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Citation List

Patent Literature

[0004]

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Summary of Invention

Technical Problem

[0005]

Embodiments of ~~T~~the present ~~invention~~ disclosure provide~~s~~ a management system or a game token that can prevent the use of false game tokens used in casino or game facilities and that can prevent the use of false game tokens and unfair exchange in casino or game facilities. In recent years, manufacturing techniques of false game tokens are progressed to such an extent that truth-or-falsity determination marks and RFIDs can be copied fully accurately. As a result, truth-or-falsity determination marks and RFIDs that are the same as authentic truth-or-falsity determination marks and RFIDs are provided on false game tokens, making it impossible to distinguish false game tokens from true game tokens and making it substantially impossible to perform truth-or-falsity determination.

Solution to Problem

[0006]

An aspect of the present invention provides a game token management system comprising: an ID reader, wherein the ID reader is configured to read unique IDs that are each respectively provided on a respective one or a plurality of game tokens; a storage at a location at which the game tokens can be cashed in; a chip tray located at a game table, wherein each of the storage and the chip tray at the game table is configured to hold the plurality of game tokens; a database in which the IDs of the plurality of game tokens are recorded each in association with information indicating a respective location of the respective game token on which the respective ID is provided; and at least one processor: wherein the at least one processor is configured to use the ID reader to: determine: respective types of the plurality of game tokens that are held in the chip tray; for each of the types of the plurality of game tokens that are held in the chip tray, respective numbers of the plurality of game tokens that are held in the chip tray; respective types of the plurality of game tokens that are held in the storage; and for each of the types of the plurality of game tokens that are held in the storage, respective numbers of the plurality of game tokens that are held in the storage; and periodically, according to a predetermined timing, update the recordation in the database of the IDs and their respective associated information

indicating their respective locations; and wherein: (I) the at least one processor is configured to use the ID reader and reference the database to determine whether a first state is present and generate an error signal when the first state is determined to be present, and the first state is when an ID that is not recorded in the database is identified by the at least one processor as being present in a predefined relevant region; and/or (II) the at least one processor is configured to use the ID reader and reference the database to determine whether a second state is present and generate the error signal when the second state is determined to be present, and the second state is that two or more copies of an identical one of the IDs are identified by the at least one processor as being present in the predefined relevant region with the two or more copies being on different game tokens.

[0006a]

Another aspect of the present disclosure provides a plurality of game tokens that each comprises a respective unique ID provided on the respective game token and that is readable by an ID reader when the respective game token is held in a storage at a location at which the game tokens can be cashed in and when the respective game token is held in a chip tray located at a game table, wherein: the unique IDs are such that (1) respective types of the plurality of game tokens that are held in the chip tray, (2) for each of the types of the plurality of game tokens that are held in the chip tray,

respective numbers of the plurality of game tokens that are held in the chip tray, (3) respective types of the plurality of game tokens that are held in the storage, and (4) for each of the types of the plurality of game tokens that are held in the storage, respective numbers of the plurality of game tokens that are held in the storage are specified by a chip determination device through determinable, based on readings of the unique IDs by the ID reader, by a processor that is configured to, based on a database in which IDs are recorded in association with information indicating respective locations and based on readings by the ID reader: (I) determine whether a first state is present and generate an error signal when the first state is determined to be present, wherein the first state is when an ID that is not recorded in the database is identified by the processor as being present in a predefined relevant region; and/or (II) determine whether a second state is present and generate the error signal when the second state is determined to be present, wherein the second state is that two or more copies of an identical one of the IDs are identified by the processor as being present in the predefined relevant region with the two or more copies being on different game tokens.

[0006b]

~~In order to solve the problem of the prior art, according to the present invention, t~~There is ~~provided~~ also disclosed a game token management system including:

game tokens attached with unique ID that is individually identifiable;

an ID reading device that reads the unique ID attached to the game token;

a storage that holds the game token in a casher in a game place;

a game table chip tray that holds the game token in a game table;

a chip determination device that specifies a type and number of game tokens held in the game table chip tray and the storage, with the ID reading device; and

a management control device that, in the game place, manages the IDs attached to the game tokens on the database, wherein

the management control device has a function that previously registers, on the database, the IDs of the game tokens that are contemplated to be used, manages, using the database,

at least

the IDs of the game tokens present on the game table

~~In order to solve the above problem of the prior art, according to the present invention, t~~There is ~~provided~~ also disclosed a game token having a construction having a multilayer structure including a plurality of laminated plastic layers having respective different colors, at least one layer being a colored layer, a white layer or a light-color layer being laminated on an outer side of the colored layer, the multilayer structure having a striped pattern on a side face thereof in a laminated direction, the type of the game token being identifiable by the colored layer. Further, the game token has a construction including a unique ID that is provided at at least three places of a white layer on a side face or a side face of a light-color layer, is readable by a ID reading device to identify the type of and information about manufacture of a game token, and can be managed on database. The unique ID may be inkjet-printed with an ink viewable in visible light. The unique ID may be inkjet-printed with an ink unviewable in visible light.

