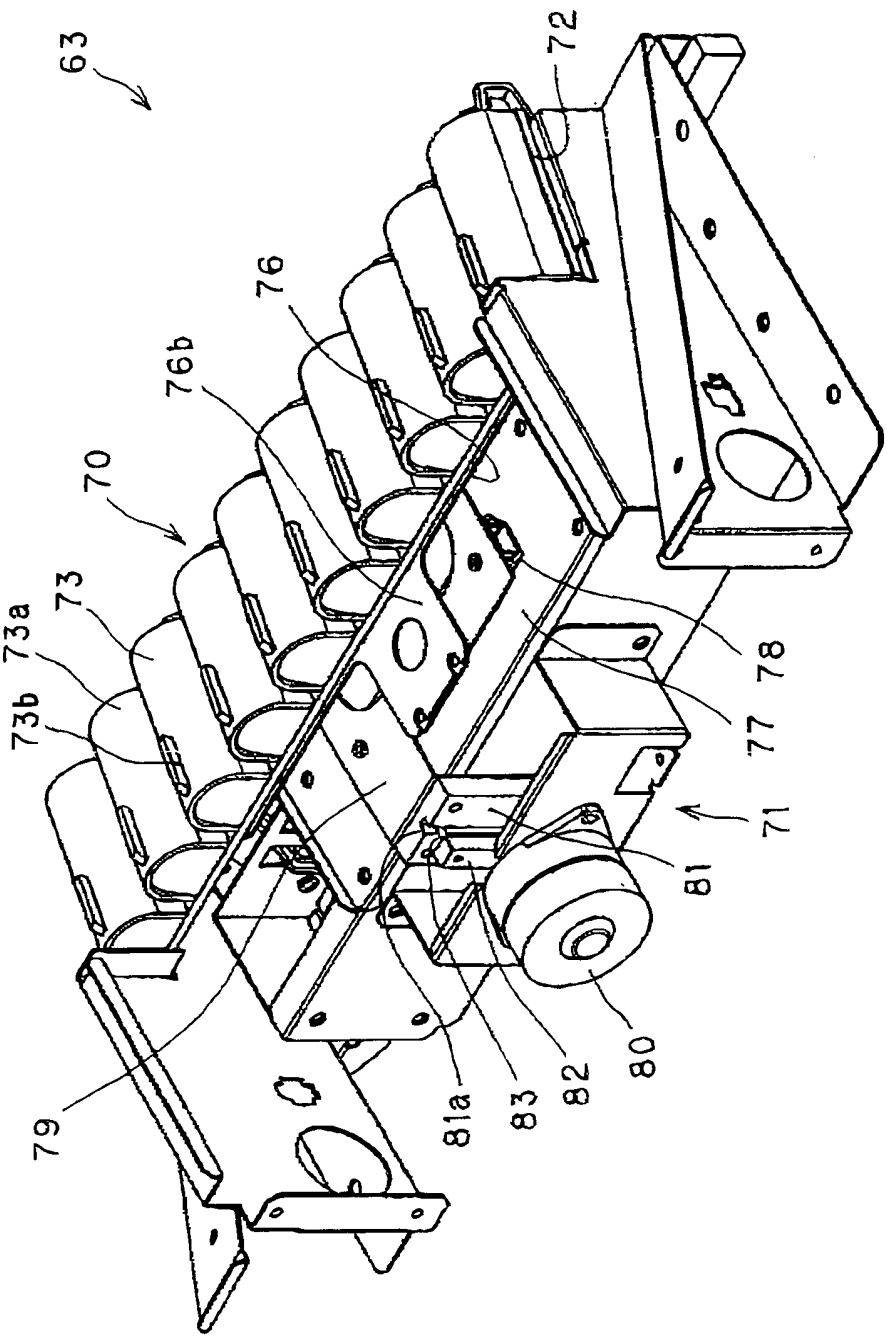


FIG. 26

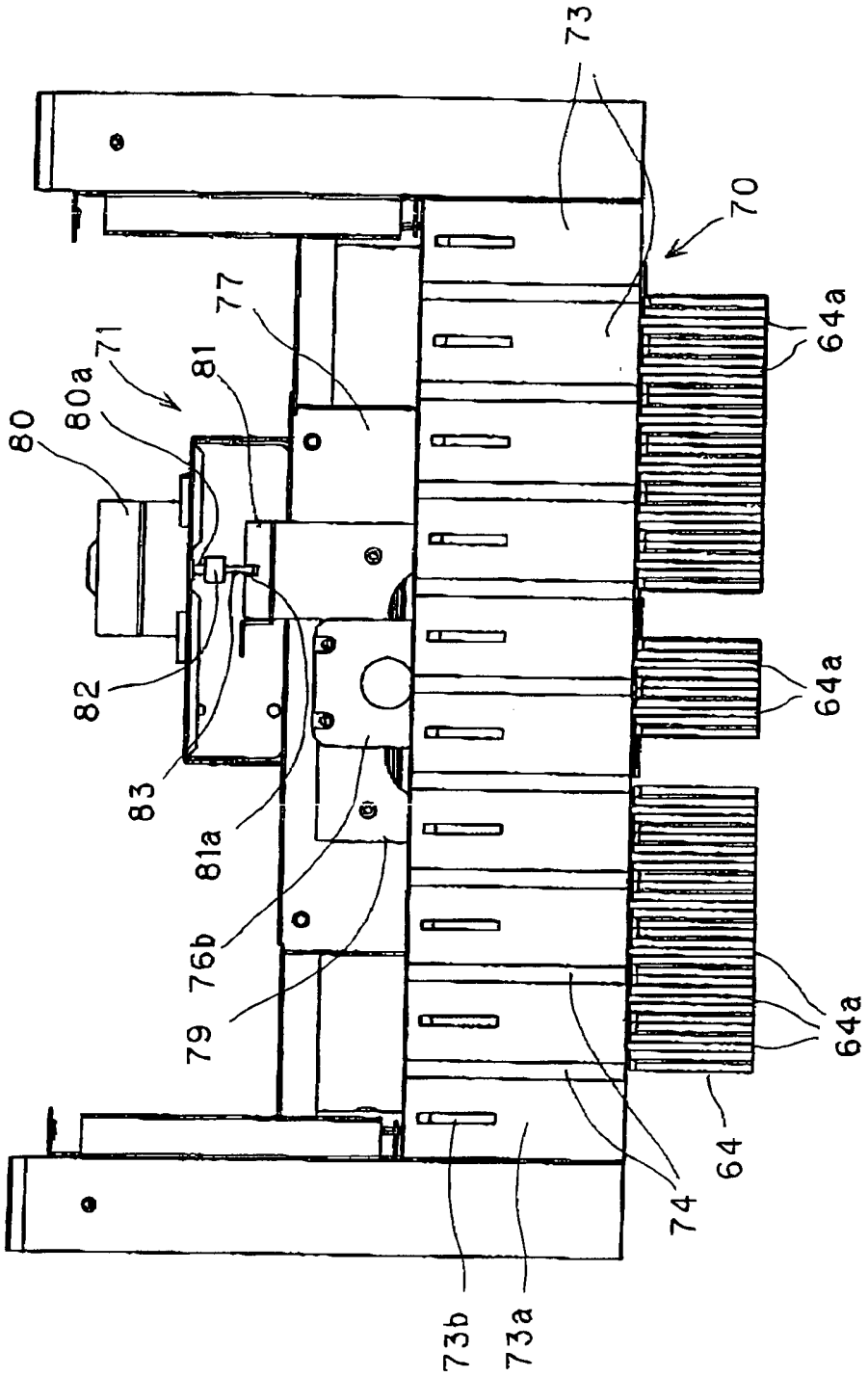


FIG. 27

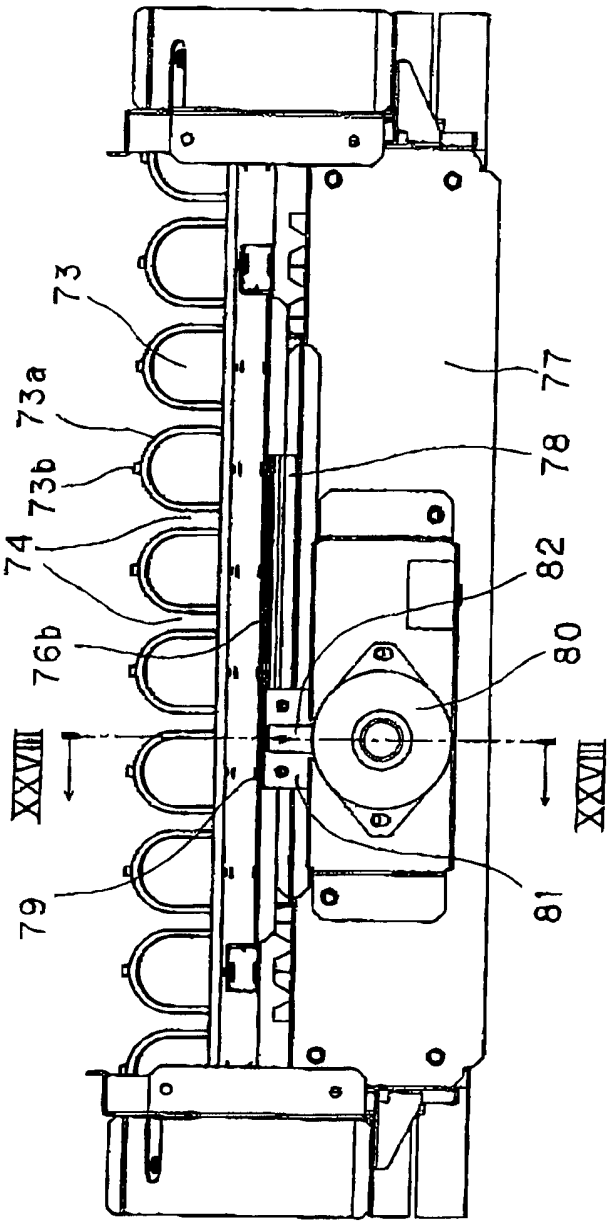


FIG. 28

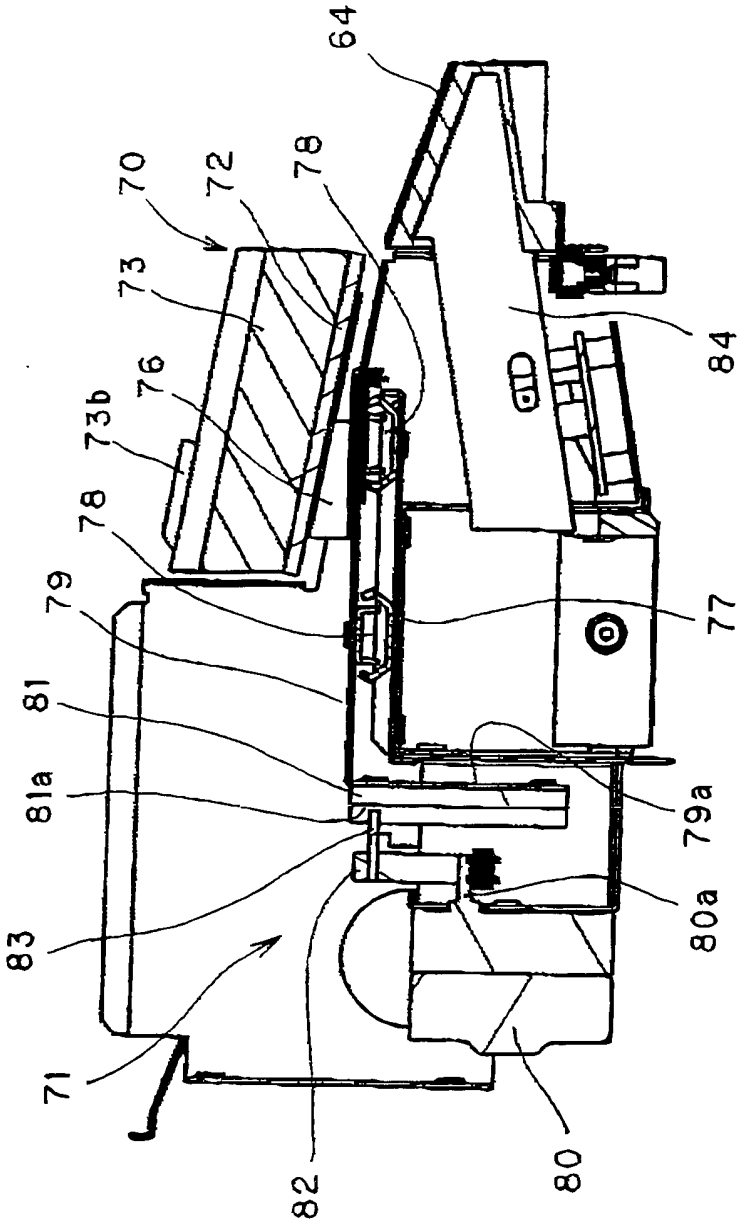


FIG. 29

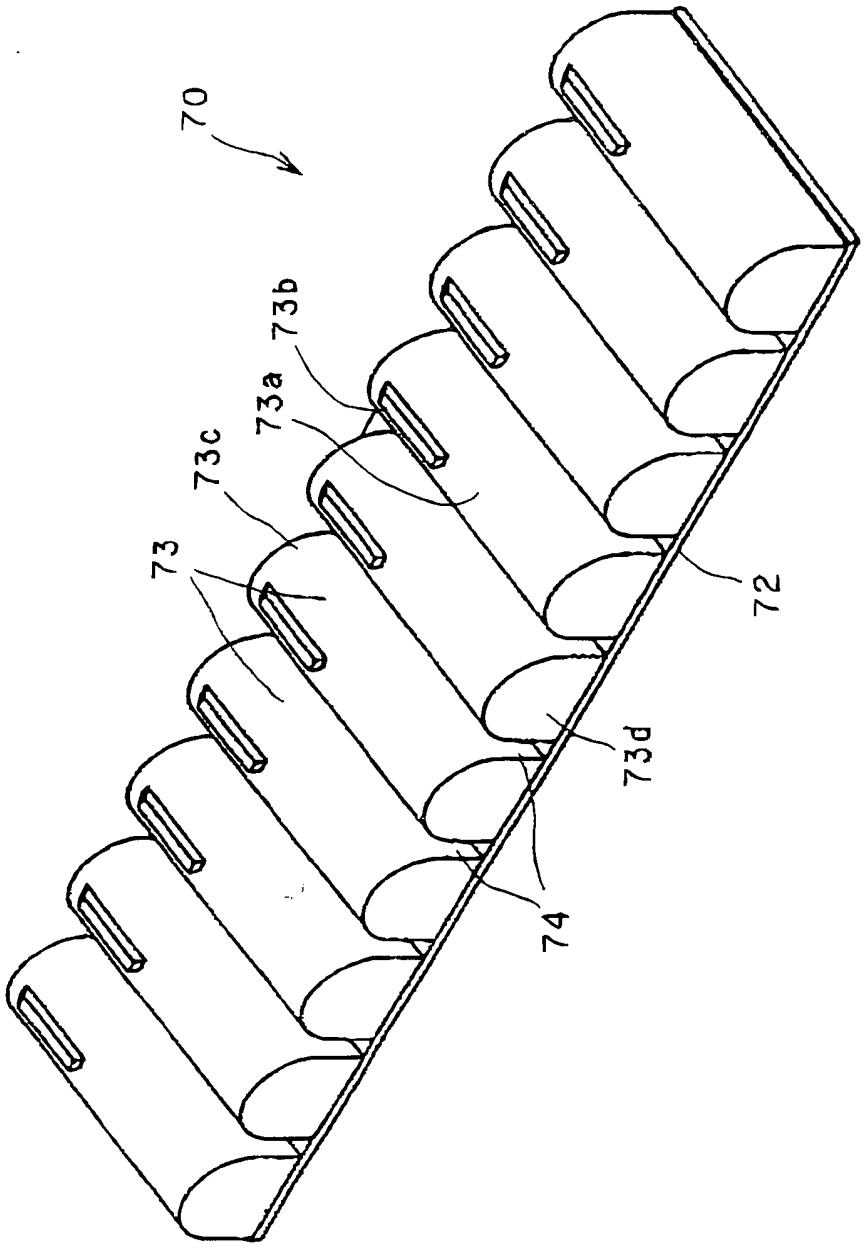


FIG. 30

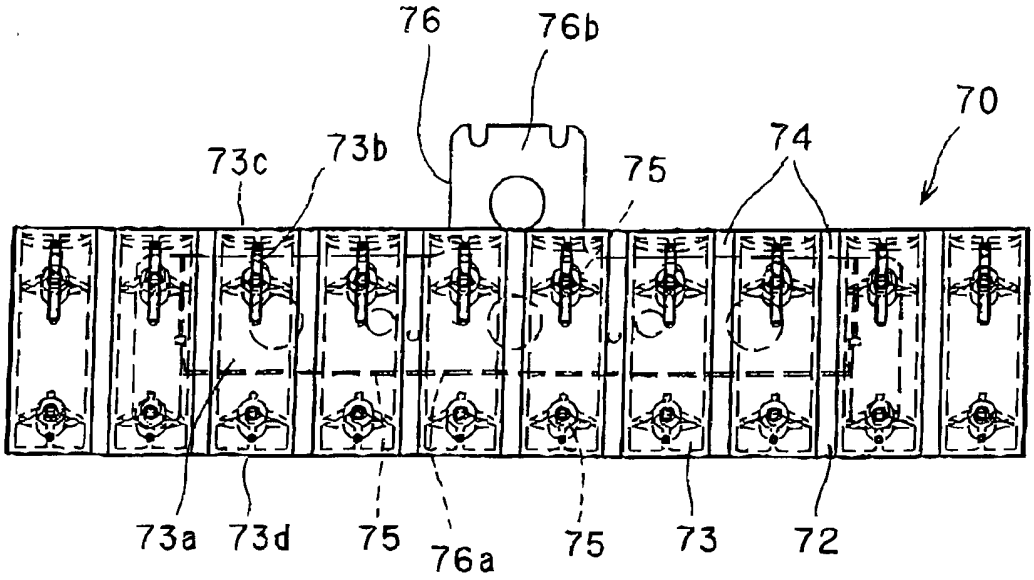

76
76b
70
73c
73b
74
75
73a
73d
75
76a
75
73
72

FIG. 31

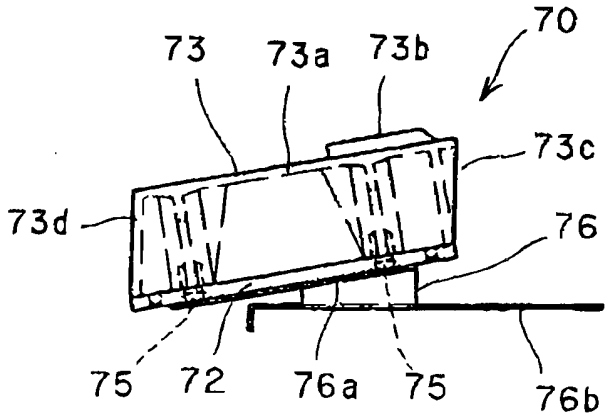

70
73
73a
73b
73c
73d
