



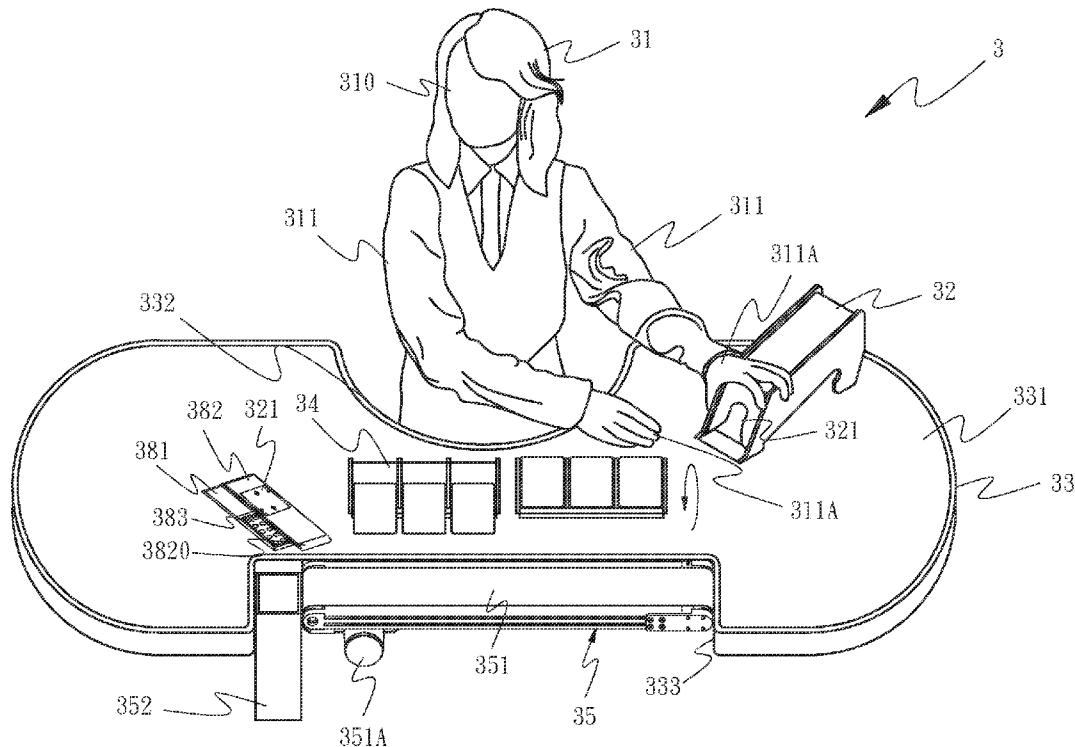
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(19) **United States**(12) **Patent Application Publication**  
**HUANG et al.**(10) **Pub. No.: US 2016/0361623 A1**(43) **Pub. Date: Dec. 15, 2016**(54) **DEALING ROBOT DEVICE****Publication Classification**(71) Applicant: **Taiwan Intelligent Robotics Company, Ltd.**, Taipei City (TW)(51) **Int. Cl.**  
**A63F 1/14** (2006.01)**A63F 1/00** (2006.01)(72) Inventors: **KUO-TSUNG HUANG**, Taipei City (TW); **CHUN-HSIANG SU**, Taipei City (TW); **BING-CHUEN TSAI**, Taipei City (TW); **YEN-HUNG LAI**, Taipei City (TW); **CHUN-HUNG LIN**, Taipei City (TW); **SHIN-BIN KO**, Taipei City (TW); **TA-CHING CHAO**, Taipei City (TW)(52) **U.S. Cl.**  
CPC . **A63F 1/14** (2013.01); **A63F 1/00** (2013.01);  
**A63F 2001/005** (2013.01)(57) **ABSTRACT**

A dealing robot device includes a machine robotic arm, electric poker rack, and controller. The controller provides a controlling instruction, configures the machine robotic arm or electric poker rack so as to deal and recycle pokers when executing a dealing procedure. Therefore, the dealing robot device of present application can effectively reduce the human resource requirement of the dealing procedure of poke games.

(21) Appl. No.: **14/882,454**(22) Filed: **Oct. 14, 2015**(30) **Foreign Application Priority Data**

