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(72) Inventor: **KAKIMOTO, Hirofumi**
Himeji-shi
Hyogo 670-8567 (JP)

(71) Applicant: **Glory Ltd.**
Himeji-shi
Hyogo 670-8567 (JP)

(74) Representative: **Jenkins, Peter David**
Page White & Farrer
Bedford House
John Street
London WC1N 2BF (GB)

(54) **COIN PACKAGE DISCHARGE DEVICE**

(57) A wrapped-coin dispensing machine (10) includes a plurality of wrapped-coin cassettes (25), each detachably attached relative to the casing (20), and configured for storing therein a plurality of wrapped coins, respectively arranged in a line. In addition, a dispensing unit (22) is attached movably along each distal end portion of the wrapped-coin cassettes (25). The dispensing unit (22) includes a dispensing member (50) configured for dispensing the wrapped coin present at the distal end portion of each wrapped-coin cassette (25). Further, there is provided an adjuster configured for adjusting the distance between each wrapped-coin cassette (25) and the dispensing member (50) of the dispensing unit (22).

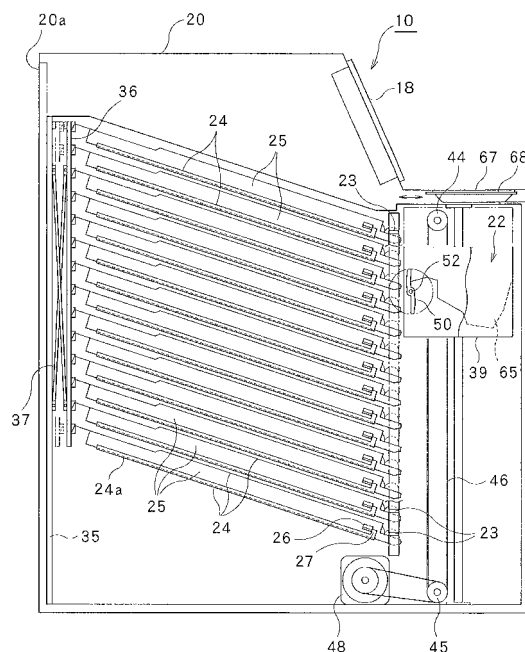


FIG. 1

Description

FIELD OF THE INVENTION

[0001] The present invention relates to a wrapped-coin dispensing machine configured for storing therein wrapped coins (i.e., packages of coins, each prepared by collecting and wrapping a predetermined number of coins of the same denomination into a bar-like shape), as well as configured for dispensing such wrapped coins to the exterior of the machine.

BACKGROUND ART

[0002] In the past, the wrapped-coin dispensing machine, which is configured for storing therein the wrapped coins (i.e., the packages of coins, each prepared by collecting and wrapping the predetermined number of coins of the same denomination into the bar-like shape), as well as configured for dispensing such wrapped coins to the exterior of the machine, has been known (e.g., see JP2001-148044A and the like). In this wrapped-coin dispensing machine disclosed in JP2001-148044A, a plurality of wrapped-coin cassettes are arranged in a vertical direction, in a casing, for each denomination of the wrapped coins to be respectively stored therein. Further, when attached in the casing, each wrapped-coin cassette is inclined, obliquely downward, in a direction in which each wrapped coin is dispensed (this direction is herein also referred to as the "dispensing direction").

[0003] Additionally, in the wrapped-coin dispensing machine disclosed in the above JP2001-148044A, a dispensing unit is attached in the casing, movably along each distal end portion of the wrapped-coin cassettes. Further, a dispensing lever is provided to the dispensing unit. This dispensing lever is configured to be optionally rotated about an axis thereof, thereby to dispense the wrapped coin located at the distal end portion of each wrapped-coin cassette. In this case, the wrapped coin dispensed from each wrapped-coin cassette by the dispensing lever is received by a wrapped-coin receiving unit of the dispensing unit. Then, an operator can take out, by hand, each wrapped coin received in this wrapped-coin receiving unit of the dispensing unit.

DISCLOSURE OF THE INVENTION

[0004] The wrapped-coin dispensing machine disclosed in the above JP2001-148044A is intended to mainly handle the Japanese coins. In the Japanese coins of various denominations, the difference in diameter between the largest coin and the smallest coin is approximately 6.5mm, thus being relatively small. Therefore, any wrapped coin formed of such Japanese coins can be securely dispensed from each distal end portion of the wrapped-coin cassettes, by the dispensing lever, even though the distance between the distal end portion of each wrapped-coin cassette and the axis of the dispens-

ing lever of the dispensing unit is kept constant.

[0005] However, in the case of handling the coins of various denominations respectively put in circulation in other countries than Japan, the difference in diameter between the largest coin and the smallest coin may be sometimes considerably large. For instance, in the case of the EURO coins, the difference in diameter between the largest coin and the smallest coin is approximately 9.5mm, thus being rather large. Therefore, if such wrapped coins are dispensed, with the distance between the distal end portion of each wrapped-coin cassette and the axis of the dispensing lever of the dispensing unit being kept constant, there is a risk that a plurality of wrapped coins may be dispensed at a time, or that the distal end of the dispensing lever may tend to scratch and tear the wrapping paper of each wrapped coin.

[0006] Besides, since there are six denominations in the Japanese coins, it is only necessary to provide six types of the wrapped-coin cassettes, corresponding to each denomination. Meanwhile, in the case of handling the coins respectively put in circulation in the other countries than Japan, e.g., the EURO coins, there are eight denominations. Therefore, the number of types of the wrapped-coin cassettes to be provided should be increased, as compared with the case of handling the Japanese coins. Additionally, in the case of further handling the coins of the other countries, in addition to the Japanese coins or EURO coins, there is a risk that the number of the wrapped-coin cassette may be further increased, leading to substantial degradation of the efficiency of the cost, management and the like.

[0007] The present invention was made in light of the above circumstances. Therefore, it is an object of this invention to provide a new wrapped-coin dispensing machine that can optionally adjust the distance between a dispensing member of the dispensing unit and each wrapped-coin cassette, based on the denomination of the wrapped coins to be stored in each wrapped-coin cassette, thereby securely preventing the plurality of wrapped coins from being dispensed at a time, as well as successfully avoiding any unwanted tear of the wrapping paper of each wrapped coin, during the dispensing process for dispensing the wrapped coin from each wrapped-coin cassette by using the dispensing unit.

[0008] Another object of this invention is to provide the wrapped-coin dispensing machine that can adequately adjust the size of a wrapped-coin storage area provided in each wrapped-coin cassette, based on the denomination of the wrapped coins to be stored in the wrapped-coin cassette, thereby to securely eliminate the need for providing the wrapped-coin cassettes of a plurality of types that should otherwise respectively correspond to the respective denominations of the wrapped coins to be stored therein.

[0009] A wrapped-coin dispensing machine according to the present invention is configured for dispensing wrapped coins and includes a casing; a plurality of wrapped-coin cassettes, each detachably attached rel-

ative to the casing, and configured for storing therein a plurality of wrapped coins, respectively arranged in a line, as well as configured to be inclined obliquely downward in a direction in which the wrapped coins are dispensed, when attached in the casing; a dispensing unit attached in the casing, movably along each distal end portion of the wrapped-coin cassettes, and including a dispensing member configured for dispensing the wrapped coin present at the distal end portion of each wrapped-coin cassette; and an adjuster configured for adjusting the distance between each wrapped-coin cassette and the dispensing member of the dispensing unit.

[0010] According to such a wrapped-coin dispensing machine, it is possible to adjust the distance between each wrapped-coin cassette and the dispensing lever of the dispensing unit, into a desired size, for each denomination of the wrapped coins, based on the denomination of the wrapped coins to be stored in each wrapped-coin cassette. Therefore, even in the case the wrapped coins that are rather different in diameter by the denomination thereof are stored in each wrapped-coin cassette of the wrapped-coin dispensing machine, the risk such that the plurality of wrapped coins would be dispensed at a time and/or risk such that the wrapping paper of each wrapped coin would be torn can be eliminated, during the dispensing process for dispensing the wrapped coins from each wrapped-coin cassette by the dispensing lever.

[0011] In the wrapped-coin dispensing machine of the present invention, it is preferred that the dispensing member is configured to be rotated about an axis to dispense the wrapped coin present at the distal end portion of each wrapped-coin cassette, and the adjuster is configured for adjusting the distance between the distal end portion of each wrapped-coin cassette and the axis of the dispensing member of the dispensing unit.

[0012] In addition, it is preferred that the dispensing unit includes a wrapped-coin receiving unit configured for receiving the wrapped coin dispensed from each wrapped-coin cassette by the dispensing member.

[0013] In the wrapped-coin dispensing machine of the present invention, it is preferred that the adjuster is a stopper provided to each wrapped-coin cassette, for each denomination.

[0014] In this case, it is further preferred that each stopper is different in size, depending on the denomination of the wrapped coins to be stored in each corresponding wrapped-coin cassette.

[0015] In the wrapped-coin dispensing machine of the present invention, it is preferred that a plurality of wrapped-coin cassette supporting units are provided to the casing, each wrapped-coin cassette supporting unit corresponding to each wrapped-coin cassette and including a base configured for placing thereon one wrapped-coin cassette, and a positioning member configured for positioning the distal end portion of the wrapped-coin cassette placed on the base, an adjustment hole is provided to each wrapped-coin cassette, the adjuster is a stopper attached to the adjustment hole

of each wrapped-coin cassette and configured to be in contact with the positioning member of each wrapped-coin cassette supporting unit, and the distance between each wrapped-coin cassette and the dispensing member of the dispensing unit is adjusted, by adjusting the attachment position of the stopper relative to the adjustment hole.

[0016] In this case, it is preferred that the adjustment hole is an elongated hole extending in the direction in which the wrapped coins are dispensed from each wrapped-coin cassette.

[0017] Alternatively, a plurality of adjustment holes may be provided along the direction in which the wrapped coins are dispensed from each wrapped-coin cassette.

