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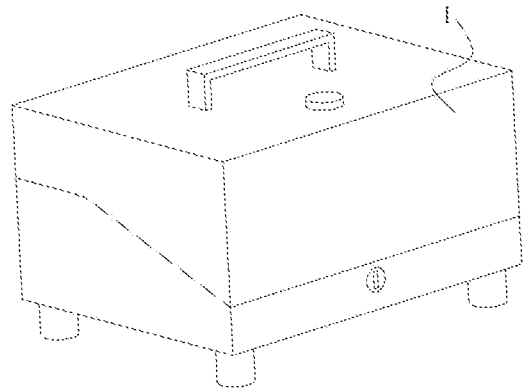
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A rapid detection device for clenbuterol used in the sales market of pork.

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This invention discloses a rapid detection device for clenbuterol in the sale market of pork, which relates to the field of food safety technology. The invention comprises a detection box, inside which a battery is installed; above the battery, there are positioning components and heating components respectively positioned to the front; to the right side of the heating component, a centrifuge component is arranged; a box cover is hinged above the box; guide slots are opened on the guide plate; to the front left end of the guide slot, a movable block is arranged; to the upper wall of the fixed plate corresponding to the left side of the guide slot, a positioning slot is opened; and to the right side of the positioning slot, a positioning hole is opened on the fixed plate.



A RAPID DETECTION DEVICE FOR CLENBUTEROL USED IN THE SALES MARKET OF PORK**TECHNICAL FIELD**

The present invention belongs to the field of food safety technology, specifically involving a rapid detection device for clenbuterol used in the sales market of pork.

BACKGROUND

Food is a substance consumed or drunk by people, including raw materials, semi-finished products, and finished products, providing nutrition for human life and production. Ensuring food safety and preventing the intake of harmful substances is crucial for reducing health risks and preventing food poisoning. Pork, with its high nutritional value and ease of digestion and absorption, is an important source of animal protein on the dining table.

However, in pig farming, to increase the leanness of pigs, unscrupulous individuals may add clenbuterol to pig feed. Clenbuterol, when consumed by humans, poses significant health risks. Therefore, relevant authorities need to use clenbuterol detection devices to test whether clenbuterol is present in pork sold in the market.

Through research, Patent CN107727646A, published on February 23, 2018, discloses a rapid detection device for clenbuterol content. This device includes a body, a support plate, a connection groove, a centrifuge tube, a reagent placement box, a rapid detection card placement box, an outlet, and a thermal insulation cotton. The interior of the body is connected to the heating chamber via connectors, with a top cover placed above the heating chamber. The support plate is fixed inside the heating chamber, with through-holes on it. The rapid detection card placement box is set on the other side of the body, with a heating device positioned below the body's interior.

This device, designed primarily for detecting clenbuterol, incorporates a heating chamber, centrifuge tube, reagent placement box, disposable plastic straw holder, and rapid detection card placement box, making it convenient for meat testing, portable, and capable of quickly detecting the presence of clenbuterol in meat.

However, the existing technology has the following shortcomings:

After heating the pork sample inside the centrifuge tube, the existing technology directly takes the pork exudate for testing. However, when there are precipitates in the pork exudate, it can affect the test results.

When dripping the pork exudate into the detection holes of the detection card, the existing technology may lead to off-center drops due to the small diameter of the detection holes in the detection card, which complicates the detection of clenbuterol.

After using the existing clenbuterol rapid detection device, drainage is required through a valve. However, operating the valve requires reaching under the device, which is inconvenient.

Therefore, the existing clenbuterol rapid detection device fails to meet practical needs. There is an urgent need for improved technology in the market to address these issues.

SUMMARY

The purpose of this invention is to provide a rapid clenbuterol detection device for the sale of pork in the market. By operating the motor to drive the rotating plate, the centrifuge tube is rotated for centrifugation. Meanwhile, the movement of the dropper is restricted by the movable block, and the hot cup is detached from the mounting shell to pour out water by controlling the handle. This solves the problems encountered in existing technologies: directly testing the pork exudate after heating the centrifuge tube, which may lead to inaccurate results due to sediment in the exudate; difficulties in dropping pork exudate into the small detection holes of the detection card, causing inconvenience in clenbuterol detection; and the inconvenience of draining using a valve after using the existing rapid clenbuterol detection device, as it requires reaching under the device body to operate the valve.

To address these issues, the present invention provides a rapid clenbuterol detection device for the sale of pork in the market. It includes a detection box with a battery installed internally. Positioned above and in front of the battery are the positioning component and the heating component, respectively. The centrifuge component is located to the right of the heating component. The detection box comprises a box body with a hinged lid on top, with the heating component, centrifuge component, and positioning component all housed inside. The positioning component includes a guide plate with guide grooves, with a movable block positioned in front of the left end of the guide groove. A fixed plate is securely attached to the bottom of the guide plate, with a positioning groove opened on the upper wall of the fixed plate corresponding to the left side of the guide groove, and a positioning hole opened on the fixed plate corresponding to the right side of the positioning groove. The heating component includes a mounting shell internally equipped with a heat-conducting cup, with heating wires installed on the outer wall and underside of the cup. The centrifuge component consists of a motor with a rotating plate fixed on its power output shaft, and a rotating sleeve positioned along the edge of the left side of the rotating plate. In this device, the motor and heating wires are electrically connected to control switches on the lower wall of the lid via conductive wires, while the ultraviolet sterilization lamp is electrically connected to the control switch on the upper wall of the lid via a conductive wire, and both control switches are electrically connected to the battery via conductive wires.

Furthermore, the upper and lower side walls of the lid are each equipped with control switches, with two control switches on the lower side wall and one on the upper side wall. The lower side wall of the lid is fixed with an ultraviolet sterilization lamp, and the upper side wall of the lid also has a handle attached. The front wall of the box body is fitted with a latch, while a stopper is fixed on the upper side of the rear wall of the box body.

Additionally, on the right rear side of the box body, a partition is fixed to the corresponding side of the box body, designed in an L-shape. The left wall of the partition has a through-hole where a crossbar is inserted, with the crossbar fitting snugly within the gap of the partition. Side panels are fixed at both ends of the crossbar, and an

external spring is positioned on the right side of the crossbar, with both ends of the spring in contact with the corresponding partition and detection bags. Multiple detection bags are situated to the right of the side panel at the right end of the crossbar.

Moreover, the front side of the moving block is fitted with a dropper, with the horizontal plane at the bottom end of the dropper slightly higher than the horizontal plane of the upper wall of the detection card. A protrusion is set on the upper side of the moving block corresponding to the outer wall of the dropper, with the lower wall of the protrusion in contact with the upper wall of the moving block. The rear wall of the moving block is fixed with a protrusion, positioned inside the guide groove, with a rectangular cross-section and an area smaller than that of the moving block. A moving plate is fixed on the rear wall of the protrusion, with dimensions larger than those of the protrusion. The rear wall of the guide plate is fitted with a reinforcement plate, with the lower wall of the reinforcement plate connected to the fixed plate, and the reinforcement plate is triangular in shape. The fixed plate is connected to the box body.

Furthermore, the interior of the positioning groove is equipped with a detection card, with the detection holes on the detection card directly below the dropper. The guide groove is designed in an L-shape, with the positioning hole located on the lower front side of the guide groove.

Additionally, the mounting shell is fixedly connected to the box body. The upper side of the heat-conducting cup is fitted with a fitting plate, which is circular. Along the edge of the fitting plate, a fitting ring is securely attached to the inner wall of the heat-conducting cup, with the upper wall of the fitting ring in contact with the lower wall of the fitting plate. A rubber sleeve is positioned at the middle of the fitting plate, with a beveled edge on the top inner side of the rubber sleeve.

Furthermore, the exterior of the mounting shell is equipped with insulation. Above the heat-conducting cup, there is a hinged lid. The front side of the heat-conducting cup is fixed with a handle, and an anti-scald sleeve is fitted over the handle.

Additionally, the motor is externally fitted with a mounting bracket, and the motor is securely connected to the mounting bracket. The mounting bracket is connected to the box body, and the rotating plate is positioned above the mounting bracket.

Moreover, the interior of the rotating sleeve is equipped with a centrifuge tube. The upper part of the rotating sleeve corresponds to the outer peripheral wall of the centrifuge tube, fixed with a convex ring, with the lower part of the convex ring in contact with the upper part of the rotating sleeve. The top of the centrifuge tube is threadedly connected with a tube cap, and the tube cap is sealably connected to the centrifuge tube.

Additionally, the outer peripheral walls on the front and rear sides of the rotating sleeve are both fixed with rotating rods, with one end of each rotating rod inserted into the rotating plate, and the rotating rod fits snugly within the rotating plate. The upper wall of the rotating plate on the right side is fixed with a counterweight block.

This invention has the following beneficial effects:

By incorporating a centrifuge component, the invention effectively addresses the issue of sediment interference in detection results caused by direct sampling of pig meat exudate after centrifugation. The centrifuge action segregates sediments to one end of the tube, facilitating the collection of only the exudate, thereby overcoming the limitation of existing technologies.

The positioning component ensures precise droplet placement into the detection card, avoiding misalignment issues common in existing methods. The guided movement of the dropper eliminates the inconvenience caused by the small aperture of detection holes, ensuring accurate droplet deposition, and enhancing the convenience of the testing process.

The heating component allows for easy drainage after testing completion, enhancing user convenience compared to existing methods that require manual operation of valves. This innovation simplifies the drainage process, eliminating the inconvenience associated with valve operation.

BRIEF DESCRIPTION OF THE FIGURES

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In order to explain the technical solutions of the embodiments of the present invention more clearly, the drawings needed to describe the embodiments will be briefly introduced below. Obviously, the drawings in the following description are only some embodiments of the present invention. For those of ordinary skill in the art, other drawings can also be obtained based on these drawings without exerting creative efforts.

