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(71) Applicant: **Aruze Corp.**
**Tokyo (JP)**

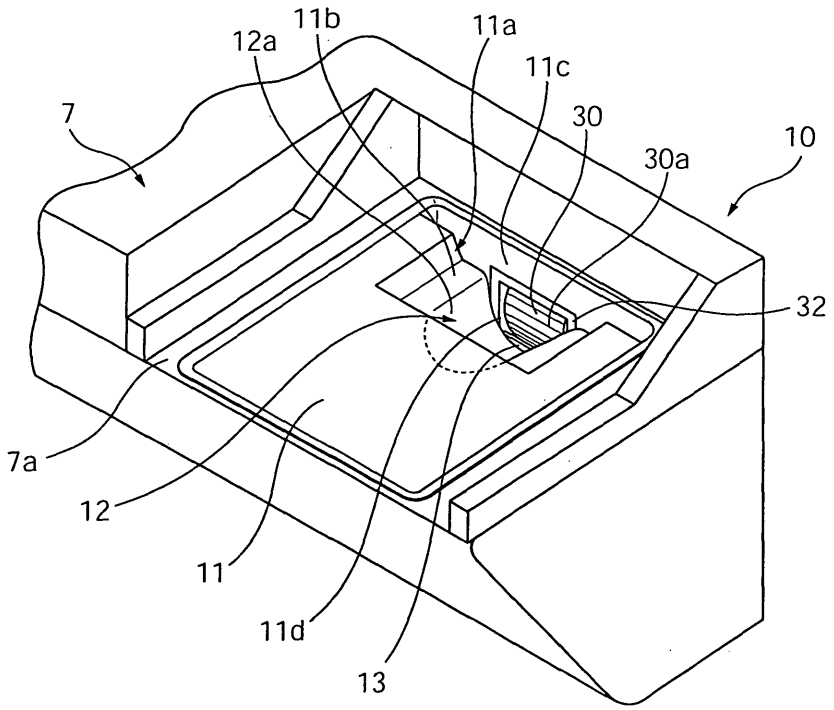
(72) Inventors:
- **Nireki, Takao**
  **Tokyo 135-0063 (JP)**
- **Nishimura, Katsunari**
  **Tokyo 135-0063 (JP)**

(74) Representative: **HOFFMANN EITLE**
**Patent- und Rechtsanwälte**
**Arabellastrasse 4**
**81925 München (DE)**

## (54) Game machine and media inserting apparatus

(57) A game machine of the present invention has a slot (13) that receives a medal, a medal guide portion (12) having a guide face (12a) that inclines downward toward the slot (13) and that guides the medal, and a medal mount (11) that is provided in the vicinity of the medal guide portion (12) and that enables a large number of medals to be mounted thereon. The guide face (12a) has contact portions (P1) that come into contact with an outer circumference of the medal in two points when the medal is mounted on the guide face, where a distance between the contact portions is smaller than the diameter of the medal.

FIG. 2

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## Description

**[0001]** The present disclosure relates to subject matter contained in Japan Patent Application No.2004-229350 filed on August 5,2004, which are expressly incorporated herein by reference in its entireties.

## BACKGROUND OF THE INVENTION

### Field of the Invention

**[0002]** The present invention relates to a game machine to play a game using game media such as medals and coins, and more particularly, to a game machine incorporating a game media inserting apparatus that handles the game media.

### Description of the Prior Art

**[0003]** In general, in a game machine (such as, for example, a slot machine, roulette machine and pusher game machine) where the game starts by inserting a game medium (hereinafter, referred to as a "medal"), as described above, a game media inserting apparatus (hereinafter, referred to as a "medal inserting apparatus") is incorporated to enable a player to insert medals smoothly. For example, JP 2003-79927 discloses a pusher game machine incorporating a medal inserting apparatus. The medal inserting apparatus is configured to enable a player to pick a medal up and insert it in a slot one by one, and the inserted medal is released to a predetermined target.

**[0004]** The medal inserting apparatus incorporated into the pusher game machine as described above has the need for a player to guide the medal to the slot, and thereby causes bother and tiredness. Particularly, in recent games (such as a pusher game) using medals, machines are becoming mainstream which have game characteristics that a player is encouraged to use a large number of medals within a predetermined time and can acquire a large number of medals when a predetermined condition holds. Therefore, inserting a large number of medals is burdensome in the structure where a player guides medals to a slot to insert on a one-by-one basis. Further, a back portion (contact portion with a medal) of the slot may sustain damage by friction, and there arise problems of causing disfigurement of the contact portion and the like.

## BRIEF SUMMARY OF THE INVENTION

**[0005]** It is an object of the present invention to provide a game machine incorporating a medal inserting apparatus enabling a large number of medals to be inserted successively with ease.

**[0006]** Additional objects and advantages of the invention will be set forth in the description which follows, and in part will be obvious from the description, or may be learned by practice of the invention. The objects and advantages of the invention may be realized and obtained by means of the instrumentalities and combinations particularly out hereinafter.

## BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

**[0007]** The accompanying drawings, which are incorporated in and constitute a part of the specification, illustrate embodiments of the invention, and together with the general description given above and the detailed description of the embodiments given below, serve to explain the principles of the invention.

FIG.1 is a view showing one example of a structure of a pusher game machine that is one example of game machines according to the invention;
FIG.2 is a perspective view showing a structure of a medal inserting apparatus;
FIG.3 is an upper view of the medal inserting apparatus;
FIG.4 is a front view of the medal inserting apparatus;
FIG.5 is a perspective view showing a portion cut in the central portion of the medal inserting apparatus;
FIG.6 is a schematic front view illustrating a relationship between a guide face of a medal guide portion and a medal;
FIG. 7 is a schematic side view to explain a preferred positional relationship between the medal guide portion and a rotation roller;
FIG.8 is a view showing an example of medals mounted on a medal mount;
FIG.9 is a schematic side view illustrating the behavior of a plurality of medals which are inserted in the medal guide portion;
FIG.10 is a schematic side view illustrating the behavior of a medal which is allowed to stand and mounded on the medal guide portion;
FIG. 11 is a schematic side view illustrating another example of the behavior of a medal which is allowed to stand and mounded on the medal guide portion;
FIG. 12 is a schematic side view illustrating another example of the behavior of a plurality of medals which are allowed to stand and mounded on the medal guide portion;
FIG.13 is a view showing another example of the structure of the medal inserting apparatus;
FIG.14A and FIG.14B are views illustrating modifications of the guide face of the medal guide portion;
FIG.15 is a view showing still another example of the structure of the medal inserting apparatus; and
FIG.16 is a view showing another embodiment of the game machine according to the invention.

## DETAILED DESCRIPTION OF THE INVENTION

**[0008]** Embodiments of a game machine according to

the present invention will specifically be described below.

**[0009]** FIG.1 is a view illustrating an embodiment of the game machine according to the invention, and shows one example of a structure of a pusher game machine that is one example of game machines.

**[0010]** A pusher game machine 1 is provided with a housing 2, and inside the housing 2 is provided a game area 3 visible from outside. In the game area 3, a horizontal plane 3a is formed, while a pusher 3b is disposed that reciprocates in the direction of the arrow on the horizontal plane 3a. A plurality of media (medals) is stored on the horizontal plane 3a, and the medals stored on the horizontal plane 3a are inserted from a front cliff (not shown) by the pusher 3b reciprocating in the direction of the arrow, and discharged as a reward. A player releases held medals toward the horizontal plane 3a and pusher 3b, and acquires a large number of medals beforehand stored on the horizontal plane 3a by the operation of the pusher 3b.

**[0011]** In addition, the pusher game machine of this embodiment is provided with a specific game mode allowing a player to acquire a large number of medals more than released medals when a predetermined condition holds. More specifically, targets 6 are arranged in an area where medals are released, and when a predetermined number of (for example, ten) medals are inserted in the targets 6 within a predetermined time (for example, 60 seconds), many medals are released (a medal releasing portion is omitted) to the horizontal plane 3a that is a medal mount area.

**[0012]** In the housing 2 is formed a base portion 7 to protrude to the player side, and on the base portion 7 is provided a rotation lever 8 that is rotated by a player. The rotation lever 8 is connected at its base end with a slope (not shown) which feeds a medal inserted from a medal inserting apparatus described later toward the horizontal plane 3a, while being converted in direction by operation of rotating the rotation lever 8. Then, by a player operating the rotation of rotation lever 8, an inserted medal is released in the direction of a desired target. In addition, with respect to the driving mechanism that couples the rotation lever 8 and slope to rotate the slope, the mechanism that feeds a medal into the slope from the medal inserting apparatus and the like, these mechanisms are not of the principal constitution of the invention, and descriptions thereof are omitted.

**[0013]** The base portion 7 is provided with a media inserting apparatus (medal inserting apparatus) 10 to perform operation of inserting medals in playing the game. The medal inserting apparatus 10 enables a player to insert many medals successively with ease, as specifically described later.

**[0014]** A structure of the medal inserting apparatus 10 will be described below with reference to FIGs.2 to 6.

**[0015]** The medal inserting apparatus 10 is provided with a flat-shaped medal mount 11 incorporated, into a panel 7a constituting the base portion 7. For example, as shown in FIGs.1 and 2, the medal mount 11 is configured to only enable a predetermined number of medals to be mounted thereon stably, and a concave portion 11a is provided on the game area side of the central portion of the medal mount 11. A bottom 11b of the concave potion 11a is provided with a medal guide portion (media guide portion) 12 having a guide face 12a that guides a medal, and a slit-shaped slot 13 to insert the medal guided along the guide face 12a inside the housing. In this case, the guide face 12a is formed to descend toward the slot 13 from the player side, and has a length to the extent that allows a number of medals to stand to be mounted. For the inclination angle of the guide face 12a, the face 12a is only required to incline with respect to the horizontal plane to cause a medal to slide smoothly, and the angle is not limited particularly:

**[0016]** The guide face 12a preferably has a length to some extent to enable a large number of medals to be inserted successively. More specifically, the face 12a preferably has a length at least more than or equal to the diameter of a medal, and more preferably, has a length more than two or three times the diameter of a medal to enable smoother successive inserting operation with ease.

**[0017]** The medal mount 11 is integrally formed with the concave portion 11a and medal guide portion 12, for example, by die-casting of zinc (zinc alloy), and the surface of the mount 11 is chrome plated to enhance the appearance. In this case, to improve integration characteristics, it may be possible forming the flat-shaped medal mount 11, and then forming the concave portion 11a and medal guide portion 12 by press molding.