[0018] In the wrapped-coin dispensing machine of the present invention, it is preferred that a plurality of wrapped-coin cassette supporting units are provided to the casing, each wrapped-coin cassette supporting unit corresponding to each wrapped-coin cassette and including a base configured for placing thereon one wrapped-coin cassette, and a positioning member configured for positioning the distal end portion of the wrapped-coin cassette placed on the base, and a wrapped-coin cassette supporting unit position adjuster is provided for moving each wrapped-coin cassette supporting unit, and the wrapped-coin cassette supporting unit position adjuster is configured for adjusting the position of each wrapped-coin cassette supporting unit, based on the denomination of the wrapped coins to be stored in the corresponding wrapped-coin cassette, thereby adjusting the distance between each wrapped-coin cassette and the dispensing member of the dispensing unit.

[0019] In the wrapped-coin dispensing machine of the present invention, it is preferred that a dispensing member position adjuster configured for moving the dispensing member relative to a body of the dispensing unit is provided to the dispensing unit, and the dispensing member position adjuster is configured for adjusting the position of the dispensing member relative to the body of the dispensing unit, for each wrapped-coin cassette, based on the denomination of the wrapped coins to be stored in the wrapped-coin cassette, thereby adjusting the distance between each wrapped-coin cassette and the dispensing member of the dispensing unit.

[0020] In the above wrapped-coin dispensing machine, it is preferred that a higher-ranking machine is connected, for communication, with the wrapped-coin dispensing machine, and the wrapped-coin cassette supporting unit position adjuster adjusts the position of each wrapped-coin cassette supporting unit, based on information sent from the higher-ranking machine and concerning the denomination of the wrapped coins to be stored in the corresponding wrapped-coin cassette.

[0021] Alternatively, it is preferred that a higher-ranking machine is connected, for communication, with the wrapped-coin dispensing machine, and the dispensing member position adjuster adjusts the position of the dis-

dispensing member relative to a body of the dispensing unit, for each wrapped-coin cassette, based on the information sent from the higher-ranking machine and concerning the denomination of the wrapped coins to be stored in the wrapped-coin cassette.

[0022] Alternatively, it is preferred that an operation unit configured for allowing information to be inputted from the exterior is provided to the wrapped-coin dispensing machine, and the wrapped-coin cassette supporting unit position adjuster adjusts the position of each wrapped-coin cassette supporting unit, based on the information inputted from the exterior via the operation unit and concerning the denomination of the wrapped coins to be stored in the corresponding wrapped-coin cassette.

[0023] Alternatively, it is preferred that an operation unit configured for allowing the information to be inputted from the exterior is provided to the wrapped-coin dispensing machine, and the dispensing member position adjuster adjusts the position of the dispensing member relative to a body of the dispensing unit, for each wrapped-coin cassette, based on the information inputted from the exterior via the operation unit and concerning the denomination of the wrapped coins to be stored in the wrapped-coin cassette.

[0024] In the wrapped-coin dispensing machine of the present invention, it is preferred that a wrapped-coin storage area configured for storing therein the plurality of wrapped coins, respectively arranged in a line, is provided in each wrapped-coin cassette, and the size of the wrapped-coin storage area is adjustable, based on the denomination of the wrapped coins to be stored in the wrapped-coin cassette.

[0025] In this case, it is further preferred that a pair of right and left width limiting plates for limiting the width of the wrapped-coin storage area are provided to each wrapped-coin cassette, and the position of each of the width limiting plates is adjustable in the direction along the width of the wrapped-coin storage area.

[0026] In addition, a height limiting plate for limiting the height of the wrapped-coin storage area may be provided to each wrapped-coin cassette, and the position of the height limiting plate may be adjustable in the direction along the height of the wrapped-coin storage area.

[0027] A wrapped-coin dispensing machine according to the present invention is configured for dispensing wrapped coins and including a casing; a plurality of wrapped-coin cassettes, each detachably attached relative to the casing, and configured for storing therein a plurality of wrapped coins, respectively arranged in a line, as well as configured to be inclined obliquely downward in a direction in which the wrapped coins are dispensed, when attached in the casing; and a dispensing unit attached in the casing, movably along each distal end portion of the wrapped-coin cassettes, and including a dispensing member configured for dispensing the wrapped coin present at the distal end portion of each wrapped-coin cassette, and a wrapped-coin storage area configured for storing therein the plurality of wrapped coins,

respectively arranged in a line, is provided in each wrapped-coin cassette, and the size of the wrapped-coin storage area is adjustable, based on the denomination of the wrapped coins to be stored in the wrapped-coin cassette.

[0028] According to such a wrapped-coin dispensing machine, the size of the wrapped-coin storage area, in which a plurality of wrapped coins are stored in a line, can be suitably adjusted, based on each denomination of the wrapped coins to be stored in this wrapped-coin cassette. Therefore, this configuration can eliminate the need for providing the wrapped-coin cassettes of a plurality of types that should otherwise respectively correspond to the respective denominations of the wrapped coins to be stored therein, thereby substantially reducing the production cost for the wrapped-coin dispensing machine, as well as enhancing the maintenance efficiency.

[0029] In the above wrapped-coin dispensing machine, it is preferred that a pair of right and left width limiting plates for limiting the width of the wrapped-coin storage area are provided to each wrapped-coin cassette, and the position of each of the width limiting plates is adjustable in the direction along the width of the wrapped-coin storage area.

[0030] In addition, a height limiting plate for limiting the height of the wrapped-coin storage area may be provided to each wrapped-coin cassette, and the position of the height limiting plate may be adjustable in the direction along the height of the wrapped-coin storage area.

BRIEF DESCRIPTION OF THE DRAWINGS

[0031]

Fig. 1 is a diagram provided for illustrating general construction of a wrapped-coin dispensing machine related to one embodiment of the present invention. Fig. 2 is a perspective view showing a detailed construction of one wrapped-coin cassette of the wrapped-coin dispensing machine shown in Fig. 1. Fig. 3 is a perspective view showing another detailed construction of the wrapped-coin cassette of the wrapped-coin dispensing machine shown in Fig. 1. Fig. 4 is a block diagram showing one construction of a control system provided for the wrapped-coin dispensing machine shown in Fig. 1.

Fig. 5 is a block diagram showing another construction of the control system provided for the wrapped-coin dispensing machine related to the embodiment of the present invention.

Fig. 6 is a block diagram showing still another construction of the control system provided for the wrapped-coin dispensing machine related to the embodiment of the present invention.

Fig. 7 is a diagram provided for illustrating each component of a dispensing lever position adjuster provided to the wrapped coin dispensing machine shown in Fig. 6.

Fig. 8 is a perspective view showing another construction of the wrapped coin cassette of the wrapped-coin dispensing machine shown in Fig. 1. Fig. 9 is a perspective view showing the internal construction of the wrapped-coin cassette shown in Fig. 8.

Fig. 10 is a longitudinal cross section of the wrapped-coin cassette shown in Fig. 8.

DETAILED DESCRIPTION OF THE INVENTION

[0032] Hereinafter, one exemplary embodiment of the present invention will be described, with reference to the drawings. Figs. 1 through 4 are provided herein for respectively illustrating the wrapped-coin dispensing machine related to this embodiment. Of these drawings, Fig. 1 illustrates the general construction of the wrapped-coin dispensing machine of this embodiment. The perspective view of Fig. 2 shows one exemplary detailed construction of the wrapped-coin cassette for use in the wrapped-coin dispensing machine shown in Fig. 1. The perspective view of Fig. 3 shows another detailed construction of the wrapped-coin cassette used in the wrapped-coin dispensing machine shown in Fig. 1. In addition, the block diagram of Fig. 4 illustrates one exemplary control system provided for the wrapped-coin dispensing machine shown in Fig. 1.

[0033] As shown in Fig. 1, a wrapped-coin dispensing machine 10 includes a casing 20 of a substantially rectangular parallelepiped shape, wrapped-coin cassettes 25, each detachably attached relative to the casing 20 and configured for storing therein the plurality of wrapped coins respectively arranged in a line, and a dispensing unit 22 movably attached in the casing 20. In this case, the wrapped-coin cassettes 25 are provided in large numbers, while being respectively arranged, in the vertical direction, in the casing 20. Further, when attached in the casing 20, each wrapped-coin cassette 25 is inclined, obliquely downward, in the dispensing direction (or rightward and downward in Fig. 1) in which each wrapped coin is dispensed. In this case, the dispensing unit 22 can be optionally moved in the casing, in a substantially vertical direction, along each distal end portion of the wrapped-coin cassettes 25 (or in a space provided along a right end portion of the casing 20, as shown in Fig. 1).

[0034] Now, each component of the wrapped-coin dispensing machine 10 will be described in more detail.

[0035] In the casing 20, as shown in Fig. 1, a plurality of wrapped-coin cassette supporting units 24 are provided, respectively, for supporting each corresponding wrapped-coin cassette 25, from below. Each wrapped-coin cassette supporting unit 24 includes a base 24a configured for placing thereon each corresponding wrapped-coin cassette 25, and a positioning member 27 configured for positioning the distal end portion of the wrapped-coin cassette 25 placed on the base 24a. Each base 24a has a recessed (U-shaped) cross section, such that each wrapped-coin cassette 25 can be fitted in a concaved

bottom portion of this recessed cross section. In this embodiment, a stopper 26 is provided at the distal end portion (or right end portion in Fig. 1) of each wrapped-coin cassette 25. In this case, in order to position each wrapped-coin cassette 25, the stopper 26 can be brought into contact with the positioning member 27 of each corresponding wrapped-coin cassette supporting unit 24.

[0036] Next, referring to Fig. 2, the construction of each wrapped-coin cassette 25 will be described in more detail. The perspective view of Fig. 2 shows, in more detail, the construction of one wrapped-coin cassette 25.

[0037] As shown in Fig. 2, each wrapped-coin cassette 25 has a frame 25a of a substantially rectangular parallelepiped shape. In this frame 25a, a wrapped-coin storage area 25b is provided for storing therein the plurality of wrapped coins C respectively arranged in a line. In this case, a top face of a rear end part of the wrapped-coin storage area 25b is opened, in a predetermined area, with a wrapped-coin charge opening 28 being provided in this opened part. Further, the top face of a distal end part of the wrapped-coin storage area 25b is opened to provide a take-out slot 29 having such a size that can allow at least one wrapped-coin C to get out through the take-out slot 29. Further, a standing wall 30 is provided on the distal end side of the take-out slot 29, defining a lower limit position of the wrapped coins C. This standing wall 30 has a pair of right and left slits 31 respectively formed therein. Each slit 31 extends up to a part of a bottom plate of the wrapped-coin cassette 25. In this embodiment, each slot 31 is configured for allowing a dispensing lever 50 (which will be described later) of the dispensing unit 22 to pass therethrough.