76
75
72
76a
75
76b

FIG. 32

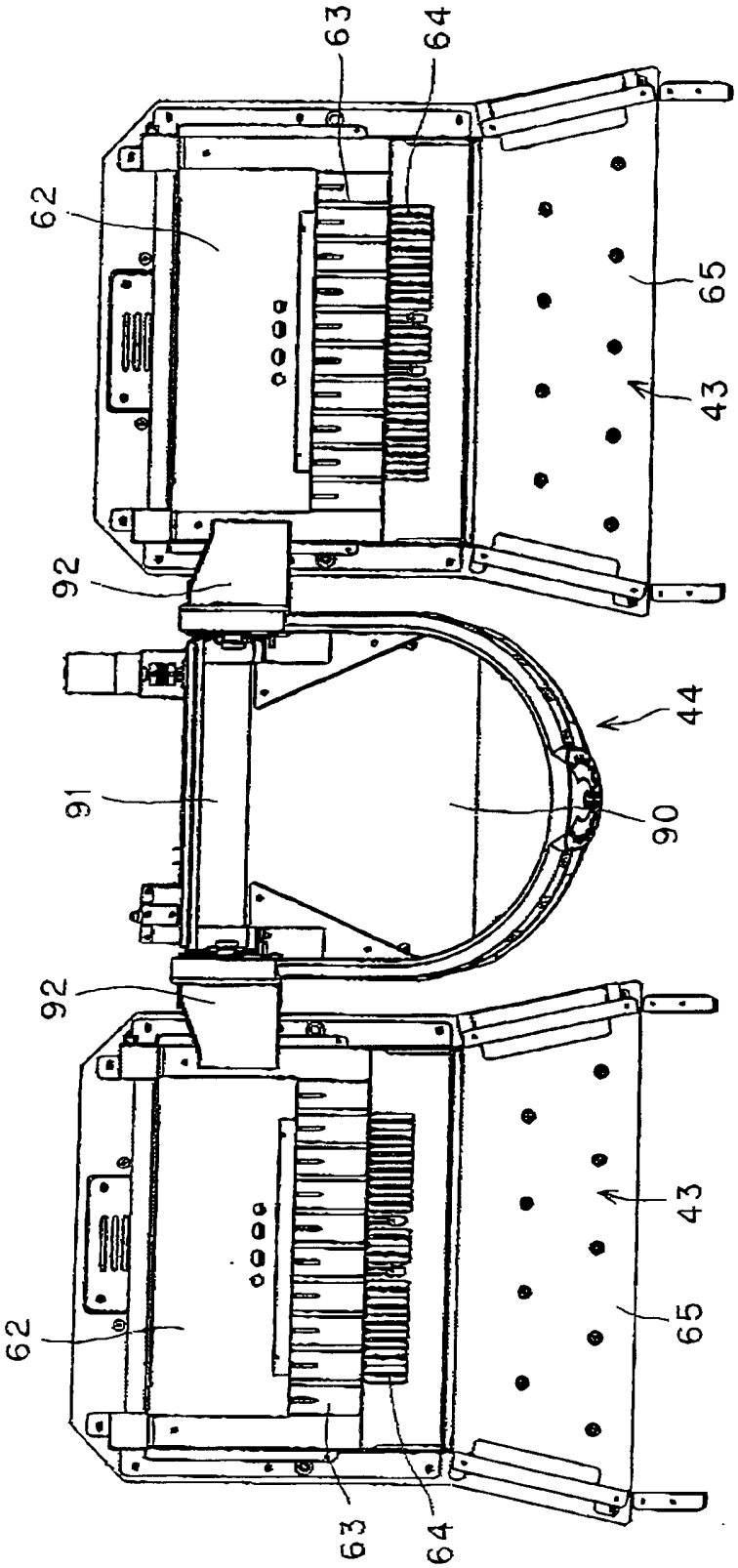


FIG. 33

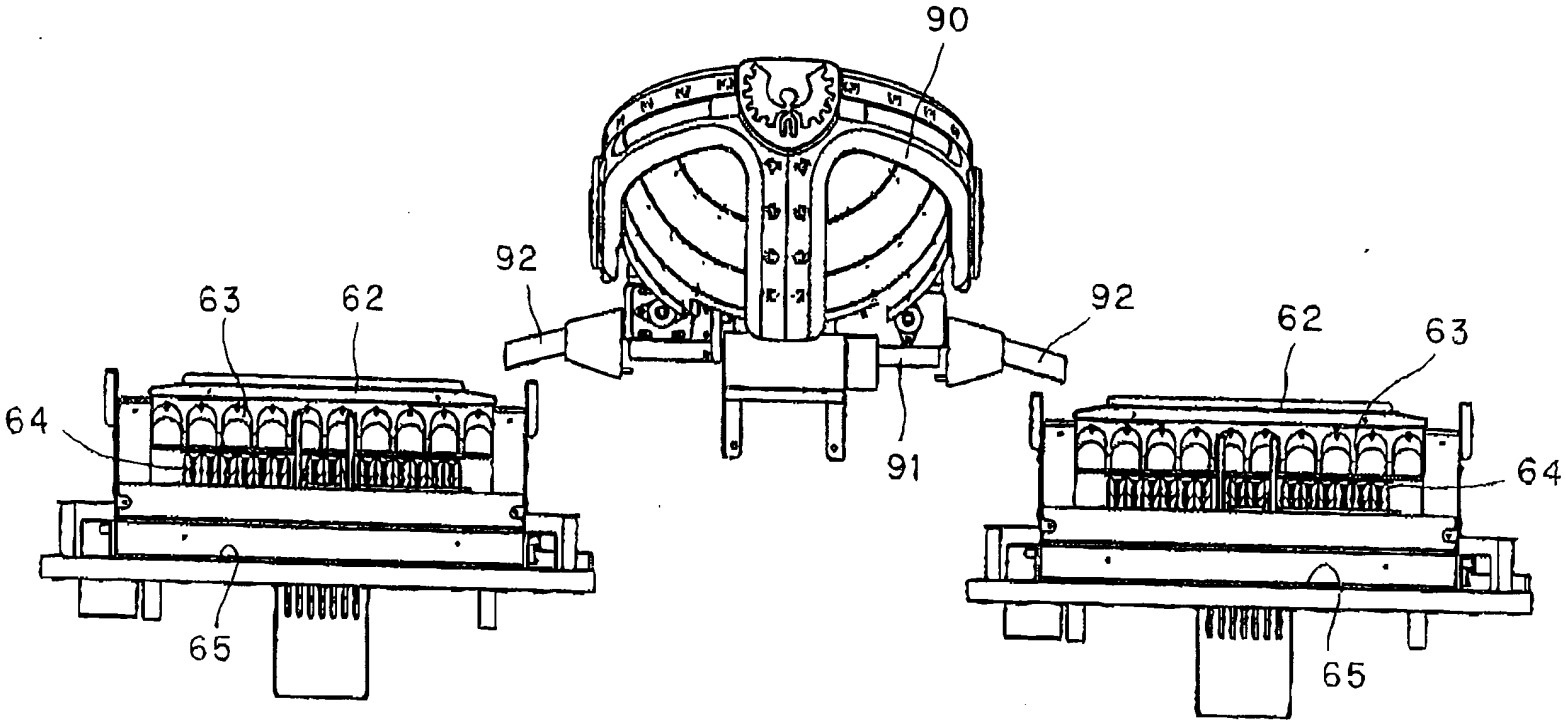


FIG. 34

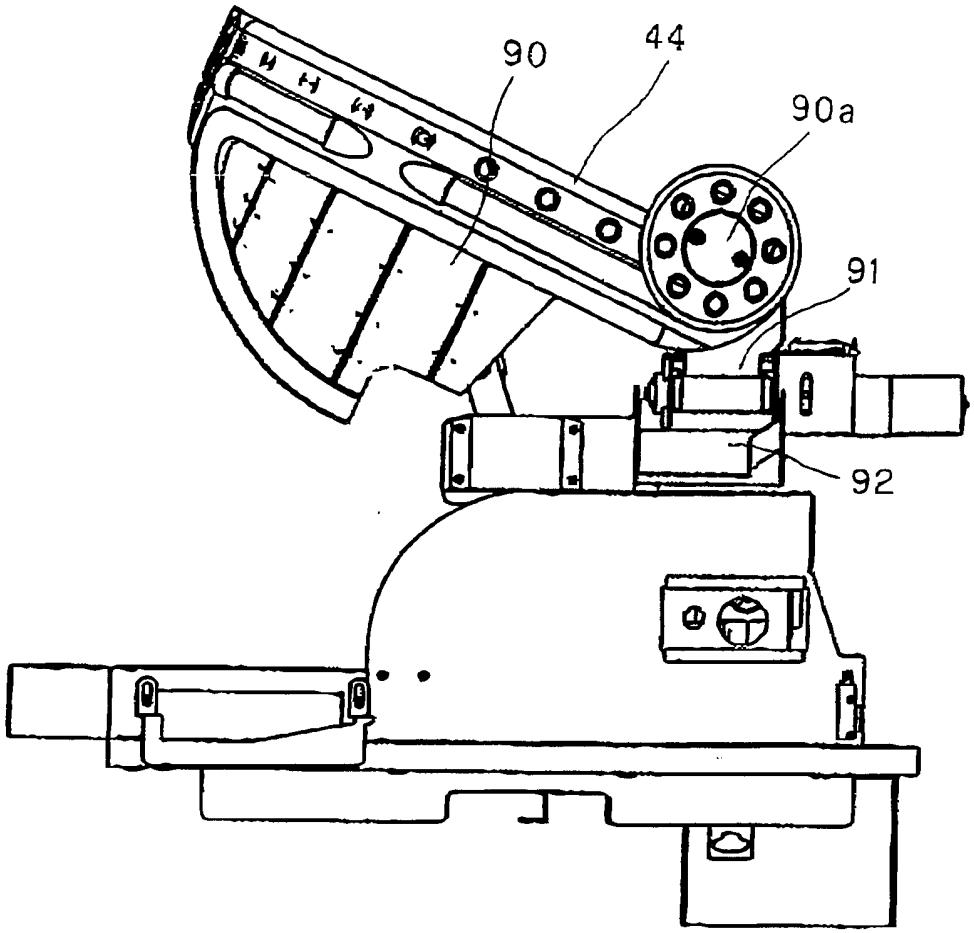


FIG. 35

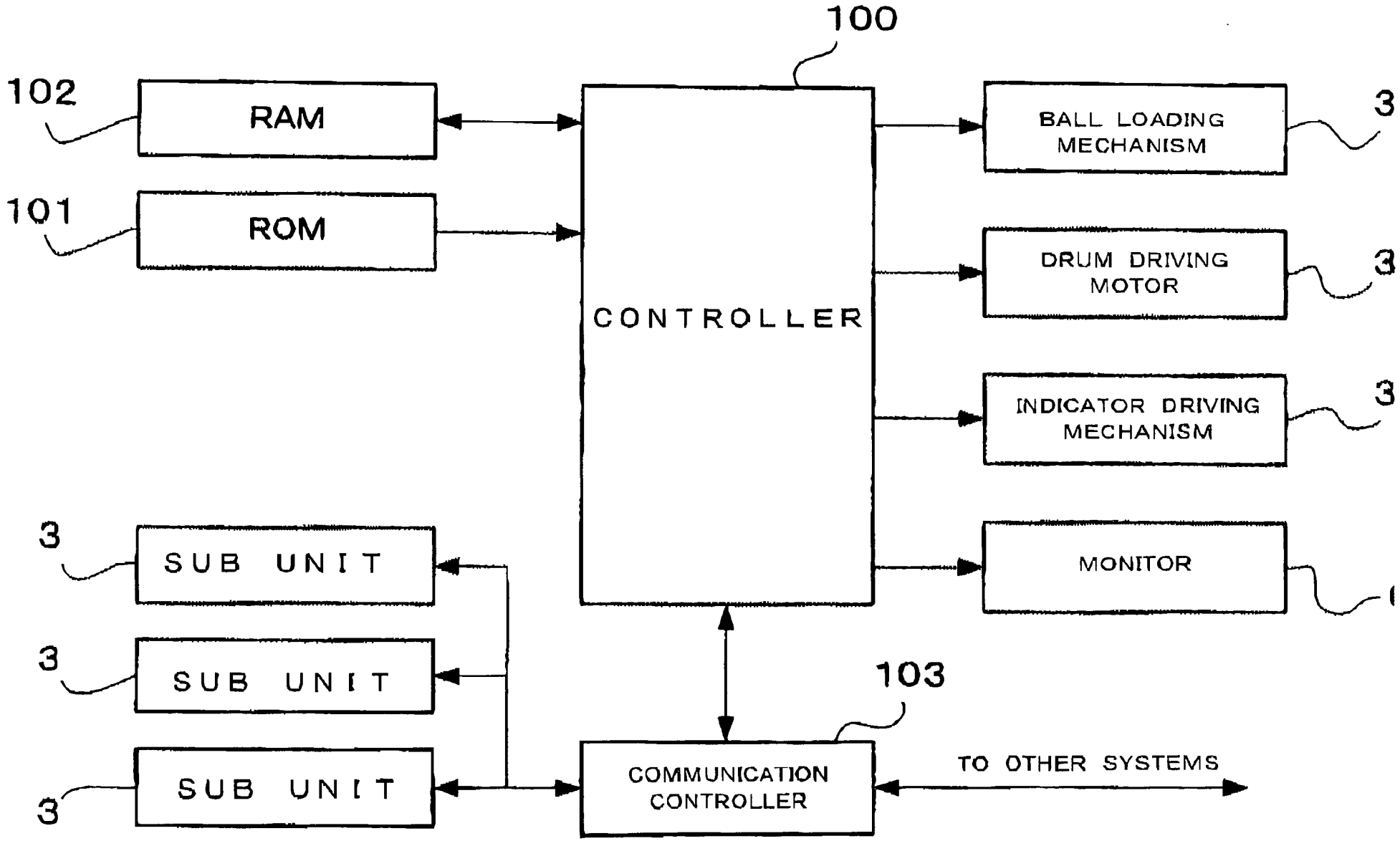

100
102
RAM
101
ROM
CONTROLLER
BALL LOADING MECHANISM
3
DRUM DRIVING MOTOR
3
INDICATOR DRIVING MECHANISM
3
MONITOR
3
SUB UNIT
3
SUB UNIT
3
SUB UNIT
103
COMMUNICATION CONTROLLER
TO OTHER SYSTEMS