Figure 1 is an overall structural diagram of the present invention;

Figure 2 is a structural diagram of the interior of the detection box of the present invention;

Figure 3 is a rear structural view of the present invention;

Figure 4 is a structural diagram of the detection box after the box cover is opened according to the present invention;

Figure 5 is a bottom structural view of the positioning assembly of the present invention;

Figure 6 is an exploded structural view of the positioning component of the present invention; Figure 1;

Figure 7 is an exploded structural view of the positioning assembly of the present invention; Figure 2;

Figure 8 is a vertical cross-sectional structural view of the heating assembly of the present invention;

Figure 9 is an exploded structural view of the heating assembly of the present invention;

Figure 10 is a structural diagram of the heating assembly after the upper cover is opened according to the present invention;

Figure 11 is a structural diagram of the centrifugal assembly of the present invention. wherein, 1. Testing box; 101. Box cover; 1011. Control switch; 1012. Handle; 1013. Ultraviolet sterilization lamp; 102. Box body; 1021. Block; 1022. Box lock; 103. Testing bag; 104. Crossbar; 1041. Side plate; 105. Spring; 106. Partition; 2. Positioning component; 201. Moving block; 202. Dropper; 2021. Projection; 203. Guide plate; 2031. Guide groove; 204. Fixing plate; 2041. Positioning groove; 2042. Positioning hole; 205.

Projection; 2051. Moving plate; 206. Test card; 207. Reinforcing plate; 3. Heating component; 301. Top cover; 302. Lap plate; 303. Rubber sleeve; 304. Insulation layer; 305. Heating wire; 306. Mounting shell; 307. Heat-conducting cup; 3071. Placement ring; 3072. Handle; 308. Heat-resistant sleeve; 4. Battery; 5. Centrifugal component; 501. Rotary sleeve; 5011. Rotary rod; 502. Centrifuge tube; 5021. Convex ring; 5022. Tube cover; 503. Rotary plate; 5031. Counterweight block; 504. Fixing frame; 505. Motor.

DETAILED DESCRIPTION OF THE INVENTION

The technical solutions in the embodiments of the present invention will be clearly and completely described below with reference to the accompanying drawings in the embodiments of the present invention.

Refer to Figures 1-11. The present invention is a rapid detection device for lean meat residues for sale in the pork market. It includes a testing box 1, inside which a battery 4 is installed to power the electrical appliances of the device. Above and in front of the battery 4, there are respectively positioning components 2 and heating components 3. The positioning component 2 accurately drips pork exudate onto the detection holes of the detection card 206, while the heating component 3 is used to heat the pork inside the centrifuge tube 502. To the right of the heating component 3, there is a centrifuge component 5, which is used to centrifuge the exudate from the heated centrifuge tube 502, separating the precipitate from the pork exudate. The testing box 1 comprises a box body 102, and a box cover 101 hinged on the top of the box body 102. After the device is used, rotate the box cover 101 to close the testing box 1, with the heating component 3, centrifuge component 5, and positioning component 2 all located inside the box body 102. The positioning component 2 includes a guide plate 203 with guide grooves 2031, along which protrusions 205 move. In front of the left end of the guide groove 2031, there is a moving block 201, which moves to adjust the position of the dropper 202. At the bottom of the guide plate 203, there is a fixed plate 204, providing a fixed platform for the guide plate 203 and a placement platform for the detection card 206.

The front upper wall of the fixed plate 204, corresponding to the left side of the guide groove 2031, is provided with a positioning groove 2041, which achieves positioning of the detection card 206. The specifications of the positioning groove 2041 are slightly larger than those of the detection card 206, allowing the detection card 206 to enter the positioning groove 2041. On the right side of the positioning groove 2041, corresponding to the fixed plate 204, there is a positioning hole 2042. When extracting pork exudate, the centrifuge tube 502 is positioned within the positioning hole 2042. The diameter of the positioning hole 2042 is slightly larger than the outer diameter of the centrifuge tube 502, allowing the centrifuge tube 502 to enter the positioning hole 2042.

The heating component 3 includes a mounting shell 306, which provides a placement platform for the heat-conducting cup 307 and heating wire 305. Inside the mounting shell 306, there is a heat-conducting cup 307, which is heated to heat the water inside. Heating wires 305 are provided on the outer wall of the heat-conducting cup 307 and below it to achieve uniform heating of the heat-conducting cup 307.

The centrifuge component 5 includes a motor 505, which rotates the rotating plate 503 when operational. The rotating plate 503 is fixed on the power output shaft of the motor 505. The rotating plate 503 rotates, ultimately causing the centrifuge tube 502 inside the rotating sleeve 501 to rotate. Along the left edge of the rotating plate 503, there is a rotating sleeve 501, providing a placement platform for the centrifuge tube 502. The inner diameter of the rotating sleeve 501 is slightly larger than the outer diameter of the centrifuge tube 502, allowing the centrifuge tube 502 to be inserted into the rotating sleeve 501.

In this device, the motor 505 and heating wire 305 are electrically connected to the control switch 1011 on the lower wall of the box cover 101 via conductive wires. The ultraviolet sterilization lamp 1013 is electrically connected to the control switch 1011 on the upper wall of the box cover 101 via a conductive wire. Both control switches 1011 on the upper and lower walls of the box cover 101 are electrically connected to the battery 4 via conductive wires. Additionally, the motor 505, heating wire 305, and ultraviolet sterilization lamp 1013 are all of existing technology, and their models are not limited here.

As shown in Figures 1-4, both the upper and lower side walls of the box cover 101 are equipped with control switches 1011. There are two control switches 1011 on the lower wall of the box cover 101. By operating these switches, the power supply to the corresponding motor 505 and heating wire 305 can be turned on or off. There is one control switch 1011 on the upper wall of the box cover 101, which, when operated, can turn the power supply to the ultraviolet sterilization lamp 1013 on or off. The lower wall of the box cover 101 is fixed with the ultraviolet sterilization lamp 1013, which is used to sterilize and disinfect the interior of the testing box 1. Additionally, the upper wall of the box cover 101 is also fixed with a handle 1012. When the testing box 1 is closed, the device can be moved by operating the handle 1012.

The front wall of the box body 102 is equipped with a box lock 1022 to prevent unauthorized opening of the box cover 101. The upper side of the rear wall of the box body 102 is fixed with a stop block 1021 to limit the rotation angle of the box cover 101. The maximum rotation angle of the box cover 101 is between 100 to 180 degrees. Within this maximum rotation angle range, it ensures that the box cover 101 will not automatically close under the influence of gravity after releasing hand pressure on it. At the same time, it facilitates the operation of the control switch 1011 on the lower wall of the box cover 101.

On the right rear side of the box body 102, corresponding to the box body 102, there is a partition 106 fixed on the upper part of the box body 102, and the partition 106 is L-shaped. The left wall of the partition 106 is penetrated by a crossbar 104, and there is a gap between the crossbar 104 and the partition 106. The left and right ends of the crossbar 104 are fixed with side plates 1041. A spring 105 is installed on the outer side of the crossbar 104 on the right, with both ends of the spring 105 in contact with the corresponding partition 106 and the testing bag 103 respectively. Multiple testing bags 103 are positioned to the right of the side plate 1041 at the right end of the crossbar 104. With the force of the spring 105, the side plate 1041 at the right end of the crossbar 104 presses against multiple testing bags 103, keeping them relatively fixed relative to the box body 102. When removing a testing bag 103, the side plate 1041 at the left end of the crossbar 104 is moved to the left, causing the side plate 1041 at the right end of the crossbar 104 to be disengaged from the corresponding testing bag 103, allowing it to be

taken out for lean meat residue testing. After removing the testing bag 103, when the force on the side plate 1041 at the left end of the crossbar 104 is released, the side plate 1041 at the right end of the crossbar 104 is pressed against the testing bag 103 to maintain a certain pressure, thereby keeping the testing bag 103 relatively fixed with respect to the box body 102.

As shown in Figures 2 and 5-7, the front side of the moving block 201 is fitted with a dropper 202, which can be operated to extract pork exudate. The horizontal plane at the lower end of the dropper 202 is slightly higher than the horizontal plane of the upper wall of the detection card 206, allowing the dropper 202 to move horizontally. Above the moving block 201, corresponding to the outer wall of the dropper 202, there is a protrusion 2021. The lower wall of the protrusion 2021 is in contact with the upper wall of the moving block 201, maintaining a certain height between the dropper 202 and the moving block 201. The rear wall of the moving block 201 is fixed with a protrusion 205, located inside the guide groove 2031. The protrusion 205 can move along the inside of the guide groove 2031. The cross-section of the protrusion 205 is rectangularly shaped to prevent rotation, and its cross-sectional area is smaller than that of the moving block 201. The rear wall of the protrusion 205 is fixed with a moving plate 2051, whose dimensions are larger than those of the protrusion 205. The coordination between the protrusion 205 and the moving plate 2051 allows the moving block 201 to move along the trajectory of the guide groove 2031 and prevents it from moving forward or backward. The rear wall of the guide plate 203 is fixed with a reinforcing plate 207, enhancing the stability between the guide plate 203 and the fixing plate 204. The lower wall of the reinforcing plate 207 is fixedly connected to the fixing plate 204, and the reinforcing plate 207 is triangularly shaped. The fixing plate 204 is securely connected to the box body 102.

The inside of the positioning groove 2041 is fitted with a detection card 206, and the detection holes on the detection card 206 are located directly below the dropper 202, allowing pork exudate from the dropper 202 to accurately drip into the detection holes on the detection card 206. The guide groove 2031 is L-shaped, and the positioning hole 2042 is located at the lower front right of the guide groove 2031, allowing the dropper

202 to be directly above the centrifuge tube 502 when the moving block 201 moves to the right end of the guide groove 2031.