Jun. 12, 2015 (TW) ..... 104119018



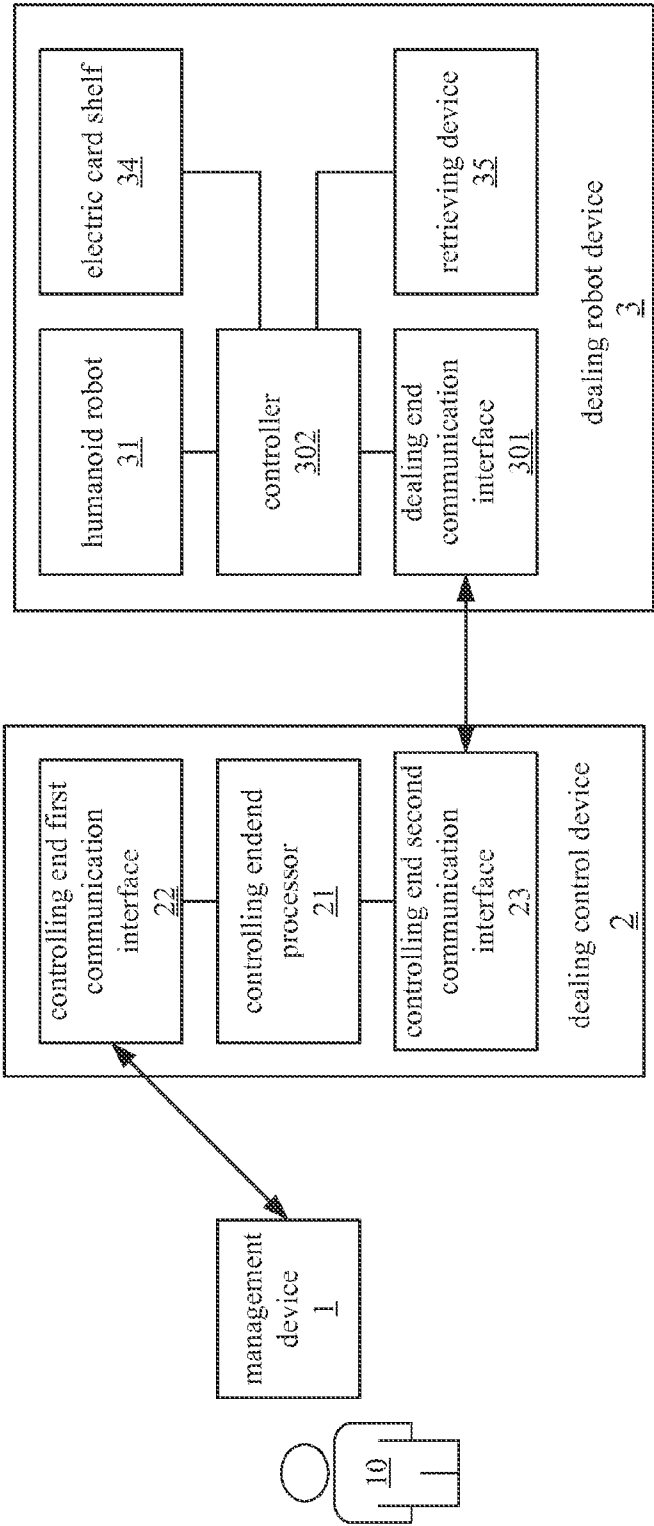


Fig. 1

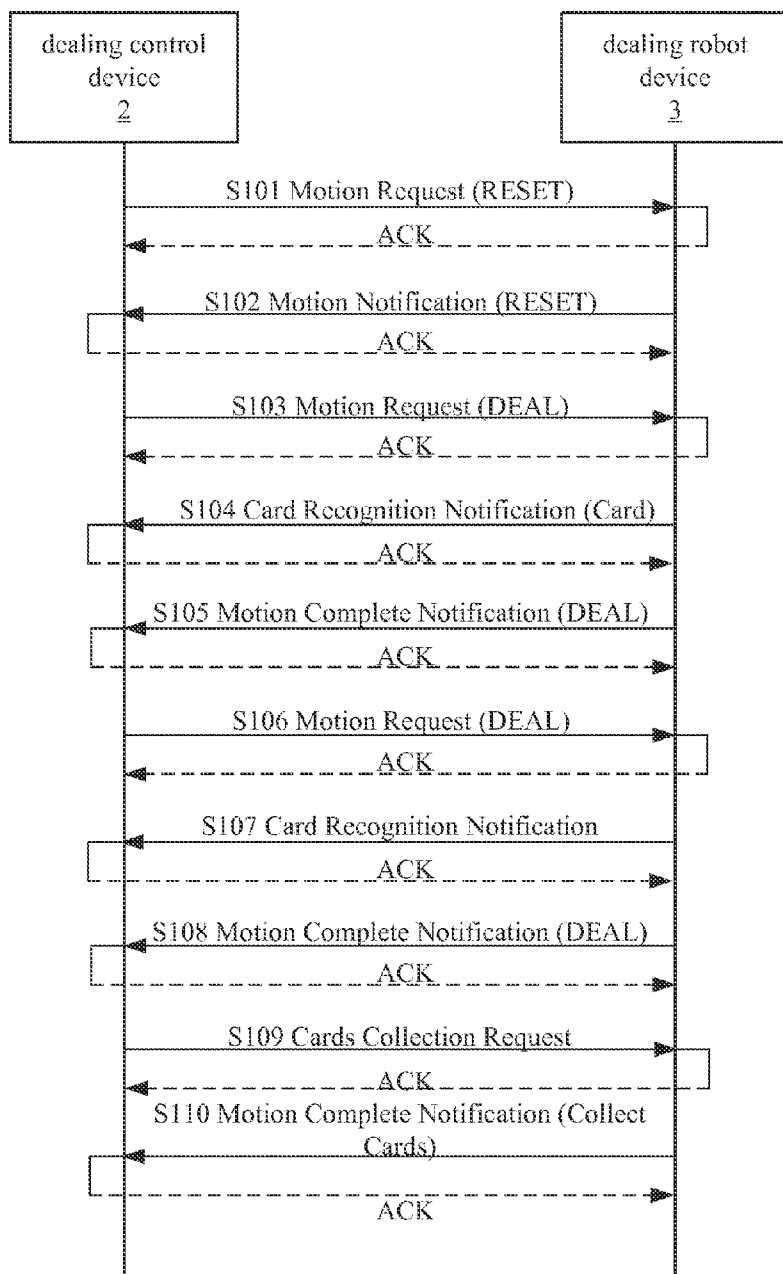


Fig. 2

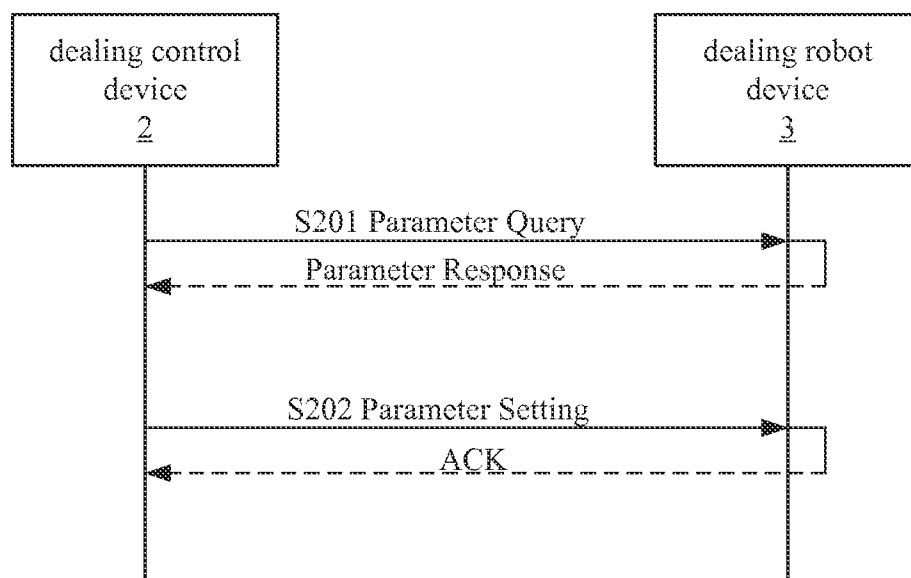


Fig. 3

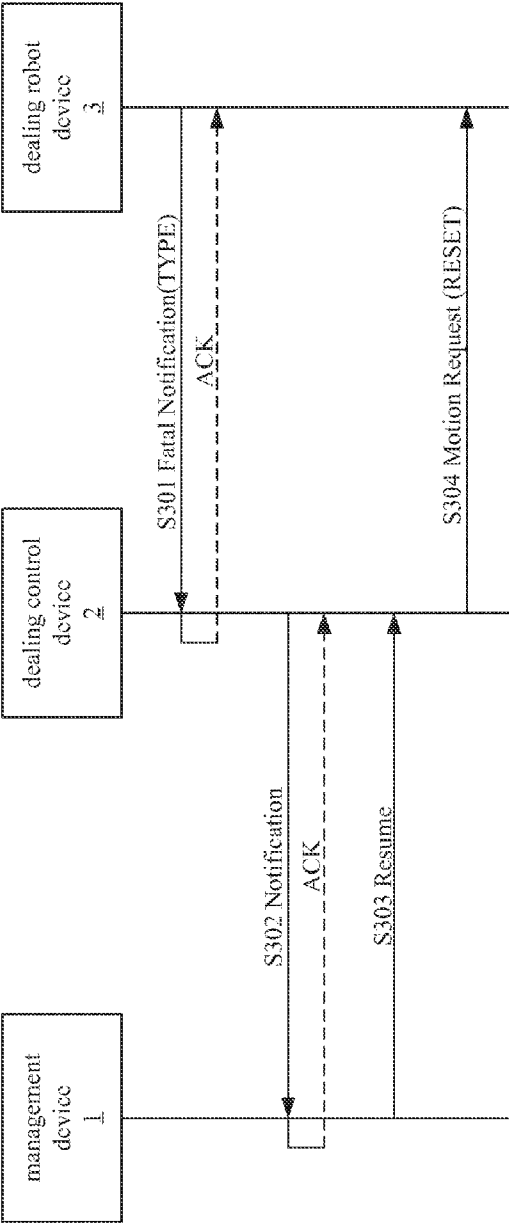


Fig. 4

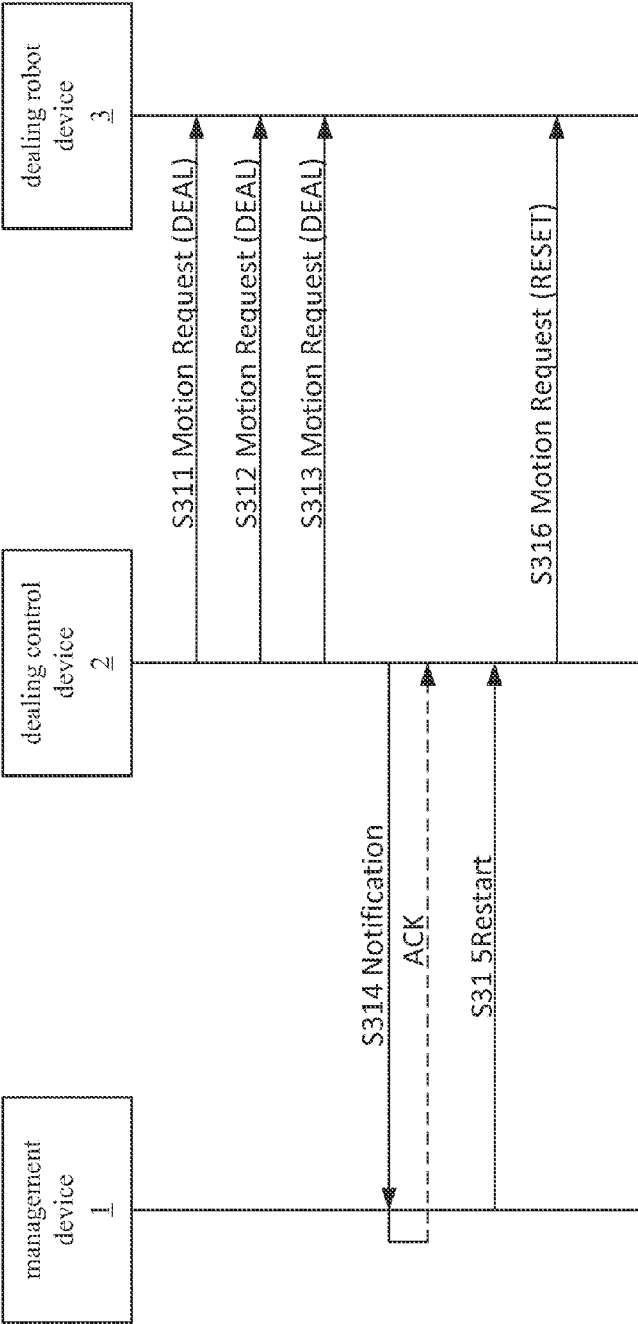


Fig. 5

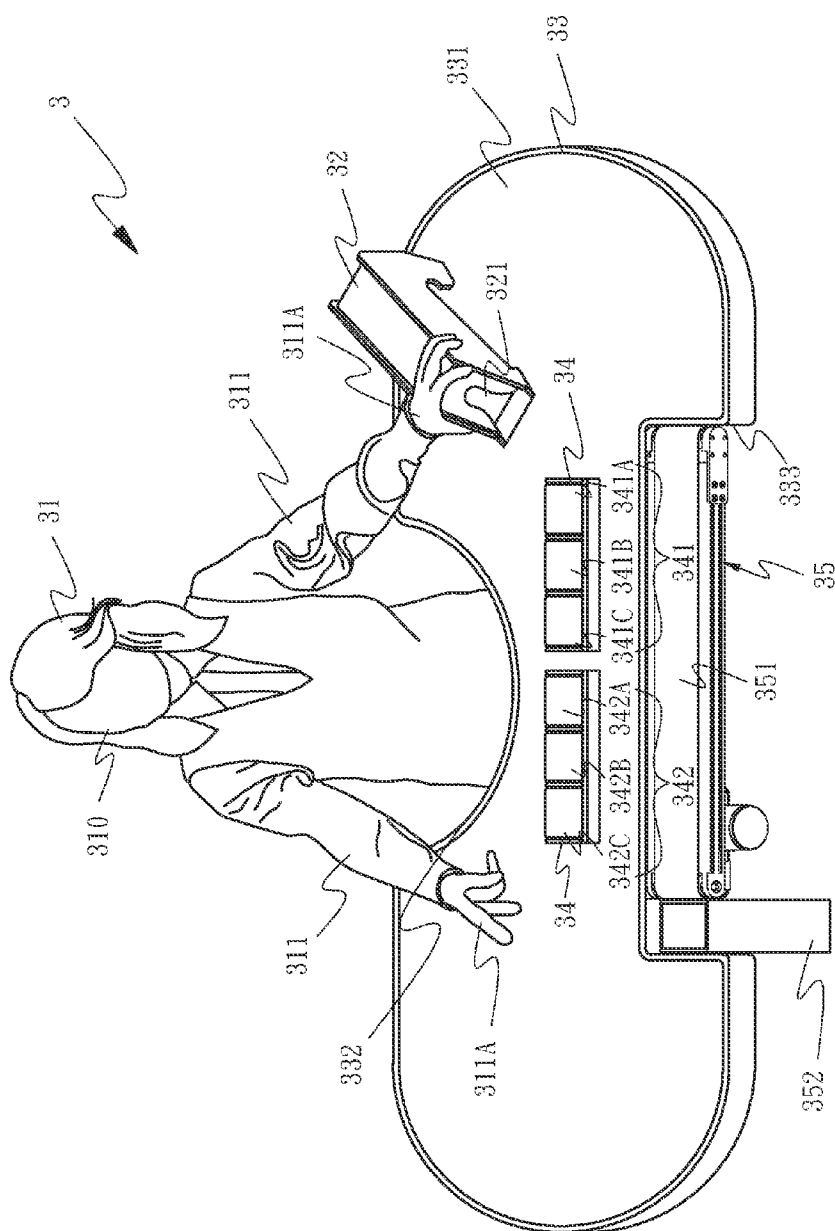


Fig. 6

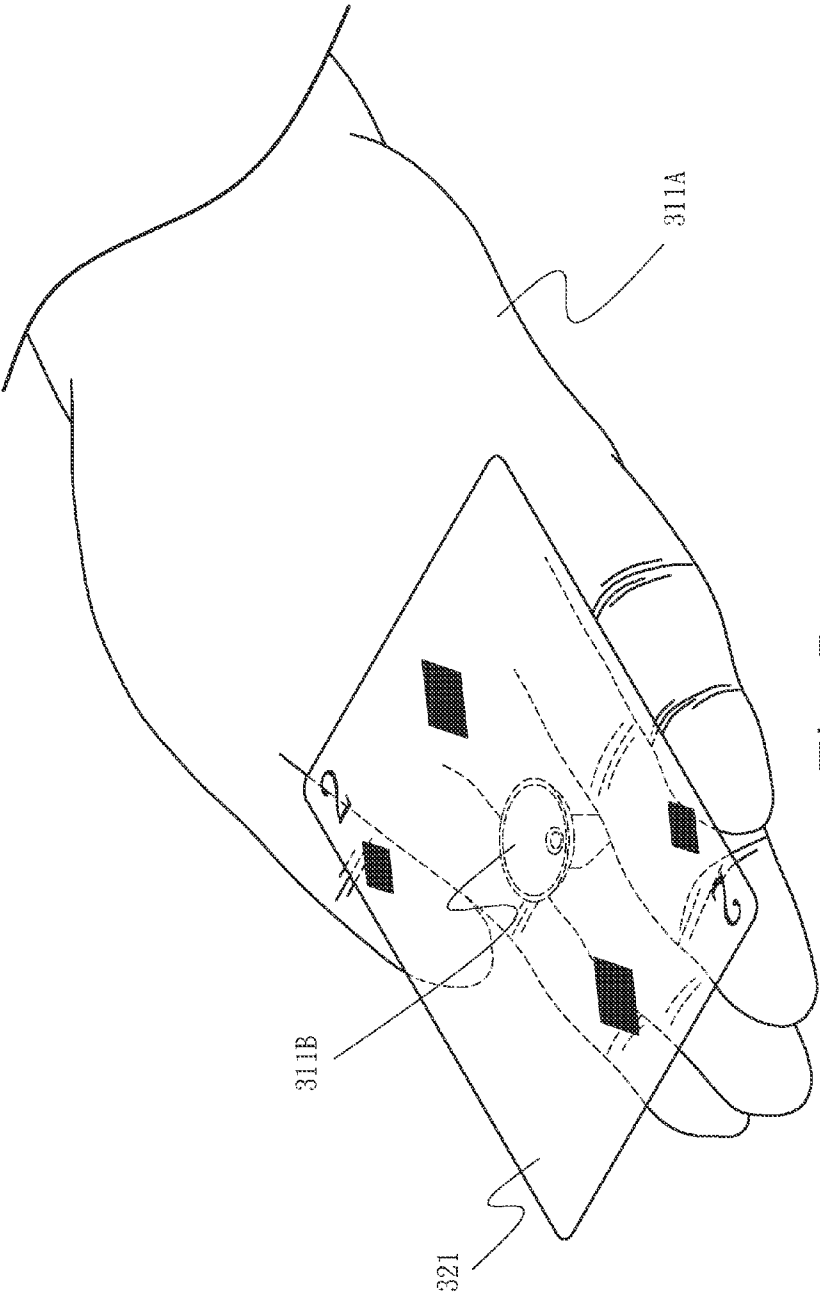
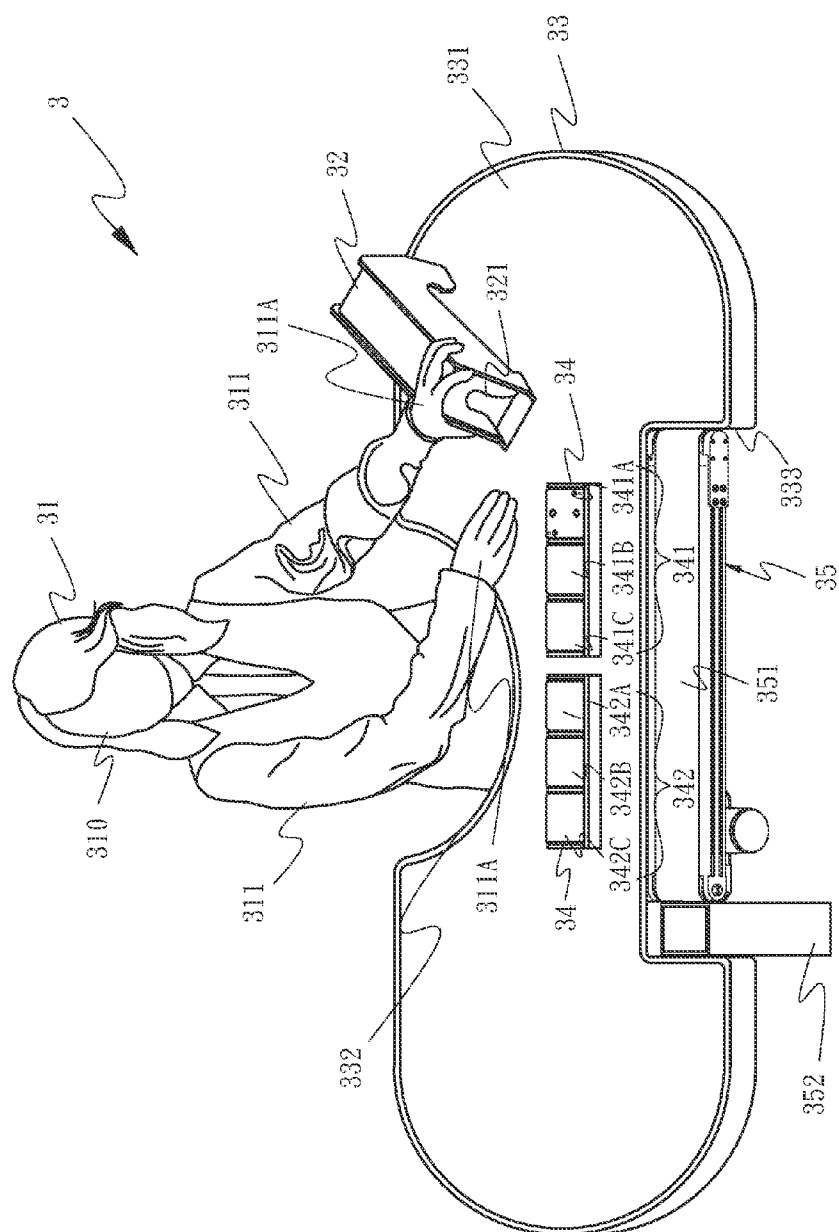