[0038] A top face plate 32 extends on the rear end side of each wrapped-coin cassette 25, with a distal end of this plate 32 being bent downward. This bent distal end of the top face plate 32 is provided as a holding part 33 that can be held by the operator, during the attachment and detachment of the wrapped-coin cassette 25 relative to the casing 20.

[0039] Further, an adjustment hole 25c is formed in a side wall of the frame 25a of each wrapped-coin cassette 25. This adjustment hole 25c is provided as an elongated hole extending in the dispensing direction in which each wrapped coin stored in the wrapped-coin cassette 25 is dispensed. In this configuration, the stopper 26 can be attached at any given point of the adjustment hole 25c.

[0040] Now, returning to Fig. 1, a door 35 is provided to a rear part of the wrapped-coin dispensing machine 10. This door 35 is configured to be optionally opened and closed during the attachment and detachment of each wrapped-coin cassette 25. To an inner face of the door 35, a pushing plate 36 is attached via a pantograph 37. This pushing plate 36 is sized to adequately cover an area in which the wrapped-coin cassettes 25 are respectively provided. The pantograph 37 is biased by a spring (not shown) in an extending direction thereof. In this embodiment, the door 35 can be optionally opened and closed, once another door 20a provided to a rear

face of the casing 20 is opened.

[0041] As shown in Fig. 1, a plurality of sensors 23 are provided, respectively corresponding to the wrapped-coin cassette supporting units 24. Each sensor 23 can serve to detect whether or not the wrapped coin is present at the distal end portion of each wrapped-coin cassette 25, when this wrapped-coin cassette 25 is attached in the casing 20 and supported by the corresponding wrapped-coin cassette supporting unit 24.

[0042] As described above, the dispensing unit 22 is provided in the casing 20, such that this unit 22 can be optionally lifted and lowered along each distal end of the wrapped-coin cassettes 25. This dispensing unit 22 includes a frame 39 having a substantially rectangular parallelepiped shape, the dispensing lever 50 configured for dispensing the wrapped coin present at the distal end portion of each wrapped-coin cassette 25, and a wrapped coin receiving unit 65 provided in the frame 39 and configured for receiving the wrapped coin dispensed from each wrapped-coin storage unit 25 by the dispensing lever 50.

[0043] Further, as shown in Fig. 1, in an upper part and a lower part of the casing 20, two pulleys 44, 45 are provided, with one belt 46 being wound around the respective pulleys 44, 45. This belt 46 is further attached to the frame 39 of the dispensing unit 22. In addition, in the lower part of the casing 20, a motor 48 configured for rotating the pulley 45 is provided. Thus, with the rotation of the pulley 45 by the motor 48, the dispensing unit 22 can be lifted and lowered. Additionally, for stopping the dispensing unit 22 in a desired position corresponding to each wrapped-coin cassette 25, a positioning sensor (not shown) is provided, in the casing 20, to a point in the vicinity of the distal end portion of each wrapped-coin cassette 25.

[0044] In this embodiment, the dispensing lever 50 is composed of a pair of right and left dispensing levers respectively arranged in positions to be opposed to each wrapped-coin cassette 25. Such right and left dispensing levers 50 are respectively configured to be optionally rotated about an axis 52, in a clockwise direction in Fig. 1, in synchronism relative to each other. During the rotation of the right and left dispensing levers 50 about the axis 52, such dispensing levers 50 can pass through the pair of right and left slits 31 formed in the standing wall 30 and the like of each wrapped-coin cassette 25, respectively. In this manner, once each dispensing lever 50 is rotated, by 180°, about the axis 52, the wrapped coin stored in the distal end portion of each corresponding wrapped-coin cassette 25 is lifted, from below, by such a dispensing lever 50, and then the so-lifted wrapped coin can be dispensed from the wrapped-coin cassette 25, via the take-out slot 29. Thereafter, with further rotation of each dispensing lever 50, such a wrapped coin dispensed from the wrapped-coin cassette 25 will be fed to and received in the wrapped-coin receiving unit 65 provided in the frame 39 of the dispensing unit 22.

[0045] In a top face of a front portion of the casing 20

located above the dispensing unit 22, a wrapped-coin take-out slot 67 is provided. Usually, this wrapped-coin take-out slot 67 is closed by a shutter 68. However, once the dispensing unit 22 is moved to its highest position (i.e., its waiting position) depicted by a two-dot chain line as shown in Fig. 1, the shutter 68 is opened to allow the operator to take out the wrapped coins from the wrapped-coin receiving unit 65 of the dispensing unit 22.

[0046] Further, in the wrapped-coin dispensing machine 10 of this embodiment, an adjuster is provided for adjusting the distance between the distal end portion (more specifically, the standing wall 30 on the front end side) of each wrapped-coin cassette 25 and the axis 52 of each dispensing lever 50 of the dispensing unit 22. More specifically, this adjuster is composed of the stopper 26 that is attached to the adjustment hole 25c of each wrapped-coin cassette 25 and is configured to be in contact with the positioning member 27 of each corresponding wrapped-coin cassette supporting unit 24. With this configuration, as shown in Fig. 2, by properly adjusting the attachment position of the stopper 26 relative to the elongated adjustment hole 25c, the distance between the standing wall 30 of each wrapped-coin cassette 25 and the axis 52 of each dispensing lever 50 of the dispensing unit 22 can be optionally adjusted. More specifically, when attaching the stopper 26 to the adjustment hole 25c of each wrapped-coin cassette 25, the stopper 26 is attached in each position corresponding to the denomination of the wrapped coins to be stored in the wrapped-coin cassette 25.

[0047] More specifically, in the case the wrapped coins to be stored in a certain wrapped-coin cassette 25 respectively have a relatively large diameter, it is necessary to lessen the distance between the standing wall 30 of the wrapped-coin cassette 25 and the axis 52 of each dispensing lever 50 of the dispensing unit 22. Thus, the stopper 26 is attached in a position relatively near to a rear end of the adjustment hole 25c (i.e., in a position relatively far from the standing wall 30). Meanwhile, in the case the wrapped coins to be stored in a certain wrapped-coin cassette 25 respectively have a relatively small diameter, it is necessary to enlarge the distance between the standing wall 30 of the wrapped-coin cassette 25 and the axis 52 of each dispensing lever 50 of the dispensing unit 22. Therefore, the stopper 26 is attached in a position relatively near to a front end of the adjustment hole 25 (i.e., in a position relatively near to the standing wall 30). In such a manner, by changing the attachment position of the stopper 26, based on each diameter of the wrapped coins to be stored in the respective wrapped-coin cassettes 25, each wrapped coin stored in the distal end portion of each wrapped-coin cassette 25 can be dispensed, one by one, by the dispensing levers 50 and then received by the wrapped-coin receiving unit 65 (while more than one wrapped coins are prevented from being dispensed, at a time, by the dispensing levers 50). Further, this configuration can securely prevent the distal end of each dispensing lever 50 from

scratching other wrapped-coins located adjacent to the wrapped coin to be dispensed, thereby successfully avoiding any unwanted tear of the wrapping paper of each wrapped coin.

[0048] It should be noted that the adjustment hole formed in the side wall of the frame 25a of each wrapped-coin cassette 25 and provided for the attachment of the stopper 26 is not limited to such an elongated hole as shown in Fig. 2. For instance, as shown in Fig. 3, a plurality of adjustment holes 25d may be provided along the dispensing direction in which each wrapped coin stored in the wrapped-coin cassette 25 is dispensed. Namely, the perspective view of Fig. 3 is provided for showing, in more detail, another construction of each wrapped-coin cassette 25 of the wrapped-coin dispensing machine 10 shown in Fig. 1. In the aspect as shown in Fig. 3, the position of each adjustment hole 25d is set, in advance, for each denomination of the wrapped coins to be dispensed. Namely, such adjustment holes 25d are provided, in a number equal to or less than the number of the denominations of the wrapped coins to be dispensed, in order to adequately correspond to each denomination of the wrapped coins. Thus, by attaching the stopper 26 to a certain adjustment hole 25d corresponding to the denomination of the wrapped coins to be stored in a certain wrapped-coin cassette 25, the distance between the standing wall 30 of each wrapped-coin cassette 25 and the axis 52 of each dispensing lever 50 of the dispensing unit 22 can be optimized for the wrapped coins to be stored in this wrapped-coin cassette 25.

[0049] As shown in Fig. 4, a control unit 16 is provided in the casing 20 of the wrapped-coin dispensing machine 10. Further, as shown in Fig. 1, a display/operation unit 18 is provided on the top face of the casing 20 of the wrapped-coin dispensing machine 10. This display/operation unit 18 can serve to display thereon the number or total amount of money, for each denomination, of the wrapped coins stored in each wrapped-coin cassette 25, and/or display thereon the condition of the wrapped coins respectively dispensed from the wrapped-coin dispensing machine 10, as well as can serve to send various commands to the control unit 16, when operated by the operator.

[0050] Further, as shown in Fig. 4, the control unit 16 is connected with the motor 48, shutter 68, display/operation unit 18, sensor 23, another motor 54 provided for rotating each dispensing lever 50 of the dispensing unit 22, and the like. In addition, the control unit 16 is connected with an interface 17, such that this control unit 16 can transmit and receive a signal relative to a higher-ranking machine, via the interface 17. Besides, the control unit 16 can receive, from each sensor 23, detection information on whether or not the wrapped coin is present at the distal end portion of each wrapped-coin cassette 25. Further, the control unit 16 can receive the command (or commands) from the display/operation unit 18 and/or higher-ranking machine. Thus, based on such commands, this control unit 16 can control the motors 48, 54,

shutter 68 or the like, as well as control the display/operation unit 18 to display thereon the number or total amount of money, for each denomination, of the wrapped coins stored in each wrapped-coin cassette 25.

[0051] Next, the operation of the wrapped-coin dispensing machine 10 constructed as described above will be discussed. The following operation of the wrapped-coin dispensing machine 10 is performed by the components of this machine 10, respectively controlled by the control unit 16.