**[0018]** In other words, it is possible to integrally form the medal mount 11 and medal guide portion 12 with ease, for example, by press molding a plate-shaped member in the form of a plane into the form of a concave. Thus making both members in unit improves the integration characteristics to the game machine. It is also possible to form the members separately without integrally forming. Therefore, the medal mount 11 and medal guide portion 12 may be configured to be detachable with respect to the panel 7a.

**[0019]** The medal mount 11 is provided in the vicinity of the medal guide portion 12 so that a medal is easily inserted in the guide face 12a of the medal guide portion 12. For example, by forming the mount 11 to extend toward the player side, i.e. frontward from the medal guide portion 12, a player is capable of inserting medals in the guide face 12a of the medal guide portion 12 only by pushing a large number of medals mounted on the mount 11 backward.

**[0020]** In addition, the medal mount 11 of this embodiment is formed on each side of the extending medal guide portion 12, and it is thereby possible to insert medals from the side. Further, the medal guide portion 12 is formed on the bottom 11b of the concave portion 11a, medals are thereby inserted in the medal guide portion 12 from the medal mount 11, and it is thus possible to regulate a number of inserted medals to some extent

(constituting regulating means). In other words, since medals are inserted in such a manner, even when a large number of medals are inserted once, the medals are guided to the slot 13 while being scattered by contact of medal-to-medal, bounce by the bottom 11b and the like.

**[0021]** A frame inside the panel 7a is provided with a selector device (not shown) to discriminate medals inserted from the slot 13. The selector device measures predetermined parameters (such as a weight and diameter) , and guides a medal determined to be proper to the slope.

**[0022]** The guide face 12a of the medal guide portion 12 is configured to come into contact in two points with the outer circumference of a medal when the medal is mounted, where a distance between the two points is preferably smaller than the diameter of the medal. More specifically, the guide face 12a of this embodiment is formed to have a U-shaped cross section, and as shown in FIG. 6, has contact portions P1 such that the outer circumference of a medal M comes into contact with the face 12a in two points when the medal is kept stand substantially vertical to the guide face (when the medal is mounted at any states except the horizontal state with respect to the inclination angle of the guide face), and that a distance of the contact portions. P1 is preferably smaller than the diameter of the medal M. Therefore, a gap is generated between the deepest portion P of the U-shaped cross-section guide face 12a and the lowest edge M1 of the medal, while the contact portions P1 exist under the central position C of the medal, and the medal M is thus unstable in holding itself.

**[0023]** A rectangle opening 11d is formed on a rear wall 11c of the concave portion 11a of the panel 7a to expose the outer circumference surface of a rotation roller 30. In this case, in a constitution where the rotation roller is not disposed, the rear wall 11c is not provided with the opening 11d, and is configured as a wall portion (rear wall) situated at the back of the slot 13. Such a rear wall without the opening acts as a guide to guide a medal to the slot 13 when the medal sliding downward along the guide face 12a comes into contact with the wall.

**[0024]** As shown in FIG. 7, the rotation roller 30 is supported so that the position of the rotation center E (support position) is higher than an edge position (end position of the opening of the slot 13) P2 between the deepest portion P of the guide face 12a and the slot 13. By supporting the rotation roller 30 in such a positional relationship with the guide face 12a of the medal guide portion 12, it is possible to make a contact position of a medal lower than a virtual line X which is passed through the center E of the rotation roller and parallel to the extending direction of the guide face 12a, and it is thus possible to drive and rotate the rotation roller downward reliably. In other words, the contact position of the medal with the rotation roller becomes lower than a position E1 at which the virtual line X intersects the roller outer circumference, and when a medal slides down near the slot and comes into contact at its end face with the rotation roller 30, the rotation roller 30 can be driven to rotate downward with reliability (when a medal contacts a position higher than the position E1, the roller becomes hard to rotate downward). By such downward rotation of the rotation roller 30, the medal contacting the roller converts its position downward with ease by assistance of the weight of the medal as well as the rotation of the rotation roller 30, and is inserted inside the slot 13 smoothly.

**[0025]** In addition, it is actually preferable to set the support position of the rotation roller 30 such that a height H from the deepest portion P to the position E1 is larger than a height h from the deepest portion P when a number of medals (herein, assuming five or six medals) that can generally be picked up the easiest are mounted on the guide face 12a while lying (h<H). In other words, by supporting the rotation roller in such a position, when mounting a number of medals that can be picked up the easiest on the guide face 12a and sliding the medals, since the contact position with the rotation roller 30 is reliably lower than the position E1, the rotation roller 30 is driven to rotate down ward with reliability (in FIG. 7, the virtual line X' is positions where the medal contacts the guide face 12a when the medal is mounted on the guide face 12a while lying).

**[0026]** As described above, installation of the rotation roller 30 on the rear wall portion suppresses contact of medals with the rear wall portion, and the rear wall is thereby prevented from sustaining damage by friction, while disfigurement of the medal contact portion is eliminated.

**[0027]** The rotation roller 30 is preferably formed of, for example, urethane rubber to be low in cost. Further, it is preferable to form means for enhancing friction, for example, knurling 30a on the surface to cause the rotation roller 30 to rotate more easily when coming into contact with a medal. In other words, as the rotation roller 30 rotates more easily, friction is more reduced that interferes with a medal inserted in-the slot 13.

**[0028]** Further, as described above, in the constitution where the rotation roller 30 is provided on the rear wall, as shown in FIGs. 2 and 5, it is preferable that a cover 32 is disposed around the exposed rotation roller. By thus providing the cover around the rotation roller 30, it is possible to effectively cover areas of upper, lower, left and right of the rotation roller 30 exposed from the opening, and it is thus possible to prevent foreign substances from coming inside the housing from gap portions around the rotation roller. In addition, the cover 32 of this embodiment is formed of PA based resin with particle-shapedglassmixedtherein, attached around the opening 11d formed in the rear wall 11c, and configured to expose the surface portion.

**[0029]** According to the game machine configured as described above, as shown in FIG.8, a player can make preparations to start the game by beforehand mounting manymedals on the medal mount 11. Then, by the manymedals mounted in the vicinity of the medal guide portion 12, the player is capable of performing the oper-

ation of inserting medals with ease (the operation of inserting is carried out by simply pushing medals mounted on the medal mount 11 to insert successively the medals in the medal guide portion 12, by the player picking up medals mounted on the medal mount 11 and inserting the medal in the medal guide portion 12, or the like, as described below).

**[0030]** In other words, when performing the operation of inserting medals, a player beforehand mounts many medals on the medal mount 11 provided in the vicinity of the medal guide portion 12, then merely performs the operation of feeding the medals to the guide face 12a of the medal guide portion 12, and thereby is capable of performing the operation of inserting many medals successively with ease.

**[0031]** Then, in the game machine with the above-mentioned configuration, when a player picks up a medal and places the medal on the guide face 12a of the medal guide portion 12 (while letting the medal relatively lie or stand) so as to insert the medal in the slot 13, the medal comes into contact with the guide face 12a in two points of the outer circumference where a distance between the two points is smaller than the diameter, and therefore, becomes unstable. Since the guide face 12a inclines downwardly, when the player takes player's fingers off the medal, the medal is naturally guided toward the slot 13 along the inclined guide face 12a while falling by the weight of the medal and the action of moment. In other words, in inserting a medal, by placing the medal on the guide face 12 and releasing the fingers, the medal slides while falling to be parallel with the inclination by the action of moment due to its weight, comes into contact with the rotation roller 30 situated behind the slot 13, and eventually is inserted in the slot 13, whereby it is possible to perform the operation of inserting medals more smoothly and comfortably.

**[0032]** More specifically, as shown in FIG.9, when simply inserting medals from the medal mount 11 (by pushing medals on the medal mount 11 to insert, picking up a plurality of medals to insert while letting the medals lie, or the like), each of the medals slides downward along the inclined guide face 12a. Then, eventually, each of the medals comes into contact at its end face with the rotation roller 30 sequentially, undergoes downward conversion of its position due to the action of rotation (action of downward rotation) of the rotation roller and the weight of the medal, and is inserted successively without clogging the slot 13.

**[0033]** In this case, if the medals are sliding while being stacked, when the stacked medals contact the rotation roller 30 and undergo position conversion by the rotation of rotation roller 30, a rear end region toward the player side of an uppermost medal of the stacked medals is able to rotate in the direction of the arrow D1 (second and subsequent medals are not able to rotate in the direction of the arrow D1 due to the medal (s) thereon). Thus, the medals are inserted in the slot 13 sequentially from an upper medal while undergoing the position conversion. Meanwhile, medals sliding on a one-by-one basis successively come into contact with the rotation roller 30 sequentially to undergo the position conversion, and are inserted in the slot 13.

**[0034]** Further, in this embodiment, since the guide face 12a is formed to have the U-shaped cross section, in the case of inserting a medal from the medal mount 11 to the side of the medal guide portion 12, of pushing a large number of medals once to insert or the like, as shown by the arrow in FIG.3, a medal located to the side of the central area of the guide face 12a slides toward the center of the extending direction along the surface of the guide face 12a. The medal thus sliding down is acted upon by rolling moment, and gradually shifts to a horizontal state with respect to the inclination of the medal guide portion as nearer the slot 13, as shown by the arrow in FIG.4.

Then, immediately before being inserted in the slot 13, the medal eventually becomes a substantially horizontal state, contacts the rotation roller 30, undergoes position conversion, and is inserted in the slot without change. In other words, even when performing the operation of inserting from the side as described above, by the above-mentioned action (automatic axis adjustment effect of the rolling moment), a medal located to the side of the guide face 12a ultimately becomes a substantially horizontal state that causes the easiest insertion and contacts the rotation roller 30 immediately before being inserted in the slot 13, and is inserted in the slot 13 smoothly.

**[0035]** When a player handles a relatively small number of medals, for example, the player picks up a single medal M from the medal mount 11 and stands the medal substantially vertically to the guide face 12a on the front side of the medal guide portion 12, as shown in FIG.10, the medal contacts the U-shaped medal guide portion 12 in the position P1 (see FIG.6) lower than its center C, and is kept unstable with the lower end floated. At this point, the center position of gravity of the medal M (center position C of the medal) is above the contact position P1, while the inclination face 12a inclines downward, and therefore, an upper portion of the medal M allowed to stand is acted upon by the moment due to its weight of the medal M to fall forward as shown by the arrow in the figure. Then, ultimately, the medal M falls down to be along the surface of the guide face 12a as shown by chain double-dashed lines, and is naturally guided toward the slot 13 without change. The fallen medal contacts the rotation roller 30 in an end face M2 opposed to the rotation roller 30 or in a surface portion M3 outward in the diameter direction by momentum caused by falling down, is converted in position perpendicularly toward the slot 13 due to the action of the rotation (action of the downward rotation) and the weight of the medal, and inserted in the slot 13 smoothly. In other words, only by picking up medals mounted on the medal mount 11 and placing the medals on the medal guide portion 12 while letting the medals stand without any other opera-

tion, the player is capable of performing successive inserting (successive release) of medals with ease.