Fig. 7




$$\infty$$

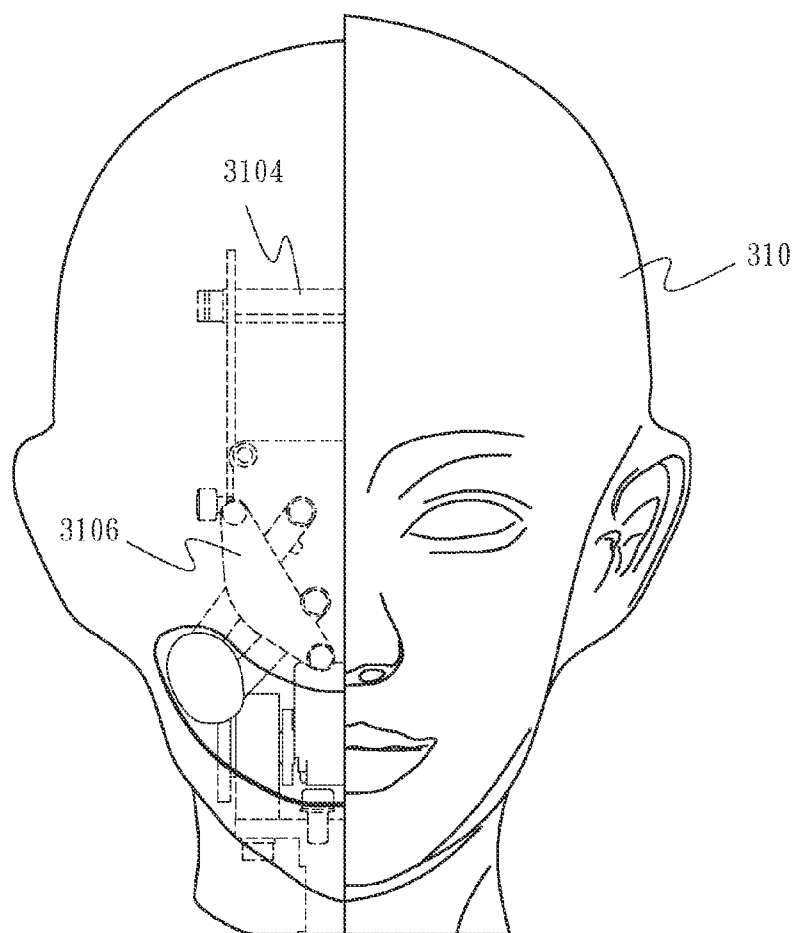


Fig. 9

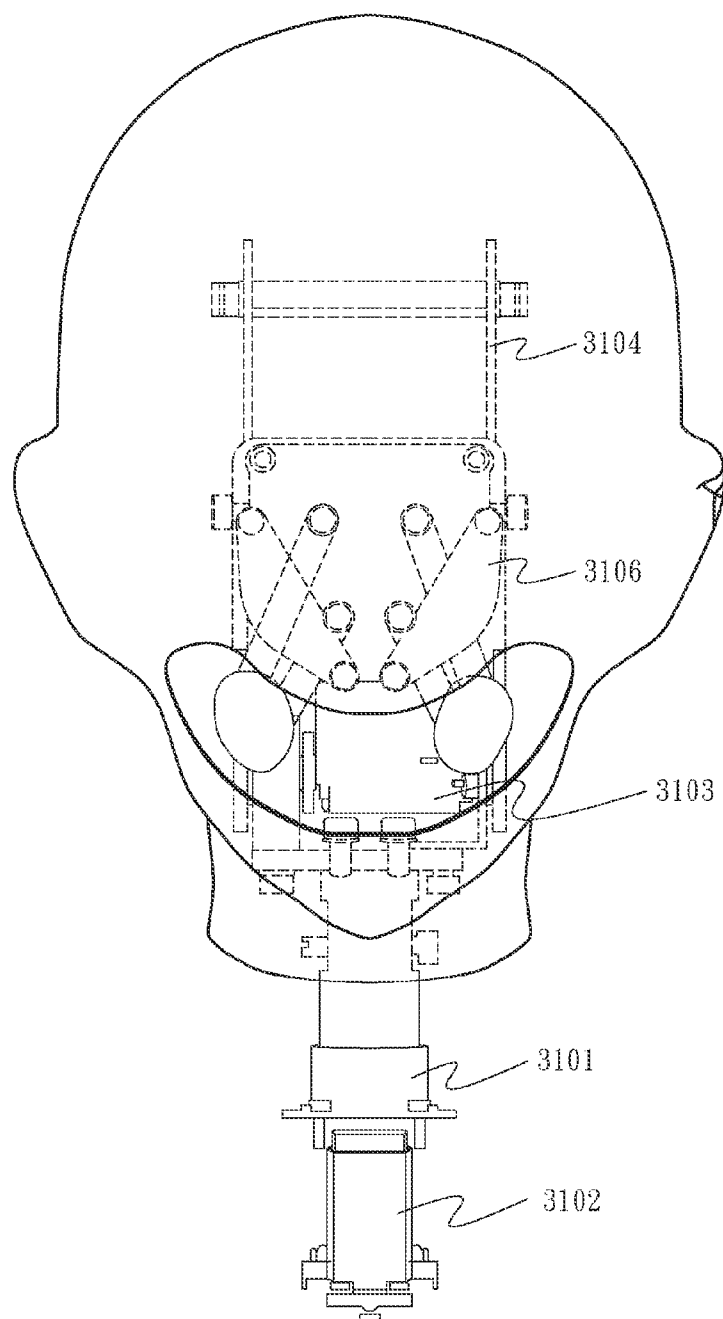


Fig. 10

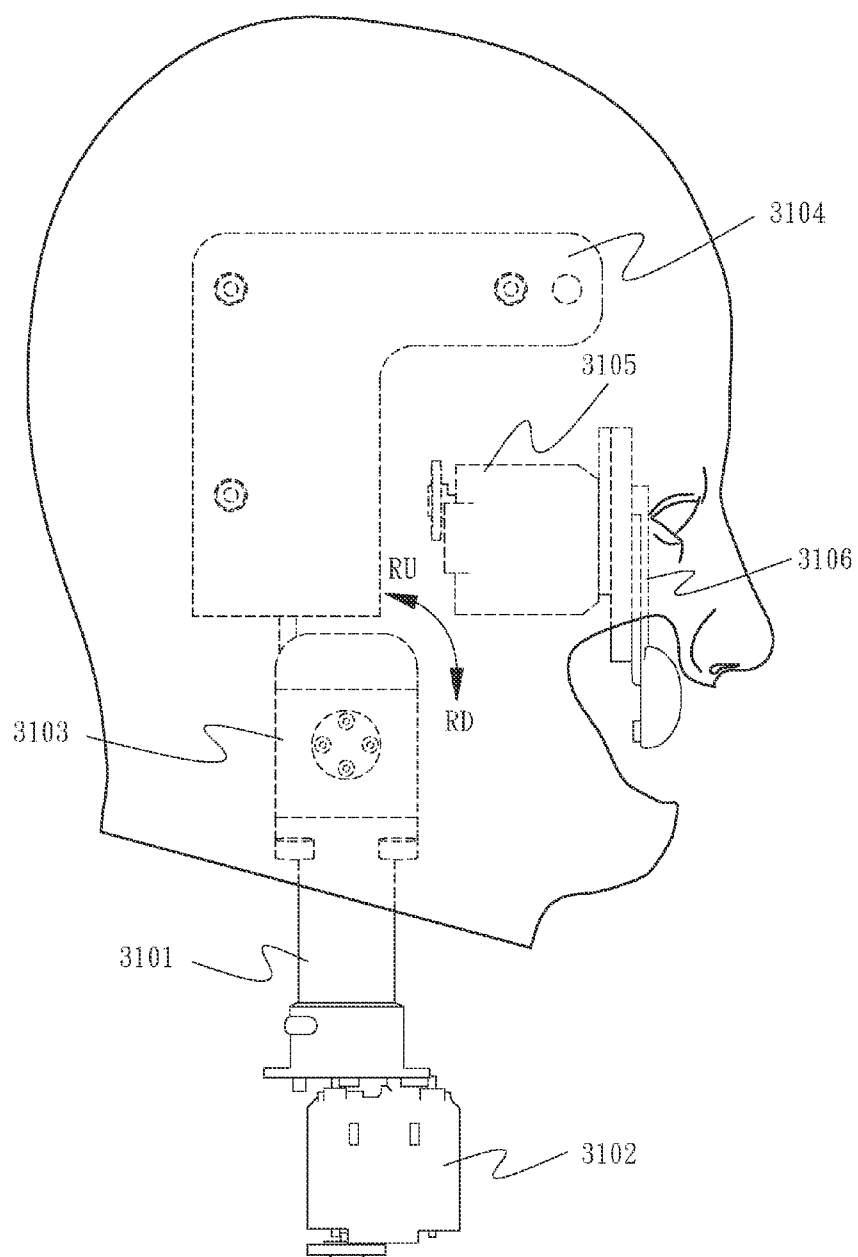


Fig. 11

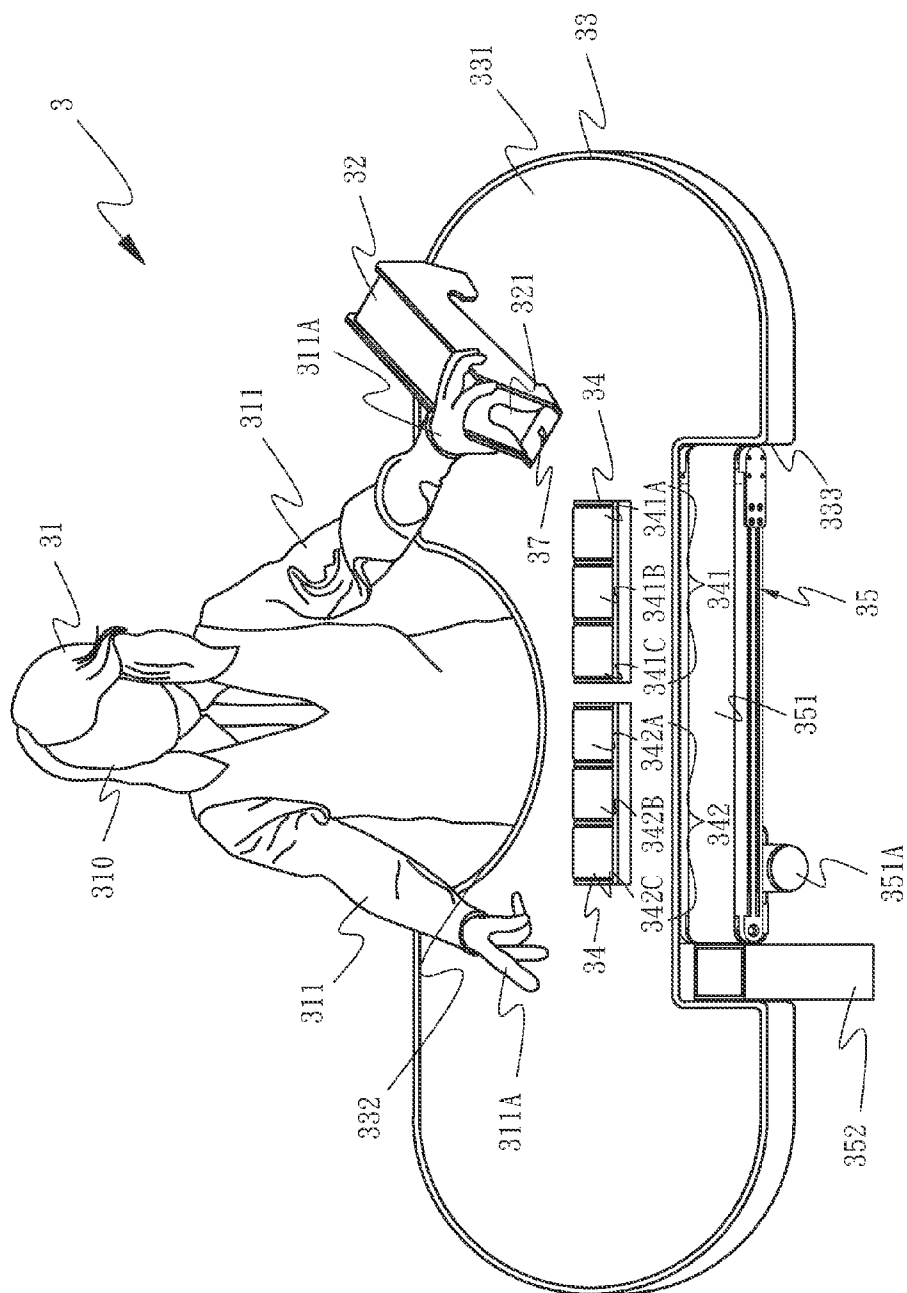
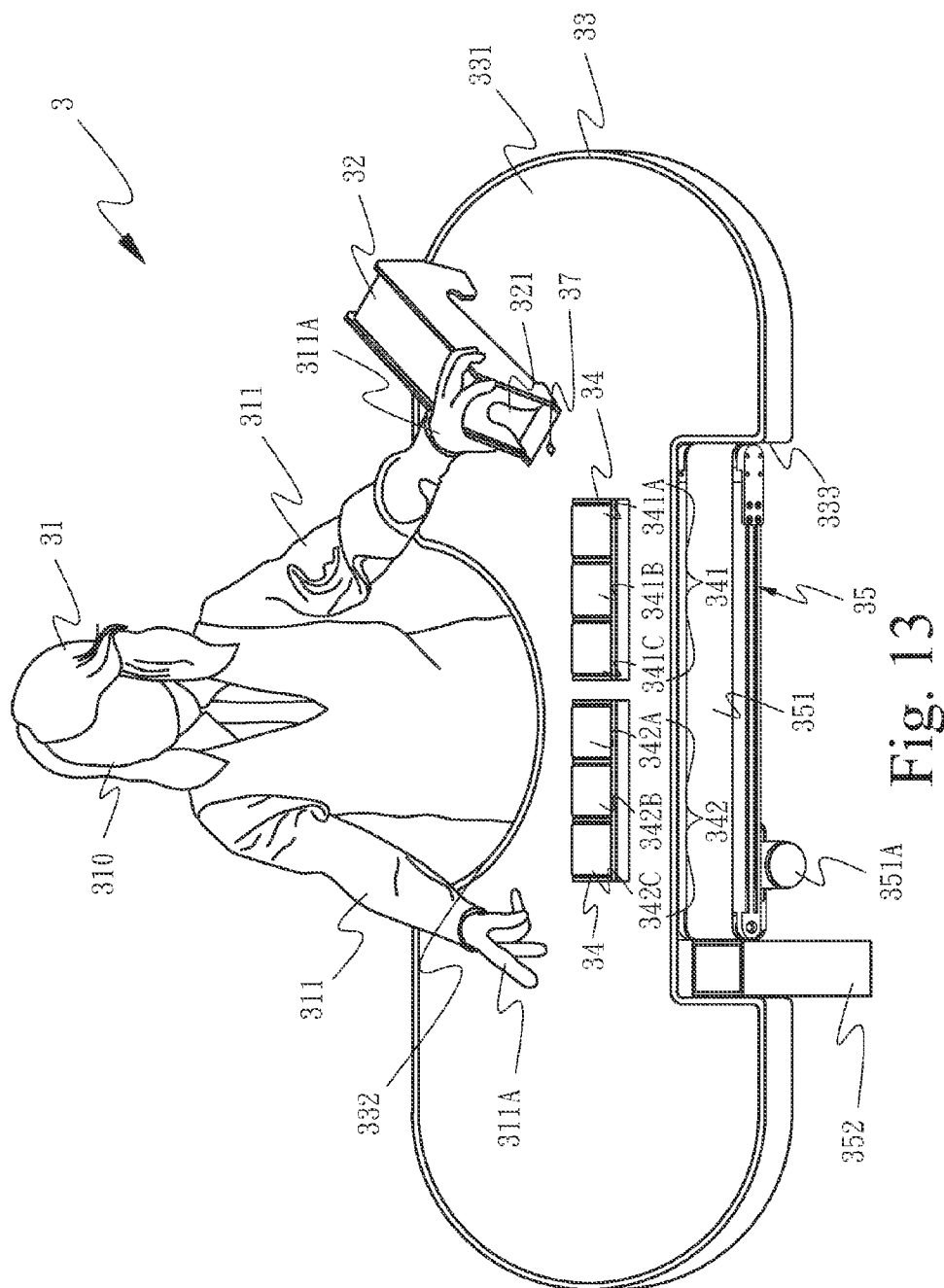