[0052] First of all, each wrapped-coin cassette 25, in which the wrapped-coins are stored in a line, is attached in the casing 20. More specifically, each wrapped-coin cassette 25 is placed on the base 24a of the wrapped-coin cassette supporting unit 24 corresponding to the denomination designated to this cassette 25. When attached in the casing 20, each wrapped-coin cassette 25 is inclined, obliquely downward (or rightward and downward in Fig. 1), in the dispensing direction in which each wrapped coin is dispensed. Therefore, each wrapped-coin stored in each wrapped-coin cassette 25 can be moved, by its weight, toward the distal end portion (or point nearest to the dispensing unit 22) of the wrapped-coin cassette 25.

[0053] Thereafter, via the display/operation unit 18 operated by the operator, or with the signal transmitted from the higher-ranking machine to the control unit 16 via the interface 17, a command for dispensing the wrapped coins is sent to the control unit 16. Then, once the sensor 23 detects the presence of the wrapped coin in the distal end portion of a certain wrapped-coin cassette 25 storing therein the wrapped coins of the denomination to be dispensed, the control unit 16 controls the motor 48 to move the dispensing unit 22 to a predetermined position opposite to the certain wrapped-coin cassette 25. Thereafter, once the dispensing unit 22 reaches the predetermined position, the motor 54 is driven to rotate each dispensing lever 50 about the axis 52 thereof, in the clockwise direction in Fig. 1. In this way, the only one wrapped coin present at the distal end portion of the certain wrapped-coin cassette 25, among the plurality of wrapped coins respectively stored in this wrapped-coin cassette 25, can be lifted upward by the dispensing levers 50, and then dispensed from the wrapped-coin cassette 25 via the take-out slot 29 provided thereto. Thereafter, such a wrapped coin dispensed from each wrapped-coin cassette 25 by the dispensing levers 50 will be received in the wrapped-coin receiving unit 65.

[0054] By performing the above dispensing process for dispensing the wrapped coins from each wrapped-coin cassette 25, by the dispensing levers 50, in a predetermined number of the wrapped coins, for each denomination, in accordance with the command that has been sent to the control unit 16, the wrapped coins can be received in the wrapped-coin receiving unit 65 of the dispensing unit 22, in an amount of money (or number for each denomination) of the wrapped coins to be dispensed from the wrapped-coin dispensing machine 10.

Thereafter, the dispensing unit 22 is moved, by the motor 48, to the highest position (i.e., the waiting position) thereof depicted by the two-dot chain line shown in Fig. 1, and then the shutter 68 is opened. Due to this operation, the operator can take out the wrapped-coins from the wrapped-coin receiving unit 65 of the dispensing unit 22.

[0055] In this way, a series of operations in the wrapped-coin dispensing machine 10 are completed.

[0056] As described above, the wrapped-coin dispensing machine 10 of this embodiment includes the adjuster configured for adjusting the distance between each wrapped-coin cassette 25 and the dispensing levers 50 of the dispensing unit 22, into a desired size, for each denomination of the wrapped coins to be stored in the wrapped-coin cassette 25. Therefore, even in the case the wrapped coins that are rather different in diameter by the denomination thereof are stored in each wrapped-coin cassette 25 of the wrapped-coin dispensing machine 10, the risk such that the plurality of wrapped coins would be dispensed at a time and/or risk such that the wrapping paper of each wrapped coin would be torn can be eliminated, during the dispensing process for dispensing the wrapped coins from each wrapped-coin cassette 25 by the dispensing levers 50.

[0057] More specifically, each dispensing lever 50 is designed to be rotated about the axis 52 thereof, in order to dispense each wrapped-coin present at the distal end portion of each wrapped-coin cassette 25. In addition, the adjuster is provided for adjusting the distance between the standing wall 30 (or distal end portion) of each wrapped-coin cassette 25 and the axis 52 of each dispensing lever 50 of the dispensing unit 22.

[0058] Further, in the wrapped-coin dispensing machine 10 of this embodiment, the adjuster is composed of the stopper 26 provided to each wrapped-coin cassette 25, for each denomination of the wrapped coins to be dispensed. More specifically, the positioning member 27 is provided to each wrapped-coin cassette supporting unit 24 provided to correspond with each wrapped-coin cassette 25, for positioning each wrapped-coin cassette 25 placed on the base 24a of this supporting unit 24, while the stopper 26 is attached to the adjustment hole 25c of the wrapped-coin cassette 25 and is configured to be in contact with the positioning member 27 of each wrapped-coin cassette supporting unit 24. Thus, with the proper adjustment of the attachment position of the stopper 26 relative to the adjustment hole 25c, the position of each wrapped-coin cassette 25 relative to the base 24a of the corresponding wrapped-coin cassette supporting unit 24 can be suitably changed for each denomination of the wrapped coins. Accordingly, the distance between each wrapped-coin cassette 25 and the dispensing levers 50 of the dispensing unit 22 can be optionally adjusted.

[0059] It should be appreciated that the wrapped-coin dispensing unit 10 of this embodiment is not limited to such an aspect as described above, and that various modifications and alterations can be made thereto.

[0060] For instance, the method of adjusting the distance between each wrapped-coin storage unit 25 and the dispensing levers 50 of the dispensing unit 22 is not limited to such a method, as described above, of changing the attachment position of the stopper 26 relative to each wrapped-coin cassette 25. For example, in one alternative to this method, although the attachment position of the stopper 26 relative to each wrapped-coin cassette 25 is not changed irrespectively of each denomination of the wrapped coins to be stored in the wrapped-coin cassette 25, the size of each stopper 26 is changed for each denomination of the wrapped coins. Namely, this alteration is also effective to optionally change the position of each wrapped-coin cassette 25 relative to the base 24a of each corresponding wrapped-coin cassette supporting unit 24, thereby suitably adjusting the distance between each wrapped-coin cassette 25 and the dispensing levers 50 of the dispensing unit 22.

[0061] Further, the adjuster configured for adjusting the distance between each wrapped cassette 25 and the dispensing levers 50 of the dispensing unit 22 is not limited to the stopper 26 provided to each wrapped-coin cassette 25, for each denomination of the wrapped coins to be dispensed. Hereinafter, the adjuster having another construction than that of the stopper 26 will be described.

[0062] Now, referring to Fig. 5, another aspect of the wrapped-coin dispensing machine of this embodiment will be described. The control block diagram of Fig. 5 is provided for illustrating another construction of the wrapped-coin dispensing machine related to this embodiment.

[0063] The wrapped-coin dispensing machine 10a shown in Fig. 5 is different from the wrapped-coin dispensing machine 10 shown in Figs. 1 through 4, only in that a wrapped-coin cassette supporting unit position adjuster 70 is added to this machine 10a, while being substantially the same, in the other construction, as the wrapped-coin dispensing machine 10 shown in Figs. 1 through 4. Specifically, while each wrapped-coin cassette supporting unit 24 is fixed in position to the casing 20 in the wrapped-coin dispensing machine 10 shown in Figs. 1 through 4, this supporting unit 24 can be moved, relative to the casing 20, by the wrapped-coin cassette supporting unit position adjuster 70, in the wrapped-coin dispensing machine 10a shown in Fig. 5.

[0064] More specifically, in the wrapped-coin dispensing machine 10a shown in Fig. 5, each wrapped-coin cassette supporting unit 24 is attached movably in a direction in which this supporting unit 24 extends. In this case, each wrapped-coin cassette supporting unit 24 is moved by the wrapped-coin cassette supporting unit position adjuster 70.

[0065] Namely, when the operator inputs information on the denomination of the wrapped coins to be dispensed from each wrapped-coin cassette 25, to the display/operation unit 18, or when the information on the denomination of the wrapped coins to be dispensed from each wrapped-coin cassette 25 is sent to the control unit

16 via the interface 17 from the higher-ranking machine, such information on the denomination of the wrapped coins to be dispensed from each wrapped-coin cassette 25 can be inputted to the control unit 16. Then, the wrapped-coin cassette supporting unit position adjuster 70 is operated to move each wrapped-coin cassette supporting unit 24, based on the information, inputted to the control unit 16, about the denomination of the wrapped coins to be dispensed from each corresponding wrapped-coin cassette 25. In this way, the position of each wrapped-coin cassette supporting unit 24 relative to the casing 20 can be adjusted. Further, this adjustment can enable the distance between each wrapped-coin cassette 25 and the dispensing levers 50 of the dispensing unit 22 to be adjusted into the desired size for each denomination of the wrapped coins.

[0066] Now, referring to Figs. 6 and 7, still another aspect of the wrapped-coin dispensing machine according to this embodiment will be described. The control block diagram of Fig. 6 illustrates still another construction of the wrapped-coin dispensing machine related to this embodiment, while Fig. 7 illustrates each component of the dispensing lever position adjuster provided to the wrapped coin dispensing machine shown in Fig. 6.

[0067] The wrapped-coin dispensing machine 10b shown in Figs. 6 and 7 is different from the wrapped-coin dispensing machine 10 shown in Figs. 1 through 4, only in that the dispensing lever position adjuster 72 is added to this machine 10b, while being substantially the same, in the other construction, as the wrapped-coin dispensing machine 10 shown in Figs. 1 through 4. Specifically, while each dispensing lever 50 is fixed in position to the frame 39 of the dispensing unit 22 in the wrapped-coin dispensing machine 10 shown in Figs. 1 through 4, this dispensing lever 50 can be moved, relative to the frame 39, by the dispensing lever position adjuster 72, in the wrapped-coin dispensing machine 10b shown in Fig. 6.

[0068] More specifically, in the wrapped-coin dispensing machine 10b shown in Figs. 6 and 7, each dispensing lever 50 is attached movably in a direction toward each wrapped-coin cassette 25 (i.e., in a lateral direction in Fig. 1). Namely, in this case, each dispensing lever 50 is moved by the dispensing lever position adjuster 72.

[0069] Next, referring to Fig. 7, the construction of the dispensing lever position adjuster 72 will be described in detail. In Fig. 7, one wrapped-coin cassette 25 is depicted, for reference, by a two-dot chain line. As shown in Fig. 7, the dispensing lever position adjuster 72 includes a spring 74 attached to the axis 52 of each dispensing lever 50, a cam 76 configured to be in contact with each dispensing lever 50, and a motor 78 provided for rotating the cam 76 about an axis 76a thereof. More specifically, the spring 74 is attached, at its one end, to the axis 52 of each dispensing lever 50, while being fixed, at the other end thereof, to a wall member 75 provided in the dispensing unit 22. Usually, the spring 75 is in a compressed state, in order to push each dispensing lever 50 toward each wrapped-coin cassette 25 (or leftward in Fig. 7).

