holds the disc-shaped chip, the lower chip holder holds the rectangular plate-shaped chip, the RFID chip reader is configured to read the RFID tags of the disc-shaped chip and the rectangular plate-shaped chip, held in the double chip tray, and to determine a respective amount. The disc-shaped chip can be held in a vertical position along a tube provided in the double chip tray. The rectangular plate-shaped chip can be held in the double chip tray in a vertical or flat position. The RFID chip reader is capable of reading the RFID tags embedded in the disc-shaped chips or rectangular plate-shaped chips, whether the disc-shaped chips or rectangular plate-shaped chips are placed vertically or flatly in the double chip tray

[0012]

With this configuration, even when a round chip and a plaque chip are held in a double chip tray, the RFID tags embedded in either chip can be read to determine the amount of the chips.

[0013]

In the above double chip tray, the disc-shaped chips may be placed vertically, and the rectangular plate-shaped chips may be placed vertically or flat. That is, in the above double chip tray, the disc-shaped chip may be allowed to be held in a vertical position along a tube provided in the double chip tray, the rectangular plate-shaped chip may be allowed to be held in the double chip tray in a vertical or flat position, and the RFID chip reader may be capable of reading the RFID tags of the disc-shaped chip in the vertical position and the rectangular plate-shaped chip in the vertical or flat position.

[0014]

This configuration makes it possible to read the RFID tags of the vertically placed round chip and the vertically or flatly placed plaque chip even when they are mixed in the double chip tray.

[0015]

In the double chip tray described above, the RFID chip reader may read the RFID tags of the vertically and horizontally placed chips, respectively. That is, in the above double chip tray, the RFID chip reader may be capable of reading the RFID tags embedded in the disc-shaped chips or rectangular plate-shaped chips, whether the

disc-shaped chips or rectangular plate-shaped chips are placed vertically or flatly in the double chip tray.

[0016]

With this structure, the RFID tags of the chips held in any of the vertical and horizontal orientations can be read.

[0017]

In the double chip tray described above, the RFID chip reader may read the RFID tags of the chips placed vertically on the upper chip holder. That is, in the above double chip tray, the upper chip holder may be capable of holding the disc-shaped chips or the rectangular plate-shaped chips in a vertical position along the tube, and the RFID chip reader may be capable of reading the RFID tags of the disc-shaped chips or the rectangular plate-shaped chips placed vertically in the upper chip holder.

[0018]

This configuration enables the RFID chip reader to read the RFID tags of chips placed vertically in the upper section.

[0019]

In the double chip tray described above, the RFID chip reader may read the RFID tags of the chips placed vertically and flat, respectively, in the lower chip holder. That is, in the above double chip tray, the lower chip holder may be capable of holding the disc-shaped chips or rectangular plate-shaped chips in vertical and flat positions, and the RFID chip reader may be capable of reading the RFID tags of the disc-shaped chips or the rectangular plate-shaped chips placed vertically and flatly in the lower chip holder.

[0020]

With this configuration, the RFID tags of any of the chips placed vertically and flat in the lower chip holder can be read.

[0021]

In the above double chip tray, the RFID chip reader may read the RFID tags of the chips placed vertically and flat, respectively, in the upper chip holder. That is, in the above double chip tray, the RFID chip reader may also be capable of reading the RFID tags of the disc-shaped chips or the rectangular plate-shaped chips held flatly in the upper chip holder.

[0022]

With this configuration, the RFID tags of any of the chips placed vertically and flatly in the upper chip holder can be read.

[0023]

In the above double chip tray, there may be antennas in the upper chip holder and the lower chip holder, respectively. That is,

With this structure, it is possible to determine whether or not the redemption to the chips that were bet by the winning player has been correctly made.

[0040]

In the above game management system, it may be checked whether the total amount of the chip tray after the collection and payment is correct. That is, in the game management system described above, the management control device may calculate a calculated total amount of the chips that should be in the double chip tray, compare the calculated total amount with an actual total amount of chips in the double chip tray after the settlement, and determine whether there is a difference between the calculated total amount and the actual total amount, wherein the management control device may calculate the calculated total amount of the chips by adding an amount of the chips to be collected to and subtracting an amount of the chips to be paid-out from a total amount of chips in the double chip tray before the settlement of each game, wherein the amount of the chips to be collected and the amount of the chips to be paid-out may be calculated based on the winning/losing result determined by the winning/losing result determination device and a determination result of the table chip determination device.

