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(54) GAME MEDIA PROCESSOR

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(52) **U.S. Cl.** **463/25**

(57) **ABSTRACT**

A game media processor of the present invention includes: a card insertion slot, into which a card is inserted; a shutter mechanism driven to make the card insertion slot closable; a card housing portion which allows the card to be housed therein; a carriage path, along which the card moves from the card insertion slot to the card housing portion; a card carriage mechanism which carries the card; and a control means for controlling the operations of the card carriage mechanism, the shutter mechanism including an oscillating member oscillatably supported by a shaft, the oscillating member having a closing portion formed on one end side configured to make the card insertion slot closable and a projecting/withdrawing portion formed on the other end configured to be able to project and withdraw from the carriage path, the closing portion being configured to close the card insertion slot by oscillation of the oscillation member caused upon engagement of the card with the projecting/withdrawing portion, wherein the controlling means controls the operations of the card carriage mechanism, on condition that a predetermined signal is received, so as to carry the card housed in the card housing portion to a position where the card is in engagement with the projecting/withdrawing portion.

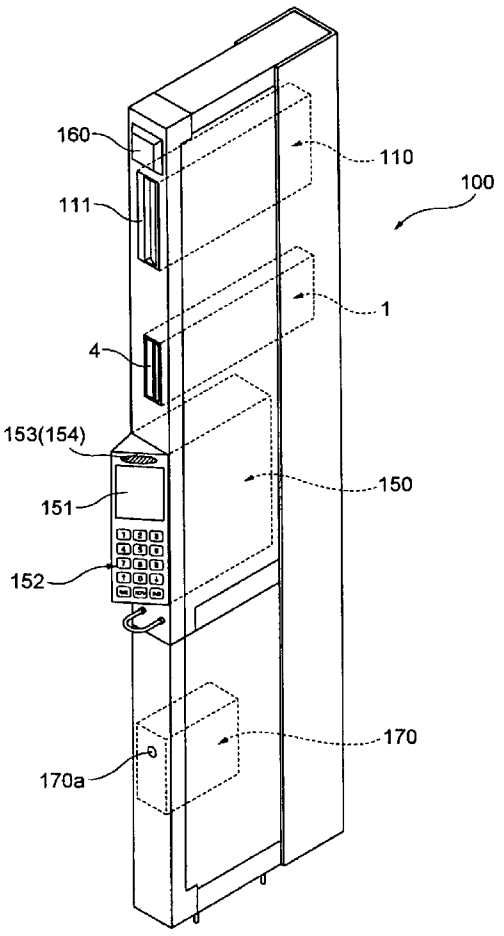
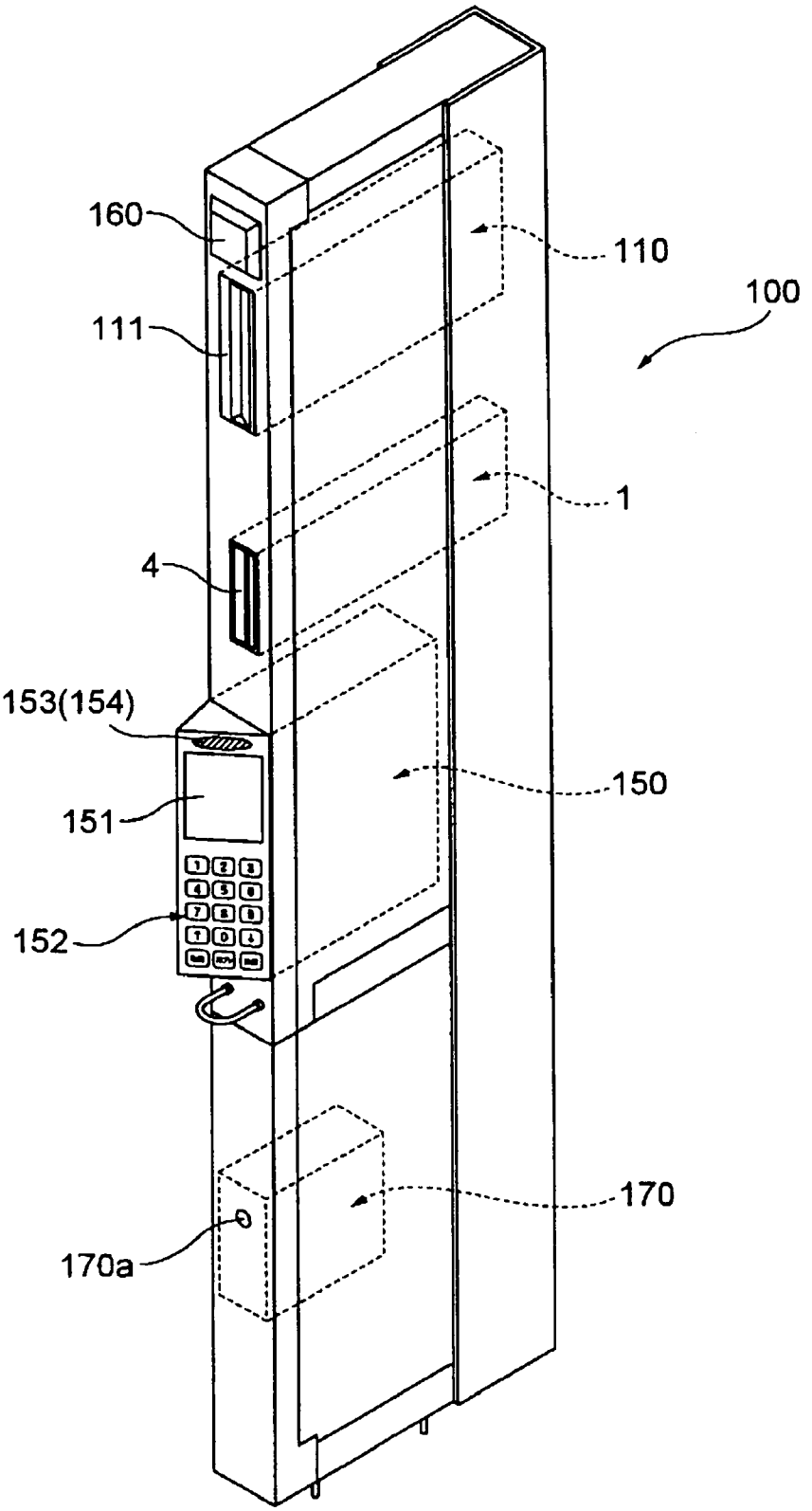


Fig. 1



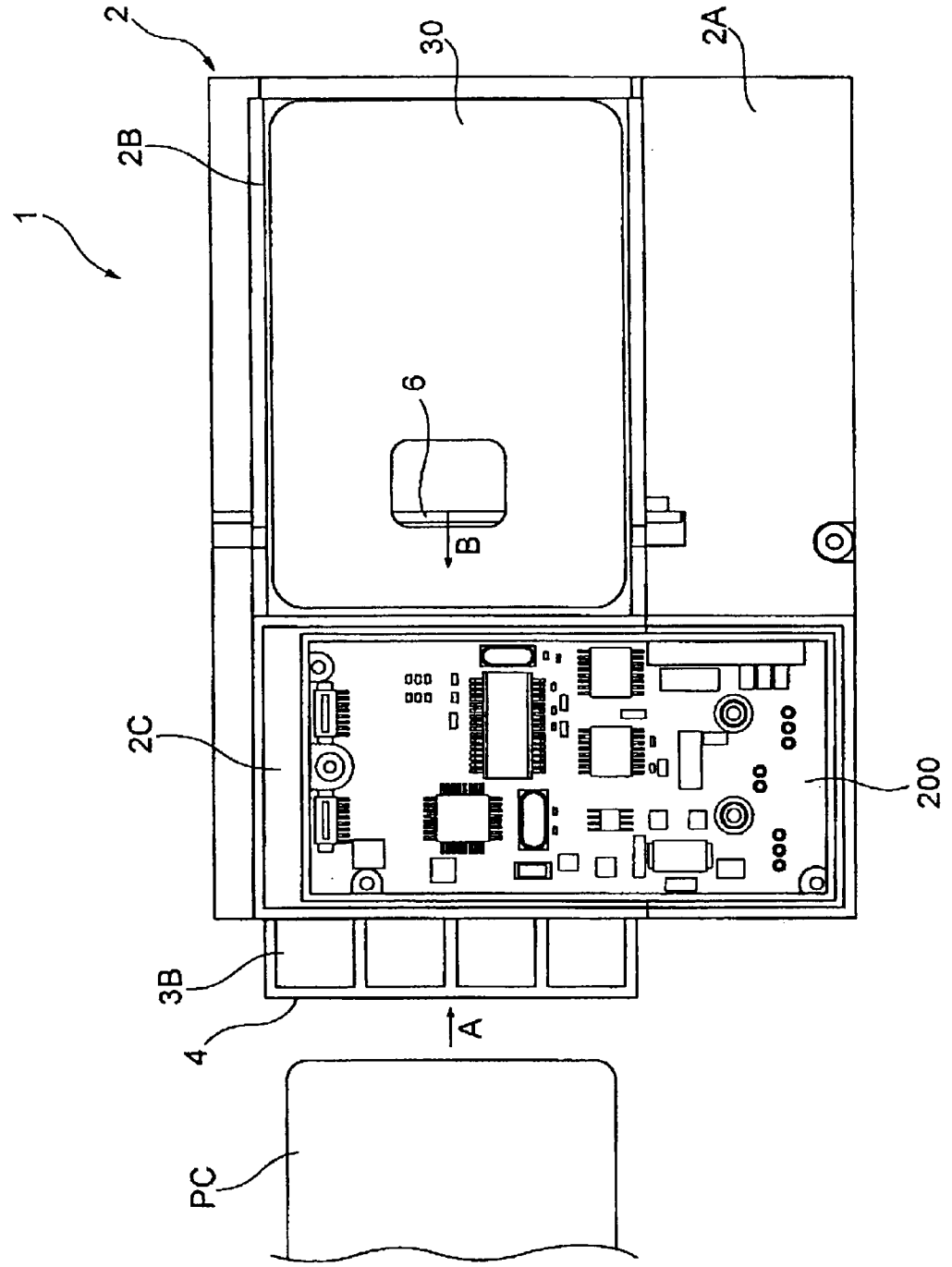


Fig. 2

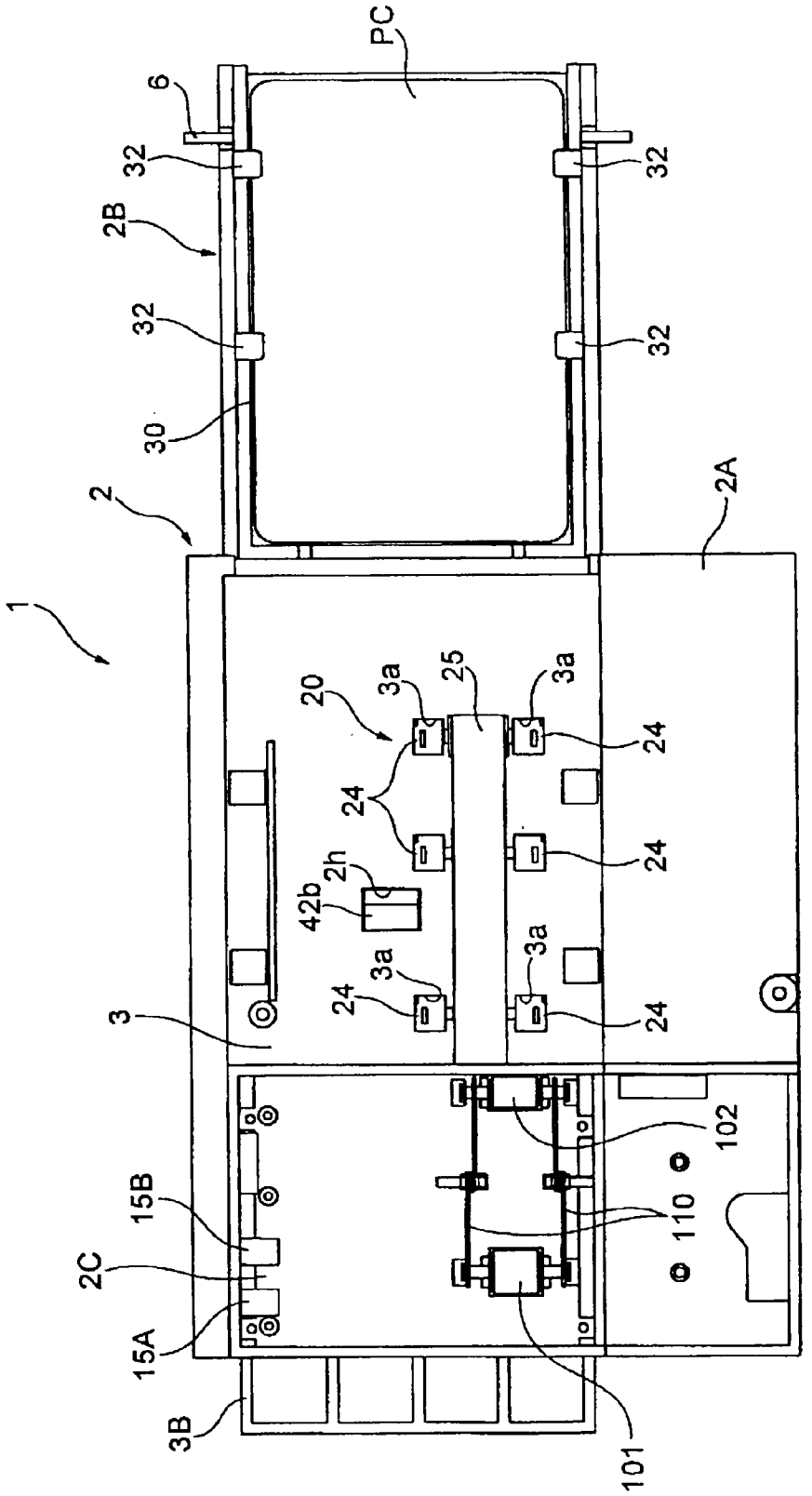

PC
6
32
32
2B
32
32
30
2
2A
1
20
3a
25
3a
24
24
24
24
2h
42b
3a
3a
24
24
3
102
110
15B
2C
15A
3B
101

Fig. 3

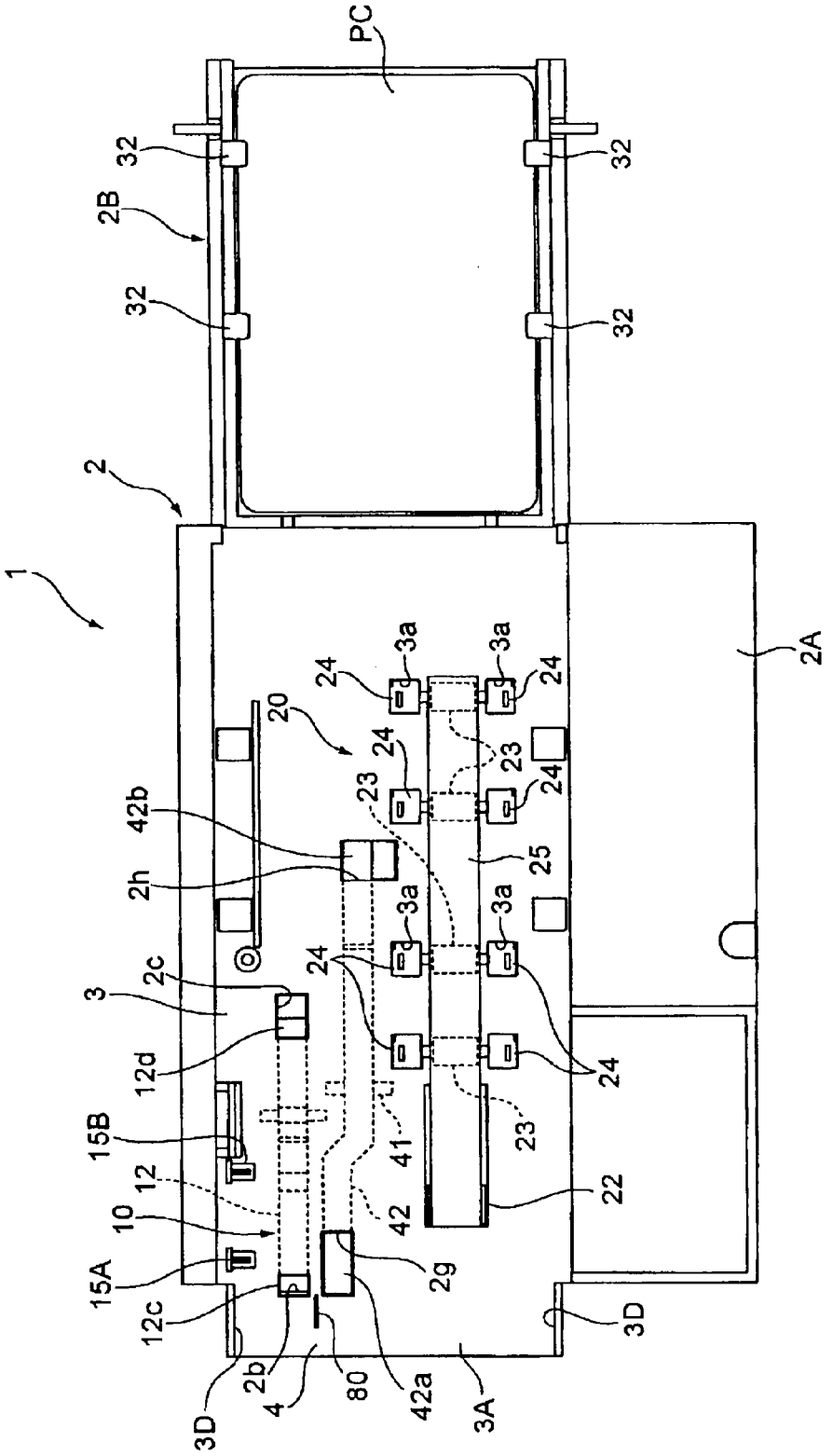

PC
32
32
2B
32
32
2
1
2A
3a
3a
24
24
20
24
23
24
23
42b
25
2h
3a
3a
3
2c
24
12d
24
15B
23
41
12
22
42
10
15A
2g
12c
3D
3D
2b
4
80
42a
3A