[0070] Meanwhile, as shown in Fig. 7, the cam 76 is configured to be in contact with each dispensing lever 50, in order to limit the movement of the dispensing lever 50 pushed toward each wrapped-coin cassette 25 (or leftward in Fig. 7). In this embodiment, the cam 76 is designed to be rotated about the axis 76a thereof. Further, the face of this cam 76 to be in contact with each dispensing lever 50 is formed in a stepped shape. Namely, as shown in Fig. 7, this face includes a first contact surface 76b, a second contact surface 76c and a third contact surface 76d, such that each of these contact surfaces can be selectively in contact with each dispensing lever 50. In this case, the distances between the axis 76a and the respective contact surfaces 76b, 76c, 76d are different from each other, such that the distance between the first contact surface 76b and the axis 76a is the largest, and the distance between the third contact surface 76d and the axis 76a is the smallest. Namely, each contact surface 76b, 76c, 76d is provided, corresponding to each denomination of the wrapped coins to be dispensed.

[0071] Thus, the contact surface of this cam 76 to be in contact with each dispensing lever 50 can be changed, with the rotation of the cam 76 about the axis 76a due to the motor 78. More specifically, if the operator wants to bring the dispensing levers 50 closer to each wrapped-coin cassette 25, the cam 76 is rotated by the motor 78, such that the third contact surface 76d thereof can be in contact with the dispensing levers 50. Namely, due to the smallest distance between the third contact surface 76d and the axis 76a, the dispensing levers 50 can be moved much nearer to each wrapped-coin cassette 25, while being respectively pushed leftward in Fig. 7 by the spring 74. Meanwhile, if the operator wants to move the dispensing levers 50 relatively away from each wrapped-coin cassette 25, the cam 76 is rotated by the motor 78, such that the first contact surface 76b thereof can be in contact with the dispensing levers 50. Namely, due to the largest distance between the first contact surface 76b and the axis 76a, the dispensing levers 50 can be positioned at the farthest point thereof from each wrapped-coin cassette 25, while being respectively pushed leftward in Fig. 7 by the spring 74.

[0072] With this configuration, when the operator inputs information on the denomination of the wrapped coins to be dispensed from each wrapped-coin cassette 25, to the display/operation unit 18, or when the information on the denomination of the wrapped coins to be dispensed from each wrapped-coin cassette 25 is sent to the control unit 16 via the interface 17 from the higher-ranking machine, such information on the denomination of the wrapped coins to be dispensed from each wrapped-coin cassette 25 can be inputted to the control unit 16. Then, the dispensing lever position adjuster 72 is operated to move the dispensing levers 50 relative to the frame 39, based on the information, inputted to the control unit 16, about the denomination of the wrapped coins to be dispensed from each corresponding

wrapped-coin cassette 25. More specifically, the cam 76 is rotated about the axis 76a by the motor 78, such that the contact surface of the cam 76 corresponding to the denomination of the wrapped coins to be dispensed from the corresponding wrapped-coin cassette 25 is brought into contact with each dispensing lever 50. Thus, each dispensing lever 50 can be moved to a desired position for each denomination of the wrapped coins to be dispensed. In this way, the distance between each wrapped-coin cassette 25 and the dispensing levers 50 of the dispensing unit 22 can be adjusted.

[0073] Now, referring to Figs. 8 through 10, still another aspect of the wrapped-coin dispensing machine related to this embodiment will be described. Of these drawings, the perspective view of Fig. 8 shows another construction of the wrapped coin cassette of the wrapped-coin dispensing machine related to this embodiment. The perspective view of Fig. 9 shows the internal construction of the wrapped-coin cassette shown in Fig. 8, and Fig. 10 is one exemplary longitudinal cross section of the wrapped-coin cassette shown in Fig. 8. It is noted that reference character "C" as shown in Figs. 8 through 10 designates each wrapped coin.

[0074] As shown in Figs. 8 through 10, a wrapped-coin cassette 80 includes a wrapped-coin storage area 80a provided for storing therein the plurality of wrapped coins respectively arranged in a line. This wrapped-coin storage area 80a is configured, such that the size of this storage area 80a can be adjusted, based on each denomination of the wrapped coins to be stored in the wrapped-coin cassette 80.

[0075] More specifically, as shown in Fig. 9, a pair of right and left width limiting plates 82, respectively configured for limiting the width of the wrapped-coin storage area 80a, are provided to the wrapped-coin cassette 80. In this case, each wrapped coin is stored between the pair of right and left width limiting plates 82.

[0076] Each position of the pair of right and left width limiting plates 82 can be adjusted in the direction along the width of the wrapped-coin cassette 80a. More specifically, in a bottom plate of this wrapped-coin cassette 80, a plurality of adjustment holes 80b are provided in the direction along the width of the wrapped-coin storage area 80a. Namely, each width limiting plate 82 is attached to each of such adjustment holes 80b, such that the width of the wrapped-coin storage area 80a can be fit for the longitudinal length of each wrapped coin stored therein. Further, each adjustment holes 80b is arranged, corresponding to each denomination of the wrapped coins. Alternatively, in place of such a plurality of adjustment holes, an elongated hole may be provided to extend in the direction along the width of the wrapped-coin storage area 80a, such that each width limiting plate 82 can be attached to any given suitable point of such an elongated hole. Alternatively or additionally, the position of each width limiting plate 82 may be adjusted, such that the respective control plates 82 can be positioned, symmetrically, about the slits 31 of the wrapped-coin cassette as

shown in Fig. 2. In this case, each point, at which each dispensing lever 50 can be in contact with each wrapped coin present between such a pair of width limiting plates 82, can be positioned in a central portion of the wrapped coin, thereby allowing the wrapped coin to be dispensed, more stably, by the dispensing levers 50.

[0077] Further, as shown in Fig. 8, a height limiting plate 84, which is configured for limiting the height of the wrapped-coin storage area 80a, is provided to the wrapped-coin cassette 80. In this case, a plurality of height limiting plates 84, respectively having different thicknesses, are provided. Thus, by selecting any suitable height limiting plate 84 that is fit for the diameter of the wrapped coins to be stored in the cassette 80, among the plurality of height limiting plates 84, the height of the wrapped-coin storage area 80a can be adjusted.

[0078] Alternatively, as shown in Fig. 10, rather than employing such a plurality of height limiting plates 84 respectively having different thicknesses, the wrapped-coin cassette 80 may be composed of a bottom member 85 and a cover 86, with the wrapped-coin storage area 80a being provided between such bottom member 85 and cover 86. In this case, the bottom member 85 is connected with the cover 86 via connectors 88. Each connector 88 is configured to be inserted in each corresponding adjustment hole formed in each side wall of the bottom member 85 and cover 86. Further, in this case, such a plurality of adjustment holes are respectively arranged in the direction along the height (i.e., in the vertical direction in Fig. 10) of the wrapped-coin cassette 80. Thus, by selecting each suitable adjustment hole in which each connector 88 is to be inserted, the distance between the bottom plate 85 and the cover 86 can be adjusted. Furthermore, each adjustment hole is provided, corresponding to each denomination of the wrapped coins. Alternatively, rather than providing such a plurality of adjustment holes in each side wall of the bottom member 85 and cover 86, an elongated hole may be provided in each side wall of the bottom member 85 and cover 86, while extending in the direction along the height (i.e., in the vertical direction in Fig. 10) of the wrapped-coin cassette 80, such that each connector 88 can be attached to any given suitable point of such an elongated hole. In this way, the height of the wrapped-coin storage area 80a can be optionally limited.

[0079] As described above, according to the wrapped-coin cassette 80 shown in Figs. 8 through 10, the width of the wrapped-coin storage area 80a can be limited by the pair of width limiting plates 82, as well as the height of the wrapped-coin storage area 80a can be limited by the height limiting plates 84 or the like. As such, the size of the wrapped-coin storage area 80a can be suitably adjusted, based on each denomination of the wrapped coins to be stored in the wrapped-coin cassette 80. Therefore, this configuration can eliminate the need for providing the wrapped-coin cassettes of a plurality of types that should otherwise respectively correspond to the respective denominations of the wrapped coins to be

stored therein, thereby substantially reducing the production cost for the wrapped-coin dispensing machine 10, as well as enhancing the maintenance efficiency.

[0080] Further, as described above, in the wrapped-coin cassette 25 shown in Fig. 2, the take-out slot 29 provided on the top face of the distal end portion of the wrapped-coin storage area 25b is opened to have such a size that can allow at least one wrapped-coin C to get out through the slot 29. Meanwhile, in the wrapped-coin cassette 80 shown in Fig. 8, a cover 89 that can be optionally opened and closed is provided to the take-out slot. Usually, this cover 89 is locked to close the take-out slot. However, only when the wrapped-coin cassette 80 is attached in the casing 20 of the wrapped-coin dispensing machine 10 and placed on the base 24a of the corresponding wrapped-coin cassette 24, the cover 89 is opened by an unlocking mechanism (not shown).

[0081] Additionally, as described above, in the wrapped-coin cassette 80 shown in Fig. 8, the height limiting plate 84 can serve as the cover for closing the wrapped-coin storage area 80a. In this case, a rear part of this height limiting plate 84 is fixed to a base part of the wrapped-coin cassette 80 by a holding member. This holding member is composed of an insurance lock or a proper lock of various types. Namely, this holding member can prevent the height limiting plate 84 from being unduly removed from the base part of the wrapped-coin cassette 80, thereby securely preventing the wrapped coins from being wrongly taken out from the interior of the wrapped-coin cassette 80. For instance, the insurance lock or the like is provided with a predetermined identification number associated with a certain person in charge of handling the wrapped coins. Therefore, by finding some incorrect identification number, occurrence of some wrong or undue handling operation for the wrapped coins can be detected.

[0082] Namely, in the wrapped-coin cassette 80 shown in Fig. 8, the cover 89 that can be optionally opened and closed is provided for closing the take-out slot, and the height limiting plate 84 can serve as the cover for closing the wrapped-coin storage area 80a. Therefore, each wrapped-coin cassette 80 can be carried, safely and securely, with the wrapped coins being stored therein.