**[0036]** Moreover, for example, as shown in FIG.11, when a player picks up a single medal M from the medal mount 11 and stands the medal to let it relatively lie on the guide face 12a on the front side of the medal guide portion 12, the medal is kept unstable with the lower end floated. At this point, the center position of gravity of the medal M (center position C of the medal) is above the contact position P1, while the guide face 12a inclines downward, and therefore, an upper portion of the medal M allowed to stand is acted upon by the moment to cause the medal M to fall toward the player side due to its weight of the medal M as shown by the arrow in the figure. Then, ultimately, the medal M falls down to be along the surface of the guide face 12a as shown by chain double-dashed lines, and is naturally guided toward the slot 13 without change. The fallen medal contacts the rotation roller 30 in an end face M4 opposed to the rotation roller, is converted in position perpendicularly toward the slot 13 due to the action of the rotation (action of the downward rotation) and the weight of the medal, and inserted in the slot 13 smoothly.

**[0037]** In addition, in the modes as shown in FIGs. 10 and 11 as described above, also when a player picks up a plurality of medals and takes the fingers off while letting the medals stand on the front side of the guide face 12a of the medal guide portion 12 in the same way as described above, each of the medals comes into contact with the rotation roller 30 sequentially according to the track as described above, and is inserted in the slot 13 successively. Thus, in the case of inserting a small number of medals, it is only required picking up the medals mounted on the medal mount 11 by fingers, placing the medals to let them stand on the front side of the guide face 12a, and taking the fingers off the medals without change. The medals removed from the fingers fall down from an upper portion in a standing state toward the slot side or toward the player side, eventually contact the rotation roller 30 in an end face area opposed to the rotation roller 30 or an outer surface area in the diameter direction, undergo the position conversion due to the action of the rotation, and are inserted in the slot 13. In other words, according to the constitution as described above, it is possible to perform the operation of inserting medals with more smoothly and comfortably.

**[0038]** Further, even in the case of picking up a large number of medals mounted on the medal mount 11 or the like to handle the medals, for example, as shown in FIG.12, a player lets a large number of medals stand on the guide face 12a in multilayer form. At this point, each of the medals moves downward along the guide face 12a sequentially due to its weight, eventually comes into contact with the surface of the rotation roller 30, is guided downward by the rotating rotation roller 30, and inserted in the slot 13 sequentially without change.

**[0039]** As described above, by beforehand mounting a large number of medals on the medal mount 11 in the vicinity of the medal guide portion 12, the need is eliminated of the inserting operation using both hands (such as the inserting operation for holding a container storing medals by one hand, and picking up a medal from the container by the other hand to insert in the slot), and it is thereby possible to insert a large number of medals successively with ease. Further, in the constitution of this embodiment, the rotation roller 30 is disposed, and a medal is thereby easily converted in position to the vertical direction, and thus assisted to be inserted in the slot 13. Therefore, such inconvenience is resolved that inserting of medals in the slot 13 cannot catch up with the operation of inserting .medals, and smooth inserting operation is achieved.

**[0040]** Moreover, the medal guide portion 12 is formed on the bottom 11b inside the concave portion 11a of the medal mount 11, and it is designed inserting a medal from the medal mount 11. By this means, it is possible to regulate the number of medals to insert to some extent, and to insert medals in scattered state. Thus, since it is possible to regulate the number of medals inserted from the medal mount 11, the inserting operation to provide scattered medals can be performed successively. Further, it is possible to prevent a large number of medals from being inserted once into the medal guide portion 12 while exceeding the speed of insertion from the slot 13, and clogging with medals and the like can be suppressed effectively.

**[0041]** The embodiment of the present invention is described in the foregoing, and further, the invention is capable of being modified as described below, for example.

**[0042]** As shown in FIG.13, for example, the back of the slot 13 may be configured as a vertical wall portion (rear wall 11c) without being provided with a rotation roller to guide a medal in contact therewith directly to the slot 13. Further, in the case of providing the rotation roller, the medal guide portion 12 needs only to incline toward the slot, is not limited in the form of a cross section to the shape as shown in FIG.6, and may have a flat-plane-shaped cross section. Furthermore, in the above-mentioned embodiment, the guide face 12a is configured to have the curve portion with the U-shaped cross section so that a medal comes into contact with two points. However, the guide face 12a needs only to have a contact portion such that the outer circumference of a portion smaller than the diameter of a medal comes into contact with the face 12a in at least two points when the medal is mounted, and be in the form of having a gap between the lowest edge of the medal and the contact portion. For example, the guide face 12a may be modified as appropriate to have a V-shaped cross section (having straight line portions) as shown in FIG.14A, a generally U-shaped cross section (having curve portions and straight line portions) as shown in FIG.14B, or asperities on the surface of the guide face 12a.

**[0043]** Further, the medal guide portion 12 in the medal inserting apparatus 10 may extend from the game machine leftward and rightward with respect to a player,

extend obliquely, or have a configuration for a medal to be inserted from the game area side to the player side, opposite to this embodiment.

**[0044]** Furthermore, as another example of the structure of the regulating means as described above, for example, as shown in FIG.15, the medal mount 11 may be provided with regulating walls 45 to regulate the number of medals inserted in the medal guide portion 12. The regulating walls 45 are formed on both sides of the medal guide portion 12 at an opening position on the inserting side, have an opening width W to the extent allowing a single medal to pass through, and are configured so that the medal guide portion 12 is situated within a range of the opening width W. Also in such a structure, since it is possible to regulate the number of medals inserted in the medal guide portion 12 while being pushed out of the medal mount 11, the inserting operation to provide scattered medal can be carried out successively. Naturally, the regulating means needs only to have a structure enabling regulation of the number of medals inserted in the medal guide portion 12, and is not limited to the aforementioned structure.

**[0045]** Moreover, the medal inserting apparatus 10 may have a structure such that the structural members such as the medal mount 11, rotation roller 30 and the like are configured as units in advance and incorporated into the game machine body. Further, the medal mount 11 allowed to mount a large number of medals may be formed to incline toward the medal guide portion 12 to some extent, or configured to have a combination of a horizontal plane and incline plane. Furthermore, in the above-mentioned embodiment, the medal guide portion 12 is formed inside the concave portion so that a medal is inserted from the medal mount 11, but it may be possible to configure an end portion of the medal guide portion 12 and the medal mount 11 on the substantially same plane.

**[0046]** The present invention is applicable to various game machines such as, for example, a slot machine and a machine as shown in FIG.16. As one example, a game machine 200 as shown in the figure is configured so that a card game is carried out in a game area 203, where a medal inserting apparatus 10 having the medal mount 11 as described above is provided in a front plate (base) 12 of a front door 202 that is part of the housing.

**[0047]** The above-mentioned medal inserting apparatus in the present invention is applicable to various apparatuses in which a medium such as a coin or medal is inserted, other than the above-described game machines, such as, for example, a vending machine and ticket dispenser that issues various tickets.

**[0048]** Additional advantages and modifications will readily occur to those skilled in the art. Therefore, the invention in its broader aspects is not limited to the specific details and representative embodiments shown and described herein. Accordingly, various modifications may be made without departing from the spirit or scope of the general inventive concept as defined by the appended claims and their equivalents.

## Claims

1. A game machine having a game media inserting apparatus (10) provided with a slot (13) that receives a game medium, **characterized by** comprising;
   a game media guide portion (12) having a guide face (12a) that inclines downward toward the slot (13) and that guides the game medium; and
   a game media mount (11) that is provided in the vicinity of the game media guide portion (12) and that enables a large number of game media to be mounted thereon,
   wherein the guide face (12a) has contact portions that come into contact with an outer circumference of the game medium in two points when the game medium is mounted on the guide face (12a), while a distance between the contact portions is smaller than the diameter of the game medium.

2. The game machine according to claim 1, **characterized by** further comprising:

   a rotation roller (30) that rotates to convert a position of the game medium toward the slot by coming into contact with the game medium guided by the guide face (12a).

3. The game machine according to claim 2, **characterized in that** the rotation roller (30) is supported rotatably at a position higher than a position (P2) of an opening end of the slot (13).

4. The game machine according to claim 2, **characterized in that** knurling (30a) is provided on a surface of the rotation roller (30).

5. The game machine according to any one of claims 2 to 4, **characterized in that** the rotation roller (30) is supported to expose a surface thereof from an opening (11d) formed on a rear wall (11c) with which the game medium sliding down along the guide face (12a) comes into contact, and that the opening is provided with a cover to (32) prevent a foreign substance from entering from around the rotation roller.

6. The game machine according to any one of claims 1 to 5, **characterized in that** the game media mount (11) is provided with regulating means for regulating a number of game media to be inserted in the game media guide portion (12) .

7. The game machine according to claim 6, **characterized in that** the regulating means is provided on the game media mount (11) and has regulating walls (45) provided with an opening width (W) to an extent

allowing the game medium to pass through toward the game media guide portion (12) .

**8.** The game machine according to any one of claims 1 to 7, **characterized in that** a concave portion (11a) is formed on the game media mount (11), and that the game media guide portion (12) is formed on a bottom (11b) of the concave portion.

**9.** The game machine according to claim 8, **characterized in that** the game media mount (11) has an area enabling game media to be mounted to both sides and at the front of the concave portion.

**10.** The game machine according to any one of claims 1 to 9, **characterized in that** the game media guide portion (12) is formed integrally with the game media mount (11).

**11.** The game machine according to any one of claims 1 to 10, **characterized in that** the game media guide portion (12) has a length longer than an outer diameter of the game medium to be used.

**12.** The game machine according to any one of claims 1 to 11, **characterized in that** the guide face (12a) has a U-shaped cross section.