FIG. 36

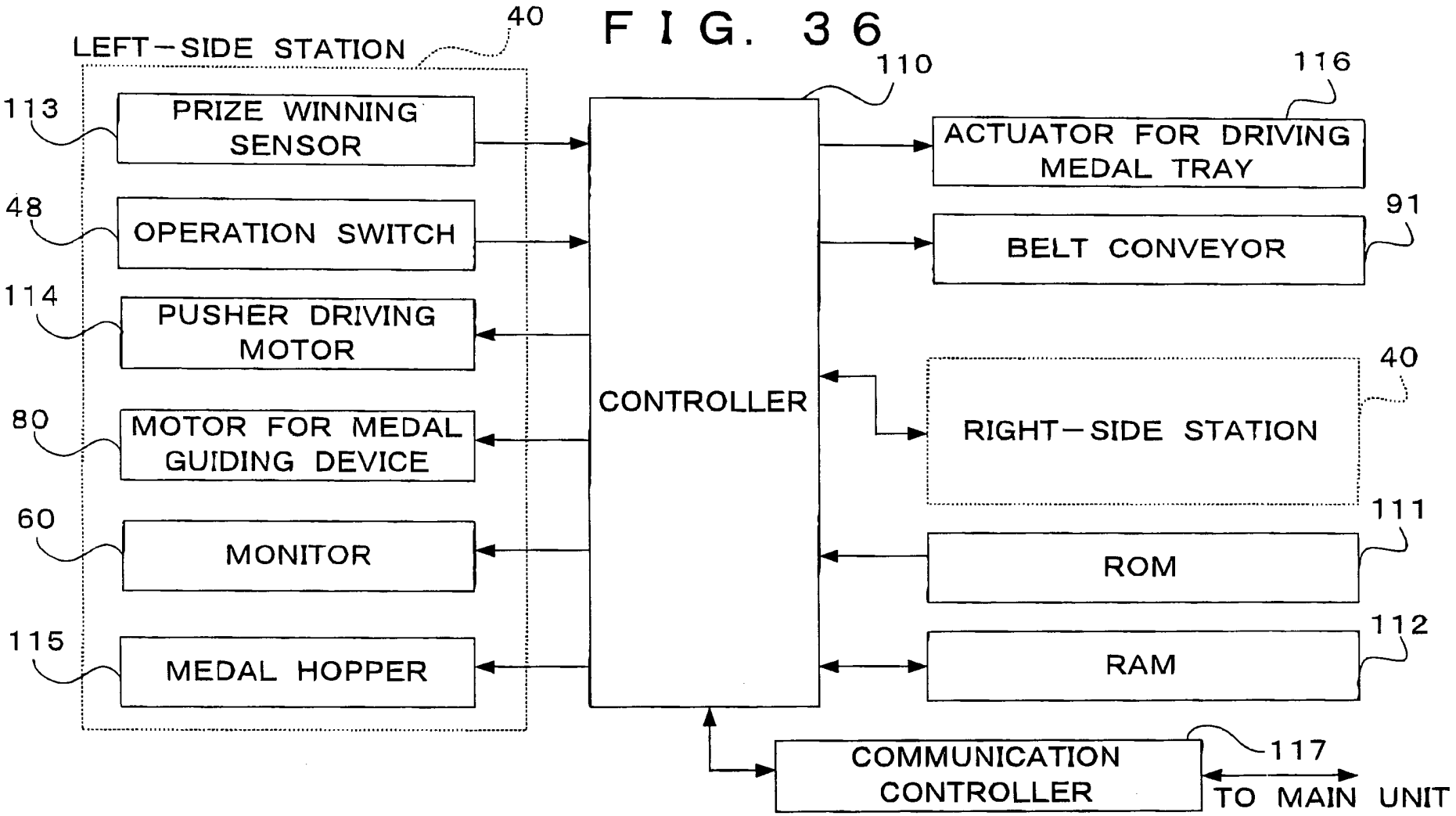

LEFT-SIDE STATION
40
113
PRIZE WINNING SENSOR
48
OPERATION SWITCH
114
PUSHER DRIVING MOTOR
80
MOTOR FOR MEDAL GUIDING DEVICE
60
MONITOR
115
MEDAL HOPPER
CONTROLLER
110
116
ACTUATOR FOR DRIVING MEDAL TRAY
91
BELT CONVEYOR
40
RIGHT-SIDE STATION
111
ROM
112
RAM
COMMUNICATION CONTROLLER
117
TO MAIN UNIT

FIG. 37

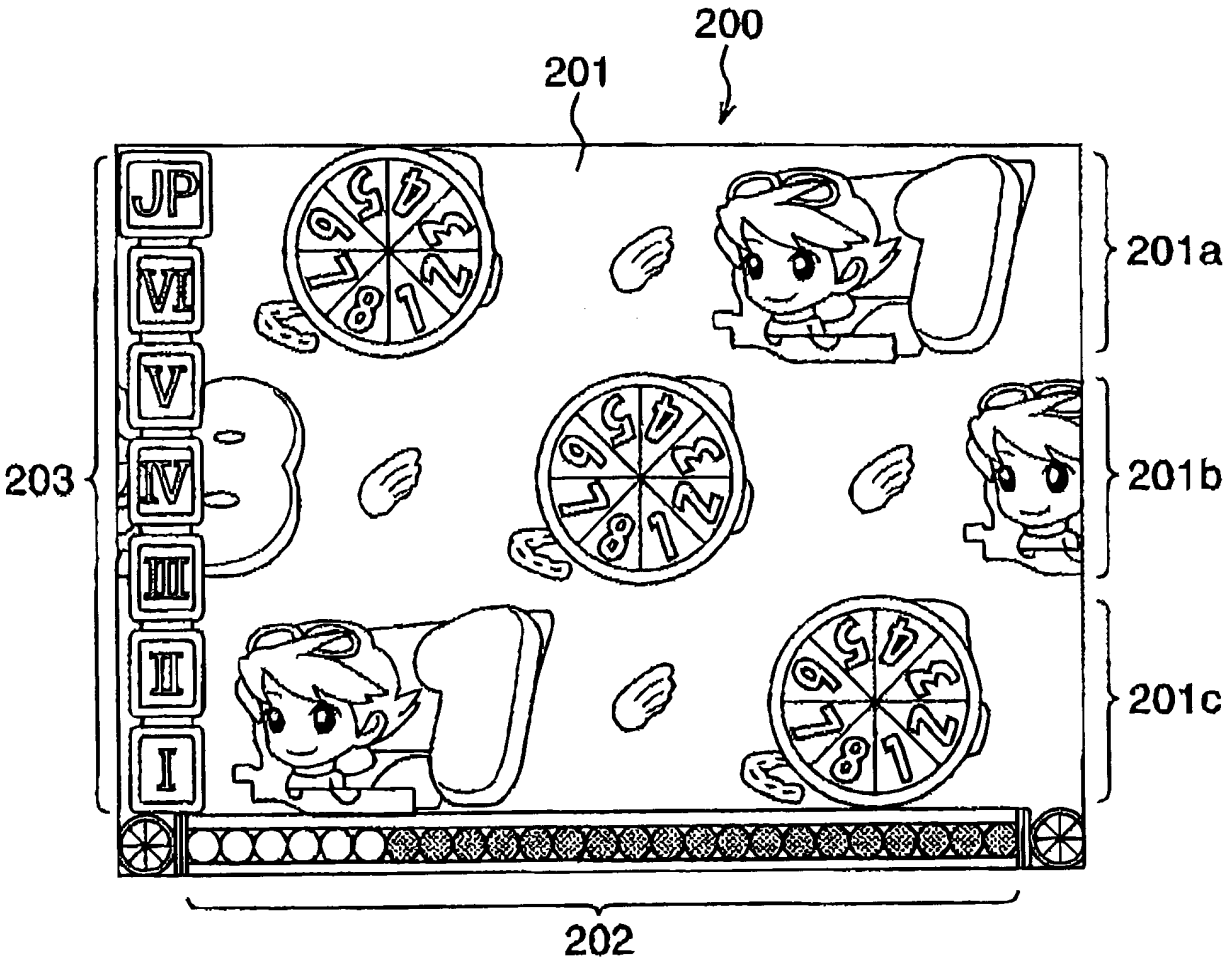


FIG. 38

111.333.555	PROBABILITY CHANGE START + EJECT MEDALS OF PREDETERMINED NUMBER
222.444.666.888	PROBABILITY CHANGE END + EJECT MEDALS OF PREDETERMINED NUMBER
	CENTER GAME·SINGLE(1 PLAY)
	CENTER GAME·TRIPLE(3 PLAYS) AND PROBABILITY CHANGE START

FIG. 39

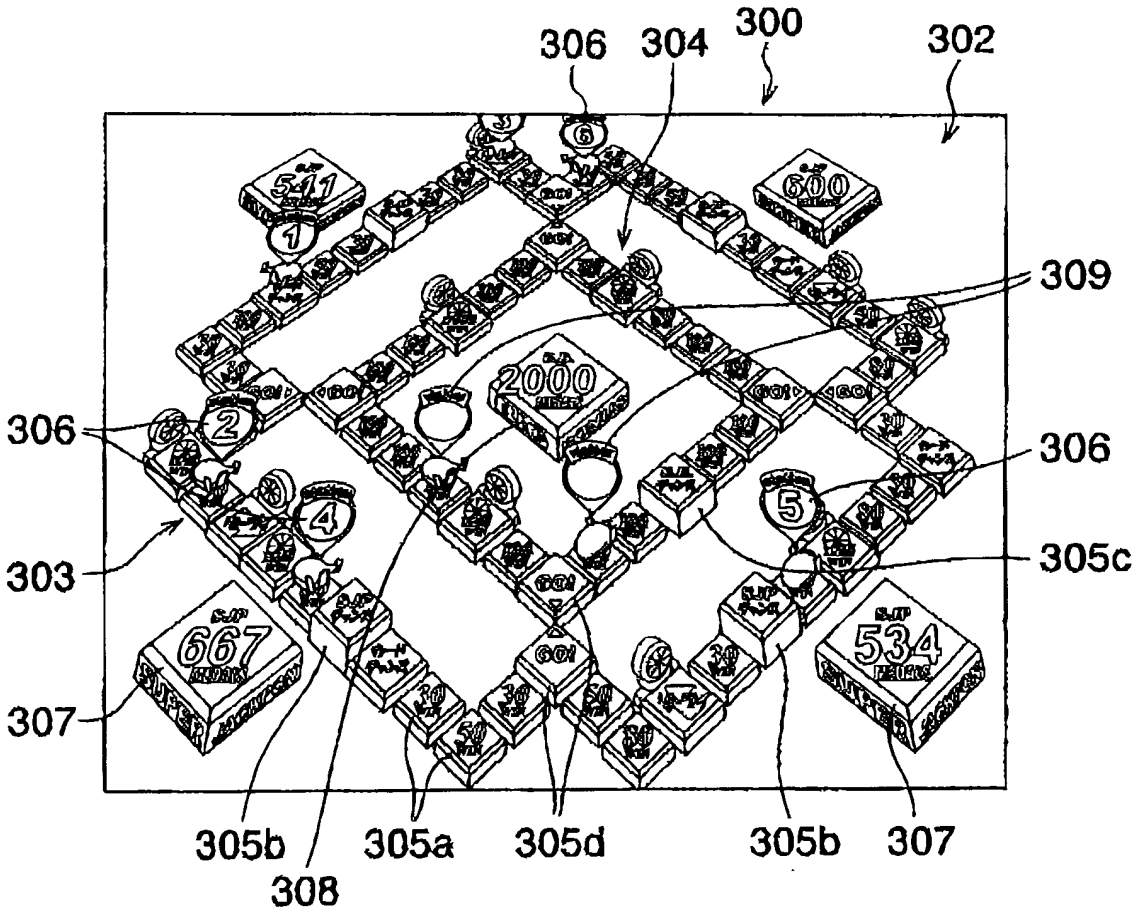

306
304
300
302
309
306
306
303
305c
307
305b
305a
305d
305b
307
308

FIG. 40

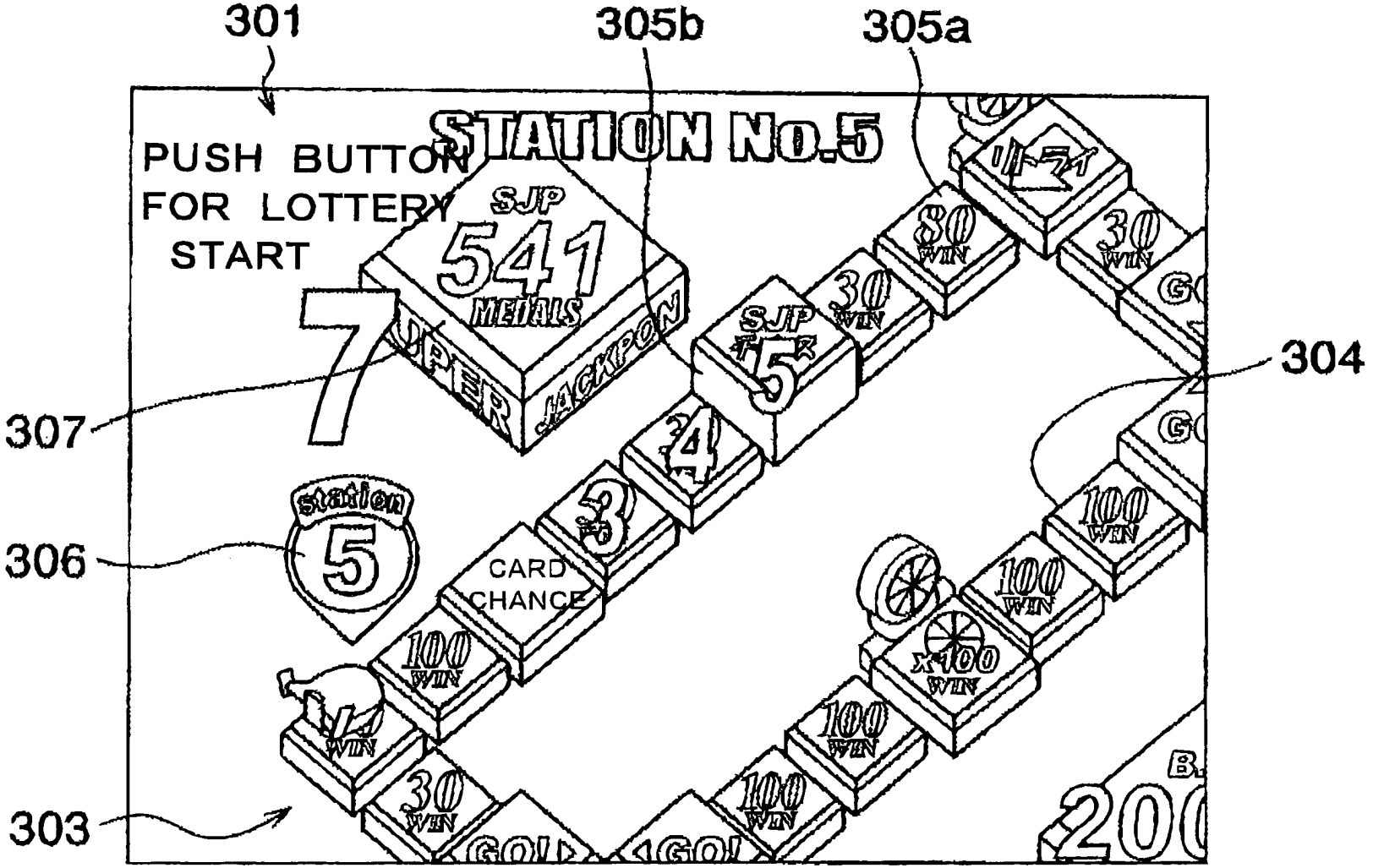

301
305b
305a
304
307
306
303
PUSH BUTTON
FOR LOTTERY
START
STATION No.5
SJP
541
MEDALS
JACKPOT
7
SUPER
SJP
5
30
WIN
80
WIN
30
WIN
4
3
100
WIN
CARD
CHANCE
station
5
100
WIN
100
WIN
x100
WIN
100
WIN
100
WIN
30
WIN
GOAL
GOAL