Fig. 12



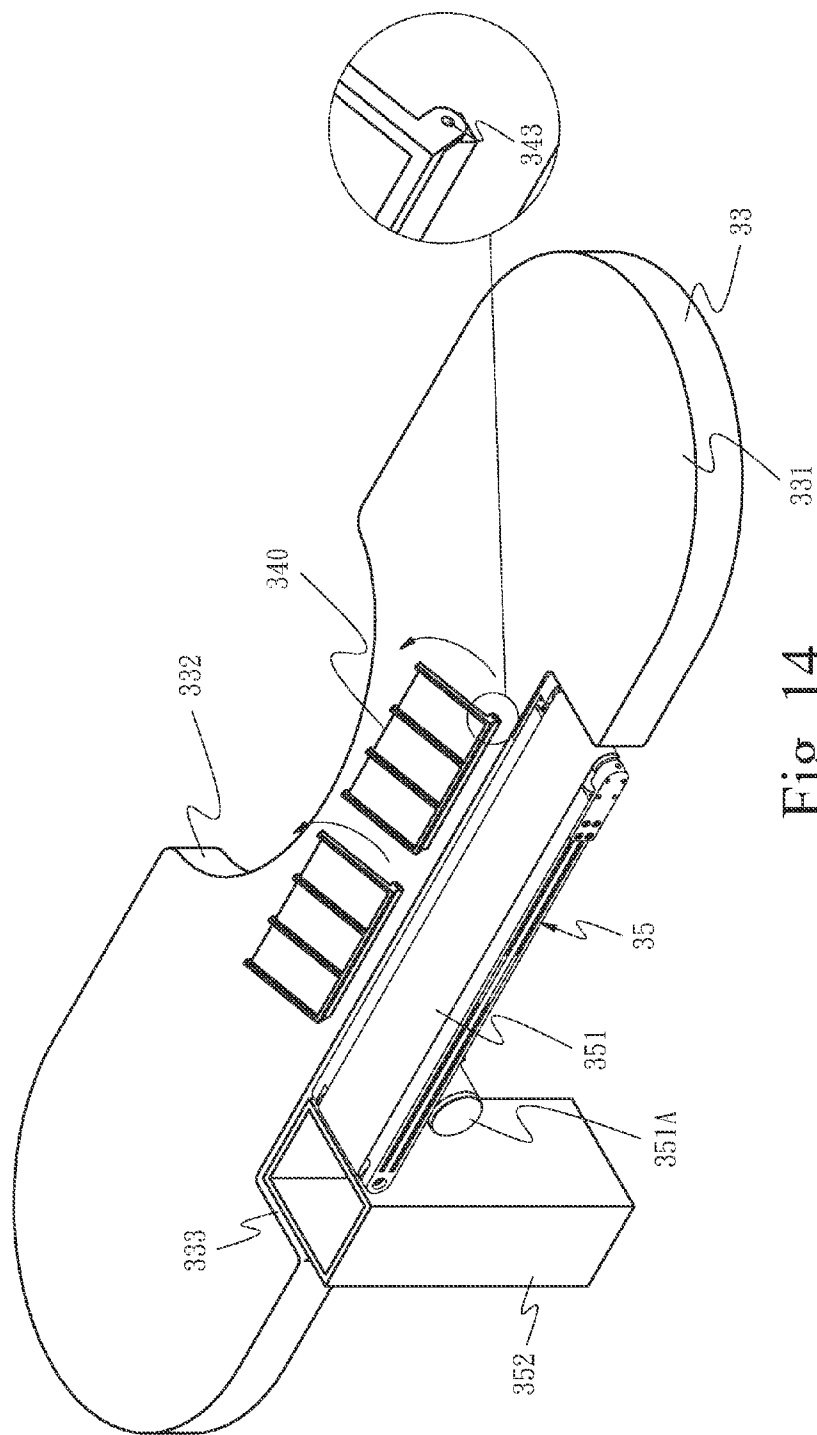
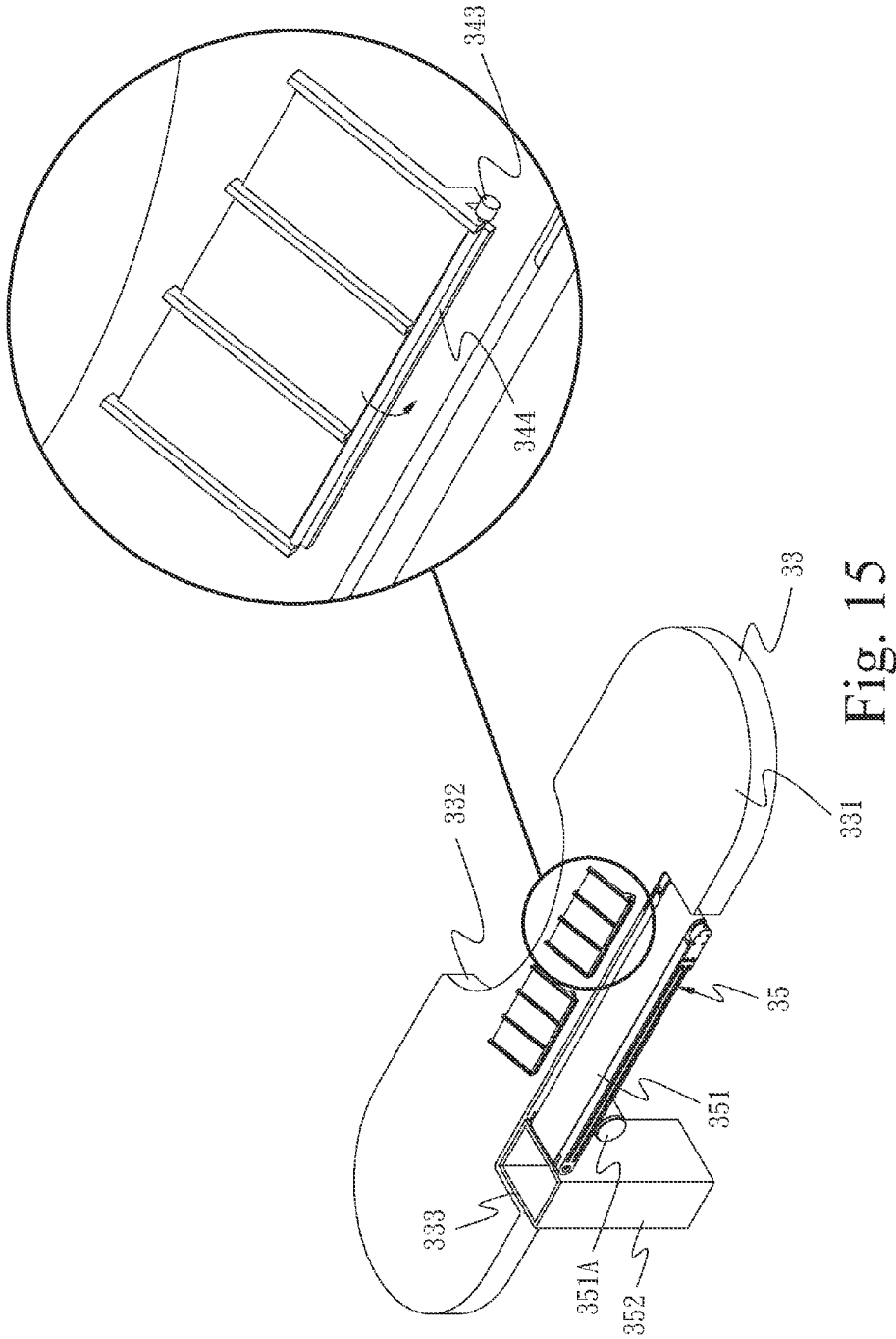


Fig. 14







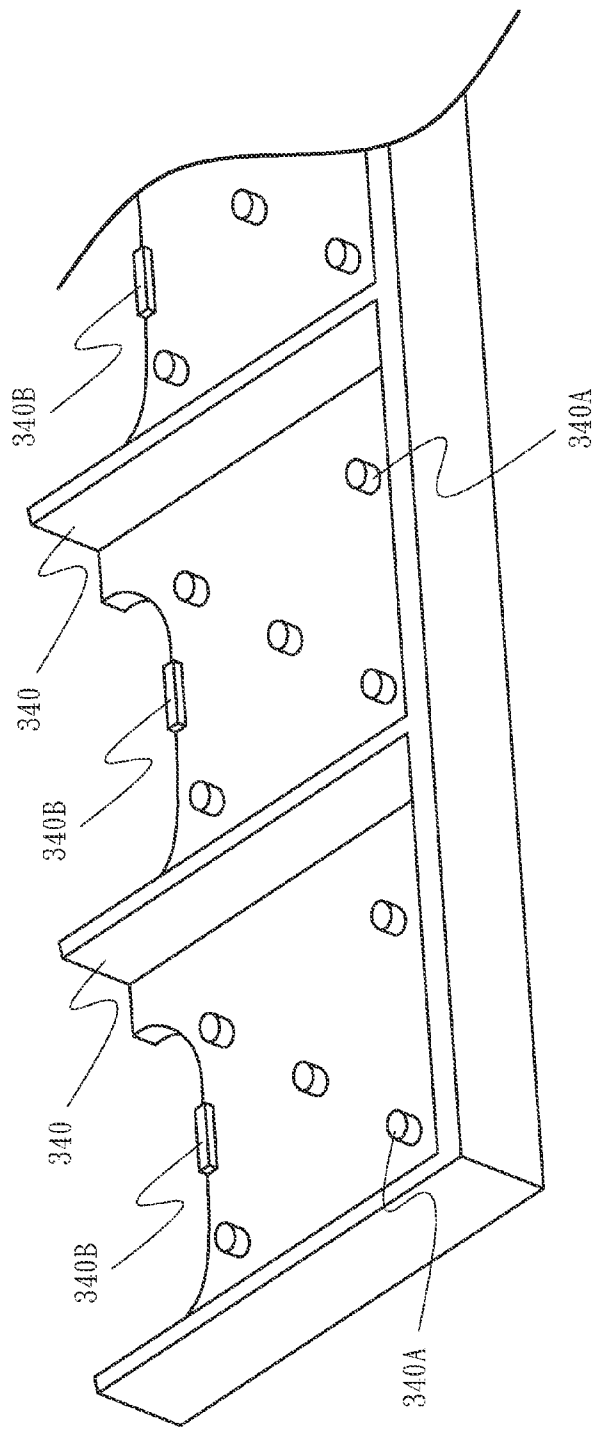
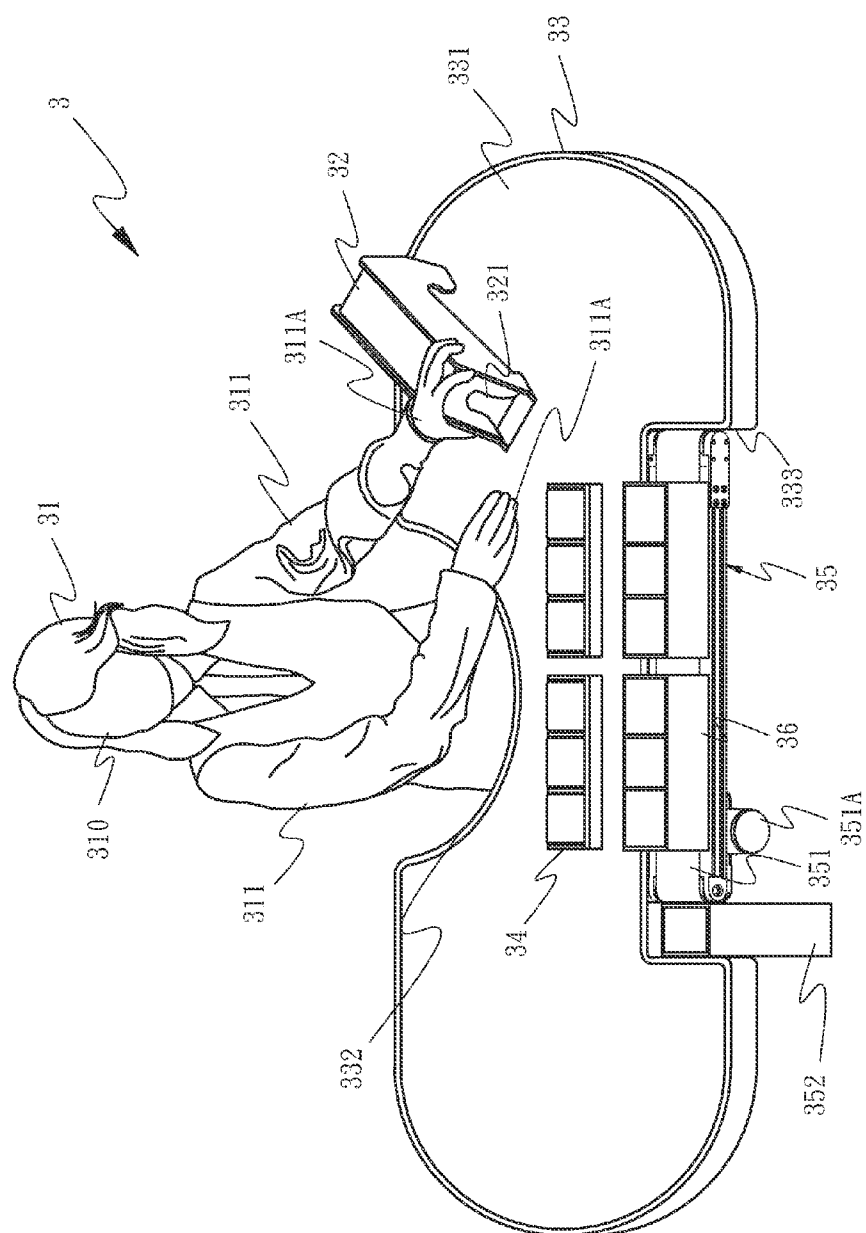


