the chip.

[0005]

In a card game monitoring system disclosed in WO 2015/107902 A, fraud monitoring is performed by determining through image analysis of movement of chips whether or not the chips placed on a gaming table are collected or redeemed in accordance with a win or lose result.

SUMMARY

[0006]

The present disclosure seeks to provide a new system for detecting fraud in a game in a casino or an error or fraud at the time of wagering chips or doing settlement.

[0006a]

According to an aspect of the present invention, there is provided a management system in a casino, the management system comprising: a gaming table that has a chip tray and betting areas; a first chip recognizing device, wherein the first chip recognizing device is configured to recognize positions, types, and numbers of gaming chips wagered on the betting areas; a game result determination device, wherein the game result determination device is configured to determine a game result of a game at the gaming table and output the game result; a card shoe from which playing cards can be distributed to the game table one by one; and a second chip recognizing device, wherein the second chip recognizing device is configured to recognize gaming chips in the chip tray in response to a

predefined operation is performed to the card shoe.

[0006b]

According to another aspect of the present invention, there is provided a management system in a casino, the management system comprising: a gaming table that has a chip tray and betting areas; a chip recognizing device, wherein the chip recognizing device is configured to recognize information of gaming chips in the chip tray at a predefined timing; a game result determination device, wherein the game result determination device is configured to determine a game result of a game at the gaming table and output the game result; a card shoe from which playing cards can be distributed to the game table one by one; a storage device, wherein the storage device is configured to store the information of the gaming chips recognized by the chip recognizing device; and a control device configured to compare at least two instances of information of the gaming chips recognized by the chip recognizing device at different times of the predetermined timing.

[0006c]

According to another aspect of the present invention, there is provided a management system in a casino, the casino having a plurality of gaming tables, each of the gaming tables having (a) a respective chip tray, (b) respective betting areas, and (c) a respective card shoe from which playing cards can be distributed to the game table one by one, the management system comprising: a first chip recognizing device, wherein the first chip recognizing device is configured to recognize positions,

types, and numbers of gaming chips wagered on the betting areas of at least one of the gaming tables; and a second chip recognizing device, wherein the second chip recognizing device is configured to recognize gaming chips held in the chip tray of the at least one of the gaming tables in response to a predefined operation performed with the card shoe of the at least one of the gaming tables.

[0006d]

According to another aspect of the present invention, there is provided a management system in a casino, the casino having a plurality of gaming tables, each of the gaming table having (a) a respective chip tray, (b) respective betting areas on which players can wager gaming chips, and (c) a respective card shoe from which playing cards can be distributed to the game table one by one, the management system comprising: a chip recognizing device, wherein the chip recognizing device is configured to recognize, at a predefined timing, information of gaming chips held in the chip tray of at least one of the gaming tables; a storage device, wherein the storage device is configured to store the information of the gaming chips recognized by the chip recognizing device; and a control device configured to compare at least two instances of information of the gaming chips recognized by the chip recognizing device at different times of the predetermined timing.

[0007]

There is also disclosed a fraud detection system in a casino having a plurality of gaming tables, including: a game recording apparatus which records a progress of a game played in the gaming table as an image; an image analyzing apparatus which performs image analysis on the image of the recorded progress of the game; a win/lose result determining apparatus which determines a win or lose result of each game in the gaming table; and a control device which detects fraud practiced in the gaming table by using a result of the image analysis by the image analyzing apparatus and the win or lose result determined by the win/lose result determining apparatus, wherein the control device recognizes a position, type, and number of the chips wagered by each player through

may have at least one of functions of determining as to:

1) whether or not there is movement of chips during the time interval from the start of extraction of cards or from the game start operation of the dealer before the win or lose result of the game is displayed by the card distribution device in each game;

2) whether or not there is movement of chips by a person other than the dealer during the time interval when the dealer collects chips wagered by the losers among the game participants after the end of each game;

3) whether or not a chip is added during the time interval when the dealer collects chips wagered by the losers among the game participants after the end of each game;

4) whether or not the dealer performs payment for a position of chips wagered by the winner among the game participants after the end of each game; and

5) whether or not the winner among the game participants receives wagered chips and paid chips after the end of each game.

[0020]

In the above fraud detection system, the win/lose result determining apparatus may be a card distribution device which distributes the cards in the gaming table or a control device which determines the win or lose result of each game from information of the image analyzing apparatus reading the cards distributed in the gaming table by using a camera.

[0021]

According to the fraud detection system of the present disclosure,

it is possible to detect fraud in collection and redemption of chips in accordance with a win or lose result of a game.

[0022]

In addition, according to the system of the present disclosure, although the cards are slanted by "card squeegee" frequently performed by players in a baccarat game or the like, the rank and suit of the cards can be determined by image analysis, so that the total amount of chips being overlapped or being in a blind spot together with the positions can be recognized. In addition, fraud at the time of exchanging cash and chips can be detected.

BRIEF DESCRIPTION OF DRAWINGS

[0023]

FIG. 1 is a diagram illustrating an overview of a fraud detection system in a casino having a plurality of gaming tables according to a first embodiment of the invention;

FIG. 2A is a perspective diagram of chips illustrating an example of different overlapped states of chips recognized in the first embodiment of the invention;

FIG. 2B is a perspective diagram of chips illustrating an example of different overlapped states of chips recognized in the first embodiment of the invention;

FIG. 3A is a diagram illustrating details of a chip tray in the first embodiment of the invention;

FIG. 3B is a diagram illustrating another example of a chip tray in the first embodiment of the invention;