As shown in Figures 2 and 8-10, the mounting shell 306 is securely connected to the box body 102. Inside the heat-conducting cup 307, the upper side is equipped with a lap plate 302, providing a mounting platform for the rubber sleeve 303. The lap plate 302 is circular in shape. Below the lap plate 302 along the edge, there is a placement ring 3071 fixed to the inner wall of the heat-conducting cup 307, providing a placement platform for the lap plate 302. The upper wall of the placement ring 3071 is in contact with the lower wall of the lap plate 302. In the middle of the lap plate 302, there is a rubber sleeve 303 with an inwardly chamfered top inner edge. The inner diameter of the rubber sleeve 303 is slightly smaller than the inner diameter of the centrifuge tube 502, ensuring a slight interference fit between the centrifuge tube 502 and the rubber sleeve 303 to prevent the centrifuge tube 502 from floating.

The external part of the mounting shell 306 is equipped with an insulation layer 304 to reduce heat loss. Above the heat-conducting cup 307, there is a top cover 301 hinged, which, when heating the centrifuge tube 502, can be rotated to make the lower wall of the top cover 301 contact the upper wall of the heat-conducting cup 307, thereby reducing heat loss to a certain extent and preventing foreign objects from falling into the heat-conducting cup 307. At the front top of the heat-conducting cup 307, there is a handle 3072, which, when operated, allows the heat-conducting cup 307 to detach from the mounting shell 306. The handle 3072 is covered with a heat-resistant sleeve 308 to prevent burns to the operator due to high temperatures.

As shown in Figures 2 and 11, the motor 505 is externally fitted with a fixing frame 504, providing a fixed platform for the motor 505, and the motor 505 is securely connected to the fixing frame 504. The fixing frame 504 is securely connected to the box body 102. The rotating plate 503 is located above the fixing frame 504.

Inside the rotating sleeve 501, there is a centrifuge tube 502. The upper part of the rotating sleeve 501 corresponds to the outer peripheral wall of the centrifuge tube 502, fixed with a convex ring 5021. The lower wall of the convex ring 5021 is in contact with the upper wall of the rotating sleeve 501, ensuring the relative position between the centrifuge tube 502 and the rotating sleeve 501. The top of the centrifuge tube 502 is

threaded with a tube cover 5022, and the tube cover 5022 is sealed with the centrifuge tube 502. During centrifugation of the pork exudate inside the centrifuge tube 502, the tube cover 5022 and the centrifuge tube 502 remain in threaded connection to prevent accidental spillage of the pork exudate during centrifugation.

On the outer peripheral walls of both the front and rear sides of the rotating sleeve 501, there are fixed rotating rods 5011. One end of each rotating rod 5011, away from the rotating sleeve 501, is inserted into the rotating plate 503, with a gap between the rotating rod 5011 and the rotating plate 503. During centrifugation of the pork exudate, the motor 505 operates to rotate the rotating plate 503. Under centrifugal force, the rotating sleeve 501 rotates, keeping the centrifuge tube 502 in a horizontal position. This positioning ensures that the precipitate is on the side of the centrifuge tube 502 away from the tube cover 5022. On the upper wall of the right side of the rotating plate 503, there is a counterweight block 5031 fixed, ensuring balanced weight distribution on both sides of the rotating plate 503 during rotation, which helps reduce vibration of the fixing frame 504.

A specific application of this implementation is as follows: after personnel carry this device to the sales market by holding handle 1012, they place the device on the platform, lock the operation box 1022, and rotate the box cover 101 to open it by bringing it into contact with the stop block 1021. Then, they rotate the upper cover 301 to expose the heat-conducting cup 307 and add an appropriate amount of water to it. They control the corresponding control switch 1011 to connect the power supply of the heating wire 305 and heat the water. At this point, a small amount of pork to be tested is taken, minced, and placed in a centrifuge tube 502. An appropriate amount of water is added to the centrifuge tube 502. When the water temperature inside the heat-conducting cup 307 is suitable, they operate the tube cover 5022 to connect it with the centrifuge tube 502 threadedly, and operate the centrifuge tube 502 to insert it into the rubber sleeve 303, with the lower side of the centrifuge tube 502 immersed in the water inside the heat-conducting cup 307. Then, they rotate the upper cover 301 to make it contact the heat-conducting cup 307. After heating the pork inside the centrifuge tube 502 is completed, they rotate the upper cover 301 to make it in a non-contact state with the heat-conducting cup 307, then remove the centrifuge tube 502 and place it in the rotating

sleeve 501. By operating the corresponding control switch 1011, they make the electric motor work, driving the rotating plate 503 to rotate, so that the centrifuge tube 502 rotates to centrifuge the pork exudate inside it. After centrifugation is completed, they move the left end side plate 1041 of the crossbar 104 to the left. At this time, the right end side plate 1041 of the crossbar 104 separates from the detection bag 103, and the detection card 206 inside the detection bag 103 is taken out and placed in the positioning groove 2041. Then, they rotate the tube cover 5022 to remove it, and place the centrifuge tube 502 in the positioning hole 2042. After moving the moving block 201 to the right and then downward, the bottom of the dropper 202 is positioned in the permeate of the pork. They operate the dropper 202 to extract the pork exudate, then reverse the operation of the moving block 201 so that the dropper 202 is positioned at the left end of the guide groove 2031. At this time, the dropper 202 is directly above the detection hole in the detection card 206. They operate the dropper 202 to drop the pork exudate into the detection hole. Then, they wait for the detection result. After the detection is completed, they operate the handle 3072 to detach the heat-conducting cup 307 from the mounting shell 306, pour out the water in the heat-conducting cup 307, and then rotate the box cover 101. Under the action of the box lock 1022, the box cover 101 is relatively fixed to the box body 102. They operate the control switch 1011 on the upper wall of the box cover 101 to activate the ultraviolet sterilization lamp 1013 inside detection box 1 for sterilization and disinfection.

The above are only preferred embodiments of the present invention, and do not limit the present invention. Any modifications to the technical solutions recorded in the foregoing embodiments, equivalent substitutions of some of the technical features, and any modifications, equivalent substitutions, and improvements made shall be deemed as belong to the protection scope of the present invention.

CLAIMS

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1. A rapid detection device for clenbuterol in the sale market of pork, comprising a detection box (1), characterized in that: the interior of said detection box (1) is equipped with a battery (4); above and in front of said battery (4) are respectively positioned a positioning component (2) and a heating component (3); to the right side of said heating component (3) is positioned a centrifuge component (5);

the detection box (1) comprises a box body (102), with a box cover (101) hinged above said box body (102), and the heating component (3), centrifuge component (5), and positioning component (2) are all located within the box body (102);

the positioning component (2) comprises a guide plate (203), with guide slots (2031) opened on said guide plate (203); to the front left end of said guide slot (2031) is positioned a movable block (201); a fixed plate (204) is fixed at the bottom of said guide plate (203); to the upper wall of said fixed plate (204) corresponding to the front left side of said guide slot (2031) is opened a positioning slot (2041); to the right side of said positioning slot (2041) on said fixed plate (204) is opened a positioning hole (2042);

the heating component (3) comprises a mounting shell (306), with a thermal cup (307) installed inside said mounting shell (306); heating wires (305) are set on the outer periphery of the wall of said thermal cup (307) and below said thermal cup (307);

the centrifuge component (5) comprises a motor (505), with a rotating plate (503) fixed on the power output shaft of said motor (505); a rotating sleeve (501) is positioned along the left edge of said rotating plate (503).

2. According to claim 1, a rapid detection device for clenbuterol in the sale market of pork, characterized in that both the upper and lower sidewalls of said box cover (101) are equipped with control switches (1011); a UV sterilization lamp (1013) is fixed on the lower wall of said box cover (101); a handle (1012) is also fixed on the upper wall of said box cover (101); a box lock (1022) is set on the front wall of said box body (102); and a stop block (1021) is fixed on the upper side of the rear wall of said box body (102).

3. A rapid detection device for clenbuterol in the sale market of pork, according to claim 2, characterized in that a partition (106) is fixed on the right rear side of the box body (102), and the partition (106) is L-shaped; a crossbar (104) is set through the left wall of the partition (106), and there is a gap between the crossbar (104) and the partition (106); side plates (1041) are fixed at both ends of the crossbar (104); a spring (105) is installed on the outside of the right side of the crossbar (104); and multiple detection bags (103) are arranged to the right of the side plate (1041) at the right end of the crossbar (104).

4. A rapid detection device for clenbuterol in the sale market of pork, according to claim 1, characterized in that a dropper (202) is inserted into the front side of the movable block (201); a protrusion (2021) is set on the outer wall of the dropper (202) corresponding to the top of the movable block (201); a projection (205) is fixed on the rear wall of the movable block (201), and the projection (205) is located inside the guide slot (2031); a movable plate (2051) is fixed on the rear wall of the projection (205); a reinforcement plate (207) is fixed on the rear wall of the guide plate (203), and the lower wall of the reinforcement plate (207) is fixedly connected to the fixed plate (204); and the fixed plate (204) is fixedly connected to the box body (102).

5. A rapid detection device for clenbuterol in the sale market of pork, according to claim 1, characterized in that a detection card (206) is installed inside the positioning slot (2041), and the detection hole on the detection card (206) is directly below the dropper (202); the guide slot (2031) is L-shaped, and the positioning hole (2042) is located at the lower front of the right side of the guide slot (2031).

6. A rapid detection device for clenbuterol in the sale market of pork, according to claim 1, characterized in that the mounting shell (306) is fixedly connected to the box body (102); a dovetail plate (302) is installed on the upper side of the inner part of the thermal cup (307); a placement ring (3071) is fixed on the inner wall of the thermal cup (307) corresponding to the lower side of the dovetail plate (302) along the edge of the

dovetail plate (302); and a rubber sleeve (303) is installed at the middle position of the dovetail plate (302).