Fig. 17

Li<sup>2+</sup> 18

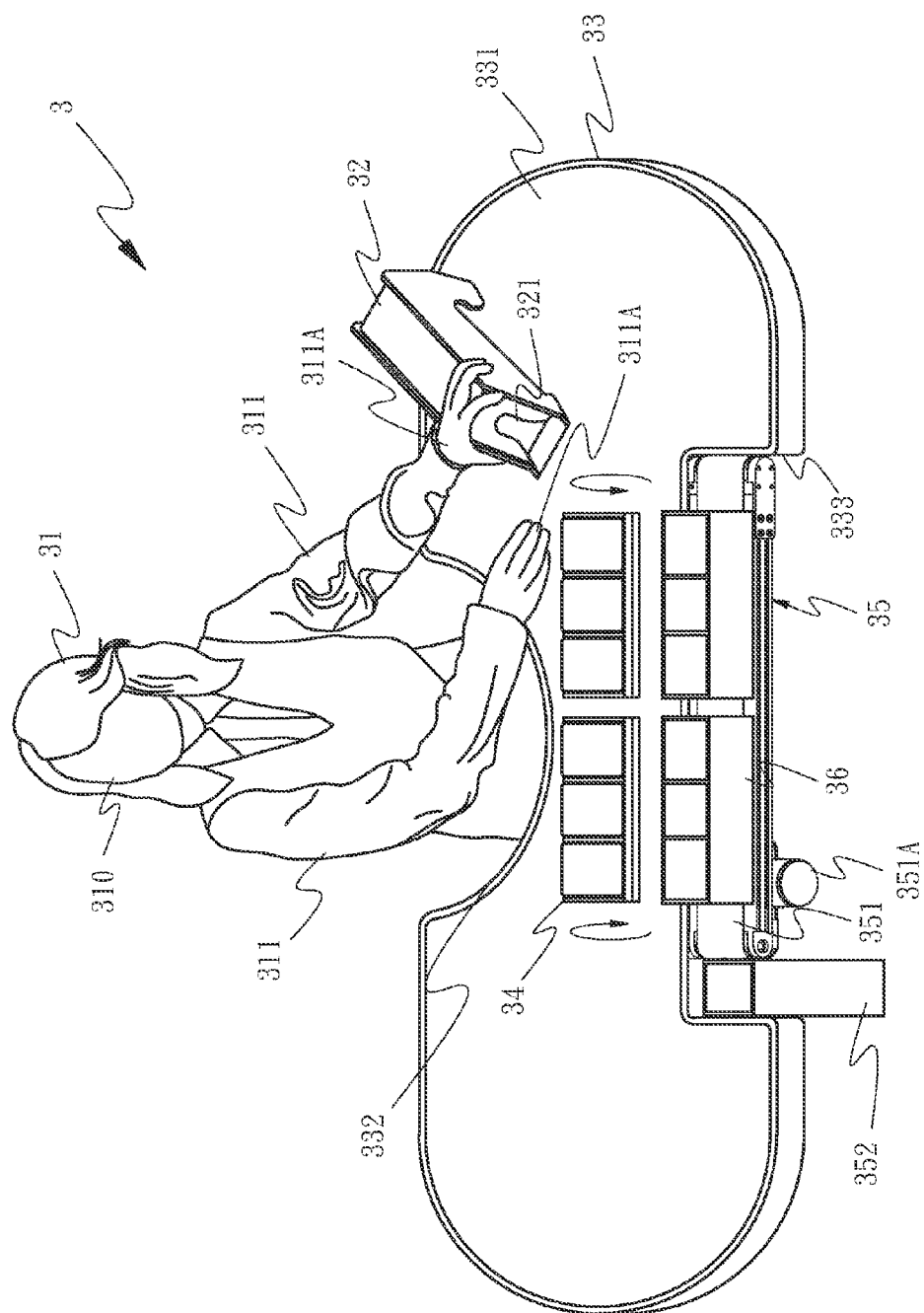


Fig. 19

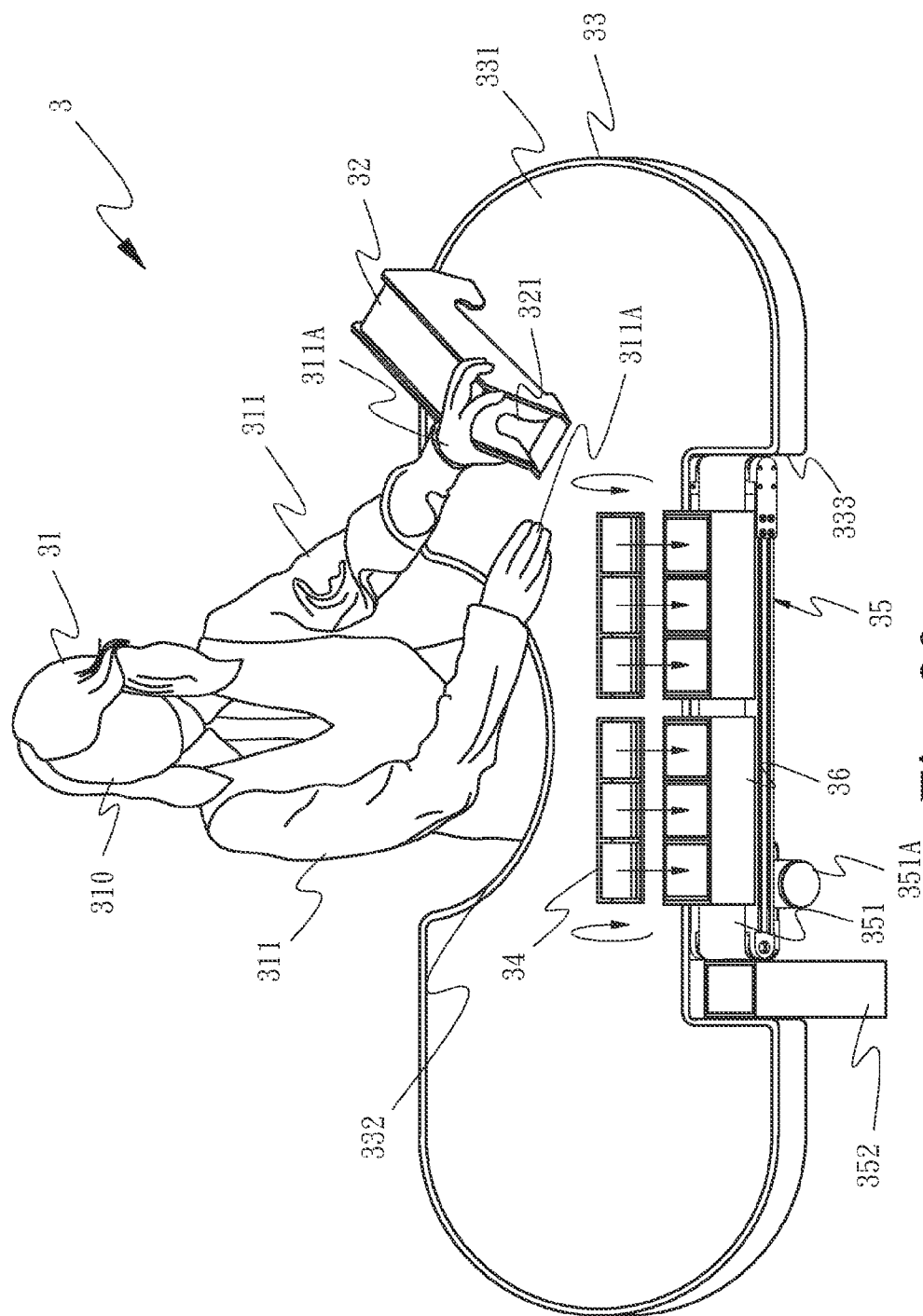


Fig. 20

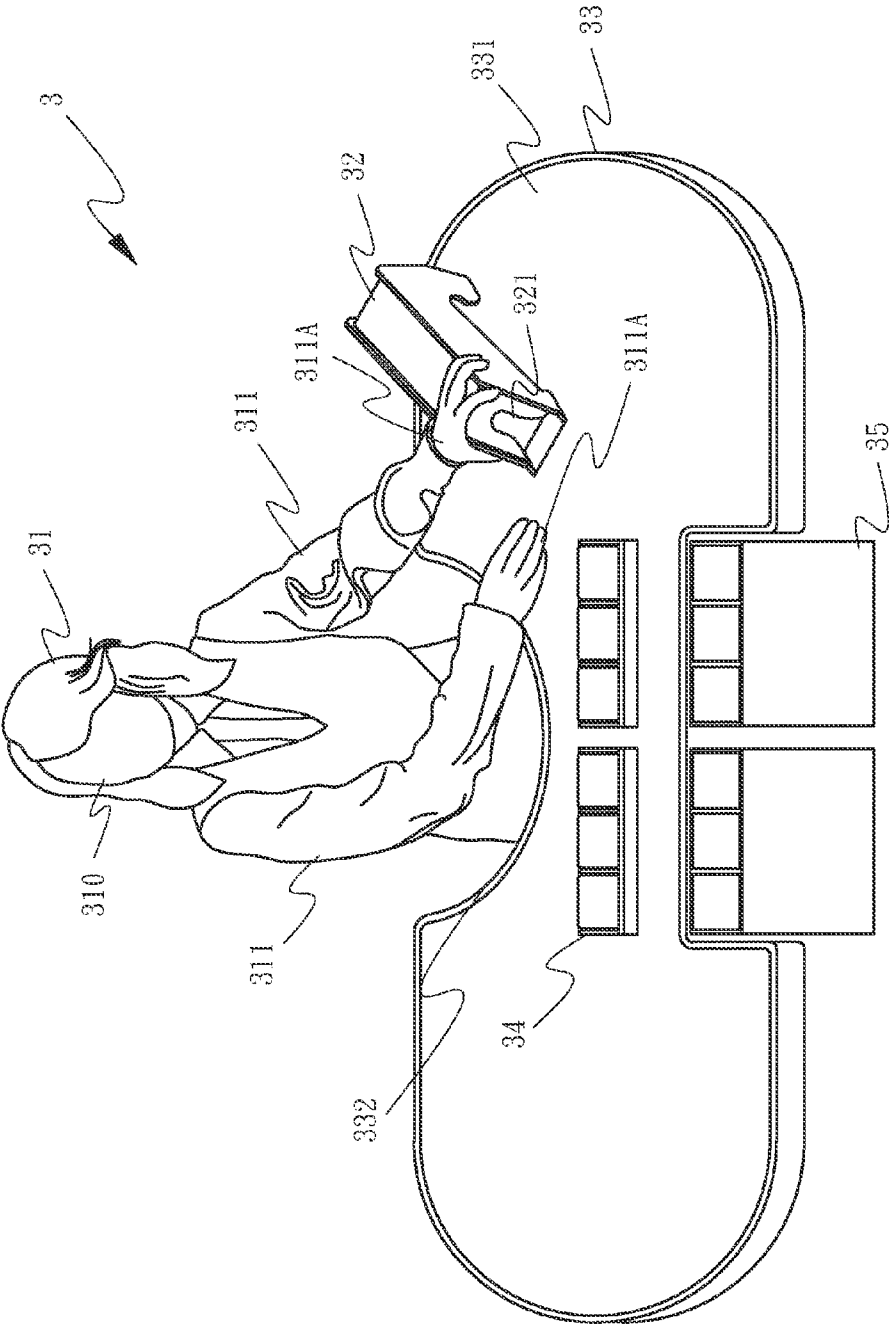


Fig. 21

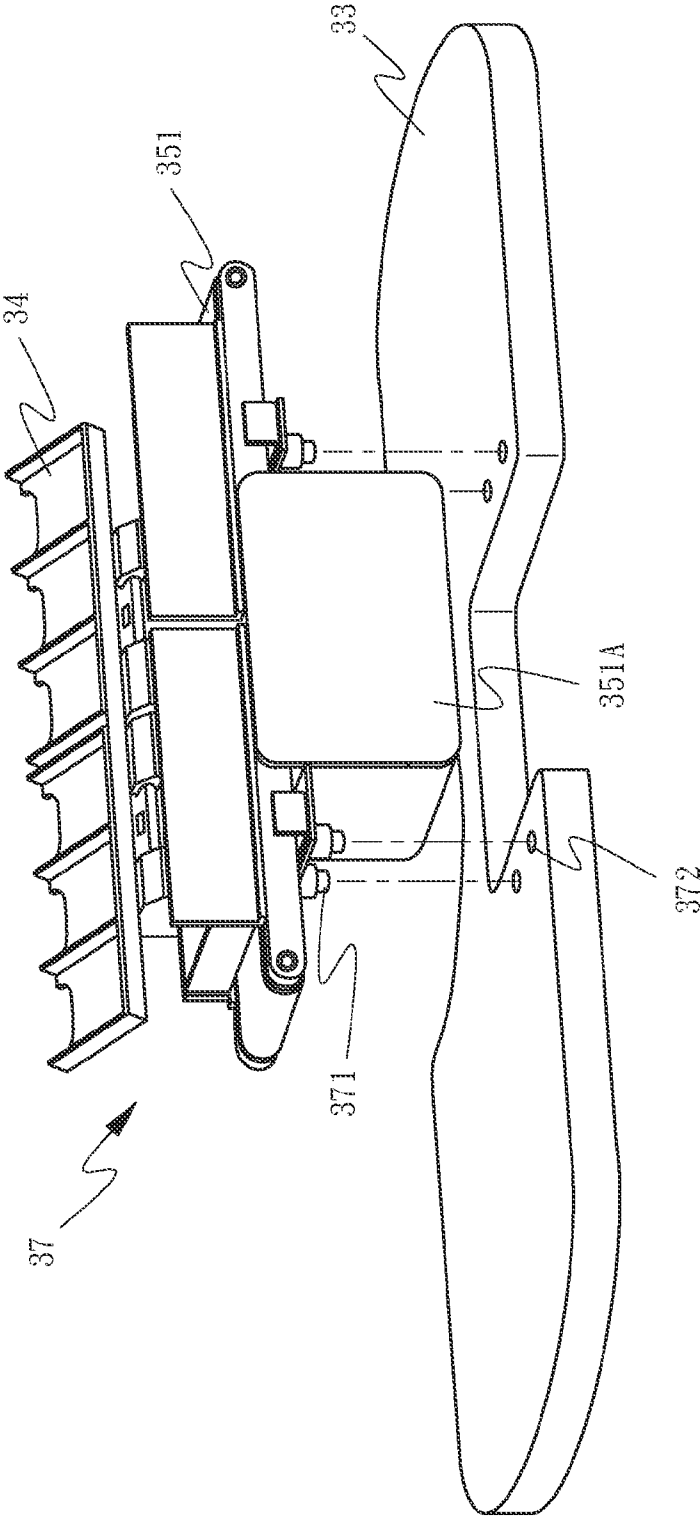


Fig. 22

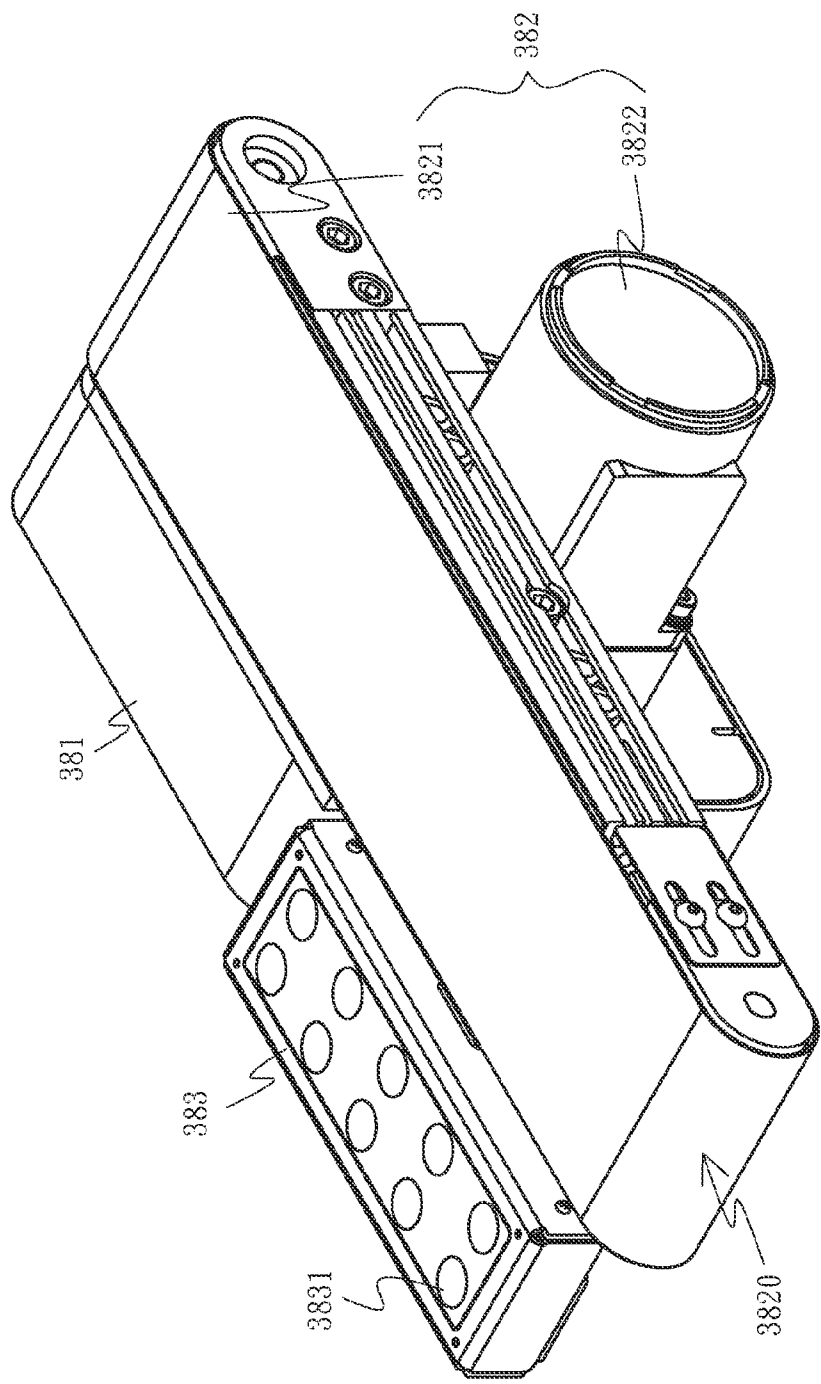
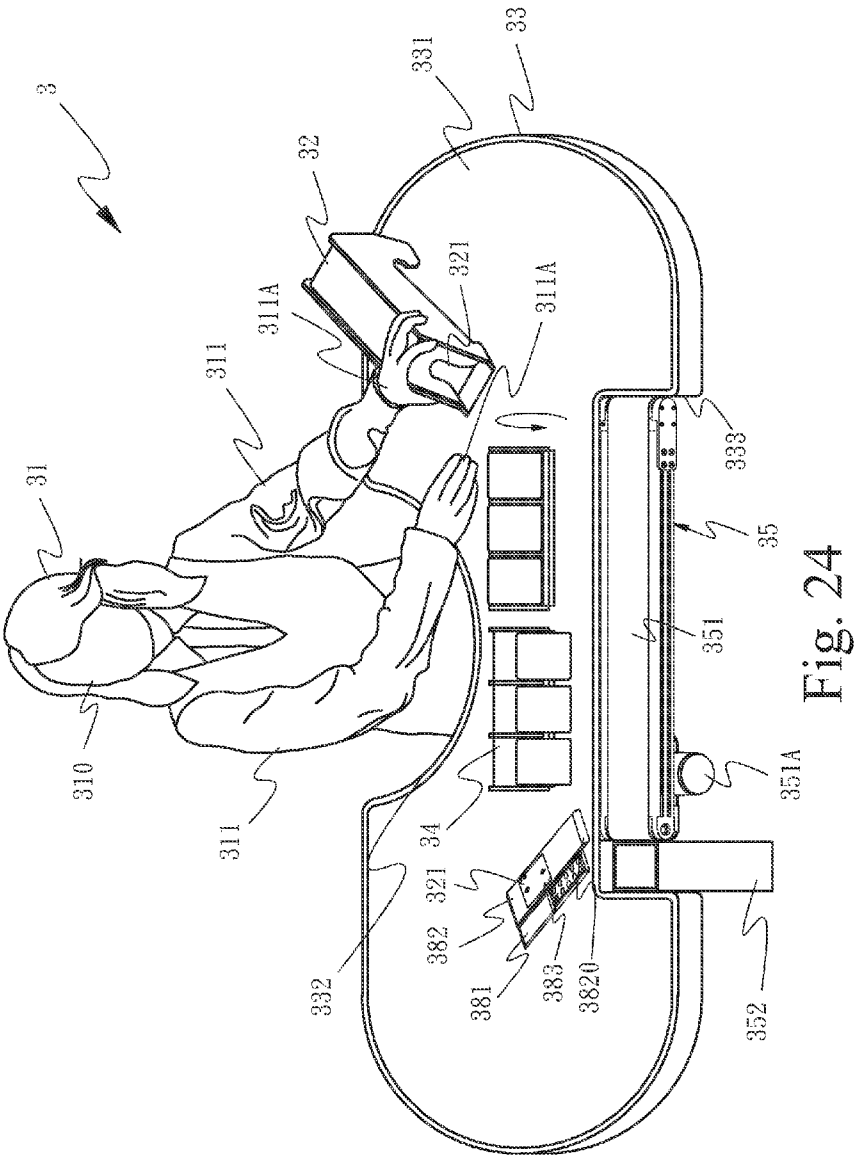


Fig. 23





## DEALING ROBOT DEVICE

[0001] This application claims priority benefits of TW Application Ser. No. 104119018 filed 2015 Jun. 12 which is hereby incorporated herein by reference its entirety.

## BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present disclosure relates to a robot device, particularly a dealing robot device which deals poker cards.

[0004] 2. Description of the Prior Art

[0005] Currently, a poker dealer who hosts a poker game has to deal poker cards to players and decide a winner in a round by values of poker cards held in players. In this regard, the job for dealing may be a heavy burden for a poker dealer who feels tired when facing many players in a large-size casino and working long hours by dealing poker cards repeatedly.

[0006] In addition, a casino manager managing poker games based on manual dealing may not control personal conditions of every single poker dealer who still takes charge of a poker game when feeling exhausted.

[0007] Moreover, a poker game is delayed easily when a poker dealer fails to report the progress and statistic data of a poker game in a large-scale competition immediately.

[0008] Against this background, how to provide a dealing control device competent in dealing and a dealing robot which follows instructions from the dealing control device for dealing is a technical issue deserving to be solved by the persons skilled in the art.

## SUMMARY OF THE INVENTION

[0009] The present disclosure is intended to provide a dealing robot device which deals poker cards without above-mentioned problems.

[0010] To this ends, the present disclosure provides a dealing robot device which comprises a robotic arm, an electric card shelf and a controller. The robotic arm has a poker card acquiring portion which is used to capture external poker cards. The robotic arm is adjacent to a table. The electric card shelf is installed on a desktop of the table. The controller, which is electrically connected to the robotic arm and the electric card shelf, is configured to operate the robotic arm or the electric card shelf according to instruction information.

[0011] In summary, a dealing robot device in the present disclosure is controlled by instruction information for dealing and effective in reducing manpower requirements of a poker game.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0012] For a better understanding of the aforementioned embodiments of the invention as well as additional embodiments thereof, reference should be made to the Description of Embodiments below, in conjunction with the following drawings in which like reference numerals refer to corresponding parts throughout the figures.

[0013] FIG. 1 is a schematic view of a dealing system in an embodiment.

[0014] FIG. 2 is a schematic view of a control process of a dealing system.

[0015] FIG. 3 is a schematic view illustrating a process of a dealing control device which issues parameters.

[0016] FIGS. 4 and 5 are schematic views which illustrate a process of troubleshooting of a dealing system.

[0017] FIG. 6 is a structural diagram of a dealing robot in another embodiment.

[0018] FIG. 7 is a schematic view which illustrates a poker card acquiring portion of a dealing robot in another embodiment.

[0019] FIG. 8 is a schematic view of a running dealing robot.

[0020] FIG. 9 through FIG. 11 are schematic views which illustrate a structures of a dealing robot's head in another embodiment.

[0021] FIG. 12 is a schematic view of an image acquiring module in another embodiment.

[0022] FIG. 13 is a schematic view of an image acquiring module in a further embodiment.

[0023] FIG. 14 is a schematic view of an electric card shelf in another embodiment.

[0024] FIG. 15 is a schematic view of an electric card shelf in a further embodiment.