Fig. 4

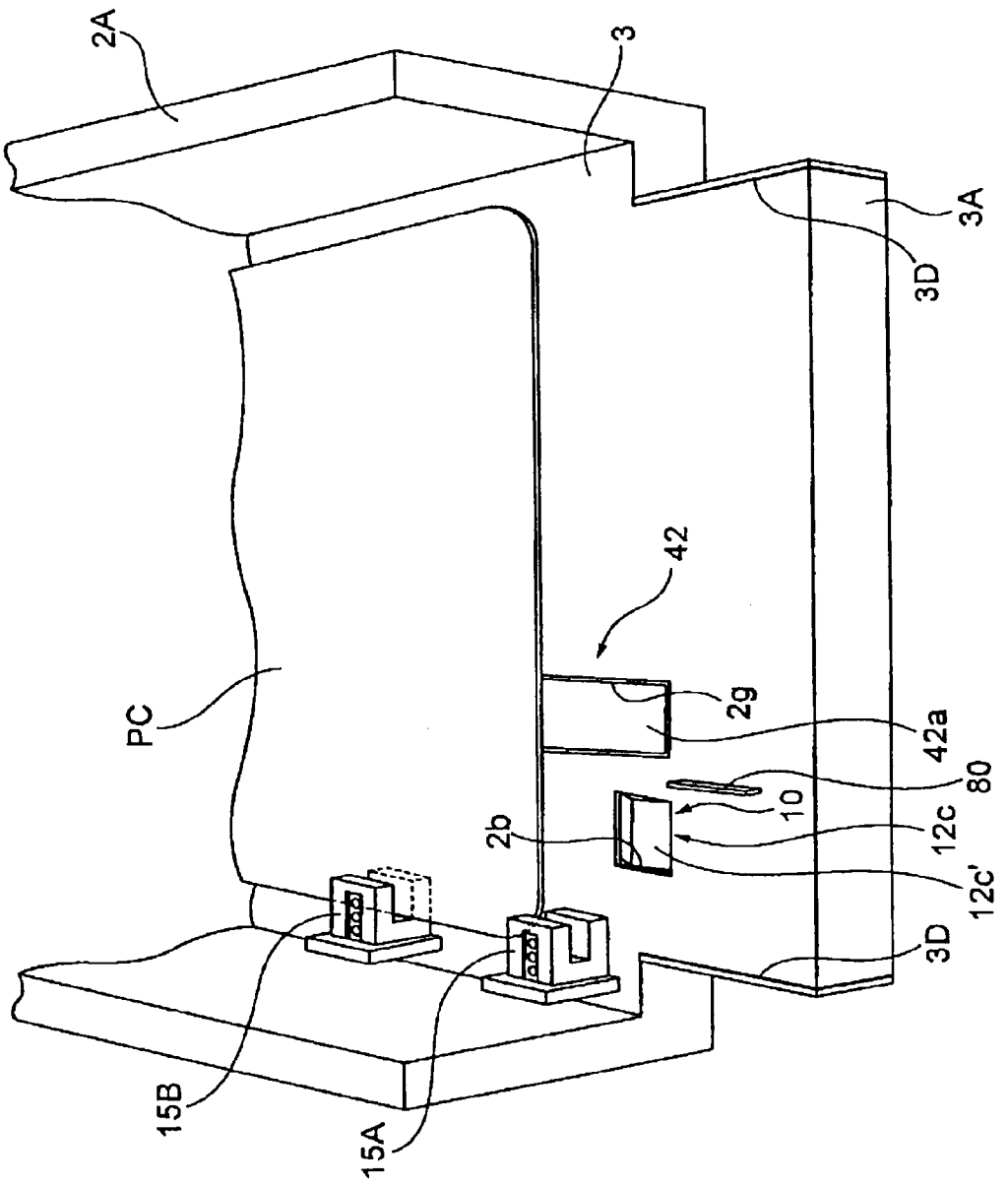


Fig. 5

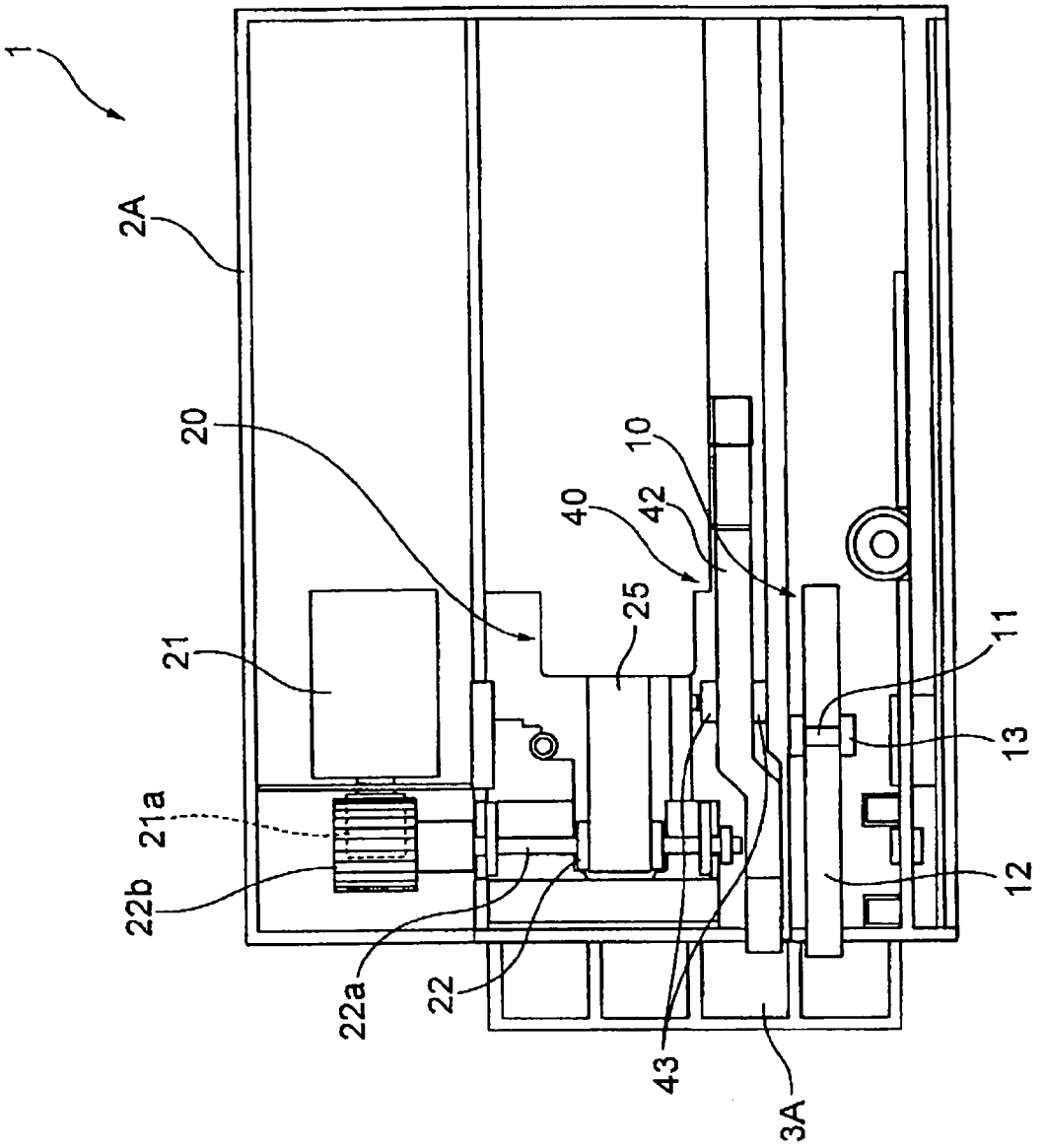


Fig. 6

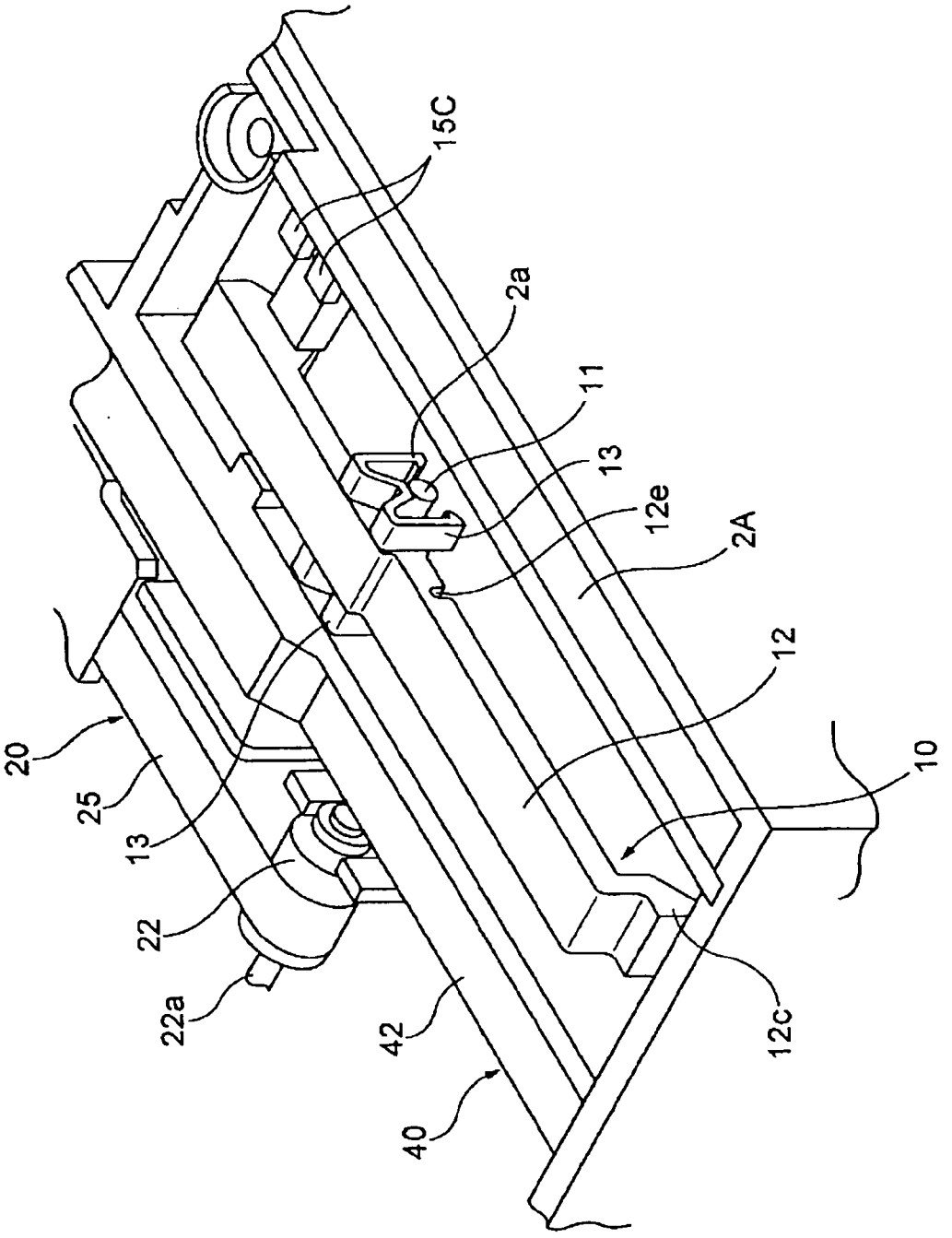
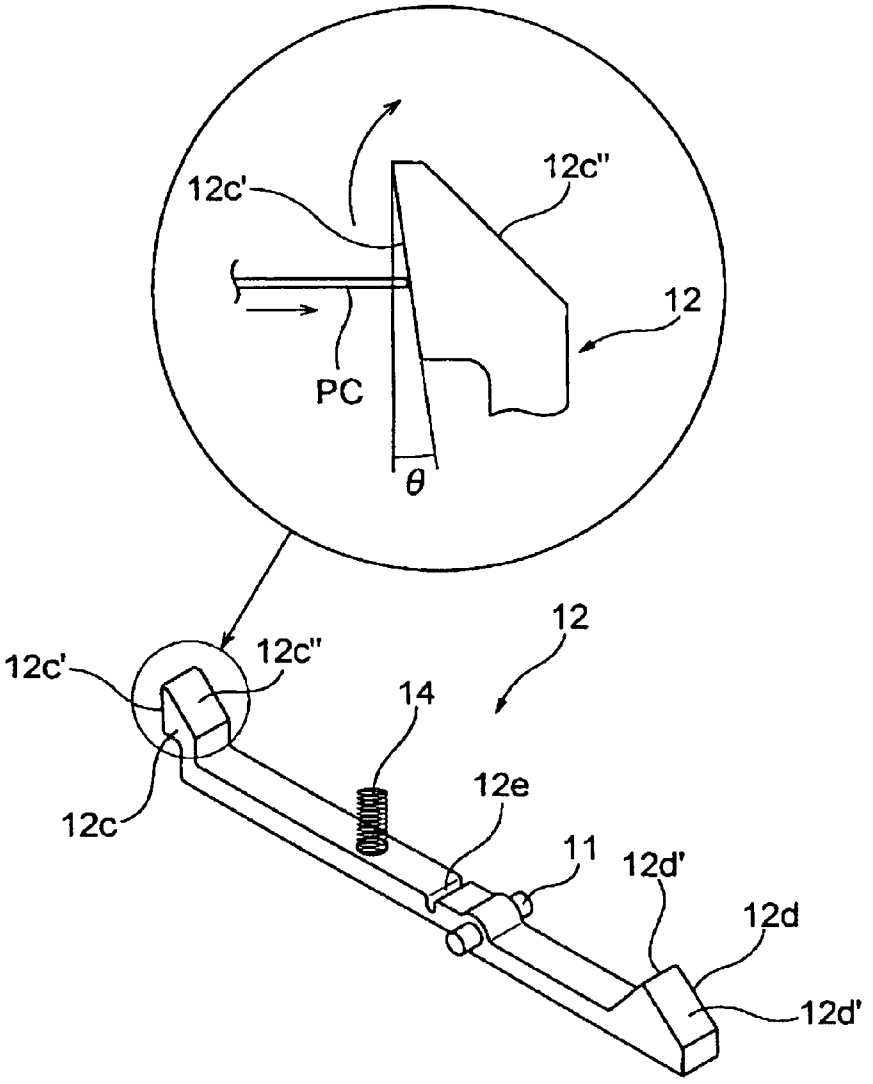


Fig. 7

Fig. 8



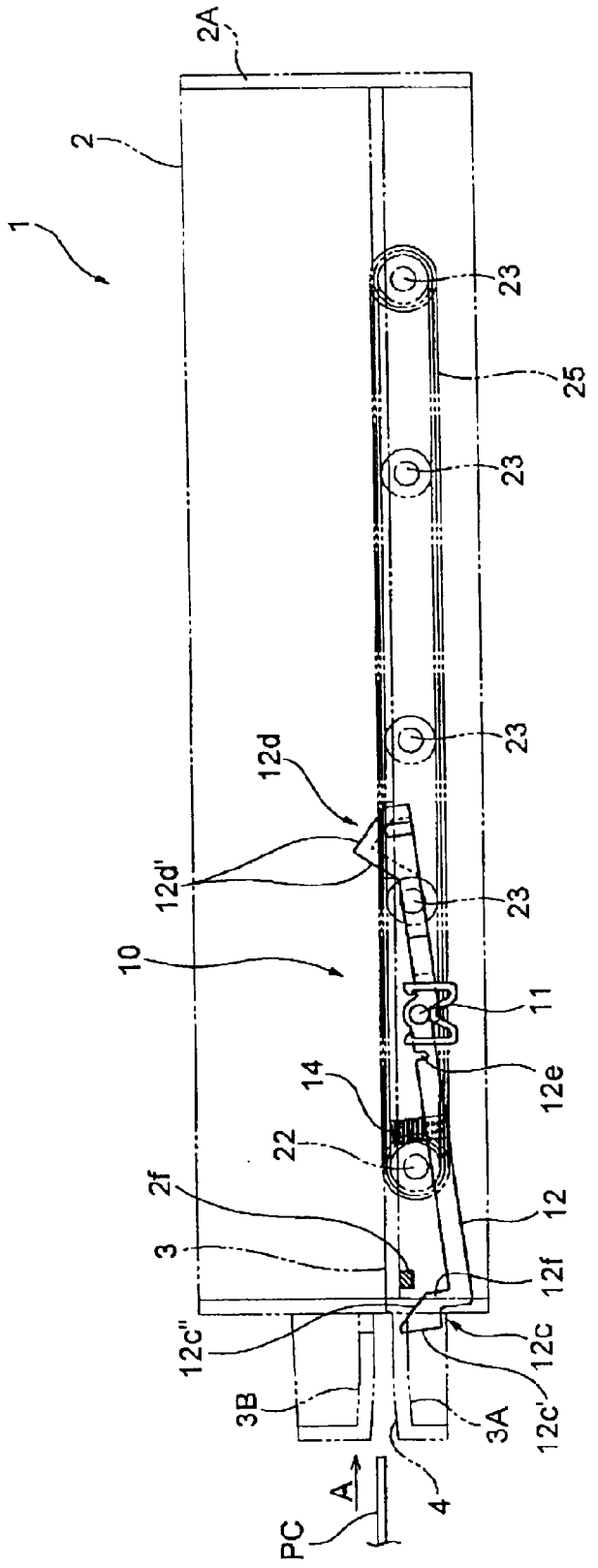

2A
2
1
23
25
23
23
12d
12d'
23
10
11
14
12e
22
2f
12
3
12f
12c''
12c
3B
12c'
3A
A
4
PC