FIG. 41

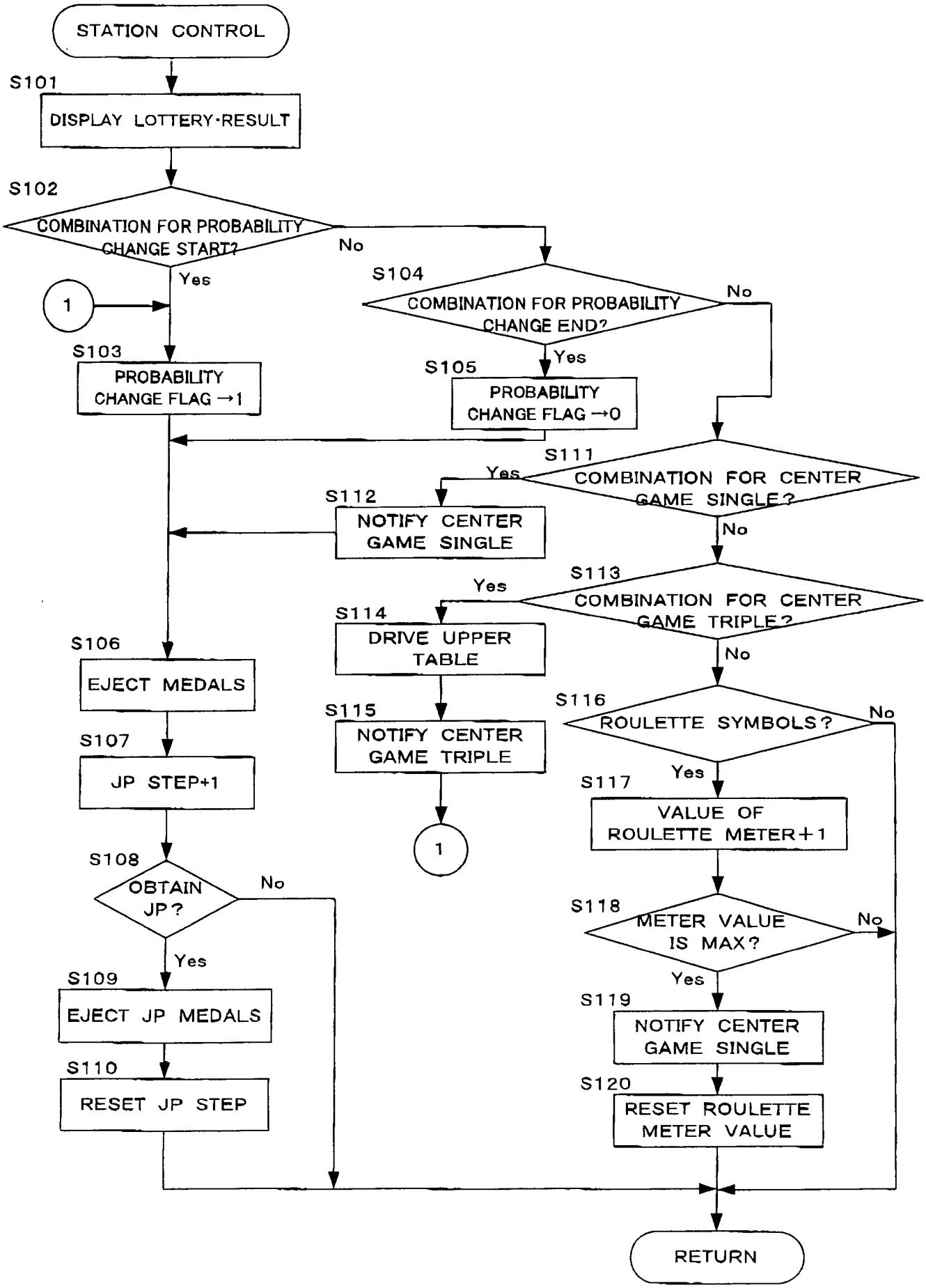

STATION CONTROL
S101
DISPLAY LOTTERY-RESULT
S102
COMBINATION FOR PROBABILITY CHANGE START?
No
Yes
1
S103
PROBABILITY CHANGE FLAG →1
S104
COMBINATION FOR PROBABILITY CHANGE END?
No
Yes
S105
PROBABILITY CHANGE FLAG →0
S111
COMBINATION FOR CENTER GAME SINGLE?
Yes
S112
NOTIFY CENTER GAME SINGLE
No
S113
COMBINATION FOR CENTER GAME TRIPLE?
Yes
S114
DRIVE UPPER TABLE
S115
NOTIFY CENTER GAME TRIPLE
1
No
S116
ROULETTE SYMBOLS?
No
Yes
S117
VALUE OF ROULETTE METER+1
S118
METER VALUE IS MAX?
No
Yes
S119
NOTIFY CENTER GAME SINGLE
S120
RESET ROULETTE METER VALUE
S106
EJECT MEDALS
S107
JP STEP+1
S108
OBTAIN JP?
No
Yes
S109
EJECT JP MEDALS
S110
RESET JP STEP
RETURN

FIG. 42

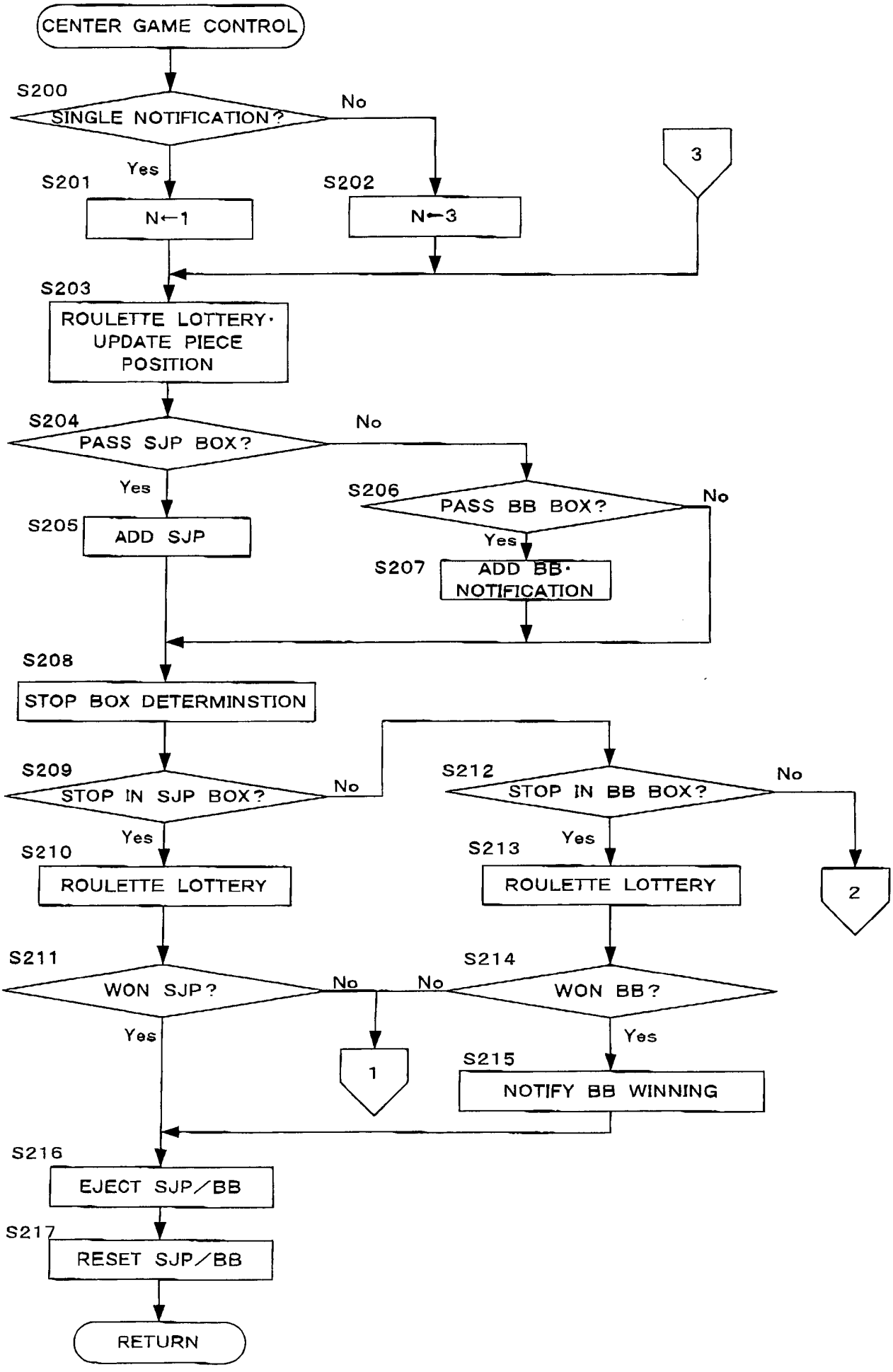

CENTER GAME CONTROL
S200
SINGLE NOTIFICATION?
No
Yes
S201
N←1
S202
N←3
3
S203
ROULETTE LOTTERY· UPDATE PIECE POSITION
S204
PASS SJP BOX?
No
Yes
S205
ADD SJP
S206
PASS BB BOX?
No
Yes
S207
ADD BB· NOTIFICATION
S208
STOP BOX DETERMINSTION
S209
STOP IN SJP BOX?
No
Yes
S210
ROULETTE LOTTERY
S211
WON SJP?
No
Yes
1
S212
STOP IN BB BOX?
No
Yes
S213
ROULETTE LOTTERY
2
S214
WON BB?
No
Yes
S215
NOTIFY BB WINNING
S216
EJECT SJP/BB
S217
RESET SJP/BB
RETURN

FIG. 43

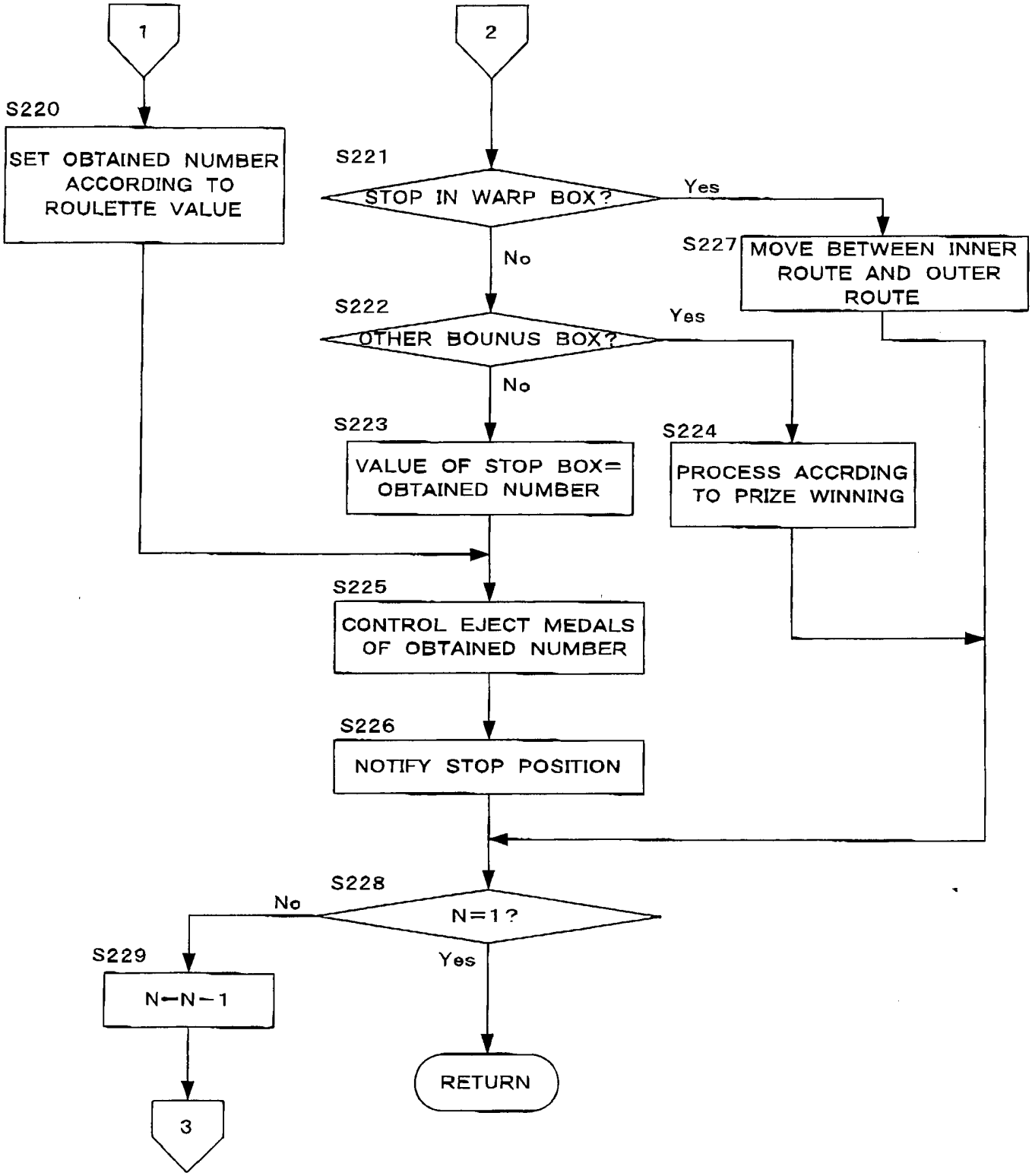
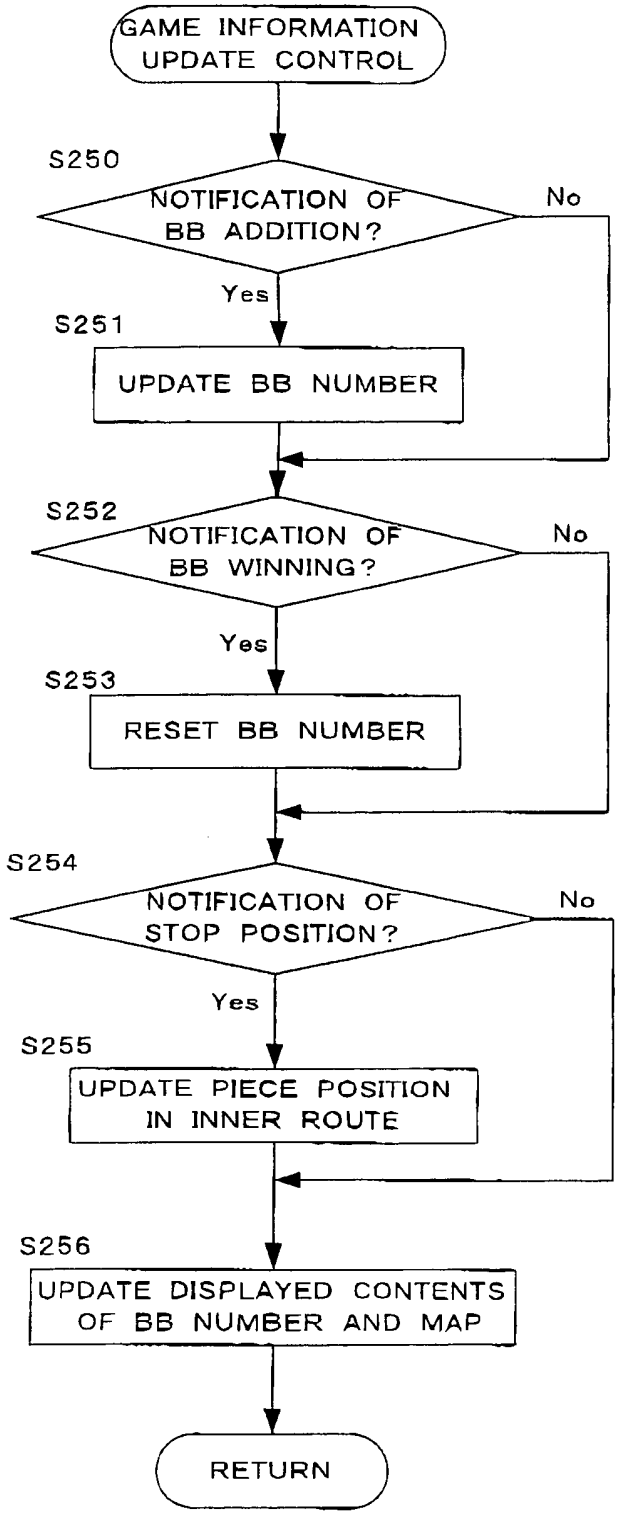