[0025] FIG. 16 is a schematic view of an electric card shelf running in yet another embodiment.

[0026] FIG. 17 is a schematic view which illustrates a structure of a panel board in another embodiment.

[0027] FIG. 18 is a schematic view which illustrates a structure of a retrieving frame in another embodiment.

[0028] FIG. 19 through FIG. 21 are schematic views which illustrate a retrieving frame running in a further embodiment.

[0029] FIG. 22 is a schematic view of a quick release assembly in another embodiment.

[0030] FIGS. 23 and 24 are schematic views which illustrate a poker card abandoning kit in another embodiment.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0031] The following description is about embodiments of the present invention; however it is not intended to limit the scope of the present invention.

[0032] Referring to FIG. 1, which is a schematic view of a dealing system in an embodiment. The dealing system comprises a management device 1, a dealing control device 2 and a dealing robot device 3. The dealing control device 2 is connected to the dealing control device 2 and the dealing robot device 3. In the embodiment, a dealing system is explained with but not limited to a single dealing control device 2 and a single dealing robot device 3. The management device 1 links and manages a plurality of dealing control devices 2; the dealing control device 2 also links and controls a plurality of dealing robot devices 3.

[0033] The management device 1, the dealing control device 2 and a controller 302 in the dealing robot device 3 are electronic devices with computing power such as computer, programmable digital circuit and microprocessor. The management device 1 is further equipped with a user interface (software interface or hardware interface) by which an administrator 10 performs operations. The abovementioned microprocessor is connected to non-volatile memories in which an operation system, program instructions and other relevant information are saved.

[0034] The dealing control device 2 comprises a control-side processor 21, a control-side first communication interface 22 and a control-side second communication interface 23. The control-side first communication interface 22 links

the management device 1 so that the management device 1 manages the dealing control device 2 through the control-side first communication interface 22. The control-side second communication interface 23 is electrically connected to an external dealing device (such as the dealing robot device 3). The control-side processor 21 links the control-side communication interfaces through which control instructions regulating the dealing robot device 3 are sent. The control instructions comprise initial setting instruction information, dealing instruction information, retrieving instruction information, etc.

[0035] Specifically, the initial setting instruction information is related to initial settings of internal parameters, motions and postures of the dealing robot device 3. The dealing instruction information is related to directing a robotic arm 311 of the dealing robot device 3 to fetch poker cards 321 and put the poker cards 321 on a table. The dealing round information activates the robotic arm 311 of the dealing robot device 3 to put the poker cards 321 on specific positions of a card shelf (positions for a banker's (player's) first to third cards). The retrieving instruction information is related to directing the dealing robot device 3 to retrieve the poker cards 321 on a card shelf.

[0036] The dealing robot device 3 further comprises a dealing-side communication interface 301, a controller 302, a humanoid robot 31, an electric card shelf 34 and a retrieving device 35. The controller 302 links the dealing-side communication interface 301, the humanoid robot 31, the electric card shelf 34 and the retrieving device 35. The dealing-side communication interface 301 is configured to communicate with the control-side second communication interface 23 for transmission of instructions from the control-side processor 21 to the controller 302.