[0041]

With this configuration, it is possible to verify whether the settlement has been performed correctly.

[0042]

The chip tray of one aspect of the present disclosure can house two types of chips of different shapes and/or sizes, and can read the RFID tags of both vertically and flat chips. That is, a chip tray according to another aspect of the present disclosure is a chip tray equipped with an RFID chip reader capable of reading disc-shaped chips and rectangular plate-shaped chips that incorporate RFID tags, wherein each of the disc-shaped chips and rectangular plate-shaped chips incorporates at least one RFID tag associated with a denomination of the chip, the RFID chip reader is configured to read the RFID tags of the disc-shaped chip and the rectangular plate-shaped chip, held in the

chip tray, and to determine a respective amount, the disc-shaped chip can be held in a vertical position along a tube provided in the chip tray, the rectangular plate-shaped chip can be held in the chip tray in a vertical or flat position, and the RFID chip reader is capable of reading the RFID tags embedded in the disc-shaped chips or rectangular plate-shaped chips, whether the disc-shaped chips or rectangular plate-shaped chips are placed vertically or flatly in the chip tray.

[0043]

With this structure, even when a chip tray contains a round chip and a plaque chip, the RFID tags embedded in either chip can be read to determine the amount of the chips.

Brief Description of the Drawings

[0044]

Fig. 1 shows a configuration of a game management system including the chip tray of an embodiment of the present disclosure;

Fig. 2 shows an example of a playing card of an embodiment of the present disclosure;

Fig. 3 shows an example of a round chip of an embodiment of the present disclosure;

Fig. 4 shows an example of a plaque chip of an embodiment of the present disclosure;

Fig. 5 shows a plan view of the chip tray of an embodiment of the present disclosure;

Fig. 6 shows a cross-sectional view of the chip tray of an embodiment of the present disclosure;

Fig. 7 shows a plan view of a chip tray with the upper chip holder open of an embodiment of the present disclosure;

Fig. 8 shows a plan view of another example of a chip tray of an embodiment of the present disclosure;

Fig. 9 shows a cross-sectional view of another example of a chip tray of an embodiment of the present disclosure;

Fig. 10 shows a cross-sectional view of another example of a chip tray of an embodiment of the present disclosure; and

Fig. 11 shows a variation of the chip of an embodiment of the present disclosure.

Claims:

1. A double chip tray comprising:

an RFID chip reader capable of reading disc-shaped chips and rectangular plate-shaped chips that incorporate RFID tags;

an upper chip holder that can hold the chips; and

a lower chip holder that can hold the chips, wherein

each of the disc-shaped chips and rectangular plate-shaped chips incorporates at least one RFID tag associated with a denomination of the chip,

the upper chip holder holds the disc-shaped chip,

the lower chip holder holds the rectangular plate-shaped chip,

the RFID chip reader is configured to read the RFID tags of the disc-shaped chip and the rectangular plate-shaped chip, held in the double chip tray, and to determine a respective amount,

the disc-shaped chip can be held in a vertical position along a tube provided in the double chip tray,

the rectangular plate-shaped chip can be held in the double chip tray in a vertical or flat position, and

the RFID chip reader is capable of reading the RFID tags embedded in the disc-shaped chips or rectangular plate-shaped chips, whether the disc-shaped chips or rectangular plate-shaped chips are placed vertically or flatly in the double chip tray.

2. The double chip tray according to claim 1, wherein

the upper chip holder is capable of holding the disc-shaped chips in a vertical position along the tube, and

the RFID chip reader is capable of reading the RFID tags of the disc-shaped chips placed vertically in the upper chip holder.

3. The double chip tray according to claim 1 or 2, wherein

the lower chip holder is capable of holding rectangular plate-shaped chips in vertical and flat positions, and

the RFID chip reader is capable of reading the RFID tags of the rectangular plate-shaped chips placed vertically and flatly in the lower chip holder.