Fig. 9

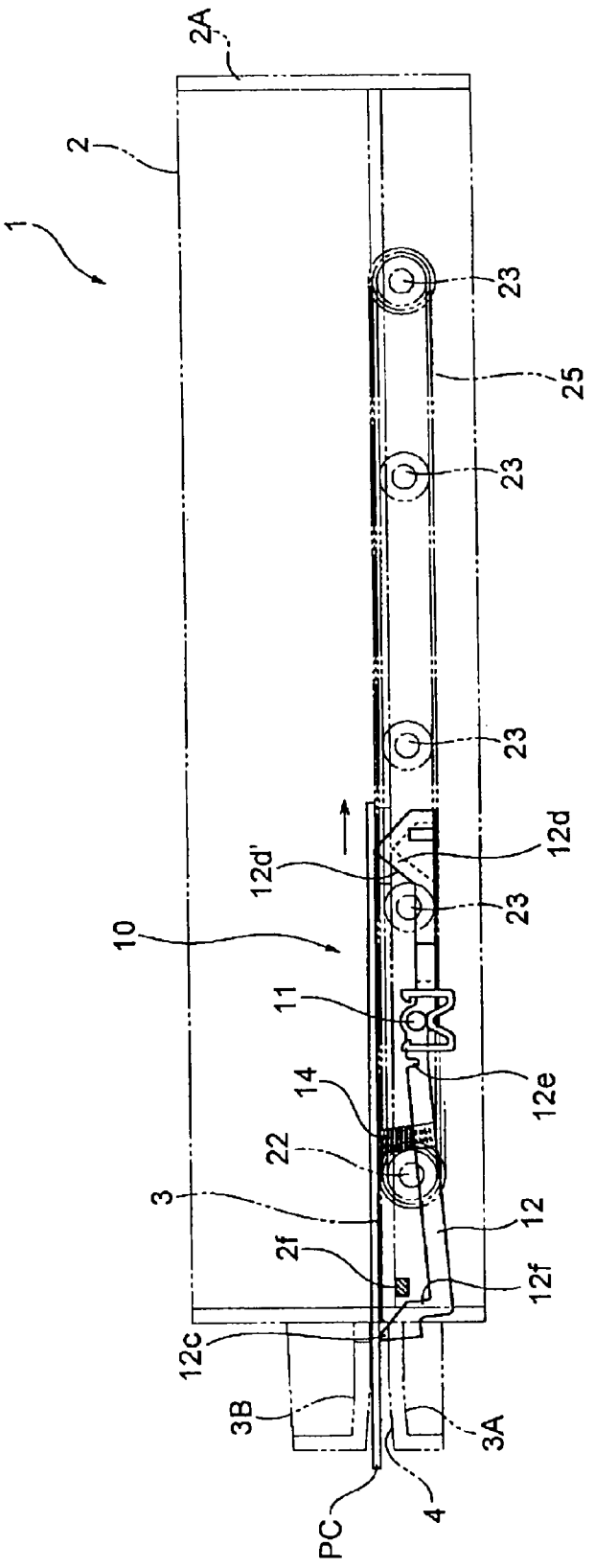


Fig. 10

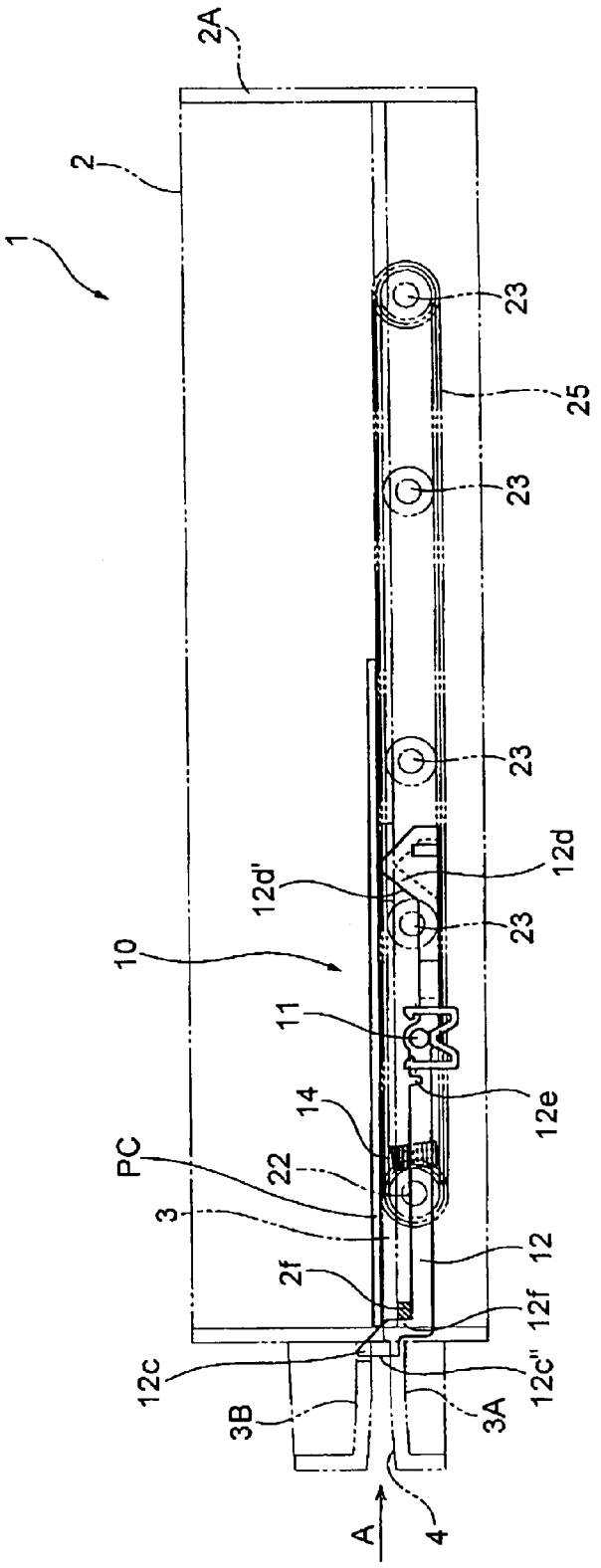

2A
2
1
23
25
23
23
12d
12d'
23
10
11
14
12e
PC
22
3
12
2f
12f
12c
12c''
3B
3A
A
4

Fig. 11

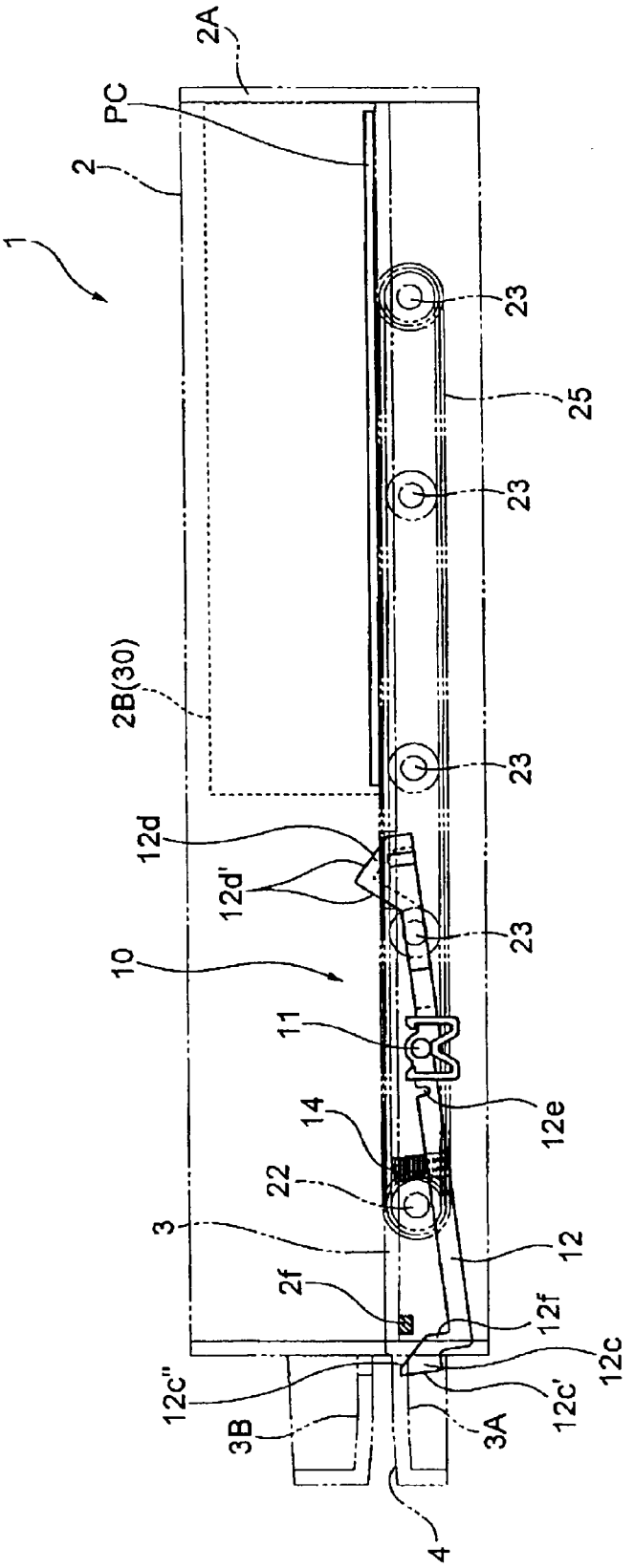
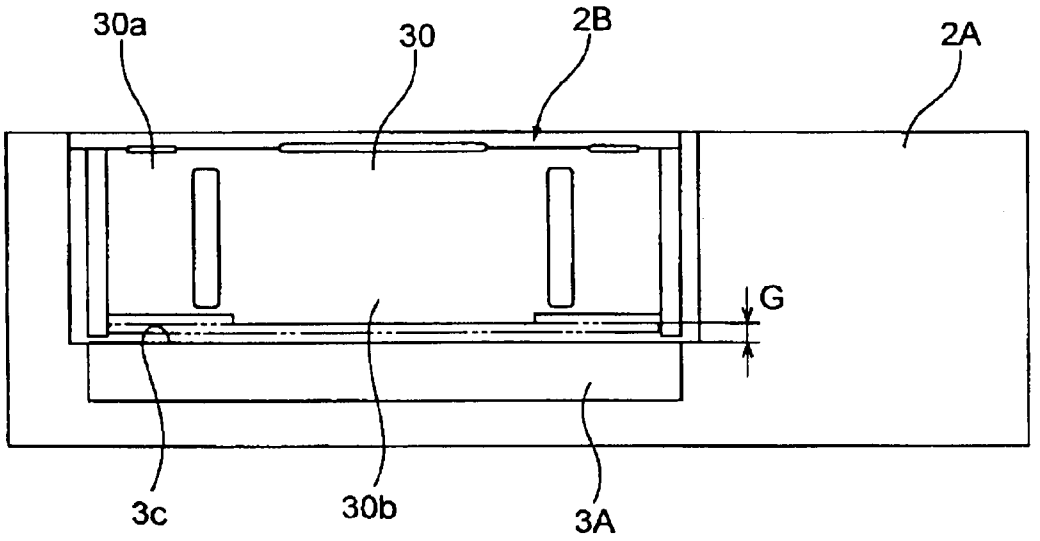

2A
PC
2
1
23
25
23
2B(30)
23
12d
12d'
23
10
11
12e
14
22
3
12
2f
12f
12c
12c"
12c'
3B
3A
4