[0011]

~~In order to solve the above problem of the prior art, according to the present invention, t~~There is ~~provided~~ also disclosed a game token including IDs that are each identifiable, wherein

the unique ID provided on the game token is read with an ID reading device, the ID reading device can read

CLAIMS

~~1. A game token management system comprising:~~

~~game tokens attached with unique ID that is individually identifiable;~~

~~an ID reading device that reads the unique ID attached to the game token;~~

~~a storage that holds the game token in a casher in a game place;~~

~~a game table chip tray that holds the game token in a game table;~~

~~a chip determination device that specifies a type and number of game tokens held in the game table chip tray and the storage, with the ID reading device; and~~

~~a management control device that, in the game place, manages the IDs attached to the game tokens on the database, wherein~~

~~the management control device has a function that previously registers, on the database, the IDs of the game tokens that are contemplated to be used, manages, using the database,~~

~~at least~~

~~the IDs of the game tokens present on the game table chip tray and the storage, together with information about location, on the database, specifies the game token in the game table chip tray and the storage at predetermined~~

~~timing and further retrieves the database and determines following events by the retrieval of the database:~~

~~1) a fact that ID absent on the database is newly present and~~

~~2) a fact that two or more identical IDs are present, and~~

~~generates an error signal when status 1) or 2) is noticed.~~

~~2. The game token management system according to claim 1, wherein~~

~~the management control device further has a function that~~

~~when there is a change in presence of the game token in at least the game table chip tray and the storage,~~

~~records a time or a place at which the change has occurred, on the database in association with the ID,~~

~~retrieves the database, and, when two or more identical IDs are present,~~

~~extracts and stores the ID and the time or the place recorded on the database in association with the ID from the database, and~~

~~specifies the time at which the detected game token attached with the ID goes in or goes out the game table chip tray or the storage, or the place of the game table chip tray or the storage in which the game token has been~~

held.

3. The game token management system according to claim 1 or 2, further comprising

a bet area chip determination device that specifies the type and numbers of the game tokens bet on a bet area of the game table by the ID reading device, and

a function is provided that determines following events by the retrieval of the database also for the ID of the game token present on the bet area of the game table:

1) a fact that ID absent on the database is newly present and

2) a fact that two or more identical IDs are present, and

generates an error signal when status 1) or 2) is noticed.

4. The game token management system according to any one of claims 1 to 3, wherein

the unique ID is provided at at least three places of side faces of the game token.

5. The game token management system according to any one of claims 1 to 4, wherein

the unique ID is inkjet-printed with an ink viewable in visible light.

6. The game token management system according to any one of claims 1 to 5, wherein

~~the unique ID is inkjet-printed with an ink unviewable in visible light.~~

~~7. The game token management system according to any one of claims 1 to 6, wherein~~

~~the unique ID is provided by a presence or absence of marks in a plurality of lines and a plurality of rows.~~

~~8. The game token management system according to any one of claims 1 to 7, wherein~~

~~a transparent coating layer or varnish is provided on a side face of the game token.~~

~~9. The game token management system according to any one of claims 1 to 8, wherein~~

~~the unique ID is RFID.~~

~~10. The game token management system according to any one of claims 1 to 9, wherein~~

~~the game token has a structure having a unique ID provided by ink jet printing on the side face and having a built-in RFID, and~~

~~the management control device has a function that manages, on the database, information about ID attached on the side face and information about ID of RFID that have been associated with each other.~~

~~11. The game token management system according to any one of claims 1 to 10, wherein~~

~~the game token has a construction having a~~

~~multilayer structure comprising a plurality of laminated plastic layers having different colors, at least one layer being a colored layer, a white layer or a light-color layer being laminated on an outer side of the colored layer, the multilayer structure having a striped pattern on a side face thereof in a laminated direction, the type of the game token being identifiable by the colored layer.~~

~~12. A game token having a construction comprising a unique ID that is provided at at least three places of a white layer on a side face or a side face of a light-color layer, is readable by a ID reading device to identify the type of and information about manufacture of a game token, and can be managed on database.~~