7. A rapid detection device for clenbuterol in the sale market of pork, according to claim 6, characterized in that the outer part of the mounting shell (306) is equipped with an insulation layer (304); an upper cover (301) is hinged above the thermal cup (307); a handle (3072) is fixed on the front side of the top of the thermal cup (307); and a heat-resistant sleeve (308) is sleeved on the outer part of the handle (3072).

8. A rapid detection device for clenbuterol in the sale market of pork, according to claim 1, characterized in that a fixing frame (504) is installed on the outside of the motor (505), and the motor (505) is fixedly connected to the fixing frame (504); the fixing frame (504) is fixedly connected to the box body (102); and the rotating plate (503) is located above the fixing frame (504).

9. A rapid detection device for clenbuterol in the sale market of pork, according to claim 1, characterized in that a centrifuge tube (502) is installed inside the rotating sleeve (501); a convex ring (5021) is fixed on the outer peripheral wall of the rotating sleeve (501) corresponding to the top of the centrifuge tube (502); and the top of the centrifuge tube (502) is threadedly connected with a tube cap (5022).

10. A rapid detection device for clenbuterol in the sale market of pork, according to claim 9, characterized in that rotating rods (5011) are fixed on the outer peripheral walls of the front and rear sides of the rotating sleeve (501), and one end of the rotating rod (5011) away from the rotating sleeve (501) is inserted into the rotating plate (503); and a counterweight block (5031) is fixed on the upper wall of the right side of the rotating plate (503).

REVENDEICATIONS

1. Dispositif de détection rapide du clenbutérol sur le marché de vente de porc, comprenant un boîtier de détection (1), caractérisé en ce que : l'intérieur dudit boîtier de détection (1) est équipé d'une batterie (4) ; au-dessus et devant ladite batterie (4) sont respectivement positionnés un composant de positionnement (2) et un composant chauffant (3) ; sur le côté droit dudit composant chauffant (3) est positionné un composant centrifuge (5);

la boîte de détection (1) comprend un corps de boîte (102), avec un couvercle de boîte (101) articulé au-dessus dudit corps de boîte (102), et le composant chauffant (3), le composant centrifuge (5) et le composant de positionnement (2); sont tous situés à l'intérieur du corps de boîte (102);

le composant de positionnement (2) comprend une plaque de guidage (203), avec des fentes de guidage (2031) ouvertes sur ladite plaque de guidage (203) ; à l'extrémité avant gauche de ladite fente de guidage (2031) est positionné un bloc mobile (201) ; une plaque fixe (204) est fixée au bas de ladite plaque de guidage (203) ; sur la paroi supérieure de ladite plaque fixe (204) correspondant au côté avant gauche de ladite fente de guidage (2031) est ouverte une fente de positionnement (2041) ; sur le côté droit de ladite fente de positionnement (2041) sur ladite plaque fixe (204) est ouvert un trou de positionnement (2042);

le composant chauffant (3) comprend une coque de montage (306), avec une coupelle thermique (307) installée à l'intérieur de ladite coque de montage (306) ; des fils chauffants (305) sont placés sur la périphérie externe de la paroi de ladite tasse thermique (307) et en dessous de ladite tasse thermique (307);

le composant centrifugeuse (5) comprend un moteur (505), avec un plateau rotatif (503) fixé sur l'arbre de sortie de puissance dudit moteur (505) ; un manchon rotatif (501) est positionné le long du bord gauche de ladite plaque rotative (503).

2. Selon la revendication 1, un dispositif de détection rapide du clenbutérol sur le marché de vente de porc, caractérisé en ce que les parois latérales supérieure et inférieure dudit couvercle de boîte (101) sont équipées de commutateurs de commande (1011) ; une lampe de stérilisation UV (1013) est fixée sur la paroi inférieure dudit couvercle de boîte (101) ; une poignée (1012) est également fixée sur la paroi supérieure dudit couvercle de boîte (101) ; un verrou de boîte (1022) est placé sur la paroi avant dudit corps de boîte (102) ; et un bloc d'arrêt (1021) est fixé sur le côté supérieur de la paroi arrière dudit corps de boîte (102).

3. Dispositif de détection rapide du clenbutérol sur le marché de vente de porc, selon la revendication 2, caractérisé en ce qu'une cloison (106) est fixée sur le côté arrière droit du corps de boîte (102), et la cloison (106) est en forme de L ; une barre transversale (104) est placée à travers la paroi gauche de la cloison (106), et il existe un espace entre la barre transversale (104) et la cloison (106) ; des plaques latérales (1041) sont fixées aux deux extrémités de la barre transversale (104) ; un ressort (105) est installé sur l'extérieur du côté droit de la barre transversale (104) ; et plusieurs sacs de détection (103) sont disposés à droite de la plaque latérale (1041) à l'extrémité droite de la barre transversale (104).

4. Dispositif de détection rapide du clenbutérol sur le marché de vente de porc, selon la revendication 1, caractérisé en ce qu'un compte-gouttes (202) est inséré dans le côté avant du bloc mobile (201) ; une saillie (2021) est placée sur la paroi externe du compte-gouttes (202) correspondant au sommet du bloc mobile (201) ; une saillie (205) est fixée sur la paroi arrière du bloc mobile (201), et la saillie (205) est située à l'intérieur de la fente de guidage (2031) ; une plaque mobile (2051) est fixée sur la paroi arrière de la saillie (205) ; une plaque de renfort (207) est fixée sur la paroi arrière de la plaque de guidage (203), et la paroi inférieure de la plaque de renfort (207) est reliée de manière fixe à la plaque fixe (204) ; et la plaque fixe (204) est reliée de manière fixe au corps de boîte (102).

5. Dispositif de détection rapide du clenbutérol sur le marché de vente de porc, selon LU507183 la revendication 1, caractérisé en ce qu'une carte de détection (206) est installée à l'intérieur de la fente de positionnement (2041), et le trou de détection sur la carte de détection (206) est directement au-dessous du compte-gouttes (202) ; la fente de guidage (2031) est en forme de L, et le trou de positionnement (2042) est situé à l'avant inférieur du côté droit de la fente de guidage (2031).
6. Dispositif de détection rapide du clenbutérol sur le marché de vente de porc, selon la revendication 1, caractérisé en ce que la coque de montage (306) est reliée de manière fixe au corps de boîte (102) ; une plaque en queue d'aronde (302) est installée sur le côté supérieur de la partie interne de la tasse thermique (307) ; un anneau de placement (3071) est fixé sur la paroi interne de la tasse thermique (307) correspondant au côté inférieur de la plaque en queue d'aronde (302) le long du bord de la plaque en queue d'aronde (302) ; et un manchon en caoutchouc (303) est installé au niveau de la position médiane de la plaque en queue d'aronde (302).
7. Dispositif de détection rapide du clenbutérol sur le marché de vente de porc, selon la revendication 6, caractérisé en ce que la partie extérieure de la coque de montage (306) est équipée d'une couche isolante (304) ; un couvercle supérieur (301) est articulé au-dessus de la tasse thermique (307) ; une poignée (3072) est fixée sur le côté avant du haut de la tasse thermique (307) ; et un manchon résistant à la chaleur (308) est emmanché sur la partie externe de la poignée (3072).
8. Dispositif de détection rapide du clenbutérol sur le marché de vente de porc, selon la revendication 1, caractérisé en ce qu'un cadre de fixation (504) est installé à l'extérieur du moteur (505), et le moteur (505) est connecté de manière fixe ; au cadre de fixation (504) ; le cadre de fixation (504) est relié de manière fixe au corps de boîte (102) ; et la plaque rotative (503) est située au-dessus du cadre de fixation (504).

9. Dispositif de détection rapide du clenbutérol sur le marché de vente de porc, selon la revendication 1, caractérisé en ce qu'un tube à centrifuger (502) est installé à l'intérieur du manchon rotatif (501) ; un anneau convexe (5021) est fixé sur la paroi périphérique externe du manchon rotatif (501) correspondant au sommet du tube à centrifuger (502) ; et la partie supérieure du tube à centrifuger (502) est reliée par filetage à un capuchon de tube (5022). LU507183

10. Dispositif de détection rapide du clenbutérol sur le marché de vente de porc, selon la revendication 9, caractérisé en ce que des tiges rotatives (5011) sont fixées sur les parois périphériques externes des côtés avant et arrière du manchon rotatif (501), et une extrémité de la tige rotative (5011) éloignée du manchon rotatif (501) est insérée dans la plaque rotative (503) ; et un bloc de contrepoids (5031) est fixé sur la paroi supérieure du côté droit de la plaque rotative (503).