Fig. 12

Fig. 13



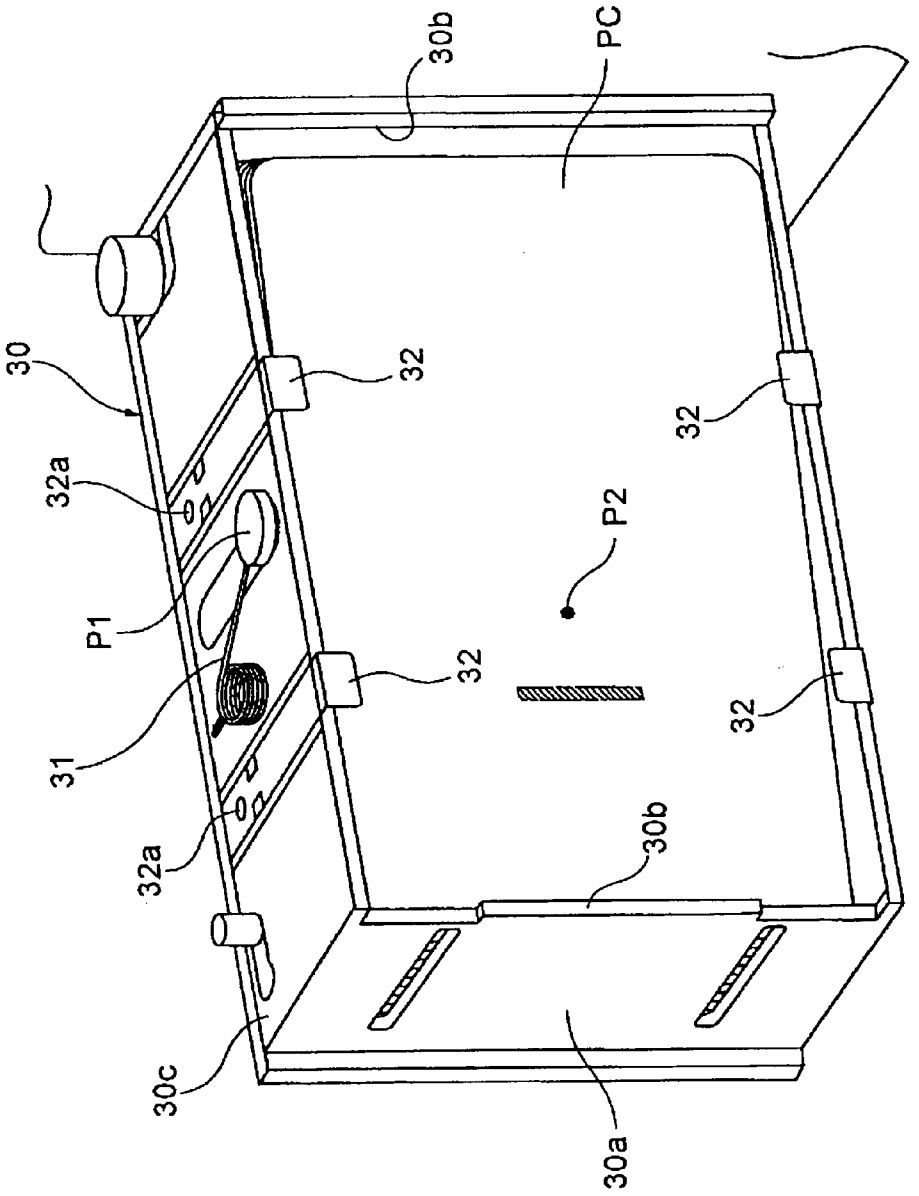


Fig. 14

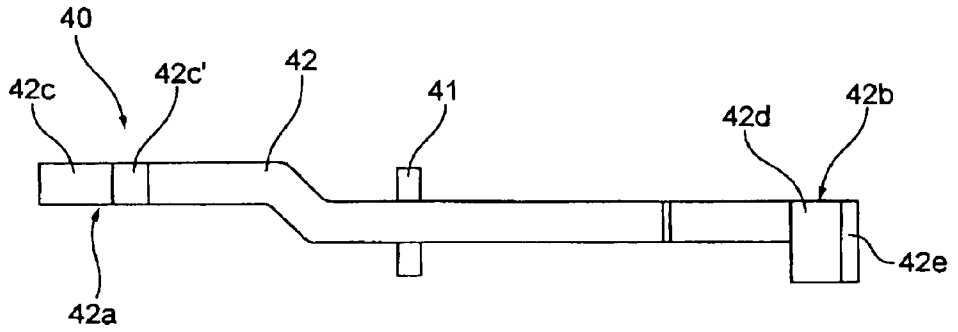


Fig. 15A

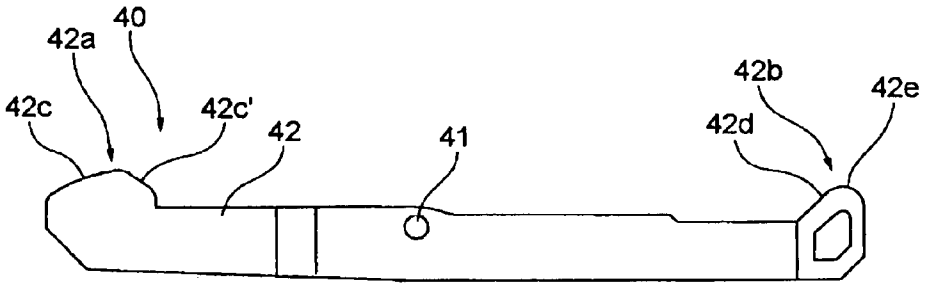


Fig. 15B

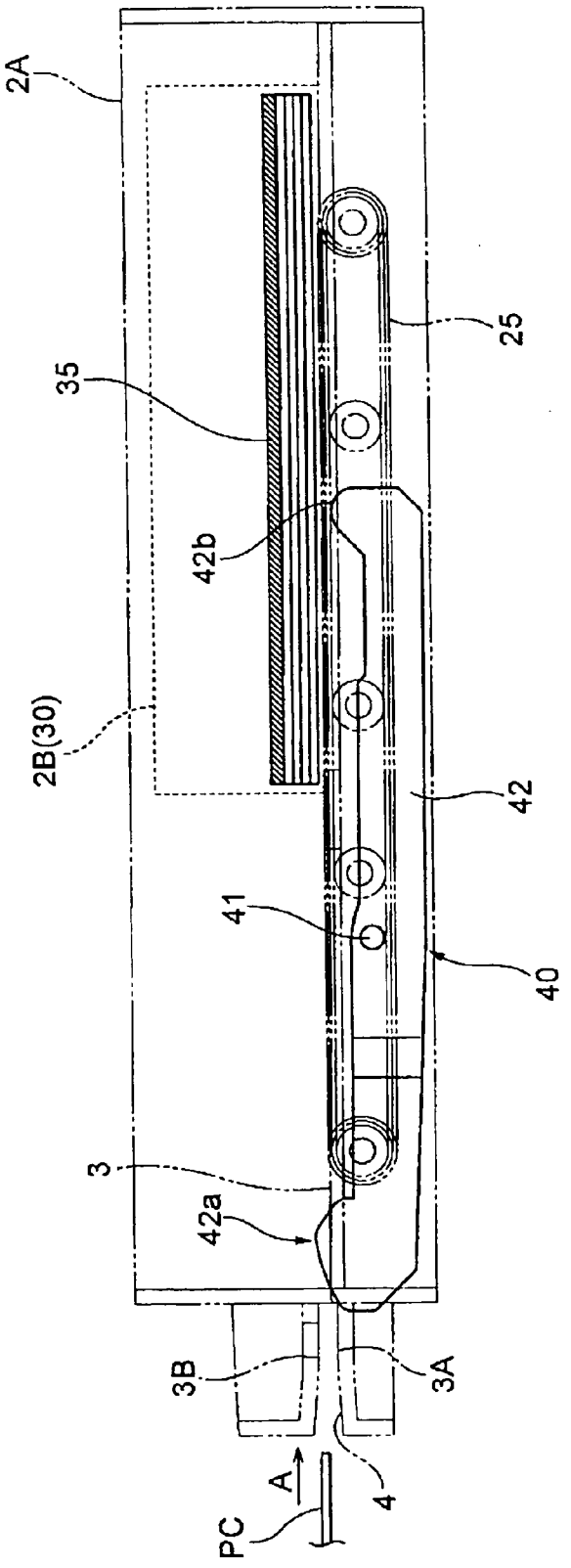


Fig. 16

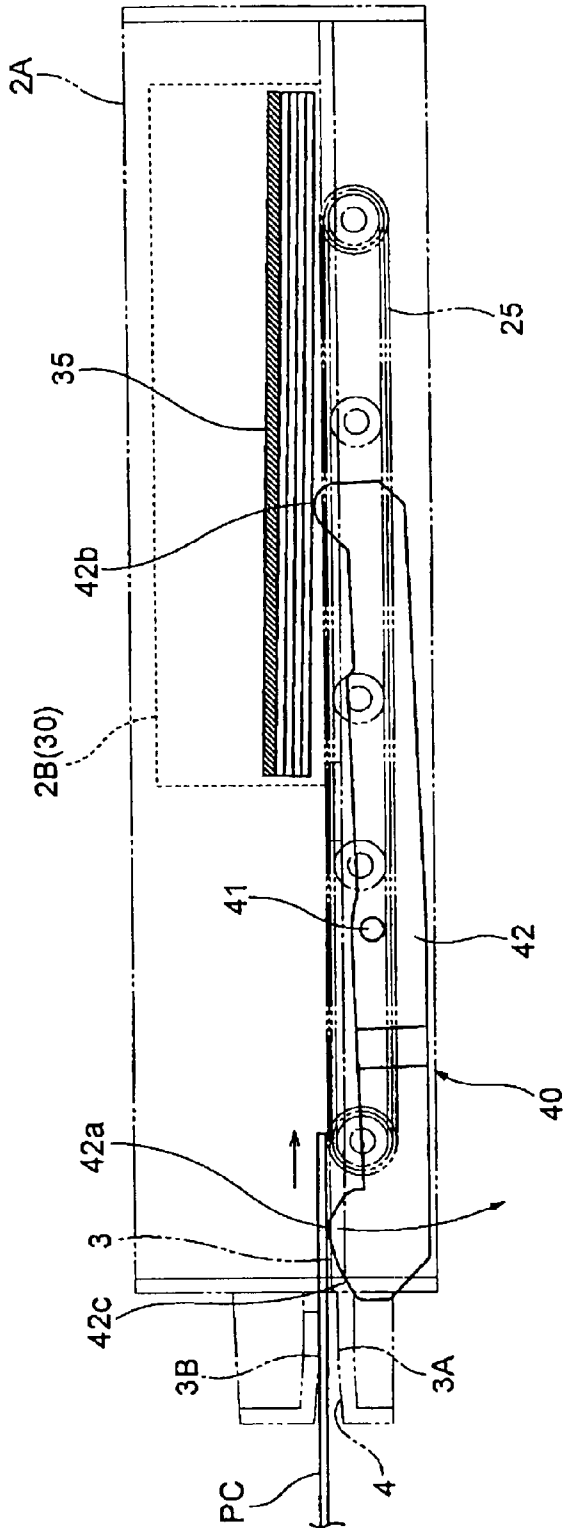


Fig. 17

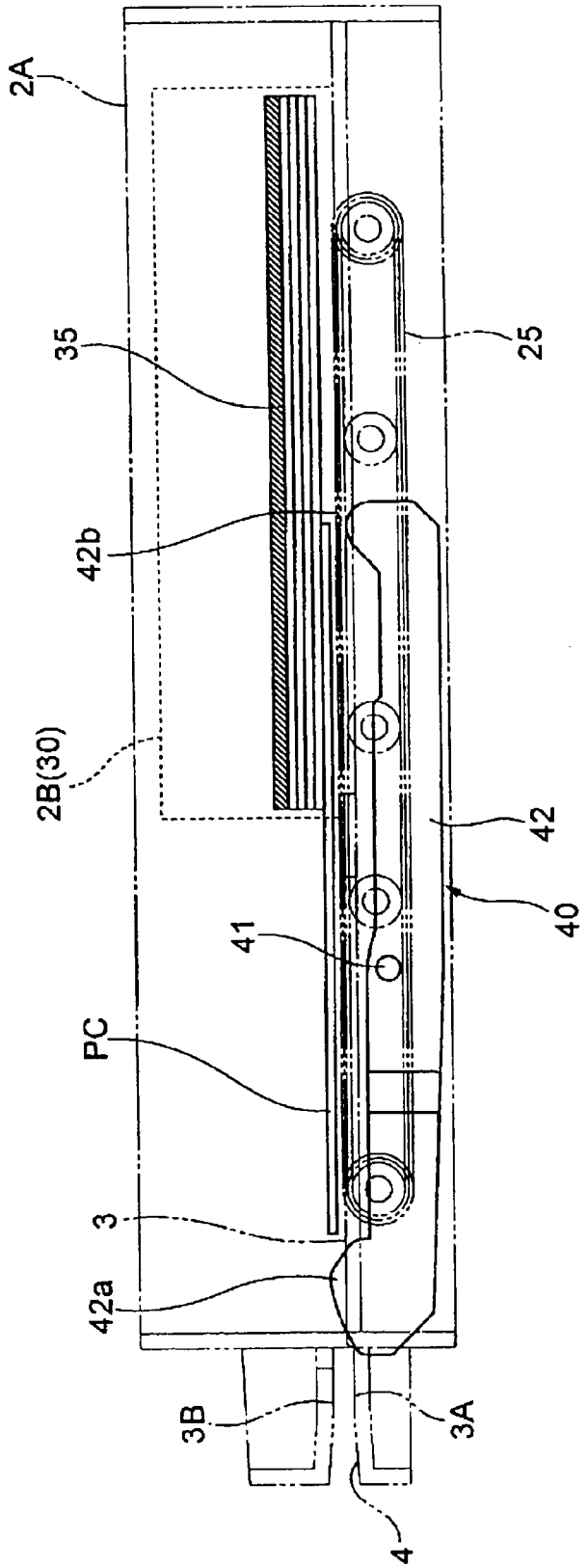


Fig. 18

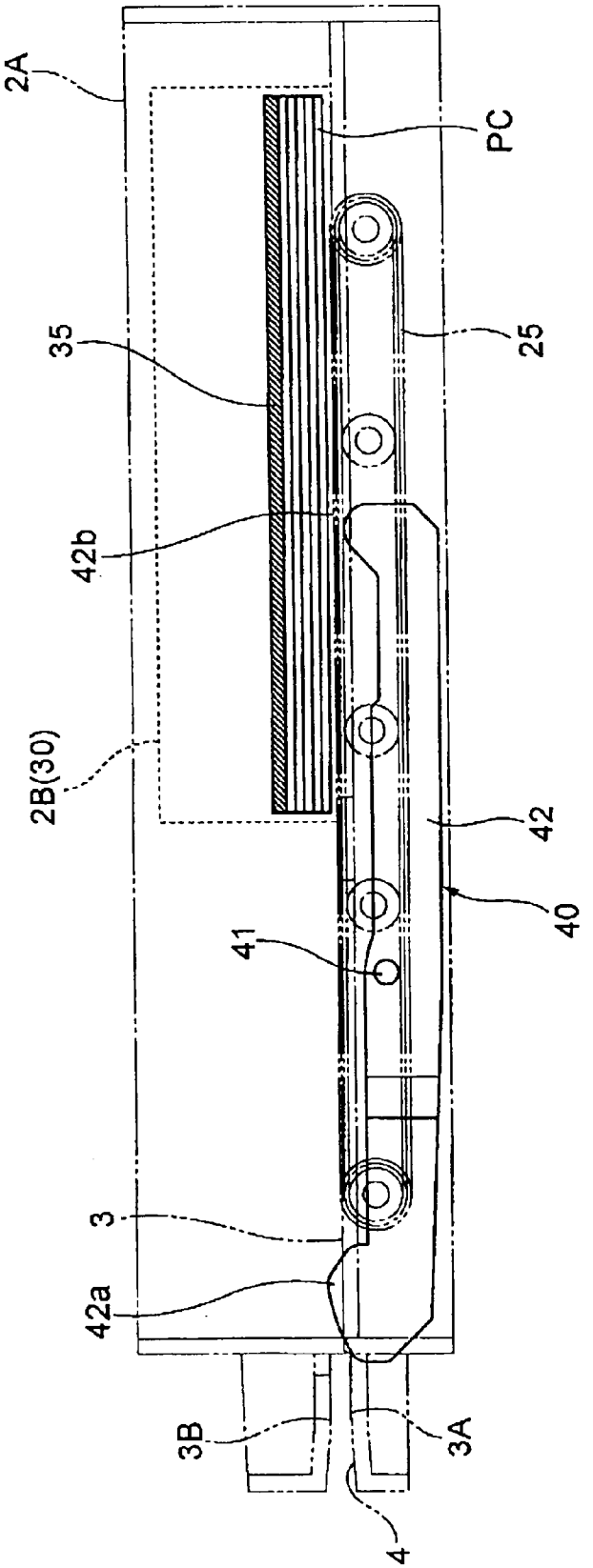


Fig. 19

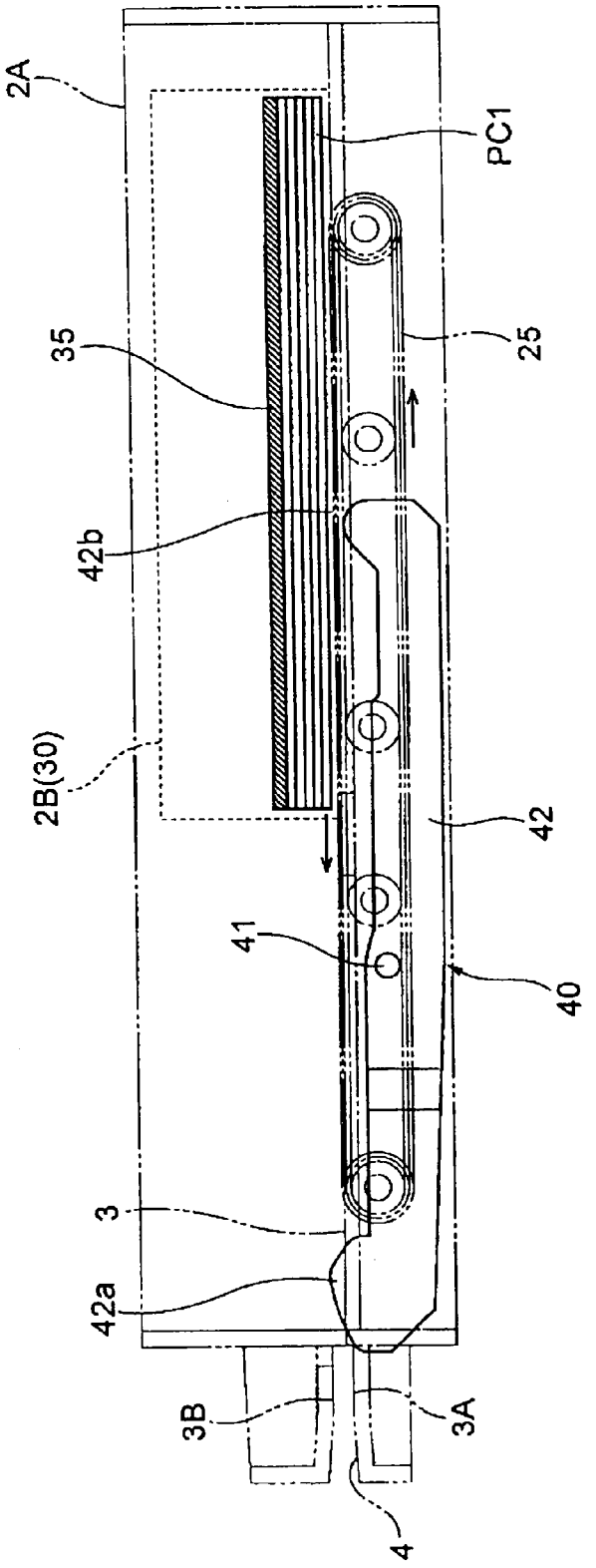


Fig. 20

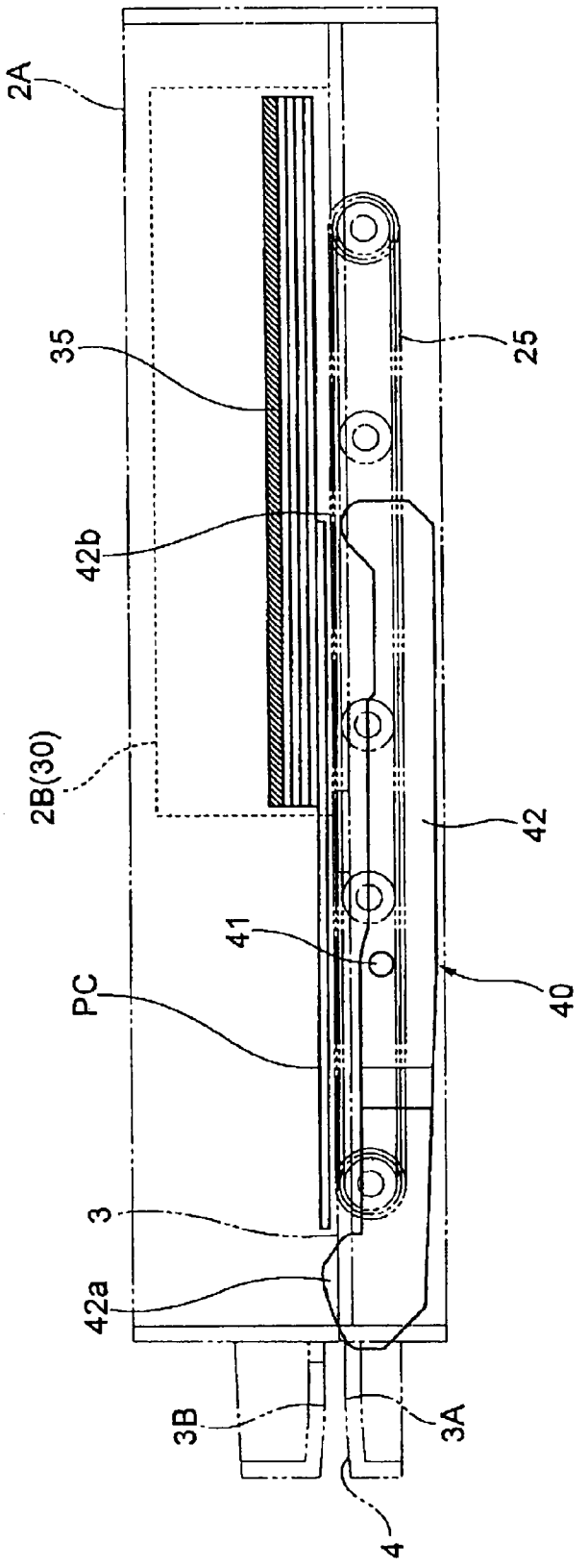


Fig. 21

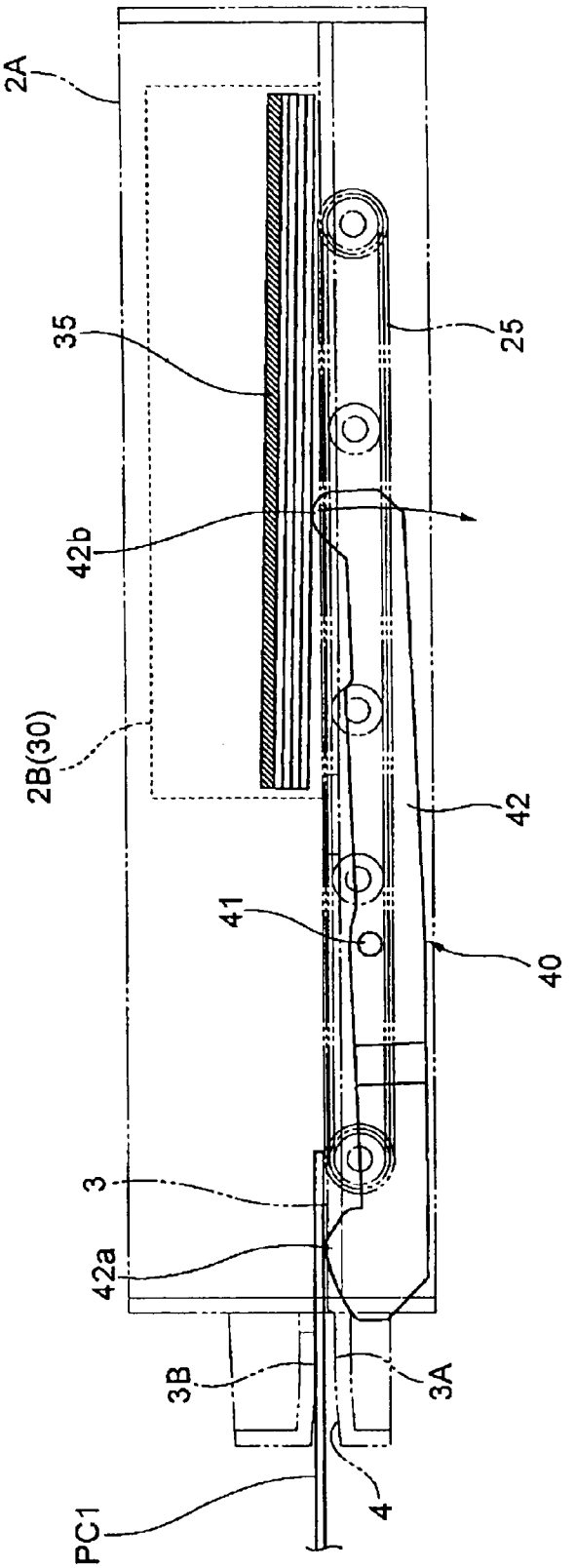


Fig. 22

Fig. 23

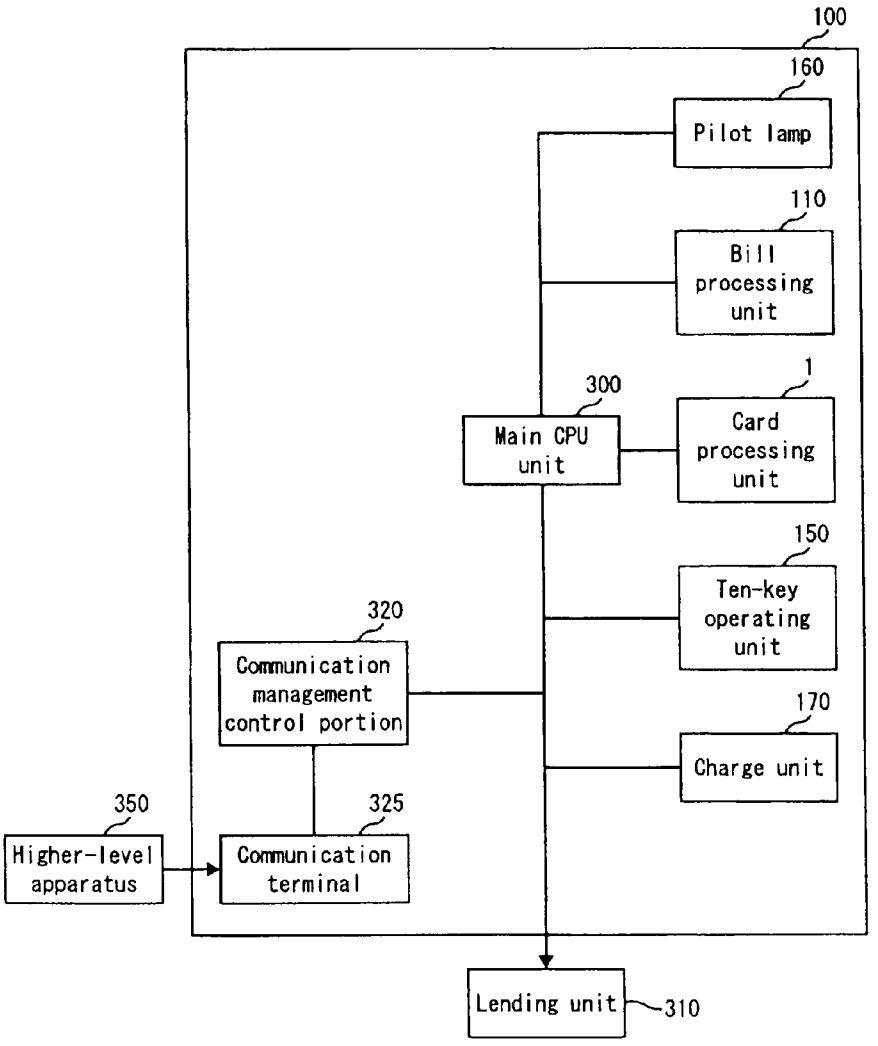
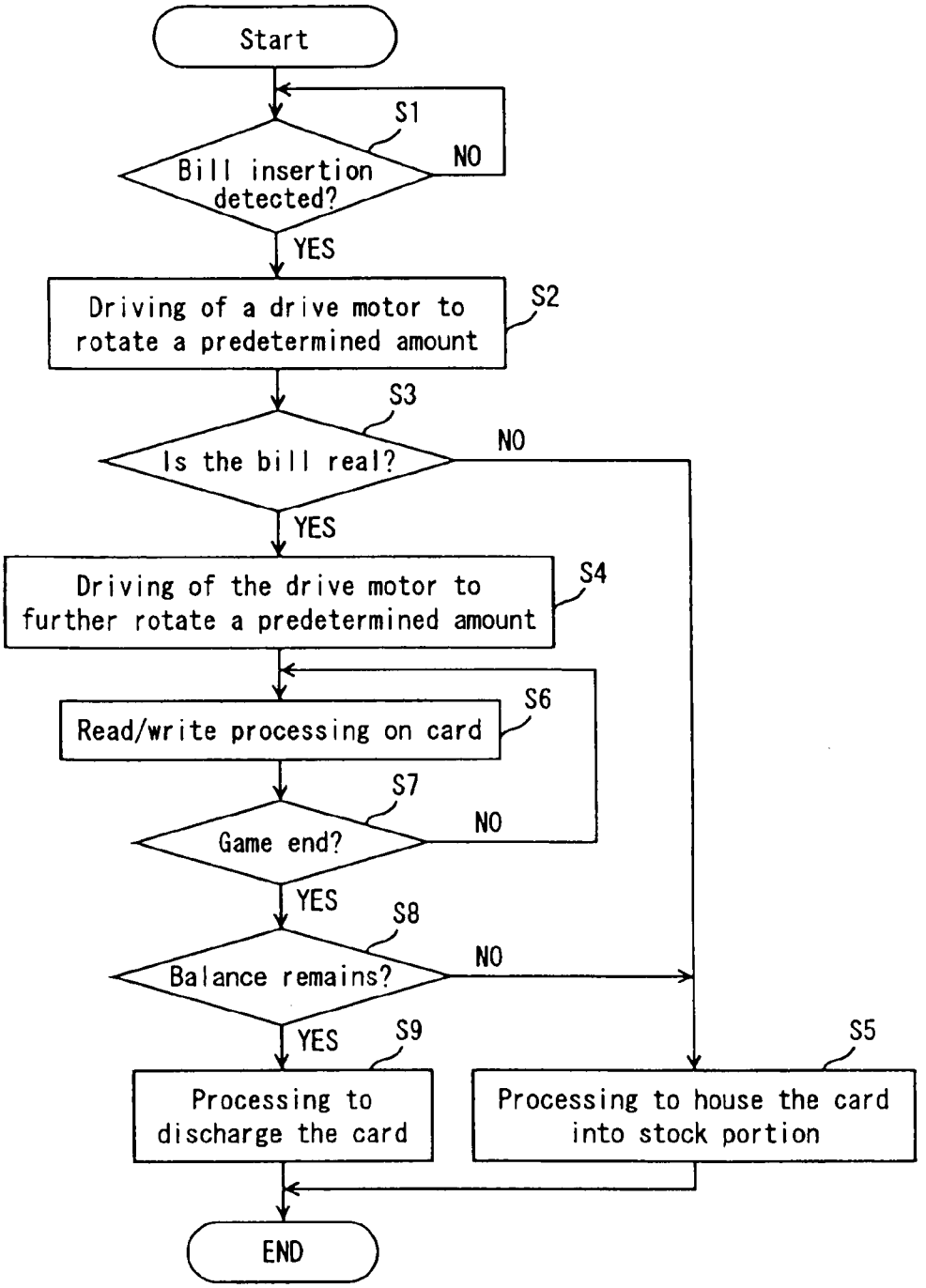

100
160
Pilot lamp
110
Bill processing unit
300
1
Main CPU unit
Card processing unit
150
Ten-key operating unit
320
Communication management control portion
170
Charge unit
350
325
Higher-level apparatus
Communication terminal
Lending unit
310

Fig. 24


Start
S1
Bill insertion detected?
NO
YES
Driving of a drive motor to rotate a predetermined amount
S2
S3
Is the bill real?
NO
YES
Driving of the drive motor to further rotate a predetermined amount
S4
S6
Read/write processing on card
S7
Game end?
NO
YES
S8
Balance remains?
NO
YES
S9
Processing to discharge the card
S5
Processing to house the card into stock portion
END

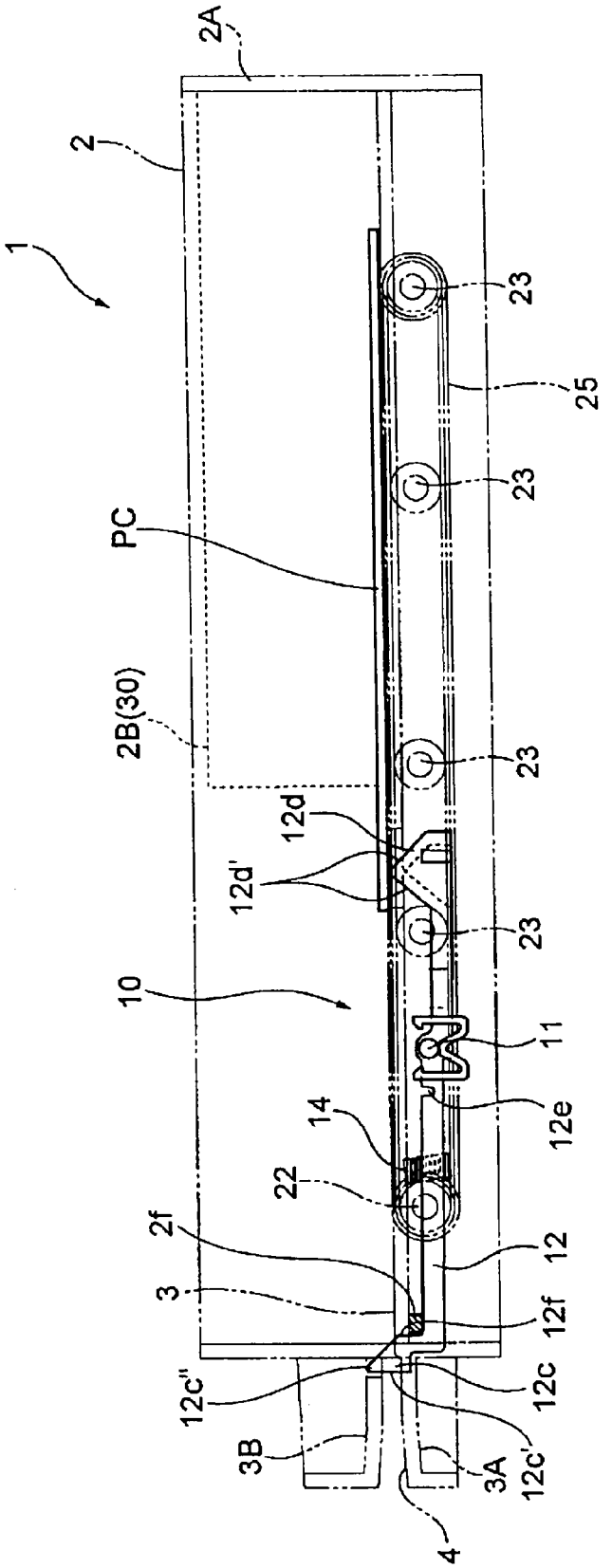