~~13. The game token according to claim 12, wherein~~

~~the unique ID is inkjet-printed with an ink viewable in visible light.~~

~~14. The game token according to claim 12 or 13, wherein the unique ID is inkjet-printed with an ink unviewable in visible light.~~

~~15. The game token according to any one of claims 12 to 14, wherein~~

~~the unique ID is provided by a presence or absence of marks in a plurality of lines and a plurality of rows.~~

~~16. The game token according to any one of claims 12 to 15, wherein a transparent coating layer or varnish is~~

~~provided on a side face of the game token.~~

~~17. A game token comprising~~

~~unique IDs that are each identifiable, wherein~~

~~the unique ID provided on the game token is readable with an ID reading device, the ID reading device can read the game token held in a storage of a casher in a game place and a game table chip tray in the game table, and, further,~~

~~a type and number of the game tokens held in the game table chip tray and the storage are specified by a chip determination device through the ID reading device, the ID of the game token present on the game table chip tray and the storage is managed together with information about location on database,~~

~~at least~~

~~1) a fact that ID absent on the database is newly present and~~

~~2) a fact that two or more identical IDs are present, are examined, and~~

~~an occurrence of status 1) or 2) can be determined by the ID.~~

1. A game token management system comprising:

an ID reader, wherein the ID reader is configured to read unique IDs that are each respectively provided on a respective one or a plurality of game tokens;

a storage at a location at which the game tokens can be cashed in;

a chip tray located at a game table, wherein each of the storage and the chip tray at the game table is configured to hold the plurality of game tokens;

a database in which the IDs of the plurality of game tokens are recorded each in association with information indicating a respective location of the respective game token on which the respective ID is provided; and

at least one processor:

wherein the at least one processor is configured to use the ID reader to:

determine:

respective types of the plurality of game tokens that are held in the chip tray;

for each of the types of the plurality of game tokens that are held in the chip tray, respective numbers of the plurality of game tokens that are held in the chip tray;

respective types of the plurality of game tokens that are held in the storage; and

for each of the types of the plurality of game tokens that are held in the storage, respective numbers of the plurality of game tokens that are held in the storage; and

periodically, according to a predetermined timing, update the recordation in the database of the IDs and their respective associated information indicating their respective locations; and

wherein:

(I) the at least one processor is configured to use the ID reader and reference the database to determine whether a first state is present and generate an error signal when the first state is determined to be present, and the first state is when an ID that is not recorded in the database is identified by the at least one processor as being present in a predefined relevant region; and/or

(II) the at least one processor is configured to use the ID reader and reference the database to determine whether a second state is present and generate the error signal when the second state is determined to be present, and the second state is that two or more copies of an identical one of the IDs are identified by the at least one processor as being present in the predefined relevant region with the two or more copies being on different game tokens.

2. The game token management system according to claim

1, wherein the at least one processor is configured to:

when there is a change in a state of presence of any one of the plurality of game tokens in the chip tray or in the storage, update the database by recording, in association with the respective ID of the any one of the plurality of game tokens, a time of the change of the state and/or by updating the information in the database indicating the respective location of the any one of the plurality of game tokens.

3. The game token management system according to claim 1, wherein the at least one processor is further configured to:

for each of one or more bet areas of the game table:

identify respective types and numbers of the plurality of game tokens placed as a bet on the respective bet area of the game table by using the ID reader; and

for each of the plurality of game tokens identified as having been placed on the respective bet area, determine whether either of the first and second states is present for the respective ID of the respective game token, in which case the error signal is generated.

4. The game token management system according to claim 1, wherein the game token management system further comprises the plurality of game tokens, and, for each of one or more of the plurality of game tokens, the respective game token includes the respective unique ID of the game token on each of three different areas of a side face of the respective game token.

5. The game token management system according to claim 1, wherein the game token management system further comprises the plurality of game tokens, and, for each of one or more of the plurality of game tokens, the unique ID of the respective game token is inkjet-printed with an ink viewable in visible light.

6. The game token management system according to claim 1, wherein the game token management system further comprises the plurality of game tokens, and, for each of one or more of the plurality of game tokens, the unique ID of the respective game token is inkjet-printed with an ink unviewable in visible light.

7. The game token management system according to claim 1, wherein the game token management system further comprises the plurality of game tokens, and, for each of

one or more of the plurality of game tokens, the unique ID of the respective game token is provided by a presence or absence of marks in a plurality of lines and a plurality of rows.