**13.** A game machine having a game media inserting apparatus (10) provided with a slot (13) that receives a game medium, **characterized by** comprising;
a game media guide portion (12) having a guide face (12a) that inclines downward toward the slot (13) and that guides the game medium; and
a game media mount (11) that is provided in the vicinity of the game media guide portion (12) and that enables a large number of game media to be mounted thereon,
wherein the guide face (12a) has a shape of generating a gap between the guide face and an outer circumference of the game medium when the game medium is allowed to stand substantially vertically to the guide face.

**14.** A game machine having a game media inserting apparatus (10) provided with a slot (13) that receives a game medium, **characterized by** comprising;
a game media guide portion (12) having a guide face (12a) that inclines downward toward the slot (13) and that guides the game medium;
a game media mount (11) that is provided in the vicinity of the game media guide portion (12) and that enables a large number of game media to be mounted thereon; and
a rotation roller (30) that rotates to convert a position of the game medium toward the slot (13) by coming into contact with the game medium guided by the guide face (12a) .

**15.** The game machine according to claim 14, **characterized in that** the rotation roller (30) is supported rotatably at a position higher than a position (P2) of an opening end of the slot (13).

**16.** The game machine according to claim 14 or 15, **characterized in that** the guide face (12a) has contact portions (P1) that come into contact with an outer circumference of the game medium in two points when the game medium is mounted on the guide face, while a distance between the contact portions is smaller than the diameter of the game medium.

**17.** A media inserting apparatus (10) provided with a slot (13) that receives a medium, **characterized by** comprising;
a media guide portion (12) having a guide face (12a) that inclines downward toward the slot (13) and that guides the medium; and
a media mount (11) that is provided in the vicinity of the media guide portion (12) and that enables a large number of media to be mounted thereon,
wherein the guide face (12a) has contact portions that come into contact with an outer circumference of the medium in two points when the medium is mounted on the guide face (12a), while a distance between the contact portions is smaller than the diameter of the medium.

**18.** The media inserting apparatus (10) according to claim 17, **characterized by** further comprising:

a rotation roller (30) that rotates to convert a position of the medium toward the slot by coming into contact with the medium guided by the guide face (12a) .

**19.** The media inserting apparatus (10) according to claim 17 or 18, **characterized in that** the guide face (12a) has a U-shaped cross section.

**20.** A media inserting apparatus (10) provided with a slot (13) that receives a medium, **characterized by** comprising;
a media guide portion (12) having a guide face (12a) that inclines downward toward the slot (13) and that guides the medium; and
a media mount (11) that is provided in the vicinity of the media guide portion (12) and that enables a large number of media to be mounted thereon,
wherein the guide face (12a) has a shape of generating a gap between the guide face and an outer circumference of the medium when the medium is allowed to stand substantially vertically to the guide face.

**21.** A media inserting apparatus (10) provided with a slot (13) that receives a medium, **characterized by** com-

prising;
a media guide portion (12) having a guide face (12a) that inclines downward toward the slot (13) and that guides the medium;
a media mount (11) that is provided in the vicinity of the media guide portion (12) and that enables a large number of media to be mounted thereon; and
a rotation roller (30) that rotates to convert a position of the medium toward the slot (13) by coming into contact with the medium guided by the guide face (12a).

**22.** The media inserting apparatus (10) according to claim 21, **characterized in that** the guide face (12a) has contact portions (P1) that come into contact with an outer circumference of in two points when the medium is mounted on the guide face, while a distance between the contact portions is smaller than the diameter of the medium.

FIG. 1

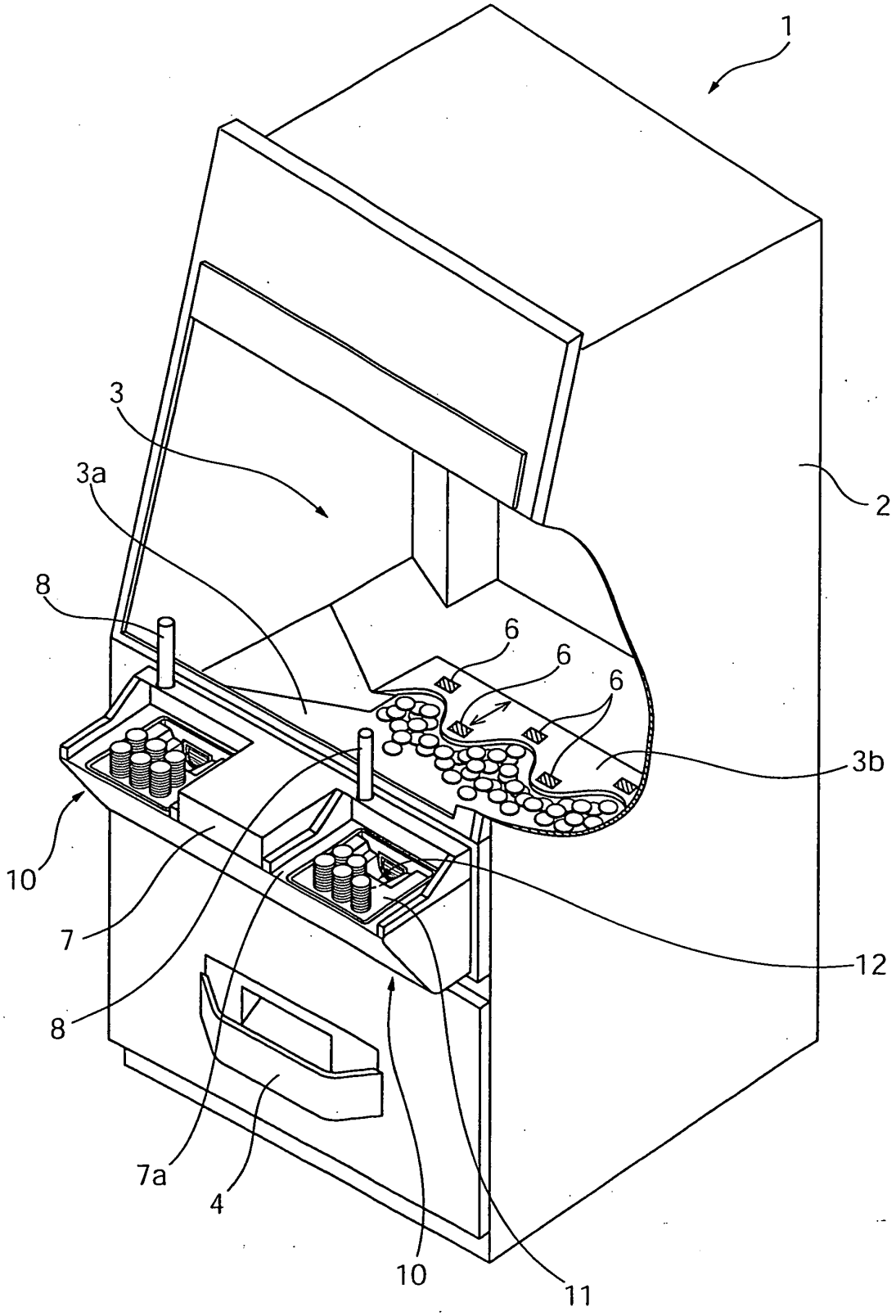
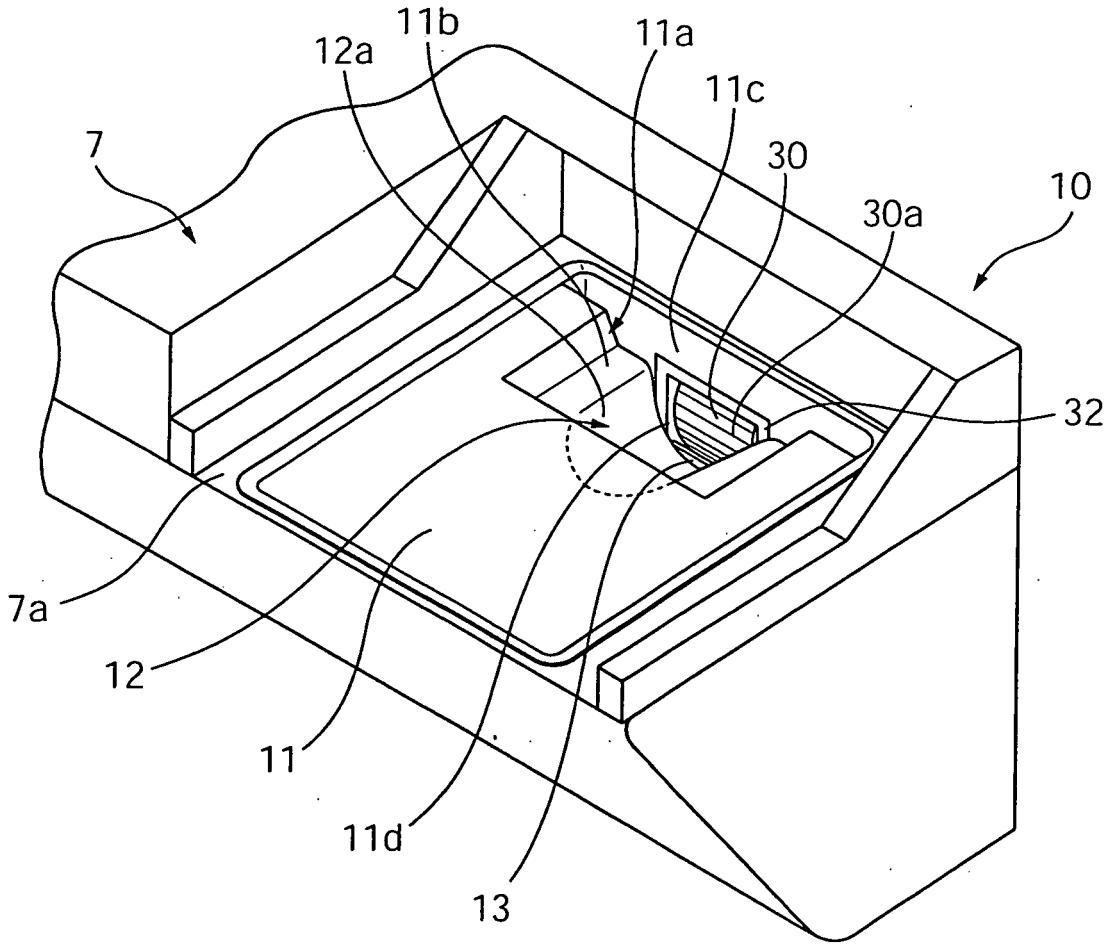