1
2
S220
SET OBTAINED NUMBER ACCORDING TO ROULETTE VALUE
S221
STOP IN WARP BOX?
Yes
No
S227
MOVE BETWEEN INNER ROUTE AND OUTER ROUTE
S222
OTHER BOUNUS BOX?
Yes
No
S223
VALUE OF STOP BOX= OBTAINED NUMBER
S224
PROCESS ACCRDING TO PRIZE WINNING
S225
CONTROL EJECT MEDALS OF OBTAINED NUMBER
S226
NOTIFY STOP POSITION
S228
N=1?
No
Yes
S229
N←N−1
RETURN
3

FIG. 44


GAME INFORMATION UPDATE CONTROL
S250
NOTIFICATION OF BB ADDITION?
No
Yes
S251
UPDATE BB NUMBER
S252
NOTIFICATION OF BB WINNING?
No
Yes
S253
RESET BB NUMBER
S254
NOTIFICATION OF STOP POSITION?
No
Yes
S255
UPDATE PIECE POSITION IN INNER ROUTE
S256
UPDATE DISPLAYED CONTENTS OF BB NUMBER AND MAP
RETURN

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DESCRIPTION

GAME MACHINE

Technical Field

[0001]

The present invention relates to a game machine having plural stations.

Background Art

[0002]

In game machines having plural stations, the game machine has been already known, which provides, in addition to an individual game played individually at the each station, a center game to give a player higher reward than the individual game by accumulating common reward by the plural stations and fighting for the reward among the stations.

Disclosure of Invention

Problem to be solved by the Invention

[0003]

However, the number of stations connected to a single game machine is limited. Even when common reward is accumulated by the stations, the rate of climb is low. If a high reward is prepared, it is rare to win the prize because the probability is low. Consequently, the interest in the center game tends to decrease.

[0004]

An object of the present invention is therefore to provide a game machine capable of increasing interest in a center game.

Means for solving the problem

[0005]

The present invention solves the above problem by the following means.

[0006]

The present invention solve the above problem by a game machine having plural stations and capable of playing an individual game executed individually in each of the stations and a center game commonly executed by the plural stations, including: reward storing means for storing an independent reward that is set among the plural stations provided for the game machine itself and a common reward that is set in a range including the plural stations and other game machines; game executing means for allowing the station satisfying a predetermined condition in the individual game to execute the center game; a reward controller for controlling payment of the independent reward and the common reward to the plural stations in accordance with execution situations of the center game and increase/decrease of the independent reward and the common reward stored in the reward storing means; and information sharing means for controlling the common reward stored in the reward storing means by exchanging information regarding the common reward with the other game machines so that the common reward stored in the reward storing means in the game machine and the other game machines agree with each other.

[0007]

In the game machine, part of the reward to be fought among the plural stations in the center game is set as a common reward.

The common reward is controlled so as to agree with that for other game machines. Therefore, increase/decrease of a reward exerts an influence on the other game machines. As compared with the case of fighting for a reward only in a single game machine, a change in the reward in the center game is larger. Consequently, attention to the center game increases and the interest in the center game increases.

[0008]

In the game machine, it is sufficient to make the common reward agree with that of other game machines irrespective of whether the other game machines can play the same center game or not. The execution situations of the center game considered by the reward control means may include various concepts such as a result of play of the center game, a result obtained by the center game, the progress of the play of the center game, and the like.

[0009]

In the game machine of the present invention, the game executing means can execute, as a center game, a game which is common in the other game machines, and the information sharing means may exchange information regarding the execution situations of the center game with the other game machines. In this case, the game machine may further include display control means for displaying execution situations and the common reward of the center game in the game machine itself and the other game machines onto the display. With the configuration, the execution situations including the other game machines of the center game and increase/decrease of the common reward can be presented to the player of each station. The tension of the players is

therefore raised and the interest in the center game further increases.

[0010]

Another game machine of the present invention is a game machine having plural stations, a station controller for controlling an individual game individually executed by each of the stations, and a center game controller for controlling a center game commonly executed by the plural stations. The game machine capable of executing the same center game with other game machines includes: map information storing means for storing map information for presenting a map including at least one route constructed by connecting plural boxes commonly to the plural stations; and piece position storing means for storing the position of a piece corresponding to each of the stations on the route. The center game controller includes: a piece position controller for executing a predetermined piece advancing process as a kind of the center game when a predetermined condition is satisfied in any of the plural stations and updating the position of the piece stored in the piece position storing means so that the piece corresponding to the station satisfying the condition advances on the route only by the number of boxes according to a result of the piece advancing process; a reward controller for controlling giving of a reward to a play of the center game in association with a change in the position of the piece; and information sharing means for making information stored in the map information storing means and in the piece position storing means in the game machine itself consistent with the information in the other game machines so that at least one specific route included in the map stored in the map information storing means

and the position of the piece on the specific route stored in the piece position storing means are shared with the other game machines. The reward controller controls giving of the reward associated with the position of the piece on the specific route so that the game machine and other game machines sharing the specific route fight for the giving of the reward. With the configuration, the problem is solved.

[0011]

In the invention, a specific route, that is at least a part of a map, is shared with other game machines, a piece corresponding to each station in each game machine moves on the shared specific route in accordance with the piece advancing process, and giving of a reward is controlled in association with a change in the position of the piece. By controlling the giving of reward so as to be fought for with the other game machines, a play form is provided such that not only the plural stations but also the plural game machines simultaneously play the center game and fight for the reward. As compared with the case where only a single game machine fights for a reward, the degree of attention to the center game increases and the interest is increased.

[0012]

The game machine of the invention may further include reward storing means for storing a common reward for which the game machine fights with the other game machines. The information sharing means makes the information in the reward storing means consistent with that in other game machines so that a common reward stored in the reward storing means agrees with that in the other game machines. The reward controller may

increase/decrease the common reward stored in the reward storing means in association with the position of the piece of the game machine itself, disposed on the specific route. In this case, the common reward is the same among the game machines. When a common reward is given as a result of the center game in any of the game machines, the common reward is equally decreased in all of the game machines. Consequently, the players can clearly recognize the concept of fighting for a common reward among the game machines, and their interests in the center game can be increased certainly. In the game machine of the invention, the amount of the reward may be expressed by the number of game media (such as medals) used in the individual games.

[0013]

In the game machine of the invention, when the piece stops in a specific box on the specific route, the reward controller may execute a predetermined lottery process as a kind of the center game, when a specific result is obtained by the lottery process, the reward controller pays out at least part of the common reward to a station corresponding to the piece stopping in the specific box, and reduce the common reward stored in the reward storing means by amount of paying out. In such a manner, multiple processes for obtaining the common reward are provided, and the interest in the center game can be further increased.

[0014]

The game machine of the invention further includes a display shared by the plural stations, and the center game controller may display the map stored in the map information storing means onto the screen of the display, and displays images of the pieces corresponding to the game machine itself and the other game

machines onto the map on the basis of positions of the pieces stored in the piece position storing means. In such a manner, not only the piece of the game machine itself but also the pieces of the other game machines are displayed on the screen of each game machine. When a state that the piece of another game machine is approaching a specific box is displayed, tensions of the players are increased and the interest in the center game further increases.

Effect of the Invention

[0015]

As described above, according to the invention, a game machine shares a specific route, that is at least a part of a map, with other game machines. The piece corresponding to each of stations in each game machine moves on the shared specific route in accordance with the piece advancing process. Giving of a reward is controlled in association with a change in the position of the piece. The giving of a reward is controlled so that the game machine fights for a reward with other game machines, thereby providing a play mode in which the center game is simultaneously executed not only among the plural stations but also among the plural game machines to fight for a reward among them. Consequently, as compared with the case of fighting for obtaining a reward by a single game machine, the degree of attention to the center game increases and the interest in the center game further increases.

Brief Description of the Drawings

[0016]

FIG. 1 is a front view of a game machine according to an embodiment of the present invention.

FIG. 2 is a plan view of the game machine.

FIG.3 is a right side view of the game machine.

FIG. 4 is a front view of a main unit.

FIG. 5 is a perspective view on the front side of the main unit.

FIG. 6 is a perspective view on the rear side of the main unit.

FIG. 7 is an enlarged diagram of a portion VII in FIG. 6.

FIG. 8 is a rear view of a light box.

FIG. 9 is a cross section view taken along line IX-IX of FIG. 8.

FIG. 10 is a diagram showing an example of projection of an image to a screen of the main unit.

FIG. 11 is a perspective view on the front side of a lottery machine.

FIG. 12 is a perspective view on the rear side of the lottery machine.

FIG. 13 is a perspective view on the front side of a sub unit.

FIG. 14 is a front view of the sub unit.

FIG. 15 is a plan view of the sub unit.

FIG. 16 is a right side view of the sub unit.

FIG. 17 is a perspective view of a medal tray.

FIG. 18 is a cross section view taken along line XVIII-XVIII of FIG. 17.

FIG. 19 is a perspective view showing the configuration

of a game board.

FIG. 20 is a perspective view of an enlarged part from an upper table to a lower table.

FIG. 21 is a plan view of the game board.

FIG. 22 is a right side view of the game board.

FIG. 23 is a vertical cross section view in an anteroposterior direction of the game board.

FIG. 24 is a front view of the game board.

FIG. 25 is a perspective view from the rear side of a medal guiding device.

FIG. 26 is a plan view of the medal guiding device.

FIG. 27 is a rear view of the medal guiding device.

FIG. 28 is a cross section view taken along line XXVIII-XXVIII of FIG. 27.

FIG. 29 is a perspective view of a guide block.

FIG. 30 is a plan view of the guide block.

FIG. 31 is a right side view of the guide block.

FIG. 32 is a plan view of a medal ejecting device.

FIG. 33 is a front view of the medal ejecting device.

FIG. 34 is a right side view of the medal ejecting device.

FIG. 35 is a block diagram of a control system provided for the main unit.

FIG. 36 is a block diagram of a control system provided for the sub unit.

FIG. 37 is a diagram showing a game screen displayed on a monitor of a station.

FIG. 38 is a diagram showing an example of winning characters, used in the game screen of FIG. 37.

FIG. 39 is a diagram showing a game screen displayed on

a monitor of the main unit.

FIG. 40 is a diagram showing a game screen displayed on the monitor of the station when a main game is played.

FIG. 41 is a flowchart showing a station control routine executed by a controller of the sub unit.

FIG. 42 is a flowchart showing a center game control routine executed by a controller of a main unit.

FIG. 43 is a flowchart continued from FIG. 42.

FIG. 44 is a flowchart showing a game information updating control routine executed by a controller of the main unit.

Best Mode for Carrying Out the Invention

[0017]

FIGS. 1 to 3 show an embodiment of a game machine to which the present invention is applied. FIG. 1 is a front view, FIG. 2 is a plan view, and FIG. 3 is a right side view. As obviously understood from the diagrams, a game machine 1 is constructed as a commercial game machine (so-called arcade game machine) which is set in a commercial facility such as a game hall and providing a game within a predetermined range in compensation for consumption of an economic value of a player, and includes a main unit 2, and three sub units 3 disposed in the center of the front face of the main unit 2 and on the right and left sides of the front face respectively. Each of the sub units 3 can be installed in a proper position apart from the main unit 2. The economic value in the game machine 1 is consumed by insertion of medals into the sub unit 3.

(Configuration of Main Unit)

[0018]

As specifically shown in FIGS. 4 to 6, the main unit 2 has a chassis 5 which can stand by itself on the floor of a shop or the like. The chassis 5 is constructed by using wood or a resin material like a normal game machine. A monitor 6 is mounted on the left side of the front face of the chassis 5 and a lottery machine 7 is mounted on the right side of the monitor 6. As the monitor 6, a large display such as a liquid crystal projector or a plasma display is preferably used. Obviously, a liquid crystal display or a CRT may be also used as the monitor. The lottery machine 7 will be described later.

[0019]

The chassis 5 of the main unit 2 is provided with various decorations to improve the decorating effect of the game machine 1. For example, decorations 8 are provided on the outside of the monitor 6 and the lottery machine 7. Similarly, to improve the decorating effect of the game machine 1, a sail 10 is provided on a top face 5a of the chassis 5. As shown in FIGS. 5 and 6, the sail 10 has a frame work 11 and a screen 12 stretched on the surface of the frame work 11. The frame work 11 is constructed by combining plural vertical frames 13 and plural lateral frames 14. On the other hand, the screen 12 is constructed by, for example, vinyl cloth or sailcloth of white. The screen 12 is fixed to the surface of the frame work 11 so as to have proper slackness between the vertical frames 13. For fixing the screen 12, various means may be used.

[0020]

A cover 5b covering the lower part of the sail 10 is fixed to the front edge of the top face 5a of the chassis 5. On the

back side of the cover 5b, plural frame supporting plates 15 are provided so as to stand in parallel with the anteroposterior direction of the chassis 5 and upright at intervals in the horizontal direction (the horizontal direction of FIG. 1) of the chassis 5. Each of the frame supporting plates 15 is fixed to the top face 5a and the cover 5b of the chassis 5 by using bolts 16. A frame holder 17 is attached to each of the frame supporting plates 15. With respect to the two frame supporting plates 15 on this side of FIG. 6, the frame holders 17 are provided on the back side and are not seen.

[0021]

As specifically shown in FIG. 7, the frame holder 17 has a cylindrical body of a square shape in cross section with one side face open. Flanges 17a (only one side is shown in FIG. 7) are provided at both edges of the opening. The frame holder 17 is fixed onto the frame supporting plate 15 by screwing a bolt 18 attached to the flange 17a into the frame supporting plate 15. By attaching the frame holder 17 to the frame supporting plate 15, an elongated cavity is formed between the frame supporting plate 15 and the frame holder 17. By inserting the bottom end of the vertical frame 13 into the cavity, the sail 10 is attached onto the chassis 5 in a state where the sail 10 is tilted so as to project at the front side of the game machine 1 towards the top end thereof.

[0022]

In the frame supporting plate 15, plural screw holes 19 into which the bolts 18 attached to the bottom end of the frame holder 17 are to be screwed are formed. The screw holes 19 are provided along an arc having a predetermined radius of curvature

around a fulcrum as a center which is set on the top end side of the frame holder 17. Although not shown, screw holes corresponding to the bolts 18 attached to the top end side of the frame holder 17 are also provided along an arc having a predetermined radius of curvature around the fulcrum as a center. On the top end side, any one of the screw holes may be used as the fulcrum for changing the tilt angle of the frame holder 17. Therefore, by changing the screw hole 19 to which the bolt 18 is to be screwed, the tilt of the frame holder 17 is changed and thereby, the tilt angle of the sail 10 can be changed. When the vertical frames 13 are pulled out from the frame holder 17, the sail 10 itself can be detached from the chassis 5.

