[0009]

Embodiments of the present invention seek to provide a novel game token tray system including a game token tray having a double tray structure in which the game token is stored.

Solution to Problem

[0009a]

An aspect of the present invention provides a game token tray comprising: an upper tray, wherein a game token in which a radio frequency (RF) tag is embedded can be placed onto and removed from the upper tray during settlement of a game; a lower tray disposed below the upper tray and in which the game token is storable for replenishment to the upper tray; a first reader; and a second reader; wherein: the upper tray and the lower tray are structured such that they can be arranged in a first arrangement in which the upper tray and the lower tray overlap each other and in a second arrangement in which the game token can be placed onto and removed from the lower tray; the first reader is configured to obtain identification information assigned to the game token by reading the RF tag of the game token while the game token is on the lower tray and is configured not to read the RF tag whenever the upper and lower trays are in the first arrangement; and the second reader is configured to obtain the identification information of the game token by performing a reading while the game token is on the upper tray.

~~[0009b]~~

~~Another aspect of the present invention provides a management system for a table game that uses a game table, the management system comprising: a game token tray that includes: an upper tray, wherein a game token in which a radio frequency (RF) tag is embedded can be placed onto and removed from the~~

~~upper tray during settlement of a game; a lower tray disposed below the upper tray and in which the game token is storable for replenishment to the upper tray; a first reader; a second reader; and a control device; wherein: the upper tray and the lower tray are structured such that they can be arranged in a first arrangement in which the upper tray and the lower tray overlap each other and in a second arrangement in which the game token can be placed onto and removed from the lower tray; the first reader is configured to obtain identification information assigned to the game token by reading the RF tag of the game token while the game token is on the game token tray; the second readers is configured to obtain the identification information by performing a reading while the game token is on the game token tray; and the control device is configured to determine a type and a number of the game token using the identification information read by the first reader while the game token is on the game token tray and the identification information read by the second reader while the game token is on the game token tray.~~

~~[0009c]~~

~~Another aspect of the present invention provides a game token tray system comprising: a double tray that includes a lower tray and an upper tray stacked on the lower tray, in each of which can be stored a game token in which a radio frequency (RF) tag is embedded; a first reader; a second reader; and a recorder; wherein: the first reader is configured to obtain identification information assigned to the game token by reading the RF tag while the game token is on the lower tray; the second reader is configured to obtain the identification information by performing a reading while the game token is on the upper tray; and the recorder is configured to record a reading result of the second reader obtained while the game token is on the upper tray, and record the identification information read by the first reader while~~

~~the game token is stored on the lower tray.~~

[~~0009d~~0009b]

Another aspect of the present invention provides game token tray comprising: an upper tray, wherein a game token, having a side surface with a color indicating a value and having a radio frequency (RF) tag storing information indicating the value, can be placed onto and removed from the upper tray during settlement of a game; a lower tray disposed below the upper tray and in which the game token is storable for replenishment to the upper tray; a first reader; and a second tray; wherein: the upper tray and the lower tray are structured such that they can be arranged in a first arrangement in which the upper tray and the lower tray overlap each other and in a second arrangement in which the game token can be placed onto and removed from the lower tray; the first reader is configured to obtain the value by reading the RF tag of the game token while the game token is on the lower tray and is configured not to read the RF tag whenever the upper and lower trays are in the first arrangement; and the second reader is configured to obtain the value by performing a reading while the game token is on the upper tray.

~~[0009e]~~

~~Another aspect of the present invention provides a management system for a table game that uses a game table, the management system comprising: a game token tray that includes: an upper tray, wherein a game token, having a side surface with a color indicating a value and having a radio frequency (RF) tag storing information indicating the value, can be placed onto and removed from the upper tray during settlement of a game; a lower tray disposed below the upper tray and in which the game token is storable for replenishment to the upper tray; a first reader; a second reader; and a control device; wherein: the upper tray and the lower tray are structured such that they can be arranged in a first~~

~~arrangement in which the upper tray and the lower tray overlap each other and in a second arrangement in which the game token can be placed onto and removed from the lower tray; the first reader is configured to obtain the value by reading the RF tag of the game token while the game token is on the game token tray; the second reader is configured to obtain the value by performing a reading while the game token is on the game token tray; and the control device is configured to identify the value using the value read by the first reader and the value read by the second reader.~~