[0037] The abovementioned communication interfaces are wired or wireless communication interfaces. A wired communication interface is a telephone line interface, an optical fiber interface or a network interface. A wireless communication interface is applicable to 2G/3G/4G, Wi-Fi, Wi-MAX, etc. The abovementioned communication interfaces as examples explained herein are not limited to the wired or wireless communication interfaces.

[0038] A dealing system in the present application available to various poker games is further explained in dealing steps of Baccarat.

[0039] Referring to FIG. 2, which is a schematic view of a control procedure of a dealing system in the present disclosure. With the dealing system activated, the dealing control device 2 issues instruction information for initial settings to the dealing robot device 3. The steps to transmit the instruction information are explained as follows:

[0040] S101: The dealing control device 2 issues a request (Program instruction: Motion Request (REST)) to the dealing robot device 3; the dealing robot device 3 receiving the request responds to the dealing control device 2 by sending an acknowledgement message (ACK).

[0041] S102: The dealing robot device 3 which completed resetting issues a notification (Program instruction: Motion Notification (RESET)) to the dealing control device 2; the dealing control device 2 receiving the notification responds to the dealing robot device 3 by sending an acknowledgement message (ACK).

[0042] With the initial settings completed, a dealing system executes the following instruction information for dealing in the first and second rounds. The steps are explained as follows:

[0043] S103: The dealing control device 2 issues a request (Program instruction: Motion Request (DEAL)) to the dealing robot device 3; the dealing robot device 3 which completed dealing responds to the dealing control device 2 by sending an acknowledgement message (ACK).

[0044] S104: The dealing robot device 3 acquires a card value through an image acquiring device (not shown in the figure) and inform the dealing control device 2 of the card value by sending a notification (Program instruction: Card Recognition Notification (Card)); the dealing control device 2 receiving the card value responds to the dealing robot device 3 by sending an acknowledgement message (ACK). (The parameter "Card" comprises information related to a poker card 321 such as suit and value.)

[0045] S105: The dealing robot device 3 receiving the acknowledgement message in S104 issues a notification (Program instruction: Motion Complete Notification (DEAL)) to the dealing control device 2; the dealing control device 2 receiving the notification responds to the dealing robot device 3 by sending an acknowledgement message (ACK).

[0046] The abovementioned image acquiring module comprises a photographic lens and a modular PCB on which electric circuits for image processing are installed. An image of a poker card 321 acquired through the image acquiring module can be transmitted from the dealing robot device 3 directly or recognized by the dealing robot device 3 for the suit and the value on the poker card 321. The control-side processor 21 receiving the card value sets up instructions such as dealing poker cards 321 to a banker/player in the nth round.

[0047] The dealing control device 2 relies on card values transmitted from the dealing robot device 3 to decide whether a third poker card should be dealt based on rules in Table 1 after two poker cards were dealt on the banker's (player's) card shelf. The dealing control device 2 which decides to deal the third poker card will execute dealing instruction information from S106 to S108.

TABLE 1

Total value of two cards		Player	Banker
0	Deal a poker card.	Deal a poker card.	Deal a poker card.
1	Deal a poker card.	Deal a poker card.	Deal a poker card.
2	Deal a poker card.	Deal a poker card.	Deal a poker card.
3	Deal a poker card.	8, the value of the player's third poker card: Do not deal a poker card; Other value: Deal a poker card.	0, 1, 8 or 9, the value of the player's third poker card: Do not deal a poker card; Other value: Deal a poker card.
4	Deal a poker card.	0, 1, 8 or 9, the value of the player's third poker card: Do not deal a poker card; Other value: Deal a poker card.	0, 1, 2, 3, 8 or 9, the value of the player's third poker card: Do not deal a poker card; Other value: Deal a poker card.
5	Deal a poker card.	0, 1, 2, 3, 8 or 9, the value of the player's third poker card: Do not deal a poker card; Other value: Deal a poker card.	6 or 7, the value of the player's third poker card: Deal a poker card; Other value: Do not deal a poker card.
6	Do not deal a poker card.	6 or 7, the value of the player's third poker card: Deal a poker card; Other value: Do not deal a poker card.	

TABLE 1-continued

Total value of two cards	Player	Banker
7	Do not deal a poker card.	Do not deal a poker card.
8	Do not deal a poker card.	Do not deal a poker card.
9	Do not deal a poker card.	Do not deal a poker card.

[0048] S106: The dealing control device 2 issues a request (Program instruction: Motion Request (DEAL)) to the dealing robot device 3; the dealing robot device 3 which completed dealing responds to the dealing control device 2 by sending an acknowledgement message (ACK).

[0049] S107: The dealing robot device 3 acquires a card value of a poker card 321 in S106 through an image acquiring device and sends a notification (Program instruction: Card Recognition Notification) to the dealing control device 2; the dealing control device 2 receiving the card value responds to the dealing robot device 3 by sending an acknowledgement message (ACK).

[0050] S108: The dealing robot device 3 receiving the acknowledgement message in S107 issues a notification (Program instruction: Motion Complete Notification (DEAL)) to the dealing control device 2; the dealing control device 2 receiving the notification responds to the dealing robot device 3 by sending an acknowledgement message (ACK).

[0051] S109: The dealing control device 2 issues a request of retrieving poker cards 321 (Program instruction: Cards Collection Request) to the dealing robot device 3; the dealing robot device 3 receiving the request sends an acknowledgement message (ACK).

[0052] S110: The dealing robot device 3 which retrieved poker cards issues a notification (Motion Complete Notification (Collect Cards)) to the dealing control device 2; the dealing control device 2 receiving the notification sends an acknowledgement message (ACK).

[0053] With dealing completed, the dealing control device 2 or a terminal unit controlling the dealing control device 2 calculates a total value of poker cards held by a banker (player) to create outcome information by deciding a winner (the banker or the player) or a draw in a round

[0054] Referring to FIG. 3, which illustrates the dealing control device 2 issues control instructions based on the following steps to change specific parameters of the dealing robot device 3:

[0055] S201: The dealing control device 2 issues an instruction, Parameter Query, to the dealing robot device 3; the dealing robot device 3 receiving the instruction responds to the dealing control device 2 by sending a message, Parameter Response.

[0056] S202: The dealing control device 2 receiving the message in S201 issues an instruction, Parameter Setting, to the dealing robot device 3; the dealing robot device 3, which received and executed the instruction, responds to the dealing control device 2 by sending an acknowledge message (ACK).

[0057] In the present disclosure, the dealing robot device 3 is a humanoid robot 31 and the abovementioned parameters are settings to control postures and motions of the humanoid robot 31 and expressions on a face 310.

[0058] Referring to FIG. 4, which illustrates the dealing control device 2 further links the management device 1 operated by an administrator and used to reset the dealing robot device 3. The steps to configure the dealing robot device 3 are shown as follows:

[0059] S301: The dealing robot device 3, which detects any internal error, issues an error message (Program instruction: Fatal Notification (TYPE)) to the dealing control device 2; the dealing control device 2 receiving the message responds to the dealing robot device 3 by sending an acknowledgement message (ACK). ("TYPE", a parameter in the error message, means software error, hardware error, power failure, overheat, etc.)

[0060] S302: The dealing robot device 3 issues a notification to the management device 1; the management device 1 receiving the notification responds to the dealing robot device 3 by sending an acknowledgement message (ACK).

[0061] S303: The management device 1 issues an instruction, Resume, to the dealing control device 2.

[0062] S304: The dealing control device 2 receiving the instruction in S303 issues a request (Program instruction: Motion Request (RESET)) to the dealing robot device 3; the dealing robot device 3 is reset.

[0063] Referring to FIG. 5, which illustrates the dealing control device 2 having issued n motion requests to the dealing robot device 3 but received no response from the dealing robot device 3 informs the management device 1 of current status and the management device 1 issues an instruction, Reset, to reactivate the dealing robot device 3. As shown in the following steps, the above operation is enabled when the dealing control device 2 issued three motion requests but received no response from the dealing robot device 3:

[0064] S311: The dealing control device 2 issues a request (Program instruction: Motion Request (DEAL)) to the dealing robot device 3; the dealing robot device 3 does not send an acknowledgement message to the dealing control device 2 (no response for the first time).

[0065] S312: The dealing control device 2 issues a request (Program instruction: Motion Request (DEAL)) to the dealing robot device 3; the dealing robot device 3 does not send an acknowledgement message to the dealing control device 2 (no response for the second time).

[0066] S313: The dealing control device 2 issues a request (Program instruction: Motion Request (DEAL)) to the dealing robot device 3; the dealing robot device 3 does not send an acknowledgement message to the dealing control device 2 (no response for the third time).

[0067] S314: The dealing control device 2 issues a notification to the management device 1; the management device 1 receiving the notification responds to the dealing control device 2 by sending an acknowledge message (ACK).

[0068] S315: The management device 1 issues an instruction, Restart, to the dealing control device 2.

[0069] S316: The dealing control device 2 receiving the instruction in S315 issues a request (Program instruction: Motion request (RESET)) to the dealing robot device 3; the dealing robot device 3 is reactivated.

[0070] The program instructions in the present disclosure are functions which are created with one of computer programming languages including, without limitation, assembly language, C/C++, Java, Python, Visual Basic, etc.

Descriptions of the Program Instruction, Motion Request (TYPE):

[0071]

TABLE 2

TYPE	Instruction Code	Description
RESET	IN-1	Reset (initial posture)
Nod	IN-2	Nod
Smile	IN-3	Smile
Turn Left	IN-4	Turn left
Turn Right	IN-5	Turn right
DEAL (1st Banker)	IN-6	Deal a poker card to the banker in the first round.
DEAL (2nd Banker)	IN-7	Deal a poker card to the banker in the second round.
DEAL (3rd Banker)	IN-8	Deal a poker card to the banker in the third round.
DEAL (1st Player)	IN-9	Deal a poker card to the player in the first round.
DEAL (2nd Player)	IN-10	Deal a poker card to the player in the second round.
DEAL (3rd Player)	IN-11	Deal a poker card to the player in the third round.
Collect Cards (release)	IN-12	Retrieve poker cards: Release poker cards 321.
Collect Cards (recycle)	IN-13	Retrieve poker cards: Activate the electric conveyer belt 351.
Emergency Stop	IN-13	Emergency stop

Descriptions of Two Columns for Poker Cards:

[0072]

TABLE 3

Suit	Value
Spade, Heart, Diamond and Club	A, 2, 3, 4, 5, 6, 7, 8, 9, 10, J, Q and K

[0073] Referring to FIG. 6, which is a structural diagram of the dealing robot device 3 in another embodiment. As shown in the block diagram in FIG. 1, the dealing robot device 3 comprises a humanoid robot 31, an electric card shelf 34 and a retrieving device 35. The humanoid robot 31 and the retrieving device 35 are adjacent to the table 33; the card box 32 and the electric card shelf 34 are placed on a desktop 331 of the table 33. In another embodiment, the table 33 comprises a first concave area 332 and a second concave area 333, both of which concave from table edges to the table center and are opposite to each other. In another embodiment, the humanoid robot 31 and the retrieving device 35 are placed in the first concave area 332 and the second concave area 333, respectively.

[0074] A poker card acquiring portion 311A defined at one end of the robotic arm 311 of the humanoid robot 31 can be an electric gripper or an electric sucker by which a poker card 321 at an outlet of the card box 32 is extracted. The electric card shelf 34 is divided into a banker poker card placement area 341 and a player poker card placement area 342. The banker poker card placement area 341 is further divided into a first-round placement area 341A, a second-round placement area 341B and a third-round placement area 341C; the player poker card placement area 342 is further divided into a first-round placement area 342A, a second-round placement area 342B and a third-round placement area 342C.

[0075] Referring to FIG. 7, which illustrates the poker card acquiring portion 311A further comprises an electric sucker 311B in another embodiment. The electric sucker 311B has a control port electrically connected to the controller 302 and is regulated by the controller 302 during extraction of a poker card.

[0076] Referring to FIG. 8, which illustrates the controller 302 obeys an instruction listed in Table 2 for operation when the instruction from the control-side second communication interface 23 is received by a dealing-side communication interface 301. In the case of "Type" of an instruction, "DEAL (1st Banker)" for example, a microprocessor fetches the instruction, "IN-6", and executes "Deal a poker card to the banker in the first round". The steps for execution are shown from M101 to M105:

[0077] M101: Instruct the poker card acquiring portion 311A of the robotic arm 311 to move to P1(x1, y1, z1), the outlet of the card box 32.

[0078] M102: Instruct the poker card acquiring portion 311A to catch a poker card 321.

[0079] M103: Instruct the poker card acquiring portion 311A of the robotic arm 311 to move to P2(x2, y2, z2), the first placement area of the banker poker card placement area.

[0080] M104: Instruct the poker card acquiring portion 311A to release the poker card 321.

[0081] M105: Instruct the robotic arm 311 to move to an initial position.

[0082] The abovementioned robot may follow a straight path or a fitted-curve path (which imitates movement of a human being's arm) between the two positions, P1 and P2. In another embodiment, the controller 302 further instructs the robotic arm 311 to download humanoid motion settings during movement between the two positions, P1 and P2, and express humanoid postures based on fitted-curve movement rather than straight movement. The abovementioned fitted curve is created according to movement of a real person's arms during dealing.