FIG. 2



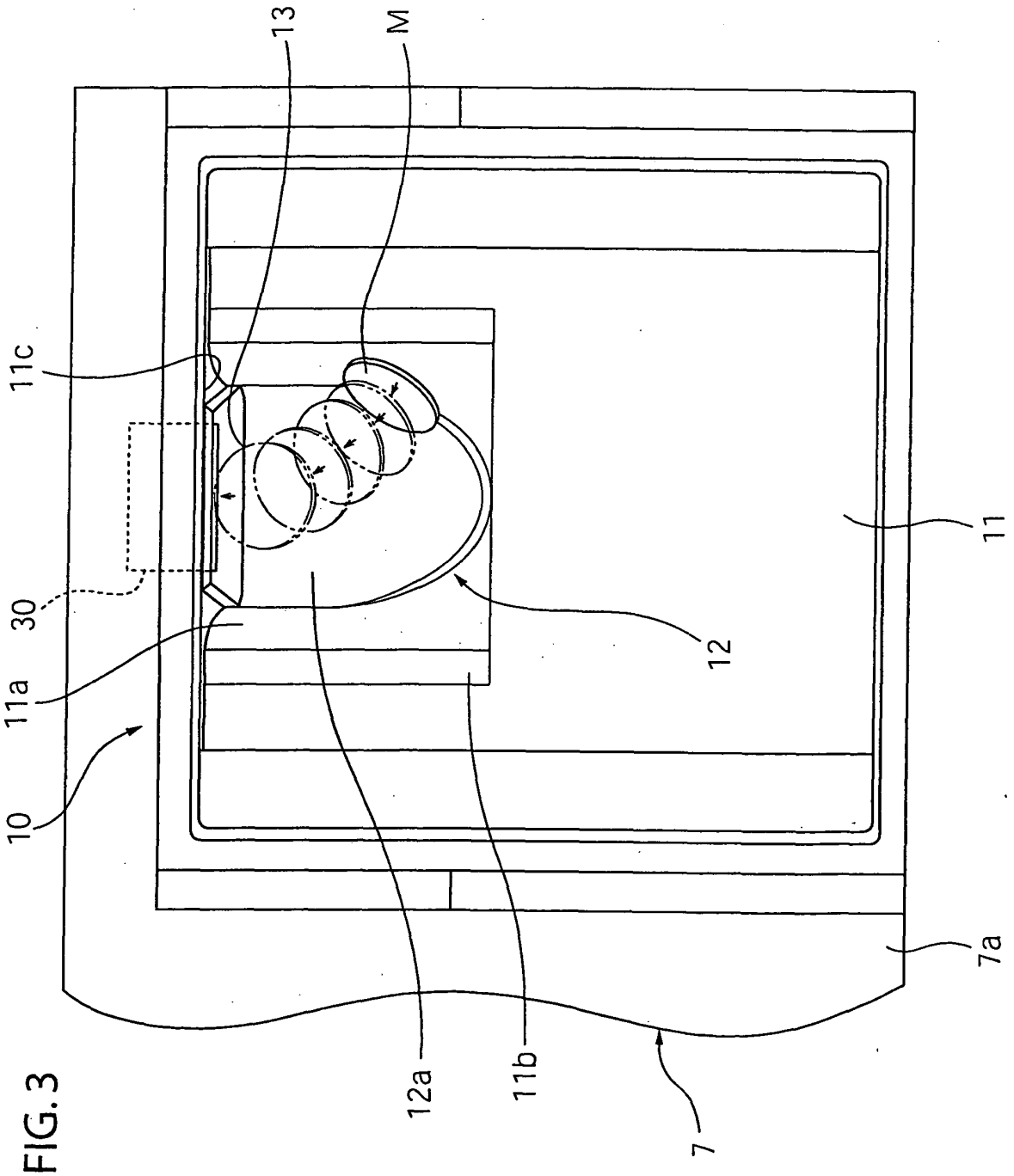



FIG. 3

FIG. 4

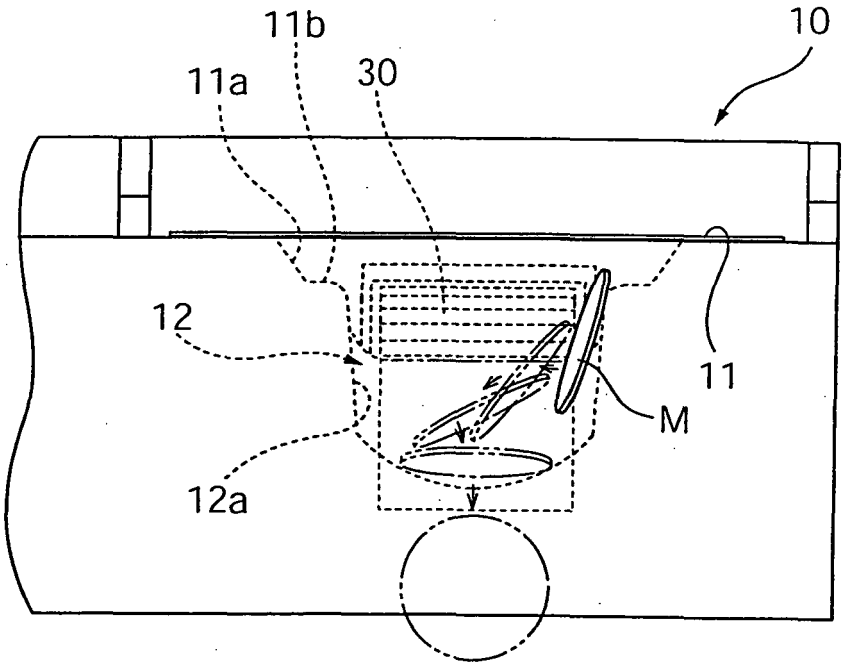


FIG. 5

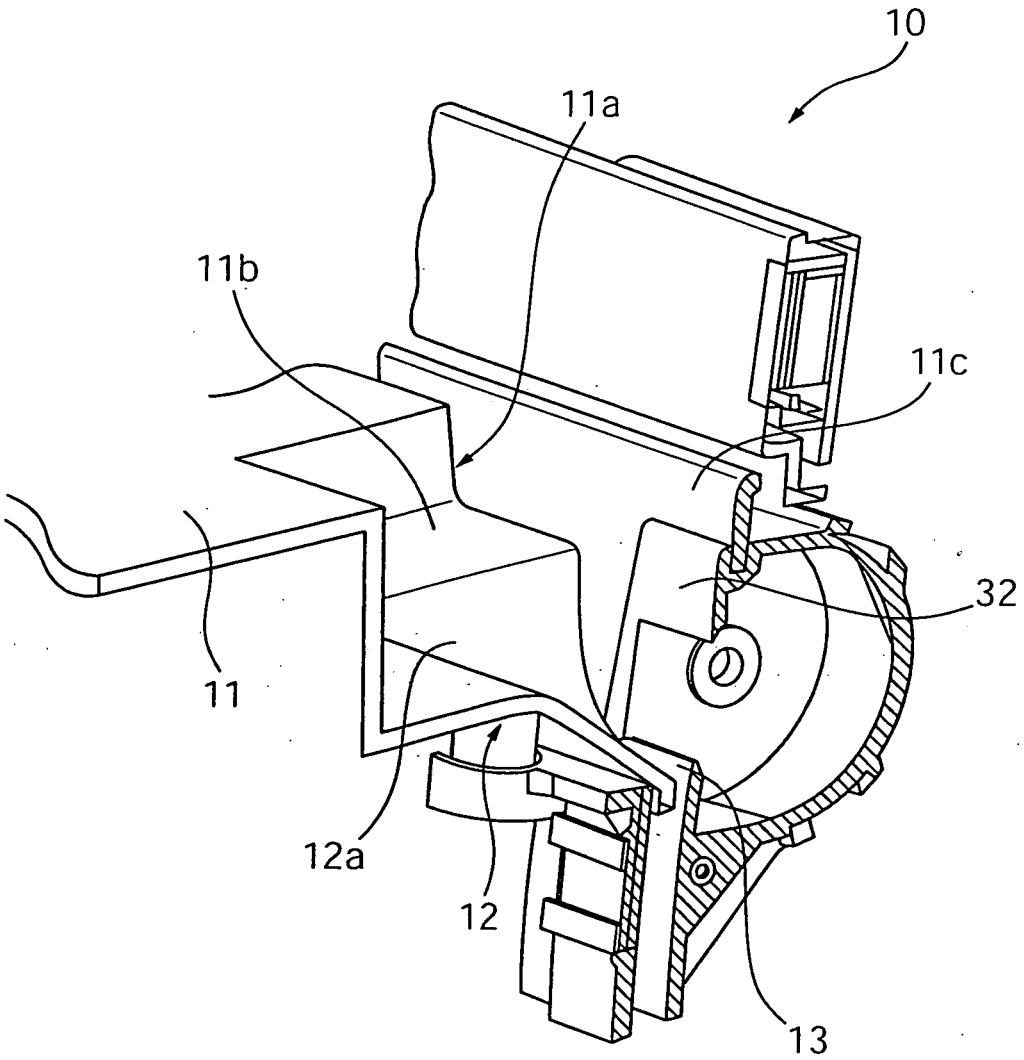


FIG. 6

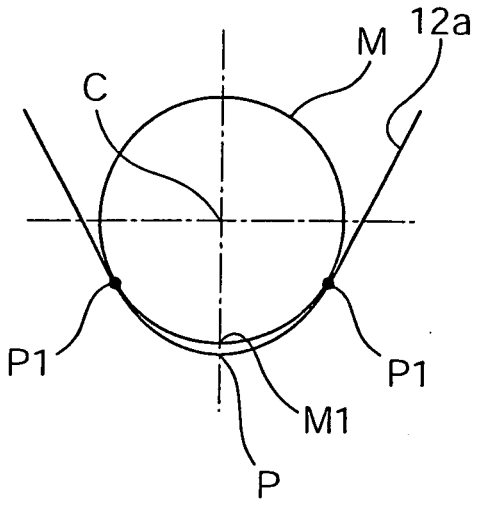



FIG. 7

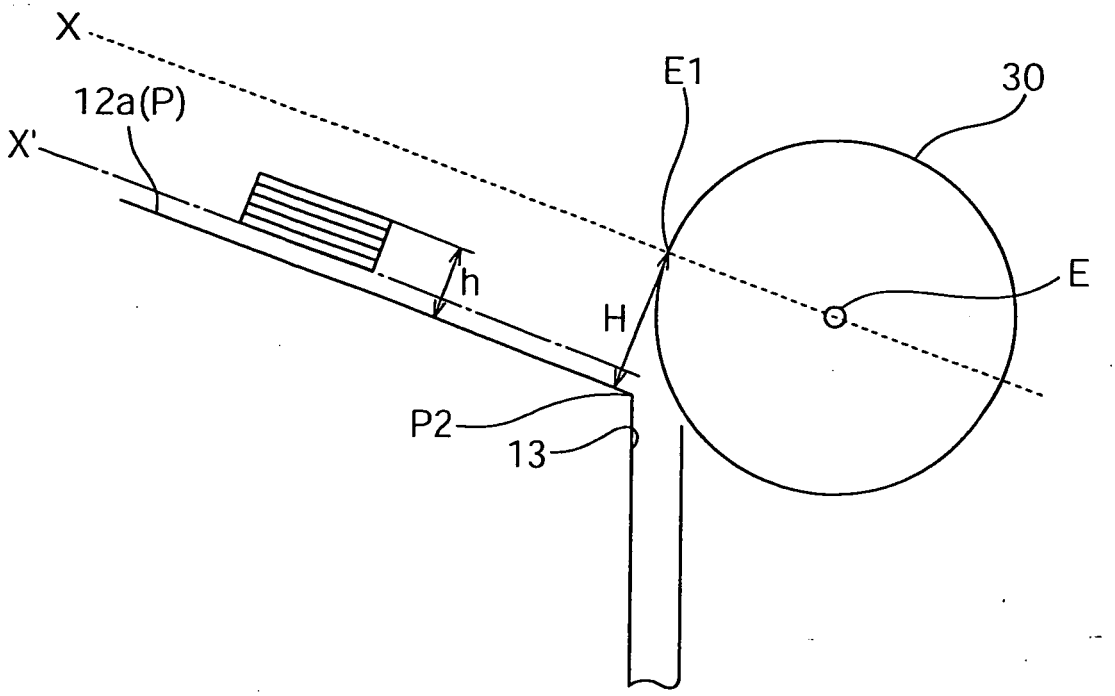


FIG. 8

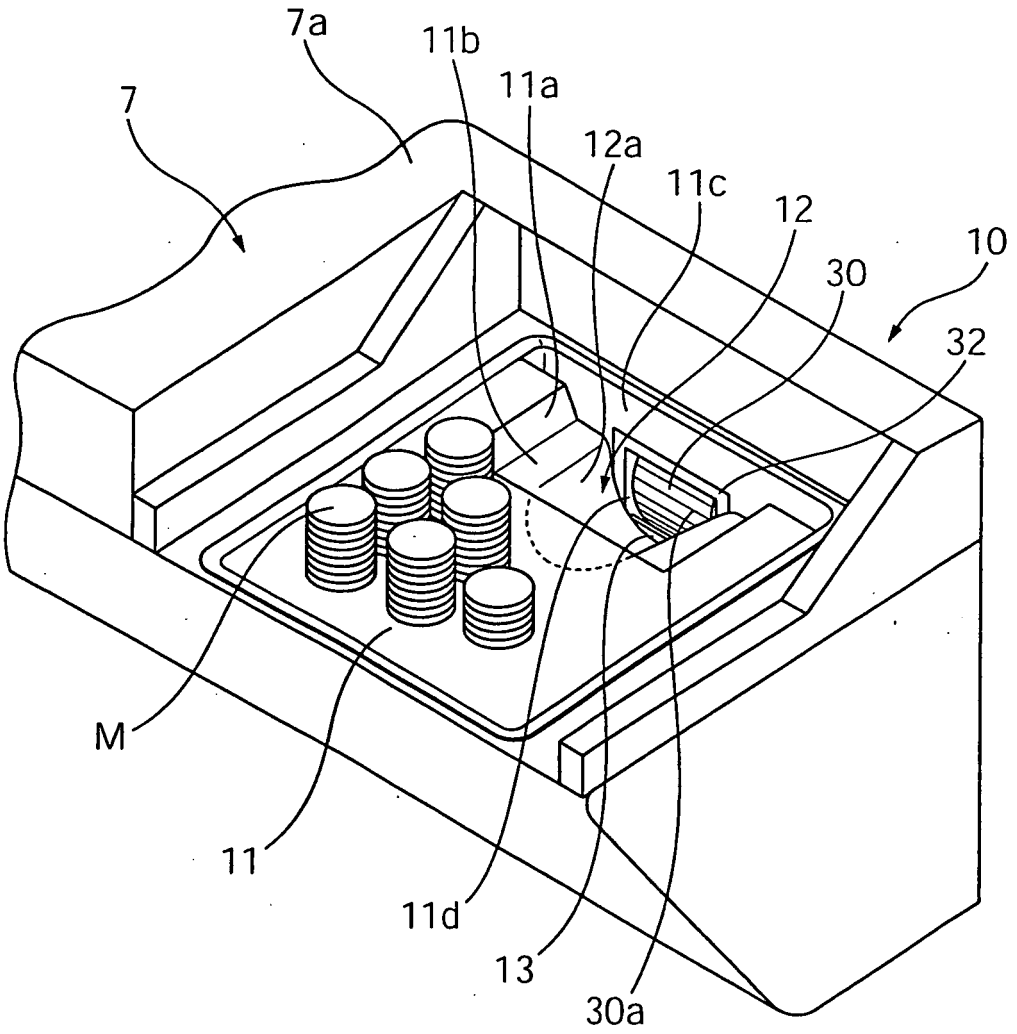


FIG. 9

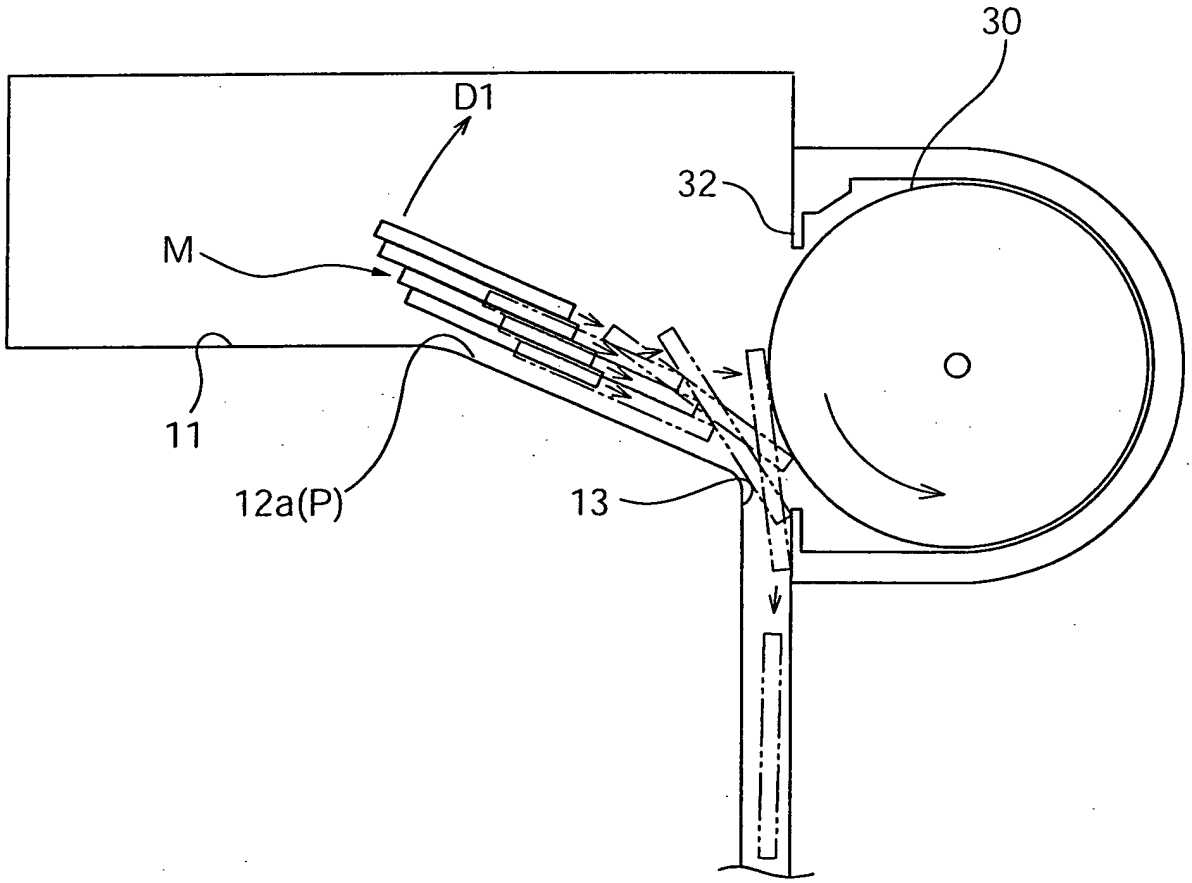


FIG. 10

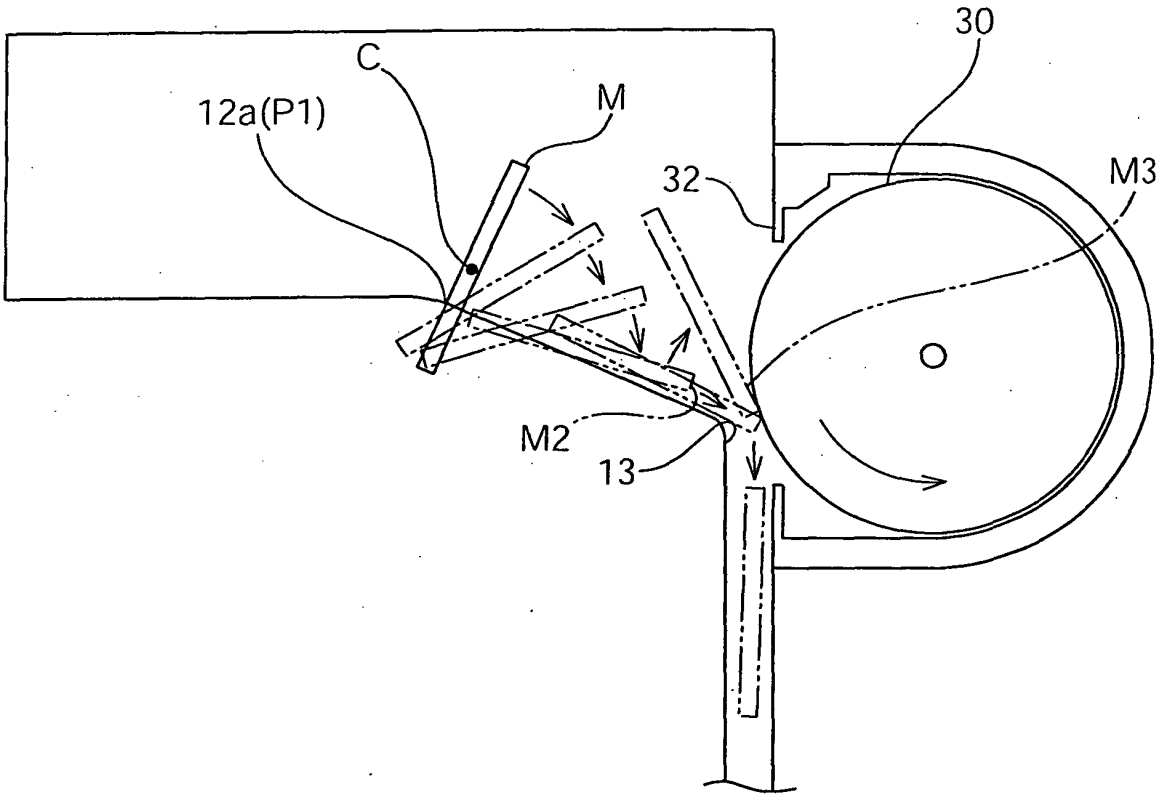


FIG. 11

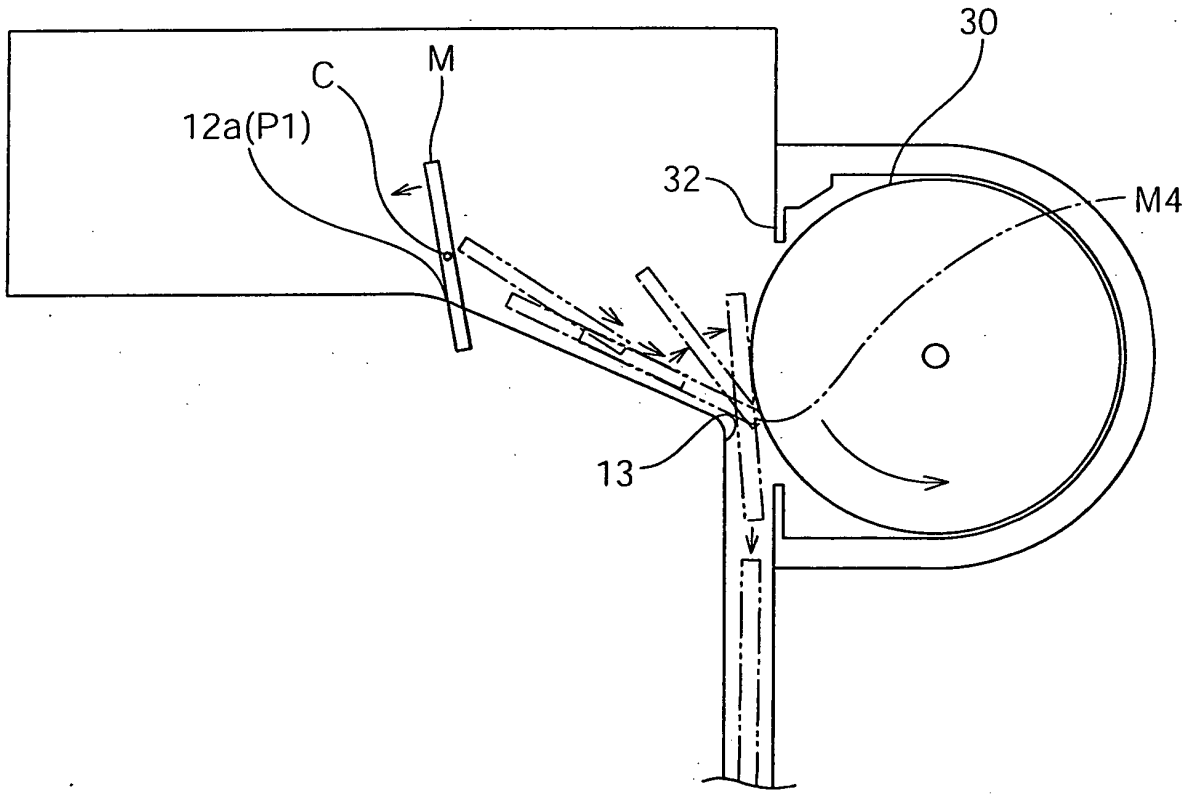


FIG. 12

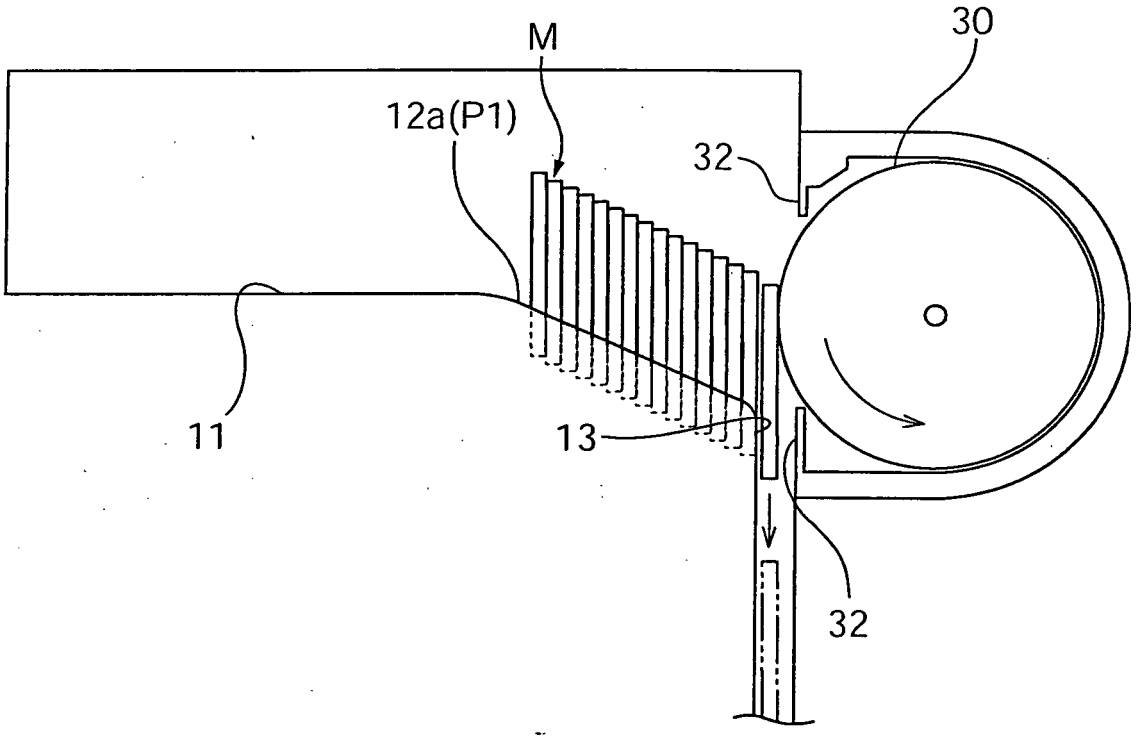