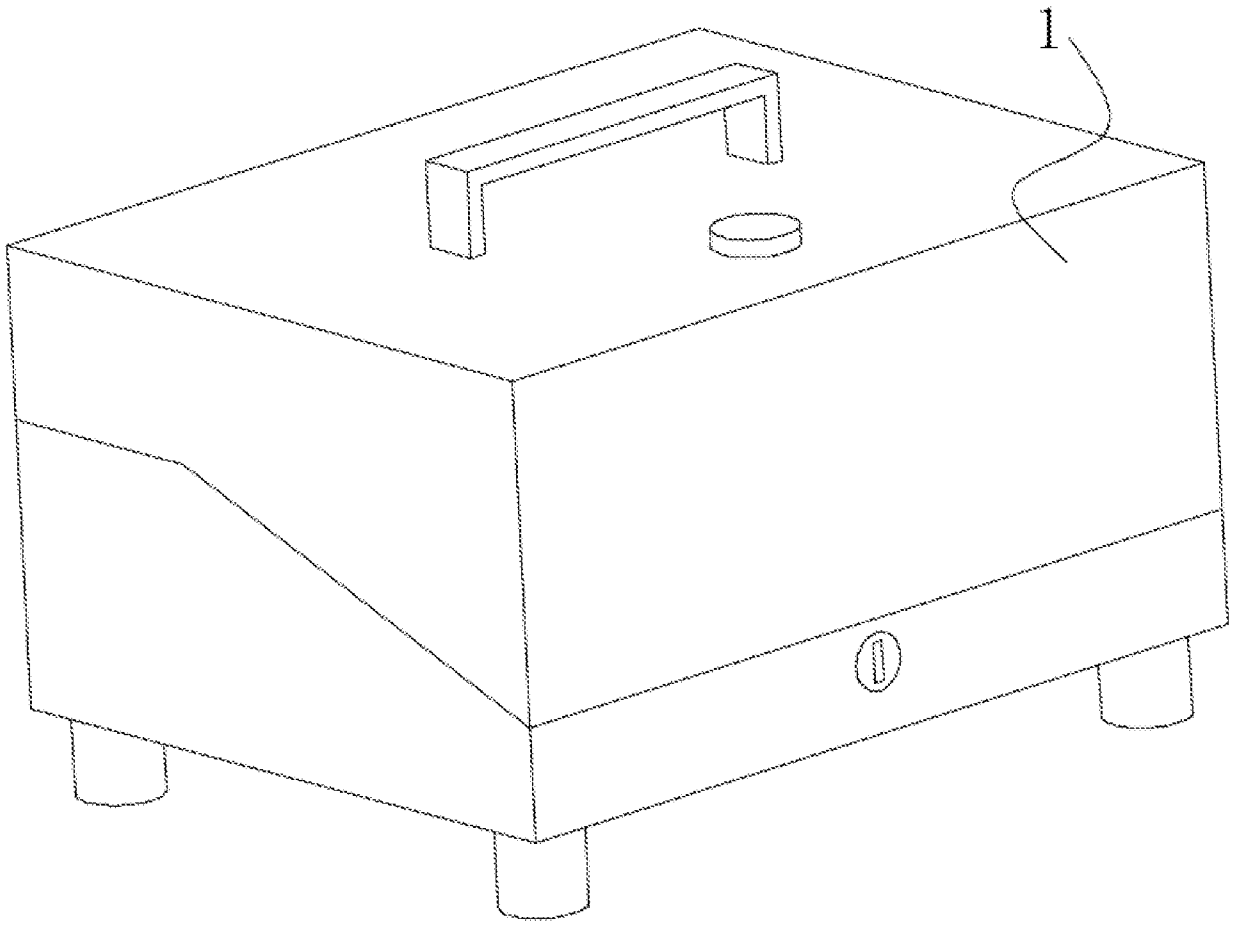


Fig.1

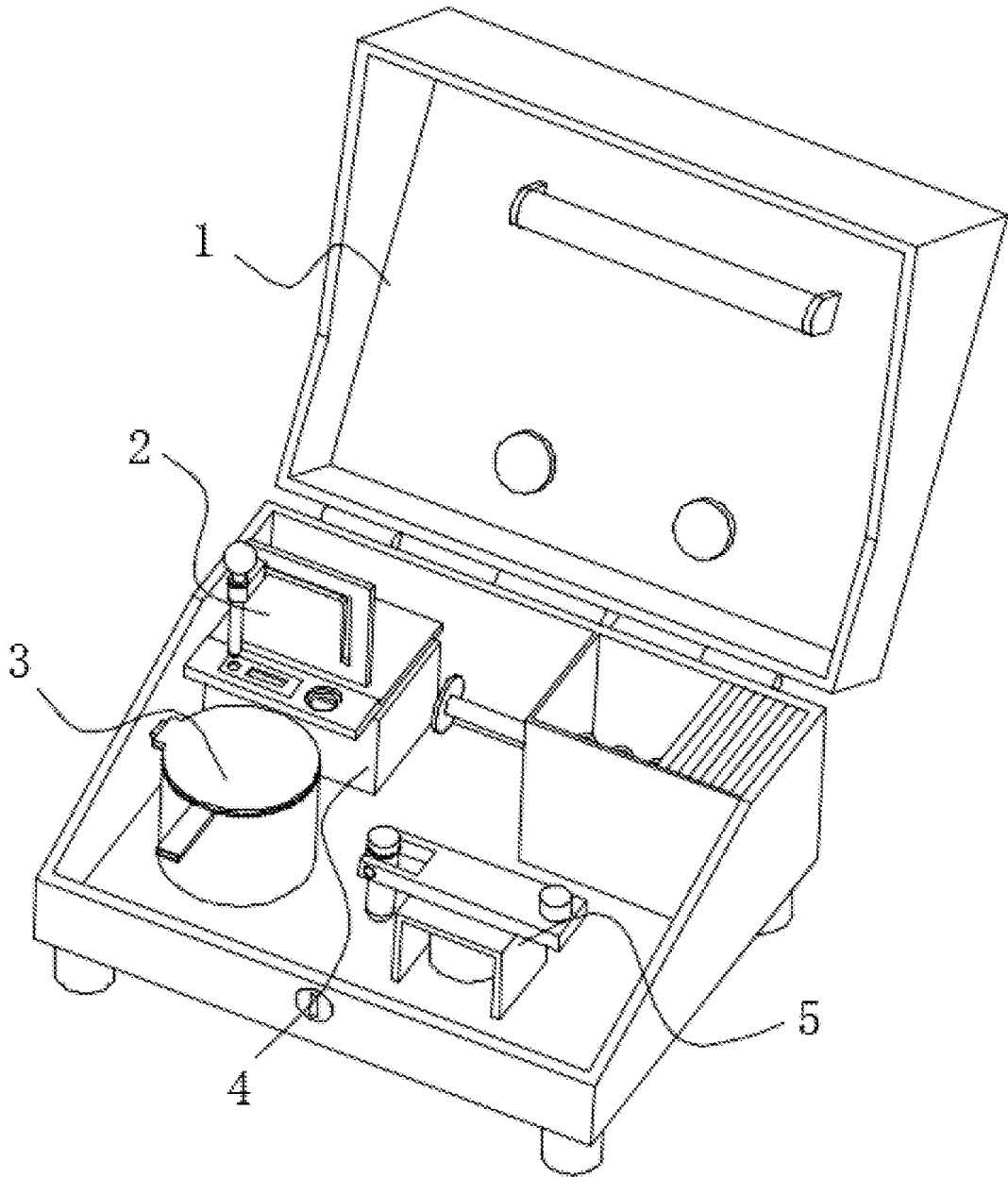


Fig.2

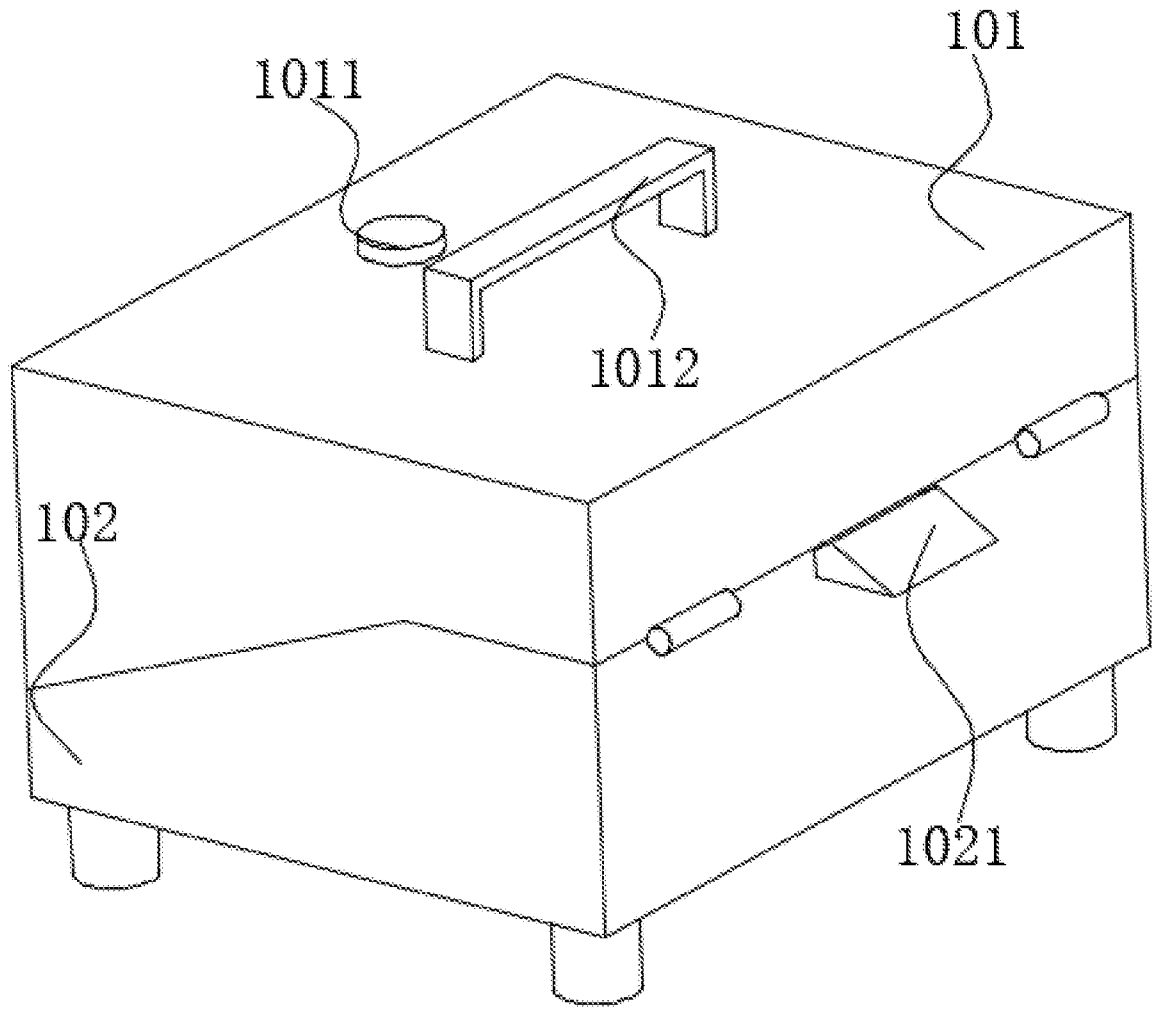