[0023]

As shown in FIGS. 4 to 6, a light box 20 is provided at the bottom end on the front side of the chassis 5. As shown in FIGS. 8 and 9, the light box 20 has a closed cabinet 21 and can be detached from the chassis 5. A top face 21a of the cabinet 20 is inclined and a transparent panel 22 is provided almost in the full length in the width direction (corresponding to the horizontal direction of the chassis 5) of the light box 20 in part of the top face 21a. A projector 23 is disposed in the cabinet 21 so as to face the transparent panel 22. The projector 23 is for projecting a figure or the like printed on a slide 24 by illumination light emitted from a light source 25. The direction of projection is set to the vertical direction. As obvious from FIG. 5, the light box 20 is disposed on the front side of the chassis 5 so that the transparent panel 22 is positioned just below the sail 10. With the configuration, the illumination light of the projector 23 can be received by the screen 12 of the sail

10 and an image of the figure or the like of the slide 24 can be projected onto the screen 12. FIG. 10 shows an example. An image projected onto the screen 12 may be a still picture or a motion picture. The slide 24 may not be provided and a dynamic image may be formed on the screen 12 by changing the colors, patterns, and the like of the illumination light from the light source 25.

[0024]

When the sub units 3 are disposed around the chassis 5 as shown in FIGS. 1 to 3, the position of each of the sub units 3 is set so as not to overlap the optical path extending from the projector 23 to the screen 12. By surrounding the light box 20 with the sub units 3, there is no possibility that a player or the like enters the optical path extending from the projector 23 to the screen 12.

[0025]

FIGS. 11 and 12 show the main portion of the lottery machine 7. As shown in FIG. 11, the lottery machine 7 has a cabinet 30, a drum 31 disposed on the front side of the cabinet 30 so as to be turnable around the axis in the anteroposterior direction, and an indicator 32. A ball path 33 is provided around the drum 31. As shown in FIG. 10, the surface of the drum 31 is equally divided into eight pieces in the circumferential direction and numbers 1 to 8 are indicated in the areas respectively.

[0026]

As shown in FIG. 12, the cabinet 30 has therein a ball loading mechanism 34, a drum driving motor 35, an indicator driving mechanism 36, and a ball collecting mechanism 37. The ball loading mechanism 34 loads a ball B for lottery (refer to FIG.

11) into the ball path 33 in response to a load instruction given from the control system of the game machine 1 to the lottery machine 7. The drum drive motor 35 rotates the drum 31 around its axis as a center. The indicator driving mechanism 36 monitors whether or not the ball B drops in a pocket 38 provided just below the drum 31 and continued from the ball path 33. In response to detection of drop of the ball B into the pocket 38, the indicator driving mechanism 36 moves the indicator 32 from a standby position P1 in which the indicator 32 lies horizontally to an action position P2 in which the indicator 32 lies vertically as shown in FIG. 11. The tip of the indicator 32 is formed in a needle shape and can selectively point one of the areas on the drum 31 in the action position P2.

[0027]

The ball B dropped in the pocket 38 is led to the ball collecting mechanism 37 via a duct 39. The ball collecting mechanism 37 gives the ball B back to the ball loading mechanism 34 and is constructed, for example, so as to carry the ball B received from the duct 39 upward in the vertical direction by a teethed belt 37a which runs in the vertical direction and pass the ball B to a ball holding part 34a of the ball loading mechanism 34 around the turn position at the top end of the belt 37a.

[0028]

Such a lottery machine 7 is provided to select one of the numbers 1 to 8 provided on the drum 31 and its function is realized as follows. First, when a lottery start instruction is given from the control system of the game machine 1 to the lottery machine 7, in response to the instruction, the drum driving motor 35 is driven to start rotating the drum 31. Subsequently, when

a ball loading instruction is given to the ball loading mechanism 34, the ball B is loaded to the ball path 33. When the loaded ball B reaches the pocket 38, the indicator driving mechanism 36 is driven to drive the indicator 32 to the action position P2. Synchronously, the drum driving motor 35 is stopped so that it is seen as if the drum 31 was pressed by the indicator 32 and stopped. After the drum 31 stops, the number indicated by the tip of the indicator 32 is specified by the rotation position of the drum driving motor 35 (for example, it is detected by an encoder), and one of the numbers 1 to 8 is determined as the number chosen by the lottery. The ball B in the pocket 38 is returned by the ball collecting mechanism 37 for the next lottery. The front side of the lottery machine 7 is covered with a transparent cover to prevent the ball B from jumping out or the like. The lottery probability may be changed by varying the time relation between the timing the ball B reaches the pocket 38 and the timing the drum 31 stops within the range the player does not notice. Such an operation can be used for adjusting, for example, a payout ratio. As long as any of the numbers can be selected, the lottery machine 7 is not limited to the above-described configuration. The configuration may be properly changed.

(Configuration of Sub Unit)

[0029]

The sub unit 3 will now be described with reference to FIG. 13 and subsequent drawings. Since each of the three sub units 3 has the same configuration as each other, one of the sub units 3 will be described below. As shown in FIGS. 13 to

16, in the sub unit 3, right and left two stations 40 are integrated on a single chassis 41. The station 40 is the minimum unit of the place where the player plays a game. As obviously understood with reference to FIGS. 1 and 3, the height of the chassis 41 of the sub unit 3 is regulated so as not to hide the monitor 6 and the main part (including the drum 31 and the pocket 38) of the lottery machine 7 of the main unit 2. Although a medal hopper for holding and ejecting medals is provided in the chassis 41, it is not shown.

[0030]

Referring again to FIGS. 13 to 16, a game space 42 is provided above the chassis 41, and a game board 43 is constructed for each of the stations 40 on the bottom side of the game space 42. The details of the game board 43 will be described later. Between the game boards 43, a medal ejecting device 44 shared by the stations 40 is disposed. To prevent an access to the game board 43 by the player, the game space 42 is covered with a transparent cover 45 (which is showed to be opaque in FIGS. 14 to 16). A control panel 46 is provided on the front side of the chassis 41. The control panel 46 is provided with a pair of right and left medal loading devices 47 for each station 40. The medal loading device 47 is provided to load a medal as a game medium by rolling it in a state where the medal stands in the vertical direction, and the tip of the medal inserting device 47 penetrates the cover 45 and is inserted in the game space 42. To enable the medal loading direction to be adjusted according to the intension of the player, the direction of the medal loading device 47 is made adjustable at least in the horizontal direction. As the medal loading device 47, a heretofore known medal shooter

commonly used for a so-called pusher game may be used.

[0031]

The control panel 46 has a push-button type operation switch 48 which is provided for each station 40. The operation switch 48 is operated by the player to instruct, for example, the timing of loading the ball B by the lottery machine 7. Obviously, the operation switch 48 may be provided for other purposes.

[0032]

The control panel 46 also has a medal tray 50 for each station 40. The medal tray 50 is provided as a place to which medals obtained by the player are ejected. FIGS. 17 and 18 show the details of the medal tray 50. The medal tray 50 is obtained by process a plate made of a metal material such as a stainless steel plate, and has a rectangular bottom wall 51, a front wall 52 disposed around the bottom wall 51, right and left side walls 53 and 54, and a rear wall 55. The side walls 53 and 54 have flanges 53a and 54a, respectively, for attaching the medal tray 50 to the chassis 41. In the top end of the front wall 52, a turn-back portion 52a is formed outward.

[0033]

The top face side of the medal tray 50 is open and the height of the front wall 52 is set sufficiently lower than the other walls 53 to 55, so that the player can take out medals. As obvious from FIG. 18, the front wall 52 has the function of preventing medals M from dropping forward of the medal tray 50 and holding the medals M in a state where the medals M are stacked on the bottom wall 51. It is therefore desirable to set the height of the front wall 52 as large as possible in a range where taking of the medals M is not hindered. There is, however, a case where

the front wall 52 is not always necessary such as a case where the bottom wall 51 has a sufficiently large area. It is also possible to incline upward the front part of the bottom wall 51 and omit the front wall 52.

[0034]

In the left wall 53, a slit-shaped medal ejection port 53b which is long in the vertical direction for ejecting the medals M to the medal tray 50 is provided nearer to the rear wall 55 side than the front wall 52. An L-shaped cover 56 extending so as to cover the medal ejection port 53b is provided at the top end of the rear wall 55. Further, the rear wall 55 is provided with a protrusion portion 57 extending almost in the overall length in the width direction (the direction perpendicular to the drawing sheet in FIG. 18) of the medal tray 50. The protrusion portion 57 is disposed above the bottom wall 51 so that a space for receiving the medals M is created between the protrusion portion 57 and the bottom wall 51. The protrusion portion 57 is formed in a tapered shape so as to be narrowed in the vertical direction from the base portion joined to the rear wall 55 toward the tip. Such a protrusion portion 57 is provided by bending a plate member in a V shape and joining the bent plate member to the rear wall 55. The protrusion portion 57 may be formed by various methods such as a pulling material, casting, and the like. The position of the protrusion portion 57 is set just below the medal ejection port 53b and the tip of the protrusion portion 57 almost coincides with that of the cover 56. The position of the bottom end of the protrusion portion 57 also almost coincides with the top end of the front wall 52. Further, a curved wall 58 having an arc shape in cross section is provided between the

bottom wall 51 and the protrusion portion 57.

[0035]

In the medal tray 50 as described above, the medals M ejected from the medal ejection port 53b into the tray 50 are guided by the protrusion portion 57 and dropped onto the bottom wall 51 to00 be stacked. Since the rear wall 55 is provided with the protrusion portion 57, the medals M are not likely to be stacked while leaning against the rear wall 55 as shown by an imaginary line M' in FIG. 18. Consequently, as shown by an imaginary line L1 in FIG. 18, a pile of the medals M stacked on the bottom wall 51 extends from its apex so as to be uniform in the anteroposterior direction of the tray 50 (the horizontal direction of FIG. 18). That makes hard for the medals M to stack around the medal ejection port 53b, and a relatively large number of medals M can be accumulated in the medal tray 50. If the protrusion portion 57 does not exist, the medals M' leaning against the rear wall 55 are stacked. As a result, as shown by an imaginary line L2, the medals M are stacked so as to form a downward gradient from the rear wall 55 to the front wall 52, and clogging around the medal ejection port 53b tends to occur early. Therefore, the number of medals M which can be accumulated in the medal tray 50 without arrangement by the player becomes smaller than the number in the medal tray 50 of this embodiment.

[0036]

The details of the game board 43 will now be described with reference to FIGS. 19 to 31. The configurations of the game boards 43 are common, so that one of the game boards 43 will be described hereinbelow. As shown in FIG. 19, the game board 43 has, in order from the upstream side (corresponding to the

depth side) in the medal flowing direction to the downstream side (on front side), a monitor 60, a medal ejection port 61, an upper table 62, a medal guiding device 63, a checker 64, and a lower table 65. The monitor 60 is provided as display means for executing a game and making various dramatic presentations in each station 40. The medal ejection port 61 is disposed just below the monitor 60. Medals sent from a medal hopper in the chassis 41 to the medal guide 66 are ejected from the medal ejection port 61 toward the upper table 62. The upper table 62 is provided so as to be movable between a horizontal position indicated by the solid lines in the diagram and an action position in which the upper table 62 is lifted upward by using the front edge 62a as a fulcrum as shown by imaginary lines in the diagram.

[0037]

FIGS. 20 to 24 show the details of a portion extending from the upper table 62 to the lower table 65. A medal guide plate 67 is provided above the lower table 65. The medal guide plate 67 is transparent, and two medal guide plates 67 are provided for each station 40 so as to have a one-to-one corresponding relation with the medal loading devices 47. In FIGS. 20 and 21, only the medal guide plate 67 corresponding to the right-side medal loading device 47 is shown. As obviously understood from FIGS. 22 and 24, the medal guide plate 67 is tilted downward toward the depth side (the side on which the monitor 60 is provided) of the game board 43 and the center in the horizontal direction. The medal M loaded from the medal loading device 47 rolls on the medal guide plate 67 while changing its direction toward the center along the slope of the medal guide plate 67 and drops onto the medal guiding device 63. The medal guiding device 63

guides the medals M to the checker 64 while arranging the direction of the medals M in the anteroposterior direction of the game board 43. The details will be described later.

[0038]

The checker 64 is fixed in a predetermined position on the game board 43, and a number of slit-shaped medal pass holes 64a are provided on the top face side of the checker 64. The medal pass hole 64a extends in the anterposterior direction of the game board 43. The medals M dropped from the medal guiding device 63 to the checker 64 can be divided into medals which have passed the medal pass holes 64a and medals which have not passed the medal pass holes 64a in accordance with the drop positions. The medal M passed through the medal pass hole 64a is taken into the checker 64 and returned to the medal hopper in the chassis 41. On the other hand, the medal M which has not passed the medal pass hole 64a drops onto the lower table 65.

[0039]

Although not shown, a number of medals are stacked flat on the lower table 65. A pusher 68 is provided on the depth side of the lower table 65. As shown well in FIG. 23, the pusher 68 is supported on the lower table 65 via rollers 69 disposed on the front and rear sides. Consequently, the pusher 68 can shuttle in the anteroprosterior direction along the lower table 65. Each of FIGS. 19 to 24 shows a state where the pusher 68 is positioned backward. The pusher 68 is driven between the position shown in the diagrams and a position protruding forward by a not-shown pusher driving mechanism. As the pusher driving mechanism, any of various mechanisms used in heretofore known pusher game machines such as a mechanism of converting rotation of a motor

to reciprocating motion of the pusher 68 by a slider crank mechanism may be employed.

[0040]

By the reciprocation of the pusher 68 in the longitudinal direction, the medals dropped onto the lower table 65 are pushed and a pileup occurs in the medals on the lower table 65. Depending on the degree of the pileup, a medal drops from the front edge 65a or a side edge 65b of the lower table 65 (refer to FIG. 20). The dropped medal is collected by the not-shown medal hopper. Medals dropped from the front edge 65a are detected by a not-shown medal drop sensor, and medals are ejected from the medal hopper to the medal tray 50 in accordance with the number of detected medals.

[0041]

The details of the medal guiding device 63 will now be described with reference to FIGS. 25 to 31. As shown in FIG. 25, the medal guiding device 63 has a guide block 70 and a driving mechanism 71 for driving the guide block 70. FIGS. 29 to 31 show the details of the guide block 70. The guide block 70 is obtained by arranging and attaching plural (ten pieces in the diagram) of medal guide members 73 at equal pitches in a predetermined direction on a common base board 72. The medal guide member 73 is a resin molded product whose lower part has a rectangular parallelepiped shape and having, on the top face side, a medal receiving face 73a of a semi-cylinder shape. A synthetic resin used for the medal guide member 73 has to have proper abrasion resistance to abrasion with the medal. For example, POM is suitably used as the material of the medal guide member 73. A projection 73b is provided at the top of the medal guide member

73. The projection 73b extends in the axial direction of the medal receiving face 73a, in other words, in the anteroposterior direction of the game board 43. The range in which the projection 73b is provided is regulated to the rear half of the medal guide member 73 with respect to the anteroposterior direction of the game board 43. A gap 74 is provided between the neighboring medal guide members 73 on the base board 72. The gap 74 is slightly larger than the thickness of the medal. Although the gaps 74 may be provided at predetermined intervals, in this embodiment, the gap 74 gradually increases toward the checker 64. With the configuration, when plural medals drop in the gap 74 at the same time, the medals are prevented from being clogged in the gap 74.

[0042]

As shown in FIGS. 30 and 31, each medal guide member 73 is individually attached from the under face side of the base board 72 by using a fitting screw 75. Therefore, when a specific medal guide member 73 becomes dirty or is damaged, only the medal guide member 73 can be detached from the base board 72 for replacing. A base 76 is attached to the under face side of the base board 72. The base 76 has a supporting part 76a for supporting the guide block 70 and a coupling part 76b extending rearward from the supporting part 76a. The supporting part 76a is inclined forward with respect to the coupling part 76b, thereby inclining the base board 72 downward toward the checker 64. The medal guide member 73 is also gradually inclined downward from a rear end 73c to a front end 73d.

[0043]

As shown in FIGS. 25 to 28, a base frame 77 fixed to the

chassis 41, a slider 79 supported by the base frame 77 via a pair of guide rails 78 so as to be movable in the horizontal direction, and a motor 80 as a driving source of the slider 79 are provided. The rear end portion of the slider 79 is turned back downward, and a guide plate 81 is attached to the turn-back part. In the guide plate 81, a guide groove 81a extending in the vertical direction is formed. On the other hand, a crank arm 82 is attached to an output shaft 80a of the motor 80 so as to be rotatable integrally with the output shaft 80a. A crank pin 83 is attached to the tip of the crank arm 82. The tip of the crank pin 83 is inserted in the guide groove 81a of the guide plate 81. Further, the guide block 70 is disposed above the base frame 77, and the coupling part 76b of the base 76 is coupled to the slider 79.