8. The game token management system according to claim 1, wherein the game token management system further comprises the plurality of game tokens, and, for each of one or more of the plurality of game tokens, a transparent coating layer or varnish is provided on a side face of the respective game token.

9. The game token management system according to claim 1, wherein the ID reader is a Radio Frequency Identification (RFID) reader configured to read RFIDs of the plurality of game tokens as the unique IDs of the plurality of game tokens.

10. The game token management system according to claim 1, wherein the game token management system further comprises the plurality of game tokens, and each of one or more of the plurality of game tokens has a structure having the respective unique ID of the respective game token ink jet printed on a side face of the respective game token and having a Radio Frequency Identification (RFID), and the at

least one processor is configured to associate with each other in the database information about the inkjet-printed unique ID of the respective game token and information from the RFID of the respective game token.

11. The game token management system according to claim 1, wherein:

the game token management system further comprises the plurality of game tokens, and, with respect to each of one or more of the plurality of game tokens:

the respective game token has a multilayer structure comprising a plurality of laminated plastic layers;

a first one of the plurality of laminated plastic layers is of a first color;

a second one of the plurality of laminated plastic layers is of a second color that is lighter than the first one of the plurality of laminated plastic layers and is laminated onto a side of the first one of the plurality of laminated plastic layers;

the multilayer structure forms a striped pattern on a side face of the respective game token in a laminated direction; and

a respective type of the respective game

token is identifiable by the first one of the plurality of laminated plastic layer.

12. The game token management system according to claim 1, wherein the at least one processor is configured to respond to presence of the second state by updating the database by recording, in association with the respective ID whose two copies have been identified, a time at which the second state is sensed and/or one or more locations at which the copies have been identified to be present.

13. The game token management system according to claim 1, wherein the at least one processor is configured to:

for each of the plurality of game tokens that enters into the chip tray, record in the database in association with the respective game token's ID a time at which the respective game token entered into the chip tray;

for each of the plurality of game tokens that exits from the chip tray, record in the database in association with the respective game token's ID a time at which the respective game token exited from the chip tray;

for each of the plurality of game tokens that enters into the storage, record in the database in association with the respective game token's ID a time at which the respective game token entered into the storage; and

for each of the plurality of game tokens that exits from the storage, record in the database in association with the respective game token's ID a time at which the respective game token exited from the storage.

14. A plurality of game tokens that each comprises a respective unique ID provided on the respective game token and that is readable by an ID reader when the respective game token is held in a storage at a location at which the game tokens can be cashed in and when the respective game token is held in a chip tray located at a game table, wherein:

the unique IDs are such that (1) respective types of the plurality of game tokens that are held in the chip tray, (2) for each of the types of the plurality of game tokens that are held in the chip tray, respective numbers of the plurality of game tokens that are held in the chip tray, (3) respective types of the plurality of game tokens that are held in the storage, and (4) for each of the types of the plurality of game tokens that are held in the storage, respective numbers of the plurality of game tokens that are held in the storage are specified by a chip determination device through determinable, based on readings of the unique IDs by the ID reader, by a processor that is configured to, based on a database in which IDs are

recorded in association with information indicating respective locations and based on readings by the ID reader:

(I) determine whether a first state is present and generate an error signal when the first state is determined to be present, wherein the first state is when an ID that is not recorded in the database is identified by the processor as being present in a predefined relevant region; and/or

(II) determine whether a second state is present and generate the error signal when the second state is determined to be present, wherein the second state is that two or more copies of an identical one of the IDs are identified by the processor as being present in the predefined relevant region with the two or more copies being on different game tokens.

15. The plurality of game tokens according to claim 14, wherein each of at least one of the plurality of game tokens includes the respective unique ID of the respective game token on each of three different areas of a side face of a white layer of the respective game token.

16. The plurality of game tokens, according to claim 14,

wherein, for each of at least one of the plurality of game tokens, the respective unique ID of the respective game token is inkjet-printed with an ink viewable in visible light.

17. The plurality of game tokens according to claim 14, wherein, for each of at least one of the plurality of game tokens, the respective unique ID of the respective game token is inkjet-printed with an ink unviewable in visible light.

18. The plurality of game tokens according to claim 14, wherein, for each of at least one of the plurality of game tokens, the respective unique ID of the respective game token is provided by a presence or absence of marks in a plurality of lines and a plurality of rows.

19. The plurality of game tokens according to claim 14, wherein, for each of at least one of the plurality of game tokens, a transparent coating layer or varnish is provided on a side face of the respective game token.