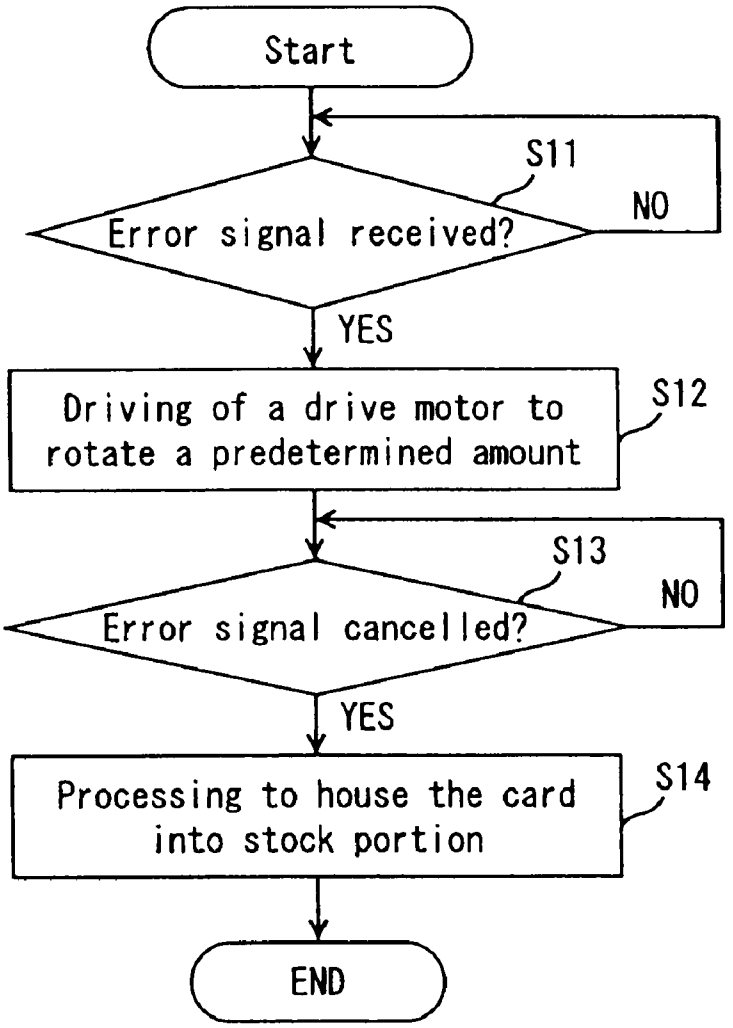

2A
2
1
23
25
23
PC
2B(30)
23
12d
12d'
23
10
11
14
12e
22
2f
12
3
12f
12c"
12c
3B
3A
12c'
4

Fig. 25

Fig. 26


Start
S11
Error signal received?
NO
YES
Driving of a drive motor to rotate a predetermined amount
S12
S13
Error signal cancelled?
NO
YES
Processing to house the card into stock portion
S14
END

GAME MEDIA PROCESSOR

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims benefit of priority based on Japanese Patent Application No. 2007-049861 filed on Feb. 28, 2007. The contents of this application are incorporated herein by reference in their entirety.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to a game media processor for processing game media that is used in playing with various gaming machines such as pachinko gaming machines and slot machines.

[0004] 2. Discussion of the Background

[0005] In the gaming machine as thus described, typically, a bill and a card-shaped recording medium such as a prepaid card and an IC card (hereinafter referred to as card) are used to play a game. These are game media for use in playing what is called a game. A game is executed by insertion of the game media into a game media processor adjacent to the gaming machine, or a game is executed by using secondary game media which are on loan, such as medals and balls.