[0044]

Therefore, when the output shaft 80a of the motor 80 is rotated in the predetermined direction, the motion is converted by the crank pin 83 and the guide plate 81 to reciprocating motion in the horizontal direction of the slider 79, and the guide block 70 coupled to the slider 79 via the base 76 reciprocates in the horizontal direction. As shown in FIG. 26, the gaps 74 between the medal guide members 73 provided for the guide block 70 extend in the same direction as that of the medal pass holes 64a of the checker 64. As shown in FIG. 28, the base board 72 as the bottom of the gap 74 is disposed above the checker 64 and, moreover, its front side is inclined downward toward the checker 64.

[0045]

With such a configuration, a medal loaded from the medal loading device 47 and rolled along the metal guide plate 67 drops

onto the medal receiving face 73a of the guide block 70. Since the medal receiving face 73a is formed in a semi-cylindrical shape, the medal dropped on the medal receiving face 73a slides along the medal receiving face 73a and is led to the gap 74. Consequently, the direction of the medal dropped in a state where the medal is slightly inclined toward the center side of the game board 43 from the medal guide plate 67 is aligned in the anteroposterior direction of the game board 43 (the extending direction of the gap 74). The medal led to the gap 74 stands and rolls down along the base board 72 in a state where its direction is aligned to the same direction as the medal pass hole 64a. Since the projection 73b is provided at the top of the medal receiving face 73a, even if a medal dropped from the guide plate 67 onto the medal receiving face 73a falls down sideways, because the medal comes into contact with the projection 73b, the balance of the medal is lost, and the medal does not become stable in a state where it lies sideways. By collision of the medal with the projection 73b, the force of the medal is weakened, and the medal is dropped into the gap 74 without fail. The medal drops via the gap 74 onto the checker 64, so that it becomes unlikely that the medal drops on the checker 64 in a state where the medal lies sideways. The effect of adjustment of the direction of the medal by the projection 73b has correlation with the length of the projection 73b. For example, when the projection 73b is short, the effect of the projection 73b is relatively low, the frequency that the medal falls sideways onto the checker 64 increases and, as a result, the probability that the medal enters the checker 64 decreases.

[0046]

By reciprocating the guide block 70 in the horizontal direction by the driving mechanism 71, the position of the gap 74 and the position of the medal pass hole 64a are momentarily switched between junction and disjunction in the anteroposterior direction. When a medal drops onto the checker 64 at a timing the gap 74 and the medal pass hole 64a almost coincide with each other, that is, they are positioned in a straight line in the longitudinal direction, the medal passes through the medal pass hole 64a. A medal dropped onto the checker 64 at a different timing is flipped by the checker 64 and drops onto the lower table 65. As shown in FIG. 28, the checker 64 is provided with a guide rail 84 for guiding the medal passed through the medal pass hole 64a into the medal hopper.

[0047]

As described above, the medal game machine of the embodiment has the medal guiding device 63 for aligning the directions of the medals loaded onto the game board 43 with the direction of the medal pass holes 64a in the checker 64 before they pass through the checker 64. Consequently, even a player who does not have enough skill can also enjoy playing with medals passing or not passing through the checker 64 as a game. Alternately, the base board 72 and the medal guide member 73 of the medal guiding device 63 may be tilted in the direction opposite to that of FIG. 31, that is, they may be formed to get lower from the front end 73d of the medal guide member 73 forward the rear end 73c, and the checker 64 may be disposed on the rear end 73c side of the medal guide member 73.

[0048]

FIGS. 32 to 34 show the details of the medal ejecting device

44. The medal ejecting device 44 is provided to eject a large amount of medals to the game board 43 at the time of a big hit or the like, and has a medal tray 90, a belt conveyor 91 extended so as to connect the right and left game boards 43 at the back of the medal tray 90, and shooters 92 disposed between the both ends of the belt conveyor 91 and the upper tables 62. The medal tray 90 is provided so as to be rotatable around an axis 90a at the upper rear end as a fulcrum, and is driven by a not-shown actuator between a standby position extended almost horizontally forward from the axis 90a and an action position (the position shown in FIGS. 33 and 34) in which the front end of the medal tray 90 is lifted by using the axis 90a as a fulcrum. The actuator driving the medal tray 90 may be an actuator such as a motor that generates rotating motion or an actuator such as a pneumatic cylinder that generates linear motion. In the case of the actuator that generates rotating motion, it is sufficient to transmit the rotating motion to the periphery of the axis 90a to turn the medal tray 90. In the case of the actuator that generates linear motion, it is sufficient to convert the linear motion to rotating motion of the medal tray 90 by using a link mechanism or the like.

[0049]

Medals can be ejected from the not-shown medal hopper to the medal tray 90. When the medal tray 90 is moved from the standby position to the action position, the medals on the medal tray 90 drop onto the belt conveyor 91. By driving the belt conveyor 91 to the right or left direction, the medals on the belt conveyor 91 are conveyed to one of the shooters 92, and can be ejected onto one of the upper tables 62 via the shooter 92.

[0050]

Since the belt conveyor 91 is disposed between the medal tray 90 and the shooter 92, the shooter 92 can be made short. While suppressing the height of the medal tray 90, the shooter 92 can be sufficiently tilted. If the belt conveyor 91 is not used, the shooter 92 is extended to the center area in the horizontal direction of the medal tray 90 and means for directing the drop direction of medals from the medal tray 90 to one of the shooters 92 is provided. In this case, when the shooter 92 is inclined sufficiently, the overall height of the shooter 92 increases, accordingly, the position of the medal tray 90 has to be changed upward. However, inconveniences occur such that the overall height of the sub unit 3 increases and the monitor 6 and the lottery machine 7 of the main unit 2 behind the medal ejecting device 44 are hidden from sight. In contrast, in this embodiment, medals are carried in a horizontal state to a place very close to each of the upper tables 62 by using the belt conveyor 91, so that the shooter 92 can be made shorter and the overall height can be suppressed. Consequently, the position of the medal tray 90 can be lowered.

(Configuration of Control System)

[0051]

Next, the control system of the game machine 1 will be described with reference to FIG. 35 and subsequent drawings. FIG. 35 is a block diagram of the control system provided for the main unit 2. The main unit 2 has a controller 100. The controller 100 is constructed by a computer unit having a microprocessor. To the controller 100, a ROM 101 and a RAM 102

as main storages are connected. To the controller 100, the monitor 6 is connected as a display, and a ball loading mechanism 34, drum driving motor 35, and indicator driving mechanism 36 of the lottery machine 7 are connected as devices to be controlled. Each of the mechanisms has one or more actuators, and the controller 100 is connected to the actuators via drive circuits, that is not shown.

[0052]

To realize a predetermined game by exchanging information between the main unit 2 and the sub unit 3, the controller 100 of the main unit 2 is connected to the control system of each sub unit 3. Further, to the controller 100 of the main unit 2, a communication controller 103 is also connected. The communication controller 103 is provided to perform information communications via a predetermined communication line with the controller 100 of the main unit 2 of another game machine 1 to construct a single game system by connecting plural game machines 1. The main unit 2 may be connected to each other via the communication controllers 103 and servers, or via the communication controllers 103 without using servers. Other than the above, various input and output devices may be connected to the controller 100 of the main unit 2. Another game machine 1 may be installed in the same shop or another shop.

[0053]

FIG. 36 is a block diagram of the control system provided for the sub unit 3. The sub unit 3 also has a controller 110 constructed as a computer unit having a microprocessor. To the controller 110, a ROM 111 and a RAM 112 as main storages are connected. Also, to the controller 110, the monitor 60 (refer

to FIG. 19) is connected as a display. Further, to the controller 110, various devices provided for the right and left stations 40 are connected as input devices or devices to be controlled. For example, to the controller 110, the operation switch 48 (refer to FIG. 13) and a prize winning sensor 113 are connected as input devices. The prize winning sensor 113 detects a medal passing through the medal pass hole 64a in the checker 64 and led into the checker 64, and outputs a predetermined detection signal. To the controller 110, as devices to be controlled, a pusher driving motor 114 for driving the pusher 68, the motor 80 (refer to FIG. 25) for driving the guide block 70 of the medal guiding device 63, and a medal hopper 115 for ejecting medals in the chassis 41 are also connected. Although FIG. 36 shows the details of only the station 40 on the left side, the station 40 on the right side has the same configuration.

[0054]

To the controller 110 of the sub unit 3, as devices to be controlled, an actuator 116 for driving the medal tray 90 of the medal ejecting device 44 and the belt conveyor 91 are connected. Ejection of medals to the medal tray 90 is realized by the medal hopper 115 here but may be realized by another medal hopper. In this case, a medal hopper other than the medal hopper 115 is connected as a device to be controlled corresponding to the medal tray 90 to the controller 110.

[0055]

In addition, to the controller 110 of the sub unit 3, a communication controller 117 is also connected. The communication controller 117 is provided so that the controller 110 performs information communications with the controller 100

of the main unit 2 of the same game machine 1. Other than the above, various input and output devices may be connected to the controller 110 of the sub unit 3. For example, a medal load sensor for detecting loading of a medal from the medal loading device 47, a medal drop sensor for detecting drop of a medal from the lower table 65, and the like are connected to the controller 110 in order to control the medal payout ratio.

[0056]

(Outline of Game)

The contents of a game played by the game machine 1 will be described with reference to FIGS. 37 to 40. The game machine 1 of this embodiment provides the player with a game in relation to a prize winning of a medal to the checker 64 besides a basic game of a so-called pusher game which makes a medal loaded from the medal loading device 47 and dropped to the lower table 65 pushed down from the lower table 65 with the pusher 68. FIG. 37 shows a game screen 200 displayed on the monitor 60 of the station 40 for such a game. The game screen 200 includes a main game part 201, a roulette meter 202 disposed horizontally at the bottom end of the screen 200, and a jackpot counter 203 disposed vertically at the left end of the screen 200.

[0057]

In the main game part 201, a game is executed. In the game, three symbol bands 201a to 201c arranged in the vertical direction are allowed to run independently of each other like reels of a slot machine and to stop at a proper timing. Players compete for success or failure of obtaining a predetermined winning combination of symbols in the vertical direction or oblique direction. A game of the main game part 201 is executed by a

trigger that is the prize winning of a medal to the checker 64. The symbols and the winning combinations displayed in the main game part 201 may be properly determined. As an example, they are determined as shown in FIG. 38. Probability change denotes here an operation of increasing the probability to succeed in obtaining a winning combination by a predetermined level. A "center game" is a game executed by using the main unit 2, "single" denotes that the right to play the center game only once is given, and "triple" denotes the right to play the center game three times in a row is given.

[0058]

FIG. 39 shows a game screen 300 displayed on the monitor 6 of the main unit 2 when the center game is executed. FIG. 40 shows a game screen 301 displayed on the monitor of a station when the center game is executed. As obvious from FIG. 39, in the screen 300 of the center game, a map 302 having an outer route 303 and an inner route 304 is displayed. The outer route 303 is constructed by linking boxes 305 each having a quadrangle shape so as to form an almost square shape. In the diagram, the boxes 305 are distinguished from each other by adding alphabets a, b, c, ... When the boxes 305 do not have to be distinguished from each other, the boxes are indicated by reference numeral 305. The configuration of each of the routes 303 and 304 of the map 302 is held as map information in the ROM 101 of the main unit 2.

[0059]

In the route 303 or 304, pieces 306 corresponding to the stations 40 are displayed with station numbers (any of 1 to 6). The game screen 301 of FIG. 40 is an enlarged portion of the

game screen 300, in which the piece 306 corresponding to the station 40 in which the screen 301 is displayed is positioned.

[0060]

When the right to play the center game is given in the game in the station 40, any of the numbers 1 to 8 is chosen by using the lottery machine 7 for the station, and the piece 306 moves in the predetermined direction on the route 303 or 304 by the number of boxes just equal to the number chosen by the lottery. In each of the boxes 305, a reward given in the center game is written. When the piece 306 stops in a box, the reward written in the box is given to the player who played the center game.

[0061]

For example, when the piece 306 stops in a box 305a in which the number such as "30" or "50" is written, the player gets medals of the number equal to the number written in the box. The outer route 303 includes a box 305b in which "SJP chance" is written (hereinbelow, called SJP box). When the piece 306 stops in the SJP box 305b, the right to challenge super jackpot is given. In this case, a lottery for determining whether the player wins the super jackpot or not is executed by using the lottery machine 7. If the player wins the super jackpot, the player gets medals of the number displayed in an SJP display part 307 (hereinbelow, called SJP number) adjacent to the outside of the SJP box 305b. When the piece 306 passes the SJP box 305b, the SJP number is increased by a predetermined number.

[0062]

On the other hand, the inner route 304 includes a box 305c described as "BB chance" (hereinbelow, called BB box). When the

piece 306 stops here, the player gets the right to challenge a big bonus. In this case, the lottery for determining whether the player wins the big bonus or not is executed by using the lottery machine 7. If the player wins the big bonus, the player gets medals of the number displayed in a BB display part 308 (hereinbelow, called BB number) disposed in the center area of the inner route 304. When the piece 306 passes through the BB box 305c, the BB number is increased by a predetermined number.

[0063]

At the four corners of each of the routes 303 and 304, warp boxes 305d written as "GO" are disposed. When the piece 306 stops in the warp box 305d, the piece 306 moves between the outer route 303 and the inner route 304. As understood by comparing numerical values indicated in the boxes 305a between the routes 303 and 304, the player can get higher points in the inner route 304 than the outer route 303. Although bonus boxes 305e, 305f, ... are properly provided in the routes 303 and 304 in addition to the above, they will not be described since they are not the gist of the present invention.

[0064]

When plural game machines 1 are connected to each other to construct a single game system, the inner route 304 is shared by the game machines 1. That is, the information of the configuration of the inner route 304 stored in the ROM 101 in each game machine 1 in the single game system is the same. The game machines 1 share the positions of the pieces 306 disposed on the inner route 304 and the BB numbers. The information is stored as information in the RAM 102 of each game machine 1. The information is properly exchanged among the game machines

1 to maintain consistency.

[0065]

In the inner route 304, a piece 309 of another game machine 1 is also displayed. When the piece 309 stops in the BB box 305c, the right to challenge the big bonus is given to the station 40 of the game machine 1 corresponding to the piece 309. When the piece 309 passes through the BB box 305c, the BB number is added by a predetermined number in all of the game machines 1 in the same game system. That is, the BB number has the characteristic of so-called progressive bonus which is shared among the plural game machines 1.

[0066]

By sharing part of the map 302 among the plural game machines 1 and setting the correlation among the game machines 1 also with respect to points of the game in the shared part, the player has to pay attention not only to the other player of the same game machine 1 but also the players of the other game machines 1, so that enjoyment of the game increases. Since the plural game machines 1 accumulate common points, larger points can be accumulated as compared with the case of accumulating points of the game by a single game machine. Thereby, the enjoyment of the game can be also increased.

[0067]

(Control Procedure)

When a station control routine starts, first, in step S101, the controller 110 executes the lottery about a combination of symbols to be displayed on a main play part 201 in the game screen 200 by using random numbers and controls the display state in the main play part 201 so that the result of the lottery is displayed.

Concretely, the controllers 110 makes the symbol bands 201a to 201c run and controls the display state of each of the symbol bands 201a to 201c so that the combination of symbols determined by the lottery is obtained.

[0068]

After that, a combination for probability change start (except for "777") is obtained or not is determined in step S102. If the combination is obtained, a probability change flag is set to "1" in step S103, and the process goes to step S106. On the other hand, when the combination is not obtained, the process goes to step S104 to determine whether a combination for probability change end is obtained or not. If the combination is obtained, the controller 110 resets the probability change flag to "0", and the process goes to step S106. The probability change flag is considered in the lottery in step S101. When the flag is set to "1", the probability to obtain the winning combination (the combinations shown in FIG. 38) is increased as compared with the case where the flag is reset to "0".