Claims

1. A wrapped-coin dispensing machine configured for dispensing wrapped coins, comprising:

a casing;
a plurality of wrapped-coin cassettes, each detachably attached relative to the casing, and configured for storing therein a plurality of wrapped coins, respectively arranged in a line, as well as configured to be inclined obliquely downward in a direction in which the wrapped

coins are dispensed, when attached in the casing;

a dispensing unit attached, in the casing, movably along each distal end portion of the wrapped-coin cassettes, and including a dispensing member configured for dispensing the wrapped coin present at the distal end portion of each wrapped-coin cassette; and
an adjuster configured for adjusting the distance between each wrapped-coin cassette and the dispensing member of the dispensing unit.

2. The wrapped-coin dispensing machine according to claim 1,
wherein the dispensing member is configured to be rotated about an axis to dispense the wrapped coin present at the distal end portion of each wrapped-coin cassette, and
the adjuster is configured for adjusting the distance between the distal end portion of each wrapped-coin cassette and the axis of the dispensing member of the dispensing unit.
3. The wrapped-coin dispensing machine according to claim 1,
wherein the dispensing unit includes a wrapped-coin receiving unit configured for receiving the wrapped coin dispensed from each wrapped-coin cassette by the dispensing member.
4. The wrapped-coin dispensing machine according to claim 1,
wherein the adjuster is a stopper provided to each wrapped-coin cassette, for each denomination.
5. The wrapped-coin dispensing machine according to claim 4,
wherein each stopper is different in size, depending on the denomination of the wrapped coins to be stored in each corresponding wrapped-coin cassette.
6. The wrapped-coin dispensing machine according to claim 1,
wherein a plurality of wrapped-coin cassette supporting units are provided to the casing, each wrapped-coin cassette supporting unit corresponding to each wrapped-coin cassette and including a base configured for placing thereon one wrapped-coin cassette, and a positioning member configured for positioning the distal end portion of the wrapped-coin cassette placed on the base,
an adjustment hole is provided to each wrapped-coin cassette,
the adjuster is a stopper attached to the adjustment hole of each wrapped-coin cassette and configured to be in contact with the positioning member of each wrapped-coin cassette supporting unit, and

the distance between each wrapped-coin cassette and the dispensing member of the dispensing unit is adjusted, by adjusting the attachment position of the stopper relative to the adjustment hole.

7. The wrapped-coin dispensing machine according to claim 6,
wherein the adjustment hole is an elongated hole extending in the direction in which the wrapped coins are dispensed from each wrapped-coin cassette.
8. The wrapped-coin dispensing machine according to claim 6,
wherein a plurality of adjustment holes are provided along the direction in which the wrapped coins are dispensed from each wrapped-coin cassette.
9. The wrapped-coin dispensing machine according to claim 1,
wherein a plurality of wrapped-coin cassette supporting units are provided to the casing, each wrapped-coin cassette supporting unit corresponding to each wrapped-coin cassette and including a base configured for placing thereon one wrapped-coin cassette, and a positioning member configured for positioning the distal end portion of the wrapped-coin cassette placed on the base, and a wrapped-coin cassette supporting unit position adjuster is provided for moving each wrapped-coin cassette supporting unit, and
the wrapped-coin cassette supporting unit position adjuster is configured for adjusting the position of each wrapped-coin cassette supporting unit, based on the denomination of the wrapped coins to be stored in the corresponding wrapped-coin cassette, thereby adjusting the distance between each wrapped-coin cassette and the dispensing member of the dispensing unit.
10. The wrapped-coin dispensing machine according to claim 1,
wherein a dispensing member position adjuster configured for moving the dispensing member relative to a body of the dispensing unit is provided to the dispensing unit, and
the dispensing member position adjuster is configured for adjusting the position of the dispensing member relative to the body of the dispensing unit, for each wrapped-coin cassette, based on the denomination of the wrapped coins to be stored in the wrapped-coin cassette, thereby adjusting the distance between each wrapped-coin cassette and the dispensing member of the dispensing unit.
11. The wrapped-coin dispensing machine according to claim 9,
wherein a higher-ranking machine is connected, for communication, with the wrapped-coin dispensing

machine, and the wrapped-coin cassette supporting unit position adjuster adjusts the position of each wrapped-coin cassette supporting unit, based on information sent from the higher-ranking machine and concerning the denomination of the wrapped coins to be stored in the corresponding wrapped-coin cassette.

12. The wrapped-coin dispensing machine according to claim 10,
wherein a higher-ranking machine is connected, for communication, with the wrapped-coin dispensing machine, and the dispensing member position adjuster adjusts the position of the dispensing member relative to a body of the dispensing unit, for each wrapped-coin cassette, based on the information sent from the higher-ranking machine and concerning the denomination of the wrapped coins to be stored in the wrapped-coin cassette.
13. The wrapped-coin dispensing machine according to claim 9,
wherein an operation unit configured for allowing information to be inputted from the exterior is provided to the wrapped-coin dispensing machine, and the wrapped-coin cassette supporting unit position adjuster adjusts the position of each wrapped-coin cassette supporting unit, based on the information inputted from the exterior via the operation unit and concerning the denomination of the wrapped coins to be stored in the corresponding wrapped-coin cassette.
14. The wrapped-coin dispensing machine according to claim 10,
wherein an operation unit configured for allowing the information to be inputted from the exterior is provided to the wrapped-coin dispensing machine, and the dispensing member position adjuster adjusts the position of the dispensing member relative to a body of the dispensing unit, for each wrapped-coin cassette, based on the information inputted from the exterior via the operation unit and concerning the denomination of the wrapped coins to be stored in the wrapped-coin cassette.
15. The wrapped-coin dispensing machine according to claim 1,
wherein a wrapped-coin storage area configured for storing therein the plurality of wrapped coins, respectively arranged in a line, is provided in each wrapped-coin cassette, and the size of the wrapped-coin storage area is adjustable, based on the denomination of the wrapped coins to be stored in the wrapped-coin cassette.
16. The wrapped-coin dispensing machine according to claim 15,

wherein a pair of right and left width limiting plates for limiting the width of the wrapped-coin storage area are provided to each wrapped-coin cassette, and the position of each of the width limiting plates is adjustable in the direction along the width of the wrapped-coin storage area. 5

17. The wrapped-coin dispensing machine according to claim 15, wherein a height limiting plate for limiting the height of the wrapped-coin storage area is provided to each wrapped-coin cassette, and the position of the height limiting plate is adjustable in the direction along the height of the wrapped-coin storage area. 10 15

18. A wrapped-coin dispensing machine configured for dispensing wrapped coins, comprising:

a casing;
a plurality of wrapped-coin cassettes, each detachably attached relative to the casing, and configured for storing therein a plurality of wrapped coins, respectively arranged in a line, as well as configured to be inclined obliquely downward in a direction in which the wrapped coins are dispensed, when attached in the casing; and 20 25
a dispensing unit attached in the casing, movably along each distal end portion of the wrapped-coin cassettes, and including a dispensing member configured for dispensing the wrapped coin present at the distal end portion of each wrapped-coin cassette, 30
wherein a wrapped-coin storage area configured for storing therein the plurality of wrapped coins, respectively arranged in a line, is provided in each wrapped-coin cassette, and the size of the wrapped-coin storage area is adjustable, based on the denomination of the wrapped coins to be stored in the wrapped-coin cassette. 35 40

19. The wrapped-coin dispensing machine according to claim 18, wherein a pair of right and left width limiting plates for limiting the width of the wrapped-coin storage area are provided to each wrapped-coin cassette, and the position of each of the width limiting plates is adjustable in the direction along the width of the wrapped-coin storage area. 45 50

20. The wrapped-coin dispensing machine according to claim 18, wherein a height limiting plate for limiting the height of the wrapped-coin storage area is provided to each wrapped-coin cassette, and the position of the height limiting plate is adjustable in the direction along the height of the wrapped-coin storage area. 55