[0006] As such game media processors as mentioned above, in JP-A 2005-296255 for example, a game media processor installed adjacent to a gaming machine and configured to be capable of processing a bill and card-shaped recording media are known. The game media processor disclosed in JP-A 2005-296255 is provided with a bill insertion slot and a card insertion slot formed at a position in the vicinity of this bill insertion slot. When a bill is inserted into the bill insertion slot and the bill is determined to be real by a bill processing portion, a game can be played and further carriage processing is performed so as to allow the bill to be housed into a stock (bill stock portion). Also, a game can be played when a card is inserted into the card insertion slot and information on the game media is read by a card processing portion (reader-writer). Further, when the game is finished, processing for collecting the card into a card housing portion, or writing is performed, and return processing is then performed. JP-A 2005-296255 further discloses a technique in which, in a case where a player executes processing on two kinds of game media of a bill or a card, processing of one kind of the game media is discontinued by a shutter member when processing is performed on the other kind of the game media.

[0007] As the shutter member used for the game media processors of the above-mentioned kind, the one disclosed in JP-A 2004-152240 has been known.

[0008] The shutter member disclosed in JP-A 2004-152240 is oscillatably fixed to a shaft arranged as opposed to a card carriage plane, and has a plate-shaped member (oscillating member), each end of which being bent toward the card carriage plane. The plate-shaped member is oscillatable in the form of a seesaw with the shaft at the center, and when a card inserted from the insertion slot is carried toward the inside, the front end of the card is engaged with the bent portion on one end of the plate-shaped member, and the bent portion on this end is thus lifted and oscillated with the shaft as the center. Thereby, the bent portion on the other end (insertion slot side) of the plate-shaped member is lowered, and hence the insertion slot is closed by the bent portion on the other end of the plate-shaped member, coming into a state where insertion of an additional card is prevented.

[0009] The contents of JP-A 2005-296255 and JP-A 2004-152240 are incorporated herein by reference in their entirety.

[0010] However, when the card insertion slot is intended to be closed while, for example, a bill is under processing or an error state is caused by a problem with a higher-level apparatus (gaming machine, etc.), each of the shutter members disclosed in JP-A 2005-296255 and JP-A 2004-152240 separately requires a drive mechanism for driving the shutter member.

[0011] The present invention was made with attention focused on the above-mentioned problem, and an object of the present invention is to provide a game media processor capable of driving a shatter member without using a special driving mechanism.

SUMMARY OF THE INVENTION

[0012] In order to achieve the above-mentioned object, the game media processor described in claim **1** according to the present invention includes: a card insertion slot, into which a card is inserted; a shutter mechanism driven to make the card insertion slot closable; a card housing portion which allows the card to be housed therein; a carriage path, along which the card moves from the card insertion slot to the card housing portion; a card carriage mechanism which carries the card; and a control means for controlling the operations of the card carriage mechanism, the shutter mechanism including an oscillating member oscillatably supported by a shaft, the oscillating member having a closing portion formed on one end side configured to make the card insertion slot closable and a projecting/withdrawing portion formed on the other end configured to be able to project and withdraw from the carriage path, the closing portion being configured to close the card insertion slot by oscillation of the oscillation member caused upon engagement of the card with the projecting/withdrawing portion, wherein the controlling means controls the operations of the card carriage mechanism, on condition that a predetermined signal is received, so as to carry the card housed in the card housing portion to a position where the card is in engagement with the projecting/withdrawing portion.

[0013] According to the game media processor having the above-mentioned configuration, when a card is inserted into a card insertion slot and then the card is carried by controlling the operations of the card carriage mechanism, the front end side of the card is engaged with the projecting/withdrawing portion formed on the other end side (processor body interior side) of the oscillating member (shutter member), to oscillate the oscillating member. With the oscillating member oscillated, the insertion slot is closed by the closing portion formed on the end side (insertion slot side) of the oscillating member, coming into a state where insertion of an additional card is prevented. Further, when the control means receives a predetermined signal, for example, a processing signal of performing another processing or an error signal that interferes with the operations of the processor, a card housed in the card housing portion is carried to a position where the card is in engagement with the projecting/withdrawing portion of the oscillating member. Accordingly, since the card insertion slot is closed only by carriage of the card housed in the card housing portion, the use of the drive mechanism (drive motor, cam, etc.) for driving the shutter member is not necessary.

[0014] Moreover, the game media processor of the present invention described in claim **2** includes a bill processing unit provided with a bill insertion slot into which a bill is inserted and a detection means to detect insertion of a bill into the bill insertion slot, wherein the predetermined signal is a bill insertion detection signal transmitted from the detection means.

[0015] In the game media processor having the above-mentioned configuration, when a bill is inserted into a bill processing unit, due to generation of a insertion detection signal for that bill, the card insertion slot comes into the closed state as described above to block mistaken insertion of an additional card, thereby reliably preventing occurrence of an error or the like associated with insertion of the bill in a typical information communication processing on the card.

[0016] Furthermore, according to the game media processor of the present invention described in claim **3**, the control means is capable of controlling communication of information on the card and controls the operations of the card carriage mechanism, on condition that a bill inserted into the bill processing unit is determined to be real, so as to carry the card to a position where communication of information on the card can be controlled.

[0017] In the game media processor having the above-mentioned configuration, the card is carried to the projecting/withdrawing portion at a stage where the bill is inserted, and subsequently, when the inserted bill is real, the card is carried to a position where communication of information on the card can be controlled. Since the card is not carried to the above-mentioned position where the communication can be controlled at the time of insertion of the bill, it is possible, for example, to save the carriage distance and time for returning the card to the card housing portion after the bill has been determined as not real.

[0018] Still furthermore, according to the game media processor of the present invention described in claim **4**, the controlling means is connected to a control portion of a higher-level apparatus which manages operations of the game media processor, and the predetermined signal is an error signal transmitted from the higher-level apparatus.

[0019] According to the game media processor having the above-mentioned configuration, for example, it is possible to connect the game media processor to a gaming machine in which a game is actually played or connect the processor to a higher-level apparatus such as a host computer that manage the game arcade. In such a case, when, for example, a trouble such as a breakdown of the gaming machine occurs, since the card insertion slot is closed when an error signal is received from the higher-level apparatus, it is possible to reliably prevent occurrence of a new trouble associated with insertion of a card.

[0020] According to the present invention, it is possible to obtain a game media processor capable of driving the shutter member without using a special driving mechanism.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] FIG. **1** is a view showing one example of a game media processor, as well as a perspective view showing a whole configuration.

[0022] FIG. **2** is a plan view showing a whole configuration of a card processing unit.

[0023] FIG. **3** is a view showing a state where a stock portion has been opened.

[0024] FIG. **4** is a view showing a state where the substrate installation frame has been removed from the state shown in FIG. **3**, as well as a view showing a configuration of a card carriage path.

[0025] FIG. **5** is an enlarged view of the card insertion slot portion shown in FIG. **4**.

[0026] FIG. **6** is a view of the card processing unit seen from the rear side.

[0027] FIG. **7** is an enlarged view of main parts of FIG. **6**.

[0028] FIG. **8** is a perspective view showing a configuration of an oscillating member (first oscillating member) constituting a shutter mechanism.

[0029] FIG. **9** is a view showing an operation of the oscillating member when a card moves from the insertion slot (Part **1**).

[0030] FIG. **10** is a view showing an operation of the oscillating member when the card moves from the insertion slot (Part **2**).

[0031] FIG. **11** is a view showing an operation of the oscillating member when the card moves from the insertion slot (Part **3**).

[0032] FIG. **12** is a view showing an operation of the oscillating member when the card moves from the insertion slot (Part **4**).

[0033] FIG. **13** is a view of a stock portion seen from the insertion slot side.

[0034] FIG. **14** is a view showing a state where a card is housed in the stock portion.

[0035] FIG. **15**A is a plan view showing a configuration of an oscillating member (second oscillating member) that constitutes a housing drive mechanism, and FIG. **15**B is a side view thereof.

[0036] FIG. **16** is a view showing functions of the second oscillating member and the stock portion when the card is carried from the insertion slot (Part **1**).

[0037] FIG. **17** is a view showing functions of the second oscillating member and the stock portion when the card is carried from the insertion slot (Part **2**).

[0038] FIG. **18** is a view showing functions of the second oscillating member and the stock portion when the card is carried from the insertion slot (Part **3**).

[0039] FIG. **19** is a view showing functions of the second oscillating member and the stock portion when the card is carried from the insertion slot (Part **4**).

[0040] FIG. **20** is a view showing functions of the second oscillating member and the stock portion when the card is carried from the stock portion toward the insertion slot (Part **1**).

[0041] FIG. **21** is a view showing functions of the second oscillating member and the stock portion when the card is carried from the stock portion toward the insertion slot (Part **2**).

[0042] FIG. **22** is a view showing functions of the second oscillating member and the stock portion when the card is carried from the stock portion toward the insertion slot (Part **3**).

[0043] FIG. **23** is a control block diagram to control the whole of a game media processor with a card processing unit **1** incorporated therein.

[0044] FIG. **24** is a flow chart showing an example of control to close the card insertion slot of the card processing unit.

[0045] FIG. **25** is a view showing a state where the card is carried from the stock portion and the card insertion slot is closed.

[0046] FIG. **26** is a flowchart showing an example of another control to close the card insertion slot of the card processing unit.

DESCRIPTION OF THE EMBODIMENTS

[0047] In the following, one embodiment of the game media processor according to the present invention is described with reference to drawings. It is to be noted that a game media processor in the present embodiment is configured to be suitable as a processor (generally, also referred to as a sandwiched device) that is set adjacently to a pachinko gaming machine (gaming machine) installed at a game arcade such as a pachinko hall.

[0048] FIG. **1** is a view showing a whole configuration of the game media processor. As shown in the figure, a game media processor **100** of the present embodiment is configured to include a card processing unit **1**, a bill processing unit **110**, and ten-key operating unit **150**.

[0049] The card processing unit **1** is provided with a card insertion slot **4** formed on the front face of the game media processor, and for example, by insertion of a card with money amount information written therein (prepaid card, IC card, etc.), a reader-writer installed inside is driven to perform reading and rewriting of money amount information, and also a card with its money information rewritten can be returned or issued, or a card with its money amount becomes zero can be collected. A player can receive loan of secondary game media such as pachinko balls or medals in the range of money amount information written in the card, and the player can play a game.

[0050] The bill processing unit **110** is provided with a bill insertion slot **111** formed on the front face of the game media processor. By insertion of a bill, authenticity determination processing is performed using a sensor installed therein, and as in a case of the above-mentioned card, a player can receive loan of secondary game media such as pachinko balls or medals in the range of the amount of the inserted money, and the player can play a game. In addition, the card processing unit **1** is configured such that, when the entire amount of money is not used in the game, money amount information is written in a card preliminary housed in a card housing portion (stock portion) of the card processing unit and that the card can then be issued.

[0051] Further, the bill processing unit **110** is configured such that, when a bill is inserted thereinto, a card is prevented from being inserted into the insertion slot **4** of the card processing unit **1** by a shutter member constituting a shutter mechanism (a detailed configuration of the shutter mechanism is described later).

[0052] The ten-key operating unit **150** is provided with an image display portion (formed of a liquid crystal display) **151**, a ten-key **152**, and an infrared light receiving element **153**, and in some cases also provided with an image pickup unit **154** for authenticating a human body or the like. It is to be noted that in the figure, the infrared light receiving element **153** and the image pickup unit **154** are set at the same position above the image display portion **151**.

[0053] On the image display portion **151**, for example, a variety of information on the game arcade, a two-dimensional barcode, money amount information and the like are displayed. The ten-key **152** is pressed, for example, to input a password of an IC card owned by the player, to scroll a variety of information displayed on the image display portion **151**, to input money information for use in a game, and the like. The infrared light receiving element **153** is used, for example, for activating a rock mechanism when the manager of the game arcade opens the game media processor **100** by the use of an infrared remote controller. The image pickup unit **154** is used for acquiring information for identifying a human body, for example, information on whether or not a player is playing a game with the gaming machine adjacent to the game media processor, or the like.

[0054] The game media processor **100** is provided with, other than the above-mentioned units, for example, a pilot lamp **160** that notifies abnormality, and a charge unit **170** having a charge jack **170***a* that permits a mobile terminal owned by the player to be charged.

[0055] Next, a configuration of the card processing unit **1** incorporated in the game media processor **100** is described.

[0056] FIG. **2** to FIG. **7** are views showing configurations of the card processing unit included in the above-mentioned game media processor. FIG. **2** is a plan view showing a whole configuration, FIG. **3** is a view showing a state where a stock portion has been opened from the state shown in FIG. **2**, FIG. **4** is a view showing a state where the substrate installation frame has been removed from the state shown in FIG. **3**, as well as a view showing a configuration of a card carriage path, FIG. **5** is an enlarged view of the card insertion slot portion shown in FIG. **4**, and FIG. **6** is a view of the card processing unit seen from the rear side.

[0057] The card processing unit **1** comprises a frame **2** formed in the shape of a substantially rectangular prism, and this frame **2** is mounted on a locking portion of the above-mentioned game media lending machine. The frame **2** has a body frame **2**A constituting a processor body; a stock portion **2**B which is configured to stack and house a plurality of cards and installed on the card carriage downstream side of the body frame **2**A; and a substrate mounted frame **2**C which is installed on the card carriage upstream side of the body frame **2**A and has a control substrate **200** mounted thereon for controlling constitutional members (e.g. card reader-writer) of the card processing unit. It is to be noted that, although FIG. **2** shows the state of the control substrate **200** being exposed, the control substrate **200** is actually in the state of being covered by a cover which is not shown.

[0058] As shown in FIG. **2** and FIG. **3**, the stock portion **2**B is configured to be opened from and closed into the body frame **2**A with a base as its rotational center. Other than being mounted with the control substrate **200**, the substrate mounted frame **2**C rotatably holds rollers **22**, **23** constituting a later-described carriage mechanism, a plurality of pinch rollers **101**, **102** in contact with a carriage belt **25**, and the like. It is to be noted that a torsion spring **110** is arranged between a shaft of the pinch roller **101** and a shaft of the pinch roller **102**, and the pinch rollers **101**, **102** are biased toward the rollers **22**, **23** and the carriage belt **25** side.

[0059] The body frame **2**A has the shape of a substantially rectangular prism, and at its center, a carriage path **3** is formed which extends in a longitudinal direction to carry a card. As shown in FIG. **5**, a card PC is to be carried along this carriage path **3**, the stock portion **2**B is closed into the body frame **2**A and the substrate mounted frame **2**C is immovably attached to the body frame **2**A, to form a gap for carriage of a card, forming the carriage path **3**. Therefore, this carriage path **3** is typically arranged not to be exposed to the outside.

[0060] Card carrying-in portions **3**A, **3**B are formed respectively on the body frame **2**A and the substrate mounted frame **2**C, so as to agree with the carriage path **3**. When the

stock portion **2**B is closed into the body frame **2**A and the substrate mounted frame **2**C is mounted on the body frame **2**A, the card carrying-in portions **3**A, **3**B form a slit-shaped card insertion slot **4**. As shown in FIG. **2**, the card PC is inserted inside at the slit-shaped card insertion slot **4** along a direction of an arrow A. It should be noted that control walls **3**D for controlling both sides of the card inserted from the card insertion slot **4** are formed on the card carrying-in portions **3**A, **3**B, and the card is guided onto the carriage path **3** in the state of being positioned by the control walls **3**D.

[0061] The stock portion **2**B is provided with the function of stocking cards carried in onto the carriage path **3** from the insertion slot **4**, and cards that move along the carriage path **3** are housed so as to be sequentially stacked from the bottom of the stock portion. It is to be noted that a specific configuration and operation of the stock portion **2**B are described later.

[0062] The front edge side of the stock portion **2**B is provided with a lock shaft **6** that can be latched to the body frame **2**A. This lock shaft **6** is biased toward the rear side by a bias spring or the like. Pulling the lock shaft **6** toward the insertion slot **4** side (direction of an arrow B) releases the locked state of the stock portion **2**B and the body frame **2**A (both frames being in the closed state) so that the stock portion **2**B comes into an open state (see FIG. **2**).

[0063] In the body frame **2**A, there are installed a shutter mechanism for preventing insertion of an additional card, a carriage mechanism for carrying a card, a housing drive mechanism for housing a card moving along the carriage path **3** into the stock portion **2**B, and some other mechanisms.

[0064] In the following, configurations and operations of a variety of drive mechanisms installed in the body frame **2**A are specifically described.

[As to Shutter Mechanism]

[0065] In the body frame **2**A, a shutter mechanism **10** is installed which prevents the user from erroneously inserting an additional card during card processing. The configuration of this shutter mechanism **10** is described with reference to the above-mentioned FIG. **2** to FIG. **6** and FIG. **7** to FIG. **12**. It is to be noted that FIG. **7** is an enlarged view of main parts of FIG. **6**, FIG. **8** is a perspective view showing a configuration of a shutter member (first oscillating member) constituting the shutter mechanism, and FIG. **9** to FIG. **12** are views sequentially showing operations of the shutter member when a card moves from the insertion slot.

[0066] The shutter mechanism **10** has an shutter member **12** oscillatably supported with respect to the body frame **2**A via a shaft **11**. The shutter member **12** of the present embodiment is oscillatably supported on one side wall side of the carriage path **3**, and extends in the card carrying direction, to be integrally formed of a synthetic resin material so as to be elastically transformed. In addition, the shaft **11** is integrally formed with the shutter member **12** on the side slightly behind the center.