Fig.3

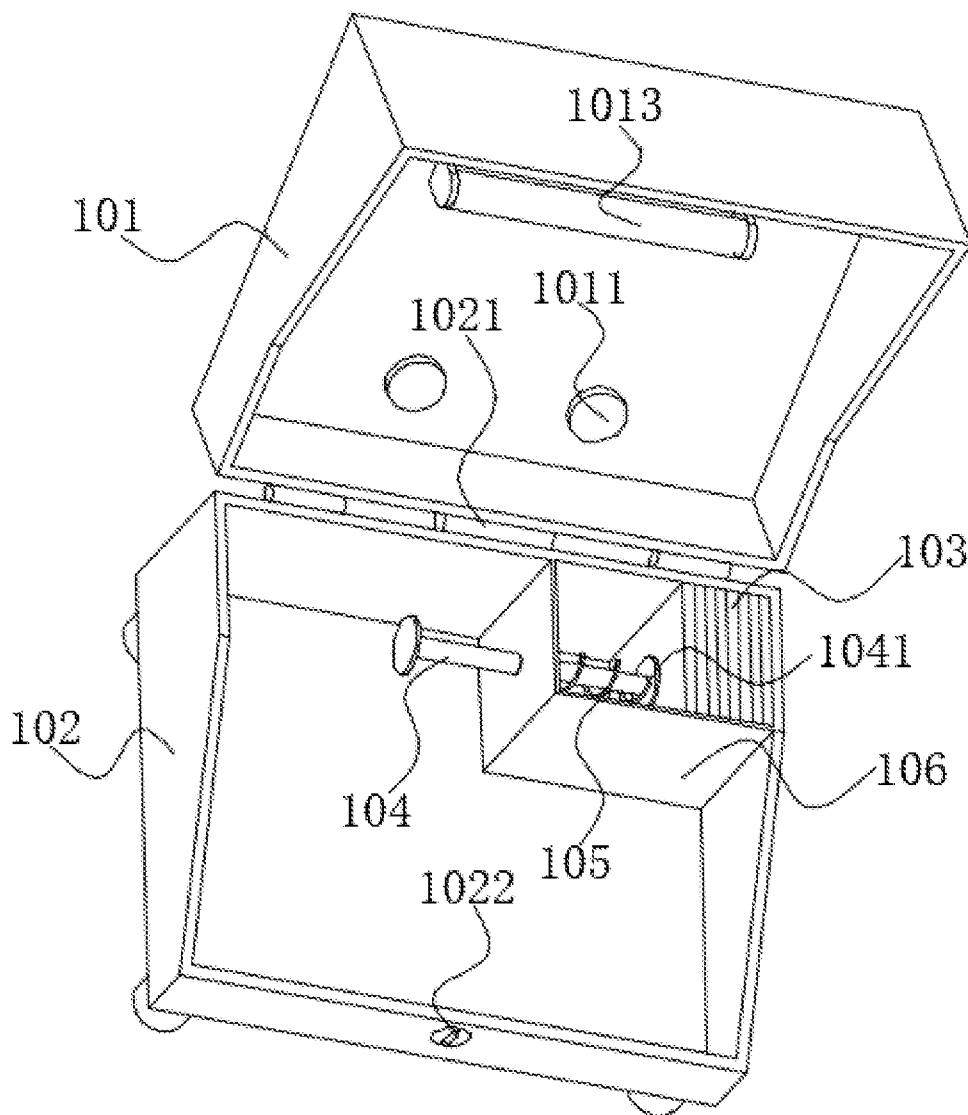


Fig.4

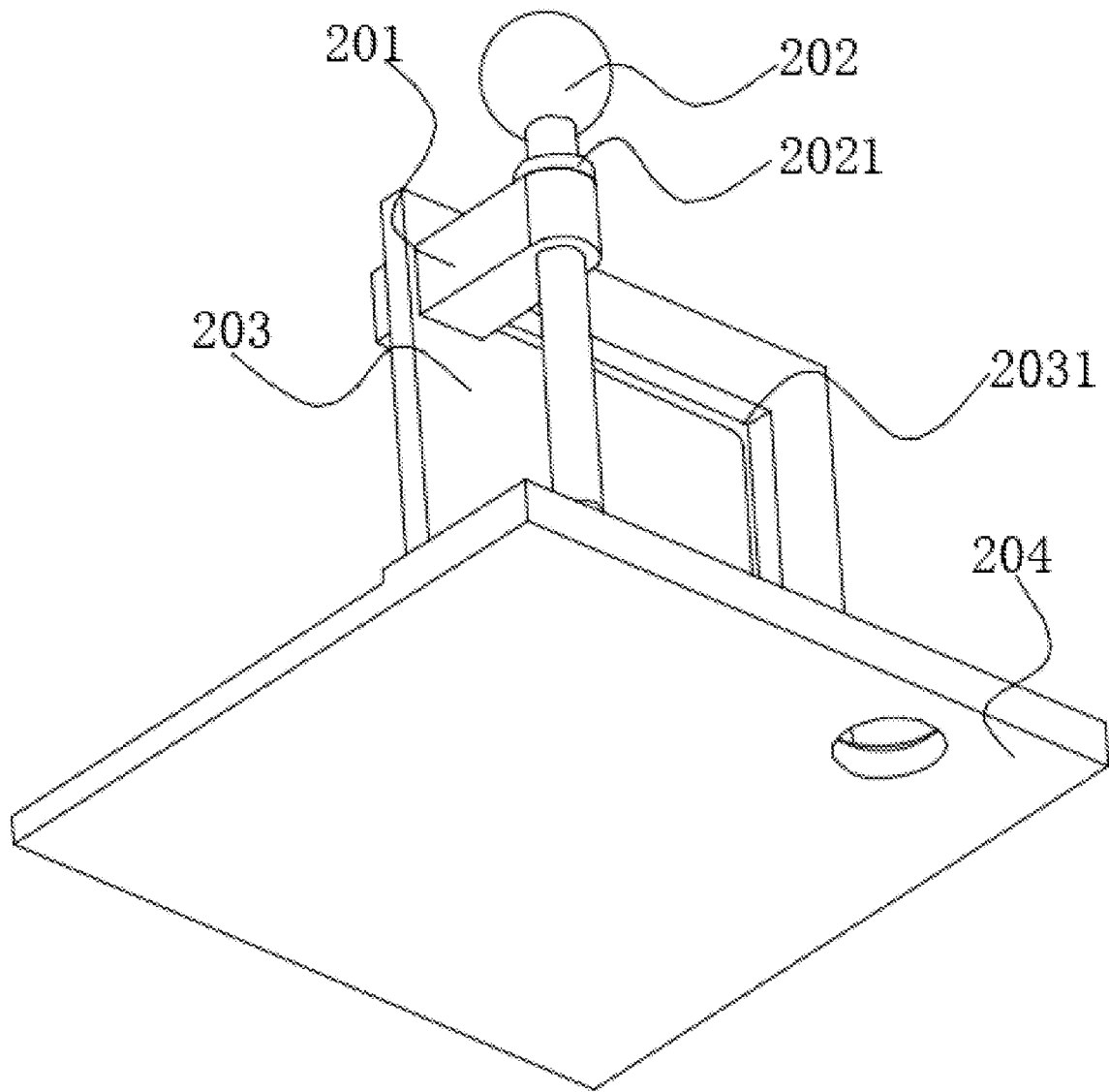


Fig.5

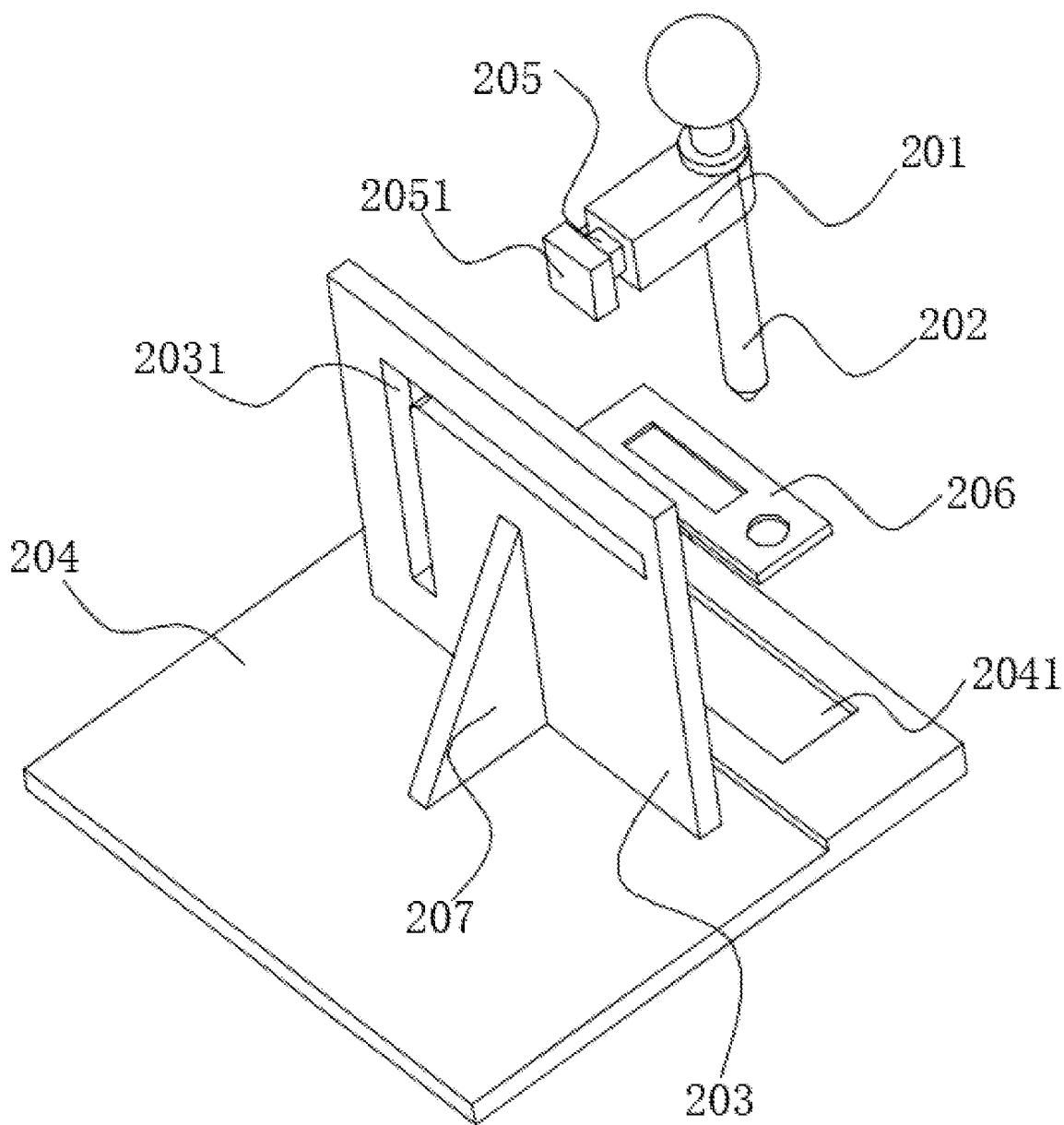