[0069]

In step S106, the medal hopper 115 is driven to eject medals of the number corresponding to the combination obtained in the lottery from the medal ejection port 61 onto the upper table 62. At this time, dramatic presentation may be performed in such a manner that players can feel as if medals fell by displaying an image of dropping medals on the monitor 6 in synchronization with ejecting medals from the medal ejection port 61.

[0070]

After ejection of medals, the process goes to step S107 to add "1" to the value of a JP step stored in the RAM 112. The

value of the JP step is equal to the number of light-on of the jackpot counter 203 in the game screen 200. Each time the value of the RAM 112 is updated, in accordance with that, the number of light-on of the jackpot counter 203 is also updated. In the following step S108, it is determined whether the JP step reaches the predetermined maximum value (7 in this case) or not. If it reaches the maximum value, it means the JP is obtained and the process goes to step S109. The upper table 62 is driven to move from the horizontal position to the action position, and again to the horizontal position to drop all medals accumulated on the upper table 62 onto the medal guiding device 63, thereby jackpot medals are ejected toward the lower table 65. At this time, medals may be ejected also from the medal ejection port 61. After that, in step 110, the JP step on the RAM 112 is reset to the initial value "0", and the station control routine is finished.

[0071]

On the other hand, when the condition in step S104 is not satisfied, the process goes to step S111 and it is determined whether the combination for single-center-game (refer to FIG. 38) is obtained or not. If the combination is obtained, the process goes to step S112 to notify that the combination for single-center-game is obtained to the controller 100 of the main unit 2. After that, the process goes to step S106 to eject medals corresponding to the combination for single-center-game.

[0072]

When the condition in step S111 is not satisfied, the process goes to step S113 to determine whether a combination for the triple-center-game is obtained or not. If the combination is

obtained, the process goes to step S114 to drive the upper table 62 for moving from the horizontal position to the action position, and again to the horizontal position. In the following step S115, the fact that the combination for triple-center-game is obtained is notified to the controller 100 of the main unit 2. After that, the process goes to step S103 to set the probability change flag to "1" ant goes to step S106 to eject medals corresponding to the combination for triple-center-game.

[0073]

If the combination for triple-center-game is not obtained in step S113, the process goes to step S116 to determine whether or not roulette symbols (symbols in the second line from the bottom in FIG. 38) exist in the main play part 201 after the stop of symbol bands 201a to 201c. If the symbols exist, the process goes to step S117 to add "1" to the value of the roulette meter stored in the RAM 112. The value of the roulette meter is equal to the number of light-on of the roulette meter 202 in the game screen 200. Each time the value in the RAM 112 is updated, in accordance with that, the number of light-on of the roulette meter 202 is also updated. In the following step S118, it is determined whether the roulette meter value reaches the predetermined maximum value (25 in this case) or not. If the value reaches the maximum value, the process goes to step S119 to notify the controller 100 of the main unit 2 of the fact that the combination for single-center-game is obtained. After that, in step S120, the roulette meter value in the RAM 112 is reset to the initial value of "0" and the station control routine is finished.

[0074]

When it is determined in step S116 that roulette symbols do not exist or when it is determined in step S118 that the meter value is not the maximum value, the controller 110 skips the subsequent processes and finishes the station control routine.

[0075]

Next, the processes of the controller 100 of the main unit 2 will be described. FIGS. 42 and 43 show a center game control routine executed by the controller 100 of the main unit 2 to realize a center game. The routine is executed for the station 40 which obtains the combination for the single-center-game or triple-center-game when the fact that the combination for the single-center-game or triple-center-game is obtained has been notified from the controller 110 of any one of the sub units 3. That is, the following process is executed on the only station 40 which obtains the combination for the single-center-game or triple-center-game, as long as not specified.

[0076]

When the center game control routine starts, first, in step S200, the controller 100 determines whether the combination for single-center-game has been notified or not. When the combination has been notified, the process goes to step S201 to set the initial value of "1" to a variable N for determining the number of games. When the combination has not been notified (that is, when the combination for triple-center-game has been notified), the process goes to step S202 to set the initial value of "3" to the variable N. After the variable N is set, the process goes to step S203 to determine one of the numerical values 1 to 8 by roulette lottery, that is, lottery using the lottery machine 7. The controller 100 updates the position information

of the piece 306 stored in the RAM 102 so that the position of the piece 306 on the map 302 is advanced by the number of boxes equal to the obtained numerical value. The information of the position of the piece 306 is held in the RAM 102 in association with information for identifying the station 40. The position information updated at this time relates to the piece 306 corresponding to the station 40 which has obtained the combination for single-center-game or triple-center-game. The display on the monitor 6 is also updated in correspondence with updating of the piece position information.

[0077]

In the following step S204, it is determined whether the piece 306 has passed the SJP box 305b or not. If the piece 306 has passed it, the SJP number of the SJP display 307 adjacent to the SJP box 305b is increased by a predetermined number in step S205. After that, the process goes to step S208. On the other hand, when the piece 306 has not passed the SJP box 305b in step S204, the process goes to step S206 to determine whether the piece 306 has passed through the BB box 305c or not. When the piece 306 has passed the BB box 305c, the process goes to step S207 to increase the BB number by a predetermined number. Since the BB number is shared by other game machines 1 constructing the same game system, increase in the BB number is also notified to the controllers 100 of the game machines 1. After such processes, the process goes to step S208. If it is determined that the piece 306 has not passed in step S206, the controller 100 skips step S207 and the process goes to step S208.

[0078]

In step S208, the kind of a box (stop box) corresponding

to the position of the piece updated in step S203 is determined. In the subsequent step S209, the controller 100 determines whether the piece 306 has stopped in the SJP box 305b or not. If the piece 306 has stopped, the process goes to step S210 to perform roulette lottery for super jackpot. The roulette lottery in this case is performed by using, for example, one of the eight areas shown on the drum 31 of the lottery machine 7 as a super jackpot (SJP) winning box. Obviously, the lottery may be performed by using other means. After the roulette (drum 31) stops, the processing goes to step S212 to determine whether the player has won the super jackpot or not. If the player has won, the process goes to step S216. If not won, the process goes to step S220 in FIG. 43. In step S220, medals of the number according to the numerical value obtained by the roulette lottery in step S210 or S213 is set to the number of medals the player got. [0079]

On the other hand, when in step S209 in FIG. 42 it is determined that the piece 306 has not stopped in the SJP box 305b, the process goes to step S212 to determine whether the piece 306 has stopped in the BB box 305c or not. If the piece 306 has stopped, the process goes to step S213 to perform roulette lottery on a big bonus. The roulette lottery in this case is also performed by using, for example, one of the eight areas shown on the drum 31 of the lottery machine 7 as a big bonus (BB) winning box. Obviously, the lottery may be performed by using other means. After the roulette (drum 31) stops, the process goes to step S214 to determine whether the player has won the big bonus or not. If the player has won, the process goes to step S215 to notify the other game machines 1 included

in the same game system of winning of the big bonus, and goes to step S216. The processes in steps S204 to S209 and S212 can be performed immediately after the result of the roulette lottery is obtained in step S203. It is not unnecessary to wait until the display on the monitor 6 is updated in accordance with the result obtained in step S203.

[0080]

In step S216, medals of the number according to SJP or BB are ejected. The medals are ejected to the medal tray 90 of the medal ejecting device 44. Therefore, the controller 100 instructs the controller 110 of the sub unit 3 to eject medals. In response to the instruction, the controller 110 waits for completion of ejection of medals to the medal tray 90 and drives the medal tray 90 to the action position. After the medals drop onto the belt conveyor 91, the controller 110 drives the belt conveyor 91 toward the station 40 which has won SJP or BB, thereby the medals ejected to the medal tray 90 are ejected onto the upper table 62 of the station 40.

[0081]

After the ejection of medals for the SJP or BB, the process goes to step S217 to reset the SJP number or BB number stored in the RAM 102 to the initial value, and finish the center game control routine. When it is determined in step S212 that the piece 306 has not stopped in the BB box 305c, the process goes to step S221 in FIG. 43.

[0082]

In step S221 in FIG. 43, the controller 100 determines whether the piece 306 has stopped in the warp box 305d or not. If the piece 306 has not stopped, the process goes to step S222

to determine whether the piece 306 has stopped in any of the other bonus boxes 305e, 305f, ... or not. When the piece 306 stops in the regular box 305a, step S222 is determined as NO. In this case, the process goes to step S223 to set the numerical value described in the box 305a in which the piece 306 stops as the obtained number. On the other hand, when the condition in step S222 is determined as YES, the process goes to step S224 to execute a process according to a prize winning assigned to the bonus box 305e ...

[0083]

After the obtained number is set in step S220 or S223, the process goes to step S225 to eject medals of the number according to the obtained number. Ejection of medals in this case may be also performed by using the medal electing device 44. When the number is small, medals may be ejected from the medal ejection port 61. When the piece 306 stops in the warp box 305d in step S221, the process goes to step S227 to move the piece 306 between the warp box 305d in the outer route 303 and the warp box 305d in the inner route 304. The condition of movement from the outer route 303 to the inner route 304 and the condition of movement from the inner route 304 to the outer route 303 may be different from each other. For example, the movement from the outer route 303 to the inner route 304 may be more regulated as compared with the movement from the inner route 304 to the outer route 303.

[0084]

After the processes in step S224, S225, or S227, the process goes to step S226 to notify the other game machines 1 of the updated stop position of the piece 306. The notification may

be sent regarding only the piece 306 positioned in the inner route 304. After the notification of the stop position, the process goes to step S228 to determine whether the variable N is 1 or not. If the variable N is not 1, the process goes to step S229 to subtract 1 from the variable N and, after that, return to step S203 in FIG. 42. If the variable N is 1 in step S228, the controller 100 finishes the center game control routine.

[0085]

FIG. 44 shows a game information update control routine executed by the controller 100 so that the BB number and the positions of the pieces 306 and 309 on the inner route 304 are shared with the other game machines 1. The process is repeatedly executed in proper cycles by the controller 100. In the game information update control routine, first, in step S250, the controller 100 determines whether addition of the BB number has been notified from another game machine 1 or not. If the addition has been notified, the process goes step S251 to update the BB number held in the RAM 102 to the value obtained by increasing the BB number by a predetermined number. If the addition has not been notified, the controller 100 skips step S251. In the following step S252, the controller 100 determines whether winning of the BB has been notified from another game machine 1 or not. If it has been notified, the process goes to step S253 to reset the BB number held in the RAM 102 to the initial value. If it has not been notified, the controller 100 skips step S253.

[0086]

In the following step S254, the controller 100 determines whether the stop position of the piece 306 has been notified from another game machine 1 or not. If it has been notified,

the process goes to step S255 to update the position information of the piece 309 on the inner route 304 held in the RAM 102 in accordance with the notified information. If it has not been notified, the controller 100 skips step S255. In the following step S256, the controller 100 updates the BB number and the information in the map 302 in accordance with the latest information held in the RAM 102. After that, the game information updating control routine is finished.

[0087]

By the proper repeat execution of the routine of FIG. 44, the BB number and the piece position information on the inner route 304 held in the RAM 102 of each game machine 1 can be maintained in the same state.

[0088]

In the foregoing embodiments, the controller 100 corresponds to a center game controller, and the controller 110 corresponds to a station controller. The ROM 101 connected to the controller 100 corresponds to map information storing means, and the RAM 102 corresponds to piece position storing means and reward storing means. Further, the controller 100 functions as a piece position controller by executing the process in step S203, functions as a reward controller by executing the processes in steps S209 to S217, and functions as information sharing means by executing the steps S250 to S255 of the game information updating control routine of FIG. 44. The medals correspond to play media, the SJP number corresponds to an independent reward, the BB number corresponds to a common reward, and the inner route 304 in the map 302 corresponds to a specific route. Further, the roulette lottery in step S213 corresponds to a lottery process performed

when a piece stops in a specific box. The present invention is not limited to the foregoing embodiments but may be variously modified. For example, a game of advancing a piece and determining whether a bonus is paid or not may be properly changed. The configuration of the map 302 may be also properly changed as long as a route shared by the game machines 1 exists.

CLAIMS

1. A game machine having plural stations and capable of playing an individual game executed individually in each of the stations and a center game commonly executed by the plural stations, comprising:

reward storing means for storing an independent reward that is set among the plural stations provided for the game machine itself and a common reward that is set in a range including the plural stations and other game machines;

game executing means for allowing the station satisfying a predetermined condition in the individual game to execute the center game;

a reward controller for controlling payment of the independent reward and the common reward to the plural stations in accordance with execution situations of the center game and increase/decrease of the independent reward and the common reward stored in the reward storing means; and

information sharing means for controlling the common reward stored in the reward storing means by exchanging information regarding the common reward with the other game machines so that the common reward stored in the reward storing means in the game machine and the other game machines agree with each other.

2. The game machine according to claim 1, wherein the game executing means can execute, as a center game, a game which is common with the other game machines, and the information sharing means can exchange information regarding actual situations of the center game with the other game machines, and the game machine further comprises a display controller for displaying execution

situations and the common reward of the center game in the game machine itself and the other game machines onto the display.

3. A game machine having plural stations, a station controller for controlling an individual game individually executed by each of the stations, and a center game controller for controlling a center game commonly executed by the plural stations, and capable of executing the same center game with other game machines, comprising:

map information storing means for storing map information for presenting a map including at least one route constructed by connecting plural boxes commonly to the plural stations; and

piece position storing means for storing position on the route of a piece corresponding to each of the stations,

wherein the center game controller comprises:

a piece position controller for executing a predetermined piece advancing process as a kind of the center game when a predetermined condition is satisfied in any of the plural stations and updating the position of the piece stored in the piece position storing means so that the piece corresponding to the station satisfying the condition advances on the route only by the number of boxes according to a result of the piece advancing process;

a reward controller for controlling giving of a reward to a play of the center game in association with a change in the position of the piece; and

information sharing means for making information stored in the map information storing means and in the piece position storing means in the game machine itself consistent with the information in the other game machines so that the at least one

specific route included in the map stored in the map information storing means and the position of the piece on the specific route stored in the piece position storing means are shared with the other game machines, and

the reward controller controls giving of the reward associated with the position of the piece on the specific route so that the game machine and other game machines sharing the specific route fight for the giving of the reward.

4. The game machine according to claim 3, further comprising reward storing means for storing a common reward for which the game machine fights with the other game machines,

wherein the information sharing means makes the information in the reward storing means consistent with that in other game machines so that a common reward stored in the reward storing means agree with that in the other game machines, and

the reward controller increases/decreases the common reward stored in the reward storing means in association with the position of the piece of the game machine itself, disposed on the specific route.

5. The game machine according to claim 1 or 4, wherein the amount of the reward is expressed by the number of game media used in the individual games.

6. The game machine according to claim 4 or 5, wherein when the piece stops in a specific box on the specific route, the reward controller executes a predetermined lottery process as a kind of the center game, when a specific result is obtained

by the lottery process, pays at least part of the common reward to a station corresponding to the piece stopped in the specific box, and reduces the common reward stored in the reward storing means by amount of paying out.

7. The game machine according to any one of claims 3 to 6, further comprising a display shared by the plural stations,

wherein the center game controller displays the map stored in the map information storing means onto the screen of the display, and displays images of the pieces corresponding to the game machine itself and the other game machines onto the map on the basis of the positions of pieces stored in the piece position storing means.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl[7] A63F9/00, 13/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
Int.Cl[7] A63F9/00-13/12

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2005
Kokai Jitsuyo Shinan Koho 1971-2005 Toroku Jitsuyo Shinan Koho 1994-2005

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2002-210228 A (Konami Co., Ltd.), 30 July, 2002 (30.07.02), Full text; Figs. 1 to 5 (Family: none)	1-7
A	WO 2003-024549 A1 (Sega Corp.), 27 March, 2003 (27.03.03), Full text; Figs. 1 to 17 & TW 562686 B	1-7
A	JP 2001-29643 A (Sega Corp.), 06 February, 2001 (06.02.01), Full text; Figs. 1 to 20 & TW 526078 B	1-7

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
04 April, 2005 (04.04.05)	19 April, 2005 (19.04.05)
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 8-829 A (Sega Enterprises, Ltd.), 09 January, 1996 (09.01.96), Full text; Figs. 1 to 11 (Family: none)	1-7