[0067] In the shutter member **12**, the shaft **11** is set to a bearing **2***a* projected to the rear side of the carriage path **3** of the body frame **2**A, and a substantially M-shaped cover **13** is installed over the shaft **11** so that the shutter member **12** is oscillatably supported against the body frame **2**A. Namely, the shutter member **12** can be mounted onto or demounted from the body frame **2**A by a simple operation, and a load applied on the oscillating member can be alleviated by the substantially M-shaped cover **13**.

[0068] Further, a closing portion **12***c* that makes the card insertion slot **4** closable is formed on one end side of the shutter member **12**, and a projecting/withdrawing portion **12***d* capable of projecting and withdrawing from the carriage path **3** is formed on the other end side of the shutter member **12**. As shown in FIG. **4**, the closing portion **12***c* is capable of projecting and withdrawing from an opening **2***b* formed in the vicinity of the card insertion slot **4** of the body frame **2**A (region of the card carrying-in portion **3**A), and the projecting/withdrawing portion **12***d* is capable of projecting and withdrawing from an opening **2***c* formed on the front end side of the stock portion **2**B.

[0069] The shutter member **12** is supported such that the closing portion **12***c* constantly opens the card insertion slot **4** (in a state where the closing portion **12***c* is depressed into the opening **2***b*), and in this state, the projecting/withdrawing portion **12***d* on the other end side projects from the surface of the carriage path **3**. In order to give such a state, a pressing spring **14** is interposed between the shutter member **12** at a position ahead of the shaft **11** and the rear surface of the body frame **2**A, to bias the closing portion **12***c* in a direction to be constantly depressed into the opening **2***b*. A hole is formed in the shutter member **12**, and the pressing spring **14** is in the state of being held in the hole.

[0070] Further, the insertion slot side of the shutter member **12** is arranged to be bendable along the card carrying direction. When the front end side of a card moving along the carriage path **3** presses the projecting/withdrawing portion **12***d*, the closing portion **12***c* of the shutter member **12** in a bent state comes into contact with the surface of the rear end side of the card. Namely, with the shutter member **12** bent, a large load is not applied to the moving card even when the closing portion **12***c* comes into contact therewith, thereby preventing the closing portion **12***c* from damaging the card and being resistance during carriage of the card.

[0071] In this case, a notch depression **12***e* is formed on the shutter member **12** so that the shutter member **12** is more easily bent when the closing portion **12***c* comes into contact with the moving card. This notch depression **12***e* is formed with a predetermined depth on the surface of the shutter member **12** on the body frame **2**A side ahead of the shaft **11**, in a direction orthogonal to the shaft direction so that the closing portion **12***c* side can be easily bent downward. Namely, the front side including the closing portion **12***c* with the notch depression **12***e* as a supporting point can be easily bent in the direction to be depressed into the opening **2***b*, when the top of the closing portion **12***c* comes into contact with the surface of the card. It is to be noted that, other than formation of the notch depression **12***e*, as the means of bending the shutter member **12**, for example, the front side of the shutter member **12** may be formed of a flexible material or the like.

[0072] Thereby, the shutter member **12** becomes able to make the closing portion **12***c* and the projecting/withdrawing portion **12***d* formed on the respective ends thereof simultaneously come into contact with the card surface, and as shown in FIG. **9** to FIG. **12**, it becomes possible to form the shutter member **12** shorter than the length of the card in the carrying direction.

[0073] Needless to say, the shutter member **12** may alternatively have a structure to close the card insertion slot **4** not by bending itself but by only being oscillatably supported.

[0074] Further, as shown in FIG. **8**, the closing portion **12***c* is formed in the shape of a substantially right-angle triangle in

a side view, and has: a card insertion preventing face **12***c*' rising at a substantially right angle with the carriage path **3**; and an inclined face **12***c*" rising toward the card insertion slot **4** side. Namely, with such a shape, insertion of an additional card is reliably prevented when the card insertion slot **4** is closed, and in discharge of the card from inside, smooth movement of a card is realized so that the closing portion **12***c* does not hinder the movement.

[0075] It is to be noted that as shown in the enlarged view in FIG. **8**, the card insertion preventing face **12***c*' is preferably inclined at a predetermined angle (θ=the order of 5 degrees) such that the shutter member **12** can move upward when the card PC abuts thereagainst. With such inclination formed, the shutter member **12** is shifted upward, which is the closing direction (arrow direction), upon abutting of the card PC so as to reliably prevent insertion of an additional card.

[0076] Further, as shown in FIG. **8**, an inclined face **12***d*' in the shape of a substantially triangle in a side view is formed on the projecting/withdrawing portion **12***d*. Namely, with such a shape, when the card moves in either direction, smooth movement of the card is realized, and hence the card does not get stuck with the projecting/withdrawing portion **12***d*.

[0077] Moreover, in the present embodiment, as shown in FIG. **9** to FIG. **12**, a contact portion **2***f* against which a base **12***f* of the closing portion **12***c* abuts is formed on the rear surface side of the carriage path **3** of the body frame **2**A. This contact portion **2***f* is provided so as to come into contact with the closing portion **12***c* from inside when the closing portion **12***c* projects from the carriage path **3**, thereby improving the strength of the closing portion **12***c* at the time of closing.

[0078] Next, an operation of the shutter member **12** constituting the shutter mechanism **10** is described with reference to FIG. **9** to FIG. **12**.

[0079] Initially, the shutter member **12** of the shutter mechanism **10** described above is in a state where, with the shaft as the center, the closing portion **12***c* is depressed below the carriage path **3**. This state is kept by a position where the shaft **11** supports the shutter member **12** as well as the bias force of the pressing spring **14**. When the card PC is inserted from the card insertion slot **4** in this state, a card detection sensor **15**A (first sensor) installed on the carriage path **3** shown in FIG. **5** detects insertion of the card PC, and a drive motor constituting a later-described carriage mechanism is rotationally driven, to carry the card PC inside with the carriage belt **25**.

[0080] At a stage where passage of the rear end of the carried-in card PC is detected by the first sensor **15**A, the drive of the carriage mechanism is stopped to temporarily stop the card PC. FIG. **5** shows a state where the card PC has been stopped, and at this position (information processing position), a reader-writer, not shown, is driven to execute information reading/writing processing on the card PC.

[0081] As shown in FIG. **10**, when the card PC passes through the first sensor **15**A and is carried by the carriage mechanism toward the information processing position, the front end of the card PC engages with the projecting/withdrawing portion **12***d* of the shutter member **12**, which is projecting from the opening **2***c* of the carriage path **3**. Since, as described above, the inclined face **12***d*' is formed on the projecting/withdrawing portion **12***d* as shown in FIG. **8**, the card PC is carried further inside while shifting the projecting/withdrawing portion **12***d* downwardly.

[0082] At this time, as shown in FIG. **10**, the closing portion **12***c* rises as the projecting/withdrawing portion **12***d* is pressed down, to come into contact with the card PC being carried. As described above, the shutter member **12** is arranged to be bendable along the card PC carrying direction, and the closing portion **12***c* of the oscillating member **12** in the bent state comes into contact with the surface of the rear end portion side of the card. Since, as described above, the closing portion **12***c* side of the shutter member **12** is easily bent downward due to the notch depression **12***e* and the shutter member **12** is biased downward by bias force of the pressing spring **14**, even when the closing portion **12***c* comes into contact with the card PC being carried, a large load is not applied to the moving card PC even when the closing portion **12***c* comes into contact therewith, thereby preventing the closing portion **12***c* from damaging the card PC and being large resistance during carriage of the card.

[0083] When the card PC is carried further inside and the rear end of the card passes through the first sensor **15**A and is carried to the information processing position as described above, the closing portion **12***c* in the bent state rises as the projecting/withdrawing portion **12***d* of the shutter member **12** is pressed down, to close the card insertion slot **4**, as shown in FIG. **11**. Namely, when the card PC is carried to the information processing position, the shutter member **12** constituting the above described shutter mechanism brings the card insertion slot **4** into the state of blocking insertion of an additional card.

[0084] In the shutter closed state shown in FIG. **11**, since, as described above, the base **12***f* of the closing portion **12***c* is in contact with the contact portion **2***f* provided on the rear surface side of the carriage path **3** of the body frame **2**, the strength of the closing portion **12***c* in shutter closing improves. Namely, since the closing portion **12***c* is in the state of being in contact with the contact portion **2***f* for enforcement and hence the closing intensity improves, even when the additional card is intended to be inserted, such insertion of an additional card is reliably prevented.

[0085] When the card PC is collected to a later-described stock portion **2**B, the card PC is carried further inside to a stock position shown in FIG. **12**. At this time, the rear end of the card PC leaves the projecting/withdrawing portion **12***d*, and the projecting/withdrawing portion **12***d* thereby rises. This brings the closing portion **12***c* on the opposite side into the state of being depressed below the carriage path **3**, to constantly open the card insertion slot **4**. Needless to say, even after the card PC is returned to the user as it is by the carriage mechanism, the shutter member **12** of the shutter mechanism **10** comes into the state shown in FIG. **12**, where the card insertion slot **4** is kept open so that a new card can be inserted.

[0086] It is to be noted that on the carriage path **3** of the body frame **2**A, a second sensor **15**B is installed on the downstream side of the first sensor **15**A, to detect conditions (carriage state and direction) of the card. Further, a third sensor **15**C that detects an operation of the shutter member **12** is installed on the rear surface of the body frame **2**A, to detect the end of the read/write operation as well as completion of carriage of the card PC to a later-described stock portion **2**B. In this case, as well known, the first sensor **15**A and the second sensor **15**B are each configured to have a light emitting portion and a light receiving portion which detect passage of the card, and the third sensor **15**C is installed in the vicinity of the projecting/withdrawing portion **12***d* of the shutter member **12** and is provided with a light-emitting por-

tion and a light-receiving portion which detect an operation of the projecting/withdrawing portion **12***d* when moving up or down.

[0087] According to the above-mentioned shutter mechanism **10**, when the card PC is inserted into the card insertion slot **4** and then carried by the carriage mechanism, the front end side of the card is latched to the projecting/withdrawing portion **12***d* to oscillate the shutter member **12**. With the shutter member **12** oscillated in this manner, the closing portion **12***c* formed on the insertion slot side closes the card insertion slot **4**, thereby bringing the card insertion slot **4** into the state of preventing additional insertion of a new card during the card PC processing operation. Further, even if the closing portion **12***c* moves in a direction to close the card insertion slot **4**, to come into contact with the surface of the card PC being carried before the rear end of the card passes through the card insertion slot **4**, contact force generated when the closing portion **12***c* comes into contact with the card surface is alleviated because the shutter member **12** is configured to be bendable as described above, thereby preventing damage on the card surface. In particular, the notch depression **12***e* formed on the shutter member **12** can make the oscillating member to be more bendable, to allow reliable alleviation of contact force of the closing portion **12***c* on the card, so that damage on the card surface can be reliably prevented.

[0088] It is to be noted that, as shown in FIG. **5**, a wall-shaped rib **80** is projectingly formed ahead of the side of the closing portion **12***c* on the surface of the carriage path **3**. With such a rib formed, it is possible to reliably prevent double insertion of cards even when the card is thin with respect to a gap of the carriage path **3**.

[As to Carriage Mechanism]

[0089] In the body frame **2**A, a carriage mechanism **20** is installed which carries a card inserted into the card insertion slot **4** toward the inside of the processor. The configuration of this carriage mechanism is described with reference to the above-mentioned FIG. **2** to FIG. **6**.

[0090] The carriage mechanism **20** of the present embodiment is configured to be able to carry a card inserted from the card insertion slot **4** along an insertion direction A and to be able to carry a card located inside the processor body toward the card insertion slot **4** side. The carriage mechanism **20** is provided with: a drive motor **21** as a drive source installed on the body frame **2**A (see FIG. **6**); and the carriage belt **25** which is rotationally driven by the drive motor **21**, to be exposed to the surface of the carriage path **3** and extends along the carriage direction.

[0091] The carriage belt **25** is wound around a rotating roller **22** installed on the drive shaft **22***a* rotatably driven by the drive motor **21** and a roller **23** installed at a predetermined spacing along the carriage path **3**. The carriage belt **25** with its surface exposed to the carriage path **3** has the function of carrying the card placed thereon. It is to be noted that, as shown in FIG. **4**, the rollers **23** are installed at four places with predetermined spacing along the carriage direction in a state being rotatably held by the fixing member **24**, in a substantially central region of the carriage path **3** of the body frame **2**A.

[0092] As shown in FIG. **6**, the rotating roller **22** is provided at the central part of a drive shaft **22***a* rotatably supported by the body frame **2**A in a direction orthogonal to the card carrying direction. A gear **22***b* fixed to the end of the drive shaft **22***a* is meshed with an output gear **21***a* fixed to the output shaft of the drive motor **21**, to rotationally drive the drive shaft **22***a*.

[0093] As shown in FIG. **3**, the pinch rollers **101**, **102** installed on the substrate mounted frame **2**C are oppositely arranged at positions of the rotating roller **22** and the roller **23** installed on the insertion slot side, and a card inserted into the card insertion slot **4** is carried through a nip portion between the pinch rollers **101**, **102** and the carriage belt **25**. Further, as shown in FIG. **3**, a pressure plate on which the card PC is to be placed (the card placed on the pressure plate) is arranged to be opposed to positions of three rollers **23** on the downstream side, when the stock portion **2**B is closed.

[As to Stock Portion, Housing Drive Mechanism, and the Like]

[0094] In the body frame **2**A, there are installed: the stock portion **2**B that collects a fully used card and houses a card to be issued according to need; and a housing drive mechanism **40** that is activated so as to house a card into the stock portion **2**B. The configurations of these stock portion **2**B and housing drive mechanism **40** are described with reference to the above-mentioned FIG. **2** to FIG. **7** and FIG. **13** to FIG. **22**. It is to be noted that FIG. **13** is a view of a stock portion seen from the insertion slot side, FIG. **14** is a view showing a state where a card is housed in the stock portion, FIG. **15**A is a plan view showing a configuration of an oscillating member (second oscillating member) that constitutes a housing drive mechanism, FIG. **15**B is a side view thereof, and FIG. **16** to FIG. **22** are views sequentially showing functions of the second oscillating member and the stock portion associated with carriage of the card.

[0095] As described above, the stock portion **2**B is rotatably arranged on the base installed on the back side of carriage direction with respect to the body frame **2**A, and is typically in a closed state as shown in FIG. **2**.

[0096] The stock portion **2**B is provided with a body **30** formed in box shape so as to house a predetermined number of cards PC (the order of ten cards in the present embodiment). As shown in FIG. **13** and FIG. **14**, a wall portion (front wall) **30***a* on the insertion slot side of the body **30** is formed in the shape of a substantial projection seen from the insertion slot side; when the body **30** is closed into the body frame **2**A, a gap G through which one card can pass is formed between the body **30** and the surface **3***c* of the carriage path **3**. A projecting portion **30***b* is formed on the front wall **30***a*, and in issuing a card from the stock portion **2**B (body **30**), only a card on the carriage path **3** surface side (top card) can be discharged because cards under the first card abut against the projecting portion **30***b*.

[0097] It is to be noted that cards stacked and housed inside the body **30** are in a state where the top card is in surface contact with the above-mentioned carriage belt **25** of the carriage mechanism.

[0098] Inside the body **30**, a pressure plate **35** (schematically shown in FIG. **16** to FIG. **22**) having substantially the same dimensions as those of the projecting portion **30***b* of the body **30** is arranged, and this pressure plate **35** is in the state of being constantly biased to the carriage path side by a bias spring **31** installed on each side wall **30***c* of the body **30**. In this case, an attachment position P**1** of the bias spring **31** pressing the pressure plate **35**, with respect to the pressure plate is set to the central position of the longitudinal direction (card carrying direction) of each side wall **30***c* of the body **30**.

As thus described, installation of the bias spring **31** that presses the pressure plate **35** at the central position of each side wall **30***c* permits application of stable pressure to the pressure plate **35**, and allows an increase in number of cards to be housed as compared with the configuration in which a pressure spring is installed inside the body **30**.

[0099] Further, each side wall **30***c* of the body **30** is provided with two nails **32**, which hold the card PC so as to prevent dropping thereof, at a predetermined spacing in the longitudinal direction. The nail **32** is formed by bending in L shape the front end side of a rectangular fitting **32***a* that is attached to the surface side of each wall portion **30***c*.

[0100] In the above-mentioned body frame **2**A, the housing drive mechanism **40** is installed, which, when a card inserted from the insertion slot is fully used, cooperates with the card carrying operation performed by the carriage belt **25**, to house the card into the body **30** of the stock portion. This housing drive mechanism has the function of performing a press-up operation on the pressure plate **35** in housing a card without installation of an electric component. In the following, the configuration of the housing drive mechanism **40** is described.

[0101] The housing drive mechanism **40** has the oscillating member **42** (hereinafter referred to as a second oscillating member **42** to be distinguished from the shutter member **12** of the shutter mechanism described above) oscillatably supported via a shaft **41** with respect to the body frame **2**A. As shown in FIG. **4**, the second oscillating member **42** of the present embodiment extends in the card carrying direction, and is oscillatably supported by the rear surface side of the carriage path **3** more inside of the carriage path **3** (center line side) than the above-mentioned shutter member **12**. The second oscillating member **42** is integrally formed, and the shaft **41** is provided on the side slightly behind the center.