Fig.6

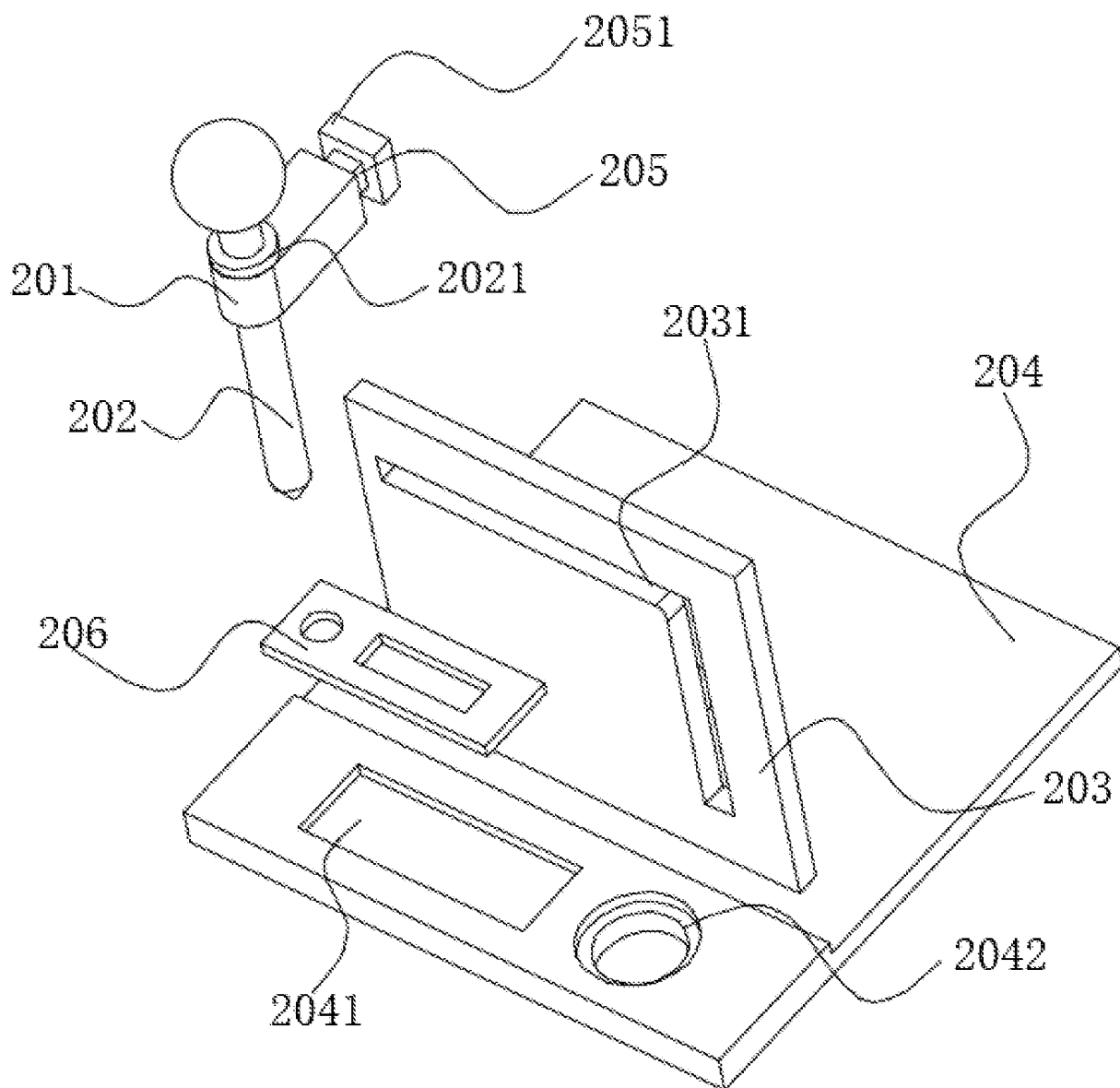


Fig.7

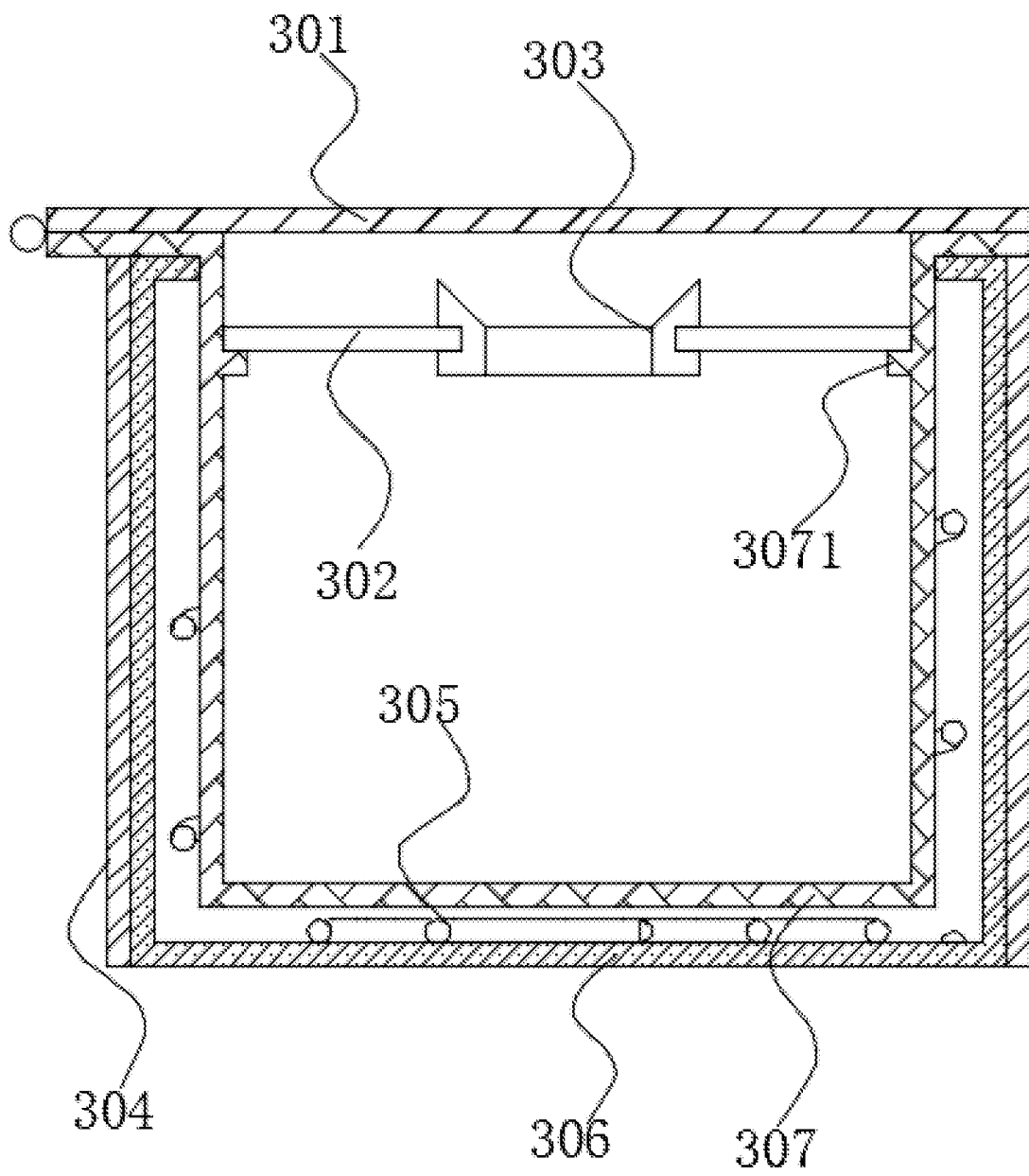


Fig. 8