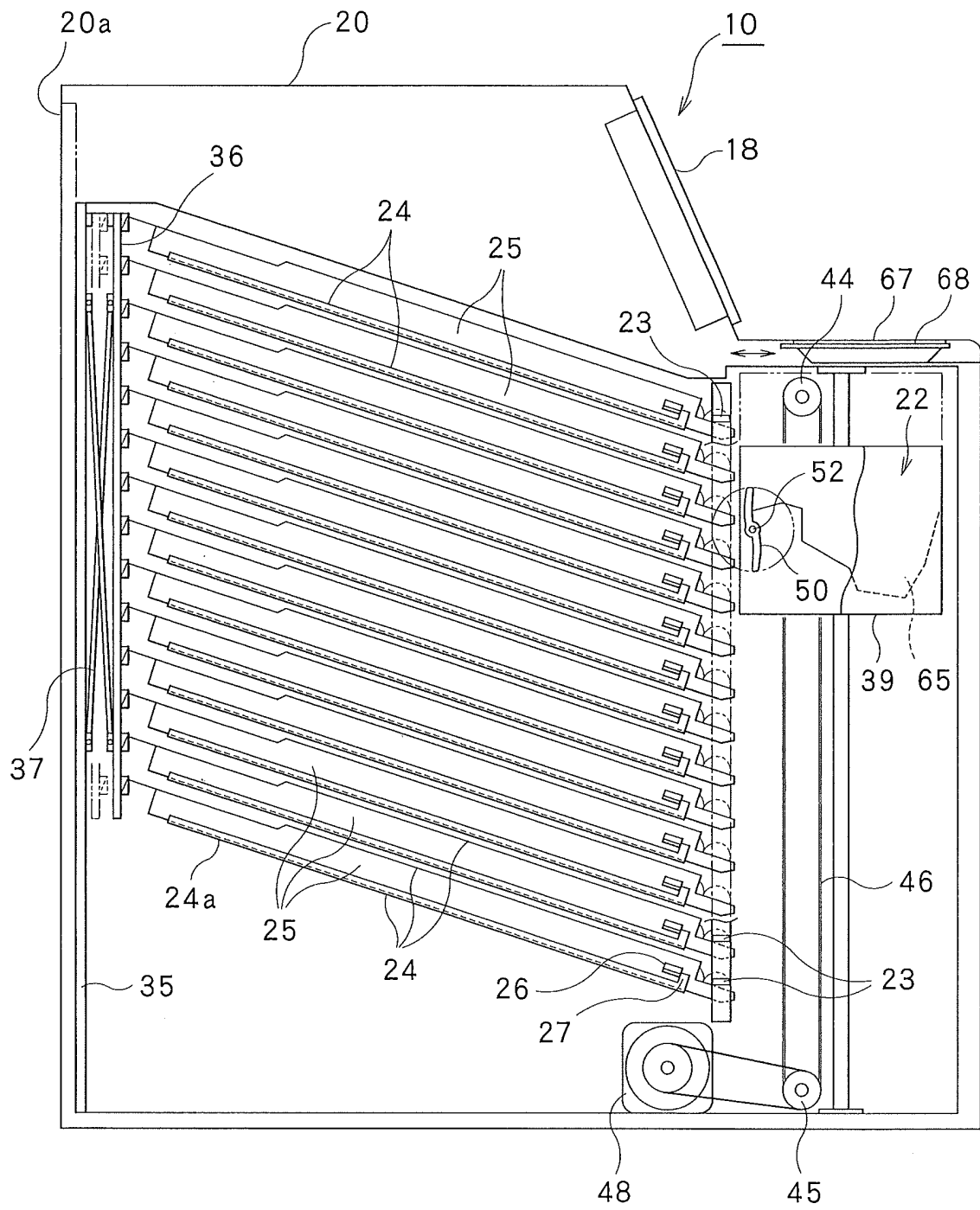
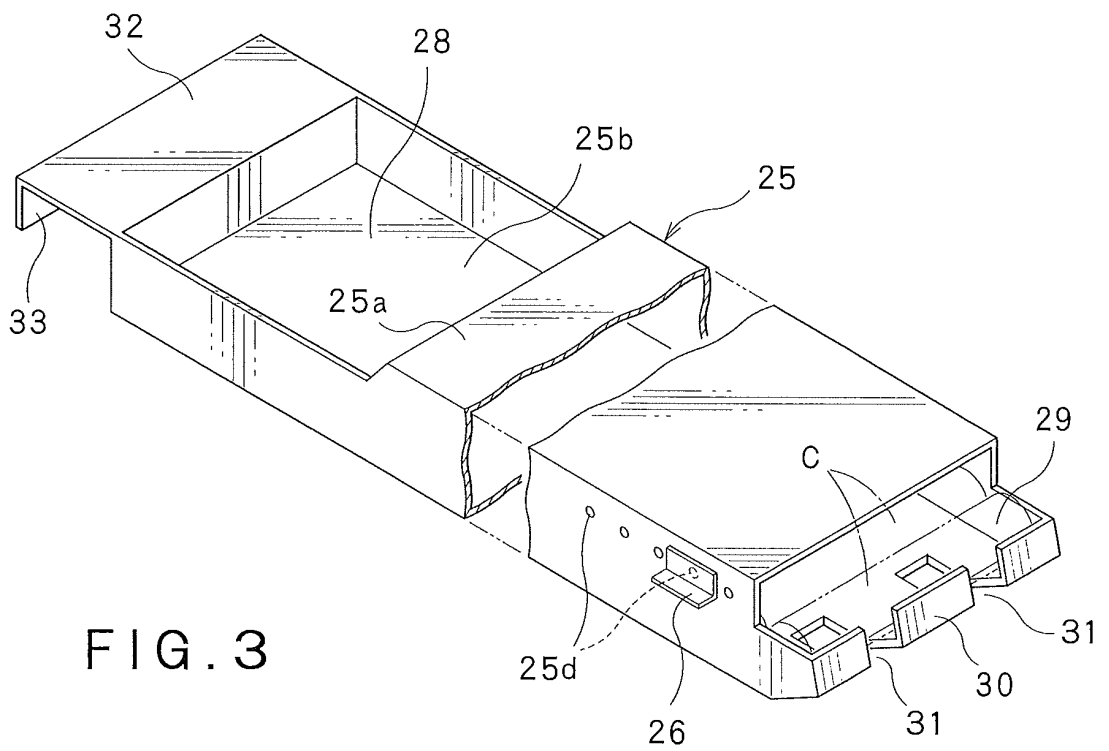
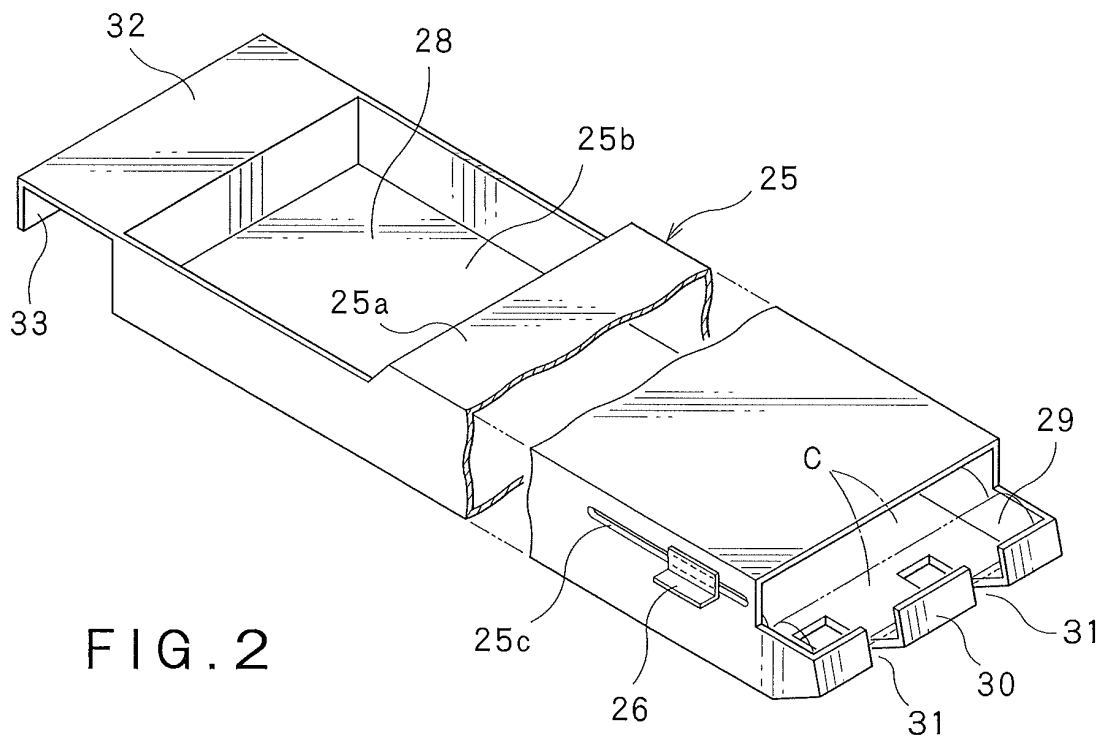