4. The double chip tray according to claim 3, wherein the RFID chip reader is also capable of reading the RFID tags of the disc-shaped chips held flatly in the upper chip holder.

5. The double chip tray according to any one of claims 1 to 4, wherein the RFID chip reader is provided with a plurality of RFID antennas, the plurality of RFID antennas being located in each of the upper chip holder and the lower chip holder.

6. The double chip tray according to any one of claims 1 to 5, wherein when each of the disc-shaped chips or the rectangular plate-shaped chips is provided with a plurality of RFID tags, the RFID chip reader is capable of recognizing the plurality of RFID tags as being incorporated in the same disc-shaped chip or the same rectangular plate-shaped chip.

7. The double chip tray according to any one of claims 1 to 6, wherein a total amount of each of the disc-shaped chips and rectangular plate-shaped chips contained in the double chip tray is determined based on the reading of the RFID tags.

8. The double chip tray according to any one of claims 1 to 7, further comprising a connecting mechanism configured to connect the upper chip holder to the lower chip holder and move the upper chip holder between a first position that covers the lower chip holder from above and a second position that is displaced from the lower chip holder to open the upper surface of the lower chip holder.

9. The double chip tray according to claim 8, further comprising a determination device configured to determine whether or not there is a variation in a sum of information of the RFID tags stored in the double chip tray before and after a movement of the upper chip holder by the connecting mechanism.

10. The double chip tray according to claim 9, further comprising

a display device configured to display a result of a determination of the determination device.

11. A game management system comprising:

a double chip tray according to any one of claims 1 to 10;

a winning/losing result determination device configured to determine a winning/losing result of each game on a game table;

a table chip determination device capable of identifying locations, attributes, and amount of chips placed on the game table; and

a management control device capable of identifying the attributes and amounts of the chips in the double chip tray and the chips on the game table based on the results of the reading of an RFID chip reader of the double chip tray and the results of a determination of the table chip determination device, wherein

the management control device is capable of determining that the chips being wagered in the game and to be collected have been collected to the double chip tray, based on the winning/losing result determined by the winning/losing result determination device, a reading result of the RFID chip reader, and a determination result of the table chip determination device, when collections of losing chips wagered by each player in each game has been completed.

12. The game management system according to claim 11, wherein the management control device is capable of determining that a payout to winning chips has been performed using the chips contained in the double chip tray, based on the winning/losing result determined by the winning/losing result determination device, a reading result of the RFID chip reader, and a determination result of the table chip determination device, when payouts to the winning chips wagered by each player in each game has been completed.

13. The game management system according to claim 12, wherein

the management control device is configured to calculate a calculated total amount of the chips that should be in the double chip tray, compare the calculated total amount with an actual total

amount of chips in the double chip tray after the settlement, and determine whether there is a difference between the calculated total amount and the actual total amount,

the management control device is configured to calculate the calculated total amount of the chips by adding an amount of the chips to be collected to and subtracting an amount of the chips to be paid-out from a total amount of chips in the double chip tray before the settlement of each game, and

the amount of the chips to be collected and the amount of the chips to be paid-out is calculated based on the winning/losing result determined by the winning/losing result determination device and a determination result of the table chip determination device.

14. A chip tray equipped with an RFID chip reader capable of reading disc-shaped chips and rectangular plate-shaped chips that incorporate RFID tags, wherein

each of the disc-shaped chips and rectangular plate-shaped chips incorporates at least one RFID tag associated with a denomination of the chip,

the RFID chip reader is configured to read the RFID tags of the disc-shaped chip and the rectangular plate-shaped chip, held in the chip tray, and to determine a respective amount,

the disc-shaped chip can be held in a vertical position along a tube provided in the chip tray,

the rectangular plate-shaped chip can be held in the chip tray in a vertical or flat position, and

the RFID chip reader is capable of reading the RFID tags embedded in the disc-shaped chips or rectangular plate-shaped chips, whether the disc-shaped chips or rectangular plate-shaped chips are placed vertically or flatly in the chip tray.