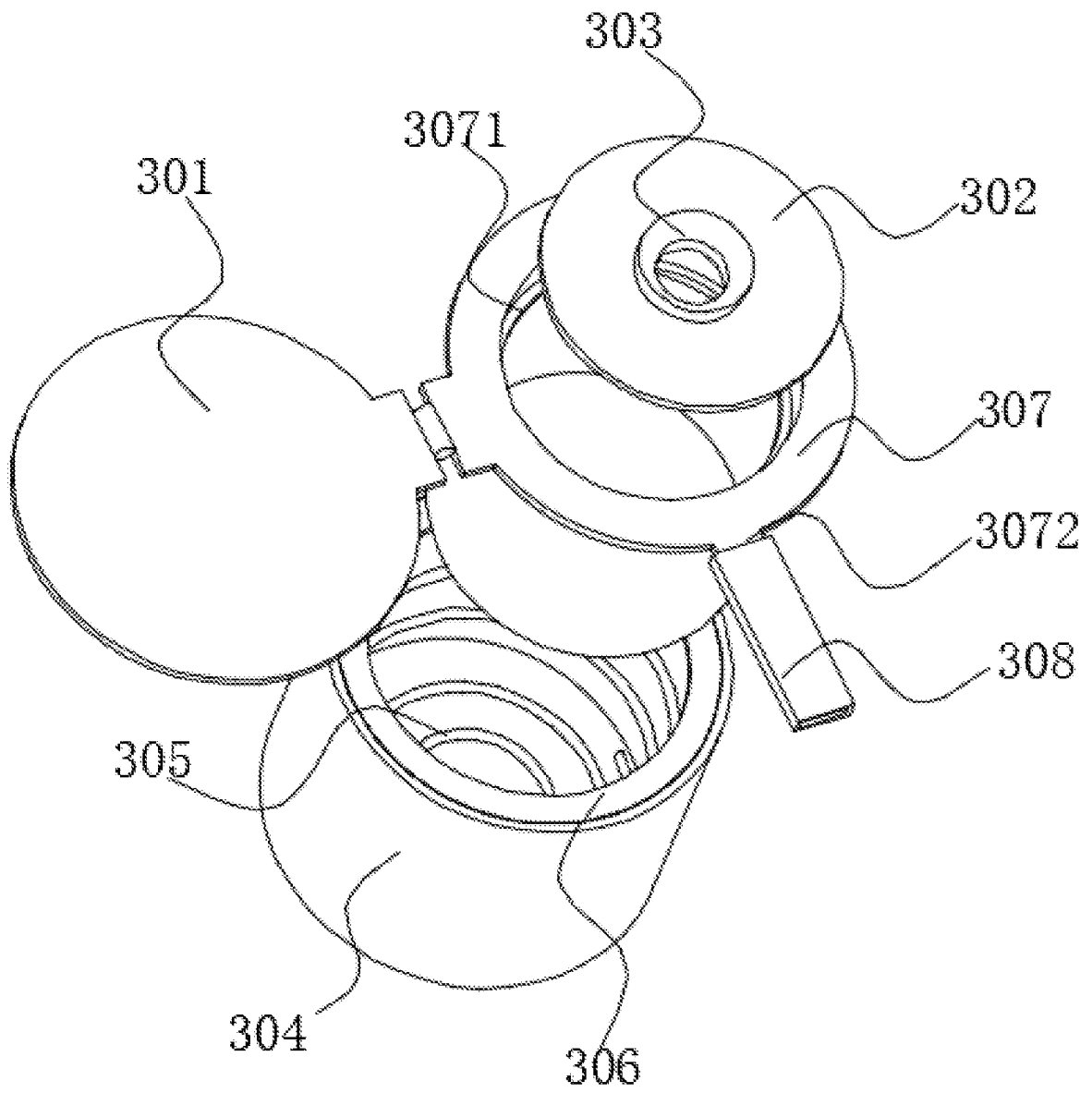


Fig.9

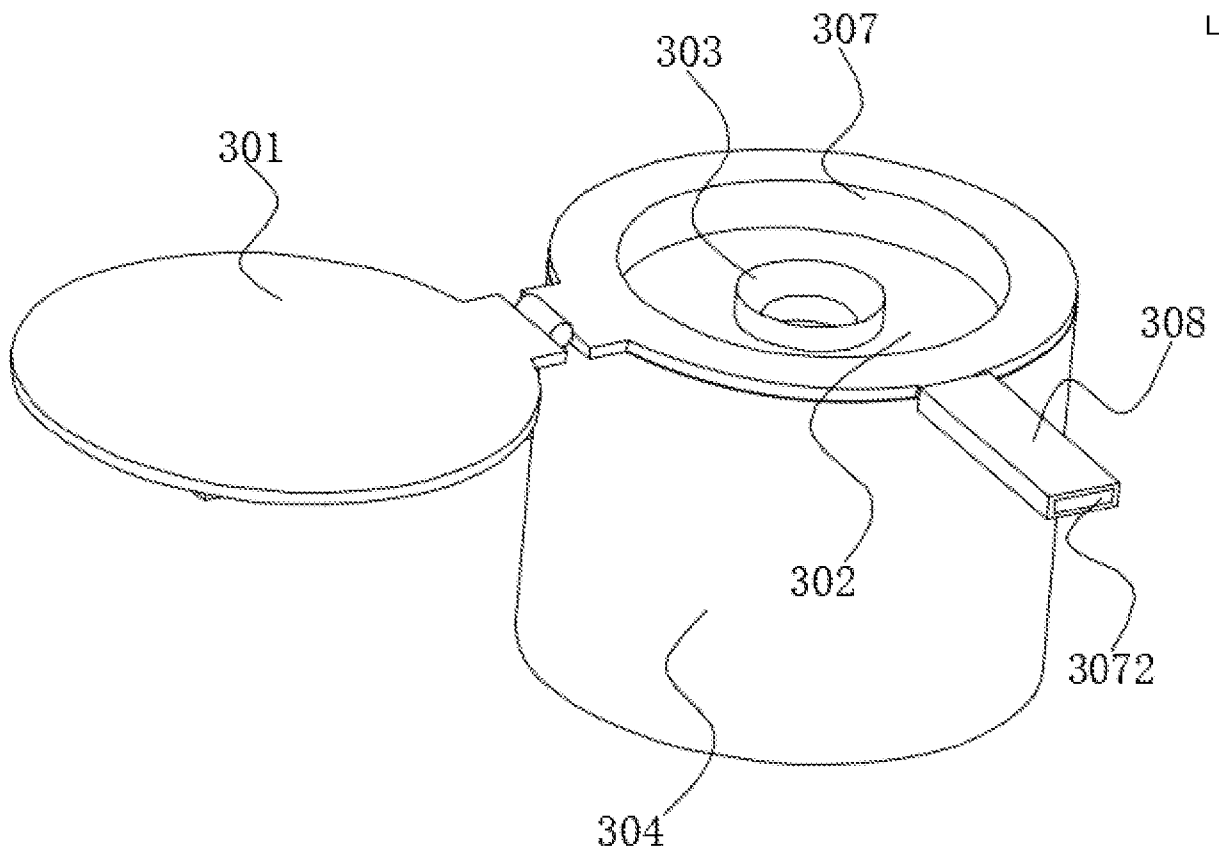


Fig. 10

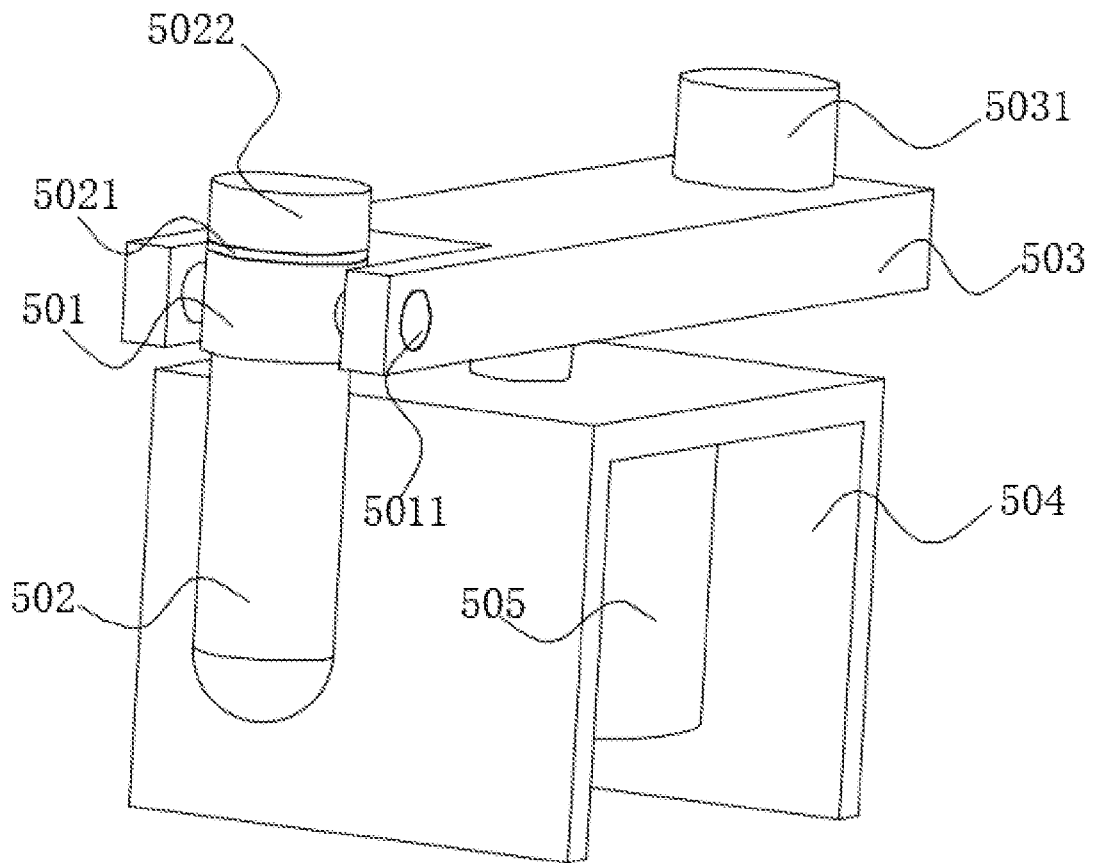


Fig.11