[0102] As shown in FIG. **6**, the shaft **41** is installed with respect to the supporting portion projecting on the rear surface side of the carriage path **3** of the body frame **2**A, and a cover **43** is installed over the shaft **41** so that the second oscillating member **42** is oscillatably supported at the body frame **2**A. Namely, as is the shutter member **12**, the second oscillating member **42** can be mounted or demounted from the body frame **2**A by a simple operation.

[0103] On this second oscillating member **42**, there are integrally formed a first projecting/withdrawing portion **42***a* that can project and withdraw from the surface of the carriage path **3** on the card insertion slot **4** side and a second projecting/withdrawing portion **42***b* that can project and withdraw from the surface of the carriage path **3** on the stock portion **2**B side. As shown in FIG. **4**, the first projecting/withdrawing portion **42***a* can project and withdraw from an opening **2***g* formed in the vicinity of the card insertion slot **4** of the body frame **2**A, specifically between the card insertion slot **4** and the carriage mechanism **20**. The second projecting/withdrawing portion **42***b* can project and withdraw from an opening **2***h* formed at the central position of the stock portion **2**B.

[0104] In this case, the second oscillating member **42** and the opening **2***h* are configured so that the second projecting/withdrawing portion **42***b* can come into contact with a position slightly more upstream side than a central position P**2** of the card PC housed in the body **30** (in FIG. **14**, the contact position is indicated by virtual slant lines). Therefore, as shown in FIG. **15**A, the second projecting/withdrawing portion **42***b* has a shape extended in the width direction as compared with the first projecting/withdrawing portion **42***a*. It is to be noted that, although the second oscillating member **42** is formed by being bent at the central region in relation to an installation space and an arrangement position of the carriage belt as shown in FIG. **15**A, the shape of the second oscillating member **42** can be transformed as appropriate so long as allowing the second projecting/withdrawing portion **42***b* to come into contact with the position slightly more upstream side than the central position P**2** of the card PC housed in the body **30**.

[0105] An inclined face gradually rising toward the card carrying direction is formed on the first projecting/withdrawing portion **42***a*, being configured to allow smooth movement of the card. Since it is configured in the present embodiment that the card PC is inserted inside from the card insertion slot **4** and discharged (issued) from inside via the card insertion slot **4**, inclined faces **42***c*, **42***c*' gradually rising toward the respective carriage directions are formed on the respective surface sides of the first projecting/withdrawing portion **42***a*. It is noted that, instead of forming the inclined faces **42***c*, **42***c*' the configuration may include a rotatable roller **52**. By installing the rotatable roller **52**, the carriage of the cards becomes smoother, and at the same time, the contact resistance against the cards is alleviated, thereby effectively preventing damage on the card surface.

[0106] Further, an inclined face **42***d* gradually rising toward the card carrying direction is also formed on the second projecting/withdrawing portion **42***b* to allow smooth movement of the card inserted from the card insertion slot **4**. The inclined face **42***d* is formed on the surface on the insertion slot side. A top **42***e* of the inclined face abuts against the pressure plate **35** of the body **30** (the top card, in a case where the cards PC are stacked and housed on the pressure plate) following the oscillating operation of the second oscillating member **42**, to incline the pressure plate **35** so that the insertion slot side of the pressure plate **35** rises to form a gap, as shown in FIG. **17**.

[0107] It is to be noted that the second oscillating member **42** is typically supported in a state where the first projecting/withdrawing portion **42***a* projects from the surface of the carriage path **3**, and the second projecting/withdrawing portion **42***b* abuts against the pressure plate (or a card stacked thereon).

[0108] Further, in the body frame **2**A, a fourth sensor (not shown) is installed which detects the state of the pressure plate **35** in the body **30**, to detect whether or not a card is housed inside the body **30**.

[0109] Next, the functions of the second oscillating member **42** and the stock portion **2**B associated with carriage of a card are described with reference to FIG. **16** to FIG. **22**.

[0110] In an initial state, the second oscillating member **42** of the housing drive mechanism **40** is in a state where the projecting/withdrawing portions **42***a*, **42***b* on the respective sides project from the carriage path **3** with the shaft **41** as the center. The second projecting/withdrawing portion **42***b* is in the state of being in contact with the top card in the stock portion **2**B.

[0111] When the card PC is inserted from the card insertion slot **4** in this state, the card detection sensor (first sensor) **15**A installed on the carriage path **3**, shown in FIG. **5**, detects the insertion, and the drive motor constituting the carriage mechanism is rotationally driven; then, as shown in FIG. **17**, the card PC is carried inside by the carriage belt **25**. At this time, since the card PC presses down the first projecting/withdrawing portion **42***a* via the inclined face **42***c*, the second oscillating member **42** is turned counterclockwise with the

shaft **41** as the center, and the second projecting/withdrawing portion **42***b* in contact with the top card stacked and housed presses up the pressure plate **35** against bias force of the bias spring **31**. Since the second projecting/withdrawing portion **42***b* is in contact with a position slightly more upstream side than the central position P**2** of the card PC as shown in FIG. **14**, the pressure plate **35** is inclined with its upstream side rising, as shown in FIG. **20**. Therefore, the card PC carried by the carriage belt **25** smoothly enters inside the body **30** of the stock portion **2**B through the gap G shown in FIG. **16**.

[0112] At the stage where passage of the rear end of the card PC to be carried in is detected by the first sensor **15**A, the drive of the carriage belt **25** is stopped to temporarily stop the card PC (see FIG. **5** and FIG. **18**). As described above, the reader-writer, not shown, is driven at this position (information processing position), to execute reading/rewriting of information on the card PC. At this time, the front end of the card PC is located immediately before the second projecting/withdrawing portion **42***b*.

[0113] After the information reading/writing processing on the card PC, the card PC is housed into the stock portion **2**B as it is when no credit is left in the card PC, and returned to the user when a credit is left in the card PC.

[0114] Specifically, in the state shown in FIG. **18**, when the reader-writer determines that no credit is left in the card PC, the carriage belt **25** is rotationally driven so as to continuously carry the card PC to the body **30** of the stock portion **2**B. Subsequently, the operation of the carriage belt **25** is stopped at a stage where the card PC is carried to a position shown in FIG. **19**, and the card PC is then stacked and housed on the pressure plate **35** inside the body **30**. On the other hand, when a credit is left in the card PC, the carriage belt **25** is counter-driven to return the card PC to the user. At this time, as described above, the card PC discharged from the card insertion slot **4** is held in the state of projecting from the card insertion slot **4** by the first projecting/withdrawing portion **42***a* provided with the function as the holding portion. It is to be noted that processing of holding the card PC in the state of projecting from the card insertion slot **4** is the same as processing of issuing a card from the stock portion **2**B described below.

[0115] FIG. **23** shows a control block diagram for controlling the whole of a game media processor **100** with the card processing unit **1** incorporated therein.

[0116] In the game media processor **100**, there is installed a main CPU unit **300** that controls operations of the whole of the processor. The main CPU unit **300** is configured as a control substrate having a ROM with a control program for controlling the whole of the processor stored therein and aRAM constituting a storage means, and drives, as well as controls, a variety of components such as the card processing unit **1**, the bill processing unit **110**, the ten-key operating unit **150**, the pilot lamp **160**, and the charge unit **170**, which are incorporated into the game media processor **100**.

[0117] Further, upon input of money amount information from the card processing unit **1** or the bill processing unit **110**, the main CPU unit **300** transmits a signal to a lending unit **310** for lending balls or medals as the game media to the player.

[0118] Moreover, the main CPU unit **300** is connected to a communication management control portion **320** having the functions of controlling conversion in a communication system (serial/parallel conversion control) and controlling the sorting of senders or recipients of data, and can transmit and receive data to and from an external apparatus (e.g. adjacent gaming machine, management server for managing the game arcade, etc.) **350** via a communication terminal **325**.

[0119] The card processing unit **1** includes components such as a reader-writer that performs information rewriting on the above-mentioned card and the like, a drive motor that drives the carriage mechanism **20** for carrying the card, and a sensor that detects a position of the card, and the operations of these components are controlled by CPY mounted on the above-mentioned control substrate **200** and main CPU unit **300** (the control substrate **200** and the main CPU unit **300** constitute the control means for controlling the operation of the control substrate **200** that oscillates the shutter member **12**). Further, the bill processing unit **110** includes components such as a bill insertion detecting sensor that detects insertion of a bill, a determination sensor that performs authenticity determination processing and a drive motor that carries the bill. The operations of these components are controlled by a CPU mounted on a control substrate installed inside the card processing unit and the above-mentioned main CPU unit **300**.

[0120] Next, control by closing of the card insertion slot **4** in the card processing unit **1** by the control means **200** and **300** is described according to a flowchart of FIG. **24**. It is to be noted that the flowchart shown in FIG. **24** shows processing to be executed for preventing erroneous insertion of the card by a player into the card insertion slot **4** when a bill is inserted into the bill insertion slot **111** of the bill processing unit **110**.

[0121] First, as shown in FIG. **12**, in the card processing unit **1**, the closing portion **12***c* of the shutter member **12** is depressed from the carriage path **3** and the card insertion slot **4** is constantly kept in an open state so that a card can be inserted. In this state, the main CPU unit **300** is standing by for a bill insertion signal to be transmitted from the bill insertion detecting sensor of the bill processing unit **110** (Step S**1**).

[0122] When insertion of a bill is detected (Step S**1**: Yes), a signal for slightly rotating the drive motor **21** is transmitted to the card processing unit **1**, to cause the drive motor **21** (see FIG. **6**) to rotate a predetermined amount (Step S**2**). As a result of this, the carriage belt **25** constituting the carriage mechanism **20** is driven to rotate a predetermined amount so that a card housed in the stock portion **2**B is carried to the side of the card insertion slot **4**. In this case, the rotational drive amount of the drive motor **21** is set approximately at a level where the top card housed in the stock portion **2**B is engaged with the projecting/withdrawing portion **12***d* located immediately ahead of the stock portion **2**B to turn the shutter member **12**, as shown in FIG. **25**. This brings the closing portion **12***c* of the shutter member **12** into a state closing the card insertion slot **4**.

[0123] Next, in the bill processing unit **110**, when the authenticity determination processing is performed on the bill and then a signal indicating that the bill is real is received from the bill processing unit **110** (Step S**3**: Yes), the drive motor **21** is further driven to rotate a predetermined amount (Step S**4**). In this case, the rotational drive amount of the drive motor **21** is set such that the card comes into a state of being positioned in a reader-writer processing position (read/write position).

[0124] On the other hand, when a signal indicating that the bill is not real is received from the bill processing unit (Step S**3**: No), the drive motor **21** is reversely driven so that the card in the state shown in FIG. **25** is housed into the stock portion **2**B (Step S**5**). Thereby, the shutter member **12** rotates in a

state shown in FIG. **12**, and the card insertion slot **4** then comes into the open state, namely a state where a card can be inserted thereinto.

[0125] In the above-mentioned Step S**4**, when the card is positioned at the read/write position, the read/write processing is executed on the card (Step S**6**). This processing is executed, for example, every time an inserted bill (game value) is used in a game according to a ten-key operation by the player (Step S**7**: No → Step S**6**). When the player presses down an account settlement button of the gaming machine to end the game (Step S**7**: Yes), card discharging processing is executed in a case where there is a balance in the initially inserted bills (Step S**8**: Yes, Step S**9**). The positional setting of the card discharging processing is such that the drive motor **21** is driven to rotate a predetermined amount so that the card is discharged from the card insertion slot **4** and then held.

[0126] On the other hand, when there is no balance in the initially inserted bills, the processing of housing a card into the stock portion is executed so that the card carried to the read/write position is housed into the stock portion **2**B (Step S**8**: No → Step S**5**). The positional setting of the card discharging processing is such that the drive motor **21** is driven to rotate a predetermined amount so that the card is discharged from the card insertion slot **4** and then held. In this case, the rotational drive amount of the drive motor **21** is set such that the card positioned at the read/write position comes into a state of being housed into the stock portion **2**B.

[0127] According to the embodiments of the above-mentioned controls, when the player inserts a bill into the bill insertion slot **111** of the bill processing unit **110**, the card insertion slot **4** of the card processing unit **1** is closed by the shutter member **12**, and thus erroneous insertion of the card by the player can be reliably prevented. It is therefore possible to reliably prevent occurrence of an error or the like in the typical card writing processing associated with insertion of a bill. Further, since the shutter member **12** is driven by the drive motor **21** of the typical card carriage mechanism, it is not necessary to separately install the drive mechanism (drive motor, or the like) for closing the shutter member **12**, thereby the configuration is simplified.

[0128] Moreover, in the above-mentioned configuration, the card is carried to the projecting/withdrawing portion **12***d* at a stage where a bill is inserted, and the card is then carried to the read/write position on condition that the inserted bill is determined to be real. Since the card is not carried to the read/write position until completion of the authenticity determination after insertion of the bill, it is possible, for example, to save the carriage distance and time for returning the card to the stock portion **2**B after the bill has been determined as not real.

[0129] Other than the control of the bill processing operations, the above-mentioned control means **200** and **300** can, for example, perform control to perform the processing for closing the card insertion slot **4** upon receipt of an error signal from the higher-level apparatus **350**. The control of processing for closing the card insertion slot **4** at the time of generation of an error signal is described according to a flowchart of FIG. **26**.

[0130] First, in the card processing unit **1**, as described above, as shown in FIG. **12**, the closing portion **12***c* of the shutter member **12** is depressed below the carriage path **3** to allow the card insertion slot **4** to be usually in the open state so that a card can be inserted thereinto. In this state, the main CPU unit **300** is standing by for an error signal to be transmitted from the higher-level apparatus **350** such as an adjacently installed gaming machine or a hall computer (management server) (Step S**11**). This error signal is generated, for example, in a state where a trouble occurs in a corresponding gaming machine and thus a game cannot be played, a state where a trouble occurs in a hall computer or in a connecting means such as LAN and thus information on the game media cannot be transmitted and received in the card processing unit **1**, or some other states.

[0131] When the error signal is detected (Step S**11**: Yes), the drive motor **21** (see FIG. **6**) of the card processing unit **1** is driven to rotate a predetermined amount (Step S**12**). Thereby, the carriage belt **25** constituting the carriage mechanism **20** is driven, to carry a card housed in the stock portion **2**B toward the card insertion slot side. In this case, the rotational drive amount of the drive motor **21** is set such that, as shown in FIG. **25**, the top card housed in the stock portion **2**B is engaged with the projecting/withdrawing portion **12***d* to rotate the shutter member **12**, and the closing portion **12***c* closes the card insertion slot **4**.

[0132] Next, in the main CPU unit **300**, upon receipt of cancellation of the error signal (Step S**13**: Yes), the drive motor **21** is reversely driven, to house the card in a state shown in FIG. **25** into the stock portion **2**B (Step S**14**). Thereby, the shutter member **12** rotates in a state shown in FIG. **12**, and the card insertion slot **4** then comes into an open state, namely a state in which a card can be inserted.

[0133] As thus described, even when the higher-level apparatus **350** comes into the error state, the card insertion slot **4** is closed by the shutter member **12** not requiring the drive mechanism or the like, thereby enabling reliable prevention of occurrence of a new trouble associated with insertion of a card.

[0134] Although the embodiments of the present invention are described above, the present invention may have any configuration as long as the shutter mechanism that closes the card insertion slot **4** is driven by the use of a card housed in the stock portion **2**B. Therefore, the present invention can be variously modified without being restricted to the above embodiment. For example, although the card in the stock portion **2**B was carried to the position where the card is in engagement with the projecting/withdrawing portion **12***d* of the shutter member **12** upon insertion of the bill into the bill insertion slot **111** in the above-mentioned configuration, the card may be carried to the read/write position. Further, the shutter mechanism provided with the shutter member **12** capable of closing the card insertion slot **4** may be provided in the card processing unit **1**, and a configuration other than that can be appropriately modified.

What is claimed as new and desired to be secured by Letters Patent of the United States is:

1. A game media processor comprising:
- a card insertion slot, into which a card is inserted;
- a shutter mechanism driven to make said card insertion slot closable;
- a card housing portion which allows said card to be housed therein;
- a carriage path, along which the card moves from said card insertion slot to said card housing portion;
- a card carriage mechanism which carries said card; and
- a control means for controlling the operations of said card carriage mechanism,
- said shutter mechanism including an oscillating member oscillatably supported by a shaft, said oscillating mem-

ber having a closing portion formed on one end side configured to make said card insertion slot closable and a projecting/withdrawing portion formed on the other end configured to be able to project and withdraw from said carriage path,

said closing portion being configured to close said card insertion slot by oscillation of said oscillation member caused upon engagement of said card with said projecting/withdrawing portion,

wherein

said controlling means controls the operations of said card carriage mechanism, on condition that a predetermined signal is received, so as to carry the card housed in said card housing portion to a position where the card is in engagement with said projecting/withdrawing portion.

2. The game media processor according to claim **1**, further comprising:

a bill processing unit provided with a bill insertion slot into which a bill is inserted and a detection means to detect insertion of a bill into the bill insertion slot,

wherein

said predetermined signal is a bill insertion detection signal transmitted from said detection means.

3. The game media processor according to claim **2**, wherein

said control means is capable of controlling communication of information on the card and controls the operations of said card carriage mechanism, on condition that a bill inserted into said bill processing unit is determined to be real, so as to carry said card to a position where communication of information on the card can be controlled.

4. The game media processor according to claim **1**, wherein

said controlling means is connected to a control portion of a higher-level apparatus which manages operations of the game media processor, and

said predetermined signal is an error signal transmitted from said higher-level apparatus.

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