~~[0009f]~~

~~Another aspect of the present invention provides a game token tray system comprising: a double tray that includes a lower tray and an upper tray stacked on the lower tray, in each of which can be stored a game token having a side surface with a color indicating a value and having a radio frequency (RF) tag storing information indicating the value; a first reader; a second reader; and a recorder; wherein: the first reader is configured to obtain the value by reading the RF tag while the game token is on the lower tray; the second reader is configured to obtain the value by performing a reading while the game token is on the upper tray; and the recorder is configured to record a reading result of the second reader obtained when the game token is on the upper tray, and record a reading result of the first reader obtained while the game token is on the lower tray.~~

[0010]

According to ~~an aspect of~~ the present ~~invention~~disclosure, a game token tray provided on a game table and holding a game token, includes: an upper tray used to take in and out the game token during settlement of a game; and a lower tray disposed below the upper tray and storing the game token for replenishment to the upper tray. The game

token includes a plastic layer, a specific color capable of specifying a type of the game token is at least partially provided in the game token, a printing layer representing the type of the game token is provided in upper and lower surfaces of the game token, an individually identifiable side code is given to a side surface of the game token, the game token has a structure in which an RF tag is fixed to the plastic layer, and a configuration in which the type of the game token can be specified by the specific color, an upper portion of the upper tray is open such that the game

CLAIMS

1. A game token tray comprising:

an upper tray, wherein a game token in which a radio frequency (RF) tag is embedded can be placed onto and removed from the upper tray during settlement of a game;

a lower tray disposed below the upper tray and in which the game token is storable for replenishment to the upper tray;

a first reader; and

a second reader;

wherein:

the upper tray and the lower tray are structured such that they can be arranged in a first arrangement in which the upper tray and the lower tray overlap each other and in a second arrangement in which the game token can be placed onto and removed from the lower tray;

the first reader is configured to obtain identification information assigned to the game token by reading the RF tag of the game token while the game token is on the lower tray and is configured not to read the RF tag whenever the upper and lower trays are in the first arrangement; and

the second reader is configured to obtain the identification information of the game token by performing

a reading while the game token is on the upper tray.

2. The game token tray according to claim 1, wherein the second reader is configured so that the second reader does not perform the reading of the game token whenever the game token is on the lower tray.

~~3. A management system for a table game that uses a game table, the management system comprising:~~

~~a game token tray that includes:~~

~~an upper tray, wherein a game token in which a radio frequency (RF) tag is embedded can be placed onto and removed from the upper tray during settlement of a game;~~

~~a lower tray disposed below the upper tray and in which the game token is storable for replenishment to the upper tray;~~

~~a first reader;~~

~~a second reader; and~~

~~a control device;~~

~~wherein:~~

~~the upper tray and the lower tray are structured such that they can be arranged in a first arrangement in which the upper tray and the lower tray overlap each other and in a second arrangement in which the game token can be~~

placed onto and removed from the lower tray;

the first reader is configured to obtain identification information assigned to the game token by reading the RF tag of the game token while the game token is on the game token tray;

the second readers is configured to obtain the identification information by performing a reading while the game token is on the game token tray; and

the control device is configured to determine a type and a number of the game token using the identification information read by the first reader while the game token is on the game token tray and the identification information read by the second reader while the game token is on the game token tray.

4. The management system according to claim 3, further comprising a fraud detecting device, wherein the fraud detecting device is configured to detect fraud by determining whether the identification information read by the first reader corresponds to the identification information read by the second reader when the game token is moved between the upper tray and the lower tray.

5. A game token tray system comprising:

a double tray that includes a lower tray and an

upper tray stacked on the lower tray, in each of which can be stored a game token in which a radio frequency (RF) tag is embedded;

a first reader;

a second reader; and

a recorder;

wherein:

the first reader is configured to obtain identification information assigned to the game token by reading the RF tag while the game token is on the lower tray;

the second reader is configured to obtain the identification information by performing a reading while the game token is on the upper tray; and

the recorder is configured to record a reading result of the second reader obtained while the game token is on the upper tray, and record the identification information read by the first reader while the game token is stored on the lower tray.