FIG. 13

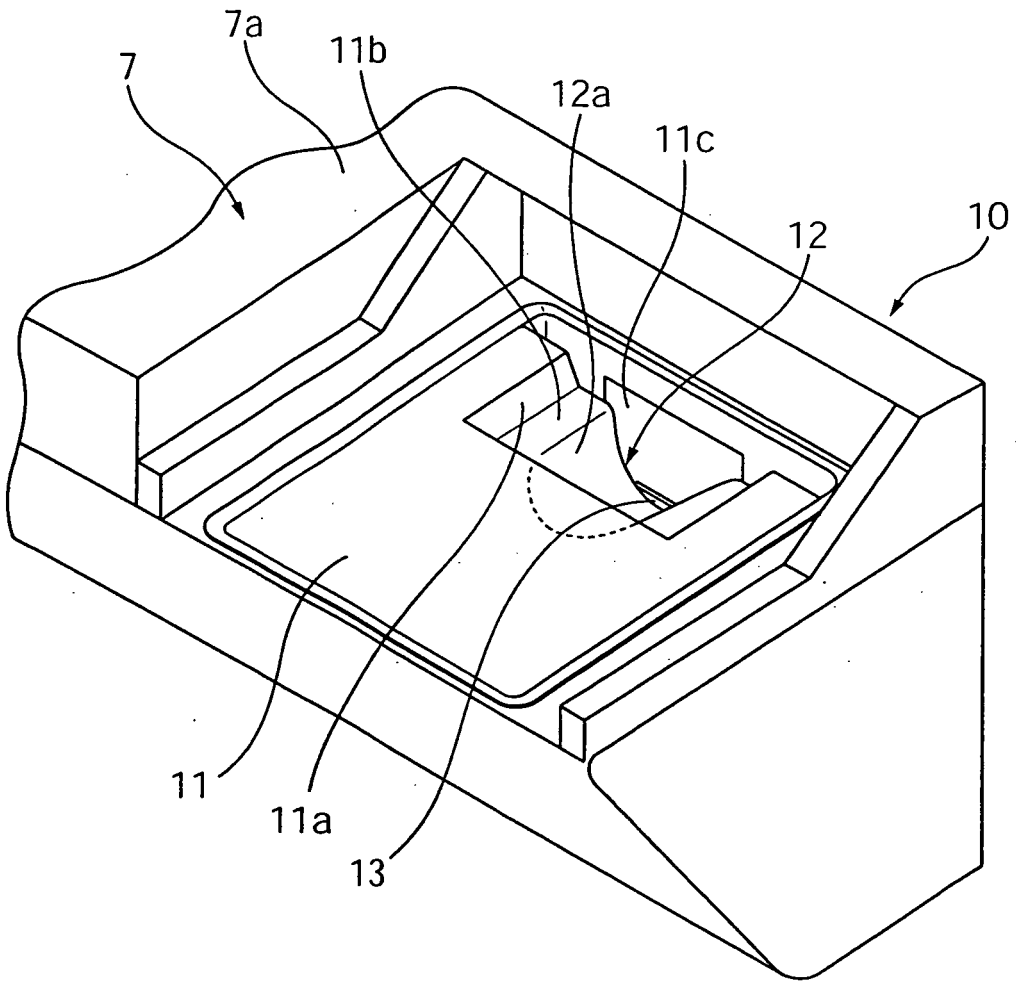


FIG. 14A

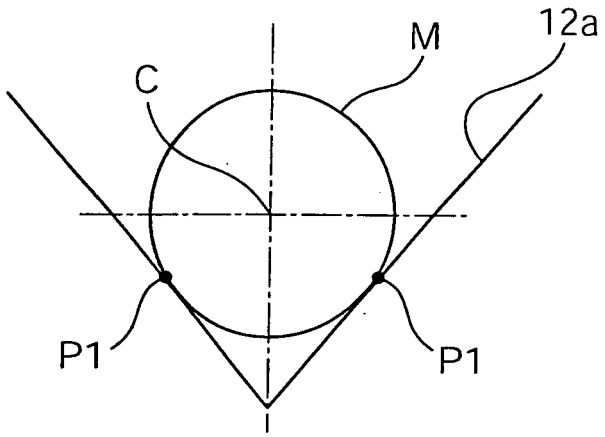



FIG. 14B

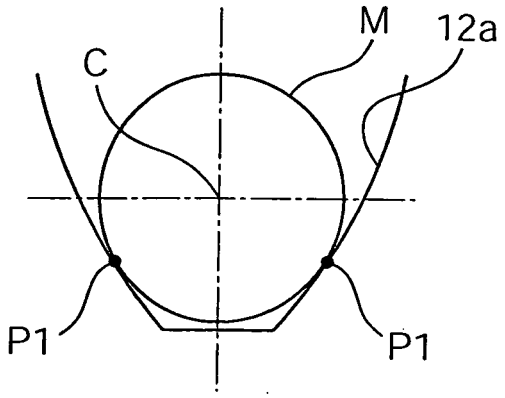


FIG. 15

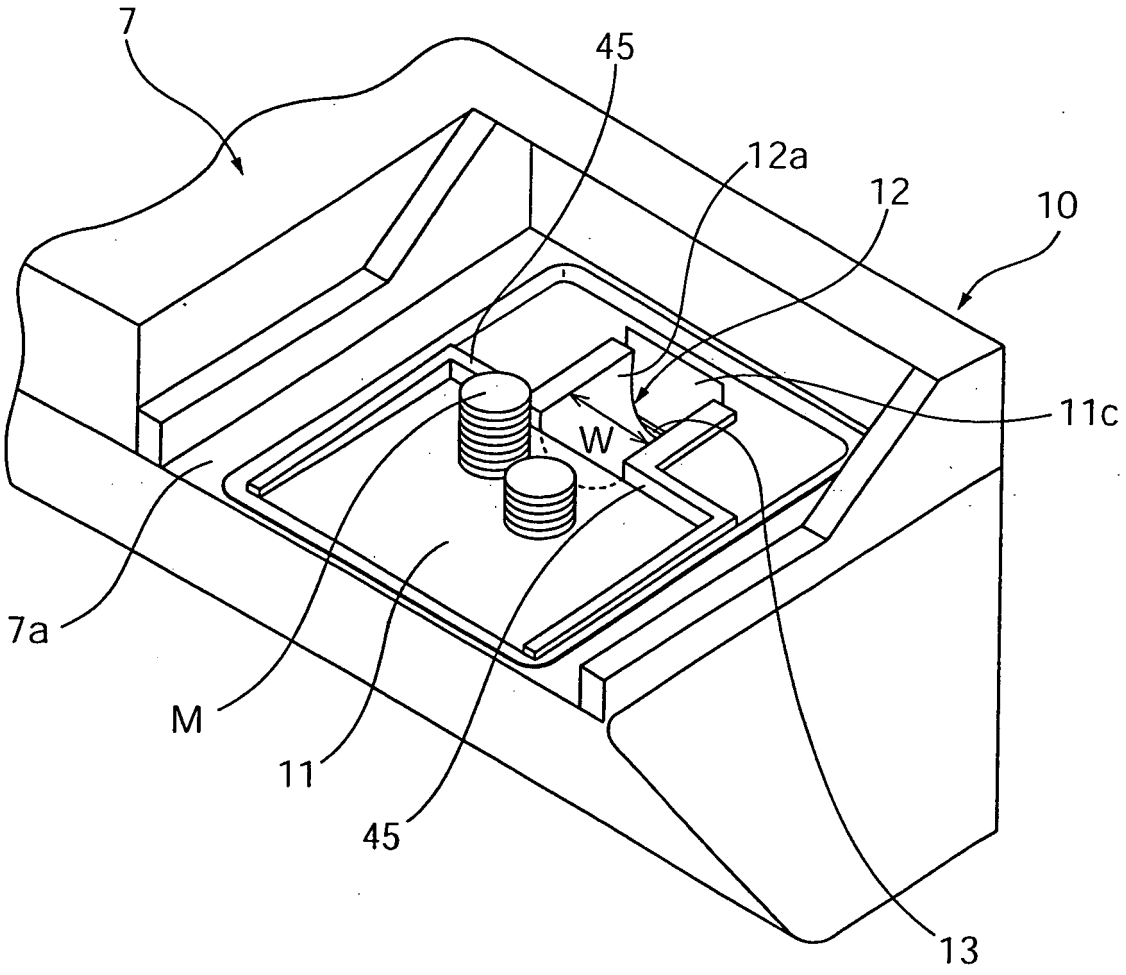
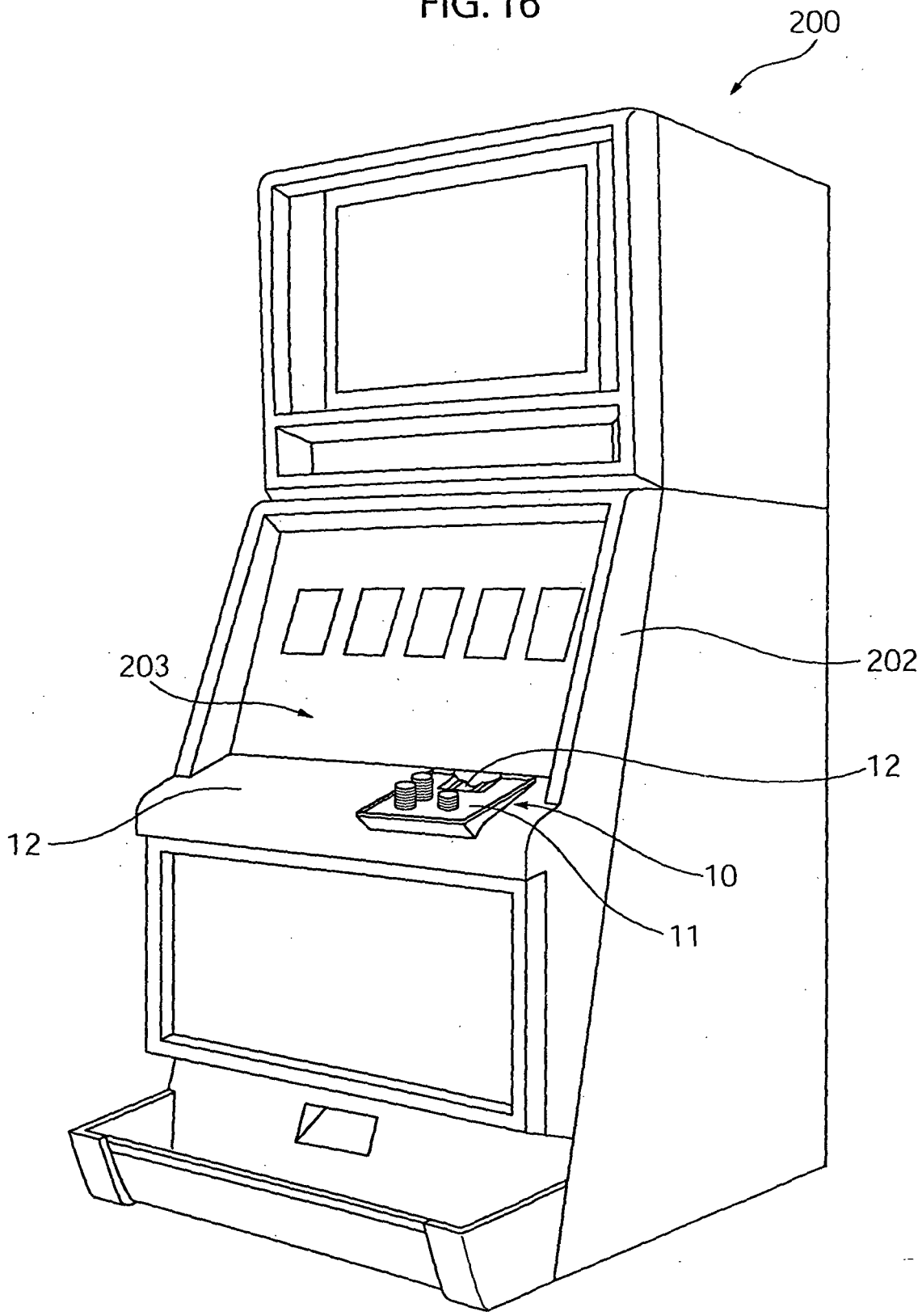


FIG. 16



European Patent Office

# EUROPEAN SEARCH REPORT

Application Number
EP 05 01 6966

## DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (IPC) |
|---|---|---|---|
| X | PATENT ABSTRACTS OF JAPAN<br>vol. 2002, no. 04,<br>4 August 2002 (2002-08-04)<br>& JP 2001 340529 A (EIPEKKUSU:KK),<br>11 December 2001 (2001-12-11) | 1,6-13,<br>17,19,20 | G07F1/02<br>G07F17/38 |
| Y | * abstract * | 2-5,16,<br>18,22 | |
| | ----- | | |
| X | PATENT ABSTRACTS OF JAPAN<br>vol. 1995, no. 05,<br>30 June 1995 (1995-06-30)<br>& JP 07 037142 A (SANDEN CORP),<br>7 February 1995 (1995-02-07) | 14,15,21 | |
| Y | * abstract * | 2-5,16,<br>18,22 | |
| | ----- | | |

TECHNICAL FIELDS SEARCHED (IPC)

G07F
G07D

The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| The Hague | 13 December 2005 | Bohn, P |

CATEGORY OF CITED DOCUMENTS

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L : document cited for other reasons

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## ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 05 01 6966

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13-12-2005

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---|---|---|
| JP 2001340529 A | 11-12-2001 | NONE | |
| JP 07037142 A | 07-02-1995 | NONE | |

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82