FIG. 1



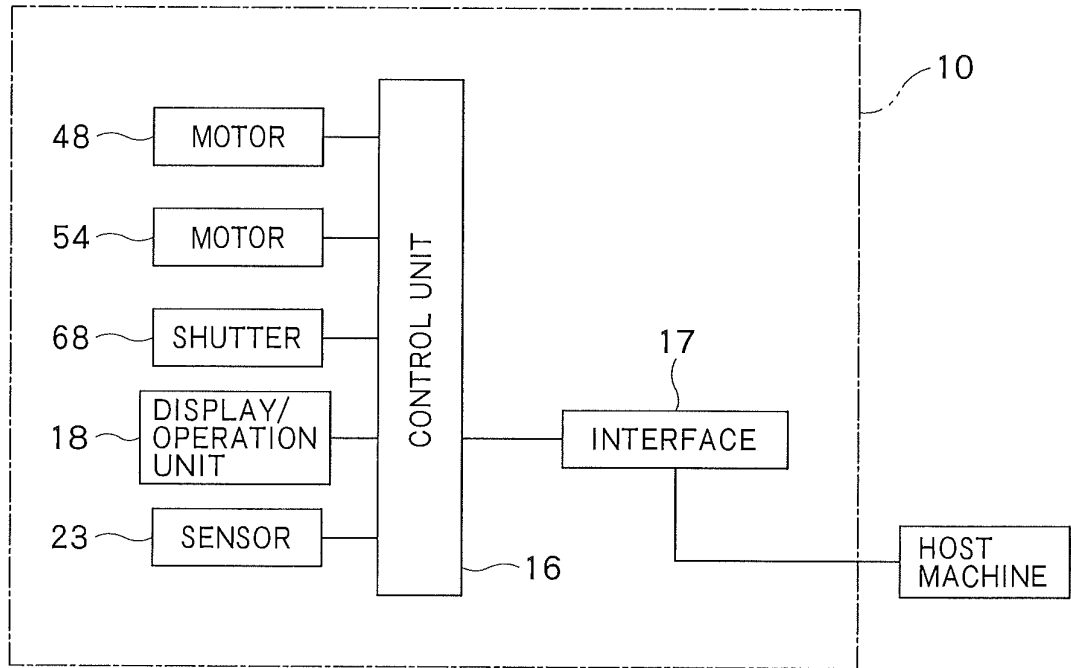


FIG. 4

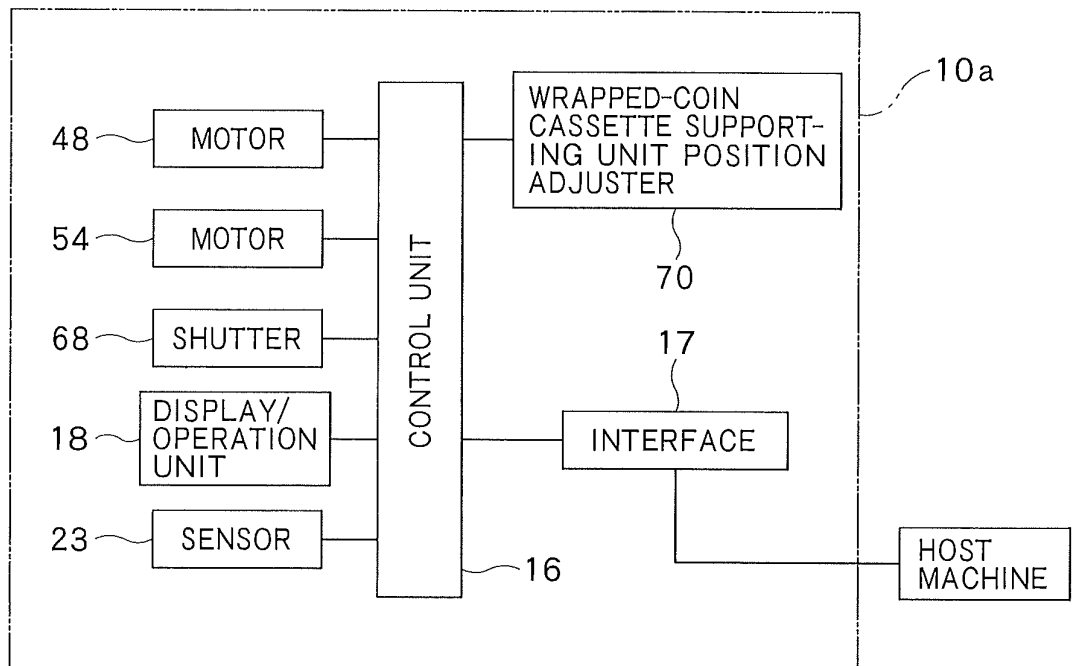


FIG. 5

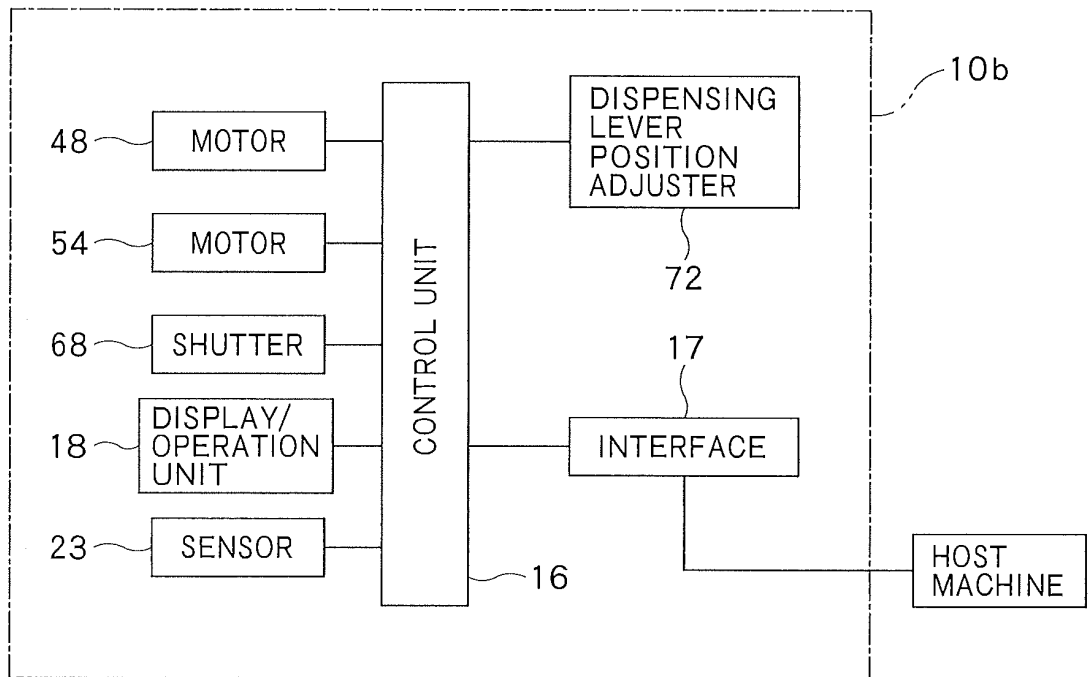


FIG. 6

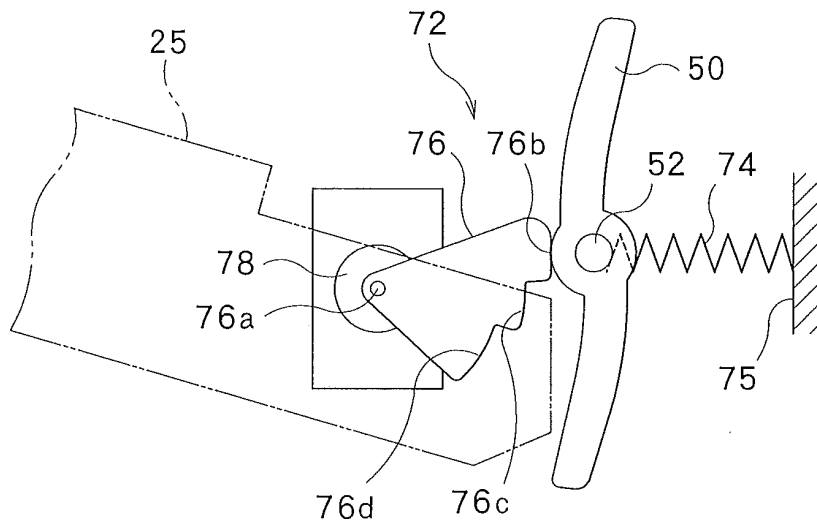


FIG. 7

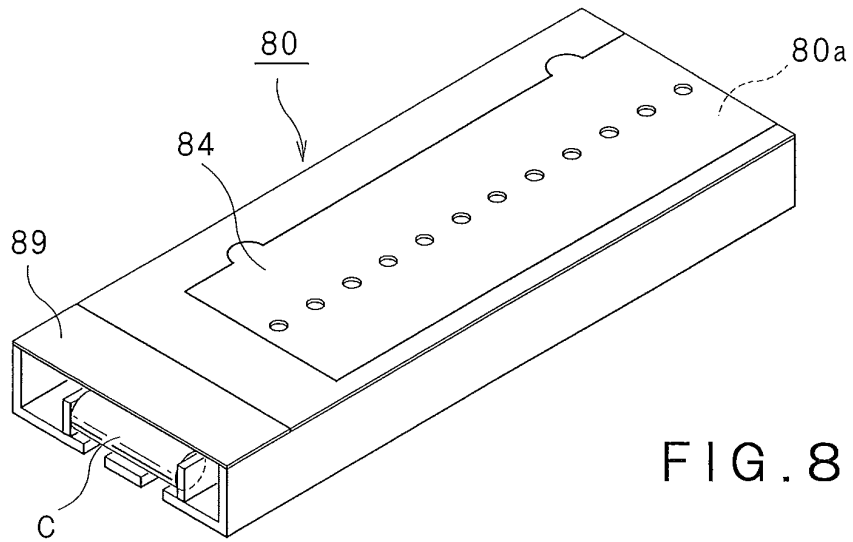


FIG. 8

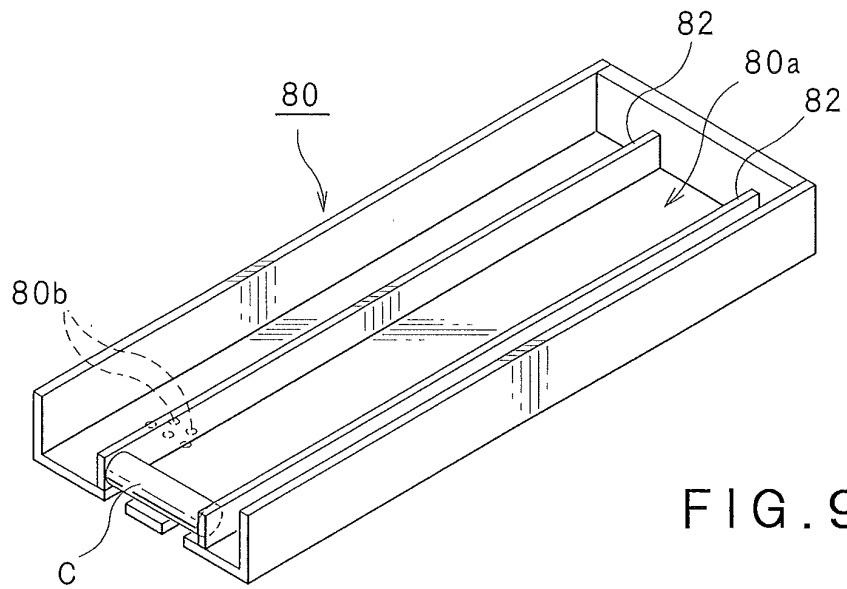


FIG. 9

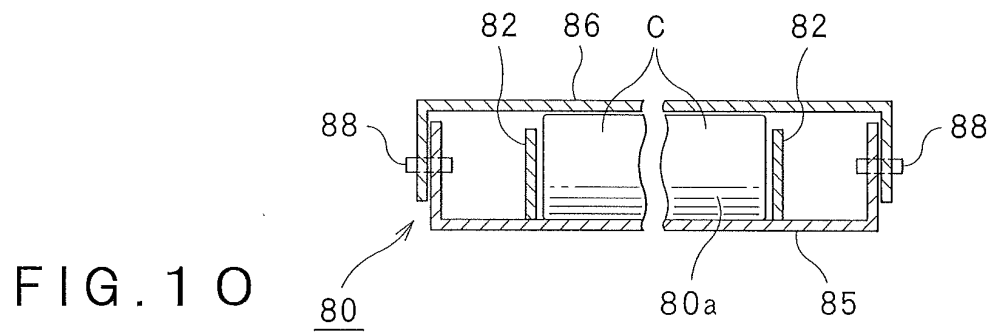


FIG. 10

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2008/067461

A. CLASSIFICATION OF SUBJECT MATTER

G07D1/00 (2006.01) i

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)

G07D1/00

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 1996-2008

Kokai Jitsuyo Shinan Koho 1971-2008 Toroku Jitsuyo Shinan Koho 1994-2008

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.
X Y	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 72918/1990 (Laid-open No. 17862/1991) (Japan Cash Machine Co., Ltd.), 21 February, 1991 (21.02.91), Page 7, line 6 to page 10, line 2; Figs. 3 to 5 (Family: none)	1, 3, 10, 12, 14 4-8
X Y	JP 2003-137434 A (Tamura Electric Works, Ltd.), 14 May, 2003 (14.05.03), Par. No. [0016], [0021] to [0023]; Figs. 3 to 9 (Family: none)	1-3, 10, 12, 14 4-8

☒ Further documents are listed in the continuation of Box C.☐ See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
01 December, 2008 (01.12.08)Date of mailing of the international search report
16 December, 2008 (16.12.08)Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2008/067461

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y	11 November, 2004 (11.11.04), Par. No. [0015] (Family: none)	14-16, 18, 19 4-8
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