6. The game token tray system according to claim 5, wherein:

the upper tray includes a first storage portion in which the game token is temporarily stored when the game token is collected from a player and a second storage

~~portion in which the game token is stored when the game token is to be paid out during a settlement;~~

~~the game token tray system further comprises an imager and an image analyzer;~~

~~the imager is configured to generate an image by imaging the game token when the game token is stored in the upper tray; and~~

~~the image analyzer is configured to determine a number of game tokens stored in the first storage portion of the upper tray by analyzing the image generated by the imager.~~

~~7~~3. A game token tray comprising:

an upper tray, wherein a game token, having a side surface with a color indicating a value and having a radio frequency (RF) tag storing information indicating the value, can be placed onto and removed from the upper tray during settlement of a game;

a lower tray disposed below the upper tray and in which the game token is storable for replenishment to the upper tray;

a first reader; and

a second reader;

wherein:

the upper tray and the lower tray are structured

such that they can be arranged in a first arrangement in which the upper tray and the lower tray overlap each other and in a second arrangement in which the game token can be placed onto and removed from the lower tray;

the first reader is configured to obtain the value by reading the RF tag of the game token while the game token is on the lower tray and is configured not to read the RF tag whenever the upper and lower trays are in the first arrangement; and

the second reader is configured to obtain the value by performing a reading while the game token is on the upper tray.

~~8~~4. The game token tray according to claim ~~7~~3, wherein the second reader is configured so that the second reader does not perform the reading of the game token whenever the game token is on the lower tray.

~~9. A management system for a table game that uses a game table, the management system comprising:~~

~~a game token tray that includes:~~

~~an upper tray, wherein a game token, having a side surface with a color indicating a value and having a radio frequency (RF) tag storing information indicating the value, can be placed onto~~

and removed from the upper tray during settlement of a game;

a lower tray disposed below the upper tray and in which the game token is storable for replenishment to the upper tray;

a first reader;

a second reader; and

a control device;

wherein:

the upper tray and the lower tray are structured such that they can be arranged in a first arrangement in which the upper tray and the lower tray overlap each other and in a second arrangement in which the game token can be placed onto and removed from the lower tray;

the first reader is configured to obtain the value by reading the RF tag of the game token while the game token is on the game token tray;

the second reader is configured to obtain the value by performing a reading while the game token is on the game token tray; and

the control device is configured to identify the value using the value read by the first reader and the value read by the second reader.

10. The management system according to claim 9, further

~~comprising a fraud detecting device, wherein the fraud detecting device is configured to determine, based on the values obtained by the first and second readers, whether a value change occurring in the upper tray during a movement of the game token between the upper tray and the lower tray corresponds to a value change occurring in the lower tray during the movement.~~

~~11. A game token tray system comprising:~~

~~a double tray that includes a lower tray and an upper tray stacked on the lower tray, in each of which can be stored a game token having a side surface with a color indicating a value and having a radio frequency (RF) tag storing information indicating the value;~~

~~a first reader;~~

~~a second reader; and~~

~~a recorder;~~

~~wherein:~~

~~the first reader is configured to obtain the value by reading the RF tag while the game token is on the lower tray;~~

~~the second reader is configured to obtain the value by performing a reading while the game token is on the upper tray; and~~

~~the recorder is configured to record a reading~~

~~result of the second reader obtained when the game token is on the upper tray, and record a reading result of the first reader obtained while the game token is on the lower tray.~~

~~12. The game token tray system according to claim 11, wherein:~~

~~the upper tray includes a first storage unit in which the game token is temporarily stored when the game token is collected from a player and a second storage unit in which the game token is stored when the game token is to be paid out during a settlement;~~

~~the game token tray system further comprises an imager and an image analyzer;~~

~~the imager is configured to generate an image by imaging the game token when the game token is stored in the upper tray; and~~

~~the image analyzer is configured to determine a number of game tokens stored in the first storage unit of the upper tray by analyzing the image generated by the imager.~~