[0083] Referring to FIG. 9 through FIG. 11, which are perspective views illustrating head structure of the humanoid robot 31. In order to simulate a real person's expressions, the humanoid robot 31 of the dealing robot 1 is further provided with a neck brace 3101, a neck motor 3102, a head motor 3103, a head brace 3104, a face motor 3105 and an actuation linkage 3106 in a head. The face 310 is made of plastic material such as silicone. The neck brace 3101 has both ends to link an output terminal of the neck motor 3102 and the body of the head motor 3103, respectively. The head brace 3104 has both ends to link an output terminal of the head motor 3103 and internal structure of the head, respectively. The face motor 3105 is optionally fixed at internal structure of the head or the head brace 3104; the face motor 3105 allows the output terminal to link one end of the actuation linkage 3106 which has the other end optionally linking each position inside the face 310 including, without limitation, eyes' inner surface, mouth's inner surface, forehead's inner surface, etc. The neck motor 3102, the head motor 3103 and the face motor 3105 are electrically connected to the controller 302. The controller 302 which downloaded motion settings simulating a real person is able to instruct each motor to perform a specific motion. The motions simulating a real person include, without limitation, those motions as shown in Table 4:

TABLE 4

Humanoid motion settings		
Motion	Instruction	Instruction content/movement executed by a motor
Shake head	PM1	The head driven by the neck motor 3102 turns left and right (RL $\leftrightarrow$ RR).
Turn left	PM2	The head driven by the neck motor 3102 turns left (RL).
Turn right	PM3	The head driven by the neck motor 3102 turns right (RR).
Nod	PM4	The head driven by the head motor 3103 nods up and down (RU $\leftrightarrow$ RD).
Raise head	PM5	The head driven by the head motor 3103 turns upward (RU).
Lower head	PM6	The head driven by the head motor 3103 turns downward (RD).
Smile	PM7	The face driven by the face motor 3105 smiles.

[0084] Referring to FIG. 12 through FIG. 13, which illustrate the dealing robot device 3 further comprises an image acquiring module 37 electrically connected to the controller 302 in another embodiment. The image acquiring module 37 is adjacent to an outlet of the card box 32. As shown in FIG. 12, the image acquiring module 37 in the embodiment is situated on the card box 32 and adjacent to an outlet of the card box 32. Alternatively, the image acquiring module 37 is situated on the table 33 and adjacent to an outlet of the card box 32, as shown in the embodiment in FIG. 13. The image acquiring module 32 comprises a photographic lens, a sensor, a flashlight and image control circuits (not shown in the figure) connected to the photographic lens, the sensor and the flashlight. The abovementioned sensor, which is used to sense a poker card passing through the image acquiring module, can be one of the following components including photo sensor (photo coupler, solar panel, etc.) and distance detector (ultrasonic detector, radar detector, etc.). When a signal (for example, photo-interrupt signal, distance-change signal, etc.) from the sensor through which a poker card 321 extracted by the dealing robot device 3 passes is transmitted to the image control circuits, the photographic lens is driven to take a photo of a poker card's front face and the image control circuits, which measures light intensity on a poker card, determines to activate the flashlight synchronously. As such, real-time information of a poker card's front face is captured by the image control circuits and transmitted to the controller 302 after the poker card 321 is removed from the card box 32 by the dealing robot device 3.

[0085] The retrieving device 35 further comprises an electric conveyer belt 351 and a retrieving box 352. The electric conveyer belt 351 adjacent and opposite to the electric card shelf 34 is situated below the electric card shelf 34 and used to receive poker cards 321 from the electric card shelf 34. The retrieving box 352 has an opening which is opposite to one end of the electric conveyer belt 351 and used to retrieve poker cards 321 carried on the running electric conveyer belt 351. The controller 302 links a conveyer motor 351A of the electric conveyer belt 351. The conveyer motor 351A, which is activated when receiving an instruction from the controller 302, drives the conveyer to operate.

[0086] Referring to FIG. 14, which illustrates the electric card shelf 34 comprises a panel board 340 and a shelf motor 343 in another embodiment wherein the shelf motor 343 and

its output terminal are connected to the desktop 331 of the table 33 and the bottom of the panel board 340, respectively. The shelf motor 343, which has a control port linking the controller 302, is activated with retrieving instruction information from the controller 302 accepted and the panel board 340, which is movable with respect to the table 33, releases poker cards 321 from the electric card shelf 34 in a dump mode, as shown in the right-hand side of the electric card shelf 34 in FIG. 16.

[0087] Referring to FIG. 15, which illustrates the electric card shelf 34 comprises the panel board 340, the shelf motor 343 and the bottom board 344 in another embodiment. The panel board 340 forms an angle of inclination (for example, acute angle) with respect to the table 33. The shelf motor 343 and its output terminal are connected to the bottom of the panel board 340 and one side of the bottom board 344, respectively. When the shelf motor 343 is activated for "closing", the bottom board 344 and the panel board 340 form an L-shaped structure by which poker cards 321 are kept on the panel board 340; when the shelf motor 343 is activated for "opening", the bottom board 344 revolves to form an obtuse angle with respect to the panel board 340 or revolves until an identical plane so that poker cards 321 held in the electric card shelf 34 are released in a slip mode, as shown in the left-hand side of the electric card shelf 34 in FIG. 16.

[0088] Referring to FIG. 17, which illustrates the panel board 340 is equipped with concave structures 340A, convex structures 340B, or a combination thereof in another embodiment. As such, the electric card shelf 34 from which poker cards 321 are released prevents the poker cards 321 from effect of electrostatic adherence to the panel board 340.

[0089] Referring to FIG. 16, which illustrates the controller 302 executes the following steps (M111~M112) when an instruction code is "IN-12", Retrieve poker cards: Release poker cards 321:

[0090] M111: Instruct the shelf motor 343 to run and release poker cards 321 from the panel board 340 to a conveyer belt (dump mode/slip mode).

[0091] M112: Instruct the shelf motor 343 to run reversely and return the panel board 340 or the bottom board 344 to an initial position.

[0092] When the microprocessor which has executed an instruction code, IN-12, further executes another instruction code, IN-13 (Retrieve poker cards: Activate the electric conveyer belt 351), after default time, the poker cards 321 on the electric conveyer belt 351 can be conveyed to the retrieving box 352.

[0093] Referring to FIG. 18 through FIG. 20, which illustrate the electric card shelf 34 and the electric conveyer belt 351 in another embodiment comprise a retrieving frame 36 in between wherein the retrieving frame 36 has a side wall linking an edge of the table 33 and the electric conveyer belt 351 excludes its both sides (conveyer belt) from a revolving body. The retrieving frame 36 further comprises a plurality of frame spaces, each of which is opposite to a placement area (341A~341C or 342A~342C). As such, the released poker cards 321 correctly fall on the electric conveyer belt 351 through the frame spaces.

[0094] Referring to FIG. 21, which illustrates the retrieving device 35 is a retrieving container in another embodiment. The retrieving container, which is adjacent to and situated below the electric card shelf 34, has an opening

opposite to placement areas of the electric card shelf **34** and used to receive the poker cards **321** from the electric card shelf **34**.

[0095] Referring to FIG. 22, which illustrates the electric card shelf **34**, the electric conveyer belt **351** and the conveyer motor **351A** constitute a quick release assembly **37** in another embodiment. The quick release assembly **37** is movably embedded into the table **33**. On the quick release assembly **37** and the table **33** are designed some quick release fittings (pin members **371** and pin holes **372**): the pin members **371** are located on the quick release assembly **37**; the pin holes **372** are opened on the table **33** and used to hold the pin members **371**. Alternatively, the pin members **371** and the pin holes **372** can be designed on the table **33** and the quick release assembly **37**, respectively. The quick release fittings are not limited to the model herein.

[0096] Referring to FIGS. 23 and 24, which illustrate a dealing robot device **3** further comprises a poker card abandoning kit **38** on the table **33** in another embodiment. The poker card abandoning kit **38** comprises a controlling circuit **381**, a conveyer kit **382** and a displayer **383**. The controlling circuit **381** is electrically connected to the conveyer kit **382**, the displayer **383** and the controller **302**. The conveyer kit **382** comprises a conveyer **3821** and a motor **3822** driving the conveyer **3821**. The motor **3822** has a rotating end, which links and drives the conveyer **3821**, and a controlling end connected to the controlling circuit **381**; as such, the controlling circuit **381** enables the motor **3822** to drive the conveyer **3821**.

[0097] The conveyer kit **382** has a conveyer end **3820** over the retrieving device **35** (for example, over the opening of the retrieving box **352** or the electric conveyer belt **351**) for delivering poker cards abandoned on the conveyer **3821** to the retrieving device **35**.

[0098] The controller **302**, which has received an abandon instruction for poker cards from the dealing control device **2**, drives the robotic arm **311** to fetch one or more poker cards **321** from the card box **32** and move to an abandoning place (for example, over the conveyer **382**) and further drives the displayer **383** directly or through the controlling circuit **381** for displaying the number of the abandoned poker cards.

[0099] In the embodiment, the displayer **38** is a Light-Emitting Diode (LED) displayer with three LED indicators **3831** enabled by the controlling circuit **381** in the case of throwing three poker cards according to an abandoning instruction. Moreover, as a display screen, the displayer **382**, which is activated by the controlling circuit **381**, demonstrates the digit "3" or a symbol or an icon representing the digit "3".

[0100] The controlling circuit **381**, which has received a retrieving instruction from the controller **302** or the dealing control device **2**, drives the motor **3822** of the conveyer **382** for delivery of the poker cards **321** from the conveyer **3821** to the retrieving device **35**.

[0101] The controlling circuit **381** comprises an arithmetic processing circuit (for example, computer, microprocessor chip, programmable digital circuit, etc.) and a drive circuit for driving both the motor **3822** of the conveyer **382** and the displayer **383**.

[0102] The above disclosure is related to the detailed technical contents and inventive features thereof. People skilled in this field may proceed with a variety of modifications and replacements based on the disclosures and

suggestions of the invention as described without departing from the characteristics thereof. Nevertheless, although such modifications and replacements are not fully disclosed in the above descriptions, they have substantially been covered in the following claims as appended.

What is claimed is:

1. A dealing robot device, comprising:

a robotic arm, wherein one portion of the robotic arm is a poker card acquiring portion configured to acquire an external poker card;

an electric card shelf;

a controller, electronically connected with the robotic arm and the electric card shelf, the controller further configuring the robotic arm or the electric card shelf to perform a motion according to instruction information.

2. The device as claimed in claim 1, wherein the instruction information further comprises initial setting instruction information for initial setting the dealing robot device.

3. The device as claimed in claim 1, wherein the instruction information further comprises dealing instruction information for configuring the robotic arm to acquire the poker card and put the poker card on the electronic card shelf.

4. The device as claimed in claim 1, wherein dealing instruction information of the instruction information is set by value of the poker card.

5. The device as claimed in claim 4, wherein the dealing instruction information is configured to determine whether dealing the poker card of Nth round of banker.

6. The device as claimed in claim 4, wherein the dealing instruction information is configured to determine whether dealing the poker card of Nth round of player.

7. The device as claimed in claim 1, wherein the controller further configures the poker card acquiring portion of the robotic arm to acquire the poker card and put the poker card on the electric card shelf according to dealing instruction information.

8. The device as claimed in claim 7, wherein the dealing instruction information further comprises dealing round information, the controller further configures the poker card acquiring portion of the robotic arm to acquire the poker card and put on a specified position of the electric shelf according to the dealing round information.

9. The device as claimed in claim 7, wherein the controller further configures the electric card shelf to release the poker card thereon according to retrieve instruction information.

10. The device as claimed in claim 1, wherein the electric card shelf further comprises:

a panel board, formed an incline angle with a table of setting environment;

a bottom board;

a shelf motor, wherein one of body of the shelf motor or output end of the shelf motor is connected to the panel board or the table, and the other one is connected to the bottom board;

wherein, the shelf motor is triggered by the instruction information of the controller and configures the bottom board to actuate corresponding to the panel board so as to release the poker card on the electric card shelf.

11. The device as claimed in claim 1, wherein the electric card shelf further comprises:

a panel board;  
a shelf motor, wherein one of body of the shelf motor or output end of the shelf motor is fixed on the panel board, and other one is fixed on a table of setting environment;

wherein, the shelf motor is triggered by the instruction information of the controller and configures panel board to actuate corresponding to the table.

**12.** The device as claimed in claim **10**, wherein the panel board further comprises convex structure, concave structure or combination of the convex structure and the concave structure.

**13.** The device as claimed in claim **1**, further comprising a retrieving container neighbored to the electric card shelf, wherein setting position of the retrieving container is lower than setting position of the electric card shelf, opening portion of the retrieving container is corresponding to the electric card shelf so as to receive the poker card released by the electric card shelf.

**14.** The device as claimed in claim **1**, further comprising an electric conveyer belt device neighbored to the electric card shelf and a table of setting environment, wherein setting position of the electric conveyer belt device is lower than setting position of the electric card shelf, the electric conveyer belt device is corresponding to the electric card shelf so as to receive the poker card released by the electric card shelf.

**15.** The device as claimed in claim **14**, further comprising a retrieving frame configured at a position between the electric card shelf and the electric conveyer belt device so as to guide the released poker card to the electric conveyer belt device when the electric card shelf releasing the poker card.

**16.** The device as claimed in claim **14**, further comprising a retrieving box neighbored to the table, wherein opening portion of the retrieving box is corresponding to one end of the electric conveyer belt device so as to retrieve the poker card on the electric conveyer belt device when the electric conveyer belt device operating.

**17.** The device as claimed in claim **14**, wherein the electric card shelf and the electric conveyer belt device are formed a quick release assembly, and the quick release assembly is configured to embed in the table.

**18.** The device as claimed in claim **1**, further comprising an image acquiring module electrically connected with the controller, wherein setting position of the image acquiring module is neighbored to output portion of a card box set on a table.

**19.** The device as claimed in claim **1**, wherein the poker card acquiring portion comprises a electric sucker, controlling port of the electric sucker is electrically connected with the controller, the controller further actuates the electric sucker when executing a card acquiring operation.

**20.** The device as claimed in claim **1**, wherein the controller further loads a humanoid motion setting so as to selectively set a motion path of the robotic arm or facial expression of the dealing robot device.

**21.** The device as claimed in claim **1**, further comprising a poker card abandoning kit, wherein the poker card abandoning kit comprises:

displayer; and  
controlling circuit, connected with the displayer and the controller;

wherein, the controller further drives the robotic arm to fetch the poker card and move to an abandoning place, and selectively drives the displayer directivity or drives the displayer by the controlling circuit so as to enable the displayer to display number of the abandoned poker cards when executing an abandoning instruction.

**22.** The device as claimed in claim **21**, wherein the poker card abandoning kit further comprises a conveyer kit for abandoning the poker card, a controlling end of the conveyer kit connected with the controlling circuit, wherein the controller further selectively drives the conveyer kit directivity or drives the conveyer kit by the controlling circuit so as to enable the conveyer kit to retrieve the poker card abandoned on the conveyer when executing a